



Virtual Set Editor User Guide

Version 1.1



Viz Verdi



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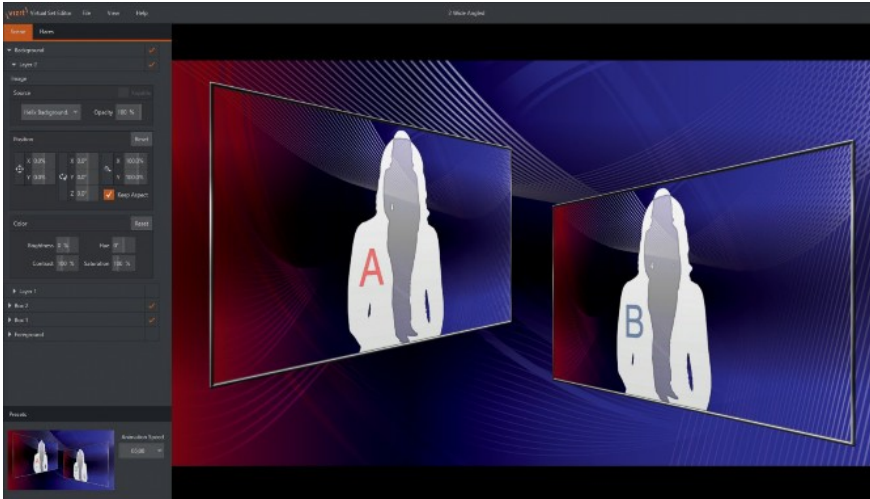
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1 Introduction

Vizrt's Verdi Suite comes with network-class virtual sets developed using proprietary LiveSet™ technology. Virtual Set Editor (VSE) enables live production suite users to customize included high definition (HD) live virtual sets and can also be used for compiling original LiveSets on suitable standalone systems.



Controls such as position, scale, rotation, color correction (brightness, hue, contrast and saturation), and the Media Browser are immediately familiar to live production suite users.

Once a virtual set has been customized, you can easily export it for immediate use in live production. Virtual Set Editor enables schools, broadcasters and independent producers to personalize their productions easily and affordably.

1.1 Related Documents

- *Viz Verdi Switcher Guide*: Contains information on how to install, configure and use Viz Verdi, and supported hardware.

1.2 Feedback And Suggestions

We encourage suggestions and feedback about our products and documentation. To give feedback and/or suggestions, please contact your local Vizrt customer support team at www.vizrt.com.

2 VSE Walkthrough

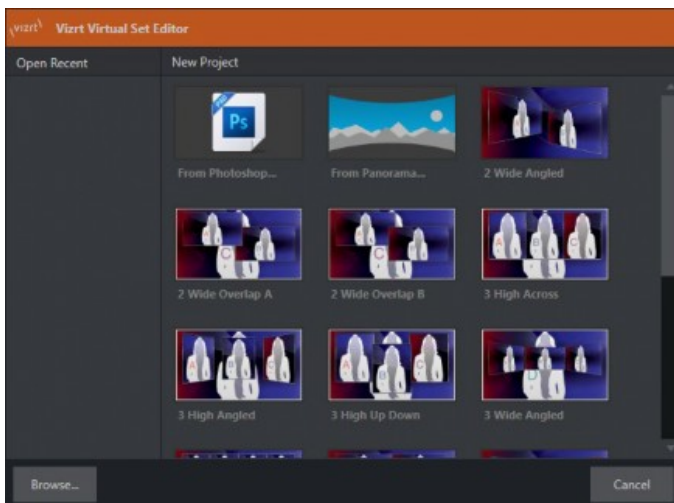
This section provides a quick hands-on tour of the major components and functions of Virtual Set Editor.

2.1 First Steps

Note: Virtual sets created before activation display a watermark. To remove it, re-open the project after activating the software, and then re-save.

2.2 The Startup Wizard

The first thing you see when VSE runs is the Startup Wizard. This convenient panel makes it a breeze to create a new virtual set project or pick up where you left off on a recent project.



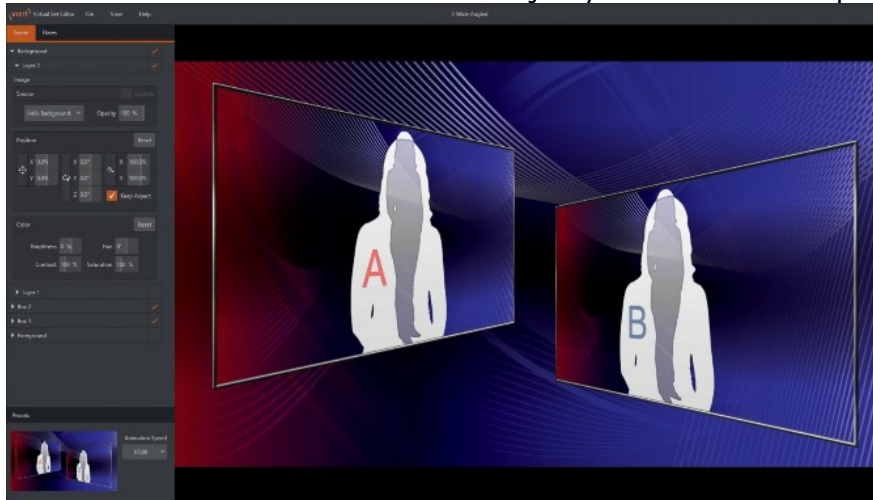
The Startup Wizard has two bins. The left-hand one is named Open Recent. Eventually, it displays icons for projects you have opened previously, initially though, it is empty.

The right-hand pane is labeled *New Project* and shows thumbnail icons for all installed virtual set presets. Each preset contains numerous modifiable and optional elements as well as two options for loading in Photoshop and panoramic files (discussed later).

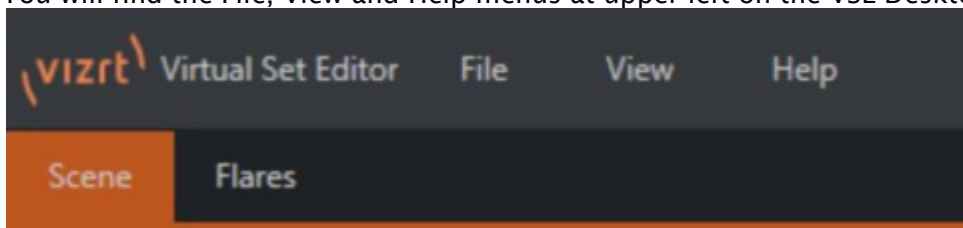
2.3 VSE Desktop Tour

1. Click the icon for the 2 Wide Angled virtual set preset. A progress bar is shown as the various elements are loaded. In just a few moments, the virtual set is shown on the large

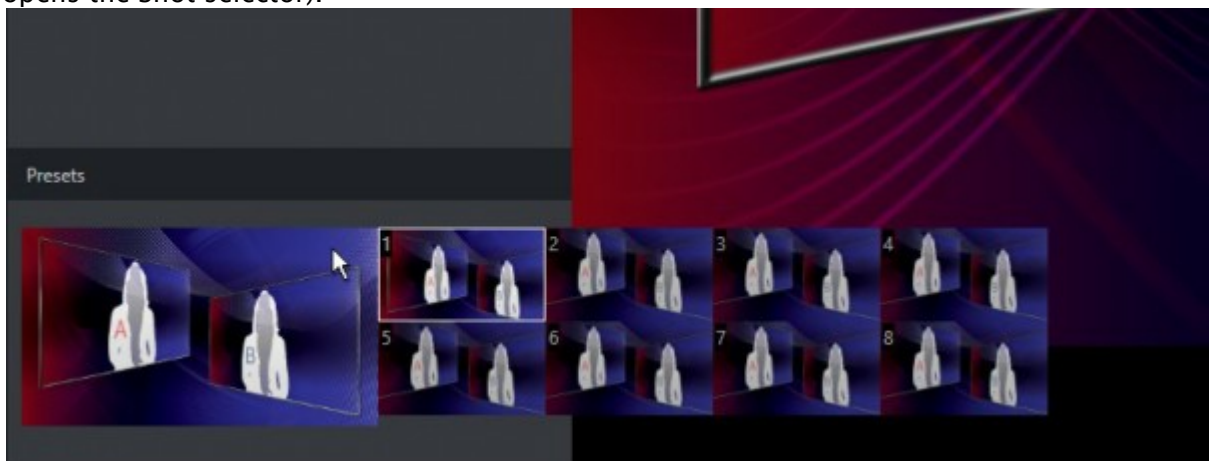
Virtual Set Canvas that consumes the majority of the VSE Desktop.



2. Stop and look around the VSE Desktop. The dominant feature is the Virtual Set Canvas, which is a large interactive preview pane – but take note, too, of the following additional details:
3. You will find the File, View and Help menus at upper left on the VSE Desktop.

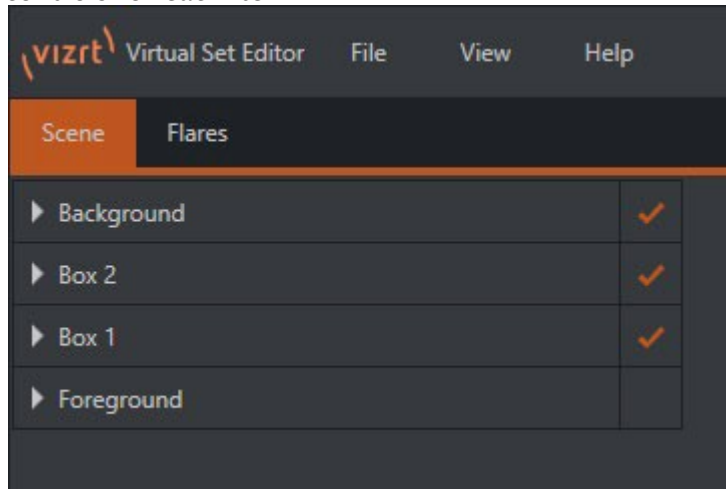


4. The name of the currently loaded VSE project is centered on the title bar.
5. Clicking **Exit** (found under the File menu or the **X** close button to the top right of the title bar) exits VSE. If your project has unsaved changes you are prompted to Save first.
6. The Presets control group is located at left in the Desktop footer. These controls allow you to set custom Shot positions, effectively LiveSet zoom/pan presets (clicking the thumbnail opens the Shot selector).

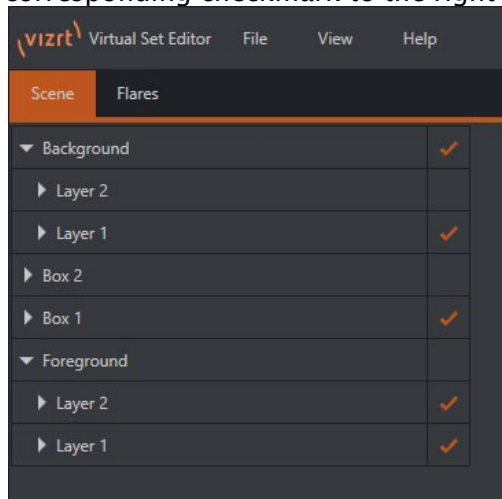


7. The Control Stack occupies a column on the left side of the VSE Desktop. This pane shows a labeled header row for each editable item in the currently loaded project. Every header row, in turn, has a triangular gadget at left, which you can click to expand or collapse the

controls for each item.



- Each element in the Control Stack can also be hidden in the Set by clicking the corresponding checkmark to the right of each entry.



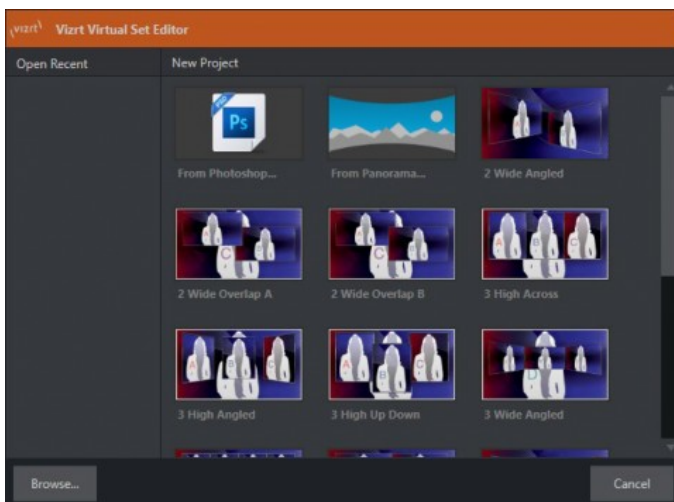
3 Features And Controls

The Virtual Set Editor is quite straightforward to use, and this is especially true if you are already familiar with common live production suite controls and features.

In this chapter, we'll discuss each area of the application, explaining how the various controls operate and what effect they have:

- [Startup Wizard](#)
- [Menus](#)
- [Control Stack](#)
- [Importing Photoshop Files](#)
- [Holographic Livesets](#)
- [Flares](#)

3.1 Startup Wizard



Whenever you launch Virtual Set Editor, the Startup Wizard provides convenient and quick options. The **Open Recent** bin on the left displays icons for projects you have been working on lately, initially, the bin is empty. You can use the **Browse** button at the left bottom corner of the dialog to load a project from a different location or select a project in the **New Project** bin to the right.

The New Project bin shows all installed VSE Presets, including two special icons:

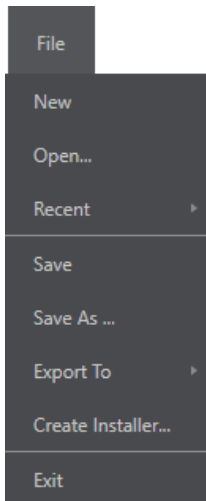
- Click the icon labeled **From Photoshop...** to Import layered Photoshop® files (*.psd*), converting them to VSE projects that in turn can be used to generate fully original LiveSets.
- The second icon, **From Panorama...**, is also special. Click it to open a file browser, select a suitable panoramic image file, and continue to create a Holographic LiveSet™.
- The remaining icons represent supplied VSE presets, ready for immediate customization.

Let's take a closer look at the various components of Virtual Set Editor's Desktop.

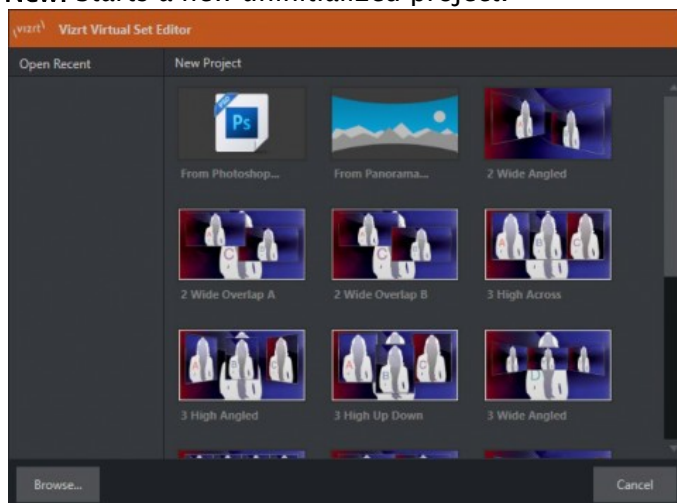
3.2 Menus

3.2.1 File Menu

The File menu, important as its functions are, hides no mysterious secrets. Let's review each entry it offers in turn.



- **New:** Starts a new uninitialized project.



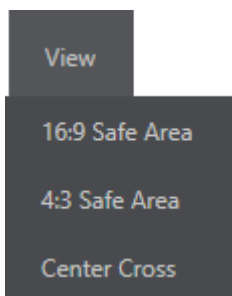
- **Open:** Presents VSE's Startup Wizard and allows you to open a VSE project in that manner.
- **Recent:** Shows a list of the latest projects that you have worked on, making it easy to jump to one of them in its last-saved state.
- **Save/Save As:** Saves the currently open VSE project file or Save As to save it under a new name.
- **Export to:** Compiles the project for the current VSE project, and sends them to the proper location for use in the Live Desktop. The process can take some time to complete, and progress gauges are shown. The export sub-menu lists any qualified live production systems on the same network (sub-net) below. The latter feature appears for standalone VSE

installations as well, allowing graphics artists to instantly update different live production systems on their local network.

- **Create Installer:** Allows you to set and select file attributes and content such as readme files, etc., then asks for an export path, and finally bundles up the LiveSet as an executable installer file for use on a remote live production suite (a great way to distribute custom LiveSets to clients).
- **Exit:** Closes VSE.

3.2.2 View

The View menu selections toggle different Virtual Set Canvas guides on and off, as described below.



- **16:9 and 4:3 Safe Area:** Shows what parts of the overall canvas that appear in the frame on corresponding HD and SD devices. The inner rectangle represents a Safe Text guide, while the outer one marks a Safe Action area.
- **Center Cross:** Divides the screen into quadrants and makes it easy to ensure you have things properly aligned on the X and Y axes.

3.2.3 Help

- **View Help:** Opens the user manual.
- **About:** Displays various details related to VSE, including version details and credits.
- **Check for Updates:** Checks for updates (when connected to the Internet) to ensure you are running the latest release of the software.

3.3 Control Stack

The Control Stack contains nested controls for modifiable set elements. Let's take a closer, using a typical example: The 2 Wide Angled preset.

3.3.1 Item Headers

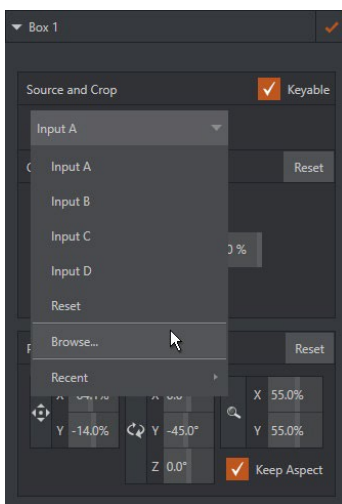
Initially, all we see of the Monitor control group is its collapsed header. You can expand a group by clicking the triangle gadget to the left, you may find it even faster to double-click the group header. This also expands or contracts the group.

▶ Background	✓
▶ Box 2	✓
▶ Box 1	✓
▶ Foreground	

Additionally, take note of the bright checkmark at the extreme right end of item headers. Clicking the checkmark toggles the item (or group) on or off, indicating that the feature is either enabled or disabled.

✓ **Tip:** You'll recall that group headers highlight as you roll the cursor over them, and that the corresponding feature will also highlight on the Canvas as you do so. Some local items nested within a control group also provide this handy behavior.

3.3.2 Source Menu



When the group is expanded, we see that its first option is labeled Source. Clicking the currently assigned source (in this case, Input A), reveals a drop-down menu that allows you to specify a different source or even choose an image to display.

⚠ **Note:** The inputs shown in the list vary. Some live production suite installations list just two inputs as available (A and B), while others show four, as appropriate for the model. Standalone installations show four available inputs. However, when exported LiveSets are used on live production suites that do not support four LiveSet inputs, only A or B selections work as expected.

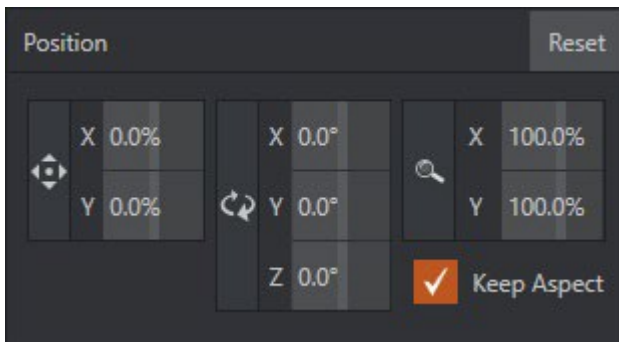
The Opacity slider defaults to 100% (fully opaque). Reducing the value makes the object increasingly transparent. Observe also the Keyable checkbox. This is an important option. When enabled, Keyable tells the live production system you wish the operator to be able to be applying LiveMatte (chromakeying) to the input.

Selecting **Browse** opens the Media Browser, which allows you to select an image from any existing live production suite session, including grabs from live video, imported images and graphics, user-added Locations, and so on.

The Recent menu point allows you to quickly re-locate an image file from among those you have selected recently.

3.3.3 Position, Rotation and Scale

Next we see a Position control group, with Position, Rotation and Scale sections, respectively.



- Click and drag on the Position button (identified by a double-headed arrow) to relocate the assigned source vertically or horizontally within its frame on the Canvas.
- By dragging left or right on the X and Y numeric sliders at right, you can adjust the position on a single axis at a time.
- Alternatively, you can constrain the action to one axis when dragging on the double-headed arrow button by holding down the Ctrl key before dragging.

Tip: If you click a numeric field (or right-click it), you can type a value into the field using the keyboard. Press **ENTER** to complete the editing action or **ESC** to cancel it.

Dragging the cursor on the Scale button (magnifying glass) affects the scale of the overlay:

- When the nearby lock button is enabled, dragging in any direction affects size equally on both axes.
- Otherwise, dragging vertically changes the height of the overlay, and dragging horizontally affects its width.
- Again, drag just one of the numeric gadgets next to the **Scale** button (with lock disabled) or hold down **CTRL** when dragging over Scale to independently modify just one dimension of the item (width or height).

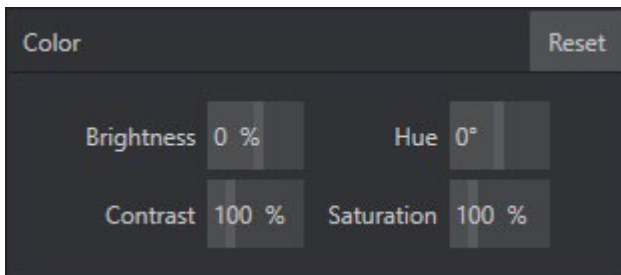
In similar fashion, drag the pointer over the Rotation button with the left mouse button pressed to turn the overlay source in 3D space, as follows:

- Drag left/right to rotate the source about the Y (vertical) axis.
- Drag up/down to rotate the source about the X (horizontal) axis.
- Drag up/down while holding down the right mouse button to rotate about the Z axis.
- Drag on a single numeric slider at right or hold down **CTRL** while dragging to constrain rotation to one axis.

Position, Rotation and Scale can be reset by clicking Reset Positioning.

✔ **Tip:** Reset most controls to their default value by holding down **SHIFT** while double-clicking it.

3.3.4 3.1.10 PROC AMP



Brightness, Hue, Contrast and Saturation controls allow you to non-destructively modify the image.

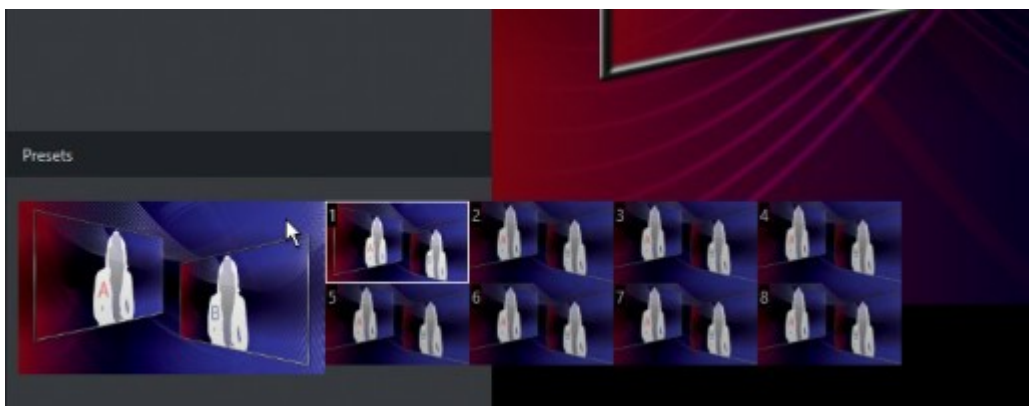
- **Brightness:** Adjustment range from -100 to +100% (the default being 0).
- **Contrast:** Adjustment range from 0 - 500% (default 100%).
- **Hue:** Adjustment range from -180° to +180°. Adjusts the master color of the selected Source, swinging the entire image through the color wheel's spectrum.
- **Saturation:** Adjustment range from 0-500%. Zero saturation results in a black and white picture; increased saturation results in richer colors. High saturation values can exaggerate the color portion of the signal.

⚠ **Note:** Over-saturated colors are considered illegal for broadcast transmission and may result in display problems on some devices.

- **Reset:** Reverts all settings to their defaults.

3.3.5 Animation Controls

You can animate between presets stored in the preset bin in the lower left of the screen.



The large thumbnail icon shows the active zoom/pan preset position, which is what the Canvas also shows, as well as highlighted in the Preset selector that opens when you click the thumbnail icon.

Edits made to the composition of the current preset take effect immediately. Clicking a different thumbnail in the Shot selector begins an animated zoom preview right on the Canvas.

Notice, too, that you can right-click a Shot menu thumbnail to open a context menu offering Copy and Paste features. This makes it a simple matter to duplicate a shot, and then tweak the new iteration to taste.

Note: The first and last presets serve as Start and End (min and max zoom) positions for live production suite models that do not support all nine preset shots.

3.3.6 Virtual Set Canvas

The large Virtual Set Canvas dominates the screen. It not only provides feedback on your work in progress, but also supports certain editing operations, and even allows you to preview animated zooms.

In addition, as previously mentioned, various objects on the Canvas may be highlighted when you roll the mouse cursor over their respective headers in the Control Stack.



The Canvas allows you to interactively adjust the zoom level and center frame point for the Start and End positions.

When zoomed out to the maximum level for the set, dragging the cursor on the screen has no effect. As soon as you have zoomed in a bit, though, you can drag left, right, up or down to re-center the frame – essentially you are relocating its target point.

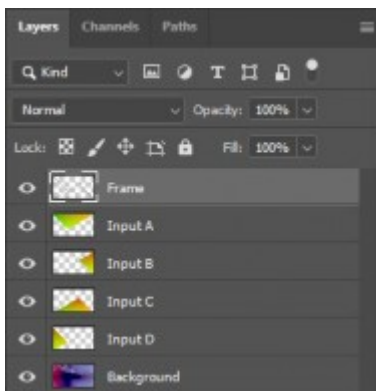
There are several ways to zoom in and out and pan on the Canvas:

- Hold down the right mouse button and drag up or down.
- If your mouse has a scroll-wheel, rotate it to zoom in and out.
- Press **CTRL** with the **+** or **-** keys (top row plus and minus sign).
- Hold down the **ALT** key and drag up or down.

3.4 Importing Photoshop Files



As mentioned earlier, Virtual Set Editor can also import PSD files from the Startup Wizard or the **File > Open** menu. This is extremely useful, since it permits users to prepare layered files for conversion to LiveSets using familiar 2D art software.



Note: The order of layers in the Control Stack for *.psd* files you import is inverted compared to the original. For example, the Background layer is at the bottom of the Layer Panel but appears at the top of VSE's Control Stack after import.

3.4.1 Photoshop File Requirements

There are a few things to know about working with *.psd* files in VSE. Generally, all layers in the file should be rasterized (bitmap layers, not employing transfer modes, etc.). Also, images should be RGB Color Mode (not CMYK, etc.).

3.4.2 Input Layers

For VSE purposes, image layers in the *.psd* file serve one of two purposes. Either a layer contains graphic imagery that will be part of the composite result, or it is an "Input Layer". Input layers are replaced by the video sources assigned in live production suite's Virtual Input tab in the finished LiveSet. VSE identifies input layers in imported *.psd* files by their layer name. You can use the name to identify the layer as a proxy for Inputs A-D.

A layer with any of the following names are replaced by Input A: *Input A*, *InputA*, or their lower case equivalents. When the *.psd* file is imported, input layers are listed in VSE's Control Stack as *Input Layer 0*, *Input Layer 1*, and so on. It's also possible to assign a custom name to a video input layer when creating VSE projects from Photoshop® files. Simply assign the layer a name as shown in the examples below:


```
Input A name = "Stand-up Talent"
Input B name = "PiP"
```

Add the word *keyable* to a video input layer in a *.psd* file to enable the Keyable switch on import into VSE (failure to use this keyword simply means the layer won't initially have Keyable checked; it does not prevent you from changing the switch setting later in VSE). Consider some layer name examples:

```
Input A Keyable
input b name = "Talent" Keyable
input d keyAble name="No Talent"
```

⚠ Note: The *Input X* designation must come FIRST on any input layer. Modifiers such as a custom name or *keyable* can come in any order after that.

3.4.3 Layer Groups

On conversion, Photoshop image layers that are nested inside groups are organized into similar groups under headers in VSE's Control Stack. This is a useful way to make it easier to manipulate VSE layers.

3.4.4 Multi-angle Livesets

Specially named groups (folders) in Photoshop *.psd* files can be used to create VSE projects with multiple angles. Let's consider an example. Suppose your *.psd* file contains a group named as follows:

```
Angle="Left"
```

On import into VSE, you see an angle named *Left* in the Angles Bin, and its Control Stack content reflects the layer structure of the group. Optionally, append the keyword *default* to the group name to make this the default angle when the project is loaded into VSE. For example:

```
Angle="Center" Default
```

It is possible to use a single group to provide layers for more than one virtual set angle. For example, if the angle name is set to *left*, *right*, or *left*, *center*, *standing*, the group supplies content to all of the named angles on import. Similarly, if a *.psd* file includes both individual layers along with angle groups, the un-grouped layers appear in every angle of the VSE project.

⚠ Note: Nesting angle groups inside other groups is not recommended and may result in missing layers).

Finally, it's worth noting that angle group names can also be used more than once in a *.psd* file (two or more groups can share the same name). Same name groups are treated as though they were a single, merged group, and will result in a single angle in the VSE project after importing.

3.4.5 Distortion and Warping



Information: If you have a recent version of Photoshop that supports input and output of high dynamic range imagery, more elaborate transformations or distortions are possible.

A file named *VSE UV Gradient.exr* supplied in your VSE installation folder (specifically, in the folder *C:\Program Files\Vizrt\Vectar\AddOns\Virtual Set Editor\Extras* or *C:\Program Files\Vizrt\Verdi\AddOns\Virtual Set Editor\Extras* depending on the product you're running).

This special image is a UV gradient in the form of an OpenEXR file. It is intended to serve as a proxy video input layer proxy in your Photoshop project when you need more powerful input layer transformations.

The Photoshop project should be 16-bit color depth (32-bit files can result in gamma issues) before loading the *.exr* file. Save the final layered *.psd* in the same color depth, too, to preserve any transformations or distortions accurately.

Note: With one exception, you must use the (*.exr*) proxy gradient for all video input layers in the project in this case: completely empty (transparent) layers are treated as a full-frame video input layer.

Tip: When you do not require advanced transformations, 8-bit color depth is fine for both project and file exports. Only the opacity in input layers is recognized by VSE in this case; color information is ignored.

3.4.6 Reflections

In somewhat similar fashion, reflections of live video in a LiveSet are created using a suitably modified gradient layer.

You can use a simple 2D graphics application to produce a gradient layer having the appropriate size, shape, orientation and distortion for the reflection; or you might pull a reflection buffer image from a 3D application (an image containing just surface reflections from the polygon you mapped the video input gradient texture to, and no other opacity).

Rather than reducing the opacity of this reflection layer (in the layered *.psd* file, or using VSE) to control the apparent amount of reflection in the result, it is necessary to add a partially opaque

layer above it. For example, to add a reflection to a desk top, you might arrange layers as follows (listed from front to back from the viewer's perspective):

1. Partially transparent matte
2. Reflection layer
3. Desk Layer
4. Video input layer
5. Background layer

Layer A in this example is essentially a segment from a render of set elements appearing in front of the video input polygon, without the reflection. Reduce the opacity of selected portions of *layer A* so that the color of the reflection layer (2) below shows through in a suitable amount to mimic reflection.

The file *Advanced Desk.psd* in the *Example PSDs* folder can serve as a reference to how to prepare the layers for this type of scene.

3.4.7 Input Layers, Proxies and Opacity

In the assumption that *Input A* is most often used for greenscreen shots, imported *Input A* layers display the phantom One Person proxy on the Canvas by default (and in the icon for the resulting LiveSet). You can select a different proxy image for the layer from the Style menu if you wish.

As mentioned earlier, VSE infers a full screen input when an input layer is completely empty. Otherwise, opaque pixels are replaced by input source pixels in one manner or another.

Support for 16-bit PSD files was added in version 2 to support distortion and warping, as discussed previously. In these high dynamic range files, replacement of layer pixels by input pixels in the final LiveSet is always governed by the UV color values for each pixel in the input layer.

Also as explained in the previous section, however, pixel colors in input layers of 8-bit files are irrelevant. Only pixel opacity is important to VSE in this case (you can still achieve perspective effects with 8-bit PSDs by using VSE's Position and Scale tools).

3.4.8 Keying

If the Keyable switch is set in VSE for an input source, when the resulting LiveSet is displayed in the live production suite's Live Desktop, the background behind it in the LiveSet is seen when LiveMatte is correctly configured and applied.



The video source obscures the background when LiveMatte is disabled, just as you would expect.

⚠ **Important:** If your design calls for two video inputs in your project to overlap, special care must be taken to avoid distortion and other problems in the final LiveSet. It's best to avoid the potential problem altogether, whether by techniques like cropping and positioning of input layer content, or perhaps by adding elements like monitor bezels, etc. to the set design to create adequate separation. In any case, you must ensure that two same type input layers never overlap. Same type input layers are defined as those tagged as: a) keyable, or b) not marked keyable.)

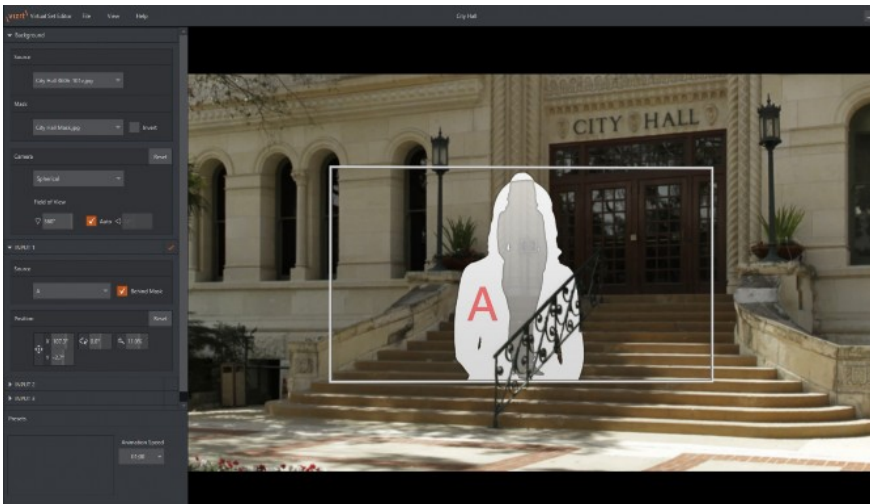
This may require more separation than you'd expect, since antialiasing often causes hard-to-detect blending of what may seem to be merely neighboring pixels. In general, if an input layer must overlap another, best practice calls for marking the foremost one as keyable, and the input layer behind it as non-keyable.

3.5 Holographic Livesets



A Holographic LiveSet™ differs from other LiveSets in that, rather than adjusting the virtual camera position horizontally and vertically across stage having a certain fixed width, you rotate and zoom a fixed virtual camera in a curved panorama (right up to 360 degrees).

Virtual Set Editor can use either spherical or cylindrical panoramic projections. The source panoramic images can be acquired from any number of sources, including photos prepared using standard iPhone camera features, software photo-stitching applications such as Microsoft's Image Composite Editor (free at the time of writing), or even a render from 3D graphics software like LightWave® (<http://www.lightwave3d.com>).



VSE can map as many as four independent live video sources into the scene prepared from the panoramic image you supply. These live video sources can be scaled and positioned anywhere within the virtual environment.


You can even make video sources appear to pass behind elements in the image, using mask images to lock off portions of the scene so video doesn't appear there.

3.5.1 3.1.23 PANORAMIC BACKGROUND IMAGES

The first requirement when creating a panoramic set is to acquire a panoramic image to serve as the Holographic LiveSet background. Several sample panoramic images, along with the source photos used to generate them are provided.

Of course, you will inevitably want to create brand new LiveSets from your own imagery. Fortunately, what was a difficult, time-consuming technical process just a few years ago is now simple and easy, even using free software tools that anyone can access.

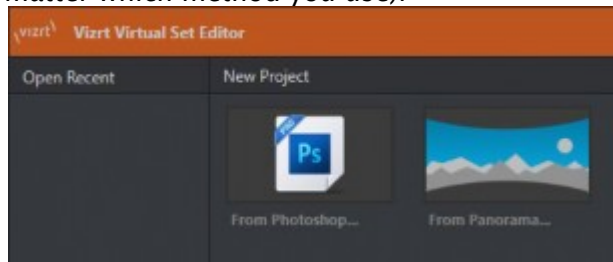
As mentioned earlier, two of the better known tools to generate these images are the Panoramic mode built in to the iPhone's camera (iOS6 or higher), and Microsoft's free panoramic image stitching software, called Image Composite Editor (<https://www.microsoft.com/en-us/research/product/computational-photography-applications/image-composite-editor/>).

 **Tip:** These are just two examples. A quick search for terms like *photo stitching software* or *panoramic photo software* turns up many interesting alternatives.

The two most common panoramic formats involve imagery mapped to either a sphere or a cylinder shape. VSE can work with either type, as follows:

1. Launch VSE.

2. Create a new panoramic VSE project by any of the following means (the result is the same no matter which method you use):



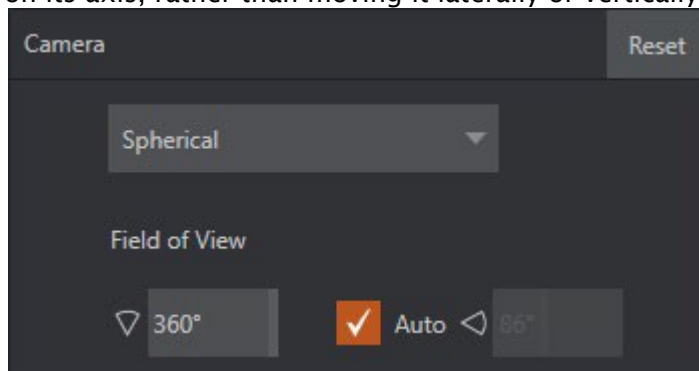
3. Using the Startup Wizard, select the **From Panorama** icon in the New Project bin (alternatively, if LiveSet is already open to a project, select **File > Open** to open the Startup Wizard.)

✓ **Tip:** There is yet another approach. Selecting **File > New** opens VSE in its default project format, which shows a stand-in holographic canvas. You can also begin creating a Holographic LiveSet in this manner, and then load the panoramic background image using the Source drop-down menu found under the Background group header in the Control Stack.

4. At this point, you need to select a file to serve as the panoramic background.

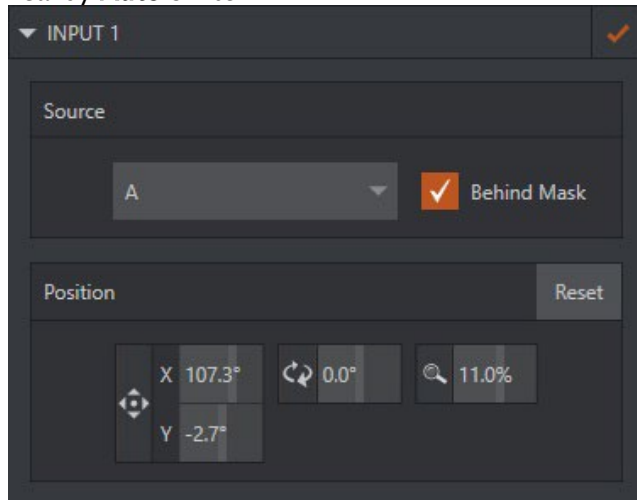


Once the panoramic background image file loads, VSE's virtual set canvas updates. Mouse operations on the canvas have a slightly different outcome now. The mouse-wheel still serves to zoom in and out, whereas dragging the mouse pointer rotates the virtual camera on its axis, rather than moving it laterally or vertically.

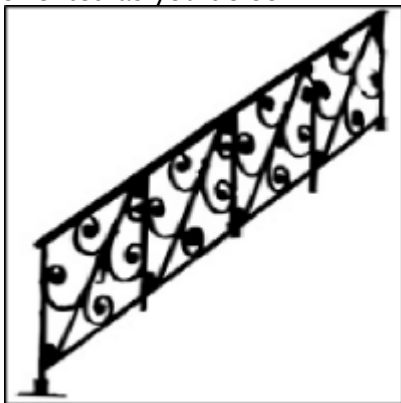


5. Depending on the source type, choose *Spherical* or *Cylindrical* mapping in the Camera controls group.
6. Notice that VSE attempts to detect and configure horizontal and vertical rotational limits under the heading Camera and Field of View. To set vertical values manually, turn off the

nearby **Auto** switch.



- Expand the *Input 1* control group and use the position tools to relocate the assigned video source (*Input A*, by default). VSE does a creditable job of keeping the source properly oriented as you do so.



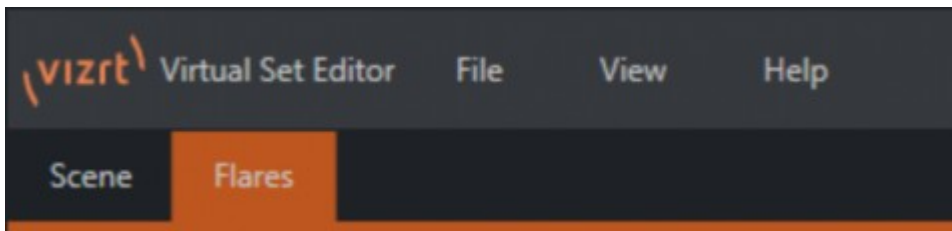
- The Source control group also lets you choose a Mask image. The above image shows a cropped version of the mask image supplied for use with the City Hall panorama. It corresponds precisely to the railing at the City Hall's front door. Video source imagery does not appear in the LiveSet where the mask pixels are black (use the Invert switch to reverse the masking effect).

The rest of the process is identical to the preparation of a standard LiveSet. Assign, align and adjust your Input Sources, create individual preset positions for the camera, then finish up by saving your work and exporting the finished Holographic LiveSet.

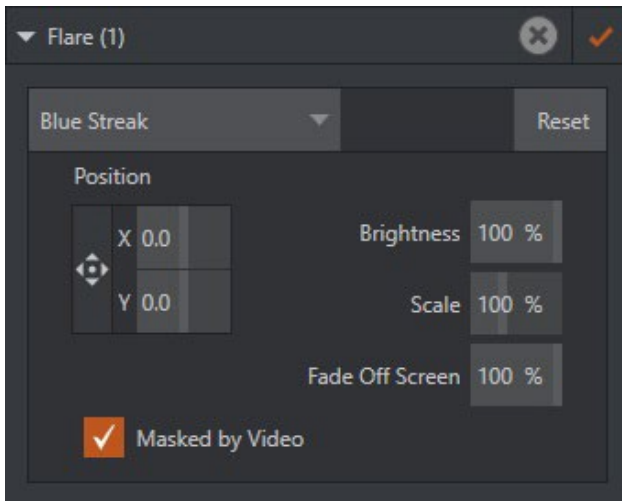
3.6 Flares

Being able to add lens flares lends one more level of reality to a LiveSet. The following shows how to add them and what controls you have available.

Located to the right of the Scene tab is Flares. Your initial option is to click **Add...** to invoke the Media Browser where you can select a flare to add to the LiveSet.



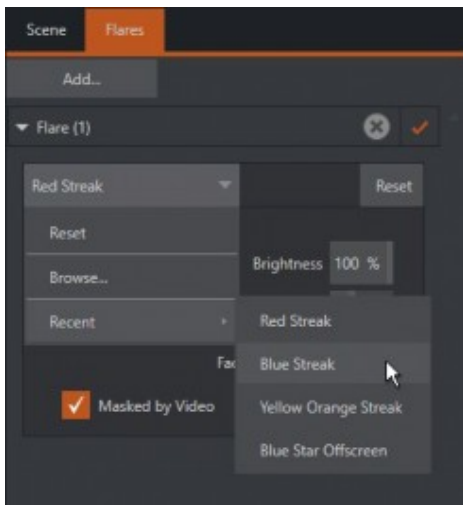
After a flare has been added to the LiveSet you have access to a handful of controls:



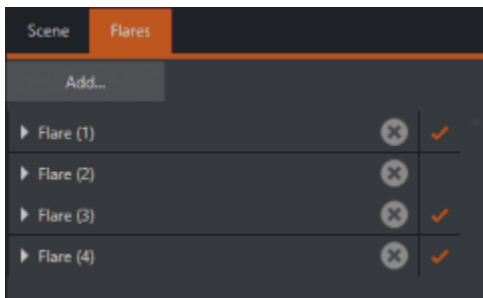
- **Position:** Allows you translate the flare anywhere within the LiveSet. This can be achieved by directly adjusting the values of the X and Y axis or using the crosshair tool to freely move along both axes.
- **Brightness:** Sets the brightness of the flare. This can be adjusted between 0 and 100%.
- **Scale:** Sets the size of the flare. This can be adjusted up to 300%. This setting may not have much effect if the brightness is set too low or at 0%.
- **Fade Off Screen:** Sets effect visibility of a flare when it has moved off screen.
- **Masked by Video:** Toggles whether the flare is seen in front of any Input video.

Clicking on the name of a flare presents a dropdown menu that contains the following:

- **Reset:** Returns all settings to their default values.
- **Browse:** Opens the media browser so you can select a different flare.
- **Recent:** Provides a listing of flares you have loaded recently.

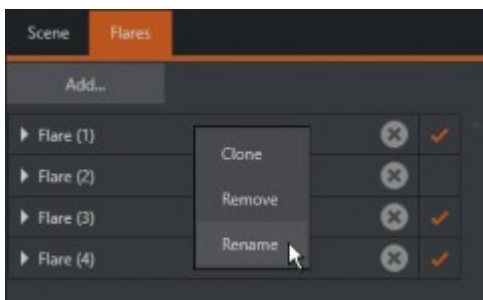


A flare menu can be collapsed in the sidebar, this is useful if you are using more than one flare. These header bars also allow you to hide or delete a flare from the project.



Right-clicking on a flare in the menu provides the following options:

- **Clone:** Creates a copy of the selected flare.
- **Remove:** Deletes the selected flare from the menu.
- **Rename:** Renames the selected flare.



4 Keyboard Shortcuts

4.1 Menu Operations

Shortcut	Operation
CTRL + N	New
CTRL + O	Open
CTRL + S	Save
CTRL + SHIFT + S	Save As
ALT + F4	Close
F1	Help

4.2 Virtual Set Canvas

Shortcut	Operation
Ctrl + + (plus sign)	Zooms in
CTRL + - (minus sign)	Zoom out
ALT + drag mouse up/down	Drags to zoom
Hold SHIFT before dragging	Constrains dragging (panning)

4.3 Control Stack

Shortcut	Operation
SHIFT + double-click	Resets control to default value
Hold CTRL before dragging	Constrains drag operation (pan/scale direction, rotation axis)

4.4 Animation Control

Shortcut	Operation
HOME	Jumps to current Start preset position
END	Jumps to current End preset position

5 Third Party Licenses

This product uses the following libraries, licensed under the LGPL license (see link below). For the source, and the ability to change and recompile these components, please visit the links provided:

- **FreeImage library:** <http://freeimage.sourceforge.net/>
- **LAME library:** <http://lame.sourceforge.net/>
- **FFMPEG library:** <http://ffmpeg.org/>

For a copy of the LGPL license, please look in the *licenses* folder.

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VST PlugIn Spec. by Steinberg Media Technologies GmbH.

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