
QTCaptureVideoPreviewOutput Class Reference

Audio & Video



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QTCaptureVideoPreviewOutput Class Reference

Inherits from	QTCaptureOutput : NSObject
Conforms to	NSObject (NSObject)
Framework	/System/Library/Frameworks/QTKit.framework
Availability	Available in QuickTime 7.2.1 and later.
Declared in	QTCaptureDecompressedVideoOutput.h QTCaptureVideoPreviewOutput.h
Related sample code	LiveVideoMixer3

Overview

This class represents an output destination for a `QTCaptureSession` that can be used to preview the video being captured. Instances of `QTCaptureVideoPreviewOutput` produce decompressed video frames suitable for preview. Because the output video is intended for preview only, instances may drop frames or reduce output quality in order to improve overall performance of the capture session. Applications that need to process full-quality frames without dropping them should use `QTCaptureDecompressedVideoOutput` instead.

Applications can access the decompressed frames from a QuickTime visual context for each output connection, or via the `captureOutput:didOutputVideoFrame:withSampleBuffer:fromConnection:` (page 9) delegate method. In addition, clients can create subclasses of `QTCaptureVideoPreviewOutput` to add custom capturing behavior. Application Kit clients wishing to preview video do not normally need to use `QTCaptureVideoPreviewOutput` instances directly, since they are created and managed by instances of `QTCaptureView`. Clients should use `QTCaptureVideoPreviewOutput` directly only when they require preview functionality not provided by `QTCaptureView` or when they need to process decompressed frames directly.

Note that clients should not attempt to access or configure a `QTCaptureView`'s preview output.

Tasks

Previewing Output

- [delegate](#) (page 6)
Returns the receiver's delegate.

- [pixelBufferAttributes](#) (page 7)
Returns the Core Video pixel buffer attributes previously set by `setPixelBufferAttributes:` that determine what kind of pixel buffers are output by the receiver.
- [setPixelBufferAttributes:](#) (page 8)
Sets the Core Video pixel buffer attributes that determine what kind of pixel buffers are output by the receiver.
- [visualContextForConnection:](#) (page 9)
Returns the QuickTime visual context used to preview the video for the given connection.
- [outputVideoFrame:withSampleBuffer:fromConnection:](#) (page 6)
Called whenever the receiver outputs a new video frame.
- [setDelegate:](#) (page 8)
Sets the receiver's delegate.
- [setVisualContext:forConnection:](#) (page 8)
Sets the QuickTime visual context used to preview the video for the described connection.

Capturing Output

- [captureOutput:didOutputVideoFrame:withSampleBuffer:fromConnection:](#) (page 9) *delegate method*
Called whenever the video preview output outputs a new video frame.

Instance Methods

delegate

Returns the receiver's delegate.

- (id)delegate

Availability

Available in Mac OS X v10.5 and later.

Declared In

QTCaptureVideoPreviewOutput.h

outputVideoFrame:withSampleBuffer:fromConnection:

Called whenever the receiver outputs a new video frame.

```
- (void)outputVideoFrame:(CVImageBufferRef)videoFrame
  withSampleBuffer:(QTSampleBuffer *)sampleBuffer
  fromConnection:(QTCaptureConnection *)connection
```

Parameters

videoFrame

A buffer containing the decompressed frame.

sampleBuffer

A sample buffer containing additional information about the frame, such as its presentation time.

connection

The connection from which the video was received.

Discussion

This method should not be invoked directly. Subclasses can override this method to provide custom processing behavior for each frame. The default implementation calls the delegate's `captureOutput:didOutputVideoFrame:withSampleBuffer:fromConnection:` method. Subclasses should not assume that this method will be called on the main thread. In addition, this method is called periodically, so it must be efficient to prevent capture performance problems.

Availability

Mac OS X v10.5 and later.

Declared In

QTCaptureVideoPreviewOutput.h

pixelBufferAttributes

Returns the Core Video pixel buffer attributes previously set by `setPixelBufferAttributes:` that determine what kind of pixel buffers are output by the receiver.

- (NSDictionary *)pixelBufferAttributes

Return Value

A dictionary containing pixel buffer attributes for buffers output by the receiver. The keys in the dictionary are described in `CoreVideo/CVPixelBuffer.h`. If the return value is `NIL`, then the receiver outputs buffers using the fastest possible pixel buffer attributes.

Discussion

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

Availability

Available in Mac OS X v10.5 and later.

Declared In

QTCaptureVideoPreviewOutput.h

setDelegate:

Sets the receiver's delegate.

```
- (void)setDelegate:(id)delegate
```

Availability

Available in Mac OS X v10.5 and later.

Declared In

QTCaptureVideoPreviewOutput.h

setPixelFormatAttributes:

Sets the CoreVideo pixel buffer attributes that determine what kind of pixel buffers are output by the receiver.

```
- (void)setPixelFormatAttributes:(NSDictionary *)pixelBufferAttributes
```

Parameters

pixelBufferAttributes

A dictionary containing pixel buffer attributes for buffers that will be output by the receiver. The keys in the dictionary are described in `CoreVideo/CVPixelBuffer.h`. If the dictionary is `NIL`, then the receiver outputs buffers using the fastest possible pixel buffer attributes.

Discussion

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

Availability

Available in Mac OS X v10.5 and later.

Declared In

QTCaptureVideoPreviewOutput.h

setVisualContext:forConnection:

Sets the QuickTime visual context used to preview the video for the described connection.

```
- (void)setVisualContext:(QTVisualContextRef)visualContext
  forConnection:(QTCaptureConnection *)connection
```

Parameters

visualContext

A `QTVisualContextRef` to be used for the preview of the given connection.

connection

The connection to be previewed by the given visual context.

Discussion

If the application has an existing visual context being used to display video, this method can be used to set the visual context for the preview.

Availability

Mac OS X v10.5 and later.

Not available to 64-bit applications.

Declared In

QTCaptureVideoPreviewOutput.h

visualContextForConnection:

Returns the QuickTime visual context used to preview the video for the given connection.

```
- (QTVisualContextRef)visualContextForConnection:(QTCaptureConnection *)connection
```

Parameters

connection

The connection previewed by the returned visual context.

Return Value

A QTVisualContextRef that provides access to a video preview for the given connection.

Discussion

The returned visual context can be used to obtain frames that can be used to display a video preview of the capture session. By default this method returns NULL, until a visual context is set using `setVisualContext:forConnection:`.

Availability

Mac OS X v10.5 and later.

Not available to 64-bit applications.

Declared In

QTCaptureVideoPreviewOutput.h

Delegate Methods

captureOutput:didOutputVideoFrame:withSampleBuffer:fromConnection:

Called whenever the video preview output outputs a new video frame.

```
- (void)captureOutput:(QTCaptureOutput *)captureOutput
  didOutputVideoFrame:(CVImageBufferRef)videoFrame
  withSampleBuffer:(QTSampleBuffer *)sampleBuffer
  fromConnection:(QTCaptureConnection *)connection
```

Parameters

captureOutput

The QTCaptureVideoPreviewOutput instance that output the frame.

videoFrame

A CVImageBufferRef containing the decompressed frame.

sampleBuffer

A QTSampleBuffer object containing additional information about the frame, such as its presentation time.

connection

The connection from which the video was received.

Discussion

Delegates receive this method whenever the output decompresses and outputs a new video frame. Delegates can use the provided video frame for a custom preview or for further image processing. Delegates should not assume that this method will be called on the main thread. In addition, this method is called periodically, so it must be efficient to prevent capture performance problems.

Availability

Mac OS X v10.5 and later.

Declared In

QTCaptureDecompressedVideoOutput.h

Document Revision History

This table describes the changes to *QTCaptureVideoPreviewOutput Class Reference*.

Date	Notes
2009-05-20	Minor edit fixes.
2007-07-19	Added new methods; removed video field mode and previewed output methods; changed type of delegate method's parameters.
2006-08-07	New document that describes the Objective-C class for an output destination used to preview the video being captured.

REVISION HISTORY

Document Revision History