

MediaLooks Video Mixer DirectShow Filter

Specification:

Filter Interfaces	IVideoMixer, IBaseFilter, SpecifyPropertyPages
Input Pin Media Types	MEDIATYPE_Video, MEDIASUBTYPE_NULL
Input Pin Interfaces	IMemInputPin, IPin, IQualityControl
Input Pin Number	Limited only by system performace.
Output Pin Media Types	MEDIATYPE_Video, MEDIASUBTYPE_NULL
Output Pin Interfaces	IPin, IQualityControl
Filter CLSID	{040268ED-DA3F-499B-8CC7-EDB41C2A85EF}
Property Page CLSID	{F04B7D2C-9EEE-444C-8DA1-B28CFDE21D02}
Executable	VideoMixer_Trial.dll (30-day trial version)
Merit	MERIT_DO_NOT_USE
Filter Category	CLSID_LegacyAmFilterCategory , CLSID_MediaLooksCategory ('MediaLooks Filters' Category {1D0D0809-3513-244F-4B3D-2A0A1D131B17})

Installation:

Register filter via regsvr32.exe
(run register.bat or regsvr32.exe VideoMixer_Trial.dll)

Uninstallation:

Unregister filter via regsvr32.exe
(run unregister.bat or regsvr32.exe /u VideoMixer_Trial.dll)

Features:

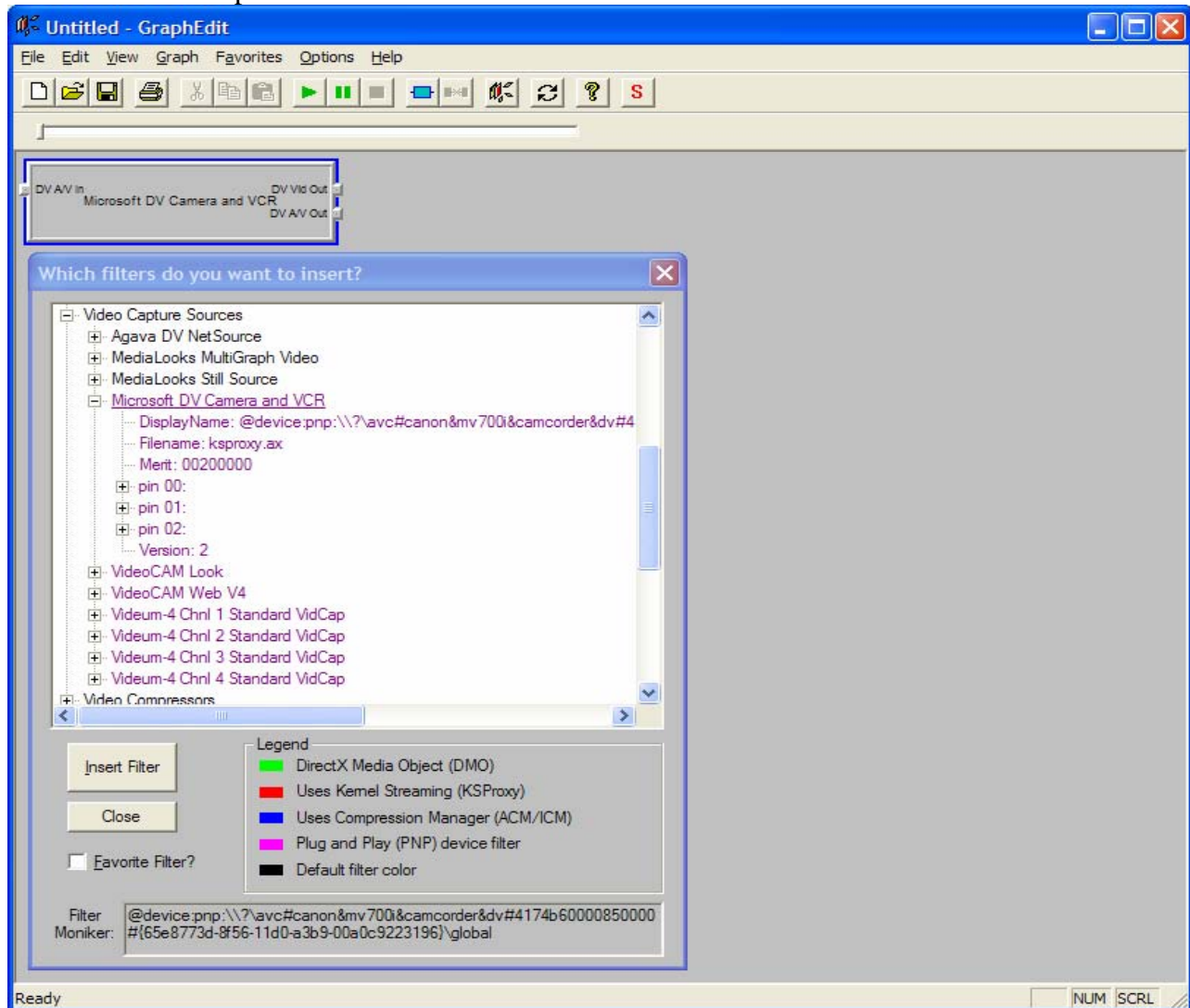
- You can specify output image size
- You can specify source/destination rectangles for each input video
- You can specify alpha (transparency) for each stream
- Allow differ input colorspace/size/FPS
- Movies files can be used as inputs¹
- Images can be used as input streams
- User can use auto output FPS or manual specify output FPS
- Allow input format changes (size and colorspace) during playback

* See usage Video Mixer with media files.

¹ See usage Video Mixer with media files.

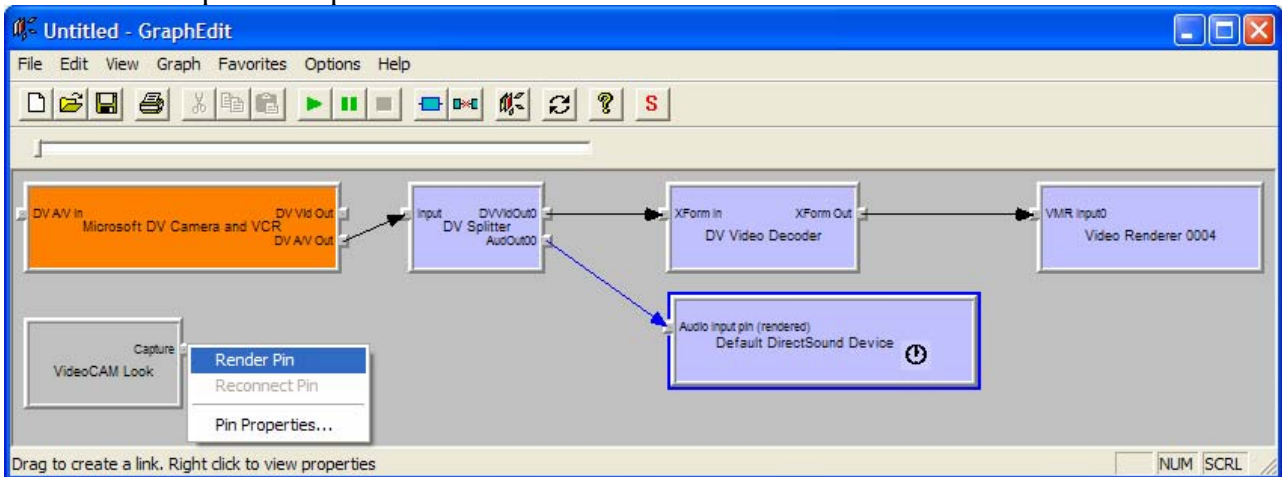
Usage in GraphEdit².

1. Create graph with several video sources and 'MediaLooks Video Mixer':
 - 1.1. Insert video capture devices:

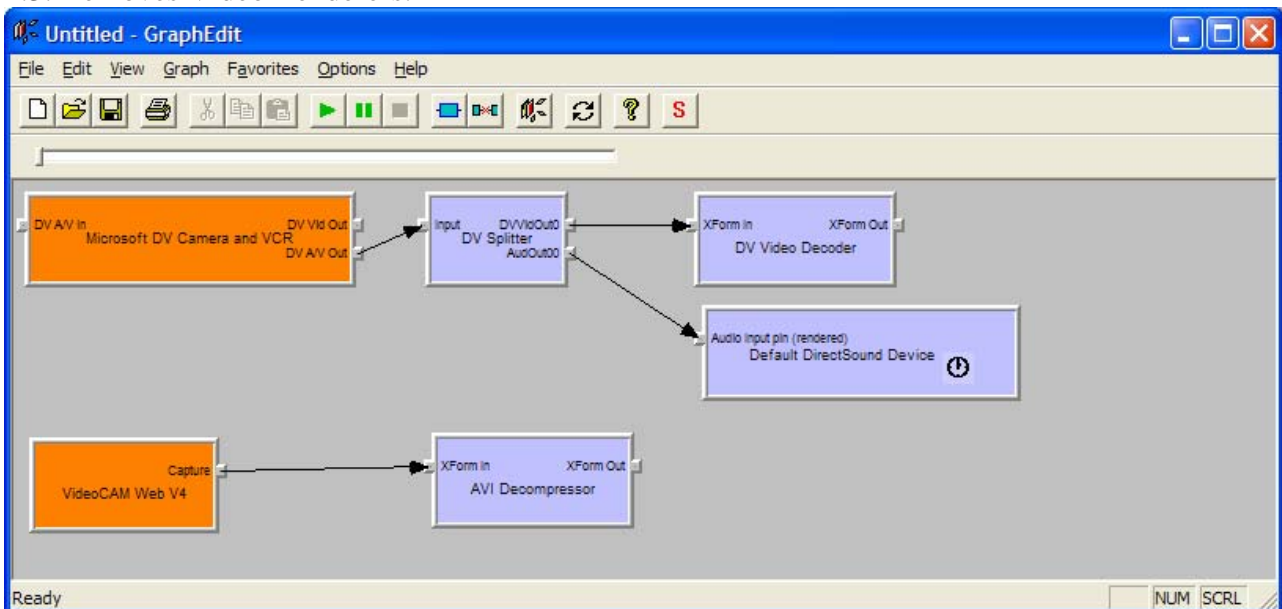


² GraphEdit is Direct Show utility for manual building DirectShow graphs, it's included in DirectShow SDK, also you can download it's from next link: <http://files.medialooks.com/graphedt.zip>.

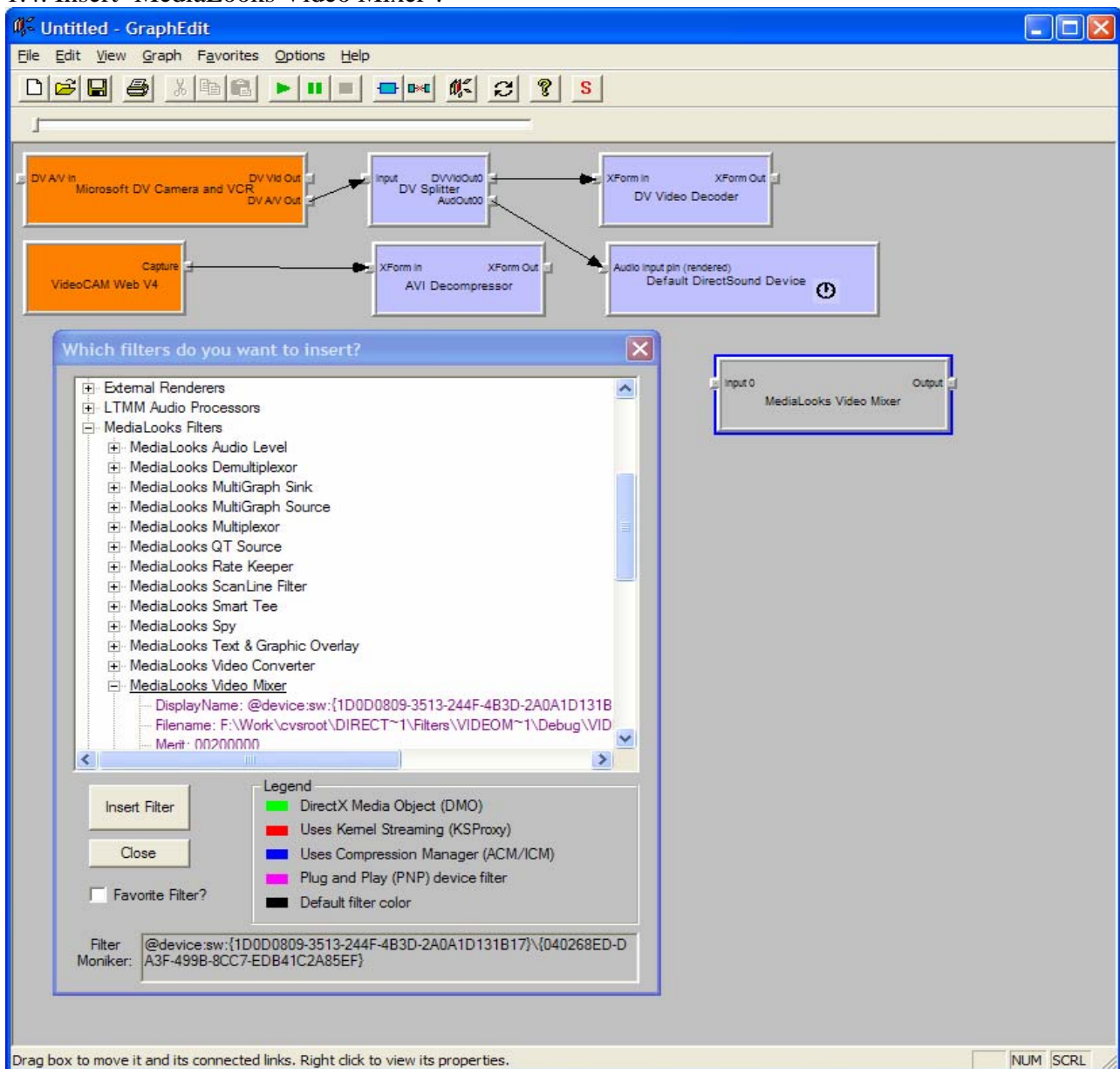
1.2. Render output video pins.



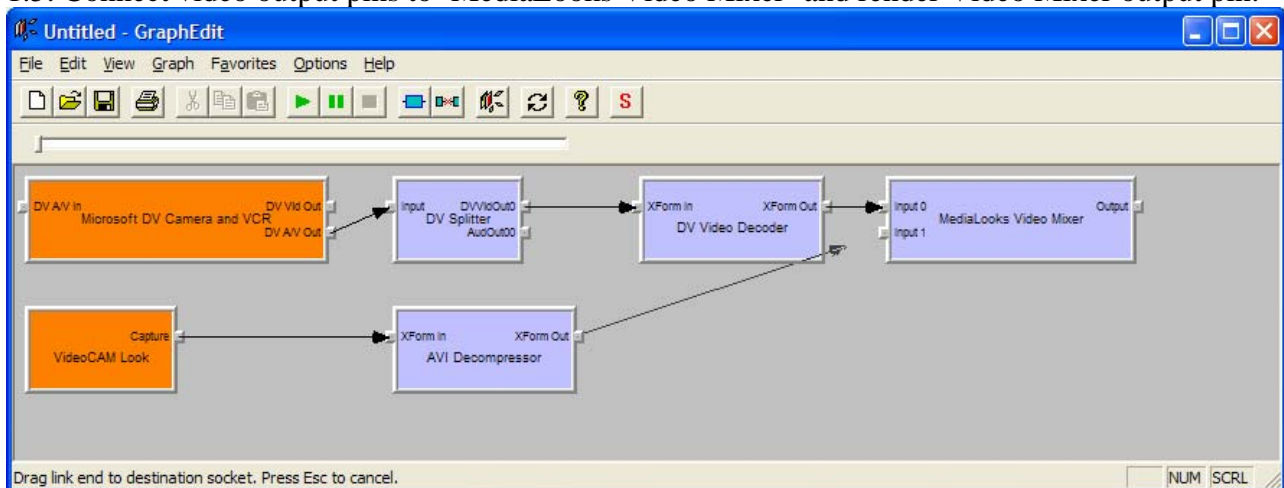
1.3. Removes Video Renderers:



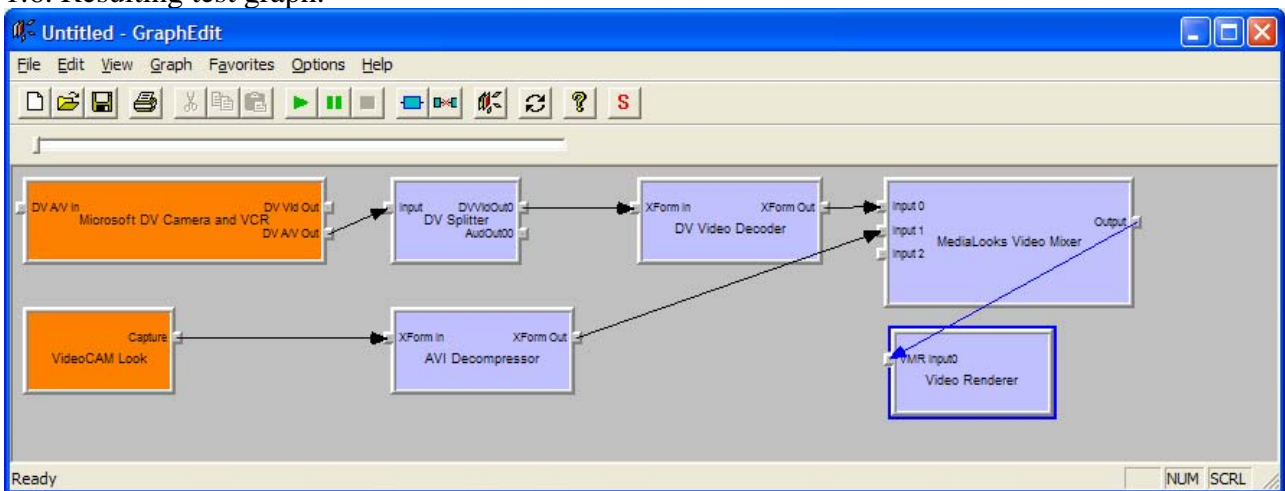
1.4. Insert 'MediaLooks Video Mixer':



1.5. Connect video output pins to 'MediaLooks Video Mixer' and render Video Mixer output pin.

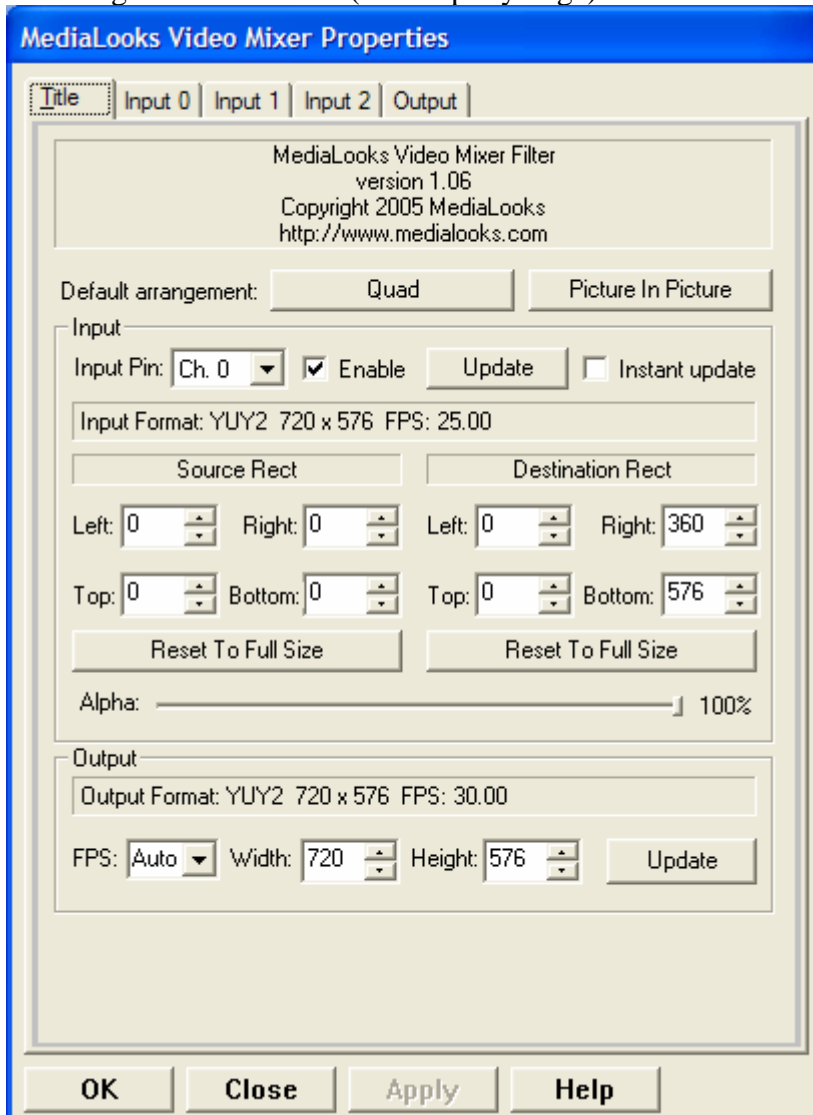


1.6. Resulting test graph.



1.7. Run Graph.

2. Configure Video Mixer (via Property Page)



The dialog box is titled "MediaLooks Video Mixer Properties". It has a tabbed interface with tabs for "Title", "Input 0", "Input 1", "Input 2", and "Output". The "Input 0" tab is currently selected.

At the top, it says "MediaLooks Video Mixer Filter version 1.06 Copyright 2005 MediaLooks http://www.medialooks.com".

Below this, there are two buttons for "Default arrangement": "Quad" (selected) and "Picture In Picture".

The "Input" section contains:

- "Input Pin": A dropdown menu showing "Ch. 0".
- An "Enable" checkbox, which is checked.
- An "Update" button.
- An "Instant update" checkbox, which is unchecked.
- "Input Format": A text box showing "YUY2 720 x 576 FPS: 25.00".

Below the input section, there are two columns of controls for "Source Rect" and "Destination Rect".

For "Source Rect":

- Left: 0, Right: 0, Top: 0, Bottom: 0.
- Buttons: "Reset To Full Size".

For "Destination Rect":

- Left: 0, Right: 360, Top: 0, Bottom: 576.
- Buttons: "Reset To Full Size".

Below these, there is an "Alpha" slider set to 100%.

The "Output" section contains:

- "Output Format": A text box showing "YUY2 720 x 576 FPS: 30.00".
- "FPS": A dropdown menu showing "Auto".
- "Width": A text box showing "720".
- "Height": A text box showing "576".
- An "Update" button.

At the bottom of the dialog are four buttons: "OK", "Close", "Apply", and "Help".

'Quad', 'Picture in Picture' – default input video arrangement.

Input group– used for configure input streams.

'Enable' – enable / disable (hide) currently selected input.

'Source Rect' - You can define part of input image what will be mixed.

'Destination Rect' – You can define here part of input image would be placed (you can enlarge/shrink input image)

'Alpha' – Set transparently on mixing image.

Output group – used for configure output format (Frame rate, Width, Height)

Note: If downstream filter support dynamic format changes, you can change output resolution then graph running, on other case, before change it's your need to stop graph.

Usage in your own Application.

You can configure and manage Video Mixer via IVideoMixer {4D680DFB-64CA-47BE-95A1-A430FAD6AFE9} interface.

Methods:

HRESULT SetOutputSize([in] DWORD _dwWidth, [in] DWORD _dwHeight);

- Set output frame size, if _dwWidth and _dwHeight is zero, default output size will be set.

Note: Default output size is size of maximum input frame.

HRESULT GetOutputSize([out] DWORD* _pdwWidth, [out] DWORD* _pdwHeight);

- Return current output frame size

HRESULT EnableStream([in] DWORD _dwStreamNo, [in] BOOL _bEnable);

- Enable/Disable input stream, number - is the input pin number.

HRESULT IsStreamEnabled([in] DWORD _dwStreamNo);

- Return input stream state:
S_OK - stream enabled (mixed and displayed)
S_FALSE - stream disabled (not mixed and not displayed)

HRESULT SetVideoAlpha([in] DWORD _dwStreamNo, [in] BYTE _btAlpha);

- Set alpha (transparency) value of desired stream (alpha from 0 up to 255)
_btAlpha = 0 - full transparent
_btAlpha = 0xff - solid

HRESULT SetVideoRects([in] DWORD _dwStreamNo, [in,out] RECT* _pRectSrc, [in,out] RECT* _pRectDst);

- Set source and destination rects of specified stream
_pRect = NULL - not change
_pRect = {0,0,0,0} - full frame

Note: Rects can have out-of screen parts

HRESULT GetVideoRects([in] DWORD _dwStreamNo, [out] RECT* _pRectSrc, [out] RECT* _pRectDst);

- Return stream current rects

HRESULT GetInputSize([in] DWORD _dwStreamNo, [in] DWORD* _pdwWidth, [in] DWORD* _pdwHeight);

- Return input stream frame size

HRESULT SetOutputFPS([in] REFERENCE_TIME* _prtFPS);

- Set output AverageTimePerFrame (in DirectShow 100 ns. units)
If _prtFPS == NULL or *_prtFPS = 0 - Auto mode used (RECOMMENDED)

HRESULT GetOutputFPS([out] REFERENCE_TIME* _prtFPS);

- Return output AverageTimePerFrame (in DirectShow 100 ns. units)
If in *_prtFPS = 0 - Auto mode used

HRESULT GetInputNumber([out] DWORD* _pdwConnected, [out] DWORD* _pdwMaxNumber);

- Return number of connected input pins

HRESULT SetSyncSources([in] BOOL _bSync);

- **Define that all input sources is synchronized (the mixing would be making accurate frame to frame)**

HRESULT IsSyncSources ();

- **S_OK – synchronized, S_FALSE – not synchronized**