

emd
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CaptureEngine

Version 1.3

Module: SwitcherEx.dll
Version: 1.3.4.9

DirectShow Filters: Mux/Switcher 2
Rec/Demux 2
LengthController 2

Register the SwitcherEx Dll using regsvr32 to have this filters installed.

Overview

SwitcherEx consists of three special DirectShow filters designed to build flexible capture tools.

With this DS filters you are able to independent handling source task from capture task
So it is possible to switch capture filename without stopping source graph to avoid loosing audio samples and video frames .

The audio/video synchronization accuracy is 2-3ms/h .

Full Directshow compatible – simply integration in own developments.

Build your Capture task with three independent graphs, one SourceGraph and two CaptureGraphs.

CaptureGraph's and connection between MuxSwitcher and both RecDemux filters are built automatically by MuxSwitcher property page configuration.

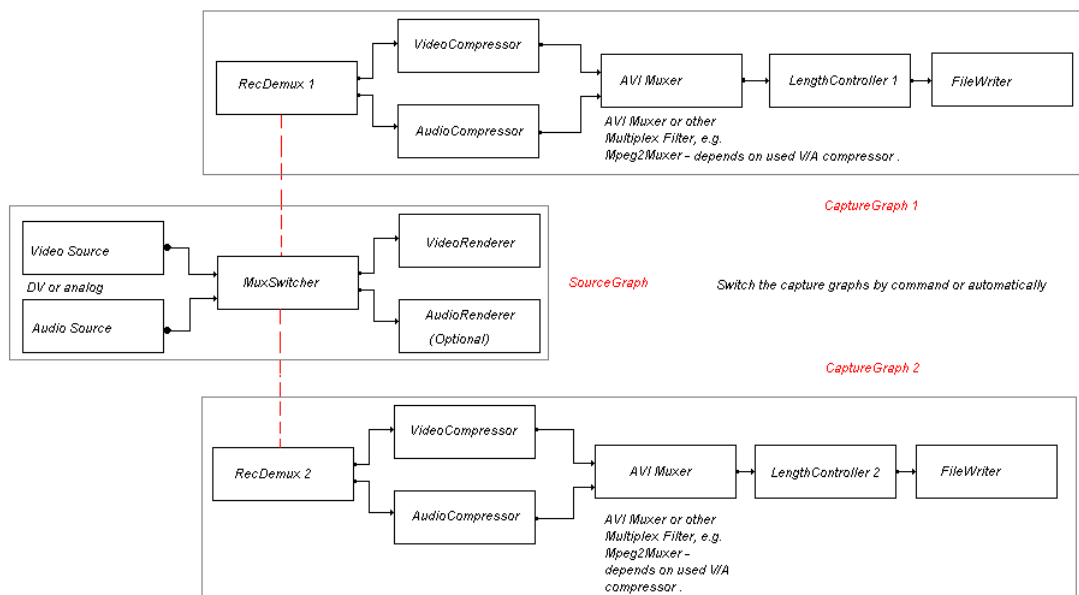
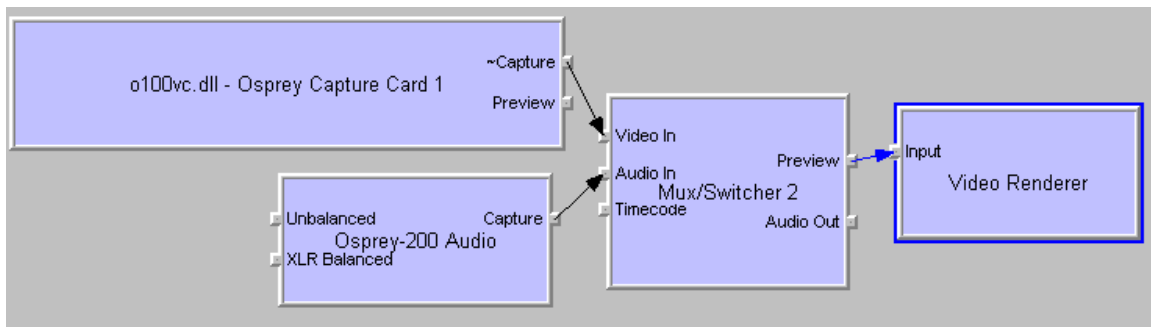


Figure 1. CaptureEngine graph's

You can use GraphEdit for testing the CaptureEngine.

Create AVI streams in two simple steps:

1. Create SourceGraph (use GraphEdit)



2. Configure Mux/Switcher2 FilterMuxSwitcher PropertyPage:

Mux/Switcher 2 Properties

Audio In	Timecode	Preview	Audio Out
Capture Properties	Capture Statistic	Video In	

Capture part NOT connected

Capture Graph

Load

☒ Create standard graph for capture to AVI file
☐ Create standard graph for capture to ASF file

☐ Use standard DirectShow Reference Clock

Video codec

[--Direct copy--] Properties

Audio codec

[--Direct copy--] Properties

ASF Writer

Load Profile

☐ To draw frame number on video frame

Capture Files

Base Name F:\streams\test.avi Change

First Index 0 Max Index 9999

Max size 100 (MB) FPS Auto

☐ Auto start capture then source ready.

Show first capture chain Show second capture chain

OK Cancel Apply Help

MuxSwitcher Property page configuration:

- Mark checkbox <Create standard graph for capture to AVI file>
- Select VideoCodec
- Select AudioCodec
- Use <Change> button to set capture filename
- Edit <Max size> for max capture stream length

Finally use <Apply> button to set configuration

To start your source graph click <Run> from GraphEdit toolbar.

.

Switch to <CaptureStatistic> tab, click <Start Capture> to see capture engine running.
If specified max size is reached, automatically a new stream is created.

This is all you have to do to create AVI streams from live source, to have a/v synchronization accuracy 2-3ms/h and to switch capture file name without losing video frames or audio samples !

WM9 capture

2. *Configure Mux/Switcher2 Filter* MuxSwitcher PropertyPage:

The screenshot shows the 'Mux/Switcher 2 Properties' dialog box with the 'Capture Properties' tab selected. The dialog has a blue title bar and a tabbed interface. The 'Capture Properties' tab is active, showing various settings for video and audio capture. The 'Capture part NOT connected' message is displayed at the top. Below this, the 'Capture Graph' section includes a 'Load' button and two checkboxes: 'Create standard graph for capture to AVI file' (unchecked) and 'Create standard graph for capture to ASF file' (checked). The 'Use standard DirectShow Reference Clock' checkbox is also unchecked. The 'Video codec' section shows 'Custom codec selected' and a 'Properties' button. The 'Audio codec' section also shows 'Custom codec selected' and a 'Properties' button. The 'ASF Writer' section has a text box containing 'C:\MuxSwitcher\wm9_812.prx' and a 'Load Profile' button. A checkbox 'To draw frame number on video frame' is unchecked. The 'Capture Files' section includes a 'Base Name' text box with 'C:\MuxSwitcher\test.asf' and a 'Change' button. Below this are 'First Index' (0) and 'Max Index' (9999) spin boxes, and 'Max size' (0) and 'FPS' (Auto) spin boxes. A checkbox 'Auto start capture then source ready.' is unchecked. At the bottom of the dialog are 'OK', 'Cancel', 'Apply', and 'Help' buttons.

Mux/Switcher 2 Properties

Audio In | Timecode | Preview | Audio Out
Capture Properties | Capture Statistic | Video In

Capture part NOT connected

Capture Graph

Load

☐ Create standard graph for capture to AVI file
☒ Create standard graph for capture to ASF file

☐ Use standard DirectShow Reference Clock

Video codec

Custom codec selected Properties

Audio codec

Custom codec selected Properties

ASF Writer

C:\MuxSwitcher\wm9_812.prx Load Profile

☐ To draw frame number on video frame

Capture Files

Base Name C:\MuxSwitcher\test.asf Change

First Index 0 Max Index 9999

Max size 0 (MB) FPS Auto

☐ Auto start capture then source ready.

Show first capture chain Show second capture chain

OK Cancel Apply Help

MuxSwitcher Property page configuration:

- Mark checkbox <Create standard graph for capture to ASF file>
- Use <Load Profile> to load predefined WM9 profiles
- Use <Change> button to set capture filename

Finally use <Apply> button to set configuration

To start your source graph click <Run> from GraphEdit toolbar.

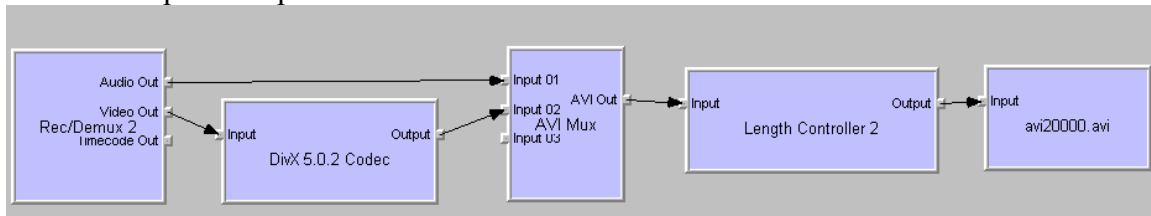
Switch to <CaptureStatistic> tab, click <Start Capture> to see capture engine running.
If specified max size is reached, automatically a new stream is created.

This is all you have to do to create WM9 streams from live source, to have a/v synchronization accuracy 2-3ms/h and to switch capture file name without losing video frames or audio samples !

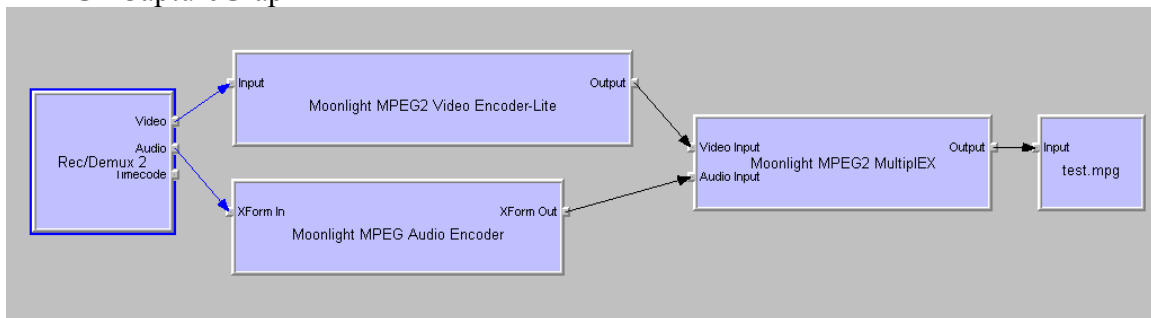
Create a/v streams from live source by loading predefined capture graphs

1. Create **CaptureGraph** using GraphEdit

Standard CaptureGraph:



MPEG2 CaptureGraph

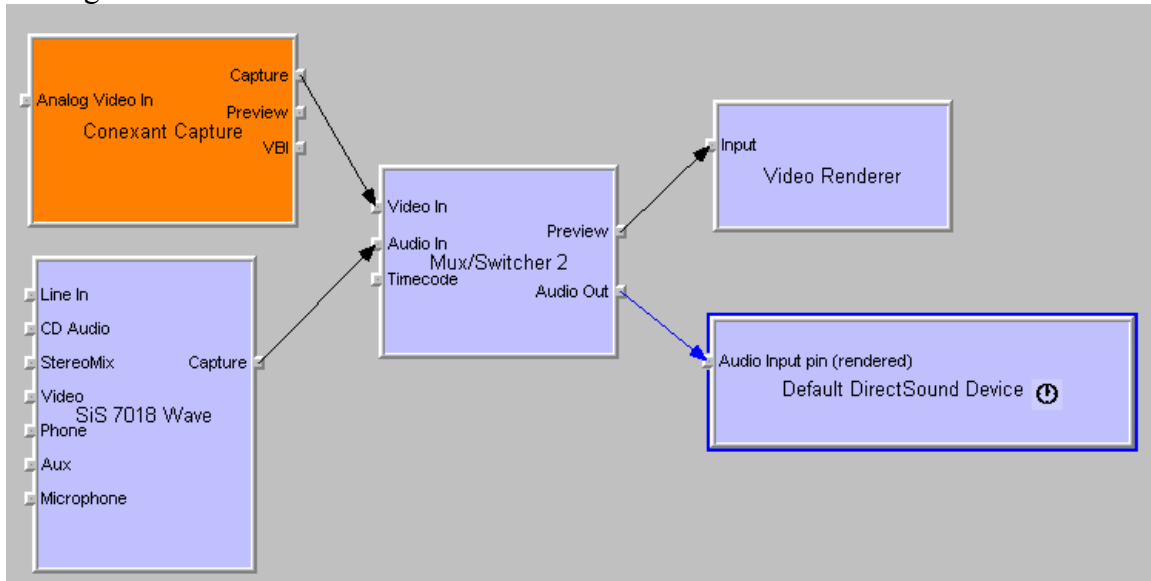


Standard CaptureGraph consists of following filters:

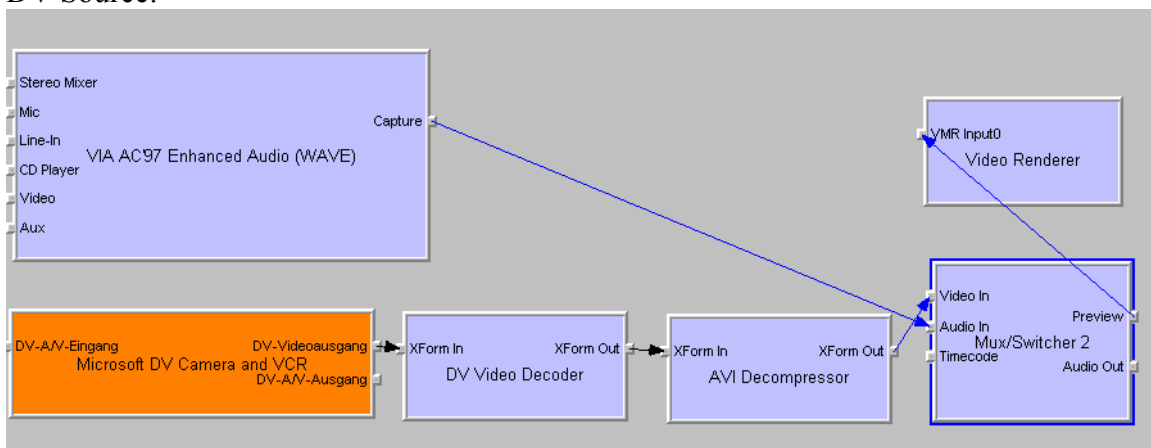
RecDemux2 – VideoCodec – AviMux – LengthController 2 – FileWriter.

2. Create **SourceGraph** using GraphEdit

Analog Source:



DV Source:



Analog SourceGraph consists of following filters:

VideoSource/AudioSource – Mux/Switcher 2 – Video/Audio Renderer

DV Source:

Insert AVI Decompressor because MuxSwitcher's media type is RGB !

3. Use Mux/Switcher2 **PropertiesPage** to configure the CaptureEngine

Use **Load** button to load previous created **CaptureGraph** to **SourceGraph** .

The screenshot shows the 'Mux/Switcher 2 Properties' dialog box with the 'Capture Properties' tab selected. The dialog has a blue title bar and several tabs at the top: 'Audio In', 'Timecode', 'Preview', 'Audio Out', 'Capture Properties' (selected), 'Capture Statistic', and 'Video In'. The main content area is titled 'Graph NOT loaded'. Below this, there is a 'Capture Graph' section with a 'Load' button and an empty text field. There are three checkboxes: 'Create standard graph for capture to AVI file', 'Create standard graph for capture to ASF file', and 'Use standard DirectShow Reference Clock'. Below these are 'Video codec' and 'Audio codec' sections, each with a dropdown menu and a 'Properties' button. The 'ASF Writer' section has a text field and a 'Load Profile' button. There is a checkbox 'To draw frame number on video frame'. The 'Capture Files' section includes a 'Base Name' text field with a 'Change' button, 'First Index' and 'Max Index' spinners (both set to 0), 'Max size' spinner (set to 0) followed by '(MB)' and 'FPS' spinner, and a checkbox 'Auto start capture then source ready.'. At the bottom of the main area are two buttons: 'Show first capture chain' and 'Show second capture chain'. The dialog ends with 'OK', 'Close', 'Apply', and 'Help' buttons.

Mux/Switcher 2 Properties

Audio In | Timecode | Preview | Audio Out
Capture Properties | Capture Statistic | Video In

Graph NOT loaded

Capture Graph

Load

☐ Create standard graph for capture to AVI file
☐ Create standard graph for capture to ASF file
☐ Use standard DirectShow Reference Clock

Video codec
[Dropdown] Properties

Audio codec
[Dropdown] Properties

ASF Writer
[Text Field] Load Profile

☐ To draw frame number on video frame

Capture Files

Base Name [Text Field] Change

First Index [0] Max Index [0]
Max size [0] (MB) FPS [Dropdown]

☐ Auto start capture then source ready.

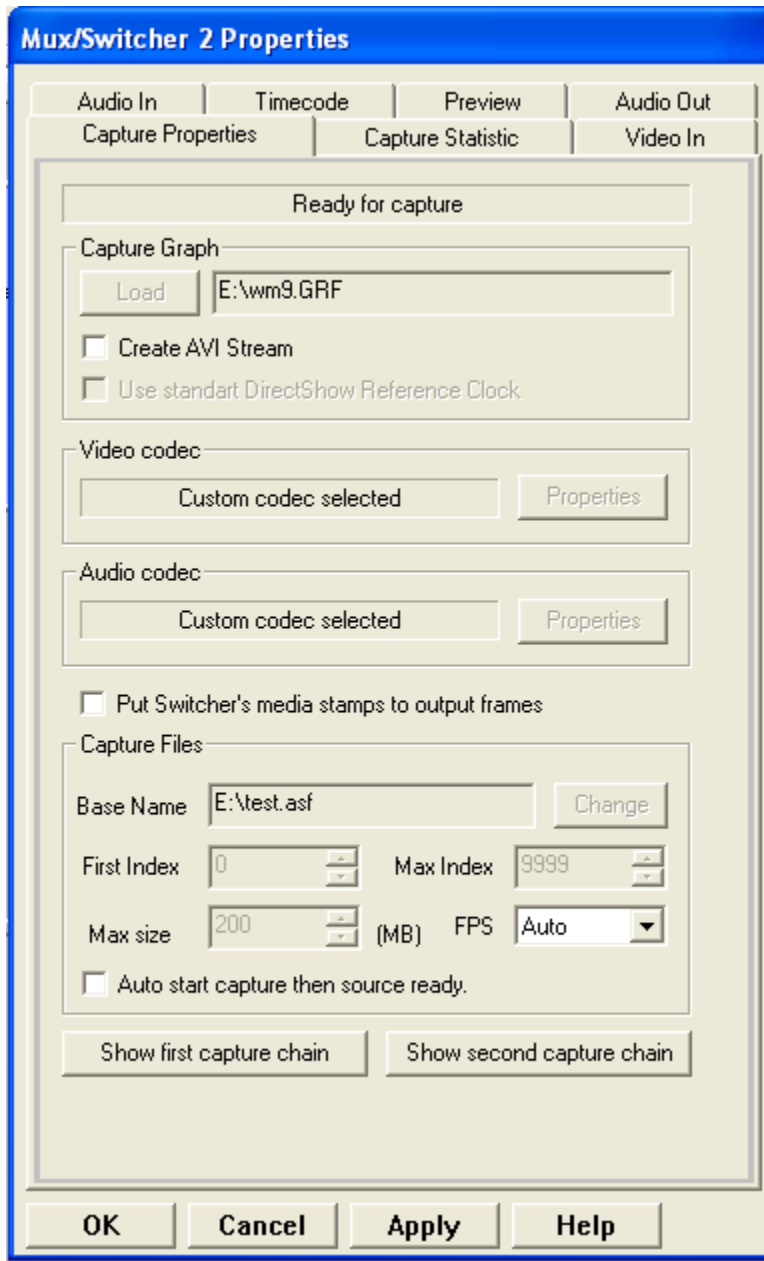
Show first capture chain Show second capture chain

OK Close Apply Help

(do not mark checkbox <Create ... >)

3.2 Edit capture settings in **Capture Files** section .

- a) **MaxSize** configuration – after this size is reached by capture file a new file is created automatically.
- b) Optional: change **Index values**, this values are appended to capture filename..
- c) Select **FPS** (FramePerSeconde) rate .



! After all settings are made use **Apply** button to transfer the values to filter !

3.3 Start SourceGraph

View info section (close to the tabs), string changed to <Ready for capture>

The screenshot shows the 'Mux/Switcher 2 Properties' dialog box with the 'Capture Properties' tab selected. The dialog has a blue title bar and several tabs at the top: 'Audio In', 'Timecode', 'Preview', 'Audio Out', 'Capture Properties', 'Capture Statistic', and 'Video In'. The 'Ready for capture' status is displayed at the top of the main content area. Below this, there are sections for 'Capture Graph', 'Video codec', 'Audio codec', and 'Capture Files'. The 'Capture Files' section includes fields for 'Base Name', 'First Index', 'Max Index', 'Max size', and 'FPS', along with checkboxes for 'Create AVI Stream', 'Use standart DirectShow Reference Clock', and 'Put Switcher's media stamps to output frames'. At the bottom, there are buttons for 'Show first capture chain' and 'Show second capture chain', and a standard 'OK', 'Cancel', 'Apply', and 'Help' button set.

Mux/Switcher 2 Properties

Audio In | Timecode | Preview | Audio Out
Capture Properties | Capture Statistic | Video In

Ready for capture

Capture Graph

Load E:\wm9.GRF

☐ Create AVI Stream

☐ Use standart DirectShow Reference Clock

Video codec

Custom codec selected Properties

Audio codec

Custom codec selected Properties

☐ Put Switcher's media stamps to output frames

Capture Files

Base Name E:\test.asf Change

First Index 0 Max Index 9999

Max size 200 (MB) FPS Auto

☐ Auto start capture then source ready.

Show first capture chain Show second capture chain

OK Cancel Apply Help

3.4 Switch to **CaptureStatistic** tab, use **StartCapture** button to start recording.

Mux/Switcher 2 Properties

Audio In	Timecode	Preview	Audio Out
Capture Properties	Capture Statistic		Video In

Capturing...

Info

File Name:

Audio

First Sample Time:

Last Sample Time:

Frames: Total Frames:

Video

First Sample Time:

Last Sample Time:

Frames: Total Frames:

Timecode

First Sample Time:

Last Sample Time:

Frames: Total Frames:

Additional Informationen:

Use <**Show first capture chain**> and <**Show second capture chain**> buttons to view both capture graphs.

Two new instances of GraphEdit are started.

Mux/Switcher2 TimeCode InputPin – RecDemux2 Timecode OutputPin

This pins are used in special task:

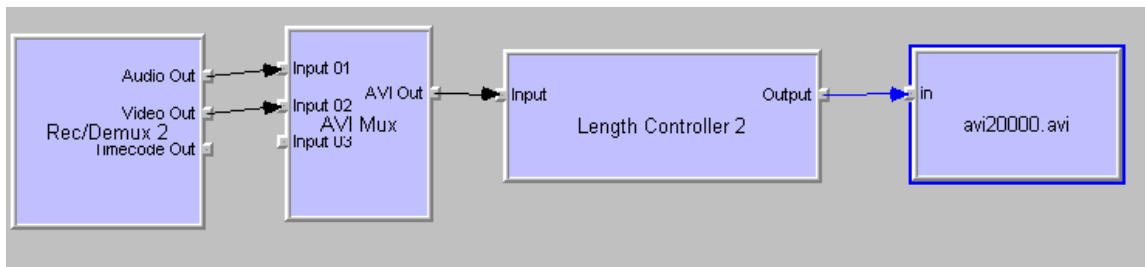
VHS digitalisation with standard VCR

Use additional PCI TimeCode device (e.g. Adrienne Timecode Capture Cards, www.adrielec.com), connect VCR VideoOut cabel to this device and than with VideoCapture device.

VideoAudio Codec Selektion:

It is possible to use Mux/Switcher2 filters PropertyPage for video/audio codec selection and configuration.

To do this, a simply change in CaptureGraph is necessary – create **without** codec.



After loading CaptureGraph to SourceGraph (see above), you can select audio/video codec within PropertyPage.

