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Introduction and Features

vMix is feature rich live production software that allows you to record and stream professional productions all from a single PC or Laptop.

vMix supports SD, HD and 4K productions.

If using your own PC, the two major system requirements for vMix are Windows 7 or higher and a DirectX 10 compatible graphics card.

More detailed requirements can be found on the Supported Hardware page on our web site.

vMix is also available in a number of turnkey live production systems, including the flagship vMix GO with support for up to 8 full HD cameras. See our web site for more information.

http://www.vmix.com/

Below is an overview of the features available in vMix. This User Guide will provide you with some in depth knowledge of each of these features and enable you to create the best possible production in the least amount of time!

Features

Input Sources

- Video Capture from HDMI, HD-SDI, SDI, Component, S-Video, Composite as supported by source from SD up to 4K
- NDI Network Device Interface Sources
- AVI, WMV, MPEG, MXF, MP4 and QuickTime files
- Virtual Sets - Use live chroma keying to place talent in animated 3D virtual sets
- List (load multiple video or audio files as a single input)
- DVDs including menu navigation
- CGI Titles - High Quality CGI Titles with customisable text including Headline (lower two-thirds) and ScoreBoard templates
- PowerPoint (static slides only)
- Audio Files (MP3, WAV)
- Audio Devices
- Photos
- Remote computer screen capture via Ethernet
- Flash (SWF) and Flash Video (FLV)
- RTSP and TS (Transport Stream) Sources (H264 Video / AAC Audio), Teradek Cube
- RTMP Sources
- WPF (Xaml)
- Video Delay/Replay - Create a looping delay feed of any camera and save short video clips in real time
- Solid Colour and Colour Bars
Live Video Mixing Effects
- Cross Fade
- Cut
- 3D Zoom
- Slide Effect
- Wipe Effect
- Cube Effect
- FlyRotate Effect
- Fly Effect
- CrossZoom Effect
- Merge Effect
- Colour Keying and Chroma Keying with Auto Green or Blue Screen
- Stinger Transitions

Live Video Filters
- Colour Correction
- Black/White Level Adjustments
- Colour Keying and Chroma Keying (Blue or Green screen)
- Luma Key
- Key and Fill sources
- Deinterlacing and Sharpen
- Zoom, Rotate, Pan and Crop

Web/Tablet Interface
- Customisable grid of buttons for easy touch screen control of vMix
- Edit titles via any Smart Phone
- Turn any Smart Phone into a Tally Light

Multi View
- Combine six inputs (background and five foreground) to create a multi view output in many configurations including split-screen and picture-in-picture.

Overlay
- Overlay any Input with alpha channel transparency as either a full overlay or PIP (Picture In Picture)
- Four Overlay Inputs supported at a time in 4K, HD and SD Editions

PlayList
- Automate playback of multiple inputs with the PlayList feature
Set start time, duration and transition effect for each item in the PlayList

**Output**
- Output 4 formats simultaneously (Screen, Recording, External Output, Streaming)
- Default output to secondary computer display or projector
- Output to web sites such as USTREAM and YouTube Live
- Output over NDI - Network Device Interface to other devices on the same network
- Optional output to compatible rendering device such as from AJA, BlueFish and Blackmagic Design
- Output to streaming applications such as the Adobe Flash Media Live Encoder and Skype

**Live Streaming**
- Built in RTMP live streaming to providers such as USTREAM, YouTube Live and more.

**Recording**
- Live Recording to local hard disk in DV in SD resolutions or the MJPEG, MagicYUV or CineForm Codec for recording in HD (CineForm Codec not included)
- Live Recording in HD to the Decklink MJPEG Encoder when using Intensity/Decklink cards.
- Live Recording in MPEG-2 Format in Program Stream or Transport Stream in SD or HD.
- Live Recording or Streaming in Windows Media format.
- Live Recording in MP4 in SD or HD.
- Live Recording in FFMPEG to a number of formats including MPEG-2, MP4 and VC-3

**MultiCorder (4K and Pro Editions)**
- Record the raw output from multiple capture inputs simultaneously to AVI, MKV, FFMPEG or MPEG-2.

**Instant Replay (4K and Pro Editions)**

**Audio**
- Full Audio Mixer for each input with configurable Master Audio Meter.
- Audio can be included with Video Recording using any available audio capture sources.
- vMix Audio device available for easy audio recording with 3rd party applications
- Up to three independent Audio Mixes can be created and sent out to Windows and ASIO compatible devices
- Support for multi-channel audio inputs from ASIO devices

**PTZ - Pan Tilt Zoom camera control**

**Delay**
- vMix introduces approximately 2 frames of delay between input and output. This is similar in performance to standard HD switchers. Other factors that will influence delay include delays in video cameras and video capture hardware and delays causing by video scaling of the output (such as by a projector)
Shortcuts and Macros

- Custom shortcuts to do everything from transitions to changing Title text
- An unlimited number of functions can be assigned to Keyboard, MIDI, Control Surface, X-Keys and ShuttlePROv2 buttons, faders and knobs.

Scripting (4K and Pro Editions)

- Create advanced code in VB.NET and assign it to a Shortcut

Languages

- Support for multiple translations such as Spanish and Korean from Google Translate
Getting Started

A screenshot of the vMix user interface below.

This main window is where all the video mixing takes place. If you have used traditional video switchers before, the main window might look familiar.

There are four main elements:

1. Output Window
   (Top-Right hand corner with the Green Title Bar)

   This is the Live or Program video output window. This output is also displayed in a Fullscreen window that defaults to the computer's secondary display. This output is also what is used when setting up a recording.

2. Preview Window
   (Top-Left hand corner with the Orange Title Bar)

   Just like a traditional video mixer, an input you wish to display should be placed in this preview window first. The Preview Window swaps with the Output Window whenever you select the Cut, Fade or Transition buttons, located along the center.

3. Tabs

   Colour coded tabs on the left hand side can be used to organise Inputs into categories and tabs on the right hand side can be used to dock features such as the Audio Mixer and Instant Replay Controller.

3. Input Bar
   (Bottom row)

   Each source such as Camera, Video and all other types of Inputs are loaded into this Input Bar. A small real-time preview window is shown for each of these inputs.

   If you click any of these items they will be queued in the Preview Window ready to go.

   If you double click any of these items the Input Settings window will be displayed.

   Multiple rows of inputs can also be displayed at a time. See Inputs to find out more.

4. Footer Bar
   (Bottom)

   Along the bottom are buttons to Add Input and buttons to configure and start features such as Recordings, Streams and External Output.
Presets

The Preset bar at the top left hand corner of vMix is where you can quickly save your production, including Inputs, recording and streaming settings to file. This Preset can then be recalled again at a moment's notice.

Each Preset contains the following information:

- Each input and its associated input settings (including positions, colour adjustments, chroma key, multiview etc)
- Recording settings
- Overlay settings
- Any shortcut keys assigned as local
- Audio settings for each input and all three audio buses (Master, A and B)
- All PlayLists, including the active PlayList if applicable
- Category labels
- Streaming settings. All existing streaming profiles and settings will be replaced with the settings from when the Preset was last saved
- External Output settings including Size, Frame Rate and Device, as per corresponding tab in Settings
- Outputs configuration (for example if MultiView is selected for Fullscreen) as per corresponding tab in Settings

In addition to the above, if the Preset was saved with a different Master Frame Rate or Output Size then what is currently configured (1920x1080 29.97p for example) then a message will appear asking to confirm these changes.

Any media used by inputs including Videos, Images, Photos, Title templates etc will be referred to by filename only.
So if the Preset is used on a different system, be sure to copy any media assets and place them in the same folder locations.

All other settings can be saved and recalled from the Settings Import/Export buttons

NOTE: In the Open Preset window, the Append button will add the selected inputs only, ignoring all other settings.
New Preset

Creates a new blank Preset and optionally changes the current output video format.

Create a new blank preset with the following video format:

HD 1080 29.97p (1920x1080, 29.97 fps)

OK Cancel
Open Preset

Open Preset opens up a file open dialog where you can select an existing Preset.

Once a Preset has been selected the Open Preset window will appear.

Click **Open** to close all open inputs and replace them with this Preset.

*Any settings included with the Preset will also be applied (See here for more information)*

Click **Append** to add the inputs in this Preset to the existing session.

*Any settings included with the Preset will be ignored.*

Each input can be unticked if you want to exclude it from being added

Recent Presets

Quickly open a recent preset by clicking the arrow button next to the **Open** button.
Last Preset

Periodically, vMix automatically saves the current Preset to a separate file. Click Last to load this Preset.
**Video Controls**

The Preview Window and Output Window have various video controls available:

**Position Control**

For non-live inputs (such as Video and DVD) the position control allows you to skip to any point.

**Restart Button**

Restarts a non-live input (such as Video or DVD) from the beginning.

**Play/Pause Button**
The **Fullscreen** button can be used to display video through one of the video outputs on your computer Graphics Card. These can be connected to displays such as Monitors, Projectors and TVs.

First, connect these displays to your computer prior to opening vMix and make sure they are configured as "Extend these displays" in the Screen Resolution control panel in Windows. See [Windows 7 Display Instructions](#) on the Microsoft web site for further instructions.

Second, select the display from **Settings under the Display tab** as shown below:

By default the Fullscreen will display the final mixed output of vMix. Click the arrow to the right of the **Fullscreen** button to select a different output option:

**Output**

The final mixed output of vMix, this is also shown on the right hand side of vMix.

**Preview**

Display the input currently selected in the "Preview" area of vMix (left hand side).

**MultiView**

Display Preview, Output and 8 or more Inputs in one of the configurations below. All configurations with the exception of **Legacy** include audio meters and titles.

**Preview / Output + 8 Inputs**
Preview / Output + 16 Inputs

Preview / Output + 2 Inputs

Legacy

Preview / Output + 8 Inputs without titles and audio meters. The Preview and Output inputs will be identified by a coloured border.

Input X

Display the input at position X

Multiple Outputs

vMix 4K supports up to two Fullscreen outputs. The second Fullscreen output is available on graphics cards that support three simultaneous displays.
Transitions

Quick Play
Cut
Fade / Transition Buttons
Merge Effect
Stinger Transitions
FTB (Fade To Black)
Quick Play

The Quick Play button automatically transitions the Preview Window to the Output Window and for video inputs, starts playing input from current position. There is also a Quick Play button for each input.

By default Quick Play is set to a half second fade. This can be customised in Settings - Options.
Cut

The Cut button instantly swaps the Preview Window with the Output Window without any delay or transition effect.
Fade/Transition Buttons

vMix provides four customisable buttons that can be used to set the transition effect when switching from Preview to Output.

Click the arrow next to each button to customise the transition effect and the duration. The Stinger 1 and Stinger 2 can be configured in the Overlay settings. See Stinger Transitions.

The first effect button also determines the transition used by the Fade Bar / T-Bar.
**Merge Effect**

The Merge effect is a unique transition effect that seamlessly animates matching Inputs between Preview and Output.

In the above example, clicking the Merge transition will zoom the fireworks graphic out of the double box until it fills the screen.

Any other layers or inputs that do not appear in both Preview and Output will transition using the Fade transition effect.
**Stinger Transitions**

*Note: Stinger Transitions are only supported on vMix editions with more than one Overlay channel such as vMix HD.*

Stinger Transitions allow the use of an animation instead of a fade or cut when transition between Preview and Output.

**Configuration**

1. Add the animation you wish to use as an Input. The Image Sequence option is recommended as it supports high quality animations with full alpha transparency.
2. In the **Overlay** settings window, select **Stinger 1** from the **Number** dropdown box.
3. Configure the following settings:

   - **Effect**: This specifies an additional effect when transitioning to and from the stinger transition. In most cases this will be set to **Cut**
   - **Duration**: Specify the total duration of the animation in milliseconds or frames. This will usually be the length of the animation.
   - **Stinger Input**: Select the Input added in step 1
   - **Stinger Cut Point**: Specify the point in time when the transition will cut between the Preview and Output inputs. If your animation has alpha channel, this will usually be the point where the animation covers the entire screen.

4. Once all your settings have been configured click OK.

**Using the Stinger Transition**

In the main window, select Stinger 1 as one of the four transition buttons in the middle of the screen.
When the stinger transition is required, simply click the transition button as you would any other effect.
FTB (Fade To Black)

Fade to black the following:

- Recordings
- External Output
- Fullscreen

The Output window will not be affected by the Fade to black in order to make it easier to queue up a source for later.
Categories

Inputs can be placed into up to six (6) different colour coded categories. These categories can be selected from the left hand side of the Inputs Row.

The six categories are RED, GREEN, ORANGE, PURPLE, AQUA and BLUE. Each colour has no special significance and can be used for any purpose that suits your production. For example, Titles could be placed in the PURPLE category and Video Clips in the ORANGE category.

Adding Labels to Categories

Labels can be added to particular categories by right clicking any category button so the Input Categories window appears.

Once the labels have been added, click OK and the the buttons will change as follows:
View All Inputs

All inputs can be viewed at any time by clicking the left most button. This button is GREY under the default vMix theme.

Currently Selected Category

The currently selected category will be indicated by a matching coloured separating line between the category buttons and the inputs as shown below.
Changing An Input's Category

There are two ways to change an Input's category:

1. Drag and drop the inputs preview window (the video thumbnail square, not the title) over the top of the category button you wish to assign it to.
2. Select the Category from the Input Settings window.

When an Input has been assigned to a particular category, the Input Settings button will be changed to a matching colour.
Fade Bar

The Fade Bar (also known as a T-Bar) just below the FTB button allows you to manually transition from the Preview Window and the Output Window. The transition effect used is taken from the first Transition button. See Fade/Transition Buttons.
Pause Inputs

Pauses all currently playing Inputs
Overlays

The Overlay feature allows you to display an Input on top of the currently displayed Input. An Overlay can be activated by clicking the Overlay (1,2,3,4) buttons from the Input Bar.

Alpha Channel and Colour Keys

If the Input contains an alpha channel. (for example a PNG image with a transparent background) then it will be taken into account when displaying the overlay. A Colour Key can also be set for an Input from the Input Settings. When set, the selected colour will display as transparent.

Overlay Settings

The Overlay Settings window specifies how an Overlay will display. The window can be accessed by clicking the Overlay button in the bottom right hand corner of the main window.

Number

Select the overlay channel to configure. 4 Channels are supported in the SD and HD editions.

Type

There are two types of overlay available:

- Fullscreen
  Display on top of the currently selected Input.

- Picture In Picture
  Display on top of the currently selected Input using the specified Pan and Zoom settings. The blue box will display a preview of what the Picture In Picture will look like.

Effect

Specify the transition effect to use when the Overlay is activated. Animated transition effects will run forward when the overlay is activated and run in reverse when the overlay is closed.

Effect Duration

Specify how long the effect should last, in milliseconds.

Duration

Specify how long the overlay should appear before automatically closing. Set this to 0 to disable automatic closing.

Stinger Cut Point / Stinger Input

See Stinger Transitions

Border
A custom border can be specified for Picture In Picture overlays.

**Colour:** Double click the colour box to set the border colour.  
**Thickness:** Specify how large the border will appear.  
**Radius:** Specify how rounded the corners of the border will appear. Set to 0 for square borders.
Right Click Menus

Different types of Inputs provide a right click menu to quickly access advanced settings associated with a particular input type. The following is a list of some of the right click menus available.

Video

Show/Hide PlayBack Speed: Displays a dropdown box next to the input to control the speed of video playback in real time.

Pictures/Powerrpoint

SlideShow Settings: Shows the SlideShow settings window.

DVD

DVD Menu, Next Chapter, Previous Chapter, Jump To Title

NDI / Desktop Capture

Change the NDI or desktop capture source on the fly using the right click menu.

Titles

Title Editor: Show the Title Editor window.

Title Presets: The Titles right click menu will also show title presets if they have been configured.

Video List

Select a video to jump to in the Video List.

Capture/Flash

Reset: Resets the input to the settings when it was first added.

Web Browser

Go Back / Go Forward

Properties: Displays a window to change the web site URL.
**SlideShow Settings**

The SlideShow Settings window is available for Photos and PowerPoint inputs from a right-click menu.
Settings

The Settings window provides options within the following categories:

Import/Export
Display
Outputs
Options
Performance
Decoders
Recording
External Output
Audio
Audio Outputs
Web Controller
Tally Lights
Shortcuts
Scripting
About
Import/Export/Default

**Import**

Import all settings from file. This includes all settings configurable from the Settings window.

**Export**

Export all settings to file. These settings can be imported from any other vMix installation as long as the version is the same.

**Default**

Restores settings to when vMix was first installed.
Display

Theme

There are multiple themes available that change the colour scheme of the user interface.

Preview/Output Colour

Customise the colour to display for the input currently set as Preview or Output.

Master Frame Rate

All inputs will be converted to this Frame Rate. This should be set to match the frame rate of the Video Camera sources where possible.

Output Size

This is the master resolution all inputs are scaled to prior to being sent to Fullscreen, Recording, External Output or Streaming.

Output Aspect Ratio

Set the Aspect Ratio of the output display. For example, if you have a widescreen monitor or projector set this to Widescreen.

Fullscreen

Display

Screen number to output Fullscreen to. By default this is set to the secondary display.

Note: vMix Window and the Output Screen must be connected to the same Graphics Card. Multiple Graphics Cards are not supported.

Two output screens are supported in vMix 4K and can be configured here by clicking the Display 1 or Display 2 buttons.

Fullscreen: 

| Display | | 
|---------|---|---|---|
| 2       | Display 1 | Display 2 |
| Position: | | | | | | | | | | 1280 | 720 |
| Hide Cursor | | On Top | Minimise |

Position

By default the Output Screen will be set to fill the entire screen. Output Position can be used to set a custom size if necessary.

The four boxes are Top, Left, Width and Height.

Hide Cursor: Hide cursor from Fullscreen window.
On Top: Fullscreen window will always be on top of other windows if displayed on a different display. If displayed on the same display as vMix this option will have no effect.
Minimise: Minimise Fullscreen window when vMix is minimised.

Input Size
Size of the Input previews. If you have a large screen this can be increased to be able to see each input more clearly.
Outputs

Two separate outputs can be configured in all versions of vMix, one for Fullscreen and one for External Output, Recording and Streaming. For example, a MultiView can be configured to be displayed on a second display without affecting the live stream.

The different output options are described in the Fullscreen help page.

Custom Overlays

If both output options are set to "Output" the Overlay check boxes can be used to customise which overlays are displayed on each unique output. For example a "clean feed" can be set for the recording, while all the overlays are displayed on the full screen.

External 2

In vMix 4K an additional external output is available that can be configured to it's own independent source.

Fullscreen 2

In vMix 4K an additional fullscreen output is available that can be configured to it's own independent source.

MultiView

MultiView Layout

![MultiView Layouts]
Options

Select the language vMix will use for buttons, labels and messages. These languages are provided by Google Translate and are not guaranteed to be accurate.

Start in Advanced mode

Automatically clicks the Advanced button on startup.

Start Fullscreen display

Ticking this open will automatically display the Fullscreen window on startup.

Start Maximised

Start External Output

Automatically start the External Output according to the settings under the External Output tab.

Remember Window Position

If the main vMix window is not maximised, this checkbox will remember the position this window and restore its position each time vMix is opened.

Display confirmation for ...

Checking this box will display a confirmation box before stopping certain tasks such as recording.

Automatically Play Active Input with Transition

If the input is a video clip it will be automatically started when a transition begins.

Automatically Restart Active Input with Transition

If the input is a video clip it will be restarted automatically when a transition begins.

Automatically Pause Preview Input after Transition

If the input is a video clip it will be automatically paused when a transition to another input ends.

QuickPlay Transition

Customise the transition used when the Quick Play button is pressed.

QuickPlay Duration

Customise how long the QuickPlay transition lasts in milliseconds (default 500 milliseconds)

Activate QuickPlay by clicking Preview Window
Performance

Graphics Adapter

This is for selecting the graphics card vMix will use on systems with multiple graphics cards installed. For best performance this should match the graphics card that monitor displaying the vMix interface is attached to.

For laptops with hybrid graphics (also known as Optimus), only the graphics card selected in the Nvidia control panel will be visible here. In this case, you can instead control Integrated or Dedicated graphics use in vMix from the Nvidia control panel, or equivalent control panel if using a different graphics card vendor.

Low Latency Capture

This will reduce the latency of Camera inputs by approximately one frame. This will substantially increase the load on the graphics card and may lead to dropped frames under heavy load, so it should used with caution.
Decoders

Preferred Deinterlacing

Select the preferred deinterlacing method, when using Progressive output formats in vMix. For example, if you have a camera set to 59.94i and the Master Frame Rate is set to 29.97p, then vMix will deinterlace the camera according to the settings here.

**Blend:** Blends the two fields together to form a single progressive frame. Motion blur may be seen on fast movement.

**Discard:** Uses the first field for each frame and discards the second. No motion blur during fast movement, lower vertical resolution than Blend.

FFMPEG

Select the file formats that will be played using the built in FFMPEG decoder. QuickTime files and MXF files are enabled by default.

*Note: This option is only available under the 64bit version of vMix.*

DirectShow

Select custom decoders to be used for various video formats. It is recommended that these be set to Auto.

MPEG 2 Video

Select a custom MPEG 2 codec to use when playing DVDs and MPG files.

Use vMix Deinterlacing

Tick this box to automatically set deinterlacing in vMix for DVD/MPG sources. Set this option only if the selected MPEG 2 codec does not support deinterlacing. (such as the codec included with Windows 7)

MPEG Audio

Select a custom MPEG audio codec to use when playing DVDs and MPG files.

x264 Video

Select a custom video codec to use when playing x264, (h264) sources.

Filters - Blocked Filter List

This feature can be used to enable/disable problematic directshow filters from use within vMix. By default ffdshow is disabled.
**Recording**

**Default Folder for Recordings**

Select a default folder to use when storing recorded videos.

**Filename Format**

The filename format is for advanced users that need to change the way video recordings are named.

The default is `{0} - {1:dd MMMM yyyy - hh-mm-ss tt}`

**Recording Memory Buffer**

Set the memory buffer to use when recording video. This can be used to reduce dropped frames on systems with slow hard drives.

The recommended value is 10.

**Automatically Setup Recording With Previous Settings**

This will automatically configure the recording using the last known settings when clicking Start in the main vMix window.
External Output / NDI

Select this option to output to the vMix Video device when External Output is running.

vMix Video is a device that appears in 3rd party applications such as Adobe Flash Media Live Encoder and Skype and is also used for the built in Streaming feature.

See Streaming

External Renderer

Select this option to send video and audio out to compatible output devices. Some examples of hardware that support output including most AJA, Blackmagic Design and BlueFish devices.

See External Output for more information.

External 2

In vMix 4K and Pro a second independent output can be configured for both vMix Video and External Renderer. This vMix Video device is called vMix Video External 2 in 3rd party applications.

Frame Rate

Select the Frame Rate for the External Output. When using the External Renderer this should be set to the frame rate required by the device's output. For vMix Video / Streaming, this should be set to the Master Frame Rate set under the Display tab for optimal performance.

Output Size
Resolution for the External Output. This must be set to the output format when using the **External Renderer**. For example if using the Composite/S-Video output this will usually be 720x576 for PAL and 720x480 for NTSC.

**Device (External only)**

Select the output device to use. (Such as the AJA Kona 4)

**Port (External only)**

Select the Port to use on the output device, for example HDMI or SDI.

**Audio Device (External only)**

Some output devices require selecting an Audio Device as well which can be selected here. If this option is not visible, then the audio will automatically be included.

**Audio Delay**

This sets a delay on the audio input in milliseconds. For example if the audio is earlier than the video by 200ms, type in 200 here.

**NDI Outputs**

NDI Outputs can be enabled or disabled here as needed. It is recommended that all outputs not being used be unchecked to provide the best possible performance.
Audio

- Automatically Mix Audio
- Show Master Audio Meter in Main Window
- Show Audio Meter next to Inputs
- Fade To Black includes Audio

Default Input Audio Delay: 0 milliseconds

Automatically mix audio

By default vMix will automatically swap the active audio to match the active input. If this box is unticked, vMix will leave the audio as is and any changes will need to be done manually.

Show Master Audio Meter in Main Window

Display a master audio meter in the middle of the main window.

Show Audio Meter next to Inputs

Each input with an audio source can have a stereo audio meter displayed beside it.

Fade To Black includes Audio

When selecting the FTB (Fade To Black) option in vMix, the audio will fade in or out if this option is ticked.

Default Input Audio Delay

Set an audio delay value in milliseconds to apply to all inputs added to vMix by default. This can be useful to offset an audio delay of an audio mixer. See Recording Audio.
Audio Outputs

Master Output
Select the output to send the Master audio mix to. This is the default audio mix used for streaming, recording and external output.

Headphones
Select the output to send the Headphones audio mix to. This mix is the same as Master Output except when Solo is enabled on an input. When Solo is enabled on an input only that input will be heard.

A, B
These are optionally auxiliary audio buses that can be configured as an independent mix from the Audio Mixer.

For additional information about the audio buses feature, see the Audio Mixer documentation.

Audio Channels
Many sound cards provide 3 or more stereo outputs from a single device. These are typically used to output surround sound, but can be used to output up to three independent stereo audio mixes in vMix.

1-2 The most common setting for standard stereo audio outputs
3-4 This will send a stereo mix out over the output usually used for Center-Subwoofer
5-6 This will send a stereo mix out over the output usually used for RearLeft-RearRight

Default Bus for New Inputs
Advanced audio scenarios may require inputs to be sent to an auxiliary bus such as A and B when they are added for the first time. This default can be configured here.
Web Controller

See the Web Controller section for information about this tab.
Tally Lights

This section will cover using Tally Lights with Arduino based hardware. For other tally light options see [Tally Lights](#).

The Tally Lights settings can be used to specify the pin numbers for each tally light when using Arduino based hardware.

**Reset to Default:** Reset to the default pin order as of vMix 2012 v4.

**Reset to Legacy Mode:** Revert to the pin order used in all previous versions of vMix.

<table>
<thead>
<tr>
<th>Tally Number</th>
<th>Preview Pin</th>
<th>Active Pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>5</td>
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<td>0</td>
</tr>
<tr>
<td>16</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Shortcuts

Add and edit Shortcuts here.

Click here to read the User Guide for Keyboard and Controller Shortcuts.
Scripting

Add and edit custom programming scripts here in 4K and Pro editions of vMix

See Scripting and Automation for more information
About

Change Registration Key

Upgrade your software license here.
**Advanced Settings**

The following are Advanced Settings that are only visible when the **Show Advanced Settings** tick box is enabled.

**IMPORTANT**: These settings should not be changed unless instructed to do so by vMix Support. Many of these settings can potentially have an adverse effect on performance and quality on most systems.

**Performance**

**Output Format**

Renders to recordings, vMix Virtual Capture and External Output in the specified format if supported by the graphics hardware. This should be left at the default of UYVY in most cases.

**Video Renderer**

Some codecs such as H264 perform better under the new EVR renderer which can be selected here. For reliability the VMR9 renderer should be selected if you are unsure.

**Preview Skip**

Tick this option to skip every x frames when rendering the preview. For example if the output is rendering at 30fps and the Preview Skip is set to one, Preview windows will render at 15fps. This is useful to improve performance on older Graphics Cards.

**Application Priority**

If you have other programs running alongside vMix, you can set a higher priority here to prevent dropped frames.

**Automatically convert 16-235 to 0-255 for YUV inputs**

Tick this box if the black level on inputs such as videos and cameras displays as dark grey. This setting is automatically handled and detected by vMix internally and should not be changed under most circumstances.

**Disable Effects on Input Windows**

Disable render effects such as Deinterlacing and Colour Correction on the Input Windows.

**Synchronise Output with Refresh Rate**

Tick this option to eliminate tearing on the Fullscreen Output Window. (Tearing looks like flickering lines in the middle of the video)

*This option is not required and may actually reduce performance when using vMix with Windows 7 in Aero Glass mode or Windows 8 and higher*

**Enable FlipEx on Fullscreen / Previews**

When enabled this setting improves video smoothness on the Fullscreen and/or Preview windows. This may need to be disabled on some laptops with hybrid graphics.
**Memory Lock**

This option is not documented.

**Recording**

**Interlaced Recording**

Enables interlaced recording and external output under the following scenarios:

- **Master Frame Rate** is 50p or higher and recording or external Frame Rate is interlaced
- **Master Frame Rate** is interlaced and recording or external Frame Rate is interlaced

Note: NTSC 480i recordings are lower field first, all other recordings are upper field first.

See [Interlaced Support](#) for more information.

**Audio**

**Master Sample Rate**

Specify the master sampling rate to use for all audio mixes including the vMix Audio device. Either 44.1khz or 48khz are supported.

**Master Bit Rate**

Specify the master bit rate to use for all audio mixes including the vMix Audio device. Either 16bit or 32bit are supported.

**NOTE:** 32bit is not supported by most recording formats.

**Recording Audio**

Select the audio source to use in recordings, external output and streaming.

This should be vMix Audio by default.

See [Recording Audio](#) for more information.
Inputs

Inputs are the various sources that can be loaded into vMix. For example Camera (Video Camera), Video or a DVD. They will appear along the Input Bar as shown in the screenshot below.

There are a couple of mouse shortcuts available:

1. Clicking an Input Window will set it as the current Preview Input.
2. Double Clicking the Title Bar will open up the Input Settings window.
3. Right clicking an Input Window for a Photos or PowerPoint source will display a list of slides and/or photos in a menu. Clicking one of these items will load it as the active image. This feature can be used to build a set of titles in an image editing program and load them all into a single input.

Collapsing Inputs

Right click the title of an input to collapse it. This can be used to save space or hide blank inputs such as audio sources.

Moving and Dragging Inputs

Inputs can be placed in a different order via drag and drop. To move an input, drag the preview area of the input (below the title bar) on top of another input.

Adding and Removing rows

Multiple rows of inputs can be displayed in the main vMix window by dragging up or down the dividing line as shown below:
The number of rows that can be added or removed depends on the display resolution set in Windows. 1920x1080 is recommended and allows up to three rows of inputs to be displayed at a time.

If more inputs are added than can be displayed, a scroll bar will appear to the right of the inputs.
Add Input

Click this button from the Main Window to bring up the Add Input window.

Video

Use the Video Input to load video files such as AVI, MPG, MXF, MP4, WMV and QuickTime. DVD files should be loaded through the DVD option instead.

Mark In/Out

The Video Input supports specifying custom Start (Mark In) and End (Mark Out) points for playback.
The Start and End points are marked by a Green square for Start and a Red square for End. To change the Start point, drag the bar to the chosen position and right click to select Mark In from the menu.
To change the End point, repeat these steps only select **Mark Out** from the menu instead.

**DVD**

Select a DVD drive or folder to load a DVD as an input.

**Controlling DVD playback**

vMix supports clicking on DVD menu items from the Preview or Output windows. You can also manually select chapters and go to the menu by right clicking the Input, Preview or Output window where a DVD is currently playing.

**List**

The List feature (previously known as "Video List") can be used to create a playlist of video and audio files. The Randomise button can be used to shuffle the list (useful for example when playing a set of music videos for example)
M3U files are supported which can contain a combination of video and audio filenames.

**List Control**

To switch between items with the playlist, right click the preview area of the input and left click the item from the dropdown list.

**Edit Items**

Click Edit Items in the right click menu to open up the List Editing Window.

**Automatically Play Next Item**

Uncheck the “Automatically Play Next Item” checkbox to stop automatic playback of the next item in the
list. This option is checked by default.

**Add**

Click the **Add** button to add one or more items to the list.
Files can also be dragged and dropped into the **Edit - List** window

**Edit/Remove**

Click **Edit** to change the name of the selected item
Click **Remove** to remove one or more items from the list. There must be at least one active item in the List at all times

**Note:** These options do not change the underlying files, so files will **not** be deleted or renamed.

**Shuffle**

Randomise the order of items in the list

**Export**

Export the current List as an M3U file

**Checkboxes**

A list item can be disabled by clicking the checkbox. When disabled the item will be skipped during playback.

**Up/Down Arrows**

The up and down arrows can be used to move the selected item up or down in the list.

**List Duration**

If supported by the video or audio format, vMix will display a Total Time Remaining for the entire List.
In the screenshot below, Clip 1 is 21 minutes and 27 seconds in length and there is 1 hour, 4 minutes and 22 seconds remaining.
Camera

Camera is used to load in supported Video Capture Devices and Video Cameras.

Select the device to use here.

Input

Specify the capture input to select such as SDI or HDMI.

Resolution

Specify the capture resolution to use.

Frame Rate

Specify the frame rate to use.

Interlaced

Untick the interlaced Check Box if the source video is in PsF format. (Progressive segmented frame)

Video Format

If the selected Video Capture Device supports more than one video format (such as YUY2 and YV12), vMix will select one of these formats automatically.

If the automatically selected format is not suitable, a specific format can be enforced here.
Audio Device

Select an Audio Device that matches the video capture device.

Audio Format

Select the Audio Format for the audio device above.

NDI / Desktop Capture

NDI / Desktop Capture is used to add two types of sources into vMix:

NDI

Easily add audio and video sources on the local network that support the NDI standard. This also includes capturing remote desktops on PCs and Macs using vMix Desktop Capture.

Local Desktop Capture

NDI - Network Device Interface

NDI is an easy way to send and receive high quality, low latency video and audio between supported devices using a standard Gigabit enabled network. For example you can produce one aspect of your show on one computer and send the output to vMix running on another.

You can also add any NDI enabled source to vMix as long as it is on the same network. This might be a NDI enabled hardware device or another computer or laptop running 3rd party software that supports the NDI standard.

Adding NDI Inputs

Sources detected on the network will appear automatically in the list with a preview thumbnail and organised by device or computer name as shown below.
In the screenshot above, there are four NDI sources available across two different computers.

**Adding Remote Desktops**

You can bring into vMix the desktop of a remote PC or Mac simply by downloading and running the free vMix Desktop Capture application from the vMix web site.


While the vMix Desktop Capture program is running, any windows open on that computer will appear in the NDI list.

In the screenshot above, Microsoft PowerPoint is running on a laptop called "THUNDER1" and can be added to vMix simply by double clicking it from the list.

**vMix Desktop Capture Features**

- Capture multiple displays, windows at high quality and in full resolution
- Games can now be captured from computers running Windows 8 or higher, including fullscreen games powered by Direct3D or OpenGL.
- Audio is captured automatically
- The mouse cursor is also captured

**NOTE: users running versions of vMix Desktop Capture older than 17 will need to upgrade the software to the latest version**

**Changing NDI source through right click menu**

Once the initial NDI source or desktop capture has been added, a right click menu is available to change the source at any time.
Local Desktop Capture

Adding Local Desktops

From the NDI / Desktop Capture tab, a tab called Local Desktop Capture can be selected to capture the screen or window from the same computer. This enables high performance full frame rate capture of any active window, including windows hidden behind vMix or running on a separate display.

This is great for capturing programs like Skype.

Windows 7 Note: "Aero" theme must be enabled in order to capture individual windows. Windows 8 or higher will always work when capturing individual windows regardless of theme.

Desktop Capture

For Desktop Capture support in vMix, see the NDI / Desktop Capture topic.

Stream
The Stream input supports adding IP Cameras and Streaming Servers that support the RTSP or Transport Stream protocols. In particular, the Stream input supports the Teradek Cube device and Teradek Sputnik server.

**Stream Type**

- **RTSP over UDP** / **RTSP over TCP**
  
  RTSP based sources such as the Teradek Cube and IP Cameras

  Enter the URL in the following format: `rtsp://0.0.0.0/stream1`

- **Transport Stream over UDP**
  
  Select this option if a Transport Stream is being sent directly to the vMix machine over UDP

  Enter the port number of the stream

- **Transport Stream over TCP**
  
  Selecting this option sets up vMix as a TCP server that can accept connections from remote streams

  Enter the port to listen for connections

- **Transport Stream over TCP Pull**
  
  Select this option to connect to a remote Transport Stream server such as the Teradek Sputnik using the TCP protocol.

  Enter the hostname and port of the remote Transport Stream server

**Buffer**

The network buffer in milliseconds can be configured to reduce jitter when receiving high latency network streams.

For local network streams, this should be set between 0 and 500 milliseconds or 1000 to 5000 milliseconds for Internet streams.

**Low Latency Mode**

Local streaming devices such as the Teradek cube support a delay of less than 5 frames in Low Latency
Mode.
To use this mode, set the Buffer to 0 and tick the Low Latency Mode checkbox.

**NOTE:** If this option is enabled and the stream does not support Low Latency the video will show compression artefacts and will play back at a lower frame rate.

**Video and Audio Formats**

H264
AAC-HBR

**Network Formats**

RTSP
RTP (UDP and TCP)
TS (UDP, TCP and TCP Pull)

**Firewall**

UDP ports 35000 to 35500 will need to be open on your Firewall in order to receive streams in vMix.

**Instant Replay**

Full documentation on Instant Replay can be found below:

[Instant Replay User Guide](#)

**Image Sequence / Stinger**

Image Sequence / Stinger can be used to automatically load a series of images as an animation. This feature can be used to create animations with or without alpha channels that can be used as Overlays or Stingers in vMix.

vMix will automatically search for the next image in the list based on the filename of the selected file. For example if the image is called image1.png then vMix will load image2.png, image3.png and so on, until no more files can be found.

**Sound**

Sound can be added to an image sequence by creating an MP3 or WAV file and naming it to match the first image in the sequence. For example if the first image is image1.png then the sound file should be called image1.png.wave or image1.png.mp3

The sound will then start playing each time the Image Sequence is played.

**Video Delay**

The Video Delay Input allows you to select a custom delay to the Output or a Capture Input. This feature can be used to achieve many types of effects including slow motion replay.

**Setup**
### Source
Select either Output or an Input such as a Video Camera.

### Resolution
Select the quality of the Video Delay. If you select a video camera to delay, this option will be the same as the camera resolution.

### Save Codec
Select the Video Codec to use when saving clips from the Video Delay to file.

**NOTE:** DV Video Encoder supports a maximum resolution of 720x576, choose a different codec if you wish to save video clips in HD.

### Seconds
Select the delay buffer size in seconds. This is an approximate value based on a 30FPS input.

### Control

- **Record**: Turn on or off the updating of the Video Delay.
- **Speed (100%)**: The delay can be played back at a variety of speeds including full speed and slow motion such as 50%.
- **Save Seconds (10)**: Select the number of seconds of the most recent Video Delay footage to save to file.
- **Save Location (List)**: Select the location to save the video delay clip once the Save button has been clicked. See **Saved Delay Clips** section below.
- **Save**: Click this button to begin saving the Video Delay footage to file. This button will light up red while the save is in progress. The video delay will stop recording until the file has been completed.

### Saved Delay Clips

Video clips of delay footage can be saved at any time by clicking the Save button (see Save in the **Control** section above).

There are two locations in vMix the delay clips can be saved to:

- **List**

  Each saved clip will automatically be added to a separate **List Input** when complete. This List Input is dedicated to holding all video delay clips in a vMix session regardless of source.

- **Category**

  Each saved clip will be added as a separate Input in the selected colour category. See **Categories**.
Image
Add an Image to vMix in PNG, JPEG, TIFF or BMP format.

Photos
Load all photos in a directory into a single Input in vMix using this option.

Selecting a Photo
Once the Input has been loaded you can right click the Input to select a photo to display from the SlideShow Settings window. The controls on the Preview or Output windows can also be used to move backward and forward through the list of photos.

Selecting a Transition time
By default, the Photos input will remain on the first image until the backward and forward buttons are pressed. You can automatically transition through the list by right clicking the Input and selecting a transition time from the SlideShow Settings window.

PowerPoint
Load a PowerPoint slideshow with this option. You must have a copy of PowerPoint installed to use this option.

A SlideShow Settings window is available for this input.

Colour
Select a solid colour to use as a separate input. This can be used with the Multi View feature as a background colour.

Audio
Play Audio Files such as MP3 and WAV.

Audio Input
Audio Input can be used to add multiple audio sources to vMix such as Microphones, USB audio devices and any sources compatible with the ASIO drivers. Each of these inputs can be independently controlled from the vMix Audio Mixer, turning vMix into a fully fledged audio mixer alongside your video production.

Audio Device
Select the Audio Device or Microphone to add.

Audio Channels
Some devices support multiple channels, you can select any stereo pair or a single mono channel here. To add more than two channels, add multiple inputs selecting a different channel each time.

Title / XAML

The Title input is a quick and easy way to bring in Titles and Lower Thirds into your production. Each Title input can have its own customisation text and Title Presets can be created to make it easy to change the text of a title during a production.

You can select one of the many built-in Title Templates or build your own using the vMix Title Designer.

The text in each template can be edited through a right-click menu on the Input.

Editing Titles (Text Editor)

Titles can be edited from the Text Editor right-click menu (see above)
The four icons, from left to right are:

Font  
Decrease Font Size  
Increase Font Size  
Font Colour  
Duration (To set Ticker duration)

**Live Mode**

While the Live button is green, all text typed into the Title Editor window will update the title in real time. Click the Live button to display live updating and click it again once all changes have been made.

**Title Presets**

Click the + button to save the text from all the elements in the title as a preset. This preset can be selected by right clicking the input in the main vMix window to recall these values at any time.

Title Presets can be Imported and Exported in CSV format using the **Import** and **Export** buttons

**Countdown Timer**

The countdown timer can be used to automatically update the title with a timer that runs either in reverse (countdown to 0) and optionally forward. To specify the countdown parameters click the Settings button to bring up the Countdown Settings window.
Duration

Specify the duration in hours, minutes and seconds the timer will count. For example 00:15:00 for a 15 minute timer.

Stop Time (or Start Time when in Reverse mode)

Specify the to either begin or end with depending on the countdown direction. For example, in countdown mode with a duration of 15 minutes, if the Stop Time is set as 00:05:00 (5 minutes) the countdown will run from 00:20:00 to 00:05:00 and then stop. In reverse mode the countdown would run from 00:05:00 to 00:20:00.

Display Format

Specifies how the timer will be displayed within the title. When the display format is set to mm:ss or mm, the hours remaining will be added to the minutes display, for example 120:30 for 2 hours and 30 seconds.

Reverse

Change the direction of the Countdown so it counts up instead.

Flash/RTMP

The Flash Input allows you to insert SWF and FLV files as well as Live RTMP streams into vMix. The latest version of Adobe Flash Player for Internet Explorer (version 10 or higher) should be installed first.

Flash Settings

URL

A URL can also be typed in if it refers directly to a SWF file. e.g http://www.example.com/test.swf

RTMP Streams

RTMP Streams can be loaded into vMix in the following URL format: rtmp://web_site_url/live/myStream Refer to the documentation of the streaming server for the correct URL format for your particular stream.

RTMP Buffer

The RTMP Buffer can be configured to assist with either low speed connections or low-latency streams. Set this to 0 if you have a fast connection and want the least amount of delay possible.
YouTube

In the case of YouTube a special URL is required in the format of http://www.youtube.com/v/VIDEO_ID
Where VIDEO_ID is the unique ID provided by YouTube for a particular video.

Performance

Converting FLV files prior to another format such as AVI prior to use in vMix may result in better performance.

Alpha Channel

The alpha channel transparency within the SWF file is fully preserved allowing the use of Flash Animations as animated overlays.
(For example an animated watermark or logo)

Flash Mouse Input

vMix will automatically send any mouse movement or clicks from the Preview / Output windows directly to the flash control.

Flash will also receive mouse input if it has been setup as a MultiView Overlay on top of another input. This allows for the possibility of using a transparent flash based drawing control, to enable drawing on top of another input (such as a Video Delay for Sports)

Virtual Set

The Virtual Set features provides the ability to integrate a chroma keyed live camera and other graphic elements into a real-time 3D rendered virtual set. This virtual set can then be smoothly zoomed and panned just like in a live television studio.

Setup

Choose from one of the built-in Virtual Set presets to add it to vMix. Each will show a placeholder image giving an idea of where the camera and other elements will be located within the virtual set.

Control

Each Virtual Set has two tabs that can be used for customisation.

Camera
The Camera Tab provides thumbnail previews of the camera angles available within the Virtual Set. To switch to a camera angle, simply click on the thumbnail. To customise the camera angle, right click on the thumbnail.

The speed of the camera zoom is determined by the F (Fast), M (Medium), S (Slow) and C (Cut) buttons above the thumbnail previews.

**Setup**

![Virtual Set Configuration](image)

The Setup Tab can be used to adjust the various layers that form a complete Virtual Set.

**Layer:** Select the layer, such as a background to adjust.

**Input:** If a layer supports cameras (such as the Talent layer) or video clips (such as the Screen layer), the input can be selected here.

While in the Setup Tab the mouse can be used to click and drag on the preview window to change the location of the layer. Hold down the Shift key to resize the layer.

**Reset Position:** Revert the layers position and scale to the default setting.

**Visible:** Toggle on or off this layer. This can be used to hide desk in some Virtual Sets.

**Web Browser**

Use the Web Browser input to add any web page to vMix.

**Settings**

**URL**

Type in the full web page URL that you wish to display. For example: http://www.vmix.com/

**Width, Height**

Specify the Width and Height in pixels when rendering the web page.

If these are set to a size smaller than the vMix **Output Size**, the web page will initially be displayed centred and at the reduced size. This is handy for HTML widgets you may wish to use as **Overlays** as they will show at the correct size and simply need to be moved into position from **Input Settings - Position**.

**Mouse Control**
Once added, the web page can be controlled by clicking and dragging the mouse on either the Input window or the Preview/Output within vMix. Keyboard entry is not supported.

**Transparency**

The Web Browser input in vMix supports transparent backgrounds and alpha channel when used by sites such as TwitchAlerts. To create your own page with transparent background, simply create a page where the background colour for the `<body>` element is not specified.

**Right Click Menu**

Right click on the Web Browser input to Go Back, Go Forward or change the web page from the Properties window.

**Media**

The Web Browser Input utilises the Chromium Embedded Framework (CEF) and has most of the features available in the Google Chrome browser. This includes HTML5 video and audio playback and other media features such as WebRTC.

**Audio**

Audio is fully supported with the Web Browser input and can be independently mixed just like any other audio source in vMix, no desktop audio capture needed.
**Input Buttons**

Input Buttons are the buttons available underneath each input.

**Close**

Close the Input and remove it from the Input Bar.

**Quick Play**

Fades directly to the Output Window and for video inputs, starts playing input from current position.

**Cut**

Cuts directly to the Output Window and for video inputs, starts playing input from current position.

**Loop**

The input will automatically begin from the start again once it has finished playing.

**1,2,3,4 (Overlay)**

Click one of the numbered buttons to overlay this input on top of the currently displayed Input. The input will display according to the overlay settings.

Click the button again to remove the overlay with the transition running in reverse.

**Overlay Preview**

Each overlay can be display in the Preview window by using a right click instead of a left click. Use a right click again to remove the overlay.

When in preview mode the Picture In Picture Zoom feature described below is activated with a left click instead.

**TIP: An Overlay that is being previewed will be sent to the Output automatically when the next transition or cut occurs**

**Picture In Picture Zoom**

When an overlay is active and set to "Picture In Picture" mode you can right click the numbered button to expand it to fill the screen.

Right click again to reduce the size back to the Picture In Picture settings.

**Audio**

Mute/unmute Audio.

**Preview (TV Icon)**

Displays a large preview of the Input. Click the preview window to close when done.

**Settings (Cog Icon)**

See the Input Settings section.
Input Settings

Input Settings are available by clicking the cog button underneath an input while in Advanced mode or by double clicking the Input Title Bar.

The Input Settings window has the following tabs:

General
Colour Adjust
Colour Key / Chroma Key
MultiView
Position
Triggers
Tally Light
Advanced
General

<table>
<thead>
<tr>
<th>Name</th>
<th>Source Aspect Ratio</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camera 1</td>
<td>Widescreen</td>
<td></td>
</tr>
</tbody>
</table>

### Change

Click Change to change the source of this input while preserving all settings including colour adjustments, chroma key, position and multi view.

### Settings

**Name:** Change the name of the input as it displays in the title bar.

**Mouse Click Action:** Select the action to take when the preview window of this input is clicked. By default this is to send the Input to preview.

**Aspect Ratio:** manually change the aspect ratio of the input.

**Category:** see Categories

- Deinterlace Blend: Turn on blend deinterlacing
- Sharpen: Sharpen blurry video. (This requires a high end Graphics Card)
- Mirror: Horizontal mirror

**Automatically mix audio**

**Automatically Play/Restart/Pause with Transition**

**Audio Settings**

### Create Virtual Input

Copies the settings and contents of this input into a new Input.

The Virtual Input depends on the original input in order to display video, so if a camera input is closed any virtual inputs created from that camera will become blank.
Colour Adjust

Black Stretch: Increase the black level of the video.

White Stretch: Increase the white level (or brightness) of the video.

Red / Green / Blue: Independently adjust the rgb channels of the video.

Alpha: Independently adjust the transparency of the video.

Saturation: Drag this bar to the right to increase colour saturation or drag it to the left to convert colours into black and white (greyscale).
Colour Key

Colour Key can be used to select a transparent colour when using an input as an Overlay or inside a Virtual Set.

Select:
Auto Colour Key: Manually select the colour that will be made transparent.

Auto Chroma Key Presets: Click the 1, 2 or 3 button presets to automatically select settings suitable for use with a green/blue screen.

Depending on your green screen setup some of these presets may work better than others. The sliders can then be adjusted slightly to fine tune.

Advanced Chroma Key

To achieve a high quality chroma key:
1. Click Auto Colour Key at the top of the window and select a colour.
2. Click Auto Chroma Key towards the bottom of the window.
3. Drag the Chroma Key slider all the way to the right, this will initially appear to decrease the effectiveness of the colour key until step 4 is utilised below.
4. Drag the Chroma Key Filter slider towards the right to increase the transparency of the background.
5. If objects or actors appear transparent, try dragging back the Chroma Key slider and repeating step 4 until the most effective combination has been found.
6. Click Anti Aliasing if jagged edges appear.

This option can also be used with a green screen, see the options below for more information.

Auto Colour Key: Brings up a window a colour can be selected directly from the currently displaying input.

Tolerance: Set how close vMix should match to the Red/Green/Blue values in the colour key. The sliders all the way to the left represent an exact match.

Chroma Key: Move this slider slightly to the right to improve the colour key quality when a green/blue screen is being used.

Chroma Key Filter: Removes green/blue halos from an image when using a green screen. The scroll bar can also be used to increase the transparency of the green elements.
**Luma Key**

Luma Key is used to key out the background based on brightness or luminance. For example white text on black background.

**Key/Fill Input**

Select another input to use as the Key channel for this input. The input selected should be grey scale with black representing fully transparent (0) and white as opaque (255).
MultiView

Select up to five inputs to display in one of the selected configurations. For example, split screen and picture in picture.

Each of these inputs can be positioned by dragging the windows within the preview box at the bottom of the window. Hold down shift while dragging to resize each input. Alternatively click one of the Position buttons to adjust manually.

Once the positions have been configured, the Add button on the right hand side can be used to create a template.
Position

Zoom:  Zoom in or out.
Pan X:  Pan from left to right
Pan Y:  Pan from top to bottom
Rotate: Rotate image from right to left.
Crop X1: Crop from the left hand side
Crop X2: Crop from the right hand side
Crop Y1: Crop from the top
Crop Y2: Crop from the bottom

Each of these options can also be changed for one of the four overlays through the dropdown menu.
Triggers

Triggers can be used to automate tasks when an Input either begins a transition (OnTransitionIn), begins a transition out (OnTransitionOut) or when a video completes playback (OnCompletion).

OnOverlayIn and OnOverlayOut can also be used when an Input is used as an Overlay.

An unlimited number of tasks can be added, with each task running in the order it appears in the list.

In the example above the Title 1 input is turned on as an overlay 1 second after the current input begins a transition. After 5 seconds the overlay is turned off again.

**Trigger**

- OnTransitionIn
- OnTransitionOut
- OnOverlayIn
- OnOverlayOut
- OnCompletion

**Function**

Select a task or transition effect (such as Fade, Cut etc)

Note that in order to prevent loops, transition effects have no effect for OnTransitionIn or OnTransitionOut.

**Input**

Select the Input the Function applies to (if applicable)

**Duration**

Select the duration of the transition effect (if applicable)

**Delay**

This trigger will wait for the selected amount of time (in milliseconds) before completing the selected Function and moving on to the next item in the list.

**Triggers and MultiView Overlays**

Triggers will only be activated on the primary input. For example if Input A is setup with Input B and C as MultiView Overlays, only the Input A trigger will be used.
Tally Light

See Tally Lights
PTZ

See PTZ - Pan Tilt Zoom
**Advanced**

**Filters**

View and change properties for the DirectShow filters used to display this input.

**Delay (Capture inputs only)**

Set a fixed video delay in frames. For example if the capture input is 25p and a delay of 4 is set, this equals a delay of 160ms.
Audio

Audio Mixer

Audio Settings

Control settings such as Gain and add effects including Compression, EQ and Noise Gate here

Recording Audio

Audio Meters
Audio Mixer

Click the Audio Mixer button on the right hand side of the main interface to bring up the Audio Mixer tab as shown below.

Each fader also includes an Audio Level Meter for the Left and Right channels respectively.

Detach Button

The Audio Mixer can be detached from the main vMix window by clicking the Pin button. To dock the Audio Mixer back again, click the Minimise button of the detached Audio Mixer window.

Outputs

The Master audio mix is displayed here alongside Bus A and B if they have been configured. Headphones volume can be configured independently by spinning the Headphone volume control knob.

Inputs

Each Input that contains audio will be displayed here.
Audio Settings

Click the cog button to display the Audio Settings window.

Solo

Click the Solo button to preview Input audio in the Headphones without affecting the mix. Solo audio is Post-Effects and Post-Fader and will be audible even if the Input is muted.

Mute

Click the speaker icon to Mute/Unmute an audio input.

Automatically Mix Audio

Click the Green and Orange Arrow button to enable/disable automatic mixing of audio. This option is also known as "Follow" on traditional video switchers.

Audio Buses

vMix allows for up to three independent audio buses to allow for complex audio routing scenarios including mix minus.

M

M is the Master or Default audio mix and is sent to Recording, Streaming and External Output.

A, B

A and B are two additional audio mixes that are sent to the A and B Audio Output devices configured in the Audio Outputs settings window.

Click the M, A or B buttons underneath each input to configure each independent each mix. By default all new inputs will be sent to the Master mix only.

Note: The Speaker/Mute button controls the audio for all audio buses not just the Master or M bus.

Collapsing Mixers

All mixers can be collapsed and restored by right clicking the Title of the mixer.
Audio Settings

General

Headphones Volume

Each audio input can have its own independent headphones volume set. This is great for situations where you want an audio source such as a microphone audible on the final recording or stream but do not want to hear it in your own headphones as the slight audio delay coming from your own microphone can be disorienting.

Pre / Post

These audio meters can be used to monitor the audio audio at the pre-effects stage (for any effects, volume or gain, including delay) and the post-effects stage (after all effects, volume, gain and delay have been applied).

Format

Displays the current audio format of the input.

Channel

Select the audio channel to use for this input.

If you have a Microphone plugged into the left channel or right channel independently. Select **SeparateMono** here.

Separate mono allows you to adjust the volume of both mono channels independently from the Audio Mixer. The audio from each microphone will be audible on both the left and right channels simultaneously.

For finer control of how different channels are mixed. See **Channel Mixer** below.
Gain

Select the gain (or amplification) in decibels. Gain is added after the compressor. (See below)

Delay

Delay the audio source in milliseconds

EQ

Compressor is a standard dynamic audio compressor.
**Ratio:** Specify a Ratio other than 1:1 to turn on the compressor.

**Threshold:** Specify the sound level for compression. Any audio above the threshold will be compressed (volume reduced) according to the ratio above.

### Noise Gate

The Noise Gate is a handy way of reducing noise on an Audio Input such as a Microphone. It works by quickly fading out the audio when it drops below a certain dB (decibel) Threshold.

![Image of Noise Gate Settings](image)

### Channel Mixer

The channel mixer can be used to route and control individual channels. For example if a Microphone is connected that is only audible on channel 1, select L and R for channel one so it can be heard on both the Left and Right channels on the final output mix.

1,2,... represent the channels coming in from the source, L + R represent the final stereo left and right channels coming out of vMix and used in recordings and streams.

Audio from sources such as NDI may have up to 16 channels available which can be mixed here into a final 2 channel output.
Recording Audio

There are two main ways audio can be used in a vMix production, using either the built in audio mixer (basic) or an external mixer (advanced). Both approaches are described below.

Basic

In the diagram above, all audio sources such as Microphones and Cameras run directly into vMix. Make sure that vMix Audio is selected as the Recording Audio device within the Audio Settings when using this setup.

This is the Master audio mix from all inputs in vMix, including Cameras, Microphones and Videos will be recorded according to the levels set in the built in Audio Mixer. Make note of the Automatically Mix Audio setting as this determines if audio sources are automatically muted when not in use.

Advanced
In the diagram above, all external audio sources such as Microphones are connected to a separate external Audio Mixer. The Speaker Output of your PC should also be plugged into the external Audio Mixer and will contain audio from vMix inputs such as video clips. The final output of the Audio Mixer should then be plugged into the microphone or line input on your PC. Preventing audio loops and feedback is key. Make sure any external audio sources are connected to the external Audio Mixer instead of vMix. When adding capture (camera) inputs in vMix, the audio source should be set to None. The final step is to make sure that Microphone or Line Input is selected as the Recording Audio device within Settings - Audio.

Audio Sync

Under the above setup, the Microphone audio will arrive earlier than the cameras in vMix. To compensate for this an Audio Delay value can be setup for the Recording and External Output in milliseconds. The correct value to enter is a matter of trial and error, but should be approximately 120 for PAL and 100 for NTSC. Once the Microphone audio is correctly in sync, the audio on video clips played in vMix may become delayed. To compensate this set a negative audio delay under Settings - Audio - Default Input Audio Delay that matches the audio delay above, for example -120 for PAL and -100 for NTSC.
**Audio Meters**

vMix displays Audio Meters in four different locations:

1. Main interface (next to transition buttons)
2. Next to each Input containing audio
3. Audio Mixer
4. Audio Settings

Each audio meter will display green levels when the audio is turned on and blue levels when muted.

The audio meters are also colour coded into 5 distinct bands to make it easy to determine the approximate audio level at a glance.
Levels are always displayed in dBFS (digital "full scale") where 0 dB equals the maximum possible volume for a given bit rate.

**Peak Levels**

So see the maximum peak levels of an audio source at any time, hover the mouse over the audio meters. The peak level displayed here is calculated as the maximum audio volume (amplitude) received in the past ~2 seconds.
vMix supports recording the **Output** into a number of formats including AVI and MP4.

**Recommended Recording Settings**

**Setup**

**Record**

**Fault Tolerant Recordings**
Recommended Recording Settings

The following is a list of recommended recording settings based on factors such as quality, file size and where the final recording will be used.

**Best all rounder**

**FFMPEG**  
Codec: MPEG-2  
Format: Transport Stream (.ts)  
Video Quality: 50M (HD) 10M (SD)  
Audio Quality: 384k

**Pros:** Fast, high quality recordings with moderate file sizes. Supported by most video editors.

**Highest quality HD and SD**

**AVI**  
Codec: MagicYUV

**Pros:** Lossless video quality, fast post production editing.  
**Cons:** Very large file sizes, need to install the MagicYUV codec on any computers used for post production.
Uploading to YouTube

**MP4**
Bit Rate: 25 Mbps (HD) or 8 Mbps (SD)
Audio Bit Rate: 192 Kbps

**Pros:** Files can be played anywhere and can be easily uploaded to most web sites
**Cons:** Provides good video quality for file size, but may not be suitable for high quality post production video editing.
Setup

Click the Cog Button next to Record from the Main Window to bring up the Recording Setup window.

These settings will need to be configured before starting a recording.

Some video formats do not support partial recordings in the event of a power outage or system failure. Read about Fault Tolerant recordings here

AVI

Filename

File to save the recording to.

System

Frame rate of the recording. (Set this to match the Frame Rate set under the Display tab under Settings)

Codec

Codec to use when recording.
For SD recordings the DV Video Encoder is recommended.
For HD recordings the MJPEG Encoder or MagicYUV codecs are recommended and come built in to vMix
3rd party codecs such as CineForm or HQX can also be used

File Format

AVI: Standard AVI file
MKV: The MKV file format supports partial recordings that can be recovered in the event of a power outage or system failure.

Audio

Enable audio on this recording.

Audio Delay

This sets a delay on the audio input in milliseconds. For example if the audio is earlier than the video by 200ms, type in 200 here.

New File Every

Automatically start a new recording every x minutes.
Each file is split seamlessly to enable easy editing.

FFmpeg

FFmpeg is an open source encoding tool that provides the ability to record to a number of formats including MPG, TS, MP4, MOV and MXF.

Codec
Select the recording format to use out of MPEG-2, MP4 X264 with AAC audio and VC-3

**Format**
Depending on the codec a number of file formats will be available. MXF or the MOV/MP4 non-Indexed formats are recommended as they support file recovery in the event of a power or system failure.

**MP4**

MP4 creates a video file containing H264 video and AAC audio. Due to the complexity of H264 compression, this option requires a faster processor for optimal performance.

**Bit Rate**
Select the Bit Rate for the H264 video stream in Mbps (Megabits per second). 25 is recommended for high quality HD (similar to AVCHD)

**Audio Bit Rate**
Select the Audio Bit Rate for the AAC audio stream in Kbps (Kilobits per second). A maximum of 192kbps can be selected. 128kbps is the default.

**Windows 7 File Size**
MP4 recordings have a maximum file size limit of 4GB under Windows 7. For larger recordings, choose a different recording format or upgrade to Windows 8.

**MPEG-2**

Options are the same as above but with the following additional settings:

**Bit Rate**
Specify the Bit Rate for the MPEG-2 recording in Mbps (Megabits per second). 8 is recommended for SD, 25 for HD.

**File Format**
Specify either Program Stream (MPG) or Transport Stream (TS) Transport Stream is recommended if the video will be edited by a program such as Sony Vegas.

**WMV / WMV Streaming**

**HTTP Port (Streaming only)**
Port that Windows Media Player can connect to to view the stream.

**Width/Height**
Width/Height of the WMV recording

**Bitrate**
Bitrate of the WMV recording

**FPS**
Frames Per Second

**Quality**

Quality from 1 to 100. 100 is the highest quality.

**Codec**

WMV codec to use. WMV1 is the fastest but the lowest quality. WMV3 is the slowest with the highest quality.

**Audio Compression**

WMV Audio Format to use
**Record**

Click **Record** to start the video recording.

Note: The **Cog Button** must be clicked first to configure the recording prior to starting

A duration counter will begin next to the Start button as well as a dropped frame counter.

Dropped frames may indicate a computer performance issue, or merely as a side effect of using a different frame rate.
(For example of recording at 30fps from a 25fps source, 5 dropped frames will show up per second)
Fault Tolerant Recordings

Some video formats hold some important information in memory until the recording is complete. This means in the event of a power outage or system failure these recordings may be corrupt and difficult to recover.

**TIP:** Use the "New File Every" option to create new recordings at regular intervals so if one file is lost in event of a power outage, the majority of the recording can be recovered.

The following table describes the fault tolerance of each recording format supported by vMix:

<table>
<thead>
<tr>
<th>Type</th>
<th>File Format</th>
<th>Fault Tolerant?</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVI</td>
<td>AVI</td>
<td>No</td>
</tr>
<tr>
<td>AVI</td>
<td>MKV</td>
<td>Yes</td>
</tr>
<tr>
<td>MPEG-2</td>
<td>MPG</td>
<td>Yes</td>
</tr>
<tr>
<td>MPEG-2</td>
<td>TS</td>
<td>Yes</td>
</tr>
<tr>
<td>MP4</td>
<td>MP4</td>
<td>No</td>
</tr>
<tr>
<td>WMV</td>
<td>WMV</td>
<td>Yes</td>
</tr>
<tr>
<td>FFMPEG</td>
<td>MXF</td>
<td>Yes</td>
</tr>
<tr>
<td>FFMPEG</td>
<td>MOV</td>
<td>Yes</td>
</tr>
<tr>
<td>FFMPEG</td>
<td>MP4</td>
<td>Yes</td>
</tr>
<tr>
<td>FFMPEG</td>
<td>MOV (Index ed)</td>
<td>No</td>
</tr>
<tr>
<td>FFMPEG</td>
<td>MP4 (Index ed)</td>
<td>No</td>
</tr>
</tbody>
</table>

MPEG-2 TS (Transport Stream) is the best fault tolerant format out of the above.
Live Streaming

**Getting Started**
Step by step instructions to get started streaming

**Settings**
Detailed information on all the streaming settings available

**Streaming Quality**
Information on the encoding quality settings

**Multi Bitrate Support**
How to use Multi Bitrate streaming

**Advanced**
Information on the advanced options available in the Advanced streaming window.
Getting Started

The following is a quick overview of the steps needed to begin streaming to the web.

1. Open the streaming window in vMix

Click the cog icon next to the Stream button in the main vMix window.

2. The streaming window will appear

![Stream Settings](image)

3. Enter in your streaming provider details

Select your streaming provider from the drop down list or select Custom RTMP Server if your provider is not listed.

If your provider is listed, you can simply login and select a Channel to stream to directly from vMix as shown:

![Login and Update Channels](image)
Alternatively, the channel settings can be specified manually using the instructions below.

**Custom RTMP Server**

vMix supports most 3rd party streaming providers (also known as CDNs) and dedicated streaming servers such as WOWZA.

The following information is needed from your chosen streaming provider:

**URL** For example rtmp://example.com/live

**Stream Name or Key** This may also be called Stream or Stream Name.

Once you have retrieved this information, type it into the boxes provided.

4. **Select a quality setting**

The Quality setting you select will depend on a variety of factors, including the speed of your internet connection and your viewers.

The default setting of 360p 1.5mbps provides a low to medium quality stream that can be viewed by most broadband internet connections.

The cog icon can also be clicked to open up the Streaming Quality window where you can customise these settings to suit your requirements.

5. **Select an Application**

By default the free FFMPEG is installed with vMix and provides high quality streaming with H264 video and AAC audio.

Optionally, the free Adobe Flash Media Live Encoder (FMLE) can be installed in order to stream with vMix. **This can be downloaded from the Adobe web site.**

FMLE can be used if your streaming provider does not support FFMPEG, or if you need MP3 audio encoding support.

6. **Start Streaming!**

Click Start to begin streaming. The button will light up red in both the Streaming window and in the main vMix window when streaming.

After a few seconds if you receive an error, double check the settings in step 3. to ensure they match the details given to you by your streaming provider.

7. **Advanced settings**

An overview of all the settings available can be found in the Streaming - Settings section.
Settings

1,2,3 Buttons

These buttons allow streaming to up to three different streaming providers simultaneously. See Using Multiple Destinations for more information.

These buttons will only appear when selecting FFMPEG as the application. (See Applications section below).

Profile

Create one or more profiles with unique streaming settings, for example one for each streaming provider. Only one profile can be used at a time.

Click Add to add a new profile that contains a COPY of the settings from the current profile. Delete to delete the currently selected profile.

Destination

Select from one of the built in streaming providers, or select Custom RTMP Server if you want to enter in the streaming details manually.

When using a built in streaming provider destination

Type in the username and password given to you by the streaming provider and click Login to retrieve a list of Channels.
Select the channel you wish to stream to.
When using Custom RTMP Server

**URL**

Enter in the streaming provider URL for example *rtmp://example.com/live*

**Stream Key**

Also known as a Stream Name or Stream. For example *myStream*

**Advanced**

See Streaming - Advanced

**Input Size / Frame Rate**

This is the resolution and frame rate of the video that vMix sends to the stream prior to it being resized for broadcast. This setting matches what is set in Settings - External Output - vMix Video Device and by default will automatically match the settings used in the Streaming Quality window as close as possible for best performance.

The green lock button automatically adjusts the Input Size to match the settings used in Streaming Quality and should be left green for best results.

**Quality**

Select the encoding profile to use for the stream. A number of built in presets are included or you can click the cog icon to customise these. See Streaming Quality for more information

**Application**

**FMLE**

Use Adobe Flash Media Live Encoder as the streaming encoder. Requires Adobe Flash Media Live Encoder to be installed which is free from the Adobe web site. FMLE has built in support for H264 video and MP3 audio. For AAC audio an additional plugin can be purchased from MainConcept.

**FFMPEG**

This is a free streaming encoder installed with vMix. FFMPEG supports H264 video and AAC audio. FFMPEG provides better quality and AAC audio support, but may not be supported by some providers.

**Use Hardware Encoder**

This check box is available for most NVIDIA graphics cards and substantially reduces the CPU usage of the computer when streaming by taking advantage
of the hardware encoder built into most recent NVIDIA graphics cards, including the 750, and 9xx series.

**Start**

Save all streaming settings and start the stream. This button will light up Red when running in addition to the Stream button in the main vMix window.

**View Status**

View some technical information on the stream while it is running. This is useful when troubleshooting connection issues.

**Save and Close**

Save all streaming settings and close the Streaming window.
Streaming Quality

The Streaming Quality window allows you to customise your streaming quality settings to suit your production.

**Video Bit Rates**

Set the video encoding bit rate in kbps.

**Encode Size**

Set the resolution of the stream here. These sizes should match the aspect ratio you are using in vMix. For example 640x360 for Widescreen and 640x480 for Normal (4:3)

**Audio Bit Rate**

Set the audio encoding bit rate in kbps. A minimum of 96 is supported for MP4 and a minimum of 64 is supported for AAC. 128 provides good near CD quality audio for both MP3 and AAC.

**Video**
Profile

Select the H264 encoding profile to use. Baseline is lower quality, but uses less CPU. Main is higher quality at the expense of higher CPU usage.

Level

This is an advanced setting for users wishing to specify a particular encoding level to match the capabilities of an end point decoder.

Preset

This is an advanced setting for users who wish to fine tune the FFmpeg encoder (x264) veryfast is the recommended setting which provides the best balance of CPU usage and quality

Keyframe Frequency

Select the number of seconds between each keyframe in the video stream. Higher numbers generally result in better video quality. 2 seconds is recommended by some streaming providers and is the default here.

Threads

Specify the number of threads to use when encoding video and audio with FFmpeg as the Application. 4 is the default and is recommended. For 4K streaming, extra threads may provide better performance.

Network Buffer

This is the maximum number of seconds vMix can keep buffered at any time and reflects the maximum streaming latency from vMix. (Note that streaming servers and players add their own buffers on to this time)

Increase the Network Buffer if the maximum network speed available is unreliable.

Strict CBR

When this is enabled, vMix will try to keep the streaming speed as close to the selected bit rates as possible. Note that this option may reduce the quality of the stream.

Auto Adjust

When using FMLE as the encoder, the quality of the stream can be dynamically adjusted to suit the conditions of the internet connection.

Audio

Select the Audio encoding format to use with the stream. MP3 is supported when using FMLE (Flash Media Live Encoder) as the encoder, while AAC is the only option when using FFmpeg. If you would like to use FMLE with AAC, an additional plugin needs to be purchased from MainConcept.
Multi Bitrate Support

vMix supports Multi Bitrate streaming with both the FMLE and FFMPEG streaming applications. Settings relating to Multi Bitrate support are described in detail below:

Streaming Quality Window

Multi Bitrate streaming can be enabled by enabling more than one bit rate in the Streaming Quality window as shown.

In the example above, two streams are enabled, one at 1500kbps and 640x360 and one at 3000kbps at 1280x720.

Independent Audio Bit Rates

Independent Audio Bit Rates can also be selected when using FFMPEG only. In FMLE audio bit rates are the same for each streams.

Stream Key

By default vMix will append a number to the end of the stream key when Multi Bitrate is used. For example, with three streams a Stream Key of "myStream" will become myStream1, myStream2, and
myStream3

If each Stream Key is named differently, consider using Multiple Destinations instead.
Using Multiple Destinations

Up to three streaming destinations can be used by selecting the 1, 2 and 3 buttons at the top of the Streaming Settings window.

NOTE: If you do not see these buttons, make sure Application has been set to FFMPEG.

Limitations

- Multi Bitrate support is disabled when using multiple destinations
- If one of the destinations fails due to a network or server issue, all streaming destinations will be stopped automatically.

Independent Bit Rates

Video and audio bit rates can be set independently for each destination from the Streaming Quality window.
Advanced

Click the Advanced button for the following additional options:

Stream

Username/Password

Specify additional login details if required by the streaming provider.

Backup Stream

URL

Specify a backup URL if the primary stream URL is not available (FMLE only)

Save to file

Save a copy of the stream in file format here. (FMLE only)
External Output

External Output allows you to send audio and video out of vMix in a number of different ways:

1. To HDMI, SDI or Analog outputs through compatible hardware from AJA, Blackmagic Design and Bluefish.
2. To other applications running on the same PC such as Skype.
3. To other devices on the network using NDI.

Setting up External Output

Click the cog icon next to the External button in the main vMix window and then click Settings.

Starting External Output

Click the External Button next to the Cog Button to start or stop the output.

Selecting a source for External 2

The Cog Button contains a drop down menu for selecting a source for External 2 in real time (Available in vMix 4K and Pro)
External Output with Intensity and DeckLink Cards

vMix features the ability to output video to an Intensity Pro, Shuttle or DeckLink Card. Follow the steps below to begin using the External Output feature.

**Important Note:** Each Intensity and DeckLink card can only perform one task at a time, either Capture or Output. To capture and output at the same time you will need two or more devices, one for each.

1. Download and install the latest drivers for your Intensity or DeckLink device.
   
   Downloads are available here: [http://www.blackmagic-design.com/support/](http://www.blackmagic-design.com/support/)

2. Open the **BlackMagic Design Control Panel**, it is available in the **Hardware and Sound** section of the Control Panel.

3. Make sure the setting under **Set Output** matches the connector you will be using. For example HDMI & Component if using either HDMI or Component outputs.
4. Open vMix, click the Advanced button and go to the Performance tab.

Output Format should be set to UYVY for the majority of external televisions and monitors. Some devices may only support RGB32 which can be selected here also.
5. Under the External Output tab, select **DeckLink Renderer** and configure the settings as follows:

- **Frame Rate**: In most cases this should be set to either **PAL 50i or 25p** or **NTSC 59.94i or 29.97p**
- **Output Size**: For full HD select 1920x1080, for SD select either 720x576 (For PAL) or 720x480 (For NTSC)
- **Device**: Select the correct DeckLink device here
- **Port**: This setting should match the connector being used, for example HDMI or Component

6. Click OK to confirm your settings and head back to the main vMix Window.

7. Click the **External Button** on the bottom right hand corner of the screen next to the **Cog Button**. The output of vMix should now appear on your external display.

   If the external display is blank, make sure the correct connector is being used on the DeckLink device. (There are separate outputs for input and output for both HDMI and Component on theIntensity Pro/
Shuttle)
Keyboard, MIDI and Controller Shortcuts

vMix supports an unlimited number of Shortcuts that can be assigned to anything from Keyboard Keys to MIDI Faders. In other systems you may know these as Macros.

All of these shortcuts can be configured from the Shortcuts tab in Settings.

Controllers you can use with vMix (Keyboard, MIDI, X-Keys etc)
How to add a Shortcut
Templates
Local and Global Shortcuts
Assigning Multiple Functions to a single Shortcut
Advanced MIDI Shortcuts
Controller Options

Keyboard

Shortcuts can be assigned to almost any key on the keyboard.

Web Interface

All shortcuts are available from the built in web interface allowing you to use any web enabled device to control vMix. See Web for more information.

Control Surface

The vMix Control Surface provides three programmable keys (F1, F2, F3) that can be assigned to a Shortcut.

MIDI / X-Keys

Shortcuts can be assigned to buttons, faders and knobs on any MIDI compatible device. X-keys controllers are also supported automatically by vMix and show up as MIDI commands as well.

Contour Design ShuttlePROv2

Shortcuts can be assigned to any button on the ShuttlePROv2. The shuttle/jog wheel is reserved exclusively for use with Instant Replay.
How to add a Shortcut

From the vMix Settings window click the **Shortcuts** tab and then click **Add**

To quickly select the Key or Control you wish to assign this shortcut to, click the **Find ...** button and then press or move the control you wish to use.

**MIDI Note:** If using a MIDI controller, make sure it has been plugged in and turned on before starting vMix.

Then from the **Shortcuts** tab in Settings click the **MIDI Settings** button to enable the device.

**Function**

Click the arrow next to the Function dropdown box and the Select Function window appear with a number of commands or macros to choose from, organised by category.
**Duration**

If the function selected is a transition, configure the duration here in Milliseconds.

**Input**

If the function controls a particular Input, select it here. You can also tick **Assign Shortcut to Input Number** so this shortcut will always control any input assigned to a particular Number, otherwise the shortcut will control the same input even if it has been moved.

**Title, Description1, Description2**

Assign some optional text to uniquely identify your shortcut when it is displayed in the Web Interface.

**Local Shortcut (This Preset Only)**

Assigns the shortcut to the currently open Preset, otherwise the shortcut will be available to use with any preset.

See [Local and Global Shortcuts](#) for more information.
Templates

The Shortcut Templates feature allows you to import and export sets of shortcut keys and save graphical layouts for reference and printing purposes.

How to load a shortcut template

1. Click the template from the right hand list so it is highlighted green. If you don’t see your template in the list, click **Import** to locate the file and add it to the list.

2. Click the **Apply** button. This will override any existing Shortcuts that share any of the buttons.

A number of templates are provided built-in:

**AudioLaunchControlXL**

This template is designed to be used with the novation LaunchControlXL USB MIDI controller. It assigns the first 7 faders to the first 7 inputs in vMix and the final fader is assigned as the Master volume control.

**Default Keyboard**

This template contains the default keyboard shortcuts that were included with previous versions of vMix.

**Replay ShuttlePROv2**

This template assigns common Instant Replay functions to the ShuttlePROv2 USB controller.
Local and Global Shortcuts

vMix supports two types of Shortcuts: Local and Global.

**Global** shortcuts are saved in the vMix settings and will be remembered each time vMix is opened. **Local** shortcuts are saved in Presets and will only be remembered if a Preset is saved and subsequently opened later.

Local shortcuts take preference over Global shortcuts, so if you have two shortcuts assigned to the letter A, one local and one global, the local shortcut will be triggered and the global shortcut will be ignored.
Assigning Multiple Functions to a single Shortcut

Multiple functions can be easily assigned to a single keyboard or controller button press. To do this, simply add multiple shortcuts, assigning them to the same button.

When the button is pressed they will be called in the order in which they appear in the Shortcuts list. Use the up and down buttons to change the order if necessary.
Advanced MIDI Shortcuts

For most MIDI and X-Keys controllers with buttons and faders, simply following the steps in How to add a Shortcut is all that is needed.

However, some controllers may have controls that operate a bit differently to what vMix expects, which is why there are a couple of extra MIDI control options available in the Edit Shortcut window as shown below.

Channel, Note

Channel and Note are automatically detected by clicking Find and pressing the MIDI button or moving the fader or knob.

Value

If you would like to assign different shortcuts to different positions of a single control, such as a rotary knob, you can tick the Value box and specify a number between 0 and 127.

Type

For most controls that provide a linear value from 0-127 the Default setting is recommended here.

Other controls, known as Jog Wheels are continuous and only send a value for left and a value for right, and some may even provide different values depending on how fast the wheel is turned.

For these controls, set the Type to one of the JogWheel settings. There are four speeds of JogWheel available in vMix so that the jog wheel either controls the corresponding Function in slow (JogWheel and JogWheel2X) or fast (JogWheel5X and JogWheel10X) increments.

For example, setting the Type to JogWheel and setting the Function to SetMasterVolume will increase the volume when turning the control right and lower the volume when turning the control left.

For instant replay, JogWheel MIDI controls can be assigned to the ReplayJumpFrames function to move backwards/forwards through a replay frame by frame or ReplayChangeSpeed to slow down playback when moving the control left, and speed up again when moving the control right.

NOTE: Both the Shuttle and Jog Wheel controls on X-Keys controllers should be configured as JogWheel here.
vMix Control Surface

vMix Control Surface is an optional hardware control surface for vMix that connects via USB. The following is a User Guide that describes the capabilities of each of the buttons and controls.

Setting Up

Visit [http://www.vmix.com/controlsurfacedownload/](http://www.vmix.com/controlsurfacedownload/) to download the latest drivers. Run the installer and accept the prompts to install. Once installed, verify you have the latest version of vMix. vMix Control Surface is compatible with all installations of vMix version 15 and beyond.

Plug in USB cable from vMix Control Surface to Computer. The lights should flash briefly indicating the unit is receiving power over the USB connection. When using the Control Surface, it must be plugged in prior to opening vMix in order to be recognized. If you plug the unit in while vMix is running, you may need to restart vMix to recognize the Control Surface is connected.

The Control Surface uses an industry standard cross point layout consisting of Preview, Program and Overlay keys.

Each input in vMix has a number next to the input name. These correspond to numbers on the Overlay, Program and Preview rows on the Control Surface.

The Control Surface provides access to the first 12 inputs. Inputs can be dragged and dropped in vMix to position the most frequently used sources for use by the control surface.

Preview Bus (Bottom Row)
Press the number of the input on the Preview row that you want to assign to Preview.

Program Bus (Middle Row)

Press the number of the input on the Program row that you want to assign to the Program or Output. This will cut or take the input directly to output without any transitions.

Overlay Bus (Top Row)

In vMix, graphics placed on top of other sources are known as Overlays. These are also known as Down Stream Keyers (DSK) because the graphics are usually "keyed" over live video after any upstream effects are applied. The DSK buttons on the Control Surface correspond to the 1 through 4 numbers underneath each input in vMix (see graphic on page 1).

1. Select the Overlay channel you wish to use. Example: if you want to overlay an input on channel 1, press the DSK1 button. It will now light up indicating overlay channel one on the first 12 inputs is ready to be used.
2. Press the desired input you wish to overlay. Example: if you have a lower third title in input 6, press button 6 on the Overlay row. Button 6 will then light up indicating that input 6 is overlaid on channel 1 of the chosen input.
3. To see which inputs are currently active on each overlay channel, you can cycle through the 4 DSK buttons. If an overlay channel has an active input, the corresponding input will light up.

Function Buttons (F1, F2, F3)

1. To program the Function buttons, open up the settings window in vMix and click the Shortcuts tab.
2. Click Add and a new window opens, with drop down menus showing usable keys and available vMix shortcuts.
3. Click the Key drop down and scroll down to SurfaceF1, SurfaceF2, SurfaceF3. These correspond to the F1, F2 and F3 keys on the Control Surface.
4. Select the desired Function. Example: if you wanted a button to start recording, select Start Recording.
5. Press Ok and the selected function button is now ready to be used.

**ALT Button**

The ALT button can be held down in conjunction with other buttons in order to change their functionality. This will allow enhancements to be added to future updates of vMix.

It presently operates as follows:

1. Hold down ALT while pressing a Preview row button to start playing that input if it is a video clip.
2. Hold down ALT while pressing one of the Overlay row buttons to turn on that overlay in the Preview window instead of directly to Program/Output.

   During the next transition the previewed Overlay will automatically be activated over the top of Program/Output.

**Transition Buttons**

![Transition Buttons](image)

In live switching, changing from one camera or clip to another is called a transition. The vMix Control Surface has three available transition types available, corresponding to transition buttons in vMix.

1. For a hard cut between two inputs, press the "Take" button.
2. To use a stylized transition such as a wipe, fade or zoom, there are customizable transitions located at the top of the vMix interface. "Auto 1" and "Auto 2" correspond to the first two transitions below Cut. When these transition types are changed in the vMix window, the transition will also change for the buttons.
3. Press "FTB" to fade the live output to a black screen. (Fade To Black)

**T-Bar Operation**

By default, the T-Bar allows a manual fade transition between Preview and Program. The transition effect is linked with the Auto 1 and the first transition button in the vMix interface. If this button is changed from Fade to Wipe for example the T-Bar movement will create a wipe transition instead of a fade.
Web Controller

vMix Web Controller allows any web capable device to remotely control Shortcuts, Switching and Titles. It can also be used to turn any mobile phone into a wireless tally light.

Examples of web capable devices include tablets, iPads and mobile phones.

The vMix Web Controller is turned on by default and you can find the web site address to type in your device by clicking **Settings** in the main vMix window and then clicking the **Web Controller** tab.

- **Enabled**
- **Port**: 8088

**Web Site Address**: `http://192.168.0.3:8088`

TIP: The Web Site Address above can be used to control vMix from any device on the same network including Android, iPad, Surface and Mobile Phones. Simply type it into the browser on that device.

After typing in the Web Site Address into your device’s browser, the following page will be displayed:

There are four buttons available:

- **Shortcuts**
- **Switcher**
- **Tally Lights**
- **Title Editor**
Shortcuts

The shortcuts button will display any Shortcuts that have been added to vMix. You can assign each of these Shortcuts a memorable title or description from the Edit Shortcut window in vMix.
**Switcher**

Click the **Switcher** button to display the web interface in a mode similar to the hardware controller available on a traditional video switcher.

![Switcher Diagram]

The transition effects along the bottom match the transition buttons seen in the middle of the vMix main window. (See [Transition Buttons](#))
Tally Lights

The Tally Lights feature allows you to turn any WiFi enabled smart phone into an instant tally light! The entire screen will be used as a tally light allowing you to mount it on top of the camera or place it near your on air talent.

Setting up a Tally Light

1. Make sure both the vMix PC and the smart phone are both connected to the same WiFi network.
2. Open up the smart phone browser and type in the Web Controller URL. (This URL can be found by clicking Settings in vMix and looking under the Web Controller tab.)
3. Select the Tally Light icon in the menu to bring up the following page:

```
<table>
<thead>
<tr>
<th>Camera1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camera2</td>
</tr>
<tr>
<td>Camera3</td>
</tr>
<tr>
<td>Camera4</td>
</tr>
<tr>
<td>Camera5</td>
</tr>
<tr>
<td>Camera6</td>
</tr>
</tbody>
</table>
```

4. Select any input from the list to start the tally light display.

The tally light display will change between the Preview and Output colours depending on the status of that input.

**WARNING:** Most smart phones will automatically switch off or lock the display after a certain period of time.

On Apple smart phones this can be turned off through the "Auto Lock" settings.
On Android smart phones you can install an app such as "Screen Timeout Toggle"
**Title Editor**

The title editor allows you to edit the text of any Title or XAML input in vMix from any WiFi web enabled device. This includes smart phones, tablets etc.

Select the Title Editor icon \( \text{‡} \) from the web interface and select a Title from the list.

```
<table>
<thead>
<tr>
<th>Live</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headline</td>
</tr>
<tr>
<td>Description</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Presets</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEADLINE1, DESCRIPTION1</td>
</tr>
</tbody>
</table>
```

**Live**

This section allows quick editing of each title field. Simply change the text and click **Update**. To add the changed text to a Preset instead of updating the live title click **Add Preset**. Click **Revert** to go back to the title text the last time it was updated.

**Presets**

Presets uses the same presets found within the **Title Editor Window**. To apply a preset to the Title click **Apply**. To delete the preset click **X**
vMix Replay is a powerful Instant Replay system that adds full slow motion replay capabilities to vMix for up to four camera inputs.

**Features**

- Four channel continuous recording of up to four camera inputs including audio.
- Recordings are industry standard MPEG-2 I-Frame MPG files at up to full HD 1080 with Progressive and Interlaced support.
- Audio is recorded as uncompressed 48khz 16 bit stereo PCM
- Two channel simultaneous playback of recorded footage with dynamic camera angle switching.
- Precise slow motion playback control from 10 to 100%.
- Reverse playback and frame by frame control.
- Four Events lists are available that can each include an unlimited number of Mark In and Mark Out points that can be added on the fly and changed at any time.
- Each event can have a default camera angle selected for playback and text comments can also be included with each angle for easy recall.
- Easily playback entire Events lists or selected entries as a highlight reel, complete with transition effects and background music.
- Auto mark in / out controls allow quick event creation with the click of a button with 5, 10 and 20 second presets.
- Keyboard shortcut support for all replay functions
- Many hardware control options available including Scroll Wheel slow motion control and Contour ShuttlePro support.
- Export events to separate video files on the fly, or use the recordings straight away in your favorite video editor without conversion.
- Use vMix Replay as a dedicated instant replay system or incorporate it into your existing vMix based production.
# System Requirements

The table below shows the minimum requirements to use vMix Replay.

<table>
<thead>
<tr>
<th></th>
<th>One Channel HD</th>
<th>Four Channel HD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating System</strong></td>
<td>Windows 7 or higher (64 bit only)</td>
<td>Windows 7 or higher (64 bit only).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Windows 8.1 or higher recommended</td>
</tr>
<tr>
<td><strong>CPU</strong></td>
<td>Quad Core 3.4 Ghz</td>
<td>Quad Core 4.0 Ghz (Six Core 3.6 Ghz highly recommended)</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>8GB</td>
<td>8GB</td>
</tr>
<tr>
<td><strong>Graphics Card</strong></td>
<td>NVIDIA 950 1GB</td>
<td>NVIDIA 960 2GB</td>
</tr>
<tr>
<td><strong>Storage</strong></td>
<td>Dedicated SSD for Replay 200GB and higher.</td>
<td>Dedicated SSD for Replay 500GB and higher. 1TB recommended.</td>
</tr>
<tr>
<td><strong>Storage Connection</strong></td>
<td>Internal SATA only</td>
<td>Internal SATA 3 and higher only.</td>
</tr>
</tbody>
</table>

## Camera Requirements

Instant Replay requires cameras to be connected to a capture card. This includes HDMI and SDI cameras connected to a capture card either via PCI Express, Thunderbolt or USB 3.0.

Webcams, IP cameras, and other types of video sources are not directly supported.

To use these types of inputs, the "Output" camera option can be selected in the Instant Replay settings. Output will capture everything that is currently playing to the output in vMix.
Getting Started

To begin using vMix Replay, first add all of the cameras you will be using to vMix as inputs.

Next, click Add Input and select the Instant Replay tab as shown below:

Important: Click here to see the Instant Replay system requirements.

Session Folder

This is the location where all Instant Replay recordings will be saved. This must be dedicated SSD based storage.

After selecting a folder, vMix will display an estimated recording time based on the selected recording format and bit rate.

Recording Format

The recording format must match all camera sources that will be used. The last mbps setting represents the bit rate quality of the recordings. 100Mbps is recommended for broadcast quality recordings, but lower settings can be selected if there is limited SSD space available.

A four camera 100Mbps production will need around 530GB for three hours while a two camera 50Mbps production will fit up to 12 hours in the same amount of space.

Automatically delete prior video when disk space is low

vMix Replay automatically splits each camera recording every 20 minutes. If disk space is running low, vMix Replay can automatically delete the earliest 20 minutes of the recording to continue. Note that any events that occurred in this deleted video will be lost.

If this option is left unticked, vMix Replay will automatically stop recording and notify the user that the disk space is low.

Cameras
Select any Camera input already added to vMix here, if you add an input later on you can revisit this configuration window by clicking the cog icon in the Instant Replay Controller window. Output is also supported as one of the four camera inputs, and will record all video and audio playing in the vMix output just like a standard recording.

**Playback Audio Source**

This is the audio source vMix will use when playing back events. Master can be selected which represents the master audio mix at the time the event being played back occurred.

**In Transition**

Select the transition to use when playing back events. This can be a standard transition, or optionally any stinger that has already been configured.

**Out Transition**

Select the transition to use once the event playback has completed.

**Event Transition**

Select the transition to use between each event when more than one event is selected for playback, such as in a highlight reel.
Workflow Overview

Once a new Instant Replay session has been configured and added to vMix (See Getting Started) two new inputs will appear. Replay A and Replay B.

These are two playback channels that can be used to play previously recorded footage at any time. Each can have a camera angle assigned from any of the recorded cameras and these can be switched live.

Basic Replay Example

Consider a basketball game where the live Camera 1 is currently selected into the vMix output.

1. Make sure vMix Replay is recording by clicking the record button so it lights up red.

2. When a team scores a goal, click the -5 button to instantly create a replay.

3. When you are ready to play back that goal, click the automatic replay button.

This will transition input A to output, play the event then transition back to Camera 1 when completed. While the event is playing, try moving the scroll wheel on your mouse to change the playback speed.

Advanced Replay

The example above allows you create quick replays of a single camera with only a single click. But what if you want to playback one or more previous events or change camera angles and add notes? The Main Interface can be displayed by clicking the vMix Replay tab located next to the Audio Mixer tab on the bottom right hand side of the main vMix window.

See User Interface Overview for the controls available.
Live and Recorded modes

Events are created in two modes based on the color of the Live button in the Instant Replay Controller.

Live Mode (RED)

When in Live Mode, all new events are created based on the current time "as it happens" on the live cameras.

Starting a recording will turn on Live Mode automatically.

Recorded Mode

When in Recorded Mode, all new events are created based on the time displayed above the position bar in the Instant Replay controller.

This allows the operator to move the position bar back and forth through previous video to create events that may have been missed live.

**TIP:** Be sure to enable Live Mode again when finished if you are in the middle of a recording.
User Interface Overview

vMix Replay includes a centralized Instant Replay Controller that can either be docked to the main vMix window or opened separately.

Main Interface

The mini interface is located next to the Instant Replay channel "A" input and includes common controls such as recording, quick 5 second or 10 second mark in / out buttons, a playback last event button and a settings button. Slow motion can also be controlled here in addition to the main interface.
Control Options

Contour ShuttlePro v2

The ShuttlePro has 14 configurable buttons in addition to the Jog and Shuttle wheels. To assign these buttons to shortcuts use the “ReplayA” to “ReplayO” Key options when creating a Shortcut in vMix.

See Shortcut Reference for a list of Instant Replay related functions that can be assigned.

Keyboard

A number of keyboard shortcuts can be configured using the existing Shortcuts feature in vMix. For a full list of what is available see Shortcut Reference.

Mouse

The mouse scroll wheel can be used at any time in the following ways:

With Shift key pressed: Slow down or speed up playback
With Ctrl key pressed: Move backwards or forwards one frame at a time.
With Alt key pressed: Move backwards or forwards one second at a time.
## Shortcut Reference

The shortcuts below can be configured as keyboard or controller shortcuts to allow easy control of common Instant Replay functions. See the [Shortcuts User Guide](#).

<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ReplayStartRecording</td>
<td>Create a new event with the In Point set to the current time (when live), or the time displayed in the Replay Controller (when in recorded mode)</td>
</tr>
<tr>
<td>ReplayStopRecording</td>
<td></td>
</tr>
<tr>
<td>ReplayMarkIn</td>
<td>Create a new event with the In Point set to either the current time or the time displayed in the Replay Controller</td>
</tr>
<tr>
<td>ReplayMarkInRecorded</td>
<td></td>
</tr>
<tr>
<td>ReplayMarkInLive</td>
<td></td>
</tr>
<tr>
<td>ReplayMarkInRecordedNow</td>
<td>Jumps to recorded mode and starts a new event from the most recent frame allowing the operator to move the position bar backwards to set the out point.</td>
</tr>
<tr>
<td>ReplayMarkOut</td>
<td>Complete an event started with ReplayMarkIn and set the Out Point to the time described in <strong>Live and Recorded modes</strong></td>
</tr>
<tr>
<td>ReplayMarkInOut</td>
<td>Create an event with <strong>Value</strong> specifying the number of previous seconds to use according to the time described in <strong>Live and Recorded modes</strong></td>
</tr>
<tr>
<td>ReplayMarkInOutLive</td>
<td>Create an event With <strong>Value</strong> specifying the number of previous seconds to use from either the current time or the time displayed in the Replay Controller</td>
</tr>
<tr>
<td>ReplayMarkInOutRecorded</td>
<td></td>
</tr>
<tr>
<td>ReplayMarkCancel</td>
<td>Cancel incomplete event and delete it from the list</td>
</tr>
<tr>
<td>ReplayMoveSelectedInPoint</td>
<td>Set <strong>Value</strong> to the number of frames (positive or negative) to add to the InPoint of the selected event</td>
</tr>
<tr>
<td>ReplayMoveSelectedOutPoint</td>
<td>Set <strong>Value</strong> to the number of frames (positive or negative) to add to the OutPoint of the selected event</td>
</tr>
<tr>
<td>ReplayLive</td>
<td>Set all new event timing to Live mode. See <strong>Live and Recorded modes</strong></td>
</tr>
<tr>
<td>ReplayRecorded</td>
<td>Set all new event timing to Recorded mode. See <strong>Live and Recorded modes</strong></td>
</tr>
<tr>
<td>ReplayLiveToggle</td>
<td>Toggle between Live and Recorded modes. See <strong>Live and Recorded modes</strong></td>
</tr>
<tr>
<td>ReplayACamera1,2,3,4</td>
<td>Change camera angle for playback channel A</td>
</tr>
<tr>
<td>ReplayBCamera1,2,3,4</td>
<td>Change camera angle for playback channel B</td>
</tr>
<tr>
<td>ReplaySelectEvents 1,2,3,4</td>
<td>Select the Event List to display in the Instant Replay Controller and to use as a reference for any related controls</td>
</tr>
<tr>
<td>ReplayPlayEvent</td>
<td>Set <strong>Value</strong> to a positive number starting from 0 where 0 is the most recent event and 1 is the next most recent and so on.</td>
</tr>
<tr>
<td>ReplayPlayEventToOutput</td>
<td>Same as ReplayPlayEvent but this will also automatically transition Replay A to output if it is not already.</td>
</tr>
<tr>
<td>ReplayPlayLastEvent</td>
<td>Play the most recent event (based on time)</td>
</tr>
<tr>
<td>Replay Play Last Event To Output</td>
<td>Same as Replay Play Last Event but this will automatically transition Replay A to output if it is not already.</td>
</tr>
<tr>
<td>Replay Play Selected Event</td>
<td>Play all of the selected events in the current Events list</td>
</tr>
<tr>
<td>Replay Play Selected Event To Output</td>
<td>Same as Replay Play Selected Event but this will automatically transition Replay A to output if it is not already.</td>
</tr>
<tr>
<td>Replay Show Hide</td>
<td>Show/hide the Instant Replay Controller interface.</td>
</tr>
<tr>
<td>Replay Change Direction</td>
<td>Change current playback direction</td>
</tr>
<tr>
<td>Replay Set Last Event Text</td>
<td>Set text of the most recent event (based on time) to Value</td>
</tr>
<tr>
<td>Replay Set Selected Event Text</td>
<td>Set text of the selected event to Value</td>
</tr>
<tr>
<td>Replay Play Pause</td>
<td>This is the same as the PlayPause shortcut except it will always apply to the Replay regardless of what Input is selected for the shortcut.</td>
</tr>
<tr>
<td>Replay Jump Frames</td>
<td>Specify Value as the number of frames, positive or negative to jump</td>
</tr>
<tr>
<td>Replay Change Speed</td>
<td>Specify Value as a number, positive or negative, to subtract from the current playback speed. For example 0.5 will increase current speed by 50%</td>
</tr>
<tr>
<td>Replay Export Last Event</td>
<td>Export last event (based on time) as a separate video file. This will default to the export folder in the Replay Session Folder, otherwise Value can be used to specify a custom folder.</td>
</tr>
<tr>
<td>Replay Select Next Event</td>
<td>Move to next item in the currently selected Event list</td>
</tr>
<tr>
<td>Replay Select Previous Event</td>
<td>Move to previous item in the currently selected Event list</td>
</tr>
<tr>
<td>Replay Play Next</td>
<td>Transition to next event or angle in the currently playing events list</td>
</tr>
<tr>
<td>Replay Play Previous</td>
<td>Transition to the previous event or angle in the currently playing events list</td>
</tr>
<tr>
<td>Replay Move Last Event</td>
<td>Specify Value as the number from 0 to 3 specifying the Events list to move the last event (based on time).</td>
</tr>
<tr>
<td>Replay Move Selected Event</td>
<td>Specify Value as the number from 0 to 3 specifying the Events list to move the selected events</td>
</tr>
<tr>
<td>Replay Toggle Last Event Camera 1, 2, 3, 4</td>
<td>Toggle on or off playing back the Camera 1, 2, 3 or 4 of the last event.</td>
</tr>
<tr>
<td>Replay Toggle Selected Event Camera 1, 2, 3, 4</td>
<td>Toggle on or off playing back the Camera 1, 2, 3 or 4 of the selected event.</td>
</tr>
<tr>
<td>Replay Stop Events</td>
<td>Stop any currently playing events.</td>
</tr>
<tr>
<td>Replay Jump To Now</td>
<td>Jump to recorded mode and move the playback position to the most recent frame of video.</td>
</tr>
</tbody>
</table>
PTZ - Pan Tilt Zoom

vMix supports controlling multiple Pan Tilt and Zoom cameras directly from the main interface and by shortcut and/or joystick control. PTZ support can be enabled on any input, providing the ability to enable PTZ support regardless of how the camera is connected, be it SDI, HDMI, NDI or RTSP Stream.

NOTE: PTZ cameras will need to be connected to the same network as vMix in order to be controlled. This is usually done over Ethernet and is a separate cable connection if the video is coming in via SDI or HDMI through a Capture Card.

Enabling PTZ Control

To enable PTZ support on a particular camera, go to the Input Settings of that camera and select the PTZ tab as show below.

Selecting the PTZ camera Device Type

Select the device type that matches your camera from the Device Type dropdown box. vMix currently supports the following types of PTZ cameras:

- PTZ Optics cameras and and other cameras that support the VISCA over UDP protocol such as ValueHD.
- Panasonic PTZ cameras that support CGI control over Ethernet including the AW-HE40, 50, 60, 65, 70, 120 and 130 series
- Sony PTZ cameras that support CGI control other Ethernet including the SRG-300 series.

It is important to note that for simplicity and ease of use, only PTZ cameras that support network control are supported. Cameras that only have serial control such as via the VISCA or Pelco RS-422 or RS-232 protocols are not currently supported.

Entering in the PTZ camera network address

Once the Device Type is selected, a box to enter either a Web Address or IP Address will be displayed. This is the IP address configured for the camera as per the camera's network documentation. For more information on how to configure and locate this IP address, refer to the cameras documentation.

Connecting to the PTZ camera
Once the Device Type and Address have been selected click Connect to connect to the camera. If successful, the controls below the Connect button will be enabled.

**Controlling a PTZ Camera**

vMix provides three different methods for controlling a PTZ camera, you can either pick the method that suits your production or use a combination of all three!

**PTZ control using Virtual Inputs**

This method allows assigning a PTZ position to its own Input in vMix, turning one camera into potentially unlimited "Virtual" cameras!

**PTZ control using the mouse**

Simple push button controls for up, down, left, right etc to move the camera into position

**PTZ control using shortcuts and joysticks**

Assign shortcut keys or controls to PTZ movements, including the ability to assign the joysticks on an XBOX controller to a PTZ camera.
**PTZ control using Virtual Inputs**

Perhaps the easiest way to control PTZ cameras is to create a number of "Virtual Inputs" for a particular PTZ camera and assign a particular pan, tilt and zoom position when selected.

In vMix, this is relatively straightforward to setup:

**Step 1 - Enable PTZ Control**

Follow the instructions under [PTZ - Pan Tilt Zoom](#) to enable PTZ control for a particular Camera input.

**Step 2 - Move the camera into position**

Use the provided controls under the Input Settings PTZ tab to move the camera into the position you wish to create a virtual input for.

**Step 3 - Click Create Input at this Position**

---

This will create a new input based on the current camera and PTZ position.

You can see these two inputs side by side in the screenshot above.

**TIP:** You can also right click the cog icon underneath the PTZ camera to create PTZ Virtual Inputs without going into Input Settings.
Step 4 - Repeat steps 2 and 3 to create as many virtual inputs as needed

Step 5 - Use these inputs just as you would if multiple real cameras were available

Any time one of these inputs is selected into Preview, the PTZ camera will automatically move into position. When the input is not visible in either Preview or Output, a static image of what the camera was seeing when the input was created will be displayed to make it easy to locate a particular camera angle.

PTZ enables the operator to create the illusion of a large multi camera production with just 2 PTZ cameras!

The basic work flow involves swapping between the two cameras, paying careful attention to make sure the movement of a camera is complete in Preview before switching it to Output.

Updating PTZ Virtual Inputs

Each virtual input that is created will create a corresponding update button in the Input Settings PTZ tab.
The number next to each button (for example “Update Input 2”) corresponds to the number of the input in the main window. Moving the camera and then clicking the corresponding update button will update that virtual input so that it recalls that position in the future.

**TIP:** You can also right click the cog icon underneath the PTZ camera to update any of the PTZ Virtual Inputs without going into Input Settings

**Automation using shortcuts**

Most of the buttons available for PTZ are also available as shortcuts. See the PTZ section of [Shortcut Function Reference](#) for more information.
PTZ control using the mouse

PTZ cameras can be controlled using the buttons provided in the PTZ tab under Input Settings. The options available are described in the following diagram.
PTZ control using shortcuts and joysticks

PTZ cameras can be controlled by assigning a PTZ shortcut to an input where PTZ has been configured. For example, the shortcut "PTZMoveUp" once activated will keep the camera moving upward until a corresponding "PTZMoveStop" shortcut is activated.

For more information on the shortcuts available see Shortcut Function Reference

PTZ Control using an XBOX compatible controller

vMix includes a shortcut template that assigns PTZ control to joysticks and buttons on a USB XBOX controller.

By default this template assigns all the buttons to the Preview input which means as long as a PTZ enabled camera is in input it can be moved and controlled using this template.

Of course, the shortcuts in this template can be edited to assign to a particular input if you prefer.

PTZ Shortcuts and Speed Control

By default, PTZ shortcuts will use the speeds defined by the sliders in the Input Settings PTZ tab. To specify a custom speed, specify a fractional number between 0 and 1 as the Value of the shortcut.
NDI - Network Device Interface

NDI is an easy way to send and receive high quality, low latency video and audio between supported devices using a standard Gigabit enabled network. For example you can produce one aspect of your show on one computer and send the output to vMix running on another.

vMix supports both sending and receiving NDI.

**Receiving NDI Sources**

See [NDI / Desktop Capture](#) for more information.

**Sending video and audio from vMix using NDI**

vMix supports sending a number of different types of output via NDI. To enable a particular type of output for NDI, it must first be turned on from [Settings - External Output](#)

**Output**

This is the main Output (or "Program") feed and includes the Master stereo audio mix

**External 2 (4K and Pro editions)**

This is an independent auxiliary output that can be configured to show Output, Preview, MultiView or a particular input. See [External Output](#) for more information.

**Cameras / Audio Inputs**

Any Camera or Audio inputs currently being used in vMix can also be used remotely via NDI.

**Audio Outputs**

Master, Headphones, A and B mixes in vMix can all be independently accessed over the network using NDI. The A and B mixes can be enabled by assigning them to NDI in the dropdown list in [Settings - Audio Outputs](#) and also be checking the Audio Output box in the NDI section under [Settings - External Output](#)
Alpha Channel Support

Alpha Channel Support for NDI Sources

vMix automatically supports alpha channel when it is detected on an NDI source.

Alpha Channel Support for NDI Output

When using the Output and External 2 options with NDI, these will by default send standard “YUV” video without alpha channel.

To enable Alpha Channel on output, select ARGB32 as the Output Format under Settings - Performance.

Note: certain features in vMix such as Recording may not work as expected when ARGB32 is enabled.
**vMix Title Designer**

**vMix Title Designer** is included with vMix and can be found in the Start Menu.

**vMix Title Designer** allows you to create high quality titles that combine dynamic text and graphics. The interface is shown below:

**New, Open, Save, Save As**

Open or create a new title

**Add Text**

Add a new dynamic text element to the title. When selected the properties pane on the right hand side will contain the following options.

**Drop Shadow**

Specify a drop shadow for the text with colour, radius and direction

**Font**

Specify font and font size for the text. This can be changed later from within vMix.

**StrokeThickness / StrokeColor**

Create an outline around the text.

**Name**

Specify a unique name to identify this text box. This name will appear in the Title Editor within vMix.

**Position**
Specify X and Y co-ordinates in pixels for precise positioning

Add Image

Add an image to the title. If the image will act as a background image, use the Background Image option instead.

Background Image

If you have a full resolution graphic created that includes an alpha channel (such as PNG) this can be set as the title background.
This image should be the same size as the title (for example 1920x1080)

Click Browse to browse for the background or click X to remove it.
PlayList

PlayList provides the ability to automate switching tasks or play multiple videos sequentially.

Click the Cog Button next to PlayList to bring up the PlayList window. Click PlayList to start or stop the PlayList once it has been configured.

PlayList Window

Loop: Start PlayList from the beginning again when completed.

Begin from selected item: Start the PlayList from the item currently selected in the list.

Clear Overlays: Turn off all overlays before starting playlist.

Manual Mode: When in Manual Mode, the playlist will not automatically progress to the next input until Next is clicked.

Start: Start the PlayList from the beginning

Previous: Jump to the previous item in the playlist using the PlayList item's transition

Next: Skip to the next item in the playlist using the PlayList item's transition.

Creating a PlayList

To create a PlayList, click the PlayList button from the bottom left hand corner of vMix. Select an input from the Available Inputs column and click the > arrow to add it to the Playlist.

Editing PlayList item
Each item in the right hand Playlist can have its own starting position, duration, transition and transition time. Double click the item in the list to bring up the settings window.

**Starting Position:** If the Playlist item is a video clip, a starting position can be set here. If the Starting Position checkbox is not checked the item will start playing from the current position.

**Duration:** Set length of time this Playlist item will run before moving to the next item in the list. If the duration is 0 the Playlist will default to the inputs duration.

**Transition:** Set a Transition Effect for this Playlist item.

**Transition Duration:** Set the Transition Duration for the Transition Effect in milliseconds.

**Display Type:** Optionally select the display type for this Playlist item. When an Overlay is set as the Display Type this Playlist item will appear as an overlay over the previous Playlist item, display for the length of the duration before moving to the next item.

**Opening/Saving a Playlist**

PlayLists are linked to the currently active Preset in vMix. This means any saved playlists can only be loaded alongside the preset in which they were created.
MultiCorder

MultiCorder is an advanced feature found in the 4K and Pro editions of vMix. It provides the ability to record the raw video and audio from capture inputs to separate files in addition to the main vMix Recording.

MultiCorder has the following minimum system requirements:

- Solid State Disk (SSD) for storing recordings.
- Intel Core i7 Quad Core processor or higher
- High end graphics card with at least 1GB of on board memory

The number of simultaneous recordings and the type of recording formats will depend on the processing capabilities of the computer.

The interface above appears by clicking the Cog Button next to MultiCorder in the main interface.

All available capture inputs are listed within the MultiCorder window. Tick the capture inputs you wish to record and click Start.

The following options are also available:

**Recording Format**

AVI, MKV, MP4 and FFMPEG are available as recording options in MultiCorder. For more information about these formats see Recording Setup.

**Fault Tolerant Recordings**
It is recommended that a fault tolerant recording format is selected when using MultiCorder. This means in the event of a power outage, the recording will still be recoverable. See [Fault Tolerant Recordings](#) for a list of options available.

**Folder**

Select the folder to place the video files. This will need to be a fast storage device as listed above under the system requirements. The more cameras that are recorded simultaneously, the greater chance of dropped frames if the storage device is unable to keep up.

**Audio**

Select an audio source to include with each recording. This can either be the embedded audio in the capture source, or Master to record the main audio mix.

**New File Every**

Split the recording into a new file every x Minutes.
**Tally Lights**

vMix supports a number of Tally Lights options

**Smart Phone Tally Lights**

vMix supports turning any Smart Phone into an instant Tally Light! See the [Web Controller Tally Lights](#) section for more information.

**Tally-Lights.com**

Tally lights can be purchased from tally-lights.com and connected via USB. These lights work automatically with vMix and will be assigned to Inputs according to the tally number. (Tally 1 = Input 1, Tally 2 = Input 2, …)

**Arduino Tally Lights**

vMix supports the use of custom built Tally Lights through use of the open source Arduino hardware platform. (See [http://www.arduino.cc/](http://www.arduino.cc/)) vMix required that the StandardFirmata firmware be loaded on to the Arduino device.

To connect to the Arduino device, go to the Input properties (click the i button) and from the Tally Light tab, select the COM port of the Arduino device and select the Tally Number. The Tally Numbers are assigned to individual **Digital Pins** on the Arduino in the order specified in the Tally Lights tab in Settings.

The following is an overview of the digital pins and how to attach LED lights to them:

Interlaced Support

To enable interlaced processing in vMix, set Master Frame Rate to one of the settings below. This can be done from **Settings -> Display**

**Master Frame Rate**

- **50p, 59.94p, 60p, 50i, 59.94i, 60i**

Interlaced sources will be separated into two separate frames for frame rates 50p and higher. All other master frame rates are progressive and any Interlaced inputs will be deinterlaced automatically.

**Inputs**

<table>
<thead>
<tr>
<th>Input</th>
<th>Interlaced Support</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camera</td>
<td>Yes</td>
<td>Select an Interlaced Frame Rate and tick the Interlaced check box</td>
</tr>
<tr>
<td>Video</td>
<td>MOV, MXF</td>
<td>To enable additional file types for full interlaced processing, add them to the FFMPEG section of <strong>Settings -&gt; Decoders</strong> All other formats will be converted to progressive using Blend deinterlacing</td>
</tr>
<tr>
<td>List</td>
<td>Same as for Video above</td>
<td>Interlaced can be set for each video independently.</td>
</tr>
<tr>
<td>Image Sequence</td>
<td>Yes, one image per field</td>
<td>Each image in an image sequence is treated as a field when using an interlaced output. For example, 50 images are needed for 1 second of 50i video.</td>
</tr>
<tr>
<td>Video Delay</td>
<td>Yes, saved clips progressive</td>
<td>Saved clips are saved as Interlaced but will playback in vMix as Progressive only</td>
</tr>
</tbody>
</table>

**Recording**

**NOTE: Interlaced Recording must be checked under Settings -> Recording**

Interlaced recording is supported for AVI and MPEG-2 formats by setting the Recording Frame Rate to 50i, 59.94i or 60i. All recordings are **Upper Field First** with the exception of NTSC 480i which is **Lower Field First**

MP4 and WMV support progressive recording only.

**External Output**

**NOTE: Interlaced Recording must be checked under Settings -> Recording**

Interlaced recording is supported by setting the Frame Rate to 50i, 59.94i or 60i in External Output.

**Fullscreen Display**

Fullscreen and preview windows will display the first field only when the Master Frame Rate is set to 50i,
59.94i or 60i
For full field display, set the Master Frame Rate to 50p or higher.

**Progressive output from Interlaced source**

The following table describes how each Master Frame Rate is processed when using progressive frame rates for recording or external output.

<table>
<thead>
<tr>
<th>Master Frame Rate</th>
<th>Output Frame Rate</th>
<th>Processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>50p, 59.94p, 60p</td>
<td>25p, 29.97p, 30p</td>
<td>Drop every second frame</td>
</tr>
<tr>
<td>50i, 59.94i, 60i</td>
<td>25p, 29.97p, 30p</td>
<td>Discards every second field. First field used for each frame</td>
</tr>
<tr>
<td>50i, 59.94i, 60i</td>
<td>50p, 59.94p, 60p</td>
<td>One frame per field</td>
</tr>
</tbody>
</table>
Statistics

The statistics window can be displayed by clicking the icon in the bottom right hand corner as shown below.

This window displays real time statistics of each live input including dropped frames and audio sync.

Each column is described in detail below:

**Source Dropped**

This shows the number of dropped frames as a result of the capture card / camera running slowly. For example, the camera clock might be slower than vMix or the capture card is experiencing a bandwidth bottleneck.

**Renderer Dropped**

This shows the number of dropped frames as a result of the graphics card running slowly.

**Resync**

This number shows the number of dropped frames as a result of the capture card / camera running too fast. For example, the camera clock might be running slightly faster than vMix.

**Video**

This column shows timing statistics relating to the arrival time of each frame from the source.

Example: 33 33 33 33 (49)

In the above example, the four previous frames arrived 33 milliseconds after each other (indicating approx. 30 fps)

The number in brackets shows how long it took for the frame to displayed on screen. (1.5 frames in this case)

These numbers will coincide with the results seen in the other dropped columns.

If a 30p camera shows 38 38 38 38 consistently, this indicates that it is running slow. This will show up in the **Source Dropped** column.

If a 30p camera shows 25 25 25 25 consistently, this indicates that is running fast. This will show up in the **Resync** column.

**Audio**

This column shows timing statistics relating to the arrival time of each sample of audio from the source.

Example: 60/67 ms Dropped: 2/0 Resampled: 0/40

60/67 ms
These values show the fullness of the audio buffer.

**Dropped: 2/0**

Number of dropped audio samples read/write.

**Resampled: 0/40**

Number of milliseconds of audio that has been resampled to stay in sync.
The Padlock icon in the bottom right hand corner of vMix can be used to lock certain buttons in vMix so they are not clicked accidentally. When the icon is grey and open, everything is unlocked, when the icon is orange and closed, the functions below are locked:

- vMix Close Button
- Input Close Button
- Open Preset
- Last Preset
- Recording Stop
- Streaming Stop
- External Output Stop
- MultiCorder Stop
Scripting and Automation

4K and Pro editions of vMix include powerful programming capabilities through the Scripting feature.

Consider this is a highly advanced version of Shortcuts, instead of a simple function assigned to a keyboard key you can assign any code you can think of including tasks like downloading internet content and assigning it to a title.

The process goes like this:

1. Create a Script from the Scripting tab in Settings and assign it a unique Name.

2. Create a Shortcut and select "ScriptStart" as the function and type in the name of the script in the Script Name box.

Scripting supports two different languages when writing your script:

- **VB.NET Scripting**
- **Web Scripting**
**VB.NET Scripting**

vMix Scripting supports the powerful and easy to understand VB.NET language when writing your script.

**Hello World Example**

Consider the following vMix take on the infamous "Hello World" application:

```vbnet
Input.Find("NewsHD.xaml").Text("Headline") = "Hello World!"
```

Or put another way:

```vbnet
dim i = Input.Find("NewsHD.xaml")
i.Text("Headline") = "Hello World!"
```

Both of these scripts do the same thing, that is to find the Title Input with name "NewsHD.xaml" and assign the "Headline" field with the text "Hello World!"

To try it out add the NewsHD.xaml title template to vMix and then run the script.

**VB.NET**

vMix Scripting supports the majority of VB.NET 2.0 code that will work within a single sub or function. This means that custom classes and structures are not supported, however you can use the vast majority of the built in base classes in the .NET framework including the handy System.Net.WebClient for downloading data over the internet.

**vMix Objects**

There are a number of built in objects that can be used from within vMix scripting:

**Input**

**Shared Properties**

- Output As Input
- Preview As Input
- Find(inputNameNumberOrKey as String) As Input

Example:

```vbnet
Input.Preview.Function("Cut")
```

**Instance Properties**

```vbnet
Text(Optional fieldName As String = ") As String
```

Change the text of a Field within an Title input, or read the current value

**Instance Methods**

```vbnet
Function(functionName As String, Optional value As String = ", Optional duration As Integer = 0, Optional selectedName As String = ", Optional selectedIndex As Integer = 0)
```
Function can be used to call any Shortcut function in vMix

`WaitForCompletion(timeoutMilliseconds As Integer) As Boolean`

Wait for a video to finish playing and return True, otherwise return False if timed out.

**Overlay**

**Shared Properties**

`Find(number as Integer) As Overlay`

**Instance Methods**

`In(input as String)`
`Out`
`Off`

Examples:

```
Overlay.Find(1).In("NewsHD.xaml")
```

```
For i As Integer = 1 to 4
   Overlay.Find(i).Off
Next
```

**Console**

**Shared Methods**

`WriteLine(message as String)`

Write the message string to the vMix Script console accessible from the Scripting tab of Settings. This is useful for debugging purposes

Examples:

```
Console.WriteLine("Beginning Example Script")
Overlay.Find(1).In("NewsHD.xaml")
Console.WriteLine("Title should now appear in Overlay 1, now we wait 5 seconds")
Sleep(5000)
Console.WriteLine("Now we will transition out Overlay 1")
Overlay.Find(1).Out
Console.WriteLine("Finished!")
```

**API**

**Shared Methods**

`XML() As String`

Returns the XML state of vMix as per the vMix Web API
Function(functionName As String, Optional input As String = "", Optional value As String = "", Optional duration As Integer = 0, Optional selectedName As String = "", Optional selectedIndex As Integer = 0)

Calls an API function as per the vMix Web API

Examples:

API.Function("CubeZoom",1000)
Web Scripting

Web Scripting supports a basic URL syntax to execute multiple functions one after the other.

Example

<table>
<thead>
<tr>
<th>Function=OverlayInput1In&amp;Input=NewsHD.xaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep 2000</td>
</tr>
<tr>
<td>Function=OverlayInput1Out</td>
</tr>
</tbody>
</table>

Syntax

The syntax for each line is the same as the query string used with the but [vMix Web API](#) without the URL portion

For example `http://localhost:8088/API/?Function=Cut` in the Web API would be just `Function=Cut` with Web Scripting

All the same parameters apply for example:

<table>
<thead>
<tr>
<th>Function=Slide&amp;Input=NewsHD.xaml&amp;Duration=1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function=SetText&amp;Input=NewsHD.xaml&amp;SelectedName=Description&amp;Value=Hello World</td>
</tr>
</tbody>
</table>

The only exception is the Sleep command which is unique to Web Scripting and will pause for a number of milliseconds between two functions.

URL encoding may need to be used when using special characters in the Value parameter.
vMix provides two interfaces for developers:

- Custom XAML
- Application Programming Interface
**Custom XAML**

vMix supports the use of custom WPF User Controls compiled into an assembly.

Custom User Controls can implement the `vMixWPFUserControl` interface from the `vMixInterop.dll` in the vMix installation directory. This interface allows vMix to communicate with the User Control and gather duration and position information.

**Implementation Guidelines**

- **All controls must be compatible with .NET Framework 3.5 SP1 (4.0 is not supported at this time)**
- ShowProperties should display a WinForms window without blocking (Form.Show instead of Form.ShowDialog)
- Displaying WPF windows through ShowProperties is untested and unsupported.
- Any code within ShowProperties will not run in the context of the WPF UI thread so the use of Dispatcher is required to modify UI elements.
- All other methods run within the WPF UI thread so cpu intensive procedures should be avoided to prevent frame drops.
- Any media related controls such as MediaElement and WebBrowser are not supported and will display a blank window.

**How to add a Custom WPF User Control to vMix**

1. First make sure the user control has been compiled as a DLL and follows the implementation guidelines above.
2. Click Add Input in vMix and then select the Title / XAML tab
3. Click Browse and browse for the DLL file and click OK
4. Click OK and the control will now be available in vMix.
5. If you have built custom properties through the ShowProperties function, this can be displayed through a right click menu:
The vMix API provides access to common functions through the HTTP protocol. For example, the following command will signal vMix to fade Preview to Active within 1 second:

```
http://127.0.0.1:8088/api/?Function=Fade&Duration=1000
```

**Setup**

The API uses the same web address as the standard Web Interface and can be configured from the **Web** tab in Settings.

**Parameters**

**Function**

Specify a function to execute. This can be any of the functions provided for the [Shortcuts](#) feature. To view a list of what is possible, in vMix go to Settings, Shortcuts and click Add. All the functions in the "Function" dropdown box can be called from the API. 

[Click here to view a list of some of the Shortcut Functions that are available.](#)

**Duration**

If the specified function is a transition this parameter can be set to a time in milliseconds.

**Input**

Specify an input by its number starting from 1. 0 can be used for Preview and -1 for Active. A GUID can be used to specify an Input instead of a number. For example:

```
http://127.0.0.1:8088/API/?Function=Fade&Duration=1000&Input=877bb3e7-58bd-46a1-85ce-0d673aec6bf5
```

**SelectedName**

When using Title or XAML inputs, SelectedName can be used to specify the name of the text field to modify. For example:

```
http://127.0.0.1:8088/API/?Function=SetText&Input=877bb3e7-58bd-46a1-85ce-0d673aec6bf5&SelectedName=Headline&Value=Hello
```

**SelectedIndex**

Specify an index to pass to the input. The following Inputs support the SelectedIndex parameter:

- **VideoList**: Specify the video to play starting from 1
- **Virtual Set**: Specify the camera zoom to transition to
- **Title**: Specify the text item to configure starting from 0
Value

Value is used with the following API Functions:

- **SetImage**: Specify the image to display in an image field within a supported XAML or Title input
- **SetText**: Specify the text to display in the text field specified by SelectedIndex above.
- **SetPosition**: In milliseconds
- **SetCountdown**: As a timespan (00:00:00)
- **SetFader**: As a number between 0 and 255
- **AddInput**: Specify the Video/Image/Photos or Xaml input filename in the following formats:
  - Video: c:\filename.wmv
  - Image: c:\filename.jpg
  - ...

Return

If successful, the API will return the standard 200 response code.
If an error occurs, the API will return the standard 500 error code.

Information

If all parameters are left blank the API will return state information in XML format.
The following is an example of the XML output:

```xml
<vmix>
  <version>11.0.0.16</version>
  <inputs>
    <input key="26cae087-b7b6-4d45-98e4-de03ab4eb6b" number="1" type="Xaml" title="NewsHD.xaml"
           state="Paused" position="0" duration="0" muted="True" loop="False" selectedindex="0">
      NewsHD.xaml
      <text index="0" name="Headline">Hello</text>
      <text index="1" name="Description">Hello</text>
    </input>
    <input key="55cbe357-a801-4d54-8ff2-08ee68766fae" number="2" type="VirtualSet" title="LateNightNews"
           state="Paused" position="0" duration="0" muted="True" loop="False" selectedindex="0">
      LateNightNews
      <overlay index="0" key="2fe8f9d-e400-4504-85ab-df7c17a1edd4"/>
      <overlay index="1" key="20e4ee9a-05cc-4f58-bb69-cd179e1c1958"/>
      <overlay index="2" key="94b88db0-c5cd-49d8-98a2-27d83d4bf3fe"/>
    </input>
  </inputs>
  <overlays>
    <overlay number="1"/>
    <overlay number="2" />
    <overlay number="3"/>
    <overlay number="4"/>
    <overlay number="5"/>
    <overlay number="6"/>
  </overlays>
  <preview>1</preview>
  <active>2</active>
  <fadelToBlack>False</fadelToBlack>
  <transitions>
    <transition number="1" effect="Fade" duration="500"/>
    <transition number="2" effect="Wipe" duration="500"/>
    <transition number="3" effect="Fly" duration="500"/>
    <transition number="4" effect="CubeZoom" duration="3000"/>
  </transitions>
</vmix>
```
<recording>False</recording>
<external>False</external>
<streaming>False</streaming>
<playList>False</playList>
<multiCorder>False</multiCorder>
</vmix>

In the example above Input 2 is active and Input 1 is currently running as Overlay 2.
### Shortcut Function Reference

The following shortcut functions can be called either via a [Shortcut](#) or via the [API](#). The list of functions is constantly growing so the functions below only represent a small fraction of what is available.

**Fade, Zoom, Cut Etc**: Assign a keyboard key to a transition effect. The duration can also be selected.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
</tr>
<tr>
<td>KeyPress</td>
<td>Value = Key</td>
</tr>
<tr>
<td><strong>Audio</strong></td>
<td></td>
</tr>
<tr>
<td>Audio</td>
<td>Toggle Audio Mute On/Off</td>
</tr>
<tr>
<td>AudioAuto</td>
<td></td>
</tr>
<tr>
<td>AudioAutoOff</td>
<td></td>
</tr>
<tr>
<td>AudioAutoOn</td>
<td></td>
</tr>
<tr>
<td>AudioBus</td>
<td>Value = Bus M,A,B</td>
</tr>
<tr>
<td>AudioBusOff</td>
<td>Value = Bus M,A,B</td>
</tr>
<tr>
<td>AudioBusOn</td>
<td>Value = Bus M,A,B</td>
</tr>
<tr>
<td>AudioMixerShowHide</td>
<td></td>
</tr>
<tr>
<td>AudioOff</td>
<td></td>
</tr>
<tr>
<td>AudioOn</td>
<td></td>
</tr>
<tr>
<td>BusAAudio</td>
<td></td>
</tr>
<tr>
<td>BusAAudioOff</td>
<td></td>
</tr>
<tr>
<td>BusAAudioOn</td>
<td></td>
</tr>
<tr>
<td>BusBAudio</td>
<td></td>
</tr>
<tr>
<td>BusBAudioOff</td>
<td></td>
</tr>
<tr>
<td>BusBAudioOn</td>
<td></td>
</tr>
<tr>
<td>MasterAudio</td>
<td></td>
</tr>
<tr>
<td>MasterAudioOff</td>
<td></td>
</tr>
<tr>
<td>MasterAudioOn</td>
<td></td>
</tr>
<tr>
<td>SetBalance</td>
<td>Value = Balance -1-1</td>
</tr>
<tr>
<td>SetBusAVolume</td>
<td>Value = Volume 0-100</td>
</tr>
<tr>
<td>SetBusBVolume</td>
<td>Value = Volume 0-100</td>
</tr>
<tr>
<td>SetGain</td>
<td>Value = Gain dB 0-24</td>
</tr>
<tr>
<td>SetGainChannel1</td>
<td>Value = Gain dB 0-24</td>
</tr>
<tr>
<td>SetGainChannel2</td>
<td>Value = Gain dB 0-24</td>
</tr>
<tr>
<td>SetHeadphonesVolume</td>
<td>Value = Volume 0-100</td>
</tr>
<tr>
<td>SetMasterVolume</td>
<td>Value = Volume 0-100</td>
</tr>
<tr>
<td>SetVolume</td>
<td>Value = Volume 0-100</td>
</tr>
<tr>
<td>Command</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SetVolumeChannel1</td>
<td>When using SeparateMono on an Audio Input, this can be used to set channel volumes independently. Value = Volume 0-100</td>
</tr>
<tr>
<td>SetVolumeChannel2</td>
<td>When using SeparateMono on an Audio Input, this can be used to set channel volumes independently. Value = Volume 0-100</td>
</tr>
<tr>
<td>Solo</td>
<td></td>
</tr>
<tr>
<td>SoloOff</td>
<td></td>
</tr>
<tr>
<td>SoloOn</td>
<td></td>
</tr>
<tr>
<td>Transition</td>
<td></td>
</tr>
<tr>
<td>CutDirect</td>
<td>Cuts the input directly to Output without changing Preview</td>
</tr>
<tr>
<td>FadeToBlack</td>
<td>Toggle FTB On/Off</td>
</tr>
<tr>
<td>QuickPlay</td>
<td></td>
</tr>
<tr>
<td>SetFader</td>
<td>Set Master Fader T-Bar, 255 will cut to Preview Value = Fader 0-255</td>
</tr>
<tr>
<td>Stinger1</td>
<td></td>
</tr>
<tr>
<td>Stinger2</td>
<td></td>
</tr>
<tr>
<td>Transition1</td>
<td>Clicks one of the four Transition buttons in the main vMix window.</td>
</tr>
<tr>
<td>Transition2</td>
<td></td>
</tr>
<tr>
<td>Transition3</td>
<td></td>
</tr>
<tr>
<td>Transition4</td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td></td>
</tr>
<tr>
<td>FullscreenOff</td>
<td></td>
</tr>
<tr>
<td>FullscreenOn</td>
<td></td>
</tr>
<tr>
<td>SetOutputExternal2</td>
<td>Change what is displayed on the External2 output.</td>
</tr>
<tr>
<td></td>
<td>Output, Preview, MultiView, Input</td>
</tr>
<tr>
<td></td>
<td>Value = Output, Preview, MultiView, Input</td>
</tr>
<tr>
<td>SetOutputFullscreen</td>
<td>Change what is displayed on the Fullscreen output.</td>
</tr>
<tr>
<td></td>
<td>Output, Preview, MultiView, Input</td>
</tr>
<tr>
<td></td>
<td>Value = Output, Preview, MultiView, Input</td>
</tr>
<tr>
<td>SetOutputFullscreen2</td>
<td>Change what is displayed on the Fullscreen2 output.</td>
</tr>
<tr>
<td></td>
<td>Output, Preview, MultiView, Input</td>
</tr>
<tr>
<td></td>
<td>Value = Output, Preview, MultiView, Input</td>
</tr>
</tbody>
</table>
### Snapshot

Create a snapshot image of the current Output. Optional Value specifies save Filename, otherwise a save file window will appear. Filename can specify date, for example: `mysnapshot {0:dd MMM yyyy}.jpg`

Value = Value

#### StartExternal

#### StartMultiCorder

#### StartRecording

#### StartStopExternal

#### StartStopMultiCorder

#### StartStopRecording

#### StartStopStreaming

#### StartStreaming

#### StopExternal

#### StopMultiCorder

#### StopRecording

#### StopStreaming

#### WriteDurationToRecordingLog

Write current recording duration to log file with optional tag text Value.

Value = Tag Text

### Title

#### AdjustCountdown

Seconds to add or subtract from current Countdown time

Value = Seconds

#### NextTitlePreset

#### PauseCountdown

#### PauseRender

Freeze Title Input while making multiple updates

#### PreviousTitlePreset

#### ResumeRender

Resume Title Input rendering after making multiple updates

#### SelectTitlePreset

Value = Preset Index

#### SetCountdown

Set countdown duration according to Value as hh:mm:ss (00:00:00)

Value = Duration 00:00:00

#### SetImage

Change Image in Title according to Filename or empty to clear. SelectedIndex or SelectedValue can be used to select text field.

Value = Filename

####SetText

Change Text in Title according to Value parameter. SelectedIndex or SelectedName can be used to select Text Field

Value = Text

#### StartCountdown

#### StopCountdown

Stop and Reset Countdown
<table>
<thead>
<tr>
<th>Input</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ActiveInput</td>
<td>Send to Output the selected Input.</td>
</tr>
<tr>
<td>AddInput</td>
<td>Create a new Input based on information provided in Value.</td>
</tr>
<tr>
<td></td>
<td>Video</td>
</tr>
<tr>
<td></td>
<td>Image</td>
</tr>
<tr>
<td></td>
<td>Photos</td>
</tr>
<tr>
<td></td>
<td>Xaml</td>
</tr>
<tr>
<td></td>
<td>VideoList</td>
</tr>
<tr>
<td></td>
<td>Colour</td>
</tr>
<tr>
<td></td>
<td>AudioFile</td>
</tr>
<tr>
<td></td>
<td>Flash</td>
</tr>
<tr>
<td></td>
<td>PowerPoint</td>
</tr>
<tr>
<td>Value = Type</td>
<td>Filename</td>
</tr>
<tr>
<td>AutoPauseOff</td>
<td></td>
</tr>
<tr>
<td>AutoPauseOn</td>
<td></td>
</tr>
<tr>
<td>AutoPlayOff</td>
<td></td>
</tr>
<tr>
<td>AutoPlayOn</td>
<td></td>
</tr>
<tr>
<td>AutoRestartOff</td>
<td></td>
</tr>
<tr>
<td>AutoRestartOn</td>
<td></td>
</tr>
<tr>
<td>CreateVirtualInput</td>
<td>Create a new Virtual Input from the specified Input.</td>
</tr>
<tr>
<td>DeinterlaceOff</td>
<td></td>
</tr>
<tr>
<td>DeinterlaceOn</td>
<td></td>
</tr>
<tr>
<td>LoopOff</td>
<td></td>
</tr>
<tr>
<td>LoopOn</td>
<td></td>
</tr>
<tr>
<td>MarkIn</td>
<td></td>
</tr>
<tr>
<td>MarkOut</td>
<td></td>
</tr>
<tr>
<td>MarkReset</td>
<td></td>
</tr>
<tr>
<td>MarkResetIn</td>
<td></td>
</tr>
<tr>
<td>MarkResetOut</td>
<td></td>
</tr>
<tr>
<td>MirrorOff</td>
<td></td>
</tr>
<tr>
<td>MirrorOn</td>
<td></td>
</tr>
<tr>
<td>MoveInput</td>
<td>Value = Number</td>
</tr>
<tr>
<td>NextItem</td>
<td>Move to next item in List</td>
</tr>
<tr>
<td>NextPicture</td>
<td>Move to Next Picture for Photo and PowerPoint Inputs</td>
</tr>
<tr>
<td>Pause</td>
<td></td>
</tr>
<tr>
<td>Command</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Play</td>
<td></td>
</tr>
<tr>
<td>PlayPause</td>
<td></td>
</tr>
<tr>
<td>PreviewInput</td>
<td>Send to Preview the selected Input</td>
</tr>
<tr>
<td>PreviewInputNext</td>
<td>Send to Preview the next Input</td>
</tr>
<tr>
<td>PreviewInputPrevious</td>
<td>Send to Preview the previous Input</td>
</tr>
<tr>
<td>PreviousItem</td>
<td>Move to previous item in List</td>
</tr>
<tr>
<td>PreviousPicture</td>
<td>Move to Previous Picture for Photo and PowerPoint Inputs</td>
</tr>
<tr>
<td>RemoveInput</td>
<td></td>
</tr>
<tr>
<td>Restart</td>
<td>Restart selected Input</td>
</tr>
<tr>
<td>SaveVideoDelay</td>
<td>Save video clip from Video Delay according to Duration in milliseconds</td>
</tr>
<tr>
<td>SelectCategory</td>
<td>Change to Category according to Value</td>
</tr>
<tr>
<td></td>
<td>(All, Red, Green, Orange, Purple, Aqua, Blue)</td>
</tr>
<tr>
<td></td>
<td>Value = Category</td>
</tr>
<tr>
<td>SelectIndex</td>
<td>Photos, List: Selects item in List according to Value starting from number</td>
</tr>
<tr>
<td></td>
<td>Virtual Set: Zooms to selected preset using the current speed settings</td>
</tr>
<tr>
<td></td>
<td>Value = Index</td>
</tr>
<tr>
<td>SetAlpha</td>
<td>Set Input transparency according to Value. 0 is transparent, 255 is opaque</td>
</tr>
<tr>
<td></td>
<td>Value = Alpha 0-255</td>
</tr>
<tr>
<td>SetPanX</td>
<td>Change current PanX value of Input.</td>
</tr>
<tr>
<td></td>
<td>0=centered, -2=100% to left, 2=100% to right</td>
</tr>
<tr>
<td></td>
<td>Value = Value -2-2</td>
</tr>
<tr>
<td>SetPanY</td>
<td>Change current PanY value of Input.</td>
</tr>
<tr>
<td></td>
<td>0=centered, -2=100% to bottom, 2=100% to top</td>
</tr>
<tr>
<td></td>
<td>Value = Value -2-2</td>
</tr>
<tr>
<td>SetPictureEffect</td>
<td>Set transition effect for Photos and PowerPoint Inputs (Fade, Zoom, etc)</td>
</tr>
<tr>
<td></td>
<td>Value = Transition</td>
</tr>
<tr>
<td>SetPictureEffectDuration</td>
<td>Set duration of transition effect in Milliseconds</td>
</tr>
<tr>
<td></td>
<td>Value = Duration MS</td>
</tr>
<tr>
<td>SetPictureTransition</td>
<td>Set transition time between Photos and PowerPoint slides in Seconds</td>
</tr>
<tr>
<td></td>
<td>Value = Seconds</td>
</tr>
<tr>
<td>SetPosition</td>
<td>Set Position of selected Input according to Value in Milliseconds</td>
</tr>
<tr>
<td></td>
<td>Value = Milliseconds</td>
</tr>
<tr>
<td>SetRate</td>
<td>Set Playback speed/rate for Videos and Video Delays</td>
</tr>
<tr>
<td></td>
<td>0.5=50%, 1=100%, 2=200% etc</td>
</tr>
</tbody>
</table>
| **SetZoom** | Change current Zoom level of Input.  
1=100%, 0.5=50%, 2=200%  
Value = Value 0-5 |
| **SharpenOff** |  |
| **SharpenOn** |  |
| **WaitForCompletion** | Wait for a Video Input to reach the end of playback. |
| **Overlay** |  |
| **OverlayInput1** | Toggle Overlay1 On/Off with selected Input using configured Transition  
| **OverlayInput1In** | Transition Out to Overlay1 with selected Input  
| **OverlayInput1Off** | Immediately switch Overlay1 Off (Cut)  
| **OverlayInput1Out** | Transition Out Overlay1  
| **OverlayInput1Zoom** | Zooms PIP Overlay to fill Fullscreen and vice versa  
| **OverlayInput2** |  |
| **OverlayInput2In** |  |
| **OverlayInput2Off** |  |
| **OverlayInput2Out** |  |
| **OverlayInput2Zoom** |  |
| **OverlayInput3** |  |
| **OverlayInput3In** |  |
| **OverlayInput3Off** |  |
| **OverlayInput3Out** |  |
| **OverlayInput3Zoom** |  |
| **OverlayInput4** |  |
| **OverlayInput4In** |  |
| **OverlayInput4Off** |  |
| **OverlayInput4Out** |  |
| **OverlayInput4Zoom** |  |
| **OverlayInputAllOff** | Immediately switch all Overlays Off  
| **PreviewOverlayInput1** | Preview Overlay1 using the selected Input  
| **PreviewOverlayInput2** |  
| **PreviewOverlayInput3** |  
| **PreviewOverlayInput4** |  
| **SetMultiViewOverlay** | Change Overlay in Input MultiView according to Value parameter.  
Example: 1,2 changes Overlay1 to Input2  
Value = Index,Input  
<p>| <strong>PlayList</strong> |  |</p>
<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NextPlayListEntry</td>
<td>Move to Next Item in a running PlayList</td>
</tr>
<tr>
<td>PreviousPlayListEntry</td>
<td>Move to Previous Item in a running PlayList</td>
</tr>
<tr>
<td>SelectPlayList</td>
<td>Open PlayList with Name matching Value</td>
</tr>
<tr>
<td></td>
<td>Value = PlayList</td>
</tr>
<tr>
<td>StartPlayList</td>
<td>None</td>
</tr>
<tr>
<td>StopPlayList</td>
<td>None</td>
</tr>
<tr>
<td><strong>Scripting</strong></td>
<td></td>
</tr>
<tr>
<td>ScriptStart</td>
<td>Value = Script Name</td>
</tr>
<tr>
<td>ScriptStartDynamic</td>
<td>Start a dynamic script using code specified as the Value.</td>
</tr>
<tr>
<td></td>
<td>Value = Code</td>
</tr>
<tr>
<td>ScriptStop</td>
<td>Value = Script Name</td>
</tr>
<tr>
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<td>Creates a PTZ Virtual Input with the current Position</td>
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<td>Command</td>
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<td>PTZMoveRight</td>
<td>Value = Speed 0-1</td>
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<td>PTZMoveStop</td>
<td>Stop all PTZ movement</td>
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<tr>
<td>PTZMoveToVirtualInputPosition</td>
<td>Moves to the Position of the PTZ Virtual Input without selecting it into Preview</td>
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<tr>
<td>PTZMoveToVirtualInputPositionByIndex</td>
<td>Moves to the Position of the PTZ Virtual Input associated with this Input. Index is first Input found starting from 0</td>
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<td>PTZMoveUp</td>
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<td>PTZUpdateVirtualInput</td>
<td>Updates selected PTZ Virtual Input with current Position</td>
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<td>Load preset from the specified Filename.</td>
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<td>SavePreset</td>
<td>Save preset to the specified Filename.</td>
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