MBS DirectShow Plugin Documentation

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0.1 Introduction

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

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Chapter 3

DirectShow

3.1 class DirectShowAMCameraControlMBS

3.1.1 class DirectShowAMCameraControlMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** This interface provides local or remote control over a camera.
Notes:

Applications can use this interface to control camera settings such as zoom, pan, aperture adjustment, or shutter speed. To obtain this interface, query the filter that controls the camera.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.1.2 Methods

3.1.3 Constructor

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.1.4 Get(PropertySelector as Integer, byref Value as Integer, byref Flags as Integer)

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** This method retrieves the current setting of a camera property.
Notes:

PropertySelector: A long value that specifies the property to retrieve, see kProperty* constants.
Value: receives the value of the property.
Flags: Receives a member of the CameraControlFlags enumeration. The returned value indicates whether the setting is controlled manually or automatically.

Lasterror is set.

3.1.5 GetRange(PropertySelector as Integer, byref MinValue as Integer, byref MaxValue as Integer, byref SteppingDelta as Integer, byref DefaultValue as Integer, byref CapsFlags as Integer)

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** This method retrieves the range and default value of a specified camera property.
Notes:

PropertySelector: A long value that specifies the property to query, see kProperty* constants.
MinValue: Receives the minimum value of the property.
MaxValue: Receives the maximum value of the property.
SteppingDelta: Receives the step size for the property. The step size is the smallest increment by which the property can change.
DefaultValue: Receives the default value of the property.
CapsFlags: Receives an element of the CameraControlFlags enumeration, indicating whether the property is controlled automatically or manually.

Lasterror is set.

3.1.6 Set(PropertySelector as Integer, Value as Integer, Flags as Integer = 0)

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** This method sets a specified property on the camera.
Notes:

PropertySelector: A long value that specifies the property to set, see kProperty* constants.
Value: A long value that specifes the new value of the property.
Flags: A long value that specifies the desired control setting. See kFlags* constants.

Lasterror is set.

3.1.7 Properties

3.1.8 Handle as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The internal object reference.
Notes:

Points to an IAMCameraControl interface.
(Read and Write property)

3.1.9 Lasterror as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.1.10 LasterrorMessage as String

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The formatted error message for the last error.
Notes: (Read and Write property)

3.1.11 Constants

3.1.12 kFlagsAuto = 1

Plugin Version: 12.4. **Function:** One of te flags for Get/Set.
Notes: The setting is controlled automatically.

3.1.13 kFlagsManual = 2

Plugin Version: 12.4. **Function:** One of te flags for Get/Set.
Notes: The setting is controlled manually.

3.1.14 kPropertyExposure = 4

Plugin Version: 12.4. **Function:** One of the property selectors.
Notes:

Identifies the exposure setting, in log base 2 seconds. In other words, for values less than zero, the exposure time is 1/2n seconds, and for values zero or above, the exposure time is 2n seconds. For example:

Value	Seconds
-3	1/8
-2	1/4
-1	1/2
0	1
1	2
2	4

3.1.15 kPropertyFocus = 6

Plugin Version: 12.4. **Function:** One of the property selectors.
Notes: Specifies the camera's focus setting, as the distance to the optimally focused target, in millimeters. The range and default value are specific to the device.

3.1.16 kPropertyIris = 5

Plugin Version: 12.4. **Function:** One of the property selectors.
Notes: Specifies the camera's iris setting, in units of fstop * 10.

3.1.17 kPropertyPan = 0

Plugin Version: 12.4. **Function:** One of the property selectors.
Notes: Identifies the camera's pan setting, in degrees. Values range from 180 to +180, with the default set to zero. Positive values are clockwise from the origin (the camera rotates clockwise when viewed from above), and negative values are counterclockwise from the origin.

3.1.18 kPropertyRoll = 2

Plugin Version: 12.4. **Function:** One of the property selectors.
Notes: Identifies the camera's roll setting, in degrees. Values range from 180 to +180, with the default set to zero. Positive values cause a clockwise rotation of the camera along the image-viewing axis, and negative values cause a counterclockwise rotation of the camera.

3.1.19 kPropertyTilt = 1

Plugin Version: 12.4. **Function:** One of the property selectors.
Notes: Identifies the camera's tilt setting, in degrees. Values range from 180 to +180, with the default set to zero. Positive values point the imaging plane up, and negative values point the imaging plane down.

3.1.20 kPropertyZoom = 3

Plugin Version: 12.4. **Function:** One of the property selectors.
Notes: Identifies the camera's zoom setting, in millimeters. Values range from 10 to 600, and the default is specific to the device.

3.2 class DirectShowAMCrossbarMBS

3.2.1 class DirectShowAMCrossbarMBS

Plugin Version: 12.5, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The IAMCrossbar interface routes signals from an analog or digital source to a video capture filter.
Notes:

This interface is implemented by the Analog Video Crossbar Filter. The Analog Video Crossbar filter is modeled after a general switching matrix, with n inputs and m outputs. For example, a video card might have two external connectors: a coaxial connector for TV, and an S-video input. These would be represented as input pins on the filter. To select one of the inputs, an application would use the IAMCrossbar interface to "route" an input pin to the filter's output pin, by calling the Route method.

see also
http://msdn.microsoft.com/en-us/library/windows/desktop/dd389171(v=vs.85).aspx
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.2.2 Methods

3.2.3 BaseFilter as DirectShowBaseFilterMBS

Plugin Version: 14.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Queries the base filter for the crossbar.
Notes:

See also:
http://msdn.microsoft.com/en-us/library/windows/desktop/dd390991(v=vs.85).aspx

3.2.4 CanRoute(OutputPinIndex as Integer, InputPinIndex as Integer) as boolean

Plugin Version: 12.5, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The CanRoute method queries whether a specified input pin can be routed to a specified output pin.
Notes:

OutputPinIndex: Specifies the index of the output pin.
InputPinIndex: Specifies the index of input pin.
Lasterror is set.
Returns true if two pins can be routed.

To route the pins, call the Route method. Output pins and input pins are both indexed from zero. To determine the number of output and input pins, call the getPinCounts method.

3.2.5 Constructor

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

3.2.6 GetCrossbarPinInfo(IsInputPin as boolean, PinIndex as Integer, byref PinIndexRelated as Integer, byref PhysicalType as Integer)

Plugin Version: 12.5, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The getCrossbarPinInfo method retrieves information about a specified pin.
Notes:

IsInputPin: Specifies the direction of the pin. Use one of the following values.

Value	Meaning
True	Input pin
False	Output pin

PinIndex: Specifies the index of the pin.
PinIndexRelated: Variable that receives the index of the related pin, or 1 if no pin is related to this pin. The related pin is a pin on the same filter, with the same direction; it typically represents the same physical jack or connector. For example, a video tuner and an audio tuner might be related pins. Typically, if two pins are related, you should route them together.
PhysicalType: Variable that receives a member of the PhysicalConnectorType enumeration, indicating the pin's physical type.

Lasterror is set.
Output pins and input pins are both indexed from zero. To determine the number of output and input pins, call the getPinCounts method.

3.2.7 GetPinCounts(byref OutputPinCount as Integer, byref InputPinCount as Integer)

Plugin Version: 12.5, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The getPinCounts method retrieves the number of input and output pins on the crossbar filter.
Notes:

OutputPinCount: Variable that receives the number of output pins.
InputPinCount: Variable that receives the number of input pins.

Lasterror is set.

The other IAMCrossbar methods take parameters that specify pins by index number. For these methods, output pins and input pins are both indexed from zero. Use the getPinCounts method to determine the upper bounds for each.

3.2.8 IsRoutedTo(InputPinIndex as Integer) as Integer

Plugin Version: 12.5, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The IsRoutedTo method retrieves the input pin that is currently routed to the specified output pin.
Notes:

OutputPinIndex: Specifies the index of the output pin.
InputPinIndex: Variable that receives the index of the input pin, or -1 if no input pin is routed to this output pin.

Output pins and input pins are both indexed from zero. To determine the number of output and input pins, call the getPinCounts method.
Lasterror is set.

3.2.9 PhysicalPinName(type as Integer) as string

Plugin Version: 14.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Queries the name for a given type.
Notes: Just a convenience method to return english names for types.

3.2.10 Route(OutputPinIndex as Integer, InputPinIndex as Integer)

Plugin Version: 12.5, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The Route method routes an input pin to an output pin.
Notes:

OutputPinIndex: Specifies the index of the output pin.
InputPinIndex: Specifies the index of the input pin.

Lasterror is set.

Routing two pins causes the output pin to deliver data from that input pin. Only one input pin at a time can be routed to a given output pin.
Output pins and input pins are both indexed from zero. To determine the number of output and input pins,

call the getPinCounts method.

3.2.11 Properties

3.2.12 Handle as Integer

Plugin Version: 12.5, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The internal object reference.
Notes:

Points to an IAMCrossbar interface.
(Read and Write property)

3.2.13 Lasterror as Integer

Plugin Version: 12.5, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.2.14 LasterrorMessage as String

Plugin Version: 12.5, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The formatted error message for the last error.
Notes: (Read and Write property)

3.2.15 Constants

3.2.16 PhysConn_Audio_1394 = 4103

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video).
Notes: Specifies an IEEE 1394 pin for audio.

3.2.17 PhysConn_Audio_AESDigital = 4099

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies an AES/EBU (Audio Engineering Society/European Broadcast Union) digital pin for audio.

3.2.18 PhysConn_Audio_AudioDecoder = 4105

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies an audio decoder pin.

3.2.19 PhysConn_Audio_AUX = 4102

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies an AUX pin for audio.

3.2.20 PhysConn_Audio_Line = 4097

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies a line pin for audio.

3.2.21 PhysConn_Audio_Mic = 4098

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies a microphone pin.

3.2.22 PhysConn_Audio_SCSI = 4101

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies a SCSI pin for audio.

3.2.23 PhysConn_Audio_SPDIFDigital = 4100

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies an S/PDIF (Sony/Philips Digital Interface Format) digital pin for audio.

3.2.24 PhysConn_Audio_Tuner = 4096

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies a tuner pin for audio.

3.2.25 PhysConn_Audio_USB = 4104

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies a USB pin for audio.

3.2.26 PhysConn_Video_1394 = 10

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies an IEEE 1394 pin for video.

3.2.27 PhysConn_Video_AUX = 9

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies an AUX (auxiliary) pin for video.

3.2.28 PhysConn_Video_Black = 15

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Not used.

3.2.29 PhysConn_Video_Composite = 2

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies a composite pin for video.

3.2.30 PhysConn_Video_ParallelDigital = 7

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies a parallel digital pin for video.

3.2.31 PhysConn_Video_RGB = 4

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies an RGB pin for video.

3.2.32 PhysConn_Video_SCART = 14

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies a SCART (Peritel) pin for video.

3.2.33 PhysConn_Video_SCSI = 8

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies a SCSI (Small Computer System Interface) pin for video.

3.2.34 PhysConn_Video_SerialDigital = 6

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies a serial digital pin for video.

3.2.35 PhysConn_Video_SVideo = 3

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies an S-Video (Y/C video) pin.

3.2.36 PhysConn_Video_Tuner = 1

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies a tuner pin for video.

3.2.37 PhysConn_Video_USB = 11

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies a USB (Universal Serial Bus) pin for video.

3.2.38 PhysConn_Video_VideoDecoder = 12

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies a video decoder pin.

3.2.39 PhysConn_Video_VideoEncoder = 13

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies a video encoder pin.

3.2.40 PhysConn_Video_YRYBY = 5

Plugin Version: 12.5. **Function:** One of the constants to specify the physical type of pin (audio or video). **Notes:** Specifies a YRYBY (Y, RY, BY) pin for video.

3.3 class DirectShowAMStreamConfigMBS

3.3.1 class DirectShowAMStreamConfigMBS

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The IAMStreamConfig interface sets the output format on certain capture and compression filters, for both audio and video.
Notes:

Applications can use this interface to set format properties, such as the output dimensions and frame rate (for video) or the sample rate and number of channels (for audio).
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.3.2 Methods

3.3.3 AudioCaps as DirectShowAudioStreamConfigCapsMBS()

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Queries the audio capabilities.
Notes:

Lasterror is set.
Returns empty array for video streams.

3.3.4 Constructor

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.3.5 MediaTypes as DirectShowMediaTypeMBS()

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Queries media types.
Notes:

Lasterror is set.
see also
http://msdn.microsoft.com/en-us/library/windows/desktop/dd319787(v=vs.85).aspx

3.3.6 NumberOfCapabilities as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Retrieves the number of format capabilities that this pin supports.
Notes: Lasterror is set.

3.3.7 VideoCaps as DirectShowVideoStreamConfigCapsMBS()

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Queries the video capabilities.
Notes:

Lasterror is set.
Returns empty array for audio streams.

3.3.8 Properties

3.3.9 Handle as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The internal object reference.
Notes: (Read and Write property)

3.3.10 Lasterror as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.3.11 LasterrorMessage as String

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The formatted error message for the last error.
Notes: (Read and Write property)

3.3.12 Format as DirectShowMediaTypeMBS

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Get or set the preferred output format.
Notes:

Lasterror is set.

see also
http://msdn.microsoft.com/en-us/library/windows/desktop/dd319785(v=vs.85).aspx
http://msdn.microsoft.com/en-us/library/windows/desktop/dd319788(v=vs.85).aspx
(Read and Write computed property)

3.4 class DirectShowAMVideoProcAmpMBS

3.4.1 class DirectShowAMVideoProcAmpMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The AMVideoProcAmp interface adjusts the qualities of an incoming video signal, such as brightness, contrast, hue, saturation, gamma, and sharpness.
Notes:

The WDM Video Capture filter exposes this interface if the hardware supports image adjustment.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.4.2 Methods

3.4.3 Constructor

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.4.4 Get(PropertySelector as Integer, byref Value as Integer, byref Flags as Integer)

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Gets video quality for a specified property.
Notes:

PropertySelector: Specifies the property to retrieve, as a value from the kProperty* constants.
Value: Receives the value of the property.
Flags: Receives the flags. The returned value indicates whether the setting is controlled manually or automatically.
Lasterror is set.

3.4.5 GetRange(PropertySelector as Integer, byref MinValue as Integer, byref MaxValue as Integer, byref SteppingDelta as Integer, byref DefaultValue as Integer, byref CapsFlags as Integer)

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Gets the minimum, maximum, and default values for setting properties.
Notes:

PropertySelector: Specifies the property to retrieve, as a value from the kProperty* constants.

MinValue: Receives the minimum value of the property.
MaxValue: Receives the maximum value of the property.
SteppingDelta: Receives the step size for the property. The step size is the smallest increment by which the property can change.
DefaultValue: Receives the default value of the property.
CapsFlags: Receives a member of the VideoProcAmpFlags enumeration, indicating whether the property is controlled automatically or manually.
Lasterror is set.

3.4.6 Set(PropertySelector as Integer, Value as Integer, Flags as Integer = 0)

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Sets video quality for a specified property.
Notes:

PropertySelector: Specifies the property to retrieve, as a value from the kProperty* constants.
Value: The new value of the property.
Flags: The desired control setting. See kFlags* constants.

Lasterror is set.

3.4.7 Properties

3.4.8 Handle as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The internal object reference.
Notes:

Points to an IAMVideoProcAmp interface.
(Read and Write property)

3.4.9 Lasterror as Integer

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.4.10 LasterrorMessage as String

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The formatted error message for the last error.
Notes: (Read and Write property)

3.4.11 Constants

3.4.12 kFlagsAuto = 1

Plugin Version: 12.4. **Function:** One of te flags for Get/Set.
Notes: The setting is controlled automatically.

3.4.13 kFlagsManual = 2

Plugin Version: 12.4. **Function:** One of te flags for Get/Set.
Notes: The setting is controlled manually.

3.4.14 kPropertyBacklightCompensation = 8

Plugin Version: 12.4. **Function:** One of the property selectors.
Notes: Specifies the backlight compensation setting. Possible values are 0 (off) and 1 (on).

3.4.15 kPropertyBrightness = 0

Plugin Version: 12.4. **Function:** One of the property selectors.
Notes: Specifies the brightness, also called the black level. For NTSC, the value is expressed in IRE units * 100. For non-NTSC sources, the units are arbitrary, with zero representing blanking and 10,000 representing pure white. Values range from 10,000 to 10,000.

3.4.16 kPropertyColorEnable = 6

Plugin Version: 12.4. **Function:** One of the property selectors.
Notes: Specifies the color enable setting. The possible values are 0 (off) and 1 (on).

3.4.17 kPropertyContrast = 1

Plugin Version: 12.4. **Function:** One of the property selectors.
Notes: Specifies the contrast, expressed as gain factor * 100. Values range from zero to 10,000.

3.4.18 kPropertyGain = 9

Plugin Version: 12.4. **Function:** One of the property selectors.
Notes: Specifies the gain adjustment. Zero is normal. Positive values are brighter and negative values are darker. The range of values depends on the device.

3.4.19 kPropertyGamma = 5

Plugin Version: 12.4. **Function:** One of the property selectors.
Notes: Specifies the gamma, as gamma * 100. Values range from 1 to 500.

3.4.20 kPropertyHue = 2

Plugin Version: 12.4. **Function:** One of the property selectors.
Notes: Specifies the hue, in degrees * 100. Values range from -180,000 to 180,000 (-180 to +180 degrees).

3.4.21 kPropertySaturation = 3

Plugin Version: 12.4. **Function:** One of the property selectors.
Notes: Specifies the saturation. Values range from 0 to 10,000.

3.4.22 kPropertySharpness = 4

Plugin Version: 12.4. **Function:** One of the property selectors.
Notes: Specifies the sharpness. Values range from 0 to 100.

3.4.23 kPropertyWhiteBalance = 7

Plugin Version: 12.4. **Function:** One of the property selectors.
Notes: Specifies the white balance, as a color temperature in degrees Kelvin. The range of values depends

on the device.

3.5 class DirectShowAudioStreamConfigCapsMBS

3.5.1 class DirectShowAudioStreamConfigCapsMBS

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Describes a range of audio formats.
Notes:

Audio compression and capture filters use this structure to describe the formats they can produce.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.5.2 Methods

3.5.3 Constructor

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.5.4 Properties

3.5.5 BitsPerSampleGranularity as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Granularity of the bits per sample.
Notes:

For example, the filter might specify 8 bits per sample through 32 bits per sample, in steps of 8.
(Read only property)

3.5.6 ChannelsGranularity as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Granularity of the channels.
Notes:

For example, the filter might specify channels 2 through 4, in steps of 2.
(Read only property)

3.5.7 MaximumBitsPerSample as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Maximum sample frequency.
Notes: (Read only property)

3.5.8 MaximumChannels as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Maximum number of channels.
Notes: (Read only property)

3.5.9 MaximumSampleFrequency as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Maximum sample frequency.
Notes: (Read only property)

3.5.10 MinimumBitsPerSample as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Minimum bits per sample.
Notes: (Read only property)

3.5.11 MinimumChannels as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Minimum number of channels.
Notes: (Read only property)

3.5.12 MinimumSampleFrequency as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Minimum sample frequency.
Notes: (Read only property)

3.5.13 SampleFrequencyGranularity as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Granularity of the frequency.
Notes:

For example, the filter might specify 11025 Hz to 44100 Hz, in steps of 11025 Hz.
(Read only property)

3.6 class DirectShowBaseFilterMBS

3.6.1 class DirectShowBaseFilterMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The BaseFilter interface is the primary interface for DirectShow filters.
Notes:

All DirectShow filters must expose this interface. The Filter Graph Manager uses this interface to control filters. Applications can use this interface to enumerate pins and query for filter information, but should not use it to change the state of a filter. Instead, use the MediaControl interface on the Filter Graph Manager.
Subclass of the DirectShowMediaFilterMBS class.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.6.2 Methods

3.6.3 AMCameraControl as DirectShowAMCameraControlMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Queries camera control object.
Example:

```
dim srcfilter as DirectShowBaseFilterMBS // your basefilter
dim value, flags as Integer
dim c as DirectShowAMCameraControlMBS = srcfilter.AMCameraControl
if c<>nil then

c.Get(c.kPropertyZoom, value, flags)
if c.Lasterror = 0 then
MsgBox "Zoom: "+str(value)
else
MsgBox "Zoom: "+c.LasterrorMessage
end if

c.Get(c.kPropertyFocus, value, flags)
if c.Lasterror = 0 then
MsgBox "Focus: "+str(value)
else
MsgBox "Focus: "+c.LasterrorMessage
end if

c.Get(c.kPropertyExposure, value, flags)
if c.Lasterror = 0 then
MsgBox "Exposure: "+str(value)
else
MsgBox "Exposure: "+c.LasterrorMessage
```

```
end if

end if
```

Notes:

Returns object when this filter represents a device supporting this interface.
Else returns nil on any error.
Also sets lasterror property.

3.6.4 AMCrossbar as DirectShowAMCrossbarMBS

Plugin Version: 12.5, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Queries the IAMCrossbar interface for this filter.
Notes: Returns nil if no such interface exists.

3.6.5 AMVideoProcAmp as DirectShowAMVideoProcAmpMBS

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Queries video properties object.
Example:

```
dim srcfilter as DirectShowBaseFilterMBS // your basefilter
dim value, flags as Integer
dim v as DirectShowAMVideoProcAmpMBS = srcfilter.AMVideoProcAmp
if v<>nil then
v.Get(v.kPropertyHue, value, flags)
if v.Lasterror = 0 then
MsgBox "Hue: "+str(value)
else
MsgBox "Hue: "+v.LasterrorMessage
end if

v.Get(v.kPropertyBrightness, value, flags)
if v.Lasterror = 0 then
MsgBox "Brightness: "+str(value)
else
MsgBox "Brightness: "+v.LasterrorMessage
end if

end if
```

Notes:

Returns object when this filter represents a device supporting this interface.
Else returns nil on any error.
Also sets lasterror property.

3.6.6 ConfigAviMux as DirectShowConfigAviMuxMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Queries the config avimux object.
Notes:

Lasterorr is set.
Works only with filters which support this interface.

3.6.7 ConfigInterleaving as DirectShowConfigInterleavingMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Queries the config interleaving object.
Notes:

Lasterorr is set.
Works only with filters which support this interface.

3.6.8 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.6.9 EnumPins as DirectShowEnumPinsMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The EnumPins method enumerates the pins on this filter.
Notes: Lasterror is set.

3.6.10 FindPin(name as string) as DirectShowPinMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The FindPin method retrieves the pin with the specified identifier.

Notes:

name: string that identifies the pin.

Returns the pin object.
Lasterror is set.

This method supports graph persistence. Use the DirectShowPinMBS.QueryId method to save a pin's state, and use this method to restore the state. The pin's identifier string is defined by the filter implementation. The identifier must be unique within the filter.

3.6.11 Info as DirectShowFilterInfoMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Retrieves information about the filter.
Notes:

Lasterror is set.
Returns nil on error.

3.6.12 VendorInfo as string

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Retrieves a string containing vendor information.
Notes:

Lasterror is set.
This method is optional; filters are not required to support it.

3.7 class DirectShowBindContextMBS

3.7.1 class DirectShowBindContextMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Provides access to a bind context, which is an object that stores information about a particular moniker binding operation.

3.7.2 Methods

3.7.3 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The constructor to create a new bind context.

3.7.4 Properties

3.7.5 Handle as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The internal object reference.
Notes:

Points to an IConfigAviMux interface.
(Read and Write property)

3.7.6 Lasterror as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.7.7 LasterrorMessage as String

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The formatted error message for the last error.

Notes: (Read and Write property)

3.8 class DirectShowCaptureGraphBuilderMBS

3.8.1 class DirectShowCaptureGraphBuilderMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Builds capture graphs and other custom filter graphs.
Notes:

see also
http://msdn.microsoft.com/en-us/library/windows/desktop/dd376359(v=vs.85).aspx

3.8.2 Methods

3.8.3 AllocCapFile(FilePath as string, Size as UInt64)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The AllocCapFile method preallocates a capture file to a specified size. For best results, always capture to a defragmented, preallocated capture file that is larger than the size of the capture data.
Notes:

FilePath: a string that contains the name of the file to create or resize.
Size: Size of the file to allocate, in bytes.

Lasterror is set.

This method fails if the file is read-only.
It is best to allocate as much space as possibleideally, more than needed. However, this can result in a very large file that contains relatively little data. For example, a 1-gigabyte (GB) capture file might contain a few megabytes of captured video. Use the CopyCaptureFile method to copy the data into a new file. That method copies only the data and ignores the empty portion of the original file.
If you use this method to preallocate the file, call SetMode on the file-writer filter with the value zero. If the filter is set to AM_FILE_OVERWRITE, it will delete the preallocated file. Note that some file-writer filters do not support mode 0.

3.8.4 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The constructor.

3.8.5 Crossbar(filter as DirectShowBaseFilterMBS) as DirectShowAMCrossbarMBS

Plugin Version: 14.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Finds a crossbar in the graph.
Notes:

See also:
http://msdn.microsoft.com/en-us/library/windows/desktop/dd390991(v=vs.85).aspx

This function implements the FindInterface call with LOOK_UPSTREAM_ONLY and the filter you provide.

3.8.6 GetFiltergraph as DirectShowGraphBuilderMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Retrieves the filter graph that the builder is using.
Notes: Sets lasterror.

3.8.7 GetStreamConfig(preview as boolean, filter as DirectShowBaseFilterMBS) as DirectShowAMStreamConfigMBS

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Queries the stream config object for this graph.
Notes: Lasterror is set.

3.8.8 MEDIATYPE_Audio as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the media type GUIDs.
Notes: Audio.

3.8.9 MEDIATYPE_AUXLine21Data as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the media type GUIDs.
Notes: Line 21 data. Used by closed captions.

3.8.10 MEDIATYPE_Interleaved as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the media type GUIDs.
Notes: Interleaved audio and video. Used for Digital Video (DV).

3.8.11 MEDIATYPE_Midi as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the media type GUIDs.
Notes: MIDI format.

3.8.12 MEDIATYPE_ScriptCommand as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the media type GUIDs.
Notes: Data is a script command, used by closed captions.

3.8.13 MEDIATYPE_Stream as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the media type GUIDs.
Notes: Byte stream with no time stamps.

3.8.14 MEDIATYPE_Text as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the media type GUIDs.
Notes: Text.

3.8.15 MEDIATYPE_Timecode as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the media type GUIDs.
Notes: Timecode data. Note: DirectShow does not provide any filters that support this media type.

3.8.16 MEDIATYPE_Video as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the media type GUIDs.
Notes: Video.

3.8.17 RenderStream(category as DirectShowGUIDMBS, Type as DirectShowGUIDMBS, Source as DirectShowBaseFilterMBS, Intermediate as DirectShowBaseFilterMBS = nil, Sink as DirectShowBaseFilterMBS = nil)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The RenderStream method connects an output pin on a source filter to a sink filter, optionally through an intermediate filter.
Notes:

Lasterror is set:

Category: A GUID that specifies one of the pin categories listed in Pin Property Set. To match any pin, regardless of category, set this parameter to nil. Typical values include the following. PIN_CATEGORY_CAPTURE, PIN_CATEGORY_PREVIEW, PIN_CATEGORY_CC.
Type: A major-type GUID that specifies the media type of the output pin; or nil to use any pin, regardless of media type.
Source: Specifies a pointer to the starting filter for the connection, or to an output pin.
Intermediate: BaseFilter interface of an intermediate filter, such as a compression filter. Can be nil.
Sink: BaseFilter interface of a sink filter, such as a renderer or mux filter. If the value is nil, the method uses a default renderer (see Remarks).

see also:
http://msdn.microsoft.com/en-us/library/windows/desktop/dd311924(v=vs.85).aspx
See also:

- 3.8.18 RenderStream(category as DirectShowGUIDMBS, Type as DirectShowGUIDMBS, Source as DirectShowPinMBS, Intermediate as DirectShowBaseFilterMBS = nil, Sink as DirectShowBaseFilterMBS = nil) 52

3.8.18 RenderStream(category as DirectShowGUIDMBS, Type as DirectShowGUIDMBS, Source as DirectShowPinMBS, Intermediate as DirectShowBaseFilterMBS = nil, Sink as DirectShowBaseFilterMBS = nil)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The RenderStream method connects an output pin on a source filter to a sink filter, optionally through an intermediate filter.
Notes:

Lasterror is set:

Category: A GUID that specifies one of the pin categories listed in Pin Property Set. To match any pin, regardless of category, set this parameter to nil. Typical values include the following. PIN_CATEGORY_CAPTURE, PIN_CATEGORY_PREVIEW, PIN_CATEGORY_CC.
Type: A major-type GUID that specifies the media type of the output pin; or nil to use any pin, regardless of media type.
Source: Specifies a pointer to the starting filter for the connection, or to an output pin.
Intermediate: BaseFilter interface of an intermediate filter, such as a compression filter. Can be nil.
Sink: BaseFilter interface of a sink filter, such as a renderer or mux filter. If the value is nil, the method uses a default renderer (see Remarks).

see also:
http://msdn.microsoft.com/en-us/library/windows/desktop/dd311924(v=vs.85).aspx
See also:

- 3.8.17 RenderStream(category as DirectShowGUIDMBS, Type as DirectShowGUIDMBS, Source as DirectShowBaseFilterMBS, Intermediate as DirectShowBaseFilterMBS = nil, Sink as DirectShowBaseFilterMBS = nil) 52

3.8.19 SetFiltergraph(graph as DirectShowGraphBuilderMBS)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Tells the graph builder object which filter graph to use.
Notes:

Lasterror is set.

graph: specifies the filter graph to use for subsequent calls to the AddFilter method.

The graph builder will automatically create a filter graph if you don't call this method. If you call this method after the graph builder has created its own filter graph, the call will fail.

3.8.20 SetOutputFileName(Type as DirectShowGUIDMBS, FilePath as string)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Creates the rendering section of the filter graph, which will save bits to disk with the specified file name.
Notes:

Lasterror is set.

Type: GUID representing the media subtype. Must be MEDIASUBTYPE_Avi.
FilePath: string containing the output file name.
filter: Optional, a filter representing the multiplexer filter.
Sink: Optional, a FileSinkFilter object representing the file writer.

This method inserts the multiplexer and the file writer into the filter graph and calls SetFileName to set the output file name.
See also:

- 3.8.21 SetOutputFileName(Type as DirectShowGUIDMBS, FilePath as string, byref filter as DirectShowBaseFilterMBS, byref sink as DirectShowFileSinkFilterMBS) 54

3.8.21 SetOutputFileName(Type as DirectShowGUIDMBS, FilePath as string, byref filter as DirectShowBaseFilterMBS, byref sink as DirectShowFileSinkFilterMBS)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Creates the rendering section of the filter graph, which will save bits to disk with the specified file name.
Notes:

Lasterror is set.

Type: GUID representing the media subtype. Must be MEDIASUBTYPE_Avi.
FilePath: string containing the output file name.
filter: Optional, a filter representing the multiplexer filter.
Sink: Optional, a FileSinkFilter object representing the file writer.

This method inserts the multiplexer and the file writer into the filter graph and calls SetFileName to set the output file name.
See also:

- 3.8.20 SetOutputFileName(Type as DirectShowGUIDMBS, FilePath as string) 53

3.8.22 Properties

3.8.23 Handle as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The internal object reference.
Notes:

Points to an ICaptureGraphBuilder interface.
(Read and Write property)

3.8.24 Lasterror as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.8.25 LasterrorMessage as String

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The formatted error message for the last error.
Notes: (Read and Write property)

3.9 class DirectShowConfigAviMuxMBS

3.9.1 class DirectShowConfigAviMuxMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** This class configures the AVI Mux filter.
Notes:

Applications can use this class to set the master stream and to create an AVI 1.0 index.

DirectShowConfigAviMuxMBS provides backward compatibility with older Video for Windows (VFW) Audio-Video Interleaved (AVI) index formats (idx1) as well as extended AVI 2.0 index formats (indx) to allow for file sizes greater than 1 gigabyte (GB). Set and retrieve the compatibility indexes by using the OutputCompatibilityIndex property.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.9.2 Methods

3.9.3 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.9.4 Properties

3.9.5 Handle as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The internal object reference.
Notes:

Points to an IConfigAviMux interface.
(Read and Write property)

3.9.6 Lasterror as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.

(Read and Write property)

3.9.7 LasterrorMessage as String

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The formatted error message for the last error.
Notes: (Read and Write property)

3.9.8 MasterStream as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Specifies the master stream that will be used to synchronize the other streams in the file.
Notes:

Specifies the index of the stream, or 1 to indicate no master stream. The AVI Mux writes one stream for each connected input pin. Stream numbers are indexed from zero.
Lasterror is set.

If you are capturing audio and video from two different sources, use this method to synchronize the streams. Streams coming from separate capture sources may be captured at slightly different rates. If you specify a master stream, the AVI Mux adjusts the playback rates for the other streams, to compensate for any drift that might occur.
It is recommended to use the audio stream as the master stream, because minor adjustments to the video playback rate are less noticeable than changes to the audio playback rate. Also, modifying the audio playback rate will cause the audio to be resampled by the audio driver.
This method works by adjusting the dwScale and dwRate values in the AVISTREAMHEADER structure.
(Read and Write computed property)

3.9.9 OutputCompatibilityIndex as Boolean

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Get or set the AVI index format.
Notes:

Lasterror is set.
True: Create an AVI 1.0 index, as well as an AVI 2.0 index.
False: Create an AVI 2.0 index, but not an AVI 1.0 index.

The AVI Mux filter always creates an AVI 2.0 index ('indx' format). If the value given in fOldIndex is TRUE, the AVI Mux also creates an AVI 1.0 index ('idx1' format), for backward compatibility with Video for Windows.

The AVI 2.0 index format allows for larger files, incremental growth of files, and minimized disk seeks. (Read and Write computed property)

3.10 class DirectShowConfigInterleavingMBS

3.10.1 class DirectShowConfigInterleavingMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The ConfigInterleaving interface controls how the AVI Mux filter interleaves audio and video samples.
Notes:

Video-authoring applications that handle capturing should use this interface when they need to control how audio samples and video frames will be saved on a disk.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.10.2 Methods

3.10.3 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.10.4 Properties

3.10.5 Handle as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The internal object reference.
Notes:

Points to an IConfigInterleaving interface.
(Read and Write property)

3.10.6 Lasterror as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.10.7 LasterrorMessage as String

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The formatted error message for the last error.
Notes: (Read and Write property)

3.10.8 Mode as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The interleaving quality setting.
Notes:

Lasterror is set.
See kInterleaving* constants.
(Read and Write computed property)

3.10.9 Constants

3.10.10 kInterleaveBuffered = 3

Plugin Version: 12.1. **Function:** One of the interleaving mode constants.
Notes:

Noninterleaved.
This mode is equivalent to kInterleaveNone but uses less file space and system overhead.

3.10.11 kInterleaveCapture = 1

Plugin Version: 12.1. **Function:** One of the interleaving mode constants.
Notes:

Approximate interleaving with less overhead than kInterleaveFull.
This mode is suitable for video capture. The AVI Mux attempts to use unbuffered, overlapped write operations. Unless the interleaving parameters are configured properly, however, frames may be dropped if one stream blocks while it waits for data from another stream. In particular, audio buffers should be less than .5 second, or else the video stream will block for excessive periods of time.

3.10.12 kInterleaveFull = 2

Plugin Version: 12.1. **Function:** One of the interleaving mode constants.
Notes:

Full, precise interleaving of audio samples and video frames.
Streams will block indefinitely, waiting for equal amounts of data before interleaving. This mode is suitable for authoring and playback.

3.10.13 kInterleaveNone = 0

Plugin Version: 12.1. **Function:** One of the interleaving mode constants.
Notes:

Noninterleaved.
Frames are written in the order they arrive. Files must be interleaved for playback at a later time. In this mode, the AVI Mux filter attempts to use unbuffered, overlapped write operations, to increase throughput.

3.11 class DirectShowDVInfoMBS

3.11.1 class DirectShowDVInfoMBS

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Describes the format of a digital video (DV) stream.
Notes: This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.11.2 Methods

3.11.3 Constructor

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.11.4 Properties

3.11.5 DVAAuxCtl as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Specifies the AAUX source control Pack for the first audio block.
Notes: (Read and Write property)

3.11.6 DVAAuxCtl1 as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Specifies the AAUX source control pack for the second audio block.
Notes: (Read and Write property)

3.11.7 DVAAuxSrc as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Specifies the audio auxiliary (AAUX) source pack for the first audio block.
Notes: (Read and Write property)

3.11.8 DVAAuxSrc1 as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Specifies the AAUX source pack for the second audio block.
Notes: (Read and Write property)

3.11.9 DVVAuxCtl as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Specifies the VAUX source control pack.
Notes: (Read and Write property)

3.11.10 DVVAuxSrc as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Specifies the video auxiliary (VAUX) source pack.
Notes: (Read and Write property)

3.12 class DirectShowEnumMonikerMBS

3.12.1 class DirectShowEnumMonikerMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Enumerates the monikers in a table of monikers.

3.12.2 Methods

3.12.3 Clone as DirectShowEnumMonikerMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Creates a new enumerator that contains the same enumeration state as the current one.
Notes:

This method makes it possible to record a particular point in the enumeration sequence and then return to that point at a later time. The caller must release this new enumerator separately from the first enumerator.

Returns nil on any error.
Lasterror is set.

3.12.4 CLSID_AudioCompressorCategory as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow filter categories.
Notes: Audio Compressors

3.12.5 CLSID_AudioInputDeviceCategory as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow filter categories.
Notes: Audio Capture Sources

3.12.6 CLSID_AudioRendererCategory as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow filter categories.
Notes: Audio Renderers

3.12.7 CLSID_DeviceControlCategory as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow filter categories.
Notes: Device Control Filters

3.12.8 CLSID_DVDHWDecodersCategory as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow filter categories.
Notes:

WDM Stream Decompression Devices
This category contains hardware DVD decoders.

3.12.9 CLSID_LegacyAmFilterCategory as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow filter categories.
Notes: DirectShow Filters

3.12.10 CLSID_MidiRendererCategory as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow filter categories.
Notes: Midi Renderers

3.12.11 CLSID_TransmitCategory as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow filter categories.
Notes: External Renderers

3.12.12 CLSID_VideoCompressorCategory as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow filter categories.

Notes: Video Compressors

3.12.13 CLSID_VideoInputDeviceCategory as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow filter categories.
Notes: Video Capture Sources

3.12.14 Constructor(clsidDeviceClass as DirectShowGUIDMBS)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Creates an enumerator for a specified device category.
Notes:

This method makes it possible to record a particular point in the enumeration sequence and then return to that point at a later time. The caller must release this new enumerator separately from the first enumerator.

Lasterror is set.

3.12.15 NextObject as DirectShowMonikerMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Retrieves the next item in the enumeration sequence.
Notes:

Returns nil on any error.
Lasterror is set.

3.12.16 Reset

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Resets the enumeration sequence to the beginning.
Notes:

Lasterror is set.
There is no guarantee that the same set of objects will be enumerated after the reset operation has completed. A static collection is reset to the beginning, but it can be too expensive for some collections, such as files in a directory, to guarantee this condition.

3.12.17 Skip(n as Integer)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Skips over the specified number of items in the enumeration sequence.
Notes: Lasterror is set.

3.12.18 Properties

3.12.19 Handle as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The internal object reference.
Notes:

Points to an IEnumMoniker interface.
(Read and Write property)

3.12.20 Lasterror as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.12.21 LasterrorMessage as String

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The formatted error message for the last error.
Notes: (Read and Write property)

3.13 class DirectShowEnumPinsMBS

3.13.1 class DirectShowEnumPinsMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Enumerates pins on a filter.
Notes:

The BaseFilterMBS.EnumPins method returns this interface. It is based on the standard Component Object Model (COM) enumerators.
The filter graph manager uses this interface when it connects filters. Applications can use it to retrieve pins on a filter. For more information, see Enumerating Objects in a Filter Graph.
If the number of pins on the filter changes, some methods on this interface return VFW_E_ENUM_OUT_OF_SYNC. Call the Reset method to resynchronize the enumerator.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.13.2 Methods

3.13.3 Clone as DirectShowEnumPinsMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The Clone method makes a copy of the enumerator with the same enumeration state.
Notes:

Lasterror is set. Returns nil on any error.

If the number of pins changes, the enumerator is no longer consistent with the filter, and the method returns VFW_E_ENUM_OUT_OF_SYNC. Discard any data obtained from previous calls to the enumerator, because it might be invalid. Update the enumerator by calling the IEnumPins::Reset method. You can then call the Clone method safely.

3.13.4 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.13.5 NextObject as DirectShowPinMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The Next method retrieves the next pin in the enumeration sequence.
Notes:

Lasterror is set. Returns nil on any error.

If the number of pins changes, the enumerator is no longer consistent with the filter, and the method returns VFW_E_ENUM_OUT_OF_SYNC. Discard any data obtained from previous calls to the enumerator, because it might be invalid. Update the enumerator by calling the IEnumPins::Reset method. You can then call the Next method safely.

3.13.6 Reset

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The Reset method resets the enumeration sequence to the beginning.
Notes: Lasterror is set.

3.13.7 Skip(n as Integer)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The Skip method skips over a specified number of pins.
Notes:

n: Number of pins to skip.

Lasterror is set.

If the number of pins changes, the enumerator is no longer consistent with the filter, and the method returns VFW_E_ENUM_OUT_OF_SYNC. Discard any data obtained from previous calls to the enumerator, because it might be invalid. Update the enumerator by calling the IEnumPins::Reset method. You can then call the Skip method safely.

3.13.8 Properties

3.13.9 Handle as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The internal object reference.
Notes:

Points to an IEnumPins interface.
(Read and Write property)

3.13.10 Lasterror as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.13.11 LasterrorMessage as String

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The formatted error message for the last error.
Notes: (Read and Write property)

3.14 class DirectShowFileSinkFilterMBS

3.14.1 class DirectShowFileSinkFilterMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The FileSinkFilter interface is implemented on filters that write media streams to a file.
Notes:

A file sink filter in a video capture filter graph, for instance, writes the output of the video compression filter to a file. Typically, the application running this filter graph should enable the user to enter the name of the file to be written to. This interface enables the communication of this information.
If a filter needs the name of an output file, it should expose this interface to allow an application to set the file name. Note that there is currently no base class implementation of this interface.
Any application that must set the name of the file into which the file sink filter will write should use this interface to get and set the file name.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.14.2 Methods

3.14.3 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.14.4 MEDIASUBTYPE_Asf as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The media sub type for ASF video files.

3.14.5 MEDIASUBTYPE_Avi as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The media sub type for AVI video files.

3.14.6 Properties

3.14.7 Handle as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The internal object reference.
Notes:

Points to an IFileSinkFilter interface.
(Read and Write property)

3.14.8 Lasterror as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.14.9 LasterrorMessage as String

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The formatted error message for the last error.
Notes: (Read and Write property)

3.15 class DirectShowFilterGraphMBS

3.15.1 class DirectShowFilterGraphMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** This class provides methods for building a filter graph.
Notes:

An application can use it to add filters to the graph, connect or disconnect filters, remove filters, and perform other basic operations. However, the DirectShowGraphBuilderMBS interface inherits from this interface and provides additional methods that are more sophisticated. Therefore, applications should use DirectShowGraphBuilderMBS rather than using DirectShowFilterGraphMBS directly.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.15.2 Methods

3.15.3 AddFilter(SourceFilter as DirectShowBaseFilterMBS, Name as string = "")

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Adds a filter to the graph.
Notes:

Filter: The filter to add.
Name: name for filter.

Lasterror is set.

The name of the filter can be "", in which case the Filter Graph Manager generates a name. If the name is not "" and is not unique, this method will modify the name in an attempt to generate a new unique name. If this is successful, this method sets lasterror to VFW_S_DUPLICATE_NAME. If it cannot generate a unique name, it sets lasterror to VFW_E_DUPLICATE_NAME.
AddFilter calls the filter's JoinFilterGraph method to inform the filter that it has been added. AddFilter must be called before attempting to use the Connect, ConnectDirect, or Render method to connect or render pins belonging to the added filter.
The Filter Graph Manager holds a reference count on the filter until the filter is removed from the graph or the Filter Graph Manager is released.

3.15.4 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.15.5 SetDefaultSyncSource

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Sets the reference clock to the default clock.
Notes:

Lasterror is set.

This method instructs the Filter Graph Manager to choose a reference clock using its default algorithm. For more information about the algorithm that it uses, see Reference Clocks.
Usually you do not need to call this method, because the Filter Graph Manager automatically selects a clock. However, if you call SetSyncSource to override the clock, you can use SetDefaultSyncSource to restore the default clock.
This method fails if the filter graph is running or paused.

3.15.6 Properties

3.15.7 Handle as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The internal object reference.
Notes:

Points to an IFilterGraph interface.
(Read and Write property)

3.15.8 Lasterror as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.15.9 LasterrorMessage as String

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The formatted error message for the last error.

Notes: (Read and Write property)

3.16 class DirectShowFilterInfoMBS

3.16.1 class DirectShowFilterInfoMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The class for information about a filter.
Notes: This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.16.2 Methods

3.16.3 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.16.4 Properties

3.16.5 Graph as DirectShowFilterGraphMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Returns filter graph.
Notes:

If the filter is member of a filter graph, this is a reference to the filter graph's FilterGraph interface. If the filter is not a member of a filter graph, this value of this member is nil.
(Read and Write property)

3.16.6 Name as String

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The name of the filter.
Notes: (Read and Write property)

3.17 class DirectShowGraphBuilderMBS

3.17.1 class DirectShowGraphBuilderMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** This class provides methods that enable an application to build a filter graph.
Notes:

The GraphBuilder interface inherits from the FilterGraph interface. FilterGraph provides basic operations, such as adding a filter to the graph or connecting two pins. GraphBuilder adds further methods that construct graphs from partial information. For example, the RenderFile method builds a graph for file playback, given the name of the file. The Render method renders data from an output pin by connecting new filters to the pin.

Using these methods, an application does not need to specify every filter and pin connection in the graph. Instead, the Filter Graph Manager selects filters that are registered on the user's system, adds them to the graph, and connects them.

see also
http://msdn.microsoft.com/en-us/library/windows/desktop/dd390085(v=vs.85).aspx
Subclass of the DirectShowFilterGraphMBS class.

3.17.2 Methods

3.17.3 Abort

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The Abort method requests the Filter Graph Manager to halt its current task as quickly as possible.
Notes:

The current task may or may not fail to complete. Possibly the fastest option for the Filter Graph Manager is to complete the task.

Lasterror is set.

3.17.4 AddSourceFilter(FileName as string, FilterName as string) as DirectShowBaseFilterMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Adds a source filter for a specified file to the filter graph.
Notes:

FileName: the name of the file to load.
FilterName: name for the source filter.

Lasterror is set.

This method searches for an installed filter that can read the specified file. If it finds one, the method adds it to the filter graph and returns a pointer to the filter's IBaseFilter interface. To determine the media type and compression scheme of the file, the Filter Graph Manager reads the first few bytes of the file, looking for specific patterns of bytes, as documented in the article Registering a Custom File Type.

The application is responsible for building the rest of the filter graph. To do so, call EnumPins to enumerate the output pins on the source filter. Then use either the Connect method or the Render method.

If the method succeeds, the BaseFilter interface has an outstanding reference count. The caller must release the interface.

To render a file for default playback, use the RenderFile method.

The Filter Graph Manager holds a reference count on the filter until the filter is removed from the graph or the Filter Graph Manager is released.

3.17.5 Connect(pinOut as DirectShowPinMBS, pinIn as DirectShowPinMBS)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Connects the two pins, using intermediates if necessary.
Notes:

pinOut: the output pin.
pinIn: the input pin.

Lasterror is set.

This method connects two pins directly or indirectly, adding intermediate filters if necessary. The method starts by attempting a direct connection. If that fails, it tries to use any filters that are already in the filter graph and have unconnected input pins. (It enumerates these in an arbitrary order.) If that fails, it searches for filters in the registry, and tries them in order of merit.

During the connection process, the Filter Graph Manager ignores pins on intermediate filters if the pin name begins with a tilde (
textasciitilde).

see also
http://msdn.microsoft.com/en-us/library/windows/desktop/dd390088(v=vs.85).aspx

3.17.6 ConnectFilters(pinOut as DirectShowPinMBS, dest as DirectShowBaseFilterMBS)

Plugin Version: 12.3, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Convenience function to connect an output pin to a filter.
Notes: Lasterror is set.
See also:

- 3.17.7 ConnectFilters(source as DirectShowBaseFilterMBS, dest as DirectShowBaseFilterMBS) 79
- 3.17.8 ConnectFilters(source as DirectShowBaseFilterMBS, pinIn as DirectShowPinMBS) 79

3.17.7 ConnectFilters(source as DirectShowBaseFilterMBS, dest as DirectShowBaseFilterMBS)

Plugin Version: 12.3, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Convenience function to connect two filters.
Notes: Lasterror is set.
See also:

- 3.17.6 ConnectFilters(pinOut as DirectShowPinMBS, dest as DirectShowBaseFilterMBS) 79
- 3.17.8 ConnectFilters(source as DirectShowBaseFilterMBS, pinIn as DirectShowPinMBS) 79

3.17.8 ConnectFilters(source as DirectShowBaseFilterMBS, pinIn as DirectShowPinMBS)

Plugin Version: 12.3, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Convenience function to connect a filter to an input pin.
Notes: Lasterror is set.
See also:

- 3.17.6 ConnectFilters(pinOut as DirectShowPinMBS, dest as DirectShowBaseFilterMBS) 79
- 3.17.7 ConnectFilters(source as DirectShowBaseFilterMBS, dest as DirectShowBaseFilterMBS) 79

3.17.9 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The constructor.

3.17.10 MediaControl as DirectShowMediaControlMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Queries related media control object.
Notes: Lasterror is set.

3.17.11 MediaEventEx as DirectShowMediaEventExMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Queries related media event object.
Notes: Lasterror is set.

3.17.12 Render(pinOut as DirectShowPinMBS)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The Render method builds a filter graph that renders the data from a specified output pin.
Notes:

pinOut: an output pin.
Lasterror is set.

This method renders the data from a specified output pin, adding new filters to the graph as needed. Filters are tried in the same order as for the Connect method. For more information, see Intelligent Connect.
During the connection process, the Filter Graph Manager ignores pins on intermediate filters if the pin name begins with a tilde (
textasciitilde).

3.17.13 RenderFile(FilePath as string)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Builds a filter graph that renders the specified file.
Notes:

FilePath: string that contains the name of a media file.
Lasterror is set.

If the FilePath parameter specifies a media file, the method builds a filter graph for default playback. First it adds a source filter that can read the file, using the same process as the AddSourceFilter method. Then it renders the output pins on the source filter, adding intermediate filters if necessary. It tries filters in the same order as the Connect method.
During the connection process, the Filter Graph Manager ignores pins on intermediate filters if the pin name

begins with a tilde (
textasciitilde).
Note that the RenderFile method does not remove any filters from the graph. If you call RenderFile twice, the second call simply adds more filters to the graph. When you run the graph, both sources will play at the same time.

3.17.14 SetLogFile(FilePath as string)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The SetLogFile method sets the file for logging actions taken when attempting to perform an operation.
Notes:

This method is for use in debugging; it is intended to help you determine the cause of any failure to automatically build a filter graph.
Lasterror is set.

3.17.15 VideoWindow as DirectShowVideoWindowMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Queries the video window related tot this graph builder.
Notes: Lasterror is set.

3.18 class DirectShowGUIDMBS

3.18.1 class DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The class for a Windows unique ID.
Notes: If you need to validate a GUID or UUID, please check the IsGUID function in our FAQ.

3.18.2 Methods

3.18.3 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Creates a GUID with only zeros.
Example:

```
dim g as new DirectShowGUIDMBS

MsgBox g.DisplayString
```

See also:

- 3.18.4 Constructor(value1 as Integer, value2 as Integer, value3 as Integer, value4 as Integer, value5 as Integer, value6 as Integer, value7 as Integer, value8 as Integer, value9 as Integer, value10 as Integer, value11 as Integer, value12 as Integer, value13 as Integer, value14 as Integer, value15 as Integer, value16 as Integer) 82

3.18.4 Constructor(value1 as Integer, value2 as Integer, value3 as Integer, value4 as Integer, value5 as Integer, value6 as Integer, value7 as Integer, value8 as Integer, value9 as Integer, value10 as Integer, value11 as Integer, value12 as Integer, value13 as Integer, value14 as Integer, value15 as Integer, value16 as Integer)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Creates a new GUID with the given byte values.
Example:

```
dim g as new DirectShowGUIDMBS(& h14, & h3e, & h4e, & h83, & h64, & h97, & h11, & hd2, & ha2, & h31, & h00, & hc0, & h4f, & ha3, & h18, & h09)

MsgBox g.DisplayString
```

See also:

- 3.18.3 Constructor 82

3.18.5 DisplayString as string

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The ID well formatted.

3.18.6 Equal(other as DirectShowGUIDMBS) as boolean

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Checks whether two GUIDs are equal.
Notes: Returns true if both items are equals.

3.18.7 Properties

3.18.8 Byte(index as Integer) as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Read or write the byte value.
Example:

```
dim g as new DirectShowGUIDMBS

g.Byte(1) = 65

MsgBox str(g.Byte(1)) // shows 65
```

Notes: (Read and Write computed property)

3.18.9 Data as string

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The UID as binary string.
Notes: (Read and Write computed property)

3.19 class DirectShowMediaControlMBS

3.19.1 class DirectShowMediaControlMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Provides methods for controlling the flow of data through the filter graph.
Notes:

It includes methods for running, pausing, and stopping the graph. The Filter Graph Manager implements this interface.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.19.2 Methods

3.19.3 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.19.4 GetState(msTimeout as Integer = -1) as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Retrieves the state of the filter graphpaused, running, or stopped.
Notes:

msTimeout: Duration of the time-out, in milliseconds, or INFINITE (-1) to specify an infinite time-out.

State transitions are not necessarily synchronous. Therefore, when you call this method, the filter graph might be in transition to a new state. In that case, the method blocks until the transition completes or until the specified time-out elapses.

Lasterror is set.

Applications can use this method to determine whether playback has started after a call to Run. Generally, applications should have their own mechanism for tracking which state they have put the filter graph into. Applications typically use the current state to determine which user interface controls are enabled or disabled. For example, once the graph goes into the running state, the application might disable a "Play" button and enable "Stop" and "Pause" buttons.
If the filter graph is in a transition to a new state, the returned state is the new state, not the previous state. This method returns an error if there is a call on another thread to change the state while this method is blocked.
Avoid specifying a time-out of INFINITE, because threads cannot process messages while waiting in Get-

State. If you call GetState from the thread that processes Windows messages, specify small wait times on the call in order to remain responsive to user input. This is especially important when the source is streaming over a network or from the Internet because state transitions in these environments can take significantly more time to complete.

3.19.5 Pause

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Pauses all the filters in the filter graph.
Notes:

Lasterror is set.

Pausing the filter graph cues the graph for immediate rendering when the graph is next run. While the graph is paused, filters process data but do not render it. Data is pushed through the graph and processed by transform filters as far as buffering permits, but renderer filters do not render the data. However, video renderers display a static poster frame of the first sample.

If the method returns S_FALSE, call the GetState method to wait for the state transition to complete, or to check if the transition has completed. When you call Pause to display the first frame of a video file, always follow it immediately with a call to GetState to ensure that the state transition has completed. Failure to do this can result in the video rectangle being painted black.
If the method fails, it stops the graph before returning.

3.19.6 RenderFile(FilePath as string)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Builds a filter graph that renders the specified file.
Notes:

Lasterror is set.

filePath: Specifies the name of the file to load.

3.19.7 Run

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Runs all the filters in the filter graph.
Notes:

While the graph is running, data moves through the graph and is rendered.

Lasterror is set.

If the filter graph is stopped, this method pauses the graph before running. If the graph is already running, the method returns S_OK but has no effect.
The graph runs until the application calls the Pause or Stop method. When playback reaches the end of the stream, the graph continues to run, but the filters do not stream any more data. At that point, the application can pause or stop the graph. For information about the end-of-stream event, see Pause and EC_COMPLETE.
This method does not seek to the beginning of the stream. Therefore, if you run the graph, pause it, and then run it again, playback resumes from the paused position. If you run the graph after it has reached the end of the stream, nothing is rendered. To seek the graph, use the MediaSeeking interface.
If method returns S_FALSE, it means that the method returned before all of the filters switched to a running state. The filters will complete the transition after the method returns. Optionally, you can wait for the transition to complete by calling the GetState method with a timeout value. However, this is not required.
If the Run method returns an error code, it means that one or more filters failed to run. However, some filters might be in a running state. In a multistream graph, entire streams might be playing successfully. Typically the application would tear down the graph and report an error in this case.

3.19.8 Stop

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Stops all the filters in the graph.
Notes:

Lasterror is set.

If the graph is running, this method pauses the graph before stopping it. While paused, video renderers can copy the current frame to display as a poster frame.

This method does not seek to the beginning of the stream. If you call this method and then call the Run method, playback resumes from the stopped position. To seek, use the IMediaSeeking interface.

The Filter Graph Manager pauses all the filters in the graph, and then calls the Stop method on all filters, without waiting for the pause operations to complete. Therefore, some filters might have their Stop method called before they complete their pause operation. If you develop a custom rendering filter, you might need to handle this case by pausing the filter if it receives a stop command while in a running state. However, most filters do not need to take any special action in this regard.

3.19.9 StopWhenReady

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Pauses the filter graph, allowing filters to queue data, and then stops the filter graph.

Notes:

Lasterror is set.

This method is useful if you want to seek the filter graph while the graph is stopped. As long as the filter graph is stopped, changes in the current position do not repaint the video window with a new frame. Therefore, calling SetPositions does not update the video window. To update the window after the seek operation, call StopWhenReady. This method transitions the graph to a paused state, waits for the pause operation to complete, and then transitions the graph back to stopped. The pause operation queues data in the graph, so that the video renderer receives and displays the new frame.

This method is asynchronous. It waits on a separate thread for the pause to complete. The calling thread does not block, which enables the application to respond to user input. When the method returns, the logical state of the graph is stopped, even before the pause operation completes. If you call the GetState method at this point, it returns State_Stopped.

If the application issues another state-change command (such as pause, run, or seek) before the pause operation completes, the new command cancels the pending stop command. The pause operation completes, but the graph does not stop.

3.19.10 Properties

3.19.11 Handle as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The internal object reference.
Notes:

Points to an IMediaControl interface.
(Read and Write property)

3.19.12 Lasterror as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.19.13 LasterrorMessage as String

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The formatted error message for the last error.
Notes: (Read and Write property)

3.19.14 Constants

3.19.15 kStatePaused = 1

Plugin Version: 12.1. **Function:** One of the state constants.
Notes: Paused

3.19.16 kStateRunning = 2

Plugin Version: 12.1. **Function:** One of the state constants.
Notes: Running

3.19.17 kStateStopped = 0

Plugin Version: 12.1. **Function:** One of the state constants.
Notes: Stopped.

3.20 class DirectShowMediaEventExMBS

3.20.1 class DirectShowMediaEventExMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The class for extended options for media event handling.
Notes:

The DirectShowMediaEventExMBS interface inherits the DirectShowMediaEventMBS interface, which contains methods for retrieving event notifications and for overriding the filter graph's default handling of events. MediaEventEx adds methods that enable an application window to receive messages when events occur.
Subclass of the DirectShowMediaEventMBS class.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.20.2 Methods

3.20.3 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.20.4 Properties

3.20.5 NotifyFlags as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Enables or disables event notifications.
Notes:

Value indicating whether to enable or disable event notifications. Must be one of the following values: 0 = Enable event notifications or AM_MEDIAEVENT_NONOTIFY = Disable event notifications.

Lasterror is set.

By default, the Filter Graph Manager posts event notifications for the application. If the NotifyFlags parameter is AM_MEDIAEVENT_NONOTIFY, the Filter Graph Manager clears any pending event notifications from the queue, and does not post any new ones.
If event notifications are disabled, the handle returned by the GetEventHandle method is signaled at the end of each streamthat is, whenever the Filter Graph Manager receives an EC_COMPLETE event.
(Read and Write computed property)

3.20.6 Constants

3.20.7 AM_MEDIAEVENT_NONOTIFY = 1

Plugin Version: 12.1. **Function:** One of the notify flags constant.
Notes: Pass this value to NotifyFlags to disable event notification.

3.21 class DirectShowMediaEventMBS

3.21.1 class DirectShowMediaEventMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The class for media event handling.
Notes:

The MediaEvent interface contains methods for retrieving event notifications and for overriding the Filter Graph Manager's default handling of events. The MediaEventEx interface inherits this interface and extends it.

The Filter Graph Manager implements this interface. Applications can use it to respond to events that occur in the filter graph, such as the end of a stream or a rendering error. Filters post events to the filter graph using the IMediaEventSink interface.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.21.2 Methods

3.21.3 CancelDefaultHandling(eventCode as Integer)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Cancels the Filter Graph Manager's default handling for a specified event.
Notes:

The event notification is passed to the application.
Lasterror is set.

To restore the default handling for an event, call the RestoreDefaultHandling method with the event code.

3.21.4 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.21.5 FreeEventParams(eventCode as Integer, Param1 as Integer, Param2 as Integer)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Frees resources associated with the parameters of an event.

Notes:

EventCode: Event code.
Param1: First event parameter.
Param2: Second event parameter.

Lasterorr is set.
After you call the GetEvent method to retrieve an event notification, you must call FreeEventParams. This method frees any resources that were allocated for the event parameters. Pass in the same variables used for the GetEvent call.

3.21.6 RestoreDefaultHandling(eventCode as Integer)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Restores the Filter Graph Manager's default handling for a specified event.
Notes:

Lasterror is set.
By default, the Filter Graph Manager handles some events (such as EC_REPAINT) without passing them to the application. If you call the CancelDefaultHandling method to override the default handling for an event, you can restore the default behavior by calling RestoreDefaultHandling with the same event code.

3.21.7 Properties

3.21.8 Handle as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The internal object reference.
Notes:

Points to an IMediaEvent interface.
(Read and Write property)

3.21.9 Lasterror as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.21.10 LasterrorMessage as String

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The formatted error message for the last error.
Notes: (Read and Write property)

3.21.11 Constants

3.21.12 AM_MEDIAEVENT_NONOTIFY = 1

Plugin Version: 12.1. **Function:** One of the notify flags constant.
Notes: Pass this value to NotifyFlags to disable event notification.

3.22 class DirectShowMediaFilterMBS

3.22.1 class DirectShowMediaFilterMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The MediaFilter interface controls the streaming state of a filter.
Notes:

All DirectShow filters implement this interface. It provides methods for switching the filter between states (stopped, paused, and running); for retrieving the filter's current state; and for setting a reference clock. Applications should not call MediaFilter methods on filters.

The Filter Graph Manager also exposes this interface. Applications can use the SetSyncSource method to set the graph reference clock, and GetSyncSource to retrieve the clock. Applications should not call the other methods on this interface. Instead, use the corresponding methods on the MediaControl interface.
The BaseFilter interface inherits from MediaFilter.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.22.2 Methods

3.22.3 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.22.4 Pause

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The Pause method pauses the filter.
Notes:

Lasterror is set.

When a filter is paused, it can receive, process, and deliver samples. However, a renderer filter will only accept one sample while paused. Therefore, when the filter graph is paused, samples move through the graph until the first sample reaches the renderer. At that point, streaming is paused until the Run method is called. Video renderers display the first sample as a still frame.

Live capture filters do not deliver any samples while paused, only while running.

The state transition might be asynchronous. If the method returns before the transition completes, the

lasterror value is 1. A renderer filter does not complete the transition to paused until either (1) it receives one sample, or (2) it receives an end-of-stream notification. While the state transition is pending, State gives lasterror VFW_S_STATE_INTERMEDIATE.

3.22.5 Run(StartTime as Int64)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The Run method runs the filter.
Notes:

StartTime: Reference time corresponding to stream time 0.
Lasterror is set.

When a filter is running, it can receive, process, and deliver samples. Source filters generate new samples, and renderer filters render them.
The state transition might be asynchronous. If the method returns before the transition completes, the lasterror value is 1.
Stream time is calculated as the current reference time minus StartTime. To calculate when a media sample should be rendered, the renderer compares the time stamp with the current stream time. Thus, a media sample with a time stamp of zero should be rendered at time StartTime. For more information, see Time and Clocks in DirectShow.
When an application calls the Run method, the Filter Graph Manager calls Run on each filter. It sets the value of StartTime slightly in the future, to account for graph latency.

3.22.6 Stop

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The Stop method stops the filter.
Notes:

Lasterror is set.
When a filter is stopped, it does not process or deliver any samples, and it rejects samples from upstream filters.
The state transition might be asynchronous. If the method returns before the transition completes, the lasterror value is 1.
This method always sets the filter's state to kStateStopped, even if the method returns an error code.

3.22.7 Properties

3.22.8 Handle as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The internal object reference.
Notes:

Points to an IMediaFilter interface.
(Read and Write property)

3.22.9 Lasterror as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.22.10 LasterrorMessage as String

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The formatted error message for the last error.
Notes: (Read and Write property)

3.22.11 Constants

3.22.12 kStatePaused = 1

Plugin Version: 12.1. **Function:** One of the filter state constants.
Notes: Paused. The filter is processing data, but not rendering it.

3.22.13 kStateRunning = 2

Plugin Version: 12.1. **Function:** One of the filter state constants.
Notes: Running. The filter is processing and rendering data.

3.22.14 kStateStopped = 0

Plugin Version: 12.1. **Function:** One of the filter state constants.
Notes: Stopped. The filter is not processing data.

3.23 class DirectShowMediaTypeMBS

3.23.1 class DirectShowMediaTypeMBS

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Describes the format of a media sample.
Notes:

see also
http://msdn.microsoft.com/en-us/library/windows/desktop/dd373477(v=vs.85).aspx
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.23.2 Methods

3.23.3 Constructor

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.23.4 Properties

3.23.5 DVINFO as DirectShowDVInfoMBS

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Queries format data as DVInfo.
Notes:

Returns nil if format is not a DVInfo.
(Read only property)

3.23.6 FixedSizeSamples as Boolean

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** If true, samples are of a fixed size.
Notes:

This field is informational only. For audio, it is generally set to true. For video, it is usually true for uncompressed video and false for compressed video.
(Read and Write property)

3.23.7 FormatType as DirectShowGUIDMBS

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** GUID that specifies the structure used for the format block.
Notes: (Read and Write property)

3.23.8 Handle as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Internal object reference.
Notes: (Read and Write property)

3.23.9 MajorType as DirectShowGUIDMBS

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Globally unique identifier (GUID) that specifies the major type of the media sample. F
Notes:

or a list of possible major types, see Media Types.
http://msdn.microsoft.com/en-us/library/windows/desktop/dd390670(v=vs.85).aspx
(Read and Write property)

3.23.10 SampleSize as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Size of the sample in bytes. For compressed data, the value can be zero.
Notes: (Read and Write property)

3.23.11 SubType as DirectShowGUIDMBS

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** GUID that specifies the subtype of the media sample.
Notes:

For a list of possible subtypes, see Media Types. For some formats, the value might be MEDIASUBTYPE_None, which means the format does not require a subtype.
http://msdn.microsoft.com/en-us/library/windows/desktop/dd390670(v=vs.85).aspx
(Read and Write property)

3.23.12 TemporalCompression as Boolean

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** If true, samples are compressed using temporal (interframe) compression.
Notes:

A value of true indicates that not all frames are key frames. This field is informational only.
(Read and Write property)

3.23.13 VideoInfoHeader as DirectShowVideoInfoHeaderMBS

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Queries format data as VideoInfoHeader.
Notes:

Returns nil if format is not a VideoInfoHeader.
(Read only property)

3.23.14 VideoInfoHeader2 as DirectShowVideoInfoHeader2MBS

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Queries format data as VideoInfoHeader2.
Notes:

Returns nil if format is not a VideoInfoHeader2.
(Read only property)

3.23.15 WaveFormat as DirectShowWaveFormatMBS

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Queries format data as WaveFormat.
Notes:

Returns nil if format is not a WaveFormat.
(Read only property)

3.24 class DirectShowMonikerMBS

3.24.1 class DirectShowMonikerMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The moniker class to query information about devices.
Notes:

In this plugin we use monikers to enumerate filters and devices in order to connect with BindBaseFilter method.

Enables you to use a moniker object, which contains information that uniquely identifies a COM object. An object that has a pointer to the moniker object's IMoniker interface can locate, activate, and get access to the identified object without having any other specific information on where the object is actually located in a distributed system.
Monikers are used as the basis for linking in COM. A linked object contains a moniker that identifies its source. When the user activates the linked object to edit it, the moniker is bound; this loads the link source into memory.

see also
http://msdn.microsoft.com/en-us/library/windows/desktop/ms679705(v=vs.85).aspx
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.24.2 Methods

3.24.3 BindBaseFilter as DirectShowBaseFilterMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Binds moniker to a base filter.
Notes:

Lasterror is set.

This implements the primary function of a moniker, which is to locate the object identified by the moniker and return a pointer to one of its interfaces.

see also
http://msdn.microsoft.com/en-us/library/windows/desktop/ms691433(v=vs.85).aspx

3.24.4 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.24.5 DisplayName(BindContext as DirectShowBindContextMBS = nil) as string

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Retrieves the display name for the moniker.
Notes:

BindContext: The DirectShowBindContextMBS interface on the bind context to be used in this operation. The bind context caches objects bound during the binding process, contains parameters that apply to all operations using the bind context, and provides the means by which the moniker implementation should retrieve information about its environment. If you provide nil, the plugin creates a temporary context.

GetDisplayName provides a string that is a displayable representation of the moniker. A display name is not a complete representation of a moniker's internal state; it is simply a form that can be read by users. As a result, it is possible (though rare) for two different monikers to have the same display name.

This is not a text to show to user.

3.24.6 EnumMonikers(forward as boolean) as DirectShowEnumMonikerMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Retrieves enumerator for the components of a composite moniker.
Notes: Lasterror is set.

3.24.7 Hash as UInt32

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Creates a hash value using the internal state of the moniker.
Notes: Lasterror is set.

3.24.8 IsEqual(other as DirectShowMonikerMBS) as Boolean

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Determines whether this moniker is identical to the specified moniker.

Notes:

Returns true if both are identical.
Lasterror is set.

3.24.9 Properties(BindContext as DirectShowBindContextMBS = nil) as DirectShowPropertyBagMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Creates property bag with properties of the moniker.
Notes: Lasterror is set.

3.24.10 Properties

3.24.11 Handle as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The internal object reference.
Notes:

Points to an IMoniker interface.
(Read and Write property)

3.24.12 Lasterror as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.24.13 LasterrorMessage as String

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The formatted error message for the last error.
Notes: (Read and Write property)

3.25 class DirectShowNullRendererMBS

3.25.1 class DirectShowNullRendererMBS

Plugin Version: 12.3, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The null renderer filter.
Notes:

The Null Renderer filter is a renderer that discards every sample it receives, without displaying or rendering the sample data.

Use this filter when an output pin in the graph requires a downstream connection, but you do not wish to render the data from that pin. By connecting the output pin to the Null Renderer, you complete the connection without rendering the data.
Subclass of the DirectShowBaseFilterMBS class.

3.25.2 Methods

3.25.3 Constructor

Plugin Version: 12.3, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Creates a new Null filter.
Notes: On success the handle property is not zero.

3.26 class DirectShowPinMBS

3.26.1 class DirectShowPinMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** This interface is exposed by all input and output pins.
Notes:

The filter graph manager uses this interface to connect pins and perform flushing operations. Applications can use this interface to query the pin for information.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.26.2 Methods

3.26.3 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.26.4 Disconnect

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The Disconnect method breaks the current pin connection.
Notes:

The Filter Graph Manager calls this method when it disconnects two filters. Applications and filters should not call this method. Instead, call the DirectShowFilterGraphMBS.Disconnect method on the Filter Graph Manager.
Sets lasterror.

This method fails if the filter is paused or running. If the pin supports the PinConnection interface, call PinConnection DynamicDisconnect to disconnect the pin when the filter is paused or running.
This method does not disconnect the other pin in the pin connection.

3.26.5 PIN_CATEGORY_ANALOGVIDEOIN as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow pin categories.
Notes: Input pin of the capture filter that takes analog and digitizes it.

3.26.6 PIN_CATEGORY_CAPTURE as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow pin categories.
Notes: Capture pin.

3.26.7 PIN_CATEGORY_CC as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow pin categories.
Notes: Pin providing closed captioning data from Line 21.

3.26.8 PIN_CATEGORY_EDS as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow pin categories.
Notes: Pin providing Extended Data Services (Line 21, even fields).

3.26.9 PIN_CATEGORY_NABTS as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow pin categories.
Notes: Pin providing North American Videotext Standard data.

3.26.10 PIN_CATEGORY_PREVIEW as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow pin categories.
Notes: Preview pin.

3.26.11 PIN_CATEGORY_STILL as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow pin categories.
Notes: Pin that provides a still image. The filter's capture pin must be connected before the still-image pin is connected.

3.26.12 PIN_CATEGORY_TELETEXT as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow pin categories.
Notes: Pin providing teletext (a closed captioning variant).

3.26.13 PIN_CATEGORY_TIMECODE as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow pin categories.
Notes: Pin providing timecode data.

3.26.14 PIN_CATEGORY_VBI as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow pin categories.
Notes: Pin to be connected to the VBI Surface Allocator, the VBI surface allocator filter that is needed to allocate the correct video memory for things like closed captioning overlays in scenarios where a video port is being used. PCI, IEEE 1394, and USB scenarios do not use this filter.

3.26.15 PIN_CATEGORY_VIDEOPORT as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow pin categories.
Notes: Video output pin to be connected to input pin zero on the Overlay Mixer.

3.26.16 PIN_CATEGORY_VIDEOPORT_VBI as DirectShowGUIDMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** One of the DirectShow pin categories.
Notes: Pin providing vertical blanking interval data.

3.26.17 Properties

3.26.18 Handle as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The internal object reference.
Notes:

Points to an IPin interface.
(Read and Write property)

3.26.19 Lasterror as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.26.20 LasterrorMessage as String

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The formatted error message for the last error.
Notes: (Read and Write property)

3.27 class DirectShowPropertyBagMBS

3.27.1 class DirectShowPropertyBagMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Provides an object with a property bag in which the object can save its properties persistently.
Notes:

used for Monikers to store properties like description and user friendly name.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.27.2 Methods

3.27.3 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The private constructor.

3.27.4 Description as string

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Convenience method to read description.
Notes: Lasterror is set.

3.27.5 DevicePath as string

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Convenience method to read device path.
Notes: Lasterror is set.

3.27.6 FriendlyName as string

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Convenience method to read friendly name.
Notes: Lasterror is set.

3.27.7 Read(name as string) as Variant

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** Reads one of the properties into a variant.
Notes:

As we only need 3 properties for DirectShowMonikerMBS.Properties, we have direct accessors.
Lasterror is set.

3.27.8 Properties

3.27.9 Handle as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The internal object reference.
Notes:

Points to an IPropertyBag interface.
(Read and Write property)

3.27.10 Lasterror as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.27.11 LasterrorMessage as String

Plugin Version: 12.1, Console & Web: Yes, Mac: Yes, Win: Yes, Linux: Yes. **Function:** The formatted error message for the last error.
Notes: (Read and Write property)

3.28 class DirectShowSampleGrabberMBS

3.28.1 class DirectShowSampleGrabberMBS

Plugin Version: 12.3, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The class for a sample grabber.
Notes:

The Sample Grabber filter provides a way to retrieve samples as they pass through the filter graph. It is a transform filter with one input pin and one output pin. It passes all samples downstream unchanged, so you can insert it into a filter graph without altering the data stream. Your application can then retrieve individual samples from the filter by calling methods on the ISampleGrabber interface.
If you want to retrieve samples without rendering the data, connect the Sample Grabber filter to the Null Renderer filter.

3.28.2 Methods

3.28.3 BaseFilter as DirectShowBaseFilterMBS

Plugin Version: 12.3, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Returns the filter for this grabber.
Notes: So you can add it to a graph builder.

3.28.4 Constructor

Plugin Version: 12.3, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Creates a new instance of the sample grabber.

3.28.5 Current as Picture

Plugin Version: 12.3, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Function:** Queries current picture.
Notes:

This actually makes a copy of the internal buffer into a new picture object.
Lasterror is set.

3.28.6 Destructor

Plugin Version: 12.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The destructor.

3.28.7 SetOneShot(OneShot as boolean)

Plugin Version: 12.3, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The SetOneShot method specifies whether the Sample Grabber filter halts after the filter receives a sample.

3.28.8 Properties

3.28.9 Handle as Integer

Plugin Version: 12.3, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The internal object reference.
Notes:

Points to an ISampleGrabber interface.
(Read and Write property)

3.28.10 Lasterror as Integer

Plugin Version: 12.3, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.28.11 LasterrorMessage as String

Plugin Version: 12.3, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The formatted error message for the last error.
Notes: (Read and Write property)

3.28.12 Events

3.28.13 NewFrame(Time as Double)

Plugin Version: 12.4, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Function:** The event for a new video frame.
Notes:

time is the starting time of the sample, in seconds.
Use the Current method to get the picture.

3.29 class DirectShowVideoInfoHeader2MBS

3.29.1 class DirectShowVideoInfoHeader2MBS

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Describes the bitmap and color information for a video image, including interlace, copy protection, and pixel aspect ratio information.
Notes:

see also
http://msdn.microsoft.com/en-us/library/windows/desktop/dd407326(v=vs.85).aspx
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.29.2 Methods

3.29.3 Constructor

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.29.4 Properties

3.29.5 AvgTimePerFrame as Int64

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The desired average display time of the video frames, in 100-nanosecond units.
Notes:

The actual time per frame may be longer.
see also
http://msdn.microsoft.com/en-us/library/windows/desktop/dd407326(v=vs.85).aspx
(Read and Write property)

3.29.6 BitErrorRate as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Data error rate, in bit errors per second.
Notes: (Read and Write property)

3.29.7 BitRate as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Approximate data rate of the video stream, in bits per second.
Notes: (Read and Write property)

3.29.8 ControlFlags as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Control flags.
Notes:

see also
http://msdn.microsoft.com/en-us/library/windows/desktop/dd407326(v=vs.85).aspx
(Read and Write property)

3.29.9 CopyProtectFlags as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Flag set with the AMCOPYPROTECT_RestrictDuplication value (0x00000001) to indicate that the duplication of the stream should be restricted.
Notes:

If undefined, specify zero or else the connection will be rejected.
(Read and Write property)

3.29.10 Height as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The bitmap height.
Notes: (Read and Write property)

3.29.11 InterlaceFlags as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Flags that specify how the video is interlaced.
Notes:

see also
http://msdn.microsoft.com/en-us/library/windows/desktop/dd407326(v=vs.85).aspx
(Read and Write property)

3.29.12 PictAspectRatioX as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The X dimension of picture aspect ratio. For example, 16 for a 16-inch x 9-inch display.
Notes: (Read and Write property)

3.29.13 PictAspectRatioY as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The Y dimension of picture aspect ratio. For example, 9 for a 16-inch x 9-inch display.
Notes: (Read and Write property)

3.29.14 SourceBottom as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Part of the rectangle defining the source video window.
Notes:

This rectangle can be a clipping rectangle, to select a portion of the source video stream.
(Read and Write property)

3.29.15 SourceLeft as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Part of the rectangle defining the source video window.
Notes:

This rectangle can be a clipping rectangle, to select a portion of the source video stream.
(Read and Write property)

3.29.16 SourceRight as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Part of the rectangle defining the source video window.
Notes:

This rectangle can be a clipping rectangle, to select a portion of the source video stream.
(Read and Write property)

3.29.17 SourceTop as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Part of the rectangle defining the source video window.
Notes:

This rectangle can be a clipping rectangle, to select a portion of the source video stream.
(Read and Write property)

3.29.18 TargetBottom as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Part of the target rectangle for the destination video window.
Notes: (Read and Write property)

3.29.19 TargetLeft as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Part of the target rectangle for the destination video window.
Notes: (Read and Write property)

3.29.20 TargetRight as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Part of the target rectangle for the destination video window.
Notes: (Read and Write property)

3.29.21 TargetTop as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Part of the target rectangle for the destination video window.
Notes: (Read and Write property)

3.29.22 Width as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The bitmap width.
Notes: (Read and Write property)

3.30 class DirectShowVideoInfoHeaderMBS

3.30.1 class DirectShowVideoInfoHeaderMBS

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Describes the bitmap and color information for a video image.
Notes:

see also
http://msdn.microsoft.com/en-us/library/windows/desktop/dd407325(v=vs.85).aspx
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.30.2 Methods

3.30.3 Constructor

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.30.4 Properties

3.30.5 AvgTimePerFrame as Int64

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The desired average display time of the video frames, in 100-nanosecond units.
Notes:

The actual time per frame may be longer.
see also
http://msdn.microsoft.com/en-us/library/windows/desktop/dd407325(v=vs.85).aspx
(Read and Write property)

3.30.6 BitCount as Integer

Plugin Version: 16.3, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The bitmap bit count value.
Notes:

The number of bits-per-pixel. Determines the number of bits that define each pixel and the maximum number of colors in the bitmap. This member must be one of the following values.
Can be 0 for PNG/JPEG images, 1 for B/W, 4 for 16 colors, 8 for 256 colors, 16 for thousands of colors, 24 for millions of colors or 32 for millions of colors with alpha.

(Read and Write property)

3.30.7 BitErrorRate as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Data error rate, in bit errors per second.
Notes: (Read and Write property)

3.30.8 BitRate as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Approximate data rate of the video stream, in bits per second.
Notes: (Read and Write property)

3.30.9 BMIHeaderPtr as Ptr

Plugin Version: 16.3, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Returns pointer to BITMAPINFOHEADER structure.
Notes:

You can use this to modify any field directly.
You need to know what you do and know the exact offset. (which can be different in 32-bit vs. 64-bit)
(Read only property)

3.30.10 Height as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The bitmap height.
Notes: (Read and Write property)

3.30.11 SourceBottom as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Part of the rectangle defining the source video window.
Notes:

This rectangle can be a clipping rectangle, to select a portion of the source video stream.
(Read and Write property)

3.30.12 SourceLeft as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Part of the rectangle defining the source video window.
Notes:

This rectangle can be a clipping rectangle, to select a portion of the source video stream.
(Read and Write property)

3.30.13 SourceRight as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Part of the rectangle defining the source video window.
Notes:

This rectangle can be a clipping rectangle, to select a portion of the source video stream.
(Read and Write property)

3.30.14 SourceTop as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Part of the rectangle defining the source video window.
Notes:

This rectangle can be a clipping rectangle, to select a portion of the source video stream.
(Read and Write property)

3.30.15 TargetBottom as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Part of the target rectangle for the destination video window.
Notes: (Read and Write property)

3.30.16 TargetLeft as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Part of the target rectangle for the destination video window.
Notes: (Read and Write property)

3.30.17 TargetRight as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Part of the target rectangle for the destination video window.
Notes: (Read and Write property)

3.30.18 TargetTop as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Part of the target rectangle for the destination video window.
Notes: (Read and Write property)

3.30.19 VideoInfoHeaderPtr as Ptr

Plugin Version: 16.3, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Returns pointer to VIDEOINFOHEADER structure.
Notes:

You can use this to modify any field directly.
You need to know what you do and know the exact offset. (which can be different in 32-bit vs. 64-bit)
(Read only property)

3.30.20 Width as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The bitmap width.
Notes: (Read and Write property)

3.31 class DirectShowVideoStreamConfigCapsMBS

3.31.1 class DirectShowVideoStreamConfigCapsMBS

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Describes a range of video formats.
Notes:

Video compression and video capture filters use this structure to describe what formats they can produce.
Microsoft deprecated this strucutre some time ago in favor of DirectShowMediaTypeMBS class.

see also
http://msdn.microsoft.com/en-us/library/windows/desktop/dd407352(v=vs.85).aspx
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.31.2 Methods

3.31.3 Constructor

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.31.4 Properties

3.31.5 CropAlignX as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Required horizontal alignment of the source rectangle.
Notes:

Deprecated.
(Read only property)

3.31.6 CropAlignY as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Required vertical alignment of the source rectangle.
Notes:

Deprecated.
(Read only property)

3.31.7 CropGranularityX as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Horizontal granularity of the source rectangle.
Notes:

This value specifies the increments that are valid between MinCroppingSize and MaxCroppingSize.
Deprecated.
(Read only property)

3.31.8 CropGranularityY as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Vertical granularity of the source rectangle.
Notes:

This value specifies the increments that are valid between MinCroppingSize and MaxCroppingSize.
Note Deprecated.
(Read only property)

3.31.9 InputSizeHeight as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Native size of the incoming video signal.
Notes:

For a compressor, the size is taken from the input pin. For a capture filter, the size is the largest signal the filter can digitize with every pixel remaining unique.
Deprecated.
(Read only property)

3.31.10 InputSizeWidth as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Native size of the incoming video signal.
Notes:

For a compressor, the size is taken from the input pin. For a capture filter, the size is the largest signal the filter can digitize with every pixel remaining unique.
Deprecated.

(Read only property)

3.31.11 MaxBitsPerSecond as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Maximum data rate this pin can produce.
Notes:

Deprecated
(Read only property)

3.31.12 MaxCroppingSizeHeight as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Largest source rectangle allowed.
Notes:

Deprecated.
(Read only property)

3.31.13 MaxCroppingSizeWidth as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Largest source rectangle allowed.
Notes:

Deprecated.
(Read only property)

3.31.14 MaxFrameInterval as Int64

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The maximum frame duration, in 100-nanosecond units.
Notes:

This value applies only to capture filters.
(Read and Write property)

3.31.15 MaxOutputSizeHeight as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Maximum output size.
Notes:

Deprecated.
(Read only property)

3.31.16 MaxOutputSizeWidth as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Maximum output size.
Notes:

Deprecated.
(Read only property)

3.31.17 MinBitsPerSecond as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Minimum data rate this pin can produce.
Notes:

Deprecated.
(Read only property)

3.31.18 MinCroppingSizeHeight as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Smallest source rectangle allowed.
Notes:

The source rectangle is defined in the Source rectangle of the DirectShowVideoInfoHeader2MBS or DirectShowVideoInfoHeaderMBS classes.
Note Deprecated.
(Read only property)

3.31.19 MinCroppingSizeWidth as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Smallest source rectangle allowed.
Notes:

The source rectangle is defined in the Source rectangle of the DirectShowVideoInfoHeader2MBS or DirectShowVideoInfoHeaderMBS classes.
Note Deprecated.
(Read only property)

3.31.20 MinFrameInterval as Int64

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The minimum frame duration, in 100-nanosecond units. This value applies only to capture filters.
Notes: (Read and Write property)

3.31.21 MinOutputSizeHeight as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Minimum output size.
Notes:

Deprecated.
(Read only property)

3.31.22 MinOutputSizeWidth as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Minimum output size.
Notes:

Deprecated.
(Read only property)

3.31.23 OutputGranularityX as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Granularity of the output width.
Notes:

This value specifies the increments that are valid between MinOutputSize and MaxOutputSize.
Deprecated.
(Read only property)

3.31.24 OutputGranularityY as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Granularity of output height.
Notes:

This value specifies the increments that are valid between MinOutputSize and MaxOutputSize.
Deprecated.
(Read only property)

3.31.25 ShrinkTapsX as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Indicates how well the filter can shrink the image horizontally.
Notes:

Deprecated.

Value	Meaning
0	Does not support stretching/shrinking.
1	Uses pixel doubling (stretching) or eliminates pixels (shrinking)
2	Uses interpolation (2 taps)
3 and higher	Uses interpolation (>2 taps)

(Read only property)

3.31.26 ShrinkTapsY as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Indicates how well the filter can shrink the image vertically.
Notes:

Deprecated.

(Read only property)

Value	Meaning
0	Does not support stretching/shrinking.
1	Uses pixel doubling (stretching) or eliminates pixels (shrinking)
2	Uses interpolation (2 taps)
3 and higher	Uses interpolation (>2 taps)

3.31.27 StretchTapsX as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Indicates how well the filter can stretch the image horizontally.
Notes:

Deprecated.

Value	Meaning
0	Does not support stretching/shrinking.
1	Uses pixel doubling (stretching) or eliminates pixels (shrinking)
2	Uses interpolation (2 taps)
3 and higher	Uses interpolation (>2 taps)

(Read only property)

3.31.28 StretchTapsY as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Indicates how well the filter can stretch the image vertically.
Notes:

Deprecated.

Value	Meaning
0	Does not support stretching/shrinking.
1	Uses pixel doubling (stretching) or eliminates pixels (shrinking)
2	Uses interpolation (2 taps)
3 and higher	Uses interpolation (>2 taps)

(Read only property)

3.31.29 VideoStandard as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The analog video standard supported.
Notes:

The value is a bitwise combination of flags from the AnalogVideoStandard enumeration type, or zero.
(Read only property)

3.32 class DirectShowVideoWindowMBS

3.32.1 class DirectShowVideoWindowMBS

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The direct show class for a video window.
Notes:

The DirectShowVideoWindowMBS interface sets properties on the video window. Applications can use it to set the window owner, the position and dimensions of the window, and other properties.

The Video Renderer filter and the Filter Graph Manager both expose this interface. The Filter Graph Manager forwards all method calls to the Video Renderer. It also forwards certain window messages that the Video Renderer needs to receive, such as WM_DISPLAYCHANGE. Because the video window is usually a child of an application window, the filter would not otherwise receive these messages. Therefore it relies on the Filter Graph Manager to forward them.

In most cases, an application should query the Filter Graph Manager for this interface, and not call the filter directly, because of the messaging issue just described. However, if the filter graph has more than one Video Renderer, the Filter Graph Manager only communicates with one of them, selected arbitrarily. Therefore, if your application uses multiple video windows, use the DirectShowVideoWindowMBS interface directly on the filters. In that case, you must forward window messages to each Video Renderer instance, using the NotifyOwnerMessage method.

Properties set on a video renderer persist between successive connections and disconnections.

Error codes: If the video renderer filter is not connected to another filter, all methods return the error code VFW_E_NOT_CONNECTED. For the Filter Graph Manager's implementation, if the graph does not contain a video renderer filter, all methods return E_NOINTERFACE. Note that the Filter Graph Manager exposes the interface even when the graph does not contain a video renderer, so an application can query for the interface before it builds the graph.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.32.2 Methods

3.32.3 Constructor

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor to create a new video window.

3.32.4 GetMaxIdealImageSize(byref width as Integer, byref height as Integer)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The GetMaxIdealImageSize method retrieves the maximum ideal image size for the video image.
Notes:

Width: Receives the maximum ideal width, in pixels.
Height: Receives the maximum ideal height, in pixels.
Lasterror is set.

The maximum ideal size may differ from the native video size, because the video hardware might have specific stretching requirements.

3.32.5 GetMinIdealImageSize(byref width as Integer, byref height as Integer)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The GetMinIdealImageSize method retrieves the minimum ideal size for the video image.
Notes:

Width: Receives the minimum ideal width, in pixels.
Height: Receives the minimum ideal height, in pixels.
Lasterror is set.

The maximum ideal size may differ from the native video size, because the video hardware might have specific stretching requirements.

3.32.6 GetRestorePosition(byref left as Integer, byref top as Integer, byref width as Integer, byref height as Integer)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The GetRestorePosition method retrieves the restored window position.
Notes:

Left: Receives the x-coordinate, in pixels.
Top: Receives the y-coordinate, in pixels.
Width: Receives the width of the window, in pixels.
Height: Receives the height of the window, in pixels.
Lasterror is set.

If the video window is minimized or maximized, you can use this method to get the window's restored position.

3.32.7 GetWindowPosition(byref left as Integer, byref top as Integer, byref width as Integer, byref height as Integer)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The GetWindowPosition method retrieves the position of the video window.
Notes:

Left: Receives the x-coordinate, in pixels.
Top: Receives the y-coordinate, in pixels.
Width: Receives the width of the window, in pixels.
Height: Receives the height of the window, in pixels.

Lasterror is set.
This method has the same effect as querying left, top, width and height methods.

3.32.8 HideCursor(hide as boolean)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The HideCursor method shows or hides the cursor when the mouse is positioned over the video window.
Notes:

Hide: Whether to hide or show the cursor.
Lasterror is set.

3.32.9 IsCursorHidden as Boolean

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The IsCursorHidden method queries whether the cursor is hidden.
Notes: Lasterror is set.

3.32.10 SetWindowForeground(Focus as Boolean)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The SetWindowForeground method places the video window at the top of the Z order.
Notes:

Focus: whether to give the window focus.
Lasterror is set.

3.32.11 SetWindowPosition(left as Integer, top as Integer, width as Integer, height as Integer)

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The SetWindowPosition method sets the position of the video window.
Notes:

Left: The x-coordinate, in pixels.
Top: The y-coordinate, in pixels.
Width: The width, in pixels.
Height: The height, in pixels.
Lasterror is set.

This method has the same effect as setting the Left, Top, Width, and Height methods.
If resizing the window to the specified dimensions is impossible, this method modifies the window's size and location to make the window fit. Call the GetWindowPosition method to determine the result.

3.32.12 Properties

3.32.13 Handle as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The internal object reference.
Notes:

Points to an IVideoWindow interface.
(Read and Write property)

3.32.14 Lasterror as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The last error code.
Notes:

Please check function documentation and also LastErrorMessage property for a human readable error message.
(Read and Write property)

3.32.15 LasterrorMessage as String

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The formatted error message for the last error.

Notes: (Read and Write property)

3.32.16 AutoShow as Boolean

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Whether the video renderer automatically shows the video window when it receives video data.
Notes:

Lasterror is set.
By default, when the filter graph changes state to paused or running, the video renderer shows the video window and moves it to the foreground. If the user closes the window, it will not automatically reappear.
(Read and Write computed property)

3.32.17 BackgroundPalette as Boolean

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Whether the video window realizes its palette in the background.
Notes:

Lasterror is set.
If BackgroundPalette is true and the video image requires a palette, the video renderer will realize that palette in the background. Any colors that the palette uses will change to their closest match in the display palette prior to drawing. This ensures that an application will not have its palette disturbed. However, it imposes severe performance penalties on the video.
(Read and Write computed property)

3.32.18 BorderColor as color

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The color that appears around the edges of the destination rectangle.
Notes:

Lasterror is set.
If the destination rectangle is smaller than the client area of the video window, a border is exposed around the edges of the video. The default color is black. Use this method to override the default color. If a palette is in use, a nonsystem color is converted to its closest match.
(Read and Write computed property)

3.32.19 Caption as string

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The video window caption.
Notes:

Lasterror is set.
(Read and Write computed property)

3.32.20 FullScreenMode as Boolean

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Enables or disables full-screen video rendering.
Notes:

Set to true to switch to full-screen mode. Set to false to disable full-screen mode. (Default.)
Lasterror is set.

Depending on the video renderer, the switch to full-screen mode may not be visible until the application runs or pauses the graph. In full-screen mode, if the user switches away from the application (for example, using ALT + TAB), the Filter Graph Manager sends an EC_FULLSCREEN_LOST event.
The following remarks describe how the Filter Graph Manager implements full-screen mode. Application developers can probably ignore this information, but it may be useful if you are writing a custom video renderer.
When an application switches to full-screen mode, the Filter Graph Manager searches for a video renderer that will function most efficiently. In order of preference, these are:

- Any video renderer in the filter graph that natively supports full-screen mode.
- Any video renderer in the filter graph that can stretch the video to full-screen without a significant performance cost.
- The Full Screen Renderer filter.
- Any video renderer in the filter graph that supports DirectShowVideoWindowMBS.

For the first option, the Filter Graph Manager sets FullScreenMode on every video renderer in the graph. Most renderers return E_NOTIMPL, indicating the filter does not natively support full-screen mode. If any renderer returns a value not equal to E_NOTIMPL, the Filter Graph Manager uses that one.
For the second option, the Filter Graph Manager calls GetMaxIdealImageSize and GetMinIdealImageSize on every video renderer in the graph. If the size of the display falls within the filter's reported range, it indicates that the filter can stretch the video without a significant performance cost.
Note If the graph is stopped, the Filter Graph Manager pauses each renderer before calling these methods. This gives the renderer an opportunity to initialize any resources it needs, because many renderers cannot determine these values while they are stopped.

Except on older hardware, the second option will generally succeed. The third option is to use the Full Screen Renderer filter, adding it to the graph if necessary. The fourth option is simply to find the first renderer in the graph that supports DirectShowVideoWindowMBS, and stretch the video regardless of performance.
(Read and Write computed property)

3.32.21 Height as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The height of the video window.
Notes:

Lasterror is set.
(Read and Write computed property)

3.32.22 Left as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The x-coordinate of the video window.
Notes:

Lasterror is set.
(Read and Write computed property)

3.32.23 MessageDrain as Window

Plugin Version: 12.1, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Function:** The window to receive mouse and keyboard messages from the video window.
Notes:

Lasterror is set.
This method enables an application to respond to mouse and keyboard events generated within the video window.
If Drain is non-nil, the video renderer forwards certain messages to the specified window, using the PostMessage function. Which messages are forwarded might depend on the video renderer in use.
(Read and Write computed property)

3.32.24 Owner as Window

Plugin Version: 12.1, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Function:** The parent window for the video window.
Notes:

Lasterror is set.
Use this method to display videos in a compound document. This method changes the parent of the video window and sets the WS_CHILD style for the video window.
Reset the owner to nil before releasing the Filter Graph Manager. Otherwise, messages will continue to be sent to this window and errors will likely occur when the application is terminated.
(Read and Write computed property)

3.32.25 Top as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The y-coordinate of the video window.
Notes:

Lasterror is set.
(Read and Write computed property)

3.32.26 Visible as Boolean

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Shows or hides the video window.
Notes:

Set to true to show the window or set to false to hide the window.
Lasterror is set.
(Read and Write computed property)

3.32.27 Width as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The width of the video window.
Notes: (Read and Write computed property)

3.32.28 WindowState as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Shows, hides, minimizes, or maximizes the video window.
Notes:

Lasterror is set.

See MSDN page for ShowWindow for SW_* constants:
http://msdn.microsoft.com/en-us/library/windows/desktop/ms633548(v=vs.85).aspx
(Read and Write computed property)

3.32.29 WindowStyle as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The window styles on the video window.
Notes:

Lasterror is set.
See MSDN for SetWindowLong for details on the WS_* constants.
(Read and Write computed property)

3.32.30 WindowStyleEx as Integer

Plugin Version: 12.1, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The window extended styles on the video window.
Notes:

Lasterror is set.
See MSDN for SetWindowLong for details on the WS_EX_* constants.
(Read and Write computed property)

3.32.31 Constants

3.32.32 SW_FORCEMINIMIZE = 11

Plugin Version: 12.1. **Function:** One of the window show modes.#

3.32.33 SW_HIDE = 0

Plugin Version: 12.1. **Function:** One of the window show modes.#

3.32.34 SW_MAXIMIZE = 3

Plugin Version: 12.1. **Function:** One of the window show modes.#

3.32.35 SW_MINIMIZE = 6

Plugin Version: 12.1. **Function:** One of the window show modes.#

3.32.36 SW_NORMAL = 1

Plugin Version: 12.1. **Function:** One of the window show modes.#

3.32.37 SW_RESTORE = 9

Plugin Version: 12.1. **Function:** One of the window show modes.#

3.32.38 SW_SHOW = 5

Plugin Version: 12.1. **Function:** One of the window show modes.#

3.32.39 SW_SHOWDEFAULT = 10

Plugin Version: 12.1. **Function:** One of the window show modes.#

3.32.40 SW_SHOWMAXIMIZED = 3

Plugin Version: 12.1. **Function:** One of the window show modes.#

3.32.41 SW_SHOWMINIMIZED = 2

Plugin Version: 12.1. **Function:** One of the window show modes.#

3.32.42 SW_SHOWMINNOACTIVE = 7

Plugin Version: 12.1. **Function:** One of the window show modes.#

3.32.43 SW_SHOWNA = 8

Plugin Version: 12.1. **Function:** One of the window show modes.#

3.32.44 SW_SHOWNOACTIVATE = 4

Plugin Version: 12.1. **Function:** One of the window show modes.#

3.32.45 SW_SHOWNORMAL = 1

Plugin Version: 12.1. **Function:** One of the window show modes.#

3.32.46 WS_BORDER = & h00800000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.47 WS_CAPTION = & h00C00000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.48 WS_CHILD = & h40000000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.49 WS_CHILDWINDOW = & h40000000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.50 WS_CLIPCHILDREN = & h02000000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.51 WS_CLIPSIBLINGS = & h04000000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.52 WS_DISABLED = & h08000000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.53 WS_DLGFRAME = & h00400000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.54 WS_EX_ACCEPTFILES = & h00000010

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.55 WS_EX_APPWINDOW = & h00040000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.56 WS_EX_CLIENTEDGE = & h00000200

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.57 WS_EX_CONTEXTHELP = & h00000400

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.58 WS_EX_CONTROLPARENT = & h00010000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.59 WS_EX_DLGMODALFRAME = & h00000001

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.60 WS_EX_LAYERED = & h00080000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.61 WS_EX_LAYOUTRTL = & h00400000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.62 WS_EX_LEFT = & h00000000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.63 WS_EX_LEFTSCROLLBAR = & h00004000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.64 WS_EX_LTRREADING = & h00000000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.65 WS_EX_MDICHILD = & h00000040

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.66 WS_EX_NOACTIVATE = & h08000000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.67 WS_EX_NOINHERITLAYOUT = & h00100000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.68 WS_EX_NOPARENTNOTIFY = & h00000004

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.69 WS_EX_OVERLAPPEDWINDOW = & h00000300

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.70 WS_EX_PALETTEWINDOW = & h00000188

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.71 WS_EX_RIGHT = & h00001000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.72 WS_EX_RIGHTSCROLLBAR = & h00000000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.73 WS_EX_RTLREADING = & h00002000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.74 WS_EX_STATICEDGE = & h00020000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.75 WS_EX_TOOLWINDOW = & h00000080

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.76 WS_EX_TOPMOST = & h00000008

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.77 WS_EX_TRANSPARENT = & h00000020

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.78 WS_EX_WINDOWEDGE = & h00000100

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyleEx property.

3.32.79 WS_GROUP = & h00020000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.80 WS_HSCROLL = & h00100000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.81 WS_ICONIC = & h20000000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.82 WS_MAXIMIZE = & h01000000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.83 WS_MAXIMIZEBOX = & h00010000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.84 WS_MINIMIZE = & h20000000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.85 WS_MINIMIZEBOX = & h00020000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.86 WS_OVERLAPPED = & h00000000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.87 WS_OVERLAPPEDWINDOW = & h00CF0000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.88 WS_POPUP = & h80000000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.89 WS_POPUPWINDOW = & h80880000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.90 WS_SIZEBOX = & h00040000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.91 WS_SYSMENU = & h00080000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.92 WS_TABSTOP = & h00010000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.93 WS_THICKFRAME = & h00040000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.94 WS_TILED = & h00000000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.95 WS_TILEDWINDOW = & h00CF0000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.96 WS_VISIBLE = & h10000000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.32.97 WS_VSCROLL = & h00200000

Plugin Version: 12.1. **Function:** One of the flags for WindowsStyle property.

3.33 class DirectShowWaveFormatMBS

3.33.1 class DirectShowWaveFormatMBS

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Defines the format of waveform-audio data.
Notes:

Only format information common to all waveform-audio data formats is included in this structure. For formats that require additional information, this structure is included as the first member in another structure, along with the additional information.
This is an abstract class. You can't create an instance, but you can get one from various plugin functions.

3.33.2 Methods

3.33.3 Constructor

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** The private constructor.

3.33.4 Properties

3.33.5 AvgBytesPerSec as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Required average data-transfer rate, in bytes per second, for the format tag.
Notes:

If wFormatTag is WAVE_FORMAT_PCM, nAvgBytesPerSec must equal nSamplesPerSec x nBlockAlign. For non-PCM formats, this member must be computed according to the manufacturer's specification of the format tag.
(Read and Write property)

3.33.6 BitsPerSample as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Bits per sample for the FormatTag format type.
Notes:

If wFormatTag is WAVE_FORMAT_PCM, then BitsPerSample should be equal to 8 or 16. For non-PCM formats, this member must be set according to the manufacturer's specification of the format tag. If FormatTag is WAVE_FORMAT_EXTENSIBLE, this value can be any integer multiple of 8.

Some compression schemes do not define a value for BitsPerSample, so this member can be zero.
(Read and Write property)

3.33.7 BlockAlign as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Block alignment, in bytes.
Notes:

The block alignment is the minimum atomic unit of data for the wFormatTag format type. If wFormatTag is WAVE_FORMAT_PCM, nBlockAlign must equal (nChannels wBitsPerSample) / 8. For non-PCM formats, this member must be computed according to the manufacturer's specification of the format tag.
Software must process a multiple of nBlockAlign bytes of data at a time. Data written to and read from a device must always start at the beginning of a block. For example, it is illegal to start playback of PCM data in the middle of a sample (that is, on a non-block-aligned boundary).
(Read and Write property)

3.33.8 Channels as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Number of channels in the waveform-audio data.
Notes:

Monaural data uses one channel and stereo data uses two channels.
(Read and Write property)

3.33.9 Data as Ptr

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Pointer to raw data of WAVEFORMATEX structure.
Notes: (Read only property)

3.33.10 FormatTag as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Waveform-audio format type.
Notes:

Format tags are registered with Microsoft Corporation for many compression algorithms. A complete list of format tags can be found in the Mmreg.h header file. For one- or two-channel Pulse Code Modulation

(PCM) data, this value should be WAVE_FORMAT_PCM.

- If FormatTag equals WAVE_FORMAT_EXTENSIBLE, the structure is interpreted as a WAVEFORMATEXTENSIBLE structure.
- If FormatTag equals WAVE_FORMAT_MPEG, the structure is interpreted as an MPEG1WAVEFORMAT structure.
- If FormatTag equals WAVE_FORMAT_MPEGLAYER3, the structure is interpreted as an MPEGLAYER3WAVEFORMAT structure.

Before reinterpreting a WAVEFORMATEX structure as one of these extended structures, verify that the actual structure size is sufficiently large and that the cbSize member indicates a valid size.

Please contact MBS if you need the above structures as classes in Xojo.
(Read and Write property)

3.33.11 SamplesPerSec as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Sample rate, in samples per second (hertz).
Notes:

If FormatTag is WAVE_FORMAT_PCM, then common values for SamplesPerSec are 8.0 kHz, 11.025 kHz, 22.05 kHz, and 44.1 kHz. For non-PCM formats, this member must be computed according to the manufacturer's specification of the format tag.
(Read and Write property)

3.33.12 Size as Integer

Plugin Version: 13.4, Console & Web: Yes, Mac: No, Win: Yes, Linux: No. **Function:** Size, in bytes, of extra format information appended to the end of the WAVEFORMATEX structure.
Notes:

This information can be used by non-PCM formats to store extra attributes for the wFormatTag. If no extra information is required by the wFormatTag, this member must be set to zero. For WAVE_FORMAT_PCM formats (and only WAVE_FORMAT_PCM formats), this member is ignored. However it is still recommended to set the value.
(Read and Write property)

Chapter 4

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Chapter 5

The FAQ

5.0.1 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)

5.0.2 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:

- 5.0.3 How to catch delete key? 163
- 5.0.4 How to convert cmyk to rgb? 163
- 5.0.5 How to delete a folder? 165
- 5.0.6 How to detect if CPU if 64bit processor? 166
- 5.0.7 How to refresh a htmlviewer on Windows? 166

5.0.3 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:

- 5.0.2 How do I get the proper highlight color on Mac OS X for active/inactive selection? 162
- 5.0.4 How to convert cmyk to rgb? 163
- 5.0.5 How to delete a folder? 165
- 5.0.6 How to detect if CPU if 64bit processor? 166
- 5.0.7 How to refresh a htmlviewer on Windows? 166

5.0.4 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:

- 5.0.2 How do I get the proper highlight color on Mac OS X for active/inactive selection? 162
- 5.0.3 How to catch delete key? 163
- 5.0.5 How to delete a folder? 165
- 5.0.6 How to detect if CPU if 64bit processor? 166
- 5.0.7 How to refresh a htmlviewer on Windows? 166

5.0.5 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:

- 5.0.2 How do I get the proper highlight color on Mac OS X for active/inactive selection? 162
- 5.0.3 How to catch delete key? 163
- 5.0.4 How to convert cmyk to rgb? 163
- 5.0.6 How to detect if CPU if 64bit processor? 166
- 5.0.7 How to refresh a htmlviewer on Windows? 166

5.0.6 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:

- 5.0.2 How do I get the proper highlight color on Mac OS X for active/inactive selection? 162
- 5.0.3 How to catch delete key? 163
- 5.0.4 How to convert cmyk to rgb? 163
- 5.0.5 How to delete a folder? 165
- 5.0.7 How to refresh a htmlviewer on Windows? 166

5.0.7 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:

- 5.0.2 How do I get the proper highlight color on Mac OS X for active/inactive selection? 162
- 5.0.3 How to catch delete key? 163
- 5.0.4 How to convert cmyk to rgb? 163
- 5.0.5 How to delete a folder? 165
- 5.0.6 How to detect if CPU if 64bit processor? 166

5.0.8 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
```

5.0.9 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.

5.0.10 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
```

5.0.11 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.

5.0.12 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

5.0.13 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

5.0.14 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.

5.0.15 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

5.0.16 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.

5.0.17 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.

5.0.18 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.

5.0.19 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

5.0.20 Can I use your plugin controls on a web application?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** No.

5.0.21 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.

5.0.22 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

5.0.23 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.

5.0.24 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.

5.0.25 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.

5.0.26 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.

5.0.27 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

5.0.28 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.

5.0.29 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)

5.0.30 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.

5.0.31 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.

5.0.32 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.

5.0.33 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
```

5.0.34 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.

5.0.35 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.

5.0.36 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.

5.0.37 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.

5.0.38 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.

5.0.39 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.

5.0.40 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.

5.0.41 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.

5.0.42 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.

5.0.43 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.

5.0.44 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
```

5.0.45 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.

5.0.46 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

5.0.47 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.

5.0.48 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.

5.0.49 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.

5.0.50 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.

5.0.51 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.

5.0.52 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
```

5.0.53 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.

5.0.54 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.

5.0.55 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.

5.0.56 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.

5.0.57 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.

5.0.58 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.

5.0.59 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.

5.0.60 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.

5.0.61 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.

5.0.62 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.

5.0.63 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).

5.0.64 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.

5.0.65 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.

5.0.66 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>

5.0.67 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

5.0.68 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.

5.0.69 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)

5.0.70 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.

5.0.71 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.

5.0.72 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/ .

5.0.73 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.

5.0.74 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.

5.0.75 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
```

5.0.76 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.

5.0.77 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.

5.0.78 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.

5.0.79 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.

5.0.80 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.

5.0.81 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
```

5.0.82 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
```

5.0.83 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
```

5.0.84 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.

5.0.85 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.

5.0.86 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.

5.0.87 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

5.0.88 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.

5.0.89 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.

5.0.90 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.

5.0.91 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.

5.0.92 How to create a GUID?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:** Use the UUIDMBS class for this.

5.0.93 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.

5.0.94 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.

5.0.95 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.

5.0.96 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.

5.0.97 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)

5.0.98 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.

5.0.99 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".

5.0.100 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)
```

5.0.101 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.

5.0.102 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.

5.0.103 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.

5.0.104 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
```

5.0.105 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.

5.0.106 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.

5.0.107 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.

5.0.108 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)

5.0.109 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

5.0.110 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.

5.0.111 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.

5.0.112 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.

5.0.113 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 .

5.0.114 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
```

5.0.115 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
```

5.0.116 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.

5.0.117 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".

5.0.118 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/

5.0.119 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.

5.0.120 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
```

5.0.121 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
```

5.0.122 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.

5.0.123 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
```

5.0.124 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.

5.0.125 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.

5.0.126 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.

5.0.127 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

5.0.128 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.

5.0.129 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.

5.0.130 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.

5.0.131 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" ...

5.0.132 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.

5.0.133 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
```

5.0.134 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
```

5.0.135 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.

5.0.136 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
```

5.0.137 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
```

5.0.138 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.

5.0.139 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.

5.0.140 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!

5.0.141 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
```

5.0.142 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.

5.0.143 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.

5.0.144 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.

5.0.145 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.

5.0.146 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
```

5.0.147 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).

5.0.148 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.

5.0.149 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.

5.0.150 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.

5.0.151 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
```

5.0.152 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
```

5.0.153 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.

5.0.154 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.

5.0.155 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.

5.0.156 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!?

5.0.157 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.

5.0.158 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.

5.0.159 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.

5.0.160 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
```

5.0.161 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.

5.0.162 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.

5.0.163 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.

5.0.164 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
```

5.0.165 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

5.0.166 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.

5.0.167 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
```

5.0.168 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
```

5.0.169 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.

5.0.170 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?

5.0.171 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))
```

5.0.172 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.

5.0.173 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.

5.0.174 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)

5.0.175 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.

5.0.176 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.

5.0.177 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.

5.0.178 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
```

5.0.179 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.

5.0.180 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
```

5.0.181 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.

5.0.182 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

5.0.183 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.

5.0.184 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)+";")

5.0.185 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

5.0.186 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.

5.0.187 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.

5.0.188 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.

5.0.189 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.

5.0.190 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.

5.0.191 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.

5.0.192 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
```

5.0.193 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.

5.0.194 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.

5.0.195 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
```

5.0.196 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.

5.0.197 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))
```

5.0.198 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.

5.0.199 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.

5.0.200 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 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)

// 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.

5.0.201 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)

5.0.202 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.

5.0.203 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
```

5.0.204 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
```

5.0.205 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.

5.0.206 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
```

5.0.207 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

5.0.208 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
```

5.0.209 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.

5.0.210 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
```

5.0.211 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
```

5.0.212 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.

5.0.213 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.

5.0.214 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""."
```

5.0.215 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

5.0.216 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!

5.0.217 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.

5.0.218 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".

5.0.219 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.

5.0.220 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.

5.0.221 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.

5.0.222 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.

5.0.223 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.

5.0.224 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.

5.0.225 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)

5.0.226 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.

5.0.227 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

5.0.228 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.

5.0.229 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
```

5.0.230 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
```

5.0.231 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

5.0.232 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)

5.0.233 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?

5.0.234 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.

5.0.235 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.

5.0.236 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.

5.0.237 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.

5.0.238 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.

5.0.239 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.

5.0.240 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.

5.0.241 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.

5.0.242 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.

5.0.243 What does the NAN code mean?

Plugin Version: all, Console & Web: No, Mac: Yes, Win: Yes, Linux: Yes. **Answer:**

5.0.244 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
```

5.0.245 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.

5.0.246 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.

5.0.247 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.

5.0.248 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.

5.0.249 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.

5.0.250 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.

5.0.251 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.

5.0.252 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.

5.0.253 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.

5.0.254 Where is CGGetActiveDisplayListMBS?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** This is now CGDisplayMBS.GetActiveDisplayList.

5.0.255 Where is CGGetDisplaysWithPointMBS?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** This is now CGDisplayMBS.GetDisplaysWithPoint.

5.0.256 Where is CGGetDisplaysWithRectMBS?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** This is now CGDisplayMBS.GetDisplaysWithRect.

5.0.257 Where is CGGetOnlineDisplayListMBS?

Plugin Version: all, Console & Web: No, Mac: No, Win: Yes, Linux: No. **Answer:** This is now CGDisplayMBS.GetOnlineDisplayList.

5.0.258 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.

5.0.259 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.

5.0.260 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.

5.0.261 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.

5.0.262 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

5.0.263 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

5.0.264 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.

5.0.265 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.

5.0.266 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.

5.0.267 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.

5.0.268 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.

5.0.269 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.

5.0.270 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.

5.0.271 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.

5.0.272 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.

5.0.273 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,,