MBS QTKit Plugin Documentation

Christian Schmitz

July 16, 2017

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 QTKit Plugin

0.2 Content

- 1 List of all topics 3
- 2 List of all classes 35
- 3 List of all modules 37
- 4 All items in this plugin 39
- 6 List of Questions in the FAQ 341
- 7 The FAQ 351

Chapter 1

List of Topics

- 4 **QTKit** 39
  - 5.1.1 class Movieplayer 339
    - 5.1.3 QTKitMovieViewMBS as QTKitMovieViewMBS 339
  - 4.1.1 class QTKitCaptureAudioPreviewOutputMBS 39
    - 4.1.3 Constructor 39
    - 4.1.5 outputDeviceUniqueID as string 39
    - 4.1.6 volume as Double 40
  - 4.2.1 class QTKitCaptureConnectionMBS 41
    - 4.2.3 attributeIsReadOnly(attributeKey as string) as boolean 41
    - 4.2.4 Constructor 41
    - 4.2.5 formatDescription as QTKitFormatDescriptionMBS 41
    - 4.2.6 mediaType as string 42
    - 4.2.7 owner as Variant 42
    - 4.2.8 QTCaptureConnectionAttributeDidChangeNotification as string 42
    - 4.2.9 QTCaptureConnectionAttributeWillChangeNotification as string 42
    - 4.2.10 QTCaptureConnectionAudioAveragePowerLevelsAttribute as string 43
    - 4.2.11 QTCaptureConnectionAudioMasterVolumeAttribute as string 43
    - 4.2.12 QTCaptureConnectionAudioPeakHoldLevelsAttribute as string 44
    - 4.2.13 QTCaptureConnectionAudioVolumesAttribute as string 44
    - 4.2.14 QTCaptureConnectionChangedAttributeKey as string 44
    - 4.2.15 QTCaptureConnectionEnabledAudioChannelsAttribute as string 44
    - 4.2.16 QTCaptureConnectionFormatDescriptionDidChangeNotification as string 45
    - 4.2.17 QTCaptureConnectionFormatDescriptionWillChangeNotification as string 45
    - 4.2.19 Handle as Integer 46
    - 4.2.20 attributeForKey(key as string) as Variant 46
    - 4.2.21 AudioMasterVolume as Double 46

* 4.2.22 connectionAttributes as dictionary 46
* 4.2.23 Enabled as boolean 47

– 4.3.1 class QTKitCaptureDecompressedAudioOutputMBS 48

* 4.3.3 Constructor 48
* 4.3.5 didOutputAudioSampleBuffer(sampleBuffer as QTKitSampleBufferMBS, connection as QTKitCaptureConnectionMBS) 48

– 4.4.1 class QTKitCaptureDecompressedVideoOutputMBS 49

* 4.4.3 Constructor 49
* 4.4.4 LastFrame as Variant 49
* 4.4.6 automaticallyDropsLateVideoFrames as boolean 49
* 4.4.7 minimumVideoFrameInterval as Double 50
* 4.4.8 passCIImage as boolean 50
* 4.4.9 pixelBufferAttributes as dictionary 50
* 4.4.11 didDropVideoFrame(sampleBuffer as QTKitSampleBufferMBS, connection as QTKitCaptureConnectionMBS) 51
* 4.4.12 didOutputVideoFrame(videoFrame as Variant, sampleBuffer as QTKitSampleBufferMBS, connection as QTKitCaptureConnectionMBS) 51

– 4.5.1 class QTKitCaptureDeviceInputMBS 53

* 4.5.3 Constructor(device as QTKitCaptureDeviceMBS) 53
* 4.5.4 device as QTKitCaptureDeviceMBS 53
* 4.5.5 deviceInputWithDevice(device as QTKitCaptureDeviceMBS) as QTKitCaptureDeviceInputMBS 53

– 4.6.1 class QTKitCaptureDeviceMBS 54

* 4.6.3 attributeIsReadOnly(attributeKey as string) as boolean 54
* 4.6.4 close 54
* 4.6.5 Constructor 55
* 4.6.6 defaultInputDeviceWithMediaType(mediaType as string) as QTKitCaptureDeviceMBS 55
* 4.6.7 deviceWithUniqueID(uniqueID as string) as QTKitCaptureDeviceMBS 55
* 4.6.8 formatDescriptions as QTKitFormatDescriptionMBS() 55
* 4.6.9 hasMediaType(mediatype as string) as boolean 56
* 4.6.10 inputDevices as QTKitCaptureDeviceMBS() 56
* 4.6.11 inputDevicesWithMediaType(mediatype as string) as QTKitCaptureDeviceMBS() 57
* 4.6.12 isConnected as boolean 57
* 4.6.13 isInUseByAnotherApplication as boolean 57
* 4.6.14 isOpen as boolean 57
* 4.6.15 LegacySequenceGrabberHandle as Integer 58
* 4.6.16 LinkedDevices as QTKitCaptureDeviceMBS() 58
* 4.6.17 localizedDisplayName as string 58
* 4.6.18 modelUniqueID as string 58
* 4.6.19 open(byref error as NSErrorMBS) as boolean 58

* 4.6.20 QTCaptureDeviceAttributeDidChangeNotification as string 59
* 4.6.21 QTCaptureDeviceAttributeWillChangeNotification as string 59
* 4.6.22 QTCaptureDeviceAvailableInputSourcesAttribute as string 59
* 4.6.23 QTCaptureDeviceAVCTransportControlsAttribute as string 59
* 4.6.24 QTCaptureDeviceAVCTransportControlsPlaybackModeKey as string 60
* 4.6.25 QTCaptureDeviceAVCTransportControlsSpeedKey as string 60
* 4.6.26 QTCaptureDeviceChangedAttributeKey as string 60
* 4.6.27 QTCaptureDeviceFormatDescriptionsDidChangeNotification as string 61
* 4.6.28 QTCaptureDeviceFormatDescriptionsWillChangeNotification as string 61
* 4.6.29 QTCaptureDeviceInputSourceIdentifierAttribute as string 61
* 4.6.30 QTCaptureDeviceInputSourceIdentifierKey as string 61
* 4.6.31 QTCaptureDeviceInputSourceLocalizedDisplayNameKey as string 62
* 4.6.32 QTCaptureDeviceLegacySequenceGrabberAttribute as string 62
* 4.6.33 QTCaptureDeviceLinkedDevicesAttribute as string 62
* 4.6.34 QTCaptureDeviceSuspendedAttribute as string 63
* 4.6.35 QTCaptureDeviceWasConnectedNotification as string 63
* 4.6.36 QTCaptureDeviceWasDisconnectedNotification as string 63
* 4.6.37 Suspended as boolean 63
* 4.6.38 uniqueID as string 63
* 4.6.40 Handle as Integer 64
* 4.6.41 attributeForKey(key as string) as Variant 64
* 4.6.42 deviceAttributes as dictionary 64
* 4.6.44 QTCaptureDeviceAVCTransportControlsFastestForwardSpeed = 19000 64
* 4.6.45 QTCaptureDeviceAVCTransportControlsFastestReverseSpeed = -19000 65
* 4.6.46 QTCaptureDeviceAVCTransportControlsFastForwardSpeed = 13000 65
* 4.6.47 QTCaptureDeviceAVCTransportControlsFastReverseSpeed = -13000 65
* 4.6.48 QTCaptureDeviceAVCTransportControlsNormalForwardSpeed = 10000 65
* 4.6.49 QTCaptureDeviceAVCTransportControlsNormalReverseSpeed = -10000 66
* 4.6.50 QTCaptureDeviceAVCTransportControlsNotPlayingMode = 0 66
* 4.6.51 QTCaptureDeviceAVCTransportControlsPlayingMode = 1 66
* 4.6.52 QTCaptureDeviceAVCTransportControlsSlowestForwardSpeed = 1000 66
* 4.6.53 QTCaptureDeviceAVCTransportControlsSlowestReverseSpeed = -1000 66
* 4.6.54 QTCaptureDeviceAVCTransportControlsSlowForwardSpeed = 7000 67
* 4.6.55 QTCaptureDeviceAVCTransportControlsSlowReverseSpeed = -7000 67
* 4.6.56 QTCaptureDeviceAVCTransportControlsStoppedSpeed = 0 67
* 4.6.57 QTCaptureDeviceAVCTransportControlsVeryFastForwardSpeed = 16000 67
* 4.6.58 QTCaptureDeviceAVCTransportControlsVeryFastReverseSpeed = -16000 67
* 4.6.59 QTCaptureDeviceAVCTransportControlsVerySlowForwardSpeed = 4000 68
* 4.6.60 QTCaptureDeviceAVCTransportControlsVerySlowReverseSpeed = -4000 68

– 4.7.1 class QTKitCaptureFileOutputMBS 69

* 4.7.3 Constructor 69

* 4.7.4 file as folderitem 69
* 4.7.5 isRecordingPaused as boolean 69
* 4.7.6 pauseRecording 70
* 4.7.7 recordedDuration as QTKitTimeMBS 70
* 4.7.8 recordedFileSize as int64 70
* 4.7.9 recordToOutputFile(file as folderitem) 70
* 4.7.10 recordToOutputFile(file as folderitem, WriteExisingBuffersToOldFile as boolean) 70
* 4.7.11 resumeRecording 71
* 4.7.12 setMaximumVideoSize(width as Double, height as Double) 71
* 4.7.14 CompressionOptions(connection as QTKitCaptureConnectionMBS) as QTKitCompressionOptionsMBS 72
* 4.7.15 maximumRecordedDuration as QTKitTimeMBS 72
* 4.7.16 maximumRecordedFileSize as int64 72
* 4.7.17 MaximumVideoSize as NSSizeMBS 73
* 4.7.18 minimumVideoFrameInterval as Double 73
* 4.7.20 didFinishRecordingToOutputFileAtURL(fileURL as string, file as folderitem, connections() as QTKitCaptureConnectionMBS, error as NSErrorMBS) 73
* 4.7.21 didOutputSampleBuffer(sampleBuffer as QTKitSampleBufferMBS, connection as QTKitCaptureConnectionMBS) 74
* 4.7.22 didPauseRecordingToOutputFileAtURL(fileURL as string, file as folderitem, connections() as QTKitCaptureConnectionMBS) 74
* 4.7.23 didResumeRecordingToOutputFileAtURL(fileURL as string, file as folderitem, connections() as QTKitCaptureConnectionMBS) 74
* 4.7.24 didStartRecordingToOutputFileAtURL(fileURL as string, file as folderitem, connections() as QTKitCaptureConnectionMBS) 75
* 4.7.25 mustChangeOutputFileAtURL(fileURL as string, file as folderitem, connections() as QTKitCaptureConnectionMBS, error as NSErrorMBS) 75
* 4.7.26 shouldChangeOutputFileAtURL(fileURL as string, file as folderitem, connections() as QTKitCaptureConnectionMBS, error as NSErrorMBS) as boolean 76
* 4.7.27 willFinishRecordingToOutputFileAtURL(fileURL as string, file as folderitem, connections() as QTKitCaptureConnectionMBS, error as NSErrorMBS) 76
* 4.7.28 willStartRecordingToOutputFileAtURL(fileURL as string, file as folderitem, connections() as QTKitCaptureConnectionMBS) 76

– 4.8.1 class QTKitCaptureInputMBS 77

* 4.8.3 connections as QTKitCaptureConnectionMBS() 77
* 4.8.4 Constructor(device as QTKitCaptureDeviceMBS) 77
* 4.8.5 device as QTKitCaptureDeviceMBS 77
* 4.8.7 Handle as Integer 77

– 4.9.1 class QTKitCaptureMovieFileOutputMBS 79

* 4.9.3 Constructor 79

– 4.10.1 class QTKitCaptureOutputMBS 80

* 4.10.3 connections as QTKitCaptureConnectionMBS() 80

* 4.10.4 Constructor 80
* 4.10.6 Handle as Integer 80

– 4.11.1 class QTKitCaptureSessionMBS 82

* 4.11.3 addInput(captureInput as QTKitCaptureInputMBS, byref error as NSErrorMBS) as boolean 82
* 4.11.4 addOutput(captureOutput as QTKitCaptureOutputMBS, byref error as NSErrorMBS) as boolean 83
* 4.11.5 Constructor 83
* 4.11.6 inputs as QTKitCaptureInputMBS() 83
* 4.11.7 isRunning as boolean 83
* 4.11.8 outputs as QTKitCaptureOutputMBS() 84
* 4.11.9 QTCaptureSessionErrorKey as string 84
* 4.11.10 QTCaptureSessionRuntimeErrorNotification as string 84
* 4.11.11 removeInput(captureInput as QTKitCaptureInputMBS) 85
* 4.11.12 removeOutput(captureOutput as QTKitCaptureOutputMBS) 85
* 4.11.13 startRunning 85
* 4.11.14 stopRunning 85
* 4.11.16 Handle as Integer 85

– 4.12.1 class QTKitCaptureVideoPreviewOutputMBS 86

* 4.12.3 pixelBufferAttributes as dictionary 86

– 4.13.1 class QTKitCaptureViewMBS 88

* 4.13.3 available as boolean 88
* 4.13.4 availableVideoPreviewConnections as QTKitCaptureConnectionMBS() 88
* 4.13.5 Constructor 88
* 4.13.6 Constructor(Handle as Integer) 89
* 4.13.7 Constructor(left as Double, top as Double, width as Double, height as Double) 89
* 4.13.8 Destructor 90
* 4.13.9 previewBounds as NSRectMBS 90
* 4.13.10 setFilters(cifilters() as Variant) 90
* 4.13.12 captureSession as QTKitCaptureSessionMBS 90
* 4.13.13 fillColor as NSColorMBS 90
* 4.13.14 preservesAspectRatio as boolean 91
* 4.13.15 videoPreviewConnection as QTKitCaptureConnectionMBS 91
* 4.13.17 didDisplayImage(inputImage as Variant, outputImage as Variant) 91

– 4.14.1 class QTKitCompressionOptionsMBS 92

* 4.14.3 compressionOptionsIdentifiersForMediaType(mediatype as string) as string() 92
* 4.14.4 compressionOptionsWithIdentifier(identifier as string) as QTKitCompressionOptionsMBS 92
* 4.14.5 Constructor 93
* 4.14.6 Equal(Other as QTKitCompressionOptionsMBS) as boolean 93
* 4.14.7 localizedCompressionOptionsSummary as string 93

* 4.14.8 localizedDisplayName as string 93
* 4.14.9 mediaType as string 94
* 4.14.11 Handle as Integer 94
* 4.14.13 kOptions120SizeH264Video="QTCompressionOptions120SizeH264Video" 94
* 4.14.14 kOptions120SizeMPEG4Video="QTCompressionOptions120SizeMPEG4Video" 94
* 4.14.15 kOptions240SizeH264Video="QTCompressionOptions240SizeH264Video" 95
* 4.14.16 kOptions240SizeMPEG4Video="QTCompressionOptions240SizeMPEG4Video" 95
* 4.14.17 kOptionsHighQualityAACAudio="QTCompressionOptionsHighQualityAACAudio" 95
* 4.14.18 kOptionsJPEGVideo="QTCompressionOptionsJPEGVideo" 95
* 4.14.19 kOptionsLosslessALACAudio="QTCompressionOptionsLosslessALACAudio" 95
* 4.14.20 kOptionsLosslessAnimationVideo="QTCompressionOptionsLosslessAnimationVideo" 96
* 4.14.21 kOptionsLosslessAppleIntermediateVideo="QTCompressionOptionsLosslessAppleIntermediateVideo" 96
* 4.14.22 kOptionsSD480SizeH264Video="QTCompressionOptionsSD480SizeH264Video" 96
* 4.14.23 kOptionsSD480SizeMPEG4Video="QTCompressionOptionsSD480SizeMPEG4Video" 96
* 4.14.24 kOptionsVoiceQualityAACAudio="QTCompressionOptionsVoiceQualityAACAudio" 97

– 4.15.1 class QTKitCustomCaptureViewMBS 98

* 4.15.3 Constructor 98
* 4.15.4 Constructor(Handle as Integer) 98
* 4.15.5 Constructor(left as Double, top as Double, width as Double, height as Double) 99
* 4.15.6 Destructor 99
* 4.15.8 acceptsFirstMouse(e as NSEventMBS) as boolean 99
* 4.15.9 acceptsFirstResponder as boolean 99
* 4.15.10 becomeFirstResponder as boolean 100
* 4.15.11 beginGestureWithEvent(e as NSEventMBS) as boolean 100
* 4.15.12 canBecomeKeyView as boolean 100
* 4.15.13 Close 100
* 4.15.14 concludeDragOperation(sender as NSDraggingInfoMBS) 100
* 4.15.15 draggingEnded(sender as NSDraggingInfoMBS) 101
* 4.15.16 draggingEntered(sender as NSDraggingInfoMBS) as Integer 101
* 4.15.17 draggingExited(sender as NSDraggingInfoMBS) 102
* 4.15.18 draggingSessionEndedAtPoint(session as NSDraggingSessionMBS, screenPoint as NSPointMBS, operation as Integer) 102
* 4.15.19 draggingSessionMovedToPoint(session as NSDraggingSessionMBS, screenPoint as NSPointMBS) 102
* 4.15.20 draggingSessionSourceOperationMaskForDraggingContext(session as NSDraggingSessionMBS, context as Integer) as Integer 103
* 4.15.21 draggingSessionWillBeginAtPoint(session as NSDraggingSessionMBS, screenPoint as NSPointMBS) 103
* 4.15.22 draggingSourceOperationMaskForLocal(flag as boolean) as Integer 103

* 4.15.23 draggingUpdated(sender as NSDraggingInfoMBS) as Integer 104
* 4.15.24 endGestureWithEvent(e as NSEventMBS) as boolean 105
* 4.15.25 ignoreModifierKeysForDraggingSession(session as NSDraggingSessionMBS) as boolean 105
* 4.15.26 isOpaque as boolean 105
* 4.15.27 keyDown(e as NSEventMBS) as boolean 105
* 4.15.28 keyUp(e as NSEventMBS) as boolean 105
* 4.15.29 magnifyWithEvent(e as NSEventMBS) as boolean 106
* 4.15.30 menuForEvent(e as NSEventMBS, defaultMenu as NSMenuMBS) as NSMenuMBS 106
* 4.15.31 mouseDown(e as NSEventMBS, x as Double, y as Double) as boolean 106
* 4.15.32 mouseDownCanMoveWindow as boolean 106
* 4.15.33 mouseDragged(e as NSEventMBS, x as Double, y as Double) as boolean 107
* 4.15.34 mouseEntered(e as NSEventMBS, x as Double, y as Double) as boolean 107
* 4.15.35 mouseExited(e as NSEventMBS, x as Double, y as Double) as boolean 107
* 4.15.36 mouseMoved(e as NSEventMBS, x as Double, y as Double) as boolean 107
* 4.15.37 mouseUp(e as NSEventMBS, x as Double, y as Double) as boolean 107
* 4.15.38 Open 108
* 4.15.39 otherMouseDown(e as NSEventMBS, x as Double, y as Double) as boolean 108
* 4.15.40 otherMouseDragged(e as NSEventMBS, x as Double, y as Double) as boolean 108
* 4.15.41 otherMouseUp(e as NSEventMBS, x as Double, y as Double) as boolean 108
* 4.15.42 performDragOperation(sender as NSDraggingInfoMBS) as boolean 108
* 4.15.43 prepareForDragOperation(sender as NSDraggingInfoMBS) as boolean 109
* 4.15.44 pressureChange(e as NSEventMBS) as boolean 109
* 4.15.45 resignFirstResponder as boolean 109
* 4.15.46 rightMouseDown(e as NSEventMBS, x as Double, y as Double) as boolean 110
* 4.15.47 rightMouseDragged(e as NSEventMBS, x as Double, y as Double) as boolean 110
* 4.15.48 rightMouseUp(e as NSEventMBS, x as Double, y as Double) as boolean 110
* 4.15.49 rotateWithEvent(e as NSEventMBS) as boolean 110
* 4.15.50 scrollWheel(e as NSEventMBS) as boolean 110
* 4.15.51 swipeWithEvent(e as NSEventMBS) as boolean 111
* 4.15.52 updateDraggingItemsForDrag(sender as NSDraggingInfoMBS) 111
* 4.15.53 viewDidMoveToWindow 111
* 4.15.54 wantsPeriodicDraggingUpdates as boolean 112

– 4.16.1 class QTKitCustomMovieViewMBS 113

* 4.16.3 Constructor 113
* 4.16.4 Constructor(Handle as Integer) 113
* 4.16.5 Constructor(left as Double, top as Double, width as Double, height as Double) 114
* 4.16.6 Destructor 114
* 4.16.8 acceptsFirstMouse(e as NSEventMBS) as boolean 114
* 4.16.9 acceptsFirstResponder as boolean 114
* 4.16.10 becomeFirstResponder as boolean 115

* 4.16.11 beginGestureWithEvent(e as NSEventMBS) as boolean 115
* 4.16.12 canBecomeKeyView as boolean 115
* 4.16.13 Close 115
* 4.16.14 concludeDragOperation(sender as NSDraggingInfoMBS) 115
* 4.16.15 draggingEnded(sender as NSDraggingInfoMBS) 116
* 4.16.16 draggingEntered(sender as NSDraggingInfoMBS) as Integer 116
* 4.16.17 draggingExited(sender as NSDraggingInfoMBS) 117
* 4.16.18 draggingSessionEndedAtPoint(session as NSDraggingSessionMBS, screenPoint as NSPointMBS, operation as Integer) 117
* 4.16.19 draggingSessionMovedToPoint(session as NSDraggingSessionMBS, screenPoint as NSPointMBS) 117
* 4.16.20 draggingSessionSourceOperationMaskForDraggingContext(session as NSDraggingSessionMBS, context as Integer) as Integer 118
* 4.16.21 draggingSessionWillBeginAtPoint(session as NSDraggingSessionMBS, screenPoint as NSPointMBS) 118
* 4.16.22 draggingSourceOperationMaskForLocal(flag as boolean) as Integer 118
* 4.16.23 draggingUpdated(sender as NSDraggingInfoMBS) as Integer 119
* 4.16.24 endGestureWithEvent(e as NSEventMBS) as boolean 120
* 4.16.25 ignoreModifierKeysForDraggingSession(session as NSDraggingSessionMBS) as boolean 120
* 4.16.26 isOpaque as boolean 120
* 4.16.27 keyDown(e as NSEventMBS) as boolean 120
* 4.16.28 keyUp(e as NSEventMBS) as boolean 120
* 4.16.29 magnifyWithEvent(e as NSEventMBS) as boolean 121
* 4.16.30 menuForEvent(e as NSEventMBS, defaultMenu as NSMenuMBS) as NSMenuMBS 121
* 4.16.31 mouseDown(e as NSEventMBS, x as Double, y as Double) as boolean 121
* 4.16.32 mouseDownCanMoveWindow as boolean 121
* 4.16.33 mouseDragged(e as NSEventMBS, x as Double, y as Double) as boolean 122
* 4.16.34 mouseEntered(e as NSEventMBS, x as Double, y as Double) as boolean 122
* 4.16.35 mouseExited(e as NSEventMBS, x as Double, y as Double) as boolean 122
* 4.16.36 mouseMoved(e as NSEventMBS, x as Double, y as Double) as boolean 122
* 4.16.37 mouseUp(e as NSEventMBS, x as Double, y as Double) as boolean 122
* 4.16.38 Open 123
* 4.16.39 otherMouseDown(e as NSEventMBS, x as Double, y as Double) as boolean 123
* 4.16.40 otherMouseDragged(e as NSEventMBS, x as Double, y as Double) as boolean 123
* 4.16.41 otherMouseUp(e as NSEventMBS, x as Double, y as Double) as boolean 123
* 4.16.42 performDragOperation(sender as NSDraggingInfoMBS) as boolean 123
* 4.16.43 prepareForDragOperation(sender as NSDraggingInfoMBS) as boolean 124
* 4.16.44 pressureChange(e as NSEventMBS) as boolean 124
* 4.16.45 resignFirstResponder as boolean 124
* 4.16.46 rightMouseDown(e as NSEventMBS, x as Double, y as Double) as boolean 125
* 4.16.47 rightMouseDragged(e as NSEventMBS, x as Double, y as Double) as boolean 125

* 4.16.48 rightMouseUp(e as NSEventMBS, x as Double, y as Double) as boolean 125
* 4.16.49 rotateWithEvent(e as NSEventMBS) as boolean 125
* 4.16.50 scrollWheel(e as NSEventMBS) as boolean 125
* 4.16.51 swipeWithEvent(e as NSEventMBS) as boolean 126
* 4.16.52 updateDraggingItemsForDrag(sender as NSDraggingInfoMBS) 126
* 4.16.53 viewDidMoveToWindow 126
* 4.16.54 wantsPeriodicDraggingUpdates as boolean 127

– 4.17.1 class QTKitDataReferenceMBS 128

* 4.17.3 Constructor 128
* 4.17.4 dataRefData as memoryblock 128
* 4.17.5 dataReferenceWithDataRefData(dataRefData as memoryblock, type as string) as QTKitDataReferenceMBS 128
* 4.17.6 dataReferenceWithReferenceToData(data as memoryblock) as QTKitDataReferenceMBS 129
* 4.17.7 dataReferenceWithReferenceToData(data as memoryblock, name as string, mimetype as string) as QTKitDataReferenceMBS 129
* 4.17.8 dataReferenceWithReferenceToFile(file as folderitem) as QTKitDataReferenceMBS 129
* 4.17.9 dataReferenceWithReferenceToURL(url as string) as QTKitDataReferenceMBS 129
* 4.17.10 File as folderitem 130
* 4.17.11 MIMEType as string 130
* 4.17.12 name as string 130
* 4.17.13 QTDataReferenceTypeFile as string 130
* 4.17.14 QTDataReferenceTypeHandle as string 130
* 4.17.15 QTDataReferenceTypePointer as string 130
* 4.17.16 QTDataReferenceTypeResource as string 130
* 4.17.17 QTDataReferenceTypeURL as string 131
* 4.17.18 referenceData as memoryblock 131
* 4.17.19 referenceFile as string 131
* 4.17.20 referenceURL as string 131
* 4.17.22 Handle as Integer 131
* 4.17.23 dataRefType as string 131

– 4.18.1 class QTKitExportOptionsMBS 132

* 4.18.3 allExportOptionsIdentifiers as string() 132
* 4.18.4 available as boolean 132
* 4.18.5 Constructor(identifier as string) 133
* 4.18.6 copy as QTKitExportOptionsMBS 133
* 4.18.7 exportOptionsIdentifiersCompatibleWithMovie(movie as QTKitMovieMBS) as string() 133
* 4.18.8 exportOptionsWithIdentifier(identifier as string) as QTKitExportOptionsMBS 134
* 4.18.9 localizedExportOptionsSummary as string 134
* 4.18.10 localizedNameForExportOptionsIdentifier(identifier as string) as string 134

* 4.18.11 QTExportOptionsAppleM4A as string 135
* 4.18.12 QTExportOptionsAppleM4V480pSD as string 135
* 4.18.13 QTExportOptionsAppleM4V720pHD as string 135
* 4.18.14 QTExportOptionsAppleM4VAppleTV as string 136
* 4.18.15 QTExportOptionsAppleM4VCellular as string 136
* 4.18.16 QTExportOptionsAppleM4ViPod as string 136
* 4.18.17 QTExportOptionsAppleM4VWiFi as string 136
* 4.18.18 QTExportOptionsQuickTimeMovie1080p as string 136
* 4.18.19 QTExportOptionsQuickTimeMovie480p as string 137
* 4.18.20 QTExportOptionsQuickTimeMovie720p as string 137
* 4.18.21 recommendedFileTypesForExportedFile as string() 137
* 4.18.23 Handle as Integer 137

– 4.19.1 class QTKitExportSessionMBS 139

* 4.19.3 available as boolean 139
* 4.19.4 cancel 139
* 4.19.5 Constructor(movie as QTKitMovieMBS, exportOptions as QTKitExportOptionsMBS, file as folderitem, byref error as NSErrorMBS) 139
* 4.19.6 Destructor 140
* 4.19.7 exportOptions as QTKitExportOptionsMBS 140
* 4.19.8 isCancelled as boolean 140
* 4.19.9 isFinished as boolean 140
* 4.19.10 isRunning as boolean 140
* 4.19.11 localizedExportSessionOutputSummary as string 141
* 4.19.12 progress as Double 141
* 4.19.13 run 141
* 4.19.14 waitUntilFinished(byref error as NSErrorMBS) as boolean 141
* 4.19.16 Handle as Integer 141
* 4.19.18 DidFailWithError(error as NSErrorMBS) 142
* 4.19.19 DidReachProgress(progress as Double) 142
* 4.19.20 DidSucceed 142
* 4.19.21 WasCancelled 142

– 4.20.1 class QTKitFormatDescriptionMBS 143

* 4.20.3 attributeForKey(key as string) as Variant 143
* 4.20.4 AudioChannelLayout as Variant 143
* 4.20.5 Constructor 143
* 4.20.6 formatDescriptionAttributes as dictionary 143
* 4.20.7 formatType as Integer 144
* 4.20.8 isEqual(other as QTKitFormatDescriptionMBS) as boolean 144
* 4.20.9 localizedFormatSummary as string 144
* 4.20.10 mediaType as string 144
* 4.20.11 QTFormatDescriptionAudioChannelLayoutAttribute as string 144

* 4.20.12 QTFormatDescriptionAudioMagicCookieAttribute as string 145
* 4.20.13 QTFormatDescriptionAudioStreamBasicDescriptionAttribute as string 145
* 4.20.14 QTFormatDescriptionVideoCleanApertureDisplaySizeAttribute as string 145
* 4.20.15 QTFormatDescriptionVideoEncodedPixelsSizeAttribute as string 145
* 4.20.16 QTFormatDescriptionVideoProductionApertureDisplaySizeAttribute as string 146
* 4.20.17 quickTimeSampleDescription as Memoryblock 146
* 4.20.19 Handle as Integer 146

– 4.21.1 class QTKitMediaMBS 147

* 4.21.3 CanSendVideo as boolean 147
* 4.21.4 CanStep as boolean 147
* 4.21.5 Constructor 147
* 4.21.6 hasCharacteristic(key as string) as boolean 147
* 4.21.7 HasNoDuration as boolean 148
* 4.21.8 HasSkinData as boolean 148
* 4.21.9 HasVideoFrameRate as boolean 148
* 4.21.10 IsAudio as boolean 148
* 4.21.11 IsNonLinear as boolean 148
* 4.21.12 IsVisual as boolean 149
* 4.21.13 MediaHandle as Integer 149
* 4.21.14 mediaWithQuickTimeMedia(MediaHandle as Integer, byref error as NSErrorMBS) as QTKitMediaMBS 149
* 4.21.15 ProvidesActions as boolean 149
* 4.21.16 ProvidesKeyFocus as boolean 150
* 4.21.17 QTMediaCharacteristicAudio as string 150
* 4.21.18 QTMediaCharacteristicCanSendVideo as string 150
* 4.21.19 QTMediaCharacteristicCanStep as string 150
* 4.21.20 QTMediaCharacteristicHasNoDuration as string 150
* 4.21.21 QTMediaCharacteristicHasSkinData as string 151
* 4.21.22 QTMediaCharacteristicHasVideoFrameRate as string 151
* 4.21.23 QTMediaCharacteristicNonLinear as string 151
* 4.21.24 QTMediaCharacteristicProvidesActions as string 151
* 4.21.25 QTMediaCharacteristicProvidesKeyFocus as string 151
* 4.21.26 QTMediaCharacteristicVisual as string 152
* 4.21.27 QTMediaCreationTimeAttribute as string 152
* 4.21.28 QTMediaDurationAttribute as string 152
* 4.21.29 QTMediaModificationTimeAttribute as string 152
* 4.21.30 QTMediaQualityAttribute as string 153
* 4.21.31 QTMediaSampleCountAttribute as string 153
* 4.21.32 QTMediaTimeScaleAttribute as string 153
* 4.21.33 QTMediaType3D as string 153
* 4.21.34 QTMediaTypeAttribute as string 154

* 4.21.35 QTMediaTypeBase as string 154
* 4.21.36 QTMediaTypeClosedCaption as string 154
* 4.21.37 QTMediaTypeFlash as string 154
* 4.21.38 QTMediaTypeHint as string 155
* 4.21.39 QTMediaTypeMovie as string 155
* 4.21.40 QTMediaTypeMPEG as string 155
* 4.21.41 QTMediaTypeMusic as string 155
* 4.21.42 QTMediaTypeMuxed as string 156
* 4.21.43 QTMediaTypeQTVR as string 156
* 4.21.44 QTMediaTypeQuartzComposer as string 156
* 4.21.45 QTMediaTypeSkin as string 156
* 4.21.46 QTMediaTypeSound as string 156
* 4.21.47 QTMediaTypeSprite as string 157
* 4.21.48 QTMediaTypeStream as string 157
* 4.21.49 QTMediaTypeSubtitle as string 157
* 4.21.50 QTMediaTypeText as string 157
* 4.21.51 QTMediaTypeTimeCode as string 158
* 4.21.52 QTMediaTypeTween as string 158
* 4.21.53 QTMediaTypeVideo as string 158
* 4.21.54 track as QTKitTrackMBS 158
* 4.21.56 Handle as Integer 158
* 4.21.57 attributeForKey(key as string) as Variant 159
* 4.21.58 CreationTime as date 159
* 4.21.59 Duration as QTKitTimeMBS 159
* 4.21.60 mediaAttributes as dictionary 159
* 4.21.61 ModificationTime as date 159
* 4.21.62 Quality as Integer 159
* 4.21.63 SampleCount as Integer 160
* 4.21.64 TimeScale as Integer 160
* 4.21.65 Type as string 160
* 4.21.67 kType3D = "qd3d" 160
* 4.21.68 kTypeBase = "gnrc" 160
* 4.21.69 kTypeClosedCaption = "clcp" 160
* 4.21.70 kTypeFlash = "flsh" 161
* 4.21.71 kTypeHint = "hint" 161
* 4.21.72 kTypeMovie = "moov" 161
* 4.21.73 kTypeMPEG = "MPEG" 161
* 4.21.74 kTypeMusic = "musi" 161
* 4.21.75 kTypeMuxed = "muxx" 161
* 4.21.76 kTypeQTVR = "qtvr" 161
* 4.21.77 kTypeQuartzComposer = "qtz " 162
* 4.21.78 kTypeSkin = "skin" 162

* 4.21.79 kTypeSound = "soun" 162
* 4.21.80 kTypeSprite = "sprt" 162
* 4.21.81 kTypeStream = "strm" 162
* 4.21.82 kTypeSubtitle = "sbtl" 162
* 4.21.83 kTypeText = "text" 162
* 4.21.84 kTypeTimeCode = "tmcd" 163
* 4.21.85 kTypeTween = "twen" 163
* 4.21.86 kTypeVideo = "vide" 163

– 4.22.1 class QTKitMetadataItemMBS 164

* 4.22.3 available as boolean 165
* 4.22.4 Constructor 165
* 4.22.5 copy as QTKitMetadataItemMBS 165
* 4.22.6 metadataItemsFromArrayWithKey(items() as QTKitMetadataItemMBS, key as Variant, keySpace as string) as QTKitMetadataItemMBS() 165
* 4.22.7 metadataItemsFromArrayWithLocale(items() as QTKitMetadataItemMBS, locale as NSLocaleMBS) as QTKitMetadataItemMBS() 166
* 4.22.8 QTMetadata3GPUserDataKeyAuthor as string 166
* 4.22.9 QTMetadata3GPUserDataKeyCopyright as string 166
* 4.22.10 QTMetadata3GPUserDataKeyDescription as string 166
* 4.22.11 QTMetadata3GPUserDataKeyGenre as string 166
* 4.22.12 QTMetadata3GPUserDataKeyLocation as string 167
* 4.22.13 QTMetadata3GPUserDataKeyPerformer as string 167
* 4.22.14 QTMetadata3GPUserDataKeyRecordingYear as string 167
* 4.22.15 QTMetadata3GPUserDataKeyTitle as string 167
* 4.22.16 QTMetadataCommonKeyAlbumName as string 167
* 4.22.17 QTMetadataCommonKeyArtist as string 167
* 4.22.18 QTMetadataCommonKeyArtwork as string 167
* 4.22.19 QTMetadataCommonKeyAuthor as string 168
* 4.22.20 QTMetadataCommonKeyComment as string 168
* 4.22.21 QTMetadataCommonKeyContributor as string 168
* 4.22.22 QTMetadataCommonKeyCopyrights as string 168
* 4.22.23 QTMetadataCommonKeyCreationDate as string 168
* 4.22.24 QTMetadataCommonKeyCreator as string 168
* 4.22.25 QTMetadataCommonKeyDescription as string 169
* 4.22.26 QTMetadataCommonKeyFormat as string 169
* 4.22.27 QTMetadataCommonKeyIdentifier as string 169
* 4.22.28 QTMetadataCommonKeyLanguage as string 169
* 4.22.29 QTMetadataCommonKeyLastModifiedDate as string 169
* 4.22.30 QTMetadataCommonKeyLocation as string 169
* 4.22.31 QTMetadataCommonKeyMake as string 170
* 4.22.32 QTMetadataCommonKeyModel as string 170
* 4.22.33 QTMetadataCommonKeyPublisher as string 170

* 4.22.34 QTMetadataCommonKeyRelation as string 170
* 4.22.35 QTMetadataCommonKeySoftware as string 170
* 4.22.36 QTMetadataCommonKeySource as string 170
* 4.22.37 QTMetadataCommonKeySubject as string 171
* 4.22.38 QTMetadataCommonKeyTitle as string 171
* 4.22.39 QTMetadataCommonKeyType as string 171
* 4.22.40 QTMetadataFormatID3Metadata as string 171
* 4.22.41 QTMetadataFormatiTunesMetadata as string 171
* 4.22.42 QTMetadataFormatQuickTimeMetadata as string 171
* 4.22.43 QTMetadataFormatQuickTimeUserData as string 172
* 4.22.44 QTMetadataID3MetadataKeyAlbumSortOrder as string 172
* 4.22.45 QTMetadataID3MetadataKeyAlbumTitle as string 172
* 4.22.46 QTMetadataID3MetadataKeyAttachedPicture as string 172
* 4.22.47 QTMetadataID3MetadataKeyAudioEncryption as string 173
* 4.22.48 QTMetadataID3MetadataKeyAudioSeekPointIndex as string 173
* 4.22.49 QTMetadataID3MetadataKeyBand as string 173
* 4.22.50 QTMetadataID3MetadataKeyBeatsPerMinute as string 173
* 4.22.51 QTMetadataID3MetadataKeyComments as string 173
* 4.22.52 QTMetadataID3MetadataKeyCommercialInformation as string 173
* 4.22.53 QTMetadataID3MetadataKeyCommerical as string 174
* 4.22.54 QTMetadataID3MetadataKeyComposer as string 174
* 4.22.55 QTMetadataID3MetadataKeyConductor as string 174
* 4.22.56 QTMetadataID3MetadataKeyContentGroupDescription as string 174
* 4.22.57 QTMetadataID3MetadataKeyContentType as string 174
* 4.22.58 QTMetadataID3MetadataKeyCopyright as string 174
* 4.22.59 QTMetadataID3MetadataKeyCopyrightInformation as string 175
* 4.22.60 QTMetadataID3MetadataKeyDate as string 175
* 4.22.61 QTMetadataID3MetadataKeyEncodedBy as string 175
* 4.22.62 QTMetadataID3MetadataKeyEncodedWith as string 175
* 4.22.63 QTMetadataID3MetadataKeyEncodingTime as string 175
* 4.22.64 QTMetadataID3MetadataKeyEncryption as string 175
* 4.22.65 QTMetadataID3MetadataKeyEqualization as string 176
* 4.22.66 QTMetadataID3MetadataKeyEqualization2 as string 176
* 4.22.67 QTMetadataID3MetadataKeyEventTimingCodes as string 176
* 4.22.68 QTMetadataID3MetadataKeyFileOwner as string 176
* 4.22.69 QTMetadataID3MetadataKeyFileType as string 176
* 4.22.70 QTMetadataID3MetadataKeyGeneralEncapsulatedObject as string 176
* 4.22.71 QTMetadataID3MetadataKeyGroupIdentifier as string 177
* 4.22.72 QTMetadataID3MetadataKeyInitialKey as string 177
* 4.22.73 QTMetadataID3MetadataKeyInternationalStandardRecordingCode as string 177
* 4.22.74 QTMetadataID3MetadataKeyInternetRadioStationName as string 177
* 4.22.75 QTMetadataID3MetadataKeyInternetRadioStationOwner as string 177

* 4.22.76 QTMetadataID3MetadataKeyInvolvedPeopleList_v23 as string 177
* 4.22.77 QTMetadataID3MetadataKeyInvolvedPeopleList_v24 as string 178
* 4.22.78 QTMetadataID3MetadataKeyLanguage as string 178
* 4.22.79 QTMetadataID3MetadataKeyLeadPerformer as string 178
* 4.22.80 QTMetadataID3MetadataKeyLength as string 178
* 4.22.81 QTMetadataID3MetadataKeyLink as string 178
* 4.22.82 QTMetadataID3MetadataKeyLyricist as string 178
* 4.22.83 QTMetadataID3MetadataKeyMediaType as string 179
* 4.22.84 QTMetadataID3MetadataKeyModifiedBy as string 179
* 4.22.85 QTMetadataID3MetadataKeyMood as string 179
* 4.22.86 QTMetadataID3MetadataKeyMPEGLocationLookupTable as string 179
* 4.22.87 QTMetadataID3MetadataKeyMusicCDIdentifier as string 179
* 4.22.88 QTMetadataID3MetadataKeyMusicianCreditsList as string 179
* 4.22.89 QTMetadataID3MetadataKeyOfficialArtistWebpage as string 180
* 4.22.90 QTMetadataID3MetadataKeyOfficialAudioFileWebpage as string 180
* 4.22.91 QTMetadataID3MetadataKeyOfficialAudioSourceWebpage as string 180
* 4.22.92 QTMetadataID3MetadataKeyOfficialInternetRadioStationHomepage as string 180
* 4.22.93 QTMetadataID3MetadataKeyOfficialPublisherWebpage as string 180
* 4.22.94 QTMetadataID3MetadataKeyOriginalAlbumTitle as string 180
* 4.22.95 QTMetadataID3MetadataKeyOriginalArtist as string 181
* 4.22.96 QTMetadataID3MetadataKeyOriginalFilename as string 181
* 4.22.97 QTMetadataID3MetadataKeyOriginalLyricist as string 181
* 4.22.98 QTMetadataID3MetadataKeyOriginalReleaseTime as string 181
* 4.22.99 QTMetadataID3MetadataKeyOriginalReleaseYear as string 181
* 4.22.100 QTMetadataID3MetadataKeyOwnership as string 181
* 4.22.101 QTMetadataID3MetadataKeyPartOfASet as string 182
* 4.22.102 QTMetadataID3MetadataKeyPayment as string 182
* 4.22.103 QTMetadataID3MetadataKeyPerformerSortOrder as string 183
* 4.22.104 QTMetadataID3MetadataKeyPlayCounter as string 183
* 4.22.105 QTMetadataID3MetadataKeyPlaylistDelay as string 183
* 4.22.106 QTMetadataID3MetadataKeyPopularimeter as string 183
* 4.22.107 QTMetadataID3MetadataKeyPositionSynchronization as string 183
* 4.22.108 QTMetadataID3MetadataKeyPrivate as string 183
* 4.22.109 QTMetadataID3MetadataKeyProducedNotice as string 184
* 4.22.110 QTMetadataID3MetadataKeyPublisher as string 184
* 4.22.111 QTMetadataID3MetadataKeyRecommendedBufferSize as string 184
* 4.22.112 QTMetadataID3MetadataKeyRecordingDates as string 184
* 4.22.113 QTMetadataID3MetadataKeyRecordingTime as string 184
* 4.22.114 QTMetadataID3MetadataKeyRelativeVolumeAdjustment as string 184
* 4.22.115 QTMetadataID3MetadataKeyRelativeVolumeAdjustment2 as string 185
* 4.22.116 QTMetadataID3MetadataKeyReleaseTime as string 185
* 4.22.117 QTMetadataID3MetadataKeyReverb as string 185

* 4.22.118 QTMetadataID3MetadataKeySeek as string 185
* 4.22.119 QTMetadataID3MetadataKeySetSubtitle as string 185
* 4.22.120 QTMetadataID3MetadataKeySignature as string 185
* 4.22.121 QTMetadataID3MetadataKeySize as string 186
* 4.22.122 QTMetadataID3MetadataKeySubTitle as string 186
* 4.22.123 QTMetadataID3MetadataKeySynchronizedLyric as string 186
* 4.22.124 QTMetadataID3MetadataKeySynchronizedTempoCodes as string 186
* 4.22.125 QTMetadataID3MetadataKeyTaggingTime as string 186
* 4.22.126 QTMetadataID3MetadataKeyTermsOfUse as string 186
* 4.22.127 QTMetadataID3MetadataKeyTime as string 187
* 4.22.128 QTMetadataID3MetadataKeyTitleDescription as string 187
* 4.22.129 QTMetadataID3MetadataKeyTitleSortOrder as string 187
* 4.22.130 QTMetadataID3MetadataKeyTrackNumber as string 187
* 4.22.131 QTMetadataID3MetadataKeyUniqueFileIdentifier as string 187
* 4.22.132 QTMetadataID3MetadataKeyUnsynchronizedLyric as string 187
* 4.22.133 QTMetadataID3MetadataKeyUserText as string 188
* 4.22.134 QTMetadataID3MetadataKeyUserURL as string 188
* 4.22.135 QTMetadataID3MetadataKeyYear as string 188
* 4.22.136 QTMetadataISOUserDataKeyCopyright as string 188
* 4.22.137 QTMetadataiTunesMetadataKeyAccountKind as string 188
* 4.22.138 QTMetadataiTunesMetadataKeyAcknowledgement as string 188
* 4.22.139 QTMetadataiTunesMetadataKeyAlbum as string 189
* 4.22.140 QTMetadataiTunesMetadataKeyAlbumArtist as string 189
* 4.22.141 QTMetadataiTunesMetadataKeyAppleID as string 189
* 4.22.142 QTMetadataiTunesMetadataKeyArranger as string 189
* 4.22.143 QTMetadataiTunesMetadataKeyArtDirector as string 189
* 4.22.144 QTMetadataiTunesMetadataKeyArtist as string 189
* 4.22.145 QTMetadataiTunesMetadataKeyArtistID as string 189
* 4.22.146 QTMetadataiTunesMetadataKeyAuthor as string 190
* 4.22.147 QTMetadataiTunesMetadataKeyBeatsPerMin as string 190
* 4.22.148 QTMetadataiTunesMetadataKeyComposer as string 190
* 4.22.149 QTMetadataiTunesMetadataKeyConductor as string 190
* 4.22.150 QTMetadataiTunesMetadataKeyContentRating as string 190
* 4.22.151 QTMetadataiTunesMetadataKeyCopyright as string 190
* 4.22.152 QTMetadataiTunesMetadataKeyCoverArt as string 190
* 4.22.153 QTMetadataiTunesMetadataKeyCredits as string 191
* 4.22.154 QTMetadataiTunesMetadataKeyDescription as string 191
* 4.22.155 QTMetadataiTunesMetadataKeyDirector as string 191
* 4.22.156 QTMetadataiTunesMetadataKeyDiscCompilation as string 191
* 4.22.157 QTMetadataiTunesMetadataKeyDiscNumber as string 191
* 4.22.158 QTMetadataiTunesMetadataKeyEncodedBy as string 191
* 4.22.159 QTMetadataiTunesMetadataKeyEncodingTool as string 191

* 4.22.160 QTMetadataiTunesMetadataKeyEQ as string 192
* 4.22.161 QTMetadataiTunesMetadataKeyExecProducer as string 192
* 4.22.162 QTMetadataiTunesMetadataKeyGenreID as string 192
* 4.22.163 QTMetadataiTunesMetadataKeyGrouping as string 192
* 4.22.164 QTMetadataiTunesMetadataKeyLinerNotes as string 192
* 4.22.165 QTMetadataiTunesMetadataKeyLyrics as string 192
* 4.22.166 QTMetadataiTunesMetadataKeyOnlineExtras as string 192
* 4.22.167 QTMetadataiTunesMetadataKeyOriginalArtist as string 193
* 4.22.168 QTMetadataiTunesMetadataKeyPerformer as string 193
* 4.22.169 QTMetadataiTunesMetadataKeyPhonogramRights as string 193
* 4.22.170 QTMetadataiTunesMetadataKeyPlaylistID as string 193
* 4.22.171 QTMetadataiTunesMetadataKeyPredefinedGenre as string 193
* 4.22.172 QTMetadataiTunesMetadataKeyProducer as string 193
* 4.22.173 QTMetadataiTunesMetadataKeyPublisher as string 193
* 4.22.174 QTMetadataiTunesMetadataKeyRecordCompany as string 194
* 4.22.175 QTMetadataiTunesMetadataKeyReleaseDate as string 194
* 4.22.176 QTMetadataiTunesMetadataKeySoloist as string 194
* 4.22.177 QTMetadataiTunesMetadataKeySongID as string 194
* 4.22.178 QTMetadataiTunesMetadataKeySongName as string 194
* 4.22.179 QTMetadataiTunesMetadataKeySoundEngineer as string 194
* 4.22.180 QTMetadataiTunesMetadataKeyThanks as string 194
* 4.22.181 QTMetadataiTunesMetadataKeyTrackNumber as string 195
* 4.22.182 QTMetadataiTunesMetadataKeyTrackSubTitle as string 195
* 4.22.183 QTMetadataiTunesMetadataKeyUserComment as string 195
* 4.22.184 QTMetadataiTunesMetadataKeyUserGenre as string 195
* 4.22.185 QTMetadataKeySpaceCommon as string 195
* 4.22.186 QTMetadataKeySpaceID3 as string 195
* 4.22.187 QTMetadataKeySpaceiTunes as string 195
* 4.22.188 QTMetadataKeySpaceQuickTimeMetadata as string 196
* 4.22.189 QTMetadataKeySpaceQuickTimeUserData as string 196
* 4.22.190 QTMetadataQuickTimeMetadataKeyAlbum as string 196
* 4.22.191 QTMetadataQuickTimeMetadataKeyArranger as string 196
* 4.22.192 QTMetadataQuickTimeMetadataKeyArtist as string 196
* 4.22.193 QTMetadataQuickTimeMetadataKeyArtwork as string 196
* 4.22.194 QTMetadataQuickTimeMetadataKeyAuthor as string 196
* 4.22.195 QTMetadataQuickTimeMetadataKeyComment as string 197
* 4.22.196 QTMetadataQuickTimeMetadataKeyComposer as string 197
* 4.22.197 QTMetadataQuickTimeMetadataKeyCopyright as string 197
* 4.22.198 QTMetadataQuickTimeMetadataKeyCreationDate as string 197
* 4.22.199 QTMetadataQuickTimeMetadataKeyCredits as string 197
* 4.22.200 QTMetadataQuickTimeMetadataKeyDescription as string 197
* 4.22.201 QTMetadataQuickTimeMetadataKeyDirector as string 197

* 4.22.202 QTMetadataQuickTimeMetadataKeyDisplayName as string 198
* 4.22.203 QTMetadataQuickTimeMetadataKeyEncodedBy as string 198
* 4.22.204 QTMetadataQuickTimeMetadataKeyGenre as string 198
* 4.22.205 QTMetadataQuickTimeMetadataKeyInformation as string 198
* 4.22.206 QTMetadataQuickTimeMetadataKeyiXML as string 198
* 4.22.207 QTMetadataQuickTimeMetadataKeyKeywords as string 198
* 4.22.208 QTMetadataQuickTimeMetadataKeyLocationISO6709 as string 198
* 4.22.209 QTMetadataQuickTimeMetadataKeyMake as string 199
* 4.22.210 QTMetadataQuickTimeMetadataKeyModel as string 199
* 4.22.211 QTMetadataQuickTimeMetadataKeyOriginalArtist as string 199
* 4.22.212 QTMetadataQuickTimeMetadataKeyPerformer as string 199
* 4.22.213 QTMetadataQuickTimeMetadataKeyPhonogramRights as string 199
* 4.22.214 QTMetadataQuickTimeMetadataKeyProducer as string 199
* 4.22.215 QTMetadataQuickTimeMetadataKeyPublisher as string 199
* 4.22.216 QTMetadataQuickTimeMetadataKeySoftware as string 200
* 4.22.217 QTMetadataQuickTimeMetadataKeyYear as string 200
* 4.22.218 QTMetadataQuickTimeUserDataKeyAlbum as string 200
* 4.22.219 QTMetadataQuickTimeUserDataKeyArranger as string 200
* 4.22.220 QTMetadataQuickTimeUserDataKeyArtist as string 200
* 4.22.221 QTMetadataQuickTimeUserDataKeyAuthor as string 200
* 4.22.222 QTMetadataQuickTimeUserDataKeyChapter as string 200
* 4.22.223 QTMetadataQuickTimeUserDataKeyComment as string 201
* 4.22.224 QTMetadataQuickTimeUserDataKeyComposer as string 201
* 4.22.225 QTMetadataQuickTimeUserDataKeyCopyright as string 201
* 4.22.226 QTMetadataQuickTimeUserDataKeyCreationDate as string 201
* 4.22.227 QTMetadataQuickTimeUserDataKeyCredits as string 201
* 4.22.228 QTMetadataQuickTimeUserDataKeyDescription as string 201
* 4.22.229 QTMetadataQuickTimeUserDataKeyDirector as string 201
* 4.22.230 QTMetadataQuickTimeUserDataKeyDisclaimer as string 202
* 4.22.231 QTMetadataQuickTimeUserDataKeyEncodedBy as string 202
* 4.22.232 QTMetadataQuickTimeUserDataKeyFullName as string 202
* 4.22.233 QTMetadataQuickTimeUserDataKeyGenre as string 202
* 4.22.234 QTMetadataQuickTimeUserDataKeyHostComputer as string 202
* 4.22.235 QTMetadataQuickTimeUserDataKeyInformation as string 202
* 4.22.236 QTMetadataQuickTimeUserDataKeyKeywords as string 202
* 4.22.237 QTMetadataQuickTimeUserDataKeyLocationISO6709 as string 203
* 4.22.238 QTMetadataQuickTimeUserDataKeyMake as string 203
* 4.22.239 QTMetadataQuickTimeUserDataKeyModel as string 203
* 4.22.240 QTMetadataQuickTimeUserDataKeyOriginalArtist as string 203
* 4.22.241 QTMetadataQuickTimeUserDataKeyOriginalFormat as string 203
* 4.22.242 QTMetadataQuickTimeUserDataKeyOriginalSource as string 203
* 4.22.243 QTMetadataQuickTimeUserDataKeyPerformers as string 203

* 4.22.244 QTMetadataQuickTimeUserDataKeyPhonogramRights as string 204
* 4.22.245 QTMetadataQuickTimeUserDataKeyProducer as string 204
* 4.22.246 QTMetadataQuickTimeUserDataKeyProduct as string 204
* 4.22.247 QTMetadataQuickTimeUserDataKeyPublisher as string 204
* 4.22.248 QTMetadataQuickTimeUserDataKeySoftware as string 204
* 4.22.249 QTMetadataQuickTimeUserDataKeySpecialPlaybackRequirements as string 204
* 4.22.250 QTMetadataQuickTimeUserDataKeyTrack as string 204
* 4.22.251 QTMetadataQuickTimeUserDataKeyTrackName as string 205
* 4.22.252 QTMetadataQuickTimeUserDataKeyURLLink as string 205
* 4.22.253 QTMetadataQuickTimeUserDataKeyWarning as string 205
* 4.22.254 QTMetadataQuickTimeUserDataKeyWriter as string 205
* 4.22.256 dataValue as Memoryblock 205
* 4.22.257 dateValue as date 205
* 4.22.258 extraAttributes as dictionary 206
* 4.22.259 Handle as Integer 206
* 4.22.260 key as Variant 206
* 4.22.261 keySpace as string 206
* 4.22.262 locale as NSLocaleMBS 206
* 4.22.263 numberValue as Double 207
* 4.22.264 stringValue as string 207
* 4.22.265 time as QTKitTimeMBS 207
* 4.22.266 value as Variant 207

– 4.23.1 module QTKitModuleMBS 208

* 4.23.3 OSTypeForString(type as string) as Integer 208
* 4.23.4 QTErrorCaptureInputKey as string 208
* 4.23.5 QTErrorCaptureOutputKey as string 208
* 4.23.6 QTErrorDeviceKey as string 209
* 4.23.7 QTErrorExcludingDeviceKey as string 209
* 4.23.8 QTErrorFileSizeKey as string 209
* 4.23.9 QTErrorRecordingSuccesfullyFinishedKey as string 209
* 4.23.10 QTErrorRecordingSuccessfullyFinishedKey as string 210
* 4.23.11 QTErrorTimeKey as string 210
* 4.23.12 QTKitErrorDomain as string 210
* 4.23.13 StringForOSType(type as Integer) as string 210
* 4.23.15 codecHighQuality = & h00000300 211
* 4.23.16 codecLosslessQuality = & h00000400 211
* 4.23.17 codecLowQuality = & h00000100 211
* 4.23.18 codecMaxQuality = & h000003FF 211
* 4.23.19 codecMinQuality = & h00000000 211
* 4.23.20 codecNormalQuality = & h00000200 211
* 4.23.21 graphicsModeComposition = 259 211

* 4.23.22 graphicsModePerComponentAlpha = 272 212
* 4.23.23 graphicsModePreBlackAlpha = 258 212
* 4.23.24 graphicsModePreMulColorAlpha = 261 212
* 4.23.25 graphicsModePreWhiteAlpha = 257 212
* 4.23.26 graphicsModeStraightAlpha = 256 212
* 4.23.27 graphicsModeStraightAlphaBlend = 260 212
* 4.23.28 kQTFileType3DMF = "3DMF" 212
* 4.23.29 kQTFileType3GP2 = "3gp2" 213
* 4.23.30 kQTFileType3GPP = "3gpp" 213
* 4.23.31 kQTFileTypeAIFC = "AIFC" 213
* 4.23.32 kQTFileTypeAIFF = "AIFF" 213
* 4.23.33 kQTFileTypeAMC = "amc " 213
* 4.23.34 kQTFileTypeAMR = "amr " 213
* 4.23.35 kQTFileTypeAudioCDTrack = "trak" 213
* 4.23.36 kQTFileTypeAVI = "VfW " 213
* 4.23.37 kQTFileTypeBMP = "BMPf" 214
* 4.23.38 kQTFileTypeDVC = "dvc!" 214
* 4.23.39 kQTFileTypeFlash = "SWFL" 214
* 4.23.40 kQTFileTypeFlashPix = "FPix" 214
* 4.23.41 kQTFileTypeFLC = "FLC " 214
* 4.23.42 kQTFileTypeGIF = "GIFf" 214
* 4.23.43 kQTFileTypeJFIF = "JPEG" 214
* 4.23.44 kQTFileTypeJPEG = "JPEG" 214
* 4.23.45 kQTFileTypeJPEG2000 = "jp2 " 215
* 4.23.46 kQTFileTypeMacPaint = "PNTG" 215
* 4.23.47 kQTFileTypeMIDI = "Midi" 215
* 4.23.48 kQTFileTypeMovie = "MooV" 215
* 4.23.49 kQTFileTypeMP4 = "mpg4" 215
* 4.23.50 kQTFileTypeMuLaw = "ULAW" 215
* 4.23.51 kQTFileTypePDF = "PDF " 215
* 4.23.52 kQTFileTypePhotoShop = "8BPS" 215
* 4.23.53 kQTFileTypePICS = "PICS" 216
* 4.23.54 kQTFileTypePicture = "PICT" 216
* 4.23.55 kQTFileTypePNG = "PNGf" 216
* 4.23.56 kQTFileTypeQuickDrawGXPicture = "qdgx" 216
* 4.23.57 kQTFileTypeQuickTimeImage = "qtif" 216
* 4.23.58 kQTFileTypeSDV = "sdv " 216
* 4.23.59 kQTFileTypeSGIImage = ".SGI" 216
* 4.23.60 kQTFileTypeSoundDesignerII = "Sd2f" 216
* 4.23.61 kQTFileTypeSystemSevenSound = "sfil" 217
* 4.23.62 kQTFileTypeTargaImage = "TPIC" 217
* 4.23.63 kQTFileTypeText = "TEXT" 217

* 4.23.64 kQTFileTypeTIFF = "TIFF" 217
* 4.23.65 kQTFileTypeWave = "WAVE" 217
* 4.23.66 QTErrorDeviceAlreadyUsedbyAnotherSession = 1101 217
* 4.23.67 QTErrorDeviceExcludedByAnotherDevice = 1302 217
* 4.23.68 QTErrorDeviceInUseByAnotherApplication = 1301 218
* 4.23.69 QTErrorDeviceNotConnected = 1300 218
* 4.23.70 QTErrorDeviceWasDisconnected = 1203 218
* 4.23.71 QTErrorDiskFull = 1202 218
* 4.23.72 QTErrorExportExecutionFailed = 1503 219
* 4.23.73 QTErrorExportInsufficientSpaceOnDevice = 1504 219
* 4.23.74 QTErrorExportIOError = 1506 219
* 4.23.75 QTErrorExportNoSuchDirectoryOrFile = 1505 219
* 4.23.76 QTErrorIncompatibleInput = 1002 219
* 4.23.77 QTErrorIncompatibleOutput = 1003 219
* 4.23.78 QTErrorInvalidDestinationFileTypeForExport = 1501 220
* 4.23.79 QTErrorInvalidInputsOrOutputs = 1100 220
* 4.23.80 QTErrorInvalidSourceFileTypeForExport = 1502 220
* 4.23.81 QTErrorMaximumDurationReached = 1205 220
* 4.23.82 QTErrorMaximumFileSizeReached = 1206 220
* 4.23.83 QTErrorMaximumNumberOfSamplesForFileFormatReached = 1208 220
* 4.23.84 QTErrorMediaChanged = 1204 221
* 4.23.85 QTErrorMediaDiscontinuity = 1207 221
* 4.23.86 QTErrorNoDataCaptured = 1200 221
* 4.23.87 QTErrorSessionConfigurationChanged = 1201 221
* 4.23.88 QTErrorUnknown = -1 222

– 4.24.1 class QTKitMovieMBS 223

* 4.24.3 addChapters(names() as string, time() as QTKitTimeMBS, targetTrack as QTKitTrackMBS, byref error as NSErrorMBS) as boolean 223
* 4.24.4 addImage(image as NSImageMBS, duration as QTKitTimeMBS) 224
* 4.24.5 addImage(image as NSImageMBS, duration as QTKitTimeMBS, codec as string, codecQuality as Integer) 225
* 4.24.6 addImage(imageData as Memoryblock, duration as QTKitTimeMBS, codec as string, codecQuality as Integer) 226
* 4.24.7 addVideoTrackWithSize(width as Double, height as Double) as QTKitTrackMBS 227
* 4.24.8 appendSelectionFromMovie(mov as QTKitMovieMBS) 227
* 4.24.9 attachToCurrentThread as boolean 227
* 4.24.10 AudioSummaryChannelLayout as QTAudioChannelLayoutMBS 227
* 4.24.11 autoplay 228
* 4.24.12 available as boolean 228
* 4.24.13 availableMetadataFormats as string() 228
* 4.24.14 canLoadDataReference(data as QTKitDataReferenceMBS) as boolean 228
* 4.24.15 canLoadFile(file as folderitem) as boolean 228

* 4.24.16 canLoadPasteboard as boolean 229
* 4.24.17 canLoadURL(url as string) as boolean 229
* 4.24.18 canUpdateMovieFile as boolean 229
* 4.24.19 chapterCount as Integer 229
* 4.24.20 chapterIndexForTime(time as QTKitTimeMBS) as Integer 230
* 4.24.21 chapters as Dictionary() 230
* 4.24.22 commonMetadata as QTKitMetadataItemMBS() 230
* 4.24.23 Constructor 231
* 4.24.24 Constructor(file as folderitem) 231
* 4.24.25 Constructor(mov as movie, byref error as NSErrorMBS) 231
* 4.24.26 CreateMovieWithData(data as memoryblock, byref error as NSErrorMBS) as QTKitMovieMBS 232
* 4.24.27 CreateMovieWithDataReference(ref as QTKitDataReferenceMBS, byref error as NSErrorMBS) as QTKitMovieMBS 232
* 4.24.28 CreateMovieWithFile(file as folderitem, byref error as NSErrorMBS) as QTKitMovieMBS 232
* 4.24.29 currentBandLevels as Double() 233
* 4.24.30 currentFrameImage as NSImageMBS 234
* 4.24.31 CurrentSizeHeight as Double 234
* 4.24.32 CurrentSizeWidth as Double 234
* 4.24.33 deleteSegment(range as QTKitTimeRangeMBS) 234
* 4.24.34 detachFromCurrentThread as boolean 234
* 4.24.35 duration as QTKitTimeMBS 235
* 4.24.36 enterQTKitOnThread 235
* 4.24.37 enterQTKitOnThreadDisablingThreadSafetyProtection 235
* 4.24.38 exitQTKitOnThread 235
* 4.24.39 exportToFile(file as folderitem, byref error as NSErrorMBS, Type as string, Manufacturer as string, Settings as memoryblock) as boolean 236
* 4.24.40 flattenToFile(file as folderitem, byref error as NSErrorMBS) as boolean 236
* 4.24.41 frameImageAtTime(time as QTKitTimeMBS) as NSImageMBS 237
* 4.24.42 frameImageAtTime(time as QTKitTimeMBS, attributes as dictionary, byref error as NSErrorMBS) as Variant 238
* 4.24.43 generateApertureModeDimensions 238
* 4.24.44 gotoBeginning 238
* 4.24.45 gotoEnd 239
* 4.24.46 gotoNextSelectionPoint 239
* 4.24.47 gotoPosterTime 239
* 4.24.48 gotoPreviousSelectionPoint 239
* 4.24.49 hasChapters as boolean 239
* 4.24.50 initBands(mix as Integer, channels as Integer, byref bands as Integer) as boolean 239
* 4.24.51 insertEmptySegmentAt(range as QTKitTimeRangeMBS) 240
* 4.24.52 insertSegmentOfMovie(mov as QTKitMovieMBS, fromRange as QTKitTimeRangeMBS, scaledToRange as QTKitTimeRangeMBS) 240

* 4.24.53 insertSegmentOfMovie(mov as QTKitMovieMBS, timeRange as QTKitTimeRangeMBS, atTime as QTKitTimeMBS) 240
* 4.24.54 insertSegmentOfTrack(Track as QTKitTrackMBS, fromRange as QTKitTimeRangeMBS, scaledToRange as QTKitTimeRangeMBS) 241
* 4.24.55 insertSegmentOfTrack(Track as QTKitTrackMBS, timeRange as QTKitTimeRangeMBS, atTime as QTKitTimeMBS) 241
* 4.24.56 invalidate 241
* 4.24.57 isIdling as boolean 241
* 4.24.58 LoadMovieFromData(data as memoryblock, byref error as NSErrorMBS) as QTKitMovieMBS 242
* 4.24.59 LoadMovieFromDataReference(ref as QTKitDataReferenceMBS, byref error as NSErrorMBS) as QTKitMovieMBS 242
* 4.24.60 LoadMovieFromFile(file as folderitem, byref error as NSErrorMBS) as QTKitMovieMBS 242
* 4.24.61 LoadMovieFromMovie(mov as QTKitMovieMBS, range as QTKitTimeRangeMBS, byref error as NSErrorMBS) as QTKitMovieMBS 243
* 4.24.62 LoadMovieFromPasteboard(byref error as NSErrorMBS) as QTKitMovieMBS 243
* 4.24.63 LoadMovieFromURL(url as string, byref error as NSErrorMBS) as QTKitMovieMBS 243
* 4.24.64 metadataForFormat(format as string) as QTKitMetadataItemMBS() 244
* 4.24.65 Movie as Movie 244
* 4.24.66 MovieControllerHandle as Integer 245
* 4.24.67 movieFileTypes(options as Integer = 0) as string() 245
* 4.24.68 movieFormatRepresentation as memoryblock 245
* 4.24.69 MovieHandle as Integer 245
* 4.24.70 movieTypesWithOptions(options as Integer) as string() 246
* 4.24.71 movieUnfilteredFileTypes as string() 246
* 4.24.72 movieUnfilteredPasteboardTypes as string() 246
* 4.24.73 NaturalSizeHeight as Double 246
* 4.24.74 NaturalSizeWidth as Double 246
* 4.24.75 play 246
* 4.24.76 posterImage as NSImageMBS 246
* 4.24.77 QTAddImageCodecQuality as string 247
* 4.24.78 QTAddImageCodecType as string 247
* 4.24.79 QTDisallowedForInitializationPurposeException as string 247
* 4.24.80 QTMovieActiveSegmentAttribute as string 247
* 4.24.81 QTMovieApertureModeAttribute as string 248
* 4.24.82 QTMovieApertureModeClassic as string 248
* 4.24.83 QTMovieApertureModeClean as string 248
* 4.24.84 QTMovieApertureModeDidChangeNotification as string 248
* 4.24.85 QTMovieApertureModeEncodedPixels as string 249
* 4.24.86 QTMovieApertureModeProduction as string 249
* 4.24.87 QTMovieAskUnresolvedDataRefsAttribute as string 249

* 4.24.88 QTMovieAutoAlternatesAttribute as string 249
* 4.24.89 QTMovieChapterDidChangeNotification as string 249
* 4.24.90 QTMovieChapterListDidChangeNotification as string 250
* 4.24.91 QTMovieChapterName as string 250
* 4.24.92 QTMovieChapterStartTime as string 250
* 4.24.93 QTMovieChapterTargetTrackAttribute as string 250
* 4.24.94 QTMovieCloseWindowRequestNotification as string 251
* 4.24.95 QTMovieCopyrightAttribute as string 251
* 4.24.96 QTMovieCreationTimeAttribute as string 251
* 4.24.97 QTMovieCurrentSizeAttribute as string 251
* 4.24.98 QTMovieCurrentTimeAttribute as string 252
* 4.24.99 QTMovieDataAttribute as string 252
* 4.24.100 QTMovieDataReferenceAttribute as string 252
* 4.24.101 QTMovieDataSizeAttribute as string 252
* 4.24.102 QTMovieDelegateAttribute as string 252
* 4.24.103 QTMovieDidEndNotification as string 255
* 4.24.104 QTMovieDisplayNameAttribute as string 255
* 4.24.105 QTMovieDontInteractWithUserAttribute as string 255
* 4.24.106 QTMovieDurationAttribute as string 255
* 4.24.107 QTMovieEditabilityDidChangeNotification as string 256
* 4.24.108 QTMovieEditableAttribute as string 256
* 4.24.109 QTMovieEditedNotification as string 256
* 4.24.110 QTMovieEnterFullScreenRequestNotification as string 256
* 4.24.111 QTMovieExitFullScreenRequestNotification as string 257
* 4.24.112 QTMovieExport as string 257
* 4.24.113 QTMovieExportManufacturer as string 257
* 4.24.114 QTMovieExportSettings as string 257
* 4.24.115 QTMovieExportType as string 258
* 4.24.116 QTMovieFileNameAttribute as string 258
* 4.24.117 QTMovieFileOffsetAttribute as string 258
* 4.24.118 QTMovieFlatten as string 258
* 4.24.119 QTMovieFrameImageDeinterlaceFields as string 258
* 4.24.120 QTMovieFrameImageHighQuality as string 259
* 4.24.121 QTMovieFrameImageOpenGLContext as string 259
* 4.24.122 QTMovieFrameImagePixelFormat as string 259
* 4.24.123 QTMovieFrameImageRepresentationsType as string 259
* 4.24.124 QTMovieFrameImageSessionMode as string 260
* 4.24.125 QTMovieFrameImageSingleField as string 260
* 4.24.126 QTMovieFrameImageSize as string 260
* 4.24.127 QTMovieFrameImageType as string 260
* 4.24.128 QTMovieFrameImageTypeCGImageRef as string 261
* 4.24.129 QTMovieFrameImageTypeCIImage as string 261

* 4.24.130 QTMovieFrameImageTypeCVOpenGLTextureRef as string 261
* 4.24.131 QTMovieFrameImageTypeCVPixelBufferRef as string 261
* 4.24.132 QTMovieFrameImageTypeNSImage as string 262
* 4.24.133 QTMovieHasApertureModeDimensionsAttribute as string 262
* 4.24.134 QTMovieHasAudioAttribute as string 262
* 4.24.135 QTMovieHasDurationAttribute as string 262
* 4.24.136 QTMovieHasVideoAttribute as string 263
* 4.24.137 QTMovieIsActiveAttribute as string 263
* 4.24.138 QTMovieIsInteractiveAttribute as string 263
* 4.24.139 QTMovieIsLinearAttribute as string 263
* 4.24.140 QTMovieIsSteppableAttribute as string 264
* 4.24.141 QTMovieLoadStateAttribute as string 264
* 4.24.142 QTMovieLoadStateDidChangeNotification as string 264
* 4.24.143 QTMovieLoadStateErrorAttribute as string 265
* 4.24.144 QTMovieLoopModeDidChangeNotification as string 265
* 4.24.145 QTMovieLoopsAttribute as string 265
* 4.24.146 QTMovieLoopsBackAndForthAttribute as string 265
* 4.24.147 QTMovieMessageNotificationParameter as string 266
* 4.24.148 QTMovieMessageStringPostedNotification as string 266
* 4.24.149 QTMovieModificationTimeAttribute as string 266
* 4.24.150 QTMovieMutedAttribute as string 267
* 4.24.151 QTMovieNaturalSizeAttribute as string 267
* 4.24.152 QTMovieNaturalSizeDidChangeNotification as string 267
* 4.24.153 QTMovieOpenAsyncOKAttribute as string 267
* 4.24.154 QTMovieOpenAsyncRequiredAttribute as string 268
* 4.24.155 QTMovieOpenForPlaybackAttribute as string 268
* 4.24.156 QTMoviePasteboardAttribute as string 268
* 4.24.157 QTMoviePasteboardType as string 268
* 4.24.158 QTMoviePlaysAllFramesAttribute as string 268
* 4.24.159 QTMoviePlaysSelectionOnlyAttribute as string 269
* 4.24.160 QTMoviePosterTimeAttribute as string 269
* 4.24.161 QTMoviePreferredMutedAttribute as string 269
* 4.24.162 QTMoviePreferredRateAttribute as string 269
* 4.24.163 QTMoviePreferredVolumeAttribute as string 270
* 4.24.164 QTMoviePreviewModeAttribute as string 270
* 4.24.165 QTMoviePreviewRangeAttribute as string 270
* 4.24.166 QTMovieRateAttribute as string 271
* 4.24.167 QTMovieRateChangesPreservePitchAttribute as string 271
* 4.24.168 QTMovieRateDidChangeNotification as string 271
* 4.24.169 QTMovieRateDidChangeNotificationParameter as string 272
* 4.24.170 QTMovieResolveDataRefsAttribute as string 272
* 4.24.171 QTMovieSelectionAttribute as string 272

* 4.24.172 QTMovieSelectionDidChangeNotification as string 272
* 4.24.173 QTMovieSizeDidChangeNotification as string 273
* 4.24.174 QTMovieStatusCodeNotificationParameter as string 273
* 4.24.175 QTMovieStatusFlagsNotificationParameter as string 273
* 4.24.176 QTMovieStatusStringNotificationParameter as string 273
* 4.24.177 QTMovieStatusStringPostedNotification as string 274
* 4.24.178 QTMovieTargetIDNotificationParameter as string 274
* 4.24.179 QTMovieTargetNameNotificationParameter as string 274
* 4.24.180 QTMovieTimeDidChangeNotification as string 274
* 4.24.181 QTMovieTimeScaleAttribute as string 275
* 4.24.182 QTMovieUneditableException as string 275
* 4.24.183 QTMovieURLAttribute as string 275
* 4.24.184 QTMovieVolumeAttribute as string 276
* 4.24.185 QTMovieVolumeDidChangeNotification as string 276
* 4.24.186 removeApertureModeDimensions 276
* 4.24.187 removeChapters as boolean 276
* 4.24.188 removeTrack(track as QTKitTrackMBS) 277
* 4.24.189 replaceSelectionWithSelectionFromMovie(mov as QTKitMovieMBS) 277
* 4.24.190 scaleSegment(range as QTKitTimeRangeMBS, time as QTKitTimeMBS) 277
* 4.24.191 selectionDuration as QTKitTimeMBS 277
* 4.24.192 selectionEnd as QTKitTimeMBS 277
* 4.24.193 selectionStart as QTKitTimeMBS 277
* 4.24.194 SetCurrentSize(width as Double, height as Double) 278
* 4.24.195 setIdling(state as boolean) 278
* 4.24.196 SetNaturalSize(width as Double, height as Double) 278
* 4.24.197 setSelection(r as QTKitTimeRangeMBS) 278
* 4.24.198 startTimeOfChapter(chapterIndex as Integer) as QTKitTimeMBS 278
* 4.24.199 stepBackward 278
* 4.24.200 stepForward 279
* 4.24.201 stop 279
* 4.24.202 tracks as QTKitTrackMBS() 279
* 4.24.203 tracksOfMediaType(Type as string) as QTKitTrackMBS() 279
* 4.24.204 updateMovieFile as boolean 280
* 4.24.205 writeToFile(file as folderitem, byref error as NSErrorMBS) as boolean 281
* 4.24.207 Handle as Integer 282
* 4.24.208 ApertureMode as string 282
* 4.24.209 attributeForKey(key as string) as Variant 283
* 4.24.210 AutoAlternates as boolean 283
* 4.24.211 Copyright as string 283
* 4.24.212 CreationTime as date 283
* 4.24.213 DataSize as Int64 283
* 4.24.214 DisplayName as string 283

* 4.24.215 DontInteractWithUser as boolean 284
* 4.24.216 Editable as boolean 284
* 4.24.217 FileName as string 284
* 4.24.218 HasApertureModeDimensions as boolean 284
* 4.24.219 HasAudio as boolean 284
* 4.24.220 HasDuration as boolean 285
* 4.24.221 HasVideo as boolean 285
* 4.24.222 IsActive as boolean 285
* 4.24.223 IsInteractive as boolean 285
* 4.24.224 IsLinear as boolean 285
* 4.24.225 IsSteppable as boolean 286
* 4.24.226 LoadState as Integer 286
* 4.24.227 Loops as boolean 286
* 4.24.228 LoopsBackAndForth as boolean 286
* 4.24.229 ModificationTime as date 287
* 4.24.230 movieAttributes as dictionary 287
* 4.24.231 muted as boolean 287
* 4.24.232 PlaysAllFrames as boolean 287
* 4.24.233 PlaysSelectionOnly as boolean 287
* 4.24.234 PosterTime as QTKitTimeMBS 288
* 4.24.235 PreferredMuted as boolean 288
* 4.24.236 PreferredRate as Double 288
* 4.24.237 PreferredVolume as Double 288
* 4.24.238 PreviewMode as boolean 288
* 4.24.239 PreviewRange as QTKitTimeRangeMBS 289
* 4.24.240 rate as Double 289
* 4.24.241 RateChangesPreservePitch as boolean 289
* 4.24.242 Selection as QTKitTimeRangeMBS 289
* 4.24.243 time as QTKitTimeMBS 289
* 4.24.244 TimeScale as Integer 290
* 4.24.245 URL as string 290
* 4.24.246 volume as Double 290
* 4.24.248 QTIncludeAggressiveTypes = 4 290
* 4.24.249 QTIncludeAllTypes = & hffff 291
* 4.24.250 QTIncludeCommonTypes = 0 291
* 4.24.251 QTIncludeDynamicTypes = 8 291
* 4.24.252 QTIncludeStillImageTypes = 1 291
* 4.24.253 QTIncludeTranslatableTypes = 2 291
* 4.24.254 QTMovieLoadStateComplete = 100000 292
* 4.24.255 QTMovieLoadStateError = -1 292
* 4.24.256 QTMovieLoadStateLoaded = 2000 292
* 4.24.257 QTMovieLoadStateLoading = 1000 292

* 4.24.258 QTMovieLoadStatePlayable = 10000 292
* 4.24.259 QTMovieLoadStatePlaythroughOK = 20000 292

– 4.25.1 class QTKitMovieViewMBS 293

* 4.25.3 add 293
* 4.25.4 addScaled 293
* 4.25.5 available as boolean 293
* 4.25.6 Constructor 294
* 4.25.7 Constructor(Handle as Integer) 294
* 4.25.8 Constructor(left as Double, top as Double, width as Double, height as Double) 294
* 4.25.9 controllerBarHeight as Double 295
* 4.25.10 copy 295
* 4.25.11 cut 295
* 4.25.12 delete 295
* 4.25.13 Destructor 296
* 4.25.14 gotoBeginning 296
* 4.25.15 gotoEnd 296
* 4.25.16 gotoNextSelectionPoint 296
* 4.25.17 gotoPosterFrame 296
* 4.25.18 gotoPreviousSelectionPoint 296
* 4.25.19 movieBounds as NSRectMBS 296
* 4.25.20 movieBoundsHeight as Double 297
* 4.25.21 movieBoundsLeft as Double 297
* 4.25.22 movieBoundsTop as Double 297
* 4.25.23 movieBoundsWidth as Double 297
* 4.25.24 movieControllerBounds as NSRectMBS 297
* 4.25.25 movieControllerBoundsHeight as Double 297
* 4.25.26 movieControllerBoundsLeft as Double 298
* 4.25.27 movieControllerBoundsTop as Double 298
* 4.25.28 movieControllerBoundsWidth as Double 298
* 4.25.29 paste 298
* 4.25.30 pause 298
* 4.25.31 play 298
* 4.25.32 QTMovieViewControllerVisibleBinding as string 299
* 4.25.33 QTMovieViewFillColorBinding as string 299
* 4.25.34 QTMovieViewMovieBinding as string 299
* 4.25.35 QTMovieViewPreservesAspectRatioBinding as string 299
* 4.25.36 replace 299
* 4.25.37 selectAll 299
* 4.25.38 selectNone 300
* 4.25.39 setFilters(cifilters() as Variant) 300
* 4.25.40 setShowsResizeIndicator(value as boolean) 300

* 4.25.41 stepBackward 300
* 4.25.42 stepForward 300
* 4.25.43 trim 301
* 4.25.45 BackButtonVisible as boolean 301
* 4.25.46 CustomButtonVisible as boolean 301
* 4.25.47 fillColor as NSColorMBS 301
* 4.25.48 HotSpotButtonVisible as boolean 301
* 4.25.49 isControllerVisible as boolean 302
* 4.25.50 isEditable as boolean 302
* 4.25.51 movie as QTKitMovieMBS 302
* 4.25.52 preservesAspectRatio as boolean 302
* 4.25.53 StepButtonsVisible as boolean 302
* 4.25.54 TranslateButtonVisible as boolean 303
* 4.25.55 VolumeButtonVisible as boolean 303
* 4.25.56 ZoomButtonsVisible as boolean 303
* 4.25.58 didDisplayImage(inputImage as Variant, outputImage as Variant) 303
* 4.25.59 menuForEventDelegate(e as NSEventMBS) as NSMenuMBS 304

– 4.26.1 class QTKitSampleBufferMBS 305

* 4.26.3 attributeForKey(key as string) as Variant 305
* 4.26.4 bytesForAllSamples as MemoryBlock 305
* 4.26.5 Constructor 306
* 4.26.6 decodeTime as QTKitTimeMBS 306
* 4.26.7 decrementSampleUseCount 306
* 4.26.8 duration as QTKitTimeMBS 307
* 4.26.9 formatDescription as QTKitFormatDescriptionMBS 307
* 4.26.10 incrementSampleUseCount 307
* 4.26.11 lengthForAllSamples as Integer 308
* 4.26.12 numberOfSamples as Integer 308
* 4.26.13 presentationTime as QTKitTimeMBS 308
* 4.26.14 QTSampleBufferDateRecordedAttribute as string 308
* 4.26.15 QTSampleBufferExplicitSceneChange as string 309
* 4.26.16 QTSampleBufferHostTimeAttribute as string 309
* 4.26.17 QTSampleBufferSceneChangeTypeAttribute as string 309
* 4.26.18 QTSampleBufferSMPTETimeAttribute as string 309
* 4.26.19 QTSampleBufferTimeStampDiscontinuitySceneChange as string 310
* 4.26.20 sampleBufferAttributes as dictionary 310
* 4.26.21 sampleUseCount as Integer 310
* 4.26.23 Handle as Integer 311
* 4.26.25 QTSampleBufferAudioBufferListOptionAssure16ByteAlignment = 1 311

– 4.27.1 class QTKitTimeMBS 312

* 4.27.3 Compare(other as QTKitTimeMBS) as Integer 312

* 4.27.4 Constructor(s as string) 312
* 4.27.5 Constructor(time as QTKitTimeMBS, timeScale as Integer) 313
* 4.27.6 Constructor(timeValue as Int64, timeScale as Integer) 313
* 4.27.7 Decrement(decrement as QTKitTimeMBS) as QTKitTimeMBS 313
* 4.27.8 Increment(increment as QTKitTimeMBS) as QTKitTimeMBS 313
* 4.27.9 IndefiniteTime as QTKitTimeMBS 313
* 4.27.10 IsIndefinite as boolean 313
* 4.27.11 Seconds as Double 314
* 4.27.12 String as string 314
* 4.27.13 Time(s as string) as QTKitTimeMBS 314
* 4.27.14 Time(time as QTKitTimeMBS, timeScale as Integer) as QTKitTimeMBS 314
* 4.27.15 Time(timeValue as Int64, timeScale as Integer) as QTKitTimeMBS 315
* 4.27.16 TimeInRange(range as QTKitTimeRangeMBS) as boolean 315
* 4.27.17 TimeWithSeconds(timeValue as Double) as QTKitTimeMBS 315
* 4.27.18 ZeroTime as QTKitTimeMBS 316
* 4.27.20 Flags as Integer 316
* 4.27.21 TimeScale as Integer 316
* 4.27.22 TimeValue as Int64 316
* 4.27.24 kQTTimeIsIndefinite=1 317

– 4.28.1 class QTKitTimeRangeMBS 318

* 4.28.3 EndTime as QTKitTimeMBS 318
* 4.28.4 Equal(timerange as QTKitTimeRangeMBS) as boolean 318
* 4.28.5 Intersection(other as QTKitTimeRangeMBS) as QTKitTimeRangeMBS 318
* 4.28.6 String as string 318
* 4.28.7 TimeRange(time as QTKitTimeMBS, duration as QTKitTimeMBS) as QTKitTimeRangeMBS 319
* 4.28.8 TimeRangeFromString(s as string) as QTKitTimeRangeMBS 319
* 4.28.9 Union(other as QTKitTimeRangeMBS) as QTKitTimeRangeMBS 319
* 4.28.11 Duration as QTKitTimeMBS 320
* 4.28.12 Time as QTKitTimeMBS 320

– 4.29.1 class QTKitTrackMBS 321

* 4.29.3 addImage(image as NSImageMBS, duration as QTKitTimeMBS) 321
* 4.29.4 addImage(image as NSImageMBS, duration as QTKitTimeMBS, codec as string, codecQuality as Integer) 321
* 4.29.5 apertureModeDimensionsForMode(mode as string, byref width as Double, byref height as Double) as boolean 322
* 4.29.6 availableMetadataFormats as string() 322
* 4.29.7 BoundsHeight as Double 322
* 4.29.8 BoundsLeft as Double 323
* 4.29.9 BoundsTop as Double 323
* 4.29.10 BoundsWidth as Double 323

* 4.29.11 commonMetadata as QTKitMetadataItemMBS() 324
* 4.29.12 Constructor 324
* 4.29.13 deleteSegment(range as QTKitTimeRangeMBS) 324
* 4.29.14 DimensionsHeight as Double 324
* 4.29.15 DimensionsWidth as Double 325
* 4.29.16 FormatSummary as string 325
* 4.29.17 generateApertureModeDimensions 325
* 4.29.18 insertEmptySegmentAt(range as QTKitTimeRangeMBS) 325
* 4.29.19 insertSegmentOfTrack(Track as QTKitTrackMBS, fromRange as QTKitTimeRangeMBS, scaledToRange as QTKitTimeRangeMBS) 325
* 4.29.20 insertSegmentOfTrack(Track as QTKitTrackMBS, timeRange as QTKitTimeRangeMBS, atTime as QTKitTimeMBS) 326
* 4.29.21 media as QTKitMediaMBS 326
* 4.29.22 metadataForFormat(format as string) as QTKitMetadataItemMBS() 326
* 4.29.23 movie as QTKitMovieMBS 326
* 4.29.24 removeApertureModeDimensions 327
* 4.29.25 scaleSegment(range as QTKitTimeRangeMBS, time as QTKitTimeMBS) 327
* 4.29.26 setApertureModeDimensions(width as Double, height as Double, mode as string) 327
* 4.29.27 SetBounds(x as Double, y as Double, width as Double, height as Double) 327
* 4.29.28 SetDimensions(width as Double, height as Double) 327
* 4.29.29 TrackHandle as Integer 327
* 4.29.30 trackWithQuickTimeTrack(TrackHandle as Integer, byref error as NSErrorMBS) as QTKitTrackMBS 328
* 4.29.32 Handle as Integer 328
* 4.29.33 AudioChannelLayout as Variant 329
* 4.29.34 CreationTime as date 329
* 4.29.35 DisplayName as string 329
* 4.29.36 Enabled as boolean 329
* 4.29.37 HasApertureModeDimensions as boolean 329
* 4.29.38 ID as Integer 330
* 4.29.39 IsChapterTrack as boolean 330
* 4.29.40 Layer as Integer 330
* 4.29.41 MediaType as string 330
* 4.29.42 ModificationTime as date 331
* 4.29.43 Range as QTKitTimeRangeMBS 331
* 4.29.44 TimeScale as Integer 331
* 4.29.45 trackAttributes as dictionary 331
* 4.29.46 UsageInMovie as boolean 332
* 4.29.47 UsageInPoster as boolean 332
* 4.29.48 UsageInPreview as boolean 332
* 4.29.49 volume as Double 332

– 4.30.1 class QTMovieModernizerMBS 333

* 4.30.3 available as boolean 333
* 4.30.4 cancel 333
* 4.30.5 Constructor(source as folderitem, destination as folderitem) 333
* 4.30.6 modernize(tag as Variant = nil) 334
* 4.30.7 QTMovieModernizerOutputFormat_AppleProRes422 as string 334
* 4.30.8 QTMovieModernizerOutputFormat_AppleProRes4444 as string 334
* 4.30.9 QTMovieModernizerOutputFormat_H264 as string 334
* 4.30.10 requiresModernization(source as folderitem, byref error as NSErrorMBS) as Boolean 335
* 4.30.12 destinationURL as String 335
* 4.30.13 error as NSErrorMBS 336
* 4.30.14 Handle as Integer 336
* 4.30.15 outputFormat as String 336
* 4.30.16 sourceURL as String 336
* 4.30.17 status as Integer 337
* 4.30.19 modernizeCompleted(tag as Variant) 337
* 4.30.21 QTMovieModernizerStatusCancelled = 3 337
* 4.30.22 QTMovieModernizerStatusCompletedWithSuccess = 5 337
* 4.30.23 QTMovieModernizerStatusFailed = 4 337
* 4.30.24 QTMovieModernizerStatusNotRequired = 6 338
* 4.30.25 QTMovieModernizerStatusPreparing = 1 338
* 4.30.26 QTMovieModernizerStatusRunning = 2 338
* 4.30.27 QTMovieModernizerStatusUnknown = 0 338

Chapter 2

List of all classes

- Movieplayer 339
- QTKitCaptureAudioPreviewOutputMBS 39
- QTKitCaptureConnectionMBS 41
- QTKitCaptureDecompressedAudioOutputMBS 48
- QTKitCaptureDecompressedVideoOutputMBS 49
- QTKitCaptureDeviceInputMBS 53
- QTKitCaptureDeviceMBS 54
- QTKitCaptureFileOutputMBS 69
- QTKitCaptureInputMBS 77
- QTKitCaptureMovieFileOutputMBS 79
- QTKitCaptureOutputMBS 80
- QTKitCaptureSessionMBS 82
- QTKitCaptureVideoPreviewOutputMBS 86
- QTKitCaptureViewMBS 88
- QTKitCompressionOptionsMBS 92
- QTKitCustomCaptureViewMBS 98
- QTKitCustomMovieViewMBS 113
- QTKitDataReferenceMBS 128
- QTKitExportOptionsMBS 132

- QTKitExportSessionMBS 139
- QTKitFormatDescriptionMBS 143
- QTKitMediaMBS 147
- QTKitMetadataItemMBS 164
- QTKitMovieMBS 223
- QTKitMovieViewMBS 293
- QTKitSampleBufferMBS 305
- QTKitTimeMBS 312
- QTKitTimeRangeMBS 318
- QTKitTrackMBS 321
- QTMovieModernizerMBS 333

Chapter 3

List of all modules

- QTKitModuleMBS 208

Chapter 4

QTKit

4.1 class QTKitCaptureAudioPreviewOutputMBS

4.1.1 class QTKitCaptureAudioPreviewOutputMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This class represents an output destination for QTCaptureSession that can be used to preview the audio being captured.
Notes:

Instances of QTCaptureAudioPreviewOutput have an associated Core Audio output device that can be used to play audio being captured by the capture session. Note that the unique ID of a Core Audio device can be obtained from its kAudioDevicePropertyDeviceUID property.
Subclass of the QTKitCaptureOutputMBS class.

4.1.2 Methods

4.1.3 Constructor

Plugin Version: 10.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new preview output object.

4.1.4 Properties

4.1.5 outputDeviceUniqueID as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The unique ID of the Core Audio output device being used to play preview audio.

Notes:

Zero if the default system output device is being used.
(Read and Write computed property)

4.1.6 volume as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The preview volume of the output.
Notes:

1.0 is the maximum volume and 0.0 is muted.
(Read and Write computed property)

4.2 class QTKitCaptureConnectionMBS

4.2.1 class QTKitCaptureConnectionMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This class represents a connection over which a single stream of media data is sent from a QTCaptureInput to a QTCaptureSession and from a QTCaptureSession to a QTCaptureOutput.
Notes:

Instances of QTCaptureConnection wrap individual media streams that can be provided by QTCaptureInput objects and received by QTCaptureOutput objects. Connections can have a QuickTime media type, such as QTMediaTypeVideo and QTMediaTypeSound, and a format description that describes the media sent or received across the connection. Individual connections belonging to an input can be enabled or disabled to restrict what media enters a capture session, while connections belonging to an output can be enabled or disabled to restrict what media enters the output from the capture session. In addition, if a QTCapture-Connection wraps a stream of audio media, it provides a number of attributes to control the volume, mix, and enabled channels of the audio passing through it.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

4.2.2 Methods

4.2.3 attributeIsReadOnly(attributeKey as string) as boolean

Plugin Version: 10.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a Boolean value indicating whether the given attribute for the connection cannot be modified.
Notes:

True if the attribute cannot be modified; otherwise, false.

Availability
Mac OS X v10.5 and later; QuickTime 7.2.1.

4.2.4 Constructor

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

4.2.5 formatDescription as QTKitFormatDescriptionMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the format description of the receiver.

4.2.6 mediaType as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the QuickTime media type of the receiver.
Notes: This method returns the QuickTime media type, such as QTMediaTypeVideo and QTMediaTypeSound, of the receiver.

4.2.7 owner as Variant

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the QTCaptureInputMBS or QTCaptureOutputMBS object that owns the receiver.
Notes:

This method returns the input or output to which the receiver belongs. The returned input or output uses the receiver as a connection for sending or receiving a media stream.

Mac OS X v10.5 and later; QuickTime 7.2.1.

4.2.8 QTCaptureConnectionAttributeDidChangeNotification as string

Plugin Version: 10.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The name of a notification for the connection.
Notes:

Posted when one of the connection's attributes has changed.

The notification's user info dictionary will contain the attribute key of the changed attribute for the key QTCaptureConnectionChangedAttributeKey.

Availability
Available in Mac OS X v10.5 and later.

4.2.9 QTCaptureConnectionAttributeWillChangeNotification as string

Plugin Version: 10.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The name of a notification for the connection.
Notes:

Posted when one of the connection's attributes is about to change.

The notification's user info dictionary will contain the attribute key of the changed attribute for the key QTCaptureConnectionChangedAttributeKey.

Availability
Available in Mac OS X v10.5 and later.

4.2.10 QTCaptureConnectionAudioAveragePowerLevelsAttribute as string

Plugin Version: 10.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the attribute key constants.
Notes:

An array of variants with doubles that correspond to the average power, in decibels, of each audio stream sent through the connection.
Applications that wish to display audio level meters for a specific connection can periodically check the value of this attribute. Average power levels change quickly and appear jumpy on a level meter.

Available in Mac OS X v10.5 and later.

4.2.11 QTCaptureConnectionAudioMasterVolumeAttribute as string

Plugin Version: 10.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the attribute key constants.
Notes:

A double that specifies the master volume of all audio channels sent through the connection.
The values are between 0.0 and 1.0 for normal volume, or greater than 1.0 for boosting the audio gain. This attribute determines the master volumes of all audio channels sent through the connection. Applications that need to set the volumes of individual channels can set the QTCaptureConnectionAudioVolumesAttribute attribute.

You can use the AudioMasterVolume property directly for this property.

Available in Mac OS X v10.5 and later.

4.2.12 QTCaptureConnectionAudioPeakHoldLevelsAttribute as string

Plugin Version: 10.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the attribute key constants.
Notes:

An array of variants with doubles that correspond to the peak hold level, in decibels, of each audio channel sent through the connection.
Applications that wish to display audio level meters for a specific connection can periodically check the value of this attribute. Peak hold levels remain at the maximum volume for about a second, and are often useful for displaying audio clipping.

Available in Mac OS X v10.5 and later.

4.2.13 QTCaptureConnectionAudioVolumesAttribute as string

Plugin Version: 10.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the attribute key constants.
Notes:

An array of variants with double values that specify the volumes of audio channels sent through the connection.
The values are between 0.0 and 1.0 for normal volume, or greater than 1.0 for boosting the audio gain. This attribute determines the individual volumes of audio channels sent through the connection. Applications that need to set the master volume of all channels can set the QTCaptureConnectionAudioMasterVolumeAttribute attribute.
Available in Mac OS X v10.5 and later.

4.2.14 QTCaptureConnectionChangedAttributeKey as string

Plugin Version: 10.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Used as a key in the user info dictionary passed to QTCaptureConnectionAttributeWillChangeNotification, and QTCaptureConnectionAttributeDidChangeNotification to indicate the key of that attribute that changed.
Notes:

Availability
Available in Mac OS X v10.5 and later.

4.2.15 QTCaptureConnectionEnabledAudioChannelsAttribute as string

Plugin Version: 10.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the attribute key constants.

Notes:

An NSIndexSetMBS that specifies which audio channels should be sent through the connection. The indices in the set should be between 0 and the number of volumes in QTCaptureConnectionAudioVolumesAttribute. This attribute allows applications to selectively disable certain audio channels from being sent through the connection. The value of this attribute should be an NSIndexSet that contains only the channels that should be used. By default, all audio channels are sent though a connection.

Available in Mac OS X v10.5 and later.

4.2.16 QTCaptureConnectionFormatDescriptionDidChangeNotification as string

Plugin Version: 10.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The name of a notification for the connection.
Notes:

Posted when the format description of a connection has changed.

Applications can be notified of changes to a connection's format by registering to receive this notification.

Availability
Available in Mac OS X v10.5 and later.

4.2.17 QTCaptureConnectionFormatDescriptionWillChangeNotification as string

Plugin Version: 10.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The name of a notification for the connection.
Notes:

Posted when the format description of a connection is about to change.

Applications can be notified of changes to a connection's format by registering to receive this notification.

Availability
Available in Mac OS X v10.5 and later.

4.2.18 Properties

4.2.19 Handle as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference used for the QTCaptureConnection object.
Notes: (Read and Write property)

4.2.20 attributeForKey(key as string) as Variant

Plugin Version: 10.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The current value of the connection attribute for key.
Notes:

Use this method to get attributes of a connection. The keys that can be used with this method are described in the Constants section.

Use this method to set attributes of a capture connection. The keys that can be used with this method are described in the Constants section. This method raises an NSInvalidArgumentException if the attribute is read-only or not supported by the receiver.

Availability
Mac OS X v10.5 and later; QuickTime 7.2.1.
(Read and Write computed property)

4.2.21 AudioMasterVolume as Double

Plugin Version: 8.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The master volume for the audio.
Notes:

A number between 0.0 and 1.0 for normal volume; above 1.0 for boosted gain
(Read and Write computed property)

4.2.22 connectionAttributes as dictionary

Plugin Version: 10.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A dictionary of all attributes set for the receiver.
Notes:

Applications can use this method to determine what attributes a specific connection supports.

This method allows application to set multiple attributes on a connection at once. This method raises an NSInvalidArgumentException if any of the attributes in the dictionary are read-only or not supported by the receiver.

Availability
Mac OS X v10.5 and later; QuickTime 7.2.1.
(Read and Write computed property)

4.2.23 Enabled as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value indicating whether the receiver is enabled.
Notes: (Read and Write computed property)

4.3 class QTKitCaptureDecompressedAudioOutputMBS

4.3.1 class QTKitCaptureDecompressedAudioOutputMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This class represents an output destination for a QTCaptureSession object that can be used to process audio sample buffers from the audio being captured.
Notes:

Instances of QTCaptureDecompressedAudioOutput produce audio sample buffers suitable for custom high-quality realtime processing. Applications can access the audio sample buffers via the didOutputAudioSampleBuffer event. Clients can also create subclasses of QTCaptureDecompressedAudioOutput to add custom capturing behavior.
Subclass of the QTKitCaptureOutputMBS class.

4.3.2 Methods

4.3.3 Constructor

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor.

4.3.4 Events

4.3.5 didOutputAudioSampleBuffer(sampleBuffer as QTKitSampleBufferMBS, connection as QTKitCaptureConnectionMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Called whenever the audio data output outputs a new audio sample buffer.
Notes:

sampleBuffer: A sample buffer containing the audio data and additional information about the buffer, such as its presentation time.
connection: The connection from which the audio was received.

You can use the provided sample buffer for custom processing of captured audio.

In addition, this method is called periodically, so it must be efficient to prevent capture performance problems.

Mac OS X v10.5 and later; QuickTime 7.6.3.

4.4 class QTKitCaptureDecompressedVideoOutputMBS

4.4.1 class QTKitCaptureDecompressedVideoOutputMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This class represents an output destination for a QTCaptureSession object that can be used to process decompressed frames from the video being captured.
Notes:

Instances of QTCaptureDecompressedVideoOutput produce decompressed video frames suitable for high-quality processing. Because instances maintain maximum frame quality and avoid dropping frames, using this output may result in reduced performance while capturing. Applications that need to process decompressed frames but can tolerate dropped frames or drops in decompression quality should use QTCaptureVideoPreviewOutput instead. Applications can access the decompressed frames via the captureOutput event. Clients can also create subclasses of QTCaptureDecompressedVideoOutput to add custom capturing behavior.

The plugin implements for you the delegate QTKit needs.
Subclass of the QTKitCaptureOutputMBS class.

4.4.2 Methods

4.4.3 Constructor

Plugin Version: 8.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor to create an initialize a Capture Output for decompressed video.

4.4.4 LastFrame as Variant

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the last recevied frame as NSImage.
Notes:

May return nil on any error.
LastFrame is NSImageMBS if passCIImage is false and CIImageMBS if true.

4.4.5 Properties

4.4.6 automaticallyDropsLateVideoFrames as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** True if the receiver drops late video frames and returns false otherwise.

Notes:

Requires QuickTime 7.6.3.
(Read and Write computed property)

4.4.7 minimumVideoFrameInterval as Double

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A double specifying the minimum interval between video frames.
Notes:

Value is 0 if there is no frame rate limit set.

Requires QuickTime 7.6.3.
(Read and Write computed property)

4.4.8 passCIImage as boolean

Plugin Version: 13.5, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Whether frames are NSImage or CIImage objects.
Notes:

Set to true to receive frames as CIImageMBS and false for frames as NSImageMBS.
(Read and Write computed property)

4.4.9 pixelBufferAttributes as dictionary

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The CoreVideo pixel buffer attributes that determine what kind of pixel buffers are output by the receiver.
Notes:

This method sets or gets the pixel buffer attributes that clients can use to customize the size and pixel format of the video frames output by the receiver. When the dictionary is non-nil, the receiver will attempt to output pixel buffers using the attributes specified in the dictionary. A non-nil dictionary also guarantees that the output CVImageBuffer is a CVPixelBuffer. When the value for kCVPixelBufferPixelFormatTypeKey is set to an number, all image buffers output by the receiver will be in that format. When the value is an array, image buffers output by the receiver will be in the most optimal format specified in that array. If the captured images are not in the one of the specified pixel formats, then a format conversion will be performed. If the dictionary is NIL or there is no value for the kCVPixelBufferPixelFormatTypeKey, then the receiver will output images in the most efficient possible format given the input. For example, if the source is an iSight producing component Y'CbCr 8-bit 4:2:2 video then Y'CbCr 8-bit 4:2:2 will be used as the output format in order to avoid any conversions.

(Read and Write computed property)

4.4.10 Events

4.4.11 didDropVideoFrame(sampleBuffer as QTKitSampleBufferMBS, connection as QTKitCaptureConnectionMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Called once for each frame that is dropped when automaticallyDropsLateVideoFrames is set to true.
Notes:

sampleBuffer: A QTSampleBuffer instance containing metadata about the dropped frame, such as its duration and presentation time stamp. This sample buffer will contain none of the original video data, and accessing its bytesForAllSamples method is invalid and will throw an exception.
connection: The connection from which the dropped video frame was received.

When automaticallyDropsLateVideoFrames is set to true, this method is called whenever a late video frame is dropped. This method is called once for each dropped frame. The QTSampleBuffer object passed to this delegate method will contain metadata about the dropped video frame, such as its duration and presentation time stamp, but will contain no actual video data. Because this method may be called on the same thread that is responsible for outputting video frames, it must be efficient to prevent further capture performance problems, such as additional dropped video frames.

Mac OS X v10.5 and later; QuickTime 7.6.3.

4.4.12 didOutputVideoFrame(videoFrame as Variant, sampleBuffer as QTKitSampleBufferMBS, connection as QTKitCaptureConnectionMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Called whenever the video preview output outputs a new video frame.
Notes:

videoFrame: A Core Video image buffer containing the decompressed frame.
sampleBuffer: A sample buffer containing additional information about the frame, such as its presentation time.
connection: The connection from which the video was received.

You receive this event whenever the output decompresses and outputs a new video frame. You can use the provided video frame for a custom preview or for further image processing. In addition, this method is called periodically, so it must be efficient to prevent capture performance problems.

Special Considerations

In order to promptly reclaim memory resources, after this method returns, the sample data contained within the QTSampleBuffer object will be released using its decrementSampleUseCount method. Clients that reference the sample buffer and are interested in the sample data that it contains after this method returns should call incrementSampleUseCount on the sample buffer within this method to ensure that the data remains valid until they no longer need it (at which time they should call decrementSampleUseCount). Clients that reference the sample buffer after this method returns, but only need access to its metadata, such as duration, presentation time, and other attributes, need not call incrementSampleUseCount.

Note that to maintain optimal performance, some sample buffers directly reference pools of memory that may need to be reused by the device system and other capture inputs. This is frequently the case for uncompressed device native capture where memory blocks are copied as little as possible. If multiple sample buffers reference such pools of memory for too long, inputs will no longer be able to copy new samples into memory and those samples will be dropped. If your application is causing samples to be dropped by holding on to sample data for too long using incrementSampleUseCount, but it needs access to the sample data for a long period of time, consider copying the data into a new buffer and then calling decrementSampleUseCount on the sample buffer so that the memory it references can be reused.

The plugin calls incrementSampleUseCount and decrementSampleUseCount for you.

Mac OS X v10.5 and later.
videoFrame is NSImageMBS if passCIImage is false and CIImageMBS if true.

4.5 class QTKitCaptureDeviceInputMBS

4.5.1 class QTKitCaptureDeviceInputMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This class represents the input source for media devices, such as cameras and microphones.
Notes:

Instances of QTCaptureDeviceInput are input sources for QTCaptureSession that provide media data from devices connected to the computer. Devices used with QTCaptureDeviceInput can be found using the QTCaptureDevice class. A QTCaptureDevice must be successfully opened using the open method before being used in a QTCaptureDeviceInput.
Subclass of the QTKitCaptureInputMBS class.

4.5.2 Methods

4.5.3 Constructor(device as QTKitCaptureDeviceMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor to create a new capture device object.

4.5.4 device as QTKitCaptureDeviceMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the device associated with the receiver.
Notes: If there is a device associated with the receiver, returns a corresponding instance of QTCaptureDevice. Otherwise returns nil.

4.5.5 deviceInputWithDevice(device as QTKitCaptureDeviceMBS) as QTKitCaptureDeviceInputMBS

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The device input for the given device.
Notes: Returns nil on any error.

4.6 class QTKitCaptureDeviceMBS

4.6.1 class QTKitCaptureDeviceMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This class represents an available capture device.
Notes:

Each instance of QTCaptureDevice corresponds to a capture device that is connected or has been previously connected to the user's computer during the lifetime of the application. Instances of QTCaptureDevice cannot be created directly. A single unique instance is created automatically whenever a device is connected to the computer and can be accessed using the deviceWithUniqueID: class method. An array of all currently connected devices can also be obtained using the inputDevices: class method.

Devices can provide one or more stream of a given media type. Applications can search for devices that provide media of a specific type using the inputDevicesWithMediaType and defaultInputDeviceWithMediaType class methods. Table 1 details the media types supported by QTCaptureDevice and examples of devices that support them:

Media Type	Description	Example Devices
QTMediaTypeVideo	Media that only contains video frames.	iSight cameras (external and built-in); USB and FireWire webcams
QTMediaTypeMuxed	Multiplexed media that may contain audio, video, and other data in a single stream.	DV cameras
QTMediaTypeSound	Media that only contains audio samples.	Built-in microphones and line-in jacks; the microphone built-in to the external iSight; USB microphones and headsets; any other device supported by Core Audio.

This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

4.6.2 Methods

4.6.3 attributeIsReadOnly(attributeKey as string) as boolean

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns whether the given attribute for the device cannot be modified.
Notes: Returns true if the attribute cannot be modified; otherwise, false.

4.6.4 close

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Releases application control over the device acquired in the open method.
Notes: This method should be called to match each invocation of open when an application no longer needs to use a device for capture. If a device is disconnected or turned off while it is open it will be closed automatically. Applications should check if a device has not been closed automatically by registering to receive QTCaptureDeviceWasDisconnectedNotification or by checking isOpen before manually closing the

device using this method.

4.6.5 Constructor

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

4.6.6 defaultInputDeviceWithMediaType(mediaType as string) as QTKitCaptureDeviceMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a QTCaptureDevice instance for the default device connected to the user's system of the given media type.
Notes:

The default device with the given media type on the user's system, or nil if no device with that media type exists.

This method returns the default device of the given media type connected to the user's system. For example, for QTMediaTypeSound, this method will return the default sound input device selected in the Sound Preference Pane. If there is no device for the given media type, this method will return nil.

4.6.7 deviceWithUniqueID(uniqueID as string) as QTKitCaptureDeviceMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a QTCaptureDevice instance with the identifier device UID.
Notes:

If a device with unique identifier deviceUID was connected to the computer at some point during the lifetime of the application, this method returns a QTCaptureDevice instance for that identifier. Otherwise, this method returns nil.

Every capture device available to the computer is assigned a unique identifier that persists on one computer across device connections and disconnections, as well as across reboots of the computer. This method can be used to recall or track the status of a specific device, even if it has been disconnected.

4.6.8 formatDescriptions as QTKitFormatDescriptionMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of stream formats currently in use by the device.

Notes:

Returns an array of QTFormatDescriptionMBS objects describing the current stream formats of the device.

Applications can use this method to determine what kind of media the receiver outputs. Applications can be notified of format changes by registering to receive QTCaptureDeviceFormatDescriptionsWillChangeNotification and QTCaptureDeviceFormatDescriptionsDidChangeNotification notifications or by adding a key value observer for the key "formatDescriptions".

Availability
Available in Mac OS X v10.5 and later.

4.6.9 hasMediaType(mediatype as string) as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns whether the receiver sends a stream with the given media type.
Notes: Returns true if the device outputs the given media type, false otherwise.

4.6.10 inputDevices as QTKitCaptureDeviceMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of devices currently connected to the computer that can be used as input sources.
Example:

```
dim inputDevices() as QTKitCaptureDeviceMBS = QTKitCaptureDeviceMBS.inputDevices

for each dev as QTKitCaptureDeviceMBS in inputDevices
MsgBox dev.localizedDisplayName
next
```

Notes:

Returns an array of QTCaptureDevice instances for each connected device. If there are no available devices, the returned array will be empty.

This method queries the device system and builds an array of QTCaptureDevice instances for input devices currently connected and available for capture. The returned array contains all devices that are available when the method is called. Applications should observe QTCaptureDeviceWasConnectedNotification and QTCaptureDeviceWasDisconnectedNotification to be notified when the list of available devices has changed.

Mac OS X v10.5 and later.

4.6.11 inputDevicesWithMediaType(mediatype as string) as QTKitCaptureDeviceMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of input devices currently connected to the computer that send a stream with the given media type.
Notes:

mediaType: The media type, such as QTMediaTypeVideo, QTMediaTypeSound, or QTMediaTypeMuxed, supported by each returned device.

Returns an array of QTCaptureDevice instances for each connected device with the given media type. If there are no available devices, the returned array will be empty.

This method queries the device system and builds an array of QTCaptureDevice instances for input devices that are currently connected and output streams of the given media type.

4.6.12 isConnected as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true if the device is connected to the computer.
Notes: This method checks whether the receiver's device is currently connected to the computer and available for use by applications.

4.6.13 isInUseByAnotherApplication as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true is the device is connected, but being exclusively used by another application.
Notes: If the device can only be accessed by one process at a time, this method checks if the process that has exclusive control over the current process.

4.6.14 isOpen as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true if the device is open in the current application.
Notes: The method checks if the device was previously succcessfully opened with the receiver's open method. If this method returns true, the device can be used immediately for capture.

4.6.15 LegacySequenceGrabberHandle as Integer

Plugin Version: 8.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** If a device was intialized using a legacy Sequence Grabber component, this attribute returns the component instance responsible for capturing from the device.
Notes: Value is always zero for 64bit.

4.6.16 LinkedDevices as QTKitCaptureDeviceMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of QTCaptureDevice objects that, although they are separate devices on the system, are a part of the same physical device as the receiver.
Notes:

For example, for the external iSight camera, this attribute returns an array containing a QTCaptureDevice for the external iSight microphone.
Available in Mac OS X v10.5 and later.

4.6.17 localizedDisplayName as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a localized human-readable name for the receiver's device.
Notes: This method can be used when displaying the name of a capture device in the user interface.

4.6.18 modelUniqueID as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the unique ID of the model of the receiver's device.
Notes: The unique identifier returned by this method is unique to all devices of the same model. The value is persistent across device connections and disconnections, and across different computers.

4.6.19 open(byref error as NSErrorMBS) as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Opens the device.
Notes:

Returns true on success.
The error property is set with the error.

4.6.20 QTCaptureDeviceAttributeDidChangeNotification as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with the NSNotificationObserverMBS class.
Notes:

Posted when the one of device's attributes has changed.
The notification's user info dictionary will contain the attribute key of the changed attribute for the key QTCaptureDeviceChangedAttributeKey.

QuickTime 7.2.1 and later

4.6.21 QTCaptureDeviceAttributeWillChangeNotification as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with the NSNotificationObserverMBS class.
Notes:

Posted when one of the device's attributes is about to change.
The notification's user info dictionary will contain the attribute key of the changed attribute for the key QTCaptureDeviceChangedAttributeKey.
QuickTime 7.2.1 and later

4.6.22 QTCaptureDeviceAvailableInputSourcesAttribute as string

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

For devices with multiple possible input sources, returns an array of dictionaries describing each available input source. Some devices can capture data from one of multiple input sources (different input jacks on the same audio device, for example). The value is an Array of Dictionary objects. The keys in each dictionary are described in Input Source Dictionary Keys. This string value can be used in key paths for key value coding, key value observing, and bindings.
Available in Mac OS X v10.5 and later.

4.6.23 QTCaptureDeviceAVCTransportControlsAttribute as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attribute dictionary.
Notes:

Returns whether or not data capture on the device is suspended due to a feature on the device. For example,

this attribute is true for the external iSight when its privacy iris is closed, or for the internal iSight on a notebook when the notebook's display is closed.
Available in Mac OS X v10.5 and later.

4.6.24 QTCaptureDeviceAVCTransportControlsPlaybackModeKey as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attribute dictionary.
Notes: A value provided with the QTCaptureDeviceAVCTransportControlsPlaybackModeKey key that specifies whether the device previews audio and displays video while it is running through linear media. QTCaptureDeviceAVCTransportControlsNotPlayingMode is equivalent to the Play mode on most cameras and tape decks, while QTCaptureDeviceAVCTransportControlsPlayingMode is equivalent to Stop on most cameras and tape decks. If the device is connected to a session, the video at the current location on the device's media will only be captured if this attribute is set to QTCaptureDeviceAVCTransportControlsNotPlayingMode.

4.6.25 QTCaptureDeviceAVCTransportControlsSpeedKey as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attribute dictionary.
Notes:

Specifies the approximate rate at which the device runs through linear media. The value is an integer (QTCaptureDeviceAVCTransportControlsSpeed enumeration). This is one of the keys that comprise the NSDictionary that specifies the linear media playback mode and rate given by the QTCaptureDeviceAVCTransportControlsAttribute.
Available in Mac OS X v10.5 and later.

4.6.26 QTCaptureDeviceChangedAttributeKey as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attribute dictionary.
Notes:

Indicates the key of the attribute that changed. Used as a key in the userInfo dictionary passed to QTCaptureDeviceAttributeWillChangeNotification, and QTCaptureDeviceAttributeDidChangeNotification to indicate the key of the attribute that changed.
Available in Mac OS X v10.5 and later.

4.6.27 QTCaptureDeviceFormatDescriptionsDidChangeNotification as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with the NSNotificationObserverMBS class.
Notes:

Posted when the device's formats that are returned by the formatDescriptions method have just changed.
QuickTime 7.2.1 and later

4.6.28 QTCaptureDeviceFormatDescriptionsWillChangeNotification as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with the NSNotificationObserverMBS class.
Notes:

Posted when the device's formats that are returned by the formatDescriptions method are about to change.
QuickTime 7.2.1 and later

4.6.29 QTCaptureDeviceInputSourceIdentifierAttribute as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attribute dictionary.
Notes:

Used to get and set the currently used input source for the device. Some devices can capture data from one of multiple input sources (different input jacks on the same audio device, for example). The value is an object returned by the QTCaptureDeviceInputSourceIdentifierKey key in one of the dictionaries returned by QTCaptureDeviceAvailableInputSourcesAttribute. This string value can be used in key paths for key value coding, key value observing, and bindings.
Available in Mac OS X v10.5 and later.

4.6.30 QTCaptureDeviceInputSourceIdentifierKey as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attribute dictionary.
Notes:

An object representing a unique ID for the input source. This ID is not guaranteed to persist between device connections or changes in device configuration. To set the input source for a device, set QTCaptureDeviceInputSourceIdentifierAttribute to the value returned by this key. This string value can be used in key paths for key value coding, key value observing, and bindings.
This key, along with the QTCaptureDeviceInputSourceLocalizedDisplayNameKey key, comprises the NSDictionary objects describing input sources returned by QTCaptureDeviceAvailableInputSourcesAttribute.

Available in Mac OS X v10.5 and later.

4.6.31 QTCaptureDeviceInputSourceLocalizedDisplayNameKey as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attribute dictionary.
Notes:

The localized display name of an input source, suitable for display in a user interface. This string value can be used in key paths for key value coding, key value observing, and bindings.
This key, along with the QTCaptureDeviceInputSourceIdentifierKey key, comprises the dictionarys describing input sources returned by QTCaptureDeviceAvailableInputSourcesAttribute.
Available in Mac OS X v10.5 and later.

4.6.32 QTCaptureDeviceLegacySequenceGrabberAttribute as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attribute dictionary.
Notes:

An NSValue interpreted as a ComponentInstance for the legacy sequence grabber component used by the device. Some older devices are opened and controlled by legacy Sequence Grabber components. Applications that need to configure legacy devices directly through the Sequence Grabber configuration dialog can access an open component instance with this attribute.
This string value can be used in key paths for key-value coding, key-value observing, and bindings.
If the device is being used in a capture session, do not modify properties of the returned Sequence Grabber component (by displaying the configuration dialog, for example) while the session is running. Doing so will prevent the capture session from capturing more frames.
Available in Mac OS X v10.5 and later.
Not available to 64-bit applications.

4.6.33 QTCaptureDeviceLinkedDevicesAttribute as string

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

Returns an array of QTCaptureDevice objects that, although they are separate devices on the system, are a part of the same physical device as the receiver. For example, for the external iSight camera, this attribute returns an array containing a QTCaptureDevice for the external iSight microphone.
Available in Mac OS X v10.5 and later.

4.6.34 QTCaptureDeviceSuspendedAttribute as string

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

Returns whether or not data capture on the device is suspended due to a feature on the device. For example, this attribute is true for the external iSight when its privacy iris is closed, or for the internal iSight on a notebook when the notebook's display is closed.
Available in Mac OS X v10.5 and later.

4.6.35 QTCaptureDeviceWasConnectedNotification as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with the NSNotificationObserverMBS class.
Notes:

Posted when a device is connected or turned on.
QuickTime 7.2.1 and later

4.6.36 QTCaptureDeviceWasDisconnectedNotification as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with the NSNotificationObserverMBS class.
Notes:

Posted when a device is disconnected or turned off.
QuickTime 7.2.1 and later

4.6.37 Suspended as boolean

Plugin Version: 8.7, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This attribute returns whether or not data capture on the device is suspended due to a feature on the device.
Notes: For example, this attribute is true for the external iSight when its privacy iris is closed, or for the internal iSight on a notebook when the notebook's display is closed.

4.6.38 uniqueID as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the unique ID of the receiver's device.
Notes: The unique identifier returned by this method is persistent on one computer across device connections

and disconnections, as well as across reboots of the computer. It can be passed to the deviceWithUniqueID class method to get the QTCaptureDevice instance for the device with that unique identifier.

4.6.39 Properties

4.6.40 Handle as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference used for the QTCaptureDevice object.
Notes: (Read and Write property)

4.6.41 attributeForKey(key as string) as Variant

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a device attribute for the given key.
Notes:

Use this method to get attributes of a device. The keys that can be used with this method are described in the Constants section.
Mac OS X v10.5 and later.
(Read and Write computed property)

4.6.42 deviceAttributes as dictionary

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a dictionary of the device's current attributes.
Notes:

Applications can use this method to determine what attributes a specific device supports.
Available in Mac OS X v10.5 and later.
(Read and Write computed property)

4.6.43 Constants

4.6.44 QTCaptureDeviceAVCTransportControlsFastestForwardSpeed = 19000

Plugin Version: 11.0. **Function:** One of the value constants used with the QTCaptureDeviceAVCTransportControlsAttribute key.
Notes:

Media runs forward at greater than than normal speed.
Available in Mac OS X v10.5 and later.

4.6.45 QTCaptureDeviceAVCTransportControlsFastestReverseSpeed = -19000

Plugin Version: 11.0. **Function:** One of the value constants used with the QTCaptureDeviceAVCTransportControlsAttribute key.
Notes:

Media runs in reverse at greater than normal speed.
Available in Mac OS X v10.5 and later.

4.6.46 QTCaptureDeviceAVCTransportControlsFastForwardSpeed = 13000

Plugin Version: 11.0. **Function:** One of the value constants used with the QTCaptureDeviceAVCTransportControlsAttribute key.
Notes:

Media runs forward at greater than than normal speed.
Available in Mac OS X v10.5 and later.

4.6.47 QTCaptureDeviceAVCTransportControlsFastReverseSpeed = -13000

Plugin Version: 11.0. **Function:** One of the value constants used with the QTCaptureDeviceAVCTransportControlsAttribute key.
Notes:

Media runs in reverse at greater than normal speed.
Available in Mac OS X v10.5 and later.

4.6.48 QTCaptureDeviceAVCTransportControlsNormalForwardSpeed = 10000

Plugin Version: 11.0. **Function:** One of the value constants used with the QTCaptureDeviceAVCTransportControlsAttribute key.
Notes:

Media runs forward at normal speed.
Available in Mac OS X v10.5 and later.

4.6.49 QTCaptureDeviceAVCTransportControlsNormalReverseSpeed = -10000

Plugin Version: 11.0. **Function:** One of the value constants used with the QTCaptureDeviceAVCTransportControlsAttribute key.
Notes:

Media runs in reverse at normal speed.
Available in Mac OS X v10.5 and later.

4.6.50 QTCaptureDeviceAVCTransportControlsNotPlayingMode = 0

Plugin Version: 11.0. **Function:** One of the value constants for the QTCaptureDeviceAVCTransportControlsPlaybackModeKey key.

4.6.51 QTCaptureDeviceAVCTransportControlsPlayingMode = 1

Plugin Version: 11.0. **Function:** One of the value constants for the QTCaptureDeviceAVCTransportControlsPlaybackModeKey key.

4.6.52 QTCaptureDeviceAVCTransportControlsSlowestForwardSpeed = 1000

Plugin Version: 11.0. **Function:** One of the value constants used with the QTCaptureDeviceAVCTransportControlsAttribute key.
Notes:

Media runs forward at less than normal speed.
Available in Mac OS X v10.5 and later.

4.6.53 QTCaptureDeviceAVCTransportControlsSlowestReverseSpeed = -1000

Plugin Version: 11.0. **Function:** One of the value constants used with the QTCaptureDeviceAVCTransportControlsAttribute key.
Notes:

Media runs in reverse at less than normal speed.
Available in Mac OS X v10.5 and later.

4.6.54 QTCaptureDeviceAVCTransportControlsSlowForwardSpeed = 7000

Plugin Version: 11.0. **Function:** One of the value constants used with the QTCaptureDeviceAVCTransportControlsAttribute key.
Notes:

Media runs forward at less than normal speed.
Available in Mac OS X v10.5 and later.

4.6.55 QTCaptureDeviceAVCTransportControlsSlowReverseSpeed = -7000

Plugin Version: 11.0. **Function:** One of the value constants used with the QTCaptureDeviceAVCTransportControlsAttribute key.
Notes:

Media runs in reverse at less than normal speed.
Available in Mac OS X v10.5 and later.

4.6.56 QTCaptureDeviceAVCTransportControlsStoppedSpeed = 0

Plugin Version: 11.0. **Function:** One of the value constants used with the QTCaptureDeviceAVCTransportControlsAttribute key.
Notes:

Media is paused.
Available in Mac OS X v10.5 and later.

4.6.57 QTCaptureDeviceAVCTransportControlsVeryFastForwardSpeed = 16000

Plugin Version: 11.0. **Function:** One of the value constants used with the QTCaptureDeviceAVCTransportControlsAttribute key.
Notes:

Media runs forward at greater than than normal speed.
Available in Mac OS X v10.5 and later.

4.6.58 QTCaptureDeviceAVCTransportControlsVeryFastReverseSpeed = -16000

Plugin Version: 11.0. **Function:** One of the value constants used with the QTCaptureDeviceAVCTransportControlsAttribute key.
Notes:

Media runs in reverse at greater than normal speed.
Available in Mac OS X v10.5 and later.

4.6.59 QTCaptureDeviceAVCTransportControlsVerySlowForwardSpeed = 4000

Plugin Version: 11.0. **Function:** One of the value constants used with the QTCaptureDeviceAVCTransportControlsAttribute key.
Notes:

Media runs forward at less than normal speed.
Available in Mac OS X v10.5 and later.

4.6.60 QTCaptureDeviceAVCTransportControlsVerySlowReverseSpeed = -4000

Plugin Version: 11.0. **Function:** One of the value constants used with the QTCaptureDeviceAVCTransportControlsAttribute key.
Notes:

Media runs in reverse at less than normal speed.
Available in Mac OS X v10.5 and later.

4.7 class QTKitCaptureFileOutputMBS

4.7.1 class QTKitCaptureFileOutputMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This is an abstract superclass output destination for QTKitCaptureSessionMBS that writes captured media to files.
Notes:

This superclass defines the interface for outputs that record media samples to files. File outputs are designated a recording output file using the recordToFileURL method. On successive invocations of these methods, the output file can by changed dynamically without losing media samples. A file output can also be set to not record incoming frames (the default behavior when an output is first initialized) by passing NIL as the output file URL. Because files are recorded in the background, applications will generally need to set a delegate for a file output so that they can be notified when recorded files are started and finished. Currently, the only concrete subclass of this class is QTCaptureMovieFileOutput.
Subclass of the QTKitCaptureOutputMBS class.

4.7.2 Methods

4.7.3 Constructor

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor to create a new object.

4.7.4 file as folderitem

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The file data is written to.

4.7.5 isRecordingPaused as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns whether recording to the current output file is paused.
Notes:

This method returns whether recording to the file returned by outputFileURL has been previously paused using the pauseRecording method.
When a recording is paused, captured samples are not written to the output file, but new samples can be written to the same file in the future by calling resumeRecording.

Returns true if recording to the current output file is paused and returns false otherwise.

4.7.6 pauseRecording

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Pauses recording to the current output file.
Notes: This method causes the receiver to stop writing captured samples to the current output file returned by outputFileURL, but leaves the file open so that samples can be written to it in the future, when resumeRecording is called. This allows clients to record multiple media segments that are not contiguous in time to a single file.

4.7.7 recordedDuration as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the duration of the media recorded by the receiver.
Notes: If recording is in progess, this method returns the total time recorded so far. Otherwise, this method returns the time recorded in the most recent recording.

4.7.8 recordedFileSize as int64

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the size, in bytes, of the data recorded by the receiver to output files.
Notes: If a recording is in progess, this method returns the size in bytes of the data recorded so far. Otherwise, this method returns the size in the most recent recording.

4.7.9 recordToOutputFile(file as folderitem)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Records to the given file.
See also:

- 4.7.10 recordToOutputFile(file as folderitem, WriteExisingBuffersToOldFile as boolean) 70

4.7.10 recordToOutputFile(file as folderitem, WriteExisingBuffersToOldFile as boolean)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the file written to by the receiver, specifying where the sample buffer currently in flight should be recorded.
Notes:

file: The file to write data to.
bufferDestination: A buffer destination specifying which file should contain the buffer currently in flight.

The method sets the file URL to which the receiver is currently writing output media. If a file at the given URL already exists when capturing starts, the existing file will be overwritten. If NIL is passed as the file URL, the receiver will stop recording to any file. If this method is invoked while an existing output file was already being recorded, no media samples will be discarded between the old file and the new file. Applications can specify where the sample buffer currently in flight will be recorded using the bufferDestination argument. When the new file is set, applications will not be able to open the old file until it has finished recording in the background. Delegates should implement the didFinishRecordingToOutputFileAtURL event to be notified when the file is ready to be opened.

constants;
QTCaptureFileOutputBufferDestinationNewFile (0) tells the output to include the buffer currently in flight in the old file.
QTCaptureFileOutputBufferDestinationOldFile (1) tells the output to include the buffer currently in flight in the new file.
See also:

- 4.7.9 recordToOutputFile(file as folderitem) 70

4.7.11 resumeRecording

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Resumes recording to the current output file after it was previously paused using pauseRecording.
Notes:

This method causes the receiver to resume writing captured samples to the current output file returned by outputFileURL, after recording was previously paused using pauseRecording. This allows clients to record multiple media segments that are not contiguous in time to a single file. When there is no current output file, or when recording is not paused, this method does nothing.

Requires QuickTime 7.6.3.

4.7.12 setMaximumVideoSize(width as Double, height as Double)

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the maximum dimensions within which the receiver should record video.
Notes:

This method sets the maximum limit on the dimensions of video that the receiver records to a file. When a size is set, all video recorded by the receiver will be no larger than the specified size, while still preserving the original aspect ratio of the content. A value of NSZeroSize indicates that there should be no limit. If this is set to a value other than NSZeroSize, device native compressed video, such as DV video, will be

decompressed so that it can be resized. By default, there is no limit on the maximum recorded video size. QuickTime 7.6.3 or later.

4.7.13 Properties

4.7.14 CompressionOptions(connection as QTKitCaptureConnectionMBS) as QTKitCompressionOptionsMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The options the receiver uses to compress media on the given connection as it is being captured.
Notes:

This method sets/gets the options for compressing media as it is being captured. If compression cannot be performed in real time, the receiver will drop frames in order to remain synchronized with the session. If the receiver does not recompress the output media, this method should be passed nil. The default value is nil.
(Read and Write computed property)

4.7.15 maximumRecordedDuration as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The maximum duration of the media that should be recorded by the receiver.
Notes:

This method sets a soft limit on the duration of recorded files. Delegates can determine what to do when the limit is reached by implementing the shouldChangeOutputFile() event. By default, the current output file is set to NIL when the limit is reached.
(Read and Write computed property)

4.7.16 maximumRecordedFileSize as int64

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The maximum file size, in bytes, of the file that should be recorded by the receiver.
Notes:

This method sets a soft limit on the size of recorded files. Delegates can determine what to do when the limit is reached by implementing the shouldChangeOutputFile() event. By default, the current output file is set to NIL when the limit is reached.
(Read and Write computed property)

4.7.17 MaximumVideoSize as NSSizeMBS

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The maximum dimensions within which the receiver will record video.
Notes:

When a size is set, all video recorded by the receiver will be no larger than the specified size, while still preserving the original aspect ratio of the content. A value of NSZeroSize indicates that there should be no limit. If this is set to a value other than NSZeroSize, device native compressed video, such as DV video, will be decompressed so that it can be resized. By default, there is no limit on the maximum recorded video size. QuickTime 7.6.3 or later.
(Read and Write computed property)

4.7.18 minimumVideoFrameInterval as Double

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The minimum time interval between which the receiver will record consecutive video frames.
Notes:

An double specifying the minimum interval between video frames. A value of 0 indicates that there should be no frame rate limit.
(Read and Write computed property)

4.7.19 Events

4.7.20 didFinishRecordingToOutputFileAtURL(fileURL as string, file as folderitem, connections() as QTKitCaptureConnectionMBS, error as NSErrorMBS)

Plugin Version: 11.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** This event is called whenever a file is finished successfully.
Notes:

If the file was forced to be finished due to an error (including errors that resulted in either of the above two methods being called), the error is described in the error parameter. Otherwise, the error parameter equals nil.

If this method is called on an other thread than the main thread, the plugin will schedule the event to be called on the main thread. But this way the event is called a few milliseconds later.

4.7.21 didOutputSampleBuffer(sampleBuffer as QTKitSampleBufferMBS, connection as QTKitCaptureConnectionMBS)

Plugin Version: 11.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** This event is called every time the recorder output receives a new sample buffer.
Notes:

When called within this method, recordToOutputFileURL, are all guaranteed to occur on the given sample buffer. Since this method is called frequently, it must be efficient.

If this method is called on an other thread than the main thread, the plugin will schedule the event to be called on the main thread. But this way the event is called a few milliseconds later.

4.7.22 didPauseRecordingToOutputFileAtURL(fileURL as string, file as folderitem, connections() as QTKitCaptureConnectionMBS)

Plugin Version: 11.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** This event is called whenever the output is recording to a file and successfully pauses the recording at the request of the client.
Notes:

Delegates can use this method to be informed when a request to pause recording is actually respected. It is safe for delegates to change what the file output is currently doing (starting a new file for example) from within this method. Clients should not assume that this method will be called on the main thread, and should also try to make this method as efficient as possible. If recording to a file is stopped, either manually or due to an error, this method is not guaranteed to be called, even if a previous call to pauseRecording was made.

fileURL: The file URL of the file that is being written.
file: The file that is being written.
connections: An array of QTCaptureConnection objects owned by the file output that provided the data that is being written to the file.

If this method is called on an other thread than the main thread, the plugin will schedule the event to be called on the main thread. But this way the event is called a few milliseconds later.

4.7.23 didResumeRecordingToOutputFileAtURL(fileURL as string, file as folderitem, connections() as QTKitCaptureConnectionMBS)

Plugin Version: 11.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** This event is called whenever the output, at the request of the client, successfully resumes a file recording that was paused.
Notes:

Delegates can use this method to be informed when a request to resume a paused recording is actually

respected. It is safe for delegates to change what the file output is currently doing (starting a new file for example) from within this method. Clients should not assume that this method will be called on the main thread, and should also try to make this method as efficient as possible. If recording to a file is stopped, either manually or due to an error, this method is not guaranteed to be called, even if a previous call to resumeRecording was made.

fileURL: The file URL of the file that is being written.
Connections: An array of QTCaptureConnection objects owned by the file output that provided the data that is being written to the file.

If this method is called on an other thread than the main thread, the plugin will schedule the event to be called on the main thread. But this way the event is called a few milliseconds later.

4.7.24 didStartRecordingToOutputFileAtURL(fileURL as string, file as folderitem, connections() as QTKitCaptureConnectionMBS)

Plugin Version: 11.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** These event is called when the output starts recording to a new file.
Notes: If this method is called on an other thread than the main thread, the plugin will schedule the event to be called on the main thread. But this way the event is called a few milliseconds later.

4.7.25 mustChangeOutputFileAtURL(fileURL as string, file as folderitem, connections() as QTKitCaptureConnectionMBS, error as NSErrorMBS)

Plugin Version: 11.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** This event is called when the file writer reaches a hard limit, such as space running out on the current disk, or the stream format of the incoming media changing.
Notes:

If the delegate does nothing, the current output file will be set to nil. If the delegate sets a new output file (on a different disk in the case of hitting a disk space limit) recording will continue on the new file.

If this method is called on an other thread than the main thread, the plugin will schedule the event to be called on the main thread. But this way the event is called a few milliseconds later.

4.7.26 shouldChangeOutputFileAtURL(fileURL as string, file as folderitem, connections() as QTKitCaptureConnectionMBS, error as NSErrorMBS) as boolean

Plugin Version: 11.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** This event is called when the file recorder reaches a soft limit, i.e. the set maximum file size or duration.
Notes:

If the delegate returns false, the file writer will continue writing the same file. If the event returns true and doesn't set a new output file, mustChangeOutputFileAtURL will be called. If the delegate returns true and sets a new output file, recording will continue on the new file.

If this method is called on an other thread than the main thread, the plugin will schedule the event to be called on the main thread. But this way the event is called a few milliseconds later.

4.7.27 willFinishRecordingToOutputFileAtURL(fileURL as string, file as folderitem, connections() as QTKitCaptureConnectionMBS, error as NSErrorMBS)

Plugin Version: 11.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** This event is called whenever a file will be finished, either because recordToFile was called or an error forced the file to be finished.
Notes:

If the file was forced to be finished due to an error, the error is described in the error parameter. Otherwise, the error parameter equals nil.

If this method is called on an other thread than the main thread, the plugin will schedule the event to be called on the main thread. But this way the event is called a few milliseconds later.

4.7.28 willStartRecordingToOutputFileAtURL(fileURL as string, file as folderitem, connections() as QTKitCaptureConnectionMBS)

Plugin Version: 11.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** These event is called when the output starts recording to a new file.
Notes: If this method is called on an other thread than the main thread, the plugin will schedule the event to be called on the main thread. But this way the event is called a few milliseconds later.

4.8 class QTKitCaptureInputMBS

4.8.1 class QTKitCaptureInputMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This class provides input source connections for a QTCaptureSession.
Notes: QTCaptureInput is an abstract class that provides an interface for connecting capture input sources, such as cameras, to a QTCaptureSession. An input source can have multiple connections. For instance, many cameras output both audio and video streams. Each connection owned by a QTCaptureInput instance is described by a QTCaptureConnection.

4.8.2 Methods

4.8.3 connections as QTKitCaptureConnectionMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of connections owned by the receiver.
Notes: For each connection owned by the receiver, this method returns a QTKitCaptureConnectionMBS object describing the media type, format, and other attributes of the connection.

4.8.4 Constructor(device as QTKitCaptureDeviceMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new capture input object linking to the given device.
Notes: On success the handle property is not zero.

4.8.5 device as QTKitCaptureDeviceMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The device for this input.

4.8.6 Properties

4.8.7 Handle as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference used for the QTCaptureInput object.

Notes: (Read and Write property)

4.9 class QTKitCaptureMovieFileOutputMBS

4.9.1 class QTKitCaptureMovieFileOutputMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This class represents an output destination for QTCaptureSession that writes captured media to QuickTime movie files.
Notes:

A QTKitCaptureMovieFileOutputMBS instance writes the media captured by its connected capture session to QuickTime movie files. The methods implemented by this class are described in the QTKitCaptureFileOutputMBS Reference.
Subclass of the QTKitCaptureFileOutputMBS class.

4.9.2 Methods

4.9.3 Constructor

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor to create a new movie file output.

4.10 class QTKitCaptureOutputMBS

4.10.1 class QTKitCaptureOutputMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** QTCaptureOutput is an abstract class that provides an interface for connecting capture output destinations, such as QuickTime files and video previews, to a QTCaptureSession.
Notes:

Like a QTCaptureInput, a QTCaptureOutput can have multiple connections represented by QTCaptureConnection objects, one for each stream of media that it receives. Unlike a QTCaptureInput however, a QTCaptureOutput does not have any connections when it is first created. When an output is added to a QTCaptureSession, it creates connections as appropriate so that the session has a destination for all of its input media.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

4.10.2 Methods

4.10.3 connections as QTKitCaptureConnectionMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of connections owned by the receiver that are currently connected to a capture session.
Notes:

This class creates a new output connection for each input connection of a matching media type connected to the capture session. The connections method returns an array of connections owned by the receiver that are currently connected to the capture session's input connections.

Mac OS X v10.5 and later.

4.10.4 Constructor

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

4.10.5 Properties

4.10.6 Handle as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference used for the QTCaptureOutput object.

Notes: (Read and Write property)

4.11 class QTKitCaptureSessionMBS

4.11.1 class QTKitCaptureSessionMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This class is the primary interface for capturing media streams.
Notes: A QTCaptureSession instance provides an interface for connecting capture input sources, subclasses QTCaptureInput to output destinations and subclasses of QTCaptureOutput. In addition to managing the connections between inputs and outputs, instances of QTCaptureSession also manage when a capture is running.

4.11.2 Methods

4.11.3 addInput(captureInput as QTKitCaptureInputMBS, byref error as NSErrorMBS) as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds an input to the receiver.
Notes:

error:
After the method returns, if this parameter is not equal to nil, it points to an error describing why the input could not be added, or points to nil if the input was added successfully.

Return Value:
Returns true if the input was added successfully, or has already been added to the receiver. Returns false if the input could not be added.

Discussion:
This method adds a QTCaptureInput to the receiver's list of inputs, adding each of its connections to the capture session as media sources. If there are any outputs already added to the receiver after an input is successfully added, each output creates an additional QTCaptureConnection for each stream of media that it can read from the session and adds it to the list returned by its connections method. If an input is added successfully, it is retained by the receiver and this method returns true. If an input is added more than once, this method does nothing and returns true. If an input cannot be added, this method returns false and returns an NSError in the location pointed to by error. The same input cannot be added to more than one capture session. If a client tries to add an input that has already been added to another session, the method throws an NSInvalidArgumentException.

Availability: Mac OS X v10.5 and later.

4.11.4 addOutput(captureOutput as QTKitCaptureOutputMBS, byref error as NSErrorMBS) as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds an output to the receiver.
Notes:

Return Value
Returns true if the output was added successfully, or has already been added to the receiver. Returns false if the output could not be added.

Discussion
This method adds a QTCaptureOutput to the receiver's list of outputs. After an output is successfully added to a session, it creates one QTCaptureConnection for each stream of media that it can read from the session and adds it to the list returned by its connections method. If an input is added successfully, it is retained by the receiver and this method returns true. If an output is added more than once, this method does nothing and returns true. If an output cannot be added, this method returns false and returns an NSError in the location pointed to by errorPtr. The same output cannot be added to more than one capture session. If a client tries to add an output that has already been added to another session, the method throws an NSInvalidArgumentException.

Availability
Mac OS X v10.5 and later.

4.11.5 Constructor

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor to create a new session.
Notes: On success the handle property is not zero.

4.11.6 inputs as QTKitCaptureInputMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of inputs connected to the receiver.
Notes: A capture session can have one or more input sources, which are instances of QTKitCaptureInputMBS.

4.11.7 isRunning as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns whether the receiver is running.

Notes:

Returns true if the receiver is running. false otherwise.

When a QTCaptureSession is running, it continuously reads media from its inputs and sends it to those outputs currently accepting data. When data does not need to be sent to file outputs, previews, and other outputs, capture sessions should not be running so that the overhead from capturing not affect application performance. By default, capture sessions are not running.

4.11.8 outputs as QTKitCaptureOutputMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of outputs connected to the receiver.
Notes:

A capture session can have one or more output destinations, which are instances of QTKitCaptureOutputMBS.
Mac OS X v10.5 and later.

4.11.9 QTCaptureSessionErrorKey as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with the NSNotificationObserverMBS class.
Notes:

Used as a notification key in the user info dictionary passed to QTCaptureSessionRuntimeErrorNotification to indicate the error responsible for the notification. The value is an NSError.
QuickTime 7.2.1 and later.

4.11.10 QTCaptureSessionRuntimeErrorNotification as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with the NSNotificationObserverMBS class.
Notes:

Posted when an error occurs that while a capture session is running prevents input media from being previewed or captured. The notification user info dictionary QTCaptureSessionErrorKey entry contains an NSError object that describes the error that prevented the session from running properly. Normally, such errors are caused by an invalid configuration of inputs and outputs.
QuickTime 7.2.1 and later.

4.11.11 removeInput(captureInput as QTKitCaptureInputMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes an input from the receiver.
Notes: This method removes a QTCaptureInput added with addInput and releases it.

4.11.12 removeOutput(captureOutput as QTKitCaptureOutputMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes an output from the receiver.
Notes: This method removes a QTCaptureOutput instance previously added using addOutput and releases it.

4.11.13 startRunning

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Tells the receiver to start capturing data from its inputs and sending data to its outputs.
Notes: When a QTCaptureSession is running, it continuously reads media from its inputs and sends it to those outputs currently accepting data. When data does not need to be sent to file outputs, previews, and other outputs, the capture session should not be running so that the overhead from capturing does not affect application performance. By default, capture sessions are not running.

4.11.14 stopRunning

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Tells the receiver to stop capturing data from its inputs and sending data to its outputs.
Notes: When a QTCaptureSession is running, it continuously reads media from its inputs and sends it to those outputs currently accepting data. When data does not need to be sent to file outputs, previews, and other outputs, the capture session should not be running so that the overhead from capturing does not affect application performance. By default, capture sessions are not running.

4.11.15 Properties

4.11.16 Handle as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference to the QTCaptureSession object.
Notes: (Read and Write property)

4.12 class QTKitCaptureVideoPreviewOutputMBS

4.12.1 class QTKitCaptureVideoPreviewOutputMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This class represents an output destination for QTCaptureSession that can be used to preview the video being captured.
Notes:

Instances of QTCaptureVideoPreviewOutput produce decompressed video frames suitable for preview. Because the output video is intended for preview only, instances may drop frames or reduce output quality in order to improve overall performance of the capture session. Applications that need to process full-quality frames without dropping them should use QTCaptureDecompressedVideoOutput instead. Applications can access the decompressed frames from a QuickTime visual context for each output connection, or via the captureOutput:didOutputVideoFrame:withSampleBuffer:fromConnection: delegate method. In addition, clients can create subclasses of QTCaptureVideoPreviewOutput to add custom capturing behavior. Application Kit clients wishing to preview video do not normally need to use QTCaptureVideoPreviewOutput instances directly, as they are created and managed by instances of QTCaptureView. Clients should use QTCaptureVideoPreviewOutput directly only when they require preview functionality not provided by QTCaptureView or when they need to process decompressed frames directly.
Subclass of the QTKitCaptureOutputMBS class.
This is a subclass of an abstract class. You can't create an instance, but you can get one from various plugin functions.

4.12.2 Properties

4.12.3 pixelBufferAttributes as dictionary

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The CoreVideo pixel buffer attributes that determine what kind of pixel buffers are output by the receiver.
Notes:

This method sets the pixel buffer attributes that clients can use to customize the size and pixel format of the video frames output by the receiver. When the dictionary is non-nil, the receiver will attempt to output pixel buffers using the attributes specified in the dictionary. A non-nil dictionary also guarantees that the output CVImageBuffer is a CVPixelBuffer. When the value for kCVPixelBufferPixelFormatTypeKey is set to an number, all image buffers output by the receiver will be in that format. When the value is an Array, image buffers output by the receiver will be in the most optimal format specified in that array. If the captured images are not in the one of the specified pixel formats, then a format conversion will be performed. If the dictionary is NIL or there is no value for the kCVPixelBufferPixelFormatTypeKey, then the receiver will output images in the most efficient possible format given the input. For example, if the source is an iSight producing component Y'CbCr 8-bit 4:2:2 video then Y'CbCr 8-bit 4:2:2 will be used as the output format in order to avoid any conversions.

Available in Mac OS X v10.5 and later.
(Read and Write computed property)

4.13 class QTKitCaptureViewMBS

4.13.1 class QTKitCaptureViewMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This is a subclass of NSView that displays a video preview of a capture session.
Notes:

A QTCaptureView previews the video being processed by an instance of QTCaptureSession. This class creates and maintains its own QTCaptureVideoPreviewOutput as necessary to gather preview video from the capture session.

You can embed this view in a CustomNSViewMBS to get more events for mouse and keyboard.
Subclass of the NSViewMBS class.

4.13.2 Methods

4.13.3 available as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the QTCaptureView class is available.
Example:

```
if QTKitCaptureViewMBS.available then
MsgBox "OK"
else
MsgBox "Please upgrade Mac OS X."
end if
```

4.13.4 availableVideoPreviewConnections as QTKitCaptureConnectionMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the available video preview connections.

4.13.5 Constructor

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new QTKit capture view with size 100/100 and position 0/0
Example:

```
dim t as new QTKitCaptureViewMBS
```

Notes: On success the handle property is not zero.
See also:

- 4.13.6 Constructor(Handle as Integer) 89
- 4.13.7 Constructor(left as Double, top as Double, width as Double, height as Double) 89

4.13.6 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 QTKitCaptureView handle.
Example:

```
dim t as new QTKitCaptureViewMBS(0, 0, 100, 100)
dim v as new QTKitCaptureViewMBS(t.handle)

MsgBox str(v.Bounds.Width)+" x "+str(v.Bounds.Height)
```

Notes: The handle is casted to a QTKitCaptureView and the plugin retains this handle.
See also:

- 4.13.5 Constructor 88
- 4.13.7 Constructor(left as Double, top as Double, width as Double, height as Double) 89

4.13.7 Constructor(left as Double, top as Double, width as Double, height as Double)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new QTKit capture view with the given size and position.
Example:

```
dim x as new QTKitCaptureViewMBS(0, 0, 100, 100)
```

Notes: On success the handle property is not zero.
See also:

- 4.13.5 Constructor 88
- 4.13.6 Constructor(Handle as Integer) 89

4.13.8 Destructor

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The destructor.

4.13.9 previewBounds as NSRectMBS

Plugin Version: 9.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The rectangle occupied by the video preview in the view.

4.13.10 setFilters(cifilters() as Variant)

Plugin Version: 13.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the array with filters to apply to each frame displayed in this view.
Notes:

The plugin will loop over the array and apply input image to each filter and query output image.
The last output image will be displayed.
By default we assign InputImage and query OutputImage.

You can also pass dictionaries in the array with the following keys:
filter: the CIFilterMBS object
input: The input key.
output: The output key.

4.13.11 Properties

4.13.12 captureSession as QTKitCaptureSessionMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The capture session being previewed by the receiver.
Notes: (Read and Write computed property)

4.13.13 fillColor as NSColorMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The fill color drawn in the area of the view not covered by the video preview.
Notes: (Read and Write computed property)

4.13.14 preservesAspectRatio as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the receiver preserves the aspect ratio of the video preview when drawing it.
Notes:

True if the video preview aspect ratio is preserved; otherwise, false.
(Read and Write computed property)

4.13.15 videoPreviewConnection as QTKitCaptureConnectionMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The output connection being previewed by the receiver.
Notes:

A QTCaptureView can preview only one video connection at a time. This method returns the output connection currently being previewed by the receiver.
(Read and Write computed property)

4.13.16 Events

4.13.17 didDisplayImage(inputImage as Variant, outputImage as Variant)

Plugin Version: 13.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** You can get here the images just used to display.
Notes:

inputImage: A CIImageMBS object that represents the frame that would normally be drawn.
outputImage: The CIImageMBS after passing through filters. Can be same as inputImage.

Mac OS X v10.5 and later.

4.14 class QTKitCompressionOptionsMBS

4.14.1 class QTKitCompressionOptionsMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This class represents a set of compression options for a particular type of media.
Notes:

QTCompressionOptions objects are used to describe compression options for different kinds of media. Compression options are created from presets keyed by a named identifier. Preset identifiers are described in the Constants section that describes the Compression Options Identifiers.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

4.14.2 Methods

4.14.3 compressionOptionsIdentifiersForMediaType(mediatype as string) as string()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns all of the possible identifiers for the given media type that can be used with compressionOptionsWithIdentifier on the user's system.
Notes:

mediaType: A media type used to create compression options.

Mac OS X v10.5 and later.

4.14.4 compressionOptionsWithIdentifier(identifier as string) as QTKitCompressionOptionsMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a QTCompressionOptions instance configured with the options for the given identifier.
Example:

```
dim c as QTKitCompressionOptionsMBS

c=QTKitCompressionOptionsMBS.compressionOptionsWithIdentifier(QTKitCompressionOptionsMBS.kOptions120SizeH264Video)

MsgBox c.localizedDisplayName // "H.264 160x120" (German)
```

Notes: Requires Mac OS X v10.5 and later.

4.14.5 Constructor

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

4.14.6 Equal(Other as QTKitCompressionOptionsMBS) as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns whether the receiver contains options identical to those in the given compression options object.

4.14.7 localizedCompressionOptionsSummary as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A localized summary of the receiver's compression options.
Example:

```
dim c as QTKitCompressionOptionsMBS
c=QTKitCompressionOptionsMBS.compressionOptionsWithIdentifier(QTKitCompressionOptionsMBS.kOptions120SizeH264Video)

MsgBox c.localizedCompressionOptionsSummary
// shows "H.264"+endofline+"Maximale Gre: 160 x 120" (this is German)
```

Notes: Returns a localized string summarizing the receiver's compression options.

4.14.8 localizedDisplayName as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns short localized name describing the receiver's compression options.
Example:

```
dim c as QTKitCompressionOptionsMBS

c=QTKitCompressionOptionsMBS.compressionOptionsWithIdentifier(QTKitCompressionOptionsMBS.kOptions120SizeH264Video)

MsgBox c.localizedDisplayName // "H.264 160x120" (German)
```

Notes: A localized string appropriate for display in the user interface (in a list of compression options, for

example).

4.14.9 mediaType as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The media type on which the receiver's compression options should be used.
Notes: Returns a QuickTime media type, such as QTMediaTypeVideo or QTMediaTypeSound.

4.14.10 Properties

4.14.11 Handle as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference used for the QTCompressionOptions object.
Notes: (Read and Write property)

4.14.12 Constants

4.14.13 kOptions120SizeH264Video="QTCompressionOptions120SizeH264Video"

Plugin Version: 8.4. **Function:** One of the compression options identifiers.
Notes:

Compresses video using the H.264 codec using medium bit-rate settings with dimensions no larger than 160x120.
This is appropriate for delivery to low-bandwidth and low-capacity destinations.

4.14.14 kOptions120SizeMPEG4Video="QTCompressionOptions120SizeMPEG4Video"

Plugin Version: 8.4. **Function:** One of the compression options identifiers.
Notes:

Compresses video using the MPEG-4 codec using medium bit-rate settings with dimensions no larger than 160x120.
This is appropriate for delivery to low-bandwidth and low-capacity destinations.

4.14.15 kOptions240SizeH264Video="QTCompressionOptions240SizeH264Video"

Plugin Version: 8.4. **Function:** One of the compression options identifiers.
Notes:

Compresses video using the H.264 codec using medium bit-rate settings with dimensions no larger than 320x240.
This is appropriate for delivery to medium-bandwidth and medium-capacity destinations.

4.14.16 kOptions240SizeMPEG4Video="QTCompressionOptions240SizeMPEG4Video"

Plugin Version: 8.4. **Function:** One of the compression options identifiers.
Notes:

Compresses video using the MPEG-4 codec using medium bit-rate settings with dimensions no larger than 320x240.
This is appropriate for delivery to medium-bandwidth and medium-capacity destinations.

4.14.17 kOptionsHighQualityAACAudio="QTCompressionOptionsHighQualityAACAudio"

Plugin Version: 8.4. **Function:** One of the compression options identifiers.
Notes:

Compresses audio using the AAC codec at 64 kbps per channel.
This is appropriate for delivery of high-quality music and other audio.

4.14.18 kOptionsJPEGVideo="QTCompressionOptionsJPEGVideo"

Plugin Version: 8.4. **Function:** One of the compression options identifiers.

4.14.19 kOptionsLosslessALACAudio="QTCompressionOptionsLosslessALACAudio"

Plugin Version: 8.4. **Function:** One of the compression options identifiers.
Notes:

Compresses audio using the Apple Lossless codec.
This is appropriate for an intermediate format for media that requires further processing.

4.14.20 kOptionsLosslessAnimationVideo="QTCompressionOptionsLosslessAnimationVideo"

Plugin Version: 8.4. **Function:** One of the compression options identifiers.
Notes:

Compresses video using the Animation codec at highest quality and color depth.
This is appropriate for an intermediate format for media that requires further processing.

4.14.21 kOptionsLosslessAppleIntermediateVideo="QTCompressionOptionsLosslessAppleIntermediateVideo"

Plugin Version: 8.4. **Function:** One of the compression options identifiers.
Notes:

Compresses video using the Apple Intermediate codec at lossless quality.
This is appropriate for an intermediate format for media that requires further processing.

4.14.22 kOptionsSD480SizeH264Video="QTCompressionOptionsSD480SizeH264Video"

Plugin Version: 8.4. **Function:** One of the compression options identifiers.
Notes:

Compresses video using the H.264 codec using medium bit-rate settings with dimensions no larger than 720x480.
This is appropriate for delivery to medium and high-bandwidth and medium- and high-capacity destinations.

4.14.23 kOptionsSD480SizeMPEG4Video="QTCompressionOptionsSD480SizeMPEG4Video"

Plugin Version: 8.4. **Function:** One of the compression options identifiers.
Notes:

Compresses video using the MPEG-4 codec using medium bit-rate settings with dimensions no larger than 720x480.
This is appropriate for delivery to medium and high-bandwidth and medium- and high-capacity destinations.

4.14.24 kOptionsVoiceQualityAACAudio="QTCompressionOptionsVoiceQualityAACAudio"

Plugin Version: 8.4. **Function:** One of the compression options identifiers.
Notes:

Compresses audio using the AAC codec at 32 kbps per channel.
This is appropriate for delivery of voice recordings.

4.15 class QTKitCustomCaptureViewMBS

4.15.1 class QTKitCustomCaptureViewMBS

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The class for a custom capture view.
Notes:

You can embed this view in a CustomNSViewMBS to get more events for mouse and keyboard.
Subclass of the QTKitCaptureViewMBS class.

4.15.2 Methods

4.15.3 Constructor

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor for a new custom QTKitCustomCaptureViewMBS object.
See also:

- 4.15.4 Constructor(Handle as Integer) 98
- 4.15.5 Constructor(left as Double, top as Double, width as Double, height as Double) 99

4.15.4 Constructor(Handle as Integer)

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates an object based on the given QTKitCustomCaptureView handle.
Example:

```
dim t as new QTKitCustomCaptureViewMBS(0, 0, 100, 100)
dim v as new QTKitCustomCaptureViewMBS(t.handle)

MsgBox str(v.Bounds.Width)+" x "+str(v.Bounds.Height)
```

Notes: The handle is casted to a QTKitCustomCaptureView and the plugin retains this handle.
See also:

- 4.15.3 Constructor 98
- 4.15.5 Constructor(left as Double, top as Double, width as Double, height as Double) 99

4.15.5 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:** The constructor for a new custom capture view object.
See also:

- 4.15.3 Constructor 98
- 4.15.4 Constructor(Handle as Integer) 98

4.15.6 Destructor

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The destructor.

4.15.7 Events

4.15.8 acceptsFirstMouse(e as NSEventMBS) as boolean

Plugin Version: 12.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Overridden by subclasses to return true if the receiver should be sent a mouseDown event for an initial mouse-down event, false if not.
Notes:

The receiver can either return a value unconditionally or use the location of event e to determine whether or not it wants the event. The default implementation ignores the event and returns false.

Implement this event in a subclass to allow instances to respond to click-through. This allows the user to click on a view in an inactive window, activating the view with one click, instead of clicking first to make the window active and then clicking the view. Most view objects refuse a click-through attempt, so the event simply activates the window. Many control objects, however, such as instances of NSButton and NSSlider, do accept them, so the user can immediately manipulate the control without having to release the mouse button.

4.15.9 acceptsFirstResponder as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Whether to accept first responder.
Notes: Return true if your control can have the focus and false if not.

4.15.10 becomeFirstResponder as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Called when the object gets focus.
Notes: Return true to accept.

4.15.11 beginGestureWithEvent(e as NSEventMBS) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the receiver that the user has begun a touch gesture.
Notes:

e: An event object representing the gesture beginning.
The event will be sent to the view under the touch in the key window.
Available in Mac OS X v10.6 and later.
Return true if you handled this event.

4.15.12 canBecomeKeyView as boolean

Plugin Version: 12.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns whether the receiver can become key view.
Notes: Returns true if the receiver can become key view, false otherwise.

4.15.13 Close

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called when the custom NSView is destroyed.

4.15.14 concludeDragOperation(sender as NSDraggingInfoMBS)

Plugin Version: 13.1, 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.

4.15.15 draggingEnded(sender as NSDraggingInfoMBS)

Plugin Version: 13.1, 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.

4.15.16 draggingEntered(sender as NSDraggingInfoMBS) as Integer

Plugin Version: 13.1, 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.

4.15.17 draggingExited(sender as NSDraggingInfoMBS)

Plugin Version: 13.1, 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.

4.15.18 draggingSessionEndedAtPoint(session as NSDraggingSessionMBS, screenPoint as NSPointMBS, operation as Integer)

Plugin Version: 13.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked when the dragging session has completed.
Notes:

session: The dragging session.
screenPoint: The point where the drag ended, in screen coordinates.
operation: The drag operation. See constants for drag operation types.

Available in OS X v10.7 and later.

4.15.19 draggingSessionMovedToPoint(session as NSDraggingSessionMBS, screenPoint as NSPointMBS)

Plugin Version: 13.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked when the drag moves on the screen.
Notes:

session: The dragging session.
screenPoint: The point where the drag moved to, in screen coordinates.

Available in OS X v10.7 and later.

4.15.20 draggingSessionSourceOperationMaskForDraggingContext(session as NSDraggingSessionMBS, context as Integer) as Integer

Plugin Version: 13.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Declares the types of operations the source allows to be performed. (required)
Notes:

session: The dragging session.
context: The dragging context. See NSDraggingContext constants for the supported values.

Return the appropriate dragging operation as defined in constants.

In the future Apple may provide more specific "within" values in the future. To account for this, for unrecognized localities, return the operation mask for the most specific context that you are concerned with.

4.15.21 draggingSessionWillBeginAtPoint(session as NSDraggingSessionMBS, screenPoint as NSPointMBS)

Plugin Version: 13.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked when the drag will begin.
Notes:

session: The dragging session.
screenPoint: The point where the drag will begin, in screen coordinates.

Available in OS X v10.7 and later.

4.15.22 draggingSourceOperationMaskForLocal(flag as boolean) as Integer

Plugin Version: 13.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns an integer bit mask indicating the types of dragging operations the source object will allow to be performed on the dragged image's data.
Notes:

(Deprecated in OS X v10.7. This method is informally deprecated. It is only called if the source does not implement the NSDraggingSource protocol methods. This method will be formally deprecated in a future OS release.)

isLocal: True indicates that the candidate destination object (the window or view over which the dragged image is currently poised) is in the same application as the source, while a false value indicates that the destination object is in a different application.

A mask, created by combining the dragging operations listed in the NSDragOperation section of NSDraggingInfo protocol reference using the C bitwise OR operator.If the source does not permit any dragging operations, it should return NSDragOperationNone.

If not implemented, the default value is NSDragOperationCopy | NSDragOperationLink | NSDragOperationGeneric | NSDragOperationPrivate.

Available in OS X v10.0 and later. Deprecated in OS X v10.7.

4.15.23 draggingUpdated(sender as NSDraggingInfoMBS) as Integer

Plugin Version: 13.1, 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 NSDraggingInfo 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.

4.15.24 endGestureWithEvent(e as NSEventMBS) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the receiver that the user has ended a touch gesture.
Notes:

e: An event object representing the gesture end.
Available in Mac OS X v10.6 and later.
Return true if you handled this event.

4.15.25 ignoreModifierKeysForDraggingSession(session as NSDraggingSessionMBS) as boolean

Plugin Version: 13.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns whether the modifier keys will be ignored for this dragging session.
Notes:

session: The dragging session.

Return true if the modifier keys will be ignored, false otherwise.
Available in OS X v10.7 and later.

4.15.26 isOpaque as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Whether this view is opaque.

4.15.27 keyDown(e as NSEventMBS) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the key events.
Notes: Return true if you handled this event.

4.15.28 keyUp(e as NSEventMBS) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the key events.
Notes: Return true if you handled this event.

4.15.29 magnifyWithEvent(e as NSEventMBS) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the receiver that the user has begun a pinch gesture.
Notes:

e: An event object representing the magnify gesture.
The event will be sent to the view under the touch in the key window.
Available in Mac OS X v10.6 and later.
Return true if you handled this event.

4.15.30 menuForEvent(e as NSEventMBS, defaultMenu as NSMenuMBS) as NSMenuMBS

Plugin Version: 12.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Overridden by subclasses to return a context-sensitive pop-up menu for a given mouse-down event.
Notes:

theEvent: An object representing a mouse-down event.
defaultMenu: The menu as constructed by super class.

The receiver can use information in the mouse event, such as its location over a particular element of the receiver, to determine what kind of menu to return. For example, a text object might display a text-editing menu when the cursor lies over text and a menu for changing graphics attributes when the cursor lies over an embedded image.

The default implementation returns the default menu.

4.15.31 mouseDown(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.15.32 mouseDownCanMoveWindow as boolean

Plugin Version: 12.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** This event is called so you can decide what happens with mouse down.
Notes:

Return true if you do not need to handle a mouse down and it can pass through to superviews; False if you

need to handle the mouse down.

This allows iApp-type applications to determine the region by which a window can be moved. By default, this method returns false if the view is opaque; otherwise, it returns true. Subclasses can override this method to return a different value.

4.15.33 mouseDragged(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.15.34 mouseEntered(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.15.35 mouseExited(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.15.36 mouseMoved(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.15.37 mouseUp(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.15.38 Open

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called when the custom NSView is created.

4.15.39 otherMouseDown(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes:

Return true if you handled this event.
Third mouse button.

4.15.40 otherMouseDragged(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.15.41 otherMouseUp(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.15.42 performDragOperation(sender as NSDraggingInfoMBS) as boolean

Plugin Version: 13.1, 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.

4.15.43 prepareForDragOperation(sender as NSDraggingInfoMBS) as boolean

Plugin Version: 13.1, 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.

4.15.44 pressureChange(e as NSEventMBS) as boolean

Plugin Version: 15.1, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Informs the current object that a pressure change occurred on a system that supports pressure sensitivity.
Notes:

This method is invoked automatically in response to user actions. event is the event that initiated the change in pressure.
Available in OS X v10.10.3 and later.

4.15.45 resignFirstResponder as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Focus is going away.
Notes: Return true to accept.

4.15.46 rightMouseDown(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes:

Return true if you handled this event.
Third mouse button.

4.15.47 rightMouseDragged(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.15.48 rightMouseUp(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.15.49 rotateWithEvent(e as NSEventMBS) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the receiver that the user has begun a rotation gesture.
Notes:

e: An event object representing the rotate gesture.
The event will be sent to the view under the touch in the key window.
Available in Mac OS X v10.6 and later.
Return true if you handled this event.

4.15.50 scrollWheel(e as NSEventMBS) as boolean

Plugin Version: 12.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the subclass that the mouse's scroll wheel has moved.
Notes:

e: An object encapsulating information about the wheel-scrolling event.

The default implementation simply passes this message to the next responder.
Return true to not pass the event.

4.15.51 swipeWithEvent(e as NSEventMBS) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the receiver that the user has begun a swipe gesture.
Notes:

e: An event object representing the swipe gesture.
The event will be sent to the view under the touch in the key window.
Available in Mac OS X v10.6 and later.
Return true if you handled this event.

4.15.52 updateDraggingItemsForDrag(sender as NSDraggingInfoMBS)

Plugin Version: 13.1, 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.

4.15.53 viewDidMoveToWindow

Plugin Version: 12.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the receiver that it has been added to a new view hierarchy.
Notes:

The default implementation does nothing; subclasses can implement this event to perform whatever actions are necessary.

window may return nil when this method is invoked, indicating that the receiver does not currently reside in any window. This occurs when the receiver has just been removed from its superview or when the receiver has just been added to a superview that does not itself have a window. Overrides of this method may choose to ignore such cases if they are not of interest.

4.15.54 wantsPeriodicDraggingUpdates as boolean

Plugin Version: 13.1, 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.

4.16 class QTKitCustomMovieViewMBS

4.16.1 class QTKitCustomMovieViewMBS

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The class for a custom movie view.
Notes:

You can embed this view in a CustomNSViewMBS to get more events for mouse and keyboard.
Subclass of the QTKitMovieViewMBS class.

4.16.2 Methods

4.16.3 Constructor

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The constructor for a new custom QTKitCustomMovieViewMBS object.
See also:

- 4.16.4 Constructor(Handle as Integer) 113
- 4.16.5 Constructor(left as Double, top as Double, width as Double, height as Double) 114

4.16.4 Constructor(Handle as Integer)

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates an object based on the given QTKitCustomMovieView handle.
Example:

```
dim t as new QTKitCustomMovieViewMBS(0, 0, 100, 100)
dim v as new QTKitCustomMovieViewMBS(t.handle)

MsgBox str(v.Bounds.Width)+" x "+str(v.Bounds.Height)
```

Notes: The handle is casted to a QTKitCustomMovieView and the plugin retains this handle.
See also:

- 4.16.3 Constructor 113
- 4.16.5 Constructor(left as Double, top as Double, width as Double, height as Double) 114

4.16.5 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:** The constructor for a new custom movie view object.
See also:

- 4.16.3 Constructor 113
- 4.16.4 Constructor(Handle as Integer) 113

4.16.6 Destructor

Plugin Version: 12.5, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The destructor.

4.16.7 Events

4.16.8 acceptsFirstMouse(e as NSEventMBS) as boolean

Plugin Version: 12.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Overridden by subclasses to return true if the receiver should be sent a mouseDown event for an initial mouse-down event, false if not.
Notes:

The receiver can either return a value unconditionally or use the location of event e to determine whether or not it wants the event. The default implementation ignores the event and returns false.

Implement this event in a subclass to allow instances to respond to click-through. This allows the user to click on a view in an inactive window, activating the view with one click, instead of clicking first to make the window active and then clicking the view. Most view objects refuse a click-through attempt, so the event simply activates the window. Many control objects, however, such as instances of NSButton and NSSlider, do accept them, so the user can immediately manipulate the control without having to release the mouse button.

4.16.9 acceptsFirstResponder as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Whether to accept first responder.
Notes: Return true if your control can have the focus and false if not.

4.16.10 becomeFirstResponder as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Called when the object gets focus.
Notes: Return true to accept.

4.16.11 beginGestureWithEvent(e as NSEventMBS) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the receiver that the user has begun a touch gesture.
Notes:

e: An event object representing the gesture beginning.
The event will be sent to the view under the touch in the key window.
Available in Mac OS X v10.6 and later.
Return true if you handled this event.

4.16.12 canBecomeKeyView as boolean

Plugin Version: 12.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns whether the receiver can become key view.
Notes: Returns true if the receiver can become key view, false otherwise.

4.16.13 Close

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called when the custom NSView is destroyed.

4.16.14 concludeDragOperation(sender as NSDraggingInfoMBS)

Plugin Version: 13.1, 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.

4.16.15 draggingEnded(sender as NSDraggingInfoMBS)

Plugin Version: 13.1, 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.

4.16.16 draggingEntered(sender as NSDraggingInfoMBS) as Integer

Plugin Version: 13.1, 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.

4.16.17 draggingExited(sender as NSDraggingInfoMBS)

Plugin Version: 13.1, 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.

4.16.18 draggingSessionEndedAtPoint(session as NSDraggingSessionMBS, screenPoint as NSPointMBS, operation as Integer)

Plugin Version: 13.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked when the dragging session has completed.
Notes:

session: The dragging session.
screenPoint: The point where the drag ended, in screen coordinates.
operation: The drag operation. See constants for drag operation types.

Available in OS X v10.7 and later.

4.16.19 draggingSessionMovedToPoint(session as NSDraggingSessionMBS, screenPoint as NSPointMBS)

Plugin Version: 13.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked when the drag moves on the screen.
Notes:

session: The dragging session.
screenPoint: The point where the drag moved to, in screen coordinates.

Available in OS X v10.7 and later.

4.16.20 draggingSessionSourceOperationMaskForDraggingContext(session as NSDraggingSessionMBS, context as Integer) as Integer

Plugin Version: 13.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Declares the types of operations the source allows to be performed. (required)
Notes:

session: The dragging session.
context: The dragging context. See NSDraggingContext constants for the supported values.

Return the appropriate dragging operation as defined in constants.

In the future Apple may provide more specific "within" values in the future. To account for this, for unrecognized localities, return the operation mask for the most specific context that you are concerned with.

4.16.21 draggingSessionWillBeginAtPoint(session as NSDraggingSessionMBS, screenPoint as NSPointMBS)

Plugin Version: 13.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Invoked when the drag will begin.
Notes:

session: The dragging session.
screenPoint: The point where the drag will begin, in screen coordinates.

Available in OS X v10.7 and later.

4.16.22 draggingSourceOperationMaskForLocal(flag as boolean) as Integer

Plugin Version: 13.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns an integer bit mask indicating the types of dragging operations the source object will allow to be performed on the dragged image's data.
Notes:

(Deprecated in OS X v10.7. This method is informally deprecated. It is only called if the source does not implement the NSDraggingSource protocol methods. This method will be formally deprecated in a future OS release.)

isLocal: True indicates that the candidate destination object (the window or view over which the dragged image is currently poised) is in the same application as the source, while a false value indicates that the destination object is in a different application.

A mask, created by combining the dragging operations listed in the NSDragOperation section of NSDraggingInfo protocol reference using the C bitwise OR operator.If the source does not permit any dragging operations, it should return NSDragOperationNone.

If not implemented, the default value is NSDragOperationCopy | NSDragOperationLink | NSDragOperationGeneric | NSDragOperationPrivate.

Available in OS X v10.0 and later. Deprecated in OS X v10.7.

4.16.23 draggingUpdated(sender as NSDraggingInfoMBS) as Integer

Plugin Version: 13.1, 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 NSDraggingInfo 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.

4.16.24 endGestureWithEvent(e as NSEventMBS) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the receiver that the user has ended a touch gesture.
Notes:

e: An event object representing the gesture end.
Available in Mac OS X v10.6 and later.
Return true if you handled this event.

4.16.25 ignoreModifierKeysForDraggingSession(session as NSDraggingSessionMBS) as boolean

Plugin Version: 13.1, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns whether the modifier keys will be ignored for this dragging session.
Notes:

session: The dragging session.

Return true if the modifier keys will be ignored, false otherwise.
Available in OS X v10.7 and later.

4.16.26 isOpaque as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Whether this view is opaque.

4.16.27 keyDown(e as NSEventMBS) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the key events.
Notes: Return true if you handled this event.

4.16.28 keyUp(e as NSEventMBS) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the key events.
Notes: Return true if you handled this event.

4.16.29 magnifyWithEvent(e as NSEventMBS) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the receiver that the user has begun a pinch gesture.
Notes:

e: An event object representing the magnify gesture.
The event will be sent to the view under the touch in the key window.
Available in Mac OS X v10.6 and later.
Return true if you handled this event.

4.16.30 menuForEvent(e as NSEventMBS, defaultMenu as NSMenuMBS) as NSMenuMBS

Plugin Version: 12.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Overridden by subclasses to return a context-sensitive pop-up menu for a given mouse-down event.
Notes:

theEvent: An object representing a mouse-down event.
defaultMenu: The menu as constructed by super class.

The receiver can use information in the mouse event, such as its location over a particular element of the receiver, to determine what kind of menu to return. For example, a text object might display a text-editing menu when the cursor lies over text and a menu for changing graphics attributes when the cursor lies over an embedded image.

The default implementation returns the default menu.

4.16.31 mouseDown(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.16.32 mouseDownCanMoveWindow as boolean

Plugin Version: 12.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** This event is called so you can decide what happens with mouse down.
Notes:

Return true if you do not need to handle a mouse down and it can pass through to superviews; False if you

need to handle the mouse down.

This allows iApp-type applications to determine the region by which a window can be moved. By default, this method returns false if the view is opaque; otherwise, it returns true. Subclasses can override this method to return a different value.

4.16.33 mouseDragged(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.16.34 mouseEntered(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.16.35 mouseExited(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.16.36 mouseMoved(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.16.37 mouseUp(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.16.38 Open

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The event called when the custom NSView is created.

4.16.39 otherMouseDown(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes:

Return true if you handled this event.
Third mouse button.

4.16.40 otherMouseDragged(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes:

Return true if you handled this event.
Third mouse button.

4.16.41 otherMouseUp(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes:

Return true if you handled this event.
Third mouse button.

4.16.42 performDragOperation(sender as NSDraggingInfoMBS) as boolean

Plugin Version: 13.1, 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.

4.16.43 prepareForDragOperation(sender as NSDraggingInfoMBS) as boolean

Plugin Version: 13.1, 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.

4.16.44 pressureChange(e as NSEventMBS) as boolean

Plugin Version: 15.1, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Informs the current object that a pressure change occurred on a system that supports pressure sensitivity.
Notes:

This method is invoked automatically in response to user actions. event is the event that initiated the change in pressure.
Available in OS X v10.10.3 and later.

4.16.45 resignFirstResponder as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Focus is going away.
Notes: Return true to accept.

4.16.46 rightMouseDown(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.16.47 rightMouseDragged(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.16.48 rightMouseUp(e as NSEventMBS, x as Double, y as Double) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** One of the mouse events.
Notes: Return true if you handled this event.

4.16.49 rotateWithEvent(e as NSEventMBS) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the receiver that the user has begun a rotation gesture.
Notes:

e: An event object representing the rotate gesture.
The event will be sent to the view under the touch in the key window.
Available in Mac OS X v10.6 and later.
Return true if you handled this event.

4.16.50 scrollWheel(e as NSEventMBS) as boolean

Plugin Version: 12.0, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the subclass that the mouse's scroll wheel has moved.
Notes:

e: An object encapsulating information about the wheel-scrolling event.

The default implementation simply passes this message to the next responder.
Return true to not pass the event.

4.16.51 swipeWithEvent(e as NSEventMBS) as boolean

Plugin Version: 10.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the receiver that the user has begun a swipe gesture.
Notes:

e: An event object representing the swipe gesture.
The event will be sent to the view under the touch in the key window.
Available in Mac OS X v10.6 and later.
Return true if you handled this event.

4.16.52 updateDraggingItemsForDrag(sender as NSDraggingInfoMBS)

Plugin Version: 13.1, 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.

4.16.53 viewDidMoveToWindow

Plugin Version: 12.5, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Informs the receiver that it has been added to a new view hierarchy.
Notes:

The default implementation does nothing; subclasses can implement this event to perform whatever actions are necessary.

window may return nil when this method is invoked, indicating that the receiver does not currently reside in any window. This occurs when the receiver has just been removed from its superview or when the receiver has just been added to a superview that does not itself have a window. Overrides of this method may choose

to ignore such cases if they are not of interest.

4.16.54 wantsPeriodicDraggingUpdates as boolean

Plugin Version: 13.1, 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.

4.17 class QTKitDataReferenceMBS

4.17.1 class QTKitDataReferenceMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A QTDataReference object is a representation of a QuickTime data reference which specifies the location of a QuickTime movie or some media data.
Notes:

You can create QTDataReference objects that refer to data stored in files accessed using file names or URLs, or in memory accessed using handles, pointers, or NSData objects.

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.

4.17.2 Methods

4.17.3 Constructor

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

4.17.4 dataRefData as memoryblock

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the QuickTime data reference data associated with a QTDataReference object, stored in a memoryblock.

4.17.5 dataReferenceWithDataRefData(dataRefData as memoryblock, type as string) as QTKitDataReferenceMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a QTDataReference object of type type initialized with data from dataRefData.
Notes: Pass data you got from dataRefData and type you got from dataRefType.

4.17.6 dataReferenceWithReferenceToData(data as memoryblock) as QTKitDataReferenceMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a data reference referencing the given bytes in the string.
Notes: Keep the string in memory so the reference is not disabled.
See also:

- 4.17.7 dataReferenceWithReferenceToData(data as memoryblock, name as string, mimetype as string) as QTKitDataReferenceMBS 129

4.17.7 dataReferenceWithReferenceToData(data as memoryblock, name as string, mimetype as string) as QTKitDataReferenceMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a QTDataReference object for the data block data; this data reference has two data reference extensions, a filenaming extension and a MIME type extension.
Notes:

Available in Mac OS X v10.3 and later.
See also FileExtensionToMimeTypeMBS function.
See also:

- 4.17.6 dataReferenceWithReferenceToData(data as memoryblock) as QTKitDataReferenceMBS 129

4.17.8 dataReferenceWithReferenceToFile(file as folderitem) as QTKitDataReferenceMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a QTDataReference object for the file.
Notes: Available in Mac OS X v10.3 and later.

4.17.9 dataReferenceWithReferenceToURL(url as string) as QTKitDataReferenceMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a QTDataReference object for the URL url.
Notes: Available in Mac OS X v10.3 and later.

4.17.10 File as folderitem

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference used for the QTDataReference object.

4.17.11 MIMEType as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the type in a MIME type extension associated with a QTDataReference object.
Notes: See also MimeTypeToFileExtensionMBS function.

4.17.12 name as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the name in a filenaming extension associated with a QTDataReference object

4.17.13 QTDataReferenceTypeFile as string

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

4.17.14 QTDataReferenceTypeHandle as string

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

4.17.15 QTDataReferenceTypePointer as string

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

4.17.16 QTDataReferenceTypeResource as string

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

4.17.17 QTDataReferenceTypeURL as string

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

4.17.18 referenceData as memoryblock

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the reference data of a QTDataReference object, that is, the memoryblock passed to dataReferenceWithReferenceToData.
Notes: For some QTDataReference objects, this may be nil.

4.17.19 referenceFile as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the file name of the data reference associated with a QTDataReference object.
Notes: For some QTDataReference objects, this name may be NIL.

4.17.20 referenceURL as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the URL of the data reference associated with a QTDataReference object. #
Notes: For some QTDataReference objects, this URL may be NIL.

4.17.21 Properties

4.17.22 Handle as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference to the QTDataReference object.
Notes: (Read and Write property)

4.17.23 dataRefType as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the type of the data reference associated with a QTDataReference object.
Notes: (Read and Write computed property)

4.18 class QTKitExportOptionsMBS

4.18.1 class QTKitExportOptionsMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A QTExportOptions is a collection of settings that define an export that can be executed by a QTExportSession object.
Notes:

A QTExportOptions object is initializd with an export identifier and is used to configure a QTExportSession. It can provide some information about the export that will be performed if it is used to configure a QTExportSession. The class also provided methods that allow the client to query what identifiers are available.

Please also check the documentation from Apple for the QTKitExportOptions class.
Available on Mac OS X 10.7.

4.18.2 Methods

4.18.3 allExportOptionsIdentifiers as string()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns all available identifiers used for retrieving preset export options.
Example:

MsgBox join(QTKitExportOptionsMBS.allExportOptionsIdentifiers, endofline)

Notes: Note that not all identifiers are compatible with all movies.

4.18.4 available as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether this class is available.
Example:

msgbox "Available: "+str(QTKitExportOptionsMBS.available)

Notes: Should return true on Mac OS X 10.7.

4.18.5 Constructor(identifier as string)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Create an instance of QTExportOptions for the export type with the specified identifier.
Example:

```
dim q as new QTKitExportOptionsMBS(QTKitExportOptionsMBS.QTExportOptionsAppleM4VAppleTV)

MsgBox q.localizedExportOptionsSummary
```

Notes: identifier: Determines the type of the output container file (e.g. QuickTime movie file, iPod video file, etc.) and the compression options for the output media.

4.18.6 copy as QTKitExportOptionsMBS

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

4.18.7 exportOptionsIdentifiersCompatibleWithMovie(movie as QTKitMovieMBS) as string()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns only the identifiers compatible with the given QTKitMovieMBS object.
Example:

```
dim file as FolderItem = SpecialFolder.Desktop.Child("test.mov")
dim m as new QTKitMovieMBS(file)

dim names() as string = QTKitExportOptionsMBS.exportOptionsIdentifiersCompatibleWithMovie(m)

MsgBox Join(names, EndOfLine)
```

Notes:

Not all export setups are compatible with all movies. This method returns only the identifiers for options that will be compatible with the given movie. A client should pass in a movie that is ready to be exported. In order to ensure that the setup and running of an export operation will succeed using a set of options from the returned identifiers, no significant changes (such as adding or deleting tracks) should be made to the movie between retrieving compatible identifiers and performing the export operation.

movie: A QTKitMovieMBS object that is intended to be exported.

Returns an array containing strings for the identifiers of compatible export types.
The array is a complete list of the valid identifiers that can be used as arguments to exportOptionsWithIdentifier along with the movie specified.

4.18.8 exportOptionsWithIdentifier(identifier as string) as QTKitExportOptionsMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Create an instance of QTExportOptions for the export type with the specified identifier.
Example:

```
dim q as QTKitExportOptionsMBS

q = QTKitExportOptionsMBS.exportOptionsWithIdentifier(QTKitExportOptionsMBS.QTExportOptionsAppleM4VAppleTV)

MsgBox q.localizedExportOptionsSummary
```

Notes: identifier: Determines the type of the output container file (e.g. QuickTime movie file, iPod video file, etc.) and the compression options for the output media.

4.18.9 localizedExportOptionsSummary as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a localized description of the export options intended for end-user display.
Example:

```
dim q as QTKitExportOptionsMBS

q = QTKitExportOptionsMBS.exportOptionsWithIdentifier(QTKitExportOptionsMBS.QTExportOptionsAppleM4VAppleTV)

MsgBox q.localizedExportOptionsSummary
```

4.18.10 localizedNameForExportOptionsIdentifier(identifier as string) as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a short localized name for the given export identifiers.

Example:

MsgBox QTKitExportOptionsMBS.localizedNameForExportOptionsIdentifier(QTKitExportOptionsMBS.QT-ExportOptionsAppleM4VAppleTV)

Notes:

The returned name will fit on one line and is suitable for displaying in a list or menu of export identifiers in the user interface.

identifier: An export options identifier.

4.18.11 QTExportOptionsAppleM4A as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the export options identifiers.
Notes: This export option will produce an audio only .m4a file with appropriate gapless playback data.

4.18.12 QTExportOptionsAppleM4V480pSD as string

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

These export options are used to produce files that can be played on the specified Apple devices.
The files should have .m4v extensions (or .m4a for exports with audio only sources).

4.18.13 QTExportOptionsAppleM4V720pHD as string

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

These export options are used to produce files that can be played on the specified Apple devices.
The files should have .m4v extensions (or .m4a for exports with audio only sources).

4.18.14 QTExportOptionsAppleM4VAppleTV as string

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

These export options are used to produce files that can be played on the specified Apple devices.
The files should have .m4v extensions (or .m4a for exports with audio only sources).

4.18.15 QTExportOptionsAppleM4VCellular as string

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

These export options are used to produce files that can be played on the specified Apple devices.
The files should have .m4v extensions (or .m4a for exports with audio only sources).

4.18.16 QTExportOptionsAppleM4ViPod as string

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

These export options are used to produce files that can be played on the specified Apple devices.
The files should have .m4v extensions (or .m4a for exports with audio only sources).

4.18.17 QTExportOptionsAppleM4VWiFi as string

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

These export options are used to produce files that can be played on the specified Apple devices.
The files should have .m4v extensions (or .m4a for exports with audio only sources).

4.18.18 QTExportOptionsQuickTimeMovie1080p as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the export options identifiers.
Notes: These export options can be used to produce QuickTime .mov files with the specified video size.

The export will not scale the video up from a smaller size. The video will be compressed using H.264 and the audio will be compressed using AAC.

4.18.19 QTExportOptionsQuickTimeMovie480p as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the export options identifiers.
Notes: These export options can be used to produce QuickTime .mov files with the specified video size. The export will not scale the video up from a smaller size. The video will be compressed using H.264 and the audio will be compressed using AAC.

4.18.20 QTExportOptionsQuickTimeMovie720p as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the export options identifiers.
Notes: These export options can be used to produce QuickTime .mov files with the specified video size. The export will not scale the video up from a smaller size. The video will be compressed using H.264 and the audio will be compressed using AAC.

4.18.21 recommendedFileTypesForExportedFile as string()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of UTI file types as NSStrings that best fit the export described by the QTExportOptions object.
Example:

```
dim q as QTKitExportOptionsMBS = QTKitExportOptionsMBS.exportOptionsWithIdentifier(QTKitExportOptionsMBS.QTExportOptionsAppleM4VAppleTV)

MsgBox join(q.recommendedFileTypesForExportedFile, EndOfLine)
```

Notes: The first entry in the list is the currently recommended choice.

4.18.22 Properties

4.18.23 Handle as Integer

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference to the QTExportOptions object.

Notes: (Read and Write property)

4.19 class QTKitExportSessionMBS

4.19.1 class QTKitExportSessionMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A QTKitExportSessionMBS object produces a trancoded output from a given QTKitMovieMBS source according to the settings in a QTExportOptions object.
Notes:

This class instantiates an object that manages exporting a QTKitMovieMBS object (or a collection of QTKitTrackMBS objects) to produce a transcoded output in the format specified in a QTExportOptions object that might be provided at initiaization time.

Please also check the documentation from Apple for the QTKitExportSession class.

4.19.2 Methods

4.19.3 available as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether this class is available.
Example:

```
msgbox str(QTKitExportSessionMBS.available)
```

Notes: Returns true on Mac OS X 10.7.

4.19.4 cancel

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Cancel the execution of an asynchronous export.
Notes: Cancels the execution of a running export. Nas no effect if run has not been called.

4.19.5 Constructor(movie as QTKitMovieMBS, exportOptions as QTKitExportOptionsMBS, file as folderitem, byref error as NSErrorMBS)

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initialize a QTExportSession with the specified options.
Notes:

movie: A QTKitMovieMBS object that is intended to be exported.
exportOptions: A QTKitExportOptionsMBS object that describes the desired export.
file: The folderitem to be used for the result of the export.
error: If there is an error initializing the QTKitExportOptionsMBS object, an NSError containing the error code will be assingned to error.

On success the handle property is not zero.

4.19.6 Destructor

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The destructor.

4.19.7 exportOptions as QTKitExportOptionsMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The export options used for this session.

4.19.8 isCancelled as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether export is cancelled.

4.19.9 isFinished as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the session is finished.

4.19.10 isRunning as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether export is running.

4.19.11 localizedExportSessionOutputSummary as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a localized description of the export session intended for end-user display.
Notes: The description is a human readable text string describing the output container format and the formats of the media streams that it will contain.

4.19.12 progress as Double

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The current progress.
Notes: A double between 0.0 and 1.0 inclusive to indicate the progress of the export operation.

4.19.13 run

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Start or resume the export operation asynchronously.
Notes: Initiates or resumes an asynchronous export operation and returns immediately. Information regarding progress, success, or failure will be reported using the events.

4.19.14 waitUntilFinished(byref error as NSErrorMBS) as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Wait for the running asynchronous export operation to finish.
Notes:

Blocks the current thread until the export operation for the QTExportSession completes.

error: If the export operation fails, describes the reason for failure.

Returns true if the export operation succeeded, otherwise false.

4.19.15 Properties

4.19.16 Handle as Integer

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal handle to the QTExportSession object.

Notes: (Read and Write property)

4.19.17 Events

4.19.18 DidFailWithError(error as NSErrorMBS)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Event that indicates that the export operation ultimately failed.
Notes: error: a NSError describing the reason for failure.

4.19.19 DidReachProgress(progress as Double)

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Event that indicates the current progress state of the export, with a range of 0.0 to 1.0.
Notes: progress: A double between 0.0 and 1.0 inclusive to indicate the progress of the export operation.

4.19.20 DidSucceed

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Event that indicates that the specified export operation has completed successfully.

4.19.21 WasCancelled

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Event that indicates that the export operation was cancelled by the user.

4.20 class QTKitFormatDescriptionMBS

4.20.1 class QTKitFormatDescriptionMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** QTFormatDescription objects are used to describe the media format of media samples and of media sources, such as devices and capture connections.
Notes:

Format descriptions include basic information about the media, such as media type and format type (or codec type), as well as extended information specific to each media type.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

4.20.2 Methods

4.20.3 attributeForKey(key as string) as Variant

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the current value of the format description attribute for the given key.
Notes: Mac OS X v10.5 and later.

4.20.4 AudioChannelLayout as Variant

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Queries the channel layout for this format.
Notes: Returns a QTAudioChannelLayoutMBS object.

4.20.5 Constructor

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

4.20.6 formatDescriptionAttributes as dictionary

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a dictionary of all attributes set for the receiver.
Notes:

Applications can use this method to determine what attributes a specific format description supports.

Available in Mac OS X v10.5 and later.

4.20.7 formatType as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the format type of the described media.
Notes: This method returns the specific format, or codec, used to represent the media. Video format types are defined in QuickTime/ImageCompression.h and audio format types are defined in CoreAudio/CoreAudioTypes.h.

4.20.8 isEqual(other as QTKitFormatDescriptionMBS) as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns whether the receiver describes the same format as the given format description.

4.20.9 localizedFormatSummary as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a localized summary of the media format.

4.20.10 mediaType as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the media type of the described media.

4.20.11 QTFormatDescriptionAudioChannelLayoutAttribute as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attributes dictionary.
Notes:

Returns a memoryblock interpreted as a Core Audio AudioChannelLayout for audio media.
This string value can be used in key paths for key-value coding, key-value observing, and bindings.
QuickTime 7.2 and later.

4.20.12 QTFormatDescriptionAudioMagicCookieAttribute as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attributes dictionary.
Notes:

Returns a memoryblock interpreted as a Core Audio magic cookie for audio media.
This string value can be used in key paths for key-value coding, key-value observing, and bindings.
QuickTime 7.2 and later.

4.20.13 QTFormatDescriptionAudioStreamBasicDescriptionAttribute as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attributes dictionary.
Notes:

Returns an NSValue interpreted as a Core Audio AudioStreamBasicDescription for audio media.
This string value can be used in key paths for key-value coding, key-value observing, and bindings.
QuickTime 7.2 and later.

4.20.14 QTFormatDescriptionVideoCleanApertureDisplaySizeAttribute as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attributes dictionary.
Notes:

Returns an NSValue interpreted as an NSSize that indicates the size of video media displayed through its clean aperture and scaled by its pixel aspect ratio.
This string value can be used in key paths for key-value coding, key-value observing, and bindings.
QuickTime 7.2 and later.

4.20.15 QTFormatDescriptionVideoEncodedPixelsSizeAttribute as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attributes dictionary.
Notes:

Returns an NSValue interpreted as an NSSize that indicates the encoded size of video media.
This string value can be used in key paths for key-value coding, key-value observing, and bindings.
QuickTime 7.2 and later.

4.20.16 QTFormatDescriptionVideoProductionApertureDisplaySizeAttribute as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attributes dictionary.
Notes:

Returns an NSValue interpreted as an NSSize that indicates the size of video media scaled by its pixel aspect ratio but not displayed through its clean aperture.
This string value can be used in key paths for key-value coding, key-value observing, and bindings.
QuickTime 7.2 and later.

4.20.17 quickTimeSampleDescription as Memoryblock

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Contains a QuickTime SampleDescription structure.

4.20.18 Properties

4.20.19 Handle as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference used for the QTFormatDescription object.
Notes: (Read and Write property)

4.21 class QTKitMediaMBS

4.21.1 class QTKitMediaMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The QTKitMediaMBS class represents a QuickTime media (of type Media).
Notes:

QTKitMediaMBS objects are associated with QTKitTrackMBS objects and support methods for getting and setting the media properties. If necessary, you can retrieve the media identifier associated with a QTKitMediaMBS object by calling its quickTimeMedia method. Note that a track has a single media.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

4.21.2 Methods

4.21.3 CanSendVideo as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The media can send visual data to another track.

4.21.4 CanStep as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The media can step.

4.21.5 Constructor

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

4.21.6 hasCharacteristic(key as string) as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether a QTKitMediaMBS object has a specified characteristic.
Notes:

key: A string that specifies the characteristic to be read; pass strings like QTMediaCharacteristicVisual or QTMediaCharacteristicAudio.

Returns true if the QTKitMediaMBS object has the specified characteristic, false otherwise.

This method can be called when the movie containing this media has been initialized with QTMovieOpenForPlaybackAttribute set to true.

Available in Mac OS X v10.3 and later.

4.21.7 HasNoDuration as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The media has no duration.

4.21.8 HasSkinData as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The media has skin data.

4.21.9 HasVideoFrameRate as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The media has a video frame rate.

4.21.10 IsAudio as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The media has audio data.

4.21.11 IsNonLinear as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The media is non-linear.

4.21.12 IsVisual as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The media has video data.

4.21.13 MediaHandle as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the QuickTime media associated with a QTKitMediaMBS object.
Notes:

Available in Mac OS X v10.3 and later.
Not available to 64-bit applications.

4.21.14 mediaWithQuickTimeMedia(MediaHandle as Integer, byref error as NSErrorMBS) as QTKitMediaMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a QTKitMediaMBS object associated with a QuickTime Media.
Notes:

MediaHandle: The QuickTime media data handle with which to initialize the media object.
error: On return, if the media object could not be created, an error indicating the reason for the failure.

Returns the newly created media object.

This method cannot be called when the movie containing this media has been initialized with QTMovieOpenForPlaybackAttribute set to true. In addition, this method cannot be called by 64-bit applications.

Available in Mac OS X v10.3 and later.
Not available to 64-bit applications.

Make sure the media is not disposed while you still use it.

4.21.15 ProvidesActions as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The media has actions.

4.21.16 ProvidesKeyFocus as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Key events can be focused at the media.

4.21.17 QTMediaCharacteristicAudio as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the media characteristics keys used with hasCharacteristic.
Notes:

The media has audio data.
Available in Mac OS X v10.4 and later.

4.21.18 QTMediaCharacteristicCanSendVideo as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the media characteristics keys used with hasCharacteristic.
Notes:

The media can send visual data to another track.
Available in Mac OS X v10.4 and later.

4.21.19 QTMediaCharacteristicCanStep as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the media characteristics keys used with hasCharacteristic.
Notes:

The media can step.
Available in Mac OS X v10.4 and later.

4.21.20 QTMediaCharacteristicHasNoDuration as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the media characteristics keys used with hasCharacteristic.
Notes:

The media has no duration.
Available in Mac OS X v10.4 and later.

4.21.21 QTMediaCharacteristicHasSkinData as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the media characteristics keys used with hasCharacteristic.
Notes:

The media has skin data.
Available in Mac OS X v10.4 and later.

4.21.22 QTMediaCharacteristicHasVideoFrameRate as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the media characteristics keys used with hasCharacteristic.
Notes:

The media has a video frame rate.
Available in Mac OS X v10.4 and later.

4.21.23 QTMediaCharacteristicNonLinear as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the media characteristics keys used with hasCharacteristic.
Notes:

The media is non-linear.
Available in Mac OS X v10.4 and later.

4.21.24 QTMediaCharacteristicProvidesActions as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the media characteristics keys used with hasCharacteristic.
Notes:

The media has actions.
Available in Mac OS X v10.4 and later.

4.21.25 QTMediaCharacteristicProvidesKeyFocus as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the media characteristics keys used with hasCharacteristic.
Notes:

Key events can be focused at the media.
Available in Mac OS X v10.4 and later.

4.21.26 QTMediaCharacteristicVisual as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the media characteristics keys used with hasCharacteristic.
Notes:

The media has visual data.
Available in Mac OS X v10.4 and later.

4.21.27 QTMediaCreationTimeAttribute as string

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

The creation time. The value for this key is of type Date.
This attribute can be read but not written. This attribute can be read but not written when the movie containing this media has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.21.28 QTMediaDurationAttribute as string

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

The duration. The value for this key is of type is a QTTime.
This attribute can be read but not written. This attribute can be read but not written when the movie containing this media has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.21.29 QTMediaModificationTimeAttribute as string

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

The modification time. The value for this key is of type Date.

This attribute can be read but not written. This attribute can be read but not written when the movie containing this media has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.21.30 QTMediaQualityAttribute as string

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

The media quality. The value for this key is of type short.
This attribute can be read but not written. This attribute can be read but not written when the movie containing this media has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.21.31 QTMediaSampleCountAttribute as string

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

The media sample count. The value for this key is of type long.
This attribute can be read but not written. This attribute can be read but not written when the movie containing this media has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.21.32 QTMediaTimeScaleAttribute as string

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

The media time scale. The value for this key is of type integer.
This attribute can be read but not written. This attribute can be read but not written when the movie containing this media has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.21.33 QTMediaType3D as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the media type constants.

Notes:

The media type of a QuickDraw 3D track.
Available in Mac OS X v10.4 and later.

4.21.34 QTMediaTypeAttribute as string

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

The media type.

This attribute can be read but not written. This attribute can be read but not written when the movie containing this media has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.21.35 QTMediaTypeBase as string

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

The media type of a base track.
Available in Mac OS X v10.4 and later.

4.21.36 QTMediaTypeClosedCaption as string

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

The media type of a closed caption track.
Mac OS X v10.6 and QuickTime 7.6.3 and later.

4.21.37 QTMediaTypeFlash as string

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

The media type of a flash track.
Available in Mac OS X v10.4 and later.

4.21.38 QTMediaTypeHint as string

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

The media type of a hint track.
Available in Mac OS X v10.4 and later.

4.21.39 QTMediaTypeMovie as string

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

The media type of a movie track.
Available in Mac OS X v10.4 and later.

4.21.40 QTMediaTypeMPEG as string

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

The media type of a MPEG track.
Available in Mac OS X v10.4 and later.

4.21.41 QTMediaTypeMusic as string

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

The media type of a music track.
Available in Mac OS X v10.4 and later.

4.21.42 QTMediaTypeMuxed as string

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

The media type of a multiplexed audio and video track.
Available in Mac OS X v10.5 and later.

4.21.43 QTMediaTypeQTVR as string

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

The media type of a QuickTime VR track.
Available in Mac OS X v10.4 and later.

4.21.44 QTMediaTypeQuartzComposer as string

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

The media type of a Quartz Composer track.
Available in Mac OS X v10.5 and later.

4.21.45 QTMediaTypeSkin as string

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

The media type of a skin track
Available in Mac OS X v10.4 and later.

4.21.46 QTMediaTypeSound as string

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

The media type of a sound track.
Available in Mac OS X v10.4 and later.

4.21.47 QTMediaTypeSprite as string

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

The media type of a sprite track.
Available in Mac OS X v10.4 and later.

4.21.48 QTMediaTypeStream as string

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

The media type of a stream track.
Available in Mac OS X v10.4 and later.

4.21.49 QTMediaTypeSubtitle as string

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

The media type of a subtitle track.
Mac OS X v10.6 and QuickTime 7.6.3 and later.

4.21.50 QTMediaTypeText as string

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

The media type of a text track.
Available in Mac OS X v10.4 and later.

4.21.51 QTMediaTypeTimeCode as string

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

The media type of a timecode track.
Available in Mac OS X v10.4 and later.

4.21.52 QTMediaTypeTween as string

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

The media type of a tween track.
Available in Mac OS X v10.4 and later.

4.21.53 QTMediaTypeVideo as string

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

The media type of a video track.
Available in Mac OS X v10.4 and later.

4.21.54 track as QTKitTrackMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the QTKitTrackMBS that contains a QTKitMediaMBS object.

4.21.55 Properties

4.21.56 Handle as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference used for the QTKitMediaMBS object.
Notes: (Read and Write property)

4.21.57 attributeForKey(key as string) as Variant

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The value of an attribute of a QTKitMediaMBS object.
Notes: (Read and Write computed property)

4.21.58 CreationTime as date

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The creation time of a QTKitMediaMBS object.
Notes: (Read and Write computed property)

4.21.59 Duration as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The duration of a QTKitMediaMBS object.
Notes: (Read and Write computed property)

4.21.60 mediaAttributes as dictionary

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A dictionary containing the current values of all public attributes of a QTKitMediaMBS object.
Notes: (Read and Write computed property)

4.21.61 ModificationTime as date

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The modification time of a QTKitMediaMBS object.
Notes: (Read and Write computed property)

4.21.62 Quality as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The media quality.
Notes: (Read and Write computed property)

4.21.63 SampleCount as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The media sample count.
Notes: (Read and Write computed property)

4.21.64 TimeScale as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The media time scale.
Notes: (Read and Write computed property)

4.21.65 Type as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The media type.
Notes: (Read and Write computed property)

4.21.66 Constants

4.21.67 kType3D = "qd3d"

Plugin Version: 8.4. **Function:** One of the constants for a media type value.
Notes: 3D media.

4.21.68 kTypeBase = "gnrc"

Plugin Version: 8.4. **Function:** One of the constants for a media type value.
Notes: Base media.

4.21.69 kTypeClosedCaption = "clcp"

Plugin Version: 9.6. **Function:** One of the constants for a media type value.

4.21.70 kTypeFlash = "flsh"

Plugin Version: 8.4. **Function:** One of the constants for a media type value.
Notes: Flash media.

4.21.71 kTypeHint = "hint"

Plugin Version: 8.4. **Function:** One of the constants for a media type value.
Notes: Hint media.

4.21.72 kTypeMovie = "moov"

Plugin Version: 8.4. **Function:** One of the constants for a media type value.
Notes: Movie media.

4.21.73 kTypeMPEG = "MPEG"

Plugin Version: 8.4. **Function:** One of the constants for a media type value.
Notes: MPEG media

4.21.74 kTypeMusic = "musi"

Plugin Version: 8.4. **Function:** One of the constants for a media type value.
Notes: Music media

4.21.75 kTypeMuxed = "muxx"

Plugin Version: 8.4. **Function:** One of the constants for a media type value.

4.21.76 kTypeQTVR = "qtvr"

Plugin Version: 8.4. **Function:** One of the constants for a media type value.
Notes: QuickTime VR media.

4.21.77 kTypeQuartzComposer = "qtz "

Plugin Version: 8.4. **Function:** One of the constants for a media type value.

4.21.78 kTypeSkin = "skin"

Plugin Version: 8.4. **Function:** One of the constants for a media type value.
Notes: Skin media

4.21.79 kTypeSound = "soun"

Plugin Version: 8.4. **Function:** One of the constants for a media type value.
Notes: Sound media.

4.21.80 kTypeSprite = "sprt"

Plugin Version: 8.4. **Function:** One of the constants for a media type value.
Notes: Sprite media.

4.21.81 kTypeStream = "strm"

Plugin Version: 8.4. **Function:** One of the constants for a media type value.
Notes: Stream media.

4.21.82 kTypeSubtitle = "sbtl"

Plugin Version: 9.6. **Function:** One of the constants for a media type value.
Notes: Subtitle media

4.21.83 kTypeText = "text"

Plugin Version: 8.4. **Function:** One of the constants for a media type value.
Notes: Text media.

4.21.84 kTypeTimeCode = "tmcd"

Plugin Version: 8.4. **Function:** One of the constants for a media type value.

4.21.85 kTypeTween = "twen"

Plugin Version: 8.4. **Function:** One of the constants for a media type value.
Notes: Tween media.

4.21.86 kTypeVideo = "vide"

Plugin Version: 8.4. **Function:** One of the constants for a media type value.
Notes: Video media.

4.22 class QTKitMetadataItemMBS

4.22.1 class QTKitMetadataItemMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** QTMetadataItem represents an item of metadata associated with a QTKitMovieMBS or QTKitTrackMBS object.
Example:

```
// Show all metadata in the fiel:
dim file as FolderItem = SpecialFolder.Desktop.Child("test.mp3")
dim m as new QTKitMovieMBS(file)

// get formats available?
dim formats() as string = m.availableMetadataFormats

for each format as string in formats

// lookup all values for this format
dim metadatas() as QTKitMetadataItemMBS = m.metadataForFormat(Format)

// and display
for each md as QTKitMetadataItemMBS in metadatas
MsgBox format+": "+md.key+": "+md.stringValue
next

next
```

Notes:

Please also check the documentation from Apple for the QTKitMetadataItem class.
Available on Mac OS X 10.7.

QTMetadataItem objects have keys that accord with the specification of the container format from which they're drawn.

You can filter arrays of QTMetadataItem objects by locale or by key and keyspace via the metadataItemsFromArray* methods.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

4.22.2 Methods

4.22.3 available as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether this class is available.
Example:

```
msgbox "QTKitMetadataItem available: "+str(QTKitMetadataItemMBS.available)
```

Notes: Returns true on Mac OS X 10.7.

4.22.4 Constructor

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The private constructor.

4.22.5 copy as QTKitMetadataItemMBS

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

4.22.6 metadataItemsFromArrayWithKey(items() as QTKitMetadataItemMBS, key as Variant, keySpace as string) as QTKitMetadataItemMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Filters an array of QTMetadataItem objects according to key and/or keySpace.
Notes:

array: An array of QTMetadataItem objects to be filtered by key and/or keySpace.
key: The key that must be matched for a metadata item to be copied to the output array.
The keys will be compared to the keys of the QTMetadataItem objects in the array via string comparison.
If no filtering according to key is desired, pass "".
keySpace: The keySpace that must be matched for a metadata item to be copied to the output array.
The keySpace will be compared to the keySpaces of the QTMetadataItems in the array via string comparison.
If no filtering according to keySpace is desired, pass nil.

Returns an array object containing the metadata items of the specified array that match the specified key and/or keySpace.

4.22.7 metadataItemsFromArrayWithLocale(items() as QTKitMetadataItemMBS, locale as NSLocaleMBS) as QTKitMetadataItemMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Filters an array of QTMetadataItem objects according to locale.
Notes:

array: An array of QTMetadataItem objects to be filtered by locale.
locale: The NSLocaleMBS that must be matched for a metadata item to be copied to the output array.

Returns an array object containing the metadata items of the specified array that match the specified locale.

4.22.8 QTMetadata3GPUserDataKeyAuthor as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.9 QTMetadata3GPUserDataKeyCopyright as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.10 QTMetadata3GPUserDataKeyDescription as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.11 QTMetadata3GPUserDataKeyGenre as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.12 QTMetadata3GPUserDataKeyLocation as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.13 QTMetadata3GPUserDataKeyPerformer as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.14 QTMetadata3GPUserDataKeyRecordingYear as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.15 QTMetadata3GPUserDataKeyTitle as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.16 QTMetadataCommonKeyAlbumName as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Album Name

4.22.17 QTMetadataCommonKeyArtist as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Artist

4.22.18 QTMetadataCommonKeyArtwork as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.

Notes: Artwork

4.22.19 QTMetadataCommonKeyAuthor as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Author

4.22.20 QTMetadataCommonKeyComment as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Comment

4.22.21 QTMetadataCommonKeyContributor as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Contributor

4.22.22 QTMetadataCommonKeyCopyrights as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Copyrights

4.22.23 QTMetadataCommonKeyCreationDate as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Creation Date

4.22.24 QTMetadataCommonKeyCreator as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.

Notes: Creator

4.22.25 QTMetadataCommonKeyDescription as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Description

4.22.26 QTMetadataCommonKeyFormat as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Format

4.22.27 QTMetadataCommonKeyIdentifier as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Identifier

4.22.28 QTMetadataCommonKeyLanguage as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Language

4.22.29 QTMetadataCommonKeyLastModifiedDate as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Last modified date

4.22.30 QTMetadataCommonKeyLocation as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.

Notes: Location

4.22.31 QTMetadataCommonKeyMake as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Make

4.22.32 QTMetadataCommonKeyModel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Model

4.22.33 QTMetadataCommonKeyPublisher as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Publisher

4.22.34 QTMetadataCommonKeyRelation as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Relation

4.22.35 QTMetadataCommonKeySoftware as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Software

4.22.36 QTMetadataCommonKeySource as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.

Notes: Source

4.22.37 QTMetadataCommonKeySubject as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Subject

4.22.38 QTMetadataCommonKeyTitle as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Title

4.22.39 QTMetadataCommonKeyType as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the common key space.
Notes: Type

4.22.40 QTMetadataFormatID3Metadata as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the metadata format constants.

4.22.41 QTMetadataFormatiTunesMetadata as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the metadata format constants.

4.22.42 QTMetadataFormatQuickTimeMetadata as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the metadata format constants.

4.22.43 QTMetadataFormatQuickTimeUserData as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the metadata format constants.

4.22.44 QTMetadataID3MetadataKeyAlbumSortOrder as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TSOA Album sort order

4.22.45 QTMetadataID3MetadataKeyAlbumTitle as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Example:

```
dim f as FolderItem = SpecialFolder.Desktop.Child("test.mp3")
dim m as new QTKitMovieMBS(f)
dim a() as QTKitMetadataItemMBS = m.metadataForFormat(QTKitMetadataItemMBS.QTMetadataFor-
matID3Metadata)

for each q as QTKitMetadataItemMBS in a
if q.key = QTKitMetadataItemMBS.QTMetadataID3MetadataKeyAlbumTitle then
MsgBox q.value
exit
end if
next
```

Notes: TALB Album/Movie/Show title

4.22.46 QTMetadataID3MetadataKeyAttachedPicture as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: APIC Attached picture

4.22.47 QTMetadataID3MetadataKeyAudioEncryption as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: AENC Audio encryption

4.22.48 QTMetadataID3MetadataKeyAudioSeekPointIndex as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: ASPI Audio seek point index

4.22.49 QTMetadataID3MetadataKeyBand as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TPE2 Band/orchestra/accompaniment

4.22.50 QTMetadataID3MetadataKeyBeatsPerMinute as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TBPM BPM (beats per minute)

4.22.51 QTMetadataID3MetadataKeyComments as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: COMM Comments

4.22.52 QTMetadataID3MetadataKeyCommercialInformation as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: WCOM Commercial information

4.22.53 QTMetadataID3MetadataKeyCommerical as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: COMR Commercial frame

4.22.54 QTMetadataID3MetadataKeyComposer as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TCOM Composer

4.22.55 QTMetadataID3MetadataKeyConductor as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TPE3 Conductor/performer refinement

4.22.56 QTMetadataID3MetadataKeyContentGroupDescription as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TIT1 Content group description

4.22.57 QTMetadataID3MetadataKeyContentType as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TCON Content type

4.22.58 QTMetadataID3MetadataKeyCopyright as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TCOP Copyright message

4.22.59 QTMetadataID3MetadataKeyCopyrightInformation as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: WCOP Copyright/Legal information

4.22.60 QTMetadataID3MetadataKeyDate as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TDAT Date

4.22.61 QTMetadataID3MetadataKeyEncodedBy as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TENC Encoded by

4.22.62 QTMetadataID3MetadataKeyEncodedWith as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TSSE Software/Hardware and settings used for encoding

4.22.63 QTMetadataID3MetadataKeyEncodingTime as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TDEN Encoding time

4.22.64 QTMetadataID3MetadataKeyEncryption as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: ENCR Encryption method registration

4.22.65 QTMetadataID3MetadataKeyEqualization as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: EQUA Equalization

4.22.66 QTMetadataID3MetadataKeyEqualization2 as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: EQU2 Equalization (2)

4.22.67 QTMetadataID3MetadataKeyEventTimingCodes as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: ETCO Event timing codes

4.22.68 QTMetadataID3MetadataKeyFileOwner as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TOWN File owner/licensee

4.22.69 QTMetadataID3MetadataKeyFileType as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TFLT File type

4.22.70 QTMetadataID3MetadataKeyGeneralEncapsulatedObject as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: GEOB General encapsulated object

4.22.71 QTMetadataID3MetadataKeyGroupIdentifier as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: GRID Group identification registration

4.22.72 QTMetadataID3MetadataKeyInitialKey as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TKEY Initial key

4.22.73 QTMetadataID3MetadataKeyInternationalStandardRecordingCode as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TSRC ISRC (international standard recording code)

4.22.74 QTMetadataID3MetadataKeyInternetRadioStationName as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TRSN Internet radio station name

4.22.75 QTMetadataID3MetadataKeyInternetRadioStationOwner as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TRSO Internet radio station owner

4.22.76 QTMetadataID3MetadataKeyInvolvedPeopleList_v23 as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: IPLS Involved people list

4.22.77 QTMetadataID3MetadataKeyInvolvedPeopleList_v24 as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TIPL Involved people list

4.22.78 QTMetadataID3MetadataKeyLanguage as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TLAN Language(s)

4.22.79 QTMetadataID3MetadataKeyLeadPerformer as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TPE1 Lead performer(s)/Soloist(s)

4.22.80 QTMetadataID3MetadataKeyLength as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TLEN Length

4.22.81 QTMetadataID3MetadataKeyLink as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: LINK Linked information

4.22.82 QTMetadataID3MetadataKeyLyricist as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TEXT Lyricist/Text writer

4.22.83 QTMetadataID3MetadataKeyMediaType as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TMED Media type

4.22.84 QTMetadataID3MetadataKeyModifiedBy as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TPE4 Interpreted, remixed, or otherwise modified by

4.22.85 QTMetadataID3MetadataKeyMood as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TMOO Mood

4.22.86 QTMetadataID3MetadataKeyMPEGLocationLookupTable as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: MLLT MPEG location lookup table

4.22.87 QTMetadataID3MetadataKeyMusicCDIdentifier as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: MCDI Music CD identifier

4.22.88 QTMetadataID3MetadataKeyMusicianCreditsList as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TMCL Musician credits list

4.22.89 QTMetadataID3MetadataKeyOfficialArtistWebpage as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: WOAR Official artist/performer webpage

4.22.90 QTMetadataID3MetadataKeyOfficialAudioFileWebpage as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: WOAF Official audio file webpage

4.22.91 QTMetadataID3MetadataKeyOfficialAudioSourceWebpage as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: WOAS Official audio source webpage

4.22.92 QTMetadataID3MetadataKeyOfficialInternetRadioStationHomepage as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: WORS Official Internet radio station homepage

4.22.93 QTMetadataID3MetadataKeyOfficialPublisherWebpage as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: WPUB Publisher's official webpage

4.22.94 QTMetadataID3MetadataKeyOriginalAlbumTitle as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TOAL Original album/movie/show title

4.22.95 QTMetadataID3MetadataKeyOriginalArtist as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TOPE Original artist(s)/performer(s)

4.22.96 QTMetadataID3MetadataKeyOriginalFilename as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TOFN Original filename

4.22.97 QTMetadataID3MetadataKeyOriginalLyricist as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TOLY Original lyricist(s)/text writer(s)

4.22.98 QTMetadataID3MetadataKeyOriginalReleaseTime as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TDOR Original release time

4.22.99 QTMetadataID3MetadataKeyOriginalReleaseYear as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TORY Original release year

4.22.100 QTMetadataID3MetadataKeyOwnership as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: OWNE Ownership frame

4.22.101 QTMetadataID3MetadataKeyPartOfASet as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TPOS Part of a set

4.22.102 QTMetadataID3MetadataKeyPayment as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: WPAY Payment

4.22.103 QTMetadataID3MetadataKeyPerformerSortOrder as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TSOP Performer sort order

4.22.104 QTMetadataID3MetadataKeyPlayCounter as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: PCNT Play counter

4.22.105 QTMetadataID3MetadataKeyPlaylistDelay as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TDLY Playlist delay

4.22.106 QTMetadataID3MetadataKeyPopularimeter as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: POPM Popularimeter

4.22.107 QTMetadataID3MetadataKeyPositionSynchronization as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: POSS Position synchronisation frame

4.22.108 QTMetadataID3MetadataKeyPrivate as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: PRIV Private frame

4.22.109 QTMetadataID3MetadataKeyProducedNotice as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TPRO Produced notice

4.22.110 QTMetadataID3MetadataKeyPublisher as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TPUB Publisher

4.22.111 QTMetadataID3MetadataKeyRecommendedBufferSize as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: RBUF Recommended buffer size

4.22.112 QTMetadataID3MetadataKeyRecordingDates as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TRDA Recording dates

4.22.113 QTMetadataID3MetadataKeyRecordingTime as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TDRC Recording time

4.22.114 QTMetadataID3MetadataKeyRelativeVolumeAdjustment as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: RVAD Relative volume adjustment

4.22.115 QTMetadataID3MetadataKeyRelativeVolumeAdjustment2 as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: RVA2 Relative volume adjustment (2)

4.22.116 QTMetadataID3MetadataKeyReleaseTime as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TDRL Release time

4.22.117 QTMetadataID3MetadataKeyReverb as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: RVRB Reverb

4.22.118 QTMetadataID3MetadataKeySeek as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: SEEK Seek frame

4.22.119 QTMetadataID3MetadataKeySetSubtitle as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TSST Set subtitle

4.22.120 QTMetadataID3MetadataKeySignature as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: SIGN Signature frame

4.22.121 QTMetadataID3MetadataKeySize as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TSIZ Size

4.22.122 QTMetadataID3MetadataKeySubTitle as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TIT3 Subtitle/Description refinement

4.22.123 QTMetadataID3MetadataKeySynchronizedLyric as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: SYLT Synchronized lyric/text

4.22.124 QTMetadataID3MetadataKeySynchronizedTempoCodes as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: SYTC Synchronized tempo codes

4.22.125 QTMetadataID3MetadataKeyTaggingTime as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TDTG Tagging time

4.22.126 QTMetadataID3MetadataKeyTermsOfUse as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: USER Terms of use

4.22.127 QTMetadataID3MetadataKeyTime as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TIME Time

4.22.128 QTMetadataID3MetadataKeyTitleDescription as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TIT2 Title/songname/content description

4.22.129 QTMetadataID3MetadataKeyTitleSortOrder as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TSOT Title sort order

4.22.130 QTMetadataID3MetadataKeyTrackNumber as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TRCK Track number/Position in set

4.22.131 QTMetadataID3MetadataKeyUniqueFileIdentifier as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: UFID Unique file identifier

4.22.132 QTMetadataID3MetadataKeyUnsynchronizedLyric as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: USLT Unsynchronized lyric/text transcription

4.22.133 QTMetadataID3MetadataKeyUserText as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TXXX User defined text information frame

4.22.134 QTMetadataID3MetadataKeyUserURL as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: WXXX User defined URL link frame

4.22.135 QTMetadataID3MetadataKeyYear as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the ID3 metadata key space.
Notes: TYER Year

4.22.136 QTMetadataISOUserDataKeyCopyright as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.137 QTMetadataiTunesMetadataKeyAccountKind as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.138 QTMetadataiTunesMetadataKeyAcknowledgement as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.139 QTMetadataiTunesMetadataKeyAlbum as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.140 QTMetadataiTunesMetadataKeyAlbumArtist as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.141 QTMetadataiTunesMetadataKeyAppleID as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.142 QTMetadataiTunesMetadataKeyArranger as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.143 QTMetadataiTunesMetadataKeyArtDirector as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.144 QTMetadataiTunesMetadataKeyArtist as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.145 QTMetadataiTunesMetadataKeyArtistID as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.146 QTMetadataiTunesMetadataKeyAuthor as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.147 QTMetadataiTunesMetadataKeyBeatsPerMin as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.148 QTMetadataiTunesMetadataKeyComposer as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.149 QTMetadataiTunesMetadataKeyConductor as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.150 QTMetadataiTunesMetadataKeyContentRating as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.151 QTMetadataiTunesMetadataKeyCopyright as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.152 QTMetadataiTunesMetadataKeyCoverArt as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.153 QTMetadataiTunesMetadataKeyCredits as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.154 QTMetadataiTunesMetadataKeyDescription as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.155 QTMetadataiTunesMetadataKeyDirector as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.156 QTMetadataiTunesMetadataKeyDiscCompilation as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.157 QTMetadataiTunesMetadataKeyDiscNumber as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.158 QTMetadataiTunesMetadataKeyEncodedBy as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.159 QTMetadataiTunesMetadataKeyEncodingTool as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.160 QTMetadataiTunesMetadataKeyEQ as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.161 QTMetadataiTunesMetadataKeyExecProducer as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.162 QTMetadataiTunesMetadataKeyGenreID as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.163 QTMetadataiTunesMetadataKeyGrouping as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.164 QTMetadataiTunesMetadataKeyLinerNotes as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.165 QTMetadataiTunesMetadataKeyLyrics as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.166 QTMetadataiTunesMetadataKeyOnlineExtras as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.167 QTMetadataiTunesMetadataKeyOriginalArtist as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.168 QTMetadataiTunesMetadataKeyPerformer as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.169 QTMetadataiTunesMetadataKeyPhonogramRights as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.170 QTMetadataiTunesMetadataKeyPlaylistID as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.171 QTMetadataiTunesMetadataKeyPredefinedGenre as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.172 QTMetadataiTunesMetadataKeyProducer as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.173 QTMetadataiTunesMetadataKeyPublisher as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.174 QTMetadataiTunesMetadataKeyRecordCompany as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.175 QTMetadataiTunesMetadataKeyReleaseDate as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.176 QTMetadataiTunesMetadataKeySoloist as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.177 QTMetadataiTunesMetadataKeySongID as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.178 QTMetadataiTunesMetadataKeySongName as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.179 QTMetadataiTunesMetadataKeySoundEngineer as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.180 QTMetadataiTunesMetadataKeyThanks as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.181 QTMetadataiTunesMetadataKeyTrackNumber as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.182 QTMetadataiTunesMetadataKeyTrackSubTitle as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.183 QTMetadataiTunesMetadataKeyUserComment as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.184 QTMetadataiTunesMetadataKeyUserGenre as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the iTunes Metadata key space.

4.22.185 QTMetadataKeySpaceCommon as string

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

4.22.186 QTMetadataKeySpaceID3 as string

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

4.22.187 QTMetadataKeySpaceiTunes as string

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

4.22.188 QTMetadataKeySpaceQuickTimeMetadata as string

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

4.22.189 QTMetadataKeySpaceQuickTimeUserData as string

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

4.22.190 QTMetadataQuickTimeMetadataKeyAlbum as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.191 QTMetadataQuickTimeMetadataKeyArranger as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.192 QTMetadataQuickTimeMetadataKeyArtist as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.193 QTMetadataQuickTimeMetadataKeyArtwork as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.194 QTMetadataQuickTimeMetadataKeyAuthor as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.195 QTMetadataQuickTimeMetadataKeyComment as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.196 QTMetadataQuickTimeMetadataKeyComposer as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.197 QTMetadataQuickTimeMetadataKeyCopyright as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.198 QTMetadataQuickTimeMetadataKeyCreationDate as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.199 QTMetadataQuickTimeMetadataKeyCredits as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.200 QTMetadataQuickTimeMetadataKeyDescription as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.201 QTMetadataQuickTimeMetadataKeyDirector as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.202 QTMetadataQuickTimeMetadataKeyDisplayName as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.203 QTMetadataQuickTimeMetadataKeyEncodedBy as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.204 QTMetadataQuickTimeMetadataKeyGenre as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.205 QTMetadataQuickTimeMetadataKeyInformation as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.206 QTMetadataQuickTimeMetadataKeyiXML as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.207 QTMetadataQuickTimeMetadataKeyKeywords as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.208 QTMetadataQuickTimeMetadataKeyLocationISO6709 as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.209 QTMetadataQuickTimeMetadataKeyMake as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.210 QTMetadataQuickTimeMetadataKeyModel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.211 QTMetadataQuickTimeMetadataKeyOriginalArtist as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.212 QTMetadataQuickTimeMetadataKeyPerformer as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.213 QTMetadataQuickTimeMetadataKeyPhonogramRights as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.214 QTMetadataQuickTimeMetadataKeyProducer as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.215 QTMetadataQuickTimeMetadataKeyPublisher as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.216 QTMetadataQuickTimeMetadataKeySoftware as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.217 QTMetadataQuickTimeMetadataKeyYear as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the Quicktime Metadata key space.

4.22.218 QTMetadataQuickTimeUserDataKeyAlbum as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.219 QTMetadataQuickTimeUserDataKeyArranger as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.220 QTMetadataQuickTimeUserDataKeyArtist as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.221 QTMetadataQuickTimeUserDataKeyAuthor as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.222 QTMetadataQuickTimeUserDataKeyChapter as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.223 QTMetadataQuickTimeUserDataKeyComment as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.224 QTMetadataQuickTimeUserDataKeyComposer as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.225 QTMetadataQuickTimeUserDataKeyCopyright as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.226 QTMetadataQuickTimeUserDataKeyCreationDate as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.227 QTMetadataQuickTimeUserDataKeyCredits as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.228 QTMetadataQuickTimeUserDataKeyDescription as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.229 QTMetadataQuickTimeUserDataKeyDirector as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.230 QTMetadataQuickTimeUserDataKeyDisclaimer as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.231 QTMetadataQuickTimeUserDataKeyEncodedBy as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.232 QTMetadataQuickTimeUserDataKeyFullName as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.233 QTMetadataQuickTimeUserDataKeyGenre as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.234 QTMetadataQuickTimeUserDataKeyHostComputer as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.235 QTMetadataQuickTimeUserDataKeyInformation as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.236 QTMetadataQuickTimeUserDataKeyKeywords as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.237 QTMetadataQuickTimeUserDataKeyLocationISO6709 as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.238 QTMetadataQuickTimeUserDataKeyMake as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.239 QTMetadataQuickTimeUserDataKeyModel as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.240 QTMetadataQuickTimeUserDataKeyOriginalArtist as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.241 QTMetadataQuickTimeUserDataKeyOriginalFormat as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.242 QTMetadataQuickTimeUserDataKeyOriginalSource as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.243 QTMetadataQuickTimeUserDataKeyPerformers as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.244 QTMetadataQuickTimeUserDataKeyPhonogramRights as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.245 QTMetadataQuickTimeUserDataKeyProducer as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.246 QTMetadataQuickTimeUserDataKeyProduct as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.247 QTMetadataQuickTimeUserDataKeyPublisher as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.248 QTMetadataQuickTimeUserDataKeySoftware as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.249 QTMetadataQuickTimeUserDataKeySpecialPlaybackRequirements as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.250 QTMetadataQuickTimeUserDataKeyTrack as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.251 QTMetadataQuickTimeUserDataKeyTrackName as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.252 QTMetadataQuickTimeUserDataKeyURLLink as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.253 QTMetadataQuickTimeUserDataKeyWarning as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.254 QTMetadataQuickTimeUserDataKeyWriter as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key constants in the QuickTime userdata key space.

4.22.255 Properties

4.22.256 dataValue as Memoryblock

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Provides the raw bytes of the value of the metadata item.
Notes: (Read only property)

4.22.257 dateValue as date

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Provides the value of the metadata item as a Date.
Notes:

If the metadata item's value can't be coerced to a date, dateValue will be nil.
(Read only property)

4.22.258 extraAttributes as dictionary

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A dictionary of the additional attributes.
Notes: (Read only property)

4.22.259 Handle as Integer

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference to the object.
Notes: (Read and Write property)

4.22.260 key as Variant

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The key of the metadata item.
Notes: (Read only property)

4.22.261 keySpace as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The keyspace of the metadata item's key.
Notes:

This will typically be the default keyspace for the metadata container in which the metadata item is stored
(Read only property)

4.22.262 locale as NSLocaleMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The locale of the metadata item.
Notes:

May be nil if no locale information is available for the metadata item.
(Read only property)

4.22.263 numberValue as Double

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Provides the value of the metadata item as a number.
Notes:

If the metadata item's value can't be coerced to a number, numberValue will be 0.
(Read only property)

4.22.264 stringValue as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Provides the value of the metadata item as a string; will be "" if the value cannot be represented as a string.
Notes: (Read only property)

4.22.265 time as QTKitTimeMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The timestamp of the metadata item.
Notes: (Read only property)

4.22.266 value as Variant

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Provides the value of the metadata item.
Notes: (Read only property)

4.23 module QTKitModuleMBS

4.23.1 module QTKitModuleMBS

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A central module with global QTKit functions and constants.

4.23.2 Methods

4.23.3 OSTypeForString(type as string) as Integer

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Converts a string to an OSType value.
Example:

```
dim o as Integer = QTKitModuleMBS.OSTypeForString("appl")

MsgBox str(o) // shows 1634758764 on Little Endian

dim s as string = QTKitModuleMBS.StringForOSType(o)

MsgBox s // shows "appl"
```

Notes: To avoid trouble with little vs. big endian you can store your OSType constants as string and convert them using this function.

4.23.4 QTErrorCaptureInputKey as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the userinfo dictionary of a NSErrorMBS object.
Notes:

Use this key to retrieve the QTCaptureInput object for which the error occurred.
Available in Mac OS X v10.5 and later.

4.23.5 QTErrorCaptureOutputKey as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the userinfo dictionary of a NSErrorMBS object.
Notes:

Use this key to retrieve the QTCaptureOutput object for which the error occurred.
Available in Mac OS X v10.5 and later.

4.23.6 QTErrorDeviceKey as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the userinfo dictionary of a NSErrorMBS object.
Notes:

Use this key to retrieve the QTCaptureDevice object for which the error occurred.
Available in Mac OS X v10.5 and later.

4.23.7 QTErrorExcludingDeviceKey as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the userinfo dictionary of a NSErrorMBS object.
Notes:

Use this key to retrieve the QTCaptureDevice object for the device whose presence is excluding the device for which the error occurred.
Available in Mac OS X v10.5 and later.

4.23.8 QTErrorFileSizeKey as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the userinfo dictionary of a NSErrorMBS object.
Notes:

Use this key to interpret the file size in bytes as an Number.
Mac OS X v10.6; QuickTime 7.6.1.

4.23.9 QTErrorRecordingSuccesfullyFinishedKey as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the userinfo dictionary of a NSErrorMBS object.
Notes:

Use this key to determine whether the products of a recording were successfully finished after recording stopped due to an error. The value is an Number interpreted as a boolean.
Available in Mac OS X v10.5 and later.

4.23.10 QTErrorRecordingSuccessfullyFinishedKey as string

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

Use this key to determine whether the products of a recording were successfully finished after recording stopped due to an error. The value is an Number interpreted as a boolean.
Available in Quicktime 7.7 or newer.

Same as QTErrorRecordingSuccesfullyFinishedKey, but with one more s in the name.

4.23.11 QTErrorTimeKey as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the userinfo dictionary of a NSErrorMBS object.
Notes:

An NSValue interpreted as QTTime.
Mac OS X v10.6; QuickTime 7.6.1.

4.23.12 QTKitErrorDomain as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The QTKit error domain identifier.
Notes: Available in Mac OS X v10.5 and later.

4.23.13 StringForOSType(type as Integer) as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Converts an OSType value back to a string.
Example:

```
dim o as Integer = QTKitModuleMBS.OSTypeForString("appl")

MsgBox str(o) // shows 1634758764 on Little Endian

dim s as string = QTKitModuleMBS.StringForOSType(o)

MsgBox s // shows "appl"
```

4.23.14 Constants

4.23.15 codecHighQuality = & h00000300

Plugin Version: 11.0. **Function:** One of the constants to specify high codec quality.

4.23.16 codecLosslessQuality = & h00000400

Plugin Version: 11.0. **Function:** One of the constants to specify lossless codec quality.

4.23.17 codecLowQuality = & h00000100

Plugin Version: 11.0. **Function:** One of the constants to specify low codec quality.

4.23.18 codecMaxQuality = & h000003FF

Plugin Version: 11.0. **Function:** One of the constants to specify maximum codec quality.

4.23.19 codecMinQuality = & h00000000

Plugin Version: 11.0. **Function:** One of the constants to specify minimum codec quality.

4.23.20 codecNormalQuality = & h00000200

Plugin Version: 11.0. **Function:** One of the constants to specify normal codec quality.

4.23.21 graphicsModeComposition = 259

Plugin Version: 11.0. **Function:** One of the constants to specify the graphics mode for drawing a picture/video.

4.23.22 graphicsModePerComponentAlpha = 272

Plugin Version: 11.0. **Function:** One of the constants to specify the graphics mode for drawing a picture/video.

4.23.23 graphicsModePreBlackAlpha = 258

Plugin Version: 11.0. **Function:** One of the constants to specify the graphics mode for drawing a picture/video.

4.23.24 graphicsModePreMulColorAlpha = 261

Plugin Version: 11.0. **Function:** One of the constants to specify the graphics mode for drawing a picture/video.

4.23.25 graphicsModePreWhiteAlpha = 257

Plugin Version: 11.0. **Function:** One of the constants to specify the graphics mode for drawing a picture/video.

4.23.26 graphicsModeStraightAlpha = 256

Plugin Version: 11.0. **Function:** One of the constants to specify the graphics mode for drawing a picture/video.

4.23.27 graphicsModeStraightAlphaBlend = 260

Plugin Version: 11.0. **Function:** One of the constants to specify the graphics mode for drawing a picture/video.

4.23.28 kQTFileType3DMF = "3DMF"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.29 kQTFileType3GP2 = "3gp2"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.30 kQTFileType3GPP = "3gpp"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.31 kQTFileTypeAIFC = "AIFC"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.32 kQTFileTypeAIFF = "AIFF"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.33 kQTFileTypeAMC = "amc "

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.34 kQTFileTypeAMR = "amr "

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.35 kQTFileTypeAudioCDTrack = "trak"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.36 kQTFileTypeAVI = "VfW "

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.37 kQTFileTypeBMP = "BMPf"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.38 kQTFileTypeDVC = "dvc!"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.39 kQTFileTypeFlash = "SWFL"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.40 kQTFileTypeFlashPix = "FPix"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.41 kQTFileTypeFLC = "FLC "

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.42 kQTFileTypeGIF = "GIFf"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.43 kQTFileTypeJFIF = "JPEG"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.44 kQTFileTypeJPEG = "JPEG"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.45 kQTFileTypeJPEG2000 = "jp2 "

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.46 kQTFileTypeMacPaint = "PNTG"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.47 kQTFileTypeMIDI = "Midi"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.48 kQTFileTypeMovie = "MooV"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.49 kQTFileTypeMP4 = "mpg4"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.50 kQTFileTypeMuLaw = "ULAW"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.51 kQTFileTypePDF = "PDF "

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.52 kQTFileTypePhotoShop = "8BPS"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.53 kQTFileTypePICS = "PICS"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.54 kQTFileTypePicture = "PICT"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.55 kQTFileTypePNG = "PNGf"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.56 kQTFileTypeQuickDrawGXPicture = "qdgx"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.57 kQTFileTypeQuickTimeImage = "qtif"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.58 kQTFileTypeSDV = "sdv "

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.59 kQTFileTypeSGIImage = ".SGI"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.60 kQTFileTypeSoundDesignerII = "Sd2f"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.61 kQTFileTypeSystemSevenSound = "sfil"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.62 kQTFileTypeTargaImage = "TPIC"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.63 kQTFileTypeText = "TEXT"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.64 kQTFileTypeTIFF = "TIFF"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.65 kQTFileTypeWave = "WAVE"

Plugin Version: 11.0. **Function:** One of the constants for a QuickTime file type.

4.23.66 QTErrorDeviceAlreadyUsedbyAnotherSession = 1101

Plugin Version: 11.0. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes:

The device could not be added to the session because it experiences a runtime error trying to use a device already being used by another session.
Available in Mac OS X v10.5 and later.

4.23.67 QTErrorDeviceExcludedByAnotherDevice = 1302

Plugin Version: 11.0. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes:

The device is excluded by another device.
Check QTErrorExcludingDeviceKey to determine the device that needs to be closed to open the device that

failed.
Available in Mac OS X v10.5 and later.

4.23.68 QTErrorDeviceInUseByAnotherApplication = 1301

Plugin Version: 11.0. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes:

The device is in use by another application.
Available in Mac OS X v10.5 and later.

4.23.69 QTErrorDeviceNotConnected = 1300

Plugin Version: 11.0. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes:

The device is not connected to the computer.
Available in Mac OS X v10.5 and later.

4.23.70 QTErrorDeviceWasDisconnected = 1203

Plugin Version: 11.0. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes:

The recording has been automatically stopped because an input device was disconnected.
Check QTErrorCaptureSuccesfullyFinishedKey to determine if the capture products were successfully completed when recording was stopped.
Available in Mac OS X v10.5 and later.

4.23.71 QTErrorDiskFull = 1202

Plugin Version: 11.0. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes:

The recording has been automatically stopped because the disk being used for recorded products is full.
Check QTErrorCaptureSuccesfullyFinishedKey to determine if the recorded products were successfully completed when recording was stopped. This error will occur while the destination disk still has sufficient space to avoid system wide warnings about low disk space.
Available in Mac OS X v10.5 and later.

4.23.72 QTErrorExportExecutionFailed = 1503

Plugin Version: 11.2. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes: Available on Mac OS X 10.7.

4.23.73 QTErrorExportInsufficientSpaceOnDevice = 1504

Plugin Version: 11.2. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes: Available on Mac OS X 10.7.

4.23.74 QTErrorExportIOError = 1506

Plugin Version: 11.2. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes: Available on Mac OS X 10.7.

4.23.75 QTErrorExportNoSuchDirectoryOrFile = 1505

Plugin Version: 11.2. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes: Available on Mac OS X 10.7.

4.23.76 QTErrorIncompatibleInput = 1002

Plugin Version: 11.0. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes:

The input could not be added to the specified session because it is incompatible with existing inputs and outputs in the session.
Check QTErrorCaptureInputKey for the input experiencing the error.
Available in Mac OS X v10.5 and later.

4.23.77 QTErrorIncompatibleOutput = 1003

Plugin Version: 11.0. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes:

The output could not be added to the specified session because it is incompatible with existing inputs and outputs in the session.
Check QTErrorCaptureOutputKey for the output experiencing the error.

Available in Mac OS X v10.5 and later.

4.23.78 QTErrorInvalidDestinationFileTypeForExport = 1501

Plugin Version: 11.2. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes: Available on Mac OS X 10.7.

4.23.79 QTErrorInvalidInputsOrOutputs = 1100

Plugin Version: 11.0. **Function:** One of the error codes returned within QTKitErrorDomain.

4.23.80 QTErrorInvalidSourceFileTypeForExport = 1502

Plugin Version: 11.2. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes: Available on Mac OS X 10.7.

4.23.81 QTErrorMaximumDurationReached = 1205

Plugin Version: 11.0. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes:

Returned when recording has reached the maximum duration specified by the application.
Available in Mac OS X v10.5 and later.

4.23.82 QTErrorMaximumFileSizeReached = 1206

Plugin Version: 11.0. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes:

Returned when recording has reached the maximum file size specified by the application.
Available in Mac OS X v10.5 and later.

4.23.83 QTErrorMaximumNumberOfSamplesForFileFormatReached = 1208

Plugin Version: 11.0. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes:

Indicates the maximum number of samples reached for the file format.
Mac OS X v10.6; QuickTime 7.6.3.

4.23.84 QTErrorMediaChanged = 1204

Plugin Version: 11.0. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes:

The recording has been automatically stopped because the format of the input media changed or the media samples were invalid.
Check QTErrorCaptureSuccesfullyFinishedKey to determine if the capture products were successfully completed when recording was stopped.
Available in Mac OS X v10.5 and later.

4.23.85 QTErrorMediaDiscontinuity = 1207

Plugin Version: 11.0. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes:

Returned when there is a discontinuity in captured media, usually because of perfomance problems on the user's system or because of a change in a device's state. This error generally indicates that media samples have been dropped in order to maintain real time capture.
Available in Mac OS X v10.5 and later.

4.23.86 QTErrorNoDataCaptured = 1200

Plugin Version: 11.0. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes:

Returned when no data was successfully captured during a recording or other capture operation.
Available in Mac OS X v10.5 and later.

4.23.87 QTErrorSessionConfigurationChanged = 1201

Plugin Version: 11.0. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes:

The recording has been automatically stopped because an input or output has been added or removed, or the channels of an input or output have changed.
Check QTErrorCaptureSuccesfullyFinishedKey to determine if the recorded products were successfully completed when recording was stopped.

Available in Mac OS X v10.5 and later.

4.23.88 QTErrorUnknown = -1

Plugin Version: 11.0. **Function:** One of the error codes returned within QTKitErrorDomain.
Notes:

Indicates an unexpected or unknown error.
Check NSUnderlyingErrorKey for an NSError representing the internal cause of the error.
Available in Mac OS X v10.5 and later.

4.24 class QTKitMovieMBS

4.24.1 class QTKitMovieMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The QTKitMovieMBS class represents both a QuickTime movie and a movie controller.
Notes:

A movie is a collection of playable and editable media content. It describes the sources and types of the media in that collection and their spatial and temporal organization. These collections may be used for presentation (such as playback on the screen) or for the organization of media for processing (such as composition and transcoding to a different compression type). The collection may be as simple as a single file that plays at its natural size for its intrinsic duration, or it may be very complex (with multiple sources of content, rich composition rules, interactivity, and a variety of contingencies).

Just as a QuickTime movie contains a set of tracks, each of which defines the type, the segments, and the ordering of the media data it presents, a QTKitMovieMBS object is associated with instances of the QTKitTrackMBS class. In turn, a QTKitTrackMBS object is associated with a single QTKitMediaMBS object.

A QTKitMovieMBS object can be initialized from a file, from a resource specified by a URL, from a block of memory, from a pasteboard, or from an existing QuickTime movie.

Once a QTKitMovieMBS object has been initialized, it will typically be used in combination with a QTMovieView for playback.

An exception, QTMovieUneditableException, is raised whenever the client attempts to directly or indirectly edit a QTKitMovieMBS object that is not currently set as editable (for instance, by calling appendSelectionFromMovie: on an uneditable movie).

4.24.2 Methods

4.24.3 addChapters(names() as string, time() as QTKitTimeMBS, targetTrack as QTKitTrackMBS, byref error as NSErrorMBS) as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds chapters to the receiver using the information specified in the chapters array.
Example:

```
dim MyMovie as QTKitMovieMBS // your movie

dim chapterDates() as QTKitTimeMBS
dim chapterNames() as string
```

```
chapterDates.Append( new QTKitTimeMBS( 600 * 0, 600))
chapterNames.Append "one"

chapterDates.Append( new QTKitTimeMBS( 600 * 7, 600))
chapterNames.Append "two"

chapterDates.Append( new QTKitTimeMBS( 600 * 12, 600))
chapterNames.Append "three"

dim err as NSErrorMBS
dim workTracks() as QTKitTrackMBS = MyMovie.tracks
dim myVideoTrack as QTKitTrackMBS = workTracks(0)

if not MyMovie.addChapters( chapterNames, chapterDates, myVideoTrack, err) then
msgbox( "there was an error from addChapters " + err.Description)
end if
```

Notes:

The names and times array must have the same size.

The strings in the names array are the chapter name. The time value in the times array is the start time of the chapter. The receiving QTKitMovieMBS object must be editable or an exception will be raised.

Optionally you can specify the QTKitTrackMBS that is the target of the chapters; if none is specified, this method uses first video track in movie. If no video track is in the movie, this method uses the first audio track in the movie. If no audio track is in the movie, this method uses the first track in the movie.

If an error occurs, then an NSError object is returned in the error parameter.

Mac OS X v10.5 and later.

4.24.4 addImage(image as NSImageMBS, duration as QTKitTimeMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds an image for the specified duration.
Notes: The default time scale for a new track is 600.
See also:

- 4.24.5 addImage(image as NSImageMBS, duration as QTKitTimeMBS, codec as string, codecQuality as Integer) 225
- 4.24.6 addImage(imageData as Memoryblock, duration as QTKitTimeMBS, codec as string, codec-

Quality as Integer) 226

4.24.5 addImage(image as NSImageMBS, duration as QTKitTimeMBS, codec as string, codecQuality as Integer)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds an image for the specified duration.
Example:

```
// where to write?
dim outputfile as FolderItem = SpecialFolder.Desktop.Child("test.mov")

// create movie file
dim e as NSErrorMBS
dim q as QTKitMovieMBS = QTKitMovieMBS.CreateMovieWithFile(outputfile, e)

// create duration for the picture
dim duration as QTKitTimeMBS = new QTKitTimeMBS(20, 600)

// create a picture
dim p as new Picture(500,500,32)
dim g as Graphics = p.Graphics

// prepare
g.ForeColor = &cFFFFFF
g.FillRect 0,0,500,500
g.PenWidth = 10
g.PenHeight = 10

// let's add 501 frames
for i as Integer = 0 to 500

// draw something. e.g. a line
g.ForeColor = &cFF0000
g.drawline 0, 0, i,i

// add the image
dim image as new NSImageMBS(p)
q.addImage image, duration, "tiff", QTKitModuleMBS.codecHighQuality

next

// save file
if q.updateMovieFile then
q = nil
// and launch quicktime player
outputfile.Launch
```

```
else
MsgBox "Failed"
end if
```

Notes:

Use the codec parameter to specify the codec. For the quality you can use values between 0 and & h400 like codecNormalQuality (& h200).

The default time scale for a new track is 600.

Possible codecs:

See also:

- 4.24.4 addImage(image as NSImageMBS, duration as QTKitTimeMBS) 224

- 4.24.6 addImage(imageData as Memoryblock, duration as QTKitTimeMBS, codec as string, codecQuality as Integer) 226

4.24.6 addImage(imageData as Memoryblock, duration as QTKitTimeMBS, codec as string, codecQuality as Integer)

Plugin Version: 12.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds an image for the specified duration.
Notes:

This variant of the method takes images as data. This way you can maybe avoid recompression.
Use the codec parameter to specify the codec. For the quality you can use values between 0 and & h400 like codecNormalQuality (& h200).

The default time scale for a new track is 600.
See also:

- 4.24.4 addImage(image as NSImageMBS, duration as QTKitTimeMBS) 224

- 4.24.5 addImage(image as NSImageMBS, duration as QTKitTimeMBS, codec as string, codecQuality as Integer) 225

4.24.7 addVideoTrackWithSize(width as Double, height as Double) as QTKitTrackMBS

Plugin Version: 12.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds a new video track with given pixel size.
Notes:

Video must be editable and width and height bigger than zero.
Returns new track.
This function is not supported for 64 bit.

4.24.8 appendSelectionFromMovie(mov as QTKitMovieMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Appends to a QTKitMovieMBS the current selection in movie.
Notes: If the movie is not editable, this method raises an exception.

4.24.9 attachToCurrentThread as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Attaches a QTKitMovieMBS object to the current thread.
Notes:

Requires QuickTime 7.2.
This method can be called when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Returns true if successful, false otherwise.

4.24.10 AudioSummaryChannelLayout as QTAudioChannelLayoutMBS

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Queries the summary of all audio channel layouts.
Deprecated: This item is deprecated and should no longer be used. You can use AVFoundation Plugin instead. **Notes:**

Value is QTAudioChannelLayoutMBS. Get-only The summary AudioChannelLayout of a movie, or other grouping of audio streams. All like-labelled channels are combined, so there are no duplicates. For example, if there is a stereo (L/R) track, 5 single-channel tracks marked Left, Right, Left Surround, Right Surround and Center, and a 4 channel track marked L/R/Ls/Rs, then the summary AudioChannelLayout will be L/R/Ls/Rs/C. It will _not_ be L/R/L/R/Ls/Rs/C/L/R/Ls/Rs.
This function is not supported for 64 bit currently.

4.24.11 autoplay

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets a movie to start playing when a sufficient amount of media data is available.
Notes: The autoplay method configures a QTKitMovieMBS object to begin playing as soon as enough data is available that the playback can continue uninterrupted to the end of the movie. This is most useful for movies being loaded from a remote URL or from an extremely slow local device. For movies stored on most local devices, this method has the same effect as the play method.

4.24.12 available as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the QTKitMovieMBS class is available.
Notes: Returns true on Mac OS X 10.3 and newer.

4.24.13 availableMetadataFormats as string()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array containing strings representing the metadata formats available to the receiver.
Example:

```
dim file as FolderItem = SpecialFolder.Desktop.Child("test.mov")
dim m as new QTKitMovieMBS(file)

MsgBox join(m.availableMetadataFormats,", ")
```

Notes: Available on Mac OS X 10.7.

4.24.14 canLoadDataReference(data as QTKitDataReferenceMBS) as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true if the specified data reference can be used to initialize a QTKitMovieMBS object.

4.24.15 canLoadFile(file as folderitem) as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true if the contents of the specified file can be used to initialize a QTKitMovieMBS object.

4.24.16 canLoadPasteboard as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true if the contents of the specified pasteboard can be used to initialize a QTKitMovieMBS object.

4.24.17 canLoadURL(url as string) as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true if the contents of the specified URL can be used to initialize a QTKitMovieMBS object.

4.24.18 canUpdateMovieFile as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Indicates whether a movie file can be updated with changes made to the movie object.
Notes:

This method returns false if any of the following conditions are true:

- The movie is not associated with a file.
- The movie is not savable (has 'nsav' user data set to 1).
- The movie file is not writable.
- The movie file does not contain a movie atom (indicating that the movie was imported from a non-movie format).

Otherwise, the method returns true.

Using this method, an application can check first to see if the movie file can be updated; if not, it can prompt the user for a new name and location of a file in which to save the updated movie.

4.24.19 chapterCount as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the number of chapters in the receiver, or 0 if there are no chapters.
Notes: Mac OS X v10.5 and later.

4.24.20 chapterIndexForTime(time as QTKitTimeMBS) as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the 0-based index of the chapter that contains the specified movie time.
Notes: Mac OS X v10.5 and later.

4.24.21 chapters as Dictionary()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array containing information about the chapters in the receiver.
Notes:

Each array element is an Dictionary containing key-value pairs. Currently two keys are defined for this dictionary, QTMovieChapterName and QTMovieChapterStartTime. The value for the QTMovieChapterName key is an string that is the chapter name. The value for the QTMovieChapterStartTime key is an QTTimeMBS object that indicates the start time of the chapter.

Mac OS X v10.5 and later.

4.24.22 commonMetadata as QTKitMetadataItemMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array containing QTMetadataItem objects for each common metadata key for which a value for the current locale is available.
Example:

```
dim file as FolderItem = SpecialFolder.Desktop.Child("test.mov")
dim m as new QTKitMovieMBS(file)

dim metadatas() as QTKitMetadataItemMBS = m.commonMetadata

for each md as QTKitMetadataItemMBS in metadatas
MsgBox md.key+": "+md.stringValue
next
```

Notes:

Returns an array containing QTMetadataItem objects for each common metadata key for which a value for the current locale is available; may be nil if there is no metadata that's appropriately localized.

The returned metadata may be tagged with default locale information or with no locale information, if that's the best available choice.

Available on Mac OS X 10.7.

4.24.23 Constructor

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates an empty QTKitMovieMBS object.
See also:

- 4.24.24 Constructor(file as folderitem) 231
- 4.24.25 Constructor(mov as movie, byref error as NSErrorMBS) 231

4.24.24 Constructor(file as folderitem)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a QTKitMovieMBS object with the data in the file.
Example:

```
dim f as FolderItem=SpecialFolder.Desktop.Child("test.mov")
dim q as new QTKitMovieMBS(f)

MsgBox q.duration.String
```

Notes:

If a QTKitMovieMBS object cannot be created, an NSError object is returned in the location pointed to by error.

Note that alias files should not be passed into this method; the client application is responsible for resolving aliases before handing them to QTKit methods.
See also:

- 4.24.23 Constructor 231
- 4.24.25 Constructor(mov as movie, byref error as NSErrorMBS) 231

4.24.25 Constructor(mov as movie, byref error as NSErrorMBS)

Plugin Version: 9.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Creates a QTKitMovieMBS object based on a REALbasic movie object.

Deprecated: This item is deprecated and should no longer be used. You can use AVFoundation Plugin instead. **Notes:**

The object reference is kept with the QTKitMovie object so RB does not free the movie too early.
Error gives you an error message if this fails.
See also:

- 4.24.23 Constructor 231
- 4.24.24 Constructor(file as folderitem) 231

4.24.26 CreateMovieWithData(data as memoryblock, byref error as NSErrorMBS) as QTKitMovieMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a QTKitMovieMBS object initialized with the data specified by data.
Notes: If a QTKitMovieMBS object cannot be created, an NSError object is returned in the location pointed to by error.

4.24.27 CreateMovieWithDataReference(ref as QTKitDataReferenceMBS, byref error as NSErrorMBS) as QTKitMovieMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a QTKitMovieMBS object intitalized with the data specified by the data reference ref.
Notes: If a QTKitMovieMBS object cannot be created, an NSError object is returned in the location pointed to by error.

4.24.28 CreateMovieWithFile(file as folderitem, byref error as NSErrorMBS) as QTKitMovieMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a QTKitMovieMBS object initialized with the data in the file.
Example:

```
// where to write?
dim outputfile as FolderItem = SpecialFolder.Desktop.Child("test.mov")

// create movie file
dim e as NSErrorMBS
dim q as QTKitMovieMBS = QTKitMovieMBS.CreateMovieWithFile(outputfile, e)

// create duration for the picture
dim duration as QTKitTimeMBS = new QTKitTimeMBS(20, 600)
```

```
// create a picture
dim p as new Picture(500,500,32)
dim g as Graphics = p.Graphics

// prepare
g.ForeColor = & cFFFFFF
g.FillRect 0,0,500,500
g.PenWidth = 10
g.PenHeight = 10

// let's add 501 frames
for i as Integer = 0 to 500

// draw something. e.g. a line
g.ForeColor = & cFF0000
g.drawline 0, 0, i,i

// add the image
dim image as new NSImageMBS(p)
q.addImage image, duration, "tiff", QTKitModuleMBS.codecHighQuality

next

// save file
if q.updateMovieFile then
q = nil
// and launch quicktime player
outputfile.Launch

else
MsgBox "Failed"
end if
```

Notes: If a QTKitMovieMBS object cannot be created, an NSError object is returned in the location pointed to by error.

4.24.29 currentBandLevels as Double()

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Queries current sound levels.
Deprecated: This item is deprecated and should no longer be used. You can use AVFoundation Plugin instead. **Notes:**

Works only after a successful call to initBands.

This function is not supported for 64 bit currently.

4.24.30 currentFrameImage as NSImageMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an NSImage for the frame at the current time in a QTKitMovieMBS.

4.24.31 CurrentSizeHeight as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The current size of a QTKitMovieMBS object.

4.24.32 CurrentSizeWidth as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The current size of a QTKitMovieMBS object.

4.24.33 deleteSegment(range as QTKitTimeRangeMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Deletes from a QTKitMovieMBS the segment delimited by segment.
Notes: If the movie is not editable, this method raises an exception.

4.24.34 detachFromCurrentThread as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Detaches a QTKitMovieMBS object from the current thread.
Notes:

Requires QuickTime 7.2.
This method can be called when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Returns true if successful, false otherwise.

4.24.35 duration as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the duration of a QTKitMovieMBS object as QTTime.
Example:

```
dim f as FolderItem=SpecialFolder.Desktop.Child("test.mov")
dim q as new QTKitMovieMBS(f)

MsgBox q.duration.String
```

4.24.36 enterQTKitOnThread

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Performs any QTKit-specific initialization for the current (non-main) thread.
Notes:

A call to this method must be paired with a subsequent call to exitQTKitOnThread.
Requires QuickTime 7.2.

4.24.37 enterQTKitOnThreadDisablingThreadSafetyProtection

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Performs any QTKit-specific initialization for the current (non-main) thread, allowing non-threadsafe components.
Notes:

A call to this method must be paired with a subsequent call to exitQTKitOnThread.
Requires QuickTime 7.2.

4.24.38 exitQTKitOnThread

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Performs any QTKit-specific shut-down for the current (non-main) thread.
Notes:

A call to this method must be paired with a previous call to enterQTKitOnThread or enterQTKitOnThread-DisablingThreadSafetyProtection.
Requires QuickTime 7.2.

4.24.39 exportToFile(file as folderitem, byref error as NSErrorMBS, Type as string, Manufacturer as string, Settings as memoryblock) as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true if the movie file was successfully created and false otherwise.
Example:

```
dim f as FolderItem=SpecialFolder.Desktop.Child("test.mov")
dim q as new QTKitMovieMBS(f)
dim e as NSErrorMBS

f=SpecialFolder.Desktop.Child("test2.aif")

MsgBox str(q.Handle)

if q.exportToFile(f,e,"AIFF","soun","") then
MsgBox "ok"
else
MsgBox "Fail"
end if

if e<>Nil then
MsgBox e.localizedDescription
end if
```

Notes:

Exports the movie with a new codec.

This method returns true if the movie file was successfully created and false otherwise. False will also be returned if the load state of the target is less than kLoadStateComplete, in which case no attempt is made to write the QTKitMovieMBS into a file.

4.24.40 flattenToFile(file as folderitem, byref error as NSErrorMBS) as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true if the movie file was successfully created and false otherwise.
Example:

```
dim f as FolderItem=SpecialFolder.Desktop.Child("test.mov")
dim q as new QTKitMovieMBS(f)
dim e as NSErrorMBS

f=SpecialFolder.Desktop.Child("test2.mov")
```

```
if q.writeToFile(f,e) then // save self contained movie
MsgBox "ok"
else
MsgBox "Fail"
end if

if e<>Nil then
MsgBox e.localizedDescription
end if
```

Notes:

Flatten makes sure that the movie is free of external references.

This method returns true if the movie file was successfully created and false otherwise. False will also be returned if the load state of the target is less than kLoadStateComplete, in which case no attempt is made to write the QTKitMovieMBS into a file.

4.24.41 frameImageAtTime(time as QTKitTimeMBS) as NSImageMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an NSImage for the frame at the time time in a QTKitMovieMBS.
Example:

```
// find a file on disk
dim f as FolderItem = SpecialFolder.Desktop.Child("test.mp4")

// load it
dim e as NSErrorMBS
dim m as QTKitMovieMBS = QTKitMovieMBS.LoadMovieFromFile(f, e)

// show duration
MsgBox m.duration.String

// get picture at 10s
dim t as QTKitTimeMBS = QTKitTimeMBS.Time(10 * 600, 600)
Backdrop = m.frameImageAtTime(t).CopyPicture
// if image is black, we asked too early and file is not yet loaded.
```

See also:

- 4.24.42 frameImageAtTime(time as QTKitTimeMBS, attributes as dictionary, byref error as NSErrorMBS) as Variant 238

4.24.42 frameImageAtTime(time as QTKitTimeMBS, attributes as dictionary, byref error as NSErrorMBS) as Variant

Plugin Version: 13.1, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an NSImage*, CIImage*, CGImageRef, CVPixelBufferRef, or CVOpenGLTextureRef for the movie image at the specified time
Notes:

if an error occurs and the desired type of image cannot be created, then this returns nil and sets error to an NSErrorMBS describing the error. The dictionary of attributes that contain these keys is described in "Dictionary of Frame Image Attributes ."

The plugin will give you a NSImageMBS, CGImageMBS, CIImageMBS or a Ptr in variant depending of the type.

Note: All images returned by this method are autoreleased objects and must be retained by the caller if they are to be accessed outside of the current run loop cycle.

Available in OS X v10.5 and later.
See also:

- 4.24.41 frameImageAtTime(time as QTKitTimeMBS) as NSImageMBS 237

4.24.43 generateApertureModeDimensions

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds information to a QTKitMovieMBS needed to support aperture modes for tracks created with applications and/or versions of QuickTime that did not support aperture mode dimensions.
Notes: If the image descriptions in video tracks lack tags describing clean aperture and pixel aspect ratio information, the media data is scanned to see if the correct values can be divined and attached. Then the aperture mode dimensions are calculated and set. Afterwards, the HasApertureModeDimensions property will be set to true for those tracks. Tracks that do not support aperture modes are not changed.

4.24.44 gotoBeginning

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Repositions the play position to the beginning of the movie.
Notes: If the movie is playing, the movie continues playing from the new position.

4.24.45 gotoEnd

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Repositions the play position to the end of the movie.
Notes: If the movie is playing in one of the looping modes, the movie continues playing accordingly; otherwise, play stops.

4.24.46 gotoNextSelectionPoint

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Repositions the movie to the next selection point.

4.24.47 gotoPosterTime

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Repositions the play position to the movie's poster time.
Notes: If no poster time is defined, the movie jumps to the beginning. If the movie is playing, the movie continues playing from the new position.

4.24.48 gotoPreviousSelectionPoint

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Repositions the movie to the previous selection point.

4.24.49 hasChapters as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true if the receiver has chapters, false otherwise.
Notes: Mac OS X v10.5 and later.

4.24.50 initBands(mix as Integer, channels as Integer, byref bands as Integer) as boolean

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes sound level metering.
Deprecated: This item is deprecated and should no longer be used. You can use AVFoundation Plugin instead. **Notes:**

This API configures and enables (or disables) frequency metering for a movie.
Note that bands is an in/out parameter. You specify the number of frequency bands you want to meter, and if that number is higher than is possible (determined by, among other things, the sample rate of the audio being metered), this API will return the number of bands it is actually going to meter.
mix can be 1 for Mono Mix, 2 for Stereo Mix or 3 for Device Mix. When metering movies playing to audio devices that offer a large number of channels, it may be prohibitively expensive to perform spectral analysis on every channel; in these cases, stereo or mono mix metering may be preferable.
Channels is the number of channels you expect.

This function is not supported for 64 bit currently.

4.24.51 insertEmptySegmentAt(range as QTKitTimeRangeMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** inserts into a QTKitMovieMBS an empty segment delimited by the range range.
Notes: If the movie is not editable, this method raises an exception.

4.24.52 insertSegmentOfMovie(mov as QTKitMovieMBS, fromRange as QTKitTimeRangeMBS, scaledToRange as QTKitTimeRangeMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Inserts the specified segment from the movie into the receiver, scaled to the range dstRange.
Notes: This is essentially an Add Scaled operation on a movie. If the movie is not editable, this method raises an exception.
See also:

- 4.24.53 insertSegmentOfMovie(mov as QTKitMovieMBS, timeRange as QTKitTimeRangeMBS, atTime as QTKitTimeMBS) 240

4.24.53 insertSegmentOfMovie(mov as QTKitMovieMBS, timeRange as QTKitTimeRangeMBS, atTime as QTKitTimeMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Inserts into a QTKitMovieMBS at time time the selection in movie delimited by the time range range.
Notes: If the movie is not editable, this method raises an exception.
See also:

- 4.24.52 insertSegmentOfMovie(mov as QTKitMovieMBS, fromRange as QTKitTimeRangeMBS, scaledToRange as QTKitTimeRangeMBS) 240

4.24.54 insertSegmentOfTrack(Track as QTKitTrackMBS, fromRange as QTKitTimeRangeMBS, scaledToRange as QTKitTimeRangeMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Inserts the given range from the track into the movie and scaled it to the new range.
Notes: Requires QuickTime 7.2.
See also:

- 4.24.55 insertSegmentOfTrack(Track as QTKitTrackMBS, timeRange as QTKitTimeRangeMBS, atTime as QTKitTimeMBS) 241

4.24.55 insertSegmentOfTrack(Track as QTKitTrackMBS, timeRange as QTKitTimeRangeMBS, atTime as QTKitTimeMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Inserts the given range from the track into the movie at the given time.
Notes: Requires QuickTime 7.2.
See also:

- 4.24.54 insertSegmentOfTrack(Track as QTKitTrackMBS, fromRange as QTKitTimeRangeMBS, scaledToRange as QTKitTimeRangeMBS) 241

4.24.56 invalidate

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Invalidates a QTKitMovieMBS object immediately.
Notes: By the time this method has returned, the receiver will have detached itself from any resources it is using, disposing of these resources when appropriate. Attempting to make any non-trivial use of the receiver after invalidating it will result in undefined behavior. This method does not release the receiver, so under retain/release memory management release must still be called on the receiver for it to be fully deallocated. Because this method defeats sharing of QTKitMovieMBS objects, it should only be called when it is known that the object is no longer needed. This method can be called when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.

4.24.57 isIdling as boolean

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the current idling state of a QTKitMovieMBS object.
Notes:

Requires QuickTime 7.2.

This method returns the idling state of a QTKitMovieMBS object (that is, whether it is being tasked). Movies attached to background threads should not be idled; if they are idled, unexpected behavior can result. This method cannot be called when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.

Returns true if the movie is idling, false otherwise.

4.24.58 LoadMovieFromData(data as memoryblock, byref error as NSErrorMBS) as QTKitMovieMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** reates a QTKitMovieMBS object initialized with the data specified by data.
Notes: If a QTKitMovieMBS object cannot be created, an NSError object is returned in the location pointed to by error.

4.24.59 LoadMovieFromDataReference(ref as QTKitDataReferenceMBS, byref error as NSErrorMBS) as QTKitMovieMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a QTKitMovieMBS object intitalized with the data specified by the data reference dataReference.
Notes: If a QTKitMovieMBS object cannot be created, an NSError object is returned in the location pointed to by error.

4.24.60 LoadMovieFromFile(file as folderitem, byref error as NSErrorMBS) as QTKitMovieMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a QTKitMovieMBS object initialized with the data in the file specified by the name file.
Example:

```
// find a file on disk
dim f as FolderItem = SpecialFolder.Desktop.Child("test.mp4")

// load it
dim e as NSErrorMBS
dim m as QTKitMovieMBS = QTKitMovieMBS.LoadMovieFromFile(f, e)

// show duration
MsgBox m.duration.String

// get picture at 10s
```

```
dim t as QTKitTimeMBS = QTKitTimeMBS.Time(10 * 600, 600)
Backdrop = m.frameImageAtTime(t).CopyPicture
// if image is black, we asked too early and file is not yet loaded.
```

Notes: If a QTKitMovieMBS object cannot be created, an NSError object is returned in the location pointed to by error.

4.24.61 LoadMovieFromMovie(mov as QTKitMovieMBS, range as QTKitTimeRangeMBS, byref error as NSErrorMBS) as QTKitMovieMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes a QTKitMovieMBS object with some or all of the data from an existing QTKitMovieMBS object movie.
Notes: The section of data used is delimited by the range range. If a QTKitMovieMBS object cannot be created, an NSError object is returned in the location pointed to by error.

4.24.62 LoadMovieFromPasteboard(byref error as NSErrorMBS) as QTKitMovieMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a QTKitMovieMBS object initialized with the contents of the pasteboard specified by pasteboard.
Notes:

These contents can be a QuickTime movie (of type Movie), a file path, or data of type QTMoviePasteboardType.

If a QTKitMovieMBS object cannot be created, an NSError object is returned in the location pointed to by error.

4.24.63 LoadMovieFromURL(url as string, byref error as NSErrorMBS) as QTKitMovieMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a QTKitMovieMBS object initialized with the data in the URL specified by url.
Notes: If a QTKitMovieMBS object cannot be created, an NSError object is returned in the location pointed to by error.

4.24.64 metadataForFormat(format as string) as QTKitMetadataItemMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an NSArray of QTMetadataItem objects having a specified format.
Example:

```
dim file as FolderItem = SpecialFolder.Desktop.Child("test.mov")
dim m as new QTKitMovieMBS(file)

// get formats available?
dim formats() as string = m.availableMetadataFormats
// lookup all values for first format
dim metadatas() as QTKitMetadataItemMBS = m.metadataForFormat(Formats(0))

// and display
for each md as QTKitMetadataItemMBS in metadatas
MsgBox md.key+": "+md.stringValue
next
```

Notes:

format: The metadata format for which items are requested.
Returns an array containing all QTMetadataItem objects of the receiver that have the specified format; may be nil if there is no metadata of the specified format.
Available on Mac OS X 10.7.

4.24.65 Movie as Movie

Plugin Version: 9.3, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The REALbasic movie for this QTKit movie.
Notes:

If this QTKit movie references a REALbasic movie, you get this one back.
Else a new REALbasic movie is created using the internal QuickTime movie reference and this REALbasic movie is returned and also locked till the destructor is called.

When a REALbasic movie or a QTKitMovie is destroyed, the QuickTime movie behind is destroyed. If you still use that destroyed movie, your application will crash.

This function does not work in Cocoa due to a bug in Real Studio. This bug has been fixed in Xojo 2013r1.

4.24.66 MovieControllerHandle as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the QuickTime movie controller associated with a QTKitMovieMBS object.
Deprecated: This item is deprecated and should no longer be used. You can use AVFoundation Plugin instead. **Notes:**

Available in Mac OS X v10.3 and later.
Not available to 64-bit applications.

4.24.67 movieFileTypes(options as Integer = 0) as string()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of file types that can be opened as QuickTime movies.
Notes:

Passing zero as the options parameter returns an array of all the common file types that QuickTime can open in place on the current system. This array includes the file type .mov and .mqv, and any files types that can be opened using a movie importer that does not need to write data into a new file while performing the import. This array excludes any file types for still images and any file types that require an aggressive movie importer (for instance, the movie importer for text files).

use this constants: QTIncludeStillImageTypes, QTIncludeTranslatableTypes, QTIncludeAggressiveTypes, QTIncludeCommonTypes and QTIncludeAllTypes.

4.24.68 movieFormatRepresentation as memoryblock

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the movie's data in a string.

4.24.69 MovieHandle as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the QuickTime movie associated with a QTKitMovieMBS object.
Deprecated: This item is deprecated and should no longer be used. You can use AVFoundation Plugin instead. **Notes:**

Available in Mac OS X v10.3 and later.
Not available to 64-bit applications.

4.24.70 movieTypesWithOptions(options as Integer) as string()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of UTIs that QuickTime can open.
Notes: This method gets an array of strings that specify the uniform type identifiers (UTIs) for types of files that QuickTime can open. The types parameter is interpreted just like the types parameter to movieFileTypes.

4.24.71 movieUnfilteredFileTypes as string()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of file types that can be used to initialize a QTKitMovieMBS object.

4.24.72 movieUnfilteredPasteboardTypes as string()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of pasteboard types that can be used to initialize a QTKitMovieMBS object.

4.24.73 NaturalSizeHeight as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The natural size of a QTKitMovieMBS object.

4.24.74 NaturalSizeWidth as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The natural size of a QTKitMovieMBS object.

4.24.75 play

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Plays the movie.

4.24.76 posterImage as NSImageMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an NSImage for the poster frame of a QTKitMovieMBS.

4.24.77 QTAddImageCodecQuality as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys that you can use to specify movie attributes, using the addImage method.
Notes:

The image codec value; the value for this key is of type Number.
Available in Mac OS X v10.4 and later.

4.24.78 QTAddImageCodecType as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys that you can use to specify movie attributes, using the addImage method.
Notes:

The image codec string; the value for this key is of type String.
Available in Mac OS X v10.4 and later.

4.24.79 QTDisallowedForInitializationPurposeException as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The name of the special NSException.
Notes:

The value of this string is used with NSExceptionMBS.name.

An exception, QTDisallowedForInitializationPurposeException, is raised whenever the client attempts to call a method that is not allowed under a requested movie-opening behavior. For example, if a QTKitMovieMBS object is initialized with QTMovieOpenForPlaybackAttribute set to true, then QTDisallowedForInitializationPurposeException is raised if the client attempts to call methods that export the media data. An exception, QTMovieUneditableException, is raised whenever the client attempts to directly or indirectly edit a QTKitMovieMBS object that is not currently set as editable (for instance, by calling appendSelectionFromMovie on an uneditable movie).

4.24.80 QTMovieActiveSegmentAttribute as string

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

The active segment of a QTKitMovieMBS object; the value for this key is a QTTimeRangeMBS object.
This constant is available in Mac OS X 10.4 and later, but deprecated in Mac OS X 10.5.
This attribute can be read but not written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.81 QTMovieApertureModeAttribute as string

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

Sets the aperture mode attribute on a QTKitMovieMBS object to indicate whether aspect ratio and clean aperture correction should be performed.
This attribute can be read but not written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.5 and later.

4.24.82 QTMovieApertureModeClassic as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the aperture mode constants.
Notes: See the ApertureMode property for details.

4.24.83 QTMovieApertureModeClean as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the aperture mode constants.
Notes: See the ApertureMode property for details.

4.24.84 QTMovieApertureModeDidChangeNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Issued when the aperture mode of the target QTKitMovieMBS object changes.
Available in Mac OS X v10.5 and later.

4.24.85 QTMovieApertureModeEncodedPixels as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the aperture mode constants.
Notes: See the ApertureMode property for details.

4.24.86 QTMovieApertureModeProduction as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the aperture mode constants.
Notes: See the ApertureMode property for details.

4.24.87 QTMovieAskUnresolvedDataRefsAttribute as string

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

4.24.88 QTMovieAutoAlternatesAttribute as string

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

The auto-alternate state of a QTKitMovieMBS object. The value for this key is a boolean.
This attribute can be read but not written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.89 QTMovieChapterDidChangeNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Issued when the chapter associated with QTKitMovieMBS changes.
This notification contains no information in the userInfo dictionary.

Available in Mac OS X v10.4 and later.

4.24.90 QTMovieChapterListDidChangeNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Issued when the chapter list associated with QTKitMovieMBS changes.
This notification contains no information in the userInfo dictionary.

Available in Mac OS X v10.4 and later.

4.24.91 QTMovieChapterName as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key strings in the chapter info dictionary.
Notes:

A key indicating the chapter name in the dictionaries that are array elements in the array returned by chapters or passed to addChapters.
Available in Mac OS X v10.5 and later.

4.24.92 QTMovieChapterStartTime as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key strings in the chapter info dictionary.
Notes:

A key indicating the chapter start time in the dictionaries that are array elements in the array returned by chapters or passed to addChapters.
Available in Mac OS X v10.5 and later.

4.24.93 QTMovieChapterTargetTrackAttribute as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key strings in the chapter info dictionary.
Notes:

A key indicating the track in the QTKitMovieMBS object that is the target of the chapter track.
Available in Mac OS X v10.5 and later.

4.24.94 QTMovieCloseWindowRequestNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Sent when a request is made to close the movie's window.
This notification contains no information in the userInfo dictionary.

Available in Mac OS X v10.4 and later.

4.24.95 QTMovieCopyrightAttribute as string

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

The copyright string of a QTKitMovieMBS object; the value for this key is of type string.
This attribute can be read but not written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.96 QTMovieCreationTimeAttribute as string

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

The creation time of a QTKitMovieMBS object; the value for this key is of type date.
This attribute can be read but not written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.97 QTMovieCurrentSizeAttribute as string

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

The current size of a QTKitMovieMBS object; the value for this key is a NSSizeMBS object.
This attribute can be read and written. This attribute cannot be read or written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true. This attribute is deprecated in QTKit version 7.6 and later.

Available in Mac OS X v10.4 and later.

4.24.98 QTMovieCurrentTimeAttribute as string

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

The current time of a QTKitMovieMBS object; the value for this key is a QTTimeMBS object.
This attribute can be read and written. This attribute can be read and written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.99 QTMovieDataAttribute as string

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

4.24.100 QTMovieDataReferenceAttribute as string

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

4.24.101 QTMovieDataSizeAttribute as string

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

The data size of a QTKitMovieMBS. The value for this key is a Int64.
This attribute can be read but not written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.102 QTMovieDelegateAttribute as string

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

The delegate for a QTKitMovieMBS object. The value for this key is of type NSObject.
This attribute can be read and written. This attribute can be read and written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

kRawCodecType	"raw "	
kCinepakCodecType	"cvid"	
kGraphicsCodecType	"smc "	
kAnimationCodecType	"rle "	
kVideoCodecType	"rpza"	
kComponentVideoCodecType	"yuv2"	
kJPEGCodecType	"jpeg"	
kMotionJPEGACodecType	"mjpa"	
kMotionJPEGBCodecType	"mjpb"	
kSGICodecType	".SGI"	
kPlanarRGBCodecType	"8BPS"	
kMacPaintCodecType	"PNTG"	
kGIFCodecType	"gif "	
kPhotoCDCodecType	"kpcd"	
kQuickDrawGXCodecType	"qdgx"	
kAVRJPEGCodecType	"avr "	
kOpenDMLJPEGCodecType	"dmb1"	
kBMPCodecType	"WRLE"	
kWindowsRawCodecType	"WRAW"	
kVectorCodecType	"path"	
kQuickDrawCodecType	"qdrw"	
kWaterRippleCodecType	"ripl"	
kFireCodecType	"fire"	
kCloudCodecType	"clou"	
kH261CodecType	"h261"	
kH263CodecType	"h263"	
kDVCNTSCCodecType	"dvc "	DV - NTSC and DVCPRO NTSC (available in QuickTime 6.0 or later)
kDVCPALCodecType	"dvcp"	
kDVCProPALCodecType	"dvpp"	available in QuickTime 6.0 or later
kDVCPro50NTSCCodecType	"dv5n"	
kDVCPro50PALCodecType	"dv5p"	
kDVCPro100NTSCCodecType	"dv1n"	
kDVCPro100PALCodecType	"dv1p"	
kDVCPROHD720pCodecType	"dvhp"	
kDVCPROHD1080i60CodecType	"dvh6"	
kDVCPROHD1080i50CodecType	"dvh5"	
kBaseCodecType	"base"	
kFLCCodecType	"flic"	
kTargaCodecType	"tga "	
kPNGCodecType	"png "	
kTIFFCodecType	"tiff"	
kComponentVideoSigned	"yuvu"	unsigned
kComponentVideoUnsigned	"yuvs"	signed
kCMYKCodecType	"cmyk"	
kMicrosoftVideo1CodecType	"msvc"	
kSorensonCodecType	"SVQ1"	
kSorenson3CodecType	"SVQ3"	available in QuickTime 5 and later
kIndeo4CodecType	"IV41"	
kMPEG4VisualCodecType	"mp4v"	
k64ARGBCodecType	"b64a"	
k48RGBCodecType	"b48r"	
k32AlphaGrayCodecType	"b32a"	
k16GrayCodecType	"b16g"	
kMpegYUV420CodecType	"myuv"	
kYUV420CodecType	"y420"	
kSorensonYUV9CodecType	"syv9"	
k422YpCbCr8CodecType	"2vuy"	Component Y'CbCr 8-bit 4:2:2
k444YpCbCr8CodecType	"v308"	Component Y'CbCr 8-bit 4:4:4
k4444YpCbCrA8CodecType	"v408"	Component Y'CbCrA 8-bit 4:4:4:4
k422YpCbCr16CodecType	"v216"	Component Y'CbCr 10,12,14,16-bit 4:2:2
k422YpCbCr10CodecType	"v210"	Component Y'CbCr 10-bit 4:2:2
k444YpCbCr10CodecType	"v410"	Component Y'CbCr 10-bit 4:4:4
k4444YpCbCrA8RCodecType	"r408"	Component Y'CbCrA 8-bit 4:4:4:4, rendering format. full range alpha, zero biased yuv
kJPEG2000CodecType	"mjp2"	
kPixletCodecType	"pxlt"	
kH264CodecType	"avc1"	

4.24.103 QTMovieDidEndNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Sent when the movie is "done" or at its end.
This notification contains no userInfo parameters. It is equivalent to the standard player controller's mcActionMovieFinished action.

Available in Mac OS X v10.4 and later.

4.24.104 QTMovieDisplayNameAttribute as string

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

The display name of a QTKitMovieMBS object. A display name is stored as user data in a movie file and hence may differ from the base name of the movie's filename or URL. The value for this key is of type string. This attribute can be read and written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.105 QTMovieDontInteractWithUserAttribute as string

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

When set in a dictionary passed to movieWithAttributes or initWithAttributes, this prevents QuickTime from interacting with the user during movie initialization. The value for this key is a boolean.
Available in Mac OS X v10.4 and later.

4.24.106 QTMovieDurationAttribute as string

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

The duration of a QTKitMovieMBS object; the value for this key is a QTTimeMBS object.
Available in Mac OS X v10.4 and later.

4.24.107 QTMovieEditabilityDidChangeNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Sent when the editable state of a movie has changed.

Available in Mac OS X v10.4 and later.

4.24.108 QTMovieEditableAttribute as string

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

The editable setting; the value for this key is a boolean. This value is true if the movie can be edited.
This attribute can be read and written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.109 QTMovieEditedNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Sent when a movie has been edited.
This notification contains no userInfo dictionary.

Available in Mac OS X v10.4 and later.

4.24.110 QTMovieEnterFullScreenRequestNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Sent when a request is made to play back a movie in full screen mode.
This notification contains no information in the userInfo dictionary.

Available in Mac OS X v10.4 and later.

4.24.111 QTMovieExitFullScreenRequestNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Sent when a request is made to play back a movie in normal windowed mode.
This notification contains no information in the userInfo dictionary.

Available in Mac OS X v10.4 and later.

4.24.112 QTMovieExport as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys that you can use to specify movie attributes, using the writeToFile method.
Notes:

The movie export setting; the value for this key is boolean.
Available in Mac OS X v10.4 and later.

4.24.113 QTMovieExportManufacturer as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys that you can use to specify movie attributes, using the writeToFile method.
Notes:

The export manufacturer value; the value for this key is an integer.
Available in Mac OS X v10.4 and later.

4.24.114 QTMovieExportSettings as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys that you can use to specify movie attributes, using the writeToFile method.
Notes:

The movie export settings; the value of this key is of type string, interpreted as a QTAtomContainer.
Available in Mac OS X v10.4 and later.

4.24.115 QTMovieExportType as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys that you can use to specify movie attributes, using the writeToFile method.
Notes:

The movie export type; the value for this key is an integer.
Available in Mac OS X v10.4 and later.

4.24.116 QTMovieFileNameAttribute as string

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

The file name string of a QTKitMovieMBS object; the value for this key is of type string.
This attribute can be read but not written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.117 QTMovieFileOffsetAttribute as string

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

4.24.118 QTMovieFlatten as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys that you can use to specify movie attributes, using the writeToFile method.
Notes:

The movie flatten setting; the value for this key is a boolean.
Available in Mac OS X v10.4 and later.

4.24.119 QTMovieFrameImageDeinterlaceFields as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys for attributes passed to frameImageAtTime method.
Notes:

Image is de-interlaced. Value is a boolean (default = true).

Available in Mac OS X v10.5 and later.

4.24.120 QTMovieFrameImageHighQuality as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys for attributes passed to frameImageAtTime method.
Notes:

Image is high quality. Value is boolean (default = true).
Available in Mac OS X v10.5 and later.

4.24.121 QTMovieFrameImageOpenGLContext as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys for attributes passed to frameImageAtTime method.
Notes:

For CVOpenGLTextureRef, the OpenGL context to use. The value is an NSValue (CGLContextObj).
Available in Mac OS X v10.5 and later.

4.24.122 QTMovieFrameImagePixelFormat as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys for attributes passed to frameImageAtTime method.
Notes:

For CVOpenGLTextureRef, the pixel format to use. Value is an NSValue (CGLPixelFormatObj).
Available in Mac OS X v10.5 and later.

4.24.123 QTMovieFrameImageRepresentationsType as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys for attributes passed to frameImageAtTime method.
Notes:

For NSImage, the image representations in the image. Value is an Array of String; strings are, for example, NSBitmapImageRep class description. The default is NSBitmapImageRep.
Available in Mac OS X v10.5 and later.

4.24.124 QTMovieFrameImageSessionMode as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys for attributes passed to frameImageAtTime method.
Notes:

Indicates that two or more calls to frameImageAtTime will be made on the same QTKitMovieMBS object. By adding this key with the associated value that is a boolean to the dictionary of attributes, an application indicates that it will make more than one call to frameImageAtTime on the same QTKitMovieMBS object. This knowledge permits QTKitMovieMBS to cache certain objects and data structures used to generate a frame image, thereby improving performance. When the caller has obtained all the frame images desired from a given QTKitMovieMBS object, the caller should follow those session calls with a call where this value is false; this is a signal to QTKitMovieMBS to dispose of that cached data.

Mac OS X v10.6; QuickTime 7.6.3 and later.

4.24.125 QTMovieFrameImageSingleField as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys for attributes passed to frameImageAtTime method.
Notes:

Image is single field. Value is a boolean (default = true).
Available in Mac OS X v10.5 and later.

4.24.126 QTMovieFrameImageSize as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys for attributes passed to frameImageAtTime method.
Notes:

Size of the image. The value is an NSSizeMBS object. The default image size is the current movie size.
Available in Mac OS X v10.5 and later.

4.24.127 QTMovieFrameImageType as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the dictionary keys for attributes passed to frameImageAtTime method.
Notes: Type of the image. The value is a String. The default image type is NSImage.

4.24.128 QTMovieFrameImageTypeCGImageRef as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A value for the QTMovieFrameImageType key of the QTKitMovieMBS frameImageAtTime attributes dictionary.
Notes:

Specifies that the type of image returned should be a CGImageRef.
Available in Mac OS X v10.5 and later.

4.24.129 QTMovieFrameImageTypeCIImage as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A value for the QTMovieFrameImageType key of the QTKitMovieMBS frameImageAtTime attributes dictionary.
Notes:

Specifies that the type of image returned should be a CIImage.
Available in Mac OS X v10.5 and later.

4.24.130 QTMovieFrameImageTypeCVOpenGLTextureRef as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A value for the QTMovieFrameImageType key of the QTKitMovieMBS frameImageAtTime attributes dictionary.
Notes:

Specifies that the type of image returned should be a CVOpenGLTextureRef. Clients that specify this attribute must also specify the OpenGL context and pixel format for the texture using the QTMovieFrameImageOpenGLContext and QTMovieFrameImagePixelFormat attribute keys.
Available in Mac OS X v10.5 and later.

4.24.131 QTMovieFrameImageTypeCVPixelBufferRef as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A value for the QTMovieFrameImageType key of the QTKitMovieMBS frameImageAtTime attributes dictionary.
Notes:

Specifies that the type of image returned should be a CVPixelBufferRef.
Available in Mac OS X v10.5 and later.

4.24.132 QTMovieFrameImageTypeNSImage as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A value for the QTMovieFrameImageType key of the QTKitMovieMBS frameImageAtTime attributes dictionary.
Notes:

Specifies that the type of image returned should be an NSImage.
Available in Mac OS X v10.5 and later.

4.24.133 QTMovieHasApertureModeDimensionsAttribute as string

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

The aperture mode dimensions set on any track in this QTKitMovieMBS object, even if those dimensions are all identical to the classic dimensions (as is the case for content with square pixels and no edge-processing region). The value for this key is a boolean.
This attribute can be read but not written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.5 and later.

4.24.134 QTMovieHasAudioAttribute as string

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

The audio data setting; the value for this key is a boolean. This value is true if the movie contains audio data.
This attribute can be read but not written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.135 QTMovieHasDurationAttribute as string

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

The duration setting; the value for this key is a boolean. This value is true if the movie has a duration. (Some types of movies, for instance QuickTime VR movies, have no duration.)
This attribute can be read but not written. This attribute can be read but not written when the movie has

been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.136 QTMovieHasVideoAttribute as string

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

The video data setting; the value for this key is a boolean. This value is true if the movie contains video data.
This attribute can be read but not written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.137 QTMovieIsActiveAttribute as string

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

The active setting; the value for this key is a boolean.
This attribute can be read and written. This attribute can be read and written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.138 QTMovieIsInteractiveAttribute as string

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

The interactive setting; the value for this key is a boolean. This value is true if the movie is interactive.
This attribute can be read but not written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.139 QTMovieIsLinearAttribute as string

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

Notes:

The linear setting; the value for this key is a boolean. This value is true if the movie is linear, as opposed to a non-linear QuickTime VR movie.
This attribute can be read but not written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.140 QTMovieIsSteppableAttribute as string

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

The steppable setting; the value for this key is a boolean. This value is true if the movie can step from frame to frame.
This attribute can be read but not written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.141 QTMovieLoadStateAttribute as string

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

The load state value; the value for this key is an integer.
This attribute can be read but not written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.

Mac OS X v10.5 and later.

4.24.142 QTMovieLoadStateDidChangeNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Sent when the load state of a movie has changed.
Available in Mac OS X v10.4 and later.

4.24.143 QTMovieLoadStateErrorAttribute as string

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

The load state error of a QTKitMovieMBS object; the value for this key is of type NSError.
This attribute can be read but not written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.

QuickTime 7.6.3 and later.

4.24.144 QTMovieLoopModeDidChangeNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Sent when a change is made in a movie's looping mode.
This notification contains no information in the userInfo dictionary.

Available in Mac OS X v10.4 and later.

4.24.145 QTMovieLoopsAttribute as string

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

The looping setting; the value for this key is a boolean. This value is true if the movie is set to loop, false otherwise.
This attribute can be read and written. This attribute can be read and written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.146 QTMovieLoopsBackAndForthAttribute as string

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

The palindrome looping setting; the value for this key is a boolean. This value is true if the movie is set

to loop back and forth. Note that QTMovieLoopsAttribute and QTMovieLoopsBackAndForthAttribute are independent and indeed exclusive. QTMovieLoopsAttribute is used to get and set the state of normal looping; QTMovieLoopsBackAndForthAttribute is used to get and set the state of palindrome looping.
This attribute can be read and written. This attribute can be read and written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.147 QTMovieMessageNotificationParameter as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Used as a key in the userInfo dictionary passed to the QTMovieMessageNotification notification to indicate the message. The associated value is a string.

4.24.148 QTMovieMessageStringPostedNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Sent when a movie message has been received by the movie controller.
Movie messages can be sent to an application by wired actions (for instance, a wired sprite) or by code that issues the mcActionShowMessageString movie controller action. The userInfo dictionary contains a single entry whose value is of type string, which is the movie message.

Available in Mac OS X v10.4 and later.

4.24.149 QTMovieModificationTimeAttribute as string

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

The modification time of a QTKitMovieMBS object; the value for this key is of type date.
This attribute can be read but not written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.150 QTMovieMutedAttribute as string

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

The mute setting; the value for this key is a boolean. This value is true if the movie volume is muted.
This attribute can be read and written. This attribute can be read and written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.151 QTMovieNaturalSizeAttribute as string

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

The natural size of a QTKitMovieMBS object; the value for this key is a NSSizeMBS object.
This attribute can be read but not written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.152 QTMovieNaturalSizeDidChangeNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Posted whenever the natural size (that is, the original dimensions of the movie when it was authored) changes, either because the movie was edited or because new information about the movie was loaded asynchronously. All clients that display movies using dimensions based on the QTMovieNaturalSizeAttribute should respond to this notification to update their display as necessary.

QuickTime 7.6.3 and later.

4.24.153 QTMovieOpenAsyncOKAttribute as string

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

4.24.154 QTMovieOpenAsyncRequiredAttribute as string

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

4.24.155 QTMovieOpenForPlaybackAttribute as string

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

4.24.156 QTMoviePasteboardAttribute as string

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

4.24.157 QTMoviePasteboardType as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This constant is the type of movie data passed on the pasteboard.
Notes:

Specifies the type of movie data passed on the pasteboard.
Available in Mac OS X v10.4 and later.

4.24.158 QTMoviePlaysAllFramesAttribute as string

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

The play-all-frames setting; the value for this key is a boolean. This value is true if the movie will play all frames.
This attribute can be read and written. This attribute can be read and written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.159 QTMoviePlaysSelectionOnlyAttribute as string

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

The play-selection setting; the value for this key is a boolean. This value is true if the movie will play only the current selection.
This attribute can be read and written. This attribute can be read and written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.160 QTMoviePosterTimeAttribute as string

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

The movie poster time of a QTKitMovieMBS object; the value for this key is a QTTimeMBS object.
This attribute can be read and written. This attribute can be read and written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.161 QTMoviePreferredMutedAttribute as string

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

The preferred mute setting; the value for this key is a boolean. This value is true if the movie preferred mute setting is muted.
This attribute can be read and written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
The preferred settings refer to settings contained in the movie file (or movie data) itself. The actual settings refer to the actual values of those settings. For instance, a movie can have a preferred rate of 2, and a good movie playing application will respect that setting. But an application or the user can set the actual rate to some other value. The non-preferred settings can change dynamically, but the preferred settings will not.
Available in Mac OS X v10.4 and later.

4.24.162 QTMoviePreferredRateAttribute as string

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

Notes:

The preferred rate; the value for this key a float.
This attribute can be read and written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
The preferred settings refer to settings contained in the movie file (or movie data) itself. The actual settings refer to the actual values of those settings. For instance, a movie can have a preferred rate of 2, and a good movie playing application will respect that setting. But an application or the user can set the actual rate to some other value. The non-preferred settings can change dynamically, but the preferred settings will not.
Available in Mac OS X v10.4 and later.

4.24.163 QTMoviePreferredVolumeAttribute as string

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

The preferred volume; the value for this key a float.
This attribute can be read and written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
The preferred settings refer to settings contained in the movie file (or movie data) itself. The actual settings refer to the actual values of those settings. For instance, a movie can have a preferred rate of 2, and a good movie playing application will respect that setting. But an application or the user can set the actual rate to some other value. The non-preferred settings can change dynamically, but the preferred settings will not.
Available in Mac OS X v10.4 and later.

4.24.164 QTMoviePreviewModeAttribute as string

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

The preview mode setting; the value for this key is a boolean. This value is true if the movie is in preview mode.
This attribute can be read and written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.165 QTMoviePreviewRangeAttribute as string

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

The preview range of a QTKitMovieMBS object; the value for this key is a QTTimeRangeMBS object.
This attribute can be read and written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.166 QTMovieRateAttribute as string

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

The movie rate; the value for this key a float.
This attribute can be read and written. This attribute can be read and written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.167 QTMovieRateChangesPreservePitchAttribute as string

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

When the playback rate is not unity, audio must be resampled in order to play at the new rate. The default resampling affects the pitch of the audio (for example, playing at 2x speed raises the pitch by an octave, 1/2x lowers an octave). If this property is set on the movie, an alternative algorithm is used, which alters the speed without changing the pitch. Since this is more computationally expensive, this property may be silently ignored on some slow CPUs.
This attribute can be read but not written; it must be among the initialization attributes to have any effect. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.168 QTMovieRateDidChangeNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Used as a key in the userInfo dictionary passed to the QTMovieRateDidChangeNotification notification to indicate the new playback rate. The associated value is a float.
Available in Mac OS X v10.4 and later.

4.24.169 QTMovieRateDidChangeNotificationParameter as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Used as a key in the userInfo dictionary passed to the QTMovieRateDidChangeNotification notification to indicate the new playback rate.
Notes:

The associated value is a float.
Available in Mac OS X v10.4 and later.

4.24.170 QTMovieResolveDataRefsAttribute as string

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

4.24.171 QTMovieSelectionAttribute as string

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

The selection range of a QTKitMovieMBS object; the value for this key is a QTTimeRangeMBS object.
This attribute can be read and written. This attribute cannot be read or written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.172 QTMovieSelectionDidChangeNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Sent when the selection of a movie has changed.
This notification contains no userInfo dictionary.

Available in Mac OS X v10.4 and later.

4.24.173 QTMovieSizeDidChangeNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Sent when the size of a movie has changed.
This notification contains no userInfo dictionary.

QuickTime 7.0 and later, but deprecated in QuickTime 7.6.3 and later.

4.24.174 QTMovieStatusCodeNotificationParameter as string

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

Used as a key in the userInfo dictionary passed to the QTMovieStatusStringPostedNotification notification to indicate a status code (or error code). The associated value is an integer.
Available in Mac OS X v10.4 and later.

4.24.175 QTMovieStatusFlagsNotificationParameter as string

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

Used as a key in the userInfo dictionary passed to the QTMovieStatusStringPostedNotification notification to indicate a status code (or error code). The associated value is an integer.
Available in Mac OS X v10.4 and later.

4.24.176 QTMovieStatusStringNotificationParameter as string

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

Used as a key in the userInfo dictionary passed to the QTMovieStatusStringPostedNotification notification to indicate a status string.
Available in Mac OS X v10.4 and later.

4.24.177 QTMovieStatusStringPostedNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Status messages can be sent by QuickTime's streaming components or by any code that wants to display a message in the movie controller bar status area.
The userInfo dictionary contains a single entry whose value is of type string, which is the status message.

The following are keys (notification parameters) for userInfo items for the QTMovieStatusStringPostedNotification notification QTMovieStatusCodeNotificationParameter and QTMovieStatusStringNotificationParameter.

A status string notification can indicate an error (in which case QTMovieStatusCodeNotificationParameter will have a value), or it can contain a string (in which case QTMovieStatusStringNotificationParameter will have a value). For more information, see mcActionShowStatusString.

Availability
Available in Mac OS X v10.4 and later.

4.24.178 QTMovieTargetIDNotificationParameter as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Used as a key in the dictionary passed to the externalMovie delegate method to indicate that the delegate should return a QTKitMovieMBS object that has the movie ID specified by the key's value.
Notes: Available in Mac OS X v10.4 and later.

4.24.179 QTMovieTargetNameNotificationParameter as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Used as a key in the dictionary passed to the externalMovie delegate method to indicate that the delegate should return a QTKitMovieMBS object that has the movie name specified by the key's value.
Notes: Available in Mac OS X v10.4 and later.

4.24.180 QTMovieTimeDidChangeNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Sent when the time in a movie has changed.
The QTMovieTimeDidChangeNotification is fired whenever the movie time changes to a time other than what it would be during normal playback. So, for example, this notification is not fired every frame.

Available in Mac OS X v10.4 and later.

4.24.181 QTMovieTimeScaleAttribute as string

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

The time scale of a QTKitMovieMBS object; the value for this key is of type number, interpreted as a long. This attribute can be read and (in Mac OS X 10.5 and later) written; in earlier versions of Mac OS X, this attribute is readable only. In general, you should set this attribute only on newly-created movies or on movies that have not been edited. Also, you should only increase the time scale value, and you should try to use integer multiples of the existing time scale.
This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.182 QTMovieUneditableException as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** An exception name for use with NSExceptionMBS class.
Notes:

Raised when the developer tries to call a method that requires editing or modifying the movie on an uneditable movie.
Available in Mac OS X v10.4 and later.
Use with NSExceptionMBS class.

4.24.183 QTMovieURLAttribute as string

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

The URL of a QTKitMovieMBS object; the value for this key is an URL string.
This attribute can be read but not written. This attribute can be read but not written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.184 QTMovieVolumeAttribute as string

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

The movie volume; the value for this key a float.
This attribute can be read and written. This attribute can be read and written when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.
Available in Mac OS X v10.4 and later.

4.24.185 QTMovieVolumeDidChangeNotification as string

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the notification names you can use with NSNotificationObserverMBS class.
Notes:

Sent when the volume of a movie has changed.
Available in Mac OS X v10.4 and later.

4.24.186 removeApertureModeDimensions

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes aperture mode dimension information from a movie's tracks.
Notes: This method does not attempt to modify sample descriptions, so it may not completely reverse the effects of generateApertureModeDimensions. It sets the HasApertureModeDimensions property to false.

4.24.187 removeChapters as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes any existing chapters from the receiver.
Notes:

Returns true if either the receiver had no chapters or the chapters were successfully removed from the receiver. Returns false if the chapters could not for some reason be removed from the receiver. The receiving QTKitMovieMBS object must be editable or an exception will be raised.

Mac OS X v10.5 and later.

4.24.188 removeTrack(track as QTKitTrackMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes the track from the movie.
Notes: Requires QuickTime 7.2.

4.24.189 replaceSelectionWithSelectionFromMovie(mov as QTKitMovieMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Replaces the current selection in a QTKitMovieMBS with the current selection in movie.
Notes: If the movie is not editable, this method raises an exception.

4.24.190 scaleSegment(range as QTKitTimeRangeMBS, time as QTKitTimeMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Scales the QTKitMovieMBS segment delimited by the segment segment so that it will have the new duration newDuration.
Notes: If the movie is not editable, this method raises an exception.

4.24.191 selectionDuration as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the duration of the movie's current selection as a QTTime structure.

4.24.192 selectionEnd as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the end point of the movie's current selection as a QTTime structure.

4.24.193 selectionStart as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the start time of the movie's current selection as a QTTime structure.

4.24.194 SetCurrentSize(width as Double, height as Double)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the current size of the movie.

4.24.195 setIdling(state as boolean)

Plugin Version: 9.6, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the idling state of a QTKitMovieMBS object.
Notes:

Requires QuickTime 7.2.

Movies attached to background threads should not be idled; if they are idled, unexpected behavior can result. This method cannot be called when the movie has been initialized with QTMovieOpenForPlaybackAttribute set to true.

state: A boolean value that indicates whether to idle the movie (true) or not (false).

4.24.196 SetNaturalSize(width as Double, height as Double)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the natural size of a QTKitMovieMBS object.

4.24.197 setSelection(r as QTKitTimeRangeMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the movie's selection to r.

4.24.198 startTimeOfChapter(chapterIndex as Integer) as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a QTTime structure that is the start time of the chapter having the specified 0-based index in the list of chapters.
Notes: Mac OS X v10.5 and later.

4.24.199 stepBackward

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the movie backward a single frame.

Notes: You can check if currenttime changes to see if method is successful.

4.24.200 stepForward

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the movie forward a single frame.
Notes: You can check if currenttime changes to see if method is successful.

4.24.201 stop

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Stops the movie playing.

4.24.202 tracks as QTKitTrackMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of QTKitTrackMBS objects associated with the receiver.
Example:

```
dim file as FolderItem = SpecialFolder.Desktop.Child("test.mov")
dim mov as new QTKitMovieMBS(file)
dim tracks() as QTKitTrackMBS = mov.tracks

MsgBox str(1+UBound(tracks))+" tracks in movie."
```

Notes: Available in Mac OS X v10.3 and later.

4.24.203 tracksOfMediaType(Type as string) as QTKitTrackMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of tracks with the specified media type.
Example:

```
dim movie as QTKitMovieMBS // your movie
dim soundtracks() as QTKitTrackMBS = movie.tracksOfMediaType("soun")
dim q as QTKitTrackMBS = soundtracks(0)
dim handle as Integer = q.TrackHandle

dim track as new QTTrackMBS
```

```
track.TrackHandle = handle

MsgBox str(track.Duration)+" time units."
```

Notes:

he type parameter should be one of the media types defined by constants in QTKitMediaMBS beginning with "QTMediaType", for instance, QTMediaTypeVideo.

Available in Mac OS X v10.3 and later.

4.24.204 updateMovieFile as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Updates the movie file of a QTKitMovieMBS.
Example:

```
// where to write?
dim outputfile as FolderItem = SpecialFolder.Desktop.Child("test.mov")

// open movie file
dim q as new QTKitMovieMBS(outputfile)

// start editing
q.Editable = true

// create duration for the picture
dim duration as QTKitTimeMBS = new QTKitTimeMBS(5*600, 600) // 5 seconds

// create a picture
dim w as Integer = q.NaturalSizeWidth
dim h as Integer = q.NaturalSizeHeight

if w = 0 or h = 0 then
MsgBox "There is no video in test.mov on desktop!?"
quit
end if

dim p as new Picture(w, h, 32)
dim g as Graphics = p.Graphics

g.ForeColor = & cFFFF00
g.FillRect 0,0,w,h
```

```
// add picture
dim n as new NSImageMBS(p)
q.addImage n, duration, "tiff", QTKitModuleMBS.codecMaxQuality

// save file
if q.updateMovieFile then
q = nil
// and launch quicktime player
outputfile.Launch

else
MsgBox "Failed"
end if
```

Notes: Returns true if the update succeeds and false otherwise.

4.24.205 writeToFile(file as folderitem, byref error as NSErrorMBS) as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true if the movie file was successfully created and false otherwise.
Example:

```
dim f as FolderItem=SpecialFolder.Desktop.Child("test.mov")
dim q as new QTKitMovieMBS(f)
dim e as NSErrorMBS

f=SpecialFolder.Desktop.Child("test2.mov")

if q.writeToFile(f,e) then // save reference movie
MsgBox "ok"
else
MsgBox "Fail"
end if

if e<>Nil then
MsgBox e.localizedDescription
end if
```

Notes: This method returns true if the movie file was successfully created and false otherwise. False will also be returned if the load state of the target is less than kLoadStateComplete, in which case no attempt is made to write the QTKitMovieMBS into a file.

4.24.206 Properties

4.24.207 Handle as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference used for the QTKitMovieMBS object.
Notes: (Read and Write property)

4.24.208 ApertureMode as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the aperture mode attribute on a QTKitMovieMBS object to indicate whether aspect ratio and clean aperture correction should be performed.
Notes:

When a movie is in clean, production, or encoded pixels aperture mode, each track's dimensions are overridden by special dimensions for that mode. The original track dimensions are preserved and can be restored by setting the movie into classic aperture mode. Aperture modes are not saved in movies. The associated value is of type String and is assumed to be one of the following strings:

kApertureModeClassic
No aspect ratio or clean aperture correction is performed. This is the default aperture mode and provides compatibility with behavior in QuickTime 7.0.x and earlier. If you call QTKitTrackMBS setDimensions, the movie is automatically switched to classic mode.

kApertureModeClean
An aperture mode for general display. Where possible, video will be displayed at the correct pixel aspect ratio, trimmed to the clean aperture. A movie in clean aperture mode sets each track's dimensions to match the size returned by QTKitTrackMBS apertureModeDimensionsForMode(kApertureModeClean).

kApertureModeProduction
An aperture mode for modal use in authoring applications. Where possible, video will be displayed at the correct pixel aspect ratio, but without trimming to the clean aperture so that the edge processing region can be viewed. A movie in production aperture mode sets each track's dimensions to match the size returned by QTKitTrackMBS apertureModeDimensionsForMode(kApertureModeProduction).

kApertureModeEncodedPixels
An aperture mode for technical use. Displays all encoded pixels with no aspect ratio or clean aperture compensation. A movie in encoded pixels aperture mode sets each track's dimensions to match the size returned by QTKitTrackMBS apertureModeDimensionsForMode(kApertureModeEncodedPixels).
(Read and Write computed property)

4.24.209 attributeForKey(key as string) as Variant

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The movie attribute for the given key.
Notes:

see QTKitMovieMBS*Attribute functions for valid keys.
(Read and Write computed property)

4.24.210 AutoAlternates as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The auto-alternate state of a QTKitMovieMBS object.
Notes: (Read and Write computed property)

4.24.211 Copyright as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The copyright string of a QTKitMovieMBS object.
Notes: (Read and Write computed property)

4.24.212 CreationTime as date

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The creation time of a QTKitMovieMBS object.
Notes: (Read and Write computed property)

4.24.213 DataSize as Int64

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The data size of a QTKitMovieMBS.
Notes: (Read and Write computed property)

4.24.214 DisplayName as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The display name of a QTKitMovieMBS object.
Notes:

A display name is stored as user data in a movie file and hence may differ from the base name of the movie's filename or URL.
(Read and Write computed property)

4.24.215 DontInteractWithUser as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** When set in a dictionary passed to movieWithAttributes or initWithAttributes, this prevents QuickTime from interacting with the user during movie initialization.
Notes: (Read and Write computed property)

4.24.216 Editable as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The editable setting.
Notes:

This value is true if the movie can be edited.
(Read and Write computed property)

4.24.217 FileName as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The file name string of a QTKitMovieMBS object.
Notes: (Read and Write computed property)

4.24.218 HasApertureModeDimensions as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The aperture mode dimensions set on any track in this QTKitMovieMBS object, even if those dimemsions are all identical to the classic dimensions (as is the case for content with square pixels and no edge-processing region).
Notes: (Read and Write computed property)

4.24.219 HasAudio as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The audio data setting.
Notes:

This value is true if the movie contains audio data..
(Read and Write computed property)

4.24.220 HasDuration as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The duration setting.
Notes:

This value is true if the movie has a duration.
(Read and Write computed property)

4.24.221 HasVideo as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The video data setting.
Notes:

This value is true if the movie contains video data.
(Read and Write computed property)

4.24.222 IsActive as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether the movie is active.
Notes: (Read and Write computed property)

4.24.223 IsInteractive as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The interactive setting.
Notes:

This value is true if the movie is interactive.
(Read and Write computed property)

4.24.224 IsLinear as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The linear setting.
Notes:

This value is true if the movie is linear, as opposed to a non-linear QuickTime VR movie.
(Read and Write computed property)

4.24.225 IsSteppable as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The steppable setting.
Notes:

This value is true if the movie can step from frame to frame.
(Read and Write computed property)

4.24.226 LoadState as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The load state value.
Notes:

Use the constants:

kLoadStateError	= -1	an error occurred while loading the movie
kLoadStateLoading	= 1000	the movie is loading
kLoadStateLoaded	= 2000	the movie atom has loaded; it's safe to query movie properties
kLoadStatePlayable	= 10000	the movie has loaded enough media data to begin playing
kLoadStatePlaythroughOK	= 20000	the movie has loaded enough media data to play through to the end
kLoadStateComplete	= 100000	the movie has loaded completely

(Read and Write computed property)

4.24.227 Loops as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The looping setting.
Notes:

This value is true if the movie is set to loop.
(Read and Write computed property)

4.24.228 LoopsBackAndForth as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The palindrome looping setting;

Notes:

This value is true if the movie is set to loop back and forth. Note that the Loops and LoopsBackAndForth properties are independent and indeed exclusive. Loops property is used to get and set the state of normal looping; LoopsBackAndForth property is used to get and set the state of palindrome looping.
(Read and Write computed property)

4.24.229 ModificationTime as date

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The modification time of a QTKitMovieMBS object.
Notes: (Read and Write computed property)

4.24.230 movieAttributes as dictionary

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A dictionary containing the current values of all defined movie attributes.
Notes: (Read and Write computed property)

4.24.231 muted as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the movie's mute setting.
Notes: (Read and Write computed property)

4.24.232 PlaysAllFrames as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The play-all-frames setting.
Notes:

This value is true if the movie will play all frames.
(Read and Write computed property)

4.24.233 PlaysSelectionOnly as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The play-selection setting.
Notes:

This value is true if the movie will play only the current selection.
(Read and Write computed property)

4.24.234 PosterTime as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The movie poster time of a QTKitMovieMBS object.
Notes: (Read and Write computed property)

4.24.235 PreferredMuted as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The preferred mute setting
Notes:

This value is true if the movie preferred mute setting is muted.
(Read and Write computed property)

4.24.236 PreferredRate as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The preferred rate.
Notes: (Read and Write computed property)

4.24.237 PreferredVolume as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The preferred volume.
Notes: (Read and Write computed property)

4.24.238 PreviewMode as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The preview mode setting.
Notes:

This value is true if the movie is in preview mode.
(Read and Write computed property)

4.24.239 PreviewRange as QTKitTimeRangeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The preview range of a QTKitMovieMBS object.
Notes: (Read and Write computed property)

4.24.240 rate as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The current rate of a QTKitMovieMBS object.
Notes: (Read and Write computed property)

4.24.241 RateChangesPreservePitch as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** When the playback rate is not unity, audio must be resampled in order to play at the new rate.
Notes:

The default resampling affects the pitch of the audio (for example, playing at 2x speed raises the pitch by an octave, 1/2x lowers an octave). If this property is set on the Movie, an alternative algorithm is used, which alters the speed without changing the pitch. As this is more computationally expensive, this property may be silently ignored on some slow CPUs.
(Read and Write computed property)

4.24.242 Selection as QTKitTimeRangeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The selection range of a QTKitMovieMBS object.
Notes: (Read and Write computed property)

4.24.243 time as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The movie's current time setting to time.
Notes: (Read and Write computed property)

4.24.244 TimeScale as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The movie time scale.
Notes:

In Mac OS X 10.5 and later, this attribute is gettable and settable. In general, you should set this attribute only on newly-created movies or on movies that have not been edited. Also, you should only increase the time scale value, and you should try to use integer multiples of the existing time scale. In earlier versions of Mac OS X, this attribute is gettable only.
(Read and Write computed property)

4.24.245 URL as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The URL of a QTKitMovieMBS object.
Notes: (Read and Write computed property)

4.24.246 volume as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The movie's volume as a scalar value of type float.
Notes:

The valid range is 0.0 to 1.0.
(Read and Write computed property)

4.24.247 Constants

4.24.248 QTIncludeAggressiveTypes = 4

Plugin Version: 11.2. **Function:** One of the file type option flags.
Notes:

This value adds to the array all file types for files that can be opened using a movie importer but that are not commonly used in connection with movies (for instance, text or HTML files).
Available in Mac OS X v10.3 and later.

4.24.249 QTIncludeAllTypes = & hffff

Plugin Version: 11.2. **Function:** One of the file type option flags.
Notes:

This value adds to the array all file types that QuickTime can open on the current system, using any available movie or graphics importer.
Available in Mac OS X v10.3 and later.

4.24.250 QTIncludeCommonTypes = 0

Plugin Version: 11.2. **Function:** One of the file type option flags.
Notes:

This value adds to the array all common file types that QuickTime can open in place on the current system.
Available in Mac OS X v10.3 and later.

4.24.251 QTIncludeDynamicTypes = 8

Plugin Version: 11.2. **Function:** One of the file type option flags.
Notes: New in QuickTime 7.2

4.24.252 QTIncludeStillImageTypes = 1

Plugin Version: 11.2. **Function:** One of the file type option flags.
Notes:

This value adds to the array all file types for still images that can be opened using a graphics importer.
Available in Mac OS X v10.3 and later.

4.24.253 QTIncludeTranslatableTypes = 2

Plugin Version: 11.2. **Function:** One of the file type option flags.
Notes:

This value adds to the array all file types for files that can be opened using a movie importer but for which a new file must be created.
Available in Mac OS X v10.3 and later.

4.24.254 QTMovieLoadStateComplete = 100000

Plugin Version: 11.2. **Function:** One of the load state constants.
Notes: the movie has loaded completely

4.24.255 QTMovieLoadStateError = -1

Plugin Version: 11.2. **Function:** One of the load state constants.
Notes: an error occurred while loading the movie

4.24.256 QTMovieLoadStateLoaded = 2000

Plugin Version: 11.2. **Function:** One of the load state constants.
Notes: the movie atom has loaded; it's safe to query movie properties

4.24.257 QTMovieLoadStateLoading = 1000

Plugin Version: 11.2. **Function:** One of the load state constants.
Notes: the movie is loading

4.24.258 QTMovieLoadStatePlayable = 10000

Plugin Version: 11.2. **Function:** One of the load state constants.
Notes: the movie has loaded enough media data to begin playing

4.24.259 QTMovieLoadStatePlaythroughOK = 20000

Plugin Version: 11.2. **Function:** One of the load state constants.
Notes: the movie has loaded enough media data to play through to the end

4.25 class QTKitMovieViewMBS

4.25.1 class QTKitMovieViewMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A QTMovieView is a subclass of NSView that can be used to display and control QuickTime movies.
Notes:

You normally use a QTMovieView in combination with a QTKitMovieMBS object, which supplies the movie being displayed. A QTMovieView also supports editing operations on the movie.

The movie can be placed within an arbitrary bounding rectangle in the view's coordinate system, and the remainder of the view can be filled with a fill color. The movie controller, if it is visible, can also be placed within an arbitrary bounding rectangle in the view's coordinate system.

You can embed this view in a CustomNSViewMBS to get more events for mouse and keyboard.
Subclass of the NSViewMBS class.

4.25.2 Methods

4.25.3 add

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method adds the contents of the clipboard to the movie at the current movie time.
Notes:

This action is undoable. If the movie is not editable, this method raises an exception.

Available in Mac OS X v10.3 and later.

4.25.4 addScaled

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method adds the contents of the clipboard to the movie, scaled to fit into the current movie selection.
Notes: This action is undoable. If the movie is not editable, this method raises an exception.

4.25.5 available as boolean

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true if the QTMovieView class is available.

4.25.6 Constructor

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new QTKit movie view with size 100/100 and position 0/0
Example:

```
dim t as new QTKitMovieViewMBS
```

Notes: On success the handle property is not zero.
See also:

- 4.25.7 Constructor(Handle as Integer) 294
- 4.25.8 Constructor(left as Double, top as Double, width as Double, height as Double) 294

4.25.7 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 QTKitMovieView handle.
Example:

```
dim t as new QTKitMovieViewMBS(0, 0, 100, 100)
dim v as new QTKitMovieViewMBS(t.handle)

MsgBox str(v.Bounds.Width)+" x "+str(v.Bounds.Height)
```

Notes: The handle is casted to a QTKitMovieView and the plugin retains this handle.
See also:

- 4.25.6 Constructor 294
- 4.25.8 Constructor(left as Double, top as Double, width as Double, height as Double) 294

4.25.8 Constructor(left as Double, top as Double, width as Double, height as Double)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new QTKit movie view with the given size and position.
Example:

```
dim x as new QTKitMovieViewMBS(0, 0, 100, 100)
```

Notes:

On success the handle property is not zero.
The new movie view object must be inserted into the view hierarchy of an NSWindow before it can be used.
This method is the designated initializer for the QTMovieView class.
See also:

- 4.25.6 Constructor 294
- 4.25.7 Constructor(Handle as Integer) 294

4.25.9 controllerBarHeight as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the height of the controller bar.

4.25.10 copy

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method copies the current movie selection onto the clipboard.
Notes: If there is no selection, the current frame is copied. The movie does not need to be editable.

4.25.11 cut

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method deletes the current movie selection from the movie, placing it on the clipboard.
Notes: If there is no selection, the current frame is deleted. This action is undoable. If the movie is not editable, this method raises an exception.

4.25.12 delete

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method deletes the current movie selection from the movie, placing it on the clipboard.
Notes: If there is no selection, the current frame is deleted. This action is undoable. If the movie is not editable, this method raises an exception.

4.25.13 Destructor

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The destructor.

4.25.14 gotoBeginning

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method sets the current movie time to the beginning of the movie.
Notes: If the movie is playing, the movie continues playing from the new position.

4.25.15 gotoEnd

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method sets the current movie time to the end of the movie.
Notes: If the movie is playing in one of the looping modes, the movie continues playing accordingly; otherwise, play stops.

4.25.16 gotoNextSelectionPoint

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method sets the current movie time to the next selection point.

4.25.17 gotoPosterFrame

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method sets the current movie time to the movie poster frame.

4.25.18 gotoPreviousSelectionPoint

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method sets the current movie time to the previous selection point.

4.25.19 movieBounds as NSRectMBS

Plugin Version: 9.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The rectangle currently occupied by the movie in a QTMovieView.

Notes: This rectangle does not include the area occupied by the movie controller bar (if it's visible).

4.25.20 movieBoundsHeight as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The height of the rectangle currently occupied by the movie in a QTMovieView.
Notes: This rectangle does not include the area occupied by the movie controller bar (if it's visible).

4.25.21 movieBoundsLeft as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The left position of the rectangle currently occupied by the movie in a QTMovieView.
Notes: This rectangle does not include the area occupied by the movie controller bar (if it's visible).

4.25.22 movieBoundsTop as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The top position of the rectangle currently occupied by the movie in a QTMovieView.
Notes: This rectangle does not include the area occupied by the movie controller bar (if it's visible).

4.25.23 movieBoundsWidth as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The width of the rectangle currently occupied by the movie in a QTMovieView.
Notes: This rectangle does not include the area occupied by the movie controller bar (if it's visible).

4.25.24 movieControllerBounds as NSRectMBS

Plugin Version: 9.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The rectangle currently occupied by the movie controller bar (if it's visible) in a QTMovieView.

4.25.25 movieControllerBoundsHeight as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the height value of the rectangle currently occupied by the movie controller bar (if it's visible) in a QTMovieView.

4.25.26 movieControllerBoundsLeft as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the left value of the rectangle currently occupied by the movie controller bar (if it's visible) in a QTMovieView.

4.25.27 movieControllerBoundsTop as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the top value of the rectangle currently occupied by the movie controller bar (if it's visible) in a QTMovieView.

4.25.28 movieControllerBoundsWidth as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the width value of the rectangle currently occupied by the movie controller bar (if it's visible) in a QTMovieView.

4.25.29 paste

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method inserts the contents of the clipboard (if it contains a movie clip) into the movie at the current play position.
Notes: This action is undoable. If the movie is not editable, this method raises an exception.

4.25.30 pause

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method pauses the movie playback.
Notes: This method does nothing if the movie is already paused.

4.25.31 play

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method starts the movie playing at its current location.
Notes: This method does nothing if the movie is already playing.

4.25.32 QTMovieViewControllerVisibleBinding as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key in the dictionary with properties for the movie view.
Notes: A QTMovieView binding that determines whether or not the controls are visible. Value is a boolean.

4.25.33 QTMovieViewFillColorBinding as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key in the dictionary with properties for the movie view.
Notes: A QTMovieView binding that determines the fill color. Value is an NSColorMBS.

4.25.34 QTMovieViewMovieBinding as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key in the dictionary with properties for the movie view.
Notes: A QTMovieView binding that determines the receiver's movie. Value is a QTKitMovieMBS.

4.25.35 QTMovieViewPreservesAspectRatioBinding as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the key in the dictionary with properties for the movie view.
Notes: A QTMovieView binding that determines whether or not the receiver preserves the natural aspect ratio of the movie. Value is a boolean.

4.25.36 replace

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method replaces the current movie selection with the contents of the clipboard.
Notes: If there is no selection, the contents of the clipboard replace the entire movie. This action is undoable. If the movie is not editable, this method raises an exception.

4.25.37 selectAll

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method selects the entire movie.

4.25.38 selectNone

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method selects nothing. Note that it does not change the movie time.

4.25.39 setFilters(cifilters() as Variant)

Plugin Version: 13.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the array with filters to apply to each frame displayed in this view.
Notes:

The plugin will loop over the array and apply input image to each filter and query output image.
The last output image will be displayed.
By default we assign InputImage and query OutputImage.

You can also pass dictionaries in the array with the following keys:
filter: the CIFilterMBS object
input: The input key.
output: The output key.

4.25.40 setShowsResizeIndicator(value as boolean)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Shows or hides the movie controller grow box.

4.25.41 stepBackward

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method steps the movie backward one frame.

4.25.42 stepForward

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method steps the movie forward one frame.

4.25.43 trim

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This action method trims the movie to the current movie selection.
Notes: If there is no selection, the current frame is retained and the remainder of the movie is deleted. This action is undoable. If the movie is not editable, this method raises an exception.

4.25.44 Properties

4.25.45 BackButtonVisible as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the current visibility state of the specified controller bar button.
Notes:

Available in Mac OS X v10.5 and later.
(Read and Write computed property)

4.25.46 CustomButtonVisible as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The current visibility state of the specified controller bar button.
Notes:

Available in Mac OS X v10.5 and later.
(Read and Write computed property)

4.25.47 fillColor as NSColorMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the fill color of the QTMovieView.
Notes: (Read and Write computed property)

4.25.48 HotSpotButtonVisible as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The current visibility state of the specified controller bar button.
Notes:

Available in Mac OS X v10.5 and later.

(Read and Write computed property)

4.25.49 isControllerVisible as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true if true movie controller bar of the QTMovieView object is visible. The default is true.
Notes: (Read and Write computed property)

4.25.50 isEditable as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true if the QTMovieView object is editable.
Notes:

When editable, a movie can be modified using editing methods and associated key commands. The default is false.
(Read and Write computed property)

4.25.51 movie as QTKitMovieMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The QTKitMovieMBS object associated with the QTMovieView.
Notes: (Read and Write computed property)

4.25.52 preservesAspectRatio as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** True if the QTMovieView object maintains the aspect ratio of the movie when drawing it in the view.
Notes:

The remainder is filled with fillColor.
(Read and Write computed property)

4.25.53 StepButtonsVisible as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the current visibility state of the specified controller bar button.
Notes:

Available in Mac OS X v10.5 and later.
(Read and Write computed property)

4.25.54 TranslateButtonVisible as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The current visibility state of the specified controller bar button.
Notes:

Available in Mac OS X v10.5 and later.
(Read and Write computed property)

4.25.55 VolumeButtonVisible as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The current visibility state of the specified controller bar button.
Notes:

Available in Mac OS X v10.5 and later.
(Read and Write computed property)

4.25.56 ZoomButtonsVisible as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The current visibility state of the specified controller bar button.
Notes:

These methods allow applications to hide and show specific buttons in the movie controller bar.

Available in Mac OS X v10.5 and later.
(Read and Write computed property)

4.25.57 Events

4.25.58 didDisplayImage(inputImage as Variant, outputImage as Variant)

Plugin Version: 13.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** You can get here the images just used to display.
Notes:

inputImage: A CIImageMBS object that represents the frame that would normally be drawn.
outputImage: The CIImageMBS after passing through filters. Can be same as inputImage.

Mac OS X v10.5 and later.

4.25.59 menuForEventDelegate(e as NSEventMBS) as NSMenuMBS

Plugin Version: 11.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Returns an NSMenu object that is the contextual menu for the specified event.
Notes:

This event can be used instead of subclassing QTKitMovieViewMBS in cases where an application cannot hard-link against the QTKit framework.

Mac OS X v10.6; QuickTime 7.6.3 or later.

4.26 class QTKitSampleBufferMBS

4.26.1 class QTKitSampleBufferMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This class provides format information, timing information, and metadata on media sample buffers.
Notes:

QTSampleBuffer objects contain data from media samples as well as metadata about those samples, including format information, timing information, and other attributes.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

4.26.2 Methods

4.26.3 attributeForKey(key as string) as Variant

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a sample buffer attribute for the given key.
Notes:

key: The key of the returned attribute.

An object for the given attribute key, or nil if the sample buffer does not have the given attribute.

Mac OS X v10.5 and later.

4.26.4 bytesForAllSamples as MemoryBlock

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a pointer to the bytes of media data contained in the sample buffer.
Notes:

This method returns a pointer to the data for the media samples contained within the sample buffer. Clients reading bytes from this pointer should check the total length of the buffer using lengthForAllSamples. Applications can interpret the media data returned by this method using the infomation from the sample buffer's formatDescription. This method will throw an NSInternalInconsistencyException if called after decrementSampleUseCount has been used to invalidate the media data contained in the sample buffer.
Mac OS X v10.5 and later.

4.26.5 Constructor

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

4.26.6 decodeTime as QTKitTimeMBS

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the decode time of the buffer.
Notes:

A QTTime representing the decode time of the buffer. For B-frame video media, the decode time may be different from the presentationTime.
Mac OS X v10.5 and later.

4.26.7 decrementSampleUseCount

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Decrements the use count of the sample data owned by the receiver, allowing the sample data to be invalidated after a matching call to incrementSampleUseCount.
Notes:

This method allows clients to control when the potentially large memory buffers owned by the receiver are deallocated. A newly allocated QTSampleBuffer has a sample use count of 1. When the sample use count drops to 0, the memory allocated for the samples will be freed and the bytesForAllSamples, lengthForAllSamples, andaudioBufferListWithOptions methods will each throw an NSInternalInconsistencyException when called.

This method is analogous to the NSObject release method in that it allows clients to relinquish ownership over data contained within the sample buffer. In particular, clients that have called incrementSampleUseCount because they were interested in the sample data of QTSampleBuffer objects returned by other APIs in QTKit should call this method when they no longer need that data. It is particularly important that clients using garbage collection ensure that the sample use count is 0 when they no longer require the sample data owned by a QTSampleBuffer, so that memory can be deallocated promptly rather than when the object is finalized.

Mac OS X v10.5 and later.

4.26.8 duration as QTKitTimeMBS

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the duration of the buffer.
Notes:

Returns a QTTime representing the duration of the buffer.
Mac OS X v10.5 and later.

4.26.9 formatDescription as QTKitFormatDescriptionMBS

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the format description of the buffer.
Notes:

A QTFormatDescription object describing the media format of the buffer.

Mac OS X v10.5 and later.

4.26.10 incrementSampleUseCount

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Increments the use count of the sample data owned by the receiver, preventing the sample data from being invalidated until a matching call to decrementSampleUseCount.
Notes:

This method allows clients to control when the potentially large memory buffers owned by the receiver are deallocated. A newly allocated QTSampleBuffer has a sample use count of 1. When the sample use count drops to 0, the memory allocated for the samples will be freed and the bytesForAllSamples, lengthForAllSamples, and audioBufferListWithOptions methods will each throw an NSInternalInconsistencyException when called.

This method is analogous to the NSObject retain method in that it allows clients to declare ownership over data contained within the sample buffer. In particular, clients interested in the sample data of QTSampleBuffer objects returned by other APIs in QTKit should call this method to ensure that they have acceess to the sample data, and later call decrementSampleUseCount when they no longer need that data. It is particularly important that clients using garbage collection ensure that the sample use count is 0 when they no longer require the sample data owned by a QTSampleBuffer, so that memory can be deallocated promptly rather than when the object is finalized.

Mac OS X v10.5 and later.

4.26.11 lengthForAllSamples as Integer

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the length of the buffer returned by bytesForAllSamples.
Notes:

Clients reading bytes from the pointer returned by bytesForAllSamples should use this method to check the total length of the buffer. This method will throw an NSInternalInconsistencyException if called after decrementSampleUseCount has been used to invalidate the media data contained in the sample buffer.

Mac OS X v10.5 and later.

4.26.12 numberOfSamples as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the number of media samples contained in the buffer.
Notes: In general, video buffers will always contain one sample (a single frame), while audio buffers may contain multiple samples. Applications that need to interpret variable bit-rate audio can get the individual sample lengths with the getAudioStreamPacketDescriptionsInRange method.

4.26.13 presentationTime as QTKitTimeMBS

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the presentation time of the buffer.
Notes:

A QTTime representing the presentation time of the buffer. For B-frame video media, the presentation time may be different from the decodeTime.

Mac OS X v10.5 and later.

4.26.14 QTSampleBufferDateRecordedAttribute as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attributes dictionary.
Notes:

Returns the date on which the media in the buffer was originally recorded.
The value is an NSDate. This string value can be used in key paths for key-value coding, key-value observing, and bindings.
Available in Mac OS X v10.5 and later.

4.26.15 QTSampleBufferExplicitSceneChange as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attributes dictionary.
Notes:

Indicates that a scene change was explicitly marked in the sample buffer's metadata.
This constant is returned by QTSampleBufferSceneChangeTypeAttribute specifying what kind of scene change, if any, is marked by a sample buffer.
Available in Mac OS X v10.5 and later.

4.26.16 QTSampleBufferHostTimeAttribute as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attributes dictionary.
Notes:

Returns the buffer's host time, if the buffer is from a real time source.
The value returned by this attribute can be compared with the return value of CVGetCurrentHostTime() or AudioGetCurrentHostTime() to determine whether or not it is too late for the buffer to be processed in real time. Value is a number interpreted as a UInt64. This string value can be used in key paths for key-value coding, key-value observing, and bindings.
Available in Mac OS X v10.5 and later.

4.26.17 QTSampleBufferSceneChangeTypeAttribute as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attributes dictionary.
Notes:

If the buffer marks a scene change in the input content, returns a constant.
The returned constant specifies the type of scene change. This string value can be used in key paths for key-value coding, key-value observing, and bindings.
Available in Mac OS X v10.5 and later.

4.26.18 QTSampleBufferSMPTETimeAttribute as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attributes dictionary.
Notes:

Returns the SMPTE timecode of the sample buffer, if it has one.
The value is an NSValue interpreted as a SMPTETime (defined in CoreAudio/CoreAudioTypes.h). This

string value can be used in key paths for key-value coding, key-value observing, and bindings.
Available in Mac OS X v10.5 and later.

4.26.19 QTSampleBufferTimeStampDiscontinuitySceneChange as string

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the keys for the attributes dictionary.
Notes:

Indicates that the scene changed due to a discontinuity in time stamps between the current sample buffer and the previous sample buffer.
This constant is returned by QTSampleBufferSceneChangeTypeAttribute specifying what kind of scene chnage, if any, is marked by a sample buffer.
Available in Mac OS X v10.5 and later.

4.26.20 sampleBufferAttributes as dictionary

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a dictionary of the sample buffer's current attirbutes.
Notes:

Returns a dictionary of attributes attached to the sample buffer. Attribute keys are described in the Constants section that discusses the attributes.

Applications can use this method to determine what attributes a specific sample buffer supports.
Mac OS X v10.5 and later.

4.26.21 sampleUseCount as Integer

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the use count of the sample data owned by the receiver.
Notes:

This method returns the use count of the data owned by the reciever, as determined buy the number of invocations of incrementSampleUseCount and decrementSampleUseCount. If the value retunred by this method is 0, then the data owned by the reciever has been invalidated and the bytesForAllSamples, lengthForAllSamples, and audioBufferListWithOptions methods wil throw an NSInternalInconsistencyException. Clients should rarely need to call this method. It is generally only useful for debugging purposes.

Mac OS X v10.5 and later.

4.26.22 Properties

4.26.23 Handle as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference used for the QTSampleBuffer object.
Notes: (Read and Write property)

4.26.24 Constants

4.26.25 QTSampleBufferAudioBufferListOptionAssure16ByteAlignment = 1

Plugin Version: 11.0. **Function:** A flag for the audioBufferListWithOptions method.

4.27 class QTKitTimeMBS

4.27.1 class QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The class to represent a time value in QTKit.
Example:

```
// find a file on disk
dim f as FolderItem = SpecialFolder.Desktop.Child("test.mp4")

// load it
dim e as NSErrorMBS
dim m as QTKitMovieMBS = QTKitMovieMBS.LoadMovieFromFile(f, e)

// show duration
MsgBox m.duration.String

// get picture at 10s
dim t as QTKitTimeMBS = QTKitTimeMBS.Time(10 * 600, 600)
Backdrop = m.frameImageAtTime(t).CopyPicture
// if image is black, we asked too early and file is not yet loaded.
```

Notes: This can be a duration (of a movie) or a time offset (relative to the movie start).

4.27.2 Methods

4.27.3 Compare(other as QTKitTimeMBS) as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Compares two time values.
Notes: Returns 0 if equal, -1 if self is smaller, 1 if other is smaller and -2 if the function is not available.

4.27.4 Constructor(s as string)

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new time object from a string representation.
See also:

- 4.27.5 Constructor(time as QTKitTimeMBS, timeScale as Integer) 313
- 4.27.6 Constructor(timeValue as Int64, timeScale as Integer) 313

4.27.5 Constructor(time as QTKitTimeMBS, timeScale as Integer)

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a QTKitTimeMBS OBJECT whose time is set to the time of a QTTime object interpreted using the time scale scale.
See also:

- 4.27.4 Constructor(s as string) 312
- 4.27.6 Constructor(timeValue as Int64, timeScale as Integer) 313

4.27.6 Constructor(timeValue as Int64, timeScale as Integer)

Plugin Version: 10.3, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new time object based on the given values.
See also:

- 4.27.4 Constructor(s as string) 312
- 4.27.5 Constructor(time as QTKitTimeMBS, timeScale as Integer) 313

4.27.7 Decrement(decrement as QTKitTimeMBS) as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Substracts the given time and returns a new time object with the result.

4.27.8 Increment(increment as QTKitTimeMBS) as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds the given time and returns a new time object with the result.

4.27.9 IndefiniteTime as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new Time object for an indefinite time value.
Notes: Returns nil on any error.

4.27.10 IsIndefinite as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether this number is an indefinite number.

4.27.11 Seconds as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns this time as seconds.
Notes: The result is basicly timevalue/timescale.

4.27.12 String as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a human readable version of the time object.
Example:

```
dim f as FolderItem=SpecialFolder.Desktop.Child("test.mov")
dim q as new QTKitMovieMBS(f)

MsgBox q.duration.String
```

Notes:

Format is like this: "0:00:02:37.26575/44100"

days:hours:minutres:seconds:frames/framespersecond

Frames is not the video frame, but the time unit used by QuickTime.

4.27.13 Time(s as string) as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new time object from a string representation.
Notes: Returns nil on any error.
See also:

- 4.27.14 Time(time as QTKitTimeMBS, timeScale as Integer) as QTKitTimeMBS 314
- 4.27.15 Time(timeValue as Int64, timeScale as Integer) as QTKitTimeMBS 315

4.27.14 Time(time as QTKitTimeMBS, timeScale as Integer) as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This function returns a QTTime object whose time is set to the time of a QTTime object interpreted using the time scale scale.
Example:

```
// find a file on disk
dim f as FolderItem = SpecialFolder.Desktop.Child("test.mp4")

// load it
dim e as NSErrorMBS
dim m as QTKitMovieMBS = QTKitMovieMBS.LoadMovieFromFile(f, e)

// show duration
MsgBox m.duration.String

// get picture at 10s
dim t as QTKitTimeMBS = QTKitTimeMBS.Time(10 * 600, 600)
Backdrop = m.frameImageAtTime(t).CopyPicture
// if image is black, we asked too early and file is not yet loaded.
```

Notes: Returns nil on any error.
See also:

- 4.27.13 Time(s as string) as QTKitTimeMBS 314
- 4.27.15 Time(timeValue as Int64, timeScale as Integer) as QTKitTimeMBS 315

4.27.15 Time(timeValue as Int64, timeScale as Integer) as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new time object based on the given values.
Notes: Returns nil on any error.
See also:

- 4.27.13 Time(s as string) as QTKitTimeMBS 314
- 4.27.14 Time(time as QTKitTimeMBS, timeScale as Integer) as QTKitTimeMBS 314

4.27.16 TimeInRange(range as QTKitTimeRangeMBS) as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true if the specified time time lies in the time range range.

4.27.17 TimeWithSeconds(timeValue as Double) as QTKitTimeMBS

Plugin Version: 15.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** This function returns a QTTime object whose time is set to the time.
Notes:

Returns nil on any error.
timeValue is in seconds.

4.27.18 ZeroTime as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the zero time value.
Notes: Returns nil on any error.

4.27.19 Properties

4.27.20 Flags as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The flags for this time.
Notes:

Currently only the kQTTimeIsIndefinite flag is used.
(Read and Write property)

4.27.21 TimeScale as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The time scale for this time value.
Notes:

In QuickTime a second is divided into time units called frames. The timescale is the number of frames per second in a movie. All items are positioned using this frames, so the higher the time scale is, the higher the time resolution is.
(Read and Write property)

4.27.22 TimeValue as Int64

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The time value.
Notes: (Read and Write property)

4.27.23 Constants

4.27.24 kQTTimeIsIndefinite=1

Plugin Version: 8.4. **Function:** One of the constants for the flags property.

4.28 class QTKitTimeRangeMBS

4.28.1 class QTKitTimeRangeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The class in QTKit to represent a time range.

4.28.2 Methods

4.28.3 EndTime as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The end time of this time range.
Notes: This value is calculated for you.

4.28.4 Equal(timerange as QTKitTimeRangeMBS) as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns true if two time ranges are equal.

4.28.5 Intersection(other as QTKitTimeRangeMBS) as QTKitTimeRangeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Calculates the intersection of two time ranges and returns that in a new timerange object.

4.28.6 String as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the string representation of the time range.
Example:

```
dim f as FolderItem=SpecialFolder.Desktop.Child("test.mov")
dim q as new QTKitMovieMBS(f)
dim r as new QTKitTimeRangeMBS

r=QTKitTimeRangeMBS.TimeRange(QTKitTimeMBS.ZeroTime, q.duration)

dim c as new Clipboard
c.SetText r.string // shows "0:00:00:00.00/1000000
```

textasciitilde 0:00:02:37.602608/1000000”

4.28.7 TimeRange(time as QTKitTimeMBS, duration as QTKitTimeMBS) as QTKitTimeRangeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a new time range based on a time and a duration value.
Example:

```
dim f as FolderItem=SpecialFolder.Desktop.Child(”test.mov”)
dim q as new QTKitMovieMBS(f)
dim r as new QTKitTimeRangeMBS

r=QTKitTimeRangeMBS.TimeRange(QTKitTimeMBS.ZeroTime, q.duration)

dim c as new Clipboard
c.SetText r.string // ”0:00:00:00.00/1000000
textasciitilde 0:00:02:37.602608/1000000”
```

Notes: Returns nil on any error.

4.28.8 TimeRangeFromString(s as string) as QTKitTimeRangeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Creates a timerange object based on a time range string representation.
Notes: Returns nil on any error.

4.28.9 Union(other as QTKitTimeRangeMBS) as QTKitTimeRangeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Calculates the union of two time ranges and returns that in a new timerange object.

4.28.10 Properties

4.28.11 Duration as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The duration time value.
Notes: (Read and Write property)

4.28.12 Time as QTKitTimeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The start time of this time range.
Notes: (Read and Write property)

4.29 class QTKitTrackMBS

4.29.1 class QTKitTrackMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The QTKitTrackMBS class represents a QuickTime track (of type Track).
Example:

```
dim f as FolderItem=SpecialFolder.Desktop.Child("test.mov")
dim q as new QTKitMovieMBS(f)

dim tracks() as QTKitTrackMBS = q.tracks
for each t as QTKitTrackMBS in tracks
MsgBox str(t.mediaType)
next
```

Notes:

QTKitTrackMBS objects are associated with QTKitMovieMBS objects and support methods for getting and setting the track properties. If necessary, you can retrieve the track identifier associated with a QTKitTrackMBS object by calling its TrackHandle method. Note that a movie can have multiple tracks. A track has a single media.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

4.29.2 Methods

4.29.3 addImage(image as NSImageMBS, duration as QTKitTimeMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds an image for the specified duration to the track.
See also:

- 4.29.4 addImage(image as NSImageMBS, duration as QTKitTimeMBS, codec as string, codecQuality as Integer) 321

4.29.4 addImage(image as NSImageMBS, duration as QTKitTimeMBS, codec as string, codecQuality as Integer)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds an image for the specified duration to the track.
Notes: You can specify a codec (See QT Component List example) and quality from 0 to 1024.
See also:

• 4.29.3 addImage(image as NSImageMBS, duration as QTKitTimeMBS) 321

4.29.5 apertureModeDimensionsForMode(mode as string, byref width as Double, byref height as Double) as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an NSSize value that indicates the dimensions of the target track for the specified movie aperture mode.
Notes:

For instance, passing a mode of QTMovieApertureModeClean would cause apertureModeDimensionsForMode to return the track dimensions to use in clean aperture mode.
Available in Mac OS X v10.3 and later.

4.29.6 availableMetadataFormats as string()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array containing strings representing the metadata formats available to the receiver.
Example:

```
dim file as FolderItem = SpecialFolder.Desktop.Child("test.mov")
dim m as new QTKitMovieMBS(file)
dim tracks() as QTKitTrackMBS = m.tracks
dim t as QTKitTrackMBS = tracks(0)
MsgBox join(t.availableMetadataFormats,", ")
```

Notes: Available on Mac OS X 10.7.

4.29.7 BoundsHeight as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The height of the bounding rectangle of this track.
Example:

```
dim f as FolderItem

f=SpecialFolder.Desktop.Child("test.mov")

dim t as QTKitTrackMBS

// Load movie
dim m as new QTKitMovieMBS(f)
```

```
// get tracks
dim tracks() as QTKitTrackMBS = m.tracks

// find first track
t = tracks(0)

// show media type
MsgBox t.mediaType

// show bounds
MsgBox "Width: "+str(t.BoundsWidth)+EndOfLine+"Height: "+str(t.BoundsHeight)

Exception n as NSExceptionMBS
MsgBox n.message
```

4.29.8 BoundsLeft as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The left position of the bounding rectangle of this track.

4.29.9 BoundsTop as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The top position of the bounding rectangle of this track.

4.29.10 BoundsWidth as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The width of the bounding rectangle of this track.
Example:

```
dim f as FolderItem

f=SpecialFolder.Desktop.Child("test")

dim t as QTKitTrackMBS
dim m as new QTKitMovieMBS(f)

dim tracks() as QTKitTrackMBS = m.tracks
t=tracks(0)
```

```
MsgBox t.mediaType // shows "vide"
MsgBox "Width: "+str(t.BoundsWidth)+EndOfLine+"Height: "+str(t.BoundsHeight)
// shows "Width: 320"+endofline+"Height: 200"

Exception n as NSExceptionMBS
MsgBox n.message
```

4.29.11 commonMetadata as QTKitMetadataItemMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array containing QTMetadataItem objects for each common metadata key for which a value for the current locale is available.
Notes:

An array containing QTMetadataItem objects for each common metadata key for which a value for the current locale is available; may be nil if there is no metadata that's appropriately localized.

The returned metadata may be tagged with default locale information or with no locale information, if that's the best available choice.

Available on Mac OS X 10.7.

4.29.12 Constructor

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The private constructor.

4.29.13 deleteSegment(range as QTKitTimeRangeMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Deletes from a QTKitTrackMBS the segment delimited by segment.
Notes: If the track is not editable, this method raises an exception.

4.29.14 DimensionsHeight as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The height of a QTKitTrackMBS object.

4.29.15 DimensionsWidth as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The width of a QTKitTrackMBS object.

4.29.16 FormatSummary as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A string that is a localized, human-readable string that summarizes a track's format.
Notes:

for example, "16-bit Integer (Big Endian), Stereo (L R), 48.000 kHz". This attribute is gettable but not settable.
Mac OS X v10.5 and later.

4.29.17 generateApertureModeDimensions

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Adds information to a QTKitTrackMBS needed to support aperture modes for tracks created with applications and/or versions of QuickTime that did not support aperture mode dimensions.
Notes: If the image descriptions in the track lack tags describing clean aperture and pixel aspect ratio information, the media data is scanned to see if the correct values can be divined and attached. Then the aperture mode dimensions are calculated and set. Afterwards, the HasApertureModeDimensions property will be set to True for this track. Tracks that do not support aperture modes are not changed.

4.29.18 insertEmptySegmentAt(range as QTKitTimeRangeMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Inserts into a QTKitTrackMBS an empty segment delimited by the range range.
Notes: If the track is not editable, this method raises an exception.

4.29.19 insertSegmentOfTrack(Track as QTKitTrackMBS, fromRange as QTKitTimeRangeMBS, scaledToRange as QTKitTimeRangeMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Inserts the specified segment from the track into the receiver, scaled to the range dstRange.
Notes: This is essentially an Add Scaled operation on a track. If the track is not editable, this method raises an exception.
See also:

- 4.29.20 insertSegmentOfTrack(Track as QTKitTrackMBS, timeRange as QTKitTimeRangeMBS, atTime as QTKitTimeMBS) 326

4.29.20 insertSegmentOfTrack(Track as QTKitTrackMBS, timeRange as QTKitTimeRangeMBS, atTime as QTKitTimeMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Inserts into a QTKitTrackMBS at time time the selection in movie delimited by the time range range.
Notes: If the track is not editable, this method raises an exception.
See also:

- 4.29.19 insertSegmentOfTrack(Track as QTKitTrackMBS, fromRange as QTKitTimeRangeMBS, scaledToRange as QTKitTimeRangeMBS) 325

4.29.21 media as QTKitMediaMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the media associated with a QTKitTrackMBS object.

4.29.22 metadataForFormat(format as string) as QTKitMetadataItemMBS()

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns an array of QTMetadataItem objects having a specified format.
Notes:

format: The metadata format for which items are requested.

Returns an array containing all QTMetadataItem objects of the receiver that have the specified format; may be nil if there is no metadata of the specified format.

Available on Mac OS X 10.7.

4.29.23 movie as QTKitMovieMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the movie that contains a QTKitTrackMBS object.

4.29.24 removeApertureModeDimensions

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Removes aperture mode dimension information from the target track.
Notes: It does not attempt to modify sample descriptions, so it may not completely reverse the effects of generateApertureModeDimensions. It sets the HasApertureModeDimensions property to false.

4.29.25 scaleSegment(range as QTKitTimeRangeMBS, time as QTKitTimeMBS)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Scales the QTKitTrackMBS segment delimited by the segment segment so that it will have the new duration newDuration.
Notes: If the track is not editable, this method raises an exception.

4.29.26 setApertureModeDimensions(width as Double, height as Double, mode as string)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the dimensions of the target track for the specified movie aperture mode.
Notes: Available in Mac OS X v10.3 and later.

4.29.27 SetBounds(x as Double, y as Double, width as Double, height as Double)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the bounding rectangle of the track.

4.29.28 SetDimensions(width as Double, height as Double)

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Sets the dimension of the track.

4.29.29 TrackHandle as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns the QuickTime track handle associated with a QTKitTrackMBS object.
Example:

```
dim movie as QTKitMovieMBS // your movie
dim soundtracks() as QTKitTrackMBS = movie.tracksOfMediaType("soun")
dim q as QTKitTrackMBS = soundtracks(0)
dim handle as Integer = q.TrackHandle

dim track as new QTTrackMBS
track.TrackHandle = handle

MsgBox str(track.Duration)+" time units."
```

Deprecated: This item is deprecated and should no longer be used. You can use AVFoundation Plugin instead.

4.29.30 trackWithQuickTimeTrack(TrackHandle as Integer, byref error as NSErrorMBS) as QTKitTrackMBS

Plugin Version: 11.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a QTKitTrackMBS object associated with a QuickTime Track.
Notes:

TrackHandle: A QuickTime Track handle with which to initialize the QTKitTrackMBS object.
error: An NSError object; if a QTKitTrackMBS object cannot be created, an NSError object is returned in this location.

This method cannot be called when the movie containing this track has been initialized with QTMovieOpenForPlaybackAttribute set to true. In addition, this method cannot be called by 64-bit applications.

Available in Mac OS X v10.3 and later.
Not available to 64-bit applications.

Make sure the track stays alive long enough.

4.29.31 Properties

4.29.32 Handle as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal reference used for the QTKitTrackMBS object.
Notes: (Read and Write property)

4.29.33 AudioChannelLayout as Variant

Plugin Version: 13.2, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Get or set the audio channel layout.
Deprecated: This item is deprecated and should no longer be used. You can use AVFoundation Plugin instead. **Notes:**

Value is a QTAudioChannelLayoutMBS.
This function is not supported for 64 bit currently.
(Read and Write computed property)

4.29.34 CreationTime as date

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The creation time of a QTKitTrackMBS object.
Notes: (Read and Write computed property)

4.29.35 DisplayName as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The display name of a QTKitTrackMBS object.
Notes: (Read and Write computed property)

4.29.36 Enabled as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** True if the QTKitTrackMBS object is currently enabled, false otherwise.
Notes: (Read and Write computed property)

4.29.37 HasApertureModeDimensions as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether an aperture mode dimension has been set.
Notes:

The value to determine whether aperture mode dimensions have been set on a track, even if they are all identical to the classic dimensions (as is the case for content with square pixels and no edge-processing region).
(Read and Write computed property)

4.29.38 ID as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The track ID of a QTKitTrackMBS object.
Notes: (Read and Write computed property)

4.29.39 IsChapterTrack as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether this track is a chapter track or not.
Notes: (Read and Write computed property)

4.29.40 Layer as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The track layer of a QTKitTrackMBS object.
Notes: (Read and Write computed property)

4.29.41 MediaType as string

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The media type of a QTKitTrackMBS object.
Example:

```
dim f as FolderItem

f=SpecialFolder.Desktop.Child("test.mov")

dim t as QTKitTrackMBS

// Load movie
dim m as new QTKitMovieMBS(f)

// get tracks
dim tracks() as QTKitTrackMBS = m.tracks

// find first track
t = tracks(0)

// show media type
MsgBox t.mediaType
```

```
// show bounds
MsgBox "Width: "+str(t.BoundsWidth)+EndOfLine+"Height: "+str(t.BoundsHeight)

Exception n as NSExceptionMBS
MsgBox n.message
```

Notes: (Read and Write computed property)

4.29.42 ModificationTime as date

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The modification time of a QTKitTrackMBS object.
Notes: (Read and Write computed property)

4.29.43 Range as QTKitTimeRangeMBS

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The range of time this track occupies.
Notes: (Read and Write computed property)

4.29.44 TimeScale as Integer

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The time scale of this track.
Notes:

For example 600 time units per second.
(Read and Write computed property)

4.29.45 trackAttributes as dictionary

Plugin Version: 11.0, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Returns a dictionary containing the current values of public attributes of a QTKitTrackMBS object.
Notes:

This method can be called when the movie containing this track has been initialized with QTMovieOpenForPlaybackAttribute set to true.
(Read and Write computed property)

4.29.46 UsageInMovie as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether is track is used for the movie.
Notes: (Read and Write computed property)

4.29.47 UsageInPoster as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether is track is used for poster.
Notes: (Read and Write computed property)

4.29.48 UsageInPreview as boolean

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Whether is track is used for preview.
Notes: (Read and Write computed property)

4.29.49 volume as Double

Plugin Version: 8.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The volume of a QTKitTrackMBS.
Notes:

The valid range is 0.0 to 1.0.
(Read and Write computed property)

4.30 class QTMovieModernizerMBS

4.30.1 class QTMovieModernizerMBS

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The QTMovieModernizer class is used to manage the "modernization" of legacy media.
Notes:

QTMovieModernizer objects convert legacy media resources (defined as any media that is not supported by the AVFoundation framework) into a format that AVFoundation classes can understand. This class exposes four methods, which can be used to determine whether a media resource needs to be modernized, to set up and configure a modernization object, and to perform or cancel the modernization operation.

Available in OS X v10.9 and later.

4.30.2 Methods

4.30.3 available as boolean

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Checks whether class is available.
Notes: Returns true on Mac OS X 10.9 and newer.

4.30.4 cancel

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Cancels a modernization operation.
Notes:

This method cancels an ongoing modernization operation previously initiated by modernize. Any files being created will be deleted.
The modernizeCompleted event will be called unless the modernization operation has already completed.

4.30.5 Constructor(source as folderitem, destination as folderitem)

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initializes an instance of QTMovieModernizer with the source and destination media files.
Notes:

source: A folderitem that specifies a media resource.
destination: A folderitem that specifies the destination for the modernized result.

This method only initializes the object. Modernization is accomplished using the modernize method.
Available in OS X v10.9 and later.

4.30.6 modernize(tag as Variant = nil)

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** Initiates a modernization operation to write a QuickTime movie file to a modern media format.
Notes:

This method runs the modernization operation asynchronously.
The modernizeCompleted event is called later when operation finished.

4.30.7 QTMovieModernizerOutputFormat_AppleProRes422 as string

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants to specify the output formats supported by the movie modernizer.
Notes:

QTMovieModernizer will use ProRes422 compression for video and uncompressed for audio.
Available in OS X v10.9 and later.

4.30.8 QTMovieModernizerOutputFormat_AppleProRes4444 as string

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants to specify the output formats supported by the movie modernizer.
Notes:

QTMovieModernizer will use ProRes4444 compression for video and uncompressed for audio.
Available in OS X v10.9 and later.

4.30.9 QTMovieModernizerOutputFormat_H264 as string

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** One of the constants to specify the output formats supported by the movie modernizer.
Notes:

QTMovieModernizer will use H.264 compression for video and AAC for audio.
Available in OS X v10.9 and later.

4.30.10 requiresModernization(source as folderitem, byref error as NSErrorMBS) as Boolean

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A Boolean value that specifies if the file is supported by the AVFoundation framework.
Notes:

source: The URL of the source file.
Error: A pointer to an NSError that will contain an error if modernization is attempted.

Returns true if the file requires modernization; otherwise false. In some cases true may be returned even though the file may not be able to be modernized; in those cases, outError will contain a description of the error that would occur if modernization was attempted.

Currently supported track types are:

- kCMMediaType_Video ('vide')
- kCMMediaType_Audio ('soun')
- kCMMediaType_Text ('text')
- kCMMediaType_ClosedCaption ('clcp')
- kCMMediaType_Subtitle ('sbtl')
- kCMMediaType_TimeCode ('tmcd')
- kCMMediaType_Metadata ('meta')

If source contains any track that is not of these types, a modernization operation will drop them.

Any tracks that are supported by the AVFoundation framework are passed through and not transcoded. Tracks of types other than video or audio are also passed through.

If any other changes are needed, running the modernizer will write out a new movie file.
This method executes synchronously; you may want to run it on a background thread.
Available in OS X v10.9 and later.

4.30.11 Properties

4.30.12 destinationURL as String

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The destination URL provided during initialization.

Notes: (Read only property)

4.30.13 error as NSErrorMBS

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The error, if any, encountered during modernization.
Notes: (Read only property)

4.30.14 Handle as Integer

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The internal object reference.
Notes: (Read and Write property)

4.30.15 outputFormat as String

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A string that indicates the audio and video compression settings to be used when modernizing a movie.
Notes:

This property controls the video or audio settings to be used by a QTMovieModernizer object if it needs to recompress either the video or audio in the movie.

If this property is nil, then QTMovieModernizer chooses an appropriate output format for the source.

Setting this property is optional.
(Read and Write property)

4.30.16 sourceURL as String

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** The source URL provided during initialization.
Notes: (Read only property)

4.30.17 status as Integer

Plugin Version: 14.4, Console & Web: Yes, Mac: Yes, Win: No, Linux: No. **Function:** A value that indicates the current status of a modernizing operation.
Notes: (Read and Write property)

4.30.18 Events

4.30.19 modernizeCompleted(tag as Variant)

Plugin Version: 14.4, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** The modernize method finished.

4.30.20 Constants

4.30.21 QTMovieModernizerStatusCancelled = 3

Plugin Version: 14.4. **Function:** One of the status of the modernization that is in progress.
Notes:

The modernizing operation was cancelled.
Available in OS X v10.9 and later.

4.30.22 QTMovieModernizerStatusCompletedWithSuccess = 5

Plugin Version: 14.4. **Function:** One of the status of the modernization that is in progress.
Notes:

The modernizing operation completed successfully.
Available in OS X v10.9 and later.

4.30.23 QTMovieModernizerStatusFailed = 4

Plugin Version: 14.4. **Function:** One of the status of the modernization that is in progress.
Notes:

The modernizing operation failed.
Available in OS X v10.9 and later.

4.30.24 QTMovieModernizerStatusNotRequired = 6

Plugin Version: 14.4. **Function:** One of the status of the modernization that is in progress.
Notes:

The media resource indicated by the sourceURL does not require modernization.
Available in OS X v10.9 and later.

4.30.25 QTMovieModernizerStatusPreparing = 1

Plugin Version: 14.4. **Function:** One of the status of the modernization that is in progress.
Notes:

The modernizing operation is preparing to run.
Available in OS X v10.9 and later.

4.30.26 QTMovieModernizerStatusRunning = 2

Plugin Version: 14.4. **Function:** One of the status of the modernization that is in progress.
Notes:

The modernizing operation is running.
Available in OS X v10.9 and later.

4.30.27 QTMovieModernizerStatusUnknown = 0

Plugin Version: 14.4. **Function:** One of the status of the modernization that is in progress.
Notes:

The status of the modernizing operation is unknown.
Available in OS X v10.9 and later.

Chapter 5

QuickTime

5.1 class Movieplayer

5.1.1 class Movieplayer

Console & Web: No, Mac: Yes, Win: Yes, Linux: No. **Function:** Extends the Movieplayer class inside Realbasic.
Notes: Some calls need QuickTime 2.5 and some 3.0. Ask if you need details and I can add the version requirement to each call.

5.1.2 Methods

5.1.3 QTKitMovieViewMBS as QTKitMovieViewMBS

Plugin Version: 13.2, Console & Web: No, Mac: Yes, Win: No, Linux: No. **Function:** Queries the Movieview for a given MoviePlayer.
Notes:

Returns nil on any error.
Works only in Cocoa targets.
Does no longer work in Xojo 2014.

Chapter 6

List of Questions in the FAQ

- 7.0.1 Can anyone help me convert seconds to time in this format hh:mm:ss? 351
- 7.0.2 How do I get the proper highlight color on Mac OS X for active/inactive selection? 352
- 7.0.3 How to catch delete key? 353
- 7.0.4 How to convert cmyk to rgb? 353
- 7.0.5 How to delete a folder? 355
- 7.0.6 How to detect if CPU if 64bit processor? 356
- 7.0.7 How to refresh a htmlviewer on Windows? 356
- 7.0.8 Is there an example for vector graphics in REALbasic? 357
- 7.0.9 Picture functions do not preserve resolution values? 357
- 7.0.10 A toolbox call needs a rect - how do I give it one? 358
- 7.0.11 API client not supported? 358
- 7.0.12 Can I access Access Database with Java classes? 359
- 7.0.13 Can I create PDF from Real Studio Report using DynaPDF? 360
- 7.0.14 Can I use AppleScripts in a web application? 360
- 7.0.15 Can I use graphics class with DynaPDF? 361
- 7.0.16 Can I use OGG with REALbasic? 361
- 7.0.17 Can I use sockets on a web application? 361
- 7.0.18 Can I use your ChartDirector plugin on a web application? 361
- 7.0.19 Can I use your DynaPDF plugin on a web application? 363

- 7.0.20 Can I use your plugin controls on a web application? 363
- 7.0.21 Can you get an unique machine ID? 363
- 7.0.22 ChartDirector: Alignment Specification 364
- 7.0.23 ChartDirector: Color Specification 364
- 7.0.24 ChartDirector: Font Specification 368
- 7.0.25 ChartDirector: Mark Up Language 371
- 7.0.26 ChartDirector: Parameter Substitution and Formatting 375
- 7.0.27 ChartDirector: Shape Specification 380
- 7.0.28 Copy styled text? 381
- 7.0.29 Do you have code to validate a credit card number? 381
- 7.0.30 Do you have plugins for X-Rite EyeOne, eXact or i1Pro? 382
- 7.0.31 Does SQL Plugin handle stored procedures with multiple result sets? 382
- 7.0.32 Does the plugin home home? 383
- 7.0.33 folderitem.absolutepath is limited to 255 chars. How can I get longer ones? 383
- 7.0.34 Future of editablemovie class? 384
- 7.0.35 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? 384
- 7.0.36 How about Plugin support for older OS X? 385
- 7.0.37 How can I detect whether an Intel CPU is a 64bit CPU? 386
- 7.0.38 How can I disable the close box of a window on Windows? 387
- 7.0.39 How can I get all the environment variables from Windows? 387
- 7.0.40 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? 388
- 7.0.41 How can I get text from a PDF? 388
- 7.0.42 How can I get text from a Word Document? 388
- 7.0.43 How can I get the item string for a given file creator? 389
- 7.0.44 How can I launch an app using it's creator code? 390
- 7.0.45 How can I learn what shared libraries are required by a plugin on Linux? 390
- 7.0.46 How can I validate an email address? 391
- 7.0.47 How do I check if the QuickTime component for the JPEG exporting is available? 392

- 7.0.48 How do I check if the QuickTime component for the JPEG importing is available? 393
- 7.0.49 How do I check if the QuickTime component for the Sequence grabber is available? 394
- 7.0.50 How do I decode correctly an email subject? 394
- 7.0.51 How do I enable/disable a single tab in a tabpanel? 395
- 7.0.52 How do I find the root volume for a file? 396
- 7.0.53 How do I get the current languages list? 396
- 7.0.54 How do I get the Mac OS Version? 397
- 7.0.55 How do I get the printer name? 398
- 7.0.56 How do I make a metal window if RB does not allow me this? 398
- 7.0.57 How do I make a smooth color transition? 399
- 7.0.58 How do I read the applications in the dock app? 400
- 7.0.59 How do I truncate a file? 401
- 7.0.60 How do update a Finder's windows after changing some files? 401
- 7.0.61 How to access a USB device directly? 401
- 7.0.62 How to add icon to file on Mac? 402
- 7.0.63 How to ask the Mac for the Name of the Machine? 402
- 7.0.64 How to automatically enable retina in my apps? 403
- 7.0.65 How to avoid leaks with Cocoa functions? 403
- 7.0.66 How to avoid trouble connecting to oracle database with SQL Plugin? 404
- 7.0.67 How to avoid __NSAutoreleaseNoPool console messages in threads? 404
- 7.0.68 How to bring app to front? 405
- 7.0.69 How to bring my application to front? 405
- 7.0.70 How to catch Control-C on Mac or Linux in a console app? 405
- 7.0.71 How to change name of application menu? 406
- 7.0.72 How to change the name in the menubar of my app on Mac OS X? 406
- 7.0.73 How to check if a folder/directory has subfolders? 407
- 7.0.74 How to check if Macbook runs on battery or AC power? 408
- 7.0.75 How to check if Microsoft Outlook is installed? 408
- 7.0.76 How to check on Mac OS which country or language is currently selected? 409

- 7.0.77 How to code sign my app with plugins? 410
- 7.0.78 How to collapse a window? 410
- 7.0.79 How to compare two pictures? 411
- 7.0.80 How to compile PHP library? 412
- 7.0.81 How to convert a BrowserType to a String with WebSession.Browser? 414
- 7.0.82 How to convert a EngineType to a String with WebSession.Engine? 414
- 7.0.83 How to convert a PlatformType to a String with WebSession.Platform? 415
- 7.0.84 How to convert a text to iso-8859-1 using the TextEncoder? 416
- 7.0.85 How to convert ChartTime back to Xojo date? 416
- 7.0.86 How to convert line endings in text files? 417
- 7.0.87 How to convert picture to string and back? 417
- 7.0.88 How to copy an array? 418
- 7.0.89 How to copy an dictionary? 419
- 7.0.90 How to copy parts of a movie to another one? 419
- 7.0.91 How to create a birthday like calendar event? 420
- 7.0.92 How to create a GUID? 421
- 7.0.93 How to create a Mac picture clip file? 421
- 7.0.94 How to create a PDF file in REALbasic? 422
- 7.0.95 How to create EmailAttachment for PDF Data in memory? 422
- 7.0.96 How to create PDF for image files? 423
- 7.0.97 How to CURL Options translate to Plugin Calls? 424
- 7.0.98 How to delete file with ftp and curl plugin? 425
- 7.0.99 How to detect display resolution changed? 425
- 7.0.100 How to detect retina? 425
- 7.0.101 How to disable force quit? 425
- 7.0.102 How to disable the error dialogs from Internet Explorer on javascript errors? 426
- 7.0.103 How to display a PDF file in REALbasic? 426
- 7.0.104 How to do a lottery in RB? 426
- 7.0.105 How to do an asycron DNS lookup? 427

- 7.0.106 How to draw a dushed pattern line? 428
- 7.0.107 How to draw a nice antialiased line? 429
- 7.0.108 How to draw with CGContextMBS using my own handle? 430
- 7.0.109 How to dump java class interface? 430
- 7.0.110 How to duplicate a picture with mask or alpha channel? 431
- 7.0.111 How to enable assistive devices? 432
- 7.0.112 How to encrypt a file with Blowfish? 432
- 7.0.113 How to extract text from HTML? 433
- 7.0.114 How to find empty folders in a folder? 433
- 7.0.115 How to find iTunes on a Mac OS X machine fast? 434
- 7.0.116 How to find network interface for a socket by it's name? 434
- 7.0.117 How to find version of Microsoft Word? 435
- 7.0.118 How to fix CURL error 60/53 on connecting to server? 436
- 7.0.119 How to format double with n digits? 436
- 7.0.120 How to get a time converted to user time zone in a web app? 437
- 7.0.121 How to get an handle to the frontmost window on Windows? 437
- 7.0.122 How to get CFAbsoluteTime from date? 438
- 7.0.123 How to get client IP address on web app? 438
- 7.0.124 How to get fonts to load in charts on Linux? 439
- 7.0.125 How to get fonts to load in DynaPDF on Linux? 439
- 7.0.126 How to get GMT time and back? 440
- 7.0.127 How to get good crash reports? 440
- 7.0.128 How to get list of all threads? 440
- 7.0.129 How to get parameters from webpage URL in Real Studio Web Edition? 441
- 7.0.130 How to get Real Studio apps running Linux? 441
- 7.0.131 How to get the color for disabled textcolor? 442
- 7.0.132 How to get the current free stack space? 442
- 7.0.133 How to get the current timezone? 443
- 7.0.134 How to get the current window title? 444

- 7.0.135 How to get the cursor blink interval time? 445
- 7.0.136 How to get the list of the current selected files in the Finder? 446
- 7.0.137 How to get the Mac OS system version? 447
- 7.0.138 How to get the Mac OS Version using System.Gestalt? 447
- 7.0.139 How to get the screensize excluding the task bar? 448
- 7.0.140 How to get the size of the frontmost window on Windows? 448
- 7.0.141 How to get the source code of a HTMLViewer? 449
- 7.0.142 How to handle really huge images with GraphicsMagick or ImageMagick? 449
- 7.0.143 How to handle tab key for editable cells in listbox? 449
- 7.0.144 How to hard link MapKit framework? 451
- 7.0.145 How to have a PDF downloaded to the user in a web application? 451
- 7.0.146 How to hide all applications except mine? 452
- 7.0.147 How to hide script errors in HTMLViewer on Windows? 452
- 7.0.148 How to hide the grid/background/border in ChartDirector? 453
- 7.0.149 How to hide the mouse cursor on Mac? 453
- 7.0.150 How to insert image to NSTextView or TextArea? 453
- 7.0.151 How to jump to an anchor in a htmlviewer? 454
- 7.0.152 How to keep a movieplayer unclickable? 454
- 7.0.153 How to keep my web app from using 100% CPU time? 454
- 7.0.154 How to kill a process by name? 455
- 7.0.155 How to know how many CPUs are present? 455
- 7.0.156 How to know if a movie is finished? 456
- 7.0.157 How to know if QuickTime is installed on any target and can play MPEG 4 movies? 456
- 7.0.158 How to know if QuickTime is installed on any target? 457
- 7.0.159 How to know the calling function? 457
- 7.0.160 How to launch an app using it's creator code? 458
- 7.0.161 How to launch disc utility? 458
- 7.0.162 How to make a lot of changes to a REAL SQL Database faster? 459
- 7.0.163 How to make a NSImage object for my retina enabled app? 459

- 7.0.164 How to make a window borderless on Windows? 459
- 7.0.165 How to make an alias using AppleEvents? 460
- 7.0.166 How to make an application smaller? 461
- 7.0.167 How to make AppleScripts much faster? 461
- 7.0.168 How to make double clicks on a canvas? 461
- 7.0.169 How to make my Mac not sleeping? 463
- 7.0.170 How to make my own registration code scheme? 464
- 7.0.171 How to make small controls on Mac OS X? 464
- 7.0.172 How to mark my Mac app as background only? 465
- 7.0.173 How to move a file or folder to trash? 466
- 7.0.174 How to move an application to the front using the creator code? 467
- 7.0.175 How to move file with ftp and curl plugin? 467
- 7.0.176 How to normalize string on Mac? 467
- 7.0.177 How to obscure the mouse cursor on Mac? 468
- 7.0.178 How to open icon file on Mac? 468
- 7.0.179 How to open PDF in acrobat reader? 469
- 7.0.180 How to open printer preferences on Mac? 469
- 7.0.181 How to open special characters panel on Mac? 470
- 7.0.182 How to optimize picture loading in Web Edition? 470
- 7.0.183 How to parse XML? 471
- 7.0.184 How to play audio in a web app? 471
- 7.0.185 How to pretty print xml? 472
- 7.0.186 How to print to PDF? 473
- 7.0.187 How to query Spotlight's Last Open Date for a file? 473
- 7.0.188 How to quit windows? 474
- 7.0.189 How to read a CSV file correctly? 474
- 7.0.190 How to read the command line on windows? 475
- 7.0.191 How to render PDF pages with PDF Kit? 476
- 7.0.192 How to restart a Mac? 476

- 7.0.193 How to resume ftp upload with curl plugin? 477
- 7.0.194 How to rotate a PDF page with CoreGraphics? 477
- 7.0.195 How to rotate image with CoreImage? 478
- 7.0.196 How to run a 32 bit application on a 64 bit Linux? 479
- 7.0.197 How to save a quicktime movie as a reference movie? 479
- 7.0.198 How to save HTMLViewer to PDF with landscape orientation? 479
- 7.0.199 How to save RTFD? 480
- 7.0.200 How to scale a picture proportionally with mask? 480
- 7.0.201 How to scale a picture proportionally? 481
- 7.0.202 How to scale/resize a picture? 482
- 7.0.203 How to search with regex and use unicode codepoints? 483
- 7.0.204 How to see if a file is invisible for Mac OS X? 483
- 7.0.205 How to set cache size for SQLite or REALSQLDatabase? 484
- 7.0.206 How to set the modified dot in the window? 485
- 7.0.207 How to show a PDF file to the user in a Web Application? 485
- 7.0.208 How to show Keyboard Viewer programmatically? 485
- 7.0.209 How to show the mouse cursor on Mac? 486
- 7.0.210 How to shutdown a Mac? 487
- 7.0.211 How to sleep a Mac? 487
- 7.0.212 How to speed up rasterizer for displaying PDFs with DynaPDF? 488
- 7.0.213 How to use PDFLib in my RB application? 488
- 7.0.214 How to use quotes in a string? 488
- 7.0.215 How to use Sybase in Web App? 488
- 7.0.216 How to use the Application Support folder? 489
- 7.0.217 How to use the IOPMCopyScheduledPowerEvents function in Realbasic? 489
- 7.0.218 How to validate a GUID? 492
- 7.0.219 How to walk a folder hierarchie non recursively? 492
- 7.0.220 I got this error: PropVal, QDPictMBS.Name (property value), Type mismatch error. Expected CGDataProviderMBS, but got Variant, Name:QDPictMBS 493
- 7.0.221 I registered the MBS Plugins in my application, but later the registration dialog is shown. 494

- 7.0.222 I want to accept Drag & Drop from iTunes 494
- 7.0.223 I'm drawing into a listbox but don't see something. 496
- 7.0.224 I'm searching for a method or so to move a window from position x.y to somewhere else on the screen. 496
- 7.0.225 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? 497
- 7.0.226 Is the fn key on a powerbook keyboard down? 497
- 7.0.227 Is there a case sensitive Dictionary? 497
- 7.0.228 Is there a way to use the MBS plugin to get only the visible item and folder count on a volume? 498
- 7.0.229 Is there an easy way I can launch the Displays preferences panel? 498
- 7.0.230 Is there an easy way I can launch the Quicktime preferences panel? 499
- 7.0.231 List of Windows Error codes? 499
- 7.0.232 Midi latency on Windows problem? 499
- 7.0.233 My Xojo Web App does not launch. Why? 500
- 7.0.234 Pictures are not shown in my application. Why? 501
- 7.0.235 Realbasic doesn't work with your plugins on Windows 98. 501
- 7.0.236 REALbasic or my RB application itself crashes on launch on Mac OS Classic. Why? 501
- 7.0.237 SQLDatabase not initialized error? 501
- 7.0.238 Textconverter returns only the first x characters. Why? 501
- 7.0.239 The type translation between CoreFoundation/Foundation and Realbasic data types. 502
- 7.0.240 Uploaded my web app with FTP, but it does not run on the server! 504
- 7.0.241 What classes to use for hotkeys? 504
- 7.0.242 What do I need for Linux to get picture functions working? 505
- 7.0.243 What does the NAN code mean? 505
- 7.0.244 What font is used as a 'small font' in typical Mac OS X apps? 506
- 7.0.245 What is last plugin version to run on Mac OS X 10.4? 506
- 7.0.246 What is last plugin version to run on PPC? 507
- 7.0.247 What is the difference between Timer and WebTimer? 507
- 7.0.248 What is the list of Excel functions? 507
- 7.0.249 What is the replacement for PluginMBS? 508

- 7.0.250 What to do on Realbasic reporting a conflict? 508
- 7.0.251 What to do with a NSImageCacheException? 509
- 7.0.252 What to do with MySQL Error 2014? 509
- 7.0.253 What ways do I have to ping? 509
- 7.0.254 Where is CGGetActiveDisplayListMBS? 510
- 7.0.255 Where is CGGetDisplaysWithPointMBS? 510
- 7.0.256 Where is CGGetDisplaysWithRectMBS? 510
- 7.0.257 Where is CGGetOnlineDisplayListMBS? 510
- 7.0.258 Where is GetObjectClassNameMBS? 510
- 7.0.259 Where is NetworkAvailableMBS? 511
- 7.0.260 Where is StringHeight function in DynaPDF? 511
- 7.0.261 Where is XLSDocumentMBS class? 511
- 7.0.262 Where to get information about file formats? 512
- 7.0.263 Where to register creator code for my application? 512
- 7.0.264 Which Mac OS X frameworks are 64bit only? 512
- 7.0.265 Which plugins are 64bit only? 513
- 7.0.266 Why application doesn't launch because of a missing ddraw.dll!? 513
- 7.0.267 Why application doesn't launch because of a missing shlwapi.dll!? 513
- 7.0.268 Why do I hear a beep on keydown? 513
- 7.0.269 Why does folderitem.item return nil? 513
- 7.0.270 Why doesn't showurl work? 514
- 7.0.271 Why have I no values in my chart? 514
- 7.0.272 Will application size increase with using plugins? 514
- 7.0.273 XLS: Custom format string guidelines 514

Chapter 7

The FAQ

7.0.1 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)

7.0.2 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:

- 7.0.3 How to catch delete key? 353
- 7.0.4 How to convert cmyk to rgb? 353
- 7.0.5 How to delete a folder? 355
- 7.0.6 How to detect if CPU if 64bit processor? 356
- 7.0.7 How to refresh a htmlviewer on Windows? 356

7.0.3 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:

- 7.0.2 How do I get the proper highlight color on Mac OS X for active/inactive selection? 352
- 7.0.4 How to convert cmyk to rgb? 353
- 7.0.5 How to delete a folder? 355
- 7.0.6 How to detect if CPU if 64bit processor? 356
- 7.0.7 How to refresh a htmlviewer on Windows? 356

7.0.4 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:

- 7.0.2 How do I get the proper highlight color on Mac OS X for active/inactive selection? 352
- 7.0.3 How to catch delete key? 353
- 7.0.5 How to delete a folder? 355
- 7.0.6 How to detect if CPU if 64bit processor? 356
- 7.0.7 How to refresh a htmlviewer on Windows? 356

7.0.5 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:

- 7.0.2 How do I get the proper highlight color on Mac OS X for active/inactive selection? 352
- 7.0.3 How to catch delete key? 353
- 7.0.4 How to convert cmyk to rgb? 353
- 7.0.6 How to detect if CPU if 64bit processor? 356
- 7.0.7 How to refresh a htmlviewer on Windows? 356

7.0.6 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:

- 7.0.2 How do I get the proper highlight color on Mac OS X for active/inactive selection? 352
- 7.0.3 How to catch delete key? 353
- 7.0.4 How to convert cmyk to rgb? 353
- 7.0.5 How to delete a folder? 355
- 7.0.7 How to refresh a htmlviewer on Windows? 356

7.0.7 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:

- 7.0.2 How do I get the proper highlight color on Mac OS X for active/inactive selection? 352
- 7.0.3 How to catch delete key? 353
- 7.0.4 How to convert cmyk to rgb? 353
- 7.0.5 How to delete a folder? 355
- 7.0.6 How to detect if CPU if 64bit processor? 356

7.0.8 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
```

7.0.9 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.

7.0.10 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
```

7.0.11 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.

7.0.12 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

7.0.13 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

7.0.14 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.

7.0.15 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

7.0.16 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.

7.0.17 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.

7.0.18 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.

7.0.19 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

7.0.20 Can I use your plugin controls on a web application?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** No.

7.0.21 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.

7.0.22 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

7.0.23 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.

7.0.24 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.

7.0.25 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.

7.0.26 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.

7.0.27 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

7.0.28 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.

7.0.29 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)

7.0.30 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.

7.0.31 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.

7.0.32 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.

7.0.33 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
```

7.0.34 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.

7.0.35 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.

7.0.36 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.

7.0.37 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.

7.0.38 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.

7.0.39 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.

7.0.40 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.

7.0.41 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.

7.0.42 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.

7.0.43 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.

7.0.44 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
```

7.0.45 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.

7.0.46 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

7.0.47 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.

7.0.48 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.

7.0.49 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.

7.0.50 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.

7.0.51 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.

7.0.52 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
```

7.0.53 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.

7.0.54 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.

7.0.55 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.

7.0.56 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.

7.0.57 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.

7.0.58 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.

7.0.59 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.

7.0.60 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.

7.0.61 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.

7.0.62 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.

7.0.63 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).

7.0.64 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.

7.0.65 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.

7.0.66 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>

7.0.67 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

7.0.68 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.

7.0.69 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)

7.0.70 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.

7.0.71 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.

7.0.72 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/ .

7.0.73 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.

7.0.74 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.

7.0.75 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
```

7.0.76 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.

7.0.77 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.

7.0.78 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.

7.0.79 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.

7.0.80 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.

7.0.81 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
```

7.0.82 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
```

7.0.83 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
```

7.0.84 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.

7.0.85 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.

7.0.86 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.

7.0.87 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

7.0.88 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.

7.0.89 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.

7.0.90 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.

7.0.91 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.

7.0.92 How to create a GUID?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Use the UUIDMBS class for this.

7.0.93 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.

7.0.94 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.

7.0.95 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.

7.0.96 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.

7.0.97 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)

7.0.98 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.

7.0.99 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".

7.0.100 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)
```

7.0.101 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.

7.0.102 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.

7.0.103 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.

7.0.104 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
```

7.0.105 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.

7.0.106 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.

7.0.107 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.

7.0.108 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)

7.0.109 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

7.0.110 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.

7.0.111 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.

7.0.112 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.

7.0.113 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 .

7.0.114 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
```

7.0.115 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
```

7.0.116 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.

7.0.117 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".

7.0.118 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/

7.0.119 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.

7.0.120 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
```

7.0.121 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
```

7.0.122 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.

7.0.123 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
```

7.0.124 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.

7.0.125 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.

7.0.126 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.

7.0.127 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

7.0.128 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.

7.0.129 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.

7.0.130 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.

7.0.131 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" ...

7.0.132 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.

7.0.133 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
```

7.0.134 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
```

7.0.135 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.

7.0.136 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
```

7.0.137 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
```

7.0.138 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.

7.0.139 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.

7.0.140 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!

7.0.141 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
```

7.0.142 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.

7.0.143 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.

7.0.144 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.

7.0.145 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.

7.0.146 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
```

7.0.147 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).

7.0.148 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.

7.0.149 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.

7.0.150 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.

7.0.151 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
```

7.0.152 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
```

7.0.153 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.

7.0.154 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.

7.0.155 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.

7.0.156 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!?

7.0.157 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.

7.0.158 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.

7.0.159 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.

7.0.160 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
```

7.0.161 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.

7.0.162 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.

7.0.163 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.

7.0.164 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
```

7.0.165 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

7.0.166 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.

7.0.167 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
```

7.0.168 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
```

7.0.169 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.

7.0.170 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?

7.0.171 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))
```

7.0.172 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.

7.0.173 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.

7.0.174 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)

7.0.175 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.

7.0.176 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.

7.0.177 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.

7.0.178 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
```

7.0.179 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.

7.0.180 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
```

7.0.181 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.

7.0.182 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

7.0.183 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.

7.0.184 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)+";")

7.0.185 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

7.0.186 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.

7.0.187 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.

7.0.188 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.

7.0.189 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.

7.0.190 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.

7.0.191 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.

7.0.192 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
```

7.0.193 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.

7.0.194 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.

7.0.195 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
```

7.0.196 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.

7.0.197 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))
```

7.0.198 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.

7.0.199 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.

7.0.200 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.

7.0.201 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)

7.0.202 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.

7.0.203 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
```

7.0.204 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
```

7.0.205 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.

7.0.206 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
```

7.0.207 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

7.0.208 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
```

7.0.209 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.

7.0.210 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
```

7.0.211 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
```

7.0.212 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.

7.0.213 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.

7.0.214 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""."
```

7.0.215 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

7.0.216 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!

7.0.217 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.

7.0.218 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".

7.0.219 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.

7.0.220 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.

7.0.221 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.

7.0.222 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.

7.0.223 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.

7.0.224 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.

7.0.225 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)

7.0.226 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.

7.0.227 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

7.0.228 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.

7.0.229 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
```

7.0.230 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
```

7.0.231 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

7.0.232 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)

7.0.233 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?

7.0.234 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.

7.0.235 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.

7.0.236 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.

7.0.237 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.

7.0.238 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.

7.0.239 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.

7.0.240 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.

7.0.241 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.

7.0.242 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.

7.0.243 What does the NAN code mean?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:**

7.0.244 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
```

7.0.245 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.

7.0.246 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.

7.0.247 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.

7.0.248 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.

7.0.249 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.

7.0.250 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.

7.0.251 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.

7.0.252 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.

7.0.253 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.

7.0.254 Where is CGGetActiveDisplayListMBS?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** This is now CGDisplayMBS.GetActiveDisplayList.

7.0.255 Where is CGGetDisplaysWithPointMBS?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** This is now CGDisplayMBS.GetDisplaysWithPoint.

7.0.256 Where is CGGetDisplaysWithRectMBS?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** This is now CGDisplayMBS.GetDisplaysWithRect.

7.0.257 Where is CGGetOnlineDisplayListMBS?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** This is now CGDisplayMBS.GetOnlineDisplayList.

7.0.258 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.

7.0.259 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.

7.0.260 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.

7.0.261 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.

7.0.262 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

7.0.263 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

7.0.264 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.

7.0.265 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.

7.0.266 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.

7.0.267 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.

7.0.268 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.

7.0.269 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.

7.0.270 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.

7.0.271 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.

7.0.272 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.

7.0.273 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,,