MBS Cocoa Plugin Documentation

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0.1 Introduction

This is the PDF version of the documentation for the Xojo (Real Studio) Plug-in from Monkeybread Software Germany. Plugin part: MBS Cocoa Plugin

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Chapter 4

Addressbook

4.1 class ABAccountMBS

4.1.1 class ABAccountMBS

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The class for an addressbook account.
Example:

```
dim a as new ABAddressBookMBS
dim accounts() as ABAccountMBS = a.allAccounts

for each c as ABAccountMBS in accounts
MsgBox c.Name + EndOfLine + c.Identifier + EndOfLine + c.BaseURL
next
```

Notes:

The ABAccount functions are not documented by Apple, but work well on OS X version 10.8 to 10.10.
They may work in newer versions if Apple does not change them. They may work in past OS X versions if Apple hat the same features there, too.
If the functions are not available in a OS X version, you will see NSExceptionMBS being raised.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

4.1.2 Methods

4.1.3 Constructor

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The private constructor.

4.1.4 Properties

4.1.5 BaseURL as String

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The base URL for this account.
Notes: (Read only property)

4.1.6 Handle as Integer

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object reference.
Notes: (Read and Write property)

4.1.7 Identifier as String

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The identifier.
Notes: (Read only property)

4.1.8 isMainAccount as Boolean

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether this account is the main account.
Notes: (Read only property)

4.1.9 Name as String

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Name of account.
Example:

```
dim a as new ABAddressBookMBS
dim accounts() as ABAccountMBS = a.allAccounts

dim c as ABAccountMBS = accounts(0)
MsgBox c.Name
```

Notes: (Read only property)

4.2 class ABAddressBookMBS

4.2.1 class ABAddressBookMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The Addressbook class for Mac OS X 10.2 and newer.
Notes: All methods in this class will catch exceptions from Cocoa and raise a NSExceptionMBS instead. Using the message, name and reason properties you can see what was the reason for this exception. Please report if you find a method which does not handle exceptions correct.

4.2.2 Methods

4.2.3 ABAddressBookErrorDomain as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The error domain for Addressbook.

4.2.4 ABMultiValueIdentifiersErrorKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the error keys for the addressbook.

4.2.5 accountWithIdentifier(Identifier as string) as ABAccountMBS

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Finds account with matching identifier.

4.2.6 addRecord(record as ABRecordMBS) as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds a record (ABPersonMBS or ABGroup) to the AddressBook Database
Example:

```
dim a as new ABAddressBookMBS
dim p as new ABPersonMBS

if not p.setValue("Miller",a.kABLastNameProperty) then
MsgBox "Failed to set field "+a.LocalizedPropertyOrLabel(a.kABLastNameProperty)
end if
```

```
if not p.setValue("Ben",a.kABFirstNameProperty) then
MsgBox "Failed to set field "+a.LocalizedPropertyOrLabel(a.kABFirstNameProperty)
end if

if a.addRecord(p) then
MsgBox "Record added"
else
MsgBox "Failed to add record"
end if

if a.save then
MsgBox "Changes saved"
else
MsgBox "Failed to save changes"
end if
```

Notes: Returns true if the addition was successful
See also:

- 4.2.7 addRecord(record as ABRecordMBS, Account as ABAccountMBS, byref error as NSErrorMBS) as boolean 113
- 4.2.8 addRecord(record as ABRecordMBS, byref error as NSErrorMBS) as boolean 113

4.2.7 addRecord(record as ABRecordMBS, Account as ABAccountMBS, byref error as NSErrorMBS) as boolean

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds a record (ABPersonMBS or ABGroup) to the AddressBook Database with given account.
Notes:

Returns true if the addition was successful.
On Mac OS X 10.7 the error parameter is set to describe the error.
See also:

- 4.2.6 addRecord(record as ABRecordMBS) as boolean 112
- 4.2.8 addRecord(record as ABRecordMBS, byref error as NSErrorMBS) as boolean 113

4.2.8 addRecord(record as ABRecordMBS, byref error as NSErrorMBS) as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds a record (ABPersonMBS or ABGroup) to the AddressBook Database.

Notes:

Returns true if the addition was successful.
On Mac OS X 10.7 the error parameter is set to describe the error.
See also:

- 4.2.6 addRecord(record as ABRecordMBS) as boolean 112
- 4.2.7 addRecord(record as ABRecordMBS, Account as ABAccountMBS, byref error as NSErrorMBS) as boolean 113

4.2.9 addressBook as ABAddressBookMBS

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a new instance of ABAddressBook, or nil if the Address Book database can't be initialized.
Notes:

If you're just making one-off lookups and edits, the sharedAddressBook method is probably more appropriate.
If the user denies your application access to the Address Book database, this method returns nil.

Available in OS X v10.5 and later.
You need to use this method if you want to get an addressbook for ABPersonViewMBS.

4.2.10 allAccounts as ABAccountMBS()

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Queries list of all accounts.
Example:

```
dim a as new ABAddressBookMBS
dim accounts() as ABAccountMBS = a.allAccounts
Break // look in debugger
```

4.2.11 Constructor

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor.

4.2.12 enabledAccounts as ABAccountMBS()

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Queries list of enabled accounts.
Example:

```
dim a as new ABAddressBookMBS
dim accounts() as ABAccountMBS = a.enabledAccounts
Break // look in debugger
```

4.2.13 EnableEvent

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Activates the events in this class.
Notes: You only need to call this if you use AddHandler command in Real Studio to add event handlers. The plugin automatically does that in the constructor, but that is too early for AddHandler. And plugin on enables events if you use them.

4.2.14 formattedAddressFromDictionary(address as Dictionary) as NSAttributedStringMBS

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an attributed string containing the formatted address.
Notes:

The string's attributes match address dictionary keys (kABAddressStreetKey for example).
Each attribute value contains the localized description of the key. (For example, the value of a Canadian kABAddressZIPKey field would be Postal Code)

4.2.15 GotSharedAddressbook as boolean

Plugin Version: 12.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether some other part of your app queried the shared addressbook already.
Notes:

sharedAddressbook asks for permissions the first time you call it.
So with this function you can check if some other application part already queried the sharedAddressbook function. If true, a call to sharedAddressbook should return quickly. Either with nil (no permissions) or the addressbook.

4.2.16 groupForName(name as string) as ABGroupMBS

Plugin Version: 12.3, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Searches the group with the given name.
Example:

```
dim a as new ABAddressBookMBS
dim name as string = "Some Group"
dim g as ABGroupMBS = a.groupForName(name)
MsgBox g.DisplayName+": "+str(g.members.Ubound+1)
```

4.2.17 groupForUniqueId(uniqueid as string) as ABGroupMBS

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a ABGroupMBS matching a given unique ID.
Example:

```
dim a as new ABAddressBookMBS

// you have some uid
dim groups() as ABGroupMBS = a.groups
dim uid as string = groups(0).valueForProperty(a.kABUIDProperty)

// later you want to find the group
dim g as ABGroupMBS = a.groupForUniqueId(uid)

// shows the name
MsgBox g.valueForProperty(a.kABGroupNameProperty)
```

Notes:

Returns nil if the record could not be found or matches to a person.
Available in Mac OS X 10.3 or newer.
see also recordForUniqueId.
See also:

- 4.2.18 groupForUniqueId(uniqueid as string, account as ABAccountMBS) as ABGroupMBS 116

4.2.18 groupForUniqueId(uniqueid as string, account as ABAccountMBS) as ABGroupMBS

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Finds a group for given unique ID for given account.

See also:

- 4.2.17 groupForUniqueId(uniqueid as string) as ABGroupMBS 116

4.2.19 groups as ABGroupMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of all the groups in the AddressBook database
Example:

```
// list all email addresses in one group

Dim book as ABAddressBookMBS
dim groups() as ABGroupMBS
dim person as ABPersonMBS
dim data as ABMultiValueMBS
dim s as string

book=new ABAddressBookMBS

groups=book.groups

for each group as ABGroupMBS in groups
If group.valueForProperty(book.kABGroupNameProperty)= "test" then // or any valid group
dim members() as ABPersonMBS = group.members

for each member as ABPersonMBS in members

data=person.valueForProperty(book.kABEmailProperty)

if data<>nil then
for k as Integer=data.count-1 downto 0
s=s+data.valueAtIndex(k)+EndOfLine
next
end if
next
end if
Next
msgBox s
```

Notes:

Returns an empty array in case the DB doesn't contain any groups.
Returns nil on any error.

4.2.20 groupsForAccount(account as ABAccountMBS) as ABGroupMBS()

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of all the groups for this account.
Example:

```
dim a as new ABAddressBookMBS
dim c as ABAccountMBS = a.defaultAccount
dim groups() as ABGroupMBS = a.groupsForAccount(c)

Break // look in debugger
```

Notes: Returns an empty array in case the DB doesn't contain any body.

4.2.21 kABAddressCityKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys for the address.

4.2.22 kABAddressCountryCodeKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The Country Code of an address.
Notes:

kABAddressCountryCodeKey code must be one of the following:
iso country codes

ae = United Arab Emirates
ar = Argentina
at = Austria
au = Australia
ba = Bosnia and Herzegovina
be = Belgium
bg = Bulgaria
bh = Bahrain
br = Brazil
ca = Canada
ch = Switzerland
cn = China
cs = Czech
de = Germany

dk = Denmark
eg = Egypt
es = Spain
fi = Finland
fr = France
gr = Greece
gl = Greenland
hk = Hong Kong
hr = Croatia
hu = Hungary
ie = Ireland
il = Israel
id = Indonesia
in = India
is = Iceland
it = Italy
ja = Japan
jo = Jordan
kr = South Korea
kw = Kuwait
lb = Lebanon
lu = Luxembourg
mk = Macedonia
mx = Mexico
nl = Netherlands
no = Norway
nz = New Zealand
om = Oman
pl = Poland
pt = Portugal
qa = Qatar
ro = Romania
ru = Russian Federation
sa = Saudi Arabia
se = Sweden
sg = Singapore
si = Slovenia
sk = Slovakia
sy = Syrian Arab Republic
tw = Taiwan
tr = Turkey
ua = Ukraine
uk = United Kingdom
us = United States
ye = Yemen
yu = Serbia and Montenegro
za = South Africa

4.2.23 kABAddressCountryKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys for the address.
Notes:

kABAddressCountryCodeKey code must be one of the following:
iso country codes

4.2.24 kABAddressHomeLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A label for the home address.

4.2.25 kABAddressProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Street Addresses - kABMultiDictionaryProperty
Notes: This property is used for persons only.

4.2.26 kABAddressStateKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys for the address.

4.2.27 kABAddressStreetKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys for the address.

4.2.28 kABAddressWorkLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A label for the work address.

4.2.29 kABAddressZIPKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys for the address.

4.2.30 kABAIMHomeLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A label for the home AIM Instant Messaging account.

4.2.31 kABAIMInstantProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** AIM Instant Messaging - kABMultiStringProperty
Notes:

This property is used for persons only.
Deprecated in Mac OS 10.7. You should use kABInstantMessageProperty.

4.2.32 kABAIMMobileMeLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the labels for the multistring value for the kABAIMInstantProperty property.
Notes:

Available on Mac OS X 10.7 or later.
none

4.2.33 kABAIMWorkLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A label for the work AIM Instant Messaging account.

4.2.34 kABAlternateBirthdayComponentsProperty as string

Plugin Version: 14.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Alternate non-Gregorian birth date.

4.2.35 kABAnniversaryLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The label for the anniversary date.

4.2.36 kABAssistantLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the labels for the related names.

4.2.37 kABBirthdayComponentsProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the property names for the addressbook records.
Notes:

Available on Mac OS X 10.7 or later.
Birth date - kABDateComponentsProperty

4.2.38 kABBirthdayProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Birth date - kABDateProperty
Notes: This property is used for persons only.

4.2.39 kABBrotherLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the labels for the related names.

4.2.40 kABCalendarURIsProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The calendars associated to a person.
Notes: Calendar URIs - kABMultiStringProperty

4.2.41 kABChildLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the labels for the related names.

4.2.42 kABCreationDateProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creation Date (when first saved) - kABDateProperty
Notes: A property for all records.

4.2.43 kABDatabaseChangedExternallyNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The notification name to use with NSNotificationObserverMBS class.
Notes:

Posted when a process other than the current one has changed the Address Book database.
Depending on the operation performed on the address book, one or more of the following keys may be included in the user-info dictionary: kABInsertedRecords, kABUpdatedRecords, and kABDeletedRecords. The values for each of the keys are the unique IDs of the records that were inserted, updated, or deleted, respectively. If the values for all the keys are nil, every record has changes. For example, this happens when the Address Book database is restored from a backup copy.

The plugin implements this notification for you and calls the DatabaseChanged event in ABAddressBookMBS class.

4.2.44 kABDatabaseChangedNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The notification name to use with NSNotificationObserverMBS class.
Notes:

Posted when this process has changed the Address Book database.
Depending on the operation performed on the address book, one or more of the following keys may be included in the user-info dictionary: kABInsertedRecords, kABUpdatedRecords, and kABDeletedRecords. The values for each of the keys are the unique IDs of the records that were inserted, updated, or deleted, respectively. If the values for all the keys are nil, every record has changes. For example, this happens when the Address Book database is restored from a backup copy.

The plugin implements this notification for you and calls the DatabaseChanged event in ABAddressBookMBS

class.

4.2.45 kABDeletedRecords as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys contained by the user-info dictionary of the notifications posted by the Address Book framework.
Notes: Records that have been deleted.

4.2.46 kABDepartmentProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Department name - (Person)
Notes: This property is used for persons only.

4.2.47 kABEmailHomeLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A label for the home email address.

4.2.48 kABEmailMobileMeLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the labels for emails.
Notes:

Available on Mac OS X 10.7 or later.
MobileMe email

4.2.49 kABEmailProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Email(s) - kAB-MultiStringProperty
Notes: This property is used for persons only.

4.2.50 kABEmailWorkLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A label for the work email address.

4.2.51 kABFatherLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the labels for the related names.

4.2.52 kABFirstNamePhoneticProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** First name Phonetic - kABStringProperty
Notes: This property is used for persons only.

4.2.53 kABFirstNameProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** First name - kABStringProperty
Example:

```
dim a as new ABAddressBookMBS
dim p as new ABPersonMBS

if not p.setValue("Ben",a.kABFirstNameProperty) then
MsgBox "Failed to set field "+a.LocalizedPropertyOrLabel(a.kABFirstNameProperty)
end if
```

Notes: This property is used for persons only.

4.2.54 kABFriendLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the labels for the related names.

4.2.55 kABGroupNameProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Name of the group - kABStringProperty
Example:

```
dim theAB as new ABAddressBookMBS
dim result as new ABGroupMBS
dim error as NSErrorMBS
dim b as Boolean=result.SetValue("test",TheAB.kABGroupNameProperty,error)
if not b then
Msgbox("Failed to name group test."+error.description)
else
MsgBox "OK"
end if
```

Notes: This property is used for groups only.

4.2.56 kABHomeLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A generic label.
Notes: All kABXXXXHomeLabel are equivalent to this label.

4.2.57 kABHomePageLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Homepage URL label for the kABURLsProperty.

4.2.58 kABHomePageProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Home Web page - kABStringProperty
Notes:

This property is used for persons only.
Deprecated in Mac OS 10.4. You should use kABURLsProperty.

4.2.59 kABICQHomeLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A label for the home ICQ Instant Messaging account.

4.2.60 kABICQInstantProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** ICQ Instant Messaging - kABMultiStringProperty
Notes:

Deprecated in Mac OS 10.7. You should use kABInstantMessageProperty.
This property is used for persons only.

4.2.61 kABICQWorkLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A label for the work ICQ Instant Messaging account.

4.2.62 kABInsertedRecords as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys contained by the user-info dictionary of the notifications posted by the Address Book framework.
Notes: Records that have been inserted.

4.2.63 kABInstantMessageProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the addressbook record properties.
Notes:

Available on Mac OS X 10.7 or later.
Instant Messaging - kABMultiDictionaryProperty

4.2.64 kABInstantMessageServiceAIM as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values for the kABInstantMessageUsernameKey key.

Notes:

Available on Mac OS X 10.7 or later.
AIM

4.2.65 kABInstantMessageServiceFacebook as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values for the kABInstantMessageUsernameKey key.
Notes:

Available on Mac OS X 10.7 or later.
Facebook

4.2.66 kABInstantMessageServiceGaduGadu as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values for the kABInstantMessageUsernameKey key.
Notes:

Available on Mac OS X 10.7 or later.
Gadu-Gadu

4.2.67 kABInstantMessageServiceGoogleTalk as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values for the kABInstantMessageUsernameKey key.
Notes:

Available on Mac OS X 10.7 or later.
Google Talk

4.2.68 kABInstantMessageServiceICQ as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values for the kABInstantMessageUsernameKey key.
Notes:

Available on Mac OS X 10.7 or later.
ICQ

4.2.69 kABInstantMessageServiceJabber as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values for the kABInstantMessageUsernameKey key.
Notes:

Available on Mac OS X 10.7 or later.
Jabber

4.2.70 kABInstantMessageServiceKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the dictionary for an instant message.
Notes:

Available on Mac OS X 10.7 or later.
Dictionary key for the service type, not guaranteed to be present; possible values follow.

4.2.71 kABInstantMessageServiceMSN as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values for the kABInstantMessageUsernameKey key.
Notes:

Available on Mac OS X 10.7 or later.
MSN

4.2.72 kABInstantMessageServiceQQ as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values for the kABInstantMessageUsernameKey key.
Notes:

Available on Mac OS X 10.7 or later.
QQ

4.2.73 kABInstantMessageServiceSkype as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values for the kABInstantMessageUsernameKey key.
Notes:

Available on Mac OS X 10.7 or later.
Skype

4.2.74 kABInstantMessageServiceYahoo as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values for the kABInstantMessageUsernameKey key.
Notes:

Available on Mac OS X 10.7 or later.
Yahoo!

4.2.75 kABInstantMessageUsernameKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the dictionary for an instant message.
Notes:

Available on Mac OS X 10.7 or later.
Dictionary key for the instant messaging handle/username

4.2.76 kABJabberHomeLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A label for the home jabber Instant Messaging account.

4.2.77 kABJabberInstantProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Jabber Instant Messaging - kABMultiStringProperty
Notes:

Deprecated in Mac OS 10.7. You should use kABInstantMessageProperty.
This property is used for persons only.

4.2.78 kABJabberWorkLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A label for the work jabber Instant Messaging account.

4.2.79 kABJobTitleProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Job Title - kABStringProperty
Notes: This property is used for persons only.

4.2.80 kABLastNamePhoneticProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Last name Phonetic - kABStringProperty
Notes: This property is used for persons only.

4.2.81 kABLastNameProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Last name - kABStringProperty
Example:

```
dim a as new ABAddressBookMBS
dim p as new ABPersonMBS

if not p.setValue("Miller",a.kABLastNameProperty) then
MsgBox "Failed to set field "+a.LocalizedPropertyOrLabel(a.kABLastNameProperty)
end if
```

Notes: This property is used for persons only.

4.2.82 kABMaidenNameProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The maiden name of the person - kABStringProperty
Example:

```
dim a as new ABAddressBookMBS
dim p as ABPersonMBS = a.owner // get my card
MsgBox p.valueForProperty(a.kABMaidenNameProperty) // show my maiden name
```

Notes: This property is used for persons only.

4.2.83 kABManagerLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the labels for the related names.

4.2.84 kABMiddleNamePhoneticProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The middle name phonic - kABStringProperty
Notes: This property is used for persons only.

4.2.85 kABMiddleNameProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The middle name - kABStringProperty
Notes: This property is used for persons only.

4.2.86 kABMobileMeLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the generic labels.
Notes:

Available on Mac OS X 10.7 or later.
MobileMe - for AIM or email values

4.2.87 kABModificationDateProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Last saved date - kABDateProperty
Notes: A property for all records.

4.2.88 kABMotherLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the labels for the related names.

4.2.89 kABMSNHomeLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A label for the home MSN Instant Messaging account.

4.2.90 kABMSNInstantProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** MSN Instant Messaging - kABMultiStringProperty
Notes:

This property is used for persons only.
Deprecated in Mac OS 10.7. You should use kABInstantMessageProperty.

4.2.91 kABMSNWorkLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A label for the work MSN Instant Messaging account.

4.2.92 kABNicknameProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The nick name of the person - kABStringProperty
Notes: This property is used for persons only.

4.2.93 kABNoteProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Note - kABStringProperty
Example:

```
dim a as new ABAddressBookMBS
dim p as ABPersonMBS = a.owner
```

```
// read
MsgBox p.valueForProperty(a.kABNoteProperty).StringValue

// write
if p.setValue("Hello World", a.kABNoteProperty) then
if a.save then
MsgBox "Changed."
end if
end if
```

Notes: This property is used for persons only.

4.2.94 kABOrganizationProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Company name - kABStringProperty
Example:

```
dim a as new ABAddressBookMBS
dim p as new ABPersonMBS

if not p.setValue("My Company",a.kABOrganizationProperty) then
MsgBox "Failed to set field "+a.LocalizedPropertyOrLabel(a.kABOrganizationProperty)
end if
```

Notes: This property is used for persons only.

4.2.95 kABOtherDateComponentsProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the properties for a addressbook records.
Notes:

Available on Mac OS X 10.7 or later.
Dates associated with this person - kABMultiDateComponentsProperty - (Person)

4.2.96 kABOtherDatesProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Dates associated with this person - kABMultiDateProperty - (Person)
Notes: This property is used for persons only.

4.2.97 kABOtherLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A generic label.
Notes: Can be used with any multi-value property.

4.2.98 kABParentLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the labels for the related names.

4.2.99 kABPartnerLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the labels for the related names.

4.2.100 kABPersonFlags as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Various flags - kABIntegerProperty
Example:

```
dim a as new ABAddressBookMBS
dim p as new ABPersonMBS

if not p.setValue("Miller",a.kABLastNameProperty) then
MsgBox "Failed to set field "+a.LocalizedPropertyOrLabel(a.kABLastNameProperty)
end if

if not p.setValue("Ben",a.kABFirstNameProperty) then
MsgBox "Failed to set field "+a.LocalizedPropertyOrLabel(a.kABFirstNameProperty)
end if

if not p.setValue("My Company",a.kABOrganizationProperty) then
MsgBox "Failed to set field "+a.LocalizedPropertyOrLabel(a.kABOrganizationProperty)
```

```
end if

if not p.setValue(a.kABShowAsCompany,a.kABPersonFlags) then
MsgBox "Failed to set field "+a.LocalizedPropertyOrLabel(a.kABPersonFlags)
end if


if a.addRecord(p) then
MsgBox "Record added"
else
MsgBox "Failed to add record"
end if

if a.save then
MsgBox "Changes saved"
else
MsgBox "Failed to save changes"
end if
```

Notes: This property is used for persons only.

4.2.101 kABPhoneHomeFAXLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The label for the home fax number.

4.2.102 kABPhoneHomeLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The label for the home phone number.

ae = United Arab Emirates
ar = Argentina
at = Austria
au = Australia
ba = Bosnia and Herzegovina
be = Belgium
bg = Bulgaria
bh = Bahrain
br = Brazil
ca = Canada
ch = Switzerland
cn = China
cs = Czech
de = Germany
dk = Denmark
eg = Egypt
es = Spain
fi = Finland
fr = France
gr = Greece
gl = Greenland
hk = Hong Kong
hr = Croatia
hu = Hungary
ie = Ireland
il = Israel
id = Indonesia
in = India
is = Iceland
it = Italy
ja = Japan
jo = Jordan
kr = South Korea
kw = Kuwait
lb = Lebanon
lu = Luxembourg
mk = Macedonia
mx = Mexico
nl = Netherlands
no = Norway
nz = New Zealand
om = Oman
pl = Poland
pt = Portugal
qa = Qatar
ro = Romania
ru = Russian Federation
sa = Saudi Arabia

4.2.103 kABPhoneiPhoneLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The label for the mobile phone number (for iPhone).

4.2.104 kABPhoneMainLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The label for the main phone number.

4.2.105 kABPhoneMobileLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The label for the mobile phone number.

4.2.106 kABPhonePagerLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The label for the pager number.

4.2.107 kABPhoneProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Generic phone number - kABMultiStringProperty
Notes: This property is used for persons only.

4.2.108 kABPhoneWorkFAXLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The label for the work fax number.

4.2.109 kABPhoneWorkLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The label for the work phone number.

4.2.110 kABRelatedNamesProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** names related to this person - kABMultiStringProperty
Notes: This property is used for persons only.

4.2.111 kABSisterLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the labels for the related names.

4.2.112 kABSocialProfileProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Social Profiles - kABMultiDictionaryProperty
Notes:

Available on Mac OS X 10.7 or later.
The multi dictionary contains dictionaries. Each has keys like kABSocialProfileURLKey, kABSocialProfileUsernameKey, kABSocialProfileUserIdentifierKey and kABSocialProfileServiceKey.

kABSocialProfileServiceKey has values like kABSocialProfileServiceTwitter, kABSocialProfileServiceFacebook, kABSocialProfileServiceLinkedIn, kABSocialProfileServiceFlickr and kABSocialProfileServiceMySpace.

4.2.113 kABSocialProfileServiceFacebook as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values for the social profile dictionary's kABSocialProfileServiceKey key.
Notes:

Available on Mac OS X 10.7 or later.
Facebook

4.2.114 kABSocialProfileServiceFlickr as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values for the social profile dictionary's kABSocialProfileServiceKey key.
Notes:

Available on Mac OS X 10.7 or later.

Flickr

4.2.115 kABSocialProfileServiceKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for addressbook record values.
Notes:

Available on Mac OS X 10.7 or later.
The service for this social profile. Can be kABSocialProfileServiceTwitter, kABSocialProfileServiceFacebook, kABSocialProfileServiceLinkedIn, kABSocialProfileServiceFlickr or kABSocialProfileServiceMySpace.

4.2.116 kABSocialProfileServiceLinkedIn as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values for the social profile dictionary's kABSocialProfileServiceKey key.
Notes:

Available on Mac OS X 10.7 or later.
LinkedIn

4.2.117 kABSocialProfileServiceMySpace as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values for the social profile dictionary's kABSocialProfileServiceKey key.
Notes:

MySpace
Available on Mac OS X 10.7 or later.

4.2.118 kABSocialProfileServiceSinaWeibo as string

Plugin Version: 12.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values for the social profile dictionary's kABSocialProfileServiceKey key.
Notes:

SinaWeibo
Available in Mac OS X 10.8 and newer.

4.2.119 kABSocialProfileServiceTencentWeibo as string

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values for the social profile dictionary's kABSocialProfileServiceKey key.
Notes:

Available on Mac OS X 10.9 or later.
Tencent Weibo

4.2.120 kABSocialProfileServiceTwitter as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values for the social profile dictionary's kABSocialProfileServiceKey key.
Notes:

Available on Mac OS X 10.7 or later.
Twitter

4.2.121 kABSocialProfileServiceYelp as string

Plugin Version: 14.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values for the social profile dictionary's kABSocialProfileServiceKey key.
Notes:

Available on Mac OS X 10.7 or later.
Yelp

4.2.122 kABSocialProfileURLKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for addressbook record values.
Notes:

Available on Mac OS X 10.7 or later.
Service name. Possible values follow.

4.2.123 kABSocialProfileUserIdentifierKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for addressbook record values.
Notes:

Available on Mac OS X 10.7 or later.
Service-specific identifier.

4.2.124 kABSocialProfileUsernameKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for addressbook record values.
Notes:

Available on Mac OS X 10.7 or later.
User-visible profile name.

4.2.125 kABSpouseLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the labels for the related names.

4.2.126 kABSuffixProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The name suffix - kABStringProperty
Notes:

e.g. "Sr." "Jr." "III"
This property is used for persons only.

4.2.127 kABTitleProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** the title of the person - kABStringProperty
Notes:

e.g. "Sir" "Duke" "General" "Lord"
This property is used for persons only.

4.2.128 kABUIDProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The UID property - kABStringProperty

Notes: A property for all records.

4.2.129 kABUpdatedRecords as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys contained by the user-info dictionary of the notifications posted by the Address Book framework.
Notes: Records that have been updated.

4.2.130 kABURLsProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** URLs - kABMultiStringProperty
Example:

```
// shows all websites with labels

dim a as new ABAddressBookMBS
dim p as ABPersonMBS = a.owner
dim m as ABMultiValueMBS = p.valueForProperty(a.kABURLsProperty)

dim u as Integer = m.count-1
for i as Integer = 0 to u
dim label as string = m.labelAtIndex(i)
dim value as string = m.valueAtIndex(i)

MsgBox label+" ->"+value
next
```

Notes: This property is used for persons only.

4.2.131 kABWorkLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A generic label.
Notes: All kABXXXXWorkLabel are equivalent to this label

4.2.132 kABYahooHomeLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A label for the home yahoo Instant Messaging account.

4.2.133 kABYahooInstantProperty as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Yahoo Instant Messaging - kABMultiStringProperty
Notes:

This property is used for persons only.
Deprecated in Mac OS 10.7. You should use kABInstantMessageProperty.

4.2.134 kABYahooWorkLabel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A label for the work yahoo Instant Messaging account.

4.2.135 LocalizedPropertyOrLabel(propertyOrLabel as string) as string

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the localized version of built in properties, labels or keys
Notes: Returns propertyOrLabel if not found (e.g. if not built in).

4.2.136 NewPersonWithVCardRepresentation(data as memoryblock) as ABPersonMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Create a person from a vCard.
Notes:

Returns nil on failure.
Convenience function which cen be used instead of the ABPersonMBS constructor.

4.2.137 people as ABPersonMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of all the people in the AddressBook database
Example:

```
dim a as new ABAddressBookMBS
```

```
// get all people
dim p(-1) as ABPersonMBS = a.people

// walk over people list
for each m as ABPersonMBS in p
try
// ask for image

dim j as NSImageMBS = m.image

// do something with image
if j<>nil then
Backdrop=j.CopyPictureWithMask
end if

catch x as NSExceptionMBS
// raises exception if there is no image
end try
next
```

Notes:

Returns an empty array in case the DB doesn't contain any body.
Returns nil on any error.

4.2.138 peopleForAccount(account as ABAccountMBS) as ABPersonMBS()

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of all the people for this account.
Example:

```
dim a as new ABAddressBookMBS
dim c as ABAccountMBS = a.defaultAccount
dim people() as ABPersonMBS = a.peopleForAccount(c)

Break // look in debugger
```

Notes: Returns an empty array in case the DB doesn't contain any body.

4.2.139 peopleForEmail(email as string) as ABPersonMBS()

Plugin Version: 12.3, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Searches a contact for the given email.
Example:

```
dim a as new ABAddressBookMBS
dim persons() as ABPersonMBS = a.peopleForEmail("support@monkeybreadsoftware.de")

if UBound(persons) >= 0 then
MsgBox persons(0).DisplayName
else
MsgBox "nothing found."
end if
```

4.2.140 persistentAccounts as ABAccountMBS()

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Queries list of all persistent accounts.
Example:

```
dim a as new ABAddressBookMBS
dim accounts() as ABAccountMBS = a.persistentAccounts
Break // look in debugger
```

4.2.141 personForUniqueId(uniqueid as string) as ABPersonMBS

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a ABPersonMBS matching a given unique ID.
Example:

```
dim a as new ABAddressBookMBS

// you have some uid
dim uid as string = a.owner.valueForProperty(a.kABUIDProperty)

// later you want to find the person
dim p as ABPersonMBS = a.personForUniqueId(uid)

// shows the name
MsgBox p.valueForProperty(a.kABFirstNameProperty)
```

Notes:

Returns nil if the record could not be found or matches to a group.
Available in Mac OS X 10.3 or newer.
see also recordForUniqueId.
See also:

- 4.2.142 personForUniqueId(uniqueid as string, account as ABAccountMBS) as ABPersonMBS 147

4.2.142 personForUniqueId(uniqueid as string, account as ABAccountMBS) as ABPersonMBS

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Finds a person for given unique ID for given account.
See also:

- 4.2.141 personForUniqueId(uniqueid as string) as ABPersonMBS 146

4.2.143 recordClassFromUniqueId(uniqueid as string) as string

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Given a record uniqueId returns the record class name.
Notes: Return "ABPersonMBS" or "ABGroup" or "" for a given uniqueid.

4.2.144 recordForUniqueId(uniqueid as string) as ABRecordMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a record (ABPersonMBS or ABGroup) matching a given unique ID.
Example:

```
dim a as new ABAddressBookMBS

// you have some uid
dim uid as string = a.owner.valueForProperty(a.kABUIDProperty)

// later you want to find the person
dim r as ABRecordMBS = a.recordForUniqueId(uid)
if r isa ABPersonMBS then
dim p as ABPersonMBS = ABPersonMBS(r)

// shows the name
MsgBox p.valueForProperty(a.kABFirstNameProperty)
end if
```

Notes:

Returns nil if the record could not be found.
Available in Mac OS X 10.3 or newer.
See also:

- 4.2.145 recordForUniqueId(uniqueid as string, account as ABAccountMBS) as ABRecordMBS 148

4.2.145 recordForUniqueId(uniqueid as string, account as ABAccountMBS) as ABRecordMBS

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Finds a record for given unique ID for given account.
See also:

- 4.2.144 recordForUniqueId(uniqueid as string) as ABRecordMBS 147

4.2.146 recordsMatchingSearchElement(search as ABSearchElementMBS) as ABRecordMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of records matching the given search element
Example:

```
dim ab as new ABAddressBookMBS

// search for people with birthday, by searching for dates starting 1901.
dim searchDate as new date( 1901, 1, 1 )
dim search as ABSearchElementMBS = ab.SearchElementForPersonProperty( ab.kABBirthdayProperty, "",
"", searchDate, ab.kABGreaterThan )

// do the search
dim people() as ABRecordMBS = ab.RecordsMatchingSearchElement( search )


for each person as ABRecordMBS in people
dim p as ABPersonMBS = ABPersonMBS( person )
// now work on them
next
```

Notes: Returns an empty array if no matches or an error.

4.2.147 removeRecord(record as ABRecordMBS) as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes a record (ABPersonMBS or ABGroup) from the AddressBook Database
Notes: Returns true if the removal was successful.
See also:

- 4.2.148 removeRecord(record as ABRecordMBS, byref error as NSErrorMBS) as boolean 149

4.2.148 removeRecord(record as ABRecordMBS, byref error as NSErrorMBS) as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes a record (ABPersonMBS or ABGroup) from the AddressBook Database.
Notes:

Returns true if the removal was successful.
On Mac OS X 10.7 the error parameter is set to describe the error.
See also:

- 4.2.147 removeRecord(record as ABRecordMBS) as boolean 149

4.2.149 save as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Saves changes made since the last save.
Notes: Return true if successful (or there was no change).
See also:

- 4.2.150 save(byref error as NSErrorMBS) as boolean 149

4.2.150 save(byref error as NSErrorMBS) as boolean

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Saves changes made since the last save.
Notes:

Return true if successful (or there was no change).
On Mac OS X 10.5 the error object is returned. On Mac OS X 10.4 this error property is nil and you only can use the result.
See also:

- 4.2.149 save as boolean 149

4.2.151 searchElementForConjunction(conjunction as Integer, children() as ABSearchElementMBS) as ABSearchElementMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a search element combining several sub search elements.
Notes: Convenience function which can be used instead of ABSearchElementMBS.searchElementForConjunction.

4.2.152 searchElementForGroupProperty(PropertyName as string, Label as string, Key as string, value as Variant, comparison as Integer) as ABSearchElementMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a search element that will search groups.
Notes: Convenience function to be used instead of the searchElementForProperty method in the ABGroupMBS class.

4.2.153 searchElementForPersonProperty(PropertyName as string, Label as string, Key as string, value as Variant, comparison as Integer) as ABSearchElementMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a search element that will search people.
Example:

```
// search person by record's unique ID
// this is same as calling recordForUniqueId function directly
dim a as new ABAddressBookMBS
dim e as ABSearchElementMBS

dim PropertyName as string = a.kABUIDProperty
const Label = ""
const Key = ""
const value = "637FA922-7A2B-4F9A-BFA3-023253D4A3D5:ABPerson" // some person ID
const comparison = a.kABEqual

e = ABPersonMBS.searchElementForProperty(PropertyName, label, key, value, comparison)

dim records() as ABRecordMBS = a.recordsMatchingSearchElement(e)

for each r as ABRecordMBS in records
dim p as ABPersonMBS = ABPersonMBS(r)
```

```
MsgBox p.DisplayName
next
```

Notes: Convenience function to be used instead of the searchElementForProperty method in the ABPersonMBS class.

4.2.154 setMe(moi as ABPersonMBS)

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets "Me" to moi.
Notes: Pass nil to clear "Me".

4.2.155 sharedAddressbook as ABAddressBookMBS

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the shared addressbook object.
Example:

```
// quickly find the addressbook, locate me and display my name:
MsgBox ABAddressBookMBS.sharedAddressbook.owner.DisplayName
```

Notes:

If you call this method several times, the object is cached, so it's only created the first time (singleton).
Returns nil on Windows or Linux or low memory or missing permissions.

4.2.156 sharedAddressbookMT as ABAddressBookMBS

Plugin Version: 12.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the shared addressbook object.
Notes:

On Mac OS X 10.8, the user will be asked to allow access to the addressbook for your application. As the call to sharedAddressbook blocks in this case, this method can be called on a thread to avoid the blocking of your app.

If you call this method several times, the object is cached, so it's only created the first time (singleton).
Returns nil on Windows or Linux or low memory or missing permissions.

4.2.157 Properties

4.2.158 defaultAccount as ABAccountMBS

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Queries default account.
Example:

```
dim a as new ABAddressBookMBS
MsgBox a.defaultAccount.Name
```

Notes: (Read only property)

4.2.159 defaultCountryCode as string

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the default country code for records without specified codes.
Notes:

Available in Mac OS X 10.3 or newer.
(Read only property)

4.2.160 defaultNameOrdering as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the default name ordering defined by the user in the Address Book preferences.
Notes:

Possible values: kABFirstNameFirst or kABLastNameFirst
Available in Mac OS X 10.3 or newer.
(Read only property)

4.2.161 Handle as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The handle to the used ABAddressbook object.
Notes: (Read and Write property)

4.2.162 hasUnsavedChanges as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true if they are unsaved changes.
Notes:

The unsaved changes flag is automatically set when changes are made.
(Read only property)

4.2.163 owner as ABPersonMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the person that represents the user.
Notes:

Returns nil if "me" was never set.
(function is not named me as me is a reserved word in Realbasic)
(Read only property)

4.2.164 Events

4.2.165 DatabaseChanged(Externally as boolean, InsertedRecords() as string, UpdatedRecords() as string, DeletedRecords() as string)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The database has changed.
Notes:

Externally: true if changes were made by another application.
InsertedRecords: Record UIDs of records changed. (can be empty)
UpdatedRecords: Record UIDs of records updated. (can be empty)
DeletedRecords: Record UIDs of records deleted. (can be empty)

4.2.166 Constants

4.2.167 ABAddRecordsError = 1001

Plugin Version: 11.2. **Function:** One of the error constants.

4.2.168 ABPropertyReadOnlyError = 1014

Plugin Version: 11.2. **Function:** One of the error constants.

4.2.169 ABPropertyUnsupportedBySourceError = 1013

Plugin Version: 11.2. **Function:** One of the error constants.

4.2.170 ABPropertyValueValidationError = 1012

Plugin Version: 11.2. **Function:** One of the error constants.

4.2.171 ABRemoveRecordsError = 1002

Plugin Version: 11.2. **Function:** One of the error constants.

4.2.172 kABArrayProperty = 5

Plugin Version: 11.2. **Function:** One of the property type constants.
Notes: Array object.

4.2.173 kABBitsInBitFieldMatch = 11

Plugin Version: 7.1. **Function:** One of the search comparison modes.
Notes: Supported in Mac OS X 10.3 and newer versions.

4.2.174 kABContainsSubString = 7

Plugin Version: 7.1. **Function:** One of the search comparison modes.

4.2.175 kABContainsSubStringCaseInsensitive = 8

Plugin Version: 7.1. **Function:** One of the search comparison modes.

4.2.176 kABDataProperty = 7

Plugin Version: 11.2. **Function:** One of the property type constants.
Notes: Data object.

4.2.177 kABDateComponentsProperty = 8

Plugin Version: 11.2. **Function:** One of the property type constants.
Notes:

Available on Mac OS X 10.7 or later.
Date component.

4.2.178 kABDateProperty = 4

Plugin Version: 11.2. **Function:** One of the property type constants.
Notes: Date.

4.2.179 kABDefaultNameOrdering = 0

Plugin Version: 7.1. **Function:** One of the flags constants for the integer value stored in the properrty kABPersonFlags.

4.2.180 kABDictionaryProperty = 6

Plugin Version: 11.2. **Function:** One of the property type constants.
Notes: Dictionary.

4.2.181 kABDoesNotContainSubString = 12

Plugin Version: 7.1. **Function:** One of the search comparison modes.
Notes: Supported in Mac OS X 10.4 and newer versions.

4.2.182 kABDoesNotContainSubStringCaseInsensitive = 13

Plugin Version: 7.1. **Function:** One of the search comparison modes.
Notes: Supported in Mac OS X 10.4 and newer versions.

4.2.183 kABEqual = 0

Plugin Version: 7.1. **Function:** One of the search comparison modes.

4.2.184 kABEqualCaseInsensitive = 6

Plugin Version: 7.1. **Function:** One of the search comparison modes.

4.2.185 kABErrorInProperty = 0

Plugin Version: 11.2. **Function:** One of the property type constants.
Notes: Invalid property.

4.2.186 kABFirstNameFirst = & h40

Plugin Version: 7.1. **Function:** One of the flags constants for the integer value stored in the properrty kABPersonFlags.

4.2.187 kABGreaterThan = 4

Plugin Version: 7.1. **Function:** One of the search comparison modes.

4.2.188 kABGreaterThanOrEqual = 5

Plugin Version: 7.1. **Function:** One of the search comparison modes.

4.2.189 kABIntegerProperty = 2

Plugin Version: 11.2. **Function:** One of the property type constants.
Notes: Integer.

4.2.190 kABLastNameFirst = & h20

Plugin Version: 7.1. **Function:** One of the flags constants for the integer value stored in the properrty kABPersonFlags.

4.2.191 kABLessThan = 2

Plugin Version: 7.1. **Function:** One of the search comparison modes.

4.2.192 kABLessThanOrEqual = 3

Plugin Version: 7.1. **Function:** One of the search comparison modes.

4.2.193 kABMultiArrayProperty = 261

Plugin Version: 11.2. **Function:** One of the property type constants.
Notes: Multiple arrays.

4.2.194 kABMultiDataProperty = 263

Plugin Version: 11.2. **Function:** One of the property type constants.
Notes: Multiple data values.

4.2.195 kABMultiDateComponentsProperty = 264

Plugin Version: 11.2. **Function:** One of the property type constants.
Notes:

Available on Mac OS X 10.7 or later.
Date components.

4.2.196 kABMultiDateProperty = 260

Plugin Version: 11.2. **Function:** One of the property type constants.
Notes: Multiple date values.

4.2.197 kABMultiDictionaryProperty = 262

Plugin Version: 11.2. **Function:** One of the property type constants.

4.2.198 kABMultiIntegerProperty = 258

Plugin Version: 11.2. **Function:** One of the property type constants.
Notes: Multiple integer values.

4.2.199 kABMultiRealProperty = 259

Plugin Version: 11.2. **Function:** One of the property type constants.
Notes: Multiple floating point values.

4.2.200 kABMultiStringProperty = 257

Plugin Version: 11.2. **Function:** One of the property type constants.
Notes: Multiple strings

4.2.201 kABMultiValueMask = & h100

Plugin Version: 11.2. **Function:** One of the property type constants.
Notes: This value is combined with other values to define multi value defined.

4.2.202 kABNameOrderingMask = & h70

Plugin Version: 7.1. **Function:** One of the flags constants for the integer value stored in the properrty kABPersonFlags.

4.2.203 kABNotEqual = 1

Plugin Version: 7.1. **Function:** One of the search comparison modes.

4.2.204 kABNotEqualCaseInsensitive = 14

Plugin Version: 7.1. **Function:** One of the search comparison modes.
Notes: Supported in Mac OS X 10.4 and newer versions.

4.2.205 kABNotWithinIntervalAroundToday = 19

Plugin Version: 7.1. **Function:** One of the search comparison modes.
Notes: Supported in Mac OS X 10.4 and newer versions.

4.2.206 kABNotWithinIntervalAroundTodayYearless = 20

Plugin Version: 7.1. **Function:** One of the search comparison modes.
Notes: Supported in Mac OS X 10.4 and newer versions.

4.2.207 kABNotWithinIntervalFromToday = 23

Plugin Version: 7.1. **Function:** One of the search comparison modes.
Notes: Supported in Mac OS X 10.4 and newer versions.

4.2.208 kABNotWithinIntervalFromTodayYearless = 24

Plugin Version: 7.1. **Function:** One of the search comparison modes.
Notes: Supported in Mac OS X 10.4 and newer versions.

4.2.209 kABPrefixMatch = 9

Plugin Version: 7.1. **Function:** One of the search comparison modes.

4.2.210 kABPrefixMatchCaseInsensitive = 10

Plugin Version: 7.1. **Function:** One of the search comparison modes.

4.2.211 kABRealProperty = 3

Plugin Version: 11.2. **Function:** One of the property type constants.
Notes: a floating point number

4.2.212 kABSearchAnd = 0

Plugin Version: 11.2. **Function:** A search conjunction.

4.2.213 kABSearchOr = 1

Plugin Version: 11.2. **Function:** A search conjunction.

4.2.214 kABShowAsCompany = 1

Plugin Version: 7.1. **Function:** One of the flags constants for the integer value stored in the properrty kABPersonFlags.

4.2.215 kABShowAsMask = 7

Plugin Version: 7.1. **Function:** One of the flags constants for the integer value stored in the properrty kABPersonFlags.

4.2.216 kABShowAsPerson = 0

Plugin Version: 7.1. **Function:** One of the flags constants for the integer value stored in the properrty kABPersonFlags.

4.2.217 kABShowAsResource = 2

Plugin Version: 9.6. **Function:** One of the flags constants for the integer value stored in the properrty kABPersonFlags.
Notes: for Mac OS X 10.6.

4.2.218 kABShowAsRoom = 3

Plugin Version: 9.6. **Function:** One of the flags constants for the integer value stored in the properrty kABPersonFlags.
Notes: for Mac OS X 10.6.

4.2.219 kABStringProperty = 1

Plugin Version: 11.2. **Function:** One of the property type constants.
Notes: String

4.2.220 kABSuffixMatch = 15

Plugin Version: 7.1. **Function:** One of the search comparison modes.
Notes: Supported in Mac OS X 10.4 and newer versions.

4.2.221 kABSuffixMatchCaseInsensitive = 16

Plugin Version: 7.1. **Function:** One of the search comparison modes.
Notes: Supported in Mac OS X 10.4 and newer versions.

4.2.222 kABWithinIntervalAroundToday = 17

Plugin Version: 7.1. **Function:** One of the search comparison modes.
Notes: Supported in Mac OS X 10.4 and newer versions.

4.2.223 kABWithinIntervalAroundTodayYearless = 18

Plugin Version: 7.1. **Function:** One of the search comparison modes.
Notes: Supported in Mac OS X 10.4 and newer versions.

4.2.224 kABWithinIntervalFromToday = 21

Plugin Version: 7.1. **Function:** One of the search comparison modes.
Notes: Supported in Mac OS X 10.4 and newer versions.

4.2.225 kABWithinIntervalFromTodayYearless = 22

Plugin Version: 7.1. **Function:** One of the search comparison modes.
Notes: Supported in Mac OS X 10.4 and newer versions.

4.3 class ABGroupMBS

4.3.1 class ABGroupMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** ABGroup is a subclass of ABRecord.
Example:

```
dim a as new ABAddressBookMBS
dim g() as ABGroupMBS = a.groups
dim names() as string
for each gg as ABGroupMBS in g
names.append gg.DisplayName
next
MsgBox Join(names,EndOfLine)
```

Notes:

It represents a group of people or other groups. No recursions allowed.

All methods in this class will catch exceptions from Cocoa and raise a NSExceptionMBS instead. Using the message, name and reason properties you can see what was the reason for this exception. Please report if you find a method which does not handle exceptions correct.
Subclass of the ABRecordMBS class.

4.3.2 Methods

4.3.3 addMember(group as ABPersonMBS) as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds person to this group.
Example:

```
dim wbook As new ABAddressBookMBS
dim Group as new ABGroupMBS

if not Group.setValue("Test Group", wbook.kABGroupNameProperty) then
MsgBox "Failed to set group name."
Return
end if

if not wbook.addRecord(Group) then
MsgBox "Failed to add group to database."
return
```

```
end if

dim Person as new ABPersonMBS

if not person.setValue("John", wbook.kABFirstNameProperty) then
MsgBox "Failed to set first name."
Return
end if

if not person.setValue("Miller", wbook.kABLastNameProperty) then
MsgBox "Failed to set last name."
Return
end if

if not wbook.addRecord(person) then
MsgBox "Failed to add person to database."
return
end if

if not group.addMember(person) then
MsgBox "Failed to add person to group."
Return
end if

if not wbook.save then
MsgBox "Failed to save addressbook."
return
end if

MsgBox "Created test group with a person."
```

Notes:

Does nothing if person is already part of this group (returns false)
Returns true if successful.

4.3.4 addProperty(propertyName as string, type as Integer) as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds property to all group records.
Example:

```
call ABGroupMBS.addProperty "GroupWeight",1
```

Notes:

Property name must be unique.
For types see typeOfProperty.
Returns the number of properties successfully added.

4.3.5 addSubgroup(group as ABGroupMBS) as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Add group to this group.
Notes:

Does nothing if group is already part of this group (returns false)
Recursions are not allowed (returns false)
Returns true if successful

4.3.6 Constructor

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new ABGroup object.
Notes: Available in Mac OS X 10.5 or newer.
See also:

- 4.3.7 Constructor(addressBook as ABAddressBookMBS) 165

4.3.7 Constructor(addressBook as ABAddressBookMBS)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new ABGroup object in the given addressbook.
See also:

- 4.3.6 Constructor 165

4.3.8 members as ABPersonMBS()

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of ABPersonMBS.
Notes:

Returns an empty array if this group doesn't contain any people.
Returns an empty array on any error.

4.3.9 parentGroups as ABGroupMBS()

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of ABGroup this group belongs to.
Notes:

Returns an empty array if this group doesn't belong to any groups.
Returns an empty array on any error.

4.3.10 properties as string()

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of property names.
Notes: Returns nil on any error.

4.3.11 removeMember(group as ABPersonMBS) as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes group from this group.
Notes:

Does nothing if group is not part of this group (returns false)
Returns true if successful.

4.3.12 removeProperties(properties() as string) as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes properties from all groups.
Notes: Returns the number of properties successfully removed.

4.3.13 removeProperty(propertyName as string) as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes property from all groups
Notes: Returns the number of properties successfully removed.

4.3.14 removeSubgroup(group as ABGroupMBS) as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes group from this group.
Notes:

Does nothing if group is not part of this group (returns false).
Returns true if successful.

4.3.15 searchElementForProperty(PropertyName as string, Label as string, Key as string, value as Variant, comparison as Integer) as ABSearchElementMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a search element object that searches for records of this type.
Notes:

property: The name of the property to search on. It cannot be "".
label: The label name for a multivalue list. If property does not have multiple values, pass "". If property does have multiple values, pass "" to search all the values. By default, ABGroup records don't contain any multivalue list properties.
key: The key name for a dictionary. Pass "" if property is not a dictionary. If property is a dictionary, pass "" to search all keys. By default, ABGroup records don't contain any properties that are dictionaries.
value: What you're searching for. If "", the only supported value for comparison is kABEqual or kABNotEqual.
comparison: The type of comparison to perform and is an ABSearchComparison, such as kABEqual or kABPrefixMatchCaseInsensitive.

4.3.16 subgroups as ABGroupMBS()

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of ABGroup
Notes:

Returns an empty array if this group doesn't contain any other groups.
Returns an empty array on any error.

4.3.17 typeOfProperty(propertyName as string) as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the type of a given property.
Notes:

Possible values:

const kABMultiValueMask = & h100
const kABErrorInProperty = & h0
const kABStringProperty = & h1
const kABIntegerProperty = & h2
const kABRealProperty = & h3
const kABDateProperty = & h4
const kABArrayProperty = & h5
const kABDictionaryProperty = & h6
const kABDataProperty = & h7
const kABMultiStringProperty = kABMultiValueMask + kABStringProperty
const kABMultiIntegerProperty = kABMultiValueMask + kABIntegerProperty
const kABMultiRealProperty = kABMultiValueMask + kABRealProperty
const kABMultiDateProperty = kABMultiValueMask + kABDateProperty
const kABMultiArrayProperty = kABMultiValueMask + kABArrayProperty
const kABMultiDictionaryProperty = kABMultiValueMask + kABDictionaryProperty
const kABMultiDataProperty = kABMultiValueMask + kABDataProperty

4.3.18 Properties

4.3.19 distributionIdentifierForProperty(propertyName as string, person as ABPersonMBS) as String

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the distribution identifier for a given property and person.
Notes:

If not set then returns the property primary identifier.
Returns the distribution identifier or "" if not successful.
(Read and Write computed property)

4.4 class ABMultiValueMBS

4.4.1 class ABMultiValueMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Represents values of type ABMultiXXXXXProperty.
Example:

```
// shows all websites with labels

dim a as new ABAddressBookMBS
dim p as ABPersonMBS = a.owner
dim m as ABMultiValueMBS = p.valueForProperty(a.kABURLsProperty)

dim u as Integer = m.count-1
for i as Integer = 0 to u
dim label as string = m.labelAtIndex(i)
dim value as string = m.valueAtIndex(i)

MsgBox label+" ->"+value
next
```

Notes:

All values in an ABMultiValue must be of the same type (kABMultiStringProperty: all values must be strings....)

In case your application needs to store away a reference to a specific value/label pair, use the identifier. Index won't work in this case because any client can add/remove/reorder a multivalue making your index point to the wrong pair. Identifiers are unique Ids.

All methods in this class will catch exceptions from Cocoa and raise a NSExceptionMBS instead. Using the message, name and reason properties you can see what was the reason for this exception. Please report if you find a method which does not handle exceptions correct.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

4.4.2 Methods

4.4.3 Constructor

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The private constructor.

4.4.4 copy as ABMultiValueMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates an immutable copy of the data.
Notes: Returns nil on any error.

4.4.5 edit as ABMutableMultiValueMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a mutable copy of the data.
Notes: Returns nil on any error.

4.4.6 identifierAtIndex(index as UInt32) as string

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an identifier at a given index
Notes:

Returns "" on any error.
Index is zero based.

4.4.7 identifiers as string()

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns list of identifiers.

4.4.8 indexForIdentifier(identifier as string) as UInt32

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the index of a given identifier
Notes: Returns NotFound (& h7fffffff) on any error.

4.4.9 labelAtIndex(index as UInt32) as string

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a label at a given index.
Example:

```
// get an entry
dim a as new ABAddressBookMBS
dim p as ABPersonMBS = a.owner

// query all emails
dim e as ABMultiValueMBS = p.valueForProperty(a.kABEmailProperty)

// walk over all
dim u as Integer = e.count-1
for i as Integer = 0 to u
dim label as string = e.labelAtIndex(i)
dim value as string = e.valueAtIndex(i)

// show label and value for this entry
MsgBox str(i)+": "+label+", "+value

// is it home?
if label = a.kABEmailHomeLabel then
MsgBox "Home: "+value
end if
next
```

Notes:

Returns "" on any error.
Index is zero based.

4.4.10 labelForIdentifier(identifier as string) as string

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the label with the given identifier.
Example:

```
// same as the following code, but with index bound checking:

dim s as string
dim identifier as string = "fill the identifier here"
dim a as ABMultiValueMBS
// get multivalue somehow

s=a.labelAtIndex(a.indexForIdentifier(identifier))
```

Notes:

Returns "" if identifier is not found.
A convenience method.

4.4.11 labels as string()

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns list of labels.

4.4.12 valueAtIndex(index as UInt32) as Variant

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a value at a given index
Example:

```
// shows all websites with labels

dim a as new ABAddressBookMBS
dim p as ABPersonMBS = a.owner
dim m as ABMultiValueMBS = p.valueForProperty(a.kABURLsProperty)

dim u as Integer = m.count-1
for i as Integer = 0 to u
dim label as string = m.labelAtIndex(i)
dim value as string = m.valueAtIndex(i)

MsgBox label+" ->"+value
next
```

Notes:

Returns nil on any error.
Index is zero based.

4.4.13 valueForIdentifier(identifier as string) as Variant

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the value with the given identifier.
Notes:

Returns nil if identifier is not found.
A convenience method.

4.4.14 valueForLabel(label as string) as Variant

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the value for the value with the given label.
Example:

```
dim a as new ABAddressBookMBS
dim p as ABPersonMBS
dim m as ABMultiValueMBS

a=new ABAddressBookMBS
p=a.owner

m=p.valueForProperty(a.kABPhoneProperty)

MsgBox "Work phone: "+m.valueForLabel(a.kABPhoneWorkLabel)
MsgBox "Mobile phone: "+m.valueForLabel(a.kABPhoneMobileLabel)
```

Notes:

Returns nil if not value exists for the label.
A convenience method.

4.4.15 values as Variant()

Plugin Version: 16.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Returns list of all values.
Notes:

Returns nil on any error.
Useful to get all email addresses as array.

4.4.16 Properties

4.4.17 Addressbook as ABAddressBookMBS

Plugin Version: 15.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Reference to parent addressbook.
Notes:

Plugin sets this for most objects to keep reference to addressbook and avoid this addressbook from being closed too early.
(Read and Write property)

4.4.18 Content as Dictionary

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns content of multi value as dictionary.
Notes:

This is more for inspection in debugger.
The plugin will add key and value for all values.
Values will be twice in the dictionary, once with label and once with identifier as key.
So if two items have same label, one will overwrite other in dictionary.
(Read only property)

4.4.19 count as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the number of value/label pairs.
Notes:

Returns 0 on any error.
(Read only property)

4.4.20 Description as string

Plugin Version: 12.3, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The description for this multi value.
Example:

```
dim a as new ABAddressBookMBS
dim m as new ABMutableMultiValueMBS
call m.insertValue("Hello World", "Owner", 0)
MsgBox m.Description
```

Notes: (Read only property)

4.4.21 Handle as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The handle of the used ABMultiValue object.

Notes: (Read and Write property)

4.4.22 primaryIdentifier as string

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Identifier for the primary value.
Notes:

Returns "" on any error.
(Read only property)

4.4.23 propertyType as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Type of this multivalue (kABMultiXXXXProperty)
Notes:

Returns kABErrorInProperty if this multi-value is empty or not all values have the same type.

Possible values:

const kABMultiValueMask = & h100
const kABErrorInProperty = & h0
const kABStringProperty = & h1
const kABIntegerProperty = & h2
const kABRealProperty = & h3
const kABDateProperty = & h4
const kABArrayProperty = & h5
const kABDictionaryProperty = & h6
const kABDataProperty = & h7
const kABMultiStringProperty = kABMultiValueMask + kABStringProperty
const kABMultiIntegerProperty = kABMultiValueMask + kABIntegerProperty
const kABMultiRealProperty = kABMultiValueMask + kABRealProperty
const kABMultiDateProperty = kABMultiValueMask + kABDateProperty
const kABMultiArrayProperty = kABMultiValueMask + kABArrayProperty
const kABMultiDictionaryProperty = kABMultiValueMask + kABDictionaryProperty
const kABMultiDataProperty = kABMultiValueMask + kABDataProperty
(Read only property)

4.5 class ABMutableMultiValueMBS

4.5.1 class ABMutableMultiValueMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Mutable variant of ABMultiValueMBS.
Notes:

All methods in this class will catch exceptions from Cocoa and raise a NSExceptionMBS instead. Using the message, name and reason properties you can see what was the reason for this exception. Please report if you find a method which does not handle exceptions correct.
Subclass of the ABMultiValueMBS class.

4.5.2 Methods

4.5.3 addValue(value as Variant, label as string) as string

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds a value with its label.
Notes:

Returns the identifier if successful, "" otherwise.

Note: No type checking is made when adding a value. But trying to set a multivalue property with a multivalue that doesn't have all its values of the same type will return an error.

Supported types: Date, Integer, String, Dictionary.

4.5.4 Constructor

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new ABMutableMultiValue object.

4.5.5 insertValue(value as Variant, label as string, index as UInt32) as string

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Insert a value/label pair at a given index.
Notes:

Returns the identifier if successful. "" otherwise

Note: No type checking is made when adding a value. But trying to set a multivalue property with a multivalue that doesn't have all its values of the same type will return an error

Index is zero based.

4.5.6 removeValueAndLabelAtIndex(index as UInt32) as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes a value/label pair at a given index
Notes:

Returns true if successful.

Index is zero based.

4.5.7 replaceLabelAtIndex(index as UInt32, label as string) as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Replaces a label at a given index.
Notes:

Index is zero based.
Returns true on success.

4.5.8 replaceValueAtIndex(index as UInt32, value as Variant) as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Replaces a value at a given index
Notes:

Index is zero based.
Returns true on success.

4.5.9 setPrimaryIdentifier(identifier as string) as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the primary value given its identifier.
Notes: Returns true if successful.

4.6 class ABPersonMBS

4.6.1 class ABPersonMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** ABPersonMBS is a subclass of ABRecord and represents a person.
Example:

```
dim a as new ABAddressBookMBS // get addressbook
dim p as ABPersonMBS = a.owner // and find me

// read note
MsgBox p.valueForProperty(a.kABNoteProperty).StringValue

// write note
if p.setValue("Hello World", a.kABNoteProperty) then
if a.save then
MsgBox "Changed."
end if
end if
```

Notes:

All methods in this class will catch exceptions from Cocoa and raise a NSExceptionMBS instead. Using the message, name and reason properties you can see what was the reason for this exception. Please report if you find a method which does not handle exceptions correct.
Subclass of the ABRecordMBS class.

4.6.2 Methods

4.6.3 addProperty(propertyName as string, type as Integer) as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds property to all people records.
Example:

```
dim p as ABPersonMBS
// get a person

call p.addProperty "Distance",1
```

Notes:

Property name must be unique.
For types see typeOfProperty.
Returns the number of properties successfully added.

4.6.4 Constructor

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new ABPersonMBS object.
See also:

- 4.6.5 Constructor(addressBook as ABAddressBookMBS) 179
- 4.6.6 Constructor(vCardData as Memoryblock) 179

4.6.5 Constructor(addressBook as ABAddressBookMBS)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new ABPersonMBS object in the given addressbook.
Notes: Available in Mac OS X 10.5 or newer.
See also:

- 4.6.4 Constructor 179
- 4.6.6 Constructor(vCardData as Memoryblock) 179

4.6.6 Constructor(vCardData as Memoryblock)

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Create a person from a vCard
Notes:

Handle is 0 on failure after constructor finished.
(e.g. because of invalid vCard data)

This gives a temporary ABPersonMBS object which is only useful in the same method.
At least we observed problems and crashes when this person is stored in a property of a window and used later.
See also:

- 4.6.4 Constructor 179
- 4.6.5 Constructor(addressBook as ABAddressBookMBS) 179

4.6.7 EditInAddressbook as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Opens addressbook entry in the addressbook for editing.
Notes: Returns true on success and false on failure.

4.6.8 linkedPeople as ABPersonMBS()

Plugin Version: 12.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of all linked people, including this person.
Notes:

Returns an array of only this person if this person is not linked.
Available in Mac OS X 10.8 and newer.

4.6.9 parentGroups as ABGroupMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of ABGroup this group belongs to.
Notes:

Returns an empty array if this person doesn't belong to any groups.
Returns an empty array on any error.

4.6.10 properties as string()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of property names.
Notes: Returns an empty array on any error.

4.6.11 removeProperties(properties() as string) as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes properties from all people
Notes: Returns the number of properties successfully removed.

4.6.12 removeProperty(propertyName as string) as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes property from all people
Notes: Returns the number of properties successfully removed.

4.6.13 searchElementForProperty(PropertyName as string, Label as string, Key as string, value as Variant, comparison as Integer) as ABSearchElementMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a search element object that specifies a query for records of this type.
Notes:

property: The name of the property to search on, such as kABAddressProperty or kABLastNameProperty. This name cannot be "".
label: The label name for a multivalue list, such as kABAddressHomeLabel, kABPhoneWorkLabel, or a user-specified label, such as Summer Home. If the specified property does not have multiple values, pass "". If the specified property does have multiple values, pass "" to search all the values.
key: The key name for a dictionary, such as kABAddressCityKey or kABAddressStreetKey. If the specified property is not a dictionary, pass "". If the specified property is a dictionary, pass nil to search all keys.
value: What you're searching for. If nil, then the only supported value for comparison is kABEqual or kABNotEqual.
comparison: The type of comparison to perform, such as kABEqual or kABPrefixMatchCaseInsensitive.

4.6.14 setImageData(data as Memoryblock) as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Set the image of a person to data. data should be in an NSImage/QuickTime compatible format.
Notes: Pass "" to clear the image.

4.6.15 ShowInAddressbook as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Shows addressbook entry in the addressbook.
Example:

```
// open addressbook
dim a as new ABAddressBookMBS

// pick a person, in this case me
dim p as ABPersonMBS = a.owner
```

```
// show in AddressBook
call p.ShowInAddressbook
```

Notes: Returns true on success and false on failure.

4.6.16 typeOfProperty(propertyName as string) as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the type of a given property.
Notes:

Possible values:

```
const kABMultiValueMask = & h100
const kABErrorInProperty = & h0
const kABStringProperty = & h1
const kABIntegerProperty = & h2
const kABRealProperty = & h3
const kABDateProperty = & h4
const kABArrayProperty = & h5
const kABDictionaryProperty = & h6
const kABDataProperty = & h7
const kABMultiStringProperty = kABMultiValueMask + kABStringProperty
const kABMultiIntegerProperty = kABMultiValueMask + kABIntegerProperty
const kABMultiRealProperty = kABMultiValueMask + kABRealProperty
const kABMultiDateProperty = kABMultiValueMask + kABDateProperty
const kABMultiArrayProperty = kABMultiValueMask + kABArrayProperty
const kABMultiDictionaryProperty = kABMultiValueMask + kABDictionaryProperty
const kABMultiDataProperty = kABMultiValueMask + kABDataProperty
```

4.6.17 vCardRepresentation as Memoryblock

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the vCard representation of a person
Notes: Returns nil on any error.

4.6.18 Properties

4.6.19 image as NSImageMBS

Plugin Version: 7.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Synchronously returns data containing an image for this person.
Example:

```
dim a as new ABAddressBookMBS
dim p as ABPersonMBS = a.owner

Backdrop=p.image.CopyPictureWithMask
```

Notes:

Only does local file system searches.
Raises an exception if no image exists.

Convenience function which calls imageData and converts data to and from NSImage.
(Read and Write computed property)

4.6.20 imageData as Memoryblock

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Synchronously returns data containing an image for this person.
Example:

```
dim a as new ABAddressBookMBS
dim owner as ABPersonMBS = a.owner
dim s as string = owner.imageData
dim p as Picture

p=JPEGStringToPictureMBS(s) // try jpeg
if p<>Nil then
Title="jpeg"
Backdrop=p
Return
end if

p=TIFFStringToPictureMBS(s) // try tiff
if p<>Nil then
Title="tiff"
Backdrop=p
Return
```

```
end if
```

Notes:

Only does local file system searches. Data will be in an NSImage/QuickTime compatible format.
Raises an exception if no image exists.
(Read and Write computed property)

4.7 class ABPickerMBS

4.7.1 class ABPickerMBS

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** A class to control a people picker window.
Example:

```
dim p as ABPickerMBS // a global property

p = new ABPickerMBS
p.Create
p.visible = True
```

Notes:

Requires Mac OS X 10.3 or newer.

This class is for Carbon as event handling does not work on Cocoa.
For Cocoa better use ABPeoplePickerViewMBS.

4.7.2 Methods

4.7.3 AddProperty(propertyname as String)

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Adds a property to the value column.
Notes: Requires Mac OS X 10.3 or newer.

4.7.4 ClearSearchField

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Clear the search field and reset the list of displayed names.
Notes: Requires Mac OS X 10.3 or newer.

4.7.5 Create

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new window.

Example:

```
dim p as ABPickerMBS // a global property

p = new ABPickerMBS
p.Create

p.visible = True
```

Notes:

The window is created invisible.
Requires Mac OS X 10.3 or newer.
The handle property is not 0 if this call was successfull.

4.7.6 DeselectAll

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Remove selection.

4.7.7 DeselectGroup(group as ABGroupMBS)

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Removes selection.
Notes: Requires Mac OS X 10.3 or newer.

4.7.8 DeselectIdentifier(person as ABPersonMBS, Identifier as String)

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Removes selection.
Notes: Requires Mac OS X 10.3 or newer.

4.7.9 DeselectPerson(person as ABPersonMBS)

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Removes selection.
Notes: Requires Mac OS X 10.3 or newer.

4.7.10 EditInAddressBook

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Launch AddressBook and edit the current selection
Notes: Requires Mac OS X 10.3 or newer.

4.7.11 InstallEvents(targetwindow as window)

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Installs the event handler.
Notes:

Requires Mac OS X 10.3 or newer.
The target window is only used as an anchor to send and receive events. You can use any window for that.

4.7.12 Properties as string()

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** A list of all the properties shown in the value columns.
Notes: Requires Mac OS X 10.3 or newer.

4.7.13 RemoveEvents

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Removes the event handler.
Notes: Requires Mac OS X 10.3 or newer.

4.7.14 RemoveProperty(propertyname as String)

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Removes a property from the value column.
Notes: Requires Mac OS X 10.3 or newer.

4.7.15 SelectedDictionaries as Dictionary()

Plugin Version: 9.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array containing dictionaries for each item selected in the values column.
Notes:

Use this method if you select single addresses.
Requires Mac OS X 10.3 or newer.

4.7.16 SelectedGroups as ABGroupMBS()

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns group column selection as an array of ABGroup object handles.
Notes: Requires Mac OS X 10.3 or newer.

4.7.17 SelectedIdentifiers(person as ABPersonMBS) as string()

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** This method returns an array of selected multi-value identifiers.
Notes:

Requires Mac OS X 10.3 or newer.
Returns empty array if the displayed property is a single value type.

4.7.18 SelectedRecords as ABRecordMBS()

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns names column selection as an array of ABGroup or ABPersonMBS objects.
Notes:

Requires Mac OS X 10.3 or newer.
You need to cast the objects from the array to ABGroupMBS or ABPersonMBS to use them better. And IsA can tell you whether an object is from the group or the person class.

4.7.19 SelectedStrings as String()

Plugin Version: 9.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array containing strings for each item selected in the values column.
Notes:

Use this method if you select single strings like a phone number.
Requires Mac OS X 10.3 or newer.

4.7.20 SelectedValues as Variant()

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array containing variants for each item selected in the values column.
Notes:

Use this method if you select single strings like a phone number.
Requires Mac OS X 10.3 or newer.
Changed from string to variant in plugin version 13.2, so you don't need to use SelectedDictionaries.

4.7.21 SelectGroup(group as ABGroupMBS, ExtendSelection as boolean)

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Select group programatically.
Notes: Requires Mac OS X 10.3 or newer.

4.7.22 SelectIdentifier(person as ABPersonMBS, Identifier as String, ExtendSelection as boolean)

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Individual values contained within an multi-value property can be selected with this method.
Notes: Requires Mac OS X 10.3 or newer.

4.7.23 SelectInAddressBook

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Launch AddressBook and select the current selection
Notes: Requires Mac OS X 10.3 or newer.

4.7.24 SelectPerson(person as ABPersonMBS, ExtendSelection as boolean)

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Select person programatically.
Notes: Requires Mac OS X 10.3 or newer.

4.7.25 Properties

4.7.26 AllowGroupSelection as Boolean

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Allow the user to select entire groups in the group column.
Notes:

Requires Mac OS X 10.3 or newer.
If false, at least one person in the group will be selected. Defaults to false.
(Read and Write property)

4.7.27 AllowMultipleSelection as Boolean

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Allow the user to select more than one group/record at a time.
Notes:

Default is true.
Requires Mac OS X 10.3 or newer.
(Read and Write property)

4.7.28 AllowMultipleValueSelection as Boolean

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Allow user to choose multiple values for a person.
Notes:

Requires Mac OS X 10.3 or newer.
Choose the selection behavior for the value column. If multiple behaviors are selected, the most restrictive behavior will be used. Defaults to SingleValueSelection set.
(Read and Write property)

4.7.29 AllowSingleValueSelection as Boolean

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Allow user to choose a single value for a person.
Notes:

Requires Mac OS X 10.3 or newer.
Choose the selection behavior for the value column. If multiple behaviors are selected, the most restrictive behavior will be used. Defaults to SingleValueSelection set.

(Read and Write property)

4.7.30 Available as Boolean

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** True if the picker is available.
Notes:

Returns true on Mac OS X 10.3 or newer.
(Read only property)

4.7.31 DisplayedProperty as String

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Which property is displayed currently.
Notes:

Returns nil on any error.
(Read and Write property)

4.7.32 Handle as Integer

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The handle of the ABPickerRef used internally.
Notes: (Read and Write property)

4.7.33 Height as Single

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The current height of the picker window.
Notes:

Requires Mac OS X 10.3 or newer.
(Read and Write property)

4.7.34 Left as Single

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The current position of the picker window.

Notes:

Requires Mac OS X 10.3 or newer.
(Read and Write property)

4.7.35 Top as Single

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The current position of the picker window.
Notes:

Requires Mac OS X 10.3 or newer.

top=0 is on the bottom of the screen as this is the Cocoa coordinate system.
(Read and Write property)

4.7.36 Visible as Boolean

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Whether the picker window is visible.
Notes:

The window is created invisible, so you must make it visible to show it to the user.
Requires Mac OS X 10.3 or newer.
(Read and Write property)

4.7.37 Width as Single

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The current width of the picker window.
Notes:

Requires Mac OS X 10.3 or newer.
(Read and Write property)

4.7.38 ColumnTitle(columntitle as String) as String

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Localized titles for third party properties.
Notes:

Requires Mac OS X 10.3 or newer.
(Read and Write computed property)

4.7.39 Events

4.7.40 DisplayedPropertyChanged

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the events of a People Picker.
Notes: Requires Mac OS X 10.3 or newer.

4.7.41 GroupDoubleClicked

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the events of a People Picker.
Notes: Requires Mac OS X 10.3 or newer.

4.7.42 GroupSelectionChanged

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the events of a People Picker.
Notes: Requires Mac OS X 10.3 or newer.

4.7.43 NameDoubleClicked

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the events of a People Picker.
Notes: Requires Mac OS X 10.3 or newer.

4.7.44 NameSelectionChanged

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the events of a People Picker.
Notes: Requires Mac OS X 10.3 or newer.

4.7.45 ValueSelectionChanged

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the events of a People Picker.
Notes: Requires Mac OS X 10.3 or newer.

4.8 class ABRecordMBS

4.8.1 class ABRecordMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A class to hold an Addressbook Record.
Notes:

All methods in this class will catch exceptions from Cocoa and raise a NSExceptionMBS instead. Using the message, name and reason properties you can see what was the reason for this exception. Please report if you find a method which does not handle exceptions correct.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

4.8.2 Methods

4.8.3 Constructor

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The private constructor.

4.8.4 removeValueForProperty(propertyName as string) as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Remove the value of a given property.
Notes:

Subsequent calls to valueForProperty on the same property will return nil.
Returns true if the value was removed successfully and false on any error.

4.8.5 setValue(value as Variant, propertyName as string) as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Set the value of a given property. The type of the value must match the property type.
Example:

```
dim a as ABAddressBookMBS
dim p as ABPersonMBS
// get a somehow
// get p somehow

if not p.setValue("My Company",a.kABOrganizationProperty) then
MsgBox "Failed to set field "+a.LocalizedPropertyOrLabel(a.kABOrganizationProperty)
```

```
end if
```

Notes:

Value can be Date, Integer, Double, Dictionary, MultiValueMBS/MutableMultiValueMBS or String.
Returns true if the value was set successfully
See also:

- 4.8.6 setValue(value as Variant, propertyName as string, byref error as NSErrorMBS) as boolean 196

4.8.6 setValue(value as Variant, propertyName as string, byref error as NSErrorMBS) as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Set the value of a given property. The type of the value must match the property type.
Notes:

Value can be Date, Integer, Double, Dictionary, MultiValueMBS/MutableMultiValueMBS or String.
Returns true if the value was set successfully

On Mac OS X 10.7 or later, we set the error property on any error.
See also:

- 4.8.5 setValue(value as Variant, propertyName as string) as boolean 195

4.8.7 valueForProperty(PropertyName as string) as Variant

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the value of a given property.
Example:

```
dim a as new ABAddressBookMBS // get addressbook
dim p as ABPersonMBS = a.owner // and find me

// read note
MsgBox p.valueForProperty(a.kABNoteProperty).StringValue
```

Notes:

The type of the value depends on the property type.
Returns nil on any error.

Tip: Put the result in a variant, so you can see the type in the debugger. Emails for example can be a ABMultiValueMBS object while name is normally a string.

4.8.8 Properties

4.8.9 account as ABAccountMBS

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Queries account for this record.
Notes: (Read only property)

4.8.10 Addressbook as ABAddressBookMBS

Plugin Version: 15.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Reference to parent addressbook.
Notes:

Plugin sets this for most objects to keep reference to addressbook and avoid this addressbook from being closed too early.
(Read and Write property)

4.8.11 Description as string

Plugin Version: 12.3, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The description for this record.
Example:

```
dim a as new ABAddressBookMBS
dim m as ABPersonMBS = a.owner
MsgBox m.Description
```

Notes: (Read only property)

4.8.12 DisplayName as string

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The display name.
Example:

```
// quickly find the addressbook, locate me and display my name:
MsgBox ABAddressBookMBS.sharedAddressbook.owner.DisplayName
```

Notes:

For a group, the group name, for an organization the organization name and for a normal person the first name, last name, prefix/suffix and middle name. Name order depends on the settings for person or addressbook.
(Read only property)

4.8.13 Handle as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The handle of the ABGroup or ABPersonMBS object being used.
Notes: (Read and Write property)

4.8.14 isReadOnly as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns whether or not the record is read only.
Notes:

Available on Mac OS X 10.4.
Returns false on older systems or other errors.
(Read only property)

4.8.15 uniqueId as string

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Convenience method to return the unique ID of a record.
Example:

```
dim a as new ABAddressBookMBS
dim o as ABPersonMBS = a.owner

// the unique ID for this record including the type
dim u as string = o.uniqueId

// the raw ID as Apple stores it
dim i as string = o.valueForProperty("com.apple.uuid")
```

```
// show it
MsgBox u+EndOfLine+i
```

Notes:

Equivalent to valueForProperty(kABUIDProperty).
(Read only property)

4.9 class ABSearchElementMBS

4.9.1 class ABSearchElementMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A class for a search element.
Example:

```
// search and display all entries with a given name in a 2 column listbox with address

// Save reference to caller.
dim addr as new ABAddressBookMBS // Initialise the Address Book plugin
dim searchName as string = "Schmitz" // search on.

// Do the search
dim srch as ABSearchElementMBS = addr.searchElementForPersonProperty(addr.kABLastNameProperty,
"", "", searchName, addr.kABContainsSubStringCaseInsensitive)
dim srchRes() as ABRecordMBS = addr.recordsMatchingSearchElement(srch) // Get the results into an
array

for each rc as ABRecordMBS in srchRes
if rc isa ABPersonMBS then // Is it a person record?
dim pers as ABPersonMBS = ABPersonMBS(rc) // Get it into a personnel record

// Now get out the names and addresses.
listbox1.AddRow(pers.valueForProperty(addr.kABFirstNameProperty) + " " + pers.valueForProperty(addr.kABLast-
NameProperty))
listbox1.RowTag(listbox1.LastIndex) = pers.valueForProperty(addr.kABUIDProperty)

// Need to find the home address.
dim mlv as ABMultiValueMBS = pers.valueForProperty(addr.kABAddressProperty)
if mlv <>nil Then
// get home address
dim d as Dictionary = mlv.valueForLabel(addr.kABHomeLabel)

if d = nil then
// get primary
d = mlv.valueForIdentifier(mlv.primaryIdentifier)
end if

if d<>Nil then
// show address with street and city
listbox1.Cell(listbox1.LastIndex,1) = d.Lookup(addr.kABAddressStreetKey,"")+" "+d.Lookup(addr.kABAd-
dressCityKey,"")
end if
end if
end if
next
```

Notes:

Use searchElementForProperty in ABPersonMBS and ABGroupMBS classes to create objects.

All methods in this class will catch exceptions from Cocoa and raise a NSExceptionMBS instead. Using the message, name and reason properties you can see what was the reason for this exception. Please report if you find a method which does not handle exceptions correct.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

4.9.2 Methods

4.9.3 Constructor

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The private constructor.

4.9.4 matchesRecord(record as ABRecordMBS) as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether a record matches the search element.
Notes: Returns false if handle=0 or record=nil or record does not match. Else yes.

4.9.5 searchElementForConjunction(conjunction as Integer, children() as ABSearchElementMBS) as ABSearchElementMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a search element combining several sub search elements.
Notes:

conjunction can be kABSearchAnd or kABSearchOr.
Returns nil on any error.

Pass kABSearchOr or kABSearchAnd for conjunction.

This is a class method. No need to have a valid handle.

4.9.6 Properties

4.9.7 Addressbook as ABAddressBookMBS

Plugin Version: 15.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Reference to parent addressbook.
Notes:

Plugin sets this for most objects to keep reference to addressbook and avoid this addressbook from being closed too early.
(Read and Write property)

4.9.8 Description as string

Plugin Version: 12.3, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The description for this search element.
Example:

```
dim a as new ABAddressBookMBS
dim m as ABSearchElementMBS = a.searchElementForPersonProperty(a.kABFirstNameProperty, "", "", "John", a.kABContainsSubStringCaseInsensitive)
MsgBox m.Description
```

Notes: (Read only property)

4.9.9 Handle as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The handle to the Cocoa object being used.
Notes: (Read and Write property)

4.9.10 Constants

4.9.11 kABSearchAnd = 0

Plugin Version: 7.1. **Function:** A search conjunction.

4.9.12 kABSearchOr = 1

Plugin Version: 7.1. **Function:** A search conjunction.

Chapter 5

Apple Script

5.1 class NSAppleEventDescriptorMBS

5.1.1 class NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An instance of NSAppleEventDescriptor represents a descriptorthe basic building block for Apple events.
Notes:

This class is a wrapper for the underlying Apple event descriptor data type, AEDesc. Scriptable Cocoa applications frequently work with instances of NSAppleEventDescriptor, but should rarely need to work directly with the AEDesc data structure.

A descriptor is a data structure that stores data and an accompanying four-character code. A descriptor can store a value, or it can store a list of other descriptors (which may also be lists). All the information in an Apple event is stored in descriptors and lists of descriptors, and every Apple event is itself a descriptor list that matches certain criteria.

Important: An instance of NSAppleEventDescriptor can represent any kind of descriptor, from a simple value descriptor, to a descriptor list, to a full-fledged Apple event.
Descriptors can be used to build arbitrarily complex containers, so that one Apple event can represent a script statement such as tell application "TextEdit" to get word 3 of paragraph 6 of document 3.

In working with Apple event descriptors, it can be useful to understand some of the underlying data types. You'll find terms such as descriptor, descriptor list, Apple event record, and Apple event defined in Building an Apple Event in Apple Events Programming Guide. You'll also find information on the four-character codes used to identify information within a descriptor. Apple event data types are defined in Apple Event Manager Reference. The values of many four-character codes used by Apple (and in some cases reused by developers) can be found in AppleScript Terminology and Apple Event Codes.

The most common reason to construct an Apple event with an instance of NSAppleEventDescriptor is to supply information in a return Apple event. The most common situation where you might need to extract information from an Apple event (as an instance of NSAppleEventDescriptor) is when an Apple event handler installed by your application is invoked, as described in "Installing an Apple Event Handler" in How Cocoa Applications Handle Apple Events. In addition, if you execute an AppleScript script using the NSAppleScript class, you get an instance of NSAppleEventDescriptor as the return value, from which you can extract any required information.

When you work with an instance of NSAppleEventDescriptor, you can access the underlying descriptor directly, if necessary, with the aeDesc method. Other methods, including descriptorWithDescriptorType make it possible to create and initialize instances of NSAppleEventDescriptor without creating temporary instances of memoryblock.

Cocoa doesn't currently provide a mechanism for applications to directly send raw Apple events (though compiling and executing an AppleScript script with NSAppleScript may result in Apple events being sent). However, Cocoa applications have full access to the Apple Event Manager C APIs for working with Apple events. So, for example, you might use an instance of NSAppleEventDescriptor to assemble an Apple event and call the Apple Event Manager function AESend to send it.

If you need to send Apple events, or if you need more information on some of the Apple event concepts described here, see Apple Events Programming Guide and Apple Event Manager Reference.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

5.1.2 Methods

5.1.3 appleEventWithEventClass(eventClass as string, eventID as string, targetDescriptor as NSAppleEventDescriptorMBS, returnID as Int16, transactionID as UInt32) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a descriptor that represents an Apple event, initialized according to the specified information.
Notes:

eventClass: The event class to be set in the returned descriptor.
eventID: The event ID to be set in the returned descriptor.
addressDescriptor: A pointer to a descriptor that identifies the target application for the Apple event. Passing nil results in an Apple event descriptor that has no keyAddressAttr attribute (it is valid for an Apple event to have no target address attribute).
returnID: The return ID to be set in the returned descriptor. If you pass a value of kAutoGenerateReturnID, the Apple Event Manager assigns the created Apple event a return ID that is unique to the current session. If you pass any other value, the Apple Event Manager assigns that value for the ID.
transactionID: The transaction ID to be set in the returned descriptor. A transaction is a sequence of Apple events that are sent back and forth between client and server applications, beginning with the client's initial request for a service. All Apple events that are part of a transaction must have the same transaction ID.

You can specify kAnyTransactionID if the Apple event is not one of a series of interdependent Apple events.

Returns a descriptor for an Apple event, initialized according to the specified parameter values, or nil if an error occurs.

Constants such as kAutoGenerateReturnID and kAnyTransactionID are defined in AE.framework, a subframework of ApplicationServices.framework.

5.1.4 attributeDescriptorForKeyword(keyword as string) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a descriptor for the receiver's Apple event attribute identified by the specified keyword.
Notes:

keyword: A keyword (a four-character code) that identifies the descriptor to obtain.

Returns the attribute descriptor for the specified keyword, or nil if an error occurs.

5.1.5 coerceToDescriptorType(descriptorType as string) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a descriptor obtained by coercing the receiver to the specified type.
Notes:

descriptorType: The descriptor type to coerce the receiver to.

Returns a descriptor of the specified type, or nil if an error occurs.

5.1.6 Constructor

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The private constructor.

5.1.7 copy as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a copy of the apple event descriptor.

5.1.8 currentProcessDescriptor as NSAppleEventDescriptorMBS

Plugin Version: 16.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Create and return an application address descriptor using the current process.
Example:

```
dim d as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.currentProcessDescriptor
MsgBox "Process ID: "+str(d.processIDValue)
```

Notes: The result is suitable for use as the "targetDescriptor" parameter of appleEventWithEventClass.

5.1.9 descriptorAtIndex(index as Integer) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the descriptor at the specified (one-based) position in the receiving descriptor list.
Example:

```
dim n as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.listDescriptor
dim d as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithString("Hello")
dim e as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithString("World")

n.insertDescriptor(d,1)
n.insertDescriptor(e,2)

MsgBox str(n.numberOfItems)

dim x1 as NSAppleEventDescriptorMBS = n.descriptorAtIndex(1)
dim x2 as NSAppleEventDescriptorMBS = n.descriptorAtIndex(2)
MsgBox x1.stringValue+" "+x2.stringvalue
```

Notes:

Index: The one-based descriptor list position of the descriptor to return.

Returns the descriptor from the specified position (one-based) in the descriptor list, or nil if the specified descriptor cannot be obtained.

5.1.10 descriptorForKeyword(keyword as string) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's descriptor for the specified keyword.
Example:

```
dim n as new NSAppleScriptMBS("return system info")
dim r as NSAppleEventDescriptorMBS = n.execute

dim lines(-1) as string

dim u as Integer = r.numberOfItems
for i as Integer = 1 to u
dim keyword as string = r.keywordForDescriptorAtIndex(i)
dim value as string
dim p as NSAppleEventDescriptorMBS = r.descriptorForKeyword(keyword)
if p<>Nil then value = p.stringValue
lines.Append keyword+": "+value
next

MsgBox Join(lines,EndOfLine)
```

Notes:

keyword: A keyword (a four-character code) that identifies the descriptor to obtain.

Returns a descriptor for the specified keyword, or nil if an error occurs.

5.1.11 descriptorWithAlias(item as folderitem) as NSAppleEventDescriptorMBS

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a descriptor initialized with type typeAlias that stores the specified folderitem reference.
Example:

```
// pick a folderitem
dim folder as FolderItem = SpecialFolder.Desktop

// create value with file reference
dim d as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithAlias(folder)

// convert back to FolderItem
dim file as FolderItem = d.FSRefValue
```

```
// show path
MsgBox file.AbsolutePath
```

Notes: This type can be converted internally to FSRef descriptor.

5.1.12 descriptorWithApplicationURL(fileURL as string) as NSAppleEventDescriptorMBS

Plugin Version: 16.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Create and return an application address descriptor using the file URL for an application.
Example:

```
dim f as FolderItem = SpecialFolder.Applications.Child("Stickies.app")
dim u as string = f.URLPath
dim d as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithApplicationURL(u)
MsgBox d.applicationURLValue
```

Notes: The result is suitable for use as the "targetDescriptor" parameter of appleEventWithEventClass.
See also:

- 5.1.13 descriptorWithApplicationURL(item as folderitem) as NSAppleEventDescriptorMBS 210

5.1.13 descriptorWithApplicationURL(item as folderitem) as NSAppleEventDescriptorMBS

Plugin Version: 16.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Create and return an application address descriptor using the folderitem for an application.
Example:

```
dim f as FolderItem = SpecialFolder.Applications.Child("Stickies.app")
dim d as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithApplicationURL(f)
MsgBox d.applicationURLValue
```

Notes: The result is suitable for use as the "targetDescriptor" parameter of appleEventWithEventClass.
See also:

- 5.1.12 descriptorWithApplicationURL(fileURL as string) as NSAppleEventDescriptorMBS 210

5.1.14 descriptorWithBoolean(value as Boolean) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a descriptor initialized with type typeBoolean that stores the specified Boolean value.
Example:

```
dim a as NSAppleEventDescriptorMBS
a = NSAppleEventDescriptorMBS.descriptorWithBoolean(true)
MsgBox a.stringValue // shows true
```

Notes: Returns a descriptor with the specified Boolean value, or nil if an error occurs.

5.1.15 descriptorWithBundleIdentifier(BundleID as String) as NSAppleEventDescriptorMBS

Plugin Version: 16.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Create and return an application address descriptor using the bundle identifier.
Example:

```
dim d as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithBundleIdentifier("com.apple.iCal")
MsgBox d.bundleIDValue
```

Notes: The result is suitable for use as the "targetDescriptor" parameter of appleEventWithEventClass.

5.1.16 descriptorWithCurrentProcessSerialNumber as NSAppleEventDescriptorMBS

Plugin Version: 16.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates descriptor with current process serial number.
Example:

```
dim n as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithCurrentProcessSerialNumber
MsgBox n.stringValue // shows app name
```

5.1.17 descriptorWithDate(value as date) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a descriptor with a date value.
Example:

```
dim d as new date
dim n as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithDate(d)

dim x as date = n.dateValue
MsgBox x.LongDate+" "+x.LongTime // shows today
```

5.1.18 descriptorWithDescriptorType(descriptorType as string, data as memoryblock) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a descriptor initialized with the specified event type that stores the specified data.
Notes:

descriptorType: The descriptor type to be set in the returned descriptor.
data: The data, as a memoryblock, to be set in the returned descriptor.

Returns a descriptor with the specified type and data, or nil if an error occurs.

You can use this method to create a descriptor that you can build into a complete Apple event by calling methods such as setAttributeDescriptor, setDescriptor, and setParamDescriptor.
See also:

- 5.1.19 descriptorWithDescriptorType(descriptorType as string, data as memoryblock, offset as UInt32, length as UInt32) as NSAppleEventDescriptorMBS 212

5.1.19 descriptorWithDescriptorType(descriptorType as string, data as memoryblock, offset as UInt32, length as UInt32) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a descriptor initialized with the specified event type that stores the specified data (from a series of bytes).
Notes:

descriptorType: The descriptor type to be set in the returned descriptor.
bytes: The data, as a sequence of bytes, to be set in the returned descriptor.
offset: offset in memoryblock.
length: The length, in bytes, of the data to be set in the returned descriptor.

Returns a descriptor with the specified type and data, or nil if an error occurs.
See also:

- 5.1.18 descriptorWithDescriptorType(descriptorType as string, data as memoryblock) as NSAppleEventDescriptorMBS 212

5.1.20 descriptorWithDouble(value as Double) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a descriptor with a double value.
Example:

```
dim a as NSAppleEventDescriptorMBS
a = NSAppleEventDescriptorMBS.descriptorWithDouble(5)
MsgBox a.stringValue // shows 5
```

5.1.21 descriptorWithEnumCode(enumerator as string) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a descriptor initialized with type typeEnumerated that stores the specified enumerator data type value.
Notes:

enumerator: A type code that identifies the type of enumerated data to be stored in the returned descriptor.

Returns a descriptor with the specified enumerator data type value, or nil if an error occurs.

5.1.22 descriptorWithFileURL(fileURL as string) as NSAppleEventDescriptorMBS

Plugin Version: 16.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a descriptor for a file URL.
Example:

```
dim f as FolderItem = SpecialFolder.Applications.Child("Stickies.app")
dim u as string = f.URLPath
dim d as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithFileURL(u)
MsgBox d.fileURLValue
```

See also:

• 5.1.23 descriptorWithFileURL(item as folderitem) as NSAppleEventDescriptorMBS 214

5.1.23 descriptorWithFileURL(item as folderitem) as NSAppleEventDescriptorMBS

Plugin Version: 16.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a descriptor for a file URL based on the folderitem.
Example:

```
dim f as FolderItem = SpecialFolder.Applications.Child("Stickies.app")
dim d as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithFileURL(f)
MsgBox d.fileURLValue
```

See also:

• 5.1.22 descriptorWithFileURL(fileURL as string) as NSAppleEventDescriptorMBS 213

5.1.24 descriptorWithFSRef(item as folderitem) as NSAppleEventDescriptorMBS

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a descriptor initialized with type typeFSRef that stores the specified folderitem reference.
Example:

```
// pick a folderitem
dim folder as FolderItem = SpecialFolder.Desktop

// create value with file reference
dim d as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithFSRef(folder)

// show path
MsgBox d.stringValue

// convert back to FolderItem
dim file as FolderItem = d.FSRefValue

// show path
MsgBox file.AbsolutePath
```

Notes: This type can be converted internally to Alias or String descriptor.

5.1.25 descriptorWithInt16(value as Int16) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a descriptor initialized with Apple event type typeSInt16 that stores the specified integer value.
Example:

```
dim a as NSAppleEventDescriptorMBS

a = NSAppleEventDescriptorMBS.descriptorWithInt16(5)

MsgBox a.stringValue // shows 5
```

5.1.26 descriptorWithInt32(value as Int32) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a descriptor initialized with Apple event type typeSInt32 that stores the specified integer value.
Example:

```
dim a as NSAppleEventDescriptorMBS
a = NSAppleEventDescriptorMBS.descriptorWithInt32(5)

MsgBox a.stringValue // shows 5
```

Notes: Returns a descriptor containing the specified integer value, or nil if an error occurs.

5.1.27 descriptorWithProcessIdentifier(PID as Integer) as NSAppleEventDescriptorMBS

Plugin Version: 16.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Create and return an application address descriptor using the process identifier.
Example:

```
// get my PID
dim p as new ProcessMBS
p.GetCurrentProcess
dim pid as Integer = p.ProcessID

// make process ID descriptor
dim n as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithProcessIdentifier(pid)

// show it
MsgBox "ProcessID: "+str(n.processIDValue) + EndOfLine + n.stringValue
```

Notes: The result is suitable for use as the "targetDescriptor" parameter of appleEventWithEventClass.

5.1.28 descriptorWithSingle(value as single) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a descriptor with a single value.
Example:

```
dim a as NSAppleEventDescriptorMBS
a = NSAppleEventDescriptorMBS.descriptorWithSingle(5)
MsgBox a.stringValue // shows 5
```

5.1.29 descriptorWithString(text as string) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a descriptor initialized with type typeUnicodeText that stores the text from the specified string.
Example:

```
dim a as NSAppleEventDescriptorMBS
a = NSAppleEventDescriptorMBS.descriptorWithString("Hello World")

MsgBox a.stringValue
```

Notes: Returns a descriptor that contains the text from the specified string, or nil if an error occurs.

5.1.30 descriptorWithTypeCode(typeCode as string) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a descriptor initialized with type typeType that stores the specified type value.
Notes:

typeCode: The type value to be set in the returned descriptor.

Returns a descriptor with the specified type, or nil if an error occurs.

5.1.31 descriptorWithUInt32(value as UInt32) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a descriptor with an unsigned integer value.
Example:

```
dim a as NSAppleEventDescriptorMBS
a = NSAppleEventDescriptorMBS.descriptorWithUInt32(5)
MsgBox a.stringValue // shows 5
```

5.1.32 insertDescriptor(descriptor as NSAppleEventDescriptorMBS, index as Integer)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Inserts a descriptor at the specified (one-based) position in the receiving descriptor list, replacing the existing descriptor, if any, at that position.
Notes:

descriptor: The descriptor to insert in the receiver. Specifying an index of 0 or count + 1 causes appending to the end of the list.
Index: The one-based descriptor list position at which to insert the descriptor.

Because it actually replaces the descriptor, if any, at the specified position, this method might better be called replaceDescriptor. The receiver must be a list descriptor. The indices are one-based. Currently provides no indication if an error occurs.

5.1.33 keywordForDescriptorAtIndex(index as Integer) as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the keyword for the descriptor at the specified (one-based) position in the receiver.
Example:

```
dim n as new NSAppleScriptMBS("return system info")
dim r as NSAppleEventDescriptorMBS = n.execute

dim lines(-1) as string

dim u as Integer = r.numberOfItems
for i as Integer = 1 to u
dim keyword as string = r.keywordForDescriptorAtIndex(i)
dim value as string
dim p as NSAppleEventDescriptorMBS = r.descriptorForKeyword(keyword)
if p<>Nil then value = p.stringValue
```

```
lines.Append keyword+": "+value
next

MsgBox Join(lines,EndOfLine)
```

Notes:

Index: The one-based descriptor list position of the descriptor to get the keyword for.

Returns the keyword (a four-character code) for the descriptor at the one-based location specified by anIndex, or 0 if an error occurs.

5.1.34 listDescriptor as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and initializes an empty list descriptor.
Notes:

Returns an empty list descriptor, or nil if an error occurs.

A list descriptor is a descriptor whose data consists of one or more descriptors. You can add items to the list by calling insertDescriptor or remove them with removeDescriptorAtIndex.

5.1.35 nullDescriptor as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and initializes a descriptor with no parameter or attribute values set.
Notes:

Returns a descriptor with no parameter or attribute values set, or nil if an error occurs.

You don't typically call this method, as most NSAppleEventDescriptor instance methods can't be safely called on the returned empty descriptor.

5.1.36 paramDescriptorForKeyword(keyword as string) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a descriptor for the receiver's Apple event parameter identified by the specified keyword.

Notes:

keyword: A keyword (a four-character code) that identifies the parameter descriptor to obtain.

Returns a descriptor for the specified keyword, or nil if an error occurs.

5.1.37 print

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Writes description for this event descriptor to the console.
Notes: You can see result in Console.app.

5.1.38 recordDescriptor as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and initializes a descriptor for an Apple event record whose data has yet to be set.
Notes:

Returns an Apple event descriptor whose data has yet to be set, or nil if an error occurs.

An Apple event record is a descriptor whose data is a set of descriptors keyed by four-character codes. You can add information to the descriptor with methods such as setAttributeDescriptor, setDescriptor, and setParamDescriptor.

5.1.39 removeDescriptorAtIndex(index as Integer)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes the descriptor at the specified (one-based) position in the receiving descriptor list.
Notes:

Index: The one-based position of the descriptor to remove.

The receiver must be a list descriptor. The indices are one-based. Currently provides no indication if an error occurs.

5.1.40 removeDescriptorWithKeyword(keyword as string)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes the receiver's descriptor identified by the specified keyword.

Notes:

keyword: A keyword (a four-character code) that identifies the descriptor to remove.

The receiver must be an Apple event or Apple event record. Currently provides no indication if an error occurs.

5.1.41 removeParamDescriptorWithKeyword(keyword as string)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes the receiver's parameter descriptor identified by the specified keyword.
Notes:

keyword: A keyword (a four-character code) that identifies the parameter descriptor to remove. Currently provides no indication if an error occurs.

The receiver must be an Apple event or Apple event record, both of which can contain parameters.

5.1.42 send(options as Integer, timeoutInSeconds as Double, byref error as NSErrorMBS) as NSAppleEventDescriptorMBS

Plugin Version: 16.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sends an Apple event.
Example:

```
// pick a file
dim f as FolderItem = SpecialFolder.Desktop.Child("test.rtf")
// make a descriptor for file
dim fd as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithFSRef(f)
// make a descriptor for target app. here by bundle id
dim bd as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithBundleIdentifier("com.apple.finder")
// make a descriptor for apple event, here OpenDocument event
dim ad as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.appleEventWithEventClass("aevt", "odoc", bd, fd.kAutoGenerateReturnID, fd.kAnyTransactionID)

// assign parameter
ad.setParamDescriptor(fd, "---")

// now run
dim e as NSErrorMBS
dim rd as NSAppleEventDescriptorMBS = ad.send(ad.NSAppleEventSendDefaultOptions, 0.1, e)

// error sending?
```

```
if e <>nil then
MsgBox e.LocalizedDescription
end if

Break // inspect rd for success or failure of event?
```

5.1.43 setAttributeDescriptor(descriptor as NSAppleEventDescriptorMBS, keyword as string)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds a descriptor to the receiver as an attribute identified by the specified keyword.
Notes:

descriptor: The attribute descriptor to add to the receiver.
keyword: A keyword (a four-character code) that identifies the attribute descriptor to add. If a descriptor with that keyword already exists in the receiver, it is replaced.

The receiver must be an Apple event. Currently provides no indication if an error occurs.

5.1.44 setDescriptor(descriptor as NSAppleEventDescriptorMBS, keyword as string)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds a descriptor, identified by a keyword, to the receiver.
Notes:

descriptor: The descriptor to add to the receiver.
keyword: A keyword (a four-character code) that identifies the descriptor to add. If a descriptor with that keyword already exists in the receiver, it is replaced.

The receiver must be an Apple event or Apple event record. Currently provides no indication if an error occurs.

5.1.45 setParamDescriptor(descriptor as NSAppleEventDescriptorMBS, keyword as string)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds a descriptor to the receiver as an Apple event parameter identified by the specified keyword.
Notes:

descriptor: The parameter descriptor to add to the receiver.
keyword: A keyword (a four-character code) that identifies the parameter descriptor to add. If a descriptor with that keyword already exists in the receiver, it is replaced.

The receiver must be an Apple event or Apple event record, both of which can contain parameters.

5.1.46 Properties

5.1.47 aeDesc as Ptr

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a pointer to the AEDesc structure that is encapsulated by the receiver, if it has one.
Notes:

If the receiver has a valid AEDesc structure, returns a pointer to it; otherwise returns nil.
(Read only property)

5.1.48 applicationURLValue as String

Plugin Version: 16.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The application URL.
Example:

```
dim f as FolderItem = SpecialFolder.Applications.Child("Stickies.app")
dim u as string = f.URLPath
dim d as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithApplicationURL(u)
MsgBox d.applicationURLValue
```

Notes: (Read only property)

5.1.49 booleanValue as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the contents of the receiver as a Boolean value, coercing (to typeBoolean) if necessary.
Example:

```
dim lines(-1) as string

lines.Append "set a to 1"
lines.Append "set b to 1"
```

```
lines.Append "return a = b" // return a boolean result

// compile, run and show value
dim source as string = Join(lines,EndOfLine)
dim n as new NSAppleScriptMBS(source)

dim error as Dictionary
dim d as NSAppleEventDescriptorMBS = n.execute(Error)

MsgBox str(d.booleanValue)
```

Notes:

Returns the contents of the descriptor, as a Boolean value, or false if an error occurs.
(Read only property)

5.1.50 bundleIDValue as String

Plugin Version: 16.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Queries the bundle identifier.
Example:

```
dim d as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithBundleIdentifier("com.apple.iCal")
MsgBox d.bundleIDValue
```

Notes: (Read only property)

5.1.51 data as Memoryblock

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's data as a memoryblock.
Notes:

Returns an instance of memoryblock containing the receiver's data, or nil if an error occurs.
(Read only property)

5.1.52 dateValue as date

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the contents of the receiver as a date value.
Example:

```
dim d as new date
dim n as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithDate(d)

dim x as date = n.dateValue
MsgBox x.LongDate+" "+x.LongTime // shows today
```

Notes: (Read only property)

5.1.53 description as string

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The descriptor for this event.
Example:

```
dim n as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithString("Hello")
MsgBox n.description
```

Notes:

This is a text representation for debugging.
(Read only property)

5.1.54 descriptorType as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the descriptor type of the receiver.
Notes: (Read only property)

5.1.55 doubleValue as Double

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the contents of the receiver as a double.
Example:

```
dim a as NSAppleEventDescriptorMBS
a = NSAppleEventDescriptorMBS.descriptorWithString("5")
MsgBox str(a.doubleValue) // shows 5
```

Notes: (Read only property)

5.1.56 enumCodeValue as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the contents of the receiver as an enumeration type, coercing (to typeEnumerated) if necessary.
Notes:

Returns the contents of the descriptor, as an enumeration type, or 0 if an error occurs.
(Read only property)

5.1.57 eventClass as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the event class for the receiver.
Notes:

Returns the event class (a four-character code) for the receiver, or 0 if an error occurs.

The receiver must be an Apple event. An Apple event is identified by its event class and event ID, a pair of four-character codes stored as 32-bit integers. For example, most events in the Standard suite have the four-character code 'core' (defined as the constant kAECoreSuite in AE.framework, a subframework of ApplicationServices.framework). For more information on event classes and event IDs, see Building an Apple Event in Apple Events in Apple Events Programming Guide.
(Read only property)

5.1.58 eventID as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the event ID for the receiver.
Notes:

The event ID (a four-character code) for the receiver, or 0 if an error occurs.

The receiver must be an Apple event. An Apple event is identified by its event class and event ID, a pair of four-character codes stored as 32-bit integers. For example, the open Apple event from the Standard suite

has the four-character code 'odoc' (defined as the constant kAEOpen in AE.framework, a subframework of ApplicationServices.framework).
(Read only property)

5.1.59 fileURLValue as String

Plugin Version: 16.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The file URL.
Example:

```
dim f as FolderItem = SpecialFolder.Applications.Child("Stickies.app")
dim d as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithFileURL(f)
MsgBox d.fileURLValue
```

Notes: (Read only property)

5.1.60 FSRefValue as folderitem

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Resolves a folderitem reference.
Example:

```
// pick a folderitem
dim folder as FolderItem = SpecialFolder.Desktop

// create value with file reference
dim d as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithFSRef(folder)

// show path
MsgBox d.stringValue

// convert back to FolderItem
dim file as FolderItem = d.FSRefValue

// show path
MsgBox file.AbsolutePath
```

Notes:

NSAppleEventDescriptorMBS objects with strings, FSRef or Alias data are converted automatically.
(Read only property)

5.1.61 Handle as Integer

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the internal reference to the NSAppleEventDescriptor object.
Notes: (Read and Write property)

5.1.62 int16Value as Int16

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the contents of the receiver as an int16.
Example:

```
dim a as NSAppleEventDescriptorMBS
a = NSAppleEventDescriptorMBS.descriptorWithString("5")
MsgBox str(a.int16Value) // shows 5
```

Notes: (Read only property)

5.1.63 int32Value as Int32

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the contents of the receiver as an integer, coercing (to typeSInt32) if necessary.
Example:

```
dim a as NSAppleEventDescriptorMBS
a = NSAppleEventDescriptorMBS.descriptorWithString("5")
MsgBox str(a.int32Value) // shows 5
```

Notes:

Returns the contents of the descriptor, as an integer value, or 0 if an error occurs.
(Read only property)

5.1.64 isRecordDescriptor as Boolean

Plugin Version: 16.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Return whether or not a descriptor is a record-like descriptor.
Notes:

Record-like descriptors function as records, but may have a descriptorType other than AERecord, such as

ObjectSpecifier.
(Read only property)

5.1.65 numberOfItems as Integer

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the number of descriptors in the receiver's descriptor list.
Example:

```
dim n as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.listDescriptor
dim d as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithString("Hello")
dim e as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithString("World")

n.insertDescriptor(d,1)
n.insertDescriptor(e,2)

MsgBox str(n.numberOfItems)

dim x1 as NSAppleEventDescriptorMBS = n.descriptorAtIndex(1)
dim x2 as NSAppleEventDescriptorMBS = n.descriptorAtIndex(2)
MsgBox x1.stringValue+" "+x2.stringvalue
```

Notes:

Returns the number of descriptors in the receiver's descriptor list (possibly 0); returns 0 if an error occurs.
(Read only property)

5.1.66 processIDValue as Integer

Plugin Version: 16.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Queries the process ID.
Example:

```
// get my PID
dim p as new ProcessMBS
p.GetCurrentProcess
dim pid as Integer = p.ProcessID

// make process ID descriptor
dim n as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithProcessIdentifier(pid)

// show it
MsgBox "ProcessID: "+str(n.processIDValue) + EndOfLine + n.stringValue
```

Notes: (Read only property)

5.1.67 returnID as Int16

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's return ID (the ID for a reply Apple event).
Notes:

Returns the receiver's return ID (an integer value), or 0 if an error occurs.
(Read only property)

5.1.68 singleValue as single

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the contents of the receiver as a single value.
Example:

```
dim a as NSAppleEventDescriptorMBS
a = NSAppleEventDescriptorMBS.descriptorWithString("5")
MsgBox str(a.singleValue) // shows 5
```

Notes: (Read only property)

5.1.69 stringValue as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the contents of the receiver as a Unicode text string, coercing (to typeUnicodeText) if necessary.
Example:

```
dim a as NSAppleEventDescriptorMBS

a = NSAppleEventDescriptorMBS.descriptorWithString("Hello World")

MsgBox a.stringValue
```

Notes:

Returns the contents of the descriptor, as a string, or "" if an error occurs.
(Read only property)

5.1.70 transactionID as Int32

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's transaction ID, if any.
Notes:

Returns the receiver's transaction ID (an integer value), or 0 if an error occurs.

The receiver must be an Apple event. Currently provides no indication if an error occurs. For more information on transactions, see the description for appleEventWithEventClass.
(Read only property)

5.1.71 typeCodeValue as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the contents of the receiver as a type, coercing (to typeType) if necessary.
Notes: (Read only property)

5.1.72 UInt32Value as UInt32

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the contents of the receiver as an UInt32.
Example:

```
dim a as NSAppleEventDescriptorMBS
a = NSAppleEventDescriptorMBS.descriptorWithString("5")
MsgBox str(a.UInt32Value) // shows 5
```

Notes: (Read only property)

5.1.73 Constants

5.1.74 kAnyTransactionID = 0

Plugin Version: 11.2. **Function:** Special constant for transaction ID.
Notes: no transaction is in use

5.1.75 kAutoGenerateReturnID = -1

Plugin Version: 11.2. **Function:** Special constant for return ID.
Notes: AECreateAppleEvent will generate a session-unique ID internally.

5.1.76 NSAppleEventSendAlwaysInteract = & h30

Plugin Version: 16.2. **Function:** One of the send options.
Notes: Server should always interact with user where appropriate.

5.1.77 NSAppleEventSendCanInteract = & h20

Plugin Version: 16.2. **Function:** One of the send options.
Notes: Server may try to interact with user.

5.1.78 NSAppleEventSendCanSwitchLayer = & h40

Plugin Version: 16.2. **Function:** One of the send options.
Notes: Interaction may switch layer.

5.1.79 NSAppleEventSendDefaultOptions = & h23

Plugin Version: 16.2. **Function:** One of the send options.
Notes: Default options: WaitForReply with CanInteract.

5.1.80 NSAppleEventSendDontAnnotate = & h10000

Plugin Version: 16.2. **Function:** One of the send options.
Notes: Don't automatically add any sandbox or other annotations to the event.

5.1.81 NSAppleEventSendDontExecute = & h2000

Plugin Version: 16.2. **Function:** One of the send options.
Notes: Don't execute this event; used for recording.

5.1.82 NSAppleEventSendDontRecord = & H1000

Plugin Version: 16.2. **Function:** One of the send options.
Notes: Don't record this event.

5.1.83 NSAppleEventSendNeverInteract = & h10

Plugin Version: 16.2. **Function:** One of the send options.
Notes: Server should not interact with user.

5.1.84 NSAppleEventSendNoReply = 1

Plugin Version: 16.2. **Function:** One of the send options.
Notes: Sender doesn't want a reply to event.

5.1.85 NSAppleEventSendQueueReply = 2

Plugin Version: 16.2. **Function:** One of the send options.
Notes: Sender wants a reply but won't wait.

5.1.86 NSAppleEventSendWaitForReply = 3

Plugin Version: 16.2. **Function:** One of the send options.
Notes: Sender wants a reply and will wait.

5.2 class NSAppleEventHandlerMBS

5.2.1 class NSAppleEventHandlerMBS

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The class for an apple event handler.

5.2.2 Methods

5.2.3 Constructor

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor.

5.2.4 Destructor

Plugin Version: 16.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The destructor.

5.2.5 Properties

5.2.6 Handle as Integer

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Internal object reference.
Notes: (Read and Write property)

5.2.7 Events

5.2.8 handleAppleEvent(theEvent as NSAppleEventDescriptorMBS, replyEvent as NSAppleEventDescriptorMBS)

Plugin Version: 12.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called when an event needs to be handled.

5.3 class NSAppleEventManagerMBS

5.3.1 class NSAppleEventManagerMBS

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The class for the Apple Event Manager.
Notes:

Provides a mechanism for registering handler routines for specific types of Apple events and dispatching events to those handlers.

Cocoa provides built-in scriptability support that uses scriptability information supplied by an application to automatically convert Apple events into script command objects that perform the desired operation. However, some applications may want to perform more basic Apple event handling, in which an application registers handlers for the Apple events it can process, then calls on the Apple Event Manager to dispatch received Apple events to the appropriate handler. NSAppleEventManager supports these mechanisms by providing methods to register and remove handlers and to dispatch Apple events to the appropriate handler, if one exists. For related information, see How Cocoa Applications Handle Apple Events (on Apple Developer Website).

For information about the Apple Event Manager, see Apple Event Manager Reference and Apple Events Programming Guide (on Apple Developer Website).

5.3.2 Methods

5.3.3 appleEventForSuspensionID(id as NSAppleEventManagerSuspensionIDMBS) as NSAppleEventDescriptorMBS

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Given a suspensionID returned by an invocation of suspendCurrentAppleEvent, returns the descriptor for the event whose handling was suspended.

5.3.4 Constructor

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor.

5.3.5 currentAppleEvent as NSAppleEventDescriptorMBS

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the descriptor for currentAppleEvent if an Apple event is being handled on the current thread.

Notes: An Apple event is being handled on the current thread if a handler that was registered with setEventHandler is being messaged at this instant or setCurrentAppleEventAndReplyEventWithSuspensionID has just been invoked. Returns nil otherwise. The effects of mutating or retaining the returned descriptor are undefined, although it may be copied.

5.3.6 currentReplyAppleEvent as NSAppleEventDescriptorMBS

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the corresponding reply event descriptor if an Apple event is being handled on the current thread.
Notes: An Apple event is being handled on the current thread if currentAppleEvent does not return nil. Returns nil otherwise. This descriptor, including any mutations, will be returned to the sender of the current event when all handling of the event has been completed, if the sender has requested a reply. The effects of retaining the descriptor are undefined; it may be copied, but mutations of the copy are not returned to the sender of the current event.

5.3.7 NSAppleEventManagerWillProcessFirstEventNotification as string

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS.
Notes: Posted by NSAppleEventManager before it first dispatches an Apple event. Your application can use this notification to avoid registering any Apple event handlers until the first time at which they may be needed. The notification object is the NSAppleEventManager. This notification does not contain a userInfo dictionary.

5.3.8 removeEventHandlerForEventClass(eventClass as string, eventID as string)

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** If an Apple event handler has been registered for the event specified by eventClass and eventID, removes it.

5.3.9 replyAppleEventForSuspensionID(id as NSAppleEventManagerSuspensionIDMBS) as NSAppleEventDescriptorMBS

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Given a nonzero suspensionID returned by an invocation of suspendCurrentAppleEvent, returns the corresponding reply event descriptor.
Notes: This descriptor, including any mutations, will be returned to the sender of the suspended event when handling of the event is resumed, if the sender has requested a reply. The effects of retaining the descriptor are undefined; it may be copied, but mutations of the copy are returned to the sender of the suspended event. replyAppleEventForSuspensionID may be invoked in any thread, not just the one in which

the corresponding invocation of suspendCurrentAppleEvent occurred.

5.3.10 resumeWithSuspensionID(id as NSAppleEventManagerSuspensionIDMBS)

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Given a suspensionID returned by an invocation of suspendCurrentAppleEvent, signal that handling of the suspended event may now continue.
Notes: This may result in the immediate sending of the reply event to the sender of the suspended event, if the sender has requested a reply. If suspensionID has been used in a previous invocation of setCurrentAppleEventAndReplyEventWithSuspensionID the effects of that invocation are completely undone. Redundant invocations of resumeWithSuspensionID are ignored. Subsequent invocations of other NSAppleEventManager methods using the same suspension ID are invalid. resumeWithSuspensionID may be invoked in any thread, not just the one in which the corresponding invocation of suspendCurrentAppleEvent occurred.

5.3.11 setCurrentAppleEventAndReplyEventWithSuspensionID(id as NSAppleEventManagerSuspensionIDMBS)

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Given a nonzero suspensionID returned by an invocation of suspendCurrentAppleEvent, sets the values that will be returned by subsequent invocations of currentAppleEvent and currentReplyAppleEvent to be the event whose handling was suspended and its corresponding reply event, respectively.
Notes: Redundant invocations of setCurrentAppleEventAndReplyEventWithSuspensionID are ignored.

5.3.12 setEventHandler(handler as NSAppleEventHandlerMBS, eventClass as string, eventID as string)

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Registers the Apple event handler specified by handler for the event specified by eventClass and eventID.

5.3.13 suspendCurrentAppleEvent as NSAppleEventManagerSuspensionIDMBS

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Suspends the handling of the current event and returns an ID that must be used to resume the handling of the event if an Apple event is being handled on the current thread.
Notes: An Apple event is being handled on the current thread if currentAppleEvent does not return nil. Returns zero otherwise. The suspended event is no longer the current event after this method returns.

5.3.14 Properties

5.3.15 Handle as Integer

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Internal object reference.
Notes: (Read and Write property)

5.4 class NSAppleEventManagerSuspensionIDMBS

5.4.1 class NSAppleEventManagerSuspensionIDMBS

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Identifies an Apple event whose handling has been suspended.
Notes: This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

5.4.2 Methods

5.4.3 Constructor

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The private constructor.

5.4.4 Properties

5.4.5 Handle as Integer

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Internal object reference.
Notes: (Read and Write property)

5.5 class NSAppleScriptMBS

5.5.1 class NSAppleScriptMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The NSAppleScriptMBS class provides the ability to load, compile, and execute scripts.
Example:

```
dim source as string = "tell Application ""iTunes"" to pause"
dim n as new NSAppleScriptMBS(source)
call n.execute
```

Notes:

Important: You should access NSAppleScriptMBS only from the main thread.

This class provides applications with the ability to

- load a script from a URL or from a text string
- compile or execute a script or an individual Apple event
- obtain an NSAppleEventDescriptorMBS containing the reply from an executed script or event
- obtain an attributed string for a compiled script, suitable for display in a script editor
- obtain various kinds of information about any errors that may occur

Important: NSAppleScriptMBS provides the execute method so that you can send an Apple event to invoke a handler in a script. (In an AppleScript script, a handler is the equivalent of a function.) However, you cannot use this method to send Apple events to other applications.

When you create an instance of NSAppleScriptMBS object, you can use a URL or a folderitem to specify a script that can be in either text or compiled form, or you can supply the script as a string. Should an error occur when compiling or executing the script, several of the methods return a dictionary containing error information. The keys for obtaining error information, such as NSAppleScriptErrorMessage, are described in the Constants section.

5.5.2 Methods

5.5.3 compile as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Compiles the receiver, if it is not already compiled.

Example:

```
dim source as string = "tell application ""iTunes""" +EndOfLine+"pause" +EndOfLine+"end tell"
dim n as new NSAppleScriptMBS(source)

dim error as Dictionary
if n.compile then
MsgBox "OK"
else
MsgBox error.Value(n.NSAppleScriptErrorMessage)
end if
```

Notes:

error: Optional, on return, if an error occurs, an error information dictionary.
Return Value
Returns true for success or if the script was already compiled, false otherwise.
See also:

- 5.5.4 compile(byref error as dictionary) as boolean 240

5.5.4 compile(byref error as dictionary) as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Compiles the receiver, if it is not already compiled.
Example:

```
dim source as string = "tell application ""iTunes""" +EndOfLine+"pause" +EndOfLine+"end tell"
dim n as new NSAppleScriptMBS(source)

dim error as Dictionary
if n.compile(error) then
MsgBox "OK"
else
MsgBox error.Value(n.NSAppleScriptErrorMessage)
end if
```

Notes:

error: Optional, on return, if an error occurs, an error information dictionary.
Return Value
Returns true for success or if the script was already compiled, false otherwise.
See also:

- 5.5.3 compile as boolean 239

5.5.5 Constructor(file as folderitem, byref error as Dictionary)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a newly allocated script instance from the source identified by the passed folderitem.
Example:

```
dim file as FolderItem = SpecialFolder.Desktop.Child("test.scpt")
dim error as Dictionary
dim n as new NSAppleScriptMBS(file, error)

if n.handle = 0 then
dim err as Integer = error.lookup(n.NSAppleScriptErrorNumber,0)
if err = -43 then
MsgBox "File not found."
else
MsgBox "Some other error. "+str(n)
end if
else
MsgBox n.source
end if
```

Notes:

file: A folderitem that locates a script, in either text or compiled form.
error: On return, if an error occurs, the error information dictionary.

Handle is zero in case of error.
See also:

- 5.5.6 Constructor(source as string) 241
- 5.5.7 Constructor(sourceLines() as string) 242
- 5.5.8 Constructor(URL as string, byref error as Dictionary) 243

5.5.6 Constructor(source as string)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a newly allocated script instance from the passed source.
Example:

```
dim source as string = "beep"
dim n as new NSAppleScriptMBS(source)
```

Notes: Handle is zero in case of error.
See also:

- 5.5.5 Constructor(file as folderitem, byref error as Dictionary) 241
- 5.5.7 Constructor(sourceLines() as string) 242
- 5.5.8 Constructor(URL as string, byref error as Dictionary) 243

5.5.7 Constructor(sourceLines() as string)

Plugin Version: 13.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a newly allocated script instance from the passed source.
Example:

```
dim lines() as string

lines.Append "property hello : ""Hallo Leute"""
lines.Append "property just : ""Just a test"""
lines.Append "display dialog hello"
lines.Append "return just"

dim a as new NSAppleScriptMBS(lines)

// compile
call a.Compile

// show names
dim names() as string = a.properties
MsgBox Join(names,EndOfLine)

// query value
MsgBox a.valueDescriptorForProperty("hello").stringValue

// change value
dim o as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithString("just a test")
call a.setValueDescriptorForProperty("hello", o)

// and query again
MsgBox a.valueDescriptorForProperty("hello").stringValue
```

Notes: Handle is zero in case of error.
See also:

- 5.5.5 Constructor(file as folderitem, byref error as Dictionary) 241
- 5.5.6 Constructor(source as string) 241

• 5.5.8 Constructor(URL as string, byref error as Dictionary) 243

5.5.8 Constructor(URL as string, byref error as Dictionary)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a newly allocated script instance from the source identified by the passed URL.
Notes:

file: A folderitem that locates a script, in either text or compiled form.
error: On return, if an error occurs, the error information dictionary.

Handle is zero in case of error.
See also:

• 5.5.5 Constructor(file as folderitem, byref error as Dictionary) 241

• 5.5.6 Constructor(source as string) 241

• 5.5.7 Constructor(sourceLines() as string) 242

5.5.9 copy as NSAppleScriptMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a copy of this object.
Example:

```
dim source as string = "tell application ""iTunes""" +EndOfLine+"pause"+EndOfLine+"end tell"
dim n as new NSAppleScriptMBS(source)

dim copy as NSAppleScriptMBS = n.copy
call copy.execute
```

5.5.10 execute as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Executes the receiver, compiling it first if it is not already compiled.
Example:

```
dim source as string = "tell Application ""iTunes"" to pause"
dim n as new NSAppleScriptMBS(source)
call n.execute
```

Notes:

error: Optional, on return, if an error occurs, an error information dictionary.
Returns the result of executing the event, or nil if an error occurs.
Any changes to property values caused by executing the script do not persist.
See also:

- 5.5.11 execute(byref error as dictionary) as NSAppleEventDescriptorMBS 244

5.5.11 execute(byref error as dictionary) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Executes the receiver, compiling it first if it is not already compiled.
Example:

```
dim source as string = "tello Application ""iTunes"" to play"
dim error as dictionary
dim n as new NSAppleScriptMBS(source)
dim p as NSAppleEventDescriptorMBS = n.execute(Error)
if p <>nil then
MsgBox "OK"
else
MsgBox error.Lookup(n.NSAppleScriptErrorMessage,"unknown error")
end if
```

Notes:

error: Optional, on return, if an error occurs, an error information dictionary.
Returns the result of executing the event, or nil if an error occurs.
Any changes to property values caused by executing the script do not persist.
See also:

- 5.5.10 execute as NSAppleEventDescriptorMBS 243

5.5.12 executeAppleEvent(event as NSAppleEventDescriptorMBS, byref error as dictionary) as NSAppleEventDescriptorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Executes an Apple event in the context of the receiver, as a means of allowing the application to invoke a handler in the script.
Notes:

event: The Apple event to execute.
error: On return, if an error occurs, an error information dictionary.

Returns the result of executing the event, or nil if an error occurs.

Compiles the receiver before executing it if it is not already compiled.

Important: You cannot use this method to send Apple events to other applications.

5.5.13 executeSubroutine(Name as String, parameters() as NSAppleEventDescriptorMBS, byref error as dictionary) as NSAppleEventDescriptorMBS

Plugin Version: 16.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Calls a subroutine in a script.
Example:

```
// our script

Dim CodeLines() as string

CodeLines.Append "on Add(Name1, Name2)"
CodeLines.Append "return Name1 & "" "" & Name2"
CodeLines.Append "end Add"

// now compile it
Dim a as new NSAppleScriptMBS(CodeLines)
Dim error as dictionary
Dim CompileOkay As Boolean = a.Compile(error)

if CompileOkay then

// script name and parameters
Dim ScriptFuncName As String = "Add"

Dim ScriptParams() As NSAppleEventDescriptorMBS
ScriptParams.Append NSAppleEventDescriptorMBS.descriptorWithString("Hello")
ScriptParams.Append NSAppleEventDescriptorMBS.descriptorWithString("World")

// bow run it
Dim p as NSAppleEventDescriptorMBS

p = a.executeSubroutine(ScriptFuncName, ScriptParams, Error)
if error = nil then
// show result
Dim ScriptResult As String = p.stringValue

MsgBox "ScriptResult:" + EndOfLine + EndOfLine + ScriptResult
else
```

```
MsgBox "Error running script." + _
EndOfLine + EndOfLine + _
error.Lookup(a.NSAppleScriptErrorMessage, "Unknown error") + _
EndOfLine + EndOfLine + _
error.Lookup(a.NSAppleScriptErrorBriefMessage, "Unknown error") + _
EndOfLine + EndOfLine + _
error.Lookup(a.NSAppleScriptErrorNumber, "Unknown error")
end if
else
// Compile Error
MsgBox "Error loading script." + _
EndOfLine + EndOfLine + _
error.Lookup(a.NSAppleScriptErrorMessage, "Unknown error") + _
EndOfLine + EndOfLine + _
error.Lookup(a.NSAppleScriptErrorBriefMessage, "Unknown error") + _
EndOfLine + EndOfLine + _
error.Lookup(a.NSAppleScriptErrorNumber, "Unknown error")
end if
```

Notes:

Similar to executeAppleEvent, but creates the apple event for you.

Name: The name of the subroutine to execute.
parameters: The parameters for the subroutine.
error: On return, if an error occurs, an error information dictionary.

Returns the result of executing the event, or nil if an error occurs.
Compiles the receiver before executing it if it is not already compiled.
Important: You cannot use this method to send Apple events to other applications.

5.5.14 NSAppleScriptErrorAppName as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys in the error dictionary.
Notes: Value for this key is a string that specifies the name of the application that generated the error.

5.5.15 NSAppleScriptErrorBriefMessage as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys in the error dictionary.

Example:

```
dim source as string = "tell application ""iTunes""" +EndOfLine+"pause" +EndOfLine+"end if"
dim n as new NSAppleScriptMBS(source)

dim error as Dictionary
if not n.compile(error) then
// shows error about missing tell where it found an if.
MsgBox error.Value(n.NSAppleScriptErrorBriefMessage)
end if
```

Notes: Value for this key is a string that provides a brief description of the error.

5.5.16 NSAppleScriptErrorMessage as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys in the error dictionary.
Example:

```
dim source as string = "tell application ""iTunes""" +EndOfLine+"pause" +EndOfLine+"end if"
dim n as new NSAppleScriptMBS(source)

dim error as Dictionary
if n.compile(error) then
MsgBox "OK"
else
// shows error about missing tell where it found an if.
MsgBox error.Value(n.NSAppleScriptErrorMessage)
end if
```

Notes: Value for this key is a NSRangeMBS object.

5.5.17 NSAppleScriptErrorNumber as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys in the error dictionary.
Example:

```
dim source as string = "tell application ""iTunes""" +EndOfLine+"pause" +EndOfLine+"end if"
dim n as new NSAppleScriptMBS(source)

dim error as Dictionary
```

```
if not n.compile(error) then
// error about missing tell where it found an if.
MsgBox error.Value(n.NSAppleScriptErrorNumber) // shows -2741
end if
```

Notes: Value for this key is a number that specifies the error number.

5.5.18 NSAppleScriptErrorRange as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys in the error dictionary.
Example:

```
dim source as string = "tell application ""iTunes""" +EndOfLine+"pause"+EndOfLine+"end if"
dim n as new NSAppleScriptMBS(source)

dim error as Dictionary
if not n.compile(error) then
// error about missing tell where it found an if.
dim r as NSRangeMBS = error.Value(n.NSAppleScriptErrorRange)
MsgBox r.String // { 36,2 } , the position of the if
end if
```

Notes: Value for this key is a string that supplies a detailed description of the error condition.

5.5.19 properties as string()

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Queries the names of all properties in the script.
Example:

```
dim s as String
dim a as NSAppleScriptMBS
dim i,c,cc as Integer
dim z,t as String

s=s+"property hello : ""Hallo Leute""" +chr(13)
s=s+"property just : ""Just a test""" +chr(13)
s=s+"display dialog hello"+chr(13)
s=s+"return just"+chr(13)
```

```
MsgBox "The script:"+chr(13)+s
a=new NSAppleScriptMBS(s)

// compile
call a.Compile

// show names
dim names() as string = a.properties
MsgBox Join(names,EndOfLine)

// query value
MsgBox a.valueDescriptorForProperty("hello").stringValue

// change value
dim o as NSAppleEventDescriptorMBS = NSAppleEventDescriptorMBS.descriptorWithString("just a test")
call a.setValueDescriptorForProperty("hello", o)

// and query again
MsgBox a.valueDescriptorForProperty("hello").stringValue
```

5.5.20 setValueDescriptorForProperty(propertyName as string, value as NSAppleEventDescriptorMBS) as boolean

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets a property value.

5.5.21 valueDescriptorForProperty(propertyName as string) as NSAppleEventDescriptorMBS

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Queries a property value.

5.5.22 Properties

5.5.23 Handle as Integer

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference to the NSAppleScript object.
Notes: (Read and Write property)

5.5.24 isCompiled as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value that indicates whether the receiver's script has been compiled.
Example:

```
dim source as string = "tell Application ""iTunes"" to play"
dim n as new NSAppleScriptMBS(source)

MsgBox "isCompiled: "+str(n.isCompiled)

call n.compile

MsgBox "isCompiled: "+str(n.isCompiled)
```

Notes: (Read only property)

5.5.25 richTextSource as NSAttributedStringMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the syntax-highlighted source code of the receiver if the receiver has been compiled and its source code is available.
Example:

```
// init with some source
dim source as string = "tell Application ""iTunes"" to play"
dim n as new NSAppleScriptMBS(source)

// compile
call n.compile

// format text
dim richtext as NSAttributedStringMBS = n.richTextSource

if richtext = nil then
MsgBox "Failed to format source."
else
// write to RTF file
dim file as FolderItem = SpecialFolder.Desktop.Child("test.rtf")
dim b as BinaryStream = file.CreateBinaryFile("")

b.Write richtext.RTF
b.close

file.Launch
end if
```

Notes:

Returns nil otherwise. It is possible for an instance of NSAppleScript that has been instantiated with Construtor to be a script for which the source code is not available, but is nonetheless executable.
(Read only property)

5.5.26 source as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the script source for the receiver.
Notes:

Returns the script source code of the receiver if it is available, "" otherwise.

It is possible for an NSAppleScript that has been instantiated with Constructor to be a script for which the source code is not available but is nonetheless executable.
(Read only property)

Chapter 6

Cocoa

6.1 class NSAlertMBS

6.1.1 class NSAlertMBS

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The class for a standard Cocoa alert.

6.1.2 Methods

6.1.3 addButtonWithTitle(title as string) as Variant

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Customize the buttons in the alert panel.
Example:

```
// make dialog
dim a as NSAlertMBS = NSAlertMBS.alertWithMessageText("Hello World", "First Button", "Second Button")

// add button
dim thirdButton as NSButtonMBS = a.addButtonWithTitle("Third Button")

// and show dialog
call a.runModal
```

Notes:

Buttons are added from right to left (for left to right languages).
Returns NSButtonMBS object.

6.1.4 alertWithError(error as NSErrorMBS) as NSAlertMBS

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Given an NSError, create an NSAlert that can be used to present the error to the user.
Notes: The error's localized description, recovery suggestion, and recovery options will be used to set the alert's message text, informative text, and button titles, respectively.

6.1.5 alertWithMessageText(MessageText as string, defaultButton as string = "", alternateButton as string = "", otherButton as string = "", informativeText as string = "") as NSAlertMBS

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new alert with given property values.

6.1.6 beginSheetModalForWindow(win as NSWindowMBS)

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Begins a sheet on the document window.
Notes:

If the alert has an alertStyle of NSCriticalAlertStyle, it will be shown as a "critical" sheet; it will otherwise be presented as a normal sheet.
Calls later SheetDidEnd event with the result.

Please keep a reference to the dialog object alive to avoid trouble.
e.g. store reference in parent window, global property or app property.
See also:

- 6.1.7 beginSheetModalForWindow(win as window) 254

6.1.7 beginSheetModalForWindow(win as window)

Plugin Version: 14.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Begins a sheet on the document window.
Notes:

If the alert has an alertStyle of NSCriticalAlertStyle, it will be shown as a "critical" sheet; it will otherwise be presented as a normal sheet.

Calls later SheetDidEnd event with the result.

Please keep a reference to the dialog object alive to avoid trouble.
e.g. store reference in parent window, global property or app property.
See also:

- 6.1.6 beginSheetModalForWindow(win as NSWindowMBS) 254

6.1.8 buttons as Variant()

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Get the buttons, where the rightmost button is at index 0.
Example:

```
dim a as NSAlertMBS = NSAlertMBS.alertWithMessageText("Hello World", "First Button", "Second Button")
dim buttons() as Variant = a.buttons

for each b as NSButtonMBS in buttons
MsgBox b.title
next
```

Notes: Returns NSButtonMBS array.

6.1.9 close

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Closes the alert sheet.
Notes: The SheetDidEnd event will not run.

6.1.10 Constructor

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor for an empty alert.
Notes: Use properties to configure the dialog.

6.1.11 Destructor

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The destructor.

6.1.12 layout

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Performs the layout for the dialog.
Notes: Can be used to indicate that the alert panel should do immediate layout, overriding the default behavior of laying out lazily just before showing panel. You should only call this method if you want to do your own custom layout after it returns. You should call this method only after you have finished with NSAlert customization, including setting message and informative text, and adding buttons and an accessory view if needed. You can make layout changes after this method returns, in particular to adjust the frame of an accessory view. Note that the standard layout of the alert may change in the future, so layout customization should be done with caution.

6.1.13 runModal as Integer

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Run the alert as an application-modal panel and return the result.

6.1.14 Properties

6.1.15 accessoryView as NSViewMBS

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The accessory view displayed in the alert panel.
Notes:

By default, the accessory view is positioned below the informative text and the suppression button (if any) and above the alert buttons, left-aligned with the informative text. If you want to customize the location of the accessory view, you must first call layout method.
(Read and Write property)

6.1.16 alertStyle as Integer

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The alert style.
Notes:

Value can be:

NSWarningAlertStyle	0	Warning
NSInformationalAlertStyle	1	Information
NSCriticalAlertStyle	2	Critical Error

(Read and Write property)

6.1.17 helpAnchor as String

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The help anchor to use.
Notes: (Read and Write property)

6.1.18 icon as NSImageMBS

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Custom icon for dialog.
Notes:

By default uses the image named NSApplicationIcon.
(Read and Write property)

6.1.19 informativeText as String

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The informative text.
Notes: (Read and Write property)

6.1.20 messageText as String

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The message text.
Notes: (Read and Write property)

6.1.21 showsHelp as Boolean

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether to show help button.
Notes:

True adds a help button to the alert panel. When the help button is pressed, the delegate is first consulted. If the event does not implement ShowHelp event or returns false, then NSHelpManager.openHelpAnchor is called with a nil book and the anchor specified by HelpAnchor, if any. An exception will be raised if the delegate returns false and there is no help anchor set.
(Read and Write property)

6.1.22 ShowsSuppressionButton as Boolean

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether or not the alert should contain a suppression checkbox.
Notes:

The default is false. This checkbox is typically used to give the user an option to not show this alert again. If shown, the suppression button will have a default localized title similar to @"Do not show this message again". You can customize this title using alert.suppressionButton.Title. When the alert is dismissed, you can get the state of the suppression button, using [[alert suppressionButton] state] and store the result in user defaults, for example. This setting can then be checked before showing the alert again. By default, the suppression button is positioned below the informative text, and above the accessory view (if any) and the alert buttons, and left-aligned with the informative text. However do not count on the placement of this button, since it might be moved if the alert panel user interface is changed in the future. If you need a checkbox for purposes other than suppression text, it is recommended you create your own using an accessory view.
(Read and Write property)

6.1.23 suppressionButton as Variant

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a suppression button which may be customized, including the title and the initial state.
Example:

```
// make dialog
dim a as NSAlertMBS = NSAlertMBS.alertWithMessageText("Hello World", "First Button", "Second Button")

// get button
dim suppressionButton as NSButtonMBS = a.suppressionButton

// change title
suppressionButton.title = "Hello World Button"
```

```
// want to show it
a.ShowsSuppressionButton = true

// and show dialog
call a.runModal
```

Notes:

You can also use this method to get the state of the button after the alert is dismissed, which may be stored in user defaults and checked before showing the alert again. In order to show the suppression button in the alert panel, you must set ShowsSuppressionButton to true.
Returns NSButtonMBS object.
(Read only property)

6.1.24 TimedOut as Boolean

Plugin Version: 16.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether we got a timeout.
Notes:

This is set to true when a timeout occurred.
(Read only property)

6.1.25 timeOut as Double

Plugin Version: 16.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Timeout for the dialog.
Notes:

Set this to the number of seconds after which the dialog should close.
(Read and Write property)

6.1.26 window as Variant

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the application-modal panel or the document-modal sheet corresponding to this alert.
Notes: (Read only property)

6.1.27 Events

6.1.28 SheetDidEnd(returnCode as Integer)

Plugin Version: 14.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The sheet did finish.

6.1.29 ShowHelp as boolean

Plugin Version: 14.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Show custom help.
Notes: See ShowHelp property.

6.1.30 Constants

6.1.31 NSAlertFirstButtonReturn = 1000

Plugin Version: 14.2. **Function:** One of the button return codes.
Notes: First (rightmost) button

6.1.32 NSAlertSecondButtonReturn = 1001

Plugin Version: 14.2. **Function:** One of the button return codes.
Notes: Second button.

6.1.33 NSAlertThirdButtonReturn = 1002

Plugin Version: 14.2. **Function:** One of the button return codes.
Notes: Third button.

6.1.34 NSCriticalAlertStyle = 2

Plugin Version: 14.2. **Function:** One of the alert styles.
Notes: Critical Error

6.1.35 NSInformationalAlertStyle = 1

Plugin Version: 14.2. **Function:** One of the alert styles.
Notes: Informational Alert

6.1.36 NSWarningAlertStyle = 0

Plugin Version: 14.2. **Function:** One of the alert styles.
Notes: Warning Alert (Default style)

6.2 class NSApplicationDelegateMBS

6.2.1 class NSApplicationDelegateMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The class for an Cocoa application delegate.
Notes:

Please install in app Constructor. App.Open may be too late.

Using this class you can get application related events before (!) the app class gets it. And of course more events than just the onces the app class have.

Only for Cocoa desktop targets.

In general the plugin calls first the event. Depending on the result it may pass the event to the Real Studio application delegate. If you have no code in the plugin event, everything just passes through and you should not see a difference.

The plugin application delegate is installed with the Constructor and uninstalled in the Destructor.

The original delegate from Real Studio is preserved and all messages are forwarded to it. Also when this object is destroyed, the old delegate is restored.

6.2.2 Events

6.2.3 applicationDidBecomeActive(Notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent by the default notification center immediately after the application becomes active.

6.2.4 applicationDidChangeScreenParameters(Notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent by the default notification center when the configuration of the displays attached to the computer is changed (either programmatically or when the user changes settings in the Displays control panel).

6.2.5 applicationDidDecodeRestorableState(coder as NSCoderMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** This event gives you the chance to restore your own state.

6.2.6 applicationDidFailToRegisterForRemoteNotificationsWithError(error as NSErrorMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Application failed to register for remote notifications.
Notes:

Check your provisioning profile for entitlements.

Available on Mac OS X 10.7 or newer.

6.2.7 applicationDidFinishLaunching(Notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent by the default notification center after the application has been launched and initialized but before it has received its first event.
Notes: Delegates can implement this method to perform further initialization. This method is called after the application's main run loop has been started but before it has processed any events. If the application was launched by the user opening a file, the delegate's applicationOpenFile method is called before this method. If you want to perform initialization before any files are opened, implement the applicationWillFinishLaunching method in your delegate, which is called before applicationOpenFile.)

6.2.8 applicationDidHide(Notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent by the default notification center immediately after the application is hidden.

6.2.9 applicationDidReceiveRemoteNotification(userInfo as Dictionary)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** A notification was received.
Notes:

The dictionary contains payload like this:

key "aps" contains another dictionary. This secon dictionary contains keys like "alert", "badge" and "sound".

Available on Mac OS X 10.7 or newer.

6.2.10 applicationDidRegisterForRemoteNotificationsWithDeviceToken(deviceToken as memoryblock)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Application registered for remote notifications.
Notes:

Tell your server the device token ID and use it in your push notifications.
Distinguish between iOS and Mac versions of your app!

Available on Mac OS X 10.7 or newer.

6.2.11 applicationDidResignActive(Notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent by the default notification center immediately after the application is deactivated.

6.2.12 applicationDidUnhide(Notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent by the default notification center immediately after the application is made visible.

6.2.13 applicationDidUpdate(Notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent by the default notification center immediately after the application object updates its windows.

6.2.14 applicationDockMenu as NSMenuMBS

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Allows the delegate to supply a dock menu for the application dynamically.
Notes: Return the menu to display in the dock. Or nil for having no/default menu.

6.2.15 applicationOpenFile(filename as string) as boolean

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate to open a single file.
Notes:

filename: The path of the file to open.

Return yes if the file was successfully opened or false if it was not.

Sent directly by application to the delegate. The method should open the file filename, returning true if the file is successfully opened, and false otherwise. If the user started up the application by double-clicking a file, the delegate receives the applicationOpenFile message before receiving applicationDidFinishLaunching. (applicationWillFinishLaunching is sent before applicationOpenFile.)

If you return false, the plugin will pass the event to the default Real Studio runtime application delegate, so the OpenDocument event can fire.

6.2.16 applicationOpenFiles(filenames() as string) as boolean

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate to open multiple files.
Notes:

sender: The application object associated with the delegate.
filenames: An array of strings containing the names of the files to open..

Identical to applicationOpenFile except that the receiver opens multiple files corresponding to the file names in the filenames array. Delegates should invoke the replyToOpenOrPrint method upon success or failure, or when the user cancels the operation.

If you add code to this event, it is possible that OpenDocument event in Real Studio does not fire.

6.2.17 applicationOpenFileWithoutUI(filename as string) as boolean

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate to open a file programmatically.
Notes:

filename: The name of the file to open.

Return true if the file was successfully opened or false if it was not.

Sent directly by sender to the delegate to request that the file filename be opened as a linked file. The method should open the file without bringing up its application's user interfacethat is, work with the file is under programmatic control of sender, rather than under keyboard control of the user.

If you add code to this event, it is possible that OpenDocument event in Real Studio does not fire.

6.2.18 applicationOpenTempFile(filename as string) as boolean

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate to open a temporary file.
Notes:

filename: The name of the temporary file to open.

True if the file was successfully opened or false if it was not.

Sent directly by application to the delegate. The method should attempt to open the file filename, returning true if the file is successfully opened, and false otherwise.

By design, a file opened through this method is assumed to be temporaryit's the application's responsibility to remove the file at the appropriate time.

If you add code to this event, it is possible that OpenDocument event in Real Studio does not fire.

6.2.19 applicationOpenUntitledFile as boolean

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate to open an untitled file.
Notes:

Return true if the file was successfully opened or false if it was not.
Sent directly by application to the delegate to request that a new, untitled file be opened.

If you return false, the plugin will pass the event to the default Real Studio runtime application delegate.

If you add code to this event, it is possible that OpenDocument event in Real Studio does not fire.

6.2.20 applicationPrintFile(filename as string) as boolean

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent when the user starts up the application on the command line with the -NSPrint option.
Notes:

filename: The name of the file to print.

Returns true if the file was successfully printed or false if it was not.

This message is sent directly by application to the delegate. The application terminates (using the terminate method) after this method returns.

If at all possible, this method should print the file without displaying the user interface. For example, if you pass the -NSPrint option to the TextEdit application, TextEdit assumes you want to print the entire contents of the specified file. However, if the application opens more complex documents, you may want to display a panel that lets the user choose exactly what they want to print.

6.2.21 applicationPrintFiles(fileNames() as string, printSettings as dictionary, showPrintPanels as boolean) as boolean

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Prints a group of files.
Notes:

fileNames: An array of strings, each of which contains the name of a file to print.

printSettings: A dictionary containing NSPrintInfo-compatible print job attributes.

showPrintPanels: A Boolean that specifies whether the print panel should be displayed for each file printed. Print progress indicators will be presented even if this value is false.

Return a constant indicating whether printing was successful. For a list of possible values, see NSPrinting* constants.

Return NSPrintingReplyLater if the result of printing cannot be returned immediately, for example, if printing will cause the presentation of a sheet. If your method returns NSPrintingReplyLater it must always invoke the NSApplicationMBS method replyToOpenOrPrint when the entire print operation has been completed, successfully or not.

6.2.22 applicationShouldHandleReopen(hasVisibleWindows as boolean) as boolean

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent by the application to the delegate prior to default behavior to reopen (rapp) AppleEvents.
Notes:

flag: Indicates whether the NSApplication object found any visible windows in your application. You can use this value as an indication of whether the application would do anything if you return true.

Return true if you want the application to perform its normal tasks or false if you want the application to do nothing.

These events are sent whenever the Finder reactivates an already running application because someone double-clicked it again or used the dock to activate it.

By default the Application Kit will handle this event by checking whether there are any visible NSWindow (not NSPanel) objects, and, if there are none, it goes through the standard untitled document creation (the same as it does if application is launched without any document to open). For most document-based applications, an untitled document will be created.

The application delegate will also get a chance to respond to the normal untitled document delegate methods. If you implement this method in your application delegate, it will be called before any of the default behavior happens. If you return true, then NSApplication will proceed as normal. If you return false, then NSApplication will do nothing. So, you can either implement this method with a version that does nothing, and return false if you do not want anything to happen at all (not recommended), or you can implement this method, handle the event yourself in some custom way, and return false.

Miniaturized windows, windows in the Dock, are considered visible by this method, and cause flag to return true, despite the fact that miniaturized windows return false when sent an isVisible message.

Having no code in the event will tell the plugin to return true.

6.2.23 applicationShouldOpenUntitledFile as boolean

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked immediately before opening an untitled file.
Notes:

Return true if the application should open a new untitled file or false if it should not.

Use this method to decide whether the application should open a new, untitled file. Note that applicationOpenUntitledFile is invoked if this method returns true.

If you return false here, the NewDocument event in Real Studio may not fire.
Having no code in this event is the same as returning true.

6.2.24 applicationShouldTerminate as Integer

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent to notify the delegate that the application is about to terminate..
Notes:

One of the values defined in NSTerminate* constants indicating whether the application should terminate.

This method is called after the application's Quit menu item has been selected, or after the terminate method has been called. Generally, you should return NSTerminateNow to allow the termination to complete, but you can cancel the termination process or delay it somewhat as needed. For example, you might delay termination to finish processing some critical data but then terminate the application as soon as you are done by calling the replyToApplicationShouldTerminate method.

6.2.25 applicationShouldTerminateAfterLastWindowClosed as boolean

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked when the user closes the last window the application has open.
Notes:

Return false if the application should not be terminated when its last window is closed; otherwise, true to terminate the application.

The application sends this message to your delegate when the application's last window is closed. It sends this message regardless of whether there are still panels open. (A panel in this case is defined as being an instance of NSPanel or one of its subclasses.)

If your implementation returns false, control returns to the main event loop and the application is not terminated. If you return true, your delegate's applicationShouldTerminate method is subsequently invoked to confirm that the application should be terminated.

Having no code in this event is the same as returning false.

6.2.26 applicationWillBecomeActive(Notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent by the default notification center immediately before the application becomes active.

6.2.27 applicationWillEncodeRestorableState(coder as NSCoderMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Event called to give you chance to encode any additional state into the NSCoder.
Notes: If the restorable state managed by the delegate changes, you must call NSApplicationMBS.invalidateRestorableState so that it will be re-encoded.

6.2.28 applicationWillFinishLaunching(Notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent by the default notification center immediately before the application object is initialized.

6.2.29 applicationWillHide(Notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent by the default notification center immediately before the application is hidden.

6.2.30 applicationWillPresentError(error as NSErrorMBS) as NSErrorMBS

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent to the delegate before the specified application presents an error message to the user.
Notes:

error: The error object that is used to construct the error message. Your implementation of this method can return a new NSError object or the same one in this parameter.

Return the error object to display.

You can implement this delegate method to customize the presentation of any error presented by your application, as long as no code in your application overrides either of the NSResponder methods presentError in a way that prevents errors from being passed down the responder chain to the application object.

Your implementation of this delegate method can examine error and, if its localized description or recovery

information is unhelpfully generic, return an error object with specific localized text that is more suitable for presentation in alert sheets and dialogs. If you do this, always use the domain and error code of the NSError object to distinguish between errors whose presentation you want to customize and those you do not. Don't make decisions based on the localized description, recovery suggestion, or recovery options because parsing localized text is problematic. If you decide not to customize the error presentation, just return the passed-in error object.

If you have no code in this event or you return nil, the plugin passes the given error back to the Cocoa runtime.

6.2.31 applicationWillResignActive(Notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent by the default notification center immediately before the application is deactivated.

6.2.32 applicationWillTerminate(Notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent by the default notification center immediately before the application terminates.

6.2.33 applicationWillUnhide(Notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent by the default notification center immediately after the application is unhidden.

6.2.34 applicationWillUpdate(Notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent by the default notification center immediately before the application object updates its windows.

6.2.35 restoreWindowWithIdentifier(identifier as string, state as NSCoderMBS, byref resultWindow as Variant, byref error as NSErrorMBS) as boolean

Plugin Version: 13.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked to request that a window be restored.
Notes:

If you plan to use this event, please initialize the NSApplicationDelegateMBS subclass in app.constructor.

identifier: The unique interface item identifier string that was previously associated with the window. Use this string to determine which window to create.
state: A coder object containing the window state information. This coder object contains the combined restorable state of the window, which can include the state of the window, its delegate, window controller, and document object. You can use this state to determine which window to create.

Pass back with the parameters:
The window that was created or nil if the window could not be created.
An error object if the window was not recognized or could not be created for whatever reason; otherwise, specify nil. In OS X 10.7, the error parameter is ignored.

Return true if the window was restored; otherwise false.

If the receiver knows how to restore the identified window, it should invoke the completion handler with the window, possibly creating it. It is acceptable to use a pre-existing window, though you should not pass the same window to more than one completion handler. If the receiver cannot restore the identified window (for example, the window referenced a document that has been deleted), it should invoke the completion handler with a nil window.

The receiver is application is passed the identifier of the window, which allows it to quickly check for known windows. For example, you might give your preferences window an identifier of "preferences" in the nib, and then check for that identifier in your implementation. The receiver is also passed the NSCoder instance containing the combined restorable state of the window, its delegate, the window controller, and any document. The receiver may decode information previously stored in the coder to determine what window to restore.

Available in OS X v10.7 and later.

The plugin implements this method for NSApplication and forwards the message to this event.
If you return true, please set either error or resultWindow values. resultWindow must be an NSWindowMBS or a window object.

6.2.36 Constants

6.2.37 NSPrintingCancelled = 0

Plugin Version: 11.2. **Function:** One of the constant values to reply to ApplicationPrintFiles event.
Notes: Printing was cancelled.

6.2.38 NSPrintingFailure = 3

Plugin Version: 11.2. **Function:** One of the constant values to reply to ApplicationPrintFiles event.
Notes: Printing failed.

6.2.39 NSPrintingReplyLater = 2

Plugin Version: 11.2. **Function:** One of the constant values to reply to ApplicationPrintFiles event.
Notes: The result of printing cannot be returned immediately, for example, if printing will cause the presentation of a sheet. If your method returns NSPrintingReplyLater it must always invoke replyToOpenOrPrint when the entire print operation has been completed, successfully or not.

6.2.40 NSPrintingSuccess = 1

Plugin Version: 11.2. **Function:** One of the constant values to reply to ApplicationPrintFiles event.
Notes: Printing was successful.

6.2.41 NSTerminateCancel = 0

Plugin Version: 11.2. **Function:** One of the constants to answer applicationShouldTerminate event.
Notes: The application should not be terminated.

6.2.42 NSTerminateLater = 2

Plugin Version: 11.2. **Function:** One of the constants to answer applicationShouldTerminate event.
Notes: It may be OK to proceed with termination later. Returning this value causes Cocoa to run the run loop in the NSModalPanelRunLoopMode until your application subsequently calls replyToApplicationShouldTerminate with the value true or false. This return value is for delegates that need to provide document modal alerts (sheets) in order to decide whether to quit.

6.2.43 NSTerminateNow = 1

Plugin Version: 11.2. **Function:** One of the constants to answer applicationShouldTerminate event.
Notes: It is OK to proceed with termination.

6.3 class NSApplicationMBS

6.3.1 class NSApplicationMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The cocoa application class.
Example:

```
dim a as NSApplicationMBS = NSApplicationMBS.sharedApplication

// set a custom picture

dim p as Picture = LogoMBS(500)
dim n as new NSImageMBS(p)
a.applicationIconImage = n

// restore
'a.applicationIconImage = nil
```

Notes:

The plugin only implements a small subset of what's available in Cocoa. If you miss something, please send us an email.

You can get an instance of this class using one of three ways:

- app.NSApplicationMBS function
- new NSApplicationMBS
- NSApplicationMBS.sharedInstance

6.3.2 Methods

6.3.3 activateIgnoringOtherApps(flag as boolean)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Makes the receiver the active application.
Notes:

flag: If false, the application is activated only if no other application is currently active. If true, the application activates regardless.

The flag parameter is normally set to false. When the Finder launches an application, using a value of false for flag allows the application to become active if the user waits for it to launch, but the application remains unobtrusive if the user activates another application. Regardless of the setting of flag, there may be a time lag before the application activatesyou should not assume the application will be active immediately after sending this message.

You rarely need to invoke this method. Under most circumstances, the Application Kit takes care of proper activation. However, you might find this method useful if you implement your own methods for inter-application communication.

You don't need to send this message to make one of the application's NSWindows key. When you send a makeKeyWindow message to an NSWindow object, you ensure that it is the key window when the application is active.

6.3.4 addWindowsItem(win as NSWindowMBS, title as string, isFilename as boolean)

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds an item to the Window menu for a given window.
Notes:

win: The window being added to the menu. If this window object already exists in the Window menu, this method has no effect.
Title: The string to display for the window's menu item. How the string is interpreted is dependent on the value in the isFilename parameter.
isFilename: If false, title appears literally in the menu; otherwise, title is assumed to be a converted pathname with the name of the file preceding the path (the way the NSWindow method setTitleWithRepresentedFilename shows a title)

You rarely need to invoke this method directly because Cocoa places an item in the Window menu automatically whenever you set the title of an NSWindow object.

6.3.5 arrangeInFront

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Arranges windows listed in the Window menu in front of all other windows.
Example:

```
dim a as new NSApplicationMBS
a.arrangeInFront
```

Notes: Windows associated with the application but not listed in the Window menu are not ordered to the front.

6.3.6 cancelUserAttentionRequest(request as Integer)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Cancels a previous user attention request.
Notes:

request: The request identifier returned by the requestUserAttention method.

A request is also canceled automatically by user activation of the application.

6.3.7 changeWindowsItem(win as NSWindowMBS, title as string, isFilename as boolean)

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Changes the item for a given window in the Window menu to a given string.
Notes:

win: The window whose title you want to change in the Window menu. If win is not in the Window menu, this method adds it.
title: The string to display for the window's menu item. How the string is interpreted is dependent on the value in the isFilename parameter.
isFilename: If false, title appears literally in the menu; otherwise, title is assumed to be a converted pathname with the name of the file preceding the path (the way the NSWindow method setTitleWithRepresentedFilename shows a title)

6.3.8 completeStateRestoration

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Completes the extended state restoration.
Notes:

This method informs the application that the extended state restoration is completed for the balancing .

If a window has some state that may take a long time to restore, such as a web page, you may use this method and methods to completeStateRestoration to extend the period of this crash protection beyond the default.

You call extendStateRestoration within your implementation of restoreWindowWithIdentifier. You would

then call completeStateRestoration some time after the window is fully restored. If the app crashes in the interim, then it may offer to discard restorable state on the next launch.

The extendStateRestoration and completeStateRestoration method act as a counter. Each call to extendStateRestorationincrements the counter, and must be matched with a corresponding call to completeStateRestoration which decrements it. When the counter reaches zero, the app is considered to have been fully restored, and any further calls are silently ignored.

This method is thread safe.
Available in OS X v10.7 and later.

6.3.9 Constructor

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor.
Example:

```
dim n as new NSApplicationMBS

n.dockTile.badgeLabel = "Hello"
n.dockTile.showsApplicationBadge = true
```

Notes: Creates an object which points to the shared NSApplication instance.

6.3.10 deactivate

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Deactivates the receiver.
Example:

```
dim a as new NSApplicationMBS

a.deactivate
```

Notes: Normally, you shouldn't invoke this methodthe Application Kit is responsible for proper deactivation.

6.3.11 disableRelaunchOnLogin

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Disable relaunching this app on login, if the app was running at the time the user logged out.
Notes:

These methods increment and decrement a counter respectively; if the counter is 0 at the time the user logs out, then the app may be relaunched when the user logs back in. The counter is initially zero, so by default apps are relaunched.

If your app should not be relaunched because it launches via some other mechanism (e.g. launchd), then the recommended usage is to call disableRelaunchOnLogin once, and never pair it with an enable call.

If your app should not be relaunched because it triggers a restart (e.g. an installer), then the recommended usage is to call disableRelaunchOnLogin immediately before you attempt to trigger a restart, and enableRelaunchOnLogin immediately after. This is because the user may cancel restarting; if the user later restarts for another reason, then your app should be brought back.

These methods are thread safe.
Available on Mac OS X 10.7 or newer.

6.3.12 enabledRemoteNotificationTypes as Integer

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns what badges you enabled.
Notes: Available on Mac OS X 10.7 or newer.

6.3.13 enableRelaunchOnLogin

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Enable relaunching this app on login, if the app was running at the time the user logged out.
Notes:

These methods increment and decrement a counter respectively; if the counter is 0 at the time the user logs out, then the app may be relaunched when the user logs back in. The counter is initially zero, so by default apps are relaunched.

If your app should not be relaunched because it launches via some other mechanism (e.g. launchd), then the recommended usage is to call disableRelaunchOnLogin once, and never pair it with an enable call.

If your app should not be relaunched because it triggers a restart (e.g. an installer), then the recommended

usage is to call disableRelaunchOnLogin immediately before you attempt to trigger a restart, and enableRelaunchOnLogin immediately after. This is because the user may cancel restarting; if the user later restarts for another reason, then your app should be brought back.

These methods are thread safe.
Available on Mac OS X 10.7 or newer.

6.3.14 extendStateRestoration

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Allows an application to extend its state restoration period.
Notes:

This method allows an application to extend the state restoration period beyond the usual. For example, the app crashes before state restoration is complete, then it may offer to discard restorable state on the next launch.

If a window has some state that may take a long time to restore, such as a web page, you may use this method and methods to completeStateRestoration to extend the period of this crash protection beyond the default.

You call extendStateRestoration within your implementation of restoreWindowWithIdentifier. You would then call completeStateRestoration some time after the window is fully restored. If the app crashes in the interim, then it may offer to discard restorable state on the next launch.

The extendStateRestoration and completeStateRestoration method act as a counter. Each call to extendStateRestoration increments the counter, and must be matched with a corresponding call to completeStateRestoration which decrements it. When the counter reaches zero, the app is considered to have been fully restored, and any further calls are silently ignored.

This method is thread safe.
Available in OS X v10.7 and later.

6.3.15 hide

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Hides all the receiver's windows, and the next application in line is activated.
Example:

NSApplicationMBS.sharedApplication.hide

Notes: This method is usually invoked when the user chooses Hide in the application's main menu. When this method begins, it posts an NSApplicationWillHideNotification to the default notification center. When it completes successfully, it posts an NSApplicationDidHideNotification.

6.3.16 hideOtherApplications

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Hides all applications, except the receiver.
Example:

```
NSApplicationMBS.sharedApplication.hideOtherApplications
```

6.3.17 invalidateRestorableState

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Invalidates the restorable state.
Notes: applicationWillEncodeRestorableState event will be called soon in your NSApplicationDelegateMBS subclass to get a new state encoded.

6.3.18 miniaturizeAll

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Miniaturizes all the receiver's windows.
Example:

```
NSApplicationMBS.sharedApplication.miniaturizeAll
```

6.3.19 modalWindow as NSWindowMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the modal window that the receiver is displaying.
Example:

```
// show title of current dialog
MsgBox NSApplicationMBS.sharedApplication.modalWindow.Title
```

Notes:

Returns the modal window being displayed or nil if no modal window is being displayed.

This method returns the current standalone modal window. It does not return sheets that are attached to other windows. If you need to retrieve a sheet window, use the attachedSheet method of NSWindow.

6.3.20 NSAppKitVersionNumber as Double

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This constant identifies the installed version of the Application Kit framework.
Example:

```
const NSAppKitVersionNumber10_0 = 577
const NSAppKitVersionNumber10_1 = 620
const NSAppKitVersionNumber10_2 = 663
const NSAppKitVersionNumber10_2_3 = 663.6
const NSAppKitVersionNumber10_3 = 743
const NSAppKitVersionNumber10_3_2 = 743.14
const NSAppKitVersionNumber10_3_3 = 743.2
const NSAppKitVersionNumber10_3_5 = 743.24
const NSAppKitVersionNumber10_3_7 = 743.33
const NSAppKitVersionNumber10_3_9 = 743.36
const NSAppKitVersionNumber10_4 = 824
const NSAppKitVersionNumber10_4_1 = 824.1
const NSAppKitVersionNumber10_4_3 = 824.23
const NSAppKitVersionNumber10_4_4 = 824.33
const NSAppKitVersionNumber10_4_7 = 824.41
const NSAppKitVersionNumber10_5 = 949
const NSAppKitVersionNumber10_5_2 = 949.27
const NSAppKitVersionNumber10_5_3 = 949.33
const NSAppKitVersionNumber10_6 = 1038
const NSAppKitVersionNumber10_7 = 1138
const NSAppKitVersionNumber10_7_2 = 1138.23

if NSApplicationMBS.NSAppKitVersionNumber >= NSAppKitVersionNumber10_5 then
MsgBox "This is Mac OS X 10.5 or newer."
end if
```

Notes: See NSAppKitVersionNumber* constants.

6.3.21 NSApplicationDidBecomeActiveNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted immediately after the application becomes active.
The notification object is sharedApplication. This notification does not contain a userInfo dictionary.

6.3.22 NSApplicationDidChangeScreenParametersNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted when the configuration of the displays attached to the computer is changed.
The configuration change can be made either programmatically or when the user changes settings in the Displays control panel. The notification object is sharedApplication. This notification does not contain a userInfo dictionary.

6.3.23 NSApplicationDidFinishLaunchingNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted at the end of the finishLaunching method to indicate that the application has completed launching and is ready to run.
The notification object is sharedApplication. This notification does not contain a userInfo dictionary.

6.3.24 NSApplicationDidFinishRestoringWindowsNotification as string

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Posted when the application is finished restoring windows.
Notes:

The notification is posted when the application is finished restoring windows, that is, when all the completion handlers from restoreWindowWithIdentifier have been called. This is always posted after NSApplicationWillFinishLaunchingNotification, but may be posted before or after NSApplicationDidFinishLaunchingNotification, depending on whether clients copy the completion handlers and invoke them later. If there were no windows to restore, then this notification is still posted at the corresponding point in app launch (between NSApplicationWillFinishLaunchingNotification and NSApplicationDidFinishLaunchingNotification).

The notification object is sharedApplication. This notification does not contain a userInfo dictionary.
Available in OS X v10.7 and later.

6.3.25 NSApplicationDidHideNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted at the end of the hide method to indicate that the application is now hidden.
The notification object is NSApp. This notification does not contain a userInfo dictionary.

6.3.26 NSApplicationDidResignActiveNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted immediately after the application gives up its active status to another application.
The notification object is NSApp. This notification does not contain a userInfo dictionary.

6.3.27 NSApplicationDidUnhideNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted at the end of the unhideWithoutActivation method to indicate that the application is now visible.
The notification object is NSApp. This notification does not contain a userInfo dictionary.

6.3.28 NSApplicationDidUpdateNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted at the end of the updateWindows method to indicate that the application has finished updating its windows.
The notification object is NSApp. This notification does not contain a userInfo dictionary.

6.3.29 NSApplicationLaunchIsDefaultLaunchKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the userinfo dictionary on didFinishLaunching.
Notes:

The following key is present in the userInfo of NSApplicationDidFinishLaunchingNotification or in the didFinishLaunching event. Its value is a number containing a bool. It will be false if the app was launched to open or print a file, to perform a Service, if the app had saved state that will be restored, or if the app launch was in some other sense not a "default" launch. Otherwise its value will be true.

Available on Mac OS X 10.7 or newer.

6.3.30 NSApplicationLaunchRemoteNotificationKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the userinfo dictionary on didFinishLaunching.
Notes:

User info keys for NSApplicationDidFinishLaunchingNotification.
Available on Mac OS X 10.7 or newer.

6.3.31 NSApplicationLaunchUserNotificationKey as string

Plugin Version: 12.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the user info keys for NSApplicationDidFinishLaunchingNotification.
Example:

```
Sub applicationDidFinishLaunching(Notification as NSNotificationMBS)
dim userInfo as Dictionary = Notification.userInfo
dim key as string = NSApplicationMBS.NSApplicationLaunchUserNotificationKey
dim UserNotification as NSUserNotificationMBS = userInfo.Lookup(key, nil)

if UserNotification <>nil then
MsgBox UserNotification.identifier+": "+UserNotification.informativeText
end if
End Sub
```

Notes:

This key is present in the userInfo of NSApplicationDidFinishLaunchingNotification. It will be present if your application was launched because a user activated a notification in the Notification Center. Its value is an NSUserNotification object.

Available in Mac OS X 10.8.

6.3.32 NSApplicationWillBecomeActiveNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted immediately after the application becomes active.
The notification object is NSApp. This notification does not contain a userInfo dictionary.

6.3.33 NSApplicationWillFinishLaunchingNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted at the start of the finishLaunching method to indicate that the application has completed its initialization process and is about to finish launching.
The notification object is NSApp. This notification does not contain a userInfo dictionary.

6.3.34 NSApplicationWillHideNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted at the start of the hide method to indicate that the application is about to be hidden.
The notification object is NSApp. This notification does not contain a userInfo dictionary.

6.3.35 NSApplicationWillResignActiveNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted immediately before the application gives up its active status to another application.
The notification object is sharedApplication. This notification does not contain a userInfo dictionary.

6.3.36 NSApplicationWillTerminateNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted by the terminate method to indicate that the application will terminate.
Posted only if the delegate method applicationShouldTerminate returns true. The notification object is sharedApplication. This notification does not contain a userInfo dictionary.

6.3.37 NSApplicationWillUnhideNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted at the start of the unhideWithoutActivation method to indicate that the application is about to become visible.
The notification object is sharedApplication. This notification does not contain a userInfo dictionary.

6.3.38 NSApplicationWillUpdateNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted at the start of the updateWindows method to indicate that the application is about to update its windows.
The notification object is sharedApplication. This notification does not contain a userInfo dictionary.

6.3.39 orderFrontCharacterPalette

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Opens the character palette.
Example:

```
dim a as new NSApplicationMBS
a.orderFrontCharacterPalette
```

Notes:

Available in Mac OS X v10.3 and later.

This shows the special characters palette.

6.3.40 orderFrontStandardAboutPanel

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Displays a standard About window.
Example:

```
dim a as new NSApplicationMBS

a.orderFrontStandardAboutPanel
```

Notes: This method calls orderFrontStandardAboutPanelWithOptions with a nil argument. See orderFrontStandardAboutPanelWithOptions for a description of what's displayed.

6.3.41 orderFrontStandardAboutPanelWithOptions(options as dictionary)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Displays a standard About window with information from a given options dictionary.
Example:

```
dim a as new NSApplicationMBS

// this image has no mask, so you'll see a white border
dim p as Picture = LogoMBS(500)
dim n as new NSImageMBS(p)
dim options as new Dictionary

// show window with default values
'a.orderFrontStandardAboutPanel

// we overwrite default values with new values
options.Value("Credits") = NSAttributedStringMBS.attributedStringWithString("Written by Christian Schmitz")
options.Value("ApplicationName") = "MyCoolApp"
options.Value("Version") = "1.2.3"
options.Value("Copyright") = " 2011 Monkeybread Software"
options.Value("ApplicationIcon") = n

a.orderFrontStandardAboutPanelWithOptions(options)

Exception ex as NSExceptionMBS
MsgBox ex.message
```

Notes:

options: A dictionary whose keys define the contents of the About window. See the discussion for a description of the available keys.

The following strings are keys that can occur in optionsDictionary:

" "	An NSAttributedStringMBS displayed in the info area of the panel. If not specified, this method then looks for a file named "Credits.html", "Credits.rtf", and "Credits.rtfd", in that order, in the bundle returned by the NSBundle class method mainBundle. The first file found is used. If none is found, the info area is left blank.
"ApplicationName"	A string displayed as the application's name. If not specified, this method then uses the value of CFBundleName (localizable). If neither is found, this method uses the process name.
"ApplicationIcon"	A NSImageMBS object displayed as the application's icon. If not specified, this method then looks for an image named "NSApplicationIcon", using NSImageMBS.imageNamed("NSApplicationIcon"). If neither is available, this method uses the generic application icon.
"Version"	A string with the build version number of the application ("58.4"), displayed as "(v58.4)". If not specified, obtain from the CFBundleVersion key in infoDictionary; if not specified, leave blank (the "(v)" is not displayed).
"Copyright"	A string with a line of copyright information. If not specified, this method then looks for the value of NSHumanReadableCopyright in the localized version infoDictionary. If neither is available, this method leaves the space blank.
"ApplicationVersion"	A string with the application version ("Mac OS X", "3", "WebObjects 4.5", "AppleWorks 6",...). If not specified, obtain from the CFBundleShortVersionString key in infoDictionary. If neither is available, the build version, if available, is printed alone, as "Version x.x".

6.3.42 OverlayApplicationIconImage(image as NSImageMBS)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Overlays the image. **Example:**

```
// draw a picture with a red dot on the top left

dim p as new Picture(512,512,32)

dim g as Graphics = p.Graphics
g.ForeColor = & cFF0000
g.FillRect 0,0,128,128
```

```
g = p.mask.Graphics

g.ForeColor = & cFFFFFF
g.Fillrect 0,0,512,512
g.ForeColor = & c000000
g.Filloval 0,0,128,128

Backdrop = p

// create nsimage
dim n as new NSImageMBS(p,p.mask)

// and overlay over original image
NSApplicationMBS.sharedApplication.OverlayApplicationIconImage n
```

Notes:

Same as setting applicationIconImage, but instead overlays the original image with the new image. This way you can show custom badges. For normal text badges, use NSDockTileMBS class.

Pass image = nil to reset application dock icon.

Size of the image seems to be 128 Pixel by default, but could go up to 1024 in the future. Plugin scales up or down as needed for you.

6.3.43 preventWindowOrdering

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Suppresses the usual window ordering in handling the most recent mouse-down event.
Notes: This method is only useful for mouse-down events when you want to prevent the window that receives the event from being ordered to the front.

6.3.44 registerForRemoteNotificationTypes(type as Integer)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Registers for remote notifications.
Example:

NSApplicationMBS.sharedApplication.registerForRemoteNotificationTypes NSApplicationMBS.NSRemoteNotificationTypeBadge

Notes:

Only applications distributed through the Mac App Store may use Push notifications.

Type can only be NSRemoteNotificationTypeBadge currently for Mac OS X 10.7.0.

Available on Mac OS X 10.7 or newer.

6.3.45 removeWindowsItem(win as NSWindowMBS)

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes the Window menu item for a given window.
Notes:

Win: The window whose menu item is to be removed.

This method doesn't prevent the item from being automatically added again. Use the excludedFromWindowsMenu method of NSWindow if you want the item to remain excluded from the Window menu.

6.3.46 replyToApplicationShouldTerminate(reply as boolean)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Responds to NSTerminateLater once the application knows whether it can terminate.
Notes:

souldTerminate: Specify true if you want the application to terminate; otherwise, specify false.

If your application delegate returns NSTerminateLater from its applicationShouldTerminate event, your code must subsequently call this method to let the NSApplication object know whether it can actually terminate itself.

6.3.47 replyToOpenOrPrint(reply as Integer)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Handles errors that might occur when the user attempts to open or print files.
Notes:

reply: The error that occurred. For a list of possible values, see "Constants."

Delegates should invoke this method if an error is encountered in the applicationOpenFiles or application-

PrintFiles delegate methods.

6.3.48 requestUserAttention(type as Integer) as Integer

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Starts a user attention request.
Example:

```
dim a as NSApplicationMBS = NSApplicationMBS.sharedApplication

if not a.isActive then // only when we are in background
call a.requestUserAttention(a.NSInformationalRequest) // dock bounces
end if
```

Notes:

requestType: The severity of the request. Can be NSInformationalRequest or NSCriticalRequest.

Returns the identifier for the request. You can use this value to cancel the request later using the cancelUserAttentionRequest method.

Activating the application cancels the user attention request. A spoken notification will occur if spoken notifications are enabled. Sending requestUserAttention to an application that is already active has no effect.

If the inactive application presents a modal panel, this method will be invoked with NSCriticalRequest automatically. The modal panel is not brought to the front for an inactive application.

6.3.49 runPageLayout

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Displays the app's page layout panel, an instance of NSPageLayout.
Example:

```
NSApplicationMBS.sharedApplication.runPageLayout
```

Notes: If the NSPageLayout instance does not exist, this method creates one. This method is typically invoked when the user chooses Page Setup from the application's FIle menu.

6.3.50 sendEvent(theEvent as NSEventMBS)

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Dispatches an event to other objects.
Notes:

You rarely invoke sendEvent directly, although you might want to override this method to perform some action on every event. sendEvent messages are sent from the main event loop (the run method). sendEvent is the method that dispatches events to the appropriate respondersNSApp handles application events, the NSWindow object indicated in the event record handles window-related events, and mouse and key events are forwarded to the appropriate NSWindow object for further dispatching.

If you need to override sendEvent method, please call MBS support.

6.3.51 sharedApplication as NSApplicationMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the application instance, creating it if it doesn't exist yet.
Notes: The plugin makes sure that there is only one application object by returning the same object each time.

6.3.52 showHelp

Plugin Version: 16.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Shows help.
Example:

NSApplicationMBS.sharedApplication.showHelp

Notes: If your project is properly registered, and the necessary keys have been set in the property list, this method launches Help Viewer and displays the first page of your apps help book.

6.3.53 startDictation

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Starts dictation.
Example:

NSApplicationMBS.sharedApplication.startDictation

Notes: For Mac OS X 10.8.

6.3.54 stopDictation

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Stops dictation.
Notes: For Mac OS X 10.8.

6.3.55 terminate

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Terminates the receiver.
Example:

```
NSApplicationMBS.sharedApplication.terminate
```

Notes:

This method is typically invoked when the user chooses Quit or Exit from the application's menu.

When invoked, this method performs several steps to process the termination request. First, it asks the application's document controller (if one exists) to save any unsaved changes in its documents. During this process, the document controller can cancel termination in response to input from the user. If the document controller does not cancel the operation, this method then calls the delegate's applicationShouldTerminate method. If applicationShouldTerminate returns NSTerminateCancel, the termination process is aborted and control is handed back to the main event loop. If the method returns NSTerminateLater, the application runs its run loop in the NSModalPanelRunLoopMode mode until the replyToApplicationShouldTerminate method is called with the value true or false. If the applicationShouldTerminate method returns NSTerminateNow, this method posts a NSApplicationWillTerminateNotification notification to the default notification center.

Do not bother to put final cleanup code in your application's main() functionit will never be executed. If cleanup is necessary, perform that cleanup in the delegate's applicationWillTerminate method.

6.3.56 unhide

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Restores hidden windows to the screen and makes the receiver active.
Example:

```
NSApplicationMBS.sharedApplication.unhide
```

6.3.57 unhideAllApplications

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Unhides all applications, including the receiver.
Example:

NSApplicationMBS.sharedApplication.unhideAllApplications

Notes: This action causes each application to order its windows to the front, which could obscure the currently active window in the active application.

6.3.58 unhideWithoutActivation

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Restores hidden windows without activating their owner (the receiver).
Example:

NSApplicationMBS.sharedApplication.unhideWithoutActivation

Notes: When this method begins, it posts an NSApplicationWillUnhideNotification to the default notification center. If it completes successfully, it posts an NSApplicationDidUnhideNotification.

6.3.59 unregisterForRemoteNotifications

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Unregisters for remote notifications.
Example:

NSApplicationMBS.sharedApplication.unregisterForRemoteNotifications

Notes: Available on Mac OS X 10.7 or newer.

6.3.60 updateWindows

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sends an update message to each onscreen window.
Notes:

This method is invoked automatically in the main event loop after each event when running in NSDefaultRunLoopMode or NSModalRunLoopMode. This method is not invoked automatically when running in NSEventTrackingRunLoopMode.

When this method begins, it posts an NSApplicationWillUpdateNotification to the default notification center. When it successfully completes, it posts an NSApplicationDidUpdateNotification.

6.3.61 updateWindowsItem(win as NSWindowMBS)

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Updates the Window menu item for a given window to reflect the edited status of that window.
Notes:

win: The window whose menu item is to be updated.

You rarely need to invoke this method because it is invoked automatically when the edit status of an NSWindow object is set.

6.3.62 windows as NSWindowMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array containing the receiver's window objects.
Example:

```
// show all window titles in message boxes
for each w as NSWindowMBS in NSApplicationMBS.sharedApplication.windows
MsgBox w.Title
next
```

Notes: Returns an array of NSWindow objects. This array includes both onscreen and offscreen windows.

6.3.63 windowWithWindowNumber(windowNumber as Integer) as NSWindowMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the window corresponding to the specified window number.
Example:

```
dim w as window = window1
w.Title = "This is our test window"

// get a window ID somewhere
dim WindowID as Integer = CGWindowMBS.GetWindowID(w)

// now find back the window
dim n as NSWindowMBS = NSApplicationMBS.sharedApplication.windowWithWindowNumber(windowid)

MsgBox n.Title
```

Notes:

windowNumber: The unique window number associated with the desired NSWindow object.

Returns the desired window object or nil if the window could not be found.

6.3.64 Properties

6.3.65 activationPolicy as Integer

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The application's activation policy.
Notes:

Currently, NSApplicationActivationPolicyNone and NSApplicationActivationPolicyAccessory may be changed to NSApplicationActivationPolicyRegular, but other modifications are not supported.

Available in Mac OS X v10.6 and later.
(Read and Write property)

6.3.66 applicationIconImage as NSImageMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The image used for the receiver's icon.
Example:

```
dim pic as Picture = LogoMBS(500)
dim mask as new Picture(500, 500, 32)
dim g as Graphics = mask.Graphics

g.ForeColor = & cFFFFFF
g.FillRect 0,0,g.Width, g.Height
g.ForeColor = & c000000
g.FillOval 0,0,g.Width, g.Height

dim n as new NSImageMBS(pic,mask)

NSApplicationMBS.sharedApplication.applicationIconImage = n
```

Notes:

An image containing the application's icon.

This property can set the icon in the dock application tile. This method scales the image as necessary so that it fits in the dock tile. You can use this method to change your application icon while running. To restore your application's original icon, you pass nil to this method.
(Read and Write property)

6.3.67 currentEvent as NSEventMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the current event, the last event the receiver retrieved from the event queue.
Notes:

The last event object retrieved by the application.

NSApp receives events and forwards them to the affected NSWindow objects, which then distribute them to the objects in its view hierarchy.

Only for Cocoa applications.
(Read only property)

6.3.68 currentSystemPresentationOptions as Integer

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the set of application presentation options that are currently in effect for the system.
Example:

```
dim a as new NSApplicationMBS

MsgBox "currentSystemPresentationOptions: "+str(a.currentSystemPresentationOptions)
```

Notes:

The presentation options. See NSApplicationPresentation* constants and combine them using a C bitwise OR operator.

These are the presentation options that have been put into effect by the currently active application.
(Read only property)

6.3.69 dockTile as NSDockTileMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the application's Dock tile.
Example:

```
dim a as new NSApplicationMBS

a.dockTile.badgeLabel = "Hello"
```

Notes:

Available in Mac OS X v10.5 and later.
(Read only property)

6.3.70 Handle as Integer

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference to the NSApplication object.
Notes: (Read and Write property)

6.3.71 helpMenu as NSMenuMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The help menu used by the application.
Notes:

If helpMenu is nil, the system will append the help to an appropriate menu and will not return a reference to that menu when this method is called.

Available in Mac OS X v10.6 and later.

If helpMenu is a non-nil menu it is set as the Help menu, and Spotlight for Help will be installed in it. If helpMenu is nil, AppKit will install Spotlight for Help into a menu of its choosing, and that menu is not returned from helpMenu.

If you wish to completely suppress Spotlight for Help, you can set a menu that does not appear in the menu bar.

NSApplication retains its Help menu and releases it when a different menu is set.
(Read and Write property)

6.3.72 isActive as Boolean

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value indicating whether this is the active application.
Example:

```
dim a as NSApplicationMBS = NSApplicationMBS.sharedApplication
MsgBox "isActive:" +str(a.isActive)
```

Notes:

True if this is the active application; false otherwise.
(Read only property)

6.3.73 isFullKeyboardAccessEnabled as Boolean

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns that status of Full Keyboard Access set in the Keyboard preference pane.
Example:

```
dim a as NSApplicationMBS = NSApplicationMBS.sharedApplication
MsgBox "isFullKeyboardAccessEnabled:" +str(a.isFullKeyboardAccessEnabled)
```

Notes:

True if Full Keyboard Access is enabled, otherwise false.

You may use this status to implement your own key loop or to implement in-control tabbing behavior similar to NSTableView.

Available in Mac OS X v10.6 and later.
(Read only property)

6.3.74 isHidden as Boolean

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value indicating whether the receiver is hidden.
Example:

MsgBox str(NSApplicationMBS.sharedApplication.isHidden)

Notes:

True if the receiver is hidden, false otherwise.
(Read only property)

6.3.75 isRunning as Boolean

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value indicating whether the main event loop is running.
Example:

MsgBox str(NSApplicationMBS.sharedApplication.isRunning)

Notes:

True if the main event loop is running; false otherwise.
False means the stop: method was invoked.

Should always be true for a Real Studio application.
(Read only property)

6.3.76 keyWindow as NSWindowMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the window that currently receives keyboard events.
Example:

```
// title of front window
MsgBox NSApplicationMBS.sharedApplication.keyWindow.Title
```

Notes:

The window object currently receiving keyboard events or nil if there is no key window.
This method might return nil if the application hasn't finished loading yet or if the receiver is not active.

Does return nil in Carbon applications.
(Read only property)

6.3.77 mainMenu as NSMenuMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The menu object representing the application's menu bar.
Example:

```
// shows titles of the menus in a Cocoa app
dim m as NSMenuMBS = NSApplicationMBS.sharedApplication.mainMenu

if m<>nil then
dim c as Integer = m.numberOfItems-1
for i as Integer = 0 to c

MsgBox m.Item(i).Title
next
end if
```

Notes:

Returns nil on a Carbon application.
(Read and Write property)

6.3.78 mainWindow as NSWindowMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the main window.
Example:

```
// shows title in Cocoa, but not in Carbon
MsgBox NSApplicationMBS.sharedApplication.mainWindow.Title
```

Notes:

The application's main window or nil if there is no main window.
This method might return nil if the application hasn't finished loading, if the receiver is not active, or if the application is hidden.
(Read only property)

6.3.79 presentationOptions as Integer

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The presentation options that should be in effect for the system when this application is active.
Example:

```
dim a as new NSApplicationMBS

// hide dock
a.presentationOptions = NSApplicationMBS.NSApplicationPresentationAutoHideDock
```

Notes:

Available in Mac OS X v10.6 and later.

Only certain combinations of "NSApplicationPresentationOptions" flags are supported. When given an invalid combination of option flags this method raises an exception NSInvalidArgumentException exception..

See NSApplicationPresentation* constants.
(Read and Write property)

6.3.80 servicesProvider as NSServiceProviderMBS

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Registers or queries the service provider.

Notes:

The service provider is an object that performs all services the application provides to other applications. When another application requests a service from the receiver, it sends the service request to aProvider. Service requests can arrive immediately after the service provider is set, so invoke this method only when your application is ready to receive requests.

Please keep an object reference around so the object is not going out of scope too early!
(Read and Write property)

6.3.81 userInterfaceLayoutDirection as Integer

Plugin Version: 16.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The layout direction of the user interface.
Notes:

This property contains the general user interface layout flow directions. For a list of possible values, see NSUserInterfaceLayoutDirection.

NSUserInterfaceLayoutDirectionLeftToRight = 0
NSUserInterfaceLayoutDirectionRightToLeft = 1

Available in OS X v10.6 and later.
(Read only property)

6.3.82 windowsMenu as NSMenuMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The window menu or nil if such a menu does not exist or has not yet been created.
Notes: (Read and Write property)

6.3.83 Constants

6.3.84 NSApplicationActivationPolicyAccessory = 1

Plugin Version: 11.2. **Function:** One of the activation policy constants.
Notes:

The application does not appear in the Dock and does not have a menu bar, but it may be activated programmatically or by clicking on one of its windows. This corresponds to value of the LSUIElement key in the application's Info.plist being 1.

Available in Mac OS X v10.6 and later.

6.3.85 NSApplicationActivationPolicyProhibited = 2

Plugin Version: 11.2. **Function:** One of the activation policy constants.
Notes:

The application does not appear in the Dock and may not create windows or be activated. This corresponds to the value of the LSBackgroundOnly key in the application's Info.plist being 1. This is also the default for unbundled executables that do not have Info.plists.
Available in Mac OS X v10.6 and later.

6.3.86 NSApplicationActivationPolicyRegular = 0

Plugin Version: 11.2. **Function:** One of the activation policy constants.
Notes:

The application is an ordinary app that appears in the Dock and may have a user interface. This is the default for bundled apps, unless overridden in the Info.plist.
Available in Mac OS X v10.6 and later.

6.3.87 NSApplicationPresentationAutoHideDock = 1

Plugin Version: 11.2. **Function:** One of the control constants for presentationOptions and currentSystemPresentationOptions functions.
Example:

```
dim a as new NSApplicationMBS

// hide dock
a.presentationOptions = NSApplicationMBS.NSApplicationPresentationAutoHideDock
```

6.3.88 NSApplicationPresentationAutoHideMenuBar = 4

Plugin Version: 11.2. **Function:** One of the control constants for presentationOptions and currentSystemPresentationOptions functions.

6.3.89 NSApplicationPresentationAutoHideToolbar = 2048

Plugin Version: 11.2. **Function:** One of the control constants for presentationOptions and currentSystemPresentationOptions functions.
Notes:

Fullscreen window toolbar is detached from window and hides/shows with autoHidden menuBar. May be used only when both NSApplicationPresentationFullScreen and NSApplicationPresentationAutoHideMenuBar are also set

Available on Mac OS X 10.7 or newer.

6.3.90 NSApplicationPresentationDefault = 0

Plugin Version: 11.2. **Function:** One of the control constants for presentationOptions and currentSystemPresentationOptions functions.

6.3.91 NSApplicationPresentationDisableAppleMenu = 16

Plugin Version: 11.2. **Function:** One of the control constants for presentationOptions and currentSystemPresentationOptions functions.

6.3.92 NSApplicationPresentationDisableForceQuit = 64

Plugin Version: 11.2. **Function:** One of the control constants for presentationOptions and currentSystemPresentationOptions functions.

6.3.93 NSApplicationPresentationDisableHideApplication = 256

Plugin Version: 11.2. **Function:** One of the control constants for presentationOptions and currentSystemPresentationOptions functions.

6.3.94 NSApplicationPresentationDisableMenuBarTransparency = 512

Plugin Version: 11.2. **Function:** One of the control constants for presentationOptions and currentSystemPresentationOptions functions.

6.3.95 NSApplicationPresentationDisableProcessSwitching = 32

Plugin Version: 11.2. **Function:** One of the control constants for presentationOptions and currentSystemPresentationOptions functions.

6.3.96 NSApplicationPresentationDisableSessionTermination = 128

Plugin Version: 11.2. **Function:** One of the control constants for presentationOptions and currentSystemPresentationOptions functions.

6.3.97 NSApplicationPresentationFullScreen = 1024

Plugin Version: 11.2. **Function:** One of the control constants for presentationOptions and currentSystemPresentationOptions functions.
Notes:

Application is in fullscreen mode.
Available on Mac OS X 10.7 or newer.

6.3.98 NSApplicationPresentationHideDock = 2

Plugin Version: 11.2. **Function:** One of the control constants for presentationOptions and currentSystemPresentationOptions functions.

6.3.99 NSApplicationPresentationHideMenuBar = 8

Plugin Version: 11.2. **Function:** One of the control constants for presentationOptions and currentSystemPresentationOptions functions.

6.3.100 NSCriticalRequest = 0

Plugin Version: 11.2. **Function:** One of the constants for the level of severity of a user attention request.
Notes:

The user attention request is a critical request.
The dock icon will bounce until either the application becomes active or the request is canceled.

6.3.101 NSInformationalRequest = 10

Plugin Version: 11.2. **Function:** One of the constants for the level of severity of a user attention request.
Notes:

The user attention request is an informational request.
The dock icon will bounce for one second. The request, though, remains active until either the application becomes active or the request is canceled.

6.3.102 NSRemoteNotificationTypeAlert = 4

Plugin Version: 12.3. **Function:** One of the notification type constants.
Notes: Available in Mac OS X 10.8.

6.3.103 NSRemoteNotificationTypeBadge = 1

Plugin Version: 11.2. **Function:** One of the notification type constants.

6.3.104 NSRemoteNotificationTypeNone = 0

Plugin Version: 11.2. **Function:** One of the notification type constants.

6.3.105 NSRemoteNotificationTypeSound = 2

Plugin Version: 12.3. **Function:** One of the notification type constants.
Notes: Available in Mac OS X 10.8.

6.4 class NSCursorMBS

6.4.1 class NSCursorMBS

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Instances of the NSCursor class manage the appearance of the cursor.
Example:

```
Dim im As NSImageMBS
Dim p As Picture
Dim m As Picture
Dim theCursor As NSCursorMBS
Dim test As Boolean

// create a blue ball picture
p = NewPicture(16,16,32)
p.Graphics.ForeColor = &c0000FF
p.Graphics.FillRect 0,0,16,16

m = NewPicture(16,16,32)
m.Graphics.ForeColor = &c000000
m.Graphics.Filloval 0,0,16,16

// Create a new NSImage
im=New NSImageMBS(p,m)

// Create a cursor from the NSImage
theCursor=New NSCursorMBS(im, 10, 10)

Title = Str(theCursor.Handle)

// Make this the active cursor
theCursor.set

// display picture
p.Mask.Graphics.DrawPicture m,0,0
Backdrop = p

// so you see it for a second before RB resets the cursor
DelayMBS 1.0
```

Notes:

In Cocoa, you can change the currently displayed cursor based on the position of the mouse over one of your views. You might use this technique to provide visual feedback about what actions the user can take with the mouse. For example, you might display one of the resize cursors whenever the mouse moves over

a portion of your view that acts as a custom resizing handle. To set this up, you associate a cursor object with one or more cursor rectangles in the view.

Cursor rectangles are a specialized type of tracking rectangles, which are used to monitor the mouse location in a view. Views implement cursor rectangles using tracking rectangles but provide methods for setting and refreshing cursor rectangles that are distinct from the generic tracking rectangle interface. For information on how to set up cursor rectangles, see "Handling Tracking-Rectangle and Cursor-Update Events in Views".

6.4.2 Methods

6.4.3 arrowCursor as NSCursorMBS

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the default cursor, the arrow cursor.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.arrowCursor
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

Notes: The default cursor, a slanted arrow with its hot spot at the tip. The arrow cursor is the one you're used to seeing over buttons, scrollers, and many other objects in the window system.

6.4.4 closedHandCursor as NSCursorMBS

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the closed-hand system cursor.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.closedHandCursor
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

6.4.5 Constructor(image as NSImageMBS, foregroundColorHint as NSColorMBS, backgroundColorHint as NSColorMBS, HotSpotX as Double, HotSpotY as Double)

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes the cursor with the specified image and hot spot.
See also:

- 6.4.6 Constructor(image as NSImageMBS, HotSpotX as Double, HotSpotY as Double) 311

6.4.6 Constructor(image as NSImageMBS, HotSpotX as Double, HotSpotY as Double)

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes the cursor with the specified image and hot spot.
See also:

- 6.4.5 Constructor(image as NSImageMBS, foregroundColorHint as NSColorMBS, backgroundColorHint as NSColorMBS, HotSpotX as Double, HotSpotY as Double) 311

6.4.7 contextualMenuCursor as NSCursorMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the contextual menu system cursor.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.contextualMenuCursor
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

Notes: Available in Mac OS X v10.6 and later.

6.4.8 crosshairCursor as NSCursorMBS

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the cross-hair system cursor.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.crosshairCursor
dim i as NSImageMBS = c.image
```

```
window1.Backdrop=i.CopyPictureWithMask
```

Notes: This cursor is used for situations when precise location is required (where the lines cross is the hot spot).

6.4.9 currentCursor as NSCursorMBS

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the application's current cursor.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.currentCursor
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

Notes: The top cursor on the application's cursor stack. This cursor may not be the visible cursor on the screen if a different application is currently active.

6.4.10 currentSystemCursor as NSCursorMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the current system cursor.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.currentSystemCursor
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

Notes:

Returns a cursor whose image and hot spot match those of the currently-displayed cursor on the system.
This method returns the current system cursor regardless of which application set the cursor, and whether Cocoa or Carbon APIs were used to set it.
This method replaces the now deprecated QDGetCursorData function.
Available in Mac OS X v10.6 and later.

6.4.11 disappearingItemCursor as NSCursorMBS

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a cursor indicating that the current operation will result in a disappearing item.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.disappearingItemCursor
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

Notes:

The system cursor that indicates that the current operation will result in a disappearing item (for example, when dragging an item from the dock or a toolbar).

Available in Mac OS X v10.3 and later.

6.4.12 dragCopyCursor as NSCursorMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a cursor indicating that the current operation will result in a copy action.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.dragCopyCursor
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

Notes: Available in Mac OS X v10.6 and later.

6.4.13 dragLinkCursor as NSCursorMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a cursor indicating that the current operation will result in a link action.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.dragLinkCursor
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

Notes: Available in Mac OS X v10.6 and later.

6.4.14 hide

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Makes the current cursor invisible.
Notes:

If another cursor becomes current, that cursor will be invisible, too. It will remain invisible until you invoke the unhide method.

hide overrides setHiddenUntilMouseMoves.

6.4.15 hotSpotX as Double

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the position of the cursor's hot spot.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.arrowCursor

MsgBox str(c.hotSpotX)+"/"+str(c.hotSpotY)
```

Notes:

The point describing the position of the hot spot, specified according to the cursor's flipped coordinate system.

For a more complete explanation, see the class description.

Note that an NSCursor object is immutable: you cannot change its hot spot after it's created. Instead, use the Constructor to create a new cursor with the new settings.

6.4.16 hotSpotY as Double

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the position of the cursor's hot spot.

Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.arrowCursor

MsgBox str(c.hotSpotX)+"/"+str(c.hotSpotY)
```

Notes:

The point describing the position of the hot spot, specified according to the cursor's flipped coordinate system.

For a more complete explanation, see the class description.

Note that an NSCursor object is immutable: you cannot change its hot spot after it's created. Instead, use the Constructor to create a new cursor with the new settings.

6.4.17 IBeamCursor as NSCursorMBS

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a cursor that looks like a capital I with a tiny crossbeam at its middle.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.IBeamCursor
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

Notes: The I-beam cursor. This is the cursor that you're used to seeing over editable or selectable text. The I-beam cursor's default hot spot is where the crossbeam intersects the I.

6.4.18 IBeamCursorForVerticalLayout as NSCursorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a cursor that looks like a capital I with a tiny crossbeam at its middle.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.IBeamCursorForVerticalLayout
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

Notes: Available in Mac OS X 10.7.

6.4.19 image as NSImageMBS

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's image.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.arrowCursor
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

Notes:

The cursor image or nil if none exists

Note that an NSCursor object is immutable: you cannot change its image after it's created. Instead, use the constructor to create a new cursor with the new settings.

6.4.20 isSetOnMouseEntered as boolean

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value indicating whether the receiver becomes current on receiving a mouseEntered message.
Notes:

True if the receiver will become current when it receives a mouseEntered message; otherwise, false.

To receive such a message, the receiver must first be assigned a cursor rectangle. This assignment can be made using the NSView method addCursorRect. For a more complete explanation, see the class description.

6.4.21 isSetOnMouseExited as boolean

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value indicating whether the receiver becomes current when it receives a mouseExited: message.
Notes:

True if the receiver becomes current when it receives a mouseExited: message; otherwise, false.

To receive such a message, the receiver must first be assigned a cursor rectangle. This assignment can be made using the NSView method addCursorRect. For a more complete explanation, see the class description.

6.4.22 mouseEntered(e as NSEventMBS)

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Automatically sent to the receiver when the cursor enters a cursor rectangle owned by the receiver.
Notes:

If used after setOnMouseEntered has been called with an argument of true, mouseEntered can make the receiver the current cursor.

In your programs, you won't invoke mouseEntered explicitly. It's only included in the class interface so you can override it.

For a more complete explanation, see "Handling Tracking-Rectangle and Cursor-Update Events in Views" and the NSView method addTrackingRect

6.4.23 mouseExited(e as NSEventMBS)

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Automatically sent to the receiver when the cursor exits a cursor rectangle owned by the receiver.
Notes:

Like mouseEntered, this message is part of the class interface only so you can override it.

For a more complete explanation, see "Handling Tracking-Rectangle and Cursor-Update Events in Views" and the NSView method addTrackingRect.

6.4.24 openHandCursor as NSCursorMBS

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the open-hand system cursor.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.openHandCursor
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

Notes: Available in Mac OS X v10.3 and later.

6.4.25 operationNotAllowedCursor as NSCursorMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the operation not allowed cursor.
Notes:

This cursor indicates that the operation that is being attempted, perhaps dragging to an item that can't accept the drag type, is being denied.

Available in Mac OS X v10.6 and later.

6.4.26 pointingHandCursor as NSCursorMBS

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the pointing-hand system cursor.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.pointingHandCursor
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

Notes: The pointing-hand cursor. The tip of the pointing finger is the hot spot.

6.4.27 pop

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Pops the current cursor off the top of the stack.
Notes: The new object on the top of the stack becomes the current cursor. If the current cursor is the only cursor on the stack, this method does nothing.
See also:

- 6.4.28 pop

6.4.28 pop

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sends a pop message to the receiver's class.
See also:

- 6.4.27 pop 318

6.4.29 push

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Puts the receiver on top of the cursor stack and makes it the current cursor.

6.4.30 resizeDownCursor as NSCursorMBS

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the resize-down system cursor.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.resizeDownCursor
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

Notes:

The resize-down cursor. This cursor is used when moving or resizing an object to indicate that the user can move only in the indicated direction.

Available in Mac OS X v10.3 and later.

6.4.31 resizeLeftCursor as NSCursorMBS

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the resize-left system cursor.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.resizeLeftCursor
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

Notes:

The resize-left cursor. This cursor is used when moving or resizing an object to indicate that the user can move only in the indicated direction.

Available in Mac OS X v10.3 and later.

6.4.32 resizeLeftRightCursor as NSCursorMBS

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the resize-left-and-right system cursor.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.resizeLeftRightCursor
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

Notes:

The resize-left-and-right cursor. This cursor is used when moving or resizing an object and the object can be moved left or right.

Available in Mac OS X v10.3 and later.

6.4.33 resizeRightCursor as NSCursorMBS

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the resize-right system cursor.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.resizeRightCursor
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

Notes:

The resize-right cursor. This cursor is used when moving or resizing an object to indicate that the user can

move only in the indicated direction.

Available in Mac OS X v10.3 and later.

6.4.34 resizeUpCursor as NSCursorMBS

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the resize-up system cursor.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.resizeUpCursor
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

Notes:

The resize-up cursor. This cursor is used when moving or resizing an object to indicate that the user can move only in the indicated direction.

Available in Mac OS X v10.3 and later.

6.4.35 resizeUpDownCursor as NSCursorMBS

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the resize-up-and-down system cursor.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.resizeUpDownCursor
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

Notes:

The resize-up-and-down cursor. This cursor is used when moving or resizing an object and the object can be moved up or down.

Available in Mac OS X v10.3 and later.

6.4.36 ringCursorWithDiameter(diameter as Double) as NSCursorMBS

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a ring cursor with the given size.
Example:

```
// shows cursor in window
dim c as NSCursorMBS = NSCursorMBS.ringCursorWithDiameter(20)
dim i as NSImageMBS = c.image
window1.Backdrop=i.CopyPictureWithMask
```

6.4.37 set

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Makes the receiver the current cursor.
Notes: If your application is not the front application, the system will ignore this set message!

6.4.38 setHiddenUntilMouseMoves(value as boolean)

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets whether the cursor is hidden until the mouse moves.
Notes:

value: True to hide the cursor until one of the following occurs:
The mouse moves.
You invoke the method again, with flag set to false.

Do not try to counter this method by invoking unhide. The results are undefined.

6.4.39 setOnMouseEntered(flag as boolean)

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** pecifies whether the receiver accepts mouseEntered: events.
Notes:

True if the receiver accepts future mouseEntered event messages; otherwise it ignores them.

Accepting mouseEntered event messages allows the cursor to be made the current cursor when the cursor enters a view's cursor rectangle.

6.4.40 setOnMouseExited(flag as boolean)

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets whether the receiver accepts mouseExited events.
Notes:

flag: True if the receiver accepts future mouseExited: event messages; otherwise it ignores them.

Accepting mouseExited event messages allows the cursor to be made the current cursor when the cursor exits a view's cursor rectangle.

6.4.41 unhide

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Negates an earlier call to hide by showing the current cursor.

6.4.42 Properties

6.4.43 Handle as Integer

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal used NSCursor reference.
Notes: (Read and Write property)

6.5 class NSDirectoryEnumeratorMBS

6.5.1 class NSDirectoryEnumeratorMBS

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An NSDirectoryEnumerator object enumerates the contents of a directory, returning the pathnames of all files and directories contained within that directory.
Example:

```
dim d as new NSDirectoryEnumeratorMBS(SpecialFolder.Desktop)
dim f as string = d.nextObject

while len(f)>0
List.AddRow f

f=d.nextObject
wend
```

Notes:

These pathnames are relative to the directory.

An enumeration is recursive, including the files of all subdirectories, and crosses device boundaries. An enumeration does not resolve symbolic links, or attempt to traverse symbolic links that point to directories. Subclass of the NSEnumeratorMBS class.

6.5.2 Methods

6.5.3 Constructor(folder as folderitem)

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns an NSDirectoryEnumerator object that enumerates the contents of the directory at a given path.
Example:

```
dim d as new NSDirectoryEnumeratorMBS(SpecialFolder.Desktop)

MsgBox d.nextObject // shows ".DS_Store" or some other file name
```

Notes:

An NSDirectoryEnumerator object that enumerates the contents of the directory at path.
If path is a filename, the method returns an enumerator object that enumerates no filesthe first call to nextObject will return nil.

Because the enumeration is deepthat is, it lists the contents of all subdirectoriesthis enumerator object is useful for performing actions that involve large file-system subtrees. This method does not resolve symbolic links encountered in the traversal process, nor does it recurse through them if they point to a directory.
See also:

- 6.5.4 Constructor(path as string) 325

6.5.4 Constructor(path as string)

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns an NSDirectoryEnumerator object that enumerates the contents of the directory at a given path.
Example:

```
dim d as new NSDirectoryEnumeratorMBS("/Applications")
dim f as FolderItem = d.nextFile

while f<>Nil
List.AddRow f.Name

// if this is a folder, we skip the sub folders
d.skipDescendents

f=d.nextFile
wend
```

Notes:

An NSDirectoryEnumerator object that enumerates the contents of the directory at path.
If path is a filename, the method returns an enumerator object that enumerates no filesthe first call to nextObject will return nil.

Because the enumeration is deepthat is, it lists the contents of all subdirectoriesthis enumerator object is useful for performing actions that involve large file-system subtrees. This method does not resolve symbolic links encountered in the traversal process, nor does it recurse through them if they point to a directory.
See also:

- 6.5.3 Constructor(folder as folderitem) 324

6.5.5 Destructor

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The destructor for this class.

6.5.6 directoryAttributes as dictionary

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an Dictionary object that contains the attributes of the directory at which enumeration started.

6.5.7 fileAttributes as dictionary

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an object that contains the attributes of the most recently returned file or subdirectory (as referenced by the pathname).
Example:

```
dim d as new NSDirectoryEnumeratorMBS(SpecialFolder.Desktop)
dim f as FolderItem = d.nextFile

while f<>Nil
List.AddRow f.Name

dim di as Dictionary = d.fileAttributes
dim size as int64 = di.Value(d.NSFileSize)

List.AddRow f.Name+" ("+str(size)+" Bytes)"

f=d.nextFile
wend
```

6.5.8 level as Integer

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the number of levels deep the current object is in the directory hierarchy being enumerated.
Example:

```
dim d as new NSDirectoryEnumeratorMBS(SpecialFolder.Desktop)
dim f as FolderItem = d.nextFile

while f<>Nil
List.AddRow f.Name+" "+str(d.level)

f=d.nextFile
wend
```

Notes: Available in Mac OS X v10.6 and later.

6.5.9 nextFile as folderitem

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the next folderitem from the collection being enumerated.
Example:

```
dim d as new NSDirectoryEnumeratorMBS(SpecialFolder.Desktop)
dim f as string = d.nextObject

while len(f)>0
List.AddRow f

f=d.nextObject
wend
```

Notes:

The next folderitem from the collection being enumerated, or nil when all objects have been enumerated.

Same as nextObject, but returns a folderitem.

6.5.10 NSFileAppendOnly as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file attribute dictionary whose value indicates whether the file is read-only.

6.5.11 NSFileBusy as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file attribute dictionary whose value indicates whether the file is busy.

6.5.12 NSFileCreationDate as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file attribute dictionary whose value indicates the file's creation date.

6.5.13 NSFileDeviceIdentifier as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file attribute dictionary whose value indicates the identifier for the device on which the file resides.

6.5.14 NSFileExtensionHidden as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: he key in a file attribute dictionary whose value indicates whether the file's extension is hidden.

6.5.15 NSFileGroupOwnerAccountID as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file attribute dictionary whose value indicates the file's group ID.

6.5.16 NSFileGroupOwnerAccountName as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file attribute dictionary whose value indicates the group name of the file's owner.

6.5.17 NSFileHFSCreatorCode as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file attribute dictionary whose value indicates the file's HFS creator code.

6.5.18 NSFileHFSTypeCode as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file attribute dictionary whose value indicates the file's HFS type code.

6.5.19 NSFileImmutable as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file attribute dictionary whose value indicates whether the file is mutable.

6.5.20 NSFileModificationDate as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file attribute dictionary whose value indicates the file's last modified date.

6.5.21 NSFileOwnerAccountID as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file attribute dictionary whose value indicates the file's owner's account ID.

6.5.22 NSFileOwnerAccountName as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file attribute dictionary whose value indicates the name of the file's owner.

6.5.23 NSFilePosixPermissions as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file attribute dictionary whose value indicates the file's Posix permissions.

6.5.24 NSFileReferenceCount as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file attribute dictionary whose value indicates the file's reference count.

6.5.25 NSFileSize as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Example:

```
dim d as new NSDirectoryEnumeratorMBS(SpecialFolder.Desktop)
dim f as FolderItem = d.nextFile

while f<>Nil
List.AddRow f.Name

dim di as Dictionary = d.fileAttributes
dim size as int64 = di.Value(d.NSFileSize)

List.AddRow f.Name+" ("+str(size)+" Bytes)"

f=d.nextFile
wend
```

Notes: The key in a file attribute dictionary whose value indicates the file's size in bytes.

6.5.26 NSFileSystemFileNumber as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file attribute dictionary whose value indicates the file's filesystem file number.

6.5.27 NSFileSystemFreeNodes as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file system attribute dictionary dictionary whose value indicates the number of free nodes in the file system.

6.5.28 NSFileSystemFreeSize as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file system attribute dictionary whose value indicates the amount of free space on the

file system.

6.5.29 NSFileSystemNodes as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file system attribute dictionary dictionary whose value indicates the number of free nodes in the file system.

6.5.30 NSFileSystemNumber as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file system attribute dictionary dictionary whose value indicates the filesystem number of the file system.

6.5.31 NSFileSystemSize as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file system attribute dictionary whose value indicates the size of the file system.

6.5.32 NSFileType as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the attributes dictionaries.
Notes: The key in a file attribute dictionary whose value indicates the file's type.

6.5.33 NSFileTypeBlockSpecial as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the file type property.
Notes: Block special file

6.5.34 NSFileTypeCharacterSpecial as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the file type property.
Notes: Character special file

6.5.35 NSFileTypeDirectory as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the file type property.
Notes: Directory

6.5.36 NSFileTypeRegular as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the file type property.
Notes: Regular file

6.5.37 NSFileTypeSocket as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the file type property.
Notes: Socket

6.5.38 NSFileTypeSymbolicLink as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the file type property.
Notes: Symbolic link

6.5.39 NSFileTypeUnknown as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the file type property.
Notes: Unknown

6.5.40 Path as string

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The path used in the constructor.

6.5.41 skipDescendents

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Causes the receiver to skip recursion into the most recently obtained subdirectory.

6.6 class NSDockTileMBS

6.6.1 class NSDockTileMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The cocoa class to customize the dock tile.
Notes:

The NSDockTile class lets you customize the visual representation for your application's miniaturized windows and application icon as they appear in the Dock. You do not create Dock tile objects explicitly in your application. Instead, you retrieve the Dock tile for an existing window or for the application by calling that object's dockTile method.

Typically, you do not subclass the NSDockTile class. Instead, you use the methods of the class to make the following customizations:

- Badge the tile with a custom string.
- Remove or show the application icon badge.
- Draw the tile content yourself.

If you decide to draw the tile content yourself, you must provide a custom content view to handle the drawing.

Application Dock Tiles

An application Dock tile defaults to display the application's applicationIconImage.

The application Dock tile never shows a smaller application icon badge.

Whether using the default or custom view, the application Dock tile may be badged with a short custom string.

Window Dock Tiles

A window Dock tile defaults to display a miniaturized version of the windows contents with a badge derived from the application Dock icon, including any customized application Dock icon. The default window Dock tile image may not be badged with a custom string.

A window Dock tile can use a custom view to draw the Dock icon. If a custom view is used, no application badge will be added, but the text label will be overlaid on top of the icon.

Available in Mac OS X v10.5 and later.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

6.6.2 Methods

6.6.3 Constructor

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The private constructor.

6.6.4 display

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Redraws the dock tile's content.
Notes:

If a custom content view is provided, Cocoa calls the drawRect method of that view (and its subviews) to draw the tile's content.

You can call this method to force the redrawing of the dock tile contents. You might do this if the contents of the underlying application or window change in a way that would require a refreshing of the tile. Some types of system activity, such as resizing the dock, may trigger automatic redraws of the tile. In most cases, however, your application is responsible for triggering redraws.

Cocoa does not automatically redraw the contents of your dock tile. Instead, your application must explicitly send display messages to the dock tile object whenever the contents of your view change and need to be redrawn.

6.6.5 owner as Variant

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the object represented by the dock tile.
Example:

```
dim d as NSDockTileMBS = NSApplicationMBS.sharedApplication.dockTile

if d<>nil then
dim t as Introspection.TypeInfo = Introspection.GetType(d.owner)
MsgBox t.FullName // shows NSApplicationMBS
end if
```

Notes: The object represented by the dock tile. This is either the NSApplicationMBS object or one of your application's NSWindowMBS objects.

6.6.6 size as NSSizeMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the size of the tile.
Example:

```
dim d as NSDockTileMBS = NSApplicationMBS.sharedApplication.dockTile

if d<>nil then
MsgBox str(D.size.Width)+" x "+str(d.size.Height)
// 128 x 128 in Mac OS X 10.5 and 10.6
end if
```

Notes: The size returned by this method corresponds to the size of the backing store in the dock, which may be bigger than the actual tile displayed on the screen.

6.6.7 Properties

6.6.8 Handle as Integer

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference to the docktile object.
Notes: (Read and Write property)

6.6.9 badgeLabel as string

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The tile's current badge label.
Example:

```
dim d as NSDockTileMBS = NSApplicationMBS.sharedApplication.dockTile

if d<>nil then
// this works in Carbon and Cocoa applications :-)
```

```
d.badgeLabel = "Hello"
d.showsApplicationBadge = true
end if
```

Notes:

The localized string to be displayed in the tile's badging area. This string may be empty.
(Read and Write computed property)

6.6.10 contentView as NSViewMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The view used to draw the dock tile contents.
Notes:

The view you specify should be height and width resizable.

Cocoa does not automatically redraw the contents of your dock tile. Instead, your application must explicitly send display messages to the dock tile object whenever the contents of your view change and need to be redrawn. Your dock tile view is responsible for drawing the entire contents of the dock tile. Your view does not need to draw the application or custom string badges.
(Read and Write computed property)

6.6.11 showsApplicationBadge as boolean

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the tile should be badged with the application's icon.
Example:

```
dim d as NSDockTileMBS = NSApplicationMBS.sharedApplication.dockTile

if d<>nil then
// this works in Carbon and Cocoa applications :-)

d.badgeLabel = "Hello"
d.showsApplicationBadge = true
end if
```

Notes:

Miniaturized windows include the application badge by default to convey the associated application to the user. In Mac OS X v10.5 and later, application tiles do not support the application badge. A miniaturized

window with a custom view does not draw the application badge.

The application icon is positioned automatically in the tile by the NSDockTile object.
(Read and Write computed property)

6.7 class NSEnumeratorMBS

6.7.1 class NSEnumeratorMBS

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** NSEnumerator is an abstract class, instances of whose subclasses enumerate collections of other objects, such as arrays and dictionaries.
Example:

```
dim d as new NSDirectoryEnumeratorMBS(SpecialFolder.Desktop)
MsgBox d.nextObject
```

Notes:

You send nextObject repeatedly to a newly created NSEnumerator object to have it return the next object in the original collection. When the collection is exhausted, nil is returned. You cannot "reset" an enumerator after it has exhausted its collection. To enumerate a collection again, you need a new enumerator.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

6.7.2 Methods

6.7.3 allObjects as Variant()

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of objects the receiver has yet to enumerate.
Example:

```
dim d as new NSDirectoryEnumeratorMBS(SpecialFolder.Desktop)

dim a(-1) as Variant = d.allObjects
dim lines(-1) as string

for each v as Variant in a
lines.Append v
next

MsgBox Join(lines, EndOfLine) // shows all stuff on desktop
```

Notes:

Put another way, the array returned by this method does not contain objects that have already been enumerated with previous nextObject messages.
Invoking this method exhausts the enumerator's collection so that subsequent invocations of nextObject

return nil.

6.7.4 Constructor

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The private constructor.

6.7.5 nextObject as Variant

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the next object from the collection being enumerated.
Example:

```
dim d as new NSDirectoryEnumeratorMBS(SpecialFolder.Desktop)

MsgBox d.nextObject // shows ".DS_Store" or some other file name
```

Notes: The next object from the collection being enumerated, or nil when all objects have been enumerated.

6.7.6 Properties

6.7.7 Handle as Integer

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference to the NSEnumerator object.
Notes: (Read and Write property)

6.8 class NSFontManagerMBS

6.8.1 class NSFontManagerMBS

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** NSFontManager is the center of activity for the font conversion system.
Example:

```
// pick some font
dim n1 as NSFontMBS = nsfontmbs.fontWithName("Book Antiqua bold", 12)
dim fm as new NSFontManagerMBS

// remove all font traits
dim n2 as NSFontMBS = fm.convertFontToNotHaveTrait(n1, fm.traitsOfFont(n1))

// show name of base font
MsgBox n2.fontName
```

Notes:

It records the currently selected font, updates the Font panel and Font menu to reflect the selected font, initiates font changes, and converts fonts in response to requests from text-bearing objects. In a more prosaic role, NSFontManager can be queried for the fonts available to the application and for the particular attributes of a font, such as whether it's condensed or extended.

As of Mac OS X version 10.3, font collections are managed by NSFontManager.

6.8.2 Methods

6.8.3 addCollection(collectionName as String, Options as Integer = 0) as Boolean

Plugin Version: 17.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds a specified font collection to the font manager with a given set of options.
Notes:

collectionName: The collection to add.
Options: Pass NSFontCollectionApplicationOnlyMask to make the collection available only to the application.
Return true if the font collection was successfully added; otherwise, false.

6.8.4 addFontDescriptorsToCollection(descriptors() as NSFontDescriptorMBS, collectionName as String)

Plugin Version: 17.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds an array of font descriptors to the specified font collection.
Notes:

descriptors: The font descriptors to add.
collectionName: The font collection to which descriptors are added.

6.8.5 availableFontFamilies as string()

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the names of the font families available in the system.
Example:

```
dim n as new NSFontManagerMBS
dim names() as string = n.availableFontFamilies

MsgBox Join(names,EndOfLine)
```

Notes: These fonts are in various system font directories.

6.8.6 availableFontNamesMatchingFontDescriptor(descriptor as NSFontDescriptorMBS) as String()

Plugin Version: 17.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the names of the fonts that match the attributes in the given font descriptor.

6.8.7 availableFontNamesWithTraits(traits as Integer) as string()

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the names of the fonts available in the system whose traits are described exactly by the given font trait mask (not the NSFont objects themselves).
Example:

```
dim n as new NSFontManagerMBS
dim names() as string = n.availableFontNamesWithTraits(n.NSBoldFontMask)

MsgBox str(UBound(names)+1)+" fonts: "+Join(names,", ")
```

Notes:

traits: The font traits for which to return font names. You specify the desired traits by combining the font trait mask values described in Constants using the bitwiseor operator.

Returns the names of the corresponding fonts.

These fonts are in various system font directories.

If fontTraitMask is 0, this method returns all fonts that are neither italic nor bold. This result is the same one you'd get if fontTraitMask were NSUnitalicFontMask | NSUnboldFontMask.

6.8.8 availableFonts as string()

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the names of the fonts available in the system (not the NSFont objects themselves).
Example:

```
dim n as new NSFontManagerMBS
dim names() as string = n.availableFonts

MsgBox Join(names,EndOfLine)
```

Notes: These fonts are in various system font directories.

6.8.9 availableMembersOfFontFamily(FontFamily as string) as Variant()

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array with one entry for each available member of a font family.
Example:

```
dim n as new NSFontManagerMBS
dim members() as Variant = n.availableMembersOfFontFamily("Times")

for each m as Variant in members
dim member() as Variant = m

MsgBox "Postscript name: "+member(0)+EndOfLine+"Suffix: "+member(1)+EndOfLine+"Font weight:
"+member(2)+EndOfLine+"Font trait: "+member(3)
```

next

Notes:

family: The name of a font family, like one that availableFontFamilies returns.

Returns the available members of family.

Each entry of the returned variant array is another variant array with four members, as follows:

0. The PostScript font name, as a string.
1. The part of the font name used in the font panel that's not the font name, as a string. This value is not localizedfor example, "Roman", "Italic", or "Bold".
2. The font's weight, as a double.
3. The font's traits, as a double.

The members of the family are arranged in the font panel order (narrowest to widest, lightest to boldest, plain to italic).

6.8.10 collectionNames as string()

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the names of the currently loaded font collections.
Example:

```
dim n as new NSFontManagerMBS
dim names() as string = n.collectionNames

MsgBox Join(names,EndOfLine)
```

Notes: The names of the current font collections.

6.8.11 Constructor

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes the object with the shared instance of the font manager for the application, creating it if necessary.

6.8.12 convertAttributes(dic as dictionary) as dictionary

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Converts attributes in response to an object initiating an attribute change, typically the Font panel or Font menu.

6.8.13 convertFont(font as NSFontMBS) as NSFontMBS

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Converts the given font according to the object that initiated a font change, typically the Font panel or Font menu.

6.8.14 convertFontToFace(font as NSFontMBS, face as string) as NSFontMBS

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a font whose traits are as similar as possible to those of the given font except for the typeface, which is changed to the given typeface.
Example:

```
dim fontManager as new NSFontManagerMBS
// you have a font
dim font as NSFontMBS = NSFontMBS.fontWithName("Helvetica", 12)

// change font face
font = fontManager.convertFontToFace(font, "Helvetica-BoldOblique")

MsgBox font.fontName // shows Helvetica-BoldOblique
```

Notes:

Font: The font whose traits are matched.
face: The new typeface; a fully specified family-face name, such as Helvetica-BoldOblique or Times-Roman.

Returns a font with matching traits and the given typeface, or aFont if it can't be converted.

This method attempts to match the weight and posture of aFont as closely as possible. Italic is mapped to Oblique, for example. Weights are mapped based on an approximate numeric scale of 0 to 15.

6.8.15 convertFontToFamily(font as NSFontMBS, family as string) as NSFontMBS

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a font whose traits are as similar as possible to those of the given font except for the font family, which is changed to the

given family.
Example:

```
dim fontManager as new NSFontManagerMBS
// you have a font
dim font as NSFontMBS = NSFontMBS.fontWithName("Helvetica", 12)

// change font family
font = fontManager.convertFontToFamily(font, "Arial")

MsgBox font.fontName // shows ArialMT
```

Notes:

Font: The font whose traits are matched.
family: The new font famliy; a generic font name, such as Helvetica or Times.

Returns a font with matching traits and the given family, or aFont if it can't be converted.

This method attempts to match the weight and posture of aFont as closely as possible. Italic is mapped to Oblique, for example. Weights are mapped based on an approximate numeric scale of 0 to 15.

6.8.16 convertFontToHaveTrait(font as NSFontMBS, trait as Integer) as NSFontMBS

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a font whose traits are the same as those of the given font, except that the traits are changed to include the single specified trait.
Example:

```
dim n as new NSFontManagerMBS
dim f as NSFontMBS = NSFontMBS.fontWithName("Times", 12.0)
dim g as NSFontMBS = n.convertFontToHaveTrait(f, n.NSBoldFontMask)

MsgBox g.fontName // Times-Bold
```

Notes:

Font: The font whose traits are matched.
Trait: The new trait; may be any one of the traits described in Constants. Using NSUnboldFontMask or NSUnitalicFontMask removes the bold or italic trait, respectively.

Returns a font with matching traits including the given trait, or font if it can't be converted.
Using NSUnboldFontMask or NSUnitalicFontMask removes the bold or italic trait, respectively.

6.8.17 convertFontToNotHaveTrait(font as NSFontMBS, trait as Integer) as NSFontMBS

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an NSFont object with the same traits as the given font, except for the traits in the given font trait mask, which are removed.
Example:

```
dim n as new NSFontManagerMBS
dim f as NSFontMBS = NSFontMBS.fontWithName("Times-Bold", 12.0)
dim g as NSFontMBS = n.convertFontToHaveTrait(f, n.NSUnBoldFontMask)

MsgBox g.fontName // Times-Roman
```

Notes:

Font: The font whose traits are matched.
trait: The mask for the traits to remove, created using the bitwiseOr operator to combine the traits described in Constants. Using NSUnboldFontMask or NSUnitalicFontMask removes the bold or italic trait, respectively.
Returns a font with matching traits minus the given traits, or font if it can't be converted.

6.8.18 convertFontToSize(font as NSFontMBS, size as Double) as NSFontMBS

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an NSFont object whose traits are the same as those of the given font, except for the size, which is changed to the given size.
Example:

```
dim fontManager as new NSFontManagerMBS
// you have a font
dim font as NSFontMBS = NSFontMBS.fontWithName("Helvetica", 12)

// change font size
font = fontManager.convertFontToSize(font, 20)

MsgBox str(font.pointSize)
```

Notes:

Font: The font whose traits are matched.
size: The new font size.

Returns a font with matching traits except in the new size, or aFont if it can't be converted.

6.8.19 convertFontTraits(traits as Integer) as Integer

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Converts font traits to a new traits mask value.
Notes:

traits: The current font traits.

Returns the new traits mask value to be used by convertFont:.

This method is intended to be invoked to query the font traits while the action message (usually changeFont:) is being invoked when the current font action is either NSAddTraitFontAction or NSRemoveTraitFontAction.

Available in Mac OS X v10.5 and later.

6.8.20 convertWeightOfFont(font as NSFontMBS, up as boolean) as NSFontMBS

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an NSFont object whose weight is greater or lesser than that of the given font, if possible.
Example:

```
dim n as new NSFontManagerMBS
dim f as NSFontMBS = NSFontMBS.fontWithName("Times", 12.0)
dim g as NSFontMBS = n.convertWeightOfFont(f, true)

MsgBox g.fontName // Times-Bold
```

Notes:

up: If true, a heavier font is returned; if it's false, a lighter font is returned.
Font: The font whose weight is increased or decreased.

Returns a font with matching traits except for the new weight, or font if it can't be converted.

6.8.21 fontDescriptorsInCollection(collectionName as String) as NSFontDescriptorMBS()

Plugin Version: 17.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of the font descriptors in the collection specified by the given collection name.

6.8.22 fontHasTraits(fontName as string, Traits as Integer) as boolean

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether the given font has all the specified traits.
Example:

```
dim n as NSFontMBS = NSFontMBS.boldSystemFontOfSize(12)
dim m as new NSFontManagerMBS

dim isBold as Boolean = m.fontHasTraits(n.fontName, m.NSBoldFontMask)
dim isItalic as Boolean = m.fontHasTraits(n.fontName, m.NSItalicFontMask)

MsgBox "is bold: "+str(isBold)+_
EndOfLine+"is italic: "+str(isItalic)
```

Notes:

typeface: The name of the font.
fontTraitMask: The font traits to test, specified by combining the font trait mask values described in Constants using the bitwiseOR operation.

Returns true if the font named typeface has all the traits specified in fontTraitMask; false if it doesn't.

Using NSUnboldFontMask returns true if the font is not bold, false otherwise. Using NSUnitalicFontMask returns true if the font is not italic, false otherwise.

6.8.23 isMultiple as boolean

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether the last font selection recorded has multiple fonts.
Notes: Returns true if the last font selection recorded has multiple fonts; false if it's a single font.

6.8.24 orderFrontFontPanel

Plugin Version: 16.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method opens the Font panel by sending it an orderFront message, creating the Font panel if necessary.

6.8.25 orderFrontStylesPanel

Plugin Version: 16.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method opens the Font styles panel.

6.8.26 removeCollection(collectionName as String) as Boolean

Plugin Version: 17.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes the specified font collection.
Notes: Returns true on success and false on failure.

6.8.27 removeFontDescriptorFromCollection(descriptor as NSFontDescriptorMBS, collectionName as String)

Plugin Version: 17.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes the specified font descriptor from the specified collection.
Notes:

descriptor: The font descriptor to remove.
collection: The font collection from which to remove the descriptor.

6.8.28 selectedFont as NSFontMBS

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the last font recorded.

6.8.29 setSelectedAttributes(dic as dictionary, isMultiple as boolean)

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Informs the paragraph and character formatting panels when text in a selection has changed attributes.
Notes:

dic: The new attributes.
isMultiple: If true, informs the panel that multiple fonts or attributes are enclosed within the selection.

This method is used primarily by NSTextView.
Available in Mac OS X v10.3 and later.

6.8.30 setSelectedFont(font as NSFontMBS, isMultiple as boolean)

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Records the given font as the currently selected font and updates the Font panel to reflect this.
Notes:

font: The font to set as selected.
isMultiple: If true, the Font panel indicates that more than one font is contained in the selection; if false, it does not.

An object that manipulates fonts should invoke this method whenever it becomes first responder and whenever its selection changes. It shouldn't invoke this method in the process of handling a changeFont message, as this causes the font manager to lose the information necessary to effect the change. After all fonts have been converted, the font manager itself records the new selected font.

6.8.31 sharedFontManager as NSFontManagerMBS

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the shared instance of the font manager for the application, creating it if necessary.

6.8.32 traitsOfFont(font as NSFontMBS) as Integer

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the traits of the given font.
Example:

```
dim n as NSFontMBS = NSFontMBS.boldSystemFontOfSize(12)
dim m as new NSFontManagerMBS

// shows 2 which is m.NSBoldFontMask
MsgBox str(m.traitsOfFont(n))
```

Notes:

Font: The font whose traits are returned.
Returns the font traits, returned as a mask created by combining values listed in Constants with the bitwiseOR operation.

6.8.33 weightOfFont(font as NSFontMBS) as Integer

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a rough numeric measure the weight of the given font.
Example:

```
dim n as NSFontMBS = NSFontMBS.boldSystemFontOfSize(12)
dim m as new NSFontManagerMBS

MsgBox str(m.weightOfFont(n))
```

Notes:

Font: The font whose weight is returned.

A rough numeric measure the weight of the given font, where 0 indicates the lightest possible weight, 5 indicates a normal or book weight, and 9 or more indicates a bold or heavier weight.

6.8.34 Properties

6.8.35 Handle as Integer

Plugin Version: 15.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object reference.
Notes: (Read and Write property)

6.8.36 Enabled as boolean

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the font conversion system's user interface items (the Font panel and Font menu items) are enabled.
Notes:

True if the font conversion system's user interface items (the Font panel and Font menu items) are enabled; false if they're not.
(Read and Write computed property)

6.8.37 Constants

6.8.38 NSAddTraitFontAction = 2

Plugin Version: 9.8. **Function:** One of the constants for use with modifyFont method.
Notes: Converts the font to have an additional trait using convertFonttoHaveTrait.

6.8.39 NSBoldFontMask = 2

Plugin Version: 9.8. **Function:** One of the constants for use with mask of traits assigned to a font.
Notes: A mask that specifies a bold font.

6.8.40 NSCompressedFontMask = & h00000200

Plugin Version: 9.8. **Function:** One of the constants for use with mask of traits assigned to a font.
Notes: A mask that specifies a compressed font.

6.8.41 NSCondensedFontMask = & h00000040

Plugin Version: 9.8. **Function:** One of the constants for use with mask of traits assigned to a font.
Notes: A mask that specifies a condensed font.

6.8.42 NSExpandedFontMask = & h00000020

Plugin Version: 9.8. **Function:** One of the constants for use with mask of traits assigned to a font.
Notes: A mask that specifies an expanded font.

6.8.43 NSFixedPitchFontMask = & h00000400

Plugin Version: 9.8. **Function:** One of the constants for use with mask of traits assigned to a font.
Notes: A mask that specifies a fixed pitch font.

6.8.44 NSFontCollectionApplicationOnlyMask = 1

Plugin Version: 9.8. **Function:** One of the constants for options accepted by addCollection.
Notes: akes the collection available only to the application. This option is not yet implemented.

6.8.45 NSHeavierFontAction = 5

Plugin Version: 9.8. **Function:** One of the constants for use with modifyFont method.
Notes: Converts the font to a heavier weight using convertWeightofFont.

6.8.46 NSItalicFontMask = 1

Plugin Version: 9.8. **Function:** One of the constants for use with mask of traits assigned to a font.
Notes: A mask that specifies an italic font.

6.8.47 NSLighterFontAction = 6

Plugin Version: 9.8. **Function:** One of the constants for use with modifyFont method.
Notes: Converts the font to a lighter weight using convertWeightofFont.

6.8.48 NSNarrowFontMask = & h00000010

Plugin Version: 9.8. **Function:** One of the constants for use with mask of traits assigned to a font.
Notes: A mask that specifies a narrow font.

6.8.49 NSNoFontChangeAction = 0

Plugin Version: 9.8. **Function:** One of the constants for use with modifyFont method.
Notes: No action; the font is returned unchanged.

6.8.50 NSNonStandardCharacterSetFontMask = 8

Plugin Version: 9.8. **Function:** One of the constants for use with mask of traits assigned to a font.
Notes: A mask that specifies a font that uses a non-standard character set.

6.8.51 NSPosterFontMask = & h00000100

Plugin Version: 9.8. **Function:** One of the constants for use with mask of traits assigned to a font.
Notes: A mask that specifies a poster-style font.

6.8.52 NSRemoveTraitFontAction = 7

Plugin Version: 9.8. **Function:** One of the constants for use with modifyFont method.
Notes: Converts the font to remove a trait using convertFonttoNotHaveTrait.

6.8.53 NSSizeDownFontAction = 4

Plugin Version: 9.8. **Function:** One of the constants for use with modifyFont method.
Notes: Converts the font to a smaller size using convertFonttoSize.

6.8.54 NSSizeUpFontAction = 3

Plugin Version: 9.8. **Function:** One of the constants for use with modifyFont method.
Notes: Converts the font to a larger size using convertFonttoSize.

6.8.55 NSSmallCapsFontMask = & h00000080

Plugin Version: 9.8. **Function:** One of the constants for use with mask of traits assigned to a font.
Notes: A mask that specifies a small-caps font.

6.8.56 NSUnboldFontMask = 4

Plugin Version: 9.8. **Function:** One of the constants for use with mask of traits assigned to a font.
Notes: A mask that specifies a font that is not bold.

6.8.57 NSUnitalicFontMask = & h01000000

Plugin Version: 9.8. **Function:** One of the constants for use with mask of traits assigned to a font.
Notes: A mask that specifies a font that is not italic.

6.8.58 NSViaPanelFontAction = 1

Plugin Version: 9.8. **Function:** One of the constants for use with modifyFont method.
Notes: Converts the font according to the NSFontPanel method panelConvertFont.

6.9 class NSFontPanelMBS

6.9.1 class NSFontPanelMBS

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The NSFontPanel class implements the Font panela user interface object that displays a list of available fonts, letting the user preview them and change the font used to display text.
Example:

NSFontPanelMBS.sharedFontPanel.Show

Notes:

The actual changes are made through conversion messages sent to the shared NSFontManager instance. There's only one Font panel for each application.
Subclass of the NSPanelMBS class.

6.9.2 Methods

6.9.3 Constructor

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The Constructor.

6.9.4 convertAttributes(old as dictionary) as dictionary

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Converts attributes in response to an object initiating an attribute change, typically the Font panel.
Notes: Call this function only in the changeAttributes event.

6.9.5 convertFont(oldFont as NSFontMBS) as NSFontMBS

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Converts the given font according to the object that initiated a font change, typically the Font panel.
Notes: Call this function only in the ChangeFont event.

6.9.6 Destructor

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The destructor.

6.9.7 panelConvertFont(font as NSFontMBS) as NSFontMBS

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Converts the specified font using the settings in the receiver, with the aid of the shared NSFontManager if necessary.
Notes:

Font: The font to be converted.

Returns the converted font, or aFont itself if it can't be converted.

For example, if aFont is Helvetica Oblique 12.0 point and the user has selected the Times font family (and nothing else) in the Font panel, the font returned is Times Italic 12.0 point.

6.9.8 reloadDefaultFontFamilies

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Triggers a reload to the default state, so that the delegate is called.
Notes: This reloading provides the delegate opportunity to scrutinize the default list of fonts to be displayed in the panel.

6.9.9 setPanelFont(font as NSFontMBS, isMultiple as boolean)

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the selected font in the receiver to the specified font.
Notes:

Font: The font to be selected.
flag: If false, selects the specified font; otherwise selects no font and displays a message in the preview area indicating that multiple fonts are selected.

You normally don't use this method directly; instead, you send setSelectedFont to the shared NSFontManager, which in turn invokes this method.

6.9.10 sharedFontPanel as NSFontPanelMBS

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the single NSFontPanel instance for the application, creating it if necessary.
Example:

NSFontPanelMBS.sharedFontPanel.Show

6.9.11 sharedFontPanelExists as boolean

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true if the shared Font panel has been created, false if it hasn't.

6.9.12 worksWhenModal as boolean

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether the receiver allows fonts to be changed in modal windows and panels.

6.9.13 Properties

6.9.14 accessoryView as NSViewMBS

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The accessory view.
Notes:

Establishes the specified view as the receiver's accessory view, allowing you to add custom controls to your application's Font panel without having to create a subclass.
(Read and Write computed property)

6.9.15 Enabled as boolean

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver's Set button is enabled.
Notes:

The receiver continues to reflect the font of the selection for cooperating text objects regardless of this setting.
(Read and Write computed property)

6.9.16 Events

6.9.17 changeAttributes

Plugin Version: 9.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called whenever attributes in the font panel changed.
Notes: Use convertAttributes to know what changed.

6.9.18 changeFont

Plugin Version: 9.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called whenever the font in the font panel changed.
Notes: Use ConvertFont to know what changed.

6.9.19 validModesForFontPanel as Integer

Plugin Version: 12.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns the mode mask corresponding to the expected font panel mode.
Notes:

The mode masks are defined in constants.
By default the plugin returns NSFontPanelAllModesMask.

6.9.20 Constants

6.9.21 NSFontPanelAllEffectsModeMask = & hFFF00

Plugin Version: 12.5. **Function:** One of the constants to define what is available in NSFontPanel.
Notes: Display all the effects user interface items.

6.9.22 NSFontPanelAllModesMask = & hFFFFFFFF

Plugin Version: 12.5. **Function:** One of the constants to define what is available in NSFontPanel.
Notes: Display all the available adornments.

6.9.23 NSFontPanelCollectionModeMask = 4

Plugin Version: 12.5. **Function:** One of the constants to define what is available in NSFontPanel.
Notes: Display the font collections column.

6.9.24 NSFontPanelDocumentColorEffectModeMask = 2048

Plugin Version: 12.5. **Function:** One of the constants to define what is available in NSFontPanel.
Notes: Display the document color button.

6.9.25 NSFontPanelFaceModeMask = 1

Plugin Version: 12.5. **Function:** One of the constants to define what is available in NSFontPanel.
Notes: Display the typeface column.

6.9.26 NSFontPanelShadowEffectModeMask = 4096

Plugin Version: 12.5. **Function:** One of the constants to define what is available in NSFontPanel.
Notes: Display the shadow effects button.

6.9.27 NSFontPanelSizeModeMask = 2

Plugin Version: 12.5. **Function:** One of the constants to define what is available in NSFontPanel.
Notes: Display the font size column.

6.9.28 NSFontPanelStandardModesMask = & hFFFF

Plugin Version: 12.5. **Function:** One of the constants to define what is available in NSFontPanel.
Notes: Display the standard default font panelthat is, including the collections, typeface, and size columns.

6.9.29 NSFontPanelStrikethroughEffectModeMask = 512

Plugin Version: 12.5. **Function:** One of the constants to define what is available in NSFontPanel.
Notes: Display the strike-through popup menu.

6.9.30 NSFontPanelTextColorEffectModeMask = 1024

Plugin Version: 12.5. **Function:** One of the constants to define what is available in NSFontPanel. **Notes:** Display the text color button.

6.9.31 NSFontPanelUnderlineEffectModeMask = 256

Plugin Version: 12.5. **Function:** One of the constants to define what is available in NSFontPanel. **Notes:** Display the underline popup menu.

6.10 class NSHelpManagerMBS

6.10.1 class NSHelpManagerMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The NSHelpManager class provides an approach to displaying online help.
Notes: An application contains one NSHelpManager object.

6.10.2 Methods

6.10.3 Constructor

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates an NSHelpManagerMBS object in Real Studio which points to the shared NSHelpManager object.

6.10.4 eventWindow as NSWindowMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference to the event window.
Notes: Can be nil in future Mac OS X versions.

6.10.5 findString(query as string, book as string)

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Performs a search for the specified string in the specified book.
Notes:

query: String to search for.
book: Localized help book to search. When "", all installed help books are searched.

6.10.6 helpWindow as NSWindowMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference to the help window.
Notes:

Can be nil in future Mac OS X versions.
Maybe be useful to reposition help window.

6.10.7 isContextHelpModeActive as boolean

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether context-sensitive help mode is active.
Notes:

Returns true when the application is in context-sensitive help mode, false otherwise.

In context-sensitive help mode, when a user clicks a user interface item, help for that item is displayed in a small window just below the cursor.

6.10.8 NSContextHelpModeDidActivateNotification as string

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names to be used with NSNotificationObserverMBS class.
Notes:

Posted when the application enters context-sensitive help mode. This typically happens when the user holds down the Help key.
The notification object is the help manager. This notification does not contain a userInfo dictionary.

6.10.9 NSContextHelpModeDidDeactivateNotification as string

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names to be used with NSNotificationObserverMBS class.
Notes:

Posted when the application exits context-sensitive help mode. This happens when the user clicks the mouse button while the cursor is anywhere on the screen after displaying a context-sensitive help topic.
The notification object is the help manager. This notification does not contain a userInfo dictionary.

6.10.10 openHelpAnchor(anchor as string, book as string)

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Finds and displays the text at the given anchor location in the given book.
Notes:

anchor: Location of the desired text.
book: Help book containing the anchor. When "", all installed help books are searched.

6.10.11 registerBooksInBundle(bundle as NSBundleMBS) as boolean

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Registers one or more help books in the given bundle.
Notes:

bundle: The bundle for additional help books. Books in the main bundle are automatically registered.

Returns true if registration is successful, false if if the bundle doesn't contain any help books or if registration fails.

You use registerBooksInBundle to register help books in, for example, a plug-in bundle. The Info.plist in the bundle should contain a help book directory path, which specifies one or more folders containing help books.

The main bundle is automatically registered by openHelpAnchor and findString.

6.10.12 setContextHelpModeActive(active as boolean)

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Specifies whether context-sensitive help mode is active.
Notes:

active: True turns on context-sensitive help, false turns it off.

You never send this message directly; instead, the NSApplication method activateContextHelpMode activates context-sensitive help mode, and the first mouse click after displaying the context-sensitive help window deactivates it.

When the application enters context-sensitive help mode, the help manager posts an NSContextHelpModeDidActivateNotification to the default notification center. When the application returns to normal operation, the help manager posts an NSContextHelpModeDidDeactivateNotification.

6.10.13 shadowWindow as NSWindowMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference to the shadow window.
Notes: Can be nil in future Mac OS X versions.

6.10.14 Properties

6.10.15 Handle as Integer

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object reference to the NSHelpManager object.
Notes: (Read and Write property)

6.11 class NSIndexSetMBS

6.11.1 class NSIndexSetMBS

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The NSIndexSet class represents an immutable collection of unique unsigned integers, known as indexes because of the way they are used.
Example:

```
dim n as new NSIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
MsgBox str(n.firstIndex)+" "+str(n.lastIndex)
```

Notes:

This collection is referred to as a index set.

You use index sets in your code to store indexes into some other data structure. For example, given an array, you could use an index set to identify a subset of objects in that array.

Each index value can appear only once in the index set. This is an important concept to understand and is why you would not use index sets to store an arbitrary collection of integer values. To illustrate how this works, if you created an NSIndexSet object with the values 4, 5, 2, and 5, the resulting set would only have the values 4, 5, and 2 in it. Because index values are always maintained in sorted order, the actual order of the values when you created the set would be 2, 4, and then 5.

In most cases, using an index set is more efficient than storing a collection of individual integers. Internally, the NSIndexSet class represents indexes using ranges. For maximum performance and efficiency, overlapping ranges in an index set are automatically coalescedthat is, ranges merge rather than overlap. Thus, the more contiguous the indexes in the set, the fewer ranges are required to specify those indexes.

You must not subclass the NSIndexSet class.

The mutable subclass of NSIndexSet is NSMutableIndexSet.

6.11.2 Methods

6.11.3 Constructor

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes an allocated NSIndexSet object.
Example:

```
dim x as new NSIndexSetMBS
```

See also:

- 6.11.4 Constructor(index as Integer) 368
- 6.11.5 Constructor(indexes as NSIndexSetMBS) 368
- 6.11.6 Constructor(StartIndex as Integer, Length as Integer) 369

6.11.4 Constructor(index as Integer)

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes an allocated NSIndexSet object with an index.
Example:

```
dim n as new NSIndexSetMBS(5)
MsgBox str(n.firstIndex)+" "+str(n.lastIndex)
```

See also:

- 6.11.3 Constructor 367
- 6.11.5 Constructor(indexes as NSIndexSetMBS) 368
- 6.11.6 Constructor(StartIndex as Integer, Length as Integer) 369

6.11.5 Constructor(indexes as NSIndexSetMBS)

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes an allocated NSIndexSet object with an index set.
Example:

```
dim n as new NSIndexSetMBS(5)
dim x as new NSIndexSetMBS(n)
MsgBox str(x.firstIndex)
```

See also:

- 6.11.3 Constructor 367
- 6.11.4 Constructor(index as Integer) 368
- 6.11.6 Constructor(StartIndex as Integer, Length as Integer) 369

6.11.6 Constructor(StartIndex as Integer, Length as Integer)

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes an allocated NSIndexSet object with an index range.
Example:

```
dim n as new NSIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
```

Notes: This method raises an NSRangeException when indexRange would add an index that exceeds the maximum allowed value for unsigned integers.
See also:

- 6.11.3 Constructor 367
- 6.11.4 Constructor(index as Integer) 368
- 6.11.5 Constructor(indexes as NSIndexSetMBS) 368

6.11.7 containsIndex(index as Integer) as boolean

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether the receiver contains a specific index.
Example:

```
dim n as new NSIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10

if n.containsIndex(6) then
MsgBox "OK"
else
MsgBox "Error."
end if

if n.containsIndex(11) then
MsgBox "Error."
else
MsgBox "OK"
end if
```

Notes: Returns true when the receiver contains index, false otherwise.

6.11.8 containsIndexes(indexes as NSIndexSetMBS) as boolean

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether the receiver contains a superset of the indexes in another index set.
Example:

```
dim n as new NSIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
dim m as new NSIndexSetMBS(6,2)

if n.containsIndexes(m) then
MsgBox "OK"
else
MsgBox "Error."
end if
```

Notes: True when the receiver contains a superset of the indexes in indexSet, false otherwise.

6.11.9 containsIndexesInRange(StartIndex as Integer, Length as Integer) as boolean

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether the receiver contains the indexes represented by an index range.
Example:

```
dim n as new NSIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
if n.containsIndexesInRange(6,2) then
MsgBox "OK"
else
MsgBox "Error."
end if
```

Notes: Returns true when the receiver contains the indexes in indexRange, false otherwise.

6.11.10 copy as NSIndexSetMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a copy of the Cocoa and RB object.

6.11.11 count as Integer

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the number of indexes in the receiver.
Example:

```
dim n as new NSIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
MsgBox str(n.count) // shows 6
```

6.11.12 countOfIndexesInRange(StartIndex as Integer, Length as Integer) as Integer

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the number of indexes in the receiver that are members of a given range.
Example:

```
dim n as new NSIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
MsgBox str(n.countOfIndexesInRange(1,8)) // shows 4
```

Notes: Available in Mac OS X v10.5 and later.

6.11.13 firstIndex as Integer

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns either the first index in the receiver or the not-found indicator.
Example:

```
dim n as new NSIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
MsgBox str(n.firstIndex)+" "+str(n.lastIndex)
```

Notes: First index in the receiver or NSNotFound (& h7fffffff) when the receiver is empty.

6.11.14 indexGreaterThanIndex(index as Integer) as Integer

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns either the closest index in the receiver that is greater than a specific index or the not-found indicator.
Example:

```
dim n as new NSIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
MsgBox str(n.indexGreaterThanIndex(1)) // shows(5)
```

Notes: Returns the losest index in the receiver greater than index; NSNotFound (& h7FFFFFFF) when the receiver contains no qualifying index.

6.11.15 indexGreaterThanOrEqualToIndex(index as Integer) as Integer

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns either the closest index in the receiver that is greater than or equal to a specific index or the not-found indicator.
Example:

```
dim n as new NSIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
MsgBox str(n.indexGreaterThanOrEqualToIndex(1)) // shows(5)
```

Notes: Returns closest index in the receiver greater than or equal to index; NSNotFound (& h7FFFFFFF) when the receiver contains no qualifying index.

6.11.16 indexLessThanIndex(index as Integer) as Integer

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns either the closest index in the receiver that is less than a specific index or the not-found indicator.
Example:

```
dim n as new NSIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
MsgBox str(n.indexLessThanIndex(20)) // shows 10
MsgBox str(n.indexLessThanIndex(1)) // shows 2147483647 for not found
```

Notes: Returns closest index in the receiver less than index; NSNotFound (& h7FFFFFFF) when the receiver contains no qualifying index.

6.11.17 indexLessThanOrEqualToIndex(index as Integer) as Integer

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns either the closest index in the receiver that is less than or equal to a specific index or the not-found indicator.
Example:

```
dim n as new NSIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
MsgBox str(n.indexLessThanOrEqualToIndex(20)) // shows 10
```

Notes: Returns closest index in the receiver less than or equal to index; NSNotFound (& h7FFFFFFF) when the receiver contains no qualifying index.

6.11.18 indexSet as NSIndexSetMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates an empty index set.
Example:

```
dim n as NSIndexSetMBS = NSIndexSetMBS.indexSet
MsgBox str(n.count) // 0 ->empty
```

Notes: Available in Mac OS X v10.3 and later.

6.11.19 indexSetWithIndex(index as Integer) as NSIndexSetMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates an index set with an index.
Example:

```
dim n as NSIndexSetMBS = NSIndexSetMBS.indexSetWithIndex(3)
MsgBox str(n.count) // 1
```

Notes: Available in Mac OS X v10.3 and later.

6.11.20 indexSetWithIndexesInRange(StartIndex as Integer, Length as Integer) as NSIndexSetMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates an index set with an index range.
Example:

```
dim n as NSIndexSetMBS = NSIndexSetMBS.indexSetWithIndexesInRange(3,2)
MsgBox str(n.count) // 2 and contains 3,4
```

Notes: Available in Mac OS X v10.3 and later.

6.11.21 intersectsIndexesInRange(StartIndex as Integer, Length as Integer) as boolean

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether the receiver contains any of the indexes in a range.
Example:

```
dim n as new NSIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10

if n.intersectsIndexesInRange(1,4) then
MsgBox "Error"
else
MsgBox "OK"
end if

if n.intersectsIndexesInRange(1,6) then
MsgBox "OK"
else
MsgBox "Error"
end if
```

6.11.22 isEqualToIndexSet(other as NSIndexSetMBS) as boolean

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether the indexes in the receiver are the same indeces contained in another index set.
Example:

```
dim n as new NSIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
dim m as NSIndexSetMBS = n.mutableCopy

if m.isEqualToIndexSet(n) then
MsgBox "OK"
else
MsgBox "Failed."
end if
```

6.11.23 lastIndex as Integer

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns either the last index in the receiver or the not-found indicator.
Example:

```
dim n as new NSIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
MsgBox str(n.firstIndex)+" "+str(n.lastIndex)
```

Notes: Returns Last index in the receiver or NSNotFound (& h7FFFFFFF) when the receiver is empty.

6.11.24 mutableCopy as NSMutableIndexSetMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates an editable copy of the indexset.
Example:

```
dim n as new NSIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
dim m as NSMutableIndexSetMBS = n.mutableCopy

m.addIndex 20

MsgBox str(n.lastIndex)+" "+str(m.lastIndex)
```

6.11.25 Operator_Convert as string

Plugin Version: 13.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Converts an indexset to string for display.
Example:

```
dim n as NSIndexSetMBS = NSIndexSetMBS.indexSetWithIndexesInRange(10,40)
MsgBox n
```

Notes:

This is for having str() function and msgbox work with NSIndexSetMBS class.
If more than 20 values, you get only 20 values followed with dots and last value on the end.

6.11.26 Values as Integer()

Plugin Version: 13.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns all values in array.
Example:

```
dim n1 as NSIndexSetMBS = NSIndexSetMBS.indexSetWithIndexesInRange(10,10)
dim n2 as NSIndexSetMBS = NSIndexSetMBS.indexSetWithIndexesInRange(30,5)
dim n3 as new NSMutableIndexSetMBS
n3.addIndexes n1
n3.addIndexes n2
dim count1 as Integer = n1.count // 10
dim count2 as Integer = n2.count // 5
dim count3 as Integer = n3.count // 15
dim values1() as Integer = n1.Values
dim values2() as Integer = n2.Values
dim values3() as Integer = n3.Values
break // look in debugger
```

6.11.27 Properties

6.11.28 Handle as Integer

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference for the NSIndexSex.
Notes: (Read and Write property)

6.12 class NSLayoutManagerMBS

6.12.1 class NSLayoutManagerMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An NSLayoutManager object coordinates the layout and display of characters held in an NSTextStorage object.
Notes:

It maps Unicode character codes to glyphs, sets the glyphs in a series of NSTextContainer objects, and displays them in a series of NSTextView objects. In addition to its core function of laying out text, an NSLayoutManager object coordinates its NSTextView objects, provides services to those text views to support NSRulerView instances for editing paragraph styles, and handles the layout and display of text attributes not inherent in glyphs (such as underline or strikethrough). You can create a subclass of NSLayoutManager to handle additional text attributes, whether inherent or not.

Text Antialiasing
NSLayoutManager provides the threshold for text antialiasing. It looks at the AppleAntiAliasingThreshold default value. If the font size is smaller than or equal to this threshold size, the text is rendered aliased by NSLayoutManager. You can change the threshold value from the Appearance pane of System Preferences.

Thread Safety of NSLayoutManager
Generally speaking, a given layout manager (and associated objects) should not be used in more than one block, operation, or thread at a time. Most layout managers are used on the main thread, since it is the main thread on which their text views are displayed, and since background layout occurs on the main thread. If it is intended that a layout manager should be used on a background thread, first make sure that text views associated with that layout manager (if any) are not displayed while the layout manager is being used on the background thread, and, second, turn off background layout for that layout manager while it is being used on the background thread.

Noncontiguous Layout
Noncontiguous layout is an optional layout manager behavior new in Mac OS X v10.5. Previously, both glyph generation and layout were always performed, in order, from the beginning to the end of the document. When noncontiguous layout is turned on, however, the layout manager gains the option of performing glyph generation or layout for one portion of the document without having done so for previous sections. This can provide significant performance improvements for large documents.

Noncontiguous layout is not turned on automatically because direct clients of NSLayoutManager typically have relied on the previous behaviorfor example, by forcing layout for a given glyph range, and then assuming that previous glyphs would therefore be laid out. Clients who use NSLayoutManager only indirectlyfor example, those who use NSTextView without directly calling the underlying layout managercan usually turn on noncontiguous layout without difficulty. Clients using NSLayoutManager directly need to examine their usage before turning on noncontiguous layout.

To turn on noncontiguous layout, use AllowsNonContiguousLayout. In addition, see the other methods in

"Managing Noncontiguous Layout," many of which enable you to ensure that glyph generation and layout are performed for specified portions of the text. The behavior of a number of other layout manager methods is affected by the state of noncontiguous layout, as noted in the discussion sections of those method descriptions.

So far the plugin implements a small subset of the functions in NSLayoutManager. If you miss a function, please email us and we can check whether we can add it for you.

6.12.2 Methods

6.12.3 addTextContainer(container as NSTextContainerMBS)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Appends the given text container to the series of text containers where the receiver arranges text.
Notes:

container: The text container to append.

Invalidates glyphs and layout as needed, but doesn't perform glyph generation or layout.

6.12.4 characterIndexForPoint(point as NSPointMBS, container as NSTextContainerMBS, byref partialFraction as Double) as Integer

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the index of the character falling under the given point, expressed in the given container's coordinate system.
Notes:

point: The point to test.
container: The text container within which the point is tested.
partialFraction: A fraction of the distance from the insertion point, logically before the given character to the next one.

Returns the index of the character falling under point.

Analogous to glyphIndexForPoint:inTextContainer, but expressed in character index terms. The method returns the index of the character falling under point, expressed in coordinate system of container; if no character is under the point, the nearest character is returned, where nearest is defined according to the requirements of selection by mouse. However, this is not simply equivalent to taking the result of the corresponding glyph index method and converting it to a character index, because in some cases a single glyph represents more than one selectable character, for example an fi ligature glyph. In that case, there is an insertion point within the glyph, and this method returns one character or the other, depending on whether the specified point lies to the left or the right of that insertion point.

In general, this method returns only character indexes for which there is an insertion point. The partialFraction is a fraction of the distance from the insertion point, logically before the given character to the next one, which may be either to the right or to the left depending on directionality.

Available in OS X v10.6 and later.

6.12.5 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates new NSLayoutManager object.

6.12.6 glyphIndexForPoint(point as NSPointMBS, container as NSTextContainerMBS) as Integer

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This method is a primitive for glyphIndexForPoint. You should always call the main method, not the primitives.
See also:

- 6.12.7 glyphIndexForPoint(point as NSPointMBS, container as NSTextContainerMBS, byref partialFraction as Double) as Integer 379

6.12.7 glyphIndexForPoint(point as NSPointMBS, container as NSTextContainerMBS, byref partialFraction as Double) as Integer

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the index of the glyph falling under the given point, expressed in the given container's coordinate system.
Notes:

point: The point for which to return the glyph, in coordinates of container.
container: The container in which the returned glyph is laid out.
partialFraction: On output, the fraction of the distance between the location of the glyph returned and the location of the next glyph.

Returns the index of the glyph falling under the given point, expressed in the given container's coordinate system.

If no glyph is under point, the nearest glyph is returned, where nearest is defined according to the requirements of selection by mouse. Clients who wish to determine whether the the point actually lies within the bounds of the glyph returned should follow this with a call to boundingRectForGlyphRange and test whether the point falls in the rectangle returned by that method. If partialFraction is non-NULL, it returns by refer-

ence the fraction of the distance between the location of the glyph returned and the location of the next glyph.

For purposes such as dragging out a selection or placing the insertion point, a partial percentage less than or equal to 0.5 indicates that point should be considered as falling before the glyph index returned; a partial percentage greater than 0.5 indicates that it should be considered as falling after the glyph index returned. If the nearest glyph doesn't lie under point at all (for example, if point is beyond the beginning or end of a line), this ratio is 0 or 1.

If the glyph stream contains the glyphs "A" and "b", with the width of "A" being 13 points, and the user clicks at a location 8 points into "A", partialFraction is 8/13, or 0.615. In this case, the point given should be considered as falling between "A" and "b" for purposes such as dragging out a selection or placing the insertion point.

Performs glyph generation and layout if needed.

As part of its implementation, this method calls fractionOfDistanceThroughGlyphForPoint and glyphIndex-ForPoint. To change this method's behavior, override those two methods instead of this one.
See also:

- 6.12.6 glyphIndexForPoint(point as NSPointMBS, container as NSTextContainerMBS) as Integer 379

6.12.8 glyphRangeForTextContainer(container as NSTextContainerMBS) as NSRangeMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the range of glyphs laid out within the given text container.
Notes:

This is a less efficient method than the similar textContainerForGlyphAtIndex.
Performs glyph generation and layout if needed.

6.12.9 lineFragmentRectForGlyphAtIndex(glyphIndex as Integer, byref effectiveRange as NSRangeMBS) as NSRectMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the rectangle for the line fragment in which the given glyph is laid out and (optionally), by reference, the whole range of glyphs that are in that fragment.
Notes:

glyphIndex: The glyph for which to return the line fragment rectangle.
effectiveGlyphRange: On output, the range for all glyphs in the line fragment.

Retuns the line fragment in which the given glyph is laid out.

This method causes glyph generation and layout for the line fragment containing the specified glyph, or if noncontiguous layout is not enabled, for all of the text up to and including that line fragment.

Line fragment rectangles are always in container coordinates.

Overriding this method is not recommended. If the the line fragment rectangle needs to be modified, that should be done at the typesetter level or by calling setLineFragmentRect:forGlyphRange.
See also:

- 6.12.10 lineFragmentRectForGlyphAtIndex(glyphIndex as Integer, byref effectiveRange as NSRangeMBS, withoutAdditionalLayout as boolean) as NSRectMBS 381

6.12.10 lineFragmentRectForGlyphAtIndex(glyphIndex as Integer, byref effectiveRange as NSRangeMBS, withoutAdditionalLayout as boolean) as NSRectMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the line fragment rectangle containing the glyph at the given glyph index.
Notes:

glyphIndex: The glyph for which to return the line fragment rectangle.
effectiveGlyphRange: On output, the range for all glyphs in the line fragment.
withoutAdditionalLayout: If true, glyph generation and layout are not performed, so this option should not be used unless layout is known to be complete for the range in question, or unless noncontiguous layout is enabled; if false, both are performed as needed.

Returns the line fragment in which the given glyph is laid out.

This method is primarily for use from within NSTypesetter, after layout is complete for the range in question, but before the layout manager's call to NSTypesetter has returned. In that case glyph and layout holes have not yet been recalculated, so the layout manager does not yet know that layout is complete for that range, and this variant must be used.

Overriding this method is not recommended. If the the line fragment rectangle needs to be modified, that should be done at the typesetter level or by calling setLineFragmentRect.
See also:

- 6.12.9 lineFragmentRectForGlyphAtIndex(glyphIndex as Integer, byref effectiveRange as NSRangeMBS) as NSRectMBS 380

6.12.11 lineFragmentUsedRectForGlyphAtIndex(glyphIndex as Integer, byref effectiveRange as NSRangeMBS) as NSRectMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the usage rectangle for the line fragment in which the given glyph is laid and (optionally) by reference the whole range of glyphs that are in that fragment.
Notes:

glyphIndex: The glyph for which to return the line fragment used rectangle.
effectiveGlyphRange: On output, the range for all glyphs in the line fragment.

Returns the used rectangle for the line fragment in which the given glyph is laid out.

This method causes glyph generation and layout for the line fragment containing the specified glyph, or if noncontiguous layout is not enabled, up to and including that line fragment.

Line fragment used rectangles are always in container coordinates.

Overriding this method is not recommended. If the the line fragment used rectangle needs to be modified, that should be done at the typesetter level or by calling setLineFragmentRect.
See also:

- 6.12.12 lineFragmentUsedRectForGlyphAtIndex(glyphIndex as Integer, byref effectiveRange as NSRangeMBS, withoutAdditionalLayout as boolean) as NSRectMBS 382

6.12.12 lineFragmentUsedRectForGlyphAtIndex(glyphIndex as Integer, byref effectiveRange as NSRangeMBS, withoutAdditionalLayout as boolean) as NSRectMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the usage rectangle for the line fragment in which the given glyph is laid and (optionally) by reference the whole range of glyphs that are in that fragment.
Notes:

glyphIndex: The glyph for which to return the line fragment used rectangle.
effectiveGlyphRange: On output, the range for all glyphs in the line fragment.
withoutAdditionalLayout: If true, glyph generation and layout are not performed, so this option should not be used unless layout is known to be complete for the range in question, or unless noncontiguous layout is enabled; if false, both are performed as needed.

Returns the used rectangle for the line fragment in which the given glyph is laid out.

This method causes glyph generation and layout for the line fragment containing the specified glyph, or if

noncontiguous layout is not enabled, up to and including that line fragment.

Line fragment used rectangles are always in container coordinates.

Overriding this method is not recommended. If the the line fragment used rectangle needs to be modified, that should be done at the typesetter level or by calling setLineFragmentRect.
See also:

- 6.12.11 lineFragmentUsedRectForGlyphAtIndex(glyphIndex as Integer, byref effectiveRange as NSRangeMBS) as NSRectMBS 382

6.12.13 locationForGlyphAtIndex(glyphIndex as Integer) as NSPointMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the location for the given glyph within its line fragment.
Notes:

glyphIndex: The glyph whose location is returned.

Returns the location of the given glyph.

If the given glyph does not have an explicit location set for it (for example, if it is part of (but not first in) a sequence of nominally spaced characters), the location is calculated by glyph advancements from the location of the most recent preceding glyph with a location set.

Glyph locations are relative to their line fragment rectangle's origin. The line fragment rectangle in turn is defined in the coordinate system of the text container where it resides.

This method causes glyph generation and layout for the line fragment containing the specified glyph, or if noncontiguous layout is not enabled, up to and including that line fragment.

6.12.14 rangeOfNominallySpacedGlyphsContainingIndex(glyphIndex as Integer) as NSRangeMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the range for the glyphs around the given glyph that can be displayed using only their advancements from the font, without pairwise kerning or other adjustments to spacing.
Notes:

glyphIndex: Index of the glyph to test.

Returns the range of nominally spaced glyphs.

The range returned begins with the first glyph, counting back from glyphIndex, that has a location set, and it continues up to, but does not include, the next glyph that has a location set.

Performs glyph generation and layout if needed.

6.12.15 rectArrayForCharacterRange(charRange as NSRangeMBS, selCharRange as NSRangeMBS, container as NSTextContainerMBS, byref rectCount as Integer) as NSRectMBS()

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of rectangles and, by reference, the number of such rectangles, that define the region in the given container enclosing the given character range.
Notes:

charRange: The character range for which to return rectangles.
selCharRange: Selected characters within charRange, which can affect the size of the rectangles; it must be equal to or contain charRange. If the caller is interested in this more from an enclosing point of view rather than a selection point of view, pass { NSNotFound, 0 } as the selected range.
container: The text container in which the text is laid out.
rectCount: The number of rectangles returned.

Returns the array of rectangles enclosing the given range.

These rectangles can be used to draw the text background or highlight for the given range of characters. If a selected range is given in selCharRange, the rectangles returned are correct for drawing the selection. Selection rectangles are generally more complicated than enclosing rectangles and supplying a selected range is the clue this method uses to determine whether to go to the trouble of doing this special work.

The number of rectangles returned isn't necessarily the number of lines enclosing the specified range. Contiguous lines can share an enclosing rectangle, and lines broken into several fragments have a separate enclosing rectangle for each fragment.

These rectangles don't necessarily enclose glyphs that draw outside their line fragment rectangles; use boundingRectForGlyphRange to determine the area that contains all drawing performed for a range of glyphs.

Performs glyph generation and layout if needed.

6.12.16 rectArrayForGlyphRange(glyphRange as NSRangeMBS, selGlyphRange as NSRangeMBS, container as NSTextContainerMBS, byref rectCount as Integer) as NSRectMBS()

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of rectangles and, by reference, the number of such rectangles, that define the region in the given container enclosing the given glyph range.
Notes:

glyphRange: The glyph range for which to return rectangles.
selGlyphRange: Selected glyphs within glyphRange, which can affect the size of the rectangles; it must be equal to or contain glyphRange. If the caller is interested in this more from an enclosing point of view rather than a selection point of view, pass { NSNotFound, 0 } as the selected range.
container: The text container in which the text is laid out.
rectCount: The number of rectangles returned.

Returns the array of rectangles enclosing the given range.

These rectangles can be used to draw the text background or highlight for the given range of characters. If a selected range is given in selGlyphRange, the rectangles returned are correct for drawing the selection. Selection rectangles are generally more complicated than enclosing rectangles and supplying a selected range is the clue this method uses to determine whether to go to the trouble of doing this special work.

The number of rectangles returned isn't necessarily the number of lines enclosing the specified range. Contiguous lines can share an enclosing rectangle, and lines broken into several fragments have a separate enclosing rectangle for each fragment.

The purpose of this method is to calculate line rectangles for drawing the text background and highlighting. These rectangles don't necessarily enclose glyphs that draw outside their line fragment rectangles; use boundingRectForGlyphRange to determine the area that contains all drawing performed for a range of glyphs.

Performs glyph generation and layout if needed.

6.12.17 removeTextContainerAtIndex(index as Integer)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes the text container at the given index and invalidates the layout as needed.
Notes:

index: The index of the text container to remove.

This method invalidates glyph information as needed.

6.12.18 replaceGlyphAtIndex(glyphIndex as Integer, newGlyph as Integer)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Replaces the glyph at the given index with a new glyph.
Notes:

glyphIndex: Index of the glyph to replace.
newGlyph: The new glyph.

Doesn't alter the glyph-to-character mapping or invalidate layout information. The character index of the glyph is assumed to remain the same (although it can, of course, be set explicitly if needed).

This method is for use by the glyph-generation mechanism and doesn't perform any invalidation or generation of the glyphs or layout. This method should be invoked only during glyph generation and typesetting, in almost all cases only by the glyph generator or typesetter. For example, a custom glyph generator or typesetter might invoke it.

6.12.19 replaceTextStorage(newTextStorage as NSTextStorageMBS)

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Replaces the NSTextStorage object for the group of text-system objects containing the receiver with the given text storage object.
Notes: All NSLayoutManager objects sharing the original NSTextStorage object then share the new one. This method makes all the adjustments necessary to keep these relationships intact, unlike setting textStorage property.

6.12.20 setCharacterIndex(charIndex as Integer, glyphIndex as Integer)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the index of the character corresponding to the glyph at the given glyph index.
Notes:

charIndex: The index to set.
glyphIndex: The glyph corresponding to the character whose index is set. The glyph must already be present.

This method is for use by the glyph-generation mechanism and doesn't perform any invalidation or generation of the glyphs or layout. This method should be invoked only during glyph generation and typesetting, in almost all cases only by the glyph generator or typesetter. For example, a custom glyph generator or typesetter might invoke it.

6.12.21 setExtraLineFragmentRect(fragmentRect as NSRectMBS, usedRect as NSRectMBS, TextContainer as NSTextContainerMBS)

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the bounds and container for the extra line fragment.
Notes:

fragmentRect: The rectangle to set.
usedRect: Indicates where the insertion point is drawn.
TextContainer: The text container where the rectangle is to be laid out.

The extra line fragment is used when the text backing ends with a hard line break or when the text backing is totally empty, to define the extra line which needs to be displayed at the end of the text. If the text backing is not empty and does not end with a hard line break, this should be set to NSRectMBS.Zero and nil.

Line fragment rectangles and line fragment used rectangles are always in container coordinates.

This method is used by the layout mechanism and should be invoked only during typesetting, in almost all cases only by the typesetter. For example, a custom typesetter might invoke it.

6.12.22 setLineFragmentRect(fragmentRect as NSRectMBS, glyphRange as NSRangeMBS, usedRect as NSRectMBS)

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Associates the given line fragment bounds with the given range of glyphs.
Notes:

fragmentRect: The rectangle of the line fragment.
glyphRange: The range of glyphs to be associated with fragmentRect.
usedRect: The portion of fragmentRect that actually contains glyphs or other marks that are drawn (including the text containers line fragment padding. Must be equal to or contained within fragmentRect.

The typesetter must specify the text container first with setTextContainer, and it sets the exact positions of the glyphs afterwards with setLocation.

In the course of layout, all glyphs should end up being included in a range passed to this method, but only glyphs that start a new line fragment should be at the start of such ranges.

Line fragment rectangles and line fragment used rectangles are always in container coordinates.

This method is used by the layout mechanism and should be invoked only during typesetting, in almost all cases only by the typesetter. For example, a custom typesetter might invoke it.

6.12.23 usedRectForTextContainer(container as NSTextContainerMBS) as NSRectMBS

Plugin Version: 17.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the bounding rectangle for the glyphs laid out in the given text container.
Notes:

Returns the text container's currently used area, which determines the size that the view would need to be in order to display all the glyphs that are currently laid out in the container. This causes neither glyph generation nor layout.
Used rectangles are always in container coordinates.

6.12.24 Properties

6.12.25 allowsNonContiguousLayout as boolean

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether noncontiguous layout is enabled.
Notes:

Setting to true allows but does not require the layout manager to use noncontiguous layout, and the layout manager may in fact not do so, depending on its configuration.
(Read and Write property)

6.12.26 attributedString as NSAttributedStringMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the text storage object from which the NSGlyphGenerator object procures characters for glyph generation.
Notes:

This method is part of the NSGlyphStorage protocol, for use by the glyph generator. For NSLayoutManager the attributed string is equivalent to the text storage.
Available in Mac OS X v10.5 and later.
(Read only property)

6.12.27 backgroundLayoutEnabled as boolean

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver generates glyphs and lays them out when the application's run loop is idle.
Notes:

If true, background layout is enabled; if false, the receiver performs glyph generation and layout only when necessary.
(Read and Write property)

6.12.28 font as NSFontMBS

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The font for the invisible character drawing.
Notes:

Use nil font for using the font of the current text.
This method is only available if the NSLayoutManagerMBS object has been created with new NSLayoutManagerMBS, so the plugin can use the special NSLayoutManager subclass with support for invisible character drawing.
(Read and Write property)

6.12.29 Handle as Integer

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object reference.
Notes: (Read and Write property)

6.12.30 hasNonContiguousLayout as boolean

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the layout manager currently has any areas of noncontiguous layout.
Notes:

There may be times at which there is no noncontiguous layout, such as when layout is complete; this method enables the layout manager to report that to clients.
(Read only property)

6.12.31 hyphenationFactor as Double

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The threshold controlling when hyphenation is done.
Notes:

factor: The hyphenation factor, ranging from 0.0 to 1.0. By default, the value is 0.0, meaning hyphenation is off. A factor of 1.0 causes hyphenation to be attempted always.

Whenever (width of the real contents of the line) / (the line fragment width) is below factor, hyphenation is attempted when laying out the line. Hyphenation slows down text layout and increases memory usage, so it should be used sparingly.

May be overridden on a per-paragraph basis by the NSParagraphStyle method hyphenationFactor.
(Read and Write property)

6.12.32 showInvisibleCharacters as boolean

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether to show invisible characters.
Notes:

This method is only available if the NSLayoutManagerMBS object has been created with new NSLayoutManagerMBS, so the plugin can use the special NSLayoutManager subclass with support for invisible character drawing. (from MBS Plugin)
(Read and Write property)

6.12.33 showsControlCharacters as boolean

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether to substitute visible glyphs for control characters in layout.
Example:

```
if TargetCocoa then

dim t as NSTextViewMBS = TextArea1.NSTextViewMBS
dim l as NSLayoutManagerMBS = t.layoutManager

l.showsControlCharacters = true

else
// not supported
break
end if
```

Notes:

If true, the receiver substitutes visible glyphs for control characters if the font and script support it; if false, it doesn't. The default is false.
(Read and Write property)

6.12.34 showsInvisibleCharacters as boolean

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether to substitute visible glyphs for whitespace and other typically invisible characters in layout.
Example:

```
if TargetCocoa then

dim t as NSTextViewMBS = TextArea1.NSTextViewMBS
dim l as NSLayoutManagerMBS = t.layoutManager

l.showsInvisibleCharacters = true

else
// not supported
break
end if
```

Notes:

If true, the receiver substitutes visible glyphs for invisible characters if the font and script support it; if false, it doesn't. The default is false. (from Apple framework)
(Read and Write property)

6.12.35 textColor as NSColorMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The text color for drawing invisible characters.
Notes:

This method is only available if the NSLayoutManagerMBS object has been created with new NSLayoutManagerMBS, so the plugin can use the special NSLayoutManager subclass with support for invisible character drawing.
(Read and Write property)

6.12.36 textStorage as NSTextStorageMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The text storage.
Notes: (Read and Write property)

6.12.37 usesFontLeading as Boolean

Plugin Version: 16.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether the receiver uses the leading provided in the font.
Notes: (Read and Write property)

6.12.38 usesScreenFonts as boolean

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether screen fonts to calculate layout and display text.
Notes:

If true, the receiver uses screen fonts; if false, it doesn't.
(Read and Write property)

6.12.39 InvisibleCharMapping(character as Integer) as string

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets/gets character mapping for invisible character.
Example:

```
dim l as new NSLayoutManagerMBS
// ...
// set tab to map to plus sign
l.InvisibleCharMapping(9) = "+"
// set space to map to star sign
l.InvisibleCharMapping(asc(" ")) = "*"
```

Notes:

By default characters are set for endofline, tab and spaces.
Set showInvisibleCharacters to true and put here all the characters you need.
(Read and Write computed property)

6.13 class NSMutableIndexSetMBS

6.13.1 class NSMutableIndexSetMBS

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The NSMutableIndexSet class represents a mutable collection of unique unsigned integers, known as indexes because of the way they are used.
Example:

```
dim n as new NSMutableIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
MsgBox str(n.firstIndex)+" "+str(n.lastIndex)
```

Notes:

This collection is referred to as a mutable index set.

The values in a mutable index set are always sorted, so the order in which values are added is irrelevant.

You must not subclass the NSMutableIndexSet class.
Subclass of the NSIndexSetMBS class.

6.13.2 Methods

6.13.3 addIndex(index as Integer)

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds an index to the receiver.
Example:

```
dim n as new NSMutableIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
n.addIndex 12
MsgBox str(n.count)
```

6.13.4 addIndexes(indexes as NSIndexSetMBS)

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds the indexes in an index set to the receiver.
Example:

```
dim n as new NSMutableIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
dim x as new NSIndexSetMBS(12,5)
```

```
n.addIndexes x
MsgBox str(n.count)
```

6.13.5 addIndexesInRange(StartIndex as Integer, Length as Integer)

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds the indexes in an index range to the receiver.
Example:

```
dim n as new NSMutableIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
n.addIndexesInRange 12,5
MsgBox str(n.count)
```

Notes:

Index range to add. Must include only indexes representable as unsigned integers.

This method raises an NSRangeException when indexRange would add an index that exceeds the maximum allowed value for unsigned integers.

6.13.6 Constructor

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes an allocated NSMutableIndexSet object.
Example:

```
dim x as new NSMutableIndexSetMBS
```

See also:

- 6.13.7 Constructor(index as Integer) 394
- 6.13.8 Constructor(indexes as NSIndexSetMBS) 395
- 6.13.9 Constructor(StartIndex as Integer, Length as Integer) 395

6.13.7 Constructor(index as Integer)

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes an allocated NSMutableIndexSet object with an index.

Example:

```
dim n as new NSMutableIndexSetMBS(5)
MsgBox str(n.firstIndex)+" "+str(n.lastIndex)
```

See also:

- 6.13.6 Constructor 394
- 6.13.8 Constructor(indexes as NSIndexSetMBS) 395
- 6.13.9 Constructor(StartIndex as Integer, Length as Integer) 395

6.13.8 Constructor(indexes as NSIndexSetMBS)

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes an allocated NSIndexSet object with an index set.
Example:

```
dim n as new NSMutableIndexSetMBS(5)
dim x as new NSMutableIndexSetMBS(n)
MsgBox str(x.firstIndex)
```

See also:

- 6.13.6 Constructor 394
- 6.13.7 Constructor(index as Integer) 394
- 6.13.9 Constructor(StartIndex as Integer, Length as Integer) 395

6.13.9 Constructor(StartIndex as Integer, Length as Integer)

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes an allocated NSIndexSet object with an index range.
Example:

```
dim n as new NSMutableIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
```

Notes: This method raises an NSRangeException when indexRange would add an index that exceeds the maximum allowed value for unsigned integers.
See also:

- 6.13.6 Constructor 394

- 6.13.7 Constructor(index as Integer) 394
- 6.13.8 Constructor(indexes as NSIndexSetMBS) 395

6.13.10 removeAllIndexes

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes the receiver's indexes.
Example:

```
dim n as new NSMutableIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
n.removeAllIndexes
MsgBox str(n.count)
```

6.13.11 removeIndex(index as Integer)

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes an index from the receiver.
Example:

```
dim n as new NSMutableIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
MsgBox str(n.count)
n.removeIndex 8
MsgBox str(n.count)
```

6.13.12 removeIndexes(indexes as NSIndexSetMBS)

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes the indexes in an index set from the receiver.
Example:

```
dim n as new NSMutableIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
dim x as new NSIndexSetMBS(5,2)
n.removeIndexes x
MsgBox str(n.firstIndex)+" "+str(n.lastIndex)
```

6.13.13 removeIndexesInRange(StartIndex as Integer, Length as Integer)

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes the indexes in an index range from the receiver.

Example:

```
dim n as new NSMutableIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
n.removeIndexesInRange 5,2
MsgBox str(n.firstIndex)+" "+str(n.lastIndex)
```

6.13.14 shiftIndexes(StartingAtIndex as Integer, delta as Integer)

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Shifts a group of indexes to the left or the right within the receiver.
Example:

```
dim n as new NSMutableIndexSetMBS(5,6) // 5, 6, 7, 8, 9, 10
n.shiftIndexes 7,3
MsgBox str(n.firstIndex)+" "+str(n.lastIndex)
```

Notes:

startIndex: Head of the group of indexes to shift.
delta: Amount and direction of the shift. Positive integers shift the indexes to the right. Negative integers shift the indexes to the left.

The group of indexes shifted is made up by startIndex and the indexes that follow it in the receiver.

A left shift deletes the indexes in the range (startIndex-delta,delta) from the receiver.

A right shift inserts empty space in the range (indexStart,delta) in the receiver.

6.14 class NSMutableParagraphStyleMBS

6.14.1 class NSMutableParagraphStyleMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** NSMutableParagraphStyle adds methods to its superclass, NSParagraphStyle, for changing the values of the subattributes in a paragraph style attribute.
Example:

```
dim n as NSParagraphStyleMBS = NSParagraphStyleMBS.defaultParagraphStyle
MsgBox str(n.alignment) // 4 = natural

dim m as NSMutableParagraphStyleMBS = n.mutableCopy
m.setAlignment NSParagraphStyleMBS.NSCenterTextAlignment
MsgBox str(m.alignment) // 2 = center
```

Notes:

See the NSParagraphStyle and NSAttributedString specifications for more information.

Important A paragraph style object should not be mutated after adding it to an attributed string; doing so can cause your program to crash.
Subclass of the NSParagraphStyleMBS class.

6.14.2 Methods

6.14.3 addTabStop(tabstop as NSTextTabMBS)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds tabStop to the receiver.

6.14.4 Constructor

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor.

6.14.5 removeTabStop(tabstop as NSTextTabMBS)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes the first text tab whose location and type are equal to those of tabStop.

6.14.6 setAlignment(alignment as Integer)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the alignment of the receiver to alignment.
Example:

```
dim n as NSParagraphStyleMBS = NSParagraphStyleMBS.defaultParagraphStyle
MsgBox str(n.alignment) // 4 = natural

dim m as NSMutableParagraphStyleMBS = n.mutableCopy
m.setAlignment NSParagraphStyleMBS.NSCenterTextAlignment
MsgBox str(m.alignment) // 2 = center
```

Notes:

alignment may be one of:

NSLeftTextAlignment
NSRightTextAlignment
NSCenterTextAlignment
NSJustifiedTextAlignment
NSNaturalTextAlignment

6.14.7 setBaseWritingDirection(writingDirection as Integer)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the base writing direction for the receiver.
Notes: It can be NSWritingDirectionNaturalDirection, NSWritingDirectionLeftToRight, or NSWritingDirectionRightToLeft. If you specify NSWritingDirectionNaturalDirection, the receiver resolves the writing direction to either NSWritingDirectionLeftToRight or NSWritingDirectionRightToLeft, depending on the direction for the user's language preference setting.

6.14.8 setDefaultTabInterval(value as Double)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the default tab interval for the receiver.
Notes: Tabs after the last specified in tabStops are placed at integral multiples of this distance. This value must be nonnegative.

6.14.9 setFirstLineHeadIndent(value as Double)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the distance in points from the leading margin of a text container to the beginning of the paragraph's first line to value.
Notes: This value must be nonnegative.

6.14.10 setHeaderLevel(level as Integer)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Specifies whether the paragraph is to be treated as a header for purposes of HTML generation.
Notes: Should be set to 0 (the default value) if the paragraph is not a header, or from 1 through 6 if the paragraph is to be treated as a header.

6.14.11 setHeadIndent(value as Double)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the distance in points from the leading margin of a text container to the beginning of lines other than the first to value.
Notes: This value must be nonnegative.

6.14.12 setHyphenationFactor(value as Double)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Specifies the threshold for hyphenation.
Notes: Valid values lie between 0.0 and 1.0 inclusive. The default value is 0.0. Hyphenation is attempted when the ratio of the text width (as broken without hyphenation) to the width of the line fragment is less than the hyphenation factor. When the paragraph's hyphenation factor is 0.0, the layout manager's hyphenation factor is used instead. When both are 0.0, hyphenation is disabled.

6.14.13 setLineBreakMode(mode as Integer)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the mode used to break lines in a layout container to mode.
Notes:

The mode parameter may be one of:

NSLineBreakByWordWrapping
NSLineBreakByCharWrapping
NSLineBreakByClipping

NSLineBreakByTruncatingHead
NSLineBreakByTruncatingTail
NSLineBreakByTruncatingMiddle
See the description of lineBreakMode in the NSParagraphStyle class specification for descriptions of these values.

6.14.14 setLineHeightMultiple(value as Double)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the line height multiple for the receiver.
Notes: The natural line height of the receiver is multiplied by this factor before being constrained by minimum and maximum line height. This value must be nonnegative.

6.14.15 setLineSpacing(value as Double)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the space in points added between lines within the paragraph to value.
Example:

```
// works for Labels, TextArea and TextFields

// control is either a textfield or a textview
dim n as NSTextFieldMBS = me.NSTextFieldMBS
dim v as NSTextViewMBS = me.NSTextViewMBS

// get text with attributes
dim a as NSAttributedStringMBS

if n<>Nil then
a = n.attributedStringValue
elseif v<>nil then
a = v.textStorage
end if

// get style
dim p as NSParagraphStyleMBS

try
p = a.attributeAtIndex(a.NSParagraphStyleAttributeName, 0)
catch ex as NSExceptionMBS
// we have none, so make one
p = new NSParagraphStyleMBS
end try
```

```
// modify it
dim m as NSMutableParagraphStyleMBS = p.mutableCopy
m.setLineSpacing 5

// add back to styled text
dim s as NSMutableAttributedStringMBS = a.mutableCopy
s.addAttribute(a.NSParagraphStyleAttributeName, m, new NSRangeMBS(0, s.length))

// and apply to control
if n<>Nil then
n.attributedStringValue = s
elseif v<>nil then
v.textStorage.setAttributedString s
end if
```

Notes: This value must be nonnegative.

6.14.16 setMaximumLineHeight(value as Double)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the maximum height that any line in the paragraph style will occupy, regardless of the font size or size of any attached graphic, to value.
Notes:

Glyphs and graphics exceeding this height will overlap neighboring lines; however, a maximum height of 0 implies no line height limit. This value must be nonnegative.

Although this limit applies to the line itself, line spacing adds extra space between adjacent lines.

6.14.17 setMinimumLineHeight(value as Double)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the minimum height that any line in the paragraph style will occupy, regardless of the font size or size of any attached graphic, to value.
Notes: This value must be nonnegative.

6.14.18 setParagraphSpacing(value as Double)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the space added at the end of the paragraph to separate it from the following paragraph to value.

Notes: This value must be nonnegative.

6.14.19 setParagraphSpacingBefore(value as Double)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the distance between the paragraph's top and the beginning of its text content.
Notes: This value must be nonnegative.

6.14.20 setParagraphStyle(ParagraphStyle as NSParagraphStyleMBS)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Replaces the subattributes of the receiver with those in ParagraphStyle.

6.14.21 setTabStops(tabStops() as NSTextTabMBS)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Replaces the tab stops in the receiver with tabStops.

6.14.22 setTailIndent(value as Double)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the distance in points from the margin of a text container to the end of lines to value.
Notes:

If positive, this is the distance from the leading margin (for example, the left margin in left-to-right text). That is, it's the absolute line width. If 0 or negative, it's the distance from the trailing marginthe value is added to the line width.

For example, to create a paragraph style that fits exactly in a 2-inch wide container, set its head indent to 0.0 and its tail indent to 0.0. To create a paragraph style with quarter-inch margins, set its head indent to 0.25 and its tail indent to 0.25.

6.14.23 setTighteningFactorForTruncation(value as Double)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Specifies the threshold for using tightening as an alternative to truncation.
Notes: When the line break mode specifies truncation, the text system attempts to tighten intercharacter

spacing as an alternative to truncation, provided that the ratio of the text width to the line fragment width does not exceed 1.0 + the value returned by tighteningFactorForTruncation. Otherwise the text is truncated at a location determined by the line break mode. The default value is 0.05. This method accepts positive and negative values. Values less than or equal to 0.0 result in not tightening.

6.15 class NSParagraphStyleMBS

6.15.1 class NSParagraphStyleMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** NSParagraphStyle and its subclass NSMutableParagraphStyle encapsulate the paragraph or ruler attributes used by the NSAttributedString classes.
Example:

```
dim n as NSParagraphStyleMBS = NSParagraphStyleMBS.defaultParagraphStyle
MsgBox str(n.alignment) // 4 = natural
```

Notes:

Instances of these classes are often referred to as paragraph style objects or, when no confusion will result, paragraph styles.
The mutable subclass of NSParagraphStyle is NSMutableParagraphStyle.

6.15.2 Methods

6.15.3 alignment as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the text alignment of the receiver.
Example:

```
dim n as NSParagraphStyleMBS = NSParagraphStyleMBS.defaultParagraphStyle
MsgBox str(n.alignment) // 4 = natural

dim m as NSMutableParagraphStyleMBS = n.mutableCopy
m.setAlignment NSParagraphStyleMBS.NSCenterTextAlignment
MsgBox str(m.alignment) // 2 = center
```

Notes: Natural text alignment is realized as left or right alignment depending on the line sweep direction of the first script contained in the paragraph.

6.15.4 baseWritingDirection as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the base writing direction for the receiver.

6.15.5 Constructor

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor.

6.15.6 copy as NSParagraphStyleMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a copy of the paragraph style.

6.15.7 defaultParagraphStyle as NSParagraphStyleMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the default paragraph style.
Example:

```
dim n as NSParagraphStyleMBS = NSParagraphStyleMBS.defaultParagraphStyle
MsgBox str(n.alignment) // 4 = natural
```

Notes:

The default paragraph style has the following default values:

Subattribute	Default Value
Alignment	NSNaturalTextAlignment
Tab stops	12 left-aligned tabs, spaced by 28.0 points
Line break mode	NSLineBreakByWordWrapping
All others	0.0

6.15.8 defaultTabInterval as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the document-wide default tab interval.
Notes: The default tab interval in points. Tabs after the last specified in tabStops are placed at integer multiples of this distance (if positive). Default return value is 0.0.

6.15.9 defaultWritingDirectionForLanguage(languageName as string) as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the default writing direction for the specified language.
Notes: languageName: The language specified in ISO language region format. Can be nil to return a default writing direction derived from the user's defaults database.

6.15.10 firstLineHeadIndent as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the indentation of the first line of the receiver.
Notes: The distance in points from the leading margin of a text container to the beginning of the paragraph's first line. This value is always nonnegative.

6.15.11 headerLevel as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Specifies whether the paragraph is to be treated as a header for purposes of HTML generation.
Notes: Returns 0 (the default value), if the paragraph is not a header, or from 1 through 6 if the paragraph is to be treated as a header.

6.15.12 headIndent as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the indentation of the receiver's lines other than the first.
Notes: The distance in points from the leading margin of a text container to the beginning of lines other than the first. This value is always nonnegative.

6.15.13 hyphenationFactor as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the paragraph's threshold for hyphenation.
Notes:

A value between 0.0 and 1.0 inclusive. The default value is 0.0.

Hyphenation is attempted when the ratio of the text width (as broken without hyphenation) to the width of the line fragment is less than the hyphenation factor. When the paragraph's hyphenation factor is 0.0,

the layout manager's hyphenation factor is used instead. When both are 0.0, hyphenation is disabled.

6.15.14 lineBreakMode as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the mode that should be used to break lines in the receiver.
Notes: The line break mode to be used laying out the paragraph's text.

6.15.15 lineHeightMultiple as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the line height multiple.
Notes: The line height multiple. The natural line height of the receiver is multiplied by this factor (if positive) before being constrained by minimum and maximum line height. Default return value is 0.0.

6.15.16 lineSpacing as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the space between lines in the receiver (commonly known as leading).
Notes: The space in points added between lines within the paragraph. This value is always nonnegative.

6.15.17 maximumLineHeight as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's maximum line height.
Notes:

The maximum height in points that any line in the receiver will occupy, regardless of the font size or size of any attached graphic. This value is always nonnegative. The default value is 0.

Glyphs and graphics exceeding this height will overlap neighboring lines; however, a maximum height of 0 implies no line height limit. Although this limit applies to the line itself, line spacing adds extra space between adjacent lines.

6.15.18 minimumLineHeight as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's minimum height.

Notes: The minimum height in points that any line in the receiver will occupy, regardless of the font size or size of any attached graphic. This value is always nonnegative.

6.15.19 mutableCopy as NSMutableParagraphStyleMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a mutable copy of the paragraph style.

6.15.20 paragraphSpacing as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the space after the end of the paragraph.
Notes:

The space in points added at the end of the paragraph to separate it from the following paragraph. This value is always nonnegative.

This value is determined by adding the previous paragraph's paragraphSpacing and the current paragraph's paragraphSpacingBefore.

6.15.21 paragraphSpacingBefore as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the distance between the paragraph's top and the beginning of its text content.
Notes: The distance in points between the paragraph's top and the beginning of its text content. Default return value is 0.0.

6.15.22 tabStops as NSTextTabMBS()

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's tab stops.
Notes: The NSTextTab objects, sorted by location, that define the tab stops for the paragraph style.

6.15.23 tailIndent as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the trailing indentation of the receiver.
Notes:

The distance in points from the margin of a text container to the end of lines.

If positive, this value is the distance from the leading margin (for example, the left margin in left-to-right text). If 0 or negative, it's the distance from the trailing margin.

For example, a paragraph style designed to fit exactly in a 2-inch wide container has a head indent of 0.0 and a tail indent of 0.0. One designed to fit with a quarter-inch margin has a head indent of 0.25 and a tail indent of 0.25.

6.15.24 tighteningFactorForTruncation as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the threshold for using tightening as an alternative to truncation.
Notes:

The tightening threshold value. The default value is 0.05.

When the line break mode specifies truncation, the text system attempts to tighten intercharacter spacing as an alternative to truncation, provided that the ratio of the text width to the line fragment width does not exceed 1.0 + the tightening factor returned by this method. Otherwise the text is truncated at a location determined by the line break mode.

6.15.25 Properties

6.15.26 Handle as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object reference.
Notes: (Read and Write property)

6.15.27 Constants

6.15.28 NSCenterTextAlignment=2

Plugin Version: 12.4. **Function:** One of the text alignment constants for the alignment property.
Notes: Visually centered

6.15.29 NSJustifiedTextAlignment=3

Plugin Version: 12.4. **Function:** One of the text alignment constants for the alignment property.
Notes: Fully-justified. The last line in a paragraph is natural-aligned.

6.15.30 NSLeftTextAlignment=0

Plugin Version: 12.4. **Function:** One of the text alignment constants for the alignment property.
Notes: Visually left aligned

6.15.31 NSLineBreakByCharWrapping = 1

Plugin Version: 12.4. **Function:** One of the constants to specify what happens when a line is too long for its container.
Notes: Wrapping occurs before the first character that doesn't fit.

6.15.32 NSLineBreakByClipping = 2

Plugin Version: 12.4. **Function:** One of the constants to specify what happens when a line is too long for its container.
Notes: Lines are simply not drawn past the edge of the text container.

6.15.33 NSLineBreakByTruncatingHead = 3

Plugin Version: 12.4. **Function:** One of the constants to specify what happens when a line is too long for its container.
Notes: Each line is displayed so that the end fits in the container and the missing text is indicated by some kind of ellipsis glyph.

6.15.34 NSLineBreakByTruncatingMiddle = 5

Plugin Version: 12.4. **Function:** One of the constants to specify what happens when a line is too long for its container.
Notes: Each line is displayed so that the beginning and end fit in the container and the missing text is indicated by some kind of ellipsis glyph in the middle.

6.15.35 NSLineBreakByTruncatingTail = 4

Plugin Version: 12.4. **Function:** One of the constants to specify what happens when a line is too long for its container.
Notes: Each line is displayed so that the beginning fits in the container and the missing text is indicated by some kind of ellipsis glyph.

6.15.36 NSLineBreakByWordWrapping = 0

Plugin Version: 12.4. **Function:** One of the constants to specify what happens when a line is too long for its container.
Notes: Wrapping occurs at word boundaries, unless the word itself doesn't fit on a single line.

6.15.37 NSNaturalTextAlignment=4

Plugin Version: 12.4. **Function:** One of the text alignment constants for the alignment property.
Notes: Indicates the default alignment for script.

6.15.38 NSRightTextAlignment=1

Plugin Version: 12.4. **Function:** One of the text alignment constants for the alignment property.
Notes: Visually right aligned

6.15.39 NSWritingDirectionLeftToRight=0

Plugin Version: 12.4. **Function:** One of the constants to specify the writing directions.
Notes:

The writing direction is left to right.

Available in Mac OS X v10.2 and later.

6.15.40 NSWritingDirectionNatural=-1

Plugin Version: 12.4. **Function:** One of the constants to specify the writing directions.
Notes:

The writing direction is determined using the Unicode Bidi Algorithm rules P2 and P3. Default.

Available in Mac OS X v10.4 and later.

6.15.41 NSWritingDirectionRightToLeft=1

Plugin Version: 12.4. **Function:** One of the constants to specify the writing directions.
Notes:

The writing direction is right to left.

Available in Mac OS X v10.2 and later.

6.16 class NSRunLoopMBS

6.16.1 class NSRunLoopMBS

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The NSRunLoop class declares the programmatic interface to objects that manage input sources.
Notes:

An NSRunLoop object processes input for sources such as mouse and keyboard events from the window system, NSPort objects, and NSConnection objects. An NSRunLoop object also processes NSTimer events.

Your application cannot either create or explicitly manage NSRunLoop objects. Each NSThread object, including the application's main thread, has an NSRunLoop object automatically created for it as needed. If you need to access the current thread's run loop, you do so with the class method currentRunLoop.

Note that from the perspective of NSRunloop, NSTimer objects are not "input"they are a special type, and one of the things that means is that they do not cause the run loop to return when they fire.

Warning:
The NSRunLoop class is generally not considered to be thread-safe and its methods should only be called within the context of the current thread. You should never try to call the methods of an NSRunLoop object running in a different thread, as doing so might cause unexpected results.

6.16.2 Methods

6.16.3 AddDummyPort

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds a dummy port as event source.
Notes: Run loops don't loop unless there is an event source, so you can add a dummy one here.

6.16.4 allModes as string()

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns array with all mode strings.

6.16.5 Constructor

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new object using current run loop.

6.16.6 currentRunLoop as NSRunLoopMBS

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the NSRunLoop object for the current thread.
Notes: If a run loop does not yet exist for the thread, one is created and returned.

6.16.7 mainRunLoop as NSRunLoopMBS

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the run loop of the main thread.
Notes:

An object representing the main thread's run loop.
Available in OS X v10.5.

6.16.8 NSDefaultRunLoopMode as string

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the runloop mode.
Notes:

The mode to deal with input sources other than NSConnection objects.
This is the most commonly used run-loop mode.

6.16.9 NSRunLoopCommonModes as string

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the runloop mode.
Notes:

Objects added to a run loop using this value as the mode are monitored by all run loop modes that have been declared as a member of the set of "common" modes; see the description of CFRunLoopAddCommonMode for details.
Available in OS X v10.5 and later.

6.16.10 run

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Puts the receiver into a permanent loop, during which time it processes data from all attached input sources.
Notes:

If no input sources or timers are attached to the run loop, this method exits immediately; otherwise, it runs the receiver in the NSDefaultRunLoopMode by repeatedly invoking runMode:beforeDate:. In other words, this method effectively begins an infinite loop that processes data from the run loop's input sources and timers.

Manually removing all known input sources and timers from the run loop is not a guarantee that the run loop will exit. OS X can install and remove additional input sources as needed to process requests targeted at the receiver's thread. Those sources could therefore prevent the run loop from exiting.

If you want the run loop to terminate, you shouldn't use this method. Instead, use one of the other run methods and also check other arbitrary conditions of your own, in a loop.
See also:

- 6.16.11 run(Seconds as Double) 416

6.16.11 run(Seconds as Double)

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Runs the runloop for the given number of seconds.
See also:

- 6.16.10 run 416

6.16.12 runMode(Mode as string, Seconds as Double) as boolean

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Runs the runloop for the given number of seconds in the given mode.

6.16.13 runModeUntilDate(Mode as string, limitDate as date) as boolean

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Runs the loop once, blocking for input in the specified mode until a given date.
Notes:

mode: The mode in which to run. You may specify custom modes or use one of the modes listed in "Run Loop Modes."

limitDate: The date until which to block.

Returns true if the run loop ran and processed an input source or if the specified timeout value was reached; otherwise, false if the run loop could not be started.

If no input sources or timers are attached to the run loop, this method exits immediately and returns false; otherwise, it returns after either the first input source is processed or limitDate is reached. Manually removing all known input sources and timers from the run loop does not guarantee that the run loop will exit immediately. OS X may install and remove additional input sources as needed to process requests targeted at the receiver's thread. Those sources could therefore prevent the run loop from exiting.

Note: A timer is not considered an input source and may fire multiple times while waiting for this method to return

6.16.14 runUntilDate(limitDate as date)

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Runs the loop until the specified date, during which time it processes data from all attached input sources.
Notes:

limitDate: The date up until which to run.

If no input sources or timers are attached to the run loop, this method exits immediately; otherwise, it runs the receiver in the NSDefaultRunLoopMode by repeatedly invoking runMode until the specified expiration date.

Manually removing all known input sources and timers from the run loop is not a guarantee that the run loop will exit. OS X can install and remove additional input sources as needed to process requests targeted at the receiver's thread. Those sources could therefore prevent the run loop from exiting.

6.16.15 Properties

6.16.16 currentMode as String

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's current input mode.
Notes:

The receiver's current input mode. This method returns the current input mode only while the receiver is running; otherwise, it returns nil.
(Read only property)

6.16.17 Handle as Integer

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object handle.
Notes: (Read and Write property)

6.17 class NSServiceProviderMBS

6.17.1 class NSServiceProviderMBS

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The class to do service handlers in Cocoa applications.
Notes:

This class must be subclassed to implement services.
Use ServiceInvoked as the name of the selector when declaring service (NSMessage parameter).
Use NSUserData parameter to distinguish between all the services you offer.
This class implements NSServiceProvider for Xojo and Real Studio for Cocoa applications. For Carbon, please use CarbonApplicationEventsMBS events.

see also:
https://developer.apple.com/library/mac/documentation/Cocoa/Conceptual/SysServices/introduction.html

6.17.2 Methods

6.17.3 Constructor

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor.

6.17.4 Destructor

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The destructor.

6.17.5 Properties

6.17.6 Handle as Integer

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Internal object reference.
Notes: (Read and Write property)

6.17.7 Events

6.17.8 ServiceInvoked(pboard as NSPasteboardMBS, userData as string, byref error as string)

Plugin Version: 14.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** This event is called when a service should perform.
Notes:

Use ServiceInvoked as the name of the selector when declaring service (NSMessage parameter).
Use NSUserData parameter to distinguish between all the services you offer.

6.18 class NSSoundDelegateMBS

6.18.1 class NSSoundDelegateMBS

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The class for the delegate to receive events from NSSoundMBS objects.

6.18.2 Events

6.18.3 SoundFinished(s as NSSoundMBS, didFinishPlaying as boolean)

Plugin Version: 9.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** This delegate method is called when an NSSoundMBS instance has completed playback of its sound data.
Notes:

s: The NSSound that has completed playback of its sound data.

didFinishPlaying: True when playback was successful; false otherwise.

The parameter s is not the NSSoundMBS object you used before but a new one. But it has the same handle value as the one where you called play, so you can still compare which one was affected.

6.19 class NSSoundMBS

6.19.1 class NSSoundMBS

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The NSSound class provides a simple interface for loading and playing audio files.
Notes:

This class supports the same audio encodings and file formats that are supported by Core Audio and QuickTime.

To use this class, initialize a new instance with the desired file or audio data. You can configure assorted aspects of the audio playback, including the volume and whether the sound loops before you play it. Depending on the type of the audio data, this class may use either Core Audio or QuickTime to handle the actual playback. (Typically, it uses Core Audio to play files in the AIFF, WAVE, NeXT, SD2, AU, and MP3 formats and may use it for other formats in the future as well.) Playback occurs asynchronously so that your application can continue doing work.

You should retain NSSound objects before initiating playback or make sure you have a strong reference to them in a garbage-collected environment. Upon deallocation, a sound object stops playback of the sound (as needed) so that it can free up the corresponding audio resources. If you want to deallocate a sound object immediately after playback, assign a delegate and use the sound:didFinishPlaying: method to deallocate it.

If you want to play the system beep sound, use the NSBeep function.

6.19.2 Methods

6.19.3 availableSounds as string()

Plugin Version: 9.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of the available sounds.
Example:

```
dim sounds(-1) as string = NSSoundMBs.availableSounds

// play first sound
dim n as NSSoundMBS = NSSoundMBS.soundNamed(sounds(0))

call n.play

// show list of sounds
MsgBox Join(sounds,EndOfLine)
```

Notes: You can use the names in this array for the soundNamed function.

6.19.4 canInitWithPasteboard as boolean

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether the receiver can create an instance of itself from the data in a pasteboard.
Notes:

true when the receiver can handle the data represented by pasteboard; false otherwise.

The soundUnfilteredPasteboardTypes method is used to find out whether the class can handle the data in pasteboard.

6.19.5 channelMapping as Integer()

Plugin Version: 14.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Provides the receivers channel map.
Notes:

A channel map correlates a sounds channels to the the output-devices channels. For example, a two-channel sound being played on a five-channel device should have a channel map to optimize the sound-playing experience. The default map, correlates the first sound channel to the first output channel, the second sound channel to the second output channel, and so on.

Available in OS X v10.5 and later. Deprecated in OS X v10.9.

6.19.6 Constructor

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes the receiver with data from a pasteboard.
Notes: NSSound expects the data to have a proper magic number, sound header, and data for the formats it supports.
See also:

- 6.19.7 Constructor(data as MemoryBlock) 424
- 6.19.8 Constructor(file as folderitem, ByReference as boolean) 424
- 6.19.9 Constructor(url as string, ByReference as boolean) 424

6.19.7 Constructor(data as MemoryBlock)

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes the receiver with a given audio data.
Notes: data: Audio data with which the receiver is to be initialized. The data must have a proper magic number, sound header, and data for the formats the NSSound class supports.
See also:

- 6.19.6 Constructor 423
- 6.19.8 Constructor(file as folderitem, ByReference as boolean) 424
- 6.19.9 Constructor(url as string, ByReference as boolean) 424

6.19.8 Constructor(file as folderitem, ByReference as boolean)

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes the receiver with the the audio data located at a given file.
Example:

```
dim s as NSSoundMBS
dim f as FolderItem

f=SpecialFolder.Desktop.Child("test.mp3")

s=new NSSoundMBS(f,true)

call s.play
```

Notes:

file: Path to the sound file.
ByReference: When true only the name of the sound is stored with the NSSound instance when archived using encodeWithCoder:; otherwise the audio data is archived along with the instance. (not used in REALbasic)
See also:

- 6.19.6 Constructor 423
- 6.19.7 Constructor(data as MemoryBlock) 424
- 6.19.9 Constructor(url as string, ByReference as boolean) 424

6.19.9 Constructor(url as string, ByReference as boolean)

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** nitializes the receiver with the audio data located at a given URL.
Notes:

url: URL to the sound file with which the receiver is to be initialized.
ByReference: When true only the name of the sound is stored with the NSSound instance when archived using encodeWithCoder:; otherwise the audio data is archived along with the instance. (not used in REALbasic)
See also:

- 6.19.6 Constructor 423
- 6.19.7 Constructor(data as MemoryBlock) 424
- 6.19.8 Constructor(file as folderitem, ByReference as boolean) 424

6.19.10 duration as Double

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Provides the duration of the receiver in seconds.
Notes: Available in Mac OS X v10.5 and later.

6.19.11 isPlaying as boolean

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether the receiver is playing its audio data.
Notes: True when the receiver is playing its audio data, false otherwise.

6.19.12 name as string

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the name assigned to the receiver.
Notes: Name assigned to the receiver; "" when no name has been assigned.

6.19.13 NSSoundPboardType as string

Plugin Version: 14.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The NSSound class defines this common pasteboard data type.

6.19.14 pause as boolean

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Pauses audio playback.
Notes: True when playback is paused successfully, false when playback is already paused or when an error

occurred.

6.19.15 play as boolean

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initiates audio playback.
Notes:

True when playback is initiated, false when playback is already in progress or when an error occurred.

This method initiates playback asynchronously and returns control to your application. Therefore, your application can continue doing work while the audio is playing.

6.19.16 resume as boolean

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Resumes audio playback.
Notes:

True when playback is resumed, false when playback is in progress or when an error occurred.

Assumes the receiver has been previously paused by sending it pause.

6.19.17 setChannelMapping(mapping() as Integer)

Plugin Version: 14.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Specifies the receivers channel map.
Notes:

Mapping: Audio-channeltodevicechannel mappings for the receiver.

Available in OS X v10.5 and later. Deprecated in OS X v10.9.

6.19.18 setDelegate(delegate as NSSoundDelegateMBS)

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Set the receiver's delegate.
Notes:

You can assign one delegate to several sounds.
But the delegate object is not referenced, so keep it alive with your own reference, so RB won't destroy it too early.

6.19.19 setName(name as string) as boolean

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Registers the receiver under a given name.
Notes:

Returns True when successful; false otherwise.

If the receiver is already registered under another name, this method first unregisters the prior name.

6.19.20 soundNamed(name as string) as NSSoundMBS

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the NSSound instance associated with a given name.
Example:

```
dim s as NSSoundMBS

s=NSSoundMBS.soundNamed("Submarine")

call s.play
```

Notes:

NSSound instance initialized with the sound data identified by soundName.

The returned object can be one of the following:

One that's been assigned a name with setName.

One of the named system sounds provided by the Application Kit framework If there's no known NSSound object with soundName, this method tries to create one by searching for sound files in the application's main bundle (see NSBundle for a description of how the bundle's contents are searched). If no sound file can be located in the application main bundle, the following directories are searched in order:
textasciitilde /Library/Sounds, /Library/Sounds, /Network/Library/Sounds or /System/Library/Sounds.

If no data can be found for soundName, no object is created, and nil is returned.

The preferred way to locate a sound is to pass a name without the file extension. See the class description for a list of the supported sound file extensions.

6.19.21 soundUnfilteredFileTypes as string()

Plugin Version: 14.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Provides the list of file types the NSSound class understands.
Notes:

Returns array of strings representing the file types the NSSound class understands.
The returned array may be passed directly to the runModalForTypes method of the NSOpenPanel class.
Available in OS X v10.0 and later. Deprecated in OS X v10.5.

6.19.22 soundUnfilteredPasteboardTypes as string()

Plugin Version: 14.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Provides a list of the pasteboard types that the NSSound class can accept.
Notes:

Array of pasteboard types that the NSSound class can accept.
Available in OS X v10.0 and later. Deprecated in OS X v10.5.

6.19.23 soundUnfilteredTypes as string()

Plugin Version: 14.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Provides the file types the NSSound class understands.
Notes:

Returns array of UTIs identifying the file types the NSSound class understands.

Available in OS X v10.5 and later.

6.19.24 soundWithContentsOfFile(file as folderitem, ByReference as boolean) as NSSoundMBS

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a NSSound object with the the audio data located at a given file.
Example:

```
dim s as NSSoundMBS
dim f as FolderItem

f=SpecialFolder.Desktop.Child("test.mp3")

s=NSSoundMBS.soundWithContentsOfFile(f,true)

call s.play

// sound continues to play even after NSSoundMBS object is destroyed.
```

Notes:

file: Path to the sound file.
ByReference: When true only the name of the sound is stored with the NSSound instance when archived using encodeWithCoder:; otherwise the audio data is archived along with the instance. (not used in REALbasic)

6.19.25 soundWithContentsOfURL(url as string, ByReference as boolean) as NSSoundMBS

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a NSSoundMBS object with the audio data located at a given URL.
Notes:

url: URL to the sound file with which the receiver is to be initialized.
ByReference: When true only the name of the sound is stored with the NSSound instance when archived using encodeWithCoder:; otherwise the audio data is archived along with the instance. (not used in REALbasic)

6.19.26 soundWithData(data as MemoryBlock) as NSSoundMBS

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a NSSoundMBS object with a given audio data.
Notes: data: Audio data with which the receiver is to be initialized. The data must have a proper magic number, sound header, and data for the formats the NSSound class supports.

6.19.27 soundWithPasteboard as NSSoundMBS

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a NSSoundMBS object with data from a pasteboard.

Notes: NSSound expects the data to have a proper magic number, sound header, and data for the formats it supports.

6.19.28 stop as boolean

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Concludes audio playback.
Notes: True when playback is concluded successfully or if it's paused, false otherwise.

6.19.29 writeToPasteboard

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Writes the receiver's data to a pasteboard.

6.19.30 Properties

6.19.31 Handle as Integer

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference to the NSSound object.
Notes: (Read and Write property)

6.19.32 currentTime as Double

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Provides the receiver's playback progress in seconds.
Notes:

Receiver's playback progress in seconds.

Sounds start with currentTime == 0 and end with currentTime == ([<sound>duration] - 1).

Available in Mac OS X v10.5 and later.
This property is not archived, copied, or stored on the pasteboard.
(Read and Write computed property)

6.19.33 loops as boolean

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether the receiver restarts playback when it reaches the end of its content.
Notes:

True when the receiver restarts playback when it finishes, false otherwise.
Default: false

Available in Mac OS X v10.5 and later.

When loops is true, the delegate does not call the SoundFinished event on the end of its content and restarts playback.
(Read and Write computed property)

6.19.34 playbackDeviceIdentifier as string

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Identifies the receiver's output device.
Notes:

Returns an unique identifier of a sound output device.
Available in Mac OS X v10.5 and later.
(Read and Write computed property)

6.19.35 volume as Double

Plugin Version: 9.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Provides the volume of the receiver.
Notes:

This method does not affect the systemwide volume.
Available in Mac OS X v10.5 and later.

0.0 is not sound and 1.0 is full sound.
(Read and Write computed property)

6.20 class NSTextContainerMBS

6.20.1 class NSTextContainerMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The NSTextContainer class defines a region where text is laid out.
Notes: An NSLayoutManager uses NSTextContainer to determine where to break lines, lay out portions of text, and so on. NSTextContainer defines rectangular regions, but you can create subclasses that define regions of other shapes, such as circular regions, regions with holes in them, or regions that flow alongside graphics.

6.20.2 Methods

6.20.3 Constructor(size as NSSizeMBS)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a text container with a specified bounding rectangle.
Notes:

size: The size of the text container's bounding rectangle.

Returns the newly initialized text container.

The new text container must be added to an NSLayoutManager object before it can be used. The text container must also have an NSTextView object set for text to be displayed. This method is the designated initializer for the NSTextContainer class.

6.20.4 containsPoint(p as NSPointMBS) as boolean

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Overridden by subclasses to return whether a point lies within the receiver's region or on the region's edgenot simply within its bounding rectangle.
Notes:

True if aPoint lies within the receiver's region or on the region's edgenot simply within its bounding rectangle - false otherwise.

For example, if the receiver defines a donut shape and aPoint lies in the hole, this method returns false. This method can be used for hit testing of mouse events.

The default NSTextContainer implementation merely checks that aPoint lies within its bounding rectangle.

6.20.5 isSimpleRectangularTextContainer as boolean

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Overridden by subclasses to return whether the receiver's region is a rectangle with no holes or gaps and whose edges are parallel to the text view's coordinate system axes.
Notes:

True if the receiver's region is a rectangle with no holes or gaps and whose edges are parallel to the text view's coordinate system axes, false otherwise.

A text container whose shape changes can return true if its region is currently a simple rectangle, but when its shape does change it must send textContainerChangedGeometry to its layout manager so the layout can be recalculated.

The default NSTextContainer implementation of this method returns true.

6.20.6 replaceLayoutManager(l as NSLayoutManagerMBS)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Replaces the layout manager for the group of text system objects containing the receiver.
Notes: All text containers and text views sharing the original layout manager share the new layout manager. This method makes all the adjustments necessary to keep these relationships intact, unlike setLayoutManager.

6.20.7 Properties

6.20.8 Handle as Integer

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object reference.
Notes: (Read and Write property)

6.20.9 containerSize as NSSizeMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The size of the receiver's bounding rectangle.
Notes:

size: The new size of the text container's bounding rectangle.
This method also sends textContainerChangedGeometry to the text container's layout manager.
(Read and Write computed property)

6.20.10 heightTracksTextView as boolean

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Controls whether the receiver adjusts the height of its bounding rectangle when its text view is resized.
Notes:

value: True if the receiver should follow changes to the height of its text view, false otherwise.
(Read and Write computed property)

6.20.11 layoutManager as NSLayoutManagerMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The layout manager.
Notes:

This method is invoked automatically when you add a text container to a layout manager; you should never need to invoke it directly, but might want to override it. If you want to replace the layout manager for an established group of text system objects, use replaceLayoutManager.
(Read and Write computed property)

6.20.12 lineFragmentPadding as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The amount by which text is inset within line fragment rectangles.
Notes:

Value: The amount by which text is inset within line fragment rectangles, in points.

This method also sends textContainerChangedGeometry to the text container's layout manager.

Line fragment padding is not designed to express text margins. Instead, use the NSTextView method setTextContainerInset, paragraph margin attributes, or the position of the text view within a superview.
(Read and Write computed property)

6.20.13 textView as NSTextViewMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The text view.
Notes:

This method sends setTextContainer to aTextView to complete the association of the text container and text view.

Because you usually specify a text container when you create a text view, you should rarely need to invoke this method. A text container doesn't need a text view to calculate line fragment rectangles, but must have one to display text.

You can use this method to disconnect a text view from a group of text system objects by sending this message to its text container and passing nil as aTextView.
(Read and Write computed property)

6.20.14 widthTracksTextView as boolean

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Controls whether the receiver adjusts the width of its bounding rectangle when its text view is resized.
Notes:

Returns true if the receiver adjusts the width of its bounding rectangle when its text view is resized, false otherwise.

If the receiver does track the text view width, its width is adjusted to the width of the text view minus twice the inset width (as given by NSTextView's textContainerInset method).
(Read and Write computed property)

6.20.15 Constants

6.20.16 NSLineDoesntMove = 0

Plugin Version: 12.4. **Function:** One of the line movement constants.
Notes: Line has no movement.

6.20.17 NSLineMovesDown = 3

Plugin Version: 12.4. **Function:** One of the line movement constants.
Notes: Lines move from top to bottom.

6.20.18 NSLineMovesLeft = 1

Plugin Version: 12.4. **Function:** One of the line movement constants.
Notes: Lines move from right to left.

6.20.19 NSLineMovesRight = 2

Plugin Version: 12.4. **Function:** One of the line movement constants.
Notes: Lines move from left to right.

6.20.20 NSLineMovesUp = 4

Plugin Version: 12.4. **Function:** One of the line movement constants.
Notes: Lines move from bottom to top.

6.20.21 NSLineSweepDown = 2

Plugin Version: 12.4. **Function:** One of the line sweep direction constants.
Notes: Characters move from top to bottom.

6.20.22 NSLineSweepLeft = 0

Plugin Version: 12.4. **Function:** One of the line sweep direction constants.
Notes: Characters move from right to left.

6.20.23 NSLineSweepRight = 1

Plugin Version: 12.4. **Function:** One of the line sweep direction constants.
Notes: Characters move from left to right.

6.20.24 NSLineSweepUp = 3

Plugin Version: 12.4. **Function:** One of the line sweep direction constants.
Notes: Characters move from bottom to top.

6.21 class NSTextMBS

6.21.1 class NSTextMBS

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The Cocoa class for text controls.
Notes:

You may prefer to use the NSTextViewMBS class which is a subclass from NSTextMBS.

You can embed this view in a CustomNSViewMBS to get more events for mouse and keyboard.
Subclass of the NSViewMBS class.

6.21.2 Methods

6.21.3 alignCenter

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method applies center alignment to selected paragraphs (or all text if the receiver is a plain text object).

6.21.4 alignLeft

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method applies left alignment to selected paragraphs (or all text if the receiver is a plain text object).

6.21.5 alignRight

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method applies right alignment to selected paragraphs (or all text if the receiver is a plain text object).

6.21.6 changeFont

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method changes the font of the selection for a rich text object, or of all text for a plain text object.
Notes:

If the receiver doesn't use the Font panel, this method does nothing.

This method changes the font by sending a convertFont message to the shared NSFontManager and applying each NSFont returned to the appropriate text. See the NSFontManager class specification for more information on font conversion.

6.21.7 checkSpelling

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method searches for a misspelled word in the receiver's text.
Notes: The search starts at the end of the selection and continues until it reaches a word suspected of being misspelled or the end of the text. If a word isn't recognized by the spelling server, a showGuessPanel message then opens the Guess panel and allows the user to make a correction or add the word to the local dictionary.

6.21.8 Constructor

Plugin Version: 8.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new text with size 100/100 and position 0/0
Example:

```
dim t as new NSTextMBS
```

Notes: On success the handle property is not zero.
See also:

- 6.21.9 Constructor(Handle as Integer) 439
- 6.21.10 Constructor(left as Double, top as Double, width as Double, height as Double) 440

6.21.9 Constructor(Handle as Integer)

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates an object based on the given NSText handle.
Example:

```
dim t as new NSTextMBS(0, 0, 100, 100)
dim v as new NSTextMBS(t.handle)

MsgBox str(v.Bounds.Width)+" x "+str(v.Bounds.Height)
```

Notes: The handle is casted to a NSText and the plugin retains this handle.
See also:

- 6.21.8 Constructor 439
- 6.21.10 Constructor(left as Double, top as Double, width as Double, height as Double) 440

6.21.10 Constructor(left as Double, top as Double, width as Double, height as Double)

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new text with the given size and position.
Example:

```
dim x as new NSTextMBS(0, 0, 100, 100)
```

Notes: On success the handle property is not zero.
See also:

- 6.21.8 Constructor 439
- 6.21.9 Constructor(Handle as Integer) 439

6.21.11 copy

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method copies the selected text onto the general pasteboard, in as many formats as the receiver supports.

6.21.12 copyFont

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method copies the font information for the first character of the selection (or for the insertion point) onto the font pasteboard, as NSFontPboardType.

6.21.13 copyRuler

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method copies the paragraph style information for first selected paragraph onto the ruler pasteboard, as NSRulerPboardType, and expands the selection to paragraph boundaries.

6.21.14 cut

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method deletes the selected text and places it onto the general pasteboard, in as many formats as the receiver supports.

6.21.15 delete

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method deletes the selected text.

6.21.16 isRulerVisible as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver's enclosing scroll view shows its ruler.

6.21.17 maxSizeHeight as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's maximum height.

6.21.18 maxSizeWidth as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's maximum width.

6.21.19 minSizeHeight as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's minimum height.

6.21.20 minSizeWidth as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's maximum width.

6.21.21 paste

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method pastes text from the general pasteboard at the insertion point or over the selection.

6.21.22 pasteFont

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method pastes font information from the font pasteboard onto the selected text or insertion point of a rich text object, or over all text of a plain text object.

6.21.23 pasteRuler

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method pastes paragraph style information from the ruler pasteboard onto the selected paragraphs of a rich text object.

6.21.24 readRTFDFromFile(file as folderitem) as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Attempts to read the RTFD file, returning true if successful and false if not.
Notes: file should be the path for an .rtf file or an .rtfd file wrapper, not for the RTF file within an .rtfd file wrapper.

6.21.25 replaceCharactersInRangeWithRTF(start as Integer, length as Integer, rtfData as MemoryBlock)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Replaces the characters in the given range with RTF text interpreted from the given RTF data.
Notes:

This method applies only to rich text objects.

This method does not include undo support by default. Clients must invoke shouldChangeTextInRange to include this method in an undoable action.

This method is designed for transferring text from out-of-process sources such as the pasteboard. In most cases, programmatic modification of the text is best done by operating on the text storage directly, using

the general methods of NSMutableAttributedString.

6.21.26 replaceCharactersInRangeWithRTFD(start as Integer, length as Integer, rtfdData as MemoryBlock)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Replaces the characters in the given range with RTFD text interpreted from the given RTFD data.
Notes:

This method applies only to rich text objects.

This method does not include undo support by default. Clients must invoke shouldChangeTextInRange to include this method in an undoable action.

This method is designed for transferring text from out-of-process sources such as the pasteboard. In most cases, programmatic modification of the text is best done by operating on the text storage directly, using the general methods of NSMutableAttributedString.

6.21.27 replaceCharactersInRangeWithString(start as Integer, length as Integer, text as string)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Replaces the characters in the given range with those in the given string.
Notes:

For a rich text object, the text is assigned the formatting attributes of the first character of the text it replaces, or of the character immediately before aRange if the range's length is 0. If the range's location is 0, the formatting attributes of the first character in the receiver are used.

This method does not include undo support by default. Clients must invoke shouldChangeTextInRange to include this method in an undoable action.

In most cases, programmatic modification of the text is best done by operating on the text storage directly, using the general methods of NSMutableAttributedString.

6.21.28 RTFDFromRange(start as Integer, length as Integer) as MemoryBlock

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a string that contains an RTFD stream corresponding to the characters and attributes within aRange.
Notes:

Raises an NSRangeException if any part of aRange lies beyond the end of the receiver's characters.

When writing data to the pasteboard, you can use the memoryblock object as the first argument to NSPasteboard's setDataForType method, with a second argument of NSRTFDPboardType.

6.21.29 RTFFromRange(start as Integer, length as Integer) as MemoryBlock

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** eturns a string object that contains an RTF stream corresponding to the characters and attributes within aRange, omitting any attachment characters and attributes.
Notes:

Raises an NSRangeException if any part of aRange lies beyond the end of the receiver's characters.

When writing data to the pasteboard, you can use the memoryblock as the first argument to NSPasteboard's setDataForType method, with a second argument of NSRTFPboardType.

6.21.30 scrollRangeToVisible(start as Integer, length as Integer)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Scrolls the receiver in its enclosing scroll view so the first characters of aRange are visible.

6.21.31 selectAll

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method selects all of the receiver's text.

6.21.32 setFontForRange(font as NSFontMBS, start as Integer, length as Integer)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the font of characters within the given range to font.
Notes:

This method applies only to a rich text object.

This method does not include undo support by default. Clients must invoke shouldChangeTextInRanges to include this method in an undoable action.

6.21.33 setMaxSize(width as Double, height as Double)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the receiver's maximum size.

6.21.34 setMinSize(width as Double, height as Double)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the receiver's minimum size.

6.21.35 setTextColorForRange(colorValue as NSColorMBS, start as Integer, length as Integer)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the text color of characters within the given range to colorValue.
Notes:

Removes the text color attribute if colorValue is nil. This method applies only to rich text objects.

This method does not include undo support by default. Clients must invoke shouldChangeTextInRange to include this method in an undoable action.

6.21.36 showGuessPanel

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method opens the Spelling panel, allowing the user to make a correction during spell checking.

6.21.37 sizeToFit

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Resizes the receiver to fit its text.
Notes: The text view will not be sized any smaller than its minimum size, however.

6.21.38 subscript

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method applies a subscript attribute to selected text (or all text if the receiver is a plain text object), lowering its

baseline offset by a predefined amount.

6.21.39 superscript

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method applies a superscript attribute to selected text (or all text if the receiver is a plain text object), raising its baseline offset by a predefined amount.

6.21.40 textLength as Integer

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the length of the text in unicode chars.

6.21.41 toggleRuler

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method shows or hides the ruler, if the receiver is enclosed in a scroll view.

6.21.42 underline

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds the underline attribute to the selected text attributes if absent; removes the attribute if present.
Notes:

If there is a selection and the first character of the selected range has any form of underline on it, or if there is no selection and the typing attributes have any form of underline, then underline is removed; otherwise a single simple underline is added.

Operates on the selected range if the receiver contains rich text. For plain text the range is the entire contents of the receiver.

6.21.43 unscript

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method removes any superscripting or subscripting from selected text (or all text if the receiver is a plain text object).

6.21.44 writeRTFDToFile(file as folderitem, atomically as boolean) as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Writes the receiver's text as RTF with attachments to a file or directory at file.
Notes: Returns true on success and false on failure. If atomically is true, attempts to write the file safely so that an existing file at path is not overwritten, nor does a new file at path actually get created, unless the write is successful.

6.21.45 Properties

6.21.46 alignment as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The text alignment.
Notes: (Read and Write computed property)

6.21.47 backgroundColor as NSColorMBS

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The background color.
Notes: (Read and Write computed property)

6.21.48 baseWritingDirection as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The initial writing direction used to determine the actual writing direction for text.
Notes:

The Text system uses this value as a hint for calculating the actual direction for displaying Unicode characters. You should not need to call this method directly. If no writing direction is set, returns NSWritingDirection-Natural.

Available in Mac OS X v10.4 and later.
(Read and Write computed property)

6.21.49 drawsBackground as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the scrollview draws its background.

Notes: (Read and Write computed property)

6.21.50 Enabled as boolean

Plugin Version: 16.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Enables/disables the control.
Notes:

If enabled, text is in default text color.
if disabled, you can't edit or select and the text color is gray.
(Read and Write computed property)

6.21.51 font as NSFontMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The font of the first character in the receiver's text, or of the insertion point if there's no text.
Notes: (Read and Write computed property)

6.21.52 importsGraphics as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver allows the user to import files by dragging.
Notes: (Read and Write computed property)

6.21.53 isEditable as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver allows the user to edit text, false if it doesn't.
Notes:

You can change the receiver's text programmatically regardless of this setting.

If the receiver is editable, it's also selectable.
(Read and Write computed property)

6.21.54 isFieldEditor as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver interprets Tab, Shift-Tab, and Return (Enter) as cues to end editing and possibly to change the first responder.
Notes:

True if the receiver interprets Tab, Shift-Tab, and Return (Enter) as cues to end editing and possibly to change the first responder; false if it accepts them as text input.

See the NSWindow class specification for more information on field editors. By default, NSText objects don't behave as field editors.
(Read and Write computed property)

6.21.55 isHorizontallyResizable as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** True if the receiver automatically changes its width to accommodate the width of its text, false if it doesn't.
Notes:

By default, an NSText object is not horizontally resizable.
(Read and Write computed property)

6.21.56 isRichText as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the NSText allows the user to apply attributes to specific ranges of the text.
Notes: (Read and Write computed property)

6.21.57 isSelectable as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the text allows the user to select text, false if it doesn't.
Notes: (Read and Write computed property)

6.21.58 isVerticallyResizable as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** True if the receiver automatically changes its height to accommodate the height of its text, false if it doesn't.
Notes:

By default, an NSText object is vertically resizable.
(Read and Write computed property)

6.21.59 selectedRange as NSRangeMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The range of selected characters.
Notes: (Read and Write computed property)

6.21.60 text as string

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The characters of the text.
Notes:

For performance reasons, this method returns the current backing store of the text object. If you want to maintain a snapshot of this as you manipulate the text storage, you should make a copy of the appropriate substring.
(Read and Write computed property)

6.21.61 textColor as NSColorMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The text color.
Notes: (Read and Write computed property)

6.21.62 usesFontPanel as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver uses the Font panel.
Notes: (Read and Write computed property)

6.21.63 Events

6.21.64 textDidBeginEditing

Plugin Version: 8.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs you that the text object has begun editing (that the user has begun changing it).

6.21.65 textDidChange

Plugin Version: 8.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs you that the text object has changed its characters or formatting attributes.

6.21.66 textDidEndEditing

Plugin Version: 8.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs you that the text object has finished editing (that it has resigned first responder status).

6.21.67 textShouldBeginEditing as boolean

Plugin Version: 8.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked when a text object begins to change its text, this method requests permission to begin editing.
Notes: If the delegate returns false, the text object proceeds to make changes. If the delegate returns true, the text object abandons the editing operation. This method is also invoked when the user drags and drops a file onto the text object.

6.21.68 textShouldEndEditing as boolean

Plugin Version: 8.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked from a text object's implementation of resignFirstResponder, this method requests permission to end editing.
Notes: If the delegate returns false, the text object proceeds to finish editing and resign first responder status. If the delegate returns true, the text object selects all of its text and remains the first responder.

6.21.69 Constants

6.21.70 NSBackspaceCharacter=8

Plugin Version: 8.4. **Function:** One of the constants to specify commonly used Unicode characters.

6.21.71 NSBackTabCharacter=& h19

Plugin Version: 8.4. **Function:** One of the constants to specify commonly used Unicode characters.

6.21.72 NSBacktabTextMovement=& h12

Plugin Version: 8.4. **Function:** One of the constants used to specify the reason for a change of editing focus among text fields, in essence answering the question "why am I leaving the field?"
Notes: The Backtab (Shift-Tab) key was pressed.

6.21.73 NSCancelTextMovement=& h17

Plugin Version: 8.4. **Function:** One of the constants used to specify the reason for a change of editing focus among text fields, in essence answering the question "why am I leaving the field?"
Notes:

The user cancelled the completion.
Available in Mac OS X v10.3 and later.

6.21.74 NSCarriageReturnCharacter=13

Plugin Version: 8.4. **Function:** One of the constants to specify commonly used Unicode characters.

6.21.75 NSCenterTextAlignment=2

Plugin Version: 8.4. **Function:** One of the text alignment constants for the alignment property.
Notes: Visually centered

6.21.76 NSDeleteCharacter=& h7F

Plugin Version: 8.4. **Function:** One of the constants to specify commonly used Unicode characters.

6.21.77 NSDownTextMovement=& h16

Plugin Version: 8.4. **Function:** One of the constants used to specify the reason for a change of editing focus among text fields, in essence answering the question "why am I leaving the field?"
Notes: The down arrow key was pressed.

6.21.78 NSEnterCharacter=3

Plugin Version: 8.4. **Function:** One of the constants to specify commonly used Unicode characters.

6.21.79 NSFormFeedCharacter=12

Plugin Version: 8.4. **Function:** One of the constants to specify commonly used Unicode characters.

6.21.80 NSIllegalTextMovement=0

Plugin Version: 8.4. **Function:** One of the constants used to specify the reason for a change of editing focus among text fields, in essence answering the question "why am I leaving the field?"
Notes: Currently unused.

6.21.81 NSJustifiedTextAlignment=3

Plugin Version: 8.4. **Function:** One of the text alignment constants for the alignment property.
Notes: Fully-justified. The last line in a paragraph is natural-aligned.

6.21.82 NSLeftTextAlignment=0

Plugin Version: 8.4. **Function:** One of the text alignment constants for the alignment property.
Notes: Visually left aligned

6.21.83 NSLeftTextMovement=& h13

Plugin Version: 8.4. **Function:** One of the constants used to specify the reason for a change of editing focus among text fields, in essence answering the question "why am I leaving the field?"
Notes: The left arrow key was pressed.

6.21.84 NSLineSeparatorCharacter=& h2028

Plugin Version: 8.4. **Function:** One of the constants to specify commonly used Unicode characters.

6.21.85 NSNaturalTextAlignment=4

Plugin Version: 8.4. **Function:** One of the text alignment constants for the alignment property.
Notes: Indicates the default alignment for script.

6.21.86 NSNewlineCharacter=10

Plugin Version: 8.4. **Function:** One of the constants to specify commonly used Unicode characters.

6.21.87 NSOtherTextMovement=0

Plugin Version: 8.4. **Function:** One of the constants used to specify the reason for a change of editing focus among text fields, in essence answering the question "why am I leaving the field?"
Notes:

The user performed some undefined action.

Available in Mac OS X v10.3 and later.

6.21.88 NSParagraphSeparatorCharacter=& h2029

Plugin Version: 8.4. **Function:** One of the constants to specify commonly used Unicode characters.

6.21.89 NSReturnTextMovement=& h10

Plugin Version: 8.4. **Function:** One of the constants used to specify the reason for a change of editing focus among text fields, in essence answering the question "why am I leaving the field?"
Notes: The Return key was pressed.

6.21.90 NSRightTextAlignment=1

Plugin Version: 8.4. **Function:** One of the text alignment constants for the alignment property.
Notes: Visually right aligned

6.21.91 NSRightTextMovement=& h14

Plugin Version: 8.4. **Function:** One of the constants used to specify the reason for a change of editing focus among text fields, in essence answering the question "why am I leaving the field?"
Notes: The right arrow key was pressed.

6.21.92 NSTabCharacter=9

Plugin Version: 8.4. **Function:** One of the constants to specify commonly used Unicode characters.

6.21.93 NSTabTextMovement=& h11

Plugin Version: 8.4. **Function:** One of the constants used to specify the reason for a change of editing focus among text fields, in essence answering the question "why am I leaving the field?"
Notes: The Tab key was pressed.

6.21.94 NSTextWritingDirectionEmbedding=0

Plugin Version: 9.6. **Function:** An additional constant to specify the writing direction.
Notes:

Direction is embedded.
Available in Mac OS X v10.6 and later.

6.21.95 NSTextWritingDirectionOverride=1

Plugin Version: 9.6. **Function:** An additional constant to specify the writing direction.
Notes:

Direction override
Available in Mac OS X v10.6 and later.

6.21.96 NSUpTextMovement=& h15

Plugin Version: 8.4. **Function:** One of the constants used to specify the reason for a change of editing focus among text fields, in essence answering the question "why am I leaving the field?"
Notes: The up arrow key was pressed.

6.21.97 NSWritingDirectionLeftToRight=0

Plugin Version: 8.4. **Function:** One of the constants to specify the writing directions.
Notes:

The writing direction is left to right.

Available in Mac OS X v10.2 and later.

6.21.98 NSWritingDirectionNatural=-1

Plugin Version: 8.4. **Function:** One of the constants to specify the writing directions.
Notes:

The writing direction is determined using the Unicode Bidi Algorithm rules P2 and P3. Default.

Available in Mac OS X v10.4 and later.

6.21.99 NSWritingDirectionRightToLeft=1

Plugin Version: 8.4. **Function:** One of the constants to specify the writing directions.
Example:

```
const NSWritingDirectionNatural = -1 // Determines direction using the Unicode Bidi Algorithm rules P2 and P3
const NSWritingDirectionLeftToRight = 0 // Left to right writing direction
const NSWritingDirectionRightToLeft = 1 // Right to left writing direction

const NSTextWritingDirectionEmbedding = 0
const NSTextWritingDirectionOverride = 2

dim t as NSTextStorageMBS = TextArea1.NSTextViewMBS.textStorage

// get hello in arabic
dim a as NSAttributedStringMBS = NSAttributedStringMBS.attributedStringWithString("")
dim m as NSMutableAttributedStringMBS = a.mutableCopy

// now set attributes for right to left
m.addAttribute t.NSWritingDirectionAttributeName, array(NSWritingDirectionRightToLeft+NSTextWritingDirectionOverride), new NSRangeMBS(0,m.Length)

// and add to textarea
t.appendAttributedString m
```

Notes:

The writing direction is right to left.

Available in Mac OS X v10.2 and later.

6.22 class NSTextStorageMBS

6.22.1 class NSTextStorageMBS

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The class for the text storage of a text view.
Notes:

NSTextStorage is a semiconcrete subclass of NSMutableAttributedString that manages a set of client NSLayoutManager objects, notifying them of any changes to its characters or attributes so that they can relay and redisplay the text as needed. NSTextStorage defines the fundamental storage mechanism of the Application Kit's extended text-handling system.

NSTextStorage also defines a set of methods, listed under "Getting and setting scriptable properties" in the Method Types section, useful for getting and setting scriptable properties of NSTextStorage objects. Unless you are dealing with scriptability, you do not normally need to invoke these methods directly. In particular, using the characters, words or paragraphs methods or their corresponding setter methods is an inefficient way to manipulate the text storage, since these methods create and return many objects. Instead, use the text access methods defined by NSMutableAttributedString, NSAttributedString, NSMutableString, and NSString to perform character-level manipulation.
Subclass of the NSMutableAttributedStringMBS class.

6.22.2 Methods

6.22.3 addLayoutManager(l as NSLayoutManagerMBS)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds a layout manager to the receiver's set of layout managers.
Notes: l: The layout manager to add.

6.22.4 changeInLength as Integer

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the difference between the current length of the edited range and its length before editing began.
Notes:

Returns the difference between the current length of the edited range and its length before editing began. That is, before the receiver was sent the first beginEditing message or a single edited:range:changeInLength: message.

This difference is accumulated with each invocation of edited:range:changeInLength:, until a final message processes the changes.

The receiver's delegate and layout managers can use this information to determine the nature of edits in their respective notification methods.

6.22.5 Constructor

Plugin Version: 12.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor to create a new empty text storage object.

6.22.6 editedMask as Integer

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the kinds of edits pending for the receiver.
Notes: Returns a mask describing the kinds of edits pending for the receiver.

6.22.7 editedRange as NSRangeMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** eturns the range of the receiver to which pending changes have been made, whether of characters or of attributes.
Notes: The receiver's delegate and layout managers can use this information to determine the nature of edits in their respective notification methods.

6.22.8 ensureAttributesAreFixedInRange(Range as NSRangeMBS)

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Ensures that attributes are fixed in the given range.
Notes:

range: The range of characters whose attributes might be examined.

An NSTextStorage object using lazy attribute fixing is required to call this method before accessing any attributes within range. This method gives attribute fixing a chance to occur if necessary. NSTextStorage subclasses wishing to support laziness must call this method from all attribute accessors they implement.

6.22.9 fixesAttributesLazily as boolean

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns whether the receiver fixes attributes lazily.
Notes: By default, custom NSTextStorage subclasses are not lazy, but the provided concrete subclass is lazy by default.

6.22.10 invalidateAttributesInRange(Range as NSRangeMBS)

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Invalidates attributes in the specified range.
Notes:

range: The range of characters whose attributes should be invalidated.

Called from processEditing to invalidate attributes when the text storage changes. If the receiver is not lazy, this method simply calls fixAttributesInRange. If lazy attribute fixing is in effect, this method instead records the range needing fixing.

6.22.11 processEditing

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Cleans up changes made to the receiver and notifies its delegate and layout managers of changes.

6.22.12 removeLayoutManager(l as NSLayoutManagerMBS)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes a layout manager from the receiver's set of layout managers.
Notes: l: The layout manager to remove.

6.22.13 Constants

6.22.14 NSTextStorageEditedAttributes=1

Plugin Version: 8.6. **Function:** The constants for text messages.
Notes: Attributes were added, removed, or changed.

6.22.15 NSTextStorageEditedCharacters=2

Plugin Version: 8.6. **Function:** The constants for text messages.
Notes: Characters were added, removed, or replaced.

6.23 class NSTextTabMBS

6.23.1 class NSTextTabMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An NSTextTab object represents a tab in an NSParagraphStyle object, storing an alignment type and location.
Notes:

NSTextTab objects are most frequently used with the Application Kit's text system and with NSRulerView and NSRulerMarker objects. See the appropriate class specifications for more information on these uses.

The text system supports four alignment types: left, center, right, and decimal (based on the decimal separator character of the locale in effect). These alignment types are absolute, not based on the line sweep direction of text. For example, tabbed text is always positioned to the left of a right-aligned tab, whether the line sweep direction is left to right or right to left. A tab's location, on the other hand, is relative to the back margin. A tab set at 1.5", for example, is at 1.5" from the right in right to left text.

6.23.2 Methods

6.23.3 Constructor

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The default constructor.
See also:

- 6.23.4 Constructor(alignment as Integer, location as Double, options as dictionary) 462
- 6.23.5 Constructor(type as Integer, location as Double) 463

6.23.4 Constructor(alignment as Integer, location as Double, options as dictionary)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a text tab with the text alignment, location, and options.
Notes: The text alignment is used to determine the position of text inside the tab column. See NSTextTabType for a mapping between alignments and tab stop types.
See also:

- 6.23.3 Constructor 462
- 6.23.5 Constructor(type as Integer, location as Double) 463

6.23.5 Constructor(type as Integer, location as Double)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a newly allocated NSTextTab with an alignment of type at location on the paragraph.
Notes: The location is relative to the back margin, based on the line sweep direction of the paragraph. type can be any of the values described in NSTextTabType.
See also:

- 6.23.3 Constructor 462
- 6.23.4 Constructor(alignment as Integer, location as Double, options as dictionary) 462

6.23.6 copy as NSTextTabMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a copy of the text tab.

6.23.7 Properties

6.23.8 alignment as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the text alignment of the receiver.
Notes: (Read only property)

6.23.9 Handle as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object reference.
Notes: (Read and Write property)

6.23.10 location as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's ruler location relative to the back margin.
Notes: (Read only property)

6.23.11 options as Dictionary

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the dictionary of attributes associated with the receiver.
Notes: (Read only property)

6.23.12 tabStopType as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's tab stop type.
Notes: (Read only property)

6.23.13 Constants

6.23.14 NSCenterTabStopType = 2

Plugin Version: 12.4. **Function:** One of the type constants for tab stops.
Notes: A center-aligned tab stop.

6.23.15 NSDecimalTabStopType = 3

Plugin Version: 12.4. **Function:** One of the type constants for tab stops.
Notes: Aligns columns of numbers by the decimal point.

6.23.16 NSLeftTabStopType = 0

Plugin Version: 12.4. **Function:** One of the type constants for tab stops.
Notes: A left-aligned tab stop.

6.23.17 NSRightTabStopType = 1

Plugin Version: 12.4. **Function:** One of the type constants for tab stops.
Notes: A right-aligned tab stop.

6.24 class NSTimerMBS

6.24.1 class NSTimerMBS

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The cocoa timer class.
Example:

```
dim n as new NSTimerMBS(5, true)
```

Notes:

You use the NSTimer class to create timer objects or, more simply, timers. A timer waits until a certain time interval has elapsed and then fires, calling the action event. For example, you could create an NSTimer object that calls the action event, telling it to update itself after a certain time interval.

A timer is not a real-time mechanism; it fires only when one of the run loop modes to which the timer has been added is running and able to check if the timer's firing time has passed. Because of the various input sources a typical run loop manages, the effective resolution of the time interval for a timer is limited to on the order of 50-100 milliseconds. If a timer's firing time occurs during a long callout or while the run loop is in a mode that is not monitoring the timer, the timer does not fire until the next time the run loop checks the timer. Therefore, the actual time at which the timer fires potentially can be a significant period of time after the scheduled firing time.

Repeating Versus Non-Repeating Timers
You specify whether a timer is repeating or non-repeating at creation time. A non-repeating timer fires once and then invalidates itself automatically, thereby preventing the timer from firing again. By contrast, a repeating timer fires and then reschedules itself on the same run loop.

A repeating timer always schedules itself based on the scheduled firing time, as opposed to the actual firing time. For example, if a timer is scheduled to fire at a particular time and every 5 seconds after that, the scheduled firing time will always fall on the original 5 second time intervals, even if the actual firing time gets delayed. If the firing time is delayed so far that it passes one or more of the scheduled firing times, the timer is fired only once for that time period; the timer is then rescheduled, after firing, for the next scheduled firing time in the future.

Scheduling Timers in Run Loops
A timer object can be registered in only one run loop at a time, although it can be added to multiple run loop modes within that run loop. There are three ways to create a timer:

Use the Constructor to create the timer and schedule it on the current run loop in the default mode.

Once scheduled, the timer fires at the specified interval until it is invalidated. A non-repeating timer invali-

dates itself immediately after it fires. However, for a repeating timer, you must invalidate the timer object yourself by calling its invalidate method. Calling this method requests the removal of the timer from the current run loop; as a result, you should always call the invalidate method from the same thread on which the timer was installed. Invalidating the timer immediately disables it so that it no longer affects the run loop. The run loop then removes and releases the timer, either just before the invalidate method returns or at some later point. Once invalidated, timer objects cannot be reused.

6.24.2 Methods

6.24.3 Constructor(fireDate as date, timeInterval as Double, repeats as boolean)

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a new NSTimer.
Example:

```
dim d as new date
d.hour = d.hour + 1 // start in one hour

dim n as new NSTimerMBS(d, 5, true)
```

Notes:

fireDate: The time at which the timer should first fire.

timeInterval: For a repeating timer, this parameter contains the number of seconds between firings of the timer. If seconds is less than or equal to 0.0, this method chooses the nonnegative value of 0.1 milliseconds instead.
repeats: If true, the timer will repeatedly reschedule itself until invalidated. If false, the timer will be invalidated after it fires.

The time is initialized such that, when added to a run loop, it will fire at date and then, if repeats is true, every seconds after that.
See also:

- 6.24.4 Constructor(fireDate as date, timeInterval as Double, repeats as boolean, runloop as NSRunLoopMBS, runloopMode as string) 467

- 6.24.5 Constructor(timeInterval as Double, repeats as boolean) 467

6.24.4 Constructor(fireDate as date, timeInterval as Double, repeats as boolean, runloop as NSRunLoopMBS, runloopMode as string)

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a new NSTimer.
Notes:

fireDate: The time at which the timer should first fire.

timeInterval: For a repeating timer, this parameter contains the number of seconds between firings of the timer. If seconds is less than or equal to 0.0, this method chooses the nonnegative value of 0.1 milliseconds instead.
repeats: If true, the timer will repeatedly reschedule itself until invalidated. If false, the timer will be invalidated after it fires.

The time is initialized such that, when added to a run loop, it will fire at date and then, if repeats is true, every seconds after that.

Schedules the timer to run on the given runloop in the given mode.
See also:

- 6.24.3 Constructor(fireDate as date, timeInterval as Double, repeats as boolean) 466
- 6.24.5 Constructor(timeInterval as Double, repeats as boolean) 467

6.24.5 Constructor(timeInterval as Double, repeats as boolean)

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns a new NSTimer object and schedules it on the current run loop in the default mode.
Example:

```
dim n as new NSTimerMBS(5, true)
MsgBox str(n.timeInterval)
```

Notes:

timeInterval: The number of seconds between firings of the timer. If seconds is less than or equal to 0.0, this method chooses the nonnegative value of 0.1 milliseconds instead.
repeats: If true, the timer will repeatedly reschedule itself until invalidated. If false, the timer will be invalidated after it fires.

After seconds seconds have elapsed, the timer fires, calling the Action event.
See also:

- 6.24.3 Constructor(fireDate as date, timeInterval as Double, repeats as boolean) 466
- 6.24.4 Constructor(fireDate as date, timeInterval as Double, repeats as boolean, runloop as NSRunLoopMBS, runloopMode as string) 467

6.24.6 fire

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Causes the receiver's message to be sent to its target.
Notes: You can use this method to fire a repeating timer without interrupting its regular firing schedule. If the timer is non-repeating, it is automatically invalidated after firing, even if its scheduled fire date has not arrived.

6.24.7 invalidate

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Stops the receiver from ever firing again and requests its removal from its run loop.
Example:

```
dim n as new NSTimerMBS(5, true)

// later

n.invalidate
```

Notes:

The destructor calls invalide automatically for you.

This method is the only way to remove a timer from an NSRunLoop object. The NSRunLoop object removes and releases the timer, either just before the invalidate method returns or at some later point.

You must send this message from the thread on which the timer was installed. If you send this message from another thread, the input source associated with the timer may not be removed from its run loop, which could prevent the thread from exiting properly.

6.24.8 isValid as boolean

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value that indicates whether the receiver is currently valid.
Example:

```
dim n as new NSTimerMBS(5, true)
MsgBox str(n.isValid)
```

Notes: True if the receiver is still capable of firing or false if the timer has been invalidated and is no longer capable of firing.

6.24.9 timeInterval as Double

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The receiver's time interval.
Example:

```
dim n as new NSTimerMBS(5, true)
MsgBox str(n.timeInterval)
```

Notes: The receiver's time interval. If the receiver is a non-repeating timer, returns 0 (even if a time interval was set).

6.24.10 Timer(t as timer) as NSTimerMBS

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a NSTimerMBS object referencing the given timer object.
Example:

```
dim n as NSTimerMBS = NSTimerMBS.timer(timer1)
n.tolerance = 0.1
```

Notes:

Only for Cocoa 32bit currently.
Works fine in Real Studio 2012 and Xojo 2014r1 in Cocoa target.

6.24.11 Properties

6.24.12 Handle as Integer

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference to the NSTimer object.

Example:

```
dim n as new NSTimerMBS(5, true)
MsgBox str(n.Handle)
```

Notes: (Read and Write property)

6.24.13 fireDate as date

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The date at which the receiver will fire.
Example:

```
dim d as new date
d.hour = d.hour + 1 // start in one hour

dim n as new NSTimerMBS(d, 5, true)
MsgBox n.fireDate.ShortDate+" "+n.fireDate.ShortTime
```

Notes:

The date at which the receiver will fire. If the timer is no longer valid, this method returns the last date at which the timer fired.

Use the isValid method to verify that the timer is valid.

You typically use this method to adjust the firing time of a repeating timer. Although resetting a timer's next firing time is a relatively expensive operation, it may be more efficient in some situations. For example, you could use it in situations where you want to repeat an action multiple times in the future, but at irregular time intervals. Adjusting the firing time of a single timer would likely incur less expense than creating multiple timer objects, scheduling each one on a run loop, and then destroying them.

You should not call this method on a timer that has been invalidated, which includes non-repeating timers that have already fired. You could potentially call this method on a non-repeating timer that had not yet fired, although you should always do so from the thread to which the timer is attached to avoid potential race conditions.
(Read and Write computed property)

6.24.14 tag as Variant

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A value you can use in your app however you like.
Example:

```
dim n as new NSTimerMBS(5, true)
n.tag = window1 // some value you may later use
```

Notes: (Read and Write computed property)

6.24.15 tolerance as Double

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The tolerance for this timer.
Notes:

Requires Mac OS X 10.9.

Setting a tolerance for a timer allows it to fire later than the scheduled fire date, improving the ability of the system to optimize for increased power savings and responsiveness. The timer may fire at any time between its scheduled fire date and the scheduled fire date plus the tolerance. The timer will not fire before the scheduled fire date. For repeating timers, the next fire date is calculated from the original fire date regardless of tolerance applied at individual fire times, to avoid drift. The default value is zero, which means no additional tolerance is applied. The system reserves the right to apply a small amount of tolerance to certain timers regardless of the value of this property.

As the user of the timer, you will have the best idea of what an appropriate tolerance for a timer may be. A general rule of thumb, though, is to set the tolerance to at least 10% of the interval, for a repeating timer. Even a small amount of tolerance will have a significant positive impact on the power usage of your application. The system may put a maximum value of the tolerance.
(Read and Write computed property)

6.24.16 Events

6.24.17 Action

Plugin Version: 10.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called when the timer fires.

6.25 class NSWindowDelegateMBS

6.25.1 class NSWindowDelegateMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Real Studio class for a cocoa windows delegate.
Notes:

The NSWindowDelegate protocol defines the methods that a delegate of NSWindow should implement. All methods in this protocol are optional.

By implementing these methods, the delegate may respond to window resizing, moving, exposing, minimizing, and a number of other window events.

6.25.2 Methods

6.25.3 Constructor(win as NSWindowMBS)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes the delegate class pointing to the Cocoa window.
Notes: The original delegate on the window is preserved and all messages are forwarded to it. Also when this object is destroyed, the old delegate is restored.
See also:

- 6.25.4 Constructor(win as window) 472

6.25.4 Constructor(win as window)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Initializes the delegate class pointing to the Real Studio window.
Notes:

This class does not keep a reference to the window, so you can keep this delegate as a property of the window without a memory leak.

The original delegate from Real Studio is preserved and all messages are forwarded to it. Also when this object is destroyed, the old delegate is restored.
See also:

- 6.25.3 Constructor(win as NSWindowMBS) 472

6.25.5 InstallRestoreEvents

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Activates plugin code to catch events restoreStateWithCoder and encodeRestorableStateWithCoder.

6.25.6 Events

6.25.7 concludeDragOperation(sender as NSDraggingInfoMBS)

Plugin Version: 16.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked when the dragging operation is complete, signaling the receiver to perform any necessary clean-up.
Notes:

sender: The object sending the message; use it to get details about the dragging operation.

For this method to be invoked, the previous performDragOperation must have returned true.

The destination implements this method to perform any tidying up that it needs to do, such as updating its visual representation now that it has incorporated the dragged data. This message is the last message sent from sender to the destination during a dragging session.

If the sender object's animatesToDestination property was set to true in prepareForDragOperation, then the drag image is still visible. At this point you should draw the final visual representation in the view. When this method returns, the drag image is removed form the screen. If your final visual representation matches the visual representation in the drag, this is a seamless transition.

6.25.8 customWindowsToEnterFullScreenForWindow(win as NSWindowMBS) as NSWindowMBS()

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked when the window is about to enter full screen mode.
Notes:

win: The window to enter to full screen mode.

Return an array of windows involved in the animation to fullscreen for window; otherwise nil.

This method lets a window delegate to customize the animation by providing a custom window or windows containing layers or other effects. If you do not want to perform custom animation, you can omit the implementation of this method, or it can return nil.

Available in Mac OS X v10.7 and later.

6.25.9 customWindowsToExitFullScreenForWindow(win as NSWindowMBS) as NSWindowMBS()

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The system has started its animation out of fullscreen, including transitioning back to the desktop space.
Notes:

win: The window to exit fullscreen.

Return true if the window wants to run a custom animation; otherwise false if the default NSWindow animation should be used.

This method lets the window delegate customize the animation when the window is about to exit fullscreen. If an you do not want to perform custom animation, you can omit the implementation of this method, or it can return nil.

Available in Mac OS X v10.7 and later.

6.25.10 didDecodeRestorableState(win as NSWindowMBS, state as NSCoderMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate the window is has extracted its restorable state from a given archiver.
Notes:

win: The window extracting its restorable state from an archive.
state: The coder extracting the archive.

This method is invoked during the window's restoreStateWithCoder method.

Available in Mac OS X v10.7 and later.

6.25.11 draggingEnded(sender as NSDraggingInfoMBS)

Plugin Version: 16.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Implement this event to be notified when a drag operation ends in some other destination.
Notes:

sender: The object sending the message; use it to get details about the dragging operation.

This method might be used by a destination doing auto-expansion in order to collapse any auto-expands.

6.25.12 draggingEntered(sender as NSDraggingInfoMBS) as Integer

Plugin Version: 16.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked when the dragged image enters destination bounds or frame; delegate returns dragging operation to perform.
Notes:

sender: The object sending the message; use it to get details about the dragging operation.

Return one (and only one) of the dragging operation constants described in NSDragOperation in the NSDraggingInfo reference. The default return value (if this method is not implemented by the destination) is the value returned by the previous draggingEntered message.

Invoked when a dragged image enters the destination but only if the destination has registered for the pasteboard data type involved in the drag operation. Specifically, this method is invoked when the mouse pointer enters the destination's bounds rectangle (if it is a view object) or its frame rectangle (if it is a window object).

This method must return a value that indicates which dragging operation the destination will perform when the image is released. In deciding which dragging operation to return, the method should evaluate the overlap between both the dragging operations allowed by the source (obtained from sender with the draggingSourceOperationMask method) and the dragging operations and pasteboard data types the destination itself supports.

If none of the operations is appropriate, this method should return NSDragOperationNone (this is the default response if the method is not implemented by the destination). A destination will still receive draggingUpdated and draggingExited even if NSDragOperationNone is returned by this method.

6.25.13 draggingExited(sender as NSDraggingInfoMBS)

Plugin Version: 16.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked when the dragged image exits the destination's bounds rectangle (in the case of a view object) or its frame rectangle (in the case of a window object).
Notes: sender: The object sending the message; use it to get details about the dragging operation.

6.25.14 draggingUpdated(sender as NSDraggingInfoMBS) as Integer

Plugin Version: 16.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked periodically as the image is held within the destination area, allowing modification of the dragging operation or mouse-pointer position.
Notes:

sender: The object sending the message; use it to get details about the dragging operation.

Return one (and only one) of the dragging operation constants described in NSDragOperation in the NS-DraggingInfo reference. The default return value (if this method is not implemented by the destination) is the value returned by the previous draggingEntered message.

For this to be invoked, the destination must have registered for the pasteboard data type involved in the drag operation. The messages continue until the image is either released or dragged out of the window or view.

This method provides the destination with an opportunity to modify the dragging operation depending on the position of the mouse pointer inside of the destination view or window object. For example, you may have several graphics or areas of text contained within the same view and wish to tailor the dragging operation, or to ignore the drag event completely, depending upon which object is underneath the mouse pointer at the time when the user releases the dragged image and the performDragOperation method is invoked.

You typically examine the contents of the pasteboard in the draggingEntered method, where this examination is performed only once, rather than in the draggingUpdated method, which is invoked multiple times.

Only one destination at a time receives a sequence of draggingUpdated messages. If the mouse pointer is within the bounds of two overlapping views that are both valid destinations, the uppermost view receives these messages until the image is either released or dragged out.

6.25.15 encodeRestorableStateWithCoder(win as NSWindowMBS, coder as NSCoderMBS)

Plugin Version: 13.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Method called to save the restorable state.
Notes:

The receiver is passed an NSCoderMBS that supports keyed encoding (but not decoding), and should encode its restorable state. If you override this method, you should call through to super. You should not otherwise invoke this method. If you encode an object that implements the NSUserInterfaceItemIdentification protocol, the object itself is not archived; only its identifier is stored. Thus, for example, a window may efficiently store its firstResponder as restorable state.

Called only if you called InstallRestoreEvents at least ones.

6.25.16 performDragOperation(sender as NSDraggingInfoMBS) as boolean

Plugin Version: 16.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked after the released image has been removed from the screen, signaling the receiver to import the pasteboard data.
Notes:

sender: The object sending the message; use it to get details about the dragging operation.

Return if the destination accepts the data, it returns true; otherwise it returns false. The default is to return false.

For this method to be invoked, the previous prepareForDragOperation message must have returned true. The destination should implement this method to do the real work of importing the pasteboard data represented by the image.

If the sender object's animatesToDestination was set to true in prepareForDragOperation, then setup any animation to arrange space for the drag items to animate to. Also at this time, enumerate through the dragging items to set their destination frames and destination images.

6.25.17 prepareForDragOperation(sender as NSDraggingInfoMBS) as boolean

Plugin Version: 16.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked when the image is released, allowing the receiver to agree to or refuse drag operation.
Notes:

sender: The object sending the message; use it to get details about the dragging operation.
Returns true if the receiver agrees to perform the drag operation and false if not.
This method is invoked only if the most recent draggingEntered or draggingUpdated message returned an acceptable drag-operation value.
If you want the drag items to animate from their current location on screen to their final location in your view, set the sender object's animatesToDestination property to true in your implementation of this method.

6.25.18 restoreStateWithCoder(win as NSWindowMBS, coder as NSCoderMBS)

Plugin Version: 13.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Method called to restore state.
Notes:

The receiver is passed an NSCoder that supports keyed decoding (but not encoding). The receiver should decode any previously stored state. If you override this method, you should call through to super. You

should not otherwise invoke this method.
Called only if you called InstallRestoreEvents at least ones.

6.25.19 shouldDragDocumentWithEvent(win as NSWindowMBS, evnt as NSEventMBS, dragImageLocation as NSPointMBS, pasteboard as Variant) as boolean

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Asks the delegate whether a user can drag the document icon from the window's title bar.
Notes:

win: The window containing the document icon the user wants to drag.
evnt: The left-mouse down event that triggered the dragging operation.
dragImageLocation: The location at which the user started the dragging operation.
pasteboard: The pasteboard containing the contents of the document, which the delegate can modify. This is a NSPasteboardMBS object.

Return true to allow the drag to proceed; false to prevent it. Before turning no the delegate can implement its own dragging behavior as described below.

Implementing this method allows an application to customize the process of dragging the window's document icon.implement its own dragging process, the delegate can perform the dragging operation and return false.

The delegate can prohibit the drag by returning false. Before returning false, the delegate may implement its own dragging behavior.

Available in Mac OS X v10.5 and later.

6.25.20 shouldPopUpDocumentPathMenu(win as NSWindowMBS, menu as NSMenuMBS) as boolean

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Asks the delegate whether the window displays the title pop-up menu in response to a Command-click or Control-click on its title.
Notes:

win: The window whose title the user Command-clicked or Control-clicked.
menu: The menu the window will display, if allowed. By default, its items are the path components of the file represented by window.

Returns true to allow the display of the title pop-up menu; false to prevent it.

Available in Mac OS X v10.5 and later.

6.25.21 startCustomAnimationToEnterFullScreenWithDuration(win as NSWindowMBS, duration as Double)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked when the window is about to enter fullscreen mode.
Notes:

win: The window to enter to full screen mode.
duration: The duration of the presentation change.

This method is called to start the window animation into fullscreen, including transitioning to a new space. You can implement this method to perform custom animation with the given duration to be in sync with the system animation.

Special Considerations
This method is called only if customWindowsToEnterFullScreenForWindow returned non-nil.

Available in Mac OS X v10.7 and later.

6.25.22 startCustomAnimationToExitFullScreenWithDuration(win as NSWindowMBS, duration as Double)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the delegate that the window is about to enter fullscreen mode.
Notes:

win: The window to exit to fullscreen.
duration: The duration of the presentation change.

Special Considerations
This method is called only if customWindowsToExitFullScreenForWindow returned non-nil.

Available in Mac OS X v10.7 and later.

6.25.23 updateDraggingItemsForDrag(sender as NSDraggingInfoMBS)

Plugin Version: 16.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked when the dragging images should be changed.
Notes:

sender: The object sending the message; use this object to get details about the dragging operation.

While a destination may change the dragging images at any time, it is recommended to wait until this method is called before updating the dragging images.

This allows the system to delay changing the dragging images until it is likely that the user will drop on this destination. Otherwise, the dragging images will change too often during the drag which would be distracting to the user.

6.25.24 wantsPeriodicDraggingUpdates as boolean

Plugin Version: 16.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Asks the destination object whether it wants to receive periodic draggingUpdated messages.
Notes:

Return true if the destination wants to receive periodic draggingUpdated messages, false otherwise.

If the destination returns false, these messages are sent only when the mouse moves or a modifier flag changes. Otherwise the destination gets the default behavior, where it receives periodic dragging-updated messages even if nothing changes.

6.25.25 willEncodeRestorableState(win as NSWindowMBS, state as NSCoderMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate the window is about to add its restorable state to a given archiver.
Notes:

win: The window adding its restorable state to an archive.
state: The coder creating the archive.

This method is invoked during the window's encodeRestorableStateWithCoder method.

Available in Mac OS X v10.7 and later.

6.25.26 willPositionSheet(win as NSWindowMBS, sheet as NSWindowMBS, rect as NSRectMBS) as NSRectMBS

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate that the window is about to show a sheet at the specified location, giving it the opportunity to return a custom location for the attachment of the sheet to the window.
Notes:

win: The window containing the sheet to be animated.
sheet: The sheet to be shown.
rect: The default sheet location, just under the title bar of the window, aligned with the left and right edges of the window.

Return the custom location specified.

This method is also invoked whenever the user resizes window while sheet is attached.

This method is useful in many situations. If your window has a toolbar, for example, you can specify a location for the sheet that is just below it. If you want the sheet associated with a certain control or view, you could position the sheet so that it appears to originate from the object (through animation) or is positioned next to it.

Neither the rect parameter nor the returned NSRect value define the boundary of the sheet. They indicate where the top-left edge of the sheet is attached to the window. The origin is expressed in window coordinates; the default origin.y value is the height of the content view and the default origin.x value is 0. The size.width value indicates the width and behavior of the initial animation; if size.width is narrower than the sheet, the sheet genies out from the specified location, and if size.width is wider than the sheet, the sheet slides out. You cannot affect the size of the sheet through the size.width and size.height fields. It is recommended that you specify zero for the size.height value as this field may have additional meaning in a future release.

Available in Mac OS X v10.3 and later.

6.25.27 willResizeForVersionBrowser(win as NSWindowMBS, maxPreferredFrameSize as NSSizeMBS, maxAllowedFrameSize as NSSizeMBS) as NSSizeMBS

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate the the window will resize for presentation during version browsing.
Notes:

win: The window being presented in a version browser.
maxPreferredSize: The maximum size the version browser would prefer the window to be.
maxAllowedSize: The maximum allowed size for the window (the full screen frame minus the margins re-

quired to ensure the Versions controls are still visible).

Returns the size that the window should be.

Windows entering the version browser will be resized to the size returned by this method. If either dimension of the returned size is larger than the maxPreferredFrameSize, the window will also be scaled down to ensure it fits properly in the version browser.

If this method is not implemented, the version browser will use windowWillUseStandardFrame to determine the resulting window frame size.

Available in Mac OS X v10.7 and later.

6.25.28 willUseFullScreenContentSize(win as NSWindowMBS, proposedSize as NSSizeMBS) as NSSizeMBS

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked to allow the delegate to modify the fullscreen content size.
Notes:

win: The window to enter to full screen mode.
proposedSize: The proposed window size.

Returns the window size to actually use when displaying content size.

Available in Mac OS X v10.7 and later.

6.25.29 willUseFullScreenPresentationOptions(win as NSWindowMBS, proposedOptions as Integer) as Integer

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns the presentation options the window will use when transitioning to fullscreen.
Notes:

win: The window to enter to full screen mode.
proposedOptions: The proposed options. See NSApplicationPresentationOptions for the possible values.

Return the options the window should use when transitioning to fullscreen. These may be the same as the proposedOptions or may be modified.

Available in Mac OS X v10.7 and later.

6.25.30 windowDidBecomeKey(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the delegate that the window has become the key window.
Notes:

notification: A notification named NSWindowDidBecomeKeyNotification.

You can retrieve the window object in question by sending object to notification.

Available in Mac OS X v10.0 and later.

6.25.31 windowDidBecomeMain(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the delegate that the window has become main.
Notes:

notification: A notification named NSWindowDidBecomeMainNotification.

You can retrieve the window object in question by sending object to notification.

Available in Mac OS X v10.0 and later.

6.25.32 windowDidChangeScreen(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate that the window has changed screens.
Notes:

notification: A notification named NSWindowDidChangeScreenNotification.

You can retrieve the NSWindow object in question by sending object to notification.

Available in Mac OS X v10.0 and later.

6.25.33 windowDidChangeScreenProfile(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate that the window has changed screen display profiles.
Notes:

notification: A notification named NSWindowDidChangeScreenProfileNotification.

You can retrieve the NSWindow object in question by sending object to notification.

Available in Mac OS X v10.4 and later.

6.25.34 windowDidDeminiaturize(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate that the window has been deminimized.
Notes:

notification: A notification named NSWindowDidDeminiaturizeNotification

You can retrieve the NSWindow object in question by sending object to notification.

Available in Mac OS X v10.0 and later.

6.25.35 windowDidEndLiveResize(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the delegate that a live resize operation on the window has ended.
Notes:

notification: A notification named NSWindowDidEndLiveResizeNotification.

You can retrieve the window object in question by sending object to notification.
Available in Mac OS X v10.6 and later.

6.25.36 windowDidEndSheet(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate that the window has closed a sheet.
Notes:

notification: A notification named NSWindowDidEndSheetNotification.

You can retrieve the window object in question by sending object to notification.
Available in Mac OS X v10.1 and later.

6.25.37 windowDidEnterFullScreen(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The window just entered fullscreen mode.
Notes:

notification: A notification named NSWindowDidEnterFullScreenNotification.
Available in Mac OS X v10.7 and later.

6.25.38 windowDidEnterVersionBrowser(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate the the window just entered version browsing.
Notes:

notification: An NSWindowDidEnterVersionBrowserNotification notification.

Available in Mac OS X v10.7 and later.

6.25.39 windowDidExitFullScreen(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The window is about to enter fullscreen mode.
Notes:

notification: A notification named NSWindowDidExitFullScreenNotification.
Available in Mac OS X v10.7 and later.

6.25.40 windowDidExitVersionBrowser(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate the the window is about to leave version browsing.
Notes:

notification: An NSWindowDidExitVersionBrowserNotification notification.

Available in Mac OS X v10.7 and later.

6.25.41 windowDidExpose(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate that the window has been exposed.
Notes:

notification: A notification named NSWindowDidExposeNotification.
You can retrieve the window object in question by sending object to notification.
Available in Mac OS X v10.0 and later.

6.25.42 windowDidFailToEnterFullScreen(win as NSWindowMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked if the window failed to enter fullscreen.
Notes:

win: The window that failed to enter to full screen mode.

In some cases, the transition to enter fullscreen will fail, due to being in the midst of handling some other animation or user gesture. This method indicates that there was an error, and you should clean up any work you may have done to prepare to enter fullscreen.

This message is sent whether or not the delegate indicated a custom animation by returning non-nil from customWindowsToEnterFullScreenForWindow.

Available in Mac OS X v10.7 and later.

6.25.43 windowDidFailToExitFullScreen(win as NSWindowMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked if the window failed to exit fullscreen.
Notes:

win: The window that failed to exit to fullscreen.

In some cases, the transition to exit fullscreen will fail, due to being in the midst of handling some other animation or user gesture. This method indicates that there was an error, and you should clean up any work you may have done to prepare to enter fullscreen.

This message is sent whether or not the delegate indicated a custom animation by returning non-nil from customWindowsToExitFullScreenForWindow.

Available in Mac OS X v10.7 and later.

6.25.44 windowDidMiniaturize(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate that the window has been minimized.
Notes:

notification: A notification named NSWindowDidMiniaturizeNotification.

You can retrieve the NSWindow object in question by sending object to notification.
Available in Mac OS X v10.0 and later.

6.25.45 windowDidMove(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate that the window has moved.
Notes:

notification: A notification named NSWindowDidMoveNotification.

You can retrieve the NSWindow object in question by sending object to notification.
Available in Mac OS X v10.0 and later.

6.25.46 windowDidResignKey(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the delegate that the window has resigned key window status.
Notes:

notification: A notification named NSWindowDidResignKeyNotification.

You can retrieve the window object in question by sending object to notification.
Available in Mac OS X v10.0 and later.

6.25.47 windowDidResignMain(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the delegate that the window has resigned main window status.
Notes:

notification: A notification named NSWindowDidResignMainNotification.

You can retrieve the window object in question by sending object to notification.
Available in Mac OS X v10.0 and later.

6.25.48 windowDidResize(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the delegate that the window has been resized.
Notes:

notification: A notification named NSWindowDidResizeNotification.

You can retrieve the window object in question by sending object to notification.
Available in Mac OS X v10.0 and later.

6.25.49 windowDidUpdate(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate that the window received an update message.
Notes:

notification: A notification named NSWindowDidUpdateNotification

You can retrieve the window object in question by sending object to notification.
Available in Mac OS X v10.0 and later.

6.25.50 windowShouldClose as boolean

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate that the user has attempted to close a window or the window has received a performClose message.
Notes:

Return true to allow sender to be closed; otherwise, false.

This method may not always be called during window closing. Specifically, this method is not called when a user quits an application.

Available in Mac OS X v10.0 and later.

6.25.51 windowShouldZoom(win as NSWindowMBS, newFrame as NSRectMBS) as boolean

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Asks the delegate whether the specified window should zoom to the specified frame.
Notes:

win: The window being zoomed.
newFrame: The rectangle to which the specified window is being zoomed.

Return true to allow window's frame to become newFrame; otherwise, false.

Available in Mac OS X v10.0 and later.

6.25.52 windowWillBeginSheet(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Notifies the delegate that the window is about to open a sheet.
Notes:

notification: A notification named NSWindowWillBeginSheetNotification.

You can retrieve the window object in question by sending object to notification.
Available in Mac OS X v10.1 and later.

6.25.53 windowWillClose(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate that the window is about to close.
Notes:

notification: A notification named NSWindowWillCloseNotification.

You can retrieve the NSWindow object in question by sending object to notification.
Available in Mac OS X v10.0 and later.

6.25.54 windowWillEnterFullScreen(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The window is about to enter fullscreen mode.
Notes:

notification: A notification named NSWindowWillEnterFullScreenNotification.

Available in Mac OS X v10.7 and later.

6.25.55 windowWillEnterVersionBrowser(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate the the window is about to enter version browsing.
Notes:

notification: An NSWindowWillEnterVersionBrowserNotification notification.
Available in Mac OS X v10.7 and later.

6.25.56 windowWillExitFullScreen(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The window is about to exit fullscreen mode.
Notes:

notification: A notification named NSWindowWillExitFullScreenNotification.
Available in Mac OS X v10.7 and later.

6.25.57 windowWillExitVersionBrowser(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate the the window just left version browsing.
Notes:

notification: An NSWindowWillExitVersionBrowserNotification notification.
Available in Mac OS X v10.7 and later.

6.25.58 windowWillMiniaturize(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate that the window is about to be minimized.
Notes:

notification: A notification named NSWindowWillMiniaturizeNotification.
You can retrieve the NSWindow object in question by sending object to notification.
Available in Mac OS X v10.0 and later.

6.25.59 windowWillMove(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate that the window is about to move.
Notes:

notification: A notification named NSWindowWillMoveNotification.
You can retrieve the NSWindow object in question by sending object to notification.
Available in Mac OS X v10.0 and later.

6.25.60 windowWillResize(win as NSWindowMBS, newFrameSize as NSSizeMBS, newSize as NSSizeMBS) as NSSizeMBS

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate that the window is being resized (whether by the user or through one of the setFrame... methods other than setFrame:display:).
Notes:

The plugin first passes the event to Real Studio runtime. In the newSize parameter you get the result from the runtime. Now you can decide. If you return nil, the newSize value is used.

win: The window being resized.
frameSize: The size to which the specified window is being resized.
newSize: The size Real Studio wants to use.

Return a custom size to which the specified window will be resized.

The frameSize contains the size (in screen coordinates) sender will be resized to. To resize to a different size, simply return the desired size from this method; to avoid resizing, return the current size. sender's minimum and maximum size constraints have already been applied when this method is invoked.

While the user is resizing a window, the delegate is sent a series of windowWillResize messages as the win-

dow's outline is dragged. The window's outline is displayed at the constrained size as set by this method.

Available in Mac OS X v10.0 and later.

6.25.61 windowWillReturnUndoManager(win as NSWindowMBS) as NSUndoManagerMBS

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Tells the delegate that the window's undo manager has been requested. Returns the appropriate undo manager for the window.
Notes:

win: The window whose undo manager is being requested.

Return the appropriate undo manager for the specified window.

If this method is not implemented by the delegate, the window creates an NSUndoManager for window.

Available in Mac OS X v10.0 and later.

6.25.62 windowWillStartLiveResize(notification as NSNotificationMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the delegate that the window is about to be live resized.
Notes:

notification: A notification named NSWindowWillStartLiveResizeNotification.

You can retrieve the window object in question by sending object to notification.
Available in Mac OS X v10.6 and later.

6.25.63 windowWillUseStandardFrame(win as NSWindowMBS, newFrame as NSRectMBS) as NSRectMBS

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked by NSWindow's zoom: method while determining the frame a window may be zoomed to.
Notes:

win: The window whose frame size is being determined.
newFrame: The size of the current screen, which is the screen containing the largest part of the window's current frame, possibly reduced on the top, bottom, left, or right, depending on the current interface style.

The frame is reduced on the top to leave room for the menu bar.

Return the specified window's standard frame.

The standard frame for a window should supply the size and location that are "best" for the type of information shown in the window, taking into account the available display or displays. For example, the best width for a window that displays a word-processing document is the width of a page or the width of the display, whichever is smaller. The best height can be determined similarly. On return from this method, the zoom: method modifies the returned standard frame, if necessary, to fit on the current screen.

Available in Mac OS X v10.0 and later.

6.26 class NSWorkspaceMBS

6.26.1 class NSWorkspaceMBS

Plugin Version: 8.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An NSWorkspace object responds to application requests to perform a variety of services.
Example:

```
// get icon image
dim n as NSImageMBS = NSWorkspaceMBS.iconForFile(SpecialFolder.desktop)
// set the size we want
n.setSize 512,512
// make a copy as picture
Backdrop = n.CopyPictureWithMask
```

Notes:

- Opening, manipulating, and obtaining information about files and devices
- Tracking changes to the file system, devices, and the user database
- Launching applications

6.26.2 Methods

6.26.3 absolutePathForAppBundleWithIdentifier(bundleIdentifier as string) as string

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the absolute file-system path of an application bundle.
Notes:

bundleIdentifier: The bundle identifier string. This value corresponds to the value in the CFBundleIdentifier key of the application's Info.plist file. For example, the bundle identifier of the TextEdit application is com.apple.TextEdit.

Returns the file system path to the application bundle identified by bundleIdentifier, or "" if the bundle cannot be found.

6.26.4 activateFileViewerSelectingFiles(Files() as folderitem)

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Activates the Finder, and opens one or more windows selecting the specified files.

Example:

```
dim file as FolderItem = SpecialFolder.Pictures.Child("mbs.jpg") // some file

dim w as new NSWorkspaceMBS
dim files() as FolderItem

files.Append file

// show in Finder
w.activateFileViewerSelectingFiles(files)
```

Notes: Available in Mac OS X v10.6 and later.

6.26.5 activateFileViewerSelectingURLs(URLs() as string)

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Activates the Finder, and opens one or more windows selecting the specified files.
Notes: Available in Mac OS X v10.6 and later.

6.26.6 desktopImageOptionsForScreen(screen as NSScreenMBS) as dictionary

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the desktop image options for the given screen.
Example:

```
dim w as new NSWorkspaceMBS
dim m as NSScreenMBS = NSScreenMBS.mainScreen
dim dic as Dictionary = w.desktopImageOptionsForScreen(m)

break // check in debugger
```

Notes:

screen: The screen for which to get the desktop image options.

Returns a dictionary containing key-value pairs. Keys can be NSWorkspaceDesktopImageScalingKey, NSWorkspaceDesktopImageAllowClippingKey or NSWorkspaceDesktopImageFillColorKey.
Available in Mac OS X v10.6 and later.

6.26.7 desktopImageURLForScreen(screen as NSScreenMBS) as folderitem

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the folderitem for the desktop image for the given screen.
Example:

```
dim w as new NSWorkspaceMBS
dim m as NSScreenMBS = NSScreenMBS.mainScreen
dim file as FolderItem = w.desktopImageURLForScreen(m)

MsgBox file.AbsolutePath
```

Notes:

screen: The screen for which to get the desktop image.
Returns the desktop image.
Available in Mac OS X v10.6 and later.

6.26.8 fileLabelColors as NSColorMBS()

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the corresponding array of file label colors for the file labels.
Example:

```
dim w as new NSWorkspaceMBS
dim labels() as string = w.fileLabels
dim colors() as NSColorMBS = w.fileLabelColors
dim lines() as string

dim u as Integer = UBound(Colors)
for i as Integer = 0 to u
dim co as NSColorMBS = colors(i)

lines.Append labels(i)+": "+str(co.colorValue)
next

MsgBox Join(lines,EndOfLine)
```

Notes:

This array has the same number of elements as fileLabels, and the color at a given index corresponds to the label at the same index.

You can listen for notifications named NSWorkspaceDidChangeFileLabelsNotification to be notified when file labels change which may result in changes to the order of the fileLabelColors.

Available in Mac OS X v10.6 and later.

6.26.9 fileLabels as string()

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the array of file labels as strings.
Example:

```
dim w as new NSWorkspaceMBS
dim labels() as string = w.fileLabels

MsgBox Join(labels, EndOfLine)
```

Notes:

You can listen for notifications named NSWorkspaceDidChangeFileLabelsNotification to be notified when file labels change.
Available in Mac OS X v10.6 and later.

6.26.10 findApplications

Plugin Version: 8.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Examines all applications and updates the records of registered services and file types.
Example:

```
NSWorkspaceMBS.findApplications
```

6.26.11 frontmostApplication as NSRunningApplicationMBS

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Gets the frontmost application, which is the application that will receive key events.
Example:

```
dim w as new NSWorkspaceMBS
dim n as NSRunningApplicationMBS = w.frontmostApplication

MsgBox n.localizedName
```

Notes: Requires Mac OS X 10.7.

6.26.12 fullPathForApplication(appname as string) as folderitem

Plugin Version: 8.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the full path for the specified application.
Example:

```
MsgBox NSWorkspaceMBS.fullPathForApplication("textedit").ShellPath
// shows /Applications/TextEdit.app
```

Notes: The full path for the application, or nil if the specified application was not found.

6.26.13 hideOtherApplications

Plugin Version: 8.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Hides all applications other than the sender.
Example:

```
NSWorkspaceMBS.hideOtherApplications
```

Notes: The user can hide all applications except the current one by Command-Option-clicking on an application's Dock icon.

6.26.14 iconForFile(file as folderitem) as NSImageMBS

Plugin Version: 8.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an image containing the icon for the specified file.
Example:

```
dim f as FolderItem
f=SpecialFolder.Desktop.Child("test.txt")

dim n as NSImageMBS = NSWorkspaceMBS.iconForFile(f)
n.size = new NSSizeMBS(512,512)
Backdrop=n.CopyPictureWithMask
```

Notes:

The returned image has an initial size of 32 pixels by 32 pixels.
Returns nil on any error.

6.26.15 iconForFiles(files() as folderitem) as NSImageMBS

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an image containing the icon for the specified files.
Example:

```
dim w as new NSWorkspaceMBS
dim files() as FolderItem

dim folder as FolderItem = SpecialFolder.Pictures

// one file
files.Append folder.TrueItem(2)
canvas1.Backdrop = w.iconForFiles(files).CopyPictureWithMask

// two files
files.Append folder.TrueItem(3)
canvas2.Backdrop = w.iconForFiles(files).CopyPictureWithMask

// three files
files.Append folder.TrueItem(4)
canvas3.Backdrop = w.iconForFiles(files).CopyPictureWithMask
```

Notes:

files: An array of folderitems, each of which contains the full path to a file.

Returns the icon associated with the group of files.

If fullPaths specifies one file, that file's icon is returned. If fullPaths specifies more than one file, an icon representing the multiple selection is returned.

6.26.16 iconForFileType(filetype as string) as NSImageMBS

Plugin Version: 8.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an image containing the icon for files of the specified type.

Example:

```
Backdrop=NSWorkspaceMBS.iconForFileType("txt").CopyPictureWithMask
```

Notes:

filetype: The file type, which may be either a filename extension or an encoded HFS file type.

The returned image has an initial size of 32 pixels by 32 pixels.
Returns nil on any error.

Running this in a thread can lead to crashes.

6.26.17 isFilePackageAtPath(item as folderitem) as boolean

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Determines whether the specified path is a file package.
Example:

```
dim w as new NSWorkspaceMBS
dim file as FolderItem = SpecialFolder.Applications.Child("iTunes.app")

// shows true for iTunes
MsgBox str(w.isFilePackageAtPath(file))
```

Notes: Returns true if the path identifies a file package; otherwise, false if the path does not exist, is not a directory, or is not a file package.

6.26.18 launchApplication(appname as string) as boolean

Plugin Version: 8.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Launches the specified application.
Example:

```
if NSWorkspaceMBS.launchApplication("Textedit") then
MsgBox "Ok"
else
MsgBox "failed"
end if
```

Notes:

Returns true if the application was successfully launched or was already running; otherwise, false.

The appName parameter need not be specified with a full path and, in the case of an application wrapper, may be specified with or without the .app extension, as described in "Use of .app Extension".
See also:

- 6.26.19 launchApplication(appname as string, showicon as boolean, autolaunch as boolean) as boolean 501

6.26.19 launchApplication(appname as string, showicon as boolean, autolaunch as boolean) as boolean

Plugin Version: 8.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Launches the specified application using additional options.
Example:

```
if NSWorkspaceMBS.launchApplication("Textedit",false,false) then
MsgBox "Ok"
else
MsgBox "failed"
end if
```

Notes:

appName: The name of the application to open.
showIcon: If false, the application's icon is not placed on the screen. (The icon still exists, though.)
autolaunch: If true, the autolaunch default is set as though the specified application were autolaunched at startup.

This method is provided to enable daemon-like applications that lack a normal user interface. Its use is not generally encouraged.
Returns true if the application is successfully launched or already running, and false if it can't be launched.
See also:

- 6.26.18 launchApplication(appname as string) as boolean 500

6.26.20 launchApplicationAtFile(file as folderitem, options as UInt32 = 0, configuration as dictionary = nil) as NSRunningApplicationMBS

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Launches the app at the specified file location.
Notes:

file: The application folderitem.
options: Options to use when launching the application. see NSWorkspaceLaunch* constants.
configuration: A dictionary containing the configuration options. Possible key-value pairs are described NSWorkspaceLaunchConfiguration* functions.
error: The error is returned here.

Returns reference to newly started application.

Available in Mac OS X v10.6 and later.
See also:

- 6.26.21 launchApplicationAtFile(file as folderitem, options as UInt32, configuration as dictionary, byref error as NSErrorMBS) as NSRunningApplicationMBS 502

6.26.21 launchApplicationAtFile(file as folderitem, options as UInt32, configuration as dictionary, byref error as NSErrorMBS) as NSRunningApplicationMBS

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Launches the app at the specified file location.
Example:

```
dim w as new NSWorkspaceMBS
dim file as FolderItem = SpecialFolder.Applications.Child("Address Book.app")

dim error as NSErrorMBS
dim configuration as new Dictionary
dim options as Integer

// today we start 32 bit version
configuration.Value(w.NSWorkspaceLaunchConfigurationArchitecture) = w.NSBundleExecutableArchitectureI386

// and hide all others
options = w.NSWorkspaceLaunchAndHideOthers

dim r as NSRunningApplicationMBS = w.launchApplicationAtFile(file, options, configuration, error)

if r = nil then
MsgBox "Error: "+error.LocalizedDescription
else
MsgBox "Started: "+r.localizedName
end if
```

Notes:

file: The application folderitem.
options: Options to use when launching the application. see NSWorkspaceLaunch* constants.
configuration: A dictionary containing the configuration options. Possible key-value pairs are described NSWorkspaceLaunchConfiguration* functions.
error: The error is returned here.

Returns reference to newly started application.

Available in Mac OS X v10.6 and later.
See also:

- 6.26.20 launchApplicationAtFile(file as folderitem, options as UInt32 = 0, configuration as dictionary = nil) as NSRunningApplicationMBS 501

6.26.22 launchApplicationAtURL(URL as string, options as UInt32 = 0, configuration as dictionary = nil) as NSRunningApplicationMBS

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Launches the app at the specified URL.
Notes:

url: The application URL.
options: Options to use when launching the application. see NSWorkspaceLaunch* constants.
configuration: A dictionary containing the configuration options. Possible key-value pairs are described NSWorkspaceLaunchConfiguration* functions.
error: The error is returned here.

Returns reference to newly started application.

Available in Mac OS X v10.6 and later.
See also:

- 6.26.23 launchApplicationAtURL(URL as string, options as UInt32, configuration as dictionary, byref error as NSErrorMBS) as NSRunningApplicationMBS 503

6.26.23 launchApplicationAtURL(URL as string, options as UInt32, configuration as dictionary, byref error as NSErrorMBS) as NSRunningApplicationMBS

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Launches the app at the specified URL.
Notes:

url: The application URL.
options: Options to use when launching the application. see NSWorkspaceLaunch* constants.
configuration: A dictionary containing the configuration options. Possible key-value pairs are described NSWorkspaceLaunchConfiguration* functions.
error: The error is returned here.

Returns reference to newly started application.

Available in Mac OS X v10.6 and later.
See also:

- 6.26.22 launchApplicationAtURL(URL as string, options as UInt32 = 0, configuration as dictionary = nil) as NSRunningApplicationMBS 503

6.26.24 launchAppWithBundleIdentifier(bundleIdentifier as string, options as Integer = & h00030000, AppleEventDescriptor as Variant = nil) as Boolean

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Launches the application corresponding to the specified bundleIdentifier.
Notes:

bundleIdentifier: A bundle identifier string. This value corresponds to the value in the CFBundleIdentifier key of the application's Info.plist file. For example, the bundle identifier of the TextEdit application is com.apple.TextEdit.
options: Options to use when launching the application. Values for this parameter are described in constants.
descriptor: Additional options specified in an AppleEvent-style descriptor. For example, you could use this parameter to specify additional documents to open when the application is launched.

Returns true if the application was found and launched; otherwise, false.

6.26.25 localizedDescriptionForType(typeName as string) as string

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the localized description for the specified Uniform Type Identifier.
Example:

```
MsgBox NSWorkspaceMBS.localizedDescriptionForType("public.jpeg")
// "JPEG-Bild" in German
```

Notes:

The localized description is suitable for displaying to the user.
Available in Mac OS X v10.5 and later.

6.26.26 menuBarOwningApplication as NSRunningApplicationMBS

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Gets the menu bar owning application, which is the application that currently owns and draws the menu bar.
Example:

```
dim w as new NSWorkspaceMBS
dim n as NSRunningApplicationMBS = w.menuBarOwningApplication

MsgBox n.localizedName
```

Notes: Requires Mac OS X 10.7.

6.26.27 mountedLocalVolumePaths as string()

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the mount points of all local volumes, not just the removable ones returned by mountedRemovableMedia.
Example:

```
dim w as new NSWorkspaceMBS
dim paths() as string = w.mountedLocalVolumePaths

MsgBox Join(paths, EndOfLine)
```

Notes: Returns an array of strings, each of which contains the full pathname of the mount point for any local volumes.

6.26.28 mountedRemovableMedia as string()

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the full pathnames of all currently mounted removable disks.
Example:

```
dim w as new NSWorkspaceMBS
dim paths() as string = w.mountedRemovableMedia

MsgBox Join(paths, EndOfLine)
```

Notes:

Returns an array of strings, each of which contains the full pathname of a mounted removable disk.

If the computer provides an interrupt or other notification when the user inserts a disk into a drive, the Finder will mount the disk immediately. However, if no notification is given, the Finder won't be aware that a disk needs to be mounted. On such systems, an application should invoke either mountNewRemovableMedia or checkForRemovableMedia before invoking mountedRemovableMedia. Either of these methods cause the Finder to poll the drives to see if a disk is present. If a disk has been inserted but not yet mounted, these methods will cause the Finder to mount it.

The Disk button in an Open or Save panel invokes mountedRemovableMedia and mountNewRemovableMedia as part of its operation, so most applications won't need to invoke these methods directly.

6.26.29 noteFileSystemChanged

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Informs the NSWorkspace object that the file system has changed.
Notes:

The NSWorkspace object then gets the status of all the files and directories it is interested in and updates itself appropriately. This method is used by many objects that write or delete files.

The NSDocument and NSSavePanel objects use this method when saving a file. If you create a file directly, you should call noteFileSystemChanged so that the Finder can update the folder if it is open.

Available in Mac OS X v10.0 and later. Deprecated in Mac OS X v10.6.
See also:

- 6.26.30 noteFileSystemChanged(path as folderitem) 506

6.26.30 noteFileSystemChanged(path as folderitem)

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Informs the NSWorkspace object that the file system changed at the specified path.
Notes: The NSWorkspace object then gets the status of all the files and directories it is interested in and updates itself appropriately. This method is used by many objects that write or delete files.
See also:

- 6.26.29 noteFileSystemChanged 506

6.26.31 notificationCenter as NSNotificationCenterMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the notification center for workspace notifications.

6.26.32 NSWorkspaceActiveSpaceDidChangeNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted when a Spaces change has occurred.
The notification object is the shared NSWorkspace instance. The notification does not contain a userInfo dictionary.
Available in Mac OS X v10.6 and later.

6.26.33 NSWorkspaceApplicationKey as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This constant is supplied in the userInfo dictionary of various notifications.
Notes:

The value corresponding to this key is an instance of NSRunningApplication that reflects the affected application.
Available in Mac OS X v10.6 and later.

6.26.34 NSWorkspaceCompressOperation as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the file operation modes.
Notes: Compress file. This operation always returns an error.

6.26.35 NSWorkspaceCopyOperation as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the file operation modes.
Example:

```
dim f as FolderItem = SpecialFolder.Desktop.Child("test")
dim tag as Integer
dim files(-1) as string
```

```
dim b as Boolean
dim source,dest as FolderItem

// copies a file from one folder to another folder

source=f.Parent
files.Append f.name
dest=SpecialFolder.Pictures

b=NSWorkspaceMBS.performFileOperation(NSWorkspaceMBS.NSWorkspaceCopyOperation, source, dest, files, tag)

if b then
MsgBox "OK"
else
MsgBox "Failed"
end if
```

Notes: Copy file to destination.

6.26.36 NSWorkspaceDecompressOperation as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the file operation modes.
Notes: Decompress file. This operation always returns an error.

6.26.37 NSWorkspaceDecryptOperation as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the file operation modes.
Notes: Decrypt file. This operation always returns an error.

6.26.38 NSWorkspaceDesktopImageAllowClippingKey as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the options dictionary used with SetDesktopImageURL.
Notes:

The value is a boolean, which affects the interpretation of Proportional scaling types. A false value will make the image fully visible, but there may be empty space on the sides or top and bottom. A true value will cause the image to fill the entire screen, but the image may be clipped. If this is not specified, false is

assumed. Non-proportional scaling types ignore this value.
Available in Mac OS X v10.6 and later.

6.26.39 NSWorkspaceDesktopImageFillColorKey as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the options dictionary used with SetDesktopImageURL.
Notes:

The value is an NSColor, which is used to fill any empty space around the image. If not specified, a default value is used. Currently, only colors that use or can be converted to use NSCalibratedRGBColorSpace are supported, and any alpha value is ignored.
Available in Mac OS X v10.6 and later.

6.26.40 NSWorkspaceDesktopImageScalingKey as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the options dictionary used with SetDesktopImageURL.
Notes:

The value is an Number containing an NSImageScaling constant as declared in NSCell. If this is not specified, NSImageScaleProportionallyUpOrDown=3 is used. NSImageScaleProportionallyDown=0 is not currently supported.
Available in Mac OS X v10.6 and later.

6.26.41 NSWorkspaceDestroyOperation as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the file operation modes.
Notes: Destroy file.

6.26.42 NSWorkspaceDidActivateApplicationNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted when the Finder is about to activate an application.
The notification object is the shared NSWorkspace instance. In Mac OS X v10.6 and later the userInfo dictionary contains the NSWorkspaceApplicationKey key with a corresponding instance of NSRunningApplication that represents the affected application.

Available in Mac OS X v10.6 and later.

6.26.43 NSWorkspaceDidChangeFileLabelsNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted when the Finder file labels or colors change.
The notification object is the shared NSWorkspace instance. The notification does not contain a userInfo dictionary.
Available in Mac OS X v10.6 and later.

6.26.44 NSWorkspaceDidDeactivateApplicationNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted when the Finder deactivated an application.
The notification object is the shared NSWorkspace instance. In Mac OS X v10.6 and later the userInfo dictionary contains the NSWorkspaceApplicationKey key with a corresponding instance of NSRunningApplication that represents the affected application.
Available in Mac OS X v10.6 and later.

6.26.45 NSWorkspaceDidHideApplicationNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted when the Finder hid an application.
The notification object is the shared NSWorkspace instance. In Mac OS X v10.6 and later the userInfo dictionary contains the NSWorkspaceApplicationKey key with a corresponding instance of NSRunningApplication that represents the affected application.
Available in Mac OS X v10.6 and later.

6.26.46 NSWorkspaceDidLaunchApplicationNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.

Notes:

Posted when a new application has started up.
The notification object is the shared NSWorkspace instance. In Mac OS X v10.6 and later the userInfo dictionary contains the NSWorkspaceApplicationKey key with a corresponding instance of NSRunningApplication that represents the affected application.

6.26.47 NSWorkspaceDidMountNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted when a new device has been mounted.
The notification object is the shared NSWorkspace instance.

In Mac OS X v10.5 and earlier the userInfo dictionary contains a key @"NSDevicePath" that returns the path where the device was mounted, as a string.
Available in Mac OS X v10.0 and later.

6.26.48 NSWorkspaceDidPerformFileOperationNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted when a file operation has been performed in the receiving application.
The notification object is the shared NSWorkspace instance. The userInfo dictionary contains a key "NSOperationNumber" with a number containing an integer indicating the type of file operation
Available in Mac OS X v10.0 and later.

6.26.49 NSWorkspaceDidRenameVolumeNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted when a volume changes its name and/or mount path. These typically change simultaneously, in which case only one notification is posted.
The notification object is the shared NSWorkspace instance.
Available in Mac OS X v10.6 and later.

6.26.50 NSWorkspaceDidTerminateApplicationNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted when an application finishes executing.
The notification object is the shared NSWorkspace instance. In Mac OS X v10.6 and later the userInfo dictionary contains the NSWorkspaceApplicationKey key with a corresponding instance of NSRunningApplication that represents the affected application.

Available in Mac OS X v10.0 and later.

6.26.51 NSWorkspaceDidUnhideApplicationNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted when the Finder unhid an application.
The notification object is the shared NSWorkspace instance. In Mac OS X v10.6 and later the userInfo dictionary contains the NSWorkspaceApplicationKey key with a corresponding instance of NSRunningApplication that represents the affected application.
Available in Mac OS X v10.6 and later.

6.26.52 NSWorkspaceDidUnmountNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted when the Finder did unmount a device.
This notification is delivered even if a volume was forcibly and immediately made unavailable, such as when a drive is simply unplugged.

The notification object is the shared NSWorkspace instance. The userInfo dictionary contains a key "NSDevicePath" that returns the path where the device was mounted, as a string.
Available in Mac OS X v10.0 and later.

6.26.53 NSWorkspaceDidWakeNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted when the machine wakes from sleep.
The notification object is the shared NSWorkspace instance. The notification does not contain a userInfo dictionary.
Available in Mac OS X v10.3 and later.

6.26.54 NSWorkspaceDuplicateOperation as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the file operation modes.
Notes: Duplicate file in source directory.

6.26.55 NSWorkspaceEncryptOperation as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the file operation modes.
Notes: Encrypt file. This operation always returns an error.

6.26.56 NSWorkspaceLaunchConfigurationAppleEvent as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the configuration dictionary for launchApplication* methods.
Notes:

The value is the first NSAppleEventDescriptor to send to the new application. If an instance of the application is already running, this is sent to that application.
Available in Mac OS X v10.6 and later.

6.26.57 NSWorkspaceLaunchConfigurationArchitecture as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the configuration dictionary for launchApplication* methods.
Notes:

The value is a number containing an Mach-O Architecture constant. Ignored if a new instance of the application is not launched.

Available in Mac OS X v10.6 and later.
See NSBundleExecutableArchitecture* constants.

6.26.58 NSWorkspaceLaunchConfigurationArguments as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the configuration dictionary for launchApplication* methods.
Notes:

The value is an NSArray of NSStrings, passed to the new application in the argv parameter. Ignored if a new instance of the application is not launched.
Available in Mac OS X v10.6 and later.

6.26.59 NSWorkspaceLaunchConfigurationEnvironment as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the configuration dictionary for launchApplication* methods.
Notes:

The value is an dictionary, mapping Strings to Strings, containing environment variables to set for the new app. Ignored if a new instance of the application is not launched.
Available in Mac OS X v10.6 and later.

6.26.60 NSWorkspaceLinkOperation as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the file operation modes.
Example:

```
dim f as FolderItem = SpecialFolder.Desktop.Child("test")
dim tag as Integer
dim files(-1) as string
dim b as Boolean
dim source,dest as FolderItem

// creates a hard link to a file in a folder

source=f.Parent
files.Append f.name
dest=SpecialFolder.Pictures

b=NSWorkspaceMBS.performFileOperation(NSWorkspaceMBS.NSWorkspaceLinkOperation, source, dest, files, tag)
```

```
if b then
MsgBox "OK"
else
MsgBox "Failed"
end if
```

Notes: Create hard link to file in destination.

6.26.61 NSWorkspaceMoveOperation as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the file operation modes.
Example:

```
dim f as FolderItem = SpecialFolder.Desktop.Child("test")
dim tag as Integer
dim files(-1) as string
dim b as Boolean
dim source,dest as FolderItem

// moves a file from one folder to another folder

source=f.Parent
files.Append f.name
dest=SpecialFolder.Pictures

b=NSWorkspaceMBS.performFileOperation(NSWorkspaceMBS.NSWorkspaceMoveOperation, source, dest,
files, tag)

if b then
MsgBox "OK"
else
MsgBox "Failed"
end if
```

Notes: Move file to destination.

6.26.62 NSWorkspaceRecycleOperation as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the file operation modes.
Example:

```
dim f as FolderItem = SpecialFolder.Desktop.Child("test")
dim tag as Integer
dim files(-1) as string
dim b as Boolean
dim source,dest as FolderItem

source=f.Parent

files.Append f.name

b=NSWorkspaceMBS.performFileOperation(NSWorkspaceMBS.NSWorkspaceRecycleOperation, source, dest, files, tag)

if b then
MsgBox "OK"
else
MsgBox "Failed"
end if
```

Notes: Move file to trash. The file is moved to the trash folder on the volume containing the file using the same semantics as NSWorkspaceMoveOperation. If a file with the same name currently exists in the trash folder, the new file is renamed. If no trash folder exists on the volume containing the file, the operation fails.

6.26.63 NSWorkspaceScreensDidSleepNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted when the machine's screen goes to sleep.
The notification object is the shared NSWorkspace instance. The notification does not contain a userInfo dictionary.

Few applications are likely to be interested in this notification, but they may be useful for certain hardware-based drawing decisions, for example when using OpenGL.

Available in Mac OS X v10.6 and later.

6.26.64 NSWorkspaceScreensDidWakeNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted when the machine's screens wake.
The notification object is the shared NSWorkspace instance. The notification does not contain a userInfo dictionary.

Few applications are likely to be interested in this notification, but they may be useful for certain hardware-based drawing decisions, for example when using OpenGL.

Available in Mac OS X v10.6 and later.

6.26.65 NSWorkspaceSessionDidBecomeActiveNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted after a user session is switched in. This allows an application to re-enable some processing when a switched out session gets switched back in, for example.
The notification object is the shared NSWorkspace instance. The notification does not contain a userInfo dictionary.

Available in Mac OS X v10.3 and later.

6.26.66 NSWorkspaceSessionDidResignActiveNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted before a user session is switched out. This allows an application to disable some processing when its user session is switched out, and re-enable when that session gets switched back in, for example.
The notification object is the shared NSWorkspace instance. The notification does not contain a userInfo dictionary.

If an application is launched in an inactive session, NSWorkspaceSessionDidResignActiveNotification is sent after NSApplicationWillFinishLaunchingNotification and before sending NSApplicationDidFinishLaunching-Notification.

Available in Mac OS X v10.3 and later.

6.26.67 NSWorkspaceVolumeLocalizedNameKey as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the userinfo dictionary for the NSWorkspaceDidRenameVolumeNotification notification.
Notes:

String containing the user-visible name of the volume.
Available in Mac OS X v10.6 and later.

6.26.68 NSWorkspaceVolumeOldLocalizedNameKey as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the userinfo dictionary for the NSWorkspaceDidRenameVolumeNotification notification.
Notes:

String containing the old user-visible name of the volume
Available in Mac OS X v10.6 and later.

6.26.69 NSWorkspaceVolumeOldURLKey as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the userinfo dictionary for the NSWorkspaceDidRenameVolumeNotification notification.
Notes:

URL containing the old mount path of the volume
Available in Mac OS X v10.6 and later.

6.26.70 NSWorkspaceVolumeURLKey as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the userinfo dictionary for the NSWorkspaceDidRenameVolumeNotification notification.
Notes:

URL containing the mount path of the volume.
Available in Mac OS X v10.6 and later.

6.26.71 NSWorkspaceWillLaunchApplicationNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted when the Finder is about to launch an application.
The notification object is the shared NSWorkspace instance. In Mac OS X v10.6 and later the userInfo dictionary contains the NSWorkspaceApplicationKey key with a corresponding instance of NSRunningApplication that represents the affected application.

Available in Mac OS X v10.0 and later.

6.26.72 NSWorkspaceWillPowerOffNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted when the user has requested a logout or that the machine be powered off.
The notification object is the shared NSWorkspace instance. This notification does not contain a userInfo dictionary.
Available in Mac OS X v10.0 and later.

6.26.73 NSWorkspaceWillSleepNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted before the machine goes to sleep. An observer of this message can delay sleep for up to 30 seconds while handling this notification.
The notification object is the shared NSWorkspace instance. The notification does not contain a userInfo dictionary.

Available in Mac OS X v10.3 and later.

6.26.74 NSWorkspaceWillUnmountNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Posted when the Finder is about to unmount a device.
This notification will not be delivered if a volume was forcibly and immediately made unavailable, such as when a FireWire drive is simply unplugged, because there is no chance to deliver it before the volume becomes unavailable.

The notification object is the shared NSWorkspace instance. The userInfo dictionary contains a key "NSDevicePath" that returns the path where the device was mounted, as a string.
Available in Mac OS X v10.0 and later.

6.26.75 openFile(file as folderitem) as boolean

Plugin Version: 8.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Opens the specified file specified using the default application associated with its type.
Example:

```
dim f as FolderItem

f=SpecialFolder.Desktop.Child("test.txt")

if NSWorkspaceMBS.openFile(f) then
MsgBox "Ok"
else
MsgBox "failed"
end if
```

Notes:

Returns true if the file was successfully opened; otherwise, false.
The sending application is deactivated before the request is sent.
See also:

- 6.26.76 openFile(file as folderitem, appname as string) as boolean 520
- 6.26.77 openFile(file as folderitem, appname as string, Deactivate as boolean) as boolean 521

6.26.76 openFile(file as folderitem, appname as string) as boolean

Plugin Version: 8.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Opens a file using the specified application.
Example:

```
dim f as FolderItem
f=SpecialFolder.Desktop.Child("test.txt")
```

```
if NSWorkspaceMBS.openFile(f,"BBEdit") then
MsgBox "Ok"
else
MsgBox "failed"
end if
```

Notes:

Returns true if the file was successfully opened; otherwise, false.

The appName parameter need not be specified with a full path and, in the case of an application wrapper, may be specified with or without the .app extension, as described in "Use of .app Extension". The sending application is deactivated before the request is sent.
See also:

- 6.26.75 openFile(file as folderitem) as boolean 520
- 6.26.77 openFile(file as folderitem, appname as string, Deactivate as boolean) as boolean 521

6.26.77 openFile(file as folderitem, appname as string, Deactivate as boolean) as boolean

Plugin Version: 8.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Opens the specified file and optionally deactivates the sending application.
Example:

```
dim f as FolderItem = SpecialFolder.Desktop.Child("test.file")

if NSWorkspaceMBS.openFile(f,"BBEdit",true) then
MsgBox "Ok"
else
MsgBox "failed"
end if
```

Notes:

appName: The name of the application to use when opening the file.

flag: If true, the sending application is deactivated before the request is sent, allowing the opening application to become the active application.

Returns true if the file was successfully opened; otherwise, false.

The appName parameter need not be specified with a full path and, in the case of an application wrapper, may be specified with or without the .app extension, as described in "Use of .app Extension". If appName is nil, the default application for the file's type is used.
See also:

- 6.26.75 openFile(file as folderitem) as boolean 520
- 6.26.76 openFile(file as folderitem, appname as string) as boolean 520

6.26.78 openURL(url as string) as boolean

Plugin Version: 8.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Opens the location at the specified URL.
Example:

```
if NSWorkspaceMBS.openURL("http://www.apple.com") then
MsgBox "Ok"
else
MsgBox "failed"
end if
```

Notes: Returns true if the location was successfully opened; otherwise, false.
See also:

- 6.26.79 openURL(url as string, bundleIdentifier as string, options as Integer = & h00030000, AppleEventDescriptor as Variant = nil) as Boolean 522

6.26.79 openURL(url as string, bundleIdentifier as string, options as Integer = & h00030000, AppleEventDescriptor as Variant = nil) as Boolean

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Opens one or more files from an array of URLs.
Notes:

url: A URL for the application to open.
bundleIdentifier: A bundle identifier string or "" to use the default system bindings. This value corresponds to the value in the CFBundleIdentifier key of the application's Info.plist file. For example, the bundle identifier of the TextEdit application is com.apple.TextEdit.
options: Options to use when launching the application. Values for this parameter are described in constants.
descriptor: Additional options specified in an AppleEvent-style descriptor. For example, you could use this parameter to specify additional documents to open when the application is launched.

Returns true if the application was found and launched; otherwise, false.
See also:

• 6.26.78 openURL(url as string) as boolean 522

6.26.80 performFileOperation(operation as string, source as folderitem, destination as folderitem, files() as string, byref tag as Integer) as boolean

Plugin Version: 9.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Performs a file operation on a set of files in a particular directory.
Notes:

operation: The file operation to perform. The possible values for this parameter are described in "Constants."

source: The full path to the directory containing the files on which to operate.

destination: The full path to the destination directory of the operation.

files: An array of folderitems specifying the names of the files and directories to be manipulated. Each string must not contain any path information other than the name of the file or directory. In other words, all of the files and directories must be located in the source directory and not in one if its subdirectories.

tag: On input, a integer variable; on return, this variable contains a negative integer if the operation fails, 0 if he operation was performed synchronously and succeeded, or a positive integer if the operation was performed asynchronously. If the value is a positive integer, the value is a tag that identifies the requested file operation.

Return Value: True if the operation succeeded; otherwise, false.

Discussion:
Some operationssuch as moving, copying, and linking filesrequire a destination directory to be specified. If not, destination should be the empty string (""). Before this method returns, it posts an NSWorkspaceDidPerformFileOperationNotification to the NSWorkspace object's notification center.

6.26.81 preferredFilenameExtensionForType(typeName as string) as string

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the preferred filename extension for the specified Uniform Type Identifier.
Example:

```
MsgBox NSWorkspaceMBS.preferredFilenameExtensionForType("public.jpeg")
// "jpeg" in German
```

Notes: The appropriate filename extension for typeName, or "" if no extension could be determined.

6.26.82 selectFile(file as folderitem) as boolean

Plugin Version: 8.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Selects the file in the Finder.
Example:

```
dim f as FolderItem

f=SpecialFolder.Desktop.Child("test.txt")

if NSWorkspaceMBS.selectFile(f) then
MsgBox "Ok"
else
MsgBox "failed"
end if
```

Notes:

Returns true on success.

For Windows, please use WinOpenFolderAndSelectItemsMBS function.

6.26.83 setDesktopImageURL(file as folderitem, screen as NSScreenMBS, options as dictionary, byref error as NSErrorMBS) as boolean

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the desktop image for the given screen to the image at the specified URL.
Notes:

file: The image file. The file must not be nil.
screen: The screen to set the desktop image on.
options: The options dictionary may contain any of the Desktop Image Dictionary Keys (NSWorkspaceDesktopImageScalingKey, NSWorkspaceDesktopImageAllowClippingKey or NSWorkspaceDesktopImageFillColorKey), which control how the image is scaled on the screen.
error: A error that is returned by-reference if setting the image fails.

Returns true if the image was set as the desktop, otherwise false. If false is returned, the error parameter provides additional information.

You should not present a user interface for picking the options. Instead, choose appropriate defaults and

allow the user to adjust them in the System Preference Pane.

Available in Mac OS X v10.6 and later.

6.26.84 setIcon(image as NSImageMBS, file as folderitem, flags as Integer) as boolean

Plugin Version: 8.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the icon for the file or directory at the specified path.
Example:

```
dim f as FolderItem
dim p as Picture
dim img as NSImageMBS

f=SpecialFolder.Desktop.Child("test.txt")

p=newPicture(128,128,32)
p.Graphics.ForeColor=rgb(0,128,0)
p.Graphics.fillrect 0,0,128,128
p.Graphics.ForeColor=rgb(255,0,0)
p.Graphics.filloval 0,0,128,128

img=new NSImageMBS(p)

if NSWorkspaceMBS.setIcon(img,f,0) then
MsgBox "Ok. Icon may not be visible directly. Maybe you make a copy of the file to see it directly?"
else
MsgBox "failed"
end if
```

Notes:

image: The image to use as the icon for the file or directory.
file: The full path of the file or directory.
flags: The icon representations to generate from the image. You specify this value by combining the appropriate NSWorkspaceIconCreationOptions constants, listed in Constants, using the C bitwise OR operator. Specify 0 if you want to generate icons in all available icon representation formats.

Returns true if the icon was set; otherwise, false.

The image can be an arbitrary image, with or without transparency. This image is automatically scaled (as needed) to generate the icon representations. The file or folder must exist and be writable by the user.

It is recommended that applications include the NSExclude10_4ElementsIconCreationOption option for compatibility with pre-Mac OS X v10.3 Finder. Icons that include the high resolution elements prevent custom icons from being displayed on earlier systems.

Before setting icon, make sure you close all Binarystream, Textoutputstream or other classes which may have the file open.
See also:

- 6.26.85 setIcon(image as NSImageMBS, path as string, flags as Integer) as boolean 526

6.26.85 setIcon(image as NSImageMBS, path as string, flags as Integer) as boolean

Plugin Version: 8.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the icon for the file or directory at the specified path.
Notes:

image: The image to use as the icon for the file or directory.
path: The full path of the file or directory.
flags: The icon representations to generate from the image. You specify this value by combining the appropriate NSWorkspaceIconCreationOptions constants, listed in Constants, using the C bitwise OR operator. Specify 0 if you want to generate icons in all available icon representation formats.

Returns true if the icon was set; otherwise, false.

The image can be an arbitrary image, with or without transparency. This image is automatically scaled (as needed) to generate the icon representations. The file or folder must exist and be writable by the user.

It is recommended that applications include the NSExclude10_4ElementsIconCreationOption option for compatibility with pre-Mac OS X v10.3 Finder. Icons that include the high resolution elements prevent custom icons from being displayed on earlier systems.

Before setting icon, make sure you close all Binarystream, Textoutputstream or other classes which may have the file open.
See also:

- 6.26.84 setIcon(image as NSImageMBS, file as folderitem, flags as Integer) as boolean 525

6.26.86 showSearchResultsForQueryString(queryString as string) as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Displays a Spotlight search results window in Finder for the specified query string.

Notes:

Returns true if the communication with Finder was successful, otherwise false.

Finder becomes the active application, if possible. The user can further refine the search via the Finder user interface.

Available in Mac OS X v10.6 and later.

6.26.87 typeOfFile(File as folderitem, byref error as NSErrorMBS) as string

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the uniform type identifier of the specified file, if it can be determined.
Notes:

file: The absolute path of the file.
Error: If the Uniform Type Identifier of the file at absolutePath can't be determined, outError contains an NSError object that describes why.

Returns a string containing the uniform type identifier of the file at absoluteFilePath. If no UTI can be determined the return value is "".

If the file at the specified path is a symbolic link, the type of the symbolic link is returned.
See also:

- 6.26.88 typeOfFile(Path as string, byref error as NSErrorMBS) as string 527

6.26.88 typeOfFile(Path as string, byref error as NSErrorMBS) as string

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the uniform type identifier of the specified file, if it can be determined.
Notes:

file: The absolute path of the file.
Error: If the Uniform Type Identifier of the file at absolutePath can't be determined, outError contains an NSError object that describes why.

Returns a string containing the uniform type identifier of the file at absoluteFilePath. If no UTI can be determined the return value is "".

If the file at the specified path is a symbolic link, the type of the symbolic link is returned.
See also:

• 6.26.87 typeOfFile(File as folderitem, byref error as NSErrorMBS) as string 527

6.26.89 unmountAndEjectDevice(item as folderitem, byref e as NSErrorMBS) as boolean

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Unmounts and ejects the device at the specified path.
Example:

```
dim w as new NSWorkspaceMBS
dim disk as FolderItem = Volume(VolumeCount-1)

MsgBox disk.Name

dim e as NSErrorMBS
if w.unmountAndEjectDevice(disk, e) then
MsgBox "OK"
else
MsgBox "Error: "+e.localizedDescription
end if
```

Notes:

Returns true if the volume was unmounted and ejected successfully, otherwise false, for example, if the volume is not ejectable.
error: If the operation fails, this error contains more information about the failure.

6.26.90 URLForApplicationToOpenURL(url as string) as string

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the URL to the default application that would be used to open the given URL.
Notes:

url: The URL of the file to open.

Returns the URL of the default application that would open the specified url. Returns "" if no application is able to open the url, or if the file url does not exist.

This is the programmatic equivalent of double clicking a document in the Finder.

6.26.91 URLForApplicationWithBundleIdentifier(bundleIdentifier as string) as string

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the URL for the application with the specified identifier.
Notes:

bundleIdentifier: A bundle identifier specifying an application.

Returns the URL of the application, or nil if no application has the bundle identifier.
This uses various (currently unspecified) heuristics in case multiple apps have the same bundle ID.

6.26.92 Constants

6.26.93 NSBundleExecutableArchitectureI386 = & h00000007

Plugin Version: 11.3. **Function:** One of the CPU Architecture constants.
Notes: Intel 32 bit.

6.26.94 NSBundleExecutableArchitecturePPC = & h00000012

Plugin Version: 11.3. **Function:** One of the CPU Architecture constants.
Notes: PPC 32 bit.

6.26.95 NSBundleExecutableArchitecturePPC64 = & h01000012

Plugin Version: 11.3. **Function:** One of the CPU Architecture constants.
Notes: PPC 64 bit.

6.26.96 NSBundleExecutableArchitectureX86_64 = & h01000007

Plugin Version: 11.3. **Function:** One of the CPU Architecture constants.
Notes: Intel 64 bit.

6.26.97 NSExclude10_4ElementsIconCreationOption = 4

Plugin Version: 8.1. **Function:** One of the possible constants you can use with SetIcon.

6.26.98 NSExcludeQuickDrawElementsIconCreationOption = 2

Plugin Version: 8.1. **Function:** One of the possible constants you can use with SetIcon.

6.26.99 NSWorkspaceLaunchAllowingClassicStartup = & h00020000

Plugin Version: 8.1. **Function:** One of the constants for the launch functions.

6.26.100 NSWorkspaceLaunchAndHide = & h00100000

Plugin Version: 8.1. **Function:** One of the constants for the launch functions.

6.26.101 NSWorkspaceLaunchAndHideOthers = & h00200000

Plugin Version: 8.1. **Function:** One of the constants for the launch functions.

6.26.102 NSWorkspaceLaunchAndPrint = 2

Plugin Version: 8.1. **Function:** One of the constants for the launch functions.

6.26.103 NSWorkspaceLaunchAsync = & h00010000

Plugin Version: 8.1. **Function:** One of the constants for the launch functions.

6.26.104 NSWorkspaceLaunchDefault = & h00030000

Plugin Version: 8.1. **Function:** One of the constants for the launch functions.

6.26.105 NSWorkspaceLaunchInhibitingBackgroundOnly = & h00000080

Plugin Version: 8.1. **Function:** One of the constants for the launch functions.

6.26.106 NSWorkspaceLaunchNewInstance = & h00080000

Plugin Version: 8.1. **Function:** One of the constants for the launch functions.

6.26.107 NSWorkspaceLaunchPreferringClassic = & h00040000

Plugin Version: 8.1. **Function:** One of the constants for the launch functions.

6.26.108 NSWorkspaceLaunchWithoutActivation = & h00000200

Plugin Version: 8.1. **Function:** One of the constants for the launch functions.

6.26.109 NSWorkspaceLaunchWithoutAddingToRecents = & h00000100

Plugin Version: 8.1. **Function:** One of the constants for the launch functions.

Chapter 7

Cocoa Controls

7.1 class Control

7.1.1 class Control

Plugin Version: 9.7, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The built in Control class in REALbasic.

7.1.2 Methods

7.1.3 NSControlMBS as NSControlMBS

Plugin Version: 12.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Creates a NSControlMBS object for the given control.
Example:

```
BevelButton1.NSControlMBS.StringValue = "Hello"
```

Notes: This way you can manipulate Cocoa controls directly.

7.2 class CustomNSTextFieldCellMBS

7.2.1 class CustomNSTextFieldCellMBS

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The class to customize cells.
Notes: Subclass of the NSTextFieldCellMBS class.

7.2.2 Methods

7.2.3 Constructor

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor.

7.2.4 superDrawWithFrame(frame as NSRectMBS, view as NSViewMBS)

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Calls drawWithFrame on super class.
Notes: This is for calling in DrawWithFrame event.

7.2.5 Events

7.2.6 cellSize(size as NSSizeMBS) as NSSizeMBS

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Return a custom cell size.
Notes:

If not implemented, we call through to super.cellSize.
We provide super.cellSize in size parameter.

7.2.7 Clone(clonedCell as NSTextFieldCellMBS) as CustomNSTextFieldCellMBS

Plugin Version: 17.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Requests a clone of the object.
Notes:

This event is called when the system needs a clone of the object.
Please create a new object, keep a reference and return it.

SuperClone provides the cloned object, which we use together with the xojo object you return.

7.2.8 didDrawWithFrame(cellFrame as NSRectMBS, controlView as NSViewMBS)

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Event called after drawWithFrame run.

7.2.9 drawWithFrame(cellFrame as NSRectMBS, controlView as NSViewMBS) as boolean

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Event to replace drawWithFrame.
Notes: If false is returned or not implemented, we call super.drawWithFrame.

7.2.10 fieldEditorForView(controlView as NSViewMBS) as NSTextViewMBS

Plugin Version: 17.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns a custom field editor for editing in the view.
Notes:

ControlView: The view containing cells that require a custom field editor.

Returns a custom field editor. The field editor must have fieldEditor set to true.

This is an override point for NSCell subclasses designed to use their own custom field editors. This message is sent to the selected cell of ControlView using the NSWindow method in fieldEditor.

Returning non-nil from this method indicates skipping the standard field editor querying processes including windowWillReturnFieldEditor delegation.
The default implementation returns nil.

7.2.11 imageRectForBounds(rect as NSRectMBS) as NSRectMBS

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event for imageRectForBounds method.

7.2.12 selectWithFrame(rect as NSRectMBS, controlView as NSViewMBS, text as NSTextMBS, theDelegate as Variant, selStart as Integer, selLength as Integer) as boolean

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event for selectWithFrame method.
Notes: If you return false, we call super.selectWithFrame.

7.2.13 setUpFieldEditorAttributes(textObj as NSTextMBS, superFieldEditor as NSTextMBS) as NSTextMBS

Plugin Version: 17.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sets up the field editor. You never invoke this method directly; by overriding it, however, you can customize the field editor.
Notes: When you override this method, you should generally invoke the implementation of super and return the textObj argument. For information on field editors, see Using the Windows Field Editor.

7.2.14 titleRectForBounds(rect as NSRectMBS) as NSRectMBS

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event for titleRectForBounds method.
Notes: If you return nil, we call super.titleRectForBounds.

7.3 class NSActionCellMBS

7.3.1 class NSActionCellMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An NSActionCell defines an active area inside a control (an instance of NSControl or one of its subclasses).
Notes:

As an NSControl's active area, an NSActionCell does three things: it usually performs display of text or an icon; it provides the NSControl with a target and an action; and it handles mouse (cursor) tracking by properly highlighting its area and sending action messages to its target based on cursor movement.
Subclass of the NSCellMBS class.

7.3.2 Methods

7.3.3 Constructor(image as NSImageMBS)

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new Cell object with an image.
Example:

```
dim pic as Picture = LogoMBS(500)
dim n as NSImageMBS = new NSImageMBS(pic)
dim c as new NSActionCellMBS(n)

Backdrop = c.image.CopyPictureWithMask
Title = c.classPath
```

See also:

- 7.3.4 Constructor(text as string) 537

7.3.4 Constructor(text as string)

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new Cell object with a text.
Example:

```
dim c as new NSActionCellMBS("Hello")
MsgBox c.StringValue
```

See also:

• 7.3.3 Constructor(image as NSImageMBS) 537

7.4 class NSButtonCellMBS

7.4.1 class NSButtonCellMBS

Plugin Version: 14.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The NSButtonCell class is a subclass of NSActionCell used to implement the user interfaces of push buttons, checkboxes (switches), and radio buttons.
Notes:

It can also be used for any other region of a view that's designed to send a message to a target when clicked. The NSButton subclass of NSControl uses a single NSButtonCell.

The NSButtonCell class implements the user interface of NSButton.

Setting the integer, float, double, or object value of an NSButtonCell object results in a call to setState with the value converted to integer. In the case of setObjectValue, nil is equivalent to 0, and a non-nil object that doesn't respond to intValue sets the state to 1. Otherwise, the state is set to the object's intValue. Similarly, querying the integer, float, double, or object value of an NSButtonCell returns the current state in the requested representation. In the case of objectValue, this is an NSNumber containing true for on, false for off, and integer value -1 for the mixed state.

For more information on the behavior of NSButtonCell, see the NSButton and NSMatrix class specifications, and Button Programming Topics.
Subclass of the NSActionCellMBS class.

7.4.2 Methods

7.4.3 Constructor(image as NSImageMBS)

Plugin Version: 14.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new Cell object with an image.
Example:

```
dim pic as Picture = LogoMBS(500)
dim n as NSImageMBS = new NSImageMBS(pic)
dim c as new NSButtonCellMBS(n)

Backdrop = c.image.CopyPictureWithMask
Title = c.classPath
```

See also:

• 7.4.4 Constructor(text as string) 540

7.4.4 Constructor(text as string)

Plugin Version: 14.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new Cell object with a text.
Example:

```
dim c as new NSButtonCellMBS("Hello")
MsgBox c.StringValue
```

See also:

• 7.4.3 Constructor(image as NSImageMBS) 539

7.4.5 Properties

7.4.6 alternateImage as NSImageMBS

Plugin Version: 14.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The image the button displays in its alternate state and, if necessary, redraws its contents.
Notes:

Note that some button types don't display an alternate image.
(Read and Write property)

7.4.7 alternateTitle as String

Plugin Version: 14.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The title the button displays when it's in its alternate state.
Notes:

Note that some button types don't display an alternate title.
(Read and Write property)

7.4.8 attributedAlternateTitle as NSAttributedStringMBS

Plugin Version: 14.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The string the button displays when it's in its alternate state to the given attributed string.
Notes:

Note that some button types don't display an alternate title.

Graphics attributes that are set on the cell (backgroundColor, alignment, font, etc.) are overridden when corresponding properties are set for the attributed string.
(Read and Write property)

7.4.9 attributedTitle as NSAttributedStringMBS

Plugin Version: 14.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The string the button displays when it's in its normal state to the given attributed string and redraws the button.
Notes:

The title is always shown on buttons that don't use their alternate contents when highlighting or displaying their alternate state.

Graphics attributes configured for the cell (backgroundColor, alignment, font, etc.) are overridden when corresponding properties are set for the attributed string.
(Read and Write property)

7.4.10 backgroundColor as NSColorMBS

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The background color for the button.
Notes: (Read and Write property)

7.4.11 imageDimsWhenDisabled as Boolean

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether to dim image when button is disabled.
Notes:

When disabled, the image and text of an NSButtonCell are normally dimmed with gray.
Radio buttons and switches use (imageDimsWhenDisabled = false) so only their text is dimmed.
(Read and Write property)

7.4.12 imagePosition as Integer

Plugin Version: 14.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The position of the receiver's image relative to its title.

Notes: (Read and Write property)

7.4.13 imageScaling as Integer

Plugin Version: 14.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The scale factor for the receiver's image.
Notes:

Available in OS X v10.5 and later.
(Read and Write property)

7.4.14 showsBorderOnlyWhileMouseInside as Boolean

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether to show border only while mouse is inside.
Notes: (Read and Write property)

7.4.15 sound as Variant

Plugin Version: 14.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The sound that's played when the user presses the receiver.
Notes:

The sound is played during a mouse-down event, such as NSLeftMouseDown.
Value is a NSSoundMBS object.
(Read and Write property)

7.5 class NSCellMBS

7.5.1 class NSCellMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The NSCell class provides a mechanism for displaying text or images in an NSView object without the overhead of a full NSView subclass.
Notes: It's used heavily by most of the NSControl classes to implement their internal workings.

7.5.2 Methods

7.5.3 acceptsFirstResponder as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value that indicates whether the receiver accepts first responder status.
Notes: The default value is true if the receiver is enabled. Subclasses may override this method to return a different value.

7.5.4 calcDrawInfo(theRect as NSRectMBS)

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Recalculates the cell geometry.
Notes:

Objects (such as controls) that manage NSCell objects generally maintain a flag that informs them if any of their cells have been modified in such a way that the location or size of the cell should be recomputed. If so, calcSize method of NSControl is automatically invoked prior to the display of the cell, and that method invokes the calcDrawInfo method of the cell.
The default implementation of this method does nothing.

7.5.5 cellSize as NSSizeMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the minimum size needed to display the receiver.
Notes:

Returns the size of the cell, or the size (10000, 10000) if the receiver is not a text or image cell. If the cell is an image cell but no image has been set, returns NSZeroSize.
This method takes into account of the size of the image or text within a certain offset determined by the border type of the cell.

7.5.6 cellSizeForBounds(theRect as NSRectMBS) as NSSizeMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the minimum size needed to display the receiver, constraining it to the specified rectangle.
Notes:

aRect: The size of the cell, or the size of the aRect parameter if the cell is not a text or image cell. If the cell is an image cell but no image has been set, returns an empty size.

This method takes into account of the size of the image or text within a certain offset determined by the border type of the cell. If the receiver is of text type, the text is resized to fit within aRect (as much as aRect is within the bounds of the cell).

7.5.7 compare(otherCell as NSCellMBS) as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Compares the string values of the receiver another cell, disregarding case.
Notes:

otherCell: The cell to compare against the receiver. This parameter must be of type NSCell; if it is not, this method raises NSBadComparisonException.

This value must not be nil. If the value is nil, the behavior is undefined and may change in future versions of Mac OS X.

Returns NSOrderedAscending if the string value of the receiver precedes the string value of otherCell in lexical ordering, NSOrderedSame if the string values are equivalent in lexical value, and NSOrderedDescending string value of the receiver follows the string value of otherCell in lexical ordering.

7.5.8 Constructor(image as NSImageMBS)

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new Cell object with an image.
Example:

```
dim pic as Picture = LogoMBS(500)
dim n as NSImageMBS = new NSImageMBS(pic)
dim c as new NSCellMBS(n)

Backdrop = c.image.CopyPictureWithMask
Title = c.classPath
```

See also:

- 7.5.9 Constructor(text as string) 545

7.5.9 Constructor(text as string)

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new Cell object with a text.
Example:

```
dim c as new NSCellMBS("Hello")
MsgBox c.StringValue
```

See also:

- 7.5.8 Constructor(image as NSImageMBS) 544

7.5.10 defaultFocusRingType as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the default type of focus ring for the receiver.
Notes:

Use this constants:

NSFocusRingTypeDefault	= 0	The default focus ring type for NSView or NSCell.
NSFocusRingTypeNone	= 1	No focus ring. If you set the focus ring type to this value, NSView and NSCell will not draw any focus ring.
NSFocusRingTypeExterior	= 2	The standard Aqua focus ring.

7.5.11 defaultMenu as NSMenuMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the default menu for instances of the receiver.
Notes: Returns the default menu. The NSCell implementation of this method returns nil.

7.5.12 drawingRectForBounds(theRect as NSRectMBS) as NSRectMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the rectangle within which the receiver draws itself.
Notes:

theRect: The bounding rectangle of the receiver.
Returns the rectangle in which the receiver draws itself. This rectangle is slightly inset from the one in theRect.

7.5.13 highlightColorWithFrame(theRect as NSRectMBS, controlView as NSViewMBS) as NSColorMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Redraws the receiver with the specified highlight setting.
Notes:

theRect: The bounding rectangle of the receiver.
controlView: The control that manages the cell.

Returns the color the receiver uses when drawing the selection highlight.
You should not assume that a cell would necessarily want to draw itself with the value returned from selectedControlColor. A cell may wish to draw with different a selection highlight color depending on such things as the key state of its controlView.

7.5.14 imageRectForBounds(theRect as NSRectMBS) as NSRectMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the rectangle in which the receiver draws its image.
Notes:

theRect: The bounding rectangle of the receiver.

The rectangle in which the receiver draws its image. This rectangle is slightly offset from the one in theRect.

7.5.15 isEntryAcceptable(aString as string) as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns whether a string representing a numeric or date value is formatted in a suitable way for the cell's entry type.
Notes: This method is being deprecated in favor of a new class of formatter objects. For more information, see NSFormatter. This documentation is provided only for developers who need to modify older applications

7.5.16 mnemonic as string

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the character in the receiver's title that appears underlined for use as a mnemonic.
Notes: A string containing the mnemonic character, or an empty string if no mnemonic character is set.

7.5.17 nextState as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The receiver's next state.
Notes: If the receiver has three states, it cycles through them in this order: on, off, mixed, on, and so forth. If the receiver has two states, it toggles between them.

7.5.18 performClick

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Simulates a single mouse click on the receiver.
Notes:

This method performs the receiver's action on its target. The receiver must be enabled to perform the action. If the receiver's control view is valid, that view is used as the sender; otherwise, the value in sender is used.

The receiver of this message must be a cell of type NSActionCell. This method raises an exception if the action message cannot be successfully sent.

7.5.19 prefersTrackingUntilMouseUp as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value that indicates whether tracking stops when the cursor leaves the cell.
Notes: The default implementation returns false. Subclasses may override this method to return a different value.

7.5.20 sendActionOn(mask as Integer) as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the conditions on which the receiver sends action messages to its target.
Notes:

mask: A bit mask containing the conditions for sending the action. The only conditions that are actually checked are associated with the NSLeftMouseDownMask, NSLeftMouseUpMask, NSLeftMouseDragged-

Mask, and NSPeriodicMask bits.

Returns a bit mask containing the previous settings. This bit mask uses the same values as specified in the mask parameter.

You use this method during mouse tracking when the mouse button changes state, the mouse moves, or if the cell is marked to send its action continuously while tracking. Because of this, the only bits checked in mask are NSLeftMouseDownMask, NSLeftMouseUpMask, NSLeftMouseDraggedMask, and NSPeriodicMask, which are declared in the NSEvent class reference.

You can use the setContinuous method to turn on the flag corresponding to NSPeriodicMask or NSLeftMouseDraggedMask, whichever is appropriate to the given subclass of NSCell.

7.5.21 setNextState

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Changes the state of the receiver to its next state.
Notes: If the receiver has three states, it cycles through them in this order: on, off, mixed, on, and so forth. If the receiver has two states, it toggles between them.

7.5.22 setTitleWithMnemonic(stringWithAmpersand as string)

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the title of the receiver with one character in the string denoted as an access key.
Notes:

stringWithAmpersand: The new title of the cell. One character in the string should be preceded by an ampersand (&) character. The character that follows becomes the mnemonic character for the title.
Mnemonics are not supported in Mac OS X.

7.5.23 titleRectForBounds(theRect as NSRectMBS) as NSRectMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the rectangle in which the receiver draws its title text.
Notes: If the receiver is a text-type cell, this method resizes the drawing rectangle for the title (theRect) inward by a small offset to accommodate the cell border. If the receiver is not a text-type cell, the method does nothing.

7.5.24 wantsNotificationForMarkedText as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value that indicates whether the field editor initiated by the receiver should post text change notifications.
Notes: Returns true if the field editor initiated by the receiver should post text change notifications (NSTextDidChangeNotification) while editing marked text; otherwise, they are delayed until the marked text confirmation.

7.5.25 Properties

7.5.26 alignment as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The alignment of text in the receiver..
Notes:

The alignment of text in the receiver (one of the following constants: NSLeftTextAlignment, NSRightTextAlignment,NSCenterTextAlignment, NSJustifiedTextAlignment, NSNaturalTextAlignment).
The default value is NSNaturalTextAlignment.
(Read and Write property)

7.5.27 allowsEditingTextAttributes as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver allows user editing of textual attributes.
Notes: (Read and Write property)

7.5.28 allowsMixedState as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver supports three states.
Notes:

Valus is true if the receiver supports all three states (on, off, and mixed), otherwise false (the receiver supports only the on and off states).
(Read and Write property)

7.5.29 allowsUndo as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver assumes responsibility for undo operations.
Notes:

By default, the NSTextFieldCell class uses this feature to handle undo operations for edited text. Other controls set a value that is appropriate for their implementation.
Available in Mac OS X v10.4 and later.
(Read and Write property)

7.5.30 attributedStringValue as NSAttributedStringMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The value of the receiver's cell as an attributed string using the receiver's formatter object (if one exists).
Notes:

The textual attributes are the default paragraph style, the receiver's font and alignment, and whether the receiver is enabled and scrollable.

For Mac OS X v10.3 and later: If you use a class that responds to the selector attributedStringValue for the object value of a cell, then the cell will use that method to fetch the string to draw rather than using stringValue.
(Read and Write property)

7.5.31 backgroundStyle as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the background style for the receiver.
Notes:

The background describes the surface the cell is drawn onto in drawWithFrame A control typically sets this before it asks the cell to draw. A cell may draw differently based on background characteristics. For example, a tableview drawing a cell in a selected row might set cell.backgroundStyle=NSBackgroundStyleDark. A text cell might decide to render its text white as a result. A rating-style level indicator might draw its stars white instead of gray.
Available in Mac OS X v10.5 and later.
(Read and Write property)

7.5.32 baseWritingDirection as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The initial writing direction used to determine the actual writing direction for text.
Notes:

The default value is NSWritingDirectionNatural.
The Text system uses this value as a hint for calculating the actual direction for displaying Unicode characters. You should not need to call this method directly.
(Read and Write property)

7.5.33 Bezeled as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver has a bezeled border.
Notes: (Read and Write property)

7.5.34 Bordered as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver has a plain border.
Notes: (Read and Write property)

7.5.35 className as string

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The name of this NSCell class.
Example:

```
dim c as new NSActionCellMBS("Hello")
MsgBox c.className // shows "NSActionCell"
```

Notes: (Read only property)

7.5.36 classPath as string

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The path of this NSCell class.
Example:

```
dim c as new NSActionCellMBS("Hello")
MsgBox c.classPath // shows "NSActionCell:NSCell:NSObject"
```

Notes:

Useful for debugging to know what super classes the view has.
(Read only property)

7.5.37 Continuous as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver's cell sends its action message continuously to its target during mouse tracking.
Notes: (Read and Write property)

7.5.38 controlSize as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The size of the receiver.
Notes:

Can be NSRegularControlSize, NSMiniControlSize or NSSmallControlSize.
(Read and Write property)

7.5.39 controlTint as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The receiver's control tint.
Notes:

Can be NSGraphiteControlTint, NSBlueControlTint, NSClearControlTint or NSDefaultControlTint.
(Read and Write property)

7.5.40 controlView as NSViewMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The receiver's control view.
Notes:

The control view represents the control currently being rendered by the cell.
(Read and Write property)

7.5.41 doubleValue as Double

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The value of the receiver's cell as a double-precision floating-point number.
Notes:

The value of the cell interpreted as a double-precision floating-point number. If the receiver is not a text-type cell or the cell value is not scannable, returns 0.
(Read and Write property)

7.5.42 Editable as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver is editable.
Notes: (Read and Write property)

7.5.43 Enabled as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver is enabled or disabled.
Notes: (Read and Write property)

7.5.44 floatValue as Double

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The value of the receiver's cell as a single-precision floating-point number.
Notes:

Returns the value of the cell interpreted as a single-precision floating-point number. If the receiver is not a text-type cell or the cell value is not scannable, returns 0.
(Read and Write property)

7.5.45 font as NSFontMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The font used to display text in the receiver.

Notes:

The receiver's current font, or nil if the receiver is not a text-type cell.
(Read and Write property)

7.5.46 Handle as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal NSCell reference.
Notes: (Read and Write property)

7.5.47 hasValidObjectValue as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value that indicates whether the receiver has a valid object value.
Notes:

A valid object value is one that the receiver's formatter can "understand." Objects are always assumed to be valid unless they are rejected by the formatter.
(Read only property)

7.5.48 Highlighted as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver is highlighted.
Notes: (Read and Write property)

7.5.49 image as NSImageMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The image displayed by the receiver (if any).
Notes:

The image displayed by the receiver, or nil if the receiver is not an image-type cell.
(Read and Write property)

7.5.50 importsGraphics as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the text of the receiver can contain imported graphics.
Notes:

true if the receiver's text is in the RTFD format and supports imported graphics, otherwise false.
(Read and Write property)

7.5.51 interiorBackgroundStyle as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the interior background style for the receiver.
Notes:

The interior background style describes the surface drawn onto in drawInteriorWithFrame:inView:. This is often the same as the backgroundStyle, but a button that draws a bezel would have a different interiorBackgroundStyle.
This is both an override point and a useful method to call. In a custom button with a custom bezel you can override this method to describe that surface. A cell that has custom interior drawing might query this method to help pick an image that looks good on the cell. Calling this method gives you some independence from changes in framework art style.
Available in Mac OS X v10.5 and later.
(Read only property)

7.5.52 intValue as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The receiver's value as an integer.
Notes:

The value of the cell interpreted as an integer. If the receiver is not a text-type cell or the cell value is not scannable, returns 0.
On Mac OS X v10.5 and later, you should use integerValue instead.
(Read and Write property)

7.5.53 isOpaque as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value that indicates whether the receiver is opaque (nontransparent).
Notes: (Read only property)

7.5.54 keyEquivalent as string

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the key equivalent to clicking the cell.
Notes:

Subclasses can override this method to return a string with a valid character for the key equivalent.
(Read only property)

7.5.55 lineBreakMode as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The line break mode currently used when drawing text.
Notes:

The line break mode the receiver currently uses when drawing text (one of the following constants: NSLineBreakByWordWrapping, NSLineBreakByCharWrapping, NSLineBreakByClipping, NSLineBreakByTruncatingHead, NSLineBreakByTruncatingTail, or NSLineBreakByTruncatingMiddle).
Available in Mac OS X v10.4 and later.
(Read and Write property)

7.5.56 menu as NSMenuMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The receiver's contextual menu.
Notes:

The receiver's contextual menu, or nil if no menu is assigned.
(Read and Write property)

7.5.57 mnemonicLocation as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The position of the underlined mnemonic character in the receiver's title.
Notes:

A zero-based index into the receiver's title string indicating the position of the character. If there is no mnemonic character, this method returns NSNotFound.
Mnemonics are not supported in Mac OS X.
(Read and Write property)

7.5.58 refusesFirstResponder as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver should not become the first responder.
Notes:

To find out whether the receiver can become first responder at this time, use the method acceptsFirstResponder.
(Read and Write property)

7.5.59 Scrollable as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver scrolls excess text past the cell's bounds.
Notes: (Read and Write property)

7.5.60 Selectable as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the text of the receiver can be selected.
Notes: (Read and Write property)

7.5.61 sendsActionOnEndEditing as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver's NSControl object sends its action message whenever the user finishes editing the cell's text.
Notes:

If this method returns true, the receiver's NSControl object sends its action message when the user does one of the following:

- Presses the Return key
- Presses the Tab key to move out of the field
- Clicks another text field

If it returns false, the cell's NSControl object sends its action message only when the user presses the Return key.
(Read and Write property)

7.5.62 showsFirstResponder as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver should draw some indication of its first responder status.
Notes:

The NSCell class itself does not draw a first-responder indicator. Subclasses may use the returned value to determine whether or not they should draw one, however.
(Read and Write property)

7.5.63 state as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The receiver's state.
Notes:

Cells can have two or three states. If the receiver has two states, it returns either NSOffState (the normal or unpressed state) or NSOnState (the alternate or pressed state). If it has three, it may also return NSMixedState, indicating the feature is in effect somewhere.
To check whether the receiver uses the mixed state, use the method allowsMixedState.
Note that the value state returns may not be the same value you passed into setState.
(Read and Write property)

7.5.64 stringValue as string

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The value of the receiver's cell as a string.
Notes:

If no formatter exists and the cell's value is a string, this method returns the value as a plain, attributed, or localized formatted string. If the value is not a string or cannot be converted to one, this method returns an empty string.

For Mac OS X v10.3 and later: If you use a class that responds to the selector attributedStringValue for the object value of a cell, the cell uses that method to fetch the string to draw rather than the stringValue method.
(Read and Write property)

7.5.65 tag as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The tag identifying the receiver.
Notes:

The tag value. The NSCell implementation of this method returns 1.
Tags allow you to identify particular cells. Tag values are not used internally; they are only changed by external invocations of setTag:. You typically set tag values in Interface Builder and use them at runtime in your application. When you set the tag of a control with a single cell in Interface Builder, it sets the tags of both the control and the cell to the same value as a convenience.
(Read and Write property)

7.5.66 title as string

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The receiver's title.
Notes:

Subclasses (such as NSButtonCell) may override this method to return a different value.
(Read and Write property)

7.5.67 truncatesLastVisibleLine as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value indicating whether the receiver truncates and adds the ellipsis character to the last visible line if the text doesn't fit into the cell bounds.
Notes:

The line break mode must be either NSLineBreakByWordWrapping or NSLineBreakByCharWrapping. Otherwise, this setting is ignored.
Available in Mac OS X v10.5 and later.
(Read and Write property)

7.5.68 type as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The type of the cell, changing it to a text cell, image cell, or null cell.
Notes:

If the cell is already the same type as the one specified in the aType parameter, this method does nothing. If aType is NSTextCellType, this method converts the receiver to a cell of that type, giving it a default title and setting the font to the system font at the default size. If aType is NSImageCellType, the cell type is not changed until you set a new non-nil image.
(Read and Write property)

7.5.69 userInterfaceLayoutDirection as Integer

Plugin Version: 16.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The layout direction of the user interface.
Notes:

This property specifies the general user interface layout flow directions. For subclasses that have multiple visual components in a single cell instance, this property should specify the directionality or flow of components.

NSUserInterfaceLayoutDirectionLeftToRight = 0
NSUserInterfaceLayoutDirectionRightToLeft = 1

Available in OS X v10.6 and later.
(Read and Write property)

7.5.70 usesSingleLineMode as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the text cell restricts layout and rendering of its content to a single line.
Notes:

If true, the cell ignores the return value from wraps, interprets NSLineBreakByWordWrapping and NSLineBreakByCharWrapping returned by lineBreakMode as NSLineBreakByClipping, and configures the field editor to ignore key binding commands that insert paragraph and line separators.

The field editor bound to a single line cell filters paragraph and line separator insertion from user actions. Cells in the single line mode use the fixed baseline layout. The text baseline position is determined solely by the control size regardless of content font style or size.
(Read and Write property)

7.5.71 wraps as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether text in the receiver wraps when its length exceeds the frame of the cell.
Notes:

If the text of the receiver is an attributed string value you must explicitly set the paragraph style line break mode. Calling this method with the value true is equivalent to calling the setLineBreakMode: method with the value NSLineBreakByWordWrapping.
(Read and Write property)

7.5.72 cellAttribute(aParameter as Integer) as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The value for the specified cell attribute.
Notes:

aParameter: The cell attribute whose value you want to get. Attributes include the receiver's current state and whether it is disabled, editable, or highlighted.

Returns the value for the cell attribute specified by aParameter.
(Read and Write computed property)

7.5.73 focusRingType as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The type of focus ring currently set for the receiver.
Notes:

You can disable a view's focus ring drawing by overriding this method so it always returns NSFocusRingTypeNone, or by calling setFocusRingType: with NSFocusRingTypeNone. You should only disable a view from drawing its focus ring if you want to draw your own focus ring, or if there isn't sufficient space to display a focus ring in the default location.
Available in Mac OS X v10.3 and later.
(Read and Write computed property)

7.5.74 Constants

7.5.75 NSAnyType = 0

Plugin Version: 9.6. **Function:** One of the constants specify how a cell formats numeric data.
Notes:

Any value is allowed.
Deprecated in Mac OS X v10.4 and later.

7.5.76 NSBackgroundStyleDark = 1

Plugin Version: 9.6. **Function:** One of the constants for background styles.
Notes:

The background is a dark color.
Light content contrasts well with this background.

Available in Mac OS X v10.5 and later.

7.5.77 NSBackgroundStyleLight = 0

Plugin Version: 9.6. **Function:** One of the constants for background styles.
Notes:

The background is a light color.
Dark content contrasts well with this background.
Available in Mac OS X v10.5 and later.

7.5.78 NSBackgroundStyleLowered = 3

Plugin Version: 9.6. **Function:** One of the constants for background styles.
Notes:

The background is intended to appear lower than the content drawn on it.
Content might need to be embossed.
Available in Mac OS X v10.5 and later.

7.5.79 NSBackgroundStyleRaised = 2

Plugin Version: 9.6. **Function:** One of the constants for background styles.
Example:

```
// ask for the textfield behind the label
dim n as NSTextFieldMBS = NSTextFieldMBS(label1.NSViewMBS)

// query cell
dim c as NSTextFieldCellMBS = n.cell

// and set background style
c.backgroundStyle = NSTextFieldCellMBS.NSBackgroundStyleRaised
```

Notes:

The background is intended to appear higher than the content drawn on it.
Content might need to be inset.
Available in Mac OS X v10.5 and later.

7.5.80 NSBlueControlTint = 1

Plugin Version: 9.6. **Function:** One of the constants specify a cell's tint.
Notes:

Aqua control tint
Available in Mac OS X v10.3 and later.

7.5.81 NSCellAllowsMixedState = 16

Plugin Version: 9.6. **Function:** One of the constants specify how a button behaves when pressed and how it displays its state.
Notes: Lets the cell's state be NSMixedState, as well as NSOffState and NSOnState.

7.5.82 NSCellChangesContents = 14

Plugin Version: 9.6. **Function:** One of the constants specify how a button behaves when pressed and how it displays its state.
Notes: If the cell's state is NSMixedState or NSOnState, displays the cell's alternate image.

7.5.83 NSCellDisabled = 0

Plugin Version: 9.6. **Function:** One of the constants specify how a button behaves when pressed and how it displays its state.
Notes: Does not let the user manipulate the cell.

7.5.84 NSCellEditable = 3

Plugin Version: 9.6. **Function:** One of the constants specify how a button behaves when pressed and how it displays its state.
Notes: Lets the user edit the cell's contents.

7.5.85 NSCellHasImageHorizontal = 12

Plugin Version: 9.6. **Function:** One of the constants specify how a button behaves when pressed and how it displays its state.
Notes:

Controls the position of the cell's image: places the image on the right of any text in the cell.
Together, NSCellHasImageOnLeftOrBottom, NSCellHasImageHorizontal, and NSCellHasOverlappingImage control the position of the cell's image and text. To place the image above, set none of them. To place the image below, set NSCellHasImageOnLeftOrBottom. To place the image to the right, set NSCellHasImageHorizontal. To place the image to the left, set NSCellHasImageHorizontal and NSCellHasImageOnLeftOrBottom. To place the image directly over, set NSCellHasOverlappingImage.

7.5.86 NSCellHasImageOnLeftOrBottom = 13

Plugin Version: 9.6. **Function:** One of the constants specify how a button behaves when pressed and how it displays its state.
Notes:

Controls the position of the cell's image: places the image on the left of or below any text in the cell.
See NSCellHasImageHorizontal for more details.

7.5.87 NSCellHasOverlappingImage = 11

Plugin Version: 9.6. **Function:** One of the constants specify how a button behaves when pressed and how it displays its state.
Notes:

Controls the position of the cell's image: places the image over any text in the cell.
See NSCellHasImageHorizontal for more details.

7.5.88 NSCellHighlighted = 5

Plugin Version: 9.6. **Function:** One of the constants specify how a button behaves when pressed and how it displays its state.
Notes: Draws the cell with a highlighted appearance. (Deprecated. Use Highlighted instead.)

7.5.89 NSCellHitContentArea = 1

Plugin Version: 9.6. **Function:** One of the constants are used by hitTestForEvent to determine the effect of an event.
Notes:

A content area in the cell.
Available in Mac OS X v10.5 and later.

7.5.90 NSCellHitEditableTextArea = 2

Plugin Version: 9.6. **Function:** One of the constants are used by hitTestForEvent to determine the effect of an event.
Notes:

An editable text area of the cell.
Available in Mac OS X v10.5 and later.

7.5.91 NSCellHitNone = 0

Plugin Version: 9.6. **Function:** One of the constants are used by hitTestForEvent to determine the effect of an event.
Notes:

An empty area, or did not hit in the cell.
Available in Mac OS X v10.5 and later.

7.5.92 NSCellHitTrackableArea = 4

Plugin Version: 9.6. **Function:** One of the constants are used by hitTestForEvent to determine the effect of an event.
Notes:

A trackable area in the cell.
Available in Mac OS X v10.5 and later.

7.5.93 NSCellIsBordered = 10

Plugin Version: 9.6. **Function:** One of the constants specify how a button behaves when pressed and how it displays its state.
Notes: Draws a border around the cell.

7.5.94 NSCellIsInsetButton = 15

Plugin Version: 9.6. **Function:** One of the constants specify how a button behaves when pressed and how it displays its state.
Notes:

Insets the cell's contents from the border.
By default, the cell's contents are inset by 2 points. This constant is ignored if the cell is unbordered.

7.5.95 NSCellLightsByBackground = 9

Plugin Version: 9.6. **Function:** One of the constants specify how a button behaves when pressed and how it displays its state.
Notes: If the cell is pushed in, changes the cell's background color from gray to white.

7.5.96 NSCellLightsByContents = 6

Plugin Version: 9.6. **Function:** One of the constants specify how a button behaves when pressed and how it displays its state.
Notes: If the cell is pushed in, displays the cell's alternate image.

7.5.97 NSCellLightsByGray = 7

Plugin Version: 9.6. **Function:** One of the constants specify how a button behaves when pressed and how it displays its state.
Notes: If the cell is pushed in, displays the cell's image as darkened.

7.5.98 NSCellState = 1

Plugin Version: 9.6. **Function:** One of the constants specify how a button behaves when pressed and how it displays its state.
Notes: The cell's state can be NSMixedState, NSOffState, or NSOnState.

7.5.99 NSChangeBackgroundCell = 8

Plugin Version: 9.6. **Function:** One of the constants specify how a button behaves when pressed and how it displays its state.
Notes: If the cell's state is NSMixedState or NSOnState, changes the cell's background color from gray to white.

7.5.100 NSChangeBackgroundCellMask = 8

Plugin Version: 9.6. **Function:** One of the constants specify what happens when a button is pressed or is displaying its alternate state.

Notes: Same as NSChangeGrayCellMask, but only background pixels are changed.

7.5.101 NSChangeGrayCell = 4

Plugin Version: 9.6. **Function:** One of the constants specify how a button behaves when pressed and how it displays its state.
Notes: If the cell's state is NSMixedState or NSOnState, displays the cell's image as darkened.

7.5.102 NSChangeGrayCellMask = 4

Plugin Version: 9.6. **Function:** One of the constants specify what happens when a button is pressed or is displaying its alternate state.
Notes: The button cell swaps the "control color" (the controlColor method of NSColor) and white pixels on its background and icon.

7.5.103 NSClearControlTint = 7

Plugin Version: 9.6. **Function:** One of the constants specify a cell's tint.
Notes:

Clear control tint
Available in Mac OS X v10.0 and later.

7.5.104 NSContentsCellMask = 1

Plugin Version: 9.6. **Function:** One of the constants specify what happens when a button is pressed or is displaying its alternate state.
Notes: The button cell displays its alternate icon and/or title.

7.5.105 NSDefaultControlTint = 0

Plugin Version: 9.6. **Function:** One of the constants specify a cell's tint.
Notes:

The current default tint setting.
Available in Mac OS X v10.0 and later.

7.5.106 NSDoubleType = 6

Plugin Version: 9.6. **Function:** One of the constants specify how a cell formats numeric data.
Notes:

Must be between FLT_MAX and FLT_MAX.
Deprecated in Mac OS X v10.4 and later.

7.5.107 NSFloatType = 3

Plugin Version: 9.6. **Function:** One of the constants specify how a cell formats numeric data.
Notes:

Must be between FLT_MAX and FLT_MAX.
Deprecated in Mac OS X v10.4 and later.

7.5.108 NSGraphiteControlTint = 6

Plugin Version: 9.6. **Function:** One of the constants specify a cell's tint.
Notes:

Graphite control tint
Available in Mac OS X v10.3 and later.

7.5.109 NSImageAbove = 5

Plugin Version: 9.6. **Function:** One of the constants specify the position of a button's image relative to its title.
Notes: The image is above the title.

7.5.110 NSImageBelow = 4

Plugin Version: 9.6. **Function:** One of the constants specify the position of a button's image relative to its title.
Notes: The image is below the title.

7.5.111 NSImageCellType = 2

Plugin Version: 9.6. **Function:** One of the constants specify how a cell represents its data (as text or as an image).
Notes: Cell displays images.

7.5.112 NSImageLeft = 2

Plugin Version: 9.6. **Function:** One of the constants specify the position of a button's image relative to its title.
Notes: The image is to the left of the title.

7.5.113 NSImageOnly = 1

Plugin Version: 9.6. **Function:** One of the constants specify the position of a button's image relative to its title.
Notes: The cell displays an image, but not a title.

7.5.114 NSImageOverlaps = 6

Plugin Version: 9.6. **Function:** One of the constants specify the position of a button's image relative to its title.
Notes: The image overlaps the title.

7.5.115 NSImageRight = 3

Plugin Version: 9.6. **Function:** One of the constants specify the position of a button's image relative to its title.
Notes: The image is to the right of the title.

7.5.116 NSImageScaleAxesIndependently = 1

Plugin Version: 9.6. **Function:** One of the constants specify a cell's image scaling behavior.
Notes:

Scale each dimension to exactly fit destination.
This setting does not preserve the aspect ratio of the image.
Available in Mac OS X v10.5 and later.

7.5.117 NSImageScaleNone = 2

Plugin Version: 9.6. **Function:** One of the constants specify a cell's image scaling behavior.
Notes:

Do not scale the image.
Available in Mac OS X v10.5 and later.

7.5.118 NSImageScaleProportionallyDown = 0

Plugin Version: 9.6. **Function:** One of the constants specify a cell's image scaling behavior.
Notes:

If it is too large for the destination, scale the image down while preserving the aspect ratio.
Available in Mac OS X v10.5 and later.

7.5.119 NSImageScaleProportionallyUpOrDown = 3

Plugin Version: 9.6. **Function:** One of the constants specify a cell's image scaling behavior.
Notes:

Scale the image to its maximum possible dimensions while both staying within the destination area and preserving its aspect ratio.
Available in Mac OS X v10.5 and later.

7.5.120 NSIntType = 1

Plugin Version: 9.6. **Function:** One of the constants specify how a cell formats numeric data.
Notes:

Must be between INT_MIN and INT_MAX.
Deprecated in Mac OS X v10.4 and later.

7.5.121 NSMiniControlSize = 2

Plugin Version: 9.6. **Function:** These constants specify a cell's size.
Notes: The control has a smaller size than NSSmallControlSize.

7.5.122 NSMixedState = -1

Plugin Version: 9.6. **Function:** One of the constants specify a cell's state and are used mostly for buttons.
Notes: The corresponding feature is in effect somewhere.

7.5.123 NSNoCellMask = 0

Plugin Version: 9.6. **Function:** One of the constants specify what happens when a button is pressed or is displaying its alternate state.
Notes: The button cell doesn't change.

7.5.124 NSNoImage = 0

Plugin Version: 9.6. **Function:** One of the constants specify the position of a button's image relative to its title.
Notes: The cell doesn't display an image.

7.5.125 NSNullCellType = 0

Plugin Version: 9.6. **Function:** One of the constants specify how a cell represents its data (as text or as an image).
Notes: Cell displays nothing.

7.5.126 NSOffState = 0

Plugin Version: 9.6. **Function:** One of the constants specify a cell's state and are used mostly for buttons.
Notes: The corresponding feature is in effect nowhere.

7.5.127 NSOnState = 1

Plugin Version: 9.6. **Function:** One of the constants specify a cell's state and are used mostly for buttons.
Notes: The corresponding feature is in effect everywhere.

7.5.128 NSPositiveDoubleType = 7

Plugin Version: 9.6. **Function:** One of the constants specify how a cell formats numeric data.
Notes:

Must be between FLT_MIN and FLT_MAX.
Deprecated in Mac OS X v10.4 and later.

7.5.129 NSPositiveFloatType = 4

Plugin Version: 9.6. **Function:** One of the constants specify how a cell formats numeric data.
Notes:

Must be between FLT_MIN and FLT_MAX.
Deprecated in Mac OS X v10.4 and later.

7.5.130 NSPositiveIntType = 2

Plugin Version: 9.6. **Function:** One of the constants specify how a cell formats numeric data.
Notes:

Must be between 1 and INT_MAX.
Deprecated in Mac OS X v10.4 and later.

7.5.131 NSPushInCell = 2

Plugin Version: 9.6. **Function:** One of the constants specify how a button behaves when pressed and how it displays its state.
Notes: Determines whether the cell's image and text appear to be shifted down and to the right.

7.5.132 NSPushInCellMask = 2

Plugin Version: 9.6. **Function:** One of the constants specify what happens when a button is pressed or is displaying its alternate state.

Notes: The button cell "pushes in" if it has a border.

7.5.133 NSRegularControlSize = 0

Plugin Version: 9.6. **Function:** These constants specify a cell's size.
Notes: The control is sized as regular.

7.5.134 NSSmallControlSize = 1

Plugin Version: 9.6. **Function:** These constants specify a cell's size.
Notes:

The control has a smaller size.
This constant is for controls that cannot be resized in one direction, such as push buttons, radio buttons, checkboxes, sliders, scroll bars, pop-up buttons, tabs, and progress indicators. You should use a small system font with a small control.

7.5.135 NSTextCellType = 1

Plugin Version: 9.6. **Function:** One of the constants specify how a cell represents its data (as text or as an image).
Notes: Cell displays text.

7.6 class NSControlMBS

7.6.1 class NSControlMBS

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The Cocoa class for a NSControl.
Notes:

You can embed this view in a CustomNSViewMBS to get more events for mouse and keyboard.
Subclass of the NSViewMBS class.

7.6.2 Methods

7.6.3 calcSize

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Recomputes any internal sizing information for the receiver, if necessary.
Notes: This method uses the calcDrawInfo method of its cell to perform the calculations. Most controls maintain a flag that informs them if any of their cells have been modified in such a way that the location or size of the cell should be recomputed. If such a modification happens, this method is automatically invoked before the control is displayed. You should never need to invoke it yourself.

7.6.4 ConnectActionEvent

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Connects the action event.
Notes: If you want to use addhandler with this class and the action event, you need to call ConnectAction-Event after addhandler to actually have the plugin put things in place for handling the event.

7.6.5 Constructor

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new control with size 100/100 and position 0/0
Example:

```
dim t as new NSControlMBS
```

Notes: On success the handle property is not zero.
See also:

- 7.6.6 Constructor(Handle as Integer) 575
- 7.6.7 Constructor(left as Double, top as Double, width as Double, height as Double) 575

7.6.6 Constructor(Handle as Integer)

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates an object based on the given NSControl handle.
Example:

```
dim t as new NSControlMBS(0, 0, 100, 100)
dim v as new NSControlMBS(t.handle)

MsgBox str(v.Bounds.Width)+" x "+str(v.Bounds.Height)
```

Notes: The handle is casted to a NSControl and the plugin retains this handle.
See also:

- 7.6.5 Constructor 574
- 7.6.7 Constructor(left as Double, top as Double, width as Double, height as Double) 575

7.6.7 Constructor(left as Double, top as Double, width as Double, height as Double)

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new control with the given size and position.
Example:

```
dim x as new NSControlMBS(0, 0, 100, 20)
```

Notes: On success the handle property is not zero.
See also:

- 7.6.5 Constructor 574
- 7.6.6 Constructor(Handle as Integer) 575

7.6.8 currentEditor as NSTextMBS

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the current field editor for the control.
Notes:

Returns the field editor for the current control, or nil if the receiver does not have a field editor.

When the receiver is a control displaying editable text (for example, a text field) and it is the first responder, it has a field editor, which is returned by this method. The field editor is a single NSTextView object that is shared among all the controls in a window for light text-editing needs. It is automatically instantiated when needed.

7.6.9 Destructor

Plugin Version: 13.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The destructor.

7.6.10 EnableEvents

Plugin Version: 13.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Enables events after you assigned methods to them with AddHandler.

7.6.11 performClick

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Simulates a single mouse click on the receiver.
Notes: This method calls the performClick method of the receiver's cell. This method raises an exception if the action message cannot be successfully sent.

7.6.12 selectCell(Cell as NSCellMBS)

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Selects the specified cell and redraws the control as needed.
Notes:

Cell: The cell to select. The cell must belong to the receiver.

If the cell is already selected (or does not belong to the receiver), this method does nothing. If the cell belongs to the receiver and is not selected, this method changes its state to NSOnState and redraws the cell.

7.6.13 selectedCell as NSCellMBS

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's selected cell.
Notes: The default implementation of this method simply returns the control's associated cell (or nil if no cell has been set). Subclasses of NSControl that manage multiple cells (such as NSMatrix and NSForm) must override this method to return the cell selected by the user.

7.6.14 selectedTag as Integer

Plugin Version: 8.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The tag of the views's selected cell.

7.6.15 setNeedsDisplay

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Marks the receiver as needing redisplay (assuming automatic display is enabled).
Notes: This method also recalculates the dimensions of the control as needed.

7.6.16 sizeToFit

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Resizes the receiver's frame so that it is the minimum size needed to contain its cell.
Notes: If you want a multiple-cell custom subclass of NSControl to size itself to fit its cells, you must override this method. This method neither redisplays the receiver nor marks it as needing display. You must do this yourself with either thedisplay or setNeedsDisplay method.

7.6.17 validateEditing

Plugin Version: 9.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Validates changes to any user-typed text.
Notes: Validation sets the object value of the cell to the current contents of the cell's editor (the NSText object used for editing), storing it as a simple string or an attributed string object based on the attributes of the editor.

7.6.18 Properties

7.6.19 ActionSelector as String

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The name of the selector.
Notes:

The new action-message selector to associate with the receiver's cell. Specify NULL to prevent action messages from being sent to the receiver's target.
(Read and Write computed property)

7.6.20 alignment as Integer

Plugin Version: 8.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The alignment mode of the text in the view's cell.
Example:

```
dim n as NSControlMBS // your control
n.alignment=3
```

Notes:

One of the following constants: NSLeftTextAlignment, NSRightTextAlignment,NSCenterTextAlignment, NSJustifiedTextAlignment, or NSNaturalTextAlignment. The default value is NSNaturalTextAlignment.

Constants:

NSLeftTextAlignment = 0
Text is visually left aligned.

NSRightTextAlignment = 1
Text is visually right aligned.

NSCenterTextAlignment = 2
Text is visually center aligned.

NSJustifiedTextAlignment = 3
Text is justified.

NSNaturalTextAlignment = 4

Use the natural alignment of the text's script.
(Read and Write computed property)

7.6.21 attributedStringValue as NSAttributedStringMBS

Plugin Version: 8.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The value of the view's cell as an attributed string.
Notes:

The value of the cell interpreted as an attributed string, or an empty attributed string if the receiver has no cell.

If the control contains many cells (for example, NSMatrix), then the value of the currently selected cell is returned. If the control is in the process of editing the affected cell, then it invokes the validateEditing method before extracting and returning the value.
(Read and Write computed property)

7.6.22 baseWritingDirection as Integer

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The initial writing direction used to determine the actual writing direction for text.
Notes:

One of the following values: NSWritingDirectionNatural, NSWritingDirectionLeftToRight, or NSWritingDirectionRightToLeft. The default value is NSWritingDirectionNatural.

The Text system uses this value as a hint for calculating the actual direction for displaying Unicode characters. You should not need to call this method directly.
(Read and Write computed property)

7.6.23 cell as Variant

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The receiver's cell object.
Notes:

Cocoa controls often have a frame control and inside a Cell which implements the raw functionality. This way you can for example have a table which embeds such cell controls inside the table cells.

Use this method with great care as it can irrevocably damage the affected control; specifically, you should only use this method in initializers for subclasses of NSControl.

(Read and Write computed property)

7.6.24 doubleValue as Double

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The double value of the control.
Notes: (Read and Write computed property)

7.6.25 font as NSFontMBS

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The font used to draw text in the receiver's cell.
Notes:

f the cell is being edited, the text in the cell is redrawn in the new font, and the cell's editor (the NSText object used globally for editing) is updated with the new font object.
(Read and Write computed property)

7.6.26 ignoresMultiClick as boolean

Plugin Version: 8.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value indicating whether the receiver ignores multiple clicks made in rapid succession.
Example:

```
dim n as NSControlMBS // your control
n.ignoresMultiClick=True
```

Notes:

True if the view ignores multiple clicks; otherwise, false.
(Read and Write computed property)

7.6.27 integerValue as Integer

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The value of the receiver's cell as an Integer value.
Notes:

If the control contains many cells (for example, NSMatrix), then the value of the currently selected cell is returned. If the control is in the process of editing the affected cell, then it invokes the validateEditing

method before extracting and returning the value.

Available in OS X v10.5 and later.
(Read and Write computed property)

7.6.28 intValue as Integer

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The integer value of the control.
Example:

```
dim n as new nsbuttonMBS(0,0,100,100)

n.intValue=1
MsgBox str(n.intValue) // shows 1
n.intValue=0
MsgBox str(n.intValue) // shows 0
```

Notes: (Read and Write computed property)

7.6.29 isContinuous as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver's cell sends its action message continuously to its target during mouse tracking.
Notes:

True if the action message should be sent continuously; otherwise, false.
(Read and Write computed property)

7.6.30 isEnabled as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver reacts to mouse events.
Notes:

True if the view responds to mouse events; otherwise, false.
(Read and Write computed property)

7.6.31 refusesFirstResponder as boolean

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver refuses the first responder role.
Notes:

By default, the user can advance the focus of keyboard events between controls by pressing the Tab key; when this focusor first responder statusis indicated for a control (by the insertion point or, for nontext controls, a faint rectangle), the user can activate the control by pressing the Space bar.
(Read and Write computed property)

7.6.32 stringValue as string

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The string value of the control.
Notes: (Read and Write computed property)

7.6.33 tag as Integer

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The tag identifying the object.
Notes:

You can set this property to the value you need.
(Read and Write computed property)

7.6.34 Events

7.6.35 Action

Plugin Version: 8.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The control's action was triggered.
Notes: For a button if it was pressed.

7.6.36 TextDidBeginEditing(fieldEditor as NSTextMBS, notification as NSNotificationMBS)

Plugin Version: 14.0, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Sent when a control with editable text begins an editing session.
Notes:

Notification: The notification object. The name of the notification is always NSControlTextDidBeginEditingNotification.

This event is invoked when the user begins editing text in a control such as a text field or a form field. The control posts a NSControlTextDidBeginEditingNotification notification, and if the control's subclass implements this event, it is automatically registered to receive the notification. The field editor is also delivered for inspection.

See TextDidEndEditing for an explanation of why you may not always get one invocation of TextDidBeginEditing for each invocation of TextDidEndEditing.

7.6.37 TextDidChange(fieldEditor as NSTextMBS, notification as NSNotificationMBS)

Plugin Version: 14.0, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Sent when the text in the receiving control changes.
Notes:

Notification: The notification object. The name of the notification is always NSControlTextDidChangeNotification.

This event is invoked when text in a control such as a text field or form changes. The control posts a NSControlTextDidChangeNotification notification, and if the control's subclass implements this event, it is automatically registered to receive the notification. The field editor is provided as parameter for inspection.

7.6.38 TextDidEndEditing(fieldEditor as NSTextMBS, notification as NSNotificationMBS)

Plugin Version: 14.0, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Sent when a control with editable text ends an editing session.
Notes:

Notification: The notification object. The name of the notification is always NSControlTextDidEndEditingNotification.

This event is invoked when the user stops editing text in a control such as a text field or form. The control posts a NSControlTextDidEndEditingNotification notification, and if the control' subclass implements this event, it is automatically registered to receive the notification. The field editor is also provided for inspection.

Warning: In some cases, such as when editing within an instance of NSOutlineView, this method may be invoked without a previous invocation of TextDidBeginEditing. You will only get the TextDidBeginEditing:

notification if the user actually types something, but you can get the TextDidEndEditing notification if the user just double-clicks the field and then clicks outside the field, without typing.

7.6.39 textShouldBeginEditing(fieldEditor as NSTextMBS) as boolean

Plugin Version: 8.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called to decide whether text editing should be allowed.
Notes:

Return true to allow text editing or false to deny.
Be aware that an event in Xojo without return will cause false to be returned.

7.6.40 textShouldEndEditing(fieldEditor as NSTextMBS) as boolean

Plugin Version: 8.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called to decide whether ending text editing should be allowed.
Notes:

Return true to allow end of text editing or false to deny.
Be aware that an event in Xojo without return will cause false to be returned.

7.7 class NSImageCellMBS

7.7.1 class NSImageCellMBS

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An NSImageCell object displays a single image (encapsulated in an NSImage object) in a frame.
Notes:

This class provides methods for choosing the frame and for aligning and scaling the image to fit the frame.

The object value of an NSImageCell object must be an NSImage object, so if you use the setObjectValue: method of NSCell, be sure to supply an NSImage object as an argument. Because an NSImage object does not need to be converted for display, do not use the NSCell methods relating to formatters.

An NSImageCell object is usually associated with some kind of control objectan NSImageView, an NSMatrix, or an NSTableView.
Subclass of the NSCellMBS class.

7.7.2 Methods

7.7.3 Constructor(image as NSImageMBS)

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new Cell object with an image.
Example:

```
dim pic as Picture = LogoMBS(500)
dim n as NSImageMBS = new NSImageMBS(pic)
dim c as new NSImageCellMBS(n)

Backdrop = c.image.CopyPictureWithMask
Title = c.classPath
```

See also:

- 7.7.4 Constructor(text as string) 585

7.7.4 Constructor(text as string)

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new Cell object with a text.
Example:

```
dim c as new NSImageCellMBS("Hello")
MsgBox c.StringValue
```

See also:

- 7.7.3 Constructor(image as NSImageMBS) 585

7.7.5 Properties

7.7.6 imageAlignment as Integer

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The alignment of the receiver's image relative to its frame.
Notes:

For a list of possible values, see NSImageAlign* constants. The default value is NSImageAlignCenter.
(Read and Write property)

7.7.7 imageFrameStyle as Integer

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The style of the frame that borders the image.
Notes:

Value is one of the frame style constants. For a list of frame styles, see NSImageFrame* constants.
(Read and Write property)

7.7.8 imageScaling as Integer

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The scaling mode used to fit the receiver's image into the frame.
Notes:

Value is one of the image scaling constants. For a list of possible values, see NSScale* constants.
(Read and Write property)

7.7.9 Constants

7.7.10 NSImageAlignBottom = 5

Plugin Version: 10.0. **Function:** One of the constants to specify the location of the image in the frame using the imageAlignment property.
Notes: Align the image with the bottom edge of the cell.

7.7.11 NSImageAlignBottomLeft = 6

Plugin Version: 10.0. **Function:** One of the constants to specify the location of the image in the frame using the imageAlignment property.
Notes: Align the image with the bottom and left edges of the cell.

7.7.12 NSImageAlignBottomRight = 7

Plugin Version: 10.0. **Function:** One of the constants to specify the location of the image in the frame using the imageAlignment property.
Notes: Align the image with the bottom and right edges of the cell.

7.7.13 NSImageAlignCenter = 0

Plugin Version: 10.0. **Function:** One of the constants to specify the location of the image in the frame using the imageAlignment property.
Notes: Center the image in the cell.

7.7.14 NSImageAlignLeft = 4

Plugin Version: 10.0. **Function:** One of the constants to specify the location of the image in the frame using the imageAlignment property.
Notes: Align the image with the left edge of the cell.

7.7.15 NSImageAlignRight = 8

Plugin Version: 10.0. **Function:** One of the constants to specify the location of the image in the frame using the imageAlignment property.

Notes: Position the image along the right edge of the cell.

7.7.16 NSImageAlignTop = 1

Plugin Version: 10.0. **Function:** One of the constants to specify the location of the image in the frame using the imageAlignment property.
Notes: Position the image along the top edge of the cell.

7.7.17 NSImageAlignTopLeft = 2

Plugin Version: 10.0. **Function:** One of the constants to specify the location of the image in the frame using the imageAlignment property.
Notes: Align the image with the top and left edges of the cell.

7.7.18 NSImageAlignTopRight = 3

Plugin Version: 10.0. **Function:** One of the constants to specify the location of the image in the frame using the imageAlignment property.
Notes: Align the image with the top and right edges of the cell.

7.7.19 NSImageFrameButton = 4

Plugin Version: 10.0. **Function:** One of the frame constants for the imageFrameStyle property.
Notes: A convex bezel that makes the image stand out in relief, like a button

7.7.20 NSImageFrameGrayBezel = 2

Plugin Version: 10.0. **Function:** One of the frame constants for the imageFrameStyle property.
Notes: A gray, concave bezel that makes the image look sunken

7.7.21 NSImageFrameGroove = 3

Plugin Version: 10.0. **Function:** One of the frame constants for the imageFrameStyle property.
Notes: A thin groove that looks etched around the image

7.7.22 NSImageFrameNone = 0

Plugin Version: 10.0. **Function:** One of the frame constants for the imageFrameStyle property.
Notes: An invisible frame

7.7.23 NSImageFramePhoto = 1

Plugin Version: 10.0. **Function:** One of the frame constants for the imageFrameStyle property.
Notes: A thin black outline and a dropped shadow

7.7.24 NSScaleNone = 2

Plugin Version: 10.0. **Function:** One of the scale constants.

7.7.25 NSScaleProportionally = 0

Plugin Version: 10.0. **Function:** One of the scale constants.

7.7.26 NSScaleToFit = 1

Plugin Version: 10.0. **Function:** One of the scale constants.

7.8 class NSMenuItemCellMBS

7.8.1 class NSMenuItemCellMBS

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** NSMenuItemCell is a class that handles the measurement and display of a single menu item in its encompassing frame.
Notes:

Instances of NSMenuItemCell work in conjunction with an NSMenuView object to control the overall appearance of the menu.
Subclass of the NSButtonCellMBS class.

7.8.2 Methods

7.8.3 calcSize

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Calculates the minimum required width and height of the receivers menu item.
Notes:

The calculated values are cached for future use. This method also calculates the sizes of individual components of the cells menu item and caches those values.
This method is invoked automatically when necessary. You should not need to invoke it directly.

7.8.4 Constructor(image as NSImageMBS)

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The private constructor.
Notes: Don't use it.
See also:

- 7.8.5 Constructor(text as string) 590

7.8.5 Constructor(text as string)

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor.
See also:

- 7.8.4 Constructor(image as NSImageMBS) 590

7.8.6 Properties

7.8.7 menuItem as NSMenuItemMBS

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The menu item object associated with the cell.
Notes: (Read and Write property)

7.8.8 needsDisplay as Boolean

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value indicating whether the menu item needs to be displayed.
Notes:

Set this property to true when you want the menu item to be drawn.
(Read and Write property)

7.8.9 needsSizing as Boolean

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value indicating whether the size of the menu needs to be calculated.
Notes:

When the value of this property is true, the next attempt to obtain size information about the menu cause the calcSize method to be called. When the value of the property is false, the size information is obtained from the currently cached values.
Subclasses that drastically change the way a menu item is drawn can change the value of this property to update the menu item information. Other parts of your application should not need to change this property directly. The cell checks this value of this property as necessary when the content of its menu item changes.
(Read and Write property)

7.8.10 tag as Integer

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The integer tag of the selected menu item.
Notes:

If no item is selected, the value in this property is 0.
(Read and Write property)

7.9 class NSPathComponentCellMBS

7.9.1 class NSPathComponentCellMBS

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The NSPathComponentCell class displays a component of a path.
Notes:

An NSPathCell object manages a collection of NSPathComponentCell objects, in conjunction with an NSPathControl object, to represent a path.
Subclass of the NSTextFieldCellMBS class.

7.9.2 Methods

7.9.3 Constructor(text as string)

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new Cell object with a text.

7.9.4 Properties

7.9.5 File as folderitem

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The value of the portion of the path from the root through the component represented by the receiver.
Notes: (Read and Write computed property)

7.9.6 Image as NSImageMBS

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The image displayed for this component cell.
Notes:

Generally, a 16-by-16point image fits best when the path style is NSPathStyleStandard or NSPathStylePopUp, and a 14-by-14point image is best when the path style is NSPathStyleNavigationBar.
Available in Mac OS X v10.5 and later.
(Read and Write computed property)

7.9.7 URL as string

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The value of the portion of the path from the root through the component represented by the receiver.
Notes: (Read and Write computed property)

7.10 class NSPathControlMBS

7.10.1 class NSPathControlMBS

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** NSPathControl is a subclass of NSControl that represents a file system path or virtual path.
Notes:

The NSPathControl class uses NSPathCell to implement its user interface. NSPathControl provides cover methods for most NSPathCell methodsthe cover method simply invokes the corresponding cell method. See also NSPathComponentCell, which represents individual components of the path, and two associated protocols: NSPathCellDelegate and NSPathControlDelegate.

NSPathControl has three styles represented by the NSPathStyle enumeration constants NSPathStyleStandard, NSPathStyleNavigationBar, and NSPathStylePopUp. The represented path can be a file system path or any other type of path leading through a sequence of nodes or components, as defined by the programmer.

NSPathControl automatically supports drag and drop, which can be further customized via delegate methods. To accept drag and drop, NSPathControl calls registerForDraggedTypes: with NSFilenamesPboardType and NSURLPboardType. When the URL value in the NSPathControl object changes because of an automatic drag and drop operation or the user selecting a new path via the open panel, the action is sent. On Mac OS X v10.5 the value returned by clickedPathComponentCell is nil, on Mac OS X v10.6 and later, clickedPathComponentCell returns the clicked cell.
Subclass of the NSControlMBS class.

7.10.2 Methods

7.10.3 clickedPathComponentCell as NSPathComponentCellMBS

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns component cell that was clicked.
Notes:

The value returned is generally valid only when the action or double action is being sent.
Note: In Mac OS X 10.5 and earlier the returned value was nil if no cell had been clicked. In Mac OS X 10.6, the folder of the cell that the user selected is returned instead.

7.10.4 Constructor

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new path control with size 100/100 and position 0/0
Example:

```
dim t as new NSPathControlMBS
```

Notes: On success the handle property is not zero.
See also:

- 7.10.5 Constructor(Handle as Integer) 595
- 7.10.6 Constructor(left as Double, top as Double, width as Double, height as Double) 595

7.10.5 Constructor(Handle as Integer)

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates an object based on the given NSPathControl handle.
Example:

```
dim t as new NSPathControlMBS(0, 0, 100, 100)
dim v as new NSPathControlMBS(t.handle)

MsgBox str(v.Bounds.Width)+" x "+str(v.Bounds.Height)
```

Notes: The handle is casted to a NSPathControl and the plugin retains this handle.
See also:

- 7.10.4 Constructor 594
- 7.10.6 Constructor(left as Double, top as Double, width as Double, height as Double) 595

7.10.6 Constructor(left as Double, top as Double, width as Double, height as Double)

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new path control with the given size and position.
Example:

```
dim x as new NSPathControlMBS(0, 0, 100, 100)
```

Notes: On success the handle property is not zero.
See also:

- 7.10.4 Constructor 594
- 7.10.5 Constructor(Handle as Integer) 595

7.10.7 pathComponentCells as NSPathComponentCellMBS()

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of the NSPathComponentCell objects currently being displayed.
Notes: Available in Mac OS X v10.5 and later.

7.10.8 setDraggingSourceOperationMask(mask as Integer, local as boolean)

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Configures the default value returned from draggingSourceOperationMaskForLocal.
Notes:

mask: The types of drag operations allowed.
isLocal: If true, mask applies when the drag destination object is in the same application as the receiver; if false, mask applies when the destination object is outside the receiver's application.

By default, draggingSourceOperationMaskForLocal returns NSDragOperationEvery when isLocal is true and NSDragOperationNone when isLocal is false.

Available in Mac OS X v10.5 and later.

7.10.9 setPathComponentCells(cells() as NSPathComponentCellMBS)

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the array of NSPathComponentCell objects currently being displayed.
Notes:

cells: An array of NSPathComponentCell objects.

Each item in the array must be an instance of NSPathComponentCell or a subclass thereof. You cannot set this value to nil, but you can set it to an empty array.

Available in Mac OS X v10.5 and later.

7.10.10 Properties

7.10.11 backgroundColor as NSColorMBS

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The background color.

Notes:

By default, the background is set to a light blue color for NSPathStyleStandard and nil for the other styles.
You can use NSColorMBS.clearColor to make the background transparent.
Available in Mac OS X v10.5 and later.
(Read and Write computed property)

7.10.12 File as folderitem

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The path property.
Notes:

When setting, an array of NSPathComponentCell objects is automatically set based on the path in url. If url is a file URL (returns true from isFileURL), the images are automatically filled with file icons, if the path exists. The URL value itself is stored in the objectValue property of the cell.

See also URL property.
(Read and Write computed property)

7.10.13 menu as NSMenuMBS

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The menu used for the path control's cells.
Notes:

Available in Mac OS X v10.6 and later.
(Read and Write computed property)

7.10.14 pathStyle as Integer

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The path style.
Notes:

Either NSPathStyleStandard or NSPathStylePopUp.
(Read and Write computed property)

7.10.15 URL as string

Plugin Version: 12.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The path property.
Notes:

When setting, an array of NSPathComponentCell objects is automatically set based on the path in url. If url is a file URL (returns true from isFileURL), the images are automatically filled with file icons, if the path exists. The URL value itself is stored in the objectValue property of the cell.

See also File property.
(Read and Write computed property)

7.10.16 Events

7.10.17 DoubleClick

Plugin Version: 12.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Called on a double click.

7.10.18 Constants

7.10.19 NSPathStyleNavigationBar = 1

Plugin Version: 12.0. **Function:** One of the path style constants.
Notes:

The navigation bar display style and behavior. Similar to the NSPathStyleStandard with the navigation bar drawing style. Also known as the breadcrumb style.
Available in Mac OS X v10.5 and later.

7.10.20 NSPathStylePopUp = 2

Plugin Version: 12.0. **Function:** One of the path style constants.
Notes:

The pop-up display style and behavior. Only the last path component is displayed with an icon image and component name. The full path is shown when the user clicks on the cell. If the cell is editable, a Choose item is included to enable selecting a different path.
Available in Mac OS X v10.5 and later.

7.10.21 NSPathStyleStandard = 0

Plugin Version: 12.0. **Function:** One of the path style constants.
Notes:

The standard display style and behavior. All path component cells are displayed with an icon image and component name. If the path can not fully be displayed, the middle parts are truncated as required.
Available in Mac OS X v10.5 and later.

7.11 class NSPopUpButtonCellMBS

7.11.1 class NSPopUpButtonCellMBS

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The NSPopUpButtonCell class defines the visual appearance of pop-up buttons that display pop-up or pull-down menus.
Notes:

Pop-up menus present the user with a set of choices, much the way radio buttons do, but using much less space. Pull-down menus also provide a set of choices but present the information in a slightly different way, usually to provide a set of commands from which the user can choose.

The NSPopUpButtonCellMBS class implements the user interface for the NSPopUpButtonMBS class.
Changes made to a menu (such as adding, removing, or changing the items) are not apparent while the menu is being displayed or interacted with.
Subclass of the NSMenuItemCellMBS class.

7.11.2 Methods

7.11.3 addItemsWithTitles(itemTitles() as string)

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds multiple items to the end of the menu.
Notes:

itemTitles: An array of strings containing the titles of the items you want to add. Each string in the array should be unique. If an item with the same title already exists in the menu, the existing item is removed and the new one is added.

The new menu items use the pop-up buttons default action and target, but you can change these using the setAction: and setTarget: methods of the corresponding NSMenuItem object.

If you want to move an item, its better to invoke removeItemWithTitle: explicitly and then call this method. After adding the items, this method uses the synchronizeTitleAndSelectedItem method to make sure the item being displayed matches the currently selected item.

Because this method searches for duplicate items, it should not be used if you are adding items to an already populated menu with more than a few hundred items. In a situation like this, add items directly to the receiver's menu instead.

7.11.4 addItemWithTitle(title as string)

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds an item with the specified title to the end of the menu.
Notes:

title: The title of the new menu item. If an item with the same title already exists in the menu, the existing item is removed and the new one is added.

The menu item uses the pop-up buttons default action and target, but you can change these using the setAction: and setTarget: methods of the corresponding NSMenuItemMBS object.
Because this method searches for duplicate items, it should not be used if you are adding an item to an already populated menu with more than a few hundred items. In a situation like this, add items directly to the button's menu instead.

7.11.5 Constructor(image as NSImageMBS)

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The private constructor.
See also:

- 7.11.6 Constructor(text as string, pullsDown as boolean) 601

7.11.6 Constructor(text as string, pullsDown as boolean)

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an NSPopUpButtonCell object initialized with the specified title.
See also:

- 7.11.5 Constructor(image as NSImageMBS) 601

7.11.7 dismissPopUp

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Dismisses the pop-up buttons menu by ordering its window out.
Notes:

If the pop-up button was not displaying its menu, this method does nothing.
You normally do not call this method explicitly. It is called by the Application Kit automatically to dismiss the menu for the pop-up button.

7.11.8 indexOfItem(item as NSMenuItemMBS) as Integer

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the index of the specified menu item.
Notes:

item: The menu item whose index you want.

Returns the index of the item or -1 if no such item was found.

7.11.9 indexOfItemWithTag(tag as Integer) as Integer

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the index of the menu item with the specified tag.
Notes:

tag: The tag of the menu item you want.

Returns the index of the item or -1 if no item with the specified tag was found.

Tags are values your application assigns to an object to identify it. You can assign tags to menu items using the tag property of NSMenuItemMBS.

7.11.10 indexOfItemWithTitle(title as String) as Integer

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the index of the item with the specified title.
Notes:

title: The title of the item you want. You must not pass nil for this parameter.

Returns the index of the item or -1 if no item with the specified title was found.

7.11.11 insertItemWithTitle(title as string, atIndex as Integer)

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Inserts an item at the specified position in the menu.
Notes:

title: The title of the new item. If an item with the same title already exists in the menu, the existing item is removed and the new one is added

index: The zero-based index at which to insert the item. Specifying 0 inserts the item at the top of the menu.

The value in index must represent a valid position in the array. The menu item at index and all those that follow it are shifted down one slot to make room for the new menu item.
This method assigns the pop-up buttons default action and target to the new menu item. This triggers the action event of the NSActionCellMBS.

Because this method searches for duplicate items, it should not be used if you are adding an item to an already populated menu with more than a few hundred items. In a situation like this, add items directly to the button's menu instead.

7.11.12 itemArray as NSMenuItemMBS()

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An array of NSMenuItemMBS objects that represent the items in the menu.

7.11.13 itemAtIndex(Index as Integer) as NSMenuItemMBS

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the menu item at the specified index.
Notes:

index: The index of the item you want. The specified index must refer to an existing menu item.

Returns the menu item, or nil if no item exists at the specified index.

7.11.14 itemTitleAtIndex(Index as Integer) as String

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the title of the item at the specified index.
Notes:

index: The index of the item you want.

Returns the title of the item, or an empty string if no item exists at the specified index.

7.11.15 itemTitles as String()

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An array of strings containing the titles of every item in the menu.
Notes: The titles appear in the order in which the items appear in the menu. If the menu contains separator items, the array contains an empty string ("") for each separator item.

7.11.16 itemWithTitle(title as String) as NSMenuItemMBS

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the menu item with the specified title.
Notes:

title: The title of the menu item you want.

Returns the menu item, or nil if no item with the specified title exists in the menu.

7.11.17 removeAllItems

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes all items in the receivers item menu.

7.11.18 removeItemAtIndex(Index as Integer)

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes the item at the specified index.
Notes: index: The zero-based index indicating which item to remove. Specifying 0 removes the item at the top of the menu. The index must be valid and non-negative.

7.11.19 removeItemWithTitle(title as string)

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes the item with the specified title from the menu.
Notes: title: The title of the item you want to remove. If no menu item exists with the specified title, this method triggers an assertion.

7.11.20 selectItem(item as NSMenuItemMBS)

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Selects the specified menu item.
Notes:

item: The menu item to select, or nil if you want to deselect all menu items.

By default, selecting or deselecting a menu item from a pop-up menu changes its state. Selecting a menu item from a pull-down menu does not automatically alter the state of the item. To disassociate the current selection from the state of menu items, set the altersStateOfSelectedItem property to NO.

7.11.21 selectItemAtIndex(Index as Integer)

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Selects the item in the menu at the specified index.
Notes:

index: The index of the item you want to select, or -1 you want to deselect all menu items.

By default, selecting or deselecting a menu item from a pop-up menu changes its state. Selecting a menu item from a pull-down menu does not automatically alter the state of the item. To disassociate the current selection from the state of menu items, set the altersStateOfSelectedItem property to false.
Subclassers can override this method to catch all select calls.

7.11.22 selectItemWithTag(tag as Integer) as boolean

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Selects the menu item with the specified tag.
Notes:

tag: The tag of the item you want to select.

Returns true if the item was successfully selected; otherwise, false.

If no item with the specified tag is found, this method returns false and leaves the menu state unchanged. You typically assign tags to menu items from Interface Builder, but you can also assign them programmatically using the tag property of NSMenuItemMBS.

7.11.23 selectItemWithTitle(title as string)

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Selects the item with the specified title.
Notes:

title: The title of the item to select. If you specify nil, an empty string, or a string that does not match the title of a menu item, this method deselects the currently selected item.

By default, selecting or deselecting a menu item changes its state. To disassociate the current selection from the state of menu items, set the altersStateOfSelectedItem property to false.

7.11.24 setTitle(title as string)

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the string displayed in the receiver when the user isnt pressing the mouse button.
Notes:

title: The string to display.

For pull-down menus that get their titles from a menu item, this method simply sets the pop-up button cells menu item to the first item in the menu. For pop-up menus, if a menu item whose title matches aString exists, this method makes that menu item the current selection; otherwise, it creates a new menu item with the title aString, adds it to the pop-up menu, and selects it.

7.11.25 synchronizeTitleAndSelectedItem

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Synchronizes the the pop-up buttons displayed item with the currently selected menu item.
Notes:

If no item is currently selected, this method synchronizes the pop-up buttons displayed item with the first menu item. If the pop-up button cell does not get its displayed item from a menu item, this method does nothing.
For pull-down menus, this method sets the displayed item to the title first menu item.
If the pop-up buttons menu does not contain any menu items, this method sets the pop-up buttons displayed item to nil, resulting in nothing being displayed in the control.

7.11.26 Properties

7.11.27 altersStateOfSelectedItem as Boolean

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates if the pop-up button links the state of the selected menu item to the current selection.
Notes:

When the value of this property is true (which is the default value), the state of the selected item is set to NSOnState. When the value of this property is false, the items in the menu are left alone. When you change the value of this property, the state of the currently selected item is updated appropriately.
Note that this property affects only pop-up buttons (it is ignored for pull-down menus).
(Read and Write property)

7.11.28 arrowPosition as Integer

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The position of the arrow displayed on the button.
Notes:

When the value of this property is NSPopUpNoArrow, the control displays no arrow. NSPopUpArrowAtCenter displays the arrow centered horizontally within the cell and NSPopUpArrowAtBottom displays the arrow at the edge of the cell. This property is used with preferredEdge to determine the exact location and orientation of the arrow.
This property applies to only bezel style and borderless pop-up buttons.
(Read and Write property)

7.11.29 autoenablesItems as Boolean

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates if the button automatically enables and disables its items every time a user event occurs.
Notes:

When the value of this property is true, the button automatically enables and disables items. The default value is true. For more information about enabling and disabling menu items, see NSMenuValidation.
(Read and Write property)

7.11.30 indexOfSelectedItem as Integer

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The index of the item last selected by the user.
Notes:

The value of this property is the index of the selected item, or -1 if no item is selected.
(Read only property)

7.11.31 lastItem as NSMenuItemMBS

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The last item in the menu.
Notes: (Read only property)

7.11.32 menu as NSMenuMBS

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The pop-up buttons associated menu.
Notes: (Read and Write property)

7.11.33 numberOfItems as Integer

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The number of items in the menu.
Notes: (Read only property)

7.11.34 preferredEdge as Integer

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The edge of the cell from which the menu should pop out when screen conditions are restrictive.
Notes:

At display time, if attaching the menu to the preferred edge would cause part of the menu to be obscured, the pop-up button may use a different edge. If no preferred edge is set, the pop-up button uses the bottom edge by default, which is NSMaxYEdge for flipped views or NSMinYEdge for unflipped views. Additional values for this property include NSMinXEdge and NSMaxXEdge.
The exact location of the arrow is determined by examining the value of this property and arrowPosition.

If the arrow position is NSPopUpArrowAtCenter, the arrow stays in the center of the button and the value of this property determines which edge the arrow points to: NSMinXEdge points to the left, NSMaxYEdge points to the top, NSMaxXEdge points to the right, and NSMinYEdge points to the bottom.

If the arrow position is NSPopUpArrowAtBottom, the value of this property determines which edge at which the arrow is placed: NSMinXEdge places the arrow at the center of the left side, pointing to the left,

NSMinYEdge places the arrow at bottom right corner, pointing up, NSMaxXEdge places the arrow at the center of the right side, pointing to the right, and NSMaxYEdge places the arrow at the bottom right corner, pointing down.
(Read and Write property)

7.11.35 pullsDown as Boolean

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates the behavior of the buttons menu.
Notes:

When the value of this property is true, the menu behaves like a pull-down menu; when the value is false, it behaves like a pop-up menu. If you use this property to change the menu type from a pop-up menu to a pull-down menu, and the cell alters the state of its selected items, the state of the currently selected item is set to NSOffState before the menu type is changed.
(Read and Write property)

7.11.36 selectedItem as NSMenuItemMBS

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The menu item last selected by the user.
Notes:

The value of this property is the menu item that is currently selected, or nil if no item is selected. The last selected menu item is the one that was highlighted when the user released the mouse button. It is possible for a pull-down menus selected item to be its first item.
(Read only property)

7.11.37 titleOfSelectedItem as String

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The title of the item last selected by the user.
Notes:

The value of this property is the title of the selected menu item, or an empty string if no item is selected.
(Read only property)

7.11.38 usesItemFromMenu as Boolean

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates if the control uses an item from the menu for its own title.

Notes:

When the value of this property is true, a pull-down menu uses the title of the first menu item, and a pop-up menu uses the title of the currently selected menu (if no menu item is selected, the pop-up button displays no item and is drawn empty). When the value is false, the menu item set with menuItem (NSMenuItemMBS) is always displayed. The default value is true.
(Read and Write property)

7.11.39 Constants

7.11.40 NSPopUpArrowAtBottom = 2

Plugin Version: 17.1. **Function:** One of the arrowPosition constants.
Notes: Arrow is drawn at the edge of the button, pointing toward the preferredEdge.

7.11.41 NSPopUpArrowAtCenter = 1

Plugin Version: 17.1. **Function:** One of the arrowPosition constants.
Notes: Arrow is centered vertically, pointing toward the preferredEdge.

7.11.42 NSPopUpNoArrow = 0

Plugin Version: 17.1. **Function:** One of the arrowPosition constants.
Notes: Does not display any arrow in the control.

7.12 control NSSearchFieldControlMBS

7.12.1 control NSSearchFieldControlMBS

Plugin Version: 13.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The Xojo control for a NSSearchField.
Notes:

This control embeds a special NSSearchField subclass.
Designed for Xojo 2013r1 and newer. May work on Real Studio 2012, but not perfectly.
Please use view property to access the underlaying object and set properties.

7.12.2 Properties

7.12.3 View as NSSearchFieldMBS

Plugin Version: 13.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The view used in the control.
Notes:

Use this object to set more options on the control.
(Read only property)

7.12.4 Events

7.12.5 Action

Plugin Version: 13.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The Xojo control for a NSSearchField.
Notes:

This control embeds a special NSSearchField subclass.
Designed for Xojo 2013r1 and newer. May work on Real Studio 2012, but not perfectly.
Please use view property to access the underlaying object and set properties.

7.12.6 BoundsChanged

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called when the bounds, but not the frame, changed.

7.12.7 EnableMenuItems

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The event where you can enable menu items.

7.12.8 FrameChanged

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called when the frame changed.

7.12.9 GotFocus

Plugin Version: 16.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The control itself got focus.
Notes: This only fires if the control itself got focus and not a sub control.

7.12.10 LostFocus

Plugin Version: 16.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The control lost focus.
Notes: This only fires if the control itself lost focus and not a sub control.

7.12.11 MenuAction(HitItem as MenuItem) As Boolean

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Called when a menuitem is choosen.
Notes: This allows the control to react on its relevant menu items. Please return true if you handled it or false to give others a chance.

7.12.12 MouseDown(x as Integer, y as Integer, Modifiers as Integer) As Boolean

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The mouse button was pressed inside the controls region at the location passed in to x, y.
Notes:

The coordinates x and y are local to the control, i.e. they represent the position of the mouse click relative to the upper-left corner or the Control.

Return True if you are going to handle the MouseDown. In such a case:

- The Action event, if any, will not execute and the state of the object will not change.
- You will receive the MouseDrag and MouseUp events.

If you return False, the system handles the MouseDown so the above event handlers do not get called.

7.12.13 MouseDrag(x as Integer, y as Integer)

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** This event fires continuously after the mouse button was pressed inside the Control.
Notes:

Mouse location is local to the control passed in to x, y.
As this event is fired continuously (hundreds of time per second), it is your responsibility to determine if the mouse has really moved.

7.12.14 MouseUp(x as Integer, y as Integer)

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The mouse button was released.
Notes: Use the x and y parameters to determine if the mouse button was released within the control's boundaries.

7.12.15 ScaleFactorChanged(NewFactor as Double)

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The backing store scale factor has changed.
Notes: Please invalidate any cached bitmaps or other relevant state.

7.12.16 TextDidBeginEditing(fieldEditor as NSTextMBS, notification as NSNotificationMBS)

Plugin Version: 14.0, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Sent when a control with editable text begins an editing session.
Notes:

Notification: The notification object. The name of the notification is always NSControlTextDidBeginEditingNotification.

This event is invoked when the user begins editing text in a control such as a text field or a form field. The control posts a NSControlTextDidBeginEditingNotification notification, and if the control's subclass implements this event, it is automatically registered to receive the notification. The field editor is also delivered for inspection.

7.12.17 TextDidChange(fieldEditor as NSTextMBS, notification as NSNotificationMBS)

Plugin Version: 14.0, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Sent when the text in the receiving control changes.
Notes:

Notification: The notification object. The name of the notification is always NSControlTextDidChangeNotification.

This event is invoked when text in a control such as a text field or form changes. The control posts a NSControlTextDidChangeNotification notification, and if the control's subclass implements this event, it is automatically registered to receive the notification. The field editor is provided as parameter for inspection.

7.12.18 TextDidEndEditing(fieldEditor as NSTextMBS, notification as NSNotificationMBS)

Plugin Version: 14.0, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Sent when a control with editable text ends an editing session.
Notes:

Notification: The notification object. The name of the notification is always NSControlTextDidEndEditingNotification.

This event is invoked when the user stops editing text in a control such as a text field or form. The control posts a NSControlTextDidEndEditingNotification notification, and if the control' subclass implements this event, it is automatically registered to receive the notification. The field editor is also provided for inspection.

7.12.19 textShouldBeginEditing(fieldEditor as NSTextMBS) as boolean

Plugin Version: 14.0, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The event called to decide whether text editing should be allowed.

Notes:

Return true to allow text editing or false to deny.
Be aware that an event in Xojo without return will cause false to be returned.

7.12.20 textShouldEndEditing(fieldEditor as NSTextMBS) as boolean

Plugin Version: 14.0, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The event called to decide whether ending text editing should be allowed.
Notes:

Return true to allow end of text editing or false to deny.
Be aware that an event in Xojo without return will cause false to be returned.

7.13 class NSSearchFieldMBS

7.13.1 class NSSearchFieldMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An NSSearchField object implements a text field control that is optimized for performing text-based searches.
Example:

```
// create searchfield
dim n as new NSSearchFieldMBS(0,0,100,20)

// set placeholder
dim x as NSTextFieldCellMBS = n.cell
x.placeholderString = "Test"
```

Notes:

The control provides a customized text field for entering search data, a search button, a cancel button, and a pop-up icon menu for listing recent search strings and custom search categories.

An NSSearchField object wraps an NSSearchFieldCell object. Access to most search field attributes occurs through the cell, which provides a more comprehensive programmatic interface for manipulating the search field. You can use an NSSearchField object though to manipulate some aspects of the search field. For additional information about search fields and how to manipulate them, see the NSSearchFieldCell class.

You can embed this view in a CustomNSViewMBS to get more events for mouse and keyboard.
Subclass of the NSTextFieldMBS class.

7.13.2 Methods

7.13.3 Constructor

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new search field with size 100/100 and position 0/0
Example:

```
dim t as new NSSearchFieldMBS
```

Notes: On success the handle property is not zero.
See also:

- 7.13.4 Constructor(Handle as Integer) 617

• 7.13.5 Constructor(left as Double, top as Double, width as Double, height as Double) 617

7.13.4 Constructor(Handle as Integer)

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates an object based on the given NSSearchField handle.
Example:

```
dim t as new NSSearchFieldMBS(0, 0, 100, 100)
dim v as new NSSearchFieldMBS(t.handle)

MsgBox str(v.Bounds.Width)+" x "+str(v.Bounds.Height)
```

Notes: The handle is casted to a NSSearchField and the plugin retains this handle.
See also:

• 7.13.3 Constructor 616

• 7.13.5 Constructor(left as Double, top as Double, width as Double, height as Double) 617

7.13.5 Constructor(left as Double, top as Double, width as Double, height as Double)

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new search field with the given size and position.
Example:

```
dim x as new NSSearchFieldMBS(0, 0, 100, 100)
```

Notes: On success the handle property is not zero.
See also:

• 7.13.3 Constructor 616

• 7.13.4 Constructor(Handle as Integer) 617

7.13.6 recentSearches as string()

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the list of recent search strings for the control.
Notes: An array of strings, each of which contains a search string either displayed in the search menu or from a recent autosave archive. If there have been no recent searches and no prior searches saved under an

autosave name, this array may be empty.

7.13.7 setRecentSearches(values() as string)

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the list of recent search strings to list in the pop-up icon menu of the receiver.
Notes: You might use this method to set the recent list of searches from an archived copy.

7.13.8 Properties

7.13.9 maximumRecents as Integer

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The maximum number of search strings that can appear in the search menu.
Notes:

The maximum number of search strings that can appear in the menu. This value can be between 0 and 254. Specifying a value less than 0 sets the value to the default, which is 10. Specifying a value greater than 254 sets the maximum to 254.

When the limit is exceeded, the oldest search string on the menu is dropped.
(Read and Write computed property)

7.13.10 recentsAutosaveName as string

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The key under which the prior list of recent search strings has been archived.
Notes:

The autosave name, which is used as a key in the standard user defaults to save the recent searches. The default value is "", which causes searches not to be autosaved.
(Read and Write computed property)

7.13.11 searchMenuTemplate as NSMenuMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The menu template object used to dynamically construct the search pop-up icon menu.
Notes:

The receiver looks for the tag constants described in Menu tags to determine how to populate the menu with items related to recent searches. (See constants)

To modify the actual menu shown, please use NSMenuItemMBS.validateMenuItem event. There you can for example set the state of the menu item shown. The SearchField makes a copy of the NSMenuItem, so the menuitem where the event is called, is not the one shown. It's the one passes as parameter.
(Read and Write computed property)

7.13.12 sendsSearchStringImmediately as boolean

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the cell sends its action message to the target immediately upon notification of any changes to the search field text or after a brief pause.
Notes:

True to send the cell's action immediately upon notification of any changes to the search field; otherwise, false if you want the cell to pause briefly before sending its action message. Pausing gives the user the opportunity to type more text into the search field before initiating the search.
(Read and Write computed property)

7.13.13 sendsWholeSearchString as boolean

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver sends the search action message when the user clicks the search button (or presses return) or after each keystroke.
Notes:

True to send the action message all at once when the user clicks the search button or presses return; otherwise, False to send the search string after each keystroke.
(Read and Write computed property)

7.13.14 Constants

7.13.15 NSSearchFieldClearRecentsMenuItemTag = 1002

Plugin Version: 11.2. **Function:** One of the tag values for the search menu template.
Notes:

Identifies the menu item for clearing the current set of recent string searches in the menu.
This item is hidden if there are no recent strings.

7.13.16 NSSearchFieldNoRecentsMenuItemTag = 1003

Plugin Version: 11.2. **Function:** One of the tag values for the search menu template.
Notes:

Identifies the menu item that describes a lack of recent search strings (for example, "No recent searches").
This item is hidden if there have been recent searches.

7.13.17 NSSearchFieldRecentsMenuItemTag = 1001

Plugin Version: 11.2. **Function:** One of the tag values for the search menu template.
Notes: Identifies where recent search strings should appear in the "recents" menu group.

7.13.18 NSSearchFieldRecentsTitleMenuItemTag = 1000

Plugin Version: 11.2. **Function:** One of the tag values for the search menu template.
Notes:

Identifies the menu item that is the title of the menu group for recent search strings.
This item is hidden if there are no recent strings.
You may use this tagged item for separator characters that also do not appear if there are no recent strings to display.

7.14 control NSSecureTextFieldControlMBS

7.14.1 control NSSecureTextFieldControlMBS

Plugin Version: 15.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The Xojo control for a NSSecureTextField.
Notes:

This control embeds a special NSSecureTextField subclass.
Designed for Xojo 2013r1 and newer. May work on Real Studio 2012, but not perfectly.
Please use view property to access the underlaying object and set properties.

7.14.2 Properties

7.14.3 echosBullets as Boolean

Plugin Version: 15.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver echoes a bullet character rather than each character typed.
Example:

```
dim t as NSSecureTextFieldControlMBS // your textfield
t.echosBullets = true
```

Notes:

If true, bullets are echoed. If false, the cursor is moved for each character typed, but nothing is displayed.
(Read and Write property)

7.14.4 View as NSSecureTextFieldMBS

Plugin Version: 15.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The view used in the control.
Notes:

Use this object to set more options on the control.
(Read only property)

7.14.5 Events

7.14.6 Action

Plugin Version: 15.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The control's action was triggered.
Notes: The text changed.

7.14.7 BoundsChanged

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called when the bounds, but not the frame, changed.

7.14.8 EnableMenuItems

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The event where you can enable menu items.

7.14.9 FrameChanged

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called when the frame changed.

7.14.10 GotFocus

Plugin Version: 16.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The control itself got focus.
Notes: This only fires if the control itself got focus and not a sub control.

7.14.11 LostFocus

Plugin Version: 16.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The control lost focus.
Notes: This only fires if the control itself lost focus and not a sub control.

7.14.12 MenuAction(HitItem as MenuItem) As Boolean

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Called when a menuitem is choosen.
Notes: This allows the control to react on its relevant menu items. Please return true if you handled it or false to give others a chance.

7.14.13 MouseDown(x as Integer, y as Integer, Modifiers as Integer) As Boolean

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The mouse button was pressed inside the controls region at the location passed in to x, y.
Notes:

The coordinates x and y are local to the control, i.e. they represent the position of the mouse click relative to the upper-left corner or the Control.
Return True if you are going to handle the MouseDown. In such a case:

- The Action event, if any, will not execute and the state of the object will not change.
- You will receive the MouseDrag and MouseUp events.

If you return False, the system handles the MouseDown so the above event handlers do not get called.

7.14.14 MouseDrag(x as Integer, y as Integer)

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** This event fires continuously after the mouse button was pressed inside the Control.
Notes:

Mouse location is local to the control passed in to x, y.
As this event is fired continuously (hundreds of time per second), it is your responsibility to determine if the mouse has really moved.

7.14.15 MouseUp(x as Integer, y as Integer)

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The mouse button was released.
Notes: Use the x and y parameters to determine if the mouse button was released within the control's boundaries.

7.14.16 ScaleFactorChanged(NewFactor as Double)

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The backing store scale factor has changed.
Notes: Please invalidate any cached bitmaps or other relevant state.

7.14.17 TextDidBeginEditing(fieldEditor as NSTextMBS, notification as NSNotificationMBS)

Plugin Version: 15.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent when a control with editable text begins an editing session.
Notes:

Notification: The notification object. The name of the notification is always NSControlTextDidBeginEditingNotification.

This event is invoked when the user begins editing text in a control such as a text field or a form field. The control posts a NSControlTextDidBeginEditingNotification notification, and if the control's subclass implements this event, it is automatically registered to receive the notification. The field editor is also delivered for inspection.

7.14.18 TextDidChange(fieldEditor as NSTextMBS, notification as NSNotificationMBS)

Plugin Version: 15.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent when the text in the receiving control changes.
Notes:

Notification: The notification object. The name of the notification is always NSControlTextDidChangeNotification.

This event is invoked when text in a control such as a text field or form changes. The control posts a NSControlTextDidChangeNotification notification, and if the control's subclass implements this event, it is automatically registered to receive the notification. The field editor is provided as parameter for inspection.

7.14.19 TextDidEndEditing(fieldEditor as NSTextMBS, notification as NSNotificationMBS)

Plugin Version: 15.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent when a control with editable text ends an editing session.
Notes:

Notification: The notification object. The name of the notification is always NSControlTextDidEndEditing-Notification.

This event is invoked when the user stops editing text in a control such as a text field or form. The control posts a NSControlTextDidEndEditingNotification notification, and if the control' subclass implements this event, it is automatically registered to receive the notification. The field editor is also provided for inspection.

7.14.20 textShouldBeginEditing(fieldEditor as NSTextMBS) as boolean

Plugin Version: 15.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called to decide whether text editing should be allowed.
Notes:

Return true to allow text editing or false to deny.
Be aware that an event in Xojo without return will cause false to be returned.

7.14.21 textShouldEndEditing(fieldEditor as NSTextMBS) as boolean

Plugin Version: 15.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called to decide whether ending text editing should be allowed.
Notes:

Return true to allow end of text editing or false to deny.
Be aware that an event in Xojo without return will cause false to be returned.

7.15 class NSSecureTextFieldMBS

7.15.1 class NSSecureTextFieldMBS

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** NSSecureTextField is a subclass of NSTextField that hides its text from display or other access via the user interface.
Notes:

It's suitable for use as a password-entry object or for any item in which a secure value must be kept.

NSSecureTextField uses NSSecureTextFieldCell to implement its user interface.
Subclass of the NSTextFieldMBS class.

7.15.2 Methods

7.15.3 Constructor

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new secure text field with size 100/100 and position 0/0
Example:

```
dim t as new NSSecureTextFieldMBS
```

Notes: On success the handle property is not zero.
See also:

- 7.15.4 Constructor(Handle as Integer) 626
- 7.15.5 Constructor(left as Double, top as Double, width as Double, height as Double) 627

7.15.4 Constructor(Handle as Integer)

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates an object based on the given NSSecureTextField handle.
Example:

```
dim t as new NSSecureTextFieldMBS(0, 0, 100, 100)
dim v as new NSSecureTextFieldMBS(t.handle)

MsgBox str(v.Bounds.Width)+" x "+str(v.Bounds.Height)
```

Notes: The handle is casted to a NSSecureTextField and the plugin retains this handle.
See also:

- 7.15.3 Constructor 626
- 7.15.5 Constructor(left as Double, top as Double, width as Double, height as Double) 627

7.15.5 Constructor(left as Double, top as Double, width as Double, height as Double)

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new secure text field with the given size and position.
Example:

```
dim x as new NSSecureTextFieldMBS(0, 0, 100, 100)
```

Notes: On success the handle property is not zero.
See also:

- 7.15.3 Constructor 626
- 7.15.4 Constructor(Handle as Integer) 626

7.15.6 Properties

7.15.7 echosBullets as boolean

Plugin Version: 11.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver echoes a bullet character rather than each character typed.
Example:

```
dim t as NSSecureTextFieldMBS // your textfield
t.echosBullets = true
```

Notes:

If true, bullets are echoed. If false, the cursor is moved for each character typed, but nothing is displayed.
(Read and Write computed property)

7.16 class NSSegmentedControlMBS

7.16.1 class NSSegmentedControlMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The plugin class for a Cocoa NSSegmentedControl.
Notes:

An NSSegmentedControl object implements a horizontal button made of multiple segments.

The NSSegmentedControl class uses an NSSegmentedCell class to implement much of the control's functionality. Most methods in NSSegmentedControl are simply "cover methods" that call the corresponding method in NSSegmentedCell. The methods of NSSegmentedCell that do not have covers relate to accessing and setting values for tags and tool tips; programatically setting the key segment; and establishing the mode of the control.

The features of a segmented control include:

- Each segment can have an image, text (label), menu, tooltip, and tag
- Either the whole control or individual segments can be enabled or disabled
- There are three tracking modes for segments: select one mode (also known as radio button mode and illustrated by Finder's view mode selection control), momentary mode (as illustrated by Safari's toolbar buttons), or select any mode (where any combination of buttons may be on or off)
- Each segment can be either a fixed width or autosized to fit the contents
- If a segment has text and is marked as autosizing, then the text may be truncated so that the control completely fits
- If an image is too large to fit in a segment, it is clipped
- Full keyboard control of the user interface

Subclass of the NSControlMBS class.

7.16.2 Methods

7.16.3 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new path control with size 100/100 and position 0/0
Example:

```
dim t as new NSSegmentedControlMBS
```

Notes: On success the handle property is not zero.
See also:

- 7.16.4 Constructor(Handle as Integer) 629
- 7.16.5 Constructor(left as Double, top as Double, width as Double, height as Double) 629

7.16.4 Constructor(Handle as Integer)

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates an object based on the given NSPathControl handle.
Example:

```
dim t as new NSSegmentedControlMBS(0, 0, 100, 100)
dim v as new NSSegmentedControlMBS(t.handle)

MsgBox str(v.Bounds.Width)+" x "+str(v.Bounds.Height)
```

Notes: The handle is casted to a NSSegmentedControl and the plugin retains this handle.
See also:

- 7.16.3 Constructor 628
- 7.16.5 Constructor(left as Double, top as Double, width as Double, height as Double) 629

7.16.5 Constructor(left as Double, top as Double, width as Double, height as Double)

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new path control with the given size and position.
Example:

```
dim x as new NSSegmentedControlMBS(0, 0, 100, 100)
```

Notes: On success the handle property is not zero.
See also:

- 7.16.3 Constructor 628
- 7.16.4 Constructor(Handle as Integer) 629

7.16.6 makeNextSegmentKey

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Selects the next segment.
Notes: The next segment is the one to the right of the currently selected segment. For the last segment, the selection wraps back to the beginning of the control.

7.16.7 makePreviousSegmentKey

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Selects the previous segment.
Notes: The previous segment is the one to the left of the currently selected segment. For the first segment, the selection wraps around to the last segment of the control.

7.16.8 selectSegmentWithTag(Tag as Integer) as Boolean

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Selects the segment with the specified tag.
Notes:

tag: The tag associated with the desired segment.
True if the segment was selected successfully; otherwise, false.

Typically, you use Interface Builder to specify the tag for each segment. You may also set this value programmatically using the setTag:forSegment: method of NSSegmentedCell.

7.16.9 Properties

7.16.10 cellTrackingMode as Integer

Plugin Version: 15.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The tracking mode used for the segments of the receiver.
Notes:

Possible values for trackingMode are described in NSSegmentSwitchTracking. The default value is NSSegmentSwitchTrackingSelectOne.

This property was named only trackingMode in 15.1 and older plugins.
(Read and Write property)

7.16.11 doubleValueForSelectedSegment as Double

Plugin Version: 15.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Query the double value for selected segment.
Notes:

This message is valid only for trackingMode = NSSegmentSwitchTrackingMomentaryAccelerator and provides the double value for the selected segment.
Available on Mac OS X 10.10.3.
(Read only property)

7.16.12 segmentCount as Integer

Plugin Version: 12.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns the number of segments in the receiver.
Notes: (Read and Write property)

7.16.13 segmentStyle as Integer

Plugin Version: 12.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The visual style used to display the receiver.
Notes:

See style constants.
Available in Mac OS X v10.5 and later.
(Read and Write property)

7.16.14 selectedSegment as Integer

Plugin Version: 12.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The index of the selected segment of the receiver.
Notes:

The index of the currently selected segment or -1 if no segment is selected. If the receiver allows multiple selections, this method returns the most recently selected segment.
(Read and Write property)

7.16.15 springLoaded as Boolean

Plugin Version: 15.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sends action on deep-press or extended hover while dragging.

Notes:

Defaults to false.
(Read and Write property)

7.16.16 trackingMode as Integer

Plugin Version: 15.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The type of tracking behavior the control exhibits.
Notes:

An NSSegmentSwitchTracking value specifies how the control responds when the user presses a keyboard key or clicks, force clicks (applies pressure in a pressure-sensitive system), releases pressure, and so on.

see NSSegmentSwitchTracking* constants.
Available on Mac OS X 10.10.3 and newer.
(Read and Write property)

7.16.17 imageForSegment(segment as Integer) as NSImageMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The image for the specified segment.
Notes:

image: The image to apply to the segment or nil if you want to clear the existing image. Images are not scaled to fit inside a segment. If the image is larger than the available space, it is clipped.
segment: The index of the segment whose image you want to set. This method raises an NSRangeException if the index is out of bounds.
(Read and Write computed property)

7.16.18 imageScalingForSegment(segment as Integer) as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The scaling mode used to display the specified segment's image.
Notes:

scaling: One of the image scaling constants. For a list of possible values, see constants.
segment: The index of the segment whose enabled state you want to get. This method raises an NSRange-Exception if the index is out of bounds.
Available in Mac OS X v10.5 and later.
(Read and Write computed property)

7.16.19 isEnabledForSegment(segment as Integer) as Boolean

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The enabled state of the specified segment.
Notes:

True to enable the segment; otherwise, false to disable it.
segment: The index of the segment you want to enable or disable. This method raises an NSRangeException if the index is out of bounds.
(Read and Write computed property)

7.16.20 isSelectedForSegment(segment as Integer) as Boolean

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The selection state of the specified segment.
Notes:

True if you want to select the segment; otherwise, false.

segment: The index of the segment whose selection state you want to set. This method raises an NSRange-Exception if the index is out of bounds.

If the receiver allows only a single selection, this method deselects any other selected segments.
(Read and Write computed property)

7.16.21 labelForSegment(segment as Integer) as string

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The label for the specified segment.
Notes:

label: The label you want to display in the segment. If the width of the string is greater than the width of the segment, the string's text is truncated during drawing.
segment: The index of the segment whose label you want to set. This method raises an NSRangeException if the index is out of bounds.
(Read and Write computed property)

7.16.22 menuForSegment(segment as Integer) as NSMenuMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The menu for the specified segment.
Notes:

menu: The menu you want to add to the segment or nil to clear the current menu. This menu is displayed when the user clicks and holds the mouse button while the mouse is over the segment.
segment: The index of the segment whose menu you want to set. This method raises an NSRangeException if the index is out of bounds.

Adding a menu to a segment allows that segment to be used as a pop-up button.
(Read and Write computed property)

7.16.23 tagForSegment(segment as Integer) as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The tag value for the segment.
Notes:

segment: The index of the segment whose width you want to get. This method raises an NSRangeException if the index is out of bounds.

The tag is an integer you define to identify your items.
(Read and Write computed property)

7.16.24 ToolTipForSegment(segment as Integer) as string

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The tool tip for the specified segment.
Notes:

segment: The index of the segment whose tool tip you want to set. This method raises an NSRangeException if the index is out of bounds.

Tool tips are currently not displayed. Apple may change that in the future.
(Read and Write computed property)

7.16.25 widthForSegment(segment as Integer) as Double

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The width of the specified segment.
Notes:

width: The width of the segment, measured in points. Specify the value 0 if you want the segment to be sized to fit the available space automatically.
segment: The index of the segment whose width you want to set. This method raises an NSRangeException

if the index is out of bounds.
(Read and Write computed property)

7.16.26 Constants

7.16.27 NSImageScaleAxesIndependently = 1

Plugin Version: 12.1. **Function:** One of the constants specify a cell's image scaling behavior.
Notes:

Scale each dimension to exactly fit destination.
This setting does not preserve the aspect ratio of the image.
Available in Mac OS X v10.5 and later.

7.16.28 NSImageScaleNone = 2

Plugin Version: 12.1. **Function:** One of the constants specify a cell's image scaling behavior.
Notes:

Do not scale the image.
Available in Mac OS X v10.5 and later.

7.16.29 NSImageScaleProportionallyDown = 0

Plugin Version: 12.1. **Function:** One of the constants specify a cell's image scaling behavior.
Notes:

If it is too large for the destination, scale the image down while preserving the aspect ratio.
Available in Mac OS X v10.5 and later.

7.16.30 NSImageScaleProportionallyUpOrDown = 3

Plugin Version: 12.1. **Function:** One of the constants specify a cell's image scaling behavior.
Notes:

Scale the image to its maximum possible dimensions while both staying within the destination area and preserving its aspect ratio.
Available in Mac OS X v10.5 and later.

7.16.31 NSSegmentStyleAutomatic = 0

Plugin Version: 12.1. **Function:** One of the constants to specify the visual style used to display the segmented control.
Notes:

The appearance of the segmented control is automatically determined based on the type of window in which the control is displayed and the position within the window.
Available in Mac OS X v10.5 and later.

7.16.32 NSSegmentStyleRounded = 1

Plugin Version: 12.1. **Function:** One of the constants to specify the visual style used to display the segmented control.
Notes:

The control is displayed using the rounded style.
Available in Mac OS X v10.5 and later.

7.16.33 NSSegmentStyleRoundRect = 2

Plugin Version: 12.1. **Function:** One of the constants to specify the visual style used to display the segmented control.
Notes:

The control is displayed using the round rect style.
Available in Mac OS X v10.5 and later.

7.16.34 NSSegmentStyleSmallSquare = 6

Plugin Version: 12.1. **Function:** One of the constants to specify the visual style used to display the segmented control.
Notes:

The control is displayed using the small square style.
Available in Mac OS X v10.5 and later.

7.16.35 NSSegmentStyleTexturedSquare = 4

Plugin Version: 12.1. **Function:** One of the constants to specify the visual style used to display the segmented control.

Notes:

The control is displayed using the textured square style.
Available in Mac OS X v10.5 and later.

7.16.36 NSSegmentSwitchTrackingMomentary = 2

Plugin Version: 12.1. **Function:** One of the constants for switch tracking.
Notes: A segment is selected only when tracking.

7.16.37 NSSegmentSwitchTrackingMomentaryAccelerator = 3

Plugin Version: 15.2. **Function:** One of the constants for switch tracking.
Notes: accelerator behavior, only selected while tracking.

7.16.38 NSSegmentSwitchTrackingSelectAny = 1

Plugin Version: 12.1. **Function:** One of the constants for switch tracking.
Notes: Any segment can be selected.

7.16.39 NSSegmentSwitchTrackingSelectOne = 0

Plugin Version: 12.1. **Function:** One of the constants for switch tracking.
Notes: Only one segment may be selected.

7.17 class NSTabViewItemMBS

7.17.1 class NSTabViewItemMBS

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The Cocoa class for items on the tabview.
Notes: An NSTabViewItem is a convenient way for presenting information in multiple pages. A tab view is usually distinguished by a row of tabs that give the visual appearance of folder tabs. When the user clicks a tab, the tab view displays a view page provided by your application. A tab view keeps a zero-based array of NSTabViewItems, one for each tab in the view.

7.17.2 Methods

7.17.3 Constructor(identifier as Variant)

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new tabview item with the identifier.

7.17.4 Properties

7.17.5 color as NSColorMBS

Plugin Version: 15.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The color of the tab view item.
Notes:

May not be used by the control.
(Read and Write property)

7.17.6 Enabled as Boolean

Plugin Version: 15.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The enabled state of the tab view item.
Example:

```
dim n as NSTabViewMBS = TabPanel1.NSTabViewMBS
dim t as NSTabViewItemMBS = n.tabViewItemAtIndex(0)
t.Enabled = false
```

Notes: (Read and Write property)

7.17.7 Handle as Integer

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference to the NSTabViewItem object.
Notes: (Read and Write property)

7.17.8 identifier as Variant

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The identifier for this item.
Notes: (Read and Write property)

7.17.9 image as NSImageMBS

Plugin Version: 15.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The image for the tab panel item.
Notes:

Available in Mac OS X 10.10.
(Read and Write property)

7.17.10 initialFirstResponder as NSViewMBS

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The initial first responder for the view associated with the receiver.
Notes:

Sets the initial first responder for the view associated with the receiver (the view that is displayed when a user clicks on the tab) to view.
(Read and Write property)

7.17.11 label as string

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The label text for the receiver.
Notes: (Read and Write property)

7.17.12 tabState as Integer

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the current display state of the tab associated with the receiver.
Notes:

The possible values are NSSelectedTab, NSBackgroundTab, or NSPressedTab. Your application does not directly set the tab state.
(Read only property)

7.17.13 tabView as NSTabViewMBS

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the parent tab view for the receiver.
Notes:

Note that this is the tab view itself, not the view displayed when a user clicks the tab.

A tab view item normally learns about its parent tab view when it is inserted into the view's array of items. The NSTabView methods addTabViewItem and insertTabViewItem set the tab view for the added or inserted item.
(Read only property)

7.17.14 toolTip as string

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The tooltip displayed for the tab view item.
Notes: (Read and Write property)

7.17.15 view as NSViewMBS

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The view associated with the receiver to view.
Notes:

This is the view displayed when a user clicks the tab. When you set a new view, the old view is released.
(Read and Write property)

7.17.16 Constants

7.17.17 NSBackgroundTab = 1

Plugin Version: 10.0. **Function:** One of the constants describing the current display state of a tab.
Notes: A tab that's not being displayed.

7.17.18 NSPressedTab = 2

Plugin Version: 10.0. **Function:** One of the constants describing the current display state of a tab.
Notes: A tab that the user is in the process of clicking. That is, the user has pressed the mouse button while the cursor is over the tab but has not released the mouse button.

7.17.19 NSSelectedTab = 0

Plugin Version: 10.0. **Function:** One of the constants describing the current display state of a tab.
Notes: The tab that's being displayed.

7.18 class NSTabViewMBS

7.18.1 class NSTabViewMBS

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The Cocoa tabpanel control.
Notes:

An NSTabView object provides a convenient way to present information in multiple pages. The view contains a row of tabs that give the appearance of folder tabs, as shown in the following figure. The user selects the desired page by clicking the appropriate tab or using the arrow keys to move between pages. Each page displays a view hierarchy provided by your application.

You can embed this view in a CustomNSViewMBS to get more events for mouse and keyboard.
Subclass of the NSViewMBS class.

7.18.2 Methods

7.18.3 addTabViewItem(tabViewItem as NSTabViewItemMBS)

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds the tab item specified by tabViewItem.
Notes:

tabViewItem: The tab view item to be added.

The item is added at the end of the array of tab items, so the new tab appears on the right side of the view.

7.18.4 Constructor

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new tab view with size 100/100 and position 0/0
Example:

```
dim t as new NSTabViewMBS
```

Notes: On success the handle property is not zero.
See also:

- 7.18.5 Constructor(Handle as Integer) 643
- 7.18.6 Constructor(left as Double, top as Double, width as Double, height as Double) 643

7.18.5 Constructor(Handle as Integer)

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates an object based on the given NSTabView handle.
Example:

```
dim t as new NSTabViewMBS(0, 0, 100, 100)
dim v as new NSTabViewMBS(t.handle)

MsgBox str(v.Bounds.Width)+" x "+str(v.Bounds.Height)
```

Notes: The handle is casted to a NSTabView and the plugin retains this handle.
See also:

- 7.18.4 Constructor 642
- 7.18.6 Constructor(left as Double, top as Double, width as Double, height as Double) 643

7.18.6 Constructor(left as Double, top as Double, width as Double, height as Double)

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new tab view with the given size and position.
Example:

```
dim x as new NSTabViewMBS(0, 0, 100, 100)
```

Notes: On success the handle property is not zero.
See also:

- 7.18.4 Constructor 642
- 7.18.5 Constructor(Handle as Integer) 643

7.18.7 contentRect as NSRectMBS

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the rectangle describing the content area of the receiver.
Notes: This area does not include the space required for the receiver's tabs or borders (if any).

7.18.8 indexOfTabViewItem(tabViewItem as NSTabViewItemMBS) as Integer

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the index of the specified item in the tab view.
Notes: The zero-based index of tabViewItem, or [NSNotFound] if the item is not found.

7.18.9 indexOfTabViewItemWithIdentifier(identifier as Variant) as Integer

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the index of the item that matches the specified identifier. identifier, or NSNotFound (-1) if the item is not found.
Notes: Returns nil on any error.

7.18.10 insertTabViewItem(tabViewItem as NSTabViewItemMBS, atIndex as Integer)

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Inserts tabViewItem into the receiver's array of tab view items at index.
Notes:

tabViewItem: The tab view item to be added.
index: The index at which to insert the tab view item. The index parameter is zero-based.

7.18.11 minimumSize as NSSizeMBS

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the minimum size necessary for the receiver to display tabs in a useful way.
Notes: You can use the value returned by this method to limit how much a user can resize a tab view.

7.18.12 numberOfTabViewItems as Integer

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the number of items in the receiver's array of tab view items.

7.18.13 removeTabViewItem(tabViewItem as NSTabViewItemMBS)

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes the item specified by tabViewItem from the receiver's array of tab view items.

7.18.14 selectedTabViewItem as NSTabViewItemMBS

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Selects the specified tab view item.

7.18.15 selectFirstTabViewItem

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method selects the first tab view item.

7.18.16 selectLastTabViewItem

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method selects the last tab view item.

7.18.17 selectNextTabViewItem

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method selects the next tab view item in the sequence.
Notes: If the currently visible item is the last item in the sequence, this method does nothing, and the last page remains displayed.

7.18.18 selectPreviousTabViewItem

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method selects the previous tab view item in the sequence.
Notes: If the currently visible item is the first item in the sequence, this method does nothing, and the first page remains displayed.

7.18.19 selectTabViewItem(tabViewItem as NSTabViewItemMBS)

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the tab view item for the currently selected tab.
Notes: Returns the currently selected tab view item, or nil if no item is selected.

7.18.20 selectTabViewItemAtIndex(index as Integer)

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Selects the tab view item specified by index.
Notes: The index parameter is base 0.

7.18.21 selectTabViewItemWithIdentifier(identifier as Variant)

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Selects the tab view item specified by identifier.

7.18.22 tabViewItemAtIndex(index as Integer) as NSTabViewItemMBS

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the tab view item at index in the tab view's array of items.
Notes:

index: The index at which to insert the tab view item. The index parameter is zero-based.

Returns the tab view item at the specified index.

7.18.23 tabViewItemAtPoint(x as Double, y as Double) as NSTabViewItemMBS

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the tab view item at the specified point.
Notes:

Returns the tab view item under the hit point, or nil if no tab view item is under that location.
You can use this method to find a tab view item based on a user's mouse click.

7.18.24 tabViewItems as NSTabViewItemMBS()

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's array of tab view items.
Notes: A tab view keeps an array containing one tab view item for each tab in the view.

7.18.25 Properties

7.18.26 allowsTruncatedLabels as boolean

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether if the receiver allows truncating for labels that don't fit on a tab.
Notes:

Value is true if the receiver allows truncating for labels that don't fit on a tab, otherwise false.

The default is true.
When truncating is allowed, the tab view inserts an ellipsis, if necessary, to fit a label in the tab.
(Read and Write computed property)

7.18.27 controlSize as Integer

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The size of the receiver.
Notes:

Use NSRegularControlSize, NSSmallControlSize or NSMiniControlSize.
(Read and Write computed property)

7.18.28 controlTint as Integer

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The tab view's control tint.
Notes:

Use NSDefaultControlTint, NSBlueControlTint, NSGraphiteControlTint or NSClearControlTint.
(Read and Write computed property)

7.18.29 drawsBackground as boolean

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether if the receiver draws a background color when the tab view type is NSNoTabsNoBorder.
Notes:

True if the receiver draws a background color when the tab view type is NSNoTabsNoBorder, otherwise false.

If the receiver uses bezeled edges or a line border, the appropriate background color for that border is used.
(Read and Write computed property)

7.18.30 font as NSFontMBS

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The font for tab label text.
Notes:

Tab height is adjusted automatically to accommodate a new font size. If the view allows truncating, tab labels are truncated as needed.
(Read and Write computed property)

7.18.31 tabViewType as Integer

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The tab type for the receiver.
Notes:

Use constants: NSTopTabsBezelBorder, NSLeftTabsBezelBorder, NSBottomTabsBezelBorder, NSRightTabsBezelBorder, NSNoTabsBezelBorder, NSNoTabsLineBorder or NSNoTabsNoBorder.
(Read and Write computed property)

7.18.32 Constants

7.18.33 NSBlueControlTint=1

Plugin Version: 10.0. **Function:** One of the constants to specify a the control tint.
Notes: Aqua control tint

7.18.34 NSBottomTabsBezelBorder = 2

Plugin Version: 10.0. **Function:** One of the constants to specify the tab view's type as used by tabViewType.
Notes: Tabs are on the bottom of the view with a bezeled border.

7.18.35 NSClearControlTint=7

Plugin Version: 10.0. **Function:** One of the constants to specify a the control tint.
Notes: Clear control tint

7.18.36 NSDefaultControlTint=0

Plugin Version: 10.0. **Function:** One of the constants to specify a the control tint.
Notes: The current default tint setting

7.18.37 NSGraphiteControlTint=6

Plugin Version: 10.0. **Function:** One of the constants to specify a the control tint.
Notes: Graphite control tint

7.18.38 NSLeftTabsBezelBorder = 1

Plugin Version: 10.0. **Function:** One of the constants to specify the tab view's type as used by tabViewType.
Notes: Tabs are on the left of the view with a bezeled border.

7.18.39 NSMiniControlSize=2

Plugin Version: 10.0. **Function:** One of the values for the ControlSize property.
Notes: The control has a smaller size than NSSmallControlSize.

7.18.40 NSNoTabsBezelBorder = 4

Plugin Version: 10.0. **Function:** One of the constants to specify the tab view's type as used by tabViewType.
Notes: The view does not include tabs and has a bezeled border.

7.18.41 NSNoTabsLineBorder = 5

Plugin Version: 10.0. **Function:** One of the constants to specify the tab view's type as used by tabViewType.
Notes: The view does not include tabs and has a lined border.

7.18.42 NSNoTabsNoBorder = 6

Plugin Version: 10.0. **Function:** One of the constants to specify the tab view's type as used by tabViewType.
Notes: The view does not include tabs and has no border.

7.18.43 NSRegularControlSize=0

Plugin Version: 10.0. **Function:** One of the values for the ControlSize property.
Notes: The control is sized as regular.

7.18.44 NSRightTabsBezelBorder = 3

Plugin Version: 10.0. **Function:** One of the constants to specify the tab view's type as used by tabViewType.
Notes: Tabs are on the right of the view with a bezeled border.

7.18.45 NSSmallControlSize=1

Plugin Version: 10.0. **Function:** One of the values for the ControlSize property.
Notes: This constant is for controls that cannot be resized in one direction, such as push buttons, radio buttons, checkboxes, sliders, scroll bars, pop-up buttons, tabs, and progress indicators. You should use a small system font with a small control.

7.18.46 NSTopTabsBezelBorder = 0

Plugin Version: 10.0. **Function:** One of the constants to specify the tab view's type as used by tabViewType.
Notes: The view includes tabs on the top of the view and has a bezeled border (the default).

7.19 class NSTextFieldCellMBS

7.19.1 class NSTextFieldCellMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The text field class for using as NSCell.
Example:

```
// ask for the textfield behind the label
dim n as NSTextFieldMBS = NSTextFieldMBS(label1.NSViewMBS)

// query cell
dim c as NSTextFieldCellMBS = n.cell

// and set background style
c.backgroundStyle = NSTextFieldCellMBS.NSBackgroundStyleRaised
```

Notes:

The NSTextFieldCell class adds to the text display capabilities of the NSCell class by allowing you to set the color of both the text and its background. You can also specify whether the cell draws its background at all.

All of the methods declared by this class are also declared by the NSTextField class, which uses NSTextFieldCell objects to draw and edit text. These NSTextField cover methods call the corresponding NSTextFieldCell methods.

Placeholder strings, set using PlaceholderString or PlaceholderAttributedString, now appear in the text field cell if the actual string is "". They are drawn in grey on the cell.
Subclass of the NSActionCellMBS class.

7.19.2 Methods

7.19.3 allowedInputSourceLocales as string()

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of locale identifiers representing input sources that are allowed to be enabled when the receiver has the keyboard focus.
Notes: Available in Mac OS X v10.5 and later.

7.19.4 Constructor(text as string)

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new Cell object with a text.
Example:

```
dim c as new NSTextFieldCellMBS("Hello")
MsgBox c.StringValue
```

7.19.5 setAllowedInputSourceLocales(Identifiers() as string)

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets an array of locale identifiers representing input sources that are allowed to be enabled when the receiver has the keyboard focus.
Notes:

You can use the meta-locale identifier, NSAllRomanInputSourcesLocaleIdentifier, to specify input sources that are limited for Roman script editing.

Available in Mac OS X v10.5 and later.

7.19.6 setUpFieldEditorAttributes(textobj as NSTextMBS) as NSTextMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets up the field editor. You never invoke this method directly; by overriding it, however, you can customize the field editor.

7.19.7 setWantsNotificationForMarkedText(value as boolean)

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Directs the cell's associated field editor to post text change notifications.
Notes:

If true, the field editor posts text change notifications (NSTextDidChangeNotification) while editing marked text; if false, notifications are delayed until the marked text confirmation.

Available in Mac OS X v10.5 and later.

7.19.8 Properties

7.19.9 backgroundColor as NSColorMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The color of the background the receiver draws behind the text.
Notes: (Read and Write property)

7.19.10 bezelStyle as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The receiver's bezel style.
Notes:

To set the bezel style, you must have already set Bezeled to true.
(Read and Write property)

7.19.11 drawsBackground as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver draws its background color.
Notes:

In order to prevent inconsistent rendering, background color rendering is disabled for rounded-bezel text fields.
(Read and Write property)

7.19.12 placeholderAttributedString as NSAttributedStringMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The placeholder of the cell as an attributed string.
Notes:

Note that invoking this successfully will clear out any plain text string set by PlaceholderString.

Available in Mac OS X v10.3 and later.
(Read and Write property)

7.19.13 placeholderString as string

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The placeholder of the cell as a plain text string.
Notes:

Note that invoking this successfully will clear out any attributed string set by setPlaceholderAttributed-String.
(Read and Write property)

7.19.14 textColor as NSColorMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The color used to draw the receiver's text.
Notes: (Read and Write property)

7.19.15 Constants

7.19.16 NSTextFieldRoundedBezel=1

Plugin Version: 9.6. **Function:** One of the constants to specify the bezel style of the text field cell.
Notes:

Corners are rounded.
Available in Mac OS X v10.2 and later.

7.19.17 NSTextFieldSquareBezel=0

Plugin Version: 9.6. **Function:** One of the constants to specify the bezel style of the text field cell.
Notes:

Corners are square.
Available in Mac OS X v10.2 and later.

7.20 control NSTextFieldControlMBS

7.20.1 control NSTextFieldControlMBS

Plugin Version: 13.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The Xojo control for a NSTextField.
Notes:

This control embeds a special NSTextField subclass.
Designed for Xojo 2013r1 and newer. May work on Real Studio 2012, but not perfectly.
Please use view property to access the underlaying object and set properties.

7.20.2 Properties

7.20.3 View as NSTextFieldMBS

Plugin Version: 13.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The view used in the control.
Notes:

Use this object to set more options on the control.
(Read only property)

7.20.4 Events

7.20.5 Action

Plugin Version: 13.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The control's action was triggered.
Notes: The text changed.

7.20.6 BoundsChanged

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called when the bounds, but not the frame, changed.

7.20.7 EnableMenuItems

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The event where you can enable menu items.

7.20.8 FrameChanged

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called when the frame changed.

7.20.9 GotFocus

Plugin Version: 16.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The control itself got focus.
Notes: This only fires if the control itself got focus and not a sub control.

7.20.10 LostFocus

Plugin Version: 16.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The control lost focus.
Notes: This only fires if the control itself lost focus and not a sub control.

7.20.11 MenuAction(HitItem as MenuItem) As Boolean

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Called when a menuitem is choosen.
Notes: This allows the control to react on its relevant menu items. Please return true if you handled it or false to give others a chance.

7.20.12 MouseDown(x as Integer, y as Integer, Modifiers as Integer) As Boolean

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The mouse button was pressed inside the controls region at the location passed in to x, y.
Notes:

The coordinates x and y are local to the control, i.e. they represent the position of the mouse click relative to the upper-left corner or the Control.

Return True if you are going to handle the MouseDown. In such a case:

- The Action event, if any, will not execute and the state of the object will not change.
- You will receive the MouseDrag and MouseUp events.

If you return False, the system handles the MouseDown so the above event handlers do not get called.

7.20.13 MouseDrag(x as Integer, y as Integer)

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** This event fires continuously after the mouse button was pressed inside the Control.
Notes:

Mouse location is local to the control passed in to x, y.
As this event is fired continuously (hundreds of time per second), it is your responsibility to determine if the mouse has really moved.

7.20.14 MouseUp(x as Integer, y as Integer)

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The mouse button was released.
Notes: Use the x and y parameters to determine if the mouse button was released within the control's boundaries.

7.20.15 ScaleFactorChanged(NewFactor as Double)

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The backing store scale factor has changed.
Notes: Please invalidate any cached bitmaps or other relevant state.

7.20.16 TextDidBeginEditing(fieldEditor as NSTextMBS, notification as NSNotificationMBS)

Plugin Version: 14.0, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Sent when a control with editable text begins an editing session.
Notes:

Notification: The notification object. The name of the notification is always NSControlTextDidBeginEditingNotification.

This event is invoked when the user begins editing text in a control such as a text field or a form field. The control posts a NSControlTextDidBeginEditingNotification notification, and if the control's subclass implements this event, it is automatically registered to receive the notification. The field editor is also delivered for inspection.

7.20.17 TextDidChange(fieldEditor as NSTextMBS, notification as NSNotificationMBS)

Plugin Version: 14.0, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Sent when the text in the receiving control changes.
Notes:

Notification: The notification object. The name of the notification is always NSControlTextDidChangeNotification.

This event is invoked when text in a control such as a text field or form changes. The control posts a NSControlTextDidChangeNotification notification, and if the control's subclass implements this event, it is automatically registered to receive the notification. The field editor is provided as parameter for inspection.

7.20.18 TextDidEndEditing(fieldEditor as NSTextMBS, notification as NSNotificationMBS)

Plugin Version: 14.0, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Sent when a control with editable text ends an editing session.
Notes:

Notification: The notification object. The name of the notification is always NSControlTextDidEndEditingNotification.

This event is invoked when the user stops editing text in a control such as a text field or form. The control posts a NSControlTextDidEndEditingNotification notification, and if the control' subclass implements this event, it is automatically registered to receive the notification. The field editor is also provided for inspection.

7.20.19 textShouldBeginEditing(fieldEditor as NSTextMBS) as boolean

Plugin Version: 14.0, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The event called to decide whether text editing should be allowed.

Notes:

Return true to allow text editing or false to deny.
Be aware that an event in Xojo without return will cause false to be returned.

7.20.20 textShouldEndEditing(fieldEditor as NSTextMBS) as boolean

Plugin Version: 14.0, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The event called to decide whether ending text editing should be allowed.
Notes:

Return true to allow end of text editing or false to deny.
Be aware that an event in Xojo without return will cause false to be returned.

7.21 class NSTextFieldMBS

7.21.1 class NSTextFieldMBS

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An NSTextField object is a kind of NSControl that displays text that the user can select or edit and that sends its action message to its target when the user presses the Return key while editing.
Notes: Subclass of the NSControlMBS class.

7.21.2 Methods

7.21.3 Constructor

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new text field with size 100/100 and position 0/0
Example:

```
dim t as new NSTextFieldMBS
```

Notes: On success the handle property is not zero.
See also:

- 7.21.4 Constructor(Handle as Integer) 660
- 7.21.5 Constructor(left as Double, top as Double, width as Double, height as Double) 661

7.21.4 Constructor(Handle as Integer)

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates an object based on the given NSTextField handle.
Example:

```
dim t as new NSTextFieldMBS(0, 0, 100, 100)
dim v as new NSTextFieldMBS(t.handle)

MsgBox str(v.Bounds.Width)+" x "+str(v.Bounds.Height)
```

Notes: The handle is casted to a NSTextField and the plugin retains this handle.
See also:

- 7.21.3 Constructor 660
- 7.21.5 Constructor(left as Double, top as Double, width as Double, height as Double) 661

7.21.5 Constructor(left as Double, top as Double, width as Double, height as Double)

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new text field with the given size and position.
Example:

```
dim x as new NSTextFieldMBS(0, 0, 100, 100)
```

Notes: On success the handle property is not zero.
See also:

- 7.21.3 Constructor 660
- 7.21.4 Constructor(Handle as Integer) 660

7.21.6 selectText

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Ends editing and selects the entire contents of the receiver if it's selectable.
Notes: If the receiver isn't in some window's view hierarchy, this method has no effect.

7.21.7 Properties

7.21.8 AllowsCharacterPickerTouchBarItem as Boolean

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether to allow character picker in touch bar.
Notes:

Available in macOS 10.12.2.
(Read and Write property)

7.21.9 allowsEditingTextAttributes as boolean

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver allows the user to change font attributes of the receiver's text.
Notes:

If true, the user is permitted to change font attributes of the receiver's text; if flag is false, the user isn't so permitted. You can change text attributes programmatically regardless of this setting.

(Read and Write property)

7.21.10 AutomaticTextCompletionEnabled as Boolean

Plugin Version: 17.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether automatic text completion is enabled.
Notes:

Available in macOS 10.12.2.
(Read and Write property)

7.21.11 backgroundColor as NSColorMBS

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The color of the background that the receiver's cell draws behind the text.
Notes: (Read and Write property)

7.21.12 Bezeled as boolean

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value indicating whether the receiver draws a bezeled frame.
Notes: (Read and Write property)

7.21.13 bezelStyle as Integer

Plugin Version: 10.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The receiver's bezel style.
Notes:

You must have already sent the receiver Bezeled with true to make this property take affect.
(Read and Write property)

7.21.14 Bordered as boolean

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value indicating whether the receiver draws a black border around its contents.
Notes:

True if the receiver draws a solid black border around its contents; otherwise false.
(Read and Write property)

7.21.15 drawsBackground as boolean

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Controls whether the receiver's cell draws its background color behind its text.
Notes:

In order to prevent inconsistent rendering, background color rendering is disabled for rounded-bezel text fields.

To really make the background go away, also set bordered=false.
(Read and Write property)

7.21.16 Editable as boolean

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the user can edit the receiver's text.
Notes:

If true, then the user is allowed to both select and edit text. If flag is false, then the user isn't permitted to edit text, and the receiver's selectability is restored to its previous value.

For example, if an NSTextField object is selectable but not editable, then made editable for a time, then made not editable, it remains selectable. To guarantee that text is neither editable nor selectable, simply use setSelectable to turn off selectability.
(Read and Write property)

7.21.17 importsGraphics as boolean

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Controls whether the receiver allows the user to drag image files into it.
Notes:

If true, the receiver accepts dragged images; if false, it doesn't. You can add images programmatically regardless of this setting.
(Read and Write property)

7.21.18 placeholderAttributedString as NSAttributedStringMBS

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The attributed placeholder string.
Notes: (Read and Write property)

7.21.19 placeholderString as String

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The plain text placeholder string.
Notes: (Read and Write property)

7.21.20 Selectable as boolean

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver is selectable (but not editable).
Notes:

If true, the receiver is made selectable but not editable (use Editable to make text both selectable and editable). If false, the text is neither editable nor selectable.
(Read and Write property)

7.21.21 textColor as NSColorMBS

Plugin Version: 10.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The color used to draw the receiver's text.
Notes: (Read and Write property)

7.21.22 Constants

7.21.23 NSTextFieldRoundedBezel = 1

Plugin Version: 10.4. **Function:** One of the constants for the bezelStyle property.
Notes: Corners are rounded.

7.21.24 NSTextFieldSquareBezel = 0

Plugin Version: 10.4. **Function:** One of the constants for the bezelStyle property.
Notes: Corners are square.

7.22 control NSTextViewControlMBS

7.22.1 control NSTextViewControlMBS

Plugin Version: 13.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The Xojo control for a NSTextView.
Notes:

This control embeds a special NSTextView subclass.
Designed for Xojo 2013r1 and newer. May work on Real Studio 2012, but not perfectly.
Please use view property to access the underlaying object and set properties.

7.22.2 Properties

7.22.3 AcceptTabs as Boolean

Plugin Version: 15.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Whether the control should accept tab keys.
Notes:

If true, the plugin will not forward the tab keydown/keyup events to Xojo, because Xojo would do switch to next control.
(Read and Write property)

7.22.4 Scrollview as Variant

Plugin Version: 13.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The scrollview for this textview.
Notes: (Read only property)

7.22.5 View as NSTextViewMBS

Plugin Version: 13.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The view used in the control.
Notes:

Use this object to set more options on the control.
(Read only property)

7.22.6 Events

7.22.7 BoundsChanged

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called when the bounds, but not the frame, changed.

7.22.8 EnableMenuItems

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The event where you can enable menu items.

7.22.9 FrameChanged

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called when the frame changed.

7.22.10 GotFocus

Plugin Version: 16.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The control itself got focus.
Notes: This only fires if the control itself got focus and not a sub control.

7.22.11 LostFocus

Plugin Version: 16.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The control lost focus.
Notes: This only fires if the control itself lost focus and not a sub control.

7.22.12 MenuAction(HitItem as MenuItem) As Boolean

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Called when a menuitem is choosen.
Notes: This allows the control to react on its relevant menu items. Please return true if you handled it or false to give others a chance.

7.22.13 MouseDown(x as Integer, y as Integer, Modifiers as Integer) As Boolean

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The mouse button was pressed inside the controls region at the location passed in to x, y.
Notes:

The coordinates x and y are local to the control, i.e. they represent the position of the mouse click relative to the upper-left corner or the Control.
Return True if you are going to handle the MouseDown. In such a case:

- The Action event, if any, will not execute and the state of the object will not change.
- You will receive the MouseDrag and MouseUp events.

If you return False, the system handles the MouseDown so the above event handlers do not get called.

7.22.14 MouseDrag(x as Integer, y as Integer)

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** This event fires continuously after the mouse button was pressed inside the Control.
Notes:

Mouse location is local to the control passed in to x, y.
As this event is fired continuously (hundreds of time per second), it is your responsibility to determine if the mouse has really moved.

7.22.15 MouseUp(x as Integer, y as Integer)

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The mouse button was released.
Notes: Use the x and y parameters to determine if the mouse button was released within the control's boundaries.

7.22.16 ScaleFactorChanged(NewFactor as Double)

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The backing store scale factor has changed.
Notes: Please invalidate any cached bitmaps or other relevant state.

7.22.17 shouldChangeTextInRange(affectedCharRange as NSRangeMBS, replacementString as string) as boolean

Plugin Version: 13.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent when a text view needs to determine if text in a specified range should be changed.
Notes:

affectedCharRange: The range of characters to be replaced.
replacementString: The characters that will replace the characters in affectedCharRange; nil if only text attributes are being changed.

Return true to allow the replacement, or false to reject the change.

7.22.18 textDidBeginEditing

Plugin Version: 13.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs you that the text object has begun editing (that the user has begun changing it).

7.22.19 textDidChange

Plugin Version: 13.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs you that the text object has changed its characters or formatting attributes.

7.22.20 textDidEndEditing

Plugin Version: 13.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs you that the text object has finished editing (that it has resigned first responder status).

7.22.21 textShouldBeginEditing as boolean

Plugin Version: 13.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked when a text object begins to change its text, this method requests permission to begin editing.
Notes: If the delegate returns false, the text object proceeds to make changes. If the delegate returns true, the text object abandons the editing operation. This method is also invoked when the user drags and drops a file onto the text object.

7.22.22 textShouldEndEditing as boolean

Plugin Version: 13.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked from a text object's implementation of resignFirstResponder, this method requests permission to end editing.
Notes: If the delegate returns false, the text object proceeds to finish editing and resign first responder status. If the delegate returns true, the text object selects all of its text and remains the first responder.

7.22.23 textViewDidChangeSelection

Plugin Version: 13.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent when the selection changes in the text view.

7.23 class NSTextViewMBS

7.23.1 class NSTextViewMBS

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The cocoa text view class.
Notes:

Like the editfield in Realbasic.
Should be placed in a scrollview.

You can embed this view in a CustomNSViewMBS to get more events for mouse and keyboard.
Subclass of the NSTextMBS class.

7.23.2 Methods

7.23.3 alignJustified

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Applies full justification to selected paragraphs (or all text, if the receiver is a plain text object).

7.23.4 breakUndoCoalescing

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Informs the receiver that it should begin coalescing successive typing operations in a new undo grouping.
Notes: This method should be invoked when saving the receiver's contents to preserve proper tracking of unsaved changes and the document's dirty state.

7.23.5 changeAttributes

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Changes the attributes of the current selection.
Notes:

This method changes the attributes by invoking convertAttributes: on sender and applying the returned attributes to the appropriate text. See the NSFontManager class reference for more information on attribute conversion.

Available in Mac OS X v10.3 and later.

7.23.6 changeColor

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the color of the selected text.

7.23.7 changeDocumentBackgroundColor

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An action method used to set the background color.
Notes:

This method gets the new color by sending a color message to sender.
This will only set the background color if allowsDocumentBackgroundColorChangereturns true.

7.23.8 checkTextInDocument

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Check text in document.
Notes: Available in Mac OS X v10.6 and later.

7.23.9 checkTextInSelection

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Check text in selection.
Notes: Available in Mac OS X v10.6 and later.

7.23.10 complete

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Invokes completion in a text view.
Notes: By default invoked using the Escape key, this method provides users with a choice of completions for the word currently being typed. May be invoked programmatically if autocompletion is desired by a client of the text system. You can change the key invoking this method using the text system's key bindings mechanism; see "Text System Defaults and Key Bindings" for an explanation of the procedure (on Apple website).

7.23.11 Constructor

Plugin Version: 8.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new text view with size 100/100 and position 0/0
Example:

```
dim t as new NSTextViewMBS
```

Notes: On success the handle property is not zero.
See also:

- 7.23.12 Constructor(Handle as Integer) 673
- 7.23.13 Constructor(left as Double, top as Double, width as Double, height as Double) 673

7.23.12 Constructor(Handle as Integer)

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates an object based on the given NSTextView handle.
Example:

```
dim t as new NSTextViewMBS(0, 0, 100, 100)
dim v as new NSTextViewMBS(t.handle)

MsgBox str(v.Bounds.Width)+" x "+str(v.Bounds.Height)
```

Notes: The handle is casted to a NSTextView and the plugin retains this handle.
See also:

- 7.23.11 Constructor 673
- 7.23.13 Constructor(left as Double, top as Double, width as Double, height as Double) 673

7.23.13 Constructor(left as Double, top as Double, width as Double, height as Double)

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new text view with the given size and position.
Example:

```
dim x as new NSTextViewMBS(0, 0, 100, 100)
```

Notes: On success the handle property is not zero.
See also:

- 7.23.11 Constructor 673
- 7.23.12 Constructor(Handle as Integer) 673

7.23.14 insertText(attributedString as NSAttributedStringMBS)

Plugin Version: 12.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Inserts text into the receiver's text at the insertion point if there is one, otherwise replacing the selection.
Example:

```
dim textView as NSTextViewMBS // your view
dim a as new NSMutableAttributedStringMBS

if a.initWithString( "Hello World. This is just a little test." ) then

Dim NSFont as NSFontMBS = NSFontMBS.fontWithName("Arial", 24.0)
Dim NSColor as NSColorMBS = NSColorMBS.blueColor
Dim NSRange as NSRangeMBS = NSMakeRangeMBS( 0, 20)
Dim NSAttributes as New Dictionary

NSAttributes.value(NSAttributedStringMBS.NSFontAttributeName) = NSFont
NSAttributes.value(NSAttributedStringMBS.NSForegroundColorAttributeName) = NSColor

a.addAttributes( NSAttributes, NSRange)

textView.insertText a

// replace text with new one:
'textView.textStorage.setAttributedString a

end if
```

Notes:

text: The string to insert. Can be either an string or an NSAttributedStringMBS object.

The inserted text is assigned the current typing attributes.

This method is the means by which text typed by the user enters an NSTextView. See the NSInputManager class and NSTextInput protocol specifications for more information.

This method is the entry point for inserting text typed by the user and is generally not suitable for other

purposes. Programmatic modification of the text is best done by operating on the text storage directly. Because this method pertains to the actions of the user, the text view must be editable for the insertion to work.
See also:

- 7.23.15 insertText(text as string) 675

7.23.15 insertText(text as string)

Plugin Version: 12.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Inserts text into the receiver's text at the insertion point if there is one, otherwise replacing the selection.
Notes:

text: The string to insert. Can be either an string or an NSAttributedStringMBS object.

The inserted text is assigned the current typing attributes.

This method is the means by which text typed by the user enters an NSTextView. See the NSInputManager class and NSTextInput protocol specifications for more information.

This method is the entry point for inserting text typed by the user and is generally not suitable for other purposes. Programmatic modification of the text is best done by operating on the text storage directly. Because this method pertains to the actions of the user, the text view must be editable for the insertion to work.
See also:

- 7.23.14 insertText(attributedString as NSAttributedStringMBS) 674

7.23.16 invalidateTextContainerOrigin

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Invalidates the calculated origin of the text container.
Notes: This method is invoked automatically; you should never need to invoke it directly. Usually called because the text view has been resized or the contents of the text container have changed.

7.23.17 loosenKerning

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Increases the space between glyphs in the receiver's selection, or in all text if the receiver is a plain text view.
Notes: Kerning values are determined by the point size of the fonts in the selection.

7.23.18 lowerBaseline

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Lowers the baseline offset of selected text by 1 point, or of all text if the receiver is a plain text view.
Notes: As such, this method defines a more primitive operation than subscripting.

7.23.19 orderFrontLinkPanel

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Brings forward a panel allowing the user to manipulate links in the text view.
Notes: Available in Mac OS X v10.4 and later.

7.23.20 orderFrontListPanel

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Brings forward a panel allowing the user to manipulate text lists in the text view.
Notes: Available in Mac OS X v10.4 and later.

7.23.21 orderFrontSpacingPanel

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Brings forward a panel allowing the user to manipulate text line heights, interline spacing, and paragraph spacing, in the text view.
Notes: Available in Mac OS X v10.4 and later.

7.23.22 orderFrontSubstitutionsPanel

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Orders the substitution panel to the front.
Notes: Available on Mac OS X 10.6 or newer.

7.23.23 orderFrontTablePanel

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Brings forward a panel allowing the user to manipulate text tables in the text view.

7.23.24 outline

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds the outline attribute to the selected text attributes if absent; removes the attribute if present.
Notes:

If there is a selection and the first character of the selected range has a non-zero stroke width, or if there is no selection and the typing attributes have a non-zero stroke width, then the stroke width is removed; otherwise the value of NSStrokeWidthAttributeName is set to the default value for outline (3.0).

Operates on the selected range if the receiver contains rich text. For plain text the range is the entire contents of the receiver.

7.23.25 pasteAsPlainText

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Inserts the contents of the pasteboard into the receiver's text as plain text.
Notes: This method behaves analogously to insertText.

7.23.26 pasteAsRichText

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method inserts the contents of the pasteboard into the receiver's text as rich text, maintaining its attributes.
Notes: The text is inserted at the insertion point if there is one, otherwise replacing the selection.

7.23.27 performFindPanelAction(FindAction as Integer)

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Performs a find panel action specified by the sender's tag.
Example:

```
const NSFindPanelActionShowFindPanel = 1

dim n as NSTextViewMBS = TextArea1.NSTextViewMBS
n.usesFindPanel = true
n.performFindPanelAction(NSFindPanelActionShowFindPanel)
```

Notes:

This is the generic action method for the find menu and find panel, and can be overridden to implement a custom find panel.

Possible values:
NSFindPanelActionShowFindPanel = 1
NSFindPanelActionNext = 2
NSFindPanelActionPrevious = 3
NSFindPanelActionReplaceAll = 4
NSFindPanelActionReplace = 5
NSFindPanelActionReplaceAndFind = 6
NSFindPanelActionSetFindString = 7
NSFindPanelActionReplaceAllInSelection = 8
NSFindPanelActionSelectAll = 9
NSFindPanelActionSelectAllInSelection = 10
See also:

- 7.23.28 performFindPanelAction(sender as object) 678

7.23.28 performFindPanelAction(sender as object)

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Performs a find panel action specified by the sender.
Notes:

This is the generic action method for the find menu and find panel, and can be overridden to implement a custom find panel.
Sender could be a NSMenuItem or maybe also a NSView.
See also:

- 7.23.27 performFindPanelAction(FindAction as Integer) 677

7.23.29 raiseBaseline

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Raises the baseline offset of selected text by 1 point, or of all text if the receiver is a plain text view.
Notes: As such, this method defines a more primitive operation than superscripting.

7.23.30 replaceTextContainer(textContainer as NSTextContainerMBS)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Replaces the text container for the group of text system objects containing the receiver, keeping the association between the receiver and its layout manager intact.
Notes: textContainer: The new text container. This method raises NSInvalidArgumentException if TextContainer is nil.

7.23.31 showFindIndicatorForRange(charRange as NSRangeMBS)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Causes a temporary highlighting effect to appear around the visible portion (or portions) of the specified range.
Notes:

charRange: The character range around which indicators appear.

This method supports lozenge-style indication of find results. The indicators automatically disappear after a certain period of time, or when the method is called again, or when any of a number of changes occur to the view (such as changes to text, view size, or view position).

This method does not itself scroll the specified range to be visible; any desired scrolling should be done before this method is called, first, because the method acts only on the visible portion of the specified range, and, second, because scrolling causes the indicators to disappear. Calling this method with a zero-length range always removes any existing indicators.

Available in OS X v10.5 and later.

7.23.32 startSpeaking

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Speaks the selected text, or all text if no selection.

7.23.33 stopSpeaking

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Stops the speaking of text.

7.23.34 tightenKerning

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Decreases the space between glyphs in the receiver's selection, or for all glyphs if the receiver is a plain text view.
Notes: Kerning values are determined by the point size of the fonts in the selection.

7.23.35 toggleAutomaticDashSubstitution

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Toggles automatic dash substitution.
Notes: Available on Mac OS X 10.6 or newer.

7.23.36 toggleAutomaticDataDetection

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Toggles automatic data detection.
Notes: Available on Mac OS X 10.6 or newer.

7.23.37 toggleAutomaticLinkDetection

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Changes the state of automatic link detection from enabled to disabled and vice versa.
Notes:

Automatic link detection causes strings representing URLs typed in the view to be automatically made into links to those URLs.

Available in Mac OS X v10.5 and later.

7.23.38 toggleAutomaticQuoteSubstitution

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Changes the state of automatic quotation mark substitution from enabled to disabled and vice versa.
Notes:

Automatic quote substitution causes ASCII quotation marks and apostrophes to be automatically replaced, on a context-dependent basis, with more typographically accurate symbols.

Available in Mac OS X v10.5 and later.

7.23.39 toggleAutomaticSpellingCorrection

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Toggles automatic spelling correction.

Notes: Available on Mac OS X 10.6 or newer.

7.23.40 toggleAutomaticTextReplacement

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Toggles automatic text replacements.
Notes: Available on Mac OS X 10.6 or newer.

7.23.41 toggleBold

Plugin Version: 16.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Toggles the use of a bold/non-bold font.
Example:

```
// some textview
dim textview as NSTextView = TextArea1.NSTextViewMBS

// switch between bold and non bold
textview.toggleBold
```

Notes:

You can set this to continue typing with/without bold or change current selection.
Can only provide bold if the font supports it.

7.23.42 toggleContinuousSpellChecking

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Toggles whether continuous spell checking is enabled for the receiver.

7.23.43 toggleGrammarChecking

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Changes the state of grammar checking from enabled to disabled and vice versa.
Notes: Available in Mac OS X v10.5 and later.

7.23.44 toggleItalic

Plugin Version: 16.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Toggles the use of an italic/non-italic font.
Example:

```
// some textview
dim textview as NSTextView = TextArea1.NSTextViewMBS

// switch between italic and non italic
textview.toggleItalic
```

Notes:

You can set this to continue typing with/without bold or change current selection.
Can only provide italic if the font supports it.

7.23.45 toggleSmartInsertDelete

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Changes the state of smart insert and delete from enabled to disabled and vice versa.
Notes:

Controls whether the receiver inserts or deletes space around selected words so as to preserve proper spacing and punctuation.

Available in Mac OS X v10.5 and later.

7.23.46 toggleTraditionalCharacterShape

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Toggles the NSCharacterShapeAttributeName attribute at the current selection.

7.23.47 turnOffKerning

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the receiver to use nominal glyph spacing for the glyphs in its selection, or for all glyphs if the receiver is a plain text view.

7.23.48 turnOffLigatures

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the receiver to use only required ligatures when setting text, for the glyphs in the selection if the receiver is a rich text view, or for all glyphs if it's a plain text view.

7.23.49 updateDragTypeRegistration

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Updates the acceptable drag types of all text views associated with the receiver's layout manager.
Notes:

If the receiver is editable and is a rich text view, causes all text views associated with the receiver's layout manager to register their acceptable drag types. If the text view isn't editable or isn't rich text, causes those text views to unregister their dragged types.

Subclasses can override this method to change the conditions for registering and unregistering drag types, whether as a group or individually based on the current state of the text view. They should invoke this method when that state changes to perform the necessary update.

7.23.50 updateFontPanel

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Updates the Font panel to contain the font attributes of the selection.
Notes: Does nothing if the receiver doesn't use the Font panel. You should never need to invoke this method directly, but you can override it if needed to handle additional font attributes.

7.23.51 updateRuler

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Updates the ruler view in the receiver's enclosing scroll view to reflect the selection's paragraph and marker attributes.
Notes: Does nothing if the ruler isn't visible or if the receiver doesn't use the ruler. You should never need to invoke this method directly, but you can override this method if needed to handle additional ruler attributes.

7.23.52 useAllLigatures

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the receiver to use all ligatures available for the fonts and languages used when setting text, for the glyphs in the selection

if the receiver is a rich text view, or for all glyphs if it's a plain text view.

7.23.53 useStandardKerning

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Set the receiver to use pair kerning data for the glyphs in its selection, or for all glyphs if the receiver is a plain text view.

7.23.54 useStandardLigatures

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the receiver to use the standard ligatures available for the fonts and languages used when setting text, for the glyphs in the selection if the receiver is a rich text view, or for all glyphs if it's a plain text view.

7.23.55 Properties

7.23.56 acceptsGlyphInfo as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver accepts the glyph info attribute.
Notes:

True if the receiver should accept the NSGlyphInfoAttributeName attribute from text input sources such as input methods and the pasteboard, false otherwise.
(Read and Write property)

7.23.57 allowsDocumentBackgroundColorChange as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets whether the receiver allows its background color to change.
Notes:

This corresponds to the background color of the entirety of the text view, not just to a selected range of text.
(Read and Write property)

7.23.58 allowsImageEditing as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether image attachments should permit editing of their images.
Notes:

True if image editing is allowed; otherwise, false.

For image editing to be allowed, the text view must be editable and the text attachment cell must support image editing.

Available in Mac OS X v10.5 and later.
(Read and Write property)

7.23.59 allowsUndo as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether undo support is enabled.
Notes: (Read and Write property)

7.23.60 AutomaticDashSubstitutionEnabled as boolean

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether automatic dash substitution is enabled.
Notes:

Turning on automatic dash substitution enables automatic conversion of sequences of ASCII hyphen (-) characters to typographic dashes.
Available in Mac OS X v10.6 and later.
(Read and Write property)

7.23.61 AutomaticDataDetectionEnabled as boolean

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether automatic data detection is enabled.
Notes:

Automatic data detection enables detection of dates, addresses, and phone numbers.
Available in Mac OS X v10.6 and later.
(Read and Write property)

7.23.62 AutomaticLinkDetectionEnabled as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Enables or disables automatic link detection.
Notes:

If true, automatic link detection is enabled; if false, it is disabled.

Automatic link detection causes strings representing URLs typed in the view to be automatically made into links to those URLs.

Available in Mac OS X v10.5 and later.
(Read and Write property)

7.23.63 AutomaticQuoteSubstitutionEnabled as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether automatic quotation mark substitution is enabled.
Notes:

True if automatic quotation mark substitution is enabled; otherwise, false.

Automatic quote substitution causes ASCII quotation marks and apostrophes to be automatically replaced, on a context-dependent basis, with more typographically accurate symbols.

Available in Mac OS X v10.5 and later.
(Read and Write property)

7.23.64 AutomaticSpellingCorrectionEnabled as boolean

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether automatic spelling correction is enabled.
Notes:

Available in Mac OS X v10.6 and later.
(Read and Write property)

7.23.65 AutomaticTextReplacementEnabled as boolean

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether automatic text replacement is enabled.
Notes:

Turning on automatic text replacement enables automatic substitution of a variety of static text items based on user preferences.
Available in Mac OS X v10.6 and later.
(Read and Write property)

7.23.66 backgroundColor as NSColorMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The background color.
Notes: (Read and Write property)

7.23.67 Bold as Boolean

Plugin Version: 16.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the current typing uses a bold font.
Example:

```
// some textview
dim textview as NSTextView = TextArea1.NSTextViewMBS

// switch to bold font
textview.Bold = true
```

Notes:

You can set this to continue typing with/without bold or change current selection.
Can only provide bold if the font supports it.
(Read and Write property)

7.23.68 ContinuousSpellCheckingEnabled as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver has continuous spell checking enabled.
Notes:

True if the receiver has continuous spell checking enabled, otherwise, false.

(Read and Write property)

7.23.69 defaultParagraphStyle as Variant

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Gets or sets the receiver's default paragraph style.
Notes:

Use with NSParagraphStyleMBS class.
(Read and Write property)

7.23.70 displaysLinkToolTips as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the text view automatically supplies the destination of a link as a tooltip for text that has a link attribute.
Notes:

True if link tooltips are automatically displayed; otherwise, false.

The default value for this feature is true; clients who do not wish tooltips to be displayed automatically must explicitly disable it.

Available in Mac OS X v10.5 and later.
(Read and Write property)

7.23.71 enabledTextCheckingTypes as Int64

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The default text checking types.
Notes:

Available in Mac OS X v10.6 and later.

Can be NSTextCheckingAllSystemTypes (& hffffffff) or NSTextCheckingAllCustomTypes (& hffffffff00000000) or NSTextCheckingAllTypes (& hffffffffffffffff).
(Read and Write property)

7.23.72 GrammarCheckingEnabled as boolean

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether or not grammar checking is enabled.
Notes:

Available on Mac OS X 10.5 or newer.
If grammar checking is enabled, then it is performed alongside spell checking, whenever the text view checks spelling, whether continuously or manually.
(Read and Write property)

7.23.73 insertionPointColor as NSColorMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The color used to draw the insertion point.
Notes: (Read and Write property)

7.23.74 isCoalescingUndo as boolean

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns whether undo coalescing is in progress.
Notes:

True if undo coalescing is in progress, otherwise false.
Available in OS X v10.6 and later.
(Read only property)

7.23.75 Italic as Boolean

Plugin Version: 16.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the current typing uses a italic font.
Example:

```
// some textview
dim textview as NSTextView = TextArea1.NSTextViewMBS

// switch to italic font
textview.Italic = true
```

Notes:

You can set this to continue typing with/without italic or change current selection.

Can only provide italic if the font supports it.
(Read and Write property)

7.23.76 layoutManager as NSLayoutManagerMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the layout manager that lays out text for the receiver's text container.
Notes:

The layout manager that lays out text for the receiver's text container, or nil if there's no such object, such as when a text view isn't linked into a group of text objects.
(Read only property)

7.23.77 linkTextAttributes as dictionary

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Gets and sets the attributes used to draw the onscreen presentation of link text.
Notes:

A dictionary of attributes corresponding to the onscreen presentation of link text.

Link text attributes are applied as temporary attributes to any text with a link attribute. Candidates include those attributes that do not affect layout.

In applications created prior to OS X v10.3, the default value is an empty dictionary. In applications created with OS X v10.3 or greater, the default attributes specify blue text with a single underline and the pointing hand cursor.
(Read and Write property)

7.23.78 markedTextAttributes as dictionary

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Gets or sets the attributes used to draw marked text.
Notes:

A dictionary of attributes used to draw marked text. Text color, background color, and underline are the only supported attributes for marked text.
(Read and Write property)

7.23.79 RTFData as Memoryblock

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Get or set the textview content as RTF data.
Notes:

Works only for Cocoa and uses RTF parser/generator from Apple.
(Read and Write property)

7.23.80 RulerVisible as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the scroll view enclosing the text views sharing the receiver's layout manager shows its ruler.
Notes:

True if the scroll view enclosing the text views sharing the receiver's layout manager shows its ruler, false otherwise. The default is false.
(Read and Write property)

7.23.81 selectedTextAttributes as dictionary

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Gets or sets the attributes used to indicate the selection.
Notes:

A dictionary of attributes used to indicate the selection. Text color, background color, and underline are the only supported attributes for selected text.
(Read and Write property)

7.23.82 smartInsertDeleteEnabled as boolean

Plugin Version: 8.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the view inserts or deletes space around selected words so as to preserve proper spacing and punctuation.
Notes: (Read and Write property)

7.23.83 spellCheckerDocumentTag as Integer

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a tag identifying the text view's text as a document for the spell checker server.
Notes:

The document tag is obtained by sending a uniqueSpellDocumentTag message to the spell server the first time this method is invoked for a particular group of text views. See the NSSpellChecker and NSSpellServer class specifications for more information on how this tag is used.
(Read only property)

7.23.84 textContainer as NSTextContainerMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The text container.
Notes:

The receiver uses the layout manager and text storage of aTextContainer.

Special Considerations
This method is invoked automatically when you create a text view; you should never invoke it directly, but might want to override it. To change the text view for an established group of text system objects, use TextView setter on the text container. To replace the text container for a text view and maintain the view's association with the existing layout manager and text storage, use replaceTextContainer.
(Read and Write property)

7.23.85 textContainerInset as NSSizeMBS

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The empty space the receiver leaves around its text container.
Example:

```
dim n as NSTextViewMBS = TextArea1.NSTextViewMBS

n.textContainerInset = NSMakeSizeMBS(-3,0)
```

Notes:

It is possible to set the text container and view sizes and resizing behavior so that the inset cannot be maintained exactly, although the text system tries to maintain the inset wherever possible. In any case, the textContainerOrigin and size of the text container are authoritative as to the location of the text container within the view.

The text itself can have an additional inset, inside the text container, specified by the setLineFragment-Padding method of NSTextContainer.
(Read and Write property)

7.23.86 textContainerOrigin as NSPointMBS

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the origin of the receiver's text container.
Notes:

The origin of the receiver's text container, which is calculated from the receiver's bounds rectangle, container inset, and the container's used rect.
(Read only property)

7.23.87 textStorage as NSTextStorageMBS

Plugin Version: 12.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's text storage object.
Example:

```
// load rtfd file into textarea
dim file as FolderItem = SpecialFolder.Desktop.Child("test.rtfd")
dim n as NSAttributedStringMBS = NSAttributedStringMBS.attributedStringWithPath(file)
dim t as NSTextViewMBS = TextArea1.NSTextViewMBS
t.textStorage.setAttributedString(n)
```

Notes: (Read only property)

7.23.88 typingAttributes as dictionary

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Get or set typing attributes.
Notes:

Typing attributes are reset automatically whenever the selection changes. However, if you add any user actions that change text attributes, the action should use this method to apply those attributes afterwards. User actions that change attributes should always set the typing attributes because there might not be a subsequent change in selection before the next typing.
(Read and Write property)

7.23.89 usesFindPanel as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver allows for a find panel.

Notes: (Read and Write property)

7.23.90 usesFontPanel as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Controls whether the text views sharing the receiver's layout manager use the Font panel and Font menu.
Notes: (Read and Write property)

7.23.91 usesInspectorBar as Boolean

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether this text view uses the inspector bar.
Example:

```
dim t as NSTextViewMBS = textarea1.NSTextViewMBS
t.usesInspectorBar = true
```

Notes:

Available in OS X v10.7 and later.
(Read and Write property)

7.23.92 usesRuler as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the text views sharing the receiver's layout manager use a ruler.
Notes:

True to cause text views sharing the receiver's layout manager to respond to NSRulerView client messages and to paragraph-related menu actions, and update the ruler (when visible) as the selection changes with its paragraph and tab attributes, otherwise false.

Text views must use a ruler to respond to Format menu commands. If a set of text views don't use the ruler, the ruler is hidden, and the text views disallow paragraph attribute changes. By default, text view objects use the ruler.
(Read and Write property)

7.23.93 Events

7.23.94 shouldChangeTextInRange(affectedCharRange as NSRangeMBS, replacementString as string) as boolean

Plugin Version: 10.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent when a text view needs to determine if text in a specified range should be changed.
Notes:

affectedCharRange: The range of characters to be replaced.
replacementString: The characters that will replace the characters in affectedCharRange; nil if only text attributes are being changed.

Return true to allow the replacement, or false to reject the change.

7.23.95 textViewDidChangeSelection

Plugin Version: 8.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent when the selection changes in the text view.

7.23.96 Constants

7.23.97 NSFindPanelSubstringMatchTypeContains=0

Plugin Version: 9.6. **Function:** One of the constants to specify the type of substring matching used by the Find panel.
Notes:

Finds a word containing the search string.
Available in Mac OS X v10.5 and later.

7.23.98 NSFindPanelSubstringMatchTypeEndsWith=3

Plugin Version: 9.6. **Function:** One of the constants to specify the type of substring matching used by the Find panel.
Notes:

Finds a word ending with the search string.
Available in Mac OS X v10.5 and later.

7.23.99 NSFindPanelSubstringMatchTypeFullWord=2

Plugin Version: 9.6. **Function:** One of the constants to specify the type of substring matching used by the Find panel.
Notes:

Finds a word exactly matching the search string.
Available in Mac OS X v10.5 and later.

7.23.100 NSFindPanelSubstringMatchTypeStartsWith=1

Plugin Version: 9.6. **Function:** One of the constants to specify the type of substring matching used by the Find panel.
Notes:

Finds a word starting with the search string.
Available in Mac OS X v10.5 and later.

7.23.101 NSSelectByCharacter=0

Plugin Version: 9.6. **Function:** One of the constants to specify how much the text view extends the selection when the user drags the mouse.
Notes: Extends the selection character by character.

7.23.102 NSSelectByParagraph=2

Plugin Version: 9.6. **Function:** One of the constants to specify how much the text view extends the selection when the user drags the mouse.
Notes: Extends the selection paragraph by paragraph.

7.23.103 NSSelectByWord=1

Plugin Version: 9.6. **Function:** One of the constants to specify how much the text view extends the selection when the user drags the mouse.
Notes: Extends the selection word by word.

7.23.104 NSSelectionAffinityDownstream=1

Plugin Version: 9.6. **Function:** One of the constants to specify the preferred direction of selection. **Notes:** The selection is moving toward the bottom of the document.

7.23.105 NSSelectionAffinityUpstream=0

Plugin Version: 9.6. **Function:** One of the constants to specify the preferred direction of selection. **Notes:** The selection is moving toward the top of the document.

7.24 class SegmentedControl

7.24.1 class SegmentedControl

Plugin Version: 12.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Build in Segmented Control class in Real Studio.

7.24.2 Methods

7.24.3 NSSegmentedControlMBS as NSSegmentedControlMBS

Plugin Version: 12.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Creates a NSSegmentedControlMBS object for the given control.
Example:

```
SegmentedControl1.NSSegmentedControlMBS.selectedSegment = 0
```

Notes: This way you can manipulate Cocoa controls directly.

7.25 class Statictext

7.25.1 class Statictext

Plugin Version: 10.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The built in Statictext class in REALbasic.

7.25.2 Methods

7.25.3 NSTextFieldMBS as NSTextFieldMBS

Plugin Version: 10.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Creates a NSTextFieldMBS object for the given control.
Notes: This way you can manipulate Cocoa controls directly.

7.26 class TextArea

7.26.1 class TextArea

Plugin Version: 9.7, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The built in textarea class in REALbasic.
Example:

```
// make a PDF from a textarea in Cocoa REALbasic target:

// find view
dim n as NSViewMBS = TextArea1.NSViewMBS
if n = nil then
MsgBox "Only in Cocoa!"
Return
end if

// make pdf data
dim s as string = n.dataWithPDFInsideRect(0,0,n.frame.Width, n.frame.Height)

// save
dim f as FolderItem = GetSaveFolderItem("", "test.pdf")

if f<>Nil then

dim b as BinaryStream = BinaryStream.Create(f, true)

b.Write s

end if
```

Notes: Requires RB 2009r4 or newer.

7.26.2 Methods

7.26.3 NSTextFieldMBS as NSTextFieldMBS

Plugin Version: 12.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Creates a NSTextFieldMBS object for the given control.
Notes:

This way you can manipulate Cocoa controls directly.
Real Studio 2012 uses a NSTextField for text areas without style and without multiline.

7.26.4 NSTextViewMBS as NSTextViewMBS

Plugin Version: 10.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Creates a NSTextViewMBS object for the given control.
Example:

```
// load rtfd file into textarea
dim file as FolderItem = SpecialFolder.Desktop.Child("test.rtfd")
dim n as NSAttributedStringMBS = NSAttributedStringMBS.attributedStringWithPath(file)
dim t as NSTextViewMBS = TextArea1.NSTextViewMBS
t.textStorage.setAttributedString(n)
```

Notes: This way you can manipulate Cocoa controls directly.

7.26.5 Properties

7.26.6 RTFDataMBS as Memoryblock

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Get or set the textview content as RTF data.
Example:

```
dim rtf as MemoryBlock = TextArea1.RTFDataMBS
TextArea2.RTFDataMBS = rtf
```

Notes:

Works only for Cocoa and uses RTF parser/generator from Apple.
(Read and Write computed property)

7.27 class TextField

7.27.1 class TextField

Plugin Version: 10.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The built in TextField class in REALbasic.

7.27.2 Methods

7.27.3 NSTextFieldMBS as NSTextFieldMBS

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Creates a NSTextFieldMBS object for the given control.
Notes:

This way you can manipulate Cocoa controls directly.
Seems like RS 2011r1 uses a NSTextField, so this method should return an object on Cocoa targets.

7.27.4 NSTextViewMBS as NSTextViewMBS

Plugin Version: 10.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Creates a NSTextViewMBS object for the given control.
Notes:

This way you can manipulate Cocoa controls directly.
Seems like RS 2011r1 uses a NSTextField, so this method should return nil on Cocoa targets. Please use NSTextFieldMBS method in this case.

Chapter 8

Cocoa Drawing

8.1 class NSColorPanelMBS

8.1.1 class NSColorPanelMBS

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A class to control a Color Panel (floating window).
Notes:

If you use SelectColor in your application, this color panel will be converted in a dialog which makes this class useless.

You should only have one instance of this class in your application.

If you compile for Cocoa, a TextField/TextArea automatically registers for color panel. So in order to avoid them updating text color with color panel selection, clear the focus by calling window.clearfocus method.

This class does only work on desktop computers, not in a webbrowser.
Subclass of the NSPanelMBS class.

8.1.2 Methods

8.1.3 attachColorList(list as NSColorListMBS)

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Attaches the given color list to the panel.
Notes: An application should use this method to add an NSColorList saved with a document in its file

package or in a directory other than NSColorList's standard search directories.

8.1.4 Constructor

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor to create a new color panel.

8.1.5 detachColorList(list as NSColorListMBS)

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Detaches the color list from the panel.

8.1.6 GetColor(byref red as single, byref green as single, byref blue as single, byref alpha as single) as boolean

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The current color in the RGB color model.
Notes:

Values from 0.0 to 1.0.
Returns true if the values are valid.
See also:

- 8.1.21 getColor as NSColorMBS 707

8.1.7 GetColorFromDrag as color

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns color values from the drag.
Notes:

If you receive a drag flavor which can't be handled, it may be a NSColor.
In this case only this method will be successfull.
See also:

- 8.1.8 GetColorFromDrag(byref red as single, byref green as single, byref blue as single, byref alpha as single) as boolean 705

8.1.8 GetColorFromDrag(byref red as single, byref green as single, byref blue as single, byref alpha as single) as boolean

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns color values from the drag.
Notes:

If you receive a drag flavor which can't be handled, it may be a NSColor.
In this case only this method will be successfull.
See also:

- 8.1.7 GetColorFromDrag as color 704

8.1.9 orderFrontColorPanel

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Brings up the color panel, an instance of NSColorPanel.
Notes: If the NSColorPanel object does not exist yet, this method creates one. This method is typically invoked when the user chooses Colors from a menu.

8.1.10 SetColor(red as single, green as single, blue as single, alpha as single)

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the color.
Notes: Values from 0.0 to 1.0.
See also:

- 8.1.11 setColor(value as NSColorMBS) 705

8.1.11 setColor(value as NSColorMBS)

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the color.
See also:

- 8.1.10 SetColor(red as single, green as single, blue as single, alpha as single) 705

8.1.12 setContinuous(value as boolean)

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether you want to receive Changed events while the user chooses the color.
Notes: Set value to true to have the receiver calls the Changed event continuously as the color of the NSColorPanel is set by the user; otherwise false.

8.1.13 setMode(value as Integer)

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the mode of the panel the mode is one of the modes allowed by the color mask.
Notes:

Constants:

```
const NSGrayModeColorPanel              = 0
const NSRGBModeColorPanel               = 1
const NSCMYKModeColorPanel              = 2
const NSHSBModeColorPanel               = 3
const NSCustomPaletteModeColorPanel     = 4
const NSColorListModeColorPanel         = 5
const NSWheelModeColorPanel             = 6
const NSCrayonModeColorPanel            = 7
```

8.1.14 SetPickerMode(value as Integer)

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Specifies the color panel's initial picker.
Notes:

Constants:

```
NSColorPanelGrayModeMask            = & h00000001
NSColorPanelRGBModeMask             = & h00000002
NSColorPanelCMYKModeMask            = & h00000004
NSColorPanelHSBModeMask             = & h00000008
NSColorPanelCustomPaletteModeMask   = & h00000010
NSColorPanelColorListModeMask       = & h00000020
NSColorPanelWheelModeMask           = & h00000040
NSColorPanelCrayonModeMask          = & h00000080
NSColorPanelAllModesMask            = & h0000ffff
```

8.1.15 setShowsAlpha(value as boolean)

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Tells the panel whether or not to show alpha values and an opacity slider.
Notes: Note that calling the NSColor method setIgnoresAlpha with a value of true overrides any value set with this method.

8.1.16 SharedColorPanelExists as boolean

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value indicating whether the NSColorPanel has been created already.
Notes: True if the NSColorPanel has been created already; otherwise false.

8.1.17 Properties

8.1.18 accessoryView as NSViewMBS

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The accessory view displayed in the panel.
Notes:

The accessory view can be any custom view you want to display with NSColorPanel, such as a view offering color blends in a drawing program. The accessory view is displayed below the color picker and above the color swatches in the NSColorPanel. The NSColorPanel automatically resizes to accommodate the accessory view.
(Read and Write property)

8.1.19 alpha as Double

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's current alpha value based on its opacity slider.
Notes:

Value is in the range between 0.0 and 1.0.
This is 1.0 (opaque) if the panel has no opacity slider.
(Read only property)

8.1.20 ColorValue as Color

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The current color as a Realbasic color in the RGB model.
Notes: (Read and Write property)

8.1.21 getColor as NSColorMBS

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The current color.
Notes:

The color returned can be RGB or something else.
(Read and Write property)
See also:

- 8.1.6 GetColor(byref red as single, byref green as single, byref blue as single, byref alpha as single) as boolean 704

8.1.22 getColorAsRGB as NSColorMBS

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The current color.
Notes:

Returned NSColorMBS object is in RGB color mode.
(Read only property)

8.1.23 isContinuous as boolean

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value indicating whether the class continuously calls the Changed event.
Notes:

Returns true if the receiver continuouslycalls the Changed event as the user manipulates the color picker; otherwise false.
(Read and Write property)

8.1.24 mode as Integer

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the color picker mode.
Notes:

Constants:

```
const NSGrayModeColorPanel              = 0
const NSRGBModeColorPanel               = 1
const NSCMYKModeColorPanel              = 2
const NSHSBModeColorPanel               = 3
const NSCustomPaletteModeColorPanel     = 4
const NSColorListModeColorPanel         = 5
const NSWheelModeColorPanel             = 6
const NSCrayonModeColorPanel            = 7
```

(Read and Write property)

8.1.25 showsAlpha as boolean

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value indicating whether or not the panel shows alpha values and an opacity slider.
Notes:

Note that calling the NSColor method setIgnoresAlpha with a value of true overrides any value set with setShowsAlpha.
(Read and Write property)

8.1.26 Events

8.1.27 Changed

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The color changed.
Notes: May not fire in the RB IDE.

8.1.28 DidMove

Plugin Version: 14.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The color panel did move.

8.1.29 GotFocus

Plugin Version: 14.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The color panel got focus.

8.1.30 Hidden

Plugin Version: 14.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The color panel is hidden.

8.1.31 LostFocus

Plugin Version: 14.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The color panel lost focus.

8.1.32 Shown

Plugin Version: 14.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The color panel shows.

8.1.33 WillClose

Plugin Version: 14.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The color panel will close.

8.1.34 Constants

8.1.35 NSCMYKModeColorPanel = 2

Plugin Version: 14.2. **Function:** On of the modes to specify the active color mode used when NSColorPanel is masked for more than one color mode.
Notes: Cyan-yellow-magenta-black

8.1.36 NSColorListModeColorPanel = 5

Plugin Version: 14.2. **Function:** On of the modes to specify the active color mode used when NSColorPanel is masked for more than one color mode.
Notes: Custom color list

8.1.37 NSColorPanelAllModesMask = & h0000ffff

Plugin Version: 14.2. **Function:** On of the masks to specify the which modes the panel allows.
Notes: All of the above.

8.1.38 NSColorPanelCMYKModeMask = & h00000004

Plugin Version: 14.2. **Function:** On of the masks to specify the which modes the panel allows.
Notes: Cyan-yellow-magenta-black.

8.1.39 NSColorPanelColorListModeMask = & h00000020

Plugin Version: 14.2. **Function:** On of the masks to specify the which modes the panel allows. **Notes:** Custom color list.

8.1.40 NSColorPanelCrayonModeMask = & h00000080

Plugin Version: 14.2. **Function:** On of the masks to specify the which modes the panel allows. **Notes:** Crayons.

8.1.41 NSColorPanelCustomPaletteModeMask = & h00000010

Plugin Version: 14.2. **Function:** On of the masks to specify the which modes the panel allows. **Notes:** Custom palette.

8.1.42 NSColorPanelGrayModeMask = & h00000001

Plugin Version: 14.2. **Function:** On of the masks to specify the which modes the panel allows. **Notes:** Grayscale-alpha.

8.1.43 NSColorPanelHSBModeMask = & h00000008

Plugin Version: 14.2. **Function:** On of the masks to specify the which modes the panel allows. **Notes:** Hue-saturation-brightness.

8.1.44 NSColorPanelRGBModeMask = & h00000002

Plugin Version: 14.2. **Function:** On of the masks to specify the which modes the panel allows. **Notes:** Red-green-blue.

8.1.45 NSColorPanelWheelModeMask = & h00000040

Plugin Version: 14.2. **Function:** On of the masks to specify the which modes the panel allows. **Notes:** Color wheel.

8.1.46 NSCrayonModeColorPanel = 7

Plugin Version: 14.2. **Function:** On of the modes to specify the active color mode used when NSColorPanel is masked for more than one color mode.
Notes: Crayons.

8.1.47 NSCustomPaletteModeColorPanel = 4

Plugin Version: 14.2. **Function:** On of the modes to specify the active color mode used when NSColorPanel is masked for more than one color mode.
Notes: Custom palette

8.1.48 NSGrayModeColorPanel = 0

Plugin Version: 14.2. **Function:** On of the modes to specify the active color mode used when NSColorPanel is masked for more than one color mode.
Notes: Grayscale-alpha

8.1.49 NSHSBModeColorPanel = 3

Plugin Version: 14.2. **Function:** On of the modes to specify the active color mode used when NSColorPanel is masked for more than one color mode.
Notes: Hue-saturation-brightness

8.1.50 NSNoModeColorPanel = -1

Plugin Version: 14.2. **Function:** On of the modes to specify the active color mode used when NSColorPanel is masked for more than one color mode.
Notes:

Indicates no color panel mode.
Available in OS X version 10.5 and later.

8.1.51 NSRGBModeColorPanel = 1

Plugin Version: 14.2. **Function:** On of the modes to specify the active color mode used when NSColorPanel is masked for more than one color mode.

Notes: Red-green-blue

8.1.52 NSWheelModeColorPanel = 6

Plugin Version: 14.2. **Function:** On of the modes to specify the active color mode used when NSColorPanel is masked for more than one color mode.
Notes: Color wheel

8.2 class NSGraphicsMBS

8.2.1 class NSGraphicsMBS

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The Cocoa class for drawing.
Example:

```
// make new image
dim myImage as new NSImageMBS(500,500)
dim myGraphics as new NSGraphicsMBS(myImage)

// make logo image
dim myPicture as Picture = LogoMBS(500)
dim anotherImage as new NSImageMBS(myPicture)

// draw logo image to new image
myGraphics.drawInRect(anotherImage, 0, 0, myImage.width, myImage.height, 0, 0, anotherImage.width,
anotherImage.height, myGraphics.NSCompositeSourceOver, 1.0)
myGraphics = nil // flush drawing

// save to file
dim f as FolderItem = SpecialFolder.Desktop.Child("test.jpg")
dim b as BinaryStream = BinaryStream.Create(f, True)
if b<>nil then
b.Write myImage.JPEGRepresentation
b.Close
end if
```

Notes:

The plugin often provides in events such objects for drawing. In that case please only use the object in the event and don't store it for later use. It is only valid with in a draw event.

Internally this is a NSGraphicsContext object.

If you create objects on your own, make sure you only use the methods while the object is valid.

8.2.2 Methods

8.2.3 addClip(path as NSBezierPathMBS)

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Intersects the area enclosed by the receiver's path with the clipping path of the current graphics context and makes the resulting shape the current clipping path.
Notes: This method uses the current winding rule to determine the clipping shape of the receiver. This method does not affect the receiver's path.

8.2.4 boundingRectWithSize(text as NSAttributedStringMBS, size as NSSizeMBS, options as Integer = 0) as NSRectMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Calculates and returns bounding rectangle for the receiver drawn using the options specified, within the given rectangle in the current graphics context.
Example:

```
// create Hello World in red
dim a as NSAttributedStringMBS = NSAttributedStringMBS.attributedStringWithString("Hello World")
dim m as NSMutableAttributedStringMBS = a.mutableCopy

m.addAttribute(a.NSForegroundColorAttributeName, NSColorMBS.redColor, new NSRangeMBS(0, m.length))

// query size
dim g as new NSGraphicsMBS(Canvas1.NSViewMBS)
dim r as NSRectMBS = g.boundingRectWithSize(m, new NSSizeMBS(canvas1.Width, canvas1.Height), g.NSStringDrawingUsesLineFragmentOrigin)

MsgBox r.String
```

Notes:

size: The size of the rectangle to draw in.
options: The string drawing options.

Returns the bounding rectangle in the current graphics context.
The origin of the rectangle returned from this method is the first glyph origin.
See also:

- 8.2.5 boundingRectWithSize(text as string, size as NSSizeMBS, options as Integer = 0, DicAttributes as dictionary = nil) as NSRectMBS 716

8.2.5 boundingRectWithSize(text as string, size as NSSizeMBS, options as Integer = 0, DicAttributes as dictionary = nil) as NSRectMBS

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Calculates and returns the bounding rect for the text drawn using the given options and display characteristics, within the specified rectangle in the current graphics context.
Example:

```
Dim NSGraphics as New NSGraphicsMBS()
dim size as NSSizeMBS = new NSSizeMBS(100,100)
dim text as string = "Hello World. How are you? I'm fine. This is just a test string."
dim options as Integer = NSGraphics.NSStringDrawingUsesLineFragmentOrigin
Dim rect as NSRectMBS = NSGraphics.boundingRectWithSize(text, size, options)

MsgBox str(Rect.Width)+" "+str(Rect.Height)
```

Notes:

text: the text to use for calculation.
size: The size of the rectangle to draw in.
options: String drawing options.
attributes: A dictionary of text attributes to be applied to the string. These are the same attributes that can be applied to an NSAttributedString object, but in the case of Strings, the attributes apply to the entire string, rather than ranges within the string.

Returns the bounding rect for the receiver drawn using the given options and display characteristics. The rect origin returned from this method is the first glyph origin.

Available in Mac OS X v10.4 and later.

See NSStringDrawing* constants. Use NSStringDrawingUsesLineFragmentOrigin to switch to multiline mode.
See also:

- 8.2.4 boundingRectWithSize(text as NSAttributedStringMBS, size as NSSizeMBS, options as Integer = 0) as NSRectMBS 715

8.2.6 clipRect(r as NSRectMBS)

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Intersects the specified rectangle with the clipping path of the current graphics context and makes the resulting shape the current clipping path
Notes: r: The rectangle to intersect with the current clipping path.

8.2.7 concat(transform as NSAffineTransformMBS)

Plugin Version: 15.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Concats this transform to the current transform of the graphics environment.

8.2.8 ConcatTransform(NSAffineTransform as Variant)

Plugin Version: 12.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Appends the receiver's matrix to the current transformation matrix stored in the current graphics context, replacing the current transformation matrix with the result.
Notes:

Please use saveGraphicsState so you can restore the state before applying matrix for other drawings.

Concatenation is performed by matrix multiplication.

If this method is invoked from within an NSView drawRect method, then the current transformation matrix is an accumulation of the screen, window, and any superview's transformation matrices. Invoking this method defines a new user coordinate system whose coordinates are mapped into the former coordinate system according to the receiver's transformation matrix. To undo the concatenation, you must invert the receiver's matrix and invoke this method again.

NSAffineTransform must be a NSAffineTransformMBS object.

8.2.9 Constructor

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes the current graphics context of the current thread.
See also:

- 8.2.10 Constructor(targetImage as NSBitmapImageRepMBS) 718
- 8.2.11 Constructor(targetImage as NSImageMBS) 718
- 8.2.12 Constructor(targetView as NSViewMBS) 719
- 8.2.13 Constructor(targetWindow as NSWindowMBS) 719
- 8.2.14 Constructor(targetWindow as window) 720

8.2.10 Constructor(targetImage as NSBitmapImageRepMBS)

Plugin Version: 12.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new graphics context for drawing into a bitmap image representation.
Example:

```
dim n as new NSImageMBS(300,300)
dim r as new NSBitmapImageRepMBS(300, 300, 8, 4, true, NSColorSpaceMBS.NSCalibratedRGBColorSpace, 4*300, 32)

dim g as new NSGraphicsMBS(r)
g.SetColorRGB 1.0,0,0,0.5
g.fillRect 0, 0, 100, 100
g = nil // flush
n.addRepresentation r

Backdrop = n.CopyPictureWithMask
```

Notes:

Please make sure the graphics object is destroyed (Set to nil) so the drawings flush to the image.
Returns nil on any error.
See also:

- 8.2.9 Constructor 717
- 8.2.11 Constructor(targetImage as NSImageMBS) 718
- 8.2.12 Constructor(targetView as NSViewMBS) 719
- 8.2.13 Constructor(targetWindow as NSWindowMBS) 719
- 8.2.14 Constructor(targetWindow as window) 720

8.2.11 Constructor(targetImage as NSImageMBS)

Plugin Version: 12.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new graphics context for drawing into an image.
Example:

```
// make new image
dim myImage as new NSImageMBS(500,500)
dim myGraphics as new NSGraphicsMBS(myImage)

// make logo image
dim myPicture as Picture = LogoMBS(500)
dim anotherImage as new NSImageMBS(myPicture)
```

```
// draw logo image to new image
myGraphics.drawInRect(anotherImage, 0, 0, myImage.width, myImage.height, 0, 0, anotherImage.width,
anotherImage.height, myGraphics.NSCompositeSourceOver, 1.0)
myGraphics = nil // flush drawing

// save to file
dim f as FolderItem = SpecialFolder.Desktop.Child("test.jpg")
dim b as BinaryStream = BinaryStream.Create(f, True)
if b<>nil then
b.Write myImage.JPEGRepresentation
b.Close
end if
```

Notes: Please make sure the graphics object is destroyed (Set to nil) so the drawings flush to the image.
See also:

- 8.2.9 Constructor 717
- 8.2.10 Constructor(targetImage as NSBitmapImageRepMBS) 718
- 8.2.12 Constructor(targetView as NSViewMBS) 719
- 8.2.13 Constructor(targetWindow as NSWindowMBS) 719
- 8.2.14 Constructor(targetWindow as window) 720

8.2.12 Constructor(targetView as NSViewMBS)

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new graphics context for drawing into a Cocoa view.
Notes: Please make sure the graphics object is destroyed (Set to nil) so the drawings flush to the window.
See also:

- 8.2.9 Constructor 717
- 8.2.10 Constructor(targetImage as NSBitmapImageRepMBS) 718
- 8.2.11 Constructor(targetImage as NSImageMBS) 718
- 8.2.13 Constructor(targetWindow as NSWindowMBS) 719
- 8.2.14 Constructor(targetWindow as window) 720

8.2.13 Constructor(targetWindow as NSWindowMBS)

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new graphics context for drawing into a window.
See also:

- 8.2.9 Constructor 717
- 8.2.10 Constructor(targetImage as NSBitmapImageRepMBS) 718
- 8.2.11 Constructor(targetImage as NSImageMBS) 718
- 8.2.12 Constructor(targetView as NSViewMBS) 719
- 8.2.14 Constructor(targetWindow as window) 720

8.2.14 Constructor(targetWindow as window)

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new graphics context for drawing into a window.
See also:

- 8.2.9 Constructor 717
- 8.2.10 Constructor(targetImage as NSBitmapImageRepMBS) 718
- 8.2.11 Constructor(targetImage as NSImageMBS) 718
- 8.2.12 Constructor(targetView as NSViewMBS) 719
- 8.2.13 Constructor(targetWindow as NSWindowMBS) 719

8.2.15 drawAtPoint(image as NSImageMBS, x as Double, y as Double, sx as Double, sy as Double, sw as Double, sh as Double, Operation as Integer, fraction as Double)

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Draws all or part of the image at the specified point in the current coordinate system.
Notes:

x/y: The location in the current coordinate system at which to draw the image.
sx/sy/sw/sh: The source rectangle specifying the portion of the image you want to draw. The coordinates of this rectangle are specified in the image's own coordinate system. If you pass in zeros, the entire image is drawn.
operation: The compositing operation to use when drawing the image. See the NSCompositingOperation constants.
fraction: The opacity of the image, specified as a value from 0.0 to 1.0. Specifying a value of 0.0 draws the image as fully transparent while a value of 1.0 draws the image as fully opaque. Values greater than 1.0 are interpreted as 1.0.

The image content is drawn at its current resolution and is not scaled unless the CTM of the current coordinate system itself contains a scaling factor. The image is otherwise positioned and oriented using the current coordinate system.

For Operation you use the Composite constants in this class.
In the Cocoa world the y axis is reversed. y=0 is on the bottom.
See also:

- 8.2.16 drawAtPoint(text as NSAttributedStringMBS, point as NSPointMBS) 721
- 8.2.17 drawAtPoint(text as string, point as NSPointMBS, DicAttributes as dictionary = nil) 722

8.2.16 drawAtPoint(text as NSAttributedStringMBS, point as NSPointMBS)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Draws the receiver with its font and other display attributes at the given point in the currently focused view.
Example:

```
// create Hello World in red
dim a as NSAttributedStringMBS = NSAttributedStringMBS.attributedStringWithString("Hello World")
dim m as NSMutableAttributedStringMBS = a.mutableCopy

m.addAttribute(a.NSForegroundColorAttributeName, NSColorMBS.redColor, new NSRangeMBS(0, m.length))

// put it in a textarea
TextArea1.NSTextViewMBS.textStorage.setAttributedString m

// draw in Canvas
dim g as new NSGraphicsMBS(Canvas1.NSViewMBS)

g.drawAtPoint m, new NSPointMBS(20,20)
```

Notes:

point: The point in the current view to draw the text.

The width (height for vertical layout) of the rendering area is unlimited, unlike drawInRect, which uses a bounding rectangle. As a result, this method renders the text in a single line.

Don't invoke this method when no NSView is focused.
See also:

- 8.2.15 drawAtPoint(image as NSImageMBS, x as Double, y as Double, sx as Double, sy as Double, sw as Double, sh as Double, Operation as Integer, fraction as Double) 720
- 8.2.17 drawAtPoint(text as string, point as NSPointMBS, DicAttributes as dictionary = nil) 722

8.2.17 drawAtPoint(text as string, point as NSPointMBS, DicAttributes as dictionary = nil)

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Draws the text with the font and other display characteristics of the given attributes, at the specified point in the currently focused view.
Notes:

Point: The origin for the bounding box for drawing the string. If the focused view is flipped, the origin is the upper-left corner of the drawing bounding box; otherwise, the origin is the lower-left corner.
attributes: A dictionary of text attributes to be applied to the string. These are the same attributes that can be applied to an NSAttributedString object, but in the case of strings, the attributes apply to the entire string, rather than ranges within the string.

The width (height for vertical layout) of the rendering area is unlimited, unlike drawInRect, which uses a bounding rectangle. As a result, this method renders the text in a single line.

You should only invoke this method when an NSView object has focus.
See also:

- 8.2.15 drawAtPoint(image as NSImageMBS, x as Double, y as Double, sx as Double, sy as Double, sw as Double, sh as Double, Operation as Integer, fraction as Double) 720
- 8.2.16 drawAtPoint(text as NSAttributedStringMBS, point as NSPointMBS) 721

8.2.18 drawInRect(image as NSImageMBS, x as Double, y as Double, w as Double, h as Double, sx as Double, sy as Double, sw as Double, sh as Double, Operation as Integer, fraction as Double)

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** draws the image into the given rectangle with the given source rectangle and the given mode.
Example:

```
// make new image
dim myImage as new NSImageMBS(500,500)
dim myGraphics as new NSGraphicsMBS(myImage)

// make logo image
dim myPicture as Picture = LogoMBS(500)
dim anotherImage as new NSImageMBS(myPicture)

// draw logo image to new image
myGraphics.drawInRect(anotherImage, 0, 0, myImage.width, myImage.height, 0, 0, anotherImage.width, anotherImage.height, myGraphics.NSCompositeSourceOver, 1.0)
myGraphics = nil // flush
```

```
// save to file
dim f as FolderItem = SpecialFolder.Desktop.Child("test.jpg")
dim b as BinaryStream = BinaryStream.Create(f, True)
if b<>nil then
b.Write myImage.JPEGRepresentation
b.Close
end if
```

Notes:

For Operation you use the Composite constants in this class.
In the Cocoa world the y axis is reversed. y=0 is on the bottom.
See also:

- 8.2.19 drawInRect(text as NSAttributedStringMBS, rect as NSRectMBS) 723
- 8.2.20 drawInRect(text as string, rect as NSRectMBS, DicAttributes as dictionary = nil) 724

8.2.19 drawInRect(text as NSAttributedStringMBS, rect as NSRectMBS)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Draws the attributed string within the given rectangle in the currently view, clipping the text layout to this rectangle.
Example:

```
// create Hello World in red
dim a as NSAttributedStringMBS = NSAttributedStringMBS.attributedStringWithString("Hello World")
dim m as NSMutableAttributedStringMBS = a.mutableCopy

m.addAttribute(a.NSForegroundColorAttributeName, NSColorMBS.redColor, new NSRangeMBS(0, m.length))

// put it in a textarea
TextArea1.NSTextViewMBS.textStorage.setAttributedString m

// draw in Canvas
dim g as new NSGraphicsMBS(Canvas1.NSViewMBS)

g.drawInRect m, new NSRectMBS(20,20, 100, 100)
```

Notes:

rect: The rectangle in which to draw.

Text is drawn within rect according to its line sweep direction; for example, Arabic text will begin at the right edge and potentially be clipped on the left.

The rect parameter determines how many glyphs are typeset within the width of a line, but it's possible for a portion of a glyph to appear outside the area of rect if the image bounding box of the particular glyph exceeds its typographic bounding box.

If the focus view is flipped, the text origin is set at the upper-left corner of the drawing bounding box; otherwise the origin is set at the lower-left corner. For text rendering, whether the view coordinates are flipped or not doesn't affect the flow of line layout, which goes from top to bottom. However, it affects the interpretation of the text origin. So, for example, if the rect argument is { 0.0, 0.0, 100.0, 100.0 } , the text origin is { 0.0, 0.0 } when the view coordinates are flipped and { 0.0, 100.0 } when not.

Don't invoke this method when no NSView is focused.
See also:

- 8.2.18 drawInRect(image as NSImageMBS, x as Double, y as Double, w as Double, h as Double, sx as Double, sy as Double, sw as Double, sh as Double, Operation as Integer, fraction as Double) 722

- 8.2.20 drawInRect(text as string, rect as NSRectMBS, DicAttributes as dictionary = nil) 724

8.2.20 drawInRect(text as string, rect as NSRectMBS, DicAttributes as dictionary = nil)

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Draws the text with the font and other display characteristics of the given attributes, within the specified rectangle in the currently focused NSView.
Notes:

text: The text to draw.
Rect: The rectangle in which to draw the string.
attributes: A dictionary of text attributes to be applied to the string. These are the same attributes that can be applied to an NSAttributedString object, but in the case of strings, the attributes apply to the entire string, rather than ranges within the string.

The rendering area is bounded by rect, unlike drawAtPoint, which has an unlimited width. As a result, this method renders the text in multiple lines.

You should only invoke this method when an NSView has focus.
See also:

- 8.2.18 drawInRect(image as NSImageMBS, x as Double, y as Double, w as Double, h as Double, sx as Double, sy as Double, sw as Double, sh as Double, Operation as Integer, fraction as Double) 722

- 8.2.19 drawInRect(text as NSAttributedStringMBS, rect as NSRectMBS) 723

8.2.21 drawPicture(image as Picture, x as Double, y as Double, w as Double, h as Double, sx as Double, sy as Double, sw as Double, sh as Double, Operation as Integer, fraction as Double)

Plugin Version: 17.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Draws a picture.
Notes: Same as drawInRect with NSImageMBS, but using picture.

8.2.22 drawRect(x as Double, y as Double, w as Double, h as Double)

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Draws a rectangle with the current color.
Notes: In the Cocoa world the y axis is reversed. y=0 is on the bottom.

8.2.23 DrawWindowBackground(x as Double, y as Double, w as Double, h as Double)

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Draws the window's default background pattern into the specified rectangle of the currently focused view.
Notes: Pass the rectangle (in the current coordinate system) in which to draw the window's background pattern.

8.2.24 drawWithRect(text as NSAttributedStringMBS, rect as NSRectMBS, options as Integer)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Draws the receiver with the specified options, within the given rectangle in the current graphics context.
Example:

```
// create Hello World in red
dim a as NSAttributedStringMBS = NSAttributedStringMBS.attributedStringWithString("Hello World")
dim m as NSMutableAttributedStringMBS = a.mutableCopy

m.addAttribute(a.NSForegroundColorAttributeName, NSColorMBS.redColor, new NSRangeMBS(0, m.length))

// put it in a textarea
TextArea1.NSTextViewMBS.textStorage.setAttributedString m

// draw in Canvas
dim g as new NSGraphicsMBS(Canvas1.NSViewMBS)

g.drawWithRect m, new NSRectMBS(20,20, 100, 100), g.NSStringDrawingUsesLineFragmentOrigin
```

Notes:

rect: The rectangle specifies the rendering origin in the current graphics context.
options: The string drawing options. See NSStringDrawingOptions for the available options..

The rect argument's origin field specifies the rendering origin. The point is interpreted as the baseline origin by default. With NSStringDrawingUsesLineFragmentOrigin, it is interpreted as the upper left corner of the line fragment rect. The size field specifies the text container size. The width part of the size field specifies the maximum line fragment width if larger than 0.0. The height defines the maximum size that can be occupied with text if larger than 0.0 and NSStringDrawingUsesLineFragmentOrigin is specified. If NSStringDrawingUsesLineFragmentOrigin is not specified, height is ignored and considered to be single-line rendering (NSLineBreakByWordWrapping and NSLineBreakByCharWrapping are treated as NSLineBreakByClipping).

You should only invoke this method when there is a current graphics context.
Available in OS X v10.4 and later.

8.2.25 eraseRect(x as Double, y as Double, w as Double, h as Double)

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Erases a rectangle with the current color.
Notes: In the Cocoa world the y axis is reversed. y=0 is on the bottom.

8.2.26 fill(path as NSBezierPathMBS)

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Paints the region enclosed by the receiver's path.
Example:

```
dim n as new NSImageMBS(300, 300)
dim g as new NSGraphicsMBS(n)

g.setFillColor NSColorMBS.redColor

dim r as NSRectMBS = NSMakeRectMBS(50, 50, 100, 100)
dim b as NSBezierPathMBS = NSBezierPathMBS.bezierPathWithRect(r)
g.fill(b)

g = nil

window1.Backdrop = n.CopyPicture // black image with red color rect
```

Notes:

This method fills the path using the current fill color and the receiver's current winding rule. If the path contains any open subpaths, this method implicitly closes them before painting the fill region.

The painted region includes the pixels right up to, but not including, the path line itself. For paths with large line widths, this can result in overlap between the fill region and the stroked path (which is itself centered on the path line).

8.2.27 fillRect(r as NSRectMBS)

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Fills the specified rectangular path with the current fill color.
Example:

```
dim n as new NSImageMBS(300, 300)
dim g as new NSGraphicsMBS(n)

g.setFillColor NSColorMBS.redColor

dim r as new NSRectMBS(10,10,200,200)
g.fillRect(r)

g = nil

window1.Backdrop = n.CopyPicture // black image with red color rectangle
```

Notes:

r: A rectangle in the current coordinate system.

This method fills the specified region immediately. This method uses the compositing operation returned by the compositingOperation method of NSGraphicsContext.
See also:

- 8.2.28 fillRect(x as Double, y as Double, w as Double, h as Double) 728
- 8.2.29 fillRect(x as Double, y as Double, w as Double, h as Double, operation as Integer) 728

8.2.28 fillRect(x as Double, y as Double, w as Double, h as Double)

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Fills a rectangle with the current color.
Notes: In the Cocoa world the y axis is reversed. y=0 is on the bottom.
See also:

- 8.2.27 fillRect(r as NSRectMBS) 727
- 8.2.29 fillRect(x as Double, y as Double, w as Double, h as Double, operation as Integer) 728

8.2.29 fillRect(x as Double, y as Double, w as Double, h as Double, operation as Integer)

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Fills a rectangle using the current fill color and the specified compositing operation.
Notes: See NSComposite* constants.
See also:

- 8.2.27 fillRect(r as NSRectMBS) 727
- 8.2.28 fillRect(x as Double, y as Double, w as Double, h as Double) 728

8.2.30 flushGraphics

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Forces any buffered operations or data to be sent to the receiver's destination.
Notes: Graphics contexts use buffers to queue pending operations but for efficiency reasons may not always empty those buffers immediately. This method forces the buffers to be emptied.

8.2.31 graphicsContext as NSGraphicsMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a NSGraphicsMBS object with the current graphics context of the current thread.
Example:

```
Sub Paint(g As Graphics)
// Canvas Paint event in a Mac Cocoa application

dim ng as NSGraphicsMBS = NSGraphicsMBS.graphicsContext
ng.drawAtPoint "Hello World", new NSPointMBS(30, 30)

End Sub
```

Notes: Returns nil on any error.

8.2.32 graphicsContextWithCGContext(targetCGContext as Variant, initialFlippedState as boolean = false) as NSGraphicsMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new graphics context pointing to the given CGContextMBS object.
Example:

```
Sub Paint(g As Graphics)
// get current context
dim cg as CGContextMBS = GetCurrentCGContextMBS

// get graphics context
dim ng as NSGraphicsMBS = NSGraphicsMBS.graphicsContextWithCGContext(cg)

// and draw inside
ng.drawAtPoint "Hello World", new NSPointMBS(30, 30)
End Sub
```

Notes: Returns nil on any error.

8.2.33 graphicsContextWithCGContextHandle(targetCGContextRef as Integer, initialFlippedState as boolean = false) as NSGraphicsMBS

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new graphics context pointing to the given CGContext reference.
Example:

```
Sub Paint(g As Graphics)
// get current context
dim cg as CGContextMBS = GetCurrentCGContextMBS

// get graphics context
dim ng as NSGraphicsMBS = NSGraphicsMBS.graphicsContextWithCGContextHandle(cg.Handle)

// and draw inside
ng.drawAtPoint "Hello World", new NSPointMBS(30, 30)
End Sub
```

Notes: Returns nil on any error.

8.2.34 graphicsContextWithNSBitmapImageRep(targetImage as NSBitmapImageRepMBS) as NSGraphicsMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new graphics context for drawing into a bitmap image representation.
Example:

```
dim n as new NSImageMBS(300,300)
dim r as new NSBitmapImageRepMBS(300, 300, 8, 4, true, NSColorSpaceMBS.NSCalibratedRGBColorSpace, 4*300, 32)

dim g as NSGraphicsMBS = NSGraphicsMBS.graphicsContextWithNSBitmapImageRep(r)
g.SetColorRGB 1.0,0,0,0.5
g.fillRect 0, 0, 100, 100
g = nil // flush
n.addRepresentation r

Backdrop = n.CopyPictureWithMask
```

Notes:

Please make sure the graphics object is destroyed (Set to nil) so the drawings flush to the image.
Returns nil on any error.

8.2.35 graphicsContextWithNSImage(targetImage as NSImageMBS) as NSGraphicsMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new graphics context for drawing into an image.
Example:

```
// make new image
dim myImage as new NSImageMBS(500,500)
dim myGraphics as NSGraphicsMBS = NSGraphicsMBS.graphicsContextWithNSImage(myImage)

// make logo image
dim myPicture as Picture = LogoMBS(500)
dim anotherImage as new NSImageMBS(myPicture)

// draw logo image to new image
myGraphics.drawInRect(anotherImage, 0, 0, myImage.width, myImage.height, 0, 0, anotherImage.width, anotherImage.height, myGraphics.NSCompositeSourceOver, 1.0)
```

```
myGraphics = nil // flush drawing

// save to file
dim f as FolderItem = SpecialFolder.Desktop.Child("test.jpg")
dim b as BinaryStream = BinaryStream.Create(f, True)
if b<>nil then
b.Write myImage.JPEGRepresentation
b.Close
end if
```

Notes:

Please make sure the graphics object is destroyed (Set to nil) so the drawings flush to the image.
Returns nil on any error.

8.2.36 graphicsContextWithNSView(targetView as NSViewMBS) as NSGraphicsMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new graphics context for drawing into a Cocoa view.
Example:

```
// draws in a Cocoa view
dim gg as NSGraphicsMBS = NSGraphicsMBS.graphicsContextWithNSView(canvas1.NSViewMBS)
gg.SetColorRGB 1.0,0,0,0.5
gg.fillRect 0, 0, 100, 100
gg = nil // flush
```

Notes:

Please make sure the graphics object is destroyed (Set to nil) so the drawings flush to the window.
Returns nil on any error.

8.2.37 graphicsContextWithNSWindow(targetNSWindow as NSWindowMBS) as NSGraphicsMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new graphics context for drawing into a window.
Example:

```
// draw in a Cocoa window
dim g as NSGraphicsMBS = NSGraphicsMBS.graphicsContextWithNSWindow(window1.NSWindowMBS)
```

```
g.SetColorRGB 1.0,0,0,0.5
g.fillRect 0, 0, 100, 100
g = nil // flush
```

Notes: Returns nil on any error.

8.2.38 graphicsContextWithWindow(targetWindow as window) as NSGraphicsMBS

Plugin Version: 13.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new graphics context for drawing into a window.
Example:

```
// draws in a Cocoa window
dim g as NSGraphicsMBS = NSGraphicsMBS.graphicsContextWithWindow(window1)
g.SetColorRGB 1.0,0,0,0.5
g.fillRect 0, 0, 100, 100
g = nil // flush
```

Notes: Returns nil on any error.

8.2.39 graphicsPort as Variant

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the low-level, platform-specific graphics context represented by the receiver.
Notes: In Mac OS X, this is the Core Graphics context, a CGContextMBS object.

8.2.40 highlightRect(x as Double, y as Double, w as Double, h as Double)

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Highlights the rectangle.
Notes: In the Cocoa world the y axis is reversed. y=0 is on the bottom.

8.2.41 invalidate

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Invalides the graphics object.

8.2.42 isDrawingToScreen as boolean

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value that indicates whether the drawing destination is the screen.
Notes:

True if the drawing destination is the screen, otherwise false.

A return value of false may mean that the drawing destination is a printer, but the destination may also be a PDF or EPS file. If this method returns false, you can call attributes to see if additional information is available about the drawing destination.

8.2.43 isFlipped as boolean

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value that indicates the receiver's flipped state.
Notes:

True if the receiver is flipped, otherwise false.

The state is determined by sending isFlipped to the receiver's view that has focus. If no view has focus, returns false unless the receiver is instantiated using graphicsContextWithGraphicsPort:flipped: specifying true as the flipped parameter.

Available in Mac OS X v10.4 and later.

8.2.44 restoreGraphicsState

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes the receiver's graphics state from the top of the graphics state stack and makes the next graphics state the current graphics state.
Notes:

This method must have been preceded with a saveGraphicsState message to add the graphics state to the stack. Invocations of saveGraphicsState and restoreGraphicsState methods may be nested.

Restoring the graphics state restores such attributes as the current drawing style, transformation matrix, color, and font of the original graphics state.

8.2.45 saveGraphicsState

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Saves the graphics state of the current graphics context.
Notes: This method pushes the context onto the per-thread stack.

8.2.46 ScaleCoordinates(x as Double, y as Double)

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Scales coordinate system so the next drawing commands will use different scaling.
Notes: Use saveGraphicsState and restoreGraphicsState so you can restore the old state.

8.2.47 set(transform as NSAffineTransformMBS)

Plugin Version: 15.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the current transform of the graphics environment.

8.2.48 setClip(path as NSBezierPathMBS)

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Replaces the clipping path of the current graphics context with the area inside the receiver's path.
Notes:

You should avoid using this method as a way of adjusting the clipping path, as it may expand the clipping path beyond the bounds set by the enclosing view. If you do use this method, be sure to save the graphics state prior to modifying the clipping path and restore the graphics state when you are done.

This method uses the current winding rule to determine the clipping shape of the receiver. This method does not affect the receiver's path.

8.2.49 setColor(c as NSColorMBS)

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the color of subsequent drawing to the color that the receiver represents.

8.2.50 SetColorBW(white as Double, alpha as Double = 1.0)

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the color to a BW color.
Notes:

Values range is from 0.0 to 1.0.
Alpha 0.0 is invisible and alpha 1.0 is visible.

8.2.51 SetColorCMYK(cyan as Double, magenta as Double, yellow as Double, black as Double, alpha as Double = 1.0)

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the color to a CMYK color.
Notes:

Values range is from 0.0 to 1.0.
Alpha 0.0 is invisible and alpha 1.0 is visible.

8.2.52 SetColorHSV(hue as Double, saturation as Double, brightness as Double, alpha as Double = 1.0)

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the color to an HSV color.
Notes: Values range is from 0.0 to 1.0.

8.2.53 SetColorRGB(red as Double, green as Double, blue as Double, alpha as Double = 1.0)

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the color to a RGB color.
Notes:

Values range is from 0.0 to 1.0.
Alpha 0.0 is invisible and alpha 1.0 is visible.

8.2.54 setCurrentContext

Plugin Version: 14.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets this context to be the current.

8.2.55 setFillColor(c as NSColorMBS)

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the fill color of subsequent drawing to the receiver's color.

8.2.56 setStrokeColor(c as NSColorMBS)

Plugin Version: 9.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the stroke color of subsequent drawing to the receiver's color.

8.2.57 SetTransform(NSAffineTransform as Variant)

Plugin Version: 12.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the current transformation matrix to the receiver's transformation matrix.
Notes:

Please use saveGraphicsState so you can restore the state before applying matrix for other drawings.

The current transformation is stored in the current graphics context and is applied to subsequent drawing operations. You should use this method sparingly because it removes the existing transformation matrix, which is an accumulation of transformation matrices for the screen, window, and any superviews. Instead use the concat method to add this transformation matrix to the current transformation matrix.

NSAffineTransform must be a NSAffineTransformMBS object.

8.2.58 sizeWithAttributes(text as string, DicAttributes as dictionary = nil) as NSSizeMBS

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the bounding box size the text occupies when drawn with the given attributes.
Example:

```
Dim NSGraphics as New NSGraphicsMBS()
Dim NSStringWidth as Double = NSGraphics.sizeWithAttributes("Hello World").Width

MsgBox("StringWidth from NSGraphicsMBS: " + Str(NSStringWidth))

Dim REALGraphics as Graphics = window1.Graphics
```

```
Dim REALStringWidth as Double = REALGraphics.StringWidth("Hello World")

MsgBox("StringWidth from REAL Graphics: " + Str(REALStringWidth))
```

Notes:

attributes: A dictionary of text attributes to be applied to the string. These are the same attributes that can be applied to an NSAttributedString object, but in the case of strings, the attributes apply to the entire string, rather than ranges within the string.

Returns the bounding box size the receiver occupies when drawn with attributes.

8.2.59 stroke(path as NSBezierPathMBS)

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Draws a line along the receiver's path using the current stroke color and drawing attributes.
Example:

```
dim n as new NSImageMBS(300, 300)
dim g as new NSGraphicsMBS(n)

g.setStrokeColor NSColorMBS.redColor

dim r as NSRectMBS = NSMakeRectMBS(50, 50, 100, 100)
dim b as NSBezierPathMBS = NSBezierPathMBS.bezierPathWithRect(r)
b.lineWidth = 5
g.stroke(b)

g = nil

window1.Backdrop = n.CopyPicture // black image with red color rect
```

Notes: The drawn line is centered on the path with its sides parallel to the path segment. This method uses the current drawing attributes associated with the receiver. If a particular attribute is not set for the receiver, this method uses the corresponding default attribute.

8.2.60 strokeLine(point1 as NSPointMBS, point2 as NSPointMBS)

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Strokes a line between two points using the current stroke color and the default drawing attributes.
Example:

```
dim n as new NSImageMBS(300, 300)
dim g as new NSGraphicsMBS(n)

g.setStrokeColor NSColorMBS.redColor

dim p1 as new NSPointMBS(10,10)
dim p2 as new NSPointMBS(50,50)
g.strokeLine(p1,p2)

g = nil

window1.Backdrop = n.CopyPicture // black image with red color line
```

Notes:

point1: The starting point of the line.
point2: The ending point of the line.

This method strokes the specified path immediately.
See also:

- 8.2.61 strokeLine(x1 as Double, y1 as Double, x2 as Double, y2 as Double) 738

8.2.61 strokeLine(x1 as Double, y1 as Double, x2 as Double, y2 as Double)

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Strokes a line.
See also:

- 8.2.60 strokeLine(point1 as NSPointMBS, point2 as NSPointMBS) 737

8.2.62 strokeRect(r as NSRectMBS)

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Strokes the path of the specified rectangle using the current stroke color and the default drawing attributes.
Example:

```
dim n as new NSImageMBS(300, 300)
dim g as new NSGraphicsMBS(n)

g.setStrokeColor NSColorMBS.redColor

dim r as NSRectMBS = NSMakeRectMBS(50, 50, 100, 100)
g.strokeRect(r)
```

```
g = nil

window1.Backdrop = n.CopyPicture // black image with red color rect
```

Notes:

r: A rectangle in the current coordinate system.

The path is drawn beginning at the rectangle's origin and proceeding in a counterclockwise direction. This method strokes the specified path immediately.

8.2.63 TranslateCoordinates(x as Double, y as Double)

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Moves coordinate system so the next drawing commands will use different starting point.
Notes: Use saveGraphicsState and restoreGraphicsState so you can restore the old state.

8.2.64 Properties

8.2.65 Handle as Integer

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal handle to the Graphics Context.
Notes:

Reference to NSGraphicsContext object.
(Read and Write property)

8.2.66 Owner as Variant

Plugin Version: 12.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The owner object.
Notes:

When you have a graphics object based on a window, view or image, this property points to the original object to keep it alive while drawing.
(Read and Write property)

8.2.67 Valid as Boolean

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Wheter this graphics object is still valid.
Notes:

Set to true when the plugin creates an object and false when the object is no longer needed.
(Read and Write property)

8.2.68 imageInterpolation as Integer

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The interpolation behavior.
Notes:

Note that this value is not part of the graphics state, so it cannot be reset using restoreGraphicsState.
(Read and Write computed property)

8.2.69 shouldAntialias as boolean

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver should use antialiasing.
Notes:

This value is part of the graphics state and is restored by restoreGraphicsState.
(Read and Write computed property)

8.2.70 Constants

8.2.71 NSCompositeClear=0

Plugin Version: 7.7. **Function:** Transparent. (R = 0)

8.2.72 NSCompositeCopy=1

Plugin Version: 7.7. **Function:** Source image. (R = S)

8.2.73 NSCompositeDestinationAtop=9

Plugin Version: 7.7. **Function:** Destination image wherever both images are opaque, source image wherever source image is opaque but destination image is transparent, and transparent elsewhere. (R = S*(1 - Da) + D*Sa)

8.2.74 NSCompositeDestinationIn=7

Plugin Version: 7.7. **Function:** Destination image wherever both images are opaque, and transparent elsewhere. (R = D*Sa)

8.2.75 NSCompositeDestinationOut=8

Plugin Version: 7.7. **Function:** Destination image wherever destination image is opaque but source image is transparent, and transparent elsewhere. (R = D*(1 - Sa))

8.2.76 NSCompositeDestinationOver=6

Plugin Version: 7.7. **Function:** Destination image wherever destination image is opaque, and source image elsewhere. (R = S*(1 - Da) + D)

8.2.77 NSCompositeHighlight=12

Plugin Version: 7.7. **Function:** Source image wherever source image is opaque, and destination image elsewhere. (Deprecated. Mapped to NSCompositeSourceOver.)

8.2.78 NSCompositePlusDarker=11

Plugin Version: 7.7. **Function:** Sum of source and destination images, with color values approaching 0 as a limit. (R = MAX(0, (1 - D) + (1 - S)))

8.2.79 NSCompositePlusLighter=13

Plugin Version: 7.7. **Function:** Sum of source and destination images, with color values approaching 1 as a limit. (R = MIN(1, S + D))

8.2.80 NSCompositeSourceAtop=5

Plugin Version: 7.7. **Function:** Source image wherever both images are opaque, destination image wherever destination image is opaque but source image is transparent, and transparent elsewhere. (R = S*Da + D*(1 - Sa))

8.2.81 NSCompositeSourceIn=3

Plugin Version: 7.7. **Function:** Source image wherever both images are opaque, and transparent elsewhere. (R = S*Da)

8.2.82 NSCompositeSourceOut=4

Plugin Version: 7.7. **Function:** Source image wherever source image is opaque but destination image is transparent, and transparent elsewhere. (R = S*(1 - Da))

8.2.83 NSCompositeSourceOver=2

Plugin Version: 7.7. **Function:** Source image wherever source image is opaque, and destination image elsewhere. (R = S + D*(1 - Sa))

8.2.84 NSCompositeXOR=10

Plugin Version: 7.7. **Function:** Exclusive OR of source and destination images. (R = S*(1 - Da) + D*(1 - Sa))
Notes: Works only with black and white images and is not recommended for color contexts.

8.2.85 NSImageInterpolationDefault=0

Plugin Version: 10.3. **Function:** One of the interpolation contants.
Notes: Use the context's default interpolation.

8.2.86 NSImageInterpolationHigh=3

Plugin Version: 10.3. **Function:** One of the interpolation contants.
Notes: Slower, higher-quality interpolation.

8.2.87 NSImageInterpolationLow=2

Plugin Version: 10.3. **Function:** One of the interpolation contants.
Notes: Fast, low-quality interpolation.

8.2.88 NSImageInterpolationMedium=4

Plugin Version: 10.3. **Function:** One of the interpolation contants.
Notes:

Medium quality, slower than NSImageInterpolationLow.
Available in Mac OS X v10.6 and later.

8.2.89 NSImageInterpolationNone=1

Plugin Version: 10.3. **Function:** One of the interpolation contants.
Notes: No interpolation.

8.2.90 NSStringDrawingDisableScreenFontSubstitution = 4

Plugin Version: 11.3. **Function:** One of the drawing option constants.
Notes: Disable screen font substitution (equivalent to NSLayoutManager.setUsesScreenFonts(false)).

8.2.91 NSStringDrawingOneShot = 16

Plugin Version: 11.3. **Function:** One of the drawing option constants.
Notes: Suppresses caching layout information.

8.2.92 NSStringDrawingTruncatesLastVisibleLine = 32

Plugin Version: 11.3. **Function:** One of the drawing option constants.
Notes:

Truncates and adds the ellipsis character to the last visible line if the text doesn't fit into the bounds specified.

This option is ignored if NSStringDrawingUsesLineFragmentOrigin is not also set. In addition, the line break mode must be either NSLineBreakByWordWrapping or NSLineBreakByCharWrapping for this option to take effect. The line break mode can be specified in a paragraph style passed in the attributes dictionary argument of the drawing methods.
Available in Mac OS X v10.5 and later.

8.2.93 NSStringDrawingUsesDeviceMetrics = 8

Plugin Version: 11.3. **Function:** One of the drawing option constants.
Notes: Uses image glyph bounds instead of typographic bounds.

8.2.94 NSStringDrawingUsesFontLeading = 2

Plugin Version: 11.3. **Function:** One of the drawing option constants.
Notes: Uses the font leading for calculating line heights.

8.2.95 NSStringDrawingUsesLineFragmentOrigin = 1

Plugin Version: 11.3. **Function:** One of the drawing option constants.
Example:

```
// create Hello World in red
dim a as NSAttributedStringMBS = NSAttributedStringMBS.attributedStringWithString("Hello World")
dim m as NSMutableAttributedStringMBS = a.mutableCopy

m.addAttribute(a.NSForegroundColorAttributeName, NSColorMBS.redColor, new NSRangeMBS(0, m.length))

// put it in a textarea
TextArea1.NSTextViewMBS.textStorage.setAttributedString m

// draw in Canvas
dim g as new NSGraphicsMBS(Canvas1.NSViewMBS)

g.drawWithRect m, new NSRectMBS(20,20, 100, 100), g.NSStringDrawingUsesLineFragmentOrigin
```

Notes: The specified origin is the line fragment origin, not the baseline origin.

Chapter 9

Cocoa Networking

9.1 class NSURLCacheMBS

9.1.1 class NSURLCacheMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The class for the caching.
Notes:

NSURLCache implements the caching of responses to URL load requests by mapping NSURLRequest objects to NSCachedURLResponse objects. It is a composite of an in-memory and an on-disk cache.
Methods are provided to manipulate the sizes of each of these caches as well as to control the path on disk to use for persistent storage of cache data.

9.1.2 Methods

9.1.3 Constructor(memoryCapacity as UInt64, diskCapacity as UInt64, diskPath as folderitem)

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes an NSURLCache object with the specified values.
Notes:

memoryCapacity: The memory capacity of the cache, in bytes.
diskCapacity: The disk capacity of the cache, in bytes.
path: The location at which to store the on-disk cache.

The returned NSURLCache is backed by disk, so developers can be more liberal with space when choosing the capacity for this kind of cache. A disk cache measured in the tens of megabytes should be acceptable in

most cases.

9.1.4 currentDiskUsage as UInt64

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the current size of the receiver's on-disk cache, in bytes.

9.1.5 currentMemoryUsage as UInt64

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the current size of the receiver's in-memory cache, in bytes.

9.1.6 removeAllCachedResponses

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Clears the receiver's cache, removing all stored cached URL responses.

9.1.7 removeCachedResponseForRequest(request as NSURLRequestMBS)

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes the cached URL response for a specified URL request.
Notes: request: The URL request whose cached URL response should be removed. If there is no corresponding cached URL response, no action is taken.

9.1.8 setSharedURLCache(cache as NSURLCacheMBS)

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the shared NSURLCache instance to a specified cache object.
Notes: Applications that have special caching requirements or constraints should use this method to specify an NSURLCache instance with customized cache settings.

9.1.9 sharedURLCache as NSURLCacheMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the shared NSURLCache instance.
Notes:

The disk path is set to: <user_home_directory>/Library/Caches/<current_process_name>. The user's home directory is determined by calling NSHomeDirectory and the current process name is determined using NSProcessInfoMBS.processName.

Applications that do not have special caching requirements or constraints should find the default shared cache instance acceptable. Applications with more specific needs can create a custom NSURLCache object and set it as the shared cache instance using setSharedURLCache.

9.1.10 Properties

9.1.11 Handle as Integer

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal handle to the NSURLCache object.
Notes: (Read and Write property)

9.1.12 diskCapacity as UInt64

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The on-disk cache capacity.
Notes: (Read and Write computed property)

9.1.13 memoryCapacity as UInt64

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The in-memory cache capacity.
Notes: (Read and Write computed property)

9.1.14 Constants

9.1.15 NSURLCacheStorageAllowed = 0

Plugin Version: 9.7. **Function:** One of the constants for the cache strategy.
Notes: Specifies that storage in an NSURLCache is allowed without restriction.

9.1.16 NSURLCacheStorageAllowedInMemoryOnly = 1

Plugin Version: 9.7. **Function:** One of the constants for the cache strategy.
Notes: Specifies that storage in an NSURLCache is allowed; however storage should be done in memory only, no disk storage should be done.

9.1.17 NSURLCacheStorageNotAllowed = 2

Plugin Version: 9.7. **Function:** One of the constants for the cache strategy.
Notes: Specifies that storage in an NSURLCache is not allowed in any fashion, either in memory or on disk.

9.2 class NSURLRequestCertificateFilterMBS

9.2.1 class NSURLRequestCertificateFilterMBS

Plugin Version: 7.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A class to filter certificate requests.
Notes: This is the only way to fix the problem with the webview that certificates which are not valid can still be used.

9.2.2 Events

9.2.3 allowsAnyHTTPSCertificateForHost(host as string) as boolean

Plugin Version: 7.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** An event being called for each host which may have a https certificate.
Notes:

This event is called very often, so make it very fast.
Also this event is often called with the same host value as it is called for each request.

Retrun true to allow this host to run without a valid https certificate.

Chapter 10

Cocoa Printing

10.1 class NSPageLayoutMBS

10.1.1 class NSPageLayoutMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** NSPageLayout is a panel that queries the user for information such as paper type and orientation.
Notes: It is normally displayed in response to the user selecting the Page Setup menu item. You obtain an instance with the pageLayout class method. The pane can then be run as a sheet using beginSheetWithPrintInfo or modally using runModal or runModalWithPrintInfo.

10.1.2 Methods

10.1.3 beginSheetWithPrintInfo(printInfo as NSPrintInfoMBS, win as NSWindowMBS)

Plugin Version: 12.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Presents a page setup sheet for the given NSPrintInfo object, document-modal relative to the given window.
Notes:

printInfo: The NSPrintInfo object to use.
win: The window to which the sheet is attached.

This method calls the printPanelDidEnd event later passing returnCode which is either NSCancelButton (0) or NSOKButton (1).
See also:

- 10.1.4 beginSheetWithPrintInfo(printInfo as NSPrintInfoMBS, win as window) 752

10.1.4 beginSheetWithPrintInfo(printInfo as NSPrintInfoMBS, win as window)

Plugin Version: 12.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Presents a page setup sheet for the given NSPrintInfo object, document-modal relative to the given window.
Notes:

printInfo: The NSPrintInfo object to use.
win: The window to which the sheet is attached.

This method calls the printPanelDidEnd event later passing returnCode which is either NSCancelButton (0) or NSOKButton (1).
See also:

- 10.1.3 beginSheetWithPrintInfo(printInfo as NSPrintInfoMBS, win as NSWindowMBS) 751

10.1.5 Constructor

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a new page layout object.

10.1.6 pageLayout as NSPageLayoutMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a newly created NSPageLayout object.

10.1.7 printInfo as NSPrintInfoMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the NSPrintInfo object used when the receiver is run.
Notes: The NSPrintInfo object is set using the beginSheetWithPrintInfo or runModalWithPrintInfo method. The shared NSPrintInfo object is used if the receiver is run using runModal.

10.1.8 runModal as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Displays the receiver and begins the modal loop using the shared NSPrintInfo object.
Example:

```
dim p as new NSPageLayoutMBS
MsgBox str(p.runModal)
```

Notes:

Returns NSCancelButton (0) if the user clicks the Cancel button; otherwise, NSOKButton (1).
The receiver's values are recorded in the shared NSPrintInfo object.

10.1.9 runModalWithPrintInfo(printInfo as NSPrintInfoMBS) as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Displays the receiver and begins the modal loop using the given NSPrintInfo object.
Notes:

printInfo: The NSPrintInfo object to use.

Returns NSCancelButton if the user clicks the Cancel button; otherwise, NSOKButton.
The receiver's values are recorded in printInfo.

10.1.10 runPageLayout

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Displays the app's page layout panel, an instance of NSPageLayout.
Example:

```
NSPageLayoutMBS.runPageLayout
```

Notes: If the NSPageLayout instance does not exist, this method creates one. This method is typically invoked when the user chooses Page Setup from the application's FIle menu.

10.1.11 Properties

10.1.12 Handle as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object reference.
Notes: (Read and Write property)

10.1.13 Events

10.1.14 printPanelDidEnd(returnCode as Integer)

Plugin Version: 12.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Called when the sheet is dismissed.

10.2 class NSPrinterMBS

10.2.1 class NSPrinterMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An NSPrinter object describes a printer's capabilities as defined in its PPD file.
Example:

```
dim p as NSPrinterMBS = NSPrinterMBS.defaultPrinter
MsgBox p.name+EndOfLine+p.type
```

Notes: An NSPrinter object can be constructed by specifying either the printer name or the make and model of an available printer. You use a printer object to get information about printers, not to modify printer attributes or control a printing job.

10.2.2 Methods

10.2.3 booleanForKey(key as string, table as string) as boolean

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the Boolean value associated with the specified key.
Notes:

key: The key whose value you want.
table: The name of a table from the printer's PPD file.

Returns the Boolean value associated with the key. Returns false if the key is not in the table or the receiver lacks a PPD file.

10.2.4 Constructor(name as string = "")

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a printer object.
Notes:

On success the handle property is not zero.
Name can be empty to pick default printer. Else pass name of printer.

10.2.5 copy as NSPrinterMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a clone of the printer object.

10.2.6 defaultPrinter as NSPrinterMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the default printer.
Example:

```
dim p as NSPrinterMBS = NSPrinterMBS.defaultPrinter
MsgBox p.name
```

10.2.7 deviceDescription as Dictionary

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a dictionary of keys and values describing the device.
Notes: A dictionary of the device properties. See NSGraphics.h for possible keys. The only key guaranteed to exist is NSDeviceIsPrinter.

10.2.8 floatForKey(key as string, table as string) as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the floating-point value associated with the specified key.
Notes:

key: The key whose value you want.
table: The name of a table from the printer's PPD file.

Returns the floating-point value. Returns 0.0 if the key is not in the table or the receiver lacks a PPD file.

10.2.9 intForKey(key as string, table as string) as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the integer value associated with the specified key.
Notes:

key: The key whose value you want.

table: The name of a table from the printer's PPD file.

Returns the integer value. Returns 0 if the key is not in the table or the receiver lacks a PPD file.

10.2.10 isKey(key as string, table as string) as boolean

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value indicating whether the specified key is in the specified table.
Notes:

key: The key whose value you want.
table: The name of a table from the printer's PPD file.
Returns true if the key is in the table; otherwise, false.

10.2.11 languageLevel as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the PostScript language level recognized by the printer.
Example:

```
dim p as NSPrinterMBS = NSPrinterMBS.defaultPrinter
MsgBox "languageLevel: "+str(p.languageLevel)
```

Notes: Returns the PostScript language level. The value is 0 if the receiver is not a PostScript printer.

10.2.12 name as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the printer's name.
Example:

```
dim p as NSPrinterMBS = NSPrinterMBS.defaultPrinter
MsgBox p.name
```

10.2.13 pageSizeForPaper(paperName as string) as NSSizeMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the size of the page for the specified paper type.

Notes:

paperName: Possible values are printer-dependent and are contained in the printer's PPD file. Typical values are "Letter" and "Legal".

Returns the size of the page, measured in points in the user coordinate space. The returned size is zero if the specified paper name is not recognized or its entry in the PPD file cannot be parsed.

10.2.14 printerNames as string()

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the names of all available printers.
Example:

```
MsgBox Join(NSPrinterMBS.printerNames, EndOfLine)
```

Notes:

An array of strings, each of which contains the name of an available printer.
The user constructs the list of available printers using the Print Center application.

10.2.15 printerTypes as string()

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns descriptions of the makes and models of all available printers.
Notes: An array of strings, each of which contains the make and model information for a supported printer.

10.2.16 printerWithName(name as string) as NSPrinterMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns an NSPrinter object initialized with the specified printer name.
Notes:

name: The name of the printer.

Returns an initialized NSPrinter object, or nil if the specified printer was not available.

10.2.17 printerWithType(type as string) as NSPrinterMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns an NSPrinter object initialized to the first available printer with the specified make and model information.
Notes:

type: A string describing the make and model information. You can get this string using the printerTypes method.

Returns an initialized NSPrinter object, or nil if the specified printer was not available.

10.2.18 rectForKey(key as string, table as string) as NSRectMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the rectangle associated with the specified key.
Notes:

key: The key whose value you want.
table: The name of a table from the printer's PPD file.

Returns the rectangle value. Returns NSRectMBS.Zero if the key is not in the table or the receiver lacks a PPD file.

10.2.19 sizeForKey(key as string, table as string) as NSSizeMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the size data type associated with the specified key.
Notes:

key: The key whose value you want.
table: The name of a table from the printer's PPD file.

Returns the size value. Returns NSZeroSize if the key is not in the table or the receiver lacks a PPD file.

10.2.20 statusForTable(paperName as string) as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the status of the specified table.
Notes:

table: The name of a table from the printer's PPD file.

Returns one of the return values described in Constants.

10.2.21 stringForKey(key as string, table as string) as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the first occurrence of a value associated with specified key.
Notes:

key: The key whose value you want.
table: The name of a table from the printer's PPD file.

Returns the value for the specified key, or nil if the key is not in the table. The returned string may also be empty.

If key is a main keyword only, and if that keyword has options in the PPD file, this method returns an empty string. Use stringListForKey to retrieve the values for all occurrences of a main keyword.

10.2.22 stringListForKey(key as string, table as string) as string()

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of strings, one for each occurrence, associated with specified key.
Notes:

key: The key whose value you want.
table: The name of a table from the printer's PPD file.

Returns an array of strings, each containing a value associated with the specified key. Returns nil if the key is not in the table.

10.2.23 type as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a description of the printer's make and model.
Example:

```
dim p as NSPrinterMBS = NSPrinterMBS.defaultPrinter
MsgBox p.type
```

10.2.24 Properties

10.2.25 Handle as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object reference.
Notes: (Read and Write property)

10.2.26 Constants

10.2.27 NSPrinterTableError = 2

Plugin Version: 12.4. **Function:** One of the state constants for printer information table.
Notes: Printer table is not valid.

10.2.28 NSPrinterTableNotFound = 1

Plugin Version: 12.4. **Function:** One of the state constants for printer information table.
Notes: Printer table was not found.

10.2.29 NSPrinterTableOK = 0

Plugin Version: 12.4. **Function:** One of the state constants for printer information table.
Notes: Printer table was found and is valid.

10.3 class NSPrintInfoMBS

10.3.1 class NSPrintInfoMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An NSPrintInfo object stores information that's used to generate printed output.
Example:

```
// get Xojo printer setup
dim p as new PrinterSetup

// now put it into NSPrintInfo to manipulate
dim n as new NSPrintInfoMBS
n.SetupString = p.SetupString

// change destination to file
dim f as FolderItem = SpecialFolder.Desktop.Child("test.pdf")
n.SetSaveDestination(f)

// move back
p.SetupString = n.SetupString

// and print as usual
dim g as Graphics = OpenPrinter(p)
g.DrawString "Hello World", 20, 20
```

Notes:

A shared NSPrintInfo object is automatically created for an application and is used by default for all printing jobs for that application.

The printing information in an NSPrintInfo object is stored in a dictionary. To access the standard attributes in the dictionary directly, this class defines a set of keys and provides the dictionary method. You can also initialize an instance of this class using the Constructor method.

You can use this dictionary to store custom information associated with a print job. Any non-object values should be stored as NSNumber or NSValue objects in the dictionary. See NSNumber Class Reference for a list of types which should be stored as numbers. For other non-object values, use the NSValue class.

Beginning with OS X v10.5, to store custom information that belongs in printing presets you should use the dictionary returned by the printSettings method.

10.3.2 Methods

10.3.3 Constructor

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes the print info with a new instance.
Example:

```
// get Xojo printer setup
dim p as new PrinterSetup

// now put it into NSPrintInfo to manipulate
dim n as new NSPrintInfoMBS
n.SetupString = p.SetupString

// change destination to file
dim f as FolderItem = SpecialFolder.Desktop.Child("test.pdf")
n.SetSaveDestination(f)

// move back
p.SetupString = n.SetupString

// and print as usual
dim g as Graphics = OpenPrinter(p)
g.DrawString "Hello World", 20, 20
```

See also:

- 10.3.4 Constructor(attributes as Dictionary) 763
- 10.3.5 Constructor(Data as Memoryblock) 764

10.3.4 Constructor(attributes as Dictionary)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initialize the print info with the parameters in the specified dictionary.
See also:

- 10.3.3 Constructor 763
- 10.3.5 Constructor(Data as Memoryblock) 764

10.3.5 Constructor(Data as Memoryblock)

Plugin Version: 14.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initialize the print info with serialized dictionary or NSPrintInfo.
Example:

```
dim p as new PrinterSetup
dim info as new NSPrintInfoMBS(p.SetupString)
MsgBox info.paperName
```

See also:

- 10.3.3 Constructor 763
- 10.3.4 Constructor(attributes as Dictionary) 763

10.3.6 copy as NSPrintInfoMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a copy of the object.

10.3.7 defaultPrinter as NSPrinterMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the default printer.

10.3.8 NSPrintAllPages as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for print job attributes that are recognized by NSPrintInfo.
Notes: A boolean.

10.3.9 NSPrintBottomMargin as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys to access pagination attributes.
Notes: Number, containing a floating-point value that specifies the bottom margin, in points.

10.3.10 NSPrintCancelJob as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the possible job disposition values.
Notes: Cancel print job.

10.3.11 NSPrintCopies as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for print job attributes that are recognized by NSPrintInfo.
Notes: a number containing the number of copies of the print job to be printed

10.3.12 NSPrintDetailedErrorReporting as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for print job attributes that are recognized by NSPrintInfo.
Notes: A boolean.

10.3.13 NSPrintFaxNumber as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for print job attributes that are recognized by NSPrintInfo.
Notes: A string containing a fax number.

10.3.14 NSPrintFirstPage as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for print job attributes that are recognized by NSPrintInfo.
Notes: A number containing the one-based index of the first job in the page to print.

10.3.15 NSPrintHeaderAndFooter as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for print job attributes that are recognized by NSPrintInfo.
Notes: A boolean for whether the results of NSView pageHeader and NSView pageFooter should be drawn on pages

10.3.16 NSPrintHorizontallyCentered as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys to access pagination attributes.
Notes: Number, containing a Boolean value that is true if pages are centered horizontally.

10.3.17 NSPrintHorizontalPagination as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys to access pagination attributes.
Notes:

Number, containing a NSPrintingPaginationMode value.
NSAutoPagination, NSFitPagination, or NSClipPagination. See HorizontalPagination for details.

10.3.18 NSPrintJobDisposition as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for print job attributes that are recognized by NSPrintInfo.
Notes: A string equal to NSPrintSpoolJob, NSPrintPreviewJob, NSPrintSaveJob, or NSPrintCancelJob.

10.3.19 NSPrintJobSavingFileNameExtensionHidden as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for print job attributes that are recognized by NSPrintInfo.
Notes:

A boolean for whether the job file's name extension should be hidden, for NSPrintSaveJob.
Available on Mac OS X 10.6.

10.3.20 NSPrintJobSavingURL as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for print job attributes that are recognized by NSPrintInfo.
Notes:

An URL containing the location to which the job file will be saved, for NSPrintSaveJob.
Available on Mac OS X 10.6.

10.3.21 NSPrintLastPage as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for print job attributes that are recognized by NSPrintInfo.
Notes: An number containing the one-based index of the last job in the page to print.

10.3.22 NSPrintLeftMargin as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys to access pagination attributes.
Notes: Number, containing a floating-point value that specifies the left margin, in points.

10.3.23 NSPrintMustCollate as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for print job attributes that are recognized by NSPrintInfo.
Notes: A boolean value.

10.3.24 NSPrintOrientation as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys to access page format attributes.
Notes:

A number containing an NSPrintingOrientation.
NSPortraitOrientation or NSLandscapeOrientation

10.3.25 NSPrintPagesAcross as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for print job attributes that are recognized by NSPrintInfo.
Notes: A number containing the number of logical pages to be placed across a physical sheet.

10.3.26 NSPrintPagesDown as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for print job attributes that are recognized by NSPrintInfo.

Notes: A number containing the number of logical pages to be placed down a physical sheet.

10.3.27 NSPrintPaperName as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys to access page format attributes.
Notes: A string containing the paper name.

10.3.28 NSPrintPaperSize as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys to access page format attributes.
Notes: A size value specifying the height and width of paper in points.

10.3.29 NSPrintPreviewJob as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the possible job disposition values.
Notes: Send to Preview application.

10.3.30 NSPrintPrinter as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for print job attributes that are recognized by NSPrintInfo.
Notes: Value in dictionary is a NSPrinterMBS.

10.3.31 NSPrintPrinterName as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for print job attributes that are recognized by NSPrintInfo.
Notes: A string containing the name of a printer.

10.3.32 NSPrintReversePageOrder as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for print job attributes that are recognized by NSPrintInfo.

Notes: Value for this key is a boolean value.

10.3.33 NSPrintRightMargin as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys to access pagination attributes.
Notes: Number, containing a floating-point value that specifies the right margin, in points.

10.3.34 NSPrintSaveJob as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the possible job disposition values.
Notes: Save to a file.

10.3.35 NSPrintScalingFactor as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys to access page format attributes.
Notes: Scale factor percentage before pagination.

10.3.36 NSPrintSelectionOnly as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for print job attributes that are recognized by NSPrintInfo.
Notes:

A boolean value.
Available on Mac OS X 10.6 or newer.

10.3.37 NSPrintSpoolJob as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the possible job disposition values.
Notes: Normal print job.

10.3.38 NSPrintTime as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for print job attributes that are recognized by NSPrintInfo.
Notes: An NSDate containing the time at which printing should begin.

10.3.39 NSPrintTopMargin as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys to access pagination attributes.
Notes: Number, containing a floating-point value that specifies the top margin, in points.

10.3.40 NSPrintVerticallyCentered as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys to access pagination attributes.
Notes: Number, containing a Boolean value that is true if pages are centered vertically.

10.3.41 NSPrintVerticalPagination as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys to access pagination attributes.
Notes:

Number, containing a NSPrintingPaginationMode value.
NSAutoPagination, NSFitPagination, or NSClipPagination. See VerticalPagination for details.

10.3.42 SetSaveDestination(file as folderitem)

Plugin Version: 14.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the print job to go to a PDF file.
Example:

```
// print to PDF in Xojo Cocoa app

// change print info to go to
dim s as NSPrintInfoMBS = NSPrintInfoMBS.sharedPrintInfo
dim d as MemoryBlock = s.data // save old
s.SetSaveDestination SpecialFolder.Desktop.Child("test.pdf")
```

```
// now print something
dim g as Graphics = OpenPrinter
if g<>Nil then
g.DrawString "Hello World PDF", 20, 20
end if


s.data = d // restore original settings

// now print something to regular printer
g = OpenPrinter
if g<>Nil then
g.DrawString "Hello World Printer", 20, 20
end if
```

10.3.43 setSharedPrintInfo(printInfo as NSPrintInfoMBS)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the shared NSPrintInfo object to the specified object.
Notes:

printInfo: The new shared printer information. This value must not be nil.

The shared NSPrintInfo object defines the settings for the NSPageLayout panel and print operations that will be used if no NSPrintInfo object is specified for those operations.

10.3.44 setUpPrintOperationDefaultValues

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Validates the attributes encapsulated by the receiver.
Notes: Invoked when the print operation is about to start. Subclasses may override this method to set default values for any attributes that are not set.

10.3.45 sharedPrintInfo as NSPrintInfoMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the shared NSPrintInfo object.

10.3.46 Properties

10.3.47 bottomMargin as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The bottom margin, measured in points in the user coordinate space.
Notes: (Read and Write property)

10.3.48 data as Memoryblock

Plugin Version: 14.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Query or set the current settings as data.
Example:

```
// print to PDF in Xojo Cocoa app

// change print info to go to
dim s as NSPrintInfoMBS = NSPrintInfoMBS.sharedPrintInfo
dim d as MemoryBlock = s.data // save old
s.SetSaveDestination SpecialFolder.Desktop.Child("test.pdf")

// now print something
dim g as Graphics = OpenPrinter
if g<>Nil then
g.DrawString "Hello World PDF", 20, 20
end if


s.data = d // restore original settings

// now print something to regular printer
g = OpenPrinter
if g<>Nil then
g.DrawString "Hello World Printer", 20, 20
end if
```

Notes:

The plugin archives the current settings and you can later assign them back.
(Read and Write property)

10.3.49 dictionary as dictionary

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's dictionary that contains the printing attributes.
Notes:

The key-value pairs contained in the dictionary are described in Constants. Modifying the returned dictionary changes the receiver's attributes.

This dictionary is key-value observing compliant.
(Read and Write property)

10.3.50 Handle as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object reference.
Notes: (Read and Write property)

10.3.51 HorizontallyCentered as boolean

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the image is centered horizontally.
Notes:

True if you want the image to be centered horizontally; otherwise, false.
(Read and Write property)

10.3.52 horizontalPagination as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The horizontal pagination to the specified mode.
Notes:

One of the pagination modes described in constants.
(Read and Write property)

10.3.53 imageablePageBounds as NSRectMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the imageable area of a sheet of paper specified by the receiver.

Notes:

Return the imageable area, measured in points in the user coordinate space.

This method takes into account the current printer, paper size, and orientation settings, but not scaling factors. Imageable area is the maximum area that can possibly be marked on by the printer hardware, not the area defined by the current margin settings.

The origin (0, 0) of the returned rectangle is in the lower-left corner of the oriented sheet. The imageable bounds may extend past the edges of the sheet when, for example, a printer driver specifies it so that borderless printing can be done reliably.
(Read only property)

10.3.54 jobDisposition as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The action specified for the job.
Notes:

One of the following value:

- NSPrintSpoolJob is a normal print job.
- NSPrintPreviewJob sends the print job to the Preview application.
- NSPrintSaveJob saves the print job to a file.
- NSPrintCancelJob aborts the print job.

(Read and Write property)

10.3.55 leftMargin as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The left margin to the specified size.
Notes:

The size for the left margin, measured in points in the user coordinate space.
(Read and Write property)

10.3.56 localizedPaperName as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the human-readable name of the currently selected paper size, suitable for presentation in user interfaces.
Notes:

This is typically different from the name returned by paperName, which is almost never suitable for presentation to the user.
(Read only property)

10.3.57 orientation as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The page orientation to the specified value.
Notes:

This printing orientation. See constants for possible values.
For consistency, this method may change either the paper name or the paper size.
(Read and Write property)

10.3.58 paperName as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The paper name to the specified value.
Notes:

The name for the paper size. The string contains a value such as Letter or Legal. Paper names are implementation specific.
For consistency, this method may change either the paper size or the page orientation.
(Read and Write property)

10.3.59 paperSize as NSSizeMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The width and height of the paper to the specified size.
Notes:

The new size of the paper, measured in points in the user coordinate space.
For consistency, this method may change either the paper name or the page orientation.
(Read and Write property)

10.3.60 printer as NSPrinterMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The printer object used for subsequent printing jobs.
Notes:

This method iterates through the receiver's dictionary. If a feature in the dictionary is not supported by the new printer (as determined by a query to the PPD file), that feature is removed from the dictionary.
(Read and Write property)

10.3.61 printerName as String

Plugin Version: 14.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The printer name of printer used for subsequent printing jobs.
Notes: (Read only property)

10.3.62 printSettings as dictionary

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a mutable dictionary containing the print settings from Core Printing.
Notes:

A mutable dictionary containing the printing system's current settings.

You can use this method to get and set values from the system print settings. The keys in the returned dictionary represent the values returned by the Core Printing function PMPrintSettingsGetValue. They correspond to the settings currently in the print panel and include everything from custom values set by your accessory panels to values provided by the printer driver's print dialog extension.
(Read only property)

10.3.63 rightMargin as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The right margin to the specified size.
Notes:

The size for the right margin, measured in points in the user coordinate space.
(Read and Write property)

10.3.64 scalingFactor as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The print info's scaling factor.
Notes:

Default is 1.0.
Using smaller value increases paper size.
(Read and Write property)

10.3.65 SelectionOnly as boolean

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether only the current selection should be printed.
Notes:

True if only the current selection should be printed, otherwise false.
(Read and Write property)

10.3.66 SetupString as Memoryblock

Plugin Version: 14.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Query or set the current settings as data.
Example:

```
// start with a printer setup
dim p as new PrinterSetup

// clone to NSPrintInfo
dim info as new NSPrintInfoMBS(p.SetupString)

// find out what name second printer has
dim printers() as string = NSPrinterMBS.printerNames
dim printer as NSPrinterMBS = NSPrinterMBS.printerWithName(printers(1))
System.DebugLog printers(1)

// now set a new paper size and this printer
info.paperSize = new NSSizeMBS(72*5, 72*6) // 5 by 6 inch
info.printer = printer

// and clone back
p.SetupString = info.SetupString

// now print to this printer with this paper
dim g as Graphics = OpenPrinter(p)
```

g.DrawString "Hello", 10, 10

Notes:

While data property encodes the dictionary, this property encodes the NSPrintInfo which is same format as PrinterSetup.SetupString in Xojo.
(Read and Write property)

10.3.67 topMargin as Double

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The top margin, measured in points in the user coordinate space.
Notes:

The size for the top margin, measured in points in the user coordinate space.
(Read and Write property)

10.3.68 VerticallyCentered as boolean

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the image is centered vertically.
Notes:

True if you want the image to be centered vertically; otherwise, false.
(Read and Write property)

10.3.69 verticalPagination as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The vertical pagination mode.
Notes:

One of the pagination modes described in constants.
(Read and Write property)

10.3.70 Constants

10.3.71 NSAutoPagination = 0

Plugin Version: 12.4. **Function:** One of the pagination mode constants.
Notes: The image is divided into equal-sized rectangles and placed in one column of pages.

10.3.72 NSClipPagination = 2

Plugin Version: 12.4. **Function:** One of the pagination mode constants.
Notes: The image is clipped to produce one column or row of pages.

10.3.73 NSFitPagination = 1

Plugin Version: 12.4. **Function:** One of the pagination mode constants.
Notes: The image is scaled to produce one column or one row of pages.

10.3.74 NSLandscapeOrientation = 1

Plugin Version: 12.4. **Function:** One of the page orientation constants.
Notes: Orientation is portrait (page is taller than it is wide).

10.3.75 NSPortraitOrientation = 0

Plugin Version: 12.4. **Function:** One of the page orientation constants.
Notes: Orientation is landscape (page is wider than it is tall).

10.4 class NSPrintOperationMBS

10.4.1 class NSPrintOperationMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An NSPrintOperation object controls operations that generate Encapsulated PostScript (EPS) code, Portable Document Format (PDF) code, or print jobs.
Notes:

An NSPrintOperation object works in conjunction with two other objects: an NSPrintInfo object, which specifies how the code should be generated, and an NSView object, which generates the actual code.

It is important to note that the majority of methods in NSPrintOperation copy the instance of NSPrintInfo passed into them. Future changes to that print info are not reflected in the print info retained by the current NSPrintOperation object. All changes should be made to the print info before passing to the methods of this class.

10.4.2 Methods

10.4.3 Constructor

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initialize the object the current print operation for this thread.
Notes: On success the handle property is not zero.
See also:

- 10.4.4 Constructor(other as NSPrintOperationMBS) 780
- 10.4.5 Constructor(view as HTMLViewer, printInfo as NSPrintInfoMBS = nil) 781
- 10.4.6 Constructor(view as NSViewMBS) 781
- 10.4.7 Constructor(view as NSViewMBS, printInfo as NSPrintInfoMBS) 782

10.4.4 Constructor(other as NSPrintOperationMBS)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Special constructor to create new NSPrintOperationMBS for existing NSPrintOperationMBS object.
Notes: If you have a NSPrintOperationMBS and you want to use printOperationDidRun event, you can initialize a subclass of NSPrintOperationMBS with your existing object to get the event there.
See also:

- 10.4.3 Constructor 780
- 10.4.5 Constructor(view as HTMLViewer, printInfo as NSPrintInfoMBS = nil) 781

- 10.4.6 Constructor(view as NSViewMBS) 781
- 10.4.7 Constructor(view as NSViewMBS, printInfo as NSPrintInfoMBS) 782

10.4.5 Constructor(view as HTMLViewer, printInfo as NSPrintInfoMBS = nil)

Plugin Version: 14.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns an NSPrintOperation object ready to control the printing of the specified view using custom print settings.
Example:

```
// print a HTMLViewer
dim n as new NSPrintOperationMBS(HTMLViewer1)

n.showsPrintPanel = true
n.showsProgressPanel = true
n.runOperationModalForWindow(self)
```

Notes:

View: The view whose contents you want to print.
PrintInfo: The print settings to use when printing the view.

Returns the new NSPrintOperation object. You must run the operation to print the view.

This method raises an NSPrintOperationExistsException if there is already a print operation in progress; otherwise the returned object is made the current print operation for this thread.
See also:

- 10.4.3 Constructor 780
- 10.4.4 Constructor(other as NSPrintOperationMBS) 780
- 10.4.6 Constructor(view as NSViewMBS) 781
- 10.4.7 Constructor(view as NSViewMBS, printInfo as NSPrintInfoMBS) 782

10.4.6 Constructor(view as NSViewMBS)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns an NSPrintOperation object ready to control the printing of the specified view.
Notes:

View: The view whose contents you want to print.

Returns the new NSPrintOperation object. You must run the operation to print the view.

The new NSPrintOperation object uses the settings stored in the shared NSPrintInfo object. This method raises an NSPrintOperationExistsException if there is already a print operation in progress; otherwise the returned object is made the current print operation for this thread.
See also:

- 10.4.3 Constructor 780
- 10.4.4 Constructor(other as NSPrintOperationMBS) 780
- 10.4.5 Constructor(view as HTMLViewer, printInfo as NSPrintInfoMBS = nil) 781
- 10.4.7 Constructor(view as NSViewMBS, printInfo as NSPrintInfoMBS) 782

10.4.7 Constructor(view as NSViewMBS, printInfo as NSPrintInfoMBS)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns an NSPrintOperation object ready to control the printing of the specified view using custom print settings.
Notes:

View: The view whose contents you want to print.
PrintInfo: The print settings to use when printing the view.

Returns the new NSPrintOperation object. You must run the operation to print the view.

This method raises an NSPrintOperationExistsException if there is already a print operation in progress; otherwise the returned object is made the current print operation for this thread.
See also:

- 10.4.3 Constructor 780
- 10.4.4 Constructor(other as NSPrintOperationMBS) 780
- 10.4.5 Constructor(view as HTMLViewer, printInfo as NSPrintInfoMBS = nil) 781
- 10.4.6 Constructor(view as NSViewMBS) 781

10.4.8 context as NSGraphicsMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the graphics context object used for generating output.

10.4.9 currentOperation as NSPrintOperationMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the current print operation for this thread.
Notes: The print operation object, or nil if there is no current operation.

10.4.10 currentPage as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the current page number being printed.

10.4.11 data as Memoryblock

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the data in PDF/EPS after the operation finished.

10.4.12 Destructor

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The destructor.

10.4.13 EPSOperationWithView(view as NSViewMBS, rect as NSRectMBS) as NSPrintOperationMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns a new NSPrintOperation object ready to control the copying of EPS graphics from the specified view.
Notes:

View: The view containing the data to be turned into EPS data.
rect: The portion of the view (specified in points in the view's coordinate space) to be rendered as EPS data.

After the job is run, use the Data function to get the EPS data.
Returns the new NSPrintOperation object. You must run the operation to generate the EPS data.

The new NSPrintOperation object uses the default NSPrintInfo object. This method raises an NSPrint-OperationExistsException if there is already a print operation in progress; otherwise the returned object is made the current print operation for this thread.
See also:

- 10.4.14 EPSOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS) as NSPrintOperationMBS 784
- 10.4.15 EPSOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS, file as folderitem) as NSPrintOperationMBS 784
- 10.4.16 EPSOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS, path as string) as NSPrintOperationMBS 785

10.4.14 EPSOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS) as NSPrintOperationMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns a new NSPrintOperation object ready to control the copying of EPS graphics from the specified view using the specified print settings.
Notes:

View: The view containing the data to be turned into EPS data.
rect: The portion of the view (specified in points in the view's coordinate space) to be rendered as EPS data.
PrintInfo: The print settings to use when generating the EPS data.

After the job is run, use the Data function to get the EPS data.
Returns the new NSPrintOperation object. You must run the operation to generate the EPS data.

This method raises an NSPrintOperationExistsException if there is already a print operation in progress; otherwise the returned object is made the current print operation for this thread.
See also:

- 10.4.13 EPSOperationWithView(view as NSViewMBS, rect as NSRectMBS) as NSPrintOperationMBS 783
- 10.4.15 EPSOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS, file as folderitem) as NSPrintOperationMBS 784
- 10.4.16 EPSOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS, path as string) as NSPrintOperationMBS 785

10.4.15 EPSOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS, file as folderitem) as NSPrintOperationMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns a new NSPrintOperation object ready to control the copying of EPS graphics from the specified view and write the resulting data to the specified file.
Notes:

View: The view containing the data to be turned into EPS data.
rect: The portion of the view (specified in points in the view's coordinate space) to be rendered as EPS data.
path: The path to a file. After the job is run, this file contains the EPS data.
PrintInfo: The print settings to use when generating the EPS data.

Returns the new NSPrintOperation object. You must run the operation to generate the EPS data.
This method raises an NSPrintOperationExistsException if there is already a print operation in progress; otherwise the returned object is made the current print operation for this thread.
See also:

- 10.4.13 EPSOperationWithView(view as NSViewMBS, rect as NSRectMBS) as NSPrintOperationMBS 783
- 10.4.14 EPSOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS) as NSPrintOperationMBS 784
- 10.4.16 EPSOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS, path as string) as NSPrintOperationMBS 785

10.4.16 EPSOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS, path as string) as NSPrintOperationMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns a new NSPrintOperation object ready to control the copying of EPS graphics from the specified view and write the resulting data to the specified file.
Notes:

View: The view containing the data to be turned into EPS data.
rect: The portion of the view (specified in points in the view's coordinate space) to be rendered as EPS data.
path: The path to a file. After the job is run, this file contains the EPS data.
PrintInfo: The print settings to use when generating the EPS data.

Returns the new NSPrintOperation object. You must run the operation to generate the EPS data.
This method raises an NSPrintOperationExistsException if there is already a print operation in progress; otherwise the returned object is made the current print operation for this thread.
See also:

- 10.4.13 EPSOperationWithView(view as NSViewMBS, rect as NSRectMBS) as NSPrintOperationMBS 783
- 10.4.14 EPSOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS) as NSPrintOperationMBS 784
- 10.4.15 EPSOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS, file as folderitem) as NSPrintOperationMBS 784

10.4.17 isCopyingOperation as boolean

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value indicating whether the receiver is an EPS or PDF copy operation.
Notes: True if the receiver is an EPS or PDF copy operation; otherwise, false.

10.4.18 NSPrintOperationExistsException as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The name of an exception raised when there is already a print operation in process.
Notes: The methods that raise the NSExceptionMBS exception are the EPSOperation... and printOperation....

10.4.19 pageRange as NSRangeMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the print order for the pages.
Notes: The print order. For a list of possible values, see Constants.

10.4.20 PDFOperationWithView(view as NSViewMBS, rect as NSRectMBS) as NSPrintOperationMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns a new NSPrintOperation object ready to control the copying of PDF graphics from the specified view.
Notes:

View: The view containing the data to be turned into PDF data.
rect: The portion of the view (specified in points in the view's coordinate space) to be rendered as PDF data.

After the job is run, the data function gives you the PDF data.

Returns the new NSPrintOperation object. You must run the operation to generate the PDF data.

The new NSPrintOperation object uses the default NSPrintInfo object. This method raises an NSPrintOperationExistsException if there is already a print operation in progress; otherwise the returned object is made the current print operation for this thread.
See also:

- 10.4.21 PDFOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS) as NSPrintOperationMBS 787

- 10.4.22 PDFOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS, file as folderitem) as NSPrintOperationMBS 787
- 10.4.23 PDFOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS, path as string) as NSPrintOperationMBS 788

10.4.21 PDFOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS) as NSPrintOperationMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns a new NSPrintOperation object ready to control the copying of PDF graphics from the specified view using the specified print settings.
Notes:

View: The view containing the data to be turned into PDF data.
rect: The portion of the view (specified in points in the view's coordinate space) to be rendered as PDF data.
PrintInfo: The print settings to use when generating the PDF data.

After the job is run, the data function returns the PDF data.

Returns the new NSPrintOperation object. You must run the operation to generate the PDF data.
This method raises an NSPrintOperationExistsException if there is already a print operation in progress; otherwise the returned object is made the current print operation for this thread.
See also:

- 10.4.20 PDFOperationWithView(view as NSViewMBS, rect as NSRectMBS) as NSPrintOperationMBS 786
- 10.4.22 PDFOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS, file as folderitem) as NSPrintOperationMBS 787
- 10.4.23 PDFOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS, path as string) as NSPrintOperationMBS 788

10.4.22 PDFOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS, file as folderitem) as NSPrintOperationMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns a new NSPrintOperation object ready to control the copying of PDF graphics from the specified view and write the resulting data to the specified file.
Notes:

View: The view containing the data to be turned into PDF data.
rect: The portion of the view (specified in points in the view's coordinate space) to be rendered as PDF

data.
path: The path to a file. After the job is run, this file contains the PDF data.
PrintInfo: The print settings to use when generating the PDF data.

Returns the new NSPrintOperation object. You must run the operation to generate the PDF data.

This method raises an NSPrintOperationExistsException if there is already a print operation in progress; otherwise the returned object is made the current print operation for this thread.
See also:

- 10.4.20 PDFOperationWithView(view as NSViewMBS, rect as NSRectMBS) as NSPrintOperationMBS 786
- 10.4.21 PDFOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS) as NSPrintOperationMBS 787
- 10.4.23 PDFOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS, path as string) as NSPrintOperationMBS 788

10.4.23 PDFOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS, path as string) as NSPrintOperationMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns a new NSPrintOperation object ready to control the copying of PDF graphics from the specified view and write the resulting data to the specified file.
Notes:

View: The view containing the data to be turned into PDF data.
rect: The portion of the view (specified in points in the view's coordinate space) to be rendered as PDF data.
path: The path to a file. After the job is run, this file contains the PDF data.
PrintInfo: The print settings to use when generating the PDF data.

Returns the new NSPrintOperation object. You must run the operation to generate the PDF data.

This method raises an NSPrintOperationExistsException if there is already a print operation in progress; otherwise the returned object is made the current print operation for this thread.
See also:

- 10.4.20 PDFOperationWithView(view as NSViewMBS, rect as NSRectMBS) as NSPrintOperationMBS 786
- 10.4.21 PDFOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS) as NSPrintOperationMBS 787

- 10.4.22 PDFOperationWithView(view as NSViewMBS, rect as NSRectMBS, printInfo as NSPrintInfoMBS, file as folderitem) as NSPrintOperationMBS 787

10.4.24 preferredRenderingQuality as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the printing quality.
Notes:

The preferred printing quality. See constants for the possible values.

If the print sheet is unresponsive or sluggish due to the time is takes to fully render a page, you can check this method in drawRect: and other printing methods such as beginDocument and knowsPageRage: to determine if the print operation prefers speed over fidelity. Most applications render each page fast enough and do not need to call this method. Only use this method after establishing that best quality rendering does indeed make the user interface unresponsive.

10.4.25 printOperationWithView(view as HTMLViewer, printInfo as NSPrintInfoMBS = nil) as NSPrintOperationMBS

Plugin Version: 14.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns an NSPrintOperation object ready to control the printing of the specified view using custom print settings.
Example:

```
// print a HTMLViewer
dim n as NSPrintOperationMBS = NSPrintOperationMBS.printOperationWithView(HTMLViewer1)

n.showsPrintPanel = true
n.showsProgressPanel = true
n.runOperationModalForWindow(self)
```

Notes:

View: The view whose contents you want to print.
PrintInfo: The print settings to use when printing the view.

Returns the new NSPrintOperation object. You must run the operation to print the view.

This method raises an NSPrintOperationExistsException if there is already a print operation in progress; otherwise the returned object is made the current print operation for this thread.
See also:

- 10.4.26 printOperationWithView(view as NSViewMBS) as NSPrintOperationMBS 790

- 10.4.27 printOperationWithView(view as NSViewMBS, printInfo as NSPrintInfoMBS) as NSPrintOperationMBS 790

10.4.26 printOperationWithView(view as NSViewMBS) as NSPrintOperationMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns an NSPrintOperation object ready to control the printing of the specified view.
Example:

```
// print a text area
dim textView as NSTextViewMBS = TextArea1.NSTextViewMBS
dim o as NSPrintOperationMBS = NSPrintOperationMBS.printOperationWithView(textView)

o.showsPrintPanel = true
o.runOperationModalForWindow(Window1)
o = nil
```

Notes:

View: The view whose contents you want to print.

Returns the new NSPrintOperation object. You must run the operation to print the view.

The new NSPrintOperation object uses the settings stored in the shared NSPrintInfo object. This method raises an NSPrintOperationExistsException if there is already a print operation in progress; otherwise the returned object is made the current print operation for this thread.
See also:

- 10.4.25 printOperationWithView(view as HTMLViewer, printInfo as NSPrintInfoMBS = nil) as NSPrintOperationMBS 789
- 10.4.27 printOperationWithView(view as NSViewMBS, printInfo as NSPrintInfoMBS) as NSPrintOperationMBS 790

10.4.27 printOperationWithView(view as NSViewMBS, printInfo as NSPrintInfoMBS) as NSPrintOperationMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns an NSPrintOperation object ready to control the printing of the specified view using custom print settings.
Notes:

View: The view whose contents you want to print.
PrintInfo: The print settings to use when printing the view.

Returns the new NSPrintOperation object. You must run the operation to print the view.

This method raises an NSPrintOperationExistsException if there is already a print operation in progress; otherwise the returned object is made the current print operation for this thread.
See also:

- 10.4.25 printOperationWithView(view as HTMLViewer, printInfo as NSPrintInfoMBS = nil) as NSPrintOperationMBS 789
- 10.4.26 printOperationWithView(view as NSViewMBS) as NSPrintOperationMBS 790

10.4.28 runOperation as boolean

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Runs the print operation on the current thread.
Notes:

Returns true if the operation was successful; otherwise, false.

The operation runs to completion in the current thread, blocking the application. A separate thread is not spawned, even if canSpawnSeparateThread is true. Use runOperationModalForWindow to use document-modal sheets and to allow a separate thread to perform the operation.

10.4.29 runOperationModalForWindow(win as NSWindowMBS)

Plugin Version: 12.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Runs the print operation, calling your custom delegate method upon completion.
Notes:

win: The document window to receive a print progress sheet.

Calls the printOperationDidRun event.
See also:

- 10.4.30 runOperationModalForWindow(win as window) 791

10.4.30 runOperationModalForWindow(win as window)

Plugin Version: 12.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Runs the print operation, calling your custom delegate method upon completion.
Notes:

win: The document window to receive a print progress sheet.

Calls the printOperationDidRun event.
See also:

- 10.4.29 runOperationModalForWindow(win as NSWindowMBS) 791

10.4.31 setCurrentOperation(operation as NSPrintOperationMBS)

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the current print operation for this thread.
Notes: operation: The print operation to make current. You may specify nil to clear the current print operation.

10.4.32 view as NSViewMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the view object that generates the actual data for the print operation.

10.4.33 Properties

10.4.34 Handle as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object reference.
Notes: (Read and Write property)

10.4.35 canSpawnSeparateThread as boolean

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver is allowed to spawn a separate printing thread.
Notes:

canSpawnSeparateThread: True if the receiver is allowed to spawn a separate thread; otherwise, false.

If canSpawnSeparateThread is true, an NSThread object is detached when the print panel is dismissed (or immediately, if the panel is not to be displayed). The new thread performs the print operation, so that control can return to your application. A thread is detached only if the print operation is run using the runOperationModalForWindow:delegate:didRunSelector:contextInfo: method. If canSpawnSeparateThread

is false, the operation runs on the current thread, blocking the application until the operation completes.

If you send setCanSpawnSeparateThread: to an NSPrintOperation object with an argument of true, then the delegate specified in a subsequent invocation of runOperationModalForWindow may be messaged in that spawned, non-main thread.
(Read and Write computed property)

10.4.36 jobTitle as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The title of the print job.
Notes:

A string containing the print job title. If set, this value overrides the title returned by the printing view. Available in OS X v10.5 and later.
(Read and Write computed property)

10.4.37 pageOrder as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the print order for the pages.
Notes:

The print order. For a list of possible values, see Constants.
(Read and Write computed property)

10.4.38 printInfo as NSPrintInfoMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's NSPrintInfo object.
Notes: (Read and Write computed property)

10.4.39 printPanel as NSPrintPanelMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the NSPrintPanel object used when running the operation.
Notes: (Read and Write computed property)

10.4.40 showsPrintPanel as boolean

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** oolean value indicating whether a print panel is displayed during the operation,
Notes:

True if the operation displays a print panel; otherwise, false.
Operations that generate EPS or PDF data do no display a print panel (instance of NSPrintPanel), regardless of the value returned by this method.
(Read and Write computed property)

10.4.41 showsProgressPanel as boolean

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver displays a progress panel for this operation.
Notes:

True if you want to display a progress panel; otherwise, false.
This method does not affect the display of a print panel; that operation is controlled by the ShowsPrintPanel method.
Operations that generate EPS or PDF data do no display a progress panel, regardless of the value in the flag parameter.
(Read and Write computed property)

10.4.42 Events

10.4.43 printOperationDidRun(success as boolean)

Plugin Version: 12.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called when the print operation ends.

10.4.44 Constants

10.4.45 NSAscendingPageOrder = 1

Plugin Version: 12.4. **Function:** One of the page order constants.
Notes: Ascending (back to front) page order.

10.4.46 NSDescendingPageOrder = -1

Plugin Version: 12.4. **Function:** One of the page order constants.
Notes: Descending (front to back) page order.

10.4.47 NSPrintRenderingQualityBest = 0

Plugin Version: 12.4. **Function:** One of the print quality constants.
Notes:

Renders the printing at the best possible quality, regardless of speed.
Available in OS X v10.7 and later.

10.4.48 NSPrintRenderingQualityResponsive = 1

Plugin Version: 12.4. **Function:** One of the print quality constants.
Notes:

Sacrifices the least possible amount of rendering quality for speed to maintain a responsive user interface. This option should be used only after establishing that best quality rendering does indeed make the user interface unresponsive.
Available in OS X v10.7 and later.

10.4.49 NSSpecialPageOrder = 0

Plugin Version: 12.4. **Function:** One of the page order constants.
Notes: The spooler does not rearrange pagesthey are printed in the order received by the spooler.

10.4.50 NSUnknownPageOrder = 2

Plugin Version: 12.4. **Function:** One of the page order constants.
Notes: No page order specified.

10.5 class NSPrintPanelMBS

10.5.1 class NSPrintPanelMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An NSPrintPanel object creates the Print panel used to query the user for information about a print job.
Notes:

This panel may lets the user select the range of pages to print and the number of copies before executing the Print command.

Print panels can display a simplified interface when printing certain types of data. For example, the panel can display a list of print-setting presets, which lets the user enable print settings in groups as opposed to individually. The JobStyleHint property activates the simplified interface and identifies which presets to display.

10.5.2 Methods

10.5.3 beginSheetWithPrintInfo(printInfo as NSPrintInfoMBS, win as NSWindowMBS)

Plugin Version: 12.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Displays a Print panel sheet and runs it modally for the specified window.
Notes:

printInfo: The printing information for the current job.
win: The window on which to display the sheet.

When the modal session ends, if printPanelDidEnd event is invoked on the object.
See also:

- 10.5.4 beginSheetWithPrintInfo(printInfo as NSPrintInfoMBS, win as window) 796

10.5.4 beginSheetWithPrintInfo(printInfo as NSPrintInfoMBS, win as window)

Plugin Version: 12.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Displays a Print panel sheet and runs it modally for the specified window.
Notes:

printInfo: The printing information for the current job.
win: The window on which to display the sheet.

When the modal session ends, if printPanelDidEnd event is invoked on the object.
See also:

- 10.5.3 beginSheetWithPrintInfo(printInfo as NSPrintInfoMBS, win as NSWindowMBS) 796

10.5.5 Constructor

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a new print panel.

10.5.6 NSPrintAllPresetsJobStyleHint as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values can be passed to the jobStyleHint property to activate the simplified Print panel interface and specify which presets to display.
Notes:

Output appropriate to all graphics types. Equivalent to Core Printing's kPMPresetGraphicsTypeAll.
Available in OS X v10.6 and later.

10.5.7 NSPrintNoPresetsJobStyleHint as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values can be passed to the jobStyleHint property to activate the simplified Print panel interface and specify which presets to display.
Notes:

Output excludes all graphics printing. Equivalent to Core Printing's kPMPresetGraphicsTypeNone.
Available in OS X v10.6 and later.

10.5.8 NSPrintPhotoJobStyleHint as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the values can be passed to the jobStyleHint property to activate the simplified Print panel interface and specify which presets to display.
Notes: Output contains photographic data.

10.5.9 printInfo as NSPrintInfoMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the printing information associated with the running Print panel.
Notes:

The current printing information. May return nil if the Print panel is not currently running.
This method is a convenience method that your delegate can use to get the printing information while the Print Panel is visible.
Available in OS X v10.5 and later.

10.5.10 printPanel as NSPrintPanelMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a new PrintPanel object.

10.5.11 runModal as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Displays the receiver's Print panel and begins the modal loop.
Notes:

NSCancelButton (0) if the user clicks the Cancel button; otherwise NSOKButton (1).
This method uses the printing information associated with the current printing operation.

10.5.12 runModalWithPrintInfo(printInfo as NSPrintInfoMBS) as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Displays the receiver's Print panel and runs the modal loop using the specified printing information.
Notes:

printInfo: The printing information to use while displaying the Print panel.

Returns NSCancelButton (0) if the user clicks the Cancel button; otherwise NSOKButton (1).

10.5.13 Properties

10.5.14 Handle as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object reference.
Notes: (Read and Write property)

10.5.15 defaultButtonTitle as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The title of the Print panel's default button.
Notes:

defaultButtonTitle: The string to use for the button title.

You can use this method to change the default button title from "Print" to something more appropriate for your usage of the panel. For example, if you are using the Print panel to save a representation of the document to a file, you might change the title to "Save".
Available in OS X v10.5 and later.
(Read and Write computed property)

10.5.16 helpAnchor as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The HTML help anchor for the print panel.
Notes:

helpAnchor: The anchor name in your Apple Help file. This parameter should contain just the name portion of the HTML anchor element.

For information on how to insert anchors into your Apple Help files, see Authoring User Help in Apple Help Programming Guide.
Available in OS X v10.5 and later.
(Read and Write computed property)

10.5.17 jobStyleHint as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The type of content the Print panel is representing.
Notes:

hint: For a list of supported job style hints, see Job Style Hints functions. Pass nil to this method to deactivate the simplified Print panel interface and use the standard interface instead (the equivalent of Core Printing's kPMPresetGraphicsTypeGeneral).

This method controls the set of items that appear in the Presets menu of the simplified Print panel interface.
(Read and Write computed property)

10.5.18 options as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The configuration options for the Print panel.
Notes:

The configuration options, which you specify by adding together the appropriate constant values.
Available in OS X v10.5 and later.
(Read and Write computed property)

10.5.19 Events

10.5.20 printPanelDidEnd(returnCode as Integer)

Plugin Version: 12.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called when the sheet ends.
Notes: The value passed as returnCode is either NSCancelButton or NSOKButton. The value NSOKButton is returned even if the user clicked the Preview button.

10.5.21 Constants

10.5.22 NSPrintPanelShowsCopies = 1

Plugin Version: 12.4. **Function:** One of the print panel option constants.
Notes:

The Print panel includes a field for manipulating the number of copies being printed. This field is separate from any accessory views.
Available in OS X v10.5 and later.

10.5.23 NSPrintPanelShowsOrientation = 8

Plugin Version: 12.4. **Function:** One of the print panel option constants.
Notes:

The Print panel includes a control for manipulating the page orientation. This control is separate from any accessory views.
Available in OS X v10.5 and later.

10.5.24 NSPrintPanelShowsPageRange = 2

Plugin Version: 12.4. **Function:** One of the print panel option constants.
Notes:

The Print panel includes a set of fields for manipulating the range of pages being printed. These fields are separate from any accessory views.
Available in OS X v10.5 and later.

10.5.25 NSPrintPanelShowsPageSetupAccessory = 256

Plugin Version: 12.4. **Function:** One of the print panel option constants.
Notes:

The Print panel includes a separate accessory view for manipulating the paper size, orientation, and scaling attributes. Page setup fields that are already configured for display on the main portion of the Print panel appear there and not on this accessory panel.
Available in OS X v10.5 and later.

10.5.26 NSPrintPanelShowsPaperSize = 4

Plugin Version: 12.4. **Function:** One of the print panel option constants.
Notes:

The Print panel includes a control for manipulating the paper size of the printer. This control is separate from any accessory views.
Available in OS X v10.5 and later.

10.5.27 NSPrintPanelShowsPreview = 131072

Plugin Version: 12.4. **Function:** One of the print panel option constants.
Notes:

The Print panel displays a built-in preview of the document contents. This option is only appropriate when the Print panel is used in conjunction with an NSPrintOperation object to print a document.
Available in OS X v10.5 and later.

10.5.28 NSPrintPanelShowsPrintSelection = 32

Plugin Version: 12.4. **Function:** One of the print panel option constants.
Notes:

The Print panel includes an additional selection option for paper range. This control is separate from any accessory views.
Available in OS X v10.6 and later.

10.5.29 NSPrintPanelShowsScaling = 16

Plugin Version: 12.4. **Function:** One of the print panel option constants.
Notes:

The Print panel includes a control for scaling the printed output. This control is separate from any accessory views.
Available in OS X v10.5 and later.

Chapter 11

Cocoa Tasks

11.1 class NSFileHandleMBS

11.1.1 class NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** NSFileHandle objects provide an object-oriented wrapper for accessing open files or communications channels.
Example:

```
// file must exist for this sample:

dim f as FolderItem = SpecialFolder.Desktop.Child("test.txt")
dim n as NSFileHandleMBS = NSFileHandleMBS.fileHandleForReadingAtFile(f)

if n<>Nil then
MsgBox n.readDataToEndOfFile
end if
```

Notes:

Please call closeFile on the end if you want to close the file.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

11.1.2 Methods

11.1.3 acceptConnectionInBackgroundAndNotify

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Accepts a socket connection (for stream-type sockets only) in the background and creates a file handle for the "near" (client) end of the communications channel.
Notes:

This method is asynchronous. In a separate "safe" thread it accepts a connection, creates a file handle for the other end of the connection, and returns that object to the client by posting an NSFileHandleConnectionAcceptedNotification in the run loop of the client. The notification includes as data a userInfo dictionary containing the created NSFileHandle object; access this object using the NSFileHandleNotificationFileHandleItem key.
The receiver must be created by an fileHandleWithFileDescriptor message that takes as an argument a stream-type socket created by the appropriate system routine. The object that will write data to the returned file handle must add itself as an observer of NSFileHandleConnectionAcceptedNotification.
Note that this method does not continue to listen for connection requests after it posts NSFileHandleConnectionAcceptedNotification. If you want to keep getting notified, you need to call acceptConnectionInBackgroundAndNotify again in your observer method.

11.1.4 AvailableBytes as Integer

Plugin Version: 14.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Queries number of available bytes.
Notes:

Returns -1 if query failed.
You can use this value with readDataOfLength function to have it not block.

11.1.5 availableData as MemoryBlock

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the data available through the receiver.
Notes: If the receiver is a file, returns the data obtained by reading the file from the file pointer to the end of the file. If the receiver is a communications channel, reads up to a buffer of data and returns it; if no data is available, the method blocks. Returns an empty data object if the end of file is reached. Raises NSFileHandleOperationException if attempts to determine file-handle type fail or if attempts to read from the file or channel fail.

11.1.6 closeFile

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Disallows further access to the represented file or communications channel and signals end of file on communications channels that permit writing.
Example:

```
// file must exist for this sample:

dim f as FolderItem = SpecialFolder.Desktop.Child("test.txt")
dim e as NSErrorMBS
dim n as NSFileHandleMBS = NSFileHandleMBS.fileHandleForReadingFromFile(f,e)

if e<>Nil then
MsgBox e.localizedDescription
end if

if n<>Nil then
MsgBox n.readDataOfLength(5)
n.closeFile
end if
```

Notes:

The file or communications channel is available for other uses after the file handle represented by the receiver is closed. Further read and write messages sent to a file handle to which closeFile has been sent raises an exception.
Sending closeFile to a file handle does not cause its deallocation. The deallocation of an NSFileHandle object deletes its descriptor and closes the represented file or channel unless the NSFileHandle object was created with fileHandleWithFileDescriptor with false as the parameter argument.

11.1.7 Constructor

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The private constructor.

11.1.8 fileDescriptor as Integer

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the file descriptor associated with the receiver.
Notes:

Returns the POSIX file descriptor associated with the receiver.

You can send this message to file handles originating from both file descriptors and file handles and receive a valid file descriptor so long as the file handle is open. If the file handle has been closed by sending it closeFile, this method raises an exception.

11.1.9 fileHandleForReadingAtFile(path as folderitem) as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a file handle initialized for reading the file, device, or named socket at the specified path.
Example:

```
// file must exist for this sample:

dim f as FolderItem = SpecialFolder.Desktop.Child("test.txt")
dim n as NSFileHandleMBS = NSFileHandleMBS.fileHandleForReadingAtFile(f)

if n<>Nil then
MsgBox n.readDataToEndOfFile
end if
```

Notes:

path: The path to the file, device, or named socket to access.

Returns the initialized file handle, or nil if no file exists at path.

The file pointer is set to the beginning of the file. The returned object responds only to NSFileHandle read... messages.

11.1.10 fileHandleForReadingAtPath(path as string) as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a file handle initialized for reading the file, device, or named socket at the specified path.
Notes:

path: The path to the file, device, or named socket to access.

Returns the initialized file handle, or nil if no file exists at path.

The file pointer is set to the beginning of the file. The returned object responds only to NSFileHandle read...

messages.

11.1.11 fileHandleForReadingFromFile(URL as folderitem, byref error as NSErrorMBS) as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a file handle initialized for reading the file, device, or named socket at the specified URL.
Example:

```
// file must exist for this sample:

dim f as FolderItem = SpecialFolder.Desktop.Child("test.txt")
dim e as NSErrorMBS
dim n as NSFileHandleMBS = NSFileHandleMBS.fileHandleForReadingFromFile(f,e)

if e<>Nil then
MsgBox e.localizedDescription
end if

if n<>Nil then
MsgBox n.readDataOfLength(5)
MsgBox str(n.offsetInFile) // shows 5
end if
```

Notes:

url: The URL of the file, device, or named socket to access.
error: If an error occurs, upon return contains an NSError object that describes the problem.

Returns the initialized file handle, or nil if no file exists at url.

The file pointer is set to the beginning of the file. The returned object responds only to NSFileHandleread... messages.

11.1.12 fileHandleForReadingFromURL(URL as string, byref error as NSErrorMBS) as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a file handle initialized for reading the file, device, or named socket at the specified URL.
Notes:

url: The URL of the file, device, or named socket to access.

error: If an error occurs, upon return contains an NSError object that describes the problem.

Returns the initialized file handle, or nil if no file exists at url.

The file pointer is set to the beginning of the file. The returned object responds only to NSFileHandleread... messages.

11.1.13 fileHandleForUpdatingAtFile(path as folderitem) as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a file handle initialized for reading and writing to the file, device, or named socket at the specified path.
Notes:

path: The path to the file, device, or named socket to access.

Returns the initialized file handle, or nil if no file exists at path.

The file pointer is set to the beginning of the file. The returned object responds to both NSFileHandle read... messages and writeData.

11.1.14 fileHandleForUpdatingAtPath(path as string) as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a file handle initialized for reading and writing to the file, device, or named socket at the specified path.
Notes:

path: The path to the file, device, or named socket to access.

Returns the initialized file handle, or nil if no file exists at path.

The file pointer is set to the beginning of the file. The returned object responds to both NSFileHandle read... messages and writeData.

11.1.15 fileHandleForUpdatingFile(URL as folderitem, byref error as NSErrorMBS) as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a file handle initialized for reading and writing to the file, device, or named socket at the specified URL.
Notes:

url: The URL of the file, device, or named socket to access.
error: If an error occurs, upon return contains an NSError object that describes the problem.

The initialized file handle, or nil if no file exists at url.

The file pointer is set to the beginning of the file. The returned object responds to both NSFileHandleread... messages and writeData.

11.1.16 fileHandleForUpdatingURL(URL as string, byref error as NSErrorMBS) as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a file handle initialized for reading and writing to the file, device, or named socket at the specified URL.
Notes:

url: The URL of the file, device, or named socket to access.
error: If an error occurs, upon return contains an NSError object that describes the problem.

The initialized file handle, or nil if no file exists at url.

The file pointer is set to the beginning of the file. The returned object responds to both NSFileHandleread... messages and writeData.

11.1.17 fileHandleForWritingAtFile(path as folderitem) as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a file handle initialized for writing to the file, device, or named socket at the specified path.
Example:

```
// file must exist for this sample:

dim f as FolderItem = SpecialFolder.Desktop.Child("test.txt")
dim n as NSFileHandleMBS = NSFileHandleMBS.fileHandleForWritingAtFile(f)

if n<>Nil then
n.writeData "Hello World"
n.closeFile
end if
```

Notes:

path: The path to the file, device, or named socket to access.

Returns the initialized file handle, or nil if no file exists at path.

The file pointer is set to the beginning of the file. The returned object responds only to writeData.

11.1.18 fileHandleForWritingAtPath(path as string) as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a file handle initialized for writing to the file, device, or named socket at the specified path.
Notes:

path: The path to the file, device, or named socket to access.

Returns the initialized file handle, or nil if no file exists at path.

The file pointer is set to the beginning of the file. The returned object responds only to writeData.

11.1.19 fileHandleForWritingToFile(URL as folderitem, byref error as NSErrorMBS) as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a file handle initialized for writing to the file, device, or named socket at the specified URL.
Example:

```
// file must exist for this sample:

dim f as FolderItem = SpecialFolder.Desktop.Child("test.txt")
dim e as NSErrorMBS
dim n as NSFileHandleMBS = NSFileHandleMBS.fileHandleForWritingToFile(f, e)

if e<>Nil then
MsgBox e.localizedDescription
else
n.writeData "Hello World"
n.closeFile
end if
```

Notes:

url: The URL of the file, device, or named socket to access.

error: If an error occurs, upon return contains an NSError object that describes the problem.

Returns the initialized file handle, or nil if no file exists at url.

The file pointer is set to the beginning of the file. The returned object responds only to writeData.

11.1.20 fileHandleForWritingToURL(URL as string, byref error as NSErrorMBS) as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a file handle initialized for writing to the file, device, or named socket at the specified URL.
Notes:

url: The URL of the file, device, or named socket to access.
error: If an error occurs, upon return contains an NSError object that describes the problem.

Returns the initialized file handle, or nil if no file exists at url.

The file pointer is set to the beginning of the file. The returned object responds only to writeData.

11.1.21 fileHandleWithFileDescriptor(fd as Integer) as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a file handle initialized with a file descriptor.
Notes:

You can create a file handle for a socket by using the result of a socket call as fileDescriptor.
The object creating a file handle using this method owns fileDescriptor and is responsible for its disposition.
See also:

- 11.1.22 fileHandleWithFileDescriptor(fd as Integer, closeOnDealloc as boolean) as NSFileHandleMBS 811

11.1.22 fileHandleWithFileDescriptor(fd as Integer, closeOnDealloc as boolean) as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a file handle initialized with a file descriptor.
Notes:

You can create a file handle for a socket by using the result of a socket call as fileDescriptor.

The object creating a file handle using this method owns fileDescriptor and is responsible for its disposition.

closeOnDealloc: True if the file descriptor should be closed when the receiver is deallocated, otherwise false.
See also:

- 11.1.21 fileHandleWithFileDescriptor(fd as Integer) as NSFileHandleMBS 811

11.1.23 fileHandleWithNullDevice as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a file handle associated with a null device.
Notes: You can use null-device file handles as "placeholders" for standard-device file handles or in collection objects to avoid exceptions and other errors resulting from messages being sent to invalid file handles. Read messages sent to a null-device file handle return an end-of-file indicator (an empty NSData object) rather than raise an exception. Write messages are no-ops, whereas fileDescriptor returns an illegal value. Other methods are no-ops or return "sensible" values.

11.1.24 fileHandleWithStandardError as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the file handle associated with the standard error file.
Example:

```
// for GUI apps this ends on the console: (see console.app)

dim n as NSFileHandleMBS = NSFileHandleMBS.fileHandleWithStandardError

n.writeData "Hello World"
```

Notes: Conventionally this is a terminal device to which error messages are sent. There is one standard error file handle per process; it is a shared instance.

11.1.25 fileHandleWithStandardInput as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the file handle associated with the standard input file.
Notes: Conventionally this is a terminal device on which the user enters a stream of data. There is one standard input file handle per process; it is a shared instance.

11.1.26 fileHandleWithStandardOutput as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the file handle associated with the standard output file.
Example:

```
// for GUI apps this ends on the console: (see console.app)

dim n as NSFileHandleMBS = NSFileHandleMBS.fileHandleWithStandardOutput

n.writeData "Hello World"
```

Notes: Conventionally this is a terminal device that receives a stream of data from a program. There is one standard output file handle per process; it is a shared instance.

11.1.27 NSFileHandleConnectionAcceptedNotification as string

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This notification is posted when an NSFileHandle object establishes a socket connection between two processes, creates an NSFileHandle object for one end of the connection, and makes this object available to observers by putting it in the userInfo dictionary.
Notes:

To cause the posting of this notification, you must send either acceptConnectionInBackgroundAndNotify to an NSFileHandle object representing a server stream-type socket.
The notification object is the NSFileHandle object that sent the notification. The userInfo dictionary contains the following information:

NSFileHandleNotificationFileHandleItem	The NSFileHandle object representing the "near" end of a socket connection
NSFileHandleError	An integer representing the UNIX-type error which occurred

11.1.28 NSFileHandleDataAvailableNotification as string

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This notification is posted when the background thread determines that data is currently available for reading in a file or at a communications channel.
Notes:

The observers can then issue the appropriate messages to begin reading the data. To cause the posting of this notification, you must send either waitForDataInBackgroundAndNotify or waitForDataInBackgroundAndNotifyForModes: to an appropriate NSFileHandle object.
The notification object is the NSFileHandle object that sent the notification. This notification does not

contain a userInfo dictionary.

11.1.29 NSFileHandleNotificationDataItem as string

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A key in the userinfo dictionary in a NSFileHandleReadCompletionNotification and NSFileHandleReadToEndOfFileCompletionNotification.
Notes: The corresponding value is an memoryblock containing the available data read from a socket connection.

11.1.30 NSFileHandleNotificationFileHandleItem as string

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A key in the userinfo dictionary in a NSFileHandleConnectionAcceptedNotification notification.
Notes: The corresponding value is the NSFileHandle object handle representing the "near" end of a socket connection.

11.1.31 NSFileHandleNotificationMonitorModes as string

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Currently unused.

11.1.32 NSFileHandleOperationException as string

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Constant that defines the name of a file operation exception.
Notes: Raised by NSFileHandle if attempts to determine file-handle type fail or if attempts to read from a file or channel fail.

11.1.33 NSFileHandleReadCompletionNotification as string

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification strings for the file handle class.
Notes:

This notification is posted when the background thread reads the data currently available in a file or at a communications channel. It makes the data available to observers by putting it in the userInfo dictionary. To cause the posting of this notification, you must send either readInBackgroundAndNotify to an appropriate NSFileHandle object.

The notification object is the NSFileHandle object that sent the notification. The userInfo dictionary contains the following information:

NSFileHandleNotificationDataItem	An string containing the available data read from a socket connection
NSFileHandleError	An integer representing the UNIX-type error which occurred

11.1.34 NSFileHandleReadToEndOfFileCompletionNotification as string

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This notification is posted when the background thread reads all data in the file or, if a communications channel, until the other process signals the end of data.
Notes:

It makes the data available to observers by putting it in the userInfo dictionary. To cause the posting of this notification, you must send either readToEndOfFileInBackgroundAndNotify to an appropriate NSFileHandle object.
The notification object is the NSFileHandle object that sent the notification. The userInfo dictionary contains the following information:

NSFileHandleNotificationDataItem: A string containing the available data read from a socket connection

NSFileHandleError	An integer representing the UNIX-type error which occurred

11.1.35 readDataOfLength(length as Integer) as MemoryBlock

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Reads data up to a specified number of bytes from the receiver.
Example:

```
// file must exist for this sample:

dim f as FolderItem = SpecialFolder.Desktop.Child("test.txt")
dim n as NSFileHandleMBS = NSFileHandleMBS.fileHandleForReadingAtFile(f)

if n<>Nil then
MsgBox n.readDataOfLength(5)
end if
```

Notes:

length: The number of bytes to read from the receiver.

Returns the data available through the receiver up to a maximum of length bytes.

If the receiver is a file, returns the data obtained by reading from the file pointer to length or to the end of the file, whichever comes first. If the receiver is a communications channel, the method reads data from the channel up to length. Returns an empty memoryblock if the file is positioned at the end of the file or if an end-of-file indicator is returned on a communications channel. Raises NSFileHandleOperationException if attempts to determine file-handle type fail or if attempts to read from the file or channel fail.

11.1.36 readDataToEndOfFile as MemoryBlock

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the data available through the receiver up to the end of file or maximum number of bytes.
Example:

```
// file must exist for this sample:

dim f as FolderItem = SpecialFolder.Desktop.Child("test.txt")
dim n as NSFileHandleMBS = NSFileHandleMBS.fileHandleForReadingAtFile(f)

if n<>Nil then
MsgBox n.readDataToEndOfFile
end if
```

Notes:

Returns the data available through the receiver up to UINT_MAX bytes (the maximum value for unsigned integers) or, if a communications channel, until an end-of-file indicator is returned.

This method invokes readDataOfLength as part of its implementation.

11.1.37 readInBackgroundAndNotify

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Reads from the file or communications channel in the background and posts a notification when finished.
Notes:

This method performs an asynchronous availableData operation on a file or communications channel and posts an NSFileHandleReadCompletionNotification to the client process's run loop.
The length of the data is limited to the buffer size of the underlying operating system. The notification includes a userInfo dictionary that contains the data read; access this object using the NSFileHandleNotifi-

cationDataItem key.
Any object interested in receiving this data asynchronously must add itself as an observer of NSFileHandleReadCompletionNotification. In communication via stream-type sockets, the receiver is often the object returned in the userInfo dictionary of NSFileHandleConnectionAcceptedNotification.
Note that this method does not cause a continuous stream of notifications to be sent. If you wish to keep getting notified, you'll also need to call readInBackgroundAndNotify in your observer method.

11.1.38 readToEndOfFileInBackgroundAndNotify

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Reads to the end of file from the file or communications channel in the background and posts a notification when finished.
Example:

```
dim path as string = "/tmp/NSFileHandle async reading.txt"
dim f as FolderItem = GetFolderItem(path, FolderItem.PathTypeShell)
dim n as NSFileHandleMBS = NSFileHandleMBS.fileHandleForReadingAtFile(f)

n.readToEndOfFileInBackgroundAndNotify
```

Notes:

This method performs an asynchronous readToEndOfFile operation on a file or communications channel and posts an NSFileHandleReadToEndOfFileCompletionNotification to the client process's run loop.
The notification includes a userInfo dictionary that contains the data read; access this object using the NSFileHandleNotificationDataItem key.
Any object interested in receiving this data asynchronously must add itself as an observer of NSFileHandleReadToEndOfFileCompletionNotification. In communication via stream-type sockets, the receiver is often the object returned in the userInfo dictionary of NSFileHandleConnectionAcceptedNotification.

11.1.39 seekToEndOfFile as UInt64

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Puts the file pointer at the end of the file referenced by the receiver and returns the new file offset.
Notes:

Returns the file offset with the file pointer at the end of the file. This is therefore equal to the size of the file.

Raises an exception if the message is sent to an NSFileHandle object representing a pipe or socket or if the file descriptor is closed.

11.1.40 seekToFileOffset(offset as UInt64)

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Moves the file pointer to the specified offset within the file represented by the receiver.
Notes: Raises an exception if the message is sent to an NSFileHandle object representing a pipe or socket, if the file descriptor is closed, or if any other error occurs in seeking.

11.1.41 synchronizeFile

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Causes all in-memory data and attributes of the file represented by the receiver to be written to permanent storage.
Notes: This method should be invoked by programs that require the file to always be in a known state. An invocation of this method does not return until memory is flushed.

11.1.42 truncateFileAtOffset(offset as UInt64)

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Truncates or extends the file represented by the receiver to a specified offset within the file and puts the file pointer at that position.
Notes:

offset: The offset within the file that will mark the new end of the file.

If the file is extended (if offset is beyond the current end of file), the added characters are null bytes.

11.1.43 waitForDataInBackgroundAndNotify

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Checks to see if data is available in a background thread.
Notes: When the data becomes available, the thread notifies all observers with NSFileHandleDataAvailableNotification. After the notification has been posted, the thread is terminated.

11.1.44 writeData(data as MemoryBlock)

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Synchronously writes data to the file, device, pipe, or socket represented by the receiver.
Example:

```
// file must exist for this sample:
```

```
dim f as FolderItem = SpecialFolder.Desktop.Child("test.txt")
dim n as NSFileHandleMBS = NSFileHandleMBS.fileHandleForWritingAtFile(f)

if n<>Nil then
n.writeData "Hello World"
n.closeFile
end if
```

Notes: If the receiver is a file, writing takes place at the file pointer's current position. After it writes the data, the method advances the file pointer by the number of bytes written. Raises an exception if the file descriptor is closed or is not valid, if the receiver represents an unconnected pipe or socket endpoint, if no free space is left on the file system, or if any other writing error occurs.

11.1.45 Properties

11.1.46 Handle as Integer

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal handle to the NSFileHandle object.
Notes: (Read and Write property)

11.1.47 offsetInFile as UInt64

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the position of the file pointer within the file represented by the receiver.
Example:

```
// file must exist for this sample:

dim f as FolderItem = SpecialFolder.Desktop.Child("test.txt")
dim e as NSErrorMBS
dim n as NSFileHandleMBS = NSFileHandleMBS.fileHandleForReadingFromFile(f,e)

if e<>Nil then
MsgBox e.localizedDescription
end if

if n<>Nil then
MsgBox n.readDataOfLength(5)
MsgBox str(n.offsetInFile) // shows 5
end if
```

Notes:

The position of the file pointer within the file represented by the receiver.

Raises an exception if the message is sent to a file handle representing a pipe or socket or if the file descriptor is closed.
(Read and Write computed property)

11.2 class NSPipeMBS

11.2.1 class NSPipeMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** NSPipe objects provide an object-oriented interface for accessing pipes.
Notes: An NSPipe object represents both ends of a pipe and enables communication through the pipe. A pipe is a one-way communications channel between related processes; one process writes data, while the other process reads that data. The data that passes through the pipe is buffered; the size of the buffer is determined by the underlying operating system. NSPipe is an abstract class, the public interface of a class cluster.

11.2.2 Methods

11.2.3 Constructor

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor to create a new pipe.
Notes: Handle is not zero on success.

11.2.4 fileHandleForReading as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's read file handle.
Notes:

You use the returned file handle to read from the pipe using NSFileHandle's read methodsavailableData, readDataToEndOfFile, and readDataOfLength.
You don't need to send closeFile to this object or explicitly release the object after you have finished using it.

11.2.5 fileHandleForWriting as NSFileHandleMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's write file handle.
Notes: You use the returned file handle to write to the pipe using NSFileHandle's writeData: method. When you are finished writing data to this object, send it a closeFile message to delete the descriptor. Deleting the descriptor causes the reading process to receive an end-of-data signal (an empty memoryblock).

11.2.6 pipe as NSPipeMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an initialized NSPipe object.
Notes: Returns nil if the method encounters errors while attempting to create the pipe or the NSFileHandle objects that serve as endpoints of the pipe.

11.2.7 Properties

11.2.8 Handle as Integer

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference to the NSPipe object.
Notes: (Read and Write property)

11.3 class NSTaskMBS

11.3.1 class NSTaskMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Using the NSTask class, your program can run another program as a subprocess and can monitor that program's execution.
Example:

```
// Launch "ls -l -a -t" in the current directory, and then read the result into a string:

dim task as new NSTaskMBS

task.launchPath = "/bin/ls"

dim arguments(-1) as string = array("-l", "-a", "-t")

task.setArguments arguments

dim pipe as new NSPipeMBS

task.setStandardOutput pipe

dim file as NSFileHandleMBS = pipe.fileHandleForReading

task.launch

dim data as string = file.readDataToEndOfFile
dim text as string = DefineEncoding(data, encodings.UTF8)

MsgBox text
```

Notes:

An NSTask object creates a separate executable entity; it differs from NSThread in that it does not share memory space with the process that creates it.
A task operates within an environment defined by the current values for several items: the current directory, standard input, standard output, standard error, and the values of any environment variables. By default, an NSTask object inherits its environment from the process that launches it. If there are any values that should be different for the task, for example, if the current directory should change, you must change the value before you launch the task. A task's environment cannot be changed while it is running.
An NSTask object can only be run once. Subsequent attempts to run the task raise an error.

This class is comparable to the shell classe built into REALbasic.

11.3.2 Methods

11.3.3 arguments as string()

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The command arguments that should be used to launch the executable.

11.3.4 Constructor

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor.
Notes: On success the handle value is not zero.

11.3.5 Destructor

Plugin Version: 15.3, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The destructor.

11.3.6 interrupt

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sends an interrupt signal to the receiver and all of its subtasks.
Notes:

If the task terminates as a result, which is the default behavior, an NSTaskDidTerminateNotification gets sent to the default notification center. This method has no effect if the receiver was already launched and has already finished executing. If the receiver has not been launched yet, this method raises an NSInvalidArgumentException.
It is not always possible to interrupt the receiver because it might be ignoring the interrupt signal. interrupt sends SIGINT.

11.3.7 launch

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Launches the task represented by the receiver.
Example:

```
// Launch "ls -l -a -t" in the current directory, and then read the result into a string:

dim task as new NSTaskMBS

task.launchPath = "/bin/ls"
```

```
dim arguments(-1) as string = array("-l", "-a", "-t")

task.setArguments arguments

dim pipe as new NSPipeMBS

task.setStandardOutput pipe

dim file as NSFileHandleMBS = pipe.fileHandleForReading

task.launch

dim data as string = file.readDataToEndOfFile
dim text as string = DefineEncoding(data, encodings.UTF8)

MsgBox text
```

Notes:

Raises an NSInvalidArgumentException if the launch path has not been set or is invalid or if it fails to create a process.
If you get an exception with posix_spawn and error 13, that's a permission denied.

11.3.8 launchedTaskWithLaunchPath(path as string, arguments() as string) as NSTaskMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and launches a task with a specified executable and arguments.
Example:

```
dim args(-1) as string
dim task as NSTaskMBS = NSTaskMBS.launchedTaskWithLaunchPath("/bin/ls", args)
```

Notes:

path: The path to the executable.
arguments: An array of strings that supplies the arguments to the task.

The task inherits its environment from the process that invokes this method.
The NSTask object converts both path and the strings in arguments to appropriate C-style strings (using fileSystemRepresentation) before passing them to the task via argv [ ]) . The strings in arguments do not undergo shell expansion, so you do not need to do special quoting, and shell variables, such as $ PWD, are

not resolved.

11.3.9 NSTaskDidTerminateNotification as string

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The notification name used to notify you that the task terminated.
Notes:

Posted when the task has stopped execution. This notification can be posted either when the task has exited normally or as a result of terminate being sent to the NSTask object. If the NSTask object gets released, however, this notification will not get sent, as the port the message would have been sent on was released as part of the task release. The observer method can use terminationStatus to determine why the task died. See "Ending an NSTask" for an example.

The notification object is the NSTask object that was terminated. This notification does not contain a userInfo dictionary.

11.3.10 resume as boolean

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Resumes execution of the receiver task that had previously been suspended with a suspend message.
Notes: If multiple suspend messages were sent to the receiver, an equal number of resume messages must be sent before the task resumes execution.

11.3.11 setArguments(arguments() as string)

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the command arguments that should be used to launch the executable.
Example:

```
// Performing complex pipelines.
// You can create multiple NSTasks and a bunch of NSPipes and hook them together,
// or you can use the "sh -c" trick to feed a shell a command, and let it parse
// it and set up all the IPC. This pipeline cats /usr/share/dict/words, finds
// all the words with 'ham' in them, reverses them, and shows you the last 5.

dim task as new NSTaskMBS

task.LaunchPath="/bin/sh"

dim arguments(-1) as string
```

```
arguments.Append "-c"
arguments.Append "cat /usr/share/dict/words | grep -i ham | rev | tail -5"

task.setArguments arguments
```

11.3.12 setStandardError(p as NSFileHandleMBS)

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the standard error for the receiver.
Notes:

This method can be used with NSPipeMBS or NSFileHandleMBS object.

If file is an NSPipe object, launching the receiver automatically closes the write end of the pipe in the current task. Don't create a handle for the pipe and pass that as the argument, or the write end of the pipe won't be closed automatically.
If this method isn't used, the standard error is inherited from the process that created the receiver. This method raises an NSInvalidArgumentException if the receiver has already been launched.
See also:

- 11.3.13 setStandardError(p as NSPipeMBS) 827

11.3.13 setStandardError(p as NSPipeMBS)

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the standard error for the receiver.
Notes:

This method can be used with NSPipeMBS or NSFileHandleMBS object.

If file is an NSPipe object, launching the receiver automatically closes the write end of the pipe in the current task. Don't create a handle for the pipe and pass that as the argument, or the write end of the pipe won't be closed automatically.
If this method isn't used, the standard error is inherited from the process that created the receiver. This method raises an NSInvalidArgumentException if the receiver has already been launched.
See also:

- 11.3.12 setStandardError(p as NSFileHandleMBS) 827

11.3.14 setStandardInput(p as NSFileHandleMBS)

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the standard input for the receiver.

Notes:

file: The standard input for the receiver, which can be either an NSFileHandle or an NSPipe object.

If file is an NSPipe object, launching the receiver automatically closes the read end of the pipe in the current task. Don't create a handle for the pipe and pass that as the argument, or the read end of the pipe won't be closed automatically.
If this method isn't used, the standard input is inherited from the process that created the receiver. This method raises an NSInvalidArgumentException if the receiver has already been launched.
See also:

- 11.3.15 setStandardInput(p as NSPipeMBS) 828

11.3.15 setStandardInput(p as NSPipeMBS)

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the standard input for the receiver.
Notes:

file: The standard input for the receiver, which can be either an NSFileHandle or an NSPipe object.

If file is an NSPipe object, launching the receiver automatically closes the read end of the pipe in the current task. Don't create a handle for the pipe and pass that as the argument, or the read end of the pipe won't be closed automatically.
If this method isn't used, the standard input is inherited from the process that created the receiver. This method raises an NSInvalidArgumentException if the receiver has already been launched.
See also:

- 11.3.14 setStandardInput(p as NSFileHandleMBS) 827

11.3.16 setStandardOutput(p as NSFileHandleMBS)

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the standard output for the receiver.
Notes:

file: The standard output for the receiver, which can be either an NSFileHandle or an NSPipe object.

If file is an NSPipe object, launching the receiver automatically closes the write end of the pipe in the current task. Don't create a handle for the pipe and pass that as the argument, or the write end of the pipe won't be closed automatically.
If this method isn't used, the standard output is inherited from the process that created the receiver. This method raises an NSInvalidArgumentException if the receiver has already been launched.
See also:

• 11.3.17 setStandardOutput(p as NSPipeMBS) 829

11.3.17 setStandardOutput(p as NSPipeMBS)

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the standard output for the receiver.
Notes:

file: The standard output for the receiver, which can be either an NSFileHandle or an NSPipe object.

If file is an NSPipe object, launching the receiver automatically closes the write end of the pipe in the current task. Don't create a handle for the pipe and pass that as the argument, or the write end of the pipe won't be closed automatically.
If this method isn't used, the standard output is inherited from the process that created the receiver. This method raises an NSInvalidArgumentException if the receiver has already been launched.
See also:

• 11.3.16 setStandardOutput(p as NSFileHandleMBS) 828

11.3.18 standardError as Variant

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the standard error file used by the receiver.
Notes:

The standard error file used by the receiver.

Standard error is where all diagnostic messages are sent. The object returned is either an NSFileHandle or an NSPipe instance, depending on what type of object was passed to setStandardError.

11.3.19 standardInput as Variant

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the standard input file used by the receiver.
Notes:

The standard input file used by the receiver.

Standard input is where the receiver takes its input from unless otherwise specified. The object returned is either an NSFileHandle or an NSPipe instance, depending on what type of object was passed to the setStandardInput method.

11.3.20 standardOutput as Variant

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the standard output file used by the receiver.
Notes: Standard output is where the receiver displays its output. The object returned is either an NSFileHandle or an NSPipe instance, depending on what type of object was passed to the setStandardOutput method.

11.3.21 suspend as boolean

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Suspends execution of the receiver task.
Notes:

Returns true if the receiver was successfully suspended, false otherwise.

Multiple suspend messages can be sent, but they must be balanced with an equal number of resume messages before the task resumes execution.

11.3.22 terminate

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sends a terminate signal to the receiver and all of its subtasks.
Notes:

If the task terminates as a result, which is the default behavior, an NSTaskDidTerminateNotification gets sent to the default notification center. This method has no effect if the receiver was already launched and has already finished executing. If the receiver has not been launched yet, this method raises an NSInvalidArgumentException.
It is not always possible to terminate the receiver because it might be ignoring the terminate signal. terminate sends SIGTERM.

11.3.23 waitUntilExit

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Block until the receiver is finished.
Example:

```
dim args(-1) as string
dim task as NSTaskMBS = NSTaskMBS.launchedTaskWithLaunchPath("/bin/ls", args)

task.waitUntilExit
```

```
MsgBox "done"
```

Notes: This method first checks to see if the receiver is still running using isRunning. Then it polls the current run loop using NSDefaultRunLoopMode until the task completes.

11.3.24 Properties

11.3.25 currentDirectoryPath as string

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The task's current directory.
Notes: (Read and Write property)

11.3.26 Handle as Integer

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference to the NSTask object.
Notes: (Read and Write property)

11.3.27 isRunning as boolean

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns whether the receiver is still running.
Notes: (Read only property)

11.3.28 launchPath as string

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The path of the receiver's executable.
Notes: (Read and Write property)

11.3.29 processIdentifier as Integer

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the receiver's process identifier.

Example:

```
dim args(-1) as string
dim task as NSTaskMBS = NSTaskMBS.launchedTaskWithLaunchPath("/bin/ls", args)

MsgBox "PID: "+str(task.processIdentifier)
```

Notes: (Read only property)

11.3.30 qualityOfService as Integer

Plugin Version: 15.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The quality of service setting for this application.
Notes:

read-only after the task is launched.
(Read and Write property)

11.3.31 terminationReason as Integer

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the reason the task was terminated.
Example:

```
// Launch "ls -l -a -t" in the current directory, and then read the result into a string:

dim args(-1) as string
dim task as NSTaskMBS = NSTaskMBS.launchedTaskWithLaunchPath("/bin/ls", args)

if not task.isRunning then
dim status as Integer = Task.terminationReason

MsgBox "Task termination reason is: "+str(status)
end if
```

Notes:

Available in Mac OS X v10.6 and later.

see this constants:

NSTaskTerminationReasonExit	= 1	The task exited normally.
NSTaskTerminationReasonUncaughtSignal	= 2	The task exited due to an uncaught signal.

(Read only property)

11.3.32 terminationStatus as Integer

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the exit status returned by the receiver's executable.
Example:

```
// Launch "ls -l -a -t" in the current directory, and then read the result into a string:

dim args(-1) as string
dim task as NSTaskMBS = NSTaskMBS.launchedTaskWithLaunchPath("/bin/ls", args)

if not task.isRunning then
dim status as Integer = Task.terminationStatus

MsgBox "Task return value is: "+str(status)
end if
```

Notes:

The exit status returned by the receiver's executable.

Each task defines and documents how its return value should be interpreted. For example, many commands return 0 if they complete successfully or an error code if they don't. You'll need to look at the documentation for that task to learn what values it returns under what circumstances.
This method raises an NSInvalidArgumentException if the receiver is still running. Verify that the receiver is not running before you use it.
(Read only property)

11.3.33 environment as dictionary

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A dictionary of variables for the environment from which the receiver was launched.
Notes:

The dictionary keys are the environment variable names.
(Read and Write computed property)

11.3.34 Events

11.3.35 Terminated

Plugin Version: 15.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Event called when task terminated.

11.3.36 Constants

11.3.37 NSQualityOfServiceBackground = & h09

Plugin Version: 15.3. **Function:** One of the quality of service constants.
Notes: Background QoS is used for work that is not user initiated or visible. In general, a user is unaware that this work is even happening and it will run in the most efficient manner while giving the most deference to higher QoS work. For example, pre-fetching content, search indexing, backups, and syncing of data with external systems.

11.3.38 NSQualityOfServiceDefault = -1

Plugin Version: 15.3. **Function:** One of the quality of service constants.
Notes: Default QoS indicates the absence of QoS information. Whenever possible QoS information will be inferred from other sources. If such inference is not possible, a QoS between UserInitiated and Utility will be used.

11.3.39 NSQualityOfServiceUserInitiated = & h19

Plugin Version: 15.3. **Function:** One of the quality of service constants.
Notes: UserInitiated QoS is used for performing work that has been explicitly requested by the user and for which results must be immediately presented in order to allow for further user interaction. For example, loading an email after a user has selected it in a message list.

11.3.40 NSQualityOfServiceUserInteractive = & h21

Plugin Version: 15.3. **Function:** One of the quality of service constants.
Notes: UserInteractive QoS is used for work directly involved in providing an interactive UI such as processing events or drawing to the screen.

11.3.41 NSQualityOfServiceUtility = & h11

Plugin Version: 15.3. **Function:** One of the quality of service constants.
Notes: Utility QoS is used for performing work which the user is unlikely to be immediately waiting for the results. This work may have been requested by the user or initiated automatically, does not prevent the user from further interaction, often operates at user-visible timescales and may have its progress indicated to the user by a non-modal progress indicator. This work will run in an energy-efficient manner, in deference to higher QoS work when resources are constrained. For example, periodic content updates or bulk file operations such as media import.

11.3.42 NSTaskTerminationReasonExit = 1

Plugin Version: 9.7. **Function:** One of the constants used to specify the values that are returned by terminationReason.
Notes: The task exited normally.

11.3.43 NSTaskTerminationReasonUncaughtSignal = 2

Plugin Version: 9.7. **Function:** One of the constants used to specify the values that are returned by terminationReason.
Notes: The task exited due to an uncaught signal.

Chapter 12

Controls

12.1 class Label

12.1.1 class Label

Plugin Version: 13.0, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** An extension of Realbasic's internal control.

12.1.2 Methods

12.1.3 NSTextFieldMBS as NSTextFieldMBS

Plugin Version: 13.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Creates a NSTextFieldMBS object for the given control.
Notes: This way you can manipulate Cocoa controls directly.

12.2 class TabPanel

12.2.1 class TabPanel

Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Extends the TabPanel control inside Realbasic.

12.2.2 Methods

12.2.3 NSTabViewMBS as NSTabViewMBS

Plugin Version: 10.0, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Creates a NSTabViewMBS object for the given control.
Example:

MsgBox TabPanel1.NSTabViewMBS.className

Notes: This way you can manipulate Cocoa controls directly.

Chapter 13

Drag & Drop

13.1 class DragItem

13.1.1 class DragItem

Plugin Version: 14.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The dragitem class from Xojo framework.

13.1.2 Methods

13.1.3 NSDraggingInfoMBS as NSDraggingInfoMBS

Plugin Version: 14.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Provides the NSDraggingInfo object for the DragItem.

13.2 class NSDraggingImageComponentMBS

13.2.1 class NSDraggingImageComponentMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The NSDraggingImageComponent class represents a single object in a dragging item.
Notes: An array of NSDraggingImageComponent instances are composited together to create the dragging image for an NSDraggingItem. NSDraggingImageComponent instances can simply be considered as named images with a location used by an NSDraggingItem instance.

13.2.2 Methods

13.2.3 Constructor(key as string)

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a dragging image component with the specified key.
Notes:

key: The key.
Available in OS X v10.7 and later.

13.2.4 draggingImageComponentWithKey(key as string) as NSDraggingImageComponentMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates and returns a dragging image component with the specified key.
Notes: Available in OS X v10.7 and later.

13.2.5 NSDraggingImageComponentIconKey as string

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for Constructor.
Notes:

Key with a corresponding value that is an image of the item being dragged.
Available in OS X v10.7 and later.

13.2.6 NSDraggingImageComponentLabelKey as string

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for Constructor.
Notes:

Key with a corresponding value that represents a textual label associate with the item, for example, a file name.
Available in OS X v10.7 and later.

13.2.7 Properties

13.2.8 Handle as Integer

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object handle.
Notes: (Read and Write property)

13.2.9 contents as Variant

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An object providing the image contents of the component.
Notes:

Typically you set an NSImage instance as content.
Available in OS X v10.7 and later.
(Read and Write computed property)

13.2.10 frame as NSRectMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The coordinate space is the bounds of the parent dragging item.
Notes:

The frame is { { 0,0 } , { draggingFrame.size.width, draggingFrame.size.height } } .

The coordinate space is the bounds of the parent NSDraggingItem instance's draggingFrame.
Available in OS X v10.7 and later.
(Read and Write computed property)

13.2.11 key as string

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The unique name of this image component instance.
Notes:

The key must be unique for each component in an NSDraggingItem instance. You can create your own named components, however the keys described in NSDragImage Component Keys have special meanings.

When an NSDraggingItem instances imageComponents are changed by one of the enumerateDraggingItemsWithOptions methods the image associated with this key is morphed into the new image component's image associated with the same key.

Available in OS X v10.7 and later.
(Read and Write computed property)

13.3 class NSDraggingInfoMBS

13.3.1 class NSDraggingInfoMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The NSDraggingInfo protocol declares methods that supply information about a dragging session.
Notes: NSDraggingInfo protocol methods are designed to be invoked from within a class's implementation of NSDraggingDestination protocol methods. The Application Kit automatically passes an object that conforms to the NSDraggingInfo protocol as the argument to each of the methods defined by NSDraggingDestination. NSDraggingInfo messages should be sent to this object; you never need to create a class that implements the NSDraggingInfo protocol.

13.3.2 Methods

13.3.3 Constructor

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The private constructor.
See also:

- 13.3.4 Constructor(Handle as Integer) 843

13.3.4 Constructor(Handle as Integer)

Plugin Version: 14.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor to build an NSDraggingInfo object with a handle.
Notes: Handle should be a Cocoa object reference implementing the NSDraggingInfo protocol.
See also:

- 13.3.3 Constructor 843

13.3.5 namesOfPromisedFilesDroppedAtDestination(dropDestination as Folderitem) as string()

Plugin Version: 14.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the drop location for promised files and returns the names of the files that the receiver promises to create there.
Notes:

dropDestination: A folderitem specifying the drop location for promised files.

Return an array of file names, which are not full paths.

Drag destinations should invoke this method within their performDragOperation method. The source may or may not have created the files by the time this method returns.

13.3.6 promisedFilesDroppedAtDestination(dropDestination as FolderItem) as FolderItem()

Plugin Version: 14.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the drop location for promised files and returns the files that the receiver promises to create there.
Notes:

dropDestination: A folderitem specifying the drop location for promised files.

Return an array of folderitems for the files.
The files may not yet exist.

Drag destinations should invoke this method within their performDragOperation method. The source may or may not have created the files by the time this method returns.

13.3.7 slideDraggedImageTo(screenPoint as NSPointMBS)

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Slides the image to a specified location.
Notes:

screenPoint: A point that specifies a location in the screen coordinate system.

This method can be used to adjust the location to which the dragged image will slide back if the drag is rejected.
It should only be invoked from within the destination's implementation of prepareForDragOperation, and will only have effect if the destination rejects the drag.
This method is invoked after the user has released the image but before it is removed from the screen.

13.3.8 Properties

13.3.9 animatesToDestination as boolean

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the dragging formation animates while the drag is over this destination.
Notes:

During the conclusion of an accepted drag, if this property is set to true, the drag manager will animate

each dragging image to their NSDraggingFormationNone locations. Otherwise, the drag images are removed without any animation.

This property is inspected between prepareForDragOperation and performDragOperation. You should enumerate through the dragging items during performDragOperation to set the item's draggingFrame to the correct destinations.

Available in OS X v10.7 and later.
(Read and Write property)

13.3.10 draggedImage as Variant

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the image being dragged.
Notes:

Value is a NSImageMBS object. Returned as Variant to reduce plugin dependencies.

This image object visually represents the data put on the pasteboard during the drag operation; however, it is the pasteboard data and not this image that is ultimately utilized in the dragging operation.

This method returns non-nil for a local drag, but nil for a cross-process drag. With the new multi-image dragging capabilities, a cross-process destination may participate and change the drag image. But it still cannot get the current drag image.
(Read only property)

13.3.11 draggedImageLocation as NSPointMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the current location of the dragged image's origin.
Notes:

Returns the dragged image's origin, in the base coordinate system of the destination object's window.
The image moves along with the mouse pointer (the position of which is given by draggingLocation) but may be positioned at some offset.
(Read only property)

13.3.12 draggingDestinationWindow as Variant

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the destination window for the dragging operation.
Notes:

Value is a NSWindowMBS object. Returned as Variant to reduce plugin dependencies.

Either this window is the destination itself, or it contains the view object that is the destination.
(Read only property)

13.3.13 draggingFormation as Integer

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the dragging formation while the drag is over this destination.
Notes:

Set this property to change the formation of the drag items. This is generally done during the updateDraggingItemsForDrag method or whenever you enumerate the dragging items.

The default value is the current drag formation.

Note: Set this property before or after the NSDraggingInfo or NSDraggingSession class's method enumerateDraggingItemsWithOptions not inside the enumeration Block.

Available in OS X v10.7 and later.
(Read and Write property)

13.3.14 draggingLocation as NSPointMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the current location of the mouse pointer in the base coordinate system of the destination object's window.
Notes: (Read only property)

13.3.15 draggingPasteboard as Variant

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the pasteboard object that holds the data being dragged.
Notes:

Value is a NSPasteboardMBS object. Returned as Variant to reduce plugin dependencies.

The dragging operation that is ultimately performed utilizes this pasteboard data and not the image returned by the draggedImage method.
(Read only property)

13.3.16 draggingSequenceNumber as Integer

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a number that uniquely identifies the dragging session.
Notes: (Read only property)

13.3.17 draggingSource as Variant

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the source, or owner, of the dragged data.
Notes:

This method returns nil if the source is not in the same application as the destination. The dragging source implements methods from the NSDraggingSource protocol.
(Read only property)

13.3.18 draggingSourceOperationMask as Integer

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the dragging operation mask of the dragging source.
Notes:

The dragging operation mask, which is declared by the dragging source through the NSDraggingSource sourceOperationMaskForDraggingContext method (preferred) or the NSDraggingSource draggingSourceOperationMaskForLocal method. If the source does not permit any dragging operations, this method should return NSDragOperationNone.

If the source permits dragging operations, the elements in the mask are one or more of the constants described in "Obtaining Information About the Dragging Session", combined using the C bitwise OR operator.

If the user is holding down a modifier key during the dragging session and the source does not prohibit modifier keys from affecting the drag operation (through its ignoreModifierKeysWhileDragging method), then the operating system combines the dragging operation value that corresponds to the modifier key (see the descriptions below) with the source's mask using the C bitwise AND operator.

The modifier keys are associated with the dragging operation options shown below:

Modifier Key	Dragging Operation
Control	NSDragOperationLink
Option	NSDragOperationCopy
Command	NSDragOperationGeneric

(Read only property)

13.3.19 Handle as Integer

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object reference.
Notes: (Read and Write property)

13.3.20 numberOfValidItemsForDrop as Integer

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Specifies the number of valid items for a drop operation.
Notes:

During draggingEntered or draggingUpdated, you are responsible for returning the drag operation. In some cases, you may accept some, but not all items on the dragging pasteboard. (For example, your application may only accept image files.)

If you only accept some of the items, set this property to the number of items accepted so the drag manager can update the drag count badge.

When updateDraggingItemsForDrag is called, you should set the image of non-valid dragging items to nil. If none of the drag items are valid then you should not updateItems, simply return NSDragOperationNone from your implementation of draggingEntered and, or draggingUpdated and do not modify any drag item properties.

Available in OS X v10.7 and later.
(Read and Write property)

13.3.21 Constants

13.3.22 NSDraggingFormationDefault = 0

Plugin Version: 13.1. **Function:** One of the constants to control the visual format of multiple items being dragged.
Notes:

The system determined formation.
Available in OS X v10.7 and later.

13.3.23 NSDraggingFormationList = 3

Plugin Version: 13.1. **Function:** One of the constants to control the visual format of multiple items being dragged.
Notes:

Drag images are laid out vertically, non-overlapping with the left edges aligned.
Available in OS X v10.7 and later.

13.3.24 NSDraggingFormationNone = 1

Plugin Version: 13.1. **Function:** One of the constants to control the visual format of multiple items being dragged.
Notes:

Drag images maintain their set positions relative to each other/
Available in OS X v10.7 and later.

13.3.25 NSDraggingFormationPile = 2

Plugin Version: 13.1. **Function:** One of the constants to control the visual format of multiple items being dragged.
Notes:

Drag images are placed on top of each other with random rotations.
Available in OS X v10.7 and later.

13.3.26 NSDraggingFormationStack = 4

Plugin Version: 13.1. **Function:** One of the constants to control the visual format of multiple items being dragged.
Notes:

Drag images are laid out overlapping diagonally.
Available in OS X v10.7 and later.

13.3.27 NSDragOperationAll_Obsolete = 15

Plugin Version: 13.1. **Function:** One of the drag operation constants.
Notes: The NSDragOperationAll constant is deprecated. Use NSDragOperationEvery instead.

13.3.28 NSDragOperationCopy = 1

Plugin Version: 13.1. **Function:** One of the drag operation constants.
Notes: The data represented by the image can be copied.

13.3.29 NSDragOperationDelete = 32

Plugin Version: 13.1. **Function:** One of the drag operation constants.
Notes: The data can be deleted.

13.3.30 NSDragOperationEvery = -1

Plugin Version: 13.1. **Function:** One of the drag operation constants.
Notes: All of the above.

13.3.31 NSDragOperationGeneric = 4

Plugin Version: 13.1. **Function:** One of the drag operation constants.
Notes: The operation can be defined by the destination.

13.3.32 NSDragOperationLink = 2

Plugin Version: 13.1. **Function:** One of the drag operation constants.

13.3.33 NSDragOperationMove = 16

Plugin Version: 13.1. **Function:** One of the drag operation constants.
Notes: The data can be moved.

13.3.34 NSDragOperationNone = 0

Plugin Version: 13.1. **Function:** One of the drag operation constants.
Notes: No drag operations are allowed.

13.3.35 NSDragOperationPrivate = 8

Plugin Version: 13.1. **Function:** One of the drag operation constants.
Notes: The operation is negotiated privately between the source and the destination.

13.4 class NSDraggingItemMBS

13.4.1 class NSDraggingItemMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The NSDraggingItem class encompasses a single dragged item within an NSDraggingSession instance.
Notes:

See NSDraggingSessionMBS Class Reference for more information

When the NSDraggingSession method beginDraggingSessionWithItems is called, the dragging items passed to the method are consumed immediately and are not retained.

13.4.2 Methods

13.4.3 Constructor(item as NSPasteboardItemMBS)

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a dragging item using the specified content.
Notes:

item: The object that provides the dragging content.

When the developer creates an NSDraggingItem instance, it is for use with the view method beginDraggingSessionWithItems. During the invocation of that method, the item is placed onto the dragging pasteboard for the NSDraggingSession that contains the dragging item instance.

Available in OS X v10.7 and later.

13.4.4 item as Variant

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the pasteboard reader or writer object dependent on the context of where this dragging item is used. (read-only)
Notes: When you create an NSDraggingItem instance, item is the pasteboardWriter passed to Constructor.

13.4.5 setDraggingFrame(frame as NSRectMBS, contents as Variant)

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the item's dragging frame and contents.
Notes:

frame: The item content frame in the same coordinate space that the draggingFrame.
contents: The item contents to display when dragging. Typically this is an NSImage, but a CGImageRef will also work.

Alternate single image component setter.

This method simplifies modifying the components of an NSDraggingItem when there is only one component.

This is a convenience method. This method sets the draggingFrame and creates a single NSDraggingImageComponent instance with one image corresponding to the NSDraggingImageComponentIconKey key. You should only use this method under the following conditions: the drag image for this item is composed of a single image., or there are a reasonable number of dragging item instances being created or enumerated.

This method will set the draggingFrame and imageComponents properties.
Available in OS X v10.7 and later.

13.4.6 Properties

13.4.7 Handle as Integer

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object reference.
Notes: (Read and Write property)

13.4.8 draggingFrame as NSRectMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The frame of the dragging item.
Notes:

The dragging frame provides the spatial relationship between NSDraggingItem instances when the dragging formation is set to NSDraggingFormationNone.

The exact coordinate space of this rectangle is dependent on where it is used. The view that initiated the drag using beginDraggingSessionWithItems or the view your pass to the NSDraggingSession instance implantation of enumerateDraggingItemsWithOptions.

Available in OS X v10.7 and later.
(Read and Write computed property)

13.5 class NSDraggingSessionMBS

13.5.1 class NSDraggingSessionMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The NSDraggingSession class encompases a drag and drop action and allows modification of the drag while in progress.
Notes:

You start a new dragging session by calling the NSView method beginDraggingSessionWithItems method. This method immediately returns and you can further modify the properties of the dragging session. The actual drag begins at the next turn of the run loop.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

13.5.2 Methods

13.5.3 Constructor

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The private constructor.

13.5.4 draggingLeaderIndex as Integer

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The index of the dragging item under the cursor.
Notes:

The index is to an element in the array passed as the first parameter to the NSView method beginDraggingSessionWithItem.

The default is the NSDraggingItem closest to the location field in the event parameter that was passed to the beginDraggingSessionWithItems method.

Available in OS X v10.7 and later.

13.5.5 draggingLocation as NSPointMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The current cursor location of the drag in screen coordinates. (read-only)
Notes: Available in OS X v10.7 and later.

13.5.6 draggingPasteboard as NSPasteboardMBS

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the pasteboard object that contains the data being dragged. (read-only)
Notes: Available in OS X v10.7 and later.

13.5.7 draggingSequenceNumber as Integer

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a number that uniquely identifies the dragging session. (read-only)
Notes: Available in OS X v10.7 and later.

13.5.8 Properties

13.5.9 Handle as Integer

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object reference.
Notes: (Read and Write property)

13.5.10 animatesToStartingPositionsOnCancelOrFail as boolean

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Controls whether the dragging image animates back to its starting point on a cancelled or failed drag.
Notes:

This property should be set immediately after creating the dragging session.

The default value is true.
Available in OS X v10.7 and later.
(Read and Write computed property)

13.5.11 draggingFormation as Integer

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Controls the dragging formation when the drag is not over the source or a valid destination.
Notes:

Setting this value causes the dragging formation to change immediately, provided a valid destination has not overriden the behavior. If the dragging session hasn't started yet, the dragging items will animate into

formation immediately upon start. It is highly recommended to never change the formation when starting a drag.

The default value is NSDraggingFormationNone.
Available in OS X v10.7 and later.
(Read and Write computed property)

13.5.12 Constants

13.5.13 NSDraggingContextOutsideApplication = 0

Plugin Version: 13.1. **Function:** Whether a drag terminates within or outside the application.
Notes:

The dragging terminates outside the application.
Available in OS X v10.7 and later.

13.5.14 NSDraggingContextWithinApplication = 1

Plugin Version: 13.1. **Function:** Whether a drag terminates within or outside the application.
Notes:

The dragging terminates within the application.
Available in OS X v10.7 and later.

13.5.15 NSDraggingFormationDefault = 0

Plugin Version: 13.1. **Function:** One of the constants to control the visual format of multiple items being dragged.
Notes:

The system determined formation.
Available in OS X v10.7 and later.

13.5.16 NSDraggingFormationList = 3

Plugin Version: 13.1. **Function:** One of the constants to control the visual format of multiple items being dragged.
Notes:

Drag images are laid out vertically, non-overlapping with the left edges aligned.
Available in OS X v10.7 and later.

13.5.17 NSDraggingFormationNone = 1

Plugin Version: 13.1. **Function:** One of the constants to control the visual format of multiple items being dragged.
Notes:

Drag images maintain their set positions relative to each other/
Available in OS X v10.7 and later.

13.5.18 NSDraggingFormationPile = 2

Plugin Version: 13.1. **Function:** One of the constants to control the visual format of multiple items being dragged.
Notes:

Drag images are placed on top of each other with random rotations.
Available in OS X v10.7 and later.

13.5.19 NSDraggingFormationStack = 4

Plugin Version: 13.1. **Function:** One of the constants to control the visual format of multiple items being dragged.
Notes:

Drag images are laid out overlapping diagonally.
Available in OS X v10.7 and later.

Chapter 14

Instant Message

14.1 class IMServiceMBS

14.1.1 class IMServiceMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An IMService object represents a service available to a user through iChat, such as AIM, Jabber, and Bonjour.
Notes:

Each IMService object represents one service available through iChat. Class methods such as allServices and serviceWithName will return these objects. Each object acts as the liaison to its single service, allowing you to access the individual user's global status, the user's list of acquaintances, and other information which can be integrated into your application.

You may want to subclass the InstantMessageMBS class to get events for changes.

All methods in this class will catch exceptions from Cocoa and raise a NSExceptionMBS instead. Using the message, name and reason properties you can see what was the reason for this exception. Please report if you find a method which does not handle exceptions correct.

14.1.2 Methods

14.1.3 imageFileForStatus(status as Integer) as folderitem

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the folderitem of the image corresponding to the IMPersonStatus specified by status.
Notes: Convenience function which does the same as InstantMessageMBS.imageFileForStatus.

14.1.4 imageNameForStatus(status as Integer) as string

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the image name for the given status.
Example:

```
MsgBox IMServiceMBS.imageNameForStatus(IMServiceMBS.IMPersonStatusIdle)
```

Notes:

Mac OS X 10.5 only.
On Mac OS X the NSImage class can be used to access system images by name and there you can use this name.

14.1.5 imageURLForStatus(status as Integer) as string

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the URL of the image corresponding to the IMPersonStatus specified by status.
Notes: Convenience function which does the same as InstantMessageMBS.imageURLForStatus.

14.1.6 IMCapabilityAudioConference as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the info dictionaries.

14.1.7 IMCapabilityDirectIM as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the info dictionaries.

14.1.8 IMCapabilityFileSharing as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the info dictionaries.

14.1.9 IMCapabilityFileTransfer as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the info dictionaries.

14.1.10 IMCapabilityText as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the info dictionaries.

14.1.11 IMCapabilityVideoConference as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the info dictionaries.

14.1.12 IMPersonAVBusyKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the info dictionaries.
Notes: Used to obtain a person's busy status. The value is a number set to 0 if the person's audio/video capabilities are available, or 1 if they are busy.

14.1.13 IMPersonCapabilitiesKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the info dictionaries.
Notes: Used to obtain a person's iChat capabilities. The value is an array of capability properties. Check for IMCapability* strings in this array.

14.1.14 IMPersonEmailKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the info dictionaries.
Notes: Used to obtain a person's email address. The value is a string containing the person's email address. This is a key used directly by Bonjour; however, if a person has an Address Book entry associated with a relevant AIM account, this key reflects the first email address of that person.

14.1.15 IMPersonFirstNameKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the info dictionaries.
Notes: Used to obtain a person's first name. The value is a string containing the person's first name. This is a key used directly by Bonjour; however, if a person has an Address Book entry associated with a relevant AIM account, this key reflects the first name of that person.

14.1.16 IMPersonIdleSinceKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the info dictionaries.
Notes: Used to obtain a person's idle status. The value is a date containing the time, in seconds, since the last user activity. Available if the person's status is idle.

14.1.17 IMPersonLastNameKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the info dictionaries.
Notes: Used to obtain a person's last name. The value is a string containing the person's last name. This is a key used directly by Bonjour; however, if a person has an Address Book entry associated with a relevant AIM account, this key reflects the last name of that person.

14.1.18 IMPersonPictureDataKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the info dictionaries.
Notes: Used to obtain a person's image. The value is a string containing the image for the person's icon.

14.1.19 IMPersonScreenNameKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the info dictionaries.
Notes: Used to obtain a person's screen name. The value is a string containing the service-specific identifier for a person. For example, "User123" or "steve@mac.com" for AIM, and "John Doe" for Bonjour.

14.1.20 IMPersonServiceNameKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the info dictionaries.
Notes: Used to obtain a person's service name. The value is a string containing the name of the service this person belongs to.

14.1.21 IMPersonStatusKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the info dictionaries.
Notes: Used to obtain a person's online status. The value is a number representing the current online status of the person, if known.

14.1.22 IMPersonStatusMessageKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the info dictionaries.
Notes: Used to obtain a person's status message. The value is a string containing the person's current status message.

14.1.23 infoForAllScreenNames as dictionary()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns information about all people and all accounts currently logged in to the service.
Notes:

If a person is logged in on multiple accounts (determined by the user's Address Book), this method will return the information for all of the logged-in accounts.

Returns an Array of the dictionaries. Use IMPerson*Key strings for the keys in that dictionary.

14.1.24 infoForPreferredScreenNames as dictionary()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns information about all people and their primary accounts currently logged in to the service.
Notes:

If a person is logged in on multiple accounts (determined by the user's Address Book), this method will only return the information for the preferred account. The preferred account is determined by iChat, using a

combination of capabilities (video chat capability, audio chat capability, and so on), status (available, idle, away), and other user attributes.

Returns an Array of the dictionaries for all people and is guaranteed to provide only one array entry for any logged-in person. Use IMPerson*Key strings for the keys in that dictionary.

14.1.25 infoForScreenName(name as string) as dictionary

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns information about the person specified by his/her screenName.
Notes:

screenName: A string containing the screen name identifier of a person.

Returns a dictionary on success and nil on failure. Use IMPerson*Key strings for the keys in that dictionary.

14.1.26 LocalizedName as String

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the user-visible localized name of the service.
Example:

```
dim services() as IMServiceMBS = InstantMessageMBS.allServices

for each service as IMServiceMBS in Services
MsgBox service.LocalizedName
next
```

Notes: Returns a String. Will contain the localized service name, such as "AOL Instant Messenger", "Jabber", or "Bonjour", for example. This string will be localized if required.

14.1.27 LocalizedShortName as String

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a shorter version, if available, of the user-visible localized name of the service.
Example:

```
dim services() as IMServiceMBS = InstantMessageMBS.allServices

for each service as IMServiceMBS in Services
```

```
MsgBox service.LocalizedShortName
next
```

Notes: Returns a "" on failure. Will return a localized string if required.

14.1.28 Name as String

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the fixed canonical name of the service.
Example:

```
dim services() as IMServiceMBS = InstantMessageMBS.allServices

for each service as IMServiceMBS in Services
MsgBox service.Name
next
```

Notes: Returns a "" on failure. This string is not localized.

14.1.29 peopleWithScreenName(screenName as string) as ABPersonMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the Address Book person objects that correspond to the person with the screenName matched by screenName.
Notes:

screenName: An string containing the screen name identifier of a person or persons.

Returns an array of ABPersonMBS objects that match the screen name matched by screenName. Can return an empty array or an array with one or more items.

Returns empty array on failure.

14.1.30 screenNamesForPerson(person as ABPersonMBS) as string()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a list of valid screen names for any given person.
Example:

```
// show my screennames on all services

dim AddressBook as new ABAddressBookMBS
dim owner as ABPersonMBS = AddressBook.owner
dim services() as IMServiceMBS = InstantMessageMBS.allServices

for each service as IMServiceMBS in Services
MsgBox service.LocalizedName+":"+EndOfLine+join(service.screenNamesForPerson(owner), EndOfLine)
next
```

Notes:

person: An Address Book ABPerson object.
Returns an Array of Strings that are valid screen names for the person specified by person. See Address Book documentation for more information on ABPerson and accessing the user's address book. Can return an empty array or an array with one or more items.

Returns an empty array on failure.

14.1.31 Status as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the login status of the service.
Notes: Returns the appropriate IMServiceStatus number.

14.1.32 Properties

14.1.33 Handle as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Handle to the internal used IMService reference.
Notes: (Read and Write property)

14.1.34 Constants

14.1.35 IMPersonStatusAvailable = 4

Plugin Version: 7.1. **Function:** A status constant.

14.1.36 IMPersonStatusAway = 3

Plugin Version: 7.1. **Function:** A status constant.

14.1.37 IMPersonStatusIdle = 2

Plugin Version: 7.1. **Function:** A status constant.

14.1.38 IMPersonStatusNoStatus = 5

Plugin Version: 7.7. **Function:** The status constant for persons where the status is unknown.
Notes: Mac OS X 10.5 only.

14.1.39 IMPersonStatusOffline = 1

Plugin Version: 7.1. **Function:** A status constant.

14.1.40 IMPersonStatusUnknown = 0

Plugin Version: 7.1. **Function:** A status constant.

14.1.41 IMServiceStatusDisconnected = 1

Plugin Version: 7.1. **Function:** A status constant.

14.1.42 IMServiceStatusLoggedIn = 4

Plugin Version: 7.1. **Function:** A status constant.

14.1.43 IMServiceStatusLoggedOut = 0

Plugin Version: 7.1. **Function:** A status constant.

14.1.44 IMServiceStatusLoggingIn = 3

Plugin Version: 7.1. **Function:** A status constant.

14.1.45 IMServiceStatusLoggingOut = 2

Plugin Version: 7.1. **Function:** A status constant.

14.2 class InstantMessageMBS

14.2.1 class InstantMessageMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The class to handle Instant Message support for Mac OS X 10.4 and newer.
Notes:

This class is based on the Instant Message framework from Apple.
it can be used to get the status of iChat.

14.2.2 Methods

14.2.3 allServices as IMServiceMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the list of services currently available to the user, regardless of their status.
Notes:

Returns nil on failure.

Returns a array with IMServiceMBS objects corresponding to the current available services (AIM, Bonjour, Jabber, and so on.)

14.2.4 Available as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the InstantMessaging framework is available or not.
Notes: Should be true on Mac OS X 10.4.

14.2.5 imageFileForStatus(status as Integer) as folderitem

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the folderitem of the image corresponding to the IMPersonStatus specified by status.
Notes:

This image reflects the status of the user, and is usually reflected by a colored bubble or triangle.

Returns nil on failure.
This is a convenience function which will call imageFileForStatus and return the folderitem matching the

URL in case it points to a disc file.

For Mac OS X 10.4 all images are stored as TIFF files on hard disc. Use the TiffPictureMBS class to load them (OpenAsPicture will not work because of the masks).

values:

IMPersonStatusUnknown	= 0
IMPersonStatusOffline	= 1
IMPersonStatusIdle	= 2
IMPersonStatusAway	= 3
IMPersonStatusAvailable	= 4

14.2.6 imageNameForStatus(status as Integer) as string

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the image name for the given status.
Notes:

Mac OS X 10.5 only.
On Mac OS X the NSImage class can be used to access system images by name and there you can use this name.

14.2.7 imageURLForStatus(status as Integer) as string

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the URL of the image corresponding to the IMPersonStatus specified by status.
Notes:

This image reflects the status of the user, and is usually reflected by a colored bubble or triangle.

Returns nil on failure.

values:

14.2.8 myIdleTime as Double

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Class method to return the idle time of the active user.

IMPersonStatusUnknown = 0
IMPersonStatusOffline = 1
IMPersonStatusIdle = 2
IMPersonStatusAway = 3
IMPersonStatusAvailable = 4

Notes: Returns in seconds the time since the currently active user went idle.

14.2.9 myStatus as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Class method to return the status of the currently active user.
Notes:

This status is global across all services.

values:

IMPersonStatusUnknown = 0
IMPersonStatusOffline = 1
IMPersonStatusIdle = 2
IMPersonStatusAway = 3
IMPersonStatusAvailable = 4

14.2.10 notificationCenter as NSNotificationCenterMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the custom notification center for the service.
Notes:

A custom notification center that manages IMService notifications.
Available in Mac OS X v10.4 and later.

14.2.11 serviceWithName(name as string) as IMServiceMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns only the service specified by a given name.
Notes:

name: A String containing a service name as returned by a previous call to name.
Hard-coding the service names internally is not recommended.

Returns an IMService object corresponding to the available service specified by name.
Returns nil on any failure.

14.2.12 Events

14.2.13 MyStatusChanged

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** This event is called when the local user changes online status.
Notes: The client should call myStatus function to get the new status.

14.2.14 PersonInfoChanged(info as dictionary)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Event sent when a screenName changes some aspect of their published information.
Notes: The user information dictionary will always contain an ScreenName and may contain any of the following values: StatusMessage, IdleSince, FirstName, LastName, IMPersonEmailKey, PictureData, AVAvailable and AVBusy, Capabilities values.

14.2.15 PersonStatusChanged(info as dictionary)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Event sent when a different user (screenName) logs in, logs off, goes away, and so on.
Notes: The info object knows the ScreenName and the Status of the person.

14.2.16 ServiceStatusChanged

Plugin Version: 7.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Event sent when the user logs in, logs off, goes away, and so on.
Notes: Call MyStatus to get the new state.

14.2.17 StatusImagesChangedAppearance

Plugin Version: 7.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Event sent when the user changes their preferred images for displaying status.
Notes: Clients that display status information graphically (using the green/yellow/red dots) should call imageURLForStatus to get the new image.

Chapter 15

Navigation

15.1 class NSOpenPanelMBS

15.1.1 class NSOpenPanelMBS

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The class for the Cocoa Open Panel.
Notes: Subclass of the NSSavePanelMBS class.

15.1.2 Methods

15.1.3 beginForDirectory(path as folderitem, name as string, filetypes() as string)

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Presents a modeless Open panel.
Notes:

path:
Directory whose files the panel displays. When nil, the directory is the same directory used in the previous invocation of the panel; this is probably the best choice for most situations.

name:
Specifies a particular file in absoluteDirectoryPath that is selected when the Open panel is presented to the user. When nil, no file is initially selected.

fileTypes:
Array of file extensions and/or HFS file types. Specifies the files the panel allows the user to select. An empty array makes all files in path selectable by the user.

This method will later called the savePanelDidEnd event.

15.1.4 beginSheetForDirectory(path as folderitem, name as string, filetypes() as string, targetWindow as window)

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Presents a sheet Open panel on a given window.
Notes:

path:
Directory whose files the panel displays. When nil, the directory is the same directory used in the previous invocation of the panel; this is probably the best choice for most situations.

name:
Specifies a particular file in path that is selected when the Open panel is presented to the user. When "", no file is initially selected.

filetypes:
Array of file extensions and/or HFS file types. Specifies the files the panel allows the user to select. An empty array makes all files in absoluteDirectoryPath selectable by the user.

targetWindow:
Window to open the sheet on.

This method will later called the savePanelDidEnd event.

Seems like on Mac OS X 10.4 the usage of sheets will raise NSExceptions for missing methods in the NSCarbonWindowFrame class.

15.1.5 Constructor

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The constructor which initializes the panel with default values.

15.1.6 Files(index as UInt32) as folderitem

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The array of files.
Notes: Index is zero based.

15.1.7 runModalForDirectory(path as folderitem, name as string, filetypes as string) as Integer

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** A convenience version of the runModalForDirectory function which passes one filetype instead of an array of file types.
See also:

- 15.1.8 runModalForDirectory(path as folderitem, name as string, filetypes() as string) as Integer 877

15.1.8 runModalForDirectory(path as folderitem, name as string, filetypes() as string) as Integer

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Runs the panel as a modal dialog with the given filetypes.
Notes:

path is the directory to use as a start point. Pass nil to use the last directory which has been used.

filetypes:
The filetypes you want to allow.
See also:

- 15.1.7 runModalForDirectory(path as folderitem, name as string, filetypes as string) as Integer 877

15.1.9 runModalForTypes(filetypes as string) as Integer

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** A convenience version of the runModalForTypes function which passes one filetype instead of an array of file types.
Example:

```
Dim dlg As New NSOpenPanelMBS
Dim iResult as Integer = dlg.runModalForTypes("jpg")
```

See also:

- 15.1.10 runModalForTypes(filetypes() as string) as Integer 878

15.1.10 runModalForTypes(filetypes() as string) as Integer

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Runs the panel as a modal dialog with the given filetypes.
Example:

```
Dim dlg As New NSOpenPanelMBS
dim types() as string = array("jpg", "tif")
Dim iResult as Integer = dlg.runModalForTypes(types)
```

See also:

- 15.1.9 runModalForTypes(filetypes as string) as Integer 877

15.1.11 URL(index as UInt32) as string

Plugin Version: 9.6, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The array of file URLs.
Notes: Index is zero based.

15.1.12 Properties

15.1.13 allowsMultipleSelection as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the panel's browser allows the user to open multiple files (and directories) at a time.
Notes: (Read and Write property)

15.1.14 canChooseDirectories as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the user can select directories in the pane's browser.
Notes:

When a directory is selected, the OK button is enabled only if flag is true.
(Read and Write property)

15.1.15 canChooseFiles as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the panel allows the user to choose files to open.
Notes: (Read and Write property)

15.1.16 canDownloadUbiquitousContents as Boolean

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Controls how the receiver responds to ubiquitous documents that aren't yet fully downloaded locally.
Notes:

If true, then the receiver will disallow opening non-local ubiquitous files. Also, if the user attempts to select a non-local file, the receiver will trigger or reprioritize downloading for that file so that it can be opened as soon as possible. If false, then the receiver will allow the user to select and open non-local files, giving your application responsibility for downloading and reporting progress. The default value is true, except for applications linked against the 10.9 SDK or earlier that have adopted iCloud by specifying a ubiquitous container identifier entitlement.

To provide the ideal user experience, you should set this property to NO and download the file's contents (with NSFileCoordinator) and show downloading progress (with NSProgress or NSMetadataQuery) in the context of your application, instead of relying on the open panel to do it.

Available in Mac OS X 10.10 and newer.
(Read and Write property)

15.1.17 canResolveUbiquitousConflicts as Boolean

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Controls how the receiver responds to ubiquitous documents with conflicting versions.
Notes:

If true, then when the user attempts to open one or more documents with conflicts, the receiver will first display conflict resolution UI, requiring the user to resolve those conflicts before the documents can be opened. If false, then the receiver does nothing in response to conflicts, allowing your application to handle them. The default value is true, except for applications linked against the 10.9 SDK or earlier that have adopted iCloud by specifying a ubiquitous container identifier entitlement.

To provide the ideal user experience, you should set this property to NO and do conflict detection and resolution (using NSURLUbiquitousItemHasUnresolvedConflictsKey and NSFileVersion) in the context of your application, instead of relying on the open panel to do it.

Available in Mac OS X 10.10 and newer.
(Read and Write property)

15.1.18 FilesCount as UInt32

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The number of selected files.
Notes: (Read only property)

15.1.19 resolvesAliases as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver resolves aliases.
Notes:

If true, the effect is that dropping an alias on the panel or asking for filenames returns the resolved aliases. The default is true.
(Read and Write property)

15.2 class NSSavePanelMBS

15.2.1 class NSSavePanelMBS

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The class for a Cocoa Save Panel.
Notes: Subclass of the NSPanelMBS class.

15.2.2 Methods

15.2.3 allowedFileTypes as string()

Plugin Version: 9.6, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of the allowed file types.
Notes:

If the user specifies a file whose type is in the array of allowed types, the user is not presented with another dialog (see allowsOtherFileTypes for details about this dialog) when trying to save. Examples of common file types are "rtf", "tiff", and "ps". File type strings encoding HFS file types are not valid values for this attribute. A nil return value, which is the default, indicates that the user can save to any ASCII file.

Available in Mac OS X v10.3 and later.

15.2.4 beginSheetForDirectory(path as folderitem, name as string, targetWindow as window)

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Presents a Save panel as a sheet with the directory specified by path and optionally, the file specified by name selected.
Notes:

If targetWindow is nil, the panel will be a modal dialog.

This method will later called the savePanelDidEnd event.

Seems like on Mac OS X 10.4 the usage of sheets will raise NSExceptions for missing methods in the NSCarbonWindowFrame class.

15.2.5 Cancel

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** You can cancel the dialog using this method.

15.2.6 Constructor

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The constructor which initializes the panel with default values.

15.2.7 File as folderitem

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The file currently shown in the panel.
Notes: May be nil.

15.2.8 FileTypeForHFSType(hfstype as string) as string

Plugin Version: 8.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns a string encoding a file type code.
Example:

```
dim n as new NSSavePanelMBS

MsgBox n.FileTypeForHFSType("TEXT") // shows 'TEXT'
```

Notes: When using Mac Type codes, you need to use this function to convert them in a string the file manager understands.

15.2.9 HideNSNavNodePopUpButton

Plugin Version: 8.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Hides the nagivation popup menu.
Notes: This is a function using undocumented features from the Apple NSSavePanel class, so there is not guarantee that it will work in future versions.

15.2.10 Ok

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** You can click ok in the dialog using this method.

15.2.11 runModal as Integer

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Displays the panel and begins its event loop with the current working (or last selected) directory as the default starting point.
Notes: Returns NSOKButton or NSCancelButton or -1 on any error.

15.2.12 runModalForDirectory(path as folderitem, name as string) as Integer

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Initializes the panel to the directory specified by path and, optionally, the file specified by filename, then displays it and begins its modal event loop; path and filename can be empty strings.
Notes: If path is nil, the previous directory the Save panel was in is used.

15.2.13 setAllowedFileTypes(filetype as string)

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** A convenience method for setAllowedFileTypes with only one file type.
See also:

- 15.2.14 setAllowedFileTypes(filetypes() as string) 883

15.2.14 setAllowedFileTypes(filetypes() as string)

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Specifies the allowed file types.
Notes: A file type is an extension to be appended to any selected files that don't already have that extension; "nib" and "rtf" are examples. The items in types should not include the period that begins the extension. File type strings encoding HFS file types are not valid values. Pass an empty array, to allow any file type, which is the default.
See also:

- 15.2.13 setAllowedFileTypes(filetype as string) 883

15.2.15 validateVisibleColumns

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Validates and possibly reloads the browser columns visible in the receiver by invoking the delegate method shouldShowFilename.
Notes: You might use this method if you want the browser to only allow selection of files with certain extensions based on the selection made in an accessory-view pop-up list. When the user changes the selection, you would invoke this method to revalidate the visible columns.

15.2.16 Properties

15.2.17 accessoryView as NSViewMBS

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The custom accessory view for the current application.
Notes:

You can place any Cocoa control on that panel.
(Read and Write property)

15.2.18 allowsOtherFileTypes as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver allows the user to save files with an extension that's not in the list of allowed types.
Notes:

If the user tries to save a filename with a recognized extension that's not in the list of allowed types they are presented with a dialog. If this property is true, then the dialog presents the option of using the extension the user specified.

The default setting is false.
(Read and Write property)

15.2.19 canCreateDirectories as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver allows the user to create directories.
Notes: (Read and Write property)

15.2.20 canSelectHiddenExtension as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the receiver allows the user to hide or show extensions.
Notes: (Read and Write property)

15.2.21 Directory as folderitem

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The path of the directory currently shown in the panel.
Notes:

May be nil on any error.
(Read and Write property)

15.2.22 directoryURL as string

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The directory shown in the panel as a URL.
Notes:

Available in Mac OS X v10.6 and later.
(Read and Write property)

15.2.23 isExpanded as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the panel is expanded.
Notes: (Read only property)

15.2.24 isExtensionHidden as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the extension-hiding checkbox is visible and checked.
Notes:

True to show the checkbox and false to hide.
(Read and Write property)

15.2.25 Message as string

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The message displayed in the panel.
Notes:

The default message text is an empty string.
(Read and Write property)

15.2.26 NameFieldLabel as string

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The string displayed in front of the filename text field.
Notes:

By default the label is "Save As:".
(Read and Write property)

15.2.27 nameFieldStringValue as string

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The user-editable filename currently shown in the name field.
Notes:

Available in Mac OS X v10.6 and later.
(Read and Write property)

15.2.28 Prompt as string

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The prompt of the default button.
Notes:

This prompt appears on all SavePanel objects (or all OpenPanel objects if the panel of this message is an NSOpenPanel instance) in your application. By default the text in the default button is "Open" for an Open panel and "Save" for a Save panel.

It is intended that short words or phrases, such as "Open", "Save", "Set", or "Choose", be used on the button. The button is not resized to accommodate long prompts.

Since this method previously affected a title field, any colon at the end of prompt is removed.
(Read and Write property)

15.2.29 requiredFileType as string

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The required file type (if any).
Notes:

A file specified in the Save panel is saved with the designated filename and this file type as an extension. Examples of common file types are "rtf", "tiff", and "ps". File type strings encoding HFS file types are not valid values for this attribute. An "" return value indicates that the user can save to any ASCII file.

This method is equivalent to calling allowedFileTypes and returning the first element of the list of allowed types, or "" if there are none.
(Read and Write property)

15.2.30 showsHiddenFiles as boolean

Plugin Version: 8.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether to show or hide the invisible files.
Notes:

This is a function using undocumented features from the Apple NSSavePanel class, so there is not guarantee that it will work in future versions.
(Read and Write property)

15.2.31 Title as string

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The title of the panel.
Notes: (Read and Write property)

15.2.32 treatsFilePackagesAsDirectories as boolean

Plugin Version: 7.8, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that indicates whether the panel displays file packages to the user as directories.
Notes: (Read and Write property)

15.2.33 Events

15.2.34 compareFilename(name1 as string, name2 as string, caseSensitive as boolean) as Integer

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Controls the ordering of files presented by the NSSavePanel.
Notes:

If this event has no code, the default behavior is used.

The caseSensitive argument, if true, indicates that the ordering is to be case-sensitive.

Don't reorder filenames in the Save panel without good reason, because it may confuse the user to have files in one Save panel or Open panel ordered differently than those in other such panels or in the Finder. The default behavior of Save and Open panels is to order files as they appear in the Finder. Note also that by implementing this method you will reduce the operating performance of the panel.

Constants:
const NSOrderedAscending=-1 // The left operand is smaller than the right operand.
const NSOrderedSame=0 // The two operands are equal.
const NSOrderedDescending=1 // The left operand is greater than the right operand.

15.2.35 directoryDidChange(path as string, folder as folderitem)

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent when the user has changed the selected directory in the panel.
Notes: If this event has no code, the default behavior is used.

15.2.36 isValidFilename(path as string, item as folderitem) as boolean

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Gives the delegate the opportunity to validate selected items.
Notes:

If this event has no code, the default behavior is used.

The NSSavePanel object sender sends this event just before the end of a modal session for each filename displayed or selected (including filenames in multiple selections). The event determines whether it wants the file identified by filename; it returns true if the filename is valid, or false if the save panel should stay in its modal loop and wait for the user to type in or select a different filename or names. If the event refuses a

filename in a multiple selection, none of the filenames in the selection is accepted.

15.2.37 panelSelectionDidChange

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called whenever the selection changed in the dialog.
Notes: If this event has no code, the default behavior is used.

15.2.38 savePanelDidEnd(ReturnCode as Integer)

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The save panel finished in sheet mode.
Notes: Returncode is NSOKButton or NSCancelButton.

15.2.39 shouldShowFilename(path as string, item as folderitem) as boolean

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Gives the delegate the opportunity to filter items that it doesn't want the user to choose.
Notes:

If this event has no code, the default behavior is used.

The NSSavePanel sends this event for each file or directory (filename) it is about to load in the browser. The delegate returns true if filename should be selectable, and false if the save panel should disable the file or directory.

15.2.40 userEnteredFilename(filename as string, confirmed as boolean) as string

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent when the user confirms a filename choice by hitting OK or Return in the NSSavePanel.
Notes:

You can either leave the filename alone, return a new filename, or return "" to cancel the save (and leave the Save panel as is). This method is sent before any required extension is appended to the filename and before the Save panel asks the user whether to replace an existing file.

Note that in the future, this method may be called multiple times in the sessions as the user types. In those cases, okFlag will be false until the user confirms the choice, in which case okFlag will become true. If the

delegate does extensive validation or puts up alerts, it should do so only when okFlag is true.

If this event has no code, the default behavior is used.

15.2.41 willExpand(expanding as boolean)

Plugin Version: 7.8, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent when the NSSavePanel is about to expand or collapse because the user clicked the disclosure triangle that displays or hides the file browser.
Notes: If this event has no code, the default behavior is used.

15.2.42 Constants

15.2.43 NSCancelButton = 0

Plugin Version: 7.8. **Function:** One of the result codes you may need with this class.

15.2.44 NSOKButton = 1

Plugin Version: 7.8. **Function:** One of the result codes you may need with this class.

Chapter 16

Process

16.1 class Application

16.1.1 class Application

Console & Web: Yes, Mac: Yes, Win: Yes, Linux: No. **Function:** Extends the Application class inside Realbasic.

16.1.2 Methods

16.1.3 NSApplicationMBS as NSApplicationMBS

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns the shared NSApplication object.
Notes:

This method gives easy access to the NSApplicationMBS class.

The plugin makes sure that there is only one application object by returning the same object each time.

16.2 class NSProcessInfoActivityMBS

16.2.1 class NSProcessInfoActivityMBS

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The class for an activity.
Example:

```
dim Activity as NSProcessInfoActivityMBS // property in your window, control, thread, app
dim AllowAppNap as boolean // allow or not?

dim ProcessInfo as NSProcessInfoMBS = NSProcessInfoMBS.processInfo
if AllowAppNap then
Activity = nil
else
// disable sleep to let us make something...
Activity = ProcessInfo.beginActivity(NSProcessInfoMBS.NSActivityBackground, "Backup running")
end if
```

Notes: This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

16.2.2 Methods

16.2.3 Constructor

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Private constructor.

16.2.4 Destructor

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The destructor.
Notes: If you missed to call endActivity, the destructor will do it.

16.2.5 Properties

16.2.6 Handle as Integer

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object reference.

Notes: (Read and Write property)

16.2.7 Options as Integer

Plugin Version: 15.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The options used to create activity.
Notes: (Read and Write property)

16.2.8 Reason as String

Plugin Version: 15.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The reason used to create the activity.
Notes: (Read and Write property)

16.3 class NSProcessInfoMBS

16.3.1 class NSProcessInfoMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The NSProcessInfo class provides methods to access information about the current process.
Notes:

Each process has a single, shared NSProcessInfo object, known as process information agent.

The process information agent can return such information as the arguments, environment variables, host name, or process name. The processInfo class method returns the shared agent for the current processthat is, the process whose object sent the message. For example, the following line returns the NSProcessInfo object, which then provides the name of the current process:

```
dim processInfo as new NSProcessInfoMBS
dim processName as string = processInfo.processName
```

The NSProcessInfo class also includes the operatingSystem method, which returns an enum constant identifying the operating system on which the process is executing.

NSProcessInfo objects attempt to interpret environment variables and command-line arguments in the user's default C string encoding if they cannot be converted to Unicode as UTF-8 strings. If neither conversion works, these values are ignored by the NSProcessInfo object.

16.3.2 Methods

16.3.3 argument(index as Integer) as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the command-line argument for the process with the given index.
Example:

```
dim p as new NSProcessInfoMBS

dim i,c as Integer

c=p.argumentCount-1
for i=0 to c
MsgBox p.argument(i)
next
```

16.3.4 arguments as string()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the command-line arguments for the process.
Notes: Returns array of strings with the process's command-line arguments.

16.3.5 beginActivity(options as Integer, reason as string) as NSProcessInfoActivityMBS

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Begin an activity using the given options and reason.
Example:

```
dim Activity as NSProcessInfoActivityMBS // property in your window, control, thread, app
dim AllowAppNap as boolean // allow or not?

dim ProcessInfo as NSProcessInfoMBS = NSProcessInfoMBS.processInfo
if AllowAppNap then
Activity = nil
else
// disable sleep to let us make something...
Activity = ProcessInfo.beginActivity(NSProcessInfoMBS.NSActivityBackground, "Backup running")
end if
```

Notes:

options: Options for the activity. See constants for possible values.
reason: A string used in debugging to indicate the reason the activity began.

Returns an object token representing the activity.

Indicate completion of the activity by calling endActivity passing the returned object as the argument.
Available in OS X v10.9 and later.

16.3.6 Constructor

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor.

16.3.7 disableAutomaticTermination(Reason as string)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Decrement the counter tracking the number of automatic quit opt-out requests.
Notes:

When this counter is greater than zero, the app will be considered 'active' and ineligible for automatic termination.
An example of using this would be disabling autoquitting when the user of an instant messaging application signs on, due to it requiring a background connection to be maintained even if the app is otherwise inactive.
Each pair of calls should have a matching "reason" argument, which can be used to easily track why an application is or is not automatically terminable.
A given reason can be used more than once at the same time (for example: two files are transferring over the network, each one disables automatic termination with the reason "file transfer in progress")

16.3.8 disableSuddenTermination

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Disables the application for quickly klling using sudden termination.
Notes:

This method increments the sudden termination counter. When the termination counter reaches 0 the application allows sudden termination.

By default the sudden termination counter is set to 1. This can be overriden in your application Info.plist. See "Sudden Termination" for more information and debugging suggestions.

Available in Mac OS X v10.6 and later.

16.3.9 enableAutomaticTermination(Reason as string)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Increment the counter tracking the number of automatic quit opt-out requests.
Notes:

When this counter is greater than zero, the app will be considered 'active' and ineligible for automatic termination.
An example of using this would be disabling autoquitting when the user of an instant messaging application signs on, due to it requiring a background connection to be maintained even if the app is otherwise inactive.
Each pair of calls should have a matching "reason" argument, which can be used to easily track why an application is or is not automatically terminable.
A given reason can be used more than once at the same time (for example: two files are transferring over the network, each one disables automatic termination with the reason "file transfer in progress")

16.3.10 enableSuddenTermination

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Enables the application for quick killing using sudden termination.
Notes:

This method decrements the sudden termination counter. When the termination counter reaches 0 the application allows sudden termination.

By default the sudden termination counter is set to 1. This can be overriden in your application Info.plist. See "Sudden Termination" for more information and debugging suggestions.

Available in Mac OS X v10.6 and later.

16.3.11 endActivity(activity as NSProcessInfoActivityMBS)

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Ends the given activity.
Notes:

activity: An activity object returned by beginActivity.
Available in OS X v10.9 and later.

16.3.12 NSActivityLatencyCritical as UInt64

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the activity option constants.
Notes:

Flag to indicate the activity requires the highest amount of timer and I/O precision available.
Important: Very few applications should need to use this constant.
Available in OS X v10.9 and later.
Value is & hFF00000000.

16.3.13 NSProcessInfoThermalStateDidChangeNotification as String

Plugin Version: 15.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The notification name to use with NSNotificationObserverMBS.
Notes:

This notification is posted once the thermal state of the system has changed. Once the notification is posted, use the thermalState property to retrieve the current thermal state of the system.

You can use this opportunity to take corrective action in your application to help cool the system down. Work that could be done in the background or at opportunistic times should be using the Quality of Service levels in NSOperation or the NSBackgroundActivityScheduler API.

This notification is posted on the global dispatch queue. Register for it using the default notification center. The object associated with the notification is NSProcessInfoMBS.processInfo.

16.3.14 processInfo as NSProcessInfoMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the process information agent for the process.

16.3.15 Properties

16.3.16 activeProcessorCount as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Provides the number of active processing cores available on the computer.
Example:

```
dim p as new NSProcessInfoMBS

MsgBox str(p.activeProcessorCount)
```

Notes:

Available in Mac OS X v10.5 and later.
(Read only property)

16.3.17 argumentsCount as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The number of the command-line arguments.
Example:

```
dim p as new NSProcessInfoMBS

dim i,c as Integer
```

```
c=p.argumentCount-1
for i=0 to c
MsgBox p.argument(i)
next
```

Notes: (Read only property)

16.3.18 automaticTerminationSupportEnabled as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Marks the calling app as supporting automatic termination.
Notes:

Without calling this or setting the equivalent Info.plist key (NSSupportsAutomaticTermination), the above methods (disableAutomaticTermination/enableAutomaticTermination) have no effect, although the counter tracking automatic termination opt-outs is still kept up to date to ensure correctness if this is called later. Currently, passing false has no effect.
This should be called during applicationDidFinishLaunching or earlier.
(Read and Write property)

16.3.19 environment as dictionary

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the variable names and their values in the environment from which the process was launched.
Example:

```
dim p as new NSProcessInfoMBS
dim d as Dictionary = p.environment
MsgBox str(d.Count)
```

Notes: (Read only property)

16.3.20 globallyUniqueString as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a global unique identifier for the process.
Example:

```
dim p as new NSProcessInfoMBS
```

```
MsgBox p.globallyUniqueString // shows for example "072EC09A-4825-11DD-BDC0-001D4F46F5E0-18405-00000CA853EB5
```

Notes:

Returns the Global ID for the process. The ID includes the host name, process ID, and a time stamp, which ensures that the ID is unique for the network.

This method generates a new string each time it is invoked, so it also uses a counter to guarantee that strings created from the same process are unique.
(Read only property)

16.3.21 Handle as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference to the NSProcessInfo object.
Notes: (Read and Write property)

16.3.22 hostName as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the name of the host computer.
Example:

```
dim p as new NSProcessInfoMBS

MsgBox p.hostName // for example "iMac.local"
```

Notes: (Read only property)

16.3.23 operatingSystem as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a constant to indicate the operating system on which the process is executing.
Example:

```
dim p as new NSProcessInfoMBS

MsgBox str(p.operatingSystem) // shows 5 = NSMACHOperatingSystem
```

Notes:

Operating system identifier. See "Constants" for a list of possible values. In Mac OS X, it's NSMACHOperatingSystem.
(Read only property)

16.3.24 operatingSystemName as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a string containing the name of the operating system on which the process is executing.
Example:

```
dim p as new NSProcessInfoMBS

MsgBox p.operatingSystemName // shows "NSMACHOperatingSystem"
```

Notes:

Operating system name. In Mac OS X, it's "NSMACHOperatingSystem"
(Read only property)

16.3.25 operatingSystemVersionString as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a string containing the version of the operating system on which the process is executing.
Example:

```
dim p as new NSProcessInfoMBS

MsgBox p.operatingSystemVersionString // "Version 10.5.4 (Build 9E17)"
```

Notes:

Returns the Operating system version. This string is human readable, localized, and is appropriate for displaying to the user. This string is not appropriate for parsing.
(Read only property)

16.3.26 physicalMemory as UInt64

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Provides the amount of physical memory on the computer.
Example:

```
dim p as new NSProcessInfoMBS

MsgBox str(p.physicalMemory)
```

Notes:

Available in Mac OS X v10.5 and later.
(Read only property)

16.3.27 processIdentifier as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the identifier of the process.
Example:

```
dim p as new NSProcessInfoMBS

MsgBox str(p.processIdentifier)
```

Notes: (Read only property)

16.3.28 processName as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The name of the process.
Example:

```
dim p as new NSProcessInfoMBS

MsgBox p.processName
```

Notes:

The process name is used to register application defaults and is used in error messages. It does not uniquely identify the process.

You can assign a new value, but:
User defaults and other aspects of the environment might depend on the process name, so be very careful if you change it. Setting the process name in this manner is not thread safe.
(Read and Write property)

16.3.29 processorCount as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Provides the number of processing cores available on the computer.
Example:

```
dim p as new NSProcessInfoMBS

MsgBox str(p.processorCount)
```

Notes:

Available in Mac OS X v10.5 and later.
(Read only property)

16.3.30 systemUptime as Double

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the how long it has been since the computer has been restarted.
Notes:

Returns an NSTimeInterval indicating how long system the computer has been restarted.
Available in Mac OS X v10.6 and later.
(Read only property)

16.3.31 thermalState as Integer

Plugin Version: 15.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Retrieve the current thermal state of the system.
Example:

```
dim n as NSProcessInfoMBS = NSProcessInfoMBS.processInfo

Select case n.thermalState
case n.NSProcessInfoThermalStateNominal
```

```
MsgBox "Thermal State: Nominal"
case n.NSProcessInfoThermalStateFair
MsgBox "Thermal State: Fair"
case n.NSProcessInfoThermalStateSerious
MsgBox "Thermal State: Serious"
case n.NSProcessInfoThermalStateCritical
MsgBox "Thermal State: Critical"
else
MsgBox "Thermal State: Unknown"
end Select
```

Notes:

On systems where thermal state is unknown or unsupported, the value returned from the thermalState property is always NSProcessInfoThermalStateNominal.

Available in Mac OS X 10.10.3 and newer.
Returns -1 if function is called on older Mac OS X versions, Linux or Windows.
(Read only property)

16.3.32 Constants

16.3.33 NSActivityAutomaticTerminationDisabled = & h8000

Plugin Version: 13.5. **Function:** One of the activity option constants.
Notes:

Flag to prevent automatic termination.
Available in OS X v10.9 and later.

16.3.34 NSActivityBackground = & h000000FF

Plugin Version: 13.5. **Function:** One of the activity option constants.
Notes:

Flag to indicate the app has initiated some kind of work, but not as the direct result of user request.
Available in OS X v10.9 and later.

16.3.35 NSActivityIdleDisplaySleepDisabled = & h10000000000

Plugin Version: 13.5. **Function:** One of the activity option constants.
Notes:

Flag to require the screen to stay powered on.
Available in OS X v10.9 and later.

16.3.36 NSActivityIdleSystemSleepDisabled = & h100000

Plugin Version: 13.5. **Function:** One of the activity option constants.
Notes:

Flag to prevent idle sleep.
This is included in NSActivityUserInitiatedAllowingIdleSystemSleep.
Available in OS X v10.9 and later.

16.3.37 NSActivitySuddenTerminationDisabled = & h4000

Plugin Version: 13.5. **Function:** One of the activity option constants.
Notes:

Flag to prevent sudden termination.
This is included in NSActivityUserInitiatedAllowingIdleSystemSleep.
Available in OS X v10.9 and later.

16.3.38 NSActivityUserInitiated = & h00FFFFFF

Plugin Version: 13.5. **Function:** One of the activity option constants.
Notes:

Flag to indicate the app is performing a user-requested action.
Available in OS X v10.9 and later.

16.3.39 NSActivityUserInitiatedAllowingIdleSystemSleep = & h00EFFFFF

Plugin Version: 13.5. **Function:** One of the activity option constants.
Notes:

Flag to indicate the app is performing a user-requested action, but that the system can sleep on idle.
Available in OS X v10.9 and later.

16.3.40 NSHPUXOperatingSystem=4

Plugin Version: 8.4. **Function:** One of the following constants are provided by the NSProcessInfo class as return values for operatingSystem.
Notes: Indicates the HP UX operating system.

16.3.41 NSMACHOperatingSystem=5

Plugin Version: 8.4. **Function:** One of the following constants are provided by the NSProcessInfo class as return values for operatingSystem.
Example:

```
dim p as new NSProcessInfoMBS

MsgBox str(p.operatingSystem) // shows 5 = NSMACHOperatingSystem
```

Notes: Indicates the Mac OS X operating system.

16.3.42 NSOSF1OperatingSystem=7

Plugin Version: 8.4. **Function:** One of the following constants are provided by the NSProcessInfo class as return values for operatingSystem.
Notes: Indicates the OSF/1 operating system.

16.3.43 NSProcessInfoThermalStateCritical = 3

Plugin Version: 15.1. **Function:** One of the constants describing the current thermal state of the system.
Notes: System performance is significantly impacted and the Mac needs to cool down. Recommendation: reduce application's usage of CPU, GPU, and I/O to the minimum level needed to respond to user actions. Consider stopping use of camera and other peripherals if your application is using them.

16.3.44 NSProcessInfoThermalStateFair = 1

Plugin Version: 15.1. **Function:** One of the constants describing the current thermal state of the system.
Notes: The system has reached a state where fans may become audible.

16.3.45 NSProcessInfoThermalStateNominal = 0

Plugin Version: 15.1. **Function:** One of the constants describing the current thermal state of the system.
Notes: No corrective action is needed.

16.3.46 NSProcessInfoThermalStateSerious = 2

Plugin Version: 15.1. **Function:** One of the constants describing the current thermal state of the system.
Notes: Fans are running at maximum speed, system performance maybe impacted. Recommendation: reduce application's usage of CPU, GPU and I/O, if possible. Switch to lower quality visual effects, reduce frame rates.

16.3.47 NSSolarisOperatingSystem=3

Plugin Version: 8.4. **Function:** One of the following constants are provided by the NSProcessInfo class as return values for operatingSystem.
Notes: Indicates the Solaris operating system.

16.3.48 NSSunOSOperatingSystem=6

Plugin Version: 8.4. **Function:** One of the following constants are provided by the NSProcessInfo class as return values for operatingSystem.
Notes: Indicates the Sun OS operating system.

16.3.49 NSWindows95OperatingSystem=2

Plugin Version: 8.4. **Function:** One of the following constants are provided by the NSProcessInfo class as return values for operatingSystem.
Notes: Indicates the Windows 95 operating system.

16.3.50 NSWindowsNTOperatingSystem=1

Plugin Version: 8.4. **Function:** One of the following constants are provided by the NSProcessInfo class as return values for operatingSystem.
Notes: Indicates the Windows NT operating system.

16.4 class NSRunningApplicationMBS

16.4.1 class NSRunningApplicationMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** NSRunningApplication is a class to manipulate and provide information for a single instance of an application.
Example:

```
dim n as new NSRunningApplicationMBS

MsgBox n.localizedName
```

Notes:

Only user applications are tracked; this does not provide information about every process on the system.
Some properties of an application are fixed, such as the bundle identifier. Other properties may vary over time, such as whether the app is hidden. Properties that vary can be observed with key-value observing, in which case the description comment for the method notes this capability.
Properties that vary over time are inherently race-prone. For example, a hidden app may unhide itself at any time. To ameliorate this, properties persist until the next turn of the main run loop in a common mode. For example, if you repeatedly poll an unhidden app for its hidden property without allowing the run loop to run, it will continue to return false, even if the app hides, until the next turn of the run loop.
NSRunningApplication is thread safe, in that its properties are returned atomically. However, it is still subject to the main run loop policy described above. If you access an instance of NSRunningApplication from a background thread, be aware that its time-varying properties may change from under you as the main run loop runs (or not).
An NSRunningApplication instance remains valid after the application exits. However, most properties lose their significance, and some properties may not be available on a terminated application.

Requires Mac OS X 10.6.

16.4.2 Methods

16.4.3 activateWithOptions(options as Integer) as boolean

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Attempts to activate the application using the specified options.
Notes:

options: The options to use when activating the application. See "NSApplicationActivationOptions" for the possible values.

Returns true if the application was activated successfully, otherwise false.

This method will return false if the application has quit, or is not a type of application than can be activated.

Available in Mac OS X v10.6 and later.

16.4.4 Constructor

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor.
Example:

```
dim n as new NSRunningApplicationMBS

MsgBox n.localizedName
```

Notes:

Initializes the object with the current application.
Available in Mac OS X v10.6 and later.

16.4.5 currentApplication as NSRunningApplicationMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an NSRunningApplication representing this application.
Example:

```
dim n as NSRunningApplicationMBS = NSRunningApplicationMBS.currentApplication

MsgBox n.localizedName
```

Notes: Available in Mac OS X v10.6 and later.

16.4.6 forceTerminate as boolean

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Attempts to force the receiver to quit.
Notes:

Returns true if the application successfully terminated, otherwise false.

This method will return false if the application is no longer running when the forceTerminate message is sent to the receiver.

This method may return before the receiver exits; you should observe the terminated property to determine when the application terminates.

Available in Mac OS X v10.6 and later.

16.4.7 hide as boolean

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Attempts to hide or the application.
Example:

```
dim n as NSRunningApplicationMBS = NSRunningApplicationMBS.currentApplication

MsgBox str(n.hide) // hide me
```

Notes:

The property of this value will be false if the application has already quit, or if of a type that is unable to be hidden.
Available in Mac OS X v10.6 and later.

16.4.8 runningApplications as NSRunningApplicationMBS()

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of NSRunningApplication representing the running applications.
Example:

```
dim n(-1) as NSRunningApplicationMBS = NSRunningApplicationMBS.runningApplications
dim s(-1) as string

for each r as NSRunningApplicationMBS in n
s.Append r.localizedName
next

MsgBox Join(s,EndOfLine)
```

Notes:

Returns an array of NSRunningApplication instances.

The order of the array is unspecified, but it is stable, meaning that the relative order of particular applications will not change across multiple calls to runningApplications. See NSRunningApplication Class Reference for more information on NSRunningApplication.
Similar to the NSRunningApplication classes's properties, this property will only change when the main run loop is run in a common mode. Instead of polling, use key-value observing to be notified of changes to this array property.
This property is thread safe, in that it may be called from background threads and the result is returned atomically.

This list is not updated in a tight loop. For receiving updates, you need to have the runloop run (e.g. check regularly in a timer).

16.4.9 runningApplicationsWithBundleIdentifier(bundleID as string) as NSRunningApplicationMBS()

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of currently running applications with the specified bundle identifier.
Example:

```
dim n(-1) as NSRunningApplicationMBS = NSRunningApplicationMBS.runningApplicationsWithBundleIdentifier("com.apple.iTunes")

if UBound(n)>=0 then
MsgBox n(0).localizedName
else
MsgBox "iTunes is not running?"
end if
```

Notes:

An array of NSRunningApplications, or an empty array if no applications match the bundle identifier.
Available in Mac OS X v10.6 and later.

16.4.10 runningApplicationWithProcessIdentifier(pid as Integer) as NSRunningApplicationMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the running application with the given process identifier, or nil if no application has that pid.
Example:

```
dim n as NSRunningApplicationMBS
dim pid as Integer

while n=nil
pid=pid+1
n=NSRunningApplicationMBS.runningApplicationWithProcessIdentifier(pid)
wend

MsgBox n.localizedName+" has PID "+str(pid)
```

Notes:

pid: The process identifier.

Returns an instance of NSRunningApplication for the specified pid, or nil if the application has no process identifier.

Applications that do not have PIDs cannot be returned from this method.
Available in Mac OS X v10.6 and later.

16.4.11 terminate as boolean

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Attempts to quit the receiver normally.
Notes:

Returns true if the application successfully terminated, otherwise false.

This method will return false if the application is no longer running when the terminate message is sent to the receiver.
This method may return before the receiver exits; you should observe the terminated property to determine when the application terminates.

Available in Mac OS X v10.6 and later.

16.4.12 unhide as boolean

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Attempts to unhide or the application.
Notes:

Returns true if the application was successfully shown, otherwise false.

The property of this value will be false if the application has already quit, or if of a type that is unable to be hidden.

Available in Mac OS X v10.6 and later.

16.4.13 Properties

16.4.14 activationPolicy as Integer

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates the activation policy of the application. (read-only)
Notes:

The value returned by this property is usually fixed, but it may change through a call to activateWithOptions.
Available in Mac OS X v10.6 and later.
(Read only property)

16.4.15 active as boolean

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether the application is currently frontmost. (read-only)
Example:

```
dim n as new NSRunningApplicationMBS

MsgBox str(n.active)
```

Notes:

Available in Mac OS X v10.6 and later.
(Read only property)

16.4.16 bundleIdentifier as string

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates the CFBundleIdentifier of the application. (read-only)
Example:

```
dim n as new NSRunningApplicationMBS

MsgBox n.bundleIdentifier
```

Notes:

The value of this property will be nil if the application does not have an Info.plist.
(Read only property)

16.4.17 bundleURL as string

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates the URL to the application's bundle. (read-only)
Example:

```
dim n as new NSRunningApplicationMBS

MsgBox n.bundleURL
```

Notes:

Available in Mac OS X v10.6 and later.
(Read only property)

16.4.18 executableArchitecture as Integer

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates the URL to the application's executable. (read-only)
Example:

```
dim n as new NSRunningApplicationMBS

MsgBox str(n.executableArchitecture) // shows 7
```

Notes:

Available in Mac OS X v10.6 and later.
(Read only property)

16.4.19 executableURL as string

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates the URL to the application's executable. (read-only)
Example:

```
dim n as new NSRunningApplicationMBS

MsgBox n.executableURL
```

Notes:

Available in Mac OS X v10.6 and later.
(Read only property)

16.4.20 finishedLaunching as boolean

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether the receiver's process has finished launching, (read-only)
Notes:

The value of this property corresponds to the running application having received an NSApplicationDidFinishLaunchingNotification notification internally. Some applications do not post this notification (applications that do not rely on NSApplication) and so are never reported as finished launching.
Available in Mac OS X v10.6 and later.
(Read only property)

16.4.21 Handle as Integer

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference to the NSRunningApplication object.
Notes: (Read and Write property)

16.4.22 hidden as boolean

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether the application is currently hidden. (read-only)
Example:

```
dim n as new NSRunningApplicationMBS

MsgBox str(n.hidden)
```

Notes:

Available in Mac OS X v10.6 and later.
(Read only property)

16.4.23 icon as NSImageMBS

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the icon for the receiver's application. (read-only)
Example:

```
dim n as new NSRunningApplicationMBS

dim i as NSImageMBS = n.icon

// without this call the size is 32x32 Pixel
i.setSize 512,512

Backdrop = i.CopyPictureWithMask
```

Notes:

Available in Mac OS X v10.6 and later.
(Read only property)

16.4.24 launchDate as date

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates the date when the application was launched. (read-only)
Example:

```
dim n as new NSRunningApplicationMBS

MsgBox n.launchDate.ShortTime
```

Notes:

This property is not available for all applications. Specifically, it is not available for applications that were launched not launched by LaunchServices.
Available in Mac OS X v10.6 and later.

(Read only property)

16.4.25 localizedName as string

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates the localized name of the application. (read-only)
Example:

```
dim n as new NSRunningApplicationMBS

MsgBox n.localizedName
```

Notes:

The value of this property is dependent on the current localization of the application and is suitable for presentation to the user.
Available in Mac OS X v10.6 and later.
(Read only property)

16.4.26 ownsMenuBar as boolean

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns whether the application owns the current menu bar.
Example:

```
// put in a timer...
dim r as NSRunningApplicationMBS = NSRunningApplicationMBS.currentApplication
window1.Title = str(r.ownsMenuBar)
```

Notes:

Available in Mac OS X v10.7 and later.
(Read only property)

16.4.27 processIdentifier as Integer

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates the process identifier (pid) of the application. (read-only)
Example:

```
dim n as new NSRunningApplicationMBS

MsgBox str(n.processIdentifier)
```

Notes:

Not all applications have a pid. Applications without a return a value of -1.
Do not rely on this for comparing processes, instead compare NSRunningApplication instances using isEqual:.
Available in Mac OS X v10.6 and later.
(Read only property)

16.4.28 terminated as boolean

Plugin Version: 9.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates that the receiver's application has terminated. (read-only)
Notes:

The value of terminated is true if the receiver's application has terminated, otherwise false.
This property is observable using key-value observing.
Available in Mac OS X v10.6 and later.
(Read only property)

16.4.29 Constants

16.4.30 NSApplicationActivateAllWindows = 1

Plugin Version: 9.7. **Function:** One of the flag constants for activateWithOptions.
Notes:

By default, activation brings only the main and key windows forward. If you specify NSApplicationActivateAllWindows, all of the application's windows are brought forward.
Available in Mac OS X v10.6 and later.

16.4.31 NSApplicationActivateIgnoringOtherApps = 2

Plugin Version: 9.7. **Function:** One of the flag constants for activateWithOptions.
Notes:

By default, activation deactivates the calling app (assuming it was active), and then the new app is activated only if there is no currently active application. This prevents the new app from stealing focus from the user,

if the app is slow to activate and the user has switched to a different app in the interim. However, if you specify NSApplicationActivateIgnoringOtherApps, the application is activated regardless of the currently active app, potentially stealing focus from the user. You should rarely pass this flag because stealing key focus produces a very bad user experience.
Available in Mac OS X v10.6 and later.

16.4.32 NSApplicationActivationPolicyAccessory = 1

Plugin Version: 9.7. **Function:** One of the constants used for following activation policies.
Notes:

The application does not appear in the Dock and does not have a menu bar, but it may be activated programmatically or by clicking on one of its windows. This corresponds to value of the LSUIElement key in the application's Info.plist being 1.
Available in Mac OS X v10.6 and later.

16.4.33 NSApplicationActivationPolicyProhibited = 2

Plugin Version: 9.7. **Function:** One of the constants used for following activation policies.
Notes:

The application does not appear in the Dock and may not create windows or be activated. This corresponds to the value of the LSBackgroundOnly key in the application's Info.plist being 1. This is also the default for unbundled executables that do not have Info.plists.
Available in Mac OS X v10.6 and later.

16.4.34 NSApplicationActivationPolicyRegular = 0

Plugin Version: 9.7. **Function:** One of the constants used for following activation policies.
Notes:

The application is an ordinary app that appears in the Dock and may have a user interface. This is the default for bundled apps, unless overridden in the Info.plist.
Available in Mac OS X v10.6 and later.

Chapter 17

Speech

17.1 class NSSpeechRecognizerMBS

17.1.1 class NSSpeechRecognizerMBS

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The class to handle the cocoa speech recognition.
Notes: Available in Mac OS X v10.3 and later.

17.1.2 Methods

17.1.3 commands as string()

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the current list of commands.

17.1.4 Destructor

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The destructor.

17.1.5 SetCommands(commands() as string)

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the list of commands for which the receiver should listen to commands.
Notes: If the receiver is already listening, the current command list is updated and listening continues.

commands should be an array of strings. The commands must be in U.S. English.

17.1.6 StartListening

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Tells the speech recognition engine to begin listening for commands.
Notes: When a command is recognized the message didRecognizeCommand is called.

17.1.7 StopListening

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Tells the speech recognition engine to suspend listening for commands.

17.1.8 Properties

17.1.9 BlocksOtherRecognizers as boolean

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver should block all other recognizers (that is, other applications attempting to understand spoken commands) when listening.
Notes: (Read and Write property)

17.1.10 DisplayedCommandsTitle as string

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the title of the commands section or "" if there is no title.
Notes:

Commands are displayed in the Speech Commands window indented under a section with this title.
(Read and Write property)

17.1.11 ListensInForegroundOnly as boolean

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver should only enable its commands when the receiver's application is the frontmost one.
Notes: (Read and Write property)

17.1.12 Events

17.1.13 DidRecognizeCommand(command as string)

Plugin Version: 6.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked when the recognition engine has recognized the application command command.
Notes: command is one of the strings from the array passed to setCommands. The delegate typically evaluates which command was recognized and performs the related action.

17.2 class NSSpeechSynthesizerMBS

17.2.1 class NSSpeechSynthesizerMBS

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The class to handle the cocoa speech synthesizing.
Notes:

Available in Mac OS X v10.3 and later.

More details on Apple's website:
https://developer.apple.com/library/mac/documentation/Cocoa/Reference/ApplicationKit/Classes/NSSpeechSynthesizer_Class/

17.2.2 Methods

17.2.3 addSpeechDictionary(speechDictionary as dictionary)

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Registers the given speech dictionary with the receiver.
Notes:

speechDictionary: Speech dictionary to add to the receiver's dictionaries.

See the discussion of UseSpeechDictionary in Speech Synthesis Manager Reference for more information.
Available in OS X v10.5 and later.

17.2.4 attributesForVoice(voice as String) as NSVoiceMBS

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns information about a voice or nil.

17.2.5 availableVoice(index as Integer) as String

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns name of a voice.
Notes:

The available voices can be listed using this function.
Index is from 0 to count-1.

17.2.6 availableVoices as String()

Plugin Version: 10.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the array with the identifiers for the available voices.
Example:

MsgBox Join(NSSpeechSynthesizerMBS.availableVoices)

Notes: Same as availableVoice() and availableVoicesCount, but this function returns an array which is very useful for for-each-loops.

17.2.7 availableVoicesCount as Integer

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Number of voices available.

17.2.8 Constructor

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes the class with the default voice.
Notes:

This constructor is needed for the events to fire.
The given voice must be valid!
See also:

- 17.2.9 Constructor(voice as string) 925

17.2.9 Constructor(voice as string)

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes the class with a voice.
Notes: This constructor is needed for the events to fire.
See also:

- 17.2.8 Constructor 925

17.2.10 continueSpeaking

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Continues speaking after it has been paused.

Notes: Mac OS X 10.5 only.

17.2.11 defaultVoice as String

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Provides the identifier of the default voice.
Example:

```
dim s as NSSpeechSynthesizerMBS

s=new NSSpeechSynthesizerMBS

MsgBox s.defaultVoice
```

17.2.12 Destructor

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The destructor.

17.2.13 isAnyApplicationSpeaking as boolean

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether any other application is currently speaking through the sound output device.

17.2.14 NSSpeechCharacterModeProperty as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants used with setObjectForProperty and objectForProperty to get or set the characteristics of a synthesizer.
Example:

```
dim s as new NSSpeechSynthesizerMBS
dim e as NSErrorMBS

call s.setObjectForProperty(s.NSSpeechModeLiteral, s.NSSpeechCharacterModeProperty, e)
msgBox s.objectForProperty(s.NSSpeechCharacterModeProperty, e)

call s.setObjectForProperty(s.NSSpeechModeNormal, s.NSSpeechCharacterModeProperty, e)
msgBox s.objectForProperty(s.NSSpeechCharacterModeProperty, e)
```

Notes:

Get or set the synthesizer's current text-processing mode. A string that specifies whether the channel is currently in text input mode or phoneme input mode.
When the character-processing mode is NSSpeechModeNormal, input characters are spoken as you would expect to hear them. When the mode is NSSpeechModeLiteral, each character is spoken literally, so that the word "cat" is spoken "CAT".
Available in OS X v10.5 and later.

17.2.15 NSSpeechCommandDelimiterProperty as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants used with setObjectForProperty and objectForProperty to get or set the characteristics of a synthesizer.
Notes:

Set the embedded speech command delimiter characters to be used for the synthesizer. A dictionary that contains the delimiter information. See "Command Delimiter Keys" for the keys you can use to specify values in this dictionary.
By default, the opening delimiter is " [[" and the closing delimiter is "]] ". Your application might need to change these delimiters temporarily if those character sequences occur naturally in a text buffer that is to be spoken. Your application can also disable embedded command processing by passing empty delimiters (as empty strings). See "Speech Command Delimiter" for the keys you can use to specify values in this dictionary.
Available in OS X v10.5 and later.

17.2.16 NSSpeechCommandPrefix as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants speech-command delimiters keys used in NSSpeechCommandDelimiterProperty.
Notes:

The command delimiter string that prefixes a command, by default, this is [[.
Available in OS X v10.5 and later.

17.2.17 NSSpeechCommandSuffix as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants speech-command delimiters keys used in NSSpeechCommandDelimiterProperty.
Notes:

The command delimiter string that suffixes a command,by default, this is]] .
Available in OS X v10.5 and later.

17.2.18 NSSpeechCurrentVoiceProperty as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants used with setObjectForProperty and objectForProperty to get or set the characteristics of a synthesizer.
Notes:

Set the current voice on the synthesizer to the specified voice. A dictionary that contains the phoneme symbols and example words defined for the current synthesizer.
Your application might use this information to show the user what symbols to use when entering phonemic text directly. See "NSSpeechPhonemeSymbolsProperty Dictionary Keys" for the keys you can use to specify values in this dictionary.
Available in OS X v10.5 and later.

17.2.19 NSSpeechDictionaryAbbreviations as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants identify key-value pairs used to add vocabulary to the dictionary using addSpeechDictionary.
Notes:

An array of dictionary objects containing the keys NSSpeechDictionaryEntrySpelling and NSSpeechDictionaryEntryPhonemes.
Available in OS X v10.5 and later.

17.2.20 NSSpeechDictionaryEntryPhonemes as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants identify key-value pairs used to add vocabulary to the dictionary using addSpeechDictionary.
Notes:

The phonemic representation of an entry. A string.
Available in OS X v10.5 and later.

17.2.21 NSSpeechDictionaryEntrySpelling as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants identify key-value pairs used to add vocabulary to the dictionary using addSpeechDictionary.
Notes:

The spelling of an entry. A string.
Available in OS X v10.5 and later.

17.2.22 NSSpeechDictionaryLocaleIdentifier as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants identify key-value pairs used to add vocabulary to the dictionary using addSpeechDictionary.
Notes:

The canonical locale identifier string describing the dictionary's locale. A locale is generally composed of three pieces of ordered information: a language code, a region code, and a variant code. Refer to documentation about NSLocale or Locales Programming Guide for more information
Available in OS X v10.5 and later.

17.2.23 NSSpeechDictionaryModificationDate as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants identify key-value pairs used to add vocabulary to the dictionary using addSpeechDictionary.
Notes:

A string representation of the dictionary's last modification date in the international format (YYYY-MM-DD HH:MM:SS HHMM). If the same word appears across multiple dictionaries, the one from the dictionary with the most recent date will be used.
Available in OS X v10.5 and later.

17.2.24 NSSpeechDictionaryPronunciations as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants identify key-value pairs used to add vocabulary to the dictionary using addSpeechDictionary.
Notes: An array of dictionary objects containing the keys NSSpeechDictionaryEntrySpelling and NSSpeechDictionaryEntryPhonemes.

17.2.25 NSSpeechErrorCount as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants identify errors that may occur during speech synthesis. They are used with NSSpeechErrorsProperty.
Notes:

The number of errors that have occurred in processing the current text string, since the last call to objectForProperty with the NSSpeechErrorsProperty property. A Number
Using the NSSpeechErrorOldestCode keys and the NSSpeechErrorNewestCode keys, you can get information about the oldest and most recent errors that occurred since the last call to objectForProperty, but you cannot get information about any intervening errors.
Available in OS X v10.5 and later.

17.2.26 NSSpeechErrorNewestCharacterOffset as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants identify errors that may occur during speech synthesis. They are used with NSSpeechErrorsProperty. **Notes:**

The position in the text string of the most recent error that occurred since the last call to objectForProperty with the NSSpeechErrorsProperty property. A Number.
Available in OS X v10.5 and later.

17.2.27 NSSpeechErrorNewestCode as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants identify errors that may occur during speech synthesis. They are used with NSSpeechErrorsProperty. **Notes:**

The error code of the most recent error that occurred since the last call to objectForProperty with the NSSpeechErrorsProperty property. A number
Available in OS X v10.5 and later.

17.2.28 NSSpeechErrorOldestCharacterOffset as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants identify errors that may occur during speech synthesis. They are used with NSSpeechErrorsProperty. **Notes:**

The position in the text string of the first error that occurred since the last call to objectForProperty with the NSSpeechErrorsProperty property. A number
Available in OS X v10.5 and later.

17.2.29 NSSpeechErrorOldestCode as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants identify errors that may occur during speech synthesis. They are used with NSSpeechErrorsProperty. **Notes:**

The error code of the first error that occurred since the last call to objectForProperty with the NSSpeechErrorsProperty property. A Number
Available in OS X v10.5 and later.

17.2.30 NSSpeechErrorsProperty as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants used with setObjectForProperty and objectForProperty to get or set the characteristics of a synthesizer.
Notes:

Get speech-error information for the synthesizer. An Dictionary object that contains speech-error information. See "NSSpeechErrorProperty Dictionary Keys" for a description of the keys present in the dictionary. This property lets you get information about various run-time errors that occur during speaking, such as the detection of badly formed embedded commands. Errors returned directly by the Speech Synthesis Manager are not reported here.
If your application implements the didEncounterErrorAtIndex event, the event can use this property to get error information.
Available in OS X v10.5 and later.

17.2.31 NSSpeechInputModeProperty as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants used with setObjectForProperty and objectForProperty to get or set the characteristics of a synthesizer.
Notes:

Get or set the synthesizer's current text-processing mode. A string that specifies whether the channel is currently in text input mode or phoneme input mode.The supported values are listed in "Speaking Modes for NSSpeechInputModeProperty."
When in phoneme-processing mode, a text string is interpreted to be a series of characters representing various phonemes and prosodic controls. Some synthesizers might support additional input-processing modes and define constants for these modes.
Available in OS X v10.5 and later.

17.2.32 NSSpeechModeLiteral as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants defining the available text-processing and number-processing modes for a synthesizer. This key is used with NSSpeechInputModeProperty and NSSpeechNumberModeProperty)
Notes:

Indicates that each digit or character is spoken literally (so that 12 is spoken as "one, two", or the word "cat" is spoken as "C A T").
Available in OS X v10.5 and later.

17.2.33 NSSpeechModeNormal as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants defining the available text-processing and number-processing modes for a synthesizer. This key is used with NSSpeechInputModeProperty and NSSpeechNumberModeProperty)
Notes:

Indicates that the synthesizer assembles digits into numbers (so that 12 is spoken as "twelve") and text into words.
Available in OS X v10.5 and later.

17.2.34 NSSpeechModePhoneme as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants identify input modes are used with NSSpeechInputModeProperty.
Notes:

Indicates that the synthesizer is in phoneme-processing mode. When in phoneme-processing mode, a text buffer is interpreted to be a series of characters representing various phonemes and prosodic controls.
Available in OS X v10.5 and later.

17.2.35 NSSpeechModeText as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants identify input modes are used with NSSpeechInputModeProperty.
Notes:

Indicates that the synthesizer is in text-processing mode.
Available in OS X v10.5 and later.

17.2.36 NSSpeechNumberModeProperty as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants used with setObjectForProperty and objectForProperty to get or set the characteristics of a synthesizer.
Example:

```
dim s as new NSSpeechSynthesizerMBS
dim e as NSErrorMBS

call s.setObjectForProperty(s.NSSpeechModeLiteral, s.NSSpeechNumberModeProperty, e)
msgBox s.objectForProperty(s.NSSpeechNumberModeProperty, e)

call s.setObjectForProperty(s.NSSpeechModeNormal, s.NSSpeechNumberModeProperty, e)
```

msgBox s.objectForProperty(s.NSSpeechNumberModeProperty, e)

Notes:

Get or set the synthesizer's current number-processing mode. A string that specifies whether the synthesizer is currently in normal or literal number-processing mode. The constants NSSpeechModeNormal and NSSpeechModeLiteral are the possible values of this string.
When the number-processing mode is NSSpeechModeNormal, the synthesizer assembles digits into numbers (so that "12" is spoken as "twelve"). When the mode is NSSpeechModeLiteral, each digit is spoken literally (so that "12" is spoken as "one, two").
Available in OS X v10.5 and later.

17.2.37 NSSpeechOutputToFileURLProperty as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants used with setObjectForProperty and objectForProperty to get or set the characteristics of a synthesizer.
Notes:

Set the speech output destination to a file or to the computer's speakers. A NSURL object. To write the speech output to a file, use the file's NSURL; to generate the sound through the computer's speakers, use nil.
Available in OS X v10.5 and later.

17.2.38 NSSpeechPhonemeInfoExample as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys used in the NSSpeechPhonemeSymbolsProperty dictionary.
Notes:

An example word that illustrates the use of the phoneme.
Available in OS X v10.5 and later.

17.2.39 NSSpeechPhonemeInfoHiliteEnd as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys used in the NSSpeechPhonemeSymbolsProperty dictionary.
Notes:

The character offset into the example word that identifies the location of the end of the phoneme.
Available in OS X v10.5 and later.

17.2.40 NSSpeechPhonemeInfoHiliteStart as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys used in the NSSpeechPhonemeSymbolsProperty dictionary.
Notes:

The character offset into the example word that identifies the location of the beginning of the phoneme.
Available in OS X v10.5 and later.

17.2.41 NSSpeechPhonemeInfoOpcode as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys used in the NSSpeechPhonemeSymbolsProperty dictionary.
Notes:

The opcode as Number.
Available in OS X v10.5 and later.

17.2.42 NSSpeechPhonemeInfoSymbol as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys used in the NSSpeechPhonemeSymbolsProperty dictionary.
Notes:

The symbol used to represent the phoneme.
The symbol does not necessarily have a phonetic connection to the phoneme, but might simply be an abstract textual representation of it.
Available in OS X v10.5 and later.

17.2.43 NSSpeechPhonemeSymbolsProperty as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants used with setObjectForProperty and objectForProperty to get or set the characteristics of a synthesizer.
Notes:

Get a list of phoneme symbols and example words defined for the synthesizer. A Dictionary object that contains the phoneme symbols and example words defined for the current synthesizer
Your application might use this information to show the user what symbols to use when entering phonemic text directly. See "NSSpeechPhonemeSymbolsProperty Dictionary Keys" for a description of the keys present in the dictionary.
Available in OS X v10.5 and later.

17.2.44 NSSpeechPitchBaseProperty as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants used with setObjectForProperty and objectForProperty to get or set the characteristics of a synthesizer.
Example:

```
dim s as new NSSpeechSynthesizerMBS
dim e as NSErrorMBS

dim n as Integer = s.objectForProperty(s.NSSpeechPitchBaseProperty, e)
msgBox str(n)
```

Notes:

Get or set a synthesizer's baseline speech pitch. An number that specifies the baseline speech pitch.
Typical voice frequencies range from around 90 hertz for a low-pitched male voice to perhaps 300 hertz for a high-pitched child's voice. These frequencies correspond to approximate pitch values in the ranges of 30.000 to 40.000 and 55.000 to 65.000, respectively.
Note: The change in speech pitch may not be noticeable until the next sentence or paragraph is spoken.
Available in OS X v10.5 and later.

17.2.45 NSSpeechPitchModProperty as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants used with setObjectForProperty and objectForProperty to get or set the characteristics of a synthesizer.
Example:

```
dim s as new NSSpeechSynthesizerMBS
dim e as NSErrorMBS

dim n as Double = s.objectForProperty(s.NSSpeechPitchModProperty, e)
msgBox str(n)
```

Notes:

Get or set a synthesizer's pitch modulation. A number object that specifies the synthesizer's pitch modulation.
Pitch modulation is also expressed as a floating-point value in the range of 0.000 to 127.000. These values correspond to MIDI note values, where 60.000 is equal to middle C on a piano scale. The most useful speech pitches fall in the range of 40.000 to 55.000. A pitch modulation value of 0.000 corresponds to a monotone in which all speech is generated at the frequency corresponding to the speech pitch. Given a speech pitch value of 46.000, a pitch modulation of 2.000 would mean that the widest possible range of pitches corresponding to the actual frequency of generated text would be 44.000 to 48.000.

Note: The change in pitch modulation may not be noticeable until the next sentence or paragraph is spoken.
Available in OS X v10.5 and later.

17.2.46 NSSpeechRateProperty as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants used with setObjectForProperty and objectForProperty to get or set the characteristics of a synthesizer.
Example:

```
dim s as new NSSpeechSynthesizerMBS
dim e as NSErrorMBS
dim value as Double = s.objectForProperty(s.NSSpeechRateProperty, e)
MsgBox str(value)
```

Notes:

Get or set the synthesizer's baseline speech pitch. A number that specifies the synthesizer's baseline speech pitch.
Typical voice frequencies range from around 90 hertz for a low-pitched male voice to perhaps 300 hertz for a high-pitched child's voice. These frequencies correspond to approximate pitch values in the ranges of 30.000 to 40.000 and 55.000 to 65.000, respectively.
Available in OS X v10.5 and later.

17.2.47 NSSpeechRecentSyncProperty as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants used with setObjectForProperty and objectForProperty to get or set the characteristics of a synthesizer.
Notes:

Get the message code for the most recently encountered synchronization command. A number that specifies the most recently encountered synchronization command.

Available in OS X v10.5 and later.

17.2.48 NSSpeechResetProperty as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants used with setObjectForProperty to get or set the characteristics of a synthesizer.
Notes:

Set a synthesizer back to its default state. There is no value associated with this property; to reset the

channel to its default state, set the key to nil.
You can use this function to, for example, set speech pitch and speech rate to default values.
Available in OS X v10.5 and later.

17.2.49 NSSpeechStatusNumberOfCharactersLeft as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants identify speech status keys used with NSSpeechStatusProperty.
Notes:

The number of characters left in the input string of text.
When the value of this key is zero, you can destroy the input string.
Available in OS X v10.5 and later.

17.2.50 NSSpeechStatusOutputBusy as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants identify speech status keys used with NSSpeechStatusProperty.
Notes:

Indicates whether the synthesizer is currently producing speech.
A synthesizer is considered to be producing speech even at some times when no audio data is being produced through the computer's speaker. This occurs, for example, when the synthesizer is processing input, but has not yet initiated speech or when speech output is paused.
Available in OS X v10.5 and later.

17.2.51 NSSpeechStatusOutputPaused as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants identify speech status keys used with NSSpeechStatusProperty.
Notes:

Indicates whether speech output in the synthesizer has been paused by sending the message pauseSpeakingAt-Boundary.
Available in OS X v10.5 and later.

17.2.52 NSSpeechStatusPhonemeCode as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants identify speech status keys used with NSSpeechStatusProperty.
Notes:

Indicates that the synthesizer is in phoneme-processing mode. When in phoneme-processing mode, a text buffer is interpreted to be a series of characters representing various phonemes and prosodic controls.
Available in OS X v10.5 and later.

17.2.53 NSSpeechStatusProperty as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants used with setObjectForProperty and objectForProperty to get or set the characteristics of a synthesizer.
Example:

```
dim s as new NSSpeechSynthesizerMBS
dim e as NSErrorMBS

call s.startSpeakingString "Hello"

dim status as Dictionary = s.objectForProperty(s.NSSpeechStatusProperty, e)
dim CharactersLeft as Integer = status.Value(s.NSSpeechStatusNumberOfCharactersLeft)

MsgBox str(CharactersLeft)+" Characters left"
```

Notes:

Get speech-status information for the synthesizer. A dictionary that contains speech-status information for the synthesizer. See "NSSpeechStatusProperty Dictionary Keys" for a description of the keys present in the dictionary.
Available in OS X v10.5 and later.

17.2.54 NSSpeechSynthesizerInfoIdentifier as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants are keys used in the NSSpeechSynthesizerInfoProperty dictionary.
Notes:

The identifier of the speech synthesizer.
Available in OS X v10.5 and later.

17.2.55 NSSpeechSynthesizerInfoProperty as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants used with setObjectForProperty and objectForProperty to get or set the characteristics of a synthesizer.
Notes:

Get information about the speech synthesizer being used on the specified synthesizer. A dictionary object that contains information about the speech synthesizer being used on the specified synthesizer. See "Speech Synthesizer Property Keys" for a description of the keys present in the dictionary.
Available in OS X v10.5 and later.

17.2.56 NSSpeechSynthesizerInfoVersion as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants are keys used in the NSSpeechSynthesizerInfoProperty dictionary.
Notes:

The version of the speech synthesizer.
Available in OS X v10.5 and later.

17.2.57 NSSpeechVolumeProperty as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants used with setObjectForProperty and objectForProperty to get or set the characteristics of a synthesizer.
Example:

```
dim s as new NSSpeechSynthesizerMBS
dim e as NSErrorMBS
dim value as Double = s.objectForProperty(s.NSSpeechVolumeProperty, e)
MsgBox str(value)
```

Notes:

Get or set the speech volume for a synthesizer. A Number that specifies the synthesizer's speech volume. Volumes are expressed in floating-point values ranging from 0.0 through 1.0. A value of 0.0 corresponds to silence, and a value of 1.0 corresponds to the maximum possible volume. Volume units lie on a scale that is linear with amplitude or voltage. A doubling of perceived loudness corresponds to a doubling of the volume.
Available in OS X v10.5 and later.

You may prefer to simply use the volume property.

17.2.58 objectForProperty(PropertyName as string, byref error as NSErrorMBS) as Variant

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Provides the value of a receiver's property.
Notes:

PropertyName: Property to get.
error: On output, error that occurred while obtaining the value of speechProperty.

Returns the value of speechProperty.
Available in OS X v10.5 and later.

17.2.59 pauseSpeakingAtBoundary(boundary as Integer)

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Pauses the speaking on the given boundary.
Example:

```
dim s as NSSpeechSynthesizerMBS // your synthesizer
s.pauseSpeakingAtBoundary s.NSSpeechSentenceBoundary // pause on end of sentence.
```

Notes:

Mac OS X 10.5 only.
boundary can be NSSpeechImmediateBoundary, NSSpeechSentenceBoundary or NSSpeechWordBoundary.

17.2.60 phonemesFromText(text as string) as string

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the phonems from a given text.
Example:

```
dim s as new NSSpeechSynthesizerMBS

MsgBox s.phonemesFromText("Hello")

// shows "_hEHl1OW."
```

Notes: Mac OS X 10.5 only.

17.2.61 setObjectForProperty(value as Variant, PropertyName as string, byref error as NSErrorMBS) as boolean

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Specifies the value of a receiver's property.

Notes:

PropertyName: Property to set.
Error: On output, error that occurred while setting speechProperty.

Returns true when the speechProperty was set. False when there was an error, specified in error.
Available in OS X v10.5 and later.

17.2.62 SetVoice(voice as string) as boolean

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the receiver's current voice.
Notes: Returns true on success.

17.2.63 StartSpeakingString(text as string) as boolean

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Begins speaking synthesized text through the system's default sound output device.
Example:

```
dim s as new NSSpeechSynthesizerMBS

s.rate=300 // not slow
s.volume=0.5 // not loud
call s.startSpeakingString "Hello World"
```

Notes:

Returns true when synthesis starts successfully, false otherwise.

If the receiver is currently speaking synthesized speech when startSpeakingString is called, that process is stopped before text is spoken.

When synthesis of text finishes normally or is stopped, the message didFinishSpeaking(true) is called.
See also:

- 17.2.64 StartSpeakingString(text as string, file as folderitem) as boolean 942
- 17.2.65 startSpeakingString(Text as String, URL as string) as boolean 942

17.2.64 StartSpeakingString(text as string, file as folderitem) as boolean

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Begins synthesizing text into a sound (AIFF) file.
Notes:

Returns true when synthesis starts successfully, false otherwise.

When synthesis of text finishes normally or is stopped, the message didFinishSpeaking(True) is called.

One example of how you might use this method is in an email program that automatically converts new messages into sound files that can be stored on an iPod for later listening.
See also:

- 17.2.63 StartSpeakingString(text as string) as boolean 941
- 17.2.65 startSpeakingString(Text as String, URL as string) as boolean 942

17.2.65 startSpeakingString(Text as String, URL as string) as boolean

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Begins synthesizing text into a sound (AIFF) file.
Notes:

Returns true when synthesis starts successfully, false otherwise.

When synthesis of text finishes normally or is stopped, the message didFinishSpeaking(True) is called.

One example of how you might use this method is in an email program that automatically converts new messages into sound files that can be stored on an iPod for later listening.
See also:

- 17.2.63 StartSpeakingString(text as string) as boolean 941
- 17.2.64 StartSpeakingString(text as string, file as folderitem) as boolean 942

17.2.66 StopSpeaking

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Stops synthesis in progress.
Notes: If the receiver is currently generating speech, synthesis is halted, and the message didFinishSpeaking(false) is called.

17.2.67 stopSpeakingAtBoundary(boundary as Integer)

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Stops speech on the next w
Notes: Mac OS X 10.5 only.

17.2.68 Properties

17.2.69 IsSpeaking as boolean

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether the receiver is currently generating synthesized speech.
Notes:

true when the receiver is generating synthesized speech, false otherwise.
(Read only property)

17.2.70 rate as Double

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The current rate of the speech.
Example:

```
dim s as NSSpeechSynthesizerMBS
s=new NSSpeechSynthesizerMBS
MsgBox str(s.rate)
// shows e.g. "160"
```

Notes:

Mac OS X 10.5 only.
The range of supported rates is not predefined by the Speech Synthesis framework; but the synthesizer may only respond to a limited range of speech rates. Average human speech occurs at a rate of 180 to 220 words per minute.
(Read and Write property)

17.2.71 UsesFeedbackWindow as boolean

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether the receiver uses the speech feedback window.

Notes: (Read and Write property)

17.2.72 Voice as string

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The current voice.
Example:

```
dim s as new NSSpeechSynthesizerMBS
MsgBox s.voice
// shows e.g. "com.apple.speech.synthesis.voice.Zarvox"
```

Notes: (Read and Write property)

17.2.73 volume as Double

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The volume of the speech.
Example:

```
dim s as new NSSpeechSynthesizerMBS
MsgBox str(s.volume)
// shows e.g. 1
```

Notes:

No sound is zero, full sound one.
Mac OS X 10.5 only.

Volumes are expressed in floating-point units ranging from 0.0 through 1.0. A value of 0.0 corresponds to silence, and a value of 1.0 corresponds to the maximum possible volume. Volume units lie on a scale that is linear with amplitude or voltage. A doubling of perceived loudness corresponds to a doubling of the volume.

Setting a value outside this range is undefined.
(Read and Write property)

17.2.74 Events

17.2.75 didEncounterErrorAtIndex(characterIndex as Integer, text as string, message as string)

Plugin Version: 7.7, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** An event called when an error has been found in the text while speaking.
Notes: Mac OS X 10.5 only.

17.2.76 didEncounterSyncMessage(message as string)

Plugin Version: 7.7, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** A sync message was found in the text.
Notes:

See Apple Speech documentation about the special tags you need to place in the text to get this event.
Mac OS X 10.5 only.

17.2.77 didFinishSpeaking(finishedSpeaking as boolean)

Plugin Version: 6.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Called when speaking through the sound output device is done.
Notes: finishedSpeaking is true when finished normally and false when StopSpeaking was called.

17.2.78 willSpeakPhoneme(phonemeOpcode as Integer)

Plugin Version: 6.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent just before a synthesized phoneme is spoken through the sound output device.
Notes:

phonemeOpcode: Phoneme that sender is about to speak into the sound output device.

One use of this method might be to animate a mouth on screen to match the generated speech.

Important: The delegate is not sent this message when the SpeechSynthesizer object is synthesizing speech to a file (startSpeakingString).

17.2.79 willSpeakWord(Position as Integer, Length as Integer, Text as String)

Plugin Version: 6.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Sent just before a synthesized word is spoken through the sound output device.
Notes:

Position and Length: Word that sender is about to speak into the sound output device.
text: Text that is being synthesized by sender.

One use of this method might be to visually highlight the word being spoken.

Important: The delegate is not sent this message when the SpeechSynthesizer object is synthesizing speech to a file (startSpeakingString).

17.2.80 Constants

17.2.81 NSSpeechImmediateBoundary=0

Plugin Version: 7.7. **Function:** One of the constants for the pauseSpeakingAtBoundary method.
Notes: Mac OS X 10.5 only.

17.2.82 NSSpeechSentenceBoundary=2

Plugin Version: 7.7. **Function:** One of the constants for the pauseSpeakingAtBoundary method.
Notes: Mac OS X 10.5 only.

17.2.83 NSSpeechWordBoundary=1

Plugin Version: 7.7. **Function:** One of the constants for the pauseSpeakingAtBoundary method.
Notes: Mac OS X 10.5 only.

17.3 class NSVoiceMBS

17.3.1 class NSVoiceMBS

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A voice on Mac OS X with its attributes.
Notes:

Available in Mac OS X v10.3 and later.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

17.3.2 Methods

17.3.3 Age as Integer

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The perceived age (in years) of the voice.

17.3.4 Constructor

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The private constructor.

17.3.5 Demotext as String

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A demonstration string to speak.

17.3.6 Gender as String

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The perceived gender of the voice.
Notes: May be either GenderNeuter ("VoiceGenderNeuter), GenderFemale ("VoiceGenderFemale"), or GenderMale ("VoiceGenderMale").

17.3.7 GenderFemale as String

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the possible values for the gender property.

17.3.8 GenderMale as String

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the possible values for the gender property.

17.3.9 GenderNeuter as String

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the possible values for the gender property.

17.3.10 Identifier as String

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A unique string identifying the voice. The identifiers of the system voices are listed below.
Notes:

Identifiers of the Mac OS X system voices
com.apple.speech.synthesis.voice.Agnes
com.apple.speech.synthesis.voice.Albert
com.apple.speech.synthesis.voice.BadNews
com.apple.speech.synthesis.voice.Bahh
com.apple.speech.synthesis.voice.Bells
com.apple.speech.synthesis.voice.Boing
com.apple.speech.synthesis.voice.Bruce
com.apple.speech.synthesis.voice.Bubbles
com.apple.speech.synthesis.voice.Cellos
com.apple.speech.synthesis.voice.Deranged
com.apple.speech.synthesis.voice.Fred
com.apple.speech.synthesis.voice.GoodNews
com.apple.speech.synthesis.voice.Hysterical
com.apple.speech.synthesis.voice.Junior
com.apple.speech.synthesis.voice.Kathy
com.apple.speech.synthesis.voice.Organ
com.apple.speech.synthesis.voice.Princess
com.apple.speech.synthesis.voice.Ralph
com.apple.speech.synthesis.voice.Trinoids
com.apple.speech.synthesis.voice.Vicki

com.apple.speech.synthesis.voice.Victoria
com.apple.speech.synthesis.voice.Whisper
com.apple.speech.synthesis.voice.Zarvox

17.3.11 Language as String

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The language of the voice (currently US English only).
Notes: Language has been replaced by LocaleIdentifier in Mac OS X 10.5.

17.3.12 LocaleIdentifier as String

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The locale identifier.
Example:

```
dim v as NSVoiceMBS
dim s as NSSpeechSynthesizerMBS
dim n as string

s=new NSSpeechSynthesizerMBS

n=s.voice
v=s.attributesForVoice(n)

MsgBox n+EndOfLine+v.LocaleIdentifier
// shows for example "en_US"
```

Notes:

Mac OS X 10.5 only.

Language has been replaced by LocaleIdentifier in Mac OS X 10.5.

17.3.13 Name as String

Plugin Version: 6.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The name of the voice suitable for display.

17.3.14 NSVoiceAge as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the properties names.
Notes: The perceived age (in years) of the voice. A string.

17.3.15 NSVoiceDemoText as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the properties names.
Notes: A demonstration string to speak. A String.

17.3.16 NSVoiceGender as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the properties names.
Notes: The perceived gender of the voice.

17.3.17 NSVoiceIdentifier as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the properties names.
Notes:

A unique string identifying the voice.

Identifiers of the OS X system voices:
com.apple.speech.synthesis.voice.Agnes
com.apple.speech.synthesis.voice.Albert
com.apple.speech.synthesis.voice.Alex
com.apple.speech.synthesis.voice.BadNews
com.apple.speech.synthesis.voice.Bahh
com.apple.speech.synthesis.voice.Bells
com.apple.speech.synthesis.voice.Boing
com.apple.speech.synthesis.voice.Bruce
com.apple.speech.synthesis.voice.Bubbles
com.apple.speech.synthesis.voice.Cellos
com.apple.speech.synthesis.voice.Deranged
com.apple.speech.synthesis.voice.Fred
com.apple.speech.synthesis.voice.GoodNews
com.apple.speech.synthesis.voice.Hysterical

com.apple.speech.synthesis.voice.Junior
com.apple.speech.synthesis.voice.Kathy
com.apple.speech.synthesis.voice.Organ
com.apple.speech.synthesis.voice.Princess
com.apple.speech.synthesis.voice.Ralph
com.apple.speech.synthesis.voice.Trinoids
com.apple.speech.synthesis.voice.Vicki
com.apple.speech.synthesis.voice.Victoria
com.apple.speech.synthesis.voice.Whisper
com.apple.speech.synthesis.voice.Zarvox

17.3.18 NSVoiceIndividuallySpokenCharacters as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the properties names.
Notes:

A list of unicode character id ranges that define the unicode characters that can be spoken in character-by-character mode by this voice. ach list entry is a dictionary containing two keys: "UnicodeCharBegin", an integer value containing the beginning unicode id of this range; and "UnicodeCharBegin", an integer value containing the ending unicode id of this range.
These ranges can be used by your application to determine if the voice can speak the name of an individual character when spoken in character-by-character mode.
Some voices may not provide this attribute.
Available in OS X v10.5 and later.

17.3.19 NSVoiceLanguage as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the properties names.
Notes:

The language of the voice (currently US English only). A string
Deprecated: Use NSVoiceLocaleIdentifier instead.
Deprecated in OS X v10.5.

17.3.20 NSVoiceLocaleIdentifier as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the properties names.
Notes:

The language of the voice. A string

The canonical locale identifier string describing the voice's locale. A locale is generally composed of three pieces of ordered information: a language code, a region code, and a variant code. Refer to documentation about the NSLocale class or Locales Programming Guide for more information.
Available in OS X v10.5 and later.

17.3.21 NSVoiceName as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the properties names.
Notes: The name of the voice suitable for display. A String.

17.3.22 NSVoiceSupportedCharacters as String

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the properties names.
Notes:

A list of unicode character id ranges that define the unicode characters supported by this voice. a dictionary containing two keys: "UnicodeCharBegin", an integer value containing the beginning unicode id of this range; and "UnicodeCharBegin", an integer value containing the ending unicode id of this range. The synthesizer will convert or ignore any characters not contained in the range of supported characters.
Some voices may not provide this attribute.
Available in OS X v10.5 and later.

17.3.23 Properties as Dictionary

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns dictionary with all the properties for this voice.
Notes: This dictionary may contain additional information if Apple adds more features in newer Mac OS X versions.

Chapter 18

Spell Checking

18.1 class NSSpellCheckerMBS

18.1.1 class NSSpellCheckerMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The spell checker class.
Notes:

The NSSpellChecker object is used by a client (e.g. a document in an application) to spell-check a given String.
There is only one NSSpellChecker instance per application (since spell-checking is interactive and you only have one mouse and one keyboard).

The string being spell-checked need only be valid for the duration of the call to checkSpellingOfString or countWordsInString.

Requires Mac OS X 10.2.

18.1.2 Methods

18.1.3 availableLanguages as string()

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a list of the available languages.
Notes: Requires Mac OS X 10.5.

18.1.4 checkGrammarOfString(text as string, start as Integer, language as string, wrap as boolean) as NSRangeMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initiates a grammatical analysis of a given string.
Notes:

text: String to analyze.
start: Location within string at which to start the analysis.
language: Language use in string. When nil, the language selected in the Spelling panel is used.
wrap: true to specify that the analysis continue to the beginning of string when the end is reached. false to have the analysis stop at the end of string.
outDetails: Optional. On output, dictionaries describing grammar-analysis details within the flagged grammatical unit. See the NSSpellServer class for information about these dictionaries.

Returns Location of the first flagged grammatical unit.

Available in Mac OS X v10.5 and later.
See also:

- 18.1.5 checkGrammarOfString(text as string, start as Integer, language as string, wrap as boolean, Details() as dictionary) as NSRangeMBS 954

18.1.5 checkGrammarOfString(text as string, start as Integer, language as string, wrap as boolean, Details() as dictionary) as NSRangeMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initiates a grammatical analysis of a given string.
Notes:

text: String to analyze.
start: Location within string at which to start the analysis.
language: Language use in string. When nil, the language selected in the Spelling panel is used.
wrap: true to specify that the analysis continue to the beginning of string when the end is reached. false to have the analysis stop at the end of string.
outDetails: Optional. On output, dictionaries describing grammar-analysis details within the flagged grammatical unit. See the NSSpellServer class for information about these dictionaries.

Returns Location of the first flagged grammatical unit.

Available in Mac OS X v10.5 and later.
See also:

- 18.1.4 checkGrammarOfString(text as string, start as Integer, language as string, wrap as boolean) as NSRangeMBS 954

18.1.6 checkSpellingOfString(text as string, start as Integer) as NSRangeMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initiates a spell-check of a string.
Notes: Returns the range of the first misspelled word.
See also:

- 18.1.7 checkSpellingOfString(text as string, start as Integer, language as string, wrap as boolean) as NSRangeMBS 955
- 18.1.8 checkSpellingOfString(text as string, start as Integer, language as string, wrap as boolean, byref WordCount as Integer) as NSRangeMBS 955

18.1.7 checkSpellingOfString(text as string, start as Integer, language as string, wrap as boolean) as NSRangeMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initiates a spell-check of a string.
Notes: Returns the range of the first misspelled word.
See also:

- 18.1.6 checkSpellingOfString(text as string, start as Integer) as NSRangeMBS 955
- 18.1.8 checkSpellingOfString(text as string, start as Integer, language as string, wrap as boolean, byref WordCount as Integer) as NSRangeMBS 955

18.1.8 checkSpellingOfString(text as string, start as Integer, language as string, wrap as boolean, byref WordCount as Integer) as NSRangeMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initiates a spell-check of a string.
Notes: Returns the range of the first misspelled word (and optionally the wordCount by reference).
See also:

- 18.1.6 checkSpellingOfString(text as string, start as Integer) as NSRangeMBS 955
- 18.1.7 checkSpellingOfString(text as string, start as Integer, language as string, wrap as boolean) as NSRangeMBS 955

18.1.9 completionsForPartialWordRange(start as Integer, length as Integer, text as string, language as string="") as string()

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Searches possible completions for the given word.
Notes:

Returns an array of strings, in the order in which they should be presented, representing complete words that the user might be trying to type when starting by typing the partial word at the given range in the given string.

Within the text, length characters are picked starting at at position (0 based) and matched agains the dictionary defined by language.
Up to around 100 words are returned.

Requires Mac OS X 10.3.
Returns an empty string on any error.

18.1.10 countWordsInString(word as string, language as string="") as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Just counts the words without checking spelling.
Example:

```
dim text as string = "Hello World"
dim spell as NSSpellCheckerMBS // your spellchecker

msgBox str(spell.countWordsInString(text,"en"))
```

Notes:

Returns the number of words in text. The language argument specifies the language used in the string. If language is the empty string, the current selection in the Spelling panel's pop-up menu is used.

Returns -1 if text is nil or this spellchecker function is not available.

Returns -1 if counting words isn't supported by the spell server selected.

18.1.11 forgetWord(word as string)

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes the given word from the user dictionary.

18.1.12 guessesForWord(range as NSRangeMBS, word as string, language as string) as string()

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of possible substitutions for the specified string.
Notes:

range: The range of the string to check.
word: The string to guess
language: The language of the string

Returns an array of strings containing possible replacement words.
Available in Mac OS X v10.6 and later.
See also:

- 18.1.13 guessesForWord(word as string) as string() 957

18.1.13 guessesForWord(word as string) as string()

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array with words matching the given word.
Example:

```
dim a() as string
dim s as new NSSpellCheckerMBS
a=s.guessesForWord("Hell")

msgbox str(ubound(a)+1)+" suggestions."
```

Notes:

Returns nil on any error.

Returns an array of suggested spellings for the misspelled word word. If word contains all capital letters, or its first letter is capitalized, the suggested words are capitalized in the same way.
See also:

- 18.1.12 guessesForWord(range as NSRangeMBS, word as string, language as string) as string() 957

18.1.14 hasLearnedWord(word as string) as boolean

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Checks whether a word has been learned.
Notes:

Returns true if the word is known.
Requires Mac OS X 10.5.

18.1.15 ignoredWords as string()

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The list of ignored words.
Example:

```
dim spell as new NSSpellCheckerMBS
dim f as FolderItem
dim i,c as Integer
dim t as TextOutputStream
dim n(-1) as string

f=SpecialFolder.Preferences.Child("SpellCheck RB.pref")
t=f.CreateTextFile
if t<>nil and spell<>nil then
n=spell.ignoredWords
MsgBox Join(n,EndOfLine)
end if
```

Notes: Returns nil on any error.

18.1.16 ignoreWord(word as string)

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds the word to the ignore list so it will be ignored for spell checking in this NSSpellCheckerMBS object.
Notes: Requires Mac OS X 10.2.

18.1.17 isAutomaticSpellingCorrectionEnabled as boolean

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether automatic spelling correction is enabled.
Notes: Available in Mac OS X v10.6 and later.

18.1.18 isAutomaticTextReplacementEnabled as boolean

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether automatic spelling replacement is enabled.
Notes: Available in Mac OS X v10.6 and later.

18.1.19 languageMenuEntries as string()

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The entries from the language menu of the panel.
Notes:

Copies the list of menu entries from the panel.

Currently you can use this names to show to the user and see what languages are available. It uses a private property which works for Mac OS X 10.4 and 10.5.
For the language function you need the short names:

Australian English	en_AU
British English	en_GB
Canadian English	en_CA
Deutsch	de
English	en
Espaol	es
Franais	fr
Italiano	it
Multilingual	Multilingual
Nederlands	nl
Portugus	pt
Protugus do Brasil	pt_BR
Svenska	sv

18.1.20 learnWord(word as string)

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Learns the given word.
Notes: Requires Mac OS X 10.5.

18.1.21 NSSpellCheckerDidChangeAutomaticSpellingCorrectionNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Use with NSNotificationObserverMBS class.
This notification is posted when the spell checker did change text using automatic spell checking correction.
The are posted to the application's default notification center.
Available in Mac OS X v10.7 and later.

18.1.22 NSSpellCheckerDidChangeAutomaticTextReplacementNotification as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names.
Notes:

Use with NSNotificationObserverMBS class.
This notification is posted when the spell checker changed text using automatic text replacement. The are posted application's to the default notification center.
Available in Mac OS X v10.7 and later.

18.1.23 NSTextCheckingDocumentAuthorKey as string

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the options dictionary.
Notes:

An string containing the name of an author to be associated with the document

Available in Mac OS X v10.6 and later.

18.1.24 NSTextCheckingDocumentTitleKey as string

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the options dictionary.
Notes:

A string containing the title to be associated with the document.

Available in Mac OS X v10.6 and later.

18.1.25 NSTextCheckingDocumentURLKey as string

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the options dictionary.
Notes:

An NSURL to be associated with the document.

Available in Mac OS X v10.6 and later.

18.1.26 NSTextCheckingOrthographyKey as string

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the options dictionary.
Notes:

An NSOrthography instance indicating an orthography to be used as a starting point for orthography checking, or as the orthography if orthography checking is not enabled.

Available in Mac OS X v10.6 and later.

18.1.27 NSTextCheckingQuotesKey as string

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the options dictionary.
Notes:

An NSArray containing four strings to be used with NSTextCheckingTypeQuote (opening double quote, closing double quote, opening single quote, and closing single quote in that order); if not specified, values will be taken from user's preferences.

Available in Mac OS X v10.6 and later.

18.1.28 NSTextCheckingReferenceDateKey as string

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the options dictionary.

Notes:

An NSDate to be associated with the document, used as a referent for relative dates; if not specified, the current date will be used.

Available in Mac OS X v10.6 and later.

18.1.29 NSTextCheckingReferenceTimeZoneKey as string

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the options dictionary.
Notes:

An NSTimeZone to be associated with the document, used as a reference for dates without time zones; if not specified, the current time zone will be used.

Available in Mac OS X v10.6 and later.

18.1.30 NSTextCheckingRegularExpressionsKey as string

Plugin Version: 12.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the options dictionary.
Notes:

Available in Mac OS X 10.7 or newer.
Currently not directly supported with our plugins.

18.1.31 NSTextCheckingReplacementsKey as string

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants for the options dictionary.
Notes:

A dictionary containing replacements to be used with NSTextCheckingTypeReplacement; if not specified, values will be taken from user's preferences.

Available in Mac OS X v10.6 and later.

18.1.32 setIgnoredWords(words() as string)

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the ignored word list.
Example:

```
dim spell as NSSpellCheckerMBS // your spellchecker

dim f as FolderItem
dim t as TextInputStream
dim words(-1),line as string

f=SpecialFolder.Preferences.Child("SpellCheck RB.pref")
t=f.OpenAsTextFile
if t<>nil and spell<>nil then

while not t.eof
line=t.ReadLine(encodings.UTF8)
if line<>"" then
words.Append line
end if
wend

spell.setIgnoredWords words

end if
```

18.1.33 setLanguage(language as string) as boolean

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Allows programmatic setting of the language to spell-check in.
Notes:

Normally chosen by a pop-up-list in the spelling panel and defaulted to the user's preferred language, so call this with care.
Set to "" to use the language from the panel popup menu.

18.1.34 sharedSpellCheckerExists as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns whether the application's NSSpellChecker has already been created.
Notes: Returns true if the shared spell checker already exists, otherwise false.

18.1.35 spellingPanel as NSPanelMBS

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The spelling panel used for spell checking.

18.1.36 substitutionsPanel as NSPanelMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The substitutions panel.

18.1.37 unlearnWord(word as string)

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Tells the spell checker to unlearn a given word.
Notes:

Available in Mac OS X v10.5 and later.
Same as the older forgetWord.

18.1.38 updatePanels

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Updates the available panels to account for user changes.
Notes:

This method should be called when a client changes some relevant setting, such as what kind of spelling, grammar checking, or substitutions it uses.

Available in Mac OS X v10.6 and later.

18.1.39 updateSpellingPanelWithGrammarString(lang as string, detail as dictionary)

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Specifies a grammar-analysis detail to highlight in the Spelling panel.
Notes:

problemString: Problematic grammatical unit identified by checkGrammarOfString.
detail: One of the grammar-analysis details provided by checkGrammarOfString.

Available in Mac OS X v10.5 and later.

18.1.40 updateSpellingPanelWithMisspelledWord(word as string)

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Updates the panel with the word.
Notes: The checkSpellingOfString methods return the range of the misspelled word found. It is up to the client to select that word in their document and to cause the spelling panel to update itself to reflect the found misspelling. Clients can call updateSpellPanelWithMisspelledWord to insure that the spell panel is up to date.

18.1.41 userPreferredLanguages as string()

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Provides a subset of the available languages to be used for spell checking.
Notes:

Returns an array containing the user's preferred languages for spell checking. The order is set in the system preferences.

If automaticallyIdentifiesLanguages is true, then text checking will automatically use this method as appropriate; otherwise, it will use the language set by Language property.

The older checkSpellingOfString and checkGrammarOfString methods will use the language set by Language property, if they are called with an empty language argument.

Available in Mac OS X v10.6 and later.

18.1.42 userQuotesArrayForLanguage(lang as string) as string()

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the default values for quote replacement.
Example:

```
dim n as new NSSpellCheckerMBS

dim en(-1) as string = n.userQuotesArrayForLanguage("en")

MsgBox Join(en," ")
```

Notes:

An array of quote replacements used by the NSTextCheckingQuotesKey key-value pair.

Available in Mac OS X v10.6 and later.

18.1.43 userReplacementsDictionary as dictionary

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the dictionary used when replacing words.
Notes:

The key-value pairs in this dictionary are used by the NSTextCheckingQuotesKey when replacing characters and words.

Available in Mac OS X v10.6 and later.

18.1.44 Properties

18.1.45 Handle as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The handle to the used NSSpellChecker reference.
Notes: (Read and Write property)

18.1.46 Length as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The last length of the position where an error was found.
Notes:

Length is 0 if no location was found.
(Read and Write property)

18.1.47 Location as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The last location where an error was found.
Notes: (Read and Write property)

18.1.48 Tag as Integer

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The document tag for the current document.
Notes:

Every NSSpellCheckerMBS gets a new tag. The tag identifies which ignore list is used. This value is set automatically.
(Read and Write property)

18.1.49 accessoryView as NSViewMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The Spelling panel's accessory view.
Notes:

The accessory view can be any custom view you want to display with the spelling panel. The accessory view is displayed below the spelling checker and the panel automatically resizes to accommodate the accessory view.

This method posts a notification named NSWindowDidResizeNotification with the Spelling panel object to the default notification center.

The accessory view or nil if there is none.
(Read and Write computed property)

18.1.50 automaticallyIdentifiesLanguages as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the spell checker will automatically identify languages.
Notes:

Available in Mac OS X v10.6 and later.
(Read and Write computed property)

18.1.51 language as string

Plugin Version: 7.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The current language used.
Example:

```
dim c as NSSpellCheckerMBS

c=new NSSpellCheckerMBS

c.Language="en"

MsgBox c.Language // shows en

c.Language="Dutch"

MsgBox c.Language // shows nl

c.Language="Multilingual"

MsgBox c.Language // shows Multilingual
```

Notes: (Read and Write computed property)

18.1.52 WordFieldValue as string

Plugin Version: 11.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The word textfield content string.
Notes: (Read and Write computed property)

18.1.53 Events

18.1.54 Correct

Plugin Version: 7.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** An event sent whenever the Correct button is pressed.

18.1.55 FindNext

Plugin Version: 7.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** An event sent whenever the Find Next button is pressed.

18.1.56 Ignore

Plugin Version: 7.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** An event sent whenever the Ignore button is pressed.

18.1.57 Constants

18.1.58 NSCorrectionIndicatorTypeDefault = 0

Plugin Version: 11.3. **Function:** One of the correction indicator type constants.
Notes:

The default indicator that shows a proposed correction.
Available in Mac OS X v10.7 and later.

18.1.59 NSCorrectionIndicatorTypeGuesses = 2

Plugin Version: 11.3. **Function:** One of the correction indicator type constants.
Notes:

Shows multiple alternatives from which the user may choose the appropriate spelling.
Available in Mac OS X v10.7 and later.

18.1.60 NSCorrectionIndicatorTypeReversion = 1

Plugin Version: 11.3. **Function:** One of the correction indicator type constants.
Notes:

Provides the option to revert to the original form after a correction has been made.
Available in Mac OS X v10.7 and later.

18.1.61 NSCorrectionResponseAccepted = 1

Plugin Version: 11.3. **Function:** One of the constants passed to recordresponse method.
Notes:

The user accepted the correction.
Available in Mac OS X v10.7 and later.

18.1.62 NSCorrectionResponseEdited = 4

Plugin Version: 11.3. **Function:** One of the constants passed to recordresponse method.
Notes:

After the correction was accepted, the user edited the corrected word (to something other than its original form.
Available in Mac OS X v10.7 and later.

18.1.63 NSCorrectionResponseIgnored = 3

Plugin Version: 11.3. **Function:** One of the constants passed to recordresponse method.
Notes:

The user continued in such a way as to ignore the correction.
Available in Mac OS X v10.7 and later.

18.1.64 NSCorrectionResponseNone = 0

Plugin Version: 11.3. **Function:** One of the constants passed to recordresponse method.
Notes:

No response was received from the user.
Available in Mac OS X v10.7 and later.

18.1.65 NSCorrectionResponseRejected = 2

Plugin Version: 11.3. **Function:** One of the constants passed to recordresponse method.
Notes:

The user rejected the correction by dismissing the correction indicator.
Available in Mac OS X v10.7 and later.

18.1.66 NSCorrectionResponseReverted = 5

Plugin Version: 11.3. **Function:** One of the constants passed to recordresponse method.
Notes:

After the correction was accepted, the user reverted the correction back to the original word.
Available in Mac OS X v10.7 and later.

18.1.67 NSGrammarCorrections = "NSGrammarCorrections"

Plugin Version: 9.6. **Function:** One of the key constants for the dictionaries in the details array.

18.1.68 NSGrammarRange = "NSGrammarRange"

Plugin Version: 9.6. **Function:** One of the key constants for the dictionaries in the details array.

18.1.69 NSGrammarUserDescription = "NSGrammarUserDescription"

Plugin Version: 9.6. **Function:** One of the key constants for the dictionaries in the details array.

Chapter 19

Statusitem

19.1 class NSStatusItemMBS

19.1.1 class NSStatusItemMBS

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A class to handle a NSStatusitem which is a tiny little item in the menubar.
Notes: All methods in this class will catch exceptions from Cocoa and raise a NSExceptionMBS instead. Using the message, name and reason properties you can see what was the reason for this exception. Please report if you find a method which does not handle exceptions correct.

19.1.2 Methods

19.1.3 Available as boolean

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Whether Statusitems are available.
Notes: True on MachO platforms.

19.1.4 Close

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The destructor.
Notes:

There is no need to call this method except you want to free all resources of this object now without waiting for Realbasic to do it for you.
(e.g. some Realbasic versions crash on Windows if there are plugin objects not closed.)

19.1.5 CreateMenu as boolean

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new menu.
Notes:

Handle is not 0 after this call was successfull.

If the NSGrayBackground option is set in the system defaults, Mac OS X 10.5 will raise an NSImageCacheException, so please install an exception handle to catch NSExceptionMBS so your application can handle that.
See also:

- 19.1.6 CreateMenu(length as single) as boolean 974

19.1.6 CreateMenu(length as single) as boolean

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates the StatusItem menu with the given width.
Example:

```
dim e as new NSStatusItemMBS
call e.CreateMenu(24) // best for a 16x16 picture
```

Notes:

Constants:

NSVariableStatusItemLength	-1
NSSquareStatusItemLength	-2

Other values between 0 and 10000 are used for the length.
Bad values like 20000 will crash the application.

Handle is not 0 after this call was successfull.

If the NSGrayBackground option is set in the system defaults, Mac OS X 10.5 will raise an NSImageCacheException, so please install an exception handle to catch NSExceptionMBS so your application can handle that.
See also:

• 19.1.5 CreateMenu as boolean 974

19.1.7 CreateMenuMiddle(length as single) as boolean

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Same as CreateMenu but tries to place Statusitem on the right side.
Notes:

Uses private Apple API which may break on future Mac OS X versions. Returns false if Apple changes something in the future and the function we use will not be available. So if this function returns false, you can call CreateMenu to continue. Works on Mac OS X 10.4 to 10.6 and make the new statusitem being the rightmost one (left to Apples MenuItems).

Constants:

NSVariableStatusItemLength	-1
NSSquareStatusItemLength	-2

Other values between 0 and 10000 are used for the length.
Bad values like 20000 will crash the application.

Handle is not 0 after this call was successfull.

If the NSGrayBackground option is set in the system defaults, Mac OS X 10.5 will raise an NSImageCacheException, so please install an exception handle to catch NSExceptionMBS so your application can handle that.

19.1.8 CreateMenuRight(length as single) as boolean

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Same as CreateMenu but tries to place Statusitem on the right side.
Notes:

Uses private Apple API which may break on future Mac OS X versions. Returns false if Apple changes something in the future and the function we use will not be available. So if this function returns false, you can call CreateMenu to continue. Works on Mac OS X 10.4 to 10.6 and make the new statusitem being the rightmost one.

If you run this code after you used CreateMenuRight, the new menu will be right of all other statusitems:

```
dim sh as new Shell
sh.Execute "killall","SystemUIServer"
```

Constants:

NSVariableStatusItemLength	-1
NSSquareStatusItemLength	-2

Other values between 0 and 10000 are used for the length.
Bad values like 20000 will crash the application.

Handle is not 0 after this call was successfull.

If the NSGrayBackground option is set in the system defaults, Mac OS X 10.5 will raise an NSImageCacheException, so please install an exception handle to catch NSExceptionMBS so your application can handle that.

19.1.9 DrawStatusBarBackground(x as Double, y as Double, width as Double, height as Double, highlight as boolean)

Plugin Version: 7.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Draws the menu background pattern for a custom status-bar item in regular or highlight pattern.
Notes:

x, y, width and height: A rectangle defining the area of a custom status-bar item.
highlight: true to draw the background pattern in the standard highlight pattern, false to not highlight the pattern.

You can use this method to help a custom status-bar item emulate the behavior of a standard item.

Available in Mac OS X v10.3 and later.

19.1.10 MenuIsVertical as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true if the statusitem has a vertical orientation.
Example:

```
MsgBox str(NSStatusItemMBS.MenuIsVertical)
```

19.1.11 MenuThickness as Double

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The thickness of the status bar.
Example:

```
MsgBox str(NSStatusItemMBS.MenuThickness)
```

Notes: The status bar returned by systemStatusBar has a thickness of 22 pixels, the thickness of the menu bar.

19.1.12 popUpStatusItemMenu(menu as NSMenuMBS)

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Displays a menu under a custom status bar item.
Notes: You can use this method to cause a popup menu to appear under a custom status bar item when the user clicks the item. Note that view must exist (that is, it must not be nil).

19.1.13 SendActionOn(mode as Integer)

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the conditions on which action event is called.
Notes:

mask is set with one or more of the following bit masks described in NSEvent Constants: NSLeftMouseUpMask, NSLeftMouseDownMask, NSLeftMouseDraggedMask, and NSPeriodicMask.

mode is set with one or more of the following bit masks:

```
const NSLeftMouseDownMask    = & h00002
const NSLeftMouseUpMask      = & H00004
const NSLeftMouseDraggedMask = & h00040
const NSPeriodicMask         = & h10000
```

19.1.14 Properties

19.1.15 alternateImage as NSImageMBS

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An alternate image to be displayed when a status bar item is highlighted.
Notes: (Read and Write property)

19.1.16 attributedTitle as NSAttributedStringMBS

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The attributed string that is displayed at the status item's position in the status bar.
Notes:

If an image is also set, the title appears to the right of the image.
(Read and Write property)

19.1.17 Button as Variant

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The button that is displayed in the status bar.
Notes:

Value is a NSStatusBarButtonMBS object. Returned as Variant to reduce plugin dependencies.

This is created automatically on the creation of the StatusItem. Behavior customization for the button, such as image, target/action, tooltip, can be set with this property.

Available on Mac OS X 10.10 and newer.
(Read only property)

19.1.18 Enabled as boolean

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether this status item is enabled.
Notes: (Read and Write property)

19.1.19 Handle as Integer

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The handle of the NSStatusItem object used internally.
Notes: (Read and Write property)

19.1.20 Height as single

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The height of the status item.
Notes:

Should be 22 pixels.
This is a function using undocumented features from the Apple NSStatusItem class, so there is not guarantee that it will work in future versions.
(Read only property)

19.1.21 HighlightMode as boolean

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver is highlighted when clicked.
Notes:

If you use HighlightMode and Menu, you need to first assign the menu and later set HighlightMode to true.
(Read and Write property)

19.1.22 image as NSImageMBS

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The image that is displayed at the statusitem's position in the status bar.
Notes:

nil if an image has not been set.
(Read and Write property)

19.1.23 Left as single

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The left position of the status item.
Notes:

Valid only after item was drawn the first time.
This is a function using undocumented features from the Apple NSStatusItem class, so there is not guarantee that it will work in future versions.
(Read only property)

19.1.24 Length as single

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The length of the status item in pixels.
Notes:

Constants for special values:

NSVariableStatusItemLength	-1
NSSquareStatusItemLength	-2

(Read and Write property)

19.1.25 Menu as NSMenuMBS

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The menu attached to this statusitem.
Notes:

Nil if no menu is attached.
(Read and Write property)

19.1.26 Title as String

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The title of the status item.
Notes: (Read and Write property)

19.1.27 ToolTip as String

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The help tag for a menu item.
Notes: (Read and Write property)

19.1.28 Top as single

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The top position of the status item.
Notes:

Always 0.
This is a function using undocumented features from the Apple NSStatusItem class, so there is not guarantee that it will work in future versions.
(Read only property)

19.1.29 View as NSViewMBS

Plugin Version: 8.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the view to be used for this status menuitem.
Notes:

Using a custom view you can draw whatever you like in the menu item.
You can set it to nil to remove the view.
(Read and Write property)

19.1.30 Width as single

Plugin Version: 7.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The width of the status item.
Notes:

This is a function using undocumented features from the Apple NSStatusItem class, so there is not guarantee that it will work in future versions.
(Read only property)

19.1.31 Window as NSWindowMBS

Plugin Version: 8.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The window used for this NSStatusItem.
Notes:

This is a function using undocumented features from the Apple NSStatusItem class, so there is not guarantee that it will work in future versions.
Returns nil on 64 bit target.
(Read only property)

19.1.32 Events

19.1.33 Action

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called when the user clicks on the statusitem.
Notes:

Mouse position can be calculated based on System.MouseX/System.MouseY relative to Left/Top. Mouse status can be read using System.MouseDown.

This event is limited. You can't for example do everything like quit an application. For using quit, start a timer which will remove the menu 500ms later and than quit 500ms later.

This event is coming from the Cocoa event system. What you can do is a bit limited when using GUI functions from Realbasic. To avoid some redraw errors, you may want to start a timer and let your Realbasic code run a millisecond after the menu code has finished.
Depending on what you do, you can see the menu not redrawing properly (staying highlighted) and crashes if the Realbasic code modifies some global Cocoa states.

19.1.34 DoubleAction

Plugin Version: 7.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called when the user double clicks on the statusitem.
Notes:

If two Action Events happen very fast, this one is called the second time so you can e.g. react on double clicks.
Mouse position can be calculated based on System.MouseX/System.MouseY relative to Left/Top. Mouse status can be read using System.MouseDown.

This event is coming from the Cocoa event system. What you can do is a bit limited when using GUI functions from Realbasic. To avoid some redraw errors, you may want to start a timer and let your Realbasic code run a millisecond after the menu code has finished.
Depending on what you do, you can see the menu not redrawing properly (staying highlighted) and crashes if the Realbasic code modifies some global Cocoa states.

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Chapter 21

The FAQ

21.0.1 Can anyone help me convert seconds to time in this format hh:mm:ss?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Sure, here's a routine I use (which has an advantage over the previously-posted Date-based solution in that you don't have to rely on the creation of an object – all that happens is some division and string concatenation):
Example:

```
Function SecsToTimeString(timeInSecs as Integer, padHours as boolean, padMinutes as boolean) as string
// Given an amount time (in seconds), generates a string representing that amount
// of time. The padHours and padMinutes parameters determine whether to display
// hours and minutes if their values are zero.

// Examples:
// timeInSecs = 90, padHours = true; returns "00:01:30"
// timeInSecs = 1, padHours = false, padMinutes = true; returns "00:01"
// timeInSecs = 3601, padMinutes = false; returns "01:00:01"

dim hours, minutes, seconds as Integer
dim hoursString, minutesString as string

hours = timeInSecs / 3600
minutes = (timeInSecs mod 3600) / 60
seconds = timeInSecs mod 60

if hours = 0 then
if padHours then
hoursString = "00:"
else
hoursString = ""
end if
else
```

```
hoursString = Format(hours, "# # \:")
end if
if minutes = 0 then
if hours <>0 or padMinutes then
minutesString = "00:"
else
minutesString = ""
end if
else
minutesString = Format(minutes, "00\:")
end if

return hoursString + minutesString + Format(seconds, "00")
End Function
```

Notes: (from the rb mailinglist)

21.0.2 How do I get the proper highlight color on Mac OS X for active/inactive selection?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can use functions from NSColor to get proper highlight color in RGB:
Example:

```
Function ProperHighlightColor(active as Boolean) As Color
# if TargetCocoa
Dim theColor As NSColorMBS
If active Then
theColor = NSColorMBS.alternateSelectedControlColor
Else
theColor = NSColorMBS.secondarySelectedControlColor
End If

Dim rgbColor As NSColorMBS = theColor.colorUsingColorSpaceName(NSColorSpaceMBS.NSCalibratedRGBColorSpace)
If rgbColor <>Nil Then
Dim red as Integer = rgbColor.redComponent * 255.0
Dim green as Integer = rgbColor.greenComponent * 255.0
Dim blue as Integer = rgbColor.blueComponent * 255.0
Return RGB(red, green, blue)
Else
Return HighlightColor
End If
# else
```

```
return HighlightColor
# endif
End Function
```

Notes: As you see we convert color to Calibrated RGB for best results.
See also:

- 21.0.3 How to catch delete key? 995
- 21.0.4 How to convert cmyk to rgb? 995
- 21.0.5 How to delete a folder? 997
- 21.0.6 How to detect if CPU if 64bit processor? 998
- 21.0.7 How to refresh a htmlviewer on Windows? 998

21.0.3 How to catch delete key?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** The following is the code in keydown event catches delete or backspace keys.
Example:

```
Function KeyDown(Key As String) As Boolean
if asc(key) = 8 or asc(key) = 127 then
MsgBox "Delete"
Return true
end if
End Function
```

See also:

- 21.0.2 How do I get the proper highlight color on Mac OS X for active/inactive selection? 994
- 21.0.4 How to convert cmyk to rgb? 995
- 21.0.5 How to delete a folder? 997
- 21.0.6 How to detect if CPU if 64bit processor? 998
- 21.0.7 How to refresh a htmlviewer on Windows? 998

21.0.4 How to convert cmyk to rgb?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:**

The following is the code to convert cmyk values to an RGB color datatype.
It's just a basic estimate of the color values. If you are looking for completely color accurate solution, this is not it. It should work for most people. :)
Example:

```
Function CMYKToRGB(c as Integer, m as Integer, y as Integer, k as Integer) As color
// converts c,m,y,k values (0-100) to color data type RGB
// place this in a method. Supply C,M,Y,K values-
// it returns color datatype


dim color_RGB as color
dim r, g, b as Integer

r=255-round(2.55*(c+k))
if r<0 then
r=0
end if
g=255-round(2.55*(m+k))
if g<0 then
g=0
end if
b=255-round(2.55*(y+k))
if b<0 then
b=0
end if

color_RGB=RGB(r,g,b)

return color_RGB

End Function
```

Notes: (from the rb mailinglist)
See also:

- 21.0.2 How do I get the proper highlight color on Mac OS X for active/inactive selection? 994
- 21.0.3 How to catch delete key? 995
- 21.0.5 How to delete a folder? 997
- 21.0.6 How to detect if CPU if 64bit processor? 998
- 21.0.7 How to refresh a htmlviewer on Windows? 998

21.0.5 How to delete a folder?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** The following is the code deletes a folder recursively.
Example:

```
Sub deletefolder(f as folderitem)
dim files(-1) as FolderItem

if f=nil then Return

// delete single file
if f.Directory=false then
f.Delete
Return
end if

// get a list of all items in that folder
dim i,c as Integer
c=F.Count
for i=1 to c
files.Append f.TrueItem(i)
next

// delete each item
for each fo as FolderItem in files
if fo=nil then
' ignore
elseif fo.Directory then
deletefolder fo
else ' file
fo.Delete
end if
next

f.Delete
End Sub
```

See also:

- 21.0.2 How do I get the proper highlight color on Mac OS X for active/inactive selection? 994
- 21.0.3 How to catch delete key? 995
- 21.0.4 How to convert cmyk to rgb? 995
- 21.0.6 How to detect if CPU if 64bit processor? 998
- 21.0.7 How to refresh a htmlviewer on Windows? 998

21.0.6 How to detect if CPU if 64bit processor?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Via CPUID you can ask CPU:
Example:

```
dim c as new CPUIDMBS

if c.Flags(CPUIDMBS.kFeatureLM) then
MsgBox "64-bit CPU"
else
MsgBox "32-bit CPU"
end if
```

Notes: Should work on all intel compatible CPUs.
See also:

- 21.0.2 How do I get the proper highlight color on Mac OS X for active/inactive selection? 994
- 21.0.3 How to catch delete key? 995
- 21.0.4 How to convert cmyk to rgb? 995
- 21.0.5 How to delete a folder? 997
- 21.0.7 How to refresh a htmlviewer on Windows? 998

21.0.7 How to refresh a htmlviewer on Windows?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can ask the browser to reload the website with this code line:
Example:

```
call htmlViewer1.IERunJavaScriptMBS("javascript:document.location.reload()")
```

See also:

- 21.0.2 How do I get the proper highlight color on Mac OS X for active/inactive selection? 994
- 21.0.3 How to catch delete key? 995
- 21.0.4 How to convert cmyk to rgb? 995
- 21.0.5 How to delete a folder? 997
- 21.0.6 How to detect if CPU if 64bit processor? 998

21.0.8 Is there an example for vector graphics in REALbasic?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Try this example inside the paint event of a window:
Example:

```
dim v as Group2D
dim r as RectShape
dim s as StringShape

const pi=3.14

s=new StringShape
s.Text="Hello World!"
s.TextFont="Geneva"
s.TextSize=24
s.FillColor=rgb(0,0,255)
s.Italic=true
s.y=5
s.x=0

r=new RectShape

r.X=0
r.y=0
r.Height=100
r.Width=180
r.BorderColor=rgb(255,0,0)
r.FillColor=rgb(0,255,0)
r.BorderWidth=5
r.Border=50

v=new Group2d
v.Append r
v.Append s
v.Rotation=pi*-20.0/180.0
v.x=150
v.y=150

g.DrawObject v
```

21.0.9 Picture functions do not preserve resolution values?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Yes, the picture functions return pictures with no/default resolution values.

Example:

```
dim l as Picture = LogoMBS(500)

l.HorizontalResolution = 300
l.VerticalResolution = 300

dim r as Picture = l.Rotate90MBS

MsgBox str(r.HorizontalResolution)+" x "+str(r.VerticalResolution)

r.HorizontalResolution = l.HorizontalResolution
r.VerticalResolution = l.VerticalResolution

MsgBox str(r.HorizontalResolution)+" x "+str(r.VerticalResolution)
```

Notes:

So please fix them yourself after calling a function.

Maybe in the future this changes, but currently you can't really set this easily from plugin code.

21.0.10 A toolbox call needs a rect - how do I give it one?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Answer:** Fill a memoryblock like this:
Example:

```
Dim MB As Memoryblock
MB = NewMemoryBlock(8)
MB.Short(0) = window1.Top
MB.Short(2) = window1.Left
MB.Short(4) = window1.Height+window1.Top // bottom
MB.Short(6) = window1.Width+window1.Left // right
```

21.0.11 API client not supported?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** If you get this exception message on SQLConnectionMBS.Connect, we may have a problem.
Notes:

First case is that the given thing is not supported (e.g. MS SQL directly on Mac).

Second case is that the plugin compilation went wrong and the support for the database was not linked into the plugin. Like MySQL missing or MS SQL on Windows missing. In that case please contact us to fix the plugin.

21.0.12 Can I access Access Database with Java classes?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** You can use ucanaccess to access databases created with Microsoft
Example:

```
dim options(-1) as string

// load all the jar files we have in a folder called java:

dim appFolder as FolderItem = GetFolderItem("")

Dim count as Integer = appFolder.Parent.Child("java").Count
dim libjs() as string
For i as Integer = 1 to count
Dim f As FolderItem = appFolder.Parent.Child("java").item(i)
If f <>Nil and f.Exists Then
libjs.append f.NativePath+";"
End If
Next

// now init virtual machine
dim librery as string = Join(libjs, "")
dim vm as new JavaVMMBS(librery)

if vm.Handle = 0 then
MsgBox "Failed to initialize virtual machine"
else
// now make a new database connection with ucanaccess
dim d as new JavaDatabaseMBS(vm,"net.ucanaccess.jdbc.UcanaccessDriver")
Dim DbFile as FolderItem = appFolder.Parent.Child("Database11.accdb")
dim j as JavaConnectionMBS = d.getConnection("jdbc:ucanaccess://"+DbFile.NativePath)

// select and show values
dim r as JavaResultSetMBS = j.MySelectSQL("Select * From test")
while r.NextRecord
MsgBox r.getString("FirstName") +" "+ r.getString("LastName")
wend

end if

Exception e as JavaExceptionMBS
```

```
MsgBox e.message+" errorcode: "+str(e.ErrorNumber)
```

Notes:

see website:
http://ucanaccess.sourceforge.net/site.html

21.0.13 Can I create PDF from Real Studio Report using DynaPDF?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Sorry, no. We can't provide a graphics subclass from plugin.
Notes:

The is a feature request to allow graphics subclasses:
Feedback case 11391: feedback://showreport?report_id=11391

21.0.14 Can I use AppleScripts in a web application?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Yes, but they run on the server, not on the client.
Example:

```
dim a as new AppleScriptMBS

// query my application name
a.Compile "tell application ""System Events"" to return name of current application"

// run
a.Execute

// show result
label1.text = a.Result

// shows something like "My Application.fcgi.debug"
```

Notes: This can be useful to control the server from remote, if and only if the your sever is running Mac OS X.

21.0.15 Can I use graphics class with DynaPDF?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Sorry, no. We can't provide a graphics subclass from plugin.
Notes:

The is a feature request to allow graphics subclasses:
Feedback case 11391: feedback://showreport?report_id=11391

21.0.16 Can I use OGG with REALbasic?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Answer:** There is a QuickTime plugin for OGG which works with REALbasic.
Notes: That should be a solution for playback and recording on Mac and Windows.

21.0.17 Can I use sockets on a web application?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Yes, but they run on the server, not on the client.
Notes:

You can use HTTPSocket, SMTPSocket, POP3Socket, SMTPSecureSocket, SecurePOP3Socket, EasyTCP-Socket, EasyUDPSocket, AutoDiscovery, our Bonjour classes or our CURL* classes. But all of them work on the server, not on the client.

This means if you search for a printer with Bonjour, you can find the printers in the local network on your server hosting site. Using SMTPSocket may be a good idea for sending emails from the server like notifications.

21.0.18 Can I use your ChartDirector plugin on a web application?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Yes, our ChartDirector plugin works just fine on the Real Studio Web Edition.
Example:

```
// The data for the pie chart
dim data(-1) as Double=array(55.0, 18.0, 25.0, 22.0, 18.0, 30.0, 35.0)

// The labels for the pie chart, Words are choosen random to check font!
dim labels(-1) as string=array("Germany","Italy","France","Spain","UK","Poland","Russia")

// The colors to use for the sectors
```

```
dim colors(-1) as Integer

colors.Append & h66aaee
colors.Append & heebb22
colors.Append & hbbbbbb
colors.Append & h8844ff

if TargetLinux then
CDBaseChartMBS.SetFontSearchPath "/usr/share/fonts/truetype/msttcorefonts"
end if

// Create a PieChart object of size 360 x 300 pixels
dim c as new CDPieChartMBS(700, 600)

c.setBackground(c.linearGradientColor(0, 0, 0, c.getHeight(), & h0000cc, & h000044))
c.setRoundedFrame(& hffffff, 16)
dim tt as CDTextBoxMBS = c.addTitle("ChartDirector Demonstration", "timesbi.ttf", 18)
tt.setMargin(0, 0, 16, 0)
tt.setFontColor(& hFFFFFF)

// Set the center of the pie at (180, 140) and the radius to 100 pixels
c.setPieSize 350,300,150
// Set the sector colors
c.setColors(c.kDataColor, colors)

// Draw the pie in 3D with a pie thickness of 20 pixels
c.set3D(20)

dim t as CDTextBoxMBS = c.setLabelStyle("arialbd.ttf", 10, & h000000)
t.setBackground(CDPieChartMBS.kSameAsMainColor, CDPieChartMBS.kTransparent, CDPieChartMBS.soft-
Lighting(CDPieChartMBS.kRight, 0))
t.setRoundedCorners(8)

// Use local gradient shading for the sectors, with 5 pixels wide
// semi-transparent white (bbffffff) borders
c.setSectorStyle(CDPieChartMBS.kLocalGradientShading, & hbbffffff, 0)

// Set the pie data and the pie labels
c.setData data,labels
call c.setLabelStyle "arialbd.ttf",18

dim pic as picture = c.makeChartPicture
dim wp as new WebPicture(pic, Picture.FormatJPEG) // JPEG makes it smaller and faster

ImageView1.Picture=wp
```

Notes:

Be aware that our plugin produces pictures for you, which you assign to ImageViews. Tranfserring those pictures takes time, so you can optimize that with using WebPicture class. There you can decide between different compressions to improve speed (use JPEG instead of PNG).

e.g. if you use ubuntu, you can install the ttf-mscorefonts-installer package and call this method with "/usr/share/fonts/truetype/msttcorefonts" as the path. No backslash on the end of a path, please.

21.0.19 Can I use your DynaPDF plugin on a web application?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Yes, our DynaPDF plugin works just fine on the Real Studio Web Edition.
Notes:

PDF files are created on the server. You may want to offer a preview to the user which uses reduced resolution images to reduce the time to download the PDF.

See our Create PDF example for the Real Studio Web Edition.
http://www.monkeybreadsoftware.de/realbasic/webapps.shtml

21.0.20 Can I use your plugin controls on a web application?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** No.

21.0.21 Can you get an unique machine ID?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** There is nothing like an unique machine ID.
Notes:

1:
You can use the MAC IDs of the network interfaces.
This can be changed by the user with software tools.
And the list of network interfaces changes if user reorder the interfaces.

2:
You can use the system folder creation date/time.
This may stay equal after cloning machines or after migration to
new PC.

3:
You can use the Mac Serialnumber.
Mac only and it can happen that a Mac does not have a serial number.

4:
You can use the x86 CPU ID.
This is x86 CPU only and does not avoid running on the same CPU in different PCs.

21.0.22 ChartDirector: Alignment Specification

Plugin Version: 8.2, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** ChartDirector: Alignment Specification
Notes:

In many ChartDirector objects, you may specify the alignment of the object's content relative to its boundary. For example, for a TextBox object, you may specify the text's alignment relative to the box boundary by using TextBox.setAlignment.

The ChartDirector API defines several constants for the alignment options.

ConstantValueDescription

21.0.23 ChartDirector: Color Specification

Plugin Version: 8.2, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** ChartDirector: Color Specification
Notes:

Many functions in the ChartDirector API accept colors as parameters. ChartDirector supports colors specified in web and HTML compatible ARGB format, in which ARGB refers to the Alpha transparency, Red, Green and Blue components of the color.

In addition to ARGB colors, ChartDirector supports "dynamic" colors. A dynamic color is a color that changes depending on the position of the pixels. The "dynamic" colors that ChartDirector supports include "pattern colors", "metal colors", "gradient colors", "zone colors" and "dash line colors".

ChartDirector supports specifying colors indirectly using "palette colors". When a "palette color" is used, the color is specified as an index to a palette. The actual color is looked up from the palette.ARGB Color
ARGB color consists of 4 components - alpha transparency, red, green and blue. The four components are encoded as a 32-bit number, with each component occupying 8 bits. In hexadecimal notation, it is AAR-

BottomLeft	1	The leftmost point on the bottom line.
BottomCenter	2	The center point on the bottom line.
BottomRight	3	The rightmost point on the bottom line.
Left	4	The leftmost point on the middle horizontal line.
Center	5	The center point on the middle horizontal line.
Right	6	The rightmost point on the middle horizontal line.
TopLeft	7	The leftmost point on the top line.
TopCenter	8	The center point on the top line.
TopRight	9	The rightmost point on the top line.
Bottom	2	The center point on the bottom line. Same as BottomCenter.
Top	8	The center point on the top line. Same as TopCenter.
TopLeft2	10	An alternative top-left position used in Axis.setTitlePos for axis title positioning only. For a vertical axis, TopLeft2 refers to refers to the left of the top side, while TopLeft refers to the top of the left side. The reverse applies for a horizontal axis.
TopRight2	11	An alternative top-right position used in Axis.setTitlePos for axis title positioning only. For a vertical axis, TopRight2 refers to refers to the right of the top side, while TopRight refers to the top of the right side. The reverse applies for a horizontal axis.
BottomLeft2	12	An alternative bottom-left position used in Axis.setTitlePos for axis title positioning only. For a vertical axis, BottomLeft2 refers to refers to the left of the bottom side, while BottomLeft refers to the bottom of the left side. The reverse applies for a horizontal axis.
BottomRight2	13	An alternative bottom-right position used in Axis.setTitlePos for axis title positioning only. For a vertical axis, BottomRight2 refers to refers to the right of the bottom side, while BottomRight refers to the bottom of the right side. The reverse applies for a horizontal axis.

RGGBB, where AA, RR, GG and BB are the alpha transparency, red, green and blue components.

Each component ranges from 00 - FF (0 - 255), representing its intensity. For example, pure red color is 00FF0000, pure green color is 0000FF00, and pure blue color is 000000FF. White color is 00FFFFFF, and black color is 00000000.

Most programming language requires you to put special prefix in front of hexadecimal characters. For C++, the prefix is "0x". For example, the syntax for the hexadecimal number 00FFFFFF is 0x00FFFFFF, or simply 0xFFFFFF.
For the alpha transparency component, a zero value means the color is not transparent all at. This is equivalent to traditional RGB colors. A non-zero alpha transparency means the the color is partially transparent. The larger the alpha transparency, the more transparent the color will be. If a partially transparent color is used to draw something, the underlying background can still be seen.

For example, 80FF0000 is a partially transparent red color, while 00FF0000 is a non-transparent red color.

Note that ChartDirector's ARGB color is web and HTML compatible. For example, red is FF0000, the same as in HTML. There are many resources on the web that provide tables in which you can click a color and it will show its HTML color code. These color codes can be used in ChartDirector.

If alpha transparency is FF (255), the color is totally transparent. That means the color is invisible. It does not matter what the RGB components are. So in ChartDirector, only one totally transparent color is used - FF000000. All other colors of the form FFnnnnnn are reserved to represent palette colors and dynamic colors, and should not be interpreted as the normal ARGB colors.

The totally transparent color FF000000 is often used in ChartDirector to disable drawing something. For example, if you want to disable drawing the border of a rectangle, you can set the border color to totally transparent.

For convenience, ChartDirector defines a constant called Transparent, which is equivalent to FF000000.Pattern Color
A pattern color is a dynamic color that changes according to a 2D periodic pattern. When it is used to fill an area, the area will look like being tiled with a wallpaper pattern.

Pattern colors are created using BaseChart.patternColor, BaseChart.patternColor2, DrawArea.patternColor and DrawArea.patternColor2. The patternColor method creates pattern colors using an array of colors as a bitmap. The patternColor2 method creates pattern colors by loading the patterns from image files.

These methods return a 32-bit integer acting as a handle to the pattern color. The handle can be used in any ChartDirector API that expects a color as its input.Metal Color
A metal color is a color of which the brightness varies smoothly across the chart surface as to make the surface looks shiny and metallic. ChartDirector supports using any color as the base color of the metal color. In particular, using yellow and grey as the base colors will result in metal colors that look gold and silver.

Metal colors are most often used as background colors of charts. They are created using CDBaseChartMBS.metalColor, CDBaseChartMBS.goldColor and CDBaseChartMBS.silverColor. The first method allows you to specify an arbitrary base color. The second and third methods use yellow and grey as the base colors, resulting in gold and silver metal colors.

These methods return a 32-bit integer acting as a handle to the gradient color. The handle can be used in any ChartDirector API that expects a color as its input.Gradient Color
A gradient color is a color that changes progressively across a direction.

Gradient colors are created using BaseChart.gradientColor, BaseChart.gradientColor2, DrawArea.gradientColor and DrawArea.gradientColor2. The gradientColor method creates a 2-point gradient color that changes from color A to color B. The gradientColor2 method creates a multi-point gradient colors that changes from color A to B to C ....

These methods return a 32-bit integer acting as a handle to the gradient color. The handle can be used in any ChartDirector API that expects a color as its input.

One common use of multi-point gradient colors is to define colors that have metallic look and feel. Please refer to DrawArea.gradientColor2 for details.Dash Line Colors
A dash line color is a color that switches on and off periodically. When used to draw a line, the line will appear as a dash line.

Dash line colors are created using BaseChart.dashLineColor and DrawArea.dashLineColor. They accept a line color and a dash pattern code as arguments, and return a 32-bit integer acting as a handle to the dash line color. The handle can be used in any ChartDirector API that expects a color as its input.Zone Colors
A zone color is for XY charts only. It is a color that automatically changes upon reaching a data threshold value along the x-axis or y-axis. Zone colors are created using Layer.xZoneColor, Layer.yZoneColor, XYChart.xZoneColor or XYChart.yZoneColor.Palette Colors
Palette colors are colors of the format FFFFnnnn, where the least significant 16 bits (nnnn) are the index to the palette. A palette is simply an array of colors. For a palette color, the actual color is obtained by looking up the palette using the index. For example, the color FFFF0001 is the second color in the palette (first color is index 0).

The colors in the palette can be ARGB colors or "dynamic" colors (pattern, gradient and dash line colors).

The first eight palette colors have special significance. The first three palette colors are the background color, default line color, and default text color of the chart. The 4th to 7th palette colors are reserved for future use. The 8th color is a special dynamic color that is equal to the data color of the "current data set".

The 9th color (index = 8) onwards are used for automatic data colors. For example, in a pie chart, if the sector colors are not specified, ChartDirector will automatically use the 9th color for the first sector, the 10th color for the second sector, and so on. Similarly, for a multi-line chart, if the line colors are not specified, ChartDirector will use the 9th color for the first line, the 10th color for the second line, and so on.

The ChartDirector API defines several constants to facilitate using palette colors.

ConstantValueDescription

When a chart is created, it has a default palette. You may modify the palette using BaseChart.setColor, BaseChart.setColors, or BaseChart.setColors2.

The advantages of using palette colors are that you can change the color schemes of the chart in one place. ChartDirector comes with several built-in palettes represented by the following predefined constants.

Palette	FFFF0000	The starting point of the palette. The first palette color is (Palette + 0). The nth palette color is (Palette + n - 1).
BackgroundColor	FFFF0000	The background color.
LineColor	FFFF0001	The default line color.
TextColor	FFFF0002	The default text color.
[Reserved]	FFFF0003 - FFFF0006	These palette positions are reserved. Future versions of ChartDirector may use these palette positions for colors that have special significance.
SameAsMainColor	FFFF0007	A dynamic color that is equal to the data color of the current data set. This color is useful for objects that are associated with data sets. For example, in a pie chart, if the sector label background color is SameAsMainColor, its color will be the same as the corresponding sector color.
DataColor	FFFF0008	The starting point for the automatic data color allocation.

ConstantDescription

defaultPalette	An array of colors representing the default palette. This palette is designed for drawing charts on white backgrounds (or lightly colored backgrounds).
whiteOnBlackPalette	An array of colors useful for drawing charts on black backgrounds (or darkly colored backgrounds).
transparentPalette	An array of colors useful drawing charts on white backgrounds (or lightly colored backgrounds). The data colors in this palette are all semi-transparent.

21.0.24 ChartDirector: Font Specification

Plugin Version: 8.2, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** ChartDirector: Font Specification
Notes:

Font Name
In ChartDirector, the font name is simply the file name that contains the font. For example, under the Windows platform, the "Arial" font is "arial.ttf", while the "Arial Bold" font is "arialbd.ttf".

NOTE: Mac OS X Specific Information
In Mac OS X, in addition to ".ttf", ChartDirector also supports Mac OS X font file formats, such as Font Suitcase files and Datafork files (.dfont). These files often contain multiple fonts. For example, the "GillSans.dfont" file contains 6 fonts.

So in addition to the file name, an index is needed to determine the font. The index is specified by appending a " | " character to the font name, followed by the index number. For example, the third font in "GillSans.dfont" is denoted as "GillSans.dfont | 2". (Note: The first font starts at 0.) If no index number is provided, the first font is assumed.

ChartDirector also supports using Mac OS X Font Manager names. For example, one may use "Gill Sans Light Italic" instead of using "GillSans.dfont | 1" as the font name. However, the Mac OS X Font Manager

is active only if someone has logged into the Mac GUI console, so this method is only recommended for developing applications that run on the GUI console.

The sample programs that come with ChartDirector are designed to run on all operating systems, so they use generic font file names (eg. "arial.ttf") instead of Mac OS X specific names. To allow them to run on Mac OS X, ChartDirector on Mac OS X has a built-in table to map common font file names to Mac OS X font names:

"arial.ttf", "arialbd.ttf", "ariali.ttf" and "arialbi.ttf" are mapped to "Arial | 0" (Arial), "Arial | 1" (Arial Bold), "Arial | 2" (Arial Italic) and "Arial | 3" (Arial Bold Italic)

"times.ttf", "timesbd.ttf", "timesi.ttf" and "timesbi.ttf" are mapped to "Times New Roman | 0" (Times New Roman), "Times New Roman | 1" (Times New Roman Bold), "Times New Roman | 2" (Times New Roman Italic) and "Times New Roman | 3" (Times New Roman Bold Italic)

"cour.ttf", "courbd.ttf", "couri.ttf" and "courbi.ttf" are mapped to "Courier New | 0" (Courier New), "Courier New | 1" (Courier New Bold), "Courier New | 2" (Courier New Italic) and "Courier New | 3" (Courier New Bold Italic)

Font Location
ChartDirector on Windows does not come with any font files. It relies on the operating system's font files in the " [windows] \Fonts" directory. To see what fonts are installed in your operating system and their file names, use the File Explorer to view that directory.

ChartDirector on Windows will also search for the font files in the "fonts" subdirectory (if it exists) under the directory where the ChartDirector DLL "chartdir.dll" is installed. This is useful for private fonts. Also, for some especially secure web servers, the web anonymous user may not have access to the " [windows] \Fonts" directory. In this case, you may copy the font files to the above subdirectory.

ChartDirector on Mac OS X relies on operating system font files in "/Library/Fonts" and "/System/Library/Fonts".

ChartDirector on Linux, FreeBSD and Solaris assume the fonts files are in the "fonts" subdirectory under the directory where the ChartDirector shared object "libchartdir.so" is installed. ChartDirector on Linux, FreeBSD and Solaris come with a number of font files in the "fonts" subdirectory.

To keep the download size small, ChartDirector on Linux, FreeBSD and Solaris only come with some commonly used fonts. You may download additional fonts from the Internet. In particular, the Microsoft fonts at
http://sourceforge.net/project/showfiles.php?group_id=34153& release_id=105355
is highly recommended. Please refer to
http://www.microsoft.com/typography/faq/faq8.htm
on how you could use the fonts legally in your system.

ChartDirector supports True Type fonts (.ttf), Type 1 fonts (.pfa and .pfb) and Windows bitmap fonts (.fon). On Mac OS X, ChartDirector also supports Font Suitcase and Datafork (.dfont) files. On Linux, FreeBSD and Solaris, ChartDirector also supports Portable Compiled Fonts (.pcf fonts).

If you want ChartDirector to search other directories for the font files, you may list the directories in an environment variable called "FONTPATH".

If you specify an absolute path name for the font file, ChartDirector will use the absolute path name and will not search other directories.Artificial Boldening and Italicizing
Whereas most popular font comes with different styles for "normal", "bold", "italic" and "bold italic", some fonts only come with one style (the normal style). For example, the Monotype Corsiva font that comes with MS Office only has the normal style (mtcorsva.ttf). For these cases, you may append the "Bold" and/or "Italic" words after the font file name (separated with a space) to ask ChartDirector to artificially bolden and/or italicize the font. For example, you may specify the font name as "mtcorsva.ttf Bold".Font List
Instead of specifying a single font file as the font name, you may specify a list of font files as the font name, separated by semi-colons. This is useful when using international characters that are only available in some fonts.

For example, if you would like to use the Arial font ("arial.ttf") for western characters, and the MingLiu font "mingliu.ttc" for Chinese characters (since the Arial font does not have Chinese characters), you may specify the font name as "arial.ttf;mingliu.ttc". In this case, ChartDirector will try the Arial font first. If it cannot find a certain character there, it will try the MingLiu font.Indirect Font Names
ChartDirector supports several special keywords for specifying the font name indirectly. When these keywords are used as font names, ChartDirector will look up the actual font names from a font table. The keywords are as follows:

KeywordsDescription

"normal"	This default normal font, which is the first font in the font table. This is initially mapped to "arial.ttf" (Arial).
"bold"	The default bold font, which is the second font in the font table. This is initially mapped to "arialbd.ttf" (Arial Bold).
"italic"	The default italic font, which is the third font in the font table. This is initially mapped to "ariali.ttf" (Arial Italic).
"boldItalic"	The default bold-italic font, which is the fourth font in the font table. This is initially mapped to "arialbi.ttf" (Arial Bold Italic).
"fontN"	The (N + 1)th font in the font table (the first font is "font0").

The font table can be modified using BaseChart.setFontTable or DrawArea.setFontTable.

The advantage of using indirect font names is that you can change the fonts fonts in your charts in one place.Font Index
Most font files contain one font. However, it is possible a font file contains multiple fonts (that is, a font collection). For example, in True Type fonts, font files with extension ".ttc" may represent a font collection.

If a font file contains multiple font, the font index can be used to specify which font to use. By default, the font index is 0, which means the first font in the font file will be used.Font Size
The font size decides how big a font will appear in the image. The font size is expressed in a font unit called points. This is the same unit used in common word processors.

Instead of specifying font size, some ChartDirector API (eg. TextBox.setFontSize) allow you to specify font height and font width separately. You may use different point sizes for font height and font width to create special effects.Font Color
This is the color to draw the font. (See Color Specification on how colors are represented in ChartDirector.)Font Angle
This is the angle in degrees by which the font should be rotated anti-clockwise.Vertical Layout
By default, text are laid out horizontally, with characters being drawn from left to right.

ChartDirector also supports vertical layout, with characters being drawn from top to bottom. For example, you may use BaseChart.addText to add text that are laid out vertically. Vertical layout is common for oriental languages such as Chinese, Japanese and Korean.

21.0.25 ChartDirector: Mark Up Language

Plugin Version: 8.2, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** ChartDirector: Mark Up Language
Notes:

ChartDirector Mark Up Language (CDML) is a language for including formatting information in text strings by marking up the text with tags.

CDML allows a single text string to be rendered using multiple fonts, with different colors, and even embed images in the text.Font Styles
You can change the style of the text by using CDML tags. For example, the line:

<*font=timesi.ttf,size=16,color=FF0000>Hello <*font=arial.ttf,size=12,color=8000*>world!
will result in the following text rendered:

In general, all tags in CDML are enclosed by <* and *>. Attributes within the tags determine the styles of the text following the tags within the same block.

If you want to include <* in text without being interpreted as CDML tags, use <<* as the escape sequence.

The following table describes the supported font style attributes in CDML. See Font Specification for details on various font attributes.

AttributeDescription

font	Starts a new style section, and sets the font name. You may use this attribute without a value (that is, use "font" instead of "font=arial.ttf") to create a new style section without modifying the font name.
size	The font size.
width	The font width. This attribute is used to set the font width and height to different values. If the width and height are the same, use the size attribute.
height	The font height. This attribute is used to set the font width and height to different values. If the width and height are the same, use the size attribute.
color	The text color in hex format.
bgColor	The background color of the text in hex format.
underline	The line width of the line used to underline the following characters. Set to 0 to disable underline.
sub	Set the following text to be in subscript style. This attribute does not need to have a value. (You may use "sub" as the attribute instead of "sub=1".)
super	Set the following text to be in superscript style.

Set the following text to be in superscript style. This attribute does not need to have a value. (You may use "super" as the attribute instead of "super=1".)

xoffset	Draw the following the text by shifting the text horizontally from the original position by the specified offset in pixels.
yoffset	Draw the following the text by shifting the text vertically from the original position by the specified offset in pixels.
advance	Move the cursor forward (to the right) by the number of pixels as specified by the value this attribute.
advanceTo	Move the cursor forward (to the right) to the position as specified by the value this attribute. The position is specified as the number of pixels to the right of the left border of the block. If the cursor has already passed through the specified position, the cursor is not moved.

Note that unlike HTML tags, no double or single quotes are used in the tags. It is because CDML tags are often embedded as string literals in source code. The double or single quotes, if used, will conflict with the string literal quotes in the source code. Therefore in CDML, no quotes are necessary and they must not be

used.

Also, unlike HTML tags, CDML uses the comma character as the delimiter between attributes. It is because certain attributes may contain embed spaces (such as the font file name). So space is not used as the delimiter and the comma character is used instead.

Note the font attribute above starts a new style section, while other attributes just modify the current style section. You may use <*/font*>to terminate a style section, which will restore the font styles to the state before the style section.Blocks and Lines
In CDML, a text string may contain multiple blocks. A block may contain multiple lines of text by separating them with new line characters ("\n") or with <*br*>. The latter is useful for programming languages that cannot represent new line characters easily.

For example, the line:

<*size=15*><*block*><*color=FF*>BLOCK<*br*>ONE<*/*>and <*block*><*color=FF00*>BLOCK<*br*>TWO<
will result in the following text rendered:

The above example contains a line of text. The line contains two blocks with the characters " and " in between. Each block in turn contains two lines. The blocks are defined using <*block*>as the start tag and <*/*>as the end tag.

When a block ends, font styles will be restored to the state before entering the block.Embedding Images
CDML supports embedding images in text using the following syntax:

<*img=my_image_file.png*>
where my_image_file.png is the path name of the image file.

For example, the line:

<*size=20*>A <*img=sun.png*>day
will result in the following text rendered:

ChartDirector will automatically detect the image file format using the file extension, which must either png, jpg, jpeg, gif, wbmp or wmp (case insensitive).

Please refer to BaseChart.setSearchPath or DrawArea.setSearchPath on the directory that ChartDirector will search for the file.

The <*img*>tag may optionally contain width and height attributes to specify its pixel width and height. In this case, ChartDirector will stretch or compress the image if necessary to the required width and

height.Blocks Attributes
CDML supports nesting blocks, that is, a block can contain other sub-blocks. Attributes are supported in the <*block*>tag to control the alignment and orientation of the sub-blocks. The <*img=my_image_file.png*>is treated as a block for layout purposes.

For example, the line:

<*block,valign=absmiddle*><*img=molecule.png*><*block*>Hydrazino\nMolecule<*/*><*/*>
will result in the following text rendered:

The the above starts <*block,valign=absmiddle*>which specifies its content should align with each others in the vertical direction using the absolute middle alignment. The block contains an image, followed by a space characters, and then another block which has two lines of text.

The following table describes the supported attributes inside <*block*>tag:

AttributeDescription

width	The width of the block in pixels. By default, the width is automatically determined to be the width necessary for the contents of the block. If the width attribute is specified, it will be used as the width of the block. If the width is insufficient for the contents, the contents will be wrapped into multiple lines.
height	The height of the block in pixels. By default, the height is automatically determined to be the height necessary for the contents of the block. If the height attribute is specified, it will be used as the height of the block.
maxwidth	The maximum width of the block in pixels. If the content is wider than maximum width, it will be wrapped into multiple lines.
truncate	The maximum number of lines of the block. If the content requires more than the maximum number of lines, it will be truncated. In particular, if truncate is 1, the content will be truncated if it exceeds the maximum width (as specified by maxwidth or width) without wrapping. The last few characters at the truncation point will be replaced with "...".
linespacing	The spacing between lines as a ratio to the default line spacing. For example, a line spacing of 2 means the line spacing is two times the default line spacing. The default line spacing is the line spacing as specified in the font used.
bgColor	The background color of the block in hex format.
valign	The vertical alignment of sub-blocks. This is for blocks that contain sub-blocks. Supported values are baseline, top, bottom, middle and absmiddle.

The value baseline means the baseline of sub-blocks should align with the baseline of the block. The baseline

is the underline position of text. This is normal method of aligning text, and is the default in CDML. For images or blocks that are rotated, the baseline is the same as the bottom.

The value top means the top line of sub-blocks should align with the top line of the block.

The value bottom means the bottom line of sub-blocks should align with the bottom line of the block.

The value middle means the middle line of sub-blocks should align with the the middle line of the block. The middle line is the middle position between the top line and the baseline.

The value absmiddle means the absolute middle line of sub-blocks should align with the absolute middle line of the block. The absolute middle line is the middle position between the top line and the bottom line.

halign The horizontal alignment of lines. This is for blocks that contain multiple lines. Supported values are left, center and right.

The value left means the left border of each line should align with the left border of the block. This is the default.

The value center means the horizontal center of each line should align with the horizontal center of the block.

The value right means the right border of each line should align with the right border of the block.

angle Rotate the content of the block by an angle. The angle is specified in degrees in counter-clockwise direction.

21.0.26 ChartDirector: Parameter Substitution and Formatting

Plugin Version: 8.2, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** ChartDirector: Parameter Substitution and Formatting
Notes:

ChartDirector charts often contain a lot of text strings. For example, sector labels in pie charts, axis labels for x and y axes, data labels for the data points, HTML image maps, etc, are all text strings.

ChartDirector uses parameter substitution to allow you to configure precisely the information contained in the text and their format.
Format Strings

In parameter substitution, format strings are used to specify the entities to be include into labels and how to format numbers and dates.

For example, when drawing a pie chart with side label layout, the default sector label format string is:

" { label } ({ percent } %)"

When the sector label is actually drawn, ChartDirector will replace " { label } " with the sector name, and " { percent } " with the sector percentage. So the above label format will result is a sector label similar to "ABC (34.56%)".

You may change the sector label format by changing the format string. For example, you may change it to:

" { label } : US$ { value | 2 } K ({ percent } %)"

The sector label will then become something like "ABC: US$ 123.00 (34.56%)".

In general, in ChartDirector parameter substitution, parameters enclosed by curly brackets will be substituted with their actual values when creating the texts.

For parameters that are numbers or dates/times, ChartDirector supports a special syntax in parameter substitution to allow formatting for these values. Please refer to the Number Formatting and Date/Time Formatting sections below for details.

Parameter Expressions

ChartDirector supports numeric expressions in format strings. They are denoted by enclosing the expression with curly brackets and using "=" as the first character. For example:

"USD { value } (Euro { = { value } *0.9 })"

In the above, " { value } " will be substituted with the actual value of the sector. The expression " { = { value } *0.9 } " will be substituted with the actual value of the sector multiplied by 0.9.

ChartDirector parameter expressions support operators "+", "-", "*", "/", "% " (modulo) and "^" (exponentiation). Operators "*", "/", "% ", "^" is computed first, followed by "+" and "-". Operators of the same precedence are computed from left to right). Parenthesis "(" and ")" can be used to change the computation order.

Parameters for Pie Charts

The following table describes the parameters available for pie charts.

Parameters for All XY Chart Layers

The followings are parameters that are apply to all XY Chart layers in general. Some layer types may have

Parameter	Description
sector	The sector number. The first sector is 0, while the nth sector is (n-1).
dataSet	Same as { sector } . See above.
label	The text label of the sector.
dataSetName	Same as { label } . See above.
value	The data value of the sector.
percent	The percentage value of the sector.
fieldN	The (N + 1)th extra field. For example, { field0 } means the first extra field. An extra field is an array of custom elements added using BaseChart.addExtraField or BaseChart.addExtraField2.

additional parameters (see below).

Note that certain parameters are inapplicable in some context. For example, when specifying the aggregate label of a stacked bar chart, the { dataSetName } parameter is inapplicable. It is because a stacked bar is composed of multiple data sets. It does not belong to any particular data set and hence does not have a data set name.

{ fieldN } means the extra field is indexed by the data point number. The Pth data point corresponds to the Pth element of the extra field.

Additional Parameters for Line Layers
The followings are parameters that are in additional to the parameters for all XY Chart layers.

Additional Parameters for Trend Layers
The followings are parameters that are in additional to the parameters for all XY Chart layers.

Additional Parameters for Box-Whisker Layers
The followings are parameters that are in additional to the parameters for all XY Chart layers.

Additional Parameters for HLOC and CandleStick Layers
The followings are parameters that are in additional to the parameters for all XY Chart layers.

Additional Parameters for Vector Layers
The followings are parameters that are in additional to the parameters for all XY Chart layers.

Parameters for All Polar Layers
The followings are parameters that are apply to all Polar Chart layers in general. Some layer types may have additional parameters (see below).

{ fieldN } means the extra field is indexed by the data point number. The Pth data point corresponds to the Pth element of the extra field.

Additional Parameters for PolarVector Layers
The followings are parameters that are in additional to the parameters for all Polar Chart layers.

Parameters for Axis
The following table describes the parameters available for pie charts.

Number Formatting
For parameters that are numbers, ChartDirector supports a number of formatting options in parameter substitution.

For example, if you want a numeric field { value } to have a precision of two digits to the right of the decimal point, use ',' (comma) as the thousand separator, and use '.' (dot) as the decimal point, and you may use { value | 2,. } . The number 123456.789 will then be displayed as 123,456.79.

For numbers, the formatting options are specified using the following syntax:

{ [param] | [a] [b] [c] [d] }

where:

If this field starts with "E" or "e", followed by a number, it means formatting the value using scientific notation with the specified number of decimal places. If the "E" or "e" is not followed by a number, 3 is assumed.

For example, { value | E4 } will format the value 10.3 to 1.0300E+1, and { value | e4 } will format the same value to 1.0300e+1.

If this field starts with "G" or "g", followed by a number, it means formatting the value using the scientific notation only if the value is large and requires more than the specified number of digits, or the value is less than 0.001. If scientific notation is used, the number following "G" or "g" also specifies the number of significant digits to use. If the "G" or "g" is not followed by a number, 4 is assumed.

For example, consider the format string { value | G4 } . The value 10 will be formatted to 10. The value 100000 will be formatted to 1.000E+5. Similarly, for { value | g4 } , the value 10 will be formatted to 10, while the value 100000 will be formatted to 1.000e+5.

If you skip this argument, ChartDirector will display the exact value using at most 6 decimal places.

You may skip [b] [c] [d] . In this case, the default will be used.

Date/Time Formatting
For parameters that are dates/times, the formatting options can be specified using the following syntax:

{ [param] | [datetime_format_string] }

where [datetime_format_string] must start with an english character (A-Z or a-z) that is not "G", "g", "E" or "e", and may contain any characters except ' } '. (If it starts with "G", "g", "E" or "e", it will be considered as a number format string.)

Certain characters are substituted according to the following table. Characters that are not substituted will be copied to the output.

For example, a parameter substitution format of { value | mm-dd-yyyy } will display a date as something similar to 09-15-2002. A format of { value | dd/mm/yy hh:nn:ss a } will display a date as something similar to 15/09/02 03:04:05 pm.

If you want to include characters in the format string without substitution, you may enclose the characters in single or double quotes.

For example, the format { value | mmm '<*color=dd0000*>'yyyy } will display a date as something like Jan <*color=dd0000*>2005 (the <*color=dd0000*>is a CDML tag to specify red text color). Note that the <*color=dd0000*>tag is copied directly without substitution, even it contains "dd" which normally will be substituted with the day of month.
Escaping URL/HTML/CDML characters
Parameter substitution is often used to create HTML image maps. In HTML, some characters has special meanings and cannot be used reliably. For example, the '>' is used to represent the end of an HTML tag.

Furthermore, if the field happens to be used as an URL, characters such as '?', '& ' and '+' also have special meanings.

By default, ChartDirector will escape template fields used in URL and query parameters when generating image maps. It will modify URL special characters to the URL escape format "% XX" (eg. "?" will become "% 3F"). After that, it will modify HTML special characters to the HTML escape format "& amps;# nn;" (eg. ">" will become "& amps;# 62;".). Similarly, it will escape other attributes in the image map using HTML escape format (but not URL escape format).

In addition to escaping HTML and URL special characters, ChartDirector will also remove CDML fields in creating image maps. It is because CDML is only interpreted in ChartDirector, should not be useful outside of ChartDirector (such as in browser tool tips).

In some cases, you may not want ChartDirector to escape the special characters. For example, if the parameters have already been escaped before passing to ChartDirector, you may want to disable ChartDirector from escaping them again.

ChartDirector supports the following special fields to control the escape methods - " { escape_url } ", " { noescape_url } ", " { escape_html } ", " { noescape_html } ", " { escape_cdml } " and { noescape_cdml } ". These fields enable/disable the escape methods used in the template fields that follow them.

21.0.27 ChartDirector: Shape Specification

Plugin Version: 8.2, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** ChartDirector: Shape Specification
Notes:

Several ChartDirector API accept shape specification as arguments. For example, BarLayer.setBarShape and BarLayer.setBarShape2 can be used to specify shapes of bars in bar charts, while DataSet.setDataSymbol, DataSet.setDataSymbol4, PolarLayer.setDataSymbol and PolarLayer.setDataSymbol4 can be used to specify shapes for data symbols.

Note that in addition to shapes, in many cases ChartDirector also accepts images or custom draw objects for data representation. For example, see DataSet.setDataSymbol2, DataSet.setDataSymbol3, PolarLayer.setDataSymbol2 and PolarLayer.setDataSymbol3.

Built-In Shapes

Built-in shapes are specified as integers. The integers can be explicit constants, or can be generated by a ChartDirector method for parameterized shapes. For example, a circle is represented by an explicit constant CircleShape (=7). On the other hand, the number representing a polygon depends on the number of sides the polygon has, so it is generated by using the PolygonShape method, passing in the number of sides as argument.

The following table illustrates the various ChartDirector shapes:

Custom Shapes

In ChartDirector, custom shapes are specified as an array of integers x0, y0, x1, y1, x2, y2 ... representing the coordinates of the vertices of the custom polygonal shape.

The polygon should be defined with a bounding square of 1000 x 1000 units, in which the x-axis is from -500 to 500 going from left to right, and the y-axis is from 0 to 1000 going from bottom to top.

ChartDirector will automatically scale the polygon so that 1000 units will become to the pixel size as requested by the various ChartDirector API.

As an example, the shape of the standard diamond shape in ChartDirector is represented as an array with 8 numbers:

0, 0, 500, 500, 0, 1000, -500, 500

21.0.28 Copy styled text?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** How to quickly copy styled text from one textarea to another?
Example:

```
# if TargetWin32 then
TextArea1.WinRTFDataMBS = TextArea2.WinRTFDataMBS
# elseif TargetMacOS then
TextArea1.NSTextViewMBS.textStorage.setAttributedString TextArea2.NSTextViewMBS.textStorage
# else
TextArea1.StyledText = TextArea2.StyledText
# endif
```

Notes: The code above uses special plugin functions on Mac and Windows and falls back to framework for Linux.

21.0.29 Do you have code to validate a credit card number?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can check the checksum to tell if a credit card number is not valid.
Example:

```
Dim strNumber As String
Dim nLength as Integer
Dim nValue as Integer
Dim nChecksum as Integer
Dim nIndex as Integer

strNumber = EditField1.Text
nLength = Len(strNumber)
nChecksum = 0

For nIndex = 0 To nLength - 2
```

```
nValue = Val(Mid(strNumber, nLength - (nIndex + 1), 1)) * (2 - (nIndex Mod 2))
If nValue <10 Then
nChecksum = nChecksum + nValue
Else
nChecksum = nChecksum + (nValue - 9)
End If
Next

If Val(Mid(strNumber, Len(strNumber), 1)) = (10 - (nChecksum Mod 10)) Mod 10 Then
MsgBox("The credit card number looks valid")
Else
MsgBox("The credit card number is invalid")
End IF
```

Notes:

Here's some code that will validate the checksum for a credit card. It works for Visa, MasterCard, American Express and Discover. Not sure about others, but I imagine they use the same basic algorithm. Of course, this doesn't actually mean that the credit card is valid, it's only useful for helping the user catch typos.

The above code doesn't have any error checking and it expects that the credit card number will be entered without spaces, dashes or any other non-numeric characters. Addressing those issues will be an exercise left to the reader. :)

(From Mike Stefanik)

21.0.30 Do you have plugins for X-Rite EyeOne, eXact or i1Pro?

Plugin Version: all, Console & Web: No. **Answer:** Our EyeOne plugin is available on request for licensees of the X-Rite SDKs.
Notes:

Please first go to X-Rite and get a SDK license.
Than we can talk about the plugin.

21.0.31 Does SQL Plugin handle stored procedures with multiple result sets?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Yes, the plugin can work with multiple recordsets.
Notes:

You need to use SQLCommandMBS class. When you get back results, you use FetchNext to walk over all

records in the first result set. Than you simply start again with FetchNext to get the second record set. Even the RecordSet functions should work, just use them twice to get all records from both record sets.

21.0.32 Does the plugin home home?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Yes, we like to know who is using the plugin, so the plugin may contact our server.
Example:

none.

Notes:

Please note that this does not affect your users as the plugin will only do this in the IDE and the relevant plugin part is never included in your applications.

The plugin if used for some hours, does contact our server to provide statistical data about Xojo version and OS versions. This way we know what versions are used. We can return the version number of the current plugin which may be visible in future versions somehow. And we transmit partial licenses data so we can track use of illegal license keys.

If you do not like to have this, you can block Xojo IDE from contacting our website via your Firewall. Blocking the transfer will not disable the plugin or change the features.
Or contact us for a plugin version which explicitly does not contain this feature.

21.0.33 folderitem.absolutepath is limited to 255 chars. How can I get longer ones?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Paths on a Mac are not unique, so use them only to display them to the user.
Example:

```
Function AbsolutePath(f as FolderItem) As String
Dim s as string
Dim nf as FolderItem
nf = f
s = ""
while nf<>nil
s = nf.name + ":" + s
nf = nf.parent
wend
Return s
```

```
End Function
```

21.0.34 Future of editablemovie class?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** In short, it will go away, so switch to plugin functions soon.
Notes:

The editableMovie class has been deprecated.
Deprecated means that Real Software will remove it someday, but as of today (and probably a few more years) the class will be available and running. Just not forever. The reason is that Apple deprecated the old QuickTime APIs and they are not available for 64 bit.
For 64 bit, you can move to our QTKit plugin.
We expect the old QuickTime classes in Real Studio and our plugins will continue to work in 32 bit applications. Even if editableMovie class is removed next year from Real Studio, our plugin still provides movie class extensions to do similar functions.

21.0.35 Has anyone played round with using CoreImage to do things like add dissolve transitions say when changing from one tab to another within a window?

Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** This code implements animations for a tabpanel change:
Example:

```
// in a tabpanel.change event:

dim r as CGSTransitionRequestMBS
dim co as new CGSConnectionMBS
dim cw as CGSWindowMBS
dim ct as CGSTransitionMBS
static OldTab as Integer

cw=co.CGSWindow(window1)
If cw = Nil Then
return // 10.3...
End If
r=new CGSTransitionRequestMBS
r.TransitionType=r.CGSFlip
r.HasBackGround=false
r.HasBackColor=false
r.Win=cw
// watch the value of the clicked tab versus the last tab
```

```
if tabpanel1.Value=0 or tabpanel1.Value <OldTab then
r.TransitionOption=r.CGSLeft
ct=co.NewTransition(r)
if ct<>Nil then
Refresh
ct.Invoke(1)
ct.Wait(1)
ct.Release
else
MsgBox "Error creating the transition."
end if
else
r.TransitionOption=r.CGSRight
ct=co.NewTransition(r)
if ct<>Nil then
Refresh
ct.Invoke(1)
ct.Wait(1)
ct.Release
else
MsgBox "Error creating the transition."
end if
end if
// Keep track of the last tab clicked
OldTab = tabpanel1.Value
```

Notes: See CGS* classes for more details.

21.0.36 How about Plugin support for older OS X?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** We support in general Mac OS X 10.5 and newer.
Notes:

All the 64-bit plugins on Mac require OS X 10.7.
Intel 32-bit plugins on Mac require OS X 10.5 or newer.

Currently the ChartDirector 6, GraphicsMagick and GameKit plugins requires Mac OS X 10.6.
Also for SQL Plugin the built in SQLite library requires 10.6.

21.0.37 How can I detect whether an Intel CPU is a 64bit CPU?

Plugin Version: all, Console & Web: No. **Answer:** Look on the CPU family returned by sysctl:
Example:

```
Function is64bit() As Boolean

# if TargetLittleEndian

dim m as MemoryBlock = NewMemoryBlock(8)
dim family as Integer
dim s as string

m=SystemControlNameToMIBMBS("hw.cpufamily")
m=SystemControlMBS(m)

if m<>nil then
m.LittleEndian=True
family=m.Long(0)

const CPUFAMILY_INTEL_6_14 = & h73d67300 //* "Intel Core Solo" and "Intel Core Duo" (32-bit Pentium-M with SSE3) */
const CPUFAMILY_INTEL_6_15 = & h426f69ef //* "Intel Core 2 Duo" */
const CPUFAMILY_INTEL_6_23 = & h78ea4fbc //* Penryn */
const CPUFAMILY_INTEL_6_26 = & h6b5a4cd2 //* Nehalem */

Select case family
case CPUFAMILY_INTEL_6_14
Return false
case CPUFAMILY_INTEL_6_15
Return true
case CPUFAMILY_INTEL_6_23
Return true
case CPUFAMILY_INTEL_6_26
Return true
// newer CPUs may be missing here
end Select

end if

# endif

Return false

Exception
Return false
End Function
```

Notes: This code is written for Mac OS X where you only have a limited number of possible CPUs.

21.0.38 How can I disable the close box of a window on Windows?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** The following code will remove the close item from the system menu of the window.
Example:

```
# if TargetWin32 then
Declare Function GetSystemMenu Lib "user32" (hwnd as Integer, bRevert as Integer) as Integer
Declare Function RemoveMenu Lib "user32" (hMenu as Integer, nPosition as Integer, wFlags as Integer) as Integer
Dim hSysMenu as Integer
hSysMenu = GetSystemMenu(me.WinHWND, 0)
RemoveMenu hSysMenu, & HF060, & H0
# endif
```

Notes: The window may not be updated directly.

21.0.39 How can I get all the environment variables from Windows?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** Try this code:
Example:

```
# if targetWin32
declare function GetEnvironmentStrings Lib "kernel32" () as ptr
dim m as memoryBlock
dim n as Integer

m=GetEnvironmentStrings()

n=0
do
msgBox m.cstring(n)
while m.byte(n)<>0
n=n+1
wend
n=n+1
loop until m.byte(n)=0
# endif
```

Notes: The MBS Plugin has an EnvironmentMBS class for this.

21.0.40 How can i get similar behavior to Roxio Toast or iTunes where clicking a 'burn' button allows the next inserted blank CD-R to bypass the Finder and be accepted by my application?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You need to get a media reservation.
Example:

```
dim d as DRDeviceMBS // get a device
d.AcquireMediaReservation
```

Notes:

Use the plugin function AcquireMediaReservation and later release it using ReleaseMediaReservation.
See plugin examples on how to use it and check Apples DiscRecording framework documentation for more details.

21.0.41 How can I get text from a PDF?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Crossplatform you can use DynaPDF Pro.
Notes:

On Mac OS X you can also use PDFKit for the same job.
While DynaPDF Pro gives you each bit of text with rotation, font information and encoding details, PDFKit gives you only the text string for a PDF page.

21.0.42 How can I get text from a Word Document?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** to get the text string from a doc file, use the NSAttributedStringMBS class.
Notes:

The NSAttributedStringMBS class is Mac OS X only and we have currently no solution for Windows or Linux.

Use the NSAttributedStringMBS.initWithDocFormat(data as string) as boolean method.

21.0.43 How can I get the item string for a given file creator?

Plugin Version: all, Console & Web: No. **Answer:** Try this function:
Example:

```
Sub pullNativeDocs(aCREA As string)
Dim result as Integer
Dim m, k as memoryBlock
Dim f as folderItem
Dim newType as string
Dim anIcon As picture
Dim ofs as Integer

Declare Function GetFileTypesThatAppCanNativelyOpen Lib "Carbon" (appVRefNumHint as Short, appSignature as OSType, nativeTypes as Ptr) as Short Inline68K("701CABFC")
Declare Function GetDocumentKindString Lib "Carbon" (docVRefNum as Short, docType as OSType, docCreator as OSType, kindString as ptr) as Short Inline68K("7016ABFC")

listBox1.deleteAllRows

m = newMemoryBlock(1024)
result = GetFileTypesThatAppCanNativelyOpen(Volume(0).MacVRefNum, aCREA, m)
if result <>0 then
listBox1.addRow "<Not found.>"
return
end if

do
if m.byte(ofs*4) = 0 then
exit
else
newType = m.OSTypeMBS(ofs*4)
listBox1.addRow newType
k = newMemoryBlock(64)
result = GetDocumentKindString(Volume(0).MacVRefNum, newType, aCREA, k)
if result = 0 then
listBox1.cell(ofs,1) = k.pString(0)
ofs = ofs + 1
else
listBox1.cell(ofs,1) = "(unknown)"
end if

end if
loop

End Sub
```

Notes: Change "Translation" to "CarbonLib" for Mac OS X.

21.0.44 How can I launch an app using it's creator code?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Send an AppleEvent "odoc" with the creator code to the Finder ("MACS"):
Example:

```
Function LaunchByCreator(C As String) As Boolean
Dim A As AppleEvent
A = NewAppleEvent("aevt","odoc","MACS")
A.ObjectSpecifierParam("----") = GetUniqueIDObjectDescriptor("appf",nil,C)
return A.Send
End Function
```

21.0.45 How can I learn what shared libraries are required by a plugin on Linux?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Please use the ldd command in the terminal.
Notes:

You build an app on any platform, but for Linux.
For the resulting .so files in the libs folder, you can run the ldd command with the library path as parameter. It shows you references lib files and you can make sure you have those installed.

This is a sample run of our graphicsmagick plugin:

```
cs@Ubuntu32:
textasciitilde /MeinProgramm/MeinProgramm Libs$ ldd libMBSGraphicsMagickPlugin17744.so
linux-gate.so.1 =>(0xb76ee000)
libdl.so.2 =>/lib/i386-linux-gnu/libdl.so.2 (0xb6f0e000)
libgtk-x11-2.0.so.0 =>/usr/lib/i386-linux-gnu/libgtk-x11-2.0.so.0 (0xb6aa6000)
libpthread.so.0 =>/lib/i386-linux-gnu/libpthread.so.0 (0xb6a8a000)
libstdc++.so.6 =>/usr/lib/i386-linux-gnu/libstdc++.so.6 (0xb69a5000)
libm.so.6 =>/lib/i386-linux-gnu/libm.so.6 (0xb6979000)
libgcc_s.so.1 =>/lib/i386-linux-gnu/libgcc_s.so.1 (0xb695b000)
libc.so.6 =>/lib/i386-linux-gnu/libc.so.6 (0xb67b1000)
/lib/ld-linux.so.2 (0xb76ef000)
libgdk-x11-2.0.so.0 =>/usr/lib/i386-linux-gnu/libgdk-x11-2.0.so.0 (0xb6701000)
libpangocairo-1.0.so.0 =>/usr/lib/i386-linux-gnu/libpangocairo-1.0.so.0 (0xb66f4000)
libX11.so.6 =>/usr/lib/i386-linux-gnu/libX11.so.6 (0xb65c0000)
```

```
libXfixes.so.3 =>/usr/lib/i386-linux-gnu/libXfixes.so.3 (0xb65ba000)
libatk-1.0.so.0 =>/usr/lib/i386-linux-gnu/libatk-1.0.so.0 (0xb659a000)
libcairo.so.2 =>/usr/lib/i386-linux-gnu/libcairo.so.2 (0xb64ce000)
libgdk_pixbuf-2.0.so.0 =>/usr/lib/i386-linux-gnu/libgdk_pixbuf-2.0.so.0 (0xb64ad000)
libgio-2.0.so.0 =>/usr/lib/i386-linux-gnu/libgio-2.0.so.0 (0xb6356000)
libpangoft2-1.0.so.0 =>/usr/lib/i386-linux-gnu/libpangoft2-1.0.so.0 (0xb632a000)
libpango-1.0.so.0 =>/usr/lib/i386-linux-gnu/libpango-1.0.so.0 (0xb62e0000)
libfontconfig.so.1 =>/usr/lib/i386-linux-gnu/libfontconfig.so.1 (0xb62ab000)
libgobject-2.0.so.0 =>/usr/lib/i386-linux-gnu/libgobject-2.0.so.0 (0xb625c000)
libglib-2.0.so.0 =>/lib/i386-linux-gnu/libglib-2.0.so.0 (0xb6163000)
libXext.so.6 =>/usr/lib/i386-linux-gnu/libXext.so.6 (0xb6151000)
libXrender.so.1 =>/usr/lib/i386-linux-gnu/libXrender.so.1 (0xb6147000)
libXinerama.so.1 =>/usr/lib/i386-linux-gnu/libXinerama.so.1 (0xb6142000)
libXi.so.6 =>/usr/lib/i386-linux-gnu/libXi.so.6 (0xb6132000)
libXrandr.so.2 =>/usr/lib/i386-linux-gnu/libXrandr.so.2 (0xb6129000)
libXcursor.so.1 =>/usr/lib/i386-linux-gnu/libXcursor.so.1 (0xb611e000)
libXcomposite.so.1 =>/usr/lib/i386-linux-gnu/libXcomposite.so.1 (0xb611a000)
libXdamage.so.1 =>/usr/lib/i386-linux-gnu/libXdamage.so.1 (0xb6115000)
libfreetype.so.6 =>/usr/lib/i386-linux-gnu/libfreetype.so.6 (0xb607b000)
libxcb.so.1 =>/usr/lib/i386-linux-gnu/libxcb.so.1 (0xb605a000)
libpixman-1.so.0 =>/usr/lib/i386-linux-gnu/libpixman-1.so.0 (0xb5fc2000)
libpng12.so.0 =>/lib/i386-linux-gnu/libpng12.so.0 (0xb5f98000)
libxcb-shm.so.0 =>/usr/lib/i386-linux-gnu/libxcb-shm.so.0 (0xb5f93000)
libxcb-render.so.0 =>/usr/lib/i386-linux-gnu/libxcb-render.so.0 (0xb5f89000)
libz.so.1 =>/lib/i386-linux-gnu/libz.so.1 (0xb5f73000)
libgmodule-2.0.so.0 =>/usr/lib/i386-linux-gnu/libgmodule-2.0.so.0 (0xb5f6e000)
libselinux.so.1 =>/lib/i386-linux-gnu/libselinux.so.1 (0xb5f4f000)
libresolv.so.2 =>/lib/i386-linux-gnu/libresolv.so.2 (0xb5f36000)
libexpat.so.1 =>/lib/i386-linux-gnu/libexpat.so.1 (0xb5f0c000)
libffi.so.6 =>/usr/lib/i386-linux-gnu/libffi.so.6 (0xb5f05000)
libpcre.so.3 =>/lib/i386-linux-gnu/libpcre.so.3 (0xb5ec9000)
librt.so.1 =>/lib/i386-linux-gnu/librt.so.1 (0xb5ec0000)
libXau.so.6 =>/usr/lib/i386-linux-gnu/libXau.so.6 (0xb5ebb000)
libXdmcp.so.6 =>/usr/lib/i386-linux-gnu/libXdmcp.so.6 (0xb5eb4000)
cs@Ubuntu32:
textasciitilde /MeinProgramm/MeinProgramm Libs$
```

As you see all library have been found and their load address is printed behind the na,e.
If a library is missing, you usually see the address missing there or being zero.

21.0.46 How can I validate an email address?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can try this code:
Example:

```
Dim re As RegEx
re = New RegEx
Dim rm As RegExMatch

re.SearchPattern = " [ a-z0-9!# $ % & '*+/=?^_' { | }
textasciitilde - ] +(?:\. [ a-z0-9!# $ % & '*+/=?^_' { | }
textasciitilde - ] +)*@(?: [ a-z0-9 ] (?: [ a-z0-9- ] * [ a-z0-9 ] )?\.)+ [ a-z0-9 ] (?: [ a-z0-9- ] * [ a-z0-9 ] )?"
rm = re.Search(editField1.Text)

if rm = Nil Then
StaticText2.text = editField1.Text + " not valid email"
Else
StaticText2.Text = editField1.Text + " is valid"
End if
```

Notes:

Adapted from:
http://www.regular-expressions.info/email.html

21.0.47 How do I check if the QuickTime component for the JPEG exporting is available?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Answer:** If you want to know if the PictureToString functions will work, you may try this function:
Example:

```
Function IsQTJPEGExporerAvailable() As boolean
dim q as QTComponentInformationMBS

// search for QuickTime JPEG exporter codec
q=new QTComponentInformationMBS

while q.NextComponent
if q.Type="imco" and q.SubType="jpeg" then
Return true
end if
wend

Return false // not found
End Function
```

Notes:

It should work like this for other types like:
”tiff” ->TIFF
”PNTG” ->Mac Paint
”gif ” ->GIF
”WRLE” ->Windows BMP
”tga ” ->Targa
”png ” ->PNG
etc.

21.0.48 How do I check if the QuickTime component for the JPEG importing is available?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Answer:** If you want to know if the StringToPicture functions will work, you may try this function:
Example:

```
Function IsQTJPEGImporterAvailable() As boolean
dim q as QTComponentInformationMBS

// search for QuickTime JPEG importer codec
q=new QTComponentInformationMBS

while q.NextComponent
if q.Type=”imdc” and q.SubType=”jpeg” then
Return true
end if
wend

Return false // not found
End Function
```

Notes:

It should work like this for other types like:
”tiff” ->TIFF
”PNTG” ->Mac Paint
”gif ” ->GIF
”WRLE” ->Windows BMP
”tga ” ->Targa
”png ” ->PNG
etc.

21.0.49 How do I check if the QuickTime component for the Sequence grabber is available?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Answer:** If you want to know if the QTGrabberClass will work, you can use this code:
Example:

```
Function IsQTGrabberAvailable() As boolean
dim q as QTComponentInformationMBS

q=new QTComponentInformationMBS

while q.NextComponent
if q.Type="barg" then
Return true
end if
wend

Return false // not found
End Function
```

Notes: Don't forget that you need to check for each other component you use like the compression functions.

21.0.50 How do I decode correctly an email subject?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** The following code can be used to decode an email subject including several encodings including Base 64.
Example:

```
dim src as string // input

dim theRegex as Regex
dim theRegexMatch as RegexMatch
dim result, infoCharset, encodedPart as string
dim theStart as Integer

if instr(src, "=?") >0 then
theRegex = new Regex
theRegex.Options.Greedy = false
theRegex.searchPattern = "(.*)=\?(.+)\?(Q | B)\?(.+)\?="
theRegexMatch = theRegex.search(src)
while theRegexMatch <>nil
theStart = theRegexMatch.subExpressionStartB(0) + len(theRegexMatch.subExpressionString(0))

result = result + theRegexMatch.subExpressionString(1)
```

```
infoCharset = theRegexMatch.subExpressionString(2)
encodedPart = theRegexMatch.subExpressionString(4)
if theRegexMatch.subExpressionString(3) = "B" then
encodedPart = DecodeBase64(encodedPart)
elseif theRegexMatch.subExpressionString(3) = "Q" then
encodedPart = DecodeQuotedPrintable(encodedPart)
end if
if right(result, 1) = " " then
result = mid(result, 1, len(result)-1)
end if
encodedPart = encodedPart.DefineEncoding(GetInternetTextEncoding(infoCharset))
result = result + encodedPart

theRegex.SearchStartPosition = theStart
theRegexMatch = theRegex.search()
wend

result = result + mid(src, theStart+1)

else
result = src
end if
// theRegexMatch = theRegex.search

msgbox result
```

Notes: May not look nice depending on the controls used.

21.0.51 How do I enable/disable a single tab in a tabpanel?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Use the TabpanelEnabledMBS method.
Example:

```
TabpanelEnabledMBS(tabpanel1, 1, false)
```

Notes:

Use Carbon for MachO and CarbonLib for Mac Carbon and AppearanceLib for Mac OS Classic as library. For Cocoa, please use enabled property of NSTabViewItemMBS class.

21.0.52 How do I find the root volume for a file?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Try this function:
Example:

```
Function GetRootVolume(f as FolderItem) as FolderItem
dim root, dum as folderItem
if f <>nil then
root = f // f might be the volume
do
dum = root.parent
if dum <>nil then
root = dum
end if
loop until dum = nil
return root
end if
End Function
```

21.0.53 How do I get the current languages list?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Try this code:
Example:

```
dim p as new CFPreferencesMBS
dim a as CFArrayMBS
dim s as CFStringMBS
dim o as CFObjectMBS
dim sa(-1) as string

o=p.CopyAppValue("AppleLanguages",".GlobalPreferences")

if o<>Nil then
a=CFArrayMBS(o)

dim i,c as Integer

c=a.Count-1
for i=0 to c
o=a.Item(i)

if o isa CFStringMBS then
s=CFStringMBS(o)
sa.Append s.str
end if
```

```
next
end if

MsgBox Join(sa,EndOfLine)
```

Notes:

On Mac OS X you can get the list of current languages like this list:

de
en
ja
fr
es
it
pt
pt-PT
nl
sv
nb
da
fi
ru
pl
zh-Hans
zh-Hant
ko

Which has German (de) on the top for a German user.
This code has been tested on Mac OS X 10.5 only.

21.0.54 How do I get the Mac OS Version?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Try this code:
Example:

```
dim i as Integer
if system.gestalt("sysv", i) then
//do this in an 'If' in case you don't get any value back at all and system.gestalt returns boolean
if i = & h750 then //If OS is 7.5
//do stuff
elseif i = & h761 then //If OS is 7.6.1
//do stuff
end if
```

```
end if
```

Notes: The MBS Plugin has a function SystemInformationMBS.OSVersionString for this.

21.0.55 How do I get the printer name?

Plugin Version: all, Console & Web: No. **Answer:** For Mac OS Classic see the code below and for Mac OS X use the Carbon Print Manager Classes from the MBS Plugin.
Example:

```
dim s as String
dim i as Integer

s=app.ResourceFork.GetResource("STR ",-8192)
if s<>"" then
i=ascb(leftb(s,1))
s=mid(s,2,i)

MsgBox s
end if
```

Notes:

A note from Craig Hoyt:

After looking at your example I had a little deja-vu experience. Several years ago I played around with this same code if FutureBasic. I discovered that it did not and still doesn't provide the 'Printer Name', it does return the print driver name. If it returns 'LaserWriter 8' as the print driver you can look into this file and get the 'PAPA' resource # -8192 to get the actual Printer Name. Unfortunately this does not hold true for other printers. My Epson and HP Printers (the Epson has an Ethernet Card and the HP is USB) do not provide this info in their drivers. As far as I can tell it only returns the name by polling the printer itself.

21.0.56 How do I make a metal window if RB does not allow me this?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** The following declare turns any window on Mac OS X 10.2 or newer into a metal one.
Example:

```
declare sub ChangeWindowAttributes lib "Carbon" (win as windowptr, a as Integer, b as Integer)

ChangeWindowAttributes window1,256,0
```

Notes: May not look nice depending on the controls used.

21.0.57 How do I make a smooth color transition?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:**

I'd like to show in a report some bars, which start with color A
and end with color B.

The color change should be very smooth.

My problem: If I would start from 255,0,0 and end by 0,0,0, I would have
255 different colors. If the bars are longer than 255 pixels, would
this look nice?
Example:

```
// Window.Paint:
Sub Paint(g As Graphics)
dim w,w1,x,p as Integer
dim c1,c2,c as color
dim p1,p2 as Double

c1=rgb(255,0,0) // start color
c2=rgb(0,255,0) // end color

w=g.Width
w1=w-1

for x=0 to w1
p1=x/w1
p2=1.0-p1

c=rgb(c1.red*p1+c2.red*p2, c1.green*p1+c2.green*p2, c1.blue*p1+c2.blue*p2)

g.ForeColor=c
g.DrawLine x,0,x,g.Height

next
End Sub
```

Notes: Try the code above in a window paint event handler.

21.0.58 How do I read the applications in the dock app?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Use CFPreferencesMBS class like in this example:
Example:

```
// Reads file names from persistent dock applications and puts them into the list

dim pref as new CFPreferencesMBS

dim persistentapps as CFStringMBS = NewCFStringMBS("persistent-apps")
dim ApplicationID as CFStringMBS = NewCFStringMBS("com.apple.dock")
dim tiledata as CFStringMBS = NewCFStringMBS("tile-data")
dim filelabel as CFStringMBS = NewCFStringMBS("file-label")

// get the array of persistent applications from dock preferences
dim o as CFObjectMBS = pref.CopyValue(persistentapps, ApplicationID, pref.kCFPreferencesCurrentUser,
pref.kCFPreferencesAnyHost)

if o isa CFArrayMBS then
dim a as CFArrayMBS = CFArrayMBS(o)

// walk over all items in array
dim c as Integer = a.Count-1
for i as Integer = 0 to c

// get dictionary describing item
o = a.Item(i)

if o isa CFDictionaryMBS then
dim d as CFDictionaryMBS = CFDictionaryMBS(o)

// and pick tile data dictionary
o = d.Value(tiledata)
if o isa CFDictionaryMBS then
d = CFDictionaryMBS(o)

// and pick there the file label
o = d.Value(filelabel)
if o isa CFStringMBS then
// and display it
dim name as string = CFStringMBS(o).str
List.AddRow name
```

```
end if
end if
end if

next

else
MsgBox "Failed to read dock preferences."
end if
```

Notes: You can use the CFPreferencesMBS.SetValue to change a value and CFPreferencesMBS.Synchronize to write the values to disc. You may need to restart the Dock.app if you modified things.

21.0.59 How do I truncate a file?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** In a binarystream you can set the length property to truncate.

21.0.60 How do update a Finder's windows after changing some files?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Try this code:
Example:

```
dim f as folderitem // some file
dim ae as appleevent
ae=newappleevent("fndr","fupd","MACS")
ae.folderitemparam("—-")=f
if not ae.send then
//something went wrong
end if
```

Notes: The folderitem.finderupdate from the MBS Plugin does something like this.

21.0.61 How to access a USB device directly?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** First, it depends on the device.
Notes:

Some devices can be talked directly from user mode code, but some require a kernel driver.

For some devices you can use plugins to access them like:

- Audio and Video sources using the QTGrabberClassMBS
- Mass storage devices using the folderitem class.
- Serial devices using the System.SerialPort function.
- HID USB devices can be used with MacHIDMBS, WinHIDMBS or LinuxHIDInterface class.
- Any USB device may be used with MacUSBMBS or WinUSBMBS classes.

In general it is always the best to take the most high level access to have others do the work for the details.

21.0.62 How to add icon to file on Mac?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can use Folderitem.AddCustomIcon or NSWorkspaceMBS.setIcon functions.
Notes: Please close any open stream for the file you want to add an icon.

21.0.63 How to ask the Mac for the Name of the Machine?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Using Apple Events you can use this code:
Example:

```
Function Computername() As string

dim theEvent as AppleEvent
dim err as boolean

theEvent = newAppleEvent("mchn","getd","MACS")

err = theEvent.send

return theevent.ReplyString

End Function
```

Notes:

Code above is for Mac OS 9!
Also the MBS Plugin has a function for this which may be faster and work also on Macs without Filesharing (which handles this event).

21.0.64 How to automatically enable retina in my apps?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can run a build script on each build with this code:
Example:

```
Dim App As String = CurrentBuildLocation + "/" + CurrentBuildAppName + ".app"
Call DoShellCommand("/usr/bin/defaults write " + App + "/Contents/Info ""NSHighResolutionCapable"" YES")
```

Notes: This will set the NSHighResolutionCapable flag to YES.

21.0.65 How to avoid leaks with Cocoa functions?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can try this code on Mac OS X:
Example:

```
// in a Timer Action event:
Sub Action()
static LastPool as NSAutoreleasePoolMBS = nil
static CurrentPool as NSAutoreleasePoolMBS = nil

LastPool = CurrentPool
CurrentPool = new NSAutoreleasePoolMBS
End Sub
```

Notes:

With REALbasic 2009r4 the code above should not be needed as REALbasic runtime does automatically handle the NSAutoreleasePools for you. For older REALbasic versions you need to use code with a timer with the action event above to avoid memory leaks.

Please do not use REALbasic 2009r4 and newer with plugins before version 9.5. You can get crashes there which typically show a line with a objc_msgSend call.

21.0.66 How to avoid trouble connecting to oracle database with SQL Plugin?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** For oracle the most important thing is to point the plugin to the libraries from oracle.
Notes:

In environment variables, the paths like ORACLE_HOME must be defined.
On Mac OS X you also need to define DYLD_LIBRARY_PATH to point to the dylib files from oracle.

For that you need to modify /etc/launchd.conf for Mac OS X 10.8 and newer.
In older versions those variables in .MacOSX/environment.plist file in user's home.

Another way for the case you bundle things inside your app is to use the LSEnvironment key in info.plist.
In info.plist it looks like this:

```
<key>LSEnvironment</key>
<dict>
<key>test</key>
<string>Hello World</string>
</dict>
```

21.0.67 How to avoid __NSAutoreleaseNoPool console messages in threads?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You need to use your own NSAutoreleasePool on a thread like this:
Example:

```
sub MyThread.run
dim pool as new NSAutoreleasePoolMBS
// do work here

pool=nil
end sub
```

Notes:

For more details read here:
http://developer.apple.com/mac/library/documentation/Cocoa/Reference/Foundation/Classes/NSAutoreleasePool_Class/Reference/Reference.html

21.0.68 How to bring app to front?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** On Mac you can use this code:
Example:

```
// First way:
app.FrontMostMBS = true

// second way:
dim p as new ProcessMBS
p.GetCurrentProcess
p.FrontProcess = true

// third way:
NSApplicationMBS.sharedApplication.activateIgnoringOtherApps(true)

// for Windows:
RemoteControlMBS.WinBringWindowToTop
```

Notes: This will bring a Mac app to the front layer.

21.0.69 How to bring my application to front?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** This makes SimpleText (Code ttxt) to the frontmost application:
Example:

```
Dim A As AppleEvent
A = NewAppleEvent("misc","actv","")
If Not A.Send then
Beep
end if
```

Notes: (Code is Mac only)

21.0.70 How to catch Control-C on Mac or Linux in a console app?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can use SignalHandlerMBS class for this.
Example:

```
// watch for Control-C on Mac
call SignalHandlerMBS.SetFlagHandler(2)

dim ende as boolean = false
do
if SignalHandlerMBS.IsFlagSet(2) then
Print "Flag 2 set. Existing..."
ende = true
end if

DoEvents 1
loop until ende
```

Notes: The signal is catched, a flag is set and you can ask later in your normal application flow for the result.

21.0.71 How to change name of application menu?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Answer:** Use this code to change the application menu name on Mac OS X:
Example:

```
dim mb as new MenubarMBS
dim m as MenuMBS = mb.item(1) // 1 is in my tests the app menu
if m<>Nil then
m.MenuTitle = "Hello World"
end if
```

Notes: This code is for Carbon only.

21.0.72 How to change the name in the menubar of my app on Mac OS X?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:**

You mean it screws up if the file name of the bundle itself is different
than the name of the executable file in the MacOS folder within the
bundle? If so, you should find something like this within your
Info.plist file (or the 'plst' resource that the RB IDE builds for you):

```
<key>CFBundleExecutable</key>
<string>Executable file name here</string>
```

Just make sure that file name matches.

However, if your question involves how you can change the name of the app that appears in the menu and the dock, that's different. You can make this name different from the file name by changing the CFBundleName key:

<key>CFBundleName</key>
<string>Name for menu here</string>

Note that if you use my free AppBundler program, this second part is taken care of for you – just fill in a custom name in the right field. You can find AppBundler (from Thomas Reed) at http://www.bitjuggler.com/products/appbundler/ .

21.0.73 How to check if a folder/directory has subfolders?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can use code like this to check all items in a folder:
Example:

```
Function HasSubFolder(folder as FolderItem) As Boolean
dim c as Integer = folder.Count

for i as Integer = 1 to c
dim item as FolderItem = folder.TrueItem(i)

if item<>Nil and item.Directory then
Return true
end if
next

End Function
```

Notes:

We use trueitem() here to avoid resolving alias/link files.
Also we check for nil as we may not have permission to see all items.
And if one is a directory, we return without checking the rest.

21.0.74 How to check if Macbook runs on battery or AC power?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Please use our IOPowerSourcesMBS class like this:
Example:

```
Function PowerSourceState() as Integer
dim p as new IOPowerSourcesMBS

// check all power sources
dim u as Integer = p.Count-1
for i as Integer = 0 to u
dim d as CFDictionaryMBS = p.Item(i)
if d<>nil then
// check if they have a power source state key:
dim o as CFObjectMBS = d.Value(NewCFStringMBS("Power Source State"))
if o isa CFStringMBS then
dim s as string = CFStringMBS(o).str

'MsgBox s

if s = "AC Power" then
Return 1
elseif s = "Battery Power" then
Return 2
end if
end if
end if
next
Return 0 // unknown
End Function
```

Notes: If you want to check the CFDictionaryMBS content, simply use a line like "dim x as dictionary = d.dictionary" and check the contents in the debugger.

21.0.75 How to check if Microsoft Outlook is installed?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** If you need Outlook for Scripting, you should simply check registry for the required Outlook.Application class:
Example:

```
Function OutlookInstalled() As Boolean
# if TargetWin32 then

try
```

```
dim r as new RegistryItem("HKEY_CLASSES_ROOT\Outlook.Application\CLSID", false)

Return true

catch r as RegistryAccessErrorException
// not installed
Return false

end try

# else

// Windows only, so false on other platforms
Return false

# endif

End Function
```

21.0.76 How to check on Mac OS which country or language is currently selected?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** The code below returns a country value.
Example:

```
dim result as Integer

IF TargetMacOS THEN

CONST smScriptLang = 28
CONST smSystemScript = -1

DECLARE FUNCTION GetScriptManagerVariable LIB "Carbon" ( selector as Integer) as Integer
DECLARE FUNCTION GetScriptVariable LIB "Carbon" ( script as Integer, selector as Integer) as Integer

result=GetScriptVariable(smSystemScript, smScriptLang)

END IF
```

Notes:

Returns values like:

For more values, check "Script.h" in the frameworks.

21.0.77 How to code sign my app with plugins?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** When you try to code sign the application with plugin dylibs on Mac OS X, you may see error message that there is actually a signature included.
Notes:

Please use the -f command line parameter with codesign utility to overwrite our MBS signature.
We sign our plugins for Mac and Windows to make sure they have not been modified.

In terminal, you do like this:

cd <Path to folder of app>

codesign -f -s "Developer ID Application: <Your Name>" "<Appname>.app/Contents/Frameworks/*.dylib"
codesign -f -s "Developer ID Application: <Your Name>" "<Appname>.app/Contents/Frameworks/*.framework"
codesign -f -s "Developer ID Application: <Your Name>" "<Appname>.app"

Please use the name of your certificate (See keychain), the name of your app and the path to the app folder.
If you have helper apps you need to sign them first.
You can use a build step to automatically sign your app on build.

21.0.78 How to collapse a window?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Use this function (Mac only):
Example:

```
Sub CollapseRBwindow(w as window, CollapseStatus as boolean)
dim state, err as Integer
dim wh as MemoryBlock

Declare Function CollapseWindow Lib "Carbon" (window as Integer,collapse as Integer) as Integer

IF CollapseStatus THEN
state = 1
ELSE
state = 0
END IF
```

```
err = CollapseWindow(w.MacWindowPtr, state)

End Sub
```

Notes:

Also the MBS Plugin has a window.collapsedmbs property you can set.
For Windows the MBS Plugin has a window.isiconicmbs property.

21.0.79 How to compare two pictures?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can try this code:
Example:

```
Function ComparePictures(p as picture,q as picture) as Integer
dim r,u as RGBSurface
dim x,y,n,m,h,w as Integer
dim w1,w2,h1,h2,d1,d2 as Integer
dim c1,c2 as color

h1=p.Height
h2=q.Height
w1=p.Width
w2=q.Width
d1=p.Depth
d2=q.Depth

if d1<>d2 then
Return 1
elseif w1<>w2 then
return 2
elseif h1<>h2 then
Return 3
else
r=p.RGBSurface
u=q.RGBSurface

if r=nil or u=nil then
Return -1
else
h=h1-1
w=w1-1
m=min(w,h)
```

```
for n=0 to m
c1=r.Pixel(n,n)
c2=u.Pixel(n,n)
if c1<>c2 then
Return 4
end if
next

for y=0 to h
for x=0 to w
c1=r.Pixel(x,y)
c2=u.Pixel(x,y)
if c1<>c2 then
Return 5
end if
next
next

// 0 for equal
// -1 for error (no RGBsurface)
// 1 for different depth
// 2 for different width
// 3 for different height
// 4 for different pixels (fast test)
// 5 for different pixels (slow test)
end if
end if

Exception
Return -1
End Function
```

Notes: Remember that this only works on bitmap pictures, so the picture.BitmapMBS function may be useful.

21.0.80 How to compile PHP library?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You have to download the source code and compile a static version of the library.
Notes:

This instructions were written based on PHP 5.2.6 on Mac OS X:

- Best take a new Mac with current Xcode version installed.

- Download the source code archive. e.g. ”php-5.2.6.tar.bz2”
- Expand that archive on your harddisc.
- Open terminal window
- change directory to the php directory. e.g. ”cd /php-5.2.6”
- execute this two lines to define the supported CPU types and the minimum Mac OS X version:
- export CFLAGS=”-arch ppc -arch i386 -mmacosx-version-min=10.3”
- export CXXFLAGS=”-arch ppc -arch i386 -mmacosx-version-min=10.3”
- the command ”./configure help” does show the configure options.
- use configure with a line like this:
- ./configure –enable-embed –with-curl -enable-ftp –enable-zip –enable-sockets –enable-static –enable-soap –with-zlib –with-bz2 –enable-exif –enable-bcmath –enable-calendar
- start the compilation with ”make all”
- other option is to use ”make install” which first does the same as ”make all” and than does some installation scripts.
- you may get an error about a duplicate symbole _yytext. Search the file ”zend_ini_scanner.c”, search a line with ”char *yytext;” and change it to ”extern char *yytext;”.
- On the end you get a lot of error messages, but you have a working library (named libphp5.so) file in the invisible ”.libs” folder inside your php source folder.

Possible problems and solutions:

- If the path to your files has spaces, you can get into trouble. e.g. ”/RB Plugins/PHP” is bad as files will be searched sometimes in ”/RB”.
- If you have in /usr/local/lib libraries which conflict with the default libraries, you can get into trouble.
- If you installed some open source tools which compiled their own libraries, you can get into conflicts.
- if you have to reconfigure or after a problem, you may need to use ”make clean” before you start ”make all” again.

Feel free to install additional libraries and add more packages to the configure line.

21.0.81 How to convert a BrowserType to a String with WebSession.Browser?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Use code like this: **Example:**

```
Function GetBrowserName(s as WebSession.BrowserType) As string
Select case s
case WebSession.BrowserType.Android
Return "Andriod"
case WebSession.BrowserType.Blackberry
Return "Blackberry"
case WebSession.BrowserType.Chrome
Return "Chrome"
case WebSession.BrowserType.ChromeOS
Return "ChromeOS"
case WebSession.BrowserType.Firefox
Return "Firefox"
case WebSession.BrowserType.InternetExplorer
Return "InternetExplorer"
case WebSession.BrowserType.Opera
Return "Opera"
case WebSession.BrowserType.Safari
Return "Safari"
case WebSession.BrowserType.SafariMobile
Return "SafariMobile"
case WebSession.BrowserType.Unknown
Return "Unknown"
else
Return "Unkown: "+str(integer(s))
end Select

End Function
```

21.0.82 How to convert a EngineType to a String with WebSession.Engine?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Use code like this: **Example:**

```
Function GetRenderingEngineName(s as WebSession.EngineType) As string
Select case s
case WebSession.EngineType.Gecko
Return "Gecko"
case WebSession.EngineType.Presto
Return "Presto"
case WebSession.EngineType.Trident
```

```
Return "Trident"
case WebSession.EngineType.Unknown
Return "Unknown"
case WebSession.EngineType.WebKit
Return "WebKit"
else
Return "Unkown: "+str(integer(s))
end Select

End Function
```

21.0.83 How to convert a PlatformType to a String with WebSession.Platform?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Use code like this:
Example:

```
Function GetPlatformName(s as WebSession.PlatformType) As string
Select case s
case WebSession.PlatformType.Blackberry
Return "Blackberry"
case WebSession.PlatformType.iPad
Return "iPad"
case WebSession.PlatformType.iPhone
Return "iPhone"
case WebSession.PlatformType.iPodTouch
Return "iPodTouch"
case WebSession.PlatformType.Linux
Return "Linux"
case WebSession.PlatformType.Macintosh
Return "Macintosh"
case WebSession.PlatformType.PS3
Return "PS3"
case WebSession.PlatformType.Unknown
Return "Unknown"
case WebSession.PlatformType.WebOS
Return "WebOS"
case WebSession.PlatformType.Wii
Return "Wii"
case WebSession.PlatformType.Windows
Return "Windows"
else
Return "Unkown: "+str(integer(s))
end Select

End Function
```

21.0.84 How to convert a text to iso-8859-1 using the TextEncoder?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:**

This code can help you althrough it's not perfect.
You need to set lc to the current color you use.
Example:

```
dim outstring as string
dim theMac, thePC as textencoding
dim Mac2PC as textconverter

theMac = getTextEncoding(0) // MacRoman
thePC = getTextEncoding(& h0201) // ISOLatin1

Mac2PC = getTextConverter(theMac, thePC)
// if you wanted to do the opposite just create a converter
// PC2Mac = getTextConverter(thePC, theMac)

outstring = Mac2PC.convert("Bjrn, this text should be converted")
Mac2PC.clear
```

Notes: You have to call Mac2PC.clear after every conversion to reset the encoding engine.

21.0.85 How to convert ChartTime back to Xojo date?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** We have this example code:
Example:

```
Function ChartTimeToDate(ChartTime as Double) As date
static diff as Double = 0.0

if diff = 0.0 then
dim d2 as Double = CDBaseChartMBS.chartTime(2015, 1, 1)
dim da as new date(2015, 1, 1)
dim ts as Double = da.TotalSeconds

diff = ts - d2
end if
```

```
dim d as new date
d.TotalSeconds = diff + ChartTime

Return d
End Function
```

Notes: As you see we calculate the difference in base date from Date and ChartTime and later use difference to convert.

21.0.86 How to convert line endings in text files?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can simply read file with TextInputStream and write with new line endings using TextOutputStream class.
Example:

```
dim inputfile as FolderItem = SpecialFolder.Desktop.Child("test.txt")
dim outputfile as FolderItem = SpecialFolder.Desktop.Child("output.txt")
dim it as TextInputStream = TextInputStream.Open(inputfile)
dim ot as TextOutputStream = TextOutputStream.Create(outputfile)

ot.Delimiter = EndOfLine.Windows // new line ending
while not it.EOF
ot.WriteLine it.ReadLine
wend
```

Notes: TextInputStream will read any input line endings and with delimiter property in TextOutputStream you can easily define your new delimiter.

21.0.87 How to convert picture to string and back?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Use this plugin functions:
Notes:

JPEG:

```
JPEGStringToPictureMBS(buf as string) as picture
JPEGStringToPictureMBS(buf as string,allowdamaged as Boolean) as picture
PictureToJPEGStringMBS(pic as picture,quality as Integer) as string
```

PNG:

PictureToPNGStringMBS(pic as picture, gamma as single) as string
PictureToPNGStringMBS(pic as picture, mask as picture, gamma as single) as string
PictureToPNGStringMBS(pic as picture, gamma as single, Interlace as Boolean, FilterType as Integer) as string
PictureToPNGStringMBS(pic as picture, mask as picture, gamma as single, Interlace as Boolean, FilterType as Integer) as string
PNGStringToPictureMBS(data as string, gamma as single) as picture
PNGStringToPNGPictureMBS(data as string, gamma as single) as PNGpictureMBS

Tiff:

TIFFStringToPictureMBS(data as string) as picture
TIFFStringToTiffPictureMBS(data as string) as TiffPictureMBS

BMP:

BMPStringtoPictureMBS(data as string) as picture
Picture.BMPDataMBS(ResolutionValueDPI as Integer=72) as string

GIF:

GifStringToGifMBS(data as string) as GIFMBS
GifStringToPictureMBS(data as string) as Picture

21.0.88 How to copy an array?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can use a function like this to copy an array:
Example:

```
Function CopyArray(a() as Double) as Double()
dim r() as Double
for each v as Double in a
r.Append v
next
Return r
End Function
```

Notes:

If needed make several copies of this method with different data types, not just double.
For a deep copy of an array of objects, you need to change code to also make a copy of those objects.

21.0.89 How to copy an dictionary?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can use a function like this to copy a dictionary:
Example:

```
Function CopyDictionary(d as Dictionary) As Dictionary
dim r as new Dictionary
for each key as Variant in d.keys
r.Value(key) = d.Value(key)
next
Return r
End Function
```

Notes:

If needed make several copies of this method with different data types, not just double.
For a deep copy of an dictionary of objects, you need to change code to also make a copy of those objects.

21.0.90 How to copy parts of a movie to another one?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Answer:** The code below copies ten seconds of the snowman movie to the dummy movie starting at the 5th second.
Example:

```
dim f as FolderItem
dim md as EditableMovie
dim ms as EditableMovie

f=SpecialFolder.Desktop.Child("Our First Snowman.mov")
ms=f.OpenEditableMovie

ms.SelectionStartMBS=5
ms.SelectionLengthMBS=10

f=SpecialFolder.Desktop.Child("dummy.mov")
md=f.CreateMovie

msgbox str(md.AddMovieSelectionMBS(ms))
```

Notes: If result is not 0, the method fails.

21.0.91 How to create a birthday like calendar event?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Try this code:
Example:

```
// start a connection to the calendar database
dim s as new CalCalendarStoreMBS

// needed for the error details
dim e as NSErrorMBS

dim r as CalRecurrenceRuleMBS = CalRecurrenceRuleMBS.initYearlyRecurrence(1, nil) // repeat every
year without end

dim a as new CalAlarmMBS // add alarm
a.action = a.CalAlarmActionDisplay
a.relativeTrigger = -3600*24 // 24 Hours before

// create a new calendar
dim c as new CalEventMBS

dim d as new date(2011, 04, 20) // the date

dim calendars() as CalCalendarMBS = s.calendars

// set properties
c.Title="Test Birthday"
c.startDate=d
c.recurrenceRule = r
c.calendar=calendars(0) // add to first calendar
c.addAlarm(a)
c.endDate = d
c.isAllDay = true

// save event
call s.saveEvent(c,s.CalSpanAllEvents, e)
if e<>nil then
MsgBox e.localizedDescription
else
MsgBox "New event was created."
end if
```

Notes: This adds an event to iCal for the given date with alarm to remember you and repeats it every year.

21.0.92 How to create a GUID?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Use the UUIDMBS class for this.

21.0.93 How to create a Mac picture clip file?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** You can use code like this one.
Example:

```
dim f As FolderItem
dim p As Picture

f=SpecialFolder.Desktop.Child("Test.pictClipping")
if f=nil then Return

p=new Picture(300,200,32) 'Make a sample picture
p.Graphics.ForeColor=RGB(0,255,255)
p.Graphics.FillOval 0,0,99,99
p.Graphics.ForeColor=RGB(255,0,0)
p.Graphics.DrawOval 0,0,99,99

dim r As ResourceFork 'ResourceFork is needed for a clip file

// Please define a file type Any
r=f.CreateResourceFork("Any")

// get PICT data using plugin function
dim pictdata as string = p.PicHandleDataMBS
r.AddResource(pictdata,"PICT",256,"Picture")

dim m as new MemoryBlock(8)

m.LittleEndian = false
m.Int16Value(0) = 0
m.Int16Value(2) = 0
m.Int16Value(4) = p.Width
m.Int16Value(6) = p.Height
```

```
r.AddResource(m,"RECT",256,"")

'Values taken from a sample file and irrelevant to the problem
dim data as string = DecodeBase64("AQAAAAAAAAAAAAAAAAACAFRDRVIAAAABAAAAAAAAAABUQ0lQAAAAA
r.AddResource(data,"drag",128,"") 'ditto
r.Close
```

Notes: In general Apple has deprecated this, but a few application still support clippings.

21.0.94 How to create a PDF file in REALbasic?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Check our DynaPDF plugin and the examples.
Notes:

An alternative can be to use the CoreGraphics and Cocoa functions on Mac OS X.
For Windows, we can only suggest our DynaPDF plugin.

21.0.95 How to create EmailAttachment for PDF Data in memory?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can use code like the one below:
Example:

```
Function EmailAttachmentFromPDFData(PDFData as string, filename as string) As EmailAttachment
dim a as new EmailAttachment

a.data = EncodeBase64(PDFData, 76)
a.ContentEncoding = "base64"
a.MIMEType = "application/pdf"
a.MacType = "PDF "
a.MacCreator = "prvw"
a.Name = filename

Return a
End Function
```

Notes:

Compared to sample code from Xojo documentation, we set the mime type correct for PDF.
The MacType/MacCreator codes are deprecated, but you can still include them for older Mac email clients.
"prvw" is the creator code for Apple's preview app.

21.0.96 How to create PDF for image files?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can use DynaPDF like this:
Example:

```
Function CreatePrintPDF(jpgFiles() as folderitem, pdfFile as FolderItem, PageWidth as Integer, PageHeight as Integer) As Boolean
// have files?
If pdfFile = Nil Then Return False
If jpgFiles = Nil Then Return False

If jpgFiles.Ubound <0 Then Return False

// new DynaPDF
Dim pdf As New MyDynapdfMBS

// page width/height in MilliMeter
Dim pdfWidth as Integer = PageWidth * 72 / 25.4
Dim pdfHeight as Integer = PageHeight * 72 / 25.4

// put your license here
Call pdf.SetLicenseKey "Starter"

// create pdf
Call pdf.CreateNewPDF pdfFile

// set a couple of options
Call pdf.SetPageCoords(MyDynaPDFMBS.kpcTopDown)
Call pdf.SetResolution(300)
Call pdf.SetUseTransparency(False)
Call pdf.SetSaveNewImageFormat(False)
Call pdf.SetGStateFlags(MyDynaPDFMBS.kgfUseImageColorSpace, False)
Call pdf.SetJPEGQuality(100)

// set page size
Call pdf.SetBBox(MyDynaPDFMBS.kpbMediaBox, 0, 0, pdfWidth, pdfHeight)
Call pdf.SetPageWidth(pdfWidth)
Call pdf.SetPageHeight(pdfHeight)

// append pages with one image per page
For i as Integer = 0 To jpgFiles.Ubound
Call pdf.Append
Call pdf.InsertImageEx(0, 0, pdfWidth, pdfHeight, jpgFiles(i), 1)
Call pdf.EndPage
```

```
Next

// close
Call pdf.CloseFile

Return True
End Function
```

Notes:

This is to join image files in paper size to a new PDF.
e.g. scans in A4 into an A4 PDF.

21.0.97 How to CURL Options translate to Plugin Calls?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Below a few tips on how to translate command line CURL calls to plugin calls.
Notes:

curl -vX PUT http://localhost:5984/appserials/78569238475/DocumentRegister.docx?rev=3-25634563456 –data-binary @DocumentRegister.docx -H "Content-Type: application/msword"

- The option -v means verbose. You can use OptionVerbose and listen for messages in the DebugMessage event.
- The option -X PUT means we want to do a HTTP PUT Request. So set OptionPut to true. Also you will want to set OptionUpload to true as you upload data.
- We have the URL which you put into OptionURL property.
- The –data-binary option tells CURL to pass the given data. With the @ before the data, it is intrepreted as a file name, so the data is read from the given file. You'll need to open this file and pass data with the Read event as needed. (See CURLS ftp file upload example project)
- The last option -H specifies an additional header for the upload. Pas this additional header with the SetOptionHTTPHeader method.

curl -X PUT http://127.0.0.1:5984/appserials/f2f4e540bf8bb60f61cfcd4328001c59 -d ' { "type":"Product","description":"Application Serial","acronym":"AppSerial","dateAdded":"2011-03-21 14:57:36" } '

- Option -X PUT like above.
- Pass the URL again in OptionURL
- This time data is passed in command line for CURL. You'd put this data in the quotes into a string and make it available in the Read event. (See CURLS ftp upload example project)

21.0.98 How to delete file with ftp and curl plugin?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can set post/pre quotes to have ftp commands executed before or after the download/upload.
Example:

```
dim d as CURLMBS // your curl object

// delete file
dim ws() As String
ws.Append "DELE Temp.txt"

d.SetOptionPostQuote(ws)
```

Notes:

Use SetOptionPostQuote, SetOptionPreQuote or SetOptionQuote.
The ftp commands you pass here are native ftp commands and not the commands you use with ftp applications. To delete use DELE and the file path.

21.0.99 How to detect display resolution changed?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** On Mac OS X simply listen for display changed notifications.
Notes: Use the "Distribution Notification Center.rbp" example project as a base and use it to listen to notifications with the name "O3DeviceChanged".

21.0.100 How to detect retina?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Please use Window.BackingScaleFactorMBS to query the factor.
Example:

```
msgbox str(window1.BackingScaleFactorMBS)
```

21.0.101 How to disable force quit?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:**

Please visit this website and get the control panel for Mac OS 9 there:
http://www3.sk.sympatico.ca/tinyjohn/DFQ.html

For Mac OS X use the MBS Plugin with the SetSystemUIModeMBS method.
Notes: Please use presentationOptions in NSApplicationMBS for Cocoa applications.

21.0.102 How to disable the error dialogs from Internet Explorer on javascript errors?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** You can use this code in the htmlviewer open event:
Example:

```
if targetwin32 then
htmlviewer1._ole.Content.value("Silent") = True
end if
```

Notes: This disables the error dialogs from Internet Explorer.

21.0.103 How to display a PDF file in REALbasic?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** On Mac OS X you can use CoreGraphics or PDFKit to display a PDF.
Notes:

An alternative can be to load the PDF into a htmlviewer so the PDF plugin can display it.
On Windows you may need to use the Acrobat ActiveX control from Adobe or launch Acrobat Reader.

21.0.104 How to do a lottery in RB?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Try this function:
Example:

```
Sub Lotto(max as Integer,count as Integer,z() as Integer)
// Lotto count numbers of max put into the array z beginning at index 0
dim n(0) as Integer ' all the numbers
dim m as Integer ' the highest field in the current array
dim i,a,b,d as Integer ' working variables

'fill the array with the numbers
m=max-1
redim n(m)
```

```
for i=0 to m
n(i)=i+1
next

' unsort them by exchanging random ones
m=max*10
for i=1 to m
a=rnd*max
b=rnd*max

d=n(a)
n(a)=n(b)
n(b)=d
next

' get the first count to the dest array
m=count-1
redim z(m)
for i=0 to m
z(i)=n(i)
next

'sort the result
z.sort
End Sub

Sub Open()
// Test it

dim za(0) as Integer ' the array of the numbers

lotto 49,6,za ' 6 of 49 in Germany


' and display them
staticText1.text=str(za(0))+chr(13)+str(za(1))+chr(13)+str(za(2))+chr(13)+str(za(3))+chr(13)+str(za(4))+chr(13)+str(z
End Sub
```

21.0.105 How to do an asycron DNS lookup?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** use CFHostMBS class (Mac OS X only).
Notes:

REALbasic internal functions and plugin DNS functions are sycronized.

You can use DNSLookupThreadMBS class for doing them asyncron.

21.0.106 How to draw a dushed pattern line?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can try this code: **Example:**

```
// call like this: DrawDushedPatternLine g,0,0,width,height,10

Sub DrawDushedPatternLine(g as graphics,x1 as Integer,y1 as Integer,x2 as Integer,y2 as Integer, partlen as Integer)
dim x,y,ox,oy as Double
dim dx,dy as Double
dim w,h,d as Double
dim b as Boolean

w=x2-x1
h=y2-y1

d=sqrt(w*w+h*h)

dx=w/d*partlen
dy=h/d*partlen

b=true
x=x1
while (x<x2) and (y<y2)
ox=x
oy=y

x=x+dx
y=y+dy

if b then
g.DrawLine ox,oy,x,y
end if

b=not b
wend


End Sub
```

Notes: It would be possible to add this to the plugin, but I think it's better if you do it in plain Realbasic code, so it even works on Windows.

21.0.107 How to draw a nice antialiased line?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:**

This code can help you althrough it's not perfect.
You need to set lc to the current color you use.
Example:

```
Sub drawLine(xs as Integer, ys as Integer, xe as Integer, ye as Integer, face as RGBSurface, lineColor as color)
dim intX, intY, count, n, xDiff, yDiff as Integer
dim v, v1, floatX, floatY, xx, yy, xStep, yStep as Double
dim c as color

const st=1.0

xDiff=xe-xs
yDiff=ye-ys
count=max(abs(xDiff), abs(yDiff))
xStep=xDiff/count
yStep=yDiff/count
xx=xs
yy=ys
for n=1 to count
intX=xx
intY=yy
floatX=xx-intX
floatY=yy-intY

v=(1-floatX)*(1-floatY)*st
v1=1-v
c=face.pixel(intX, intY)
face.pixel(intX, intY)=rgb(v*lineColor.red+v1*c.red, v*lineColor.green+v1*c.green, v*lineColor.blue+v1*c.blue)
v=floatX*(1-floatY)*st
v1=1-v
c=face.pixel(intX+1, intY)
face.pixel(intX+1, intY)=rgb(v*lineColor.red+v1*c.red, v*lineColor.green+v1*c.green, v*lineColor.blue+v1*c.blue)
v=(1-floatX)*floatY*st
v1=1-v
c=face.pixel(intX, intY+1)
face.pixel(intX, intY+1)=rgb(v*lineColor.red+v1*c.red, v*lineColor.green+v1*c.green, v*lineColor.blue+v1*c.blue)
v=floatX*floatY*st
v1=1-v
c=face.pixel(intX+1, intY+1)
face.pixel(intX+1, intY+1)=rgb(v*lineColor.red+v1*c.red, v*lineColor.green+v1*c.green, v*lineColor.blue+v1*c.blue)
```

```
xx=xx+xStep
yy=yy+yStep
next

End Sub
```

Notes: PS: st should be 1 and face should be a RGBSurface or a Graphics object.

21.0.108 How to draw with CGContextMBS using my own handle?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can try this code:
Example:

```
Soft Declare Function QDBeginCGContext Lib "Carbon" (port as Integer, ByRef contextHandle as Integer)
as Integer
dim contextRef as Integer
call QDBeginCGContext(g.handle(graphics.HandleTypeCGrafPtr), contextRef)
dim c as new CGContextMBS(contextRef)

c.BeginPath
c.SetLineWidth(3)
c.SetRGBFillColor(1,0,0,0.5)
c.FillRect(CGMakeRectMBS(0,0,100,100))
c.DrawPath(c.kCGPathFillStroke)
c.Flush // and so on

Soft Declare Function QDEndCGContext Lib "Carbon" (port as Integer, ByRef contextHandle as Integer) as Integer
dim h as Integer = c.Handle
call QDEndCGContext(g.handle(graphics.HandleTypeCGrafPtr), h)
c.Handle=0
```

Notes: Basicly you can provide your own handle to CGContextMBS. But if you do not set it back to 0 the CGContextMBS destructor will release the handle which can result into a crash. (if the reference count is wrong)

21.0.109 How to dump java class interface?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** In terminal you can use "javap -s <classname>" to display the class with the method names and parameters.
Notes: For example show ResultSet class: javap -s java.sql.ResultSet

21.0.110 How to duplicate a picture with mask or alpha channel?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can use code like this function:
Example:

```
Function Duplicate(extends p as Picture) As Picture
# if RBVersion >= 2011.04 then
if p.HasAlphaChannel then

// create nw picture and copy content:
dim q as new Picture(p.Width, p.Height)
q.Graphics.DrawPicture p,0,0

Return q

end if
# endif

// create new picture
dim q as new Picture(p.Width, p.Height, 32)

// get mask
dim oldMask as Picture = p.mask(false)
if oldMask = nil then
// no mask, so simple copy
q.Graphics.DrawPicture p,0,0
Return q
end if

// remove mask
p.mask = nil

// copy picture and mask
q.Graphics.DrawPicture p, 0, 0
q.mask.Graphics.DrawPicture oldMask,0,0

// restore mask
p.mask = oldmask

Return q
End Function
```

Notes:

Simply copy it to a module and call it like this: q = p.duplicate.
The code above works with old Real Studio versions because of the # if even if your RS version does not support alpha channel pictures. This way it's future proof.

21.0.111 How to enable assistive devices?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can use AppleScript code like below:
Notes:

```
tell application "System Events"
activate


set UI elements enabled to true


return UI elements enabled
end tell
```

You can run this with AppleScriptMBS class.

21.0.112 How to encrypt a file with Blowfish?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can use code like this:
Example:

```
dim fi as FolderItem = SpecialFolder.Desktop.Child("test.xojo_binary_project")
dim fo as FolderItem = SpecialFolder.Desktop.Child("test.encrypted")

// read input
dim bi as BinaryStream = BinaryStream.Open(fi)
dim si as string = bi.Read(bi.Length)
bi.Close

// encrypt
dim so as string = BlowfishMBS.Encrypt("MyKey",si)

// write output
dim bo as BinaryStream = BinaryStream.Create(fo)
bo.Write so
bo.Close
```

Notes: Of course you can decrypt same way, just use Decrypt function and of course swap files.

21.0.113 How to extract text from HTML?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Use both RemoveHTMLTagsMBS and DecodingFromHTMLMBS like this:
Example:

```
dim html as string = "<p><B>Gr& uuml;& szlig;e</B></P>"
dim htmltext as string = RemoveHTMLTagsMBS(html)
dim text as string = DecodingFromHTMLMBS(htmltext)

MsgBox text // shows: Gre
```

Notes:

You can use it together with RemoveHTMLTagsMBS to remove html tags. What you get will be the text without tags.
DecodingFromHTMLMBS turns HTML escapes back to unicode characters. Like & auml; to .

21.0.114 How to find empty folders in a folder?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Try this code:
Example:

```
dim folder as folderitem // your folder

dim c as Integer = folder.count
for i as Integer = 1 to c
dim item as folderitem = folder.trueitem(i)
if item = nil then
// ignore
elseif item.directory then
// folder
if item.count = 0 then
// found empty folder
end if
end if
next
```

21.0.115 How to find iTunes on a Mac OS X machine fast?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can try Launch Services.
Example:

```
dim f as FolderItem

f=LaunchServicesFindApplicationForInfoMBS("hook","com.apple.iTunes","iTunes.app")

MsgBox f.AbsolutePath
```

21.0.116 How to find network interface for a socket by it's name?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can use our plugin to build a lookup table.
Example:

```
Function FindNetworkInterface(name as string) As NetworkInterface
name = name.trim

if name.len = 0 then Return nil

// search by IP/MAC
dim u as Integer = System.NetworkInterfaceCount-1
for i as Integer = 0 to u
dim n as NetworkInterface = System.GetNetworkInterface(i)
if n.IPAddress = name or n.MACAddress = name then
Return n
end if
next

// use MBS Plugin to build a mapping
dim interfaces() as NetworkInterfaceMBS = NetworkInterfaceMBS.AllInterfaces
dim map as new Dictionary

for each n as NetworkInterfaceMBS in interfaces
dim IPv4s() as string = n.IPv4s
dim IPv6s() as string = n.IPv6s

for each IPv4 as string in IPv4s
map.Value(IPv4) = n.Name
next
for each IPv6 as string in IPv6s
map.Value(IPv6) = n.Name
```

```
next
if n.MAC<>"" then
map.Value(n.MAC) = n.Name
end if
next

// now search interfaces by name, IPv4 or IPv6
for i as Integer = 0 to u
dim n as NetworkInterface = System.GetNetworkInterface(i)
if map.Lookup(n.IPAddress, "") = name then
Return n
end if

if map.Lookup(n.MACAddress, "") = name then
Return n
end if
next

End Function
```

Notes: The code above uses a lookup table build using NetworkInterfaceMBS class to find the network interface by name.

21.0.117 How to find version of Microsoft Word?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can use code like this:
Example:

```
// find Word
dim f as FolderItem = LaunchServicesFindApplicationForInfoMBS("","com.microsoft.Word","")

// open bundle
dim c as new NSBundleMBS(f)

// read info
dim d as Dictionary = c.infoDictionary

// show version
MsgBox d.Lookup("CFBundleVersion","")
```

Notes: Older versions of Word can be found with creator code "MSWD".

21.0.118 How to fix CURL error 60/53 on connecting to server?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You probably connect with SSL and you have no valid certificate.
Example:

```
dim d as new CURLSMBS

// Disable SSL verification
d.OptionSSLVerifyHost = 0 // don't verify server
d.OptionSSLVerifyPeer = 0 // don't proofs certificate is authentic

// With SSL Verification:
dim cacert as FolderItem = Getfolderitem("cacert.pem")
d.OptionCAInfo = cacert.UnixpathMBS
d.OptionSSLVerifyHost = 2 // verify server
d.OptionSSLVerifyPeer = 1 // proofs certificate is authentic
```

Notes:

You can either use the code above to disable the SSL verification and have no security.
Or you use the cacert file and enable the verification. Than you only get a connection if the server has a valid certificate.

see also:
http://curl.haxx.se/ca/

21.0.119 How to format double with n digits?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can use the FormatMBS function for this.
Example:

```
dim d as Double = 123.4567890
listbox1.AddRow FormatMBS("% f", d)
listbox1.AddRow FormatMBS("% e", d)
listbox1.AddRow FormatMBS("% g", d)

listbox1.AddRow FormatMBS("% 5.5f", d)
listbox1.AddRow FormatMBS("% 5.5e", d)
listbox1.AddRow FormatMBS("% 5.5g", d)

d = 0.000000123456
listbox1.AddRow FormatMBS("% f", d)
listbox1.AddRow FormatMBS("% e", d)
```

```
listbox1.AddRow FormatMBS("% g", d)

listbox1.AddRow FormatMBS("% 5.5f", d)
listbox1.AddRow FormatMBS("% 5.5e", d)
listbox1.AddRow FormatMBS("% 5.5g", d)
```

Notes:

see FormatMBS for details.
In general % f is normal style, % e is scientific and % g is whichever gives best result for given space.

21.0.120 How to get a time converted to user time zone in a web app?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Use the WebSession.GMTOffset property.
Example:

```
Sub Open()
// current date on server
dim d as new date
dim s as string = d.LongTime

// adjust to client GMT offset
d.GMTOffset = d.GMTOffset + Session.GMTOffset

dim t as string = D.LongTime

MsgBox s+EndOfLine+t
End Sub
```

21.0.121 How to get an handle to the frontmost window on Windows?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** This function returns a handle for the frontmost window:
Example:

```
Function GetForegroundWindowHandle() as Integer
# if targetwin32 then
declare function GetForegroundWindow Lib "user32.dll" as Integer
Return GetForegroundWindow()
# endif
End Function
```

21.0.122 How to get CFAbsoluteTime from date?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Answer:** Use code like this:
Example:

```
dim d as new date
dim t as CFTimeZoneMBS = SystemCFTimeZoneMBS
dim g as new CFGregorianDateMBS
g.Day = d.Day
g.Month = d.Month
g.Year = d.Year
g.Minute = d.Minute
g.Hour = d.Hour
g.Second = d.Second

dim at as CFAbsoluteTimeMBS = g.AbsoluteTime(t)
dim x as Double = at.Value

MsgBox str(x)
```

Notes:

As you see we need a timezone and put the date values in a gregorian date record.
Now we can query absolute time for the given timezone.

21.0.123 How to get client IP address on web app?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Use the WebSession.RemoteAddress property.
Example:

```
Sub Open()
Title = Session.RemoteAddress
End Sub
```

21.0.124 How to get fonts to load in charts on Linux?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Please use the SetFontSearchPath method in the CDBaseChartMBS class to specify where your fonts are.
Example:

```
if TargetLinux then
CDBaseChartMBS.SetFontSearchPath "/usr/share/fonts/truetype"
else
// on Mac and Windows we use system fonts.
end if
```

Notes:

On Mac OS X and Windows, the fonts are loaded from the system's font folder.

e.g. if you use ubuntu, you can install the ttf-mscorefonts-installer package and call this method with "/usr/share/fonts/truetype/msttcorefonts" as the path. No backslash on the end of a path, please.

21.0.125 How to get fonts to load in DynaPDF on Linux?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Please use the AddFontSearchPath method in the DynaPDFMBS class to specify where your fonts are.
Example:

```
dim d as new DynaPDFMBS
if TargetLinux then
call d.AddFontSearchPath "/usr/share/fonts/truetype", true
else
// on Mac and Windows we use system fonts.
end if
```

Notes:

On Mac OS X and Windows, the fonts are loaded from the system's font folder.

e.g. if you use ubuntu, you can install the ttf-mscorefonts-installer package and call this method with "/usr/share/fonts/truetype/msttcorefonts" as the path. No backslash on the end of a path, please.

21.0.126 How to get GMT time and back?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can use the date class and the GMTOffset property.
Example:

```
// now
dim d as new date

// now in GMT
dim e as new date
e.GMTOffset = 0

// show
MsgBox str(d.TotalSeconds,"0.0")+" "+str(e.TotalSeconds, "0.0")

dim GMTTimeStamp as Double = e.TotalSeconds

// restore
dim f as new date

// add GMT offset here
f.TotalSeconds = GMTTimeStamp + f.GMTOffset*3600
// because here it's removed
f.GMTOffset = f.GMTOffset

MsgBox d.ShortTime+" ("+str(d.GMTOffset)+") "+str(d.TotalSeconds,"0.0")+EndOfLine+_
e.ShortTime+" ("+str(e.GMTOffset)+") "+str(e.TotalSeconds,"0.0")+EndOfLine+_
f.ShortTime+" ("+str(f.GMTOffset)+") "+str(f.TotalSeconds,"0.0")
```

Notes: It's sometimes a bit tricky with the date class as setting one property often changes the others.

21.0.127 How to get good crash reports?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Check this website from the webkit website:
Notes: http://webkit.org/quality/crashlogs.html

21.0.128 How to get list of all threads?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can use the runtime module like in this function:

Example:

```
Function Threads() As Thread()
# pragma DisableBackgroundTasks
dim t() as Thread

Dim o as Runtime.ObjectIterator=Runtime.IterateObjects
While o.MoveNext
if o.Current isa Thread then
t.Append thread(o.current)
end if
Wend

Return t
End Function
```

Notes:

This returns an array of all thread objects currently in memory.
The pragma is important here as it avoids thread switches which may cause a thread to be created or deleted.

21.0.129 How to get parameters from webpage URL in Real Studio Web Edition?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Use the Webpage.ParametersReceived event.
Example:

```
Sub ParametersReceived(Variables As Dictionary)
for each key as Variant in Variables.keys
MsgBox key+" ->"+Variables.Value(key)
next
End Sub
```

Notes: The text encodings of this strings is not defined in Real Studio 2010r5. Please use DefineEncoding.

21.0.130 How to get Real Studio apps running Linux?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You need to install some requuire packages.
Notes:

You need CUPS as well as GTK packages. On 64 bit systems also the ia32-libs package.

Please note that you need a x86 compatible Linux. So no PPC, Power, ARM or other CPUs.

21.0.131 How to get the color for disabled textcolor?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Ask the appearance manager:
Example:

```
Function GetThemeTextColor(inColor as Integer, inDepth as Integer, inColorDev as Boolean) As Color
declare function GetThemeTextColor lib "Carbon" (inColor as Integer, inDepth as Integer, inColorDev as Boolean, outColor as Ptr) as Integer

dim i as Integer
dim col as MemoryBlock

col = newMemoryBlock(6)

i = GetThemeTextColor(inColor, inDepth, inColorDev, col)

return RGB(col.UShort(0)\256, col.UShort(2)\256, col.UShort(4)\256)
End Function
```

Notes:

The color for this is:

```
const kThemeTextColorDialogInactive = 2.

c = GetThemeTextColor(kThemeTextColorDialogInactive, Screen(0).Depth, true)
```

For Mac OS X you should use "CarbonLib" instead of "AppearanceLib" ...

21.0.132 How to get the current free stack space?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can something like the code below:
Example:

```
Sub ShowStackSize()
dim threadid as Integer
dim size as Integer

declare function GetCurrentThread lib "Carbon" (byref threadid as Integer) as short
declare function ThreadCurrentStackSpace lib "Carbon" (threadid as Integer, byref size as Integer) as short

if GetCurrentThread(threadid)=0 then
if 0=ThreadCurrentStackSpace(threadid,size) then
MsgBox str(size)
end if
end if
End Sub
```

Notes: For Mac OS 9, use "ThreadLib" instead of "CarbonLib". You can use # if if you like for that.

21.0.133 How to get the current timezone?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Answer:**

You can use the TimeZoneMBS class or the CFTimeZoneMBS class.
Or code like below:
Example:

```
Function GMTOffsetInMinutes() as Integer
// Returns the offset of the current time to GMT in minutes.
// supports Mac OS and Windows, but not Linux yet (let me know if
// you have code for that, please)
//
// Note that the offset is not always an even multiple of 60, but
// there are also half hour offsets, even one 5:45h offset

// This version by Thomas Tempelmann (rb@tempel.org) on 25 Nov 2005
// with a fix that should also make it work with future Intel Mac targets.
//
// Using code from various authors found on the RB NUG mailing list

dim result, bias, dayLightbias as Integer
dim info as memoryBlock
dim offset as Integer

# if targetMacOS then

Declare Sub ReadLocation lib "Carbon" (location As ptr)
```

```
info = NewMemoryBlock(12)
ReadLocation info
if false then
// bad, because it does not work on Intel Macs:
'offset = info.short(9) * 256 + info.byte(11)
else
offset = BitwiseAnd (info.long(8), & hFFFFFF)
end

offset = info.short(9) * 256 + info.byte(11)
offset = offset \60
return offset

# endif

# if targetWin32 then

Declare Function GetTimeZoneInformation Lib "Kernel32" ( tzInfoPointer as Ptr ) as Integer
// returns one of
// TIME_ZONE_ID_UNKNOWN 0
// – Note: e.g. New Delhi (GMT+5:30) and Newfoundland (-3:30) return this value 0
// TIME_ZONE_ID_STANDARD 1
// TIME_ZONE_ID_DAYLIGHT 2

info = new MemoryBlock(172)
result = GetTimeZoneInformation(info)

bias = info.Long(0)
// note: the original code I found in the NUG archives used Long(84) and switched to Long(0)
// only for result=1 and result=2, but my tests found that Long(0) is also the right value for result=0

if result = 2 then
daylightBias = info.long(168)
end if
offset = - (bias + dayLightbias)
return offset

# endif

End Function
```

21.0.134 How to get the current window title?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** The code below returns the current window title for the frontmost window on Mac OS X if Accessibilty services are

Example:

```
Function CurrentWindowTitle() As string
dim SystemWideElement,FocusedApplicationElement,FocusedWindowElement as AXUIElementMBS
dim FocusedApplication,FocusedWindow,Title as AXValueMBS
dim s as String
dim cs as CFStringMBS

SystemWideElement=AccessibilityMBS.SystemWideAXUIElement
if SystemWideElement<>nil then
FocusedApplication=SystemWideElement.AttributeValue(AccessibilityMBS.kAXFocusedApplicationAttribute)
if FocusedApplication.Type=AccessibilityMBS.kAXUIElementMBSTypeID then
FocusedApplicationElement=new AXUIElementMBS
FocusedApplicationElement.Handle=FocusedApplication.Handle
FocusedApplicationElement.RetainObject

FocusedWindow=FocusedApplicationElement.AttributeValue(AccessibilityMBS.kAXFocusedWindowAttribute)

if FocusedWindow<>nil and AccessibilityMBS.kAXUIElementMBSTypeID=FocusedWindow.Type then

FocusedWindowElement=new AXUIElementMBS
FocusedWindowElement.Handle=FocusedWindow.Handle
FocusedWindowElement.RetainObject

Title=FocusedWindowElement.AttributeValue(AccessibilityMBS.kAXTitleAttribute)
if Title<>nil and Title.Type=kCFStringMBSTypeID then
cs=new CFStringMBS
cs.handle=Title.Handle
cs.RetainObject
Return cs.str
end if
end if
end if
end if
End Function
```

21.0.135 How to get the cursor blink interval time?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** On Mac OS you can use GetCaretTime from the toolbox.
Example:

```
declare function GetCaretTime lib "Carbon" () as Integer

MsgBox str(GetCaretTime())+" ticks"
```

Notes: 60 ticks make one second.

21.0.136 How to get the list of the current selected files in the Finder?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:**

Use the AppleScript like this one:

```
tell application "finder"
return selection
end tell
```

Which translates into this AppleEvent:

```
Process("Finder").SendAE "core,getd,'----':obj { form:prop, want:type(prop), seld:type(sele), from:'null'() }
"
```

and as Realbasic code it looks like this:
Example:

```
dim ae as appleevent
dim o1 as appleeventObjectSpecifier
dim f as folderItem
dim aList as appleeventdescList
dim i as Integer
dim dateiname as string

// setup the AppleEvent
o1=getpropertyObjectDescriptor( nil, "sele")
ae= newappleEvent("core", "getd", "MACS")
ae.objectSpecifierParam("----")=o1

// send it
if ae.send then
// got the list
alist=ae.replyDescList

// now show the list of filename into an editfield:

for i=1 to alist.count
f=alist.folderItemItem(i)

dateiname=f.name
```

```
// editfield1 with property "mulitline=true"!
editfield1.text=editfield1.text + dateiname + chr(13)
next
end if
```

21.0.137 How to get the Mac OS system version?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** The following code queries the value and displays the version number:
Example:

```
dim first as Integer
dim second as Integer
dim third as Integer
dim l as Integer

if System.Gestalt("sysv",l) then

Third=Bitwiseand(l,15)
second=Bitwiseand(l\16,15)
first=Bitwiseand(l\256,15)+10*Bitwiseand(l\256\16,15)
end if

if First>=10 then
msgbox "Mac OS X "+str(First)+"."+str(Second)+"."+str(third)
else
msgbox "Mac OS "+str(First)+"."+str(Second)+"."+str(third)
end if
```

21.0.138 How to get the Mac OS Version using System.Gestalt?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Try this code:
Example:

```
Dim s As String
Dim b As Boolean
Dim i, resp as Integer

// Systemversion
b = System.Gestalt("sysv", resp)
If b then
s = Hex(resp)
```

```
For i =Len(s)-1 DownTo 1
s=Left(s,i)+"."+Mid(s,i+1)
Next
MsgBox "Systemversion: Mac OS " + s
end if
```

Notes: The MBS Plugin has a SystemInformationMBS.OSVersionString function for this.

21.0.139 How to get the screensize excluding the task bar?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** Try this code:
Notes: Use the Screen class with the available* properties.

21.0.140 How to get the size of the frontmost window on Windows?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** Try this code:
Notes:

Make yourself a class for the WindowRect with four properties:

```
Bottom as Integer
Left as Integer
Right as Integer
Top as Integer
```

Add the following method to your class:

```
Sub GetWindowRect(windowhandle as Integer)
dim err as Integer
dim mem as memoryBlock
# if targetwin32 then
Declare Function GetWindowRect Lib "user32.dll" (hwnd as Integer, ipRect As Ptr) as Integer

mem = newmemoryBlock(16)
err = GetWindowRect(windowhandle, mem)
Left = mem.long(0)
Top = mem.Long(4)
Right = mem.Long(8)
Bottom = mem.Long(12)
# endif
```

End Sub

Good to use for the MDI Master Window!

21.0.141 How to get the source code of a HTMLViewer?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Try this code:
Example:

```
// for Windows:

msgbox HTMLViewer1.IEHTMLTextMBS

// for Mac OS X:

msgbox HTMLViewer1.mainFrameMBS.dataSource.data
```

21.0.142 How to handle really huge images with GraphicsMagick or ImageMagick?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Sometimes it may be better to use an extra application to process images.
Notes:

A typical 32 bit app made with Xojo (Real Studio) can use around 1.8 GB on Windows and 3 GB on Mac OS X. Some images may be huge, so that processing them causes several copies of the image to be in memory. With a 500 MB image in memory, doing a scale or rotation may require a temp image. So with source, temp and dest images with each 500 MB plus your normal app memory usage, you may hit the limit of Windows with 1.8 GB.

In that case it may be worth running a tool like gm in the shell class. gm is the command line version of GraphicsMagick. There you can run the 64 bit version which is not limited in memory like your own application. Also you can monitor progress and keep your app responsive.

21.0.143 How to handle tab key for editable cells in listbox?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Use code like this function:
Example:

```
Function HandleTabInList(list as listbox, row as Integer, column as Integer, key as String) As Boolean
// Handle tab character in Listbox.CellKeyDown event

Select case asc(key)
case 9
if Keyboard.AsyncShiftKey then
// back

// look for column left
for i as Integer = column-1 downto 0
if list.ColumnType(i) >= list.TypeEditable then
list.EditCell(row, i)
Return true
end if
next

// not found, so look in row before
row = row - 1
if row >= 0 then
for i as Integer = list.ColumnCount-1 downto 0
if list.ColumnType(i) >= list.TypeEditable then
list.EditCell(row, i)
Return true
end if
next
end if
else
// forward

// look for column right
for i as Integer = column+1 to list.ColumnCount-1
if list.ColumnType(i) >= list.TypeEditable then
list.EditCell(row, i)
Return true
end if
next

// not found, so look in row below
row = row + 1
if row <list.ListCount then
for i as Integer = 0 to list.ColumnCount-1
if list.ColumnType(i) >= list.TypeEditable then
list.EditCell(row, i)
Return true
end if
next
end if
end if
```

```
end Select
End Function
```

Notes:

You call it from CellKeyDown event like this:

```
EventHandler Function CellKeyDown(row as Integer, column as Integer, key as String) As Boolean
if HandleTabInList(me, row, column, key) then Return true
End EventHandler
```

As you see in the code, we handle tab and shift + tab for moving back and forward. Also we wrap to previous/next row if needed. Feel free to extend this to wrap from last to first row or create a new row for editing.

21.0.144 How to hard link MapKit framework?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Our MapKit classes weak link the framework. If you need hard linking it for the App Store, you can add this method to a class:
Example:

```
Sub ReferenceMapKit()
// just put this in window or app class

# if TargetMachO and Target64Bit then
Declare sub testing Lib "MapKit" Selector "test" (id as ptr)
testing(nil)
# endif

End Sub
```

Notes:

No need to call the method.
Just having it in a window or app, will cause the compiler to hard link the framework.

21.0.145 How to have a PDF downloaded to the user in a web application?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can use a WebHTMLViewer control and load the PDF file with the PDF plugin from the browser.
Example:

```
dim CurrentFile as WebFile // a property of the WebPage

// define the PDF file
CurrentFile = new WebFile
CurrentFile.Filename = "test.pdf"
CurrentFile.MIMEType = "application/pdf"
CurrentFile.Data = "some pdf data" // MyDynaPDF.GetBuffer
CurrentFile.ForceDownload = true

// start the download
showurl(CurrentFile.url)
```

Notes: See our Create PDF example for the Real Studio Web Edition.

21.0.146 How to hide all applications except mine?

Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** The code below will on Mac OS hide all applications except your one:
Example:

```
dim p as new ProcessMBS

p.GetFirstProcess
do
if not p.FrontProcess then
p.Visible=false
end if
loop until not p.GetNextProcess
```

21.0.147 How to hide script errors in HTMLViewer on Windows?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** Set Internet Explorer to silent mode with code like this:
Example:

```
htmlviewer1._ole.Content.value("Silent") = True
```

Notes: Simply put this code in the open event of your htmlviewer control (using me instead of htmlviewer1).

21.0.148 How to hide the grid/background/border in ChartDirector?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** If you want to hide something in a chart, simply assign the kTransparent constant as color.

21.0.149 How to hide the mouse cursor on Mac?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Try this declare:
Example:

```
Declare Sub HideCursor Lib "Carbon" () Inline68K("A852")

HideCursor
```

Notes: The MBS Plugin has this function and supports it on Windows, too.

21.0.150 How to insert image to NSTextView or TextArea?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** With NSTextViewMBS you can use this code to insert file:
Example:

```
// insert a file to textview

Public Sub InsertFile(textview as NSTextViewMBS, f as FolderItem)
// read to file
dim b as BinaryStream = BinaryStream.Open(f)
dim s as string = b.Read(b.Length)

// build wrapper
dim fileWrapper as NSFileWrapperMBS = NSFileWrapperMBS.initRegularFileWithContents(s)
fileWrapper.preferredFilename = f.name

// make attachment
dim fileAttachment as new NSTextAttachmentMBS(fileWrapper)
dim attributedString as NSAttributedStringMBS = NSAttributedStringMBS.attributedStringWithAttachment(fileAttachment)

// add to a NSTextViewMBS
textview.insertText attributedString

End Sub
```

Notes: For TextArea you can query the underlaying NSTextViewMBS object via TextArea.NSTextViewMBS method.

21.0.151 How to jump to an anchor in a htmlviewer?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Answer:** You can use javascript to change the current window's location.
Example:

```
// load website
htmlviewer1.LoadURL "http://www.monkeybreadsoftware.net/addressbook-abpersonmbs.shtml"

// later jump to anchor named "16":

if TargetWin32 then
call HTMLViewer1.IERunJavaScriptMBS "window.location = ""# 16"""
elseif TargetMacOS then
call HTMLViewer1.EvaluateJavaScriptMBS "window.location = ""# 16"""
else
// not supported
end if
```

21.0.152 How to keep a movieplayer unclickable?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** To keep the user away from clicking on a playing Movie you can just drop a Canvas in front of the Movieplayer and take the clicks there.
Example:

```
Function Canvas1.MouseDown(X as Integer, Y as Integer) as boolean
return true // take it and do nothing
End Function
```

21.0.153 How to keep my web app from using 100% CPU time?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** On Linux and Mac OS X you can use renice command in the terminal. On Windows use the task manager to reduce priority.
Notes:

If you launch your app with nohup on Linux or Mac OS X like this from the terminal or a script:

nohup /webapps/MyApp/MyApp &

you can simply have a second line saying this:

renice 20 $!

which tells the system to lower priority to lowest value for the latest background process.

21.0.154 How to kill a process by name?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can kill a process (or application) by name if you loop over all the processes and kill the one you need.
Example:

```
dim p as new ProcessMBS
p.GetfirstProcess ' get first
do
if p.name = "TextEdit" then
call p.KillProcess
Return
end if
loop until not p.GetNextProcess
```

Notes: You may want to check the result of killProcess function. Not every user is allowed to kill every application.

21.0.155 How to know how many CPUs are present?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Try this function:
Example:

```
Function GetCPUCount() as Integer
Declare Function MPProcessors Lib "Carbon" () as Integer

Return MPProcessors()
End Function
```

Notes: Your app will than need that library to launch on Classic. To avoid this the MBS plugin checks if this library is available and return 1 if it's not available.

21.0.156 How to know if a movie is finished?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Answer:** This code can help you althrough it's not perfect:
Example:

```
Declare Function IsMovieDone Lib "QuickTime" (theMovie as Integer) as Integer

if IsMovieDone(moviePlayer1.movie.handle) <>0 then
//movie is finished
end if
```

Notes: But be carefull! It crashes sometimes for an unknown reason!?

21.0.157 How to know if QuickTime is installed on any target and can play MPEG 4 movies?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Answer:** Try this code:
Example:

```
dim q as QTComponentInformationMBS

q=new QTComponentInformationMBS

// "eat " = Movie importers
while q.NextComponentOfType("eat ")
if q.SubType="MP4 " then
MsgBox "found: "+q.Name+ " codec"
end if
wend
```

Notes: If you find a MP4 movie importing codec you can be sure that a MP4 movie can be opened.

21.0.158 How to know if QuickTime is installed on any target?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Answer:** Try this function:
Example:

```
Dim theEffect as QTEffect

theEffect=GetQTCrossFadeEffect

if theEffect = nil then
msgBox "QuickTime is not installed."
else
msgBox "Quicktime is installed."
end if
```

Notes: The problem with this code is that it checks only if the QuickTime part of the cross fade effect is available. Use the QTComponentInformationMBS to check for the features you really need.

21.0.159 How to know the calling function?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** On Mac you can use a helper function like this this code:
Example:

```
Public Function CallingFunction() as string
// Query name of calling function of a function

# Pragma BreakOnExceptions false

try

// raise a dummy exception
dim r as new NilObjectException
raise r

catch x as NilObjectException

// get stack
dim stack() as string = x.Stack

// pick function name and return
dim name as string = stack(2)
Return name

end try
```

```
End Function
```

Notes: You need to include function names in your application.

21.0.160 How to launch an app using it's creator code?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Send an AppleEvent "oapp" with the creator code to the Finder ("MACS"):
Example:

```
Dim a as AppleEvent
dim creator as string

creator = "MSIE" ' here the Internet Explorer

a = NewAppleEvent("aevt", "odoc", "MACS")
a.Timeout = -1

a.ObjectSpecifierParam("—-") = GetUniqueIDObjectDescriptor("appf", nil, creator)

if not a.send then
msgBox "An error has occured"
else

end if
```

21.0.161 How to launch disc utility?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can use this code:
Example:

```
dim f as FolderItem = LaunchServicesFindApplicationForInfoMBS("","com.apple.DiskUtility","")

if f<>Nil then
f.Launch
end if
```

Notes: This works even if people renamed the disc utility or moved it to another folder.

21.0.162 How to make a lot of changes to a REAL SQL Database faster?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You may try to embed your changes to the database between two transaction calls.
Example:

```
dim db as Database // some database

db.SQLExecute "BEGIN TRANSACTION"
// Do some Stuff
db.SQLExecute "END TRANSACTION"
```

Notes: This can increase speed by some factors.

21.0.163 How to make a NSImage object for my retina enabled app?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can use code like this:
Example:

```
Function NewRetinaImage(pic as Picture, mask as Picture = nil) As NSImageMBS
// first make a NSImageMBS from it
dim n as new NSImageMBS(pic, mask)

// now set to half the size, so we have 2x pixels for the image
n.size = new NSSizeMBS(n.width/2, n.height/2)

// and return
Return n
End Function
```

Notes:

The thing to do is to have 2x the pixels, but assign a size to the image which gives it the right size in points. You can pass the NSImageMBS from here to NSMenuItemMBS. For Retina displays, the full resolution is used. For others it will be reduced.

21.0.164 How to make a window borderless on Windows?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** Try this declares:
Example:

```
// Sets window to borderless popup type, and sets its initial dimensions.
// Call this method, then Win32SetBorderlessPos, and then RB's Show
// method. Use RB Frame type 7 (Global Floating Window).

Const SWP_NOMOVE = & H2
Const SWP_FRAMECHANGED = & H20
Const HWND_TOPMOST = -1
Const GWL_STYLE = -16
Const WS_POPUPWINDOW = & H80880000

Dim styleFlags as Integer

# If TargetWin32 Then

Declare Function SetWindowLong Lib "user32" Alias "SetWindowLongA" (hwnd as Integer, nIndex as
Integer, dwNewLong as Integer) as Integer
Declare Function SetWindowPos Lib "user32" (hwnd as Integer, hWndInstertAfter as Integer, x as Integer,
y as Integer, cx as Integer, cy as Integer, flags as Integer) as Integer

styleFlags = SetWindowLong( w.WinHWND, GWL_STYLE, WS_POPUPWINDOW )
styleFlags = BitwiseOr( SWP_FRAMECHANGED, SWP_NOMOVE )
styleFlags = SetWindowPos( w.WinHWND, HWND_TOPMOST, 0, 0, wd, ht, styleFlags )

# EndIf
```

21.0.165 How to make an alias using AppleEvents?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Try this code:
Example:

```
Sub MakeAlias(folder as folderitem, target as folderitem, aliasname as string)
dim ev as AppleEvent
dim myResult as boolean
dim properties as AppleEventRecord

ev = NewAppleEvent("core","crel","MACS")
ev.MacTypeParam("kocl") = "alis"
ev.FolderItemParam("to ") = target
ev.FolderItemParam("insh") = folder

properties=new AppleEventRecord
properties.StringParam("pnam")=aliasname

ev.RecordParam("prdt")=properties
```

```
myResult = ev.send
// true on success, false on error
End Sub
```

Notes:

Call it like this:
MakeAlias SpecialFolder.Desktop, SpecialFolder.Desktop.Child("Gif Copy.rb"), "test.rb alias"

Seems to not work on Mac OS X 10.6

21.0.166 How to make an application smaller?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:**

If you use an older copy of REALbasic, you should try to compile for 68k only instead of PPC. It's a little bit slower, but code is much smaller.

On any Mac OS target you can save your images as JPEG and drop the into your application. REALbasic will include them as JPEGs into the Mac applications (convert to BMP for Windows). This will make the resources of your application smaller, but requires that the user has QuickTime 2.5 or newer installed.

21.0.167 How to make AppleScripts much faster?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** use "ignoring application responses" like in this example:
Notes:

```
on run { fn,fpx,fpy }
ignoring application responses
tell app "Finder" to set the position of folder fn to fpx,fpy
end ignoring
end run
```

21.0.168 How to make double clicks on a canvas?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:**

Update: Newer Xojo versions support DoubleClick event, so you don't need this code.

Here's my tip from the tips list on how to add a double-click event to the Canvas control. The technique could easily be used for a window or any Rectcontrol:

Because of its built-in drawing methods, the Canvas control is often used to create custom interface controls. But while the Canvas control has event handlers for most mouse events, it doesn't have an event handler for DoubleClick events. Fortunately, you can add a double-click event handler to a Canvas control easily. Basically, you're going to create a new class based on Canvas and add a double-click event to that. You can then use the new class anytime you need a Canvas with a double-click event.

To create a new Canvas class with a DoubleClick event handler, do this:

1. Add a new class to your project.
2. Set the Super property of the new class to "Canvas".
3. Change the name of this new class to "DoubleClickCanvas".

A double-click occurs when two clicks occur within the users double-click time (set in the Mouse control panel on both Macintosh and Windows) and within five pixels of each other. So, you'll need a few properties to store when and where the last click occurred.

4. Add a new property with the following declaration and mark it as private: lastClickTicks as Integer
5. Add a new property with the following declaration and mark it as private: lastClickX as Integer
6. Add a new property with the following declaration and mark it as private: lastClickY as Integer

Since the Canvas control doesn't have a DoubleClick event, you will need to add one.

7. Add a new event to your class by choosing New Event from the Edit menu and enter "DoubleClick" as the event name.

Double-clicks occur on MouseUp. In order for the mouseUp event to fire, you must return True in the MouseDown event.

8. In the MouseDown event, add the following code:
Return True

In the MouseUp event, you will need to determine what the users double-click time is. This value is represented on both the Mac and Windows in ticks. A tick is 1/60th of a second. Since there isn't a built-in function for this, you'll need to make a toolbox call. The mouseUp event code below makes the appropriate toolbox call for both Macintosh and Windows. It then compares the time of the users last click to the time of the current click and compares the location of the users last click to the location of the current click.

9. Add the following code to the MouseUp event:

```
dim doubleClickTime, currentClickTicks as Integer

# if targetMacOS then
Declare Function GetDblTime Lib "Carbon" () as Integer
doubleClickTime = GetDblTime()
# endif

# if targetWin32 then
Declare Function GetDoubleClickTime Lib "User32.DLL" () as Integer
doubleClickTime = GetDoubleClickTime()/60 // convert to ticks from milliseconds
# endif

currentClickTicks = ticks
//if the two clicks happened close enough together in time
if (currentClickTicks - lastClickTicks) <= doubleClickTime then
//if the two clicks occured close enough together in space
if abs(X - lastClickX) <= 5 and abs(Y - LastClickY) <= 5 then
DoubleClick //a double click has occured so call the event
end if
end if
lastClickTicks = currentClickTicks
lastClickX = X
lastClickY = Y
```

10. Now to test out your new DoubleClickCanvas, drag the class from the Project window to a window in your project to create an instance of it.

11. Double-click on the canvas you just added to your window to open the Code Editor. Notice that the canvas has a DoubleClick event handler. In this event handler, add the following code:

```
BEEP
```

21.0.169 How to make my Mac not sleeping?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Just inform the Mac OS about some system activity with code like this:
Example:

```
Sub UpdateSystemActivity()

# if TargetCarbon
declare function myUpdateSystemActivity lib "Carbon" alias "UpdateSystemActivity" (activity as Integer)
as short
```

```
const OverallAct = 0 // Delays idle sleep by small amount */
const UsrActivity = 1 // Delays idle sleep and dimming by timeout time */
const NetActivity = 2 // Delays idle sleep and power cycling by small amount */
const HDActivity = 3 // Delays hard drive spindown and idle sleep by small amount */
const IdleActivity = 4 // Delays idle sleep by timeout time */

dim e as Integer

e=myUpdateSystemActivity(UsrActivity)

// you may react on an error if e is not 0 after the call.

# endif
End Sub
```

Notes:

You may use another constant if you prefer some different behavior.
Call it maybe every second.

21.0.170 How to make my own registration code scheme?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** There are excellent articles about how to make a registratin code scheme, but you can also simply use our RegistrationEngineMBS class.
Notes: If you need a license text, why not use the one from Real Studio as a starting point?

21.0.171 How to make small controls on Mac OS X?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can try this code on Mac OS X:
Example:

```
'/*
'* Use the control's default drawing variant. This does not apply to
'* Scroll Bars, for which Normal is Large.
'*/
const kControlSizeNormal = 0

'/*
'* Use the control's small drawing variant. Currently supported by
'* the Check Box, Combo Box, Radio Button, Scroll Bar, Slider and Tab
'* controls.
```

```
'*/
const kControlSizeSmall = 1

'/*
'* Use the control's small drawing variant. Currently supported by
'* the Indeterminate Progress Bar, Progress Bar and Round Button
'* controls.
'*/
const kControlSizeLarge = 2

'/*
'* Control drawing variant determined by the control's bounds. This
'* ControlSize is only available with Scroll Bars to support their
'* legacy behavior of drawing differently within different bounds.
'*/
const kControlSizeAuto = & hFFFF

const kControlSizeTag = "size"

declare function SetControlData lib "Carbon" (controlhandle as Integer, part as short, tagname as OSType, size as Integer, data as ptr) as short

dim m as MemoryBlock

m=NewMemoryBlock(2)
m.UShort(0)=kControlSizeSmall

Title=str(SetControlData(CheckBox1.Handle, 0, kControlSizeTag, 2, m))
```

21.0.172 How to mark my Mac app as background only?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can run a build script on each build with this code:
Example:

```
Dim App As String = CurrentBuildLocation + "/" + CurrentBuildAppName + ".app"
Call DoShellCommand("/usr/bin/defaults write " + App + "/Contents/Info ""NSUIElement"" YES")
```

Notes: This will set the NSUIElement flag to YES.

21.0.173 How to move a file or folder to trash?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Use code like below:
Example:

```
Function MoveToTrash(f as FolderItem) As Boolean
# if TargetMacOS then
dim r as FolderItem
dim e as Integer = MacFileOperationMBS.MoveObjectToTrashSync(f, r, MacFileOperationMBS.kFSFileOperationDefaultOptions)

if e = 0 then
Return true // Ok
end if

# elseif TargetWin32 then
dim w as new WindowsFileCopyMBS

dim flags as Integer = w.FileOperationAllowUndo + w.FileOperationNoErrorUI + w.FileOperationSilent + w.FileOperationNoConfirmation
if w.FileOperationDelete(f, flags) then
Return true // OK
end if

flags = w.FileOperationNoErrorUI + w.FileOperationSilent + w.FileOperationNoConfirmation
if w.FileOperationDelete(f, flags) then
Return true // OK
end if
# else
// Target not supported
break
Return false
# endif
End Function
```

Notes:

If you want to move a file to trash, you could use f.movefileto f.trashfolder, but that will overwrite existing files in the trash. You can use our MacFileOperationMBS class to move a file on Mac to the trash. And it uses the same code as the Finder, so files are renamed when the same name is already in use in the trash:

On Windows we use WindowsFileCopyMBS class.
Requires Mac OS X 10.5.

21.0.174 How to move an application to the front using the creator code?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** This makes SimpleText (Code ttxt) to the frontmost application:
Example:

```
dim a as appleevent

a=newappleEvent("misc","actv","ttxt")

if a.send then
end if
```

Notes: (Code is Mac only)

21.0.175 How to move file with ftp and curl plugin?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can set post/pre quotes to have ftp commands executed before or after the download/upload.
Example:

```
dim d as CURLMBS // your curl object

// rename/move file
dim ws() As String
ws.Append "RNFR Temp.txt"
ws.append "RNTO MyFile.txt"

d.SetOptionPostQuote(ws)
```

Notes:

Use SetOptionPostQuote, SetOptionPreQuote or SetOptionQuote.
The ftp commands you pass here are native ftp commands and not the commands you use with ftp applications. So rename is two commands. First RNFR to tell where to rename from and second RNTO with the new file name. To delete use DELE and the file path.

21.0.176 How to normalize string on Mac?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Use code like below:
Example:

```
Function Normalize(t as string) As string
const kCFStringNormalizationFormD = 0 // Canonical Decomposition
const kCFStringNormalizationFormKD = 1 // Compatibility Decomposition
const kCFStringNormalizationFormC = 2 // Canonical Decomposition followed by Canonical Composition
const kCFStringNormalizationFormKC = 3 // Compatibility Decomposition followed by Canonical Composition

dim s as CFStringMBS = NewCFStringMBS(t)
dim m as CFMutableStringMBS = s.Normalize(kCFStringNormalizationFormD)

Return m.str
End Function
```

Notes: This uses Apple's CFString functions to normalize unicode variants.

21.0.177 How to obscure the mouse cursor on Mac?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Try this declare:
Example:

```
Declare Sub ObscureCursor Lib "Carbon" ()

ObscureCursor
```

Notes: The MBS Plugin has this function, but it's not supported for Windows.

21.0.178 How to open icon file on Mac?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Use the NSImageMBS class like this:
Example:

```
dim f as FolderItem = SpecialFolder.Desktop.Child("test.ico")
dim n as new NSImageMBS(f)

window1.Backdrop = n.CopyPictureWithMask
```

21.0.179 How to open PDF in acrobat reader?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Try this code:
Example:

```
dim pdf as FolderItem = SpecialFolder.Desktop.Child("test.pdf")

// open PDF in Acrobat Reader on Mac:

// find app
dim bundleID as string = "com.adobe.Reader"
dim app as FolderItem = LaunchServicesFindApplicationForInfoMBS("", bundleID, "")

if app<>nil then

// launch app with parameters

dim docs() as FolderItem
docs.Append pdf

dim param as new LaunchServicesLaunchParameterMBS
param.Defaults = true
param.Application = app

dim x as FolderItem = LaunchServicesOpenXMBS(docs, param)

// on failure, simply launch it
if x = nil then
pdf.Launch(true)
end if

else
pdf.Launch(true)
end if
```

Notes: On Windows, simply use pdf.launch or WindowsShellExecuteMBS.

21.0.180 How to open printer preferences on Mac?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can use our OpenMacOSXPreferencesPaneMBS function like this:
Example:

```
dim e as Integer = OpenMacOSXPreferencesPaneMBS("PrintAndFax")
if 0 = e then
```

```
MsgBox "OK"
elseif e = -43 then
MsgBox "File not found."
else
MsgBox "Error: "+str(e)
end if
```

21.0.181 How to open special characters panel on Mac?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** We have functions for that in Cocoa and Carbon.
Example:

```
dim a as new NSApplicationMBS
a.orderFrontCharacterPalette
```

Notes:

For Cocoa, you can use orderFrontCharacterPalette method in NSApplicationMBS class.

Or simply for Carbon and Cocoa the ShowCharacterPaletteMBS method.

21.0.182 How to optimize picture loading in Web Edition?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Use the WebPicture class.
Notes:

Take your picture and create a WebPicture object. Store this WebPicture in a property of the WebPage, Session or app (as global as possible). On the first time you use this picture on an user session, the browser will load it. Second time you use it, the browser will most likely pick it from the cache.
Having pictures in App or some module reuses the same picture for all sessions which reduces memory footprint.
This does not work well with pictures you change very often or use only for one webpage on one user.

If you like to see an example, check our Map example:
http://www.monkeybreadsoftware.de/realbasic/webapps.shtml

21.0.183 How to parse XML?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can use code like this:
Example:

```
dim s as string = "<test><test /></test>"

try
dim x as new XmlDocument(s)
MsgBox "OK"
catch xe as XmlException
MsgBox "invalid XML"
end try
```

Notes: If you got an exception, you have a parse error.

21.0.184 How to play audio in a web app?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can use the HTML5 audio tag and control it with javscript.
Notes:

See our web apps here:
http://www.monkeybreadsoftware.de/realbasic/webapps.shtml

This is just another example app I made today. It plays a christmas song. The audio file is provided by the application to the server, so no external web server is needed and this application can run stand alone. To compile and run you need Real Studio 2010r5.

In the open event we search the audio files and open them as binarystreams. We create the two webfile objects. Those webfiles are part of the app class, so we have them globally. There we set the data with the content of our streams. We also define file names and mime types. They are needed so browser know what we have here:

```
audioFileM4V = new WebFile
audioFileM4V.Data = bM.Read(BM.Length)
audioFileM4V.Filename = "music.m4a"
audioFileM4V.MIMEType = "audio/m4a"

audioFileOGG = new WebFile
audioFileOGG.Data = bO.Read(BO.Length)
```

audioFileOGG.Filename = "music.ogg"
audioFileOGG.MIMEType = "audio/ogg"

Next in the open event of the webpage we have a PageSource control. The location is set to be before content. In the open event we define the html code for this. First we pick the URLs for the audio files. Than we build the html to use the audio tag. As you see, we give it an ID for later use and have it preload automatically. If you add an autoplay tag, you can have the audio play right away. Inside the audio tag we have two sources so we provide audio for both Firefox (OGG) and Safari (MPEG4). Finally we have a text to display if HTML5 audio tag is not supported.

You can set the source in the EditSource event:

dim urlo as string = app.audioFileOGG.URL
dim urlm as string = app.audioFileM4V.URL
me.Source = "<audio id=""mymusic"" preload=""auto""><source src=""""+urlo+""""" type=""audio/ogg"" /><source src=""""+urlm+""""" type=""audio/mpeg"" />Your browser does not support the audio element.</audio>"

Next in the Play button we execute code to play the audio. This is a short javascript code which searches in the html document for the element with the ID "mymusic" which is the ID of our audio tag above. Once we got the object, we call it's play method to start playback.

me.ExecuteJavaScript("document.getElementById('mymusic').play();")

same for pause:

me.ExecuteJavaScript("document.getElementById('mymusic').pause();")

and finally for changing volume:

me.ExecuteJavaScript("document.getElementById('mymusic').volume="+str(me.Value/100.0)+";")

21.0.185 How to pretty print xml?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Use the XML Transform method with the right XLS.
Notes:

Learn more here:
http://docs.xojo.com/index.php/XMLDocument.Transform

21.0.186 How to print to PDF?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** This code below shows how to redirect printing to a PDF file on Mac OS X.
Example:

```
// get Xojo printer setup
dim p as new PrinterSetup

// now put it into NSPrintInfo to manipulate
dim n as new NSPrintInfoMBS
n.SetupString = p.SetupString

// change destination to file
dim f as FolderItem = SpecialFolder.Desktop.Child("test.pdf")
n.SetSaveDestination(f)

// move back
p.SetupString = n.SetupString

// and print as usual
dim g as Graphics = OpenPrinter(p)
g.DrawString "Hello World", 20, 20
```

Notes: And you can use normal graphics class for that.

21.0.187 How to query Spotlight's Last Open Date for a file?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can use a MDItemMBS objec to query this value:
Example:

```
Function LastOpenedDate(Extends F As FolderItem, DefaultOtherDates As Boolean = True) As Date
# If TargetMacOS Then
Dim xMDItem as New MDItemMBS(F)
Dim xDate as Variant

If xMDItem <>Nil Then
xDate = xMDItem.GetAttribute(xMDItem.kMDItemLastUsedDate).DateValue
If xDate IsA Date Then Return xDate
Else
If xDate <>Nil Then Break
End If
# EndIf
```

```
If DefaultOtherDates Then
If F.ModificationDate <>Nil Then Return F.ModificationDate
If F.CreationDate <>Nil Then Return F.CreationDate
End If
End Function
```

Notes: Thanks for Josh Hoggan for this example code.

21.0.188 How to quit windows?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** Try this code:
Example:

```
# if targetwin32 then
dim i1,i2,r as Integer
declare function ExitWindowsEx lib "user32" (uFlags as Integer, dwReserved as Integer) as Integer
i1 = 2
i2 = 0
r = ExitWindowsEx(i1,i2)
if r<>0 then
' Error()
end if

# endif
```

Notes:

uFlags parameters:

'4 = EWX_Force
'0 = EWX_Logoff
'2 = EWX_Reboot
'1 = EWX_shutdown, should shut down computer

Also check the ExitWindowsMBS method.

21.0.189 How to read a CSV file correctly?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** With all the rules for quotes and delimiters, you can simply use the SplitCommaSeparatedValuesMBS method in our plugins like

this:
Example:

```
dim f as FolderItem = SpecialFolder.Desktop.Child("test.csv")
dim t as TextInputStream = f.OpenAsTextFile

while not t.EOF
dim s as string = t.ReadLine(encodings.ASCII)

dim items() as string = SplitCommaSeparatedValuesMBS(s, ";", """")

List.AddRow ""
dim u as Integer = UBound(items)
for i as Integer = 0 to u
List.Cell(List.LastIndex,i) = items(i)
next

wend
```

Notes: Please make sure you choose the right text encoding.

21.0.190 How to read the command line on windows?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** Try this code:
Example:

```
# if targetwin32 then
dim line as string
Dim mem as MemoryBlock

Declare Function GetCommandLineA Lib "kernel32" () As Ptr

mem=GetCommandLineA()
s=mem.cstring(0)

# endif
```

Notes: Newer Realbasic versions have a system.commandline property.

21.0.191 How to render PDF pages with PDF Kit?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** Try this code:
Example:

```
// choose a file
dim f as FolderItem = SpecialFolder.Desktop.Child("test.pdf")

// open it as PDF Document
dim sourceFile as New PDFDocumentMBS(f)

if sourceFile.handle <>0 then // it is a PDF file

// get upper bound of pages
dim c as Integer = sourceFile.pageCount-1

// from first to last page
for n as Integer = 0 to c

// pick that page
dim page as PDFPageMBS = sourceFile.pageAtIndex(n)

// render to image
dim p as NSImageMBS = page.Render

// and convert to RB picture and display
Backdrop = p.CopyPictureWithMask

next

end if
```

Notes: PDFKit works only on Mac OS X.

21.0.192 How to restart a Mac?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Ask the Finder via Apple Events:
Example:

```
dim ae as appleevent
ae=newappleEvent("FNDR","rest","MACS")
if not ae.send then
msgBox "The computer couldn't be restarted."
end if
```

21.0.193 How to resume ftp upload with curl plugin?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** CURL supports that and you simply need to set the right options.
Notes:

First of course OptionUpload must be true. Second OptionFTPAppend must be true so the OptionResumeFrom is used. Store there (or in OptionResumeFromLarge) your start value.
Don't forget to implement the read event and return data there as requested.

21.0.194 How to rotate a PDF page with CoreGraphics?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** This code opens a PDF and draws the first page into a new PDF with 90 rotation.
Example:

```
// Rotate a PDF page

// our files
dim sourcefile as FolderItem = SpecialFolder.Desktop.Child("test.pdf")
dim destfile as FolderItem = SpecialFolder.Desktop.Child("rotated.pdf")

// open PDF
dim pdf as CGPDFDocumentMBS = sourcefile.OpenAsCGPDFDocumentMBS

// query media size of first page
dim r as CGRectMBS = pdf.MediaBox(1)

// create new PDF
dim c as CGContextMBS = destfile.NewCGPDFDocumentMBS(r,"title","Author","Creator")

// create rotated rectangle
dim nr as new CGRectMBS(0,0,r.Height,r.Width)

// create new page
c.BeginPage nr
c.SaveGState

const pi = 3.14159265

// rotate by 90
c.RotateCTM pi*1.5
```

```
// fix origin
c.TranslateCTM -r.width,0

// draw PDF
c.DrawCGPDFDocument pdf,r,1

// cleanup
c.RestoreGState
c.EndPage

c = nil

// show in PDF viewer
destfile.Launch
```

Notes: This code is Mac only as it needs CoreGraphics.

21.0.195 How to rotate image with CoreImage?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Use the code like the one below:
Example:

```
// Rotate image with CoreImage

// load image
dim f as FolderItem = SpecialFolder.Desktop.Child("test.png")
dim image as new CIImageMBS(f)

// rotate 45 degree
dim n as new NSAffineTransformMBS
n.rotateByDegrees(45)

dim TransformFilter as new CIFilterAffineTransformMBS
TransformFilter.inputImage = image
TransformFilter.inputTransform = n

// get result
dim resultImage as CIImageMBS = TransformFilter.outputImage

// for saving to file
dim outputImage as NSImageMBS = resultImage.RenderNSImage(false)

f = SpecialFolder.Desktop.Child("output.png")
dim b as BinaryStream = BinaryStream.Create(f, true)
```

```
b.Write outputImage.PNGRepresentation

// as Real Studio picture object for display
dim pic as Picture = outputImage.CopyPictureWithMask

Backdrop = pic
```

21.0.196 How to run a 32 bit application on a 64 bit Linux?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Install 32 bit compatibility libraries.
Notes:

The package is called ia32-libs for ubuntu (and others).
Some applications need to be run on a 32 bit system as they need some hardware related libraries. Like libUSB or libHID for USB devices.

21.0.197 How to save a quicktime movie as a reference movie?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Answer:** Example code is below:
Example:

```
// save as reference movie
dim f as FolderItem
dim m as movie

f=SpecialFolder.Desktop.Child("test.mov")
m=f.OpenAsMovie

f=SpecialFolder.Desktop.Child("new movie.mov")

msgbox str(m.SaveMBS(f,false,false))
```

21.0.198 How to save HTMLViewer to PDF with landscape orientation?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can use NSPrintInfoMBS to change the options for PrintToPDFFile function.
Example:

```
// make it landscape
dim n as NSPrintInfoMBS = NSPrintInfoMBS.sharedPrintInfo
```

```
n.orientation = n.NSLandscapeOrientation

// save html to file
dim f as FolderItem = SpecialFolder.Desktop.Child("test.pdf")
call HTMLViewer1.PrintToPDFFileMBS(f,10,30,10,30)
```

Notes:

You may want to reset options later.
This code is only for Mac OS X.

21.0.199 How to save RTFD?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** With NSTextViewMBS you can use this code to save to RTFD:
Example:

```
// save text as RTFD including image attachments
dim f as FolderItem = GetSaveFolderItem(FileTypes1.ApplicationRtfd, "test.rtfd")

if f = nil then Return

dim a as NSAttributedStringMBS = textView.textStorage
dim w as NSFileWrapperMBS = a.RTFDFileWrapperFromRange(0, a.length, DocumentAttributes)

dim e as NSErrorMBS
if w.writeToFile(f, e) then

else
MsgBox e.LocalizedDescription
end if
```

Notes: For TextArea you can query the underlaying NSTextViewMBS object via TextArea.NSTextViewMBS method.

21.0.200 How to scale a picture proportionally with mask?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** For a proportional scaling, we calculate the new picture size relative to the target maximum size.
Example:

```
Function ProportinalScaledWithMask(extends pic as Picture, Width as Integer, Height as Integer) As Pic-
ture
// Calculate scale factor

dim faktor as Double = min( Height / Pic.Height, Width / Pic.Width)

// Calculate new size
dim w as Integer = Pic.Width * faktor
dim h as Integer = Pic.Height * faktor

// create new picture
dim NewPic as new Picture(w,h,32)

// check if we have a mask and clear it
dim m as picture = pic.mask(False)
pic.mask = nil

// draw picture in the new size
NewPic.Graphics.DrawPicture Pic, 0, 0, w, h, 0, 0, Pic.Width, Pic.Height

if m <>nil then
// restore mask and scale it
pic.mask = m
NewPic.mask.Graphics.DrawPicture m, 0, 0, w, h, 0, 0, Pic.Width, Pic.Height
end if


// return result
Return NewPic
End Function
```

Notes: This version handles mask. As you see we actually have to remove mask in order to copy the picture part correctly.

21.0.201 How to scale a picture proportionally?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** For a proportional scaling, we calculate the new picture size relative to the target maximum size.
Example:

```
Function ProportionalScaled(extends pic as Picture, Width as Integer, Height as Integer) As Picture
// Calculate scale factor

dim faktor as Double = min( Height / Pic.Height, Width / Pic.Width)
```

```
// Calculate new size
dim w as Integer = Pic.Width * faktor
dim h as Integer = Pic.Height * faktor

// create new picture
dim NewPic as new Picture(w,h,32)

// draw picture in the new size
NewPic.Graphics.DrawPicture Pic, 0, 0, w, h, 0, 0, Pic.Width, Pic.Height

// return result
Return NewPic
End Function
```

Notes:

This does not handle mask, but you can scale the mask the same way and assign it to the new picture. (see other FAQ entry with mask)

21.0.202 How to scale/resize a picture?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** There are several ways to scale or resize a picture. The easiest way may be the ScaleMBS function in the Picture class.
Example:

```
dim Original,Scaled as Picture

Original=LogoMBS(500)
Scaled=Original.ScaleMBS(100,100,true)
```

Notes:

The plugin ways:
- The GWorld class which uses QuickTime. Includes nice Bicubic scaling with QuickTime 6.
- QTGraphicsImporterMBS and QTGraphicsExporterMBS can scale/resize.
- CoreImage scale filter may result in the fastest and best images on Mac OS X 10.4.
- NSImageMBS can scale, but is Mac OS X only.
- CGImageMBS can scale, but is Mac OS X only.
- CIImageMBS can scale, but is Mac OS X only.
- QuickTime Graphics exporter and importer can be connected to scale. (this was used more often a few years ago)
- ImageMagick can scale very nice and crossplatform. But the ImageMagick libraries are big.
- The picture.ScaleMBS function is self written and results in equal output on Mac, Windows and Linux without any additional libraries installed.

- Picture.ScalingMBS does crossplatform scaling with several modes.

with pure REALbasic:
- make a new picture and draw the old one with new size inside.

21.0.203 How to search with regex and use unicode codepoints?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can specify unicode characters in search string with backslash x and digits.
Example:

```
dim r as RegExMbs
dim s as string
dim c as Integer

s="123  ABC 456"

r=new RegExMBS
if r.Compile("..") then
c=r.Execute(s,0)
MsgBox str(c)+" "+str(r.Offset(0))+" "+str(r.Offset(1))
// shows: 1 4 10
// 1 for ubound of the offset array
// 4 for 4 bytes before the matched pattern
// 10 for the 10 bytes before the end of the matched pattern
end if

r=new RegExMBS
if r.Compile(".\xF6.") then // finds  using Unicode codepoint
c=r.Execute(s,0)
MsgBox str(c)+" "+str(r.Offset(0))+" "+str(r.Offset(1))
// shows: 1 4 10
// 1 for ubound of the offset array
// 4 for 4 bytes before the matched pattern
// 10 for the 10 bytes before the end of the matched pattern
end if
```

21.0.204 How to see if a file is invisible for Mac OS X?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Try this function:
Example:

```
Function Invisible(F As FolderItem) As Boolean
Dim TIS As TextInputStream
Dim S,All As String
Dim I as Integer
dim g as folderitem

If Left(F.Name,1)="." or not f.visible Then
Return True
End If

g=F.Parent.Child(".hidden")
If g.Exists Then
TIS=g.OpenAsTextFile
if tis<>Nil then
All=TIS.ReadAll
For I=1 to CountFields(All,Chr(11))
S=NthField(All, Chr(11), I)
If S=F.name Then
Return True
End If
Next
end if
End if
End Function
```

21.0.205 How to set cache size for SQLite or REALSQLDatabase?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You use the pragma cache_size command on the database.
Example:

```
// set cache size to 20000 pages which is about 20 MB for default page size
dim db as REALSQLDatabase
db.SQLExecute "PRAGMA cache_size = 20000"
```

Notes:

Default cache size is 2000 pages which is not much.
You get best performance if whole database fits in memory.
At least you should try to have a cache big enough so you can do queries in memory.
You only need to call this pragma command once after you opened the database.

21.0.206 How to set the modified dot in the window?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Try this declares:
Example:

```
window1.ModifiedMBS=true
```

21.0.207 How to show a PDF file to the user in a Web Application?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can use a WebHTMLViewer control and load the
Example:

```
dim CurrentFile as WebFile // a property of the WebPage

// define the PDF file
CurrentFile = new WebFile
CurrentFile.Filename = "test.pdf"
CurrentFile.MIMEType = "application/pdf"
CurrentFile.Data = "some pdf data" // MyDynaPDF.GetBuffer

// load into html viewer
HTMLViewer1.URL = CurrentFile.URL
```

Notes:

See our Create PDF example for the Real Studio Web Edition.
http://www.monkeybreadsoftware.de/realbasic/webapps.shtml

21.0.208 How to show Keyboard Viewer programmatically?

Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Use Realbasic or AppleScript to launch the KeyboardViewerServer.app.
Example:

```
dim a as new AppleScriptMBS
dim text as string
dim lines(-1) as string

lines.append "set theApplication to ""KeyboardViewerServer"""
lines.append "set thePath to ""/System/Library/Components/KeyboardViewer.component/Contents/Shared-Support/KeyboardViewerServer.app"""
lines.append ""
```

```
lines.append "set POSIXPath to ((POSIX file thePath) as string)"
lines.append "tell application ""System Events"" to set isRunning to 0 <(count (application processes whose name is theApplication))"
lines.append "if isRunning then tell application POSIXPath to quit"
lines.append "delay 0.15"
lines.append ""
lines.append "ignoring application responses"
lines.append " tell application POSIXPath to run"
lines.append "end ignoring"

text=join(lines,EndOfLine.macintosh)

a.Compile text
a.Execute
```

Notes:

AppleScript code:

```
set theApplication to "KeyboardViewerServer"
set thePath to "/System/Library/Components/KeyboardViewer.component/Contents/SharedSupport/KeyboardViewerServer.app"

set POSIXPath to ((POSIX file thePath) as string)
tell application "System Events" to set isRunning to 0 <(count (application processes whose name is theApplication))
if isRunning then tell application POSIXPath to quit
delay 0.15

ignoring application responses
tell application POSIXPath to run
end ignoring
```

21.0.209 How to show the mouse cursor on Mac?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Try this declare:
Example:

```
Declare Sub ShowCursor Lib "Carbon" ()

ShowCursor
```

Notes: The MBS Plugin has this function and supports it on Windows, too.

21.0.210 How to shutdown a Mac?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Ask the Finder via Apple Events:
Example:

```
dim ae as appleevent
ae=newappleEvent("FNDR","shut","MACS")
if not ae.send then
msgBox "The computer couldn't be shutdown."
end if
```

Notes:

Or toolbox call (Attention: This method will stop the computer immediataly: No document asked to be saved, all applications quitting without knowing).

```
Declare Sub ShutDwnPower Lib "Carbon" ()
ShutDwnPower
```

21.0.211 How to sleep a Mac?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Ask the Finder via Apple Events:
Example:

```
dim ae as appleevent
ae=newappleEvent("FNDR","slep","MACS")
if not ae.send then
msgBox "The computer doesn't want to sleep."
end if
```

21.0.212 How to speed up rasterizer for displaying PDFs with DynaPDF?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Here a few speed tips:
Notes:

- Use the DynaPDFRasterizerMBS function instead of our render functions.
- Reuse DynaPDFRasterizerMBS as long as the target picture size doesn't change.
- Import only the PDF pages you want to display.
- Let DynaPDF do zooming, rotating or other effects instead of you change it.

21.0.213 How to use PDFLib in my RB application?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** The PDFlib plugin was discontinued in favor of our DynaPDF plugin.
Notes: If you need help to move, please contact us.

21.0.214 How to use quotes in a string?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Just double them.
Example:

```
msgbox "This String contains ""quotes""."
```

21.0.215 How to use Sybase in Web App?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Please use our MBS Real Studio SQL Plugin to connect to a Sybase Database in your web application.
Notes:

If you see db.Connect giving the error message "cs_ctx_alloc ->CS_MEM_ERROR", than some things are not setup right for Sybase.
The Apache process may not have all the SYBASE environment variables being set when the CGI was launched.

Adding these lines to /etc/httpd/conf/httpd.conf stopped the faux memory errors for us:

```
SetEnv LD_LIBRARY_PATH /opt/sybase/OCS-15_0/lib:/opt/sybase/OCS-15_0/lib3p64:/opt/sybase/OCS-15_0/lib3p:
SetEnv SYBROOT /opt/sybase
SetEnv SYBASE_OCS /opt/sybase
```

SetEnv SYBASE /opt/sybase

21.0.216 How to use the Application Support folder?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:**

I was saving a registration code for an app to the Preferencefolder.
People on the list have suggested that it would be better in
the ApplicationSupportFolder. How do I save the file called CWWPrefs
into that folder using MBS?

I have checked for examples and the docs but can't see how to apply it

```
//f = SpecialFolder.Preferences.child("CWWPrefs")
f = ApplicationSupportFolderMBS(-32768)
```

Example:

```
dim folder,file as FolderItem

folder = createApplicationSupportFolderMBS(-32763)

if folder=nil then
// Some very old Mac OS Versions may not support it
// or the plugin may fail for any reason
folder=SpecialFolder.Preferences
end if

file=folder.Child("CWWPrefs")

MsgBox file.UnixpathMBS
```

Notes: You may not be able to write there with a normal user account!

21.0.217 How to use the IOPMCopyScheduledPowerEvents function in Realbasic?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You can use the following code which does this using the SoftDeclareMBS class.

Example:

```
Sub Open()
dim c as CFDateMBS
```

```
dim t as CFAbsoluteTimeMBS

// get current date
c=NewCFDateMBS

// in absolute time (seconds since x)
t=c.AbsoluteTime

// add 600 seconds (= 10 Minutes)
t.Value=t.Value+600

// Make a Date from it
c=t.Date

// Schedule the event
// 0 on success
// E00002C1 for missing root rights
Title=hex(schedulePowerEvent(c, "wake"))

// Just for information, display the scheduled stuff
CFShowMBS CopyScheduledPowerEvents
End Sub

Function CopyScheduledPowerEvents() As cfarrayMBS
dim s as SoftDeclareMBS
dim m as MemoryBlock

s=new SoftDeclareMBS

if s.LoadLibrary("IOKit.framework") then
if s.LoadFunction("IOPMCopyScheduledPowerEvents") then
if s.CallFunction(0,nil) then
Return NewCFArrayMBSHandle(s.Result,true)
else
MsgBox "Failed to Call IOPMCopyScheduledPowerEvents."
end if
else
MsgBox "Failed to load IOPMCopyScheduledPowerEvents."
end if
else
MsgBox "Failed to load IOKit."
end if

Return nil
End Function

Function SchedulePowerEvent(time_to_wake as CFDateMBS, Type as CFStringMBS) as Integer
dim s as SoftDeclareMBS
```

```
dim m as MemoryBlock

'/*
'* Types of power event
'* These are potential arguments to IOPMSchedulePowerEvent().
'* These are all potential values of the kIOPMPowerEventTypeKey in the CFDictionaries
'* returned by IOPMCopyScheduledPowerEvents().
'*/
'/*!
'@define kIOPMAutoWake
'@abstract Value for scheduled wake from sleep.
'*/
'# define kIOPMAutoWake "wake"
'
'/*!
'@define kIOPMAutoPowerOn
'@abstract Value for scheduled power on from off state.
'*/
'# define kIOPMAutoPowerOn "poweron"
'
'/*!
'@define kIOPMAutoWakeOrPowerOn
'@abstract Value for scheduled wake from sleep, or power on. The system will either wake OR
'power on, whichever is necessary.
'*/
'
'# define kIOPMAutoWakeOrPowerOn "wakepoweron"
'/*!
'@define kIOPMAutoSleep
'@abstract Value for scheduled sleep.
'*/
'
'# define kIOPMAutoSleep "sleep"
'/*!
'@define kIOPMAutoShutdown
'@abstract Value for scheduled shutdown.
'*/
'
'# define kIOPMAutoShutdown "shutdown"

s=new SoftDeclareMBS

if s.LoadLibrary("IOKit.framework") then
if s.LoadFunction("IOPMSchedulePowerEvent") then

m=NewMemoryBlock(12)
m.Long(0)=time_to_wake.handle
m.Long(4)=0 // nil
```

```
m.Long(8)=type.Handle

if s.CallFunction(3,m) then
Return s.Result
end if
end if
end if

End Function
```

Notes: Requires Mac OS X and to execute root rights.

21.0.218 How to validate a GUID?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can use this function below which uses a regular expression to verify that the string is a valid UUID/GUID:
Example:

```
Function IsGUID(guid as string) As Boolean
dim r as new RegEx

r.SearchPattern = "^(\{ { 0,1 } ( [ 0-9a-fA-F ] ) { 8 } -( [ 0-9a-fA-F ] ) { 4 } -( [ 0-9a-fA-F ] ) { 4 } -( [ 0-9a-fA-F ] ) { 4 } -( [ 0-9a-fA-F ] ) { 12 } \} { 0,1 } )$ "

Return r.Search(guid)<>nil
End Function
```

Notes: Simply parsing the GUID with CFUUIDMBS does not give the same result as CFUUIDMBS will also take a string like "DDDD".

21.0.219 How to walk a folder hierarchie non recursively?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Use code like this one:
Example:

```
Sub Walk(folder as FolderItem)
dim folders() as FolderItem

folders.Append folder

while UBound(folders)>=0
```

```
dim currentFolder as FolderItem = folders.pop

dim c as Integer = currentFolder.Count
for i as Integer = 1 to c
dim item as FolderItem = currentFolder.TrueItem(i)

if item = Nil then
// no permission
elseif item.Visible then // only visible

if item.Directory then
folders.Append item
else
// work with file here
end if

end if

next

wend
End Sub
```

Notes:

As you see we go with a long loop which runs until we don't have more folders to process.
We ignore items we can't access due to permission limits.
And we only work visible items.
If you like, check folderitem.isBundleMBS on item to handle packages and applications better on Mac OS X.

21.0.220 I got this error: PropVal, QDPictMBS.Name (property value), Type mismatch error. Expected CGDataProviderMBS, but got Variant, Name:QDPictMBS

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** The plugins MacOSX and MacOSXCF belong together. If you use one part, please also install the other part.
Notes: We splitted the plugin because the Real Studio IDE on Windows crashed on compilation.

21.0.221 I registered the MBS Plugins in my application, but later the registration dialog is shown.

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** There are two main reasons.
Notes:

1. you may use the plugin before registering them. This is often the case if you register in a window open event and use the plugin in a control open event.
On the console on Mac OS X or Windows, you may see a message like this "MBS Plugins were used by the application before the RegisterMBSPlugin function was called. Please fix this in your code!".

2. you may have mixed different plugin versions which are not compatible.
In this case you can see a message "Internal plugin registration error." on the console on Mac OS X. Newer plugins may show a message dialog reporting this. Older version simply think they are not registered.

If the installer just merges old and new applications, users may have libraries of older and newer plugin versions in the libs folder. If your application loads the wrong version, the registration fails.

If you use remote debugging, make sure you clear the tempory files there, too. Otherwise you may have old DLLs on your hard disc which may disturb your application.

You can run into issues if you use your registration code on different places of your app. Please register only once in app.open (or app Constructor). If you have several codes, simply call them one after the other.

Also check that you only call RegisterMBSPlugin with valid serial number. If you later call RegisterMBSPlugin with Demo like in example code above, you remove the license.

Finally make sure you use the right serial number. Not an older one or a misspelled one.

21.0.222 I want to accept Drag & Drop from iTunes

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You need to accept AcceptMacDataDrop "itun" and Handle the DropObject.
Example:

```
Sub Open()
window1.AcceptMacDataDrop "itun"
End Sub

Sub DropObject(obj As DragItem)
dim s as string
dim f as folderItem
```

```
dim d as CFDictionaryMBS
dim o as CFObjectMBS
dim key as CFStringMBS
dim dl as CFDictionaryListMBS
dim i,c as Integer
dim u as CFURLMBS
dim file as FolderItem

if obj.MacDataAvailable("itun") then
s = obj.MacData("itun")

// Parse XML
o=NewCFObjectMBSFromXML(NewCFBinaryDataMBSStr(s))

// Make dictionary
if o isa CFDictionaryMBS then
d=CFDictionaryMBS(o)

// get Tracks Dictionary
key=NewCFStringMBS("Tracks")
o=d.Value(key)

if o isa CFDictionaryMBS then
d=CFDictionaryMBS(o)
dl=d.List

// Walk over all entries in the Tracks dictionary
c=dl.Count-1
for i=0 to c
o=dl.Value(i)

if o isa CFDictionaryMBS then
d=CFDictionaryMBS(o)

key=NewCFStringMBS("Location")
o=d.Value(key)
if o isa CFStringMBS then
u=NewCFURLMBSCFStringMBS(CFStringMBS(o),nil)

file=u.file
if file<>nil then
MsgBox file.UnixpathMBS
end if
end if
end if
next
end if
end if
```

```
end if
End Sub
```

Notes: The code above inside a window on Realbasic 5.5 with MBS Plugin 5.3 will do it nice and show the paths.

21.0.223 I'm drawing into a listbox but don't see something.

Plugin Version: all, Console & Web: No. **Answer:** If you draw this in a listbox cellbackground, you need to draw on the correct position
Example:

```
Function CellBackgroundPaint(g As Graphics, row as Integer, column as Integer) As Boolean
dim f as FolderItem
f=SpecialFolder.Desktop
f.DrawWideIconMBS(g,listbox1.left,listbox1.top+row*20,16)
Return true
End Function
```

Notes: Try this in a listbox. The Graphics object there has a cliping and an offset which the plugin doesn't know about.

21.0.224 I'm searching for a method or so to move a window from position x.y to somewhere else on the screen.

Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:**

The code I produced in RB isn't smooth enough. Is there a call in MBS, if not, can it be done? The speed of it has to be like the show of a DrawerWindow.

Try the declare below for Carbon. With WindowLib it will work on Mac OS 8.5 and newer.
Notes: See Window.Transition functions.

21.0.225 If I use one of your plug-ins under windows, would this then impose the use of dll after compilation or my would my compiled soft still be a stand-alone single file software?

Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Stand alone.
Notes:

REALbasic compiles all used plugins into the application binary.
Some plugin parts need external dlls but you will find that in the documentation. (e.g. pdflib for some classes)

21.0.226 Is the fn key on a powerbook keyboard down?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** I am unable to figure out how or if it is possible to detect if the fn key is down on a powerbook keyboard. Is it possible?
Example:

```
' Window.Open Event of a blank project:

dim i as Integer

for i=0 to 127
if keyboard.asynckeydown(i) then
title=str(i) // found
return
end if
next
title="" // not found
```

Notes: This test application shows the keycode (decimal) 63 for the fn key.

21.0.227 Is there a case sensitive Dictionary?

Plugin Version: all, Console & Web: No. **Answer:** The MBS Plugin has several classes which can work as a replacement.
Notes:

First you could use VariantToVariantHashMapMBS or VariantToVariantOrderedMapMBS.
If you know that all keys are Strings or Integers only, you can use the specialized classes which are a little bit faster due to avoiding variants:

IntegerToIntegerHashMapMBS class
IntegerToIntegerOrderedMapMBS class

IntegerToStringHashMapMBS class
IntegerToStringOrderedMapMBS class
IntegerToVariantHashMapMBS class
IntegerToVariantOrderedMapMBS class
StringToStringHashMapMBS class
StringToStringOrderedMapMBS class
StringToVariantHashMapMBS class
StringToVariantOrderedMapMBS class

21.0.228 Is there a way to use the MBS plugin to get only the visible item and folder count on a volume?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can use the DirectorySizeMBS class for this as in the example below:
Example:

```
dim d as DirectorySizeMBS

d=new DirectorySizeMBS

// volume(1) as my boot volume is very full
if d.update(volume(1),true,0) then
MsgBox str(d.VisibleItemCount)+" visible items, "+str(d.HiddenItemCount)+" invisible items."
end if
```

Notes:

Complete Question: Is there a way to use the MBS plugin to get only the visible item and folder count on a volume? The FileCount and FolderCount properties of VolumeInformationMBS seem to provide the total # of items including invisible items such as .DS_Store and more importantly .Trashes which is causing me a great amount of difficulty during a recursive scan of a volume. I've got a progress bar which uses the total of the filecount and foldercount properties as the maximum value, but my routine needs to filter out all invisible items, as it is creating a catalog of a volume for archiving purposes. Any thoughts how I could get accurate number.

21.0.229 Is there an easy way I can launch the Displays preferences panel?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Use the code below:
Example:

```
dim error as Integer

error=OpenMacOSXPreferencesPaneMBS("Displays")
if error<>0 then
MsgBox "Failed to launch QuickTime System Preferences panel."
end if
```

21.0.230 Is there an easy way I can launch the Quicktime preferences panel?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Use the code below:
Example:

```
dim error as Integer

error=OpenMacOSXPreferencesPaneMBS("QuickTime")
if error<>0 then
MsgBox "Failed to launch QuickTime System Preferences panel."
end if
```

21.0.231 List of Windows Error codes?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** We have a list of windows error codes on our website.
Notes: http://www.monkeybreadsoftware.de/xojo/winerror.shtml

21.0.232 Midi latency on Windows problem?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** The issue is system related, not a problem with RB or the plugin.
Notes:

Two things will adversely affect the timing:

(1) latency of the software synthesizer output driver. The default Windows wavetable synthesizer has considerable latency. I don't know how many milliseconds, but it is noticeable.

(2) latency of the digital audio output driver. Different systems have different drivers for different audio hardware. My Dell laptop has a minimum 15ms latency in the audio driver.

These two things put together were causing a very sluggish MIDI response. I was able to verify these as the culprits by routing MIDI directly out of RB into a sample player, which only introduces the latency of (2) and does not include latency of (1).

I don't know how widely known are these facts, if not then you may want to add this information to the documentation, since Windows programmers using the MIDI plugin may not know those problems, and might mistakenly blame your plugin, as I did :) Sorry about that!

(From Aaron Andrew Hunt)

21.0.233 My Xojo Web App does not launch. Why?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Here is a list of checks to do for linux apache installations with Xojo or Real Studio Web applications:
Notes:

Just a list of checks to do for linux apache installations:

- You have 64bit linux? Than you need 32 bit compatibility libraries.
- The folder of your app is writable? Set permissions to 777.
- The cgi script is executable? Set permissions to 755.
- The app file itself is executable? Set permissions to 755.
- You uploaded cgi file as text, so it has unix line endings? (this often gives error "Premature end of script headers" in apache log)
- You uploaded config.cfg file and made it writable? Set permissions to 666.
- Your apache allows execution of cgi scripts? You enabled cgi for apache and uncommented addhandler command for CGI on a new apache installation?
- You uploaded the app file and libraries as binary files? Upload as text breaks them.
- You did upload the libs folder?
- You don't have code in app.open, session.open and other events which crashes app right at launch?
- You don"t have a print command in your app.open event? (see feedback case 23817)
- You allowed htaccess file to overwrite permissions?

21.0.234 Pictures are not shown in my application. Why?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Answer:**

On Mac OS Classic, please check the memory partition size which may be too low.
Else (most times on Windows) you are simple missing the part of QuickTime to load images.

21.0.235 Realbasic doesn't work with your plugins on Windows 98.

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** Upgrade your Windows version or complain to Realsoftware.

21.0.236 REALbasic or my RB application itself crashes on launch on Mac OS Classic. Why?

Plugin Version: all, Console & Web: No. **Answer:**

You may check if the application has enough memory to be loaded.
RB should have on Mac OS Classic more than 20 MB of RAM.
I prefered to use 50 MB and for an application a 10 MB partition is a good way to start.

21.0.237 SQLDatabase not initialized error?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Before you can use SQLDatabaseMBS, it must be initialized.
Example:

```
dim d as new SQLDatabaseMBS
```

Notes:

This happens normally when you use "new SQLDatabaseMBS".
But if you just have a SQLConnectionMBS and get a recordset there, the initialization may not have happend, yet.
So please simply add a line "dim d as new SQLDatabaseMBS" to your app.open code after registration, so the plugin part can initialize and late provide recordsets.

21.0.238 Textconverter returns only the first x characters. Why?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:**

Some older REALbasic versions limit the Textconverter to around 1024 characters in input and output. This should be fixed with RB5.
Notes: REALbasic seems not to support Textconverters at all on Windows.

21.0.239 The type translation between CoreFoundation/Foundation and Realbasic data types.

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** The plugin does conversion between Cocoa/Carbon data types and native REALbasic data types. The following list help you knowing what the current plugins support:
Notes:

Cocoa NSObject to Variant:

nil ->nil
NSDictionary ->Dictionary
NSData ->MemoryBlock
NSString ->String
NSAttributedString ->NSAttributedStringMBS
NSDate ->Date
NSNumber ->double/integer/Int64/UInt64/UInt32/Boolean
NSURL ->String
NSValue with NSRect ->NSRectMBS
NSValue with NSPoint ->NSPointMBS
NSValue with NSSize ->NSSizeMBS
NSValue with NSRange ->NSRangeMBS
NSValue with QTTime ->QTTimeMBS
NSValue with QTTimeRange ->QTTimeRangeMBS
NSArray ->Array of Variant
QuartzFilter ->QuartzFilterMBS

- ->*MBS

Variant to Cocoa NSObject:

nil ->nil
Dictionary ->NSDictionary
Boolean ->NSNumber
Integer ->NSNumber
Color ->NSColor
Int64 ->NSNumber
Single ->NSNumber
Double ->NSNumber
Date ->NSDate

MemoryBlock ->NSData
String ->NSString
NSImageMBS ->NSImage
NSAttributedStringMBS ->NSAttributedString
NSColorMBS ->NSColor
NSRectMBS ->NSValue with NSRect
NSSizeMBS ->NSValue with NSSize
NSPointMBS ->NSValue with NSPoint
NSRangeMBS ->NSValue with NSRange
NSBurnMBS ->NSBurn
NSViewMBS ->NSView
NSFontMBS ->NSFont
NSParagraphStyleMBS ->NSParagraphStyle
NSAttributedStringMBS ->NSAttributedString
WebPolicyDelegateMBS ->WebPolicyDelegate
WebUIDelegateMBS ->WebUIDelegate
WebFrameLoadDelegateMBS ->WebFrameLoadDelegate
WebResourceLoadDelegateMBS ->WebResourceLoadDelegate
NSIndexSetMBS ->NSIndexSet
QTTimeMBS ->QTTime
QTTimeRangeMBS ->QTTimeRange
Array of Variant ->NSArray
Array of String ->NSArray
CFStringMBS ->NSString
CFNumberMBS ->NSNumber
CFDataMBS ->NSData
CFURLMBS ->NSURL
CFArrayMBS ->NSArray
CFDictionaryMBS ->NSDictionary
CFBinaryDataMBS ->NSDate

Carbon CFTypeRef to Variant:

CFDictionaryRef ->Dictionary
CFStringRef ->String
CFDataRef ->String
CFURL ->String
CFNumber ->Integer/Double/Int64
CFArray ->Array
CFDate ->date
nil ->nil
CGColorSpace ->CGColorSpaceMBS
CGColor ->CGColorMBS
CGImage ->CGImageMBS
CF* ->CF*MBS

Variant to Carbon CFTypeRef:

Dictionary ->CFDictionaryRef
Boolean ->CFBooleanRef
Color ->CFNumberRef
Integer ->CFNumberRef
Int64 ->CFNumberRef
Single ->CFNumberRef
Double ->CFNumberRef
String ->CFStringRef
Color ->CGColorRef
Date ->CFDateRef
nil ->nil
Memoryblock ->CFDataRef
Folderitem ->CFURLRef
Dictionary ->CFDictionaryRef
Array of Variant/String/Date/Double/Single/Int64/Integer ->CFArray
CGRectMBS ->CGRect as CFDataRef
CGSizeMBS ->CGSize as CFDataRef
CGPointMBS ->CGPoint as CFDataRef
CGColorMBS ->CGColor
CGColorSpaceMBS ->CGColorSpace
CGImageMBS ->CGImage
CGDataConsumerMBS ->CGDataConsumer
CGDataProviderMBS ->CGDataProvider
CF*MBS ->CF*

Strings without encodings should be put into dictionaries as memoryblocks.

21.0.240 Uploaded my web app with FTP, but it does not run on the server!

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** If you see errors like a simple "Segmentation Fault" on Linux or some other wired errors, you may want to check your FTP upload mode. It must be binary for web apps. ASCII mode corrupts the application.

21.0.241 What classes to use for hotkeys?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Please use CarbonHotKeyMBS class on Mac and WindowsKeyFilterMBS on Windows.
Notes: CarbonHotKeyMBS will also work fine in Cocoa apps.

21.0.242 What do I need for Linux to get picture functions working?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** In order to get our plugins working on Linux systems without GUI, the plugin loads graphics libraries dynamically.
Notes:

To get it working, the plugin tries to load gtk with this paths:

- libgtk-x11-2.0.so"
- libgtk-x11-2.0.so.0"
- /usr/lib/libgtk-x11-2.0.so"
- /usr/lib32/libgtk-x11-2.0.so"
- /usr/lib/libgtk-x11-2.0.so.0"
- /usr/lib32/libgtk-x11-2.0.so.0"

gdk is loaded with this paths:

- libgdk-x11-2.0.so"
- libgdk-x11-2.0.so.0"
- /usr/lib/libgdk-x11-2.0.so"
- /usr/lib32/libgdk-x11-2.0.so"
- /usr/lib/libgdk-x11-2.0.so.0"
- /usr/lib32/libgdk-x11-2.0.so.0"

For the paths without explicit path, the system will search in /lib, /usr/lib and all directories in the LD_LIBRARY_PATH environment variable.

21.0.243 What does the NAN code mean?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:**

21.0.244 What font is used as a 'small font' in typical Mac OS X apps?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:**

REALbasic 4.5 has a constant "SmallSystem" to use for a font name.
For older versions try this code:
Example:

```
Sub GetThemeFont(fontType as Integer, ByRef fontName as String, ByRef fontSize as Integer, ByRef
fontStyle as Integer)
dim err as Integer
dim theFont, theFontSize, theFontStyle as MemoryBlock

const smSystemScript = -1

Declare Function GetThemeFont Lib "Carbon" (inFontID as Integer, inScript as Integer, outFontName
as Ptr, outFontSize as Ptr, outStyle as Ptr) as Integer

theFont = NewMemoryBlock(256) //Str255
theFontSize = NewMemoryBlock(2) //SInt16
theFontStyle = NewMemoryBlock(1) //Style

err = GetThemeFont(fontType, smSystemScript, theFont, theFontSize, theFontStyle)

if err = 0 then
fontName = theFont.PString(0)
fontSize = theFontSize.UShort(0)
fontStyle = theFontStyle.Byte(0)
else
fontName = ""
fontSize = 0
fontStyle = 0
end if
End Sub
```

21.0.245 What is last plugin version to run on Mac OS X 10.4?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** Last Version with 10.4 support is version 15.4.
Notes:

With version 15.4 you can build applications for OS X 10.4 and newer.
For Version 16.0 we disabled 10.4 and moved minimum to 10.5. We may be able to enable it again to build a version of 16.x, but may need to charge for this by hour.

21.0.246 What is last plugin version to run on PPC?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** Last Version with PPC is 15.4.
Notes:

With version 15.4 you can build PPC applications for OS X 10.4 and newer.
For Version 16.0 we disabled PPC. We may be able to enable it again to build a PPC version of 16.x, but may need to charge for this by hour.

21.0.247 What is the difference between Timer and WebTimer?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Time is server side and WebTimer client side.
Notes: Timer is the normal timer class in Real Studio. It runs on the server. On the side the WebTimer runs on the client. It triggers a request to the server to perform the action. So a WebTimer is good to keep the connection running and the website updated regularly. A timer on the server is good to make regular jobs like starting a database backup every 24 hours.

21.0.248 What is the list of Excel functions?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Below a list of function names known by LibXL.
Notes:

LibXL parses the functions and writes tokens to the excel file. So even if Excel can do more functions, we can only accept the ones known by LibXL.

ABS, ABSREF, ACOS, ACOSH, ACTIVE.CELL, ADD.BAR, ADD.COMMAND, ADD.MENU, ADD.TOOLBAR, ADDRESS, AND, APP.TITLE, AREAS, ARGUMENT, ASC, ASIN, ASINH, ATAN, ATAN2, ATANH, AVEDEV, AVERAGE, AVERAGEA, BAHTTEXT, BETADIST, BETAINV, BINOMDIST, BREAK, CALL, CALLER, CANCEL.KEY, CEILING, CELL, CHAR, CHECK.COMMAND, CHIDIST, CHIINV, CHITEST, CHOOSE, CLEAN, CODE, COLUMN, COLUMNS, COMBIN, CONCATENATE, CONFIDENCE, CORREL, COS, COSH, COUNT, COUNTA, COUNTBLANK, COUNTIF, COVAR, CREATE.OBJECT, CRITBINOM, CUSTOM.REPEAT, CUSTOM.UNDO, DATE, DATEDIF, DATESTRING, DATEVALUE, DAVERAGE, DAY, DAYS360, DB, DBCS, DCOUNT, DCOUNTA, DDB, DEGREES, DELETE.BAR, DELETE.COMMAND, DELETE.MENU, DELETE.TOOLBAR, DEREF, DEVSQ, DGET, DIALOG.BOX, DIRECTORY, DMAX, DMIN, DOCUMENTS, DOLLAR, DPRODUCT, DSTDEV, DSTDEVP, DSUM, DVAR, DVARP, ECHO, ELSE, ELSE.IF, ENABLE.COMMAND, ENABLE.TOOL, END.IF, ERROR, ERROR.TYPE, EVALUATE, EVEN, EXACT, EXEC, EXECUTE, EXP, EXPONDIST, FACT, FALSE, FCLOSE, FDIST, FILES, FIND, FINDB, FINV, FISHER, FISHERINV, FIXED, FLOOR, FOPEN, FOR, FOR.CELL, FORECAST, FORMULA.CONVERT, FPOS, FREAD, FREADLN, FREQUENCY, FSIZE, FTEST, FV, FWRITE, FWRITELN, GAMMADIST, GAMMAINV, GAMMALN, GEOMEAN, GET.BAR, GET.CELL, GET.CHART.ITEM, GET.DEF, GET.DOCUMENT, GET.FORMULA, GET.LINK.INFO, GET.MOVIE, GET.NAME, GET.NOTE,

GET.OBJECT, GET.PIVOT.FIELD, GET.PIVOT.ITEM, GET.PIVOT.TABLE, GET.TOOL, GET.TOOLBAR, GET.WINDOW, GET.WORKBOOK, GET.WORKSPACE, GETPIVOTDATA, GOTO, GROUP, GROWTH, HALT, HARMEAN, HELP, HLOOKUP, HOUR, HYPERLINK, HYPGEOMDIST, IF, INDEX, INDIRECT, INFO, INITIATE, INPUT, INT, INTERCEPT, IPMT, IRR, ISBLANK, ISERR, ISERROR, ISLOGICAL, ISNA, ISNONTEXT, ISNUMBER, ISPMT, ISREF, ISTEXT, ISTHAIDIGIT, KURT, LARGE, LAST.ERROR, LEFT, LEFTB, LEN, LENB, LINEST, LINKS, LN, LOG, LOG10, LOGEST, LOGINV, LOGNORMDIST, LOOKUP, LOWER, MATCH, MAX, MAXA, MDETERM, MEDIAN, MID, MIDB, MIN, MINA, MINUTE, MINVERSE, MIRR, MMULT, MOD, MODE, MONTH, MOVIE.COMMAND, N, NA, NAMES, NEGBINOMDIST, NEXT, NORMDIST, NORMINV, NORMSDIST, NORMSINV, NOT, NOTE, NOW, NPER, NPV, NUMBERSTRING, ODD, OFFSET, OPEN.DIALOG, OPTIONS.LISTS.GET, OR, PAUSE, PEARSON, PERCENTILE, PERCENTRANK, PERMUT, PHONETIC, PI, PIVOT.ADD.DATA, PMT, POISSON, POKE, POWER, PPMT, PRESS.TOOL, PROB, PRODUCT, PROPER, PV, QUARTILE, RADIANS, RAND, RANK, RATE, REFTEXT, REGISTER, REGISTER.ID, RELREF, RENAME.COMMAND, REPLACE, REPLACEB, REPT, REQUEST, RESET.TOOLBAR, RESTART, RESULT, RESUME, RETURN, RIGHT, RIGHTB, ROMAN, ROUND, ROUNDBAHTDOWN, ROUNDBAHTUP, ROUNDDOWN, ROUNDUP, ROW, ROWS, RSQ, RTD, SAVE.DIALOG, SAVE.TOOLBAR, SCENARIO.GET, SEARCH, SEARCHB, SECOND, SELECTION, SERIES, SET.NAME, SET.VALUE, SHOW.BAR, SIGN, SIN, SINH, SKEW, SLN, SLOPE, SMALL, SPELLING.CHECK, SQRT, STANDARDIZE, STDEV, STDEVA, STDEVP, STDEVPA, STEP, STEYX, SUBSTITUTE, SUBTOTAL, SUM, SUMIF, SUMPRODUCT, SUMSQ, SUMX2MY2, SUMX2PY2, SUMXMY2, SYD, T, TAN, TANH, TDIST, TERMINATE, TEXT, TEXT.BOX, TEXTREF, THAIDAYOFWEEK, THAIDIGIT, THAIMONTHOFYEAR, THAINUMSOUND, THAINUMSTRING, THAISTRINGLENGTH, THAIYEAR, TIME, TIMEVALUE, TINV, TODAY, TRANSPOSE, TREND, TRIM, TRIMMEAN, TRUE, TRUNC, TTEST, TYPE, UNREGISTER, UPPER, USDOLLAR, USERDEFINED, VALUE, VAR, VARA, VARP, VARPA, VDB, VIEW.GET, VLOOKUP, VOLATILE, WEEKDAY, WEIBULL, WHILE, WINDOW.TITLE, WINDOWS, YEAR and ZTEST.

21.0.249 What is the replacement for PluginMBS?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Use the SoftDeclareMBS class to load libraries dynamically.

21.0.250 What to do on Realbasic reporting a conflict?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:**

I get an error like "This item conflicts with another item of the same name" when using one of the plugin functions.

REALbasic just wants to tell you that you dropped something in the plugins folder what is not a plugin.
Notes: Some users dropped the examples, the documentation or other files into the plugins folder. Don't do it.

21.0.251 What to do with a NSImageCacheException?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Answer:** You need to add exception handlers for NSExceptionMBS in order to catch this exception.
Notes:

You may also add code to write the stack of the exception into a log file for later locating the error source.

A NSImage has several image representations in memory. So basicly you pass in the base image and for whatever size an image is needed, the NSImage class will create a cache image representation of the requested size so on the next query it can use that cache for the same requested size.

21.0.252 What to do with MySQL Error 2014?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** You can get this error on MySQL if you have a recordset open while you create another one.

21.0.253 What ways do I have to ping?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Answer:** You have different ways
Notes:

1. Use the shell class and the ping utility.

2. Use the MBS Network Plugin and there the SuperSocket part:

a) On Windows the ICMPPingMBS works to ping.
b) On Mac OS X it uses OpenTransport and needs root rights. You need to use sudo to run this application. This does not work on Intel Macs, because the plugin is not endian safe.

3. The DarwinPingMBS.Ping method:

Compiled for Mac OS X Macho target it works as a syncronized ping method.
The Windows version had a bug and was fixed in plugin version 8.2pr4. So it works now.

4. The DarwinPingMBS.SimplePing method:

Works on Mac OS X Macho target.

But this method can be called from a thread to make it working in background.

21.0.254 Where is CGGetActiveDisplayListMBS?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** This is now CGDisplayMBS.GetActiveDisplayList.

21.0.255 Where is CGGetDisplaysWithPointMBS?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** This is now CGDisplayMBS.GetDisplaysWithPoint.

21.0.256 Where is CGGetDisplaysWithRectMBS?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** This is now CGDisplayMBS.GetDisplaysWithRect.

21.0.257 Where is CGGetOnlineDisplayListMBS?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** This is now CGDisplayMBS.GetOnlineDisplayList.

21.0.258 Where is GetObjectClassNameMBS?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Please use this replacement method:
Example:

```
Function GetObjectClassNameMBS(o as Object) As string
dim t as Introspection.TypeInfo = Introspection.GetType(o)
Return t.FullName
End Function
```

Notes: GetObjectClassNameMBS was removed from the plugins.

21.0.259 Where is NetworkAvailableMBS?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** We removed NetworkAvailableMBS some versions ago. It was not working right and basicly it's not useful. If you want to check whether you have a network, than do a DNS resolve:
Example:

```
// two independend domain names
const domain1 = "www.google.com"
const domain2 = "www.macsw.de"

// resolve IPs
dim ip1 as string = DNSNameToAddressMBS(Domain1)
dim ip2 as string = DNSNameToAddressMBS(Domain2)

// if we got IPs and not the same IPs (error/login pages)
if len(ip1)=0 or len(ip2)=0 or ip1=ip2 then
MsgBox "no connection"
else
MsgBox "have connection"
end if
```

Notes: This way you can detect whether you got something from DNS. And you can make sure that a DNS redirection to a login page won't catch you.

21.0.260 Where is StringHeight function in DynaPDF?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** Use the function GetFTextHeight or GetFTextHeightEx.
Notes: Be aware that GetFTextHeight works with format commands and you may want to escape your text if you don't use them.

21.0.261 Where is XLSDocumentMBS class?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** This class has been removed in favor of XLBookMBS class.
Notes: This classes have been removed XLSCellMBS, XLSDocumentMBS, XLSFormatRecordMBS, XLSMergedCellsMBS, XLSRowMBS and XLSSheetMBS.

21.0.262 Where to get information about file formats?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:**

Please visit this web page:
http://www.wotsit.org

21.0.263 Where to register creator code for my application?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:**

Register at Apple:
http://developer.apple.com/dev/cftype/information.html

21.0.264 Which Mac OS X frameworks are 64bit only?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Some frameworks from Mac OS X do not support 32 bit applications, so we can't provide plugins for Xojo until 64bit target is available.
Notes:

For Mac OS X 10.8:

- Accounts
- EventKit
- GLKit
- Social

and in 10.9:

- Accounts
- AVKit
- EventKit
- GameController
- GLKit
- MapKit

- MediaLibrary
- Social
- SpriteKit

In general Apple makes all new frameworks being 64 bit only.

21.0.265 Which plugins are 64bit only?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** Some of our plugins work only in 64 bit modes as operation systems do not provide 32 bit code.
Notes: This effects currently: EventKit, Accounts, Social frameworks from Apple and our matching plugins.

21.0.266 Why application doesn't launch because of a missing ddraw.dll!?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** Some RB versions require that you install DirectX from Microsoft on your Windows.

21.0.267 Why application doesn't launch because of a missing shlwapi.dll!?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** Some RB versions require that you install the Internet Explorer from Microsoft on your Windows.
Notes: This bug is for several older Windows 95 editions.

21.0.268 Why do I hear a beep on keydown?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** When the user presses a key, RB goes through all keydown event handlers till on returns true.
Notes: If no keydown event handler returns true for the key, a beep is performed.

21.0.269 Why does folderitem.item return nil?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Because Realbasic fails to make a folderitem for you. Reason may be an alias file which can't be resolved or simply that you don't have enough access rights to read the folder content.
Notes: A more rarely reason is that the directory changed and the file with the given index or name does no longer exist.

21.0.270 Why doesn't showurl work?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:**

There are three main reasons:

1. showurl is not supported by REALbasic in 68k applications.
2. there is now application defined for the protocol (e.g. http) in the Internet Control panel.
3. You don't have Internet Config installed.

You can use the InternetConfigMBS class to check for this stuff.

21.0.271 Why have I no values in my chart?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Answer:** You have no data points visible, there may be several reasons:
Notes:

For example one of the data values may be infinite or invalid.
Or the scaling may be out of range, so you simply see nothing.

21.0.272 Will application size increase with using plugins?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** All plugins used by your application will be included in the application.
Notes:

If you use no plugins, your application will not change size.
And if you use one class from the plugins, your application size will increase by a few kilobytes.
The documentation of the plugins include a list of all plugin parts and their sizes for the different platforms.

21.0.273 XLS: Custom format string guidelines

Plugin Version: all, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Answer:** You have to download the source code and compile a static version of the library.
Notes:

Up to four sections of format codes can be specified. The format codes, separated by semicolons, define the formats for positive numbers, negative numbers, zero values, and text, in that order. If only two sections are specified, the first is used for positive numbers and zeros, and the second is used for negative numbers. If only one section is specified, it is used for all numbers. Four sections example:

,# # # .00_); [Red] (# ,# # # .00);0.00;"sales "@

The following table describes the different symbols that are available for use in custom number formats.

Specify colors

To set the text color for a section of the format, type the name of one of the following eight colors in square brackets in the section. The color code must be the first item in the section.

Instead of using the name of the color, the color index can be used, like this [Color3] for Red. Valid numeric indexes for color range from 1 to 56, which reference by index to the legacy color palette.
Specify conditions

To set number formats that will be applied only if a number meets a specified condition, enclose the condition in square brackets. The condition consists of a comparison operator and a value. Comparison operators include: = Equal to; >Greater than; <Less than; >= Greater than or equal to, <= Less than or equal to, and <>Not equal to. For example, the following format displays numbers that are less than or equal to 100 in a red font and numbers that are greater than 100 in a blue font.
[Red] [<=100] ; [Blue] [>100]
If the cell value does not meet any of the criteria, then pound signs ("# ") are displayed across the width of the cell.
Dates and times

Examples

Parameter	Description
x	The x value of the data point. For an enumerated x-axis (see Axis.setLabels on what is an enumerated axis), the first data point is 0, and the nth data point is (n-1).
xLabel	The bottom x-axis label of the data point.
x2Label	The top x-axis label of the data point.
value	The value of the data point.
accValue	The sum of values of all data points that are in the same x position and same data group as the current data point, and with data set number less than or equal to the current data point. This is useful for stacked charts, such as stacked bar chart and stacked area chart.
totalValue	The sum of values of all data points that are in the same x position and same data group as the current data point. This is useful for stacked charts, such as stacked bar chart and stacked area chart.
percent	The percentage of the data point based on the total value of all data points that are in the same x position and same data group as the current data point. This is useful for stacked charts, such as stacked bar chart and stacked area chart.
accPercent	The accumulated percentage of the data point based on the total value of all data points that are in the same x position and same data group as the current data point. This is useful for stacked charts, such as stacked bar chart and stacked area chart.
gpercent	The percentage of the data point based on the total value of all data points in a layer.
dataSet	The data set number to which the data point belongs. The first data set is 0. The nth data set is (n-1).
dataSetName	The name of the data set to which the data point belongs.
dataItem	The data point number within the data set. The first data point is 0. The nth data point is (n-1).
dataGroup	The data group number to which the data point belongs. The first data group is 0. The nth data group is (n-1).
dataGroupName	The name of the data group to which the data point belongs.
layerId	The layer number to which the data point belongs. The first layer is 0. The nth layer is (n-1).
fieldN	The (N + 1)th extra field. For example, { field0 } means the first extra field. An extra field is an array of custom elements added using Layer.addExtraField, Layer.addExtraField2, BaseChart.addExtraField or BaseChart.addExtraField2.

diFieldN	Same as fieldN. See above.
dsFieldN	Similar to fieldN, except that dsFieldN means the extra field is indexed by data set number. The Pth data set corresponds to the Pth element of the extra field.
dsdiFieldN	Similar to fieldN, except that dsdiFieldN means the extra fields are indexed by both the data set number and data point number. The Pth data item of the Qth data set corresponds to the Pth element of the (N + Q)th extra field.

Parameter	Description
zx	The symbol scale in the x dimension. Applicable for layers with symbol scales set by LineLayer.setSymbolScale.
zy	The symbol scale in the y dimension. Applicable for layers with symbol scales set by LineLayer.setSymbolScale.
z	The symbol scale without distinguishing the dimension to use. Applicable for layers with symbol scales set by LineLayer.setSymbolScale.

Parameter	Description
slope	The slope of the trend line.
intercept	The y-intercept of the trend line.
corr	The correlation coefficient in linear regression analysis.
stderr	The standard error in linear regression analysis.

Parameter	Description
top	The value of the top edge of the box-whisker symbol.
bottom	The value of the bottom edge of the box-whisker symbol.
max	The value of the maximum mark of the box-whisker symbol.
min	The value of the minimum mark of the box-whisker symbol.
med	The value of the median mark of the box-whisker symbol.

Parameter	Description
high	The high value.
low	The low value.
open	The open value.
close	The close value.

Parameter	Description
dir	The direction of the vector.
len	The length of the vector.

Parameter	Description
radius	The radial value of the data point.
value	Same as { radius } . See above.
angle	The angular value of the data point.
x	Same as { angle } . See above.
label	The angular label of the data point.
xLabel	Same as { label } . See above.
name	The name of the layer to which the data point belongs.
dataSetName	Same as { name } . See above.
i	The data point number. The first data point is 0. The nth data point is (n-1).
dataItem	Same as { i } . See above.
z	The symbol scale. Applicable for layers with symbol scales set by PolarLayer.setSymbolScale.
fieldN	The (N + 1)th extra field. For example, { field0 } means the first extra field. An extra field is an array of custom elements added using Layer.addExtraField, Layer.addExtraField2, BaseChart.addExtraField or BaseChart.addExtraField2.

diFieldN	Same as fieldN. See above.
dsFieldN	Similar to fieldN, except that dsFieldN means the extra field is indexed by layer index. The Pth layer corresponds to the Pth element of the extra field.
dsdiFieldN	Similar to fieldN, except that dsdiFieldN means the extra fields are indexed by both the data set number and data point number. The Pth data item of the Qth layer corresponds to the Pth element of the (N + Q)th extra field.

Parameter	Description
dir	The direction of the vector.
len	The length of the vector.

Parameter	Description
value	The axis value at the tick position.
label	The axis label at the tick position.

Parameter	Description
[param]	The name of the parameter
[a]	If this field a number, it specifies the number of decimal places (digits to the right of the decimal point).

[b]

The thousand separator. Should be a non-alphanumeric character (not 0-9, A-Z, a-z). Use ’

textasciitilde ’ for no thousand separator. The default is ’
textasciitilde ’, which can be modified using BaseChart.setNumberFormat.

[c]

The decimal point character. The default is ’.’, which can be modified using BaseChart.setNumberFormat.

[d]

The negative sign character. Use ’

textasciitilde ’ for no negative sign character. The default is ’-’, which can be modified using BaseChart.setNumberFormat.

Parameter	Description
yyyy	The year in 4 digits (e.g. 2002)
yyy	The year showing only the least significant 3 digits (e.g. 002 for the year 2002)
yy	The year showing only the least significant 2 digits (e.g. 02 for the year 2002)
y	The year showing only the least significant 1 digits (e.g. 2 for the year 2002)
mmm	The month formatted as its name. The default is to use the first 3 characters of the english month name (Jan, Feb, Mar ...). The names can be configured using BaseChart.setMonthNames.
mm	The month formatted as 2 digits from 01 - 12, adding leading zero if necessary.
m	The month formatted using the minimum number of digits from 1 - 12.
MMM	The first 3 characters of the month name converted to upper case. The names can be configured using BaseChart.setMonthNames.
MM	The first 2 characters of the month name converted to upper case. The names can be configured using BaseChart.setMonthNames.
M	The first character of the month name converted to upper case. The names can be configured using BaseChart.setMonthNames.
dd	The day of month formatted as 2 digits from 01 - 31, adding leading zero if necessary.
d	The day of month formatted using the minimum number of digits from 1 - 31.
w	The name of the day of week. The default is to use the first 3 characters of the english day of week name (Sun, Mon, Tue ...). The names can be configured using BaseChart.setWeekDayNames.
hh	The hour of day formatted as 2 digits, adding leading zero if necessary. The 2 digits will be 00 - 23 if the ’a’ option (see below) is not specified, otherwise it will be 01 - 12.
h	The hour of day formatted using the minimum number of digits. The digits will be 0 - 23 if the ’a’ option (see below) is not specified, otherwise it will be 01 - 12.
nn	The minute formatted as 2 digits from 00 - 59, adding leading zero if necessary.
n	The minute formatted using the minimum number of digits from 00 - 59.
ss	The second formatted as 2 digits from 00 - 59, adding leading zero if necessary.
s	The second formatted using the minimum number of digits from 00 - 59.
a	Display either ’am’ or ’pm’, depending on whether the time is in the morning or afternoon. The text ’am’ and ’pm’ can be modified using BaseChart.setAMPM.

Shape Id	Value	Description
SquareShape	1	Square shape. See (1, 1) above.
DiamondShape	2	Diamond shape. See (2, 1) above.
TriangleShape	3	Triangle shape pointing upwards. See (3, 1) above.
RightTriangleShape	4	Triangle shape pointing rightwards. See (4, 1) above.
LeftTriangleShape	5	Triangle shape pointing leftwards. See (5, 1) above.
InvertedTriangleShape	6	Triangle shape pointing downwards. See (1, 2) above.
CircleShape	7	Circle shape. See (2, 2) above.
StarShape	[Method]	Star shapes of various points. See (2, 3), (2, 4), (2, 5), (3, 1), (3, 2), (3, 3), (3, 4), (3, 5) above for stars with 3 to 10 points.
PolygonShape	[Method]	Polygon shapes symmetrical about a vertical axis with a vertex at the top center position. See (4, 1), (4, 3), (4, 5), (5, 1) for polygons of 5 to 8 sides.
Polygon2Shape	[Method]	Polygon shapes symmetrical about a vertical axis but without any vertex at the top center position. See (4, 2), (4, 4) for polygons of 5 and 6 sides.
CrossShape	[Method]	'+' shapes. See (5, 2), (5, 3), (5, 4), (5, 5), (6, 1), (6, 2), (6. 3) for '+' shape with arm width of 0.1 - 0.7.
Cross2Shape	[Method]	'X' shapes. See (6, 4), (6, 5), (7, 1), (7, 2), (7, 3), (7, 4), (7, 5) for 'X' shapes with arm width of 0.1 - 0.7.

langEnglish	0	Roman script
langFrench	1	Roman script
langGerman	2	Roman script
langItalian	3	Roman script
langDutch	4	Roman script
langSwedish	5	Roman script
langSpanish	6	Roman script
langDanish	7	Roman script
langPortuguese	8	Roman script
langNorwegian	9	Roman script
langHebrew	10	Hebrew script
langJapanese	11	Japanese script
langArabic	12	Arabic script
langFinnish	13	Roman script
langGreek	14	Greek script using smRoman script code
langIcelandic	15	modified smRoman/Icelandic script
langMaltese	16	Roman script
langTurkish	17	modified smRoman/Turkish script
langCroatian	18	modified smRoman/Croatian script
langTradChinese	19	Chinese (Mandarin) in traditional characters
langUrdu	20	Arabic script
langHindi	21	Devanagari script
langThai	22	Thai script
langKorean	23	Korean script

Nan	Meaning
1	Invalid square root (negative number, usually)
2	Invalid addition (indeterminate such as infinity + (-infinity))
4	Invalid division (indeterminate such as 0/0)
8	Invalid multiplication (indeterminate such as 0*infinity)
9	Invalid modulo such as (a mod 0)
17	Try to convert invalid string to a number like val("x7")
33	Invalid argument in a trig function
34	Invalid argument in an inverse trig function
36	Invalid argument in a log function
37	Invalid argument in Pow function
38	Invalid argument in toolbox financial function
40	Invalid argument in hyperbolic function
42	Invalid argument in a gamma function

Symbol	Description and result
0	Digit placeholder. For example, if the value 8.9 is to be displayed as 8.90, use the format # .00
#	Digit placeholder. This symbol follows the same rules as the 0 symbol. However, the application shall not display extra zeros when the number typed has fewer digits on either side of the decimal than there are # symbols in the format. For example, if the custom format is # .# # , and 8.9 is in the cell, the number 8.9 is displayed.
?	Digit placeholder. This symbol follows the same rules as the 0 symbol. However, the application shall put a space for insignificant zeros on either side of the decimal point so that decimal points are aligned in the column. For example, the custom format 0.0? aligns the decimal points for the numbers 8.9 and 88.99 in a column.
. (period)	Decimal point.
%	Percentage. If the cell contains a number between 0 and 1, and the custom format 0% is used, the application shall multiply the number by 100 and adds the percentage symbol in the cell.
, (comma)	Thousands separator. The application shall separate thousands by commas if the format contains a comma that is enclosed by number signs (#) or by zeros. A comma that follows a placeholder scales the number by one thousand. For example, if the format is # .0,, and the cell value is 12,200,000 then the number 12.2 is displayed.
E- E+ e- e+	Scientific format. The application shall display a number to the right of the "E" symbol that corresponds to the number of places that the decimal point was moved. For example, if the format is 0.00E+00, and the value 12,200,000 is in the cell, the number 1.22E+07 is displayed. If the number format is # 0.0E+0, then the number 12.2E+6 is displayed.
$ -+/():space	Displays the symbol. If it is desired to display a character that differs from one of these symbols, precede the character with a backslash (\). Alternatively, enclose the character in quotation marks. For example, if the number format is (000), and the value 12 is in the cell, the number (012) is displayed.
\	Display the next character in the format. The application shall not display the backslash. For example, if the number format is 0\!, and the value 3 is in the cell, the value 3! is displayed.
*	Repeat the next character in the format enough times to fill the column to its current width. There shall not be more than one asterisk in one section of the format. If more than one asterisk appears in one section of the format, all but the last asterisk shall be ignored. For example, if the number format is 0*x, and the value 3 is in the cell, the value 3xxxxxx is displayed. The number of x characters that are displayed in the cell varies based on the width of the column.
_ (underline)	Skip the width of the next character. This is useful for lining up negative and positive values in different cells of the same column. For example, the number format _(0.0_);(0.0) aligns the numbers 2.3 and -4.5 in the column even though the negative number is enclosed by parentheses.
"text"	Display whatever text is inside the quotation marks. For example, the format 0.00 "dollars" displays 1.23 dollars when the value 1.23 is in the cell.
@	Text placeholder. If text is typed in the cell, the text from the cell is placed in the format where the at symbol (@) appears. For example, if the number format is "Bob "@" Smith" (including quotation marks), and the value "John" is in the cell, the value Bob John Smith is displayed.

[Black] [Green] [White] [Blue] [Magenta] [Yellow] [Cyan] [Red]

To display	As	Use this code
Months	1-12	m
Months	01-12	mm
Months	Jan-Dec	mmm
Months	January-December	mmmm
Months	J-D	mmmmm
Days	1-31	d
Days	01-31	dd
Days	Sun-Sat	ddd
Days	Sunday-Saturday	dddd
Years	00-99	yy
Years	1900-9999	yyyy
Hours	0-23	h
Hours	00-23	hh
Minutes	0-59	m
Minutes	00-59	mm
Seconds	0-59	s
Seconds	00-59	ss
Time	4 AM	h AM/PM
Time	4:36 PM	h:mm AM/PM
Time	4:36:03 P	h:mm:ss A/P
Time	4:36:03.75	h:mm:ss.00
Elapsed time	1:02	[h] :mm
Elapsed time	62:16	[mm] :ss
Elapsed time	3735.80	[ss] .00

To display	As	Use this code
1234.59	1234.6	# # # # .#
8.9	8.900	# .000
.631	0.6	0.#
12	12.0	# .0#
1234.568	1234.57	# .0#
44.398	44.398	???.???
102.65	102.65	???.???
2.8	2.8	???.???
5.25	5 1/4	# ??/??
5.3	5 3/10	# ??/??
12000	12,000	# ,# # #
12000	12	# ,
12400000	12.4	0.0,,