

P9425 Quick Start Guide

Avenue Layering Engine 3G/HD/SD Model P9425



This Quick Start Guide walks you through the essential steps for getting started with your new Avenue P9425 Layering Engine.

Step 1	Connecting Network Cables
Step 2	Assigning the Layering Engine a New IP Address
Step 3	Establishing Initial Control Point and Profile for Administrator Functions
Step 4	Configuring the Reference Source and System Frame Rate
Step 5	Routing Virtual Program and Preview Ports to Outputs 1 and 2
Step 6	Creating Layering Engine Profiles
Step 7	Accessing the Layering Engine Web Browser Interface

Introduction

This Quick Start Guide is intended to help you to install your new Avenue Layering Engine. The P9425 Avenue Layering Engine provides multi-layer keying and mix effects. Two keyers, background transitions, audio mixing and breakaway make the Layering Engine a good fit in broadcast, live venues, presentation, channel branding, small master control, central casting, fly-pack, and remote trucks.

You can configure and operate the Layering Engine using a web interface, iPad interface and serial control. The base hardware configuration has 8 inputs and 2 outputs. Any of the inputs can be used as background video, key fill or source, or audio breakaway and voiceover. The two outputs can be assigned as program and look-ahead preview for live switching applications.

The P9425 package includes:

- 9425 Layering Engine (sub module)
- 9430 8 x 2 Router Module

Much of the initial configuration has to do with the 9430 Router Module.

Step 1: Connecting Network Cables

Establishing Network Connectivity between Controlling Computer and 9430

Although the Avenue Frame system is equipped with both RS-232 and Ethernet interfaces, the 9430 has dedicated control connections to support live video thumbnails and third-party control systems for automation and event control.

To establish network connectivity between your controlling computer and the 9430, it is essential that the controlling computer be networked to the RS-232 and 100 Mb Ethernet Interface Adaptor Cable, or "Y" adaptor cable, shown in the illustration below.

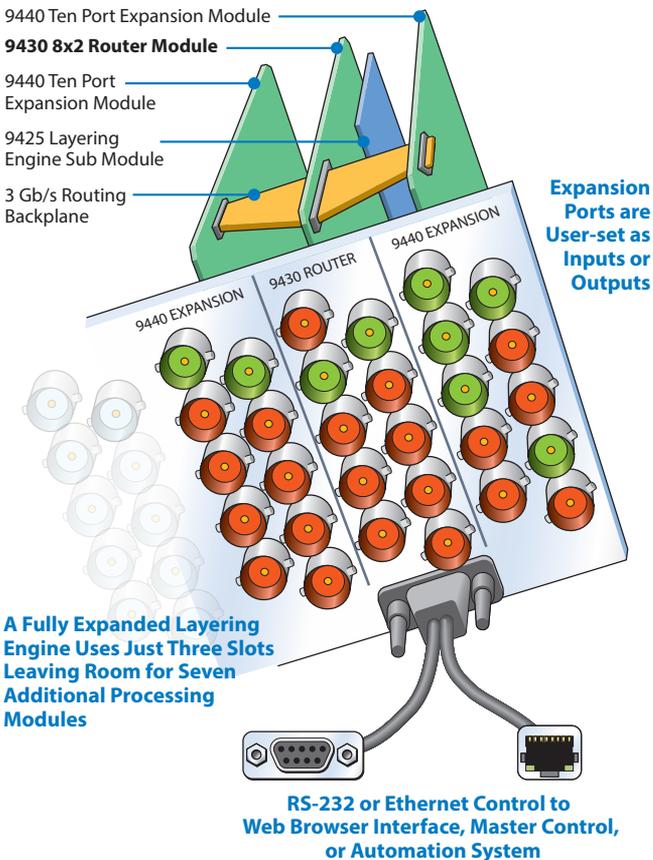


Illustration of fully expanded Layering Engine using three slots in an Avenue Frame

RS-232 and 100 Mb Ethernet Interface Adaptor Cable

Typically, you will need to make two Ethernet connections; one to the Avenue frame, the other to the 9430 module's "Y" adaptor cable. This cable, included with each 9430 module, has separate legs for the 9-pin D-Sub RS-232 and RJ-45 Ethernet connectors. The cable connects to the HD-15 connector specific to the slot where the Layering Engine is installed.

The Ethernet port should be connected with CAT5 or CAT6 cabling to a network Ethernet router or switch to make it accessible to computers on the network. This port can also be directly connected to a computer. The Ethernet port will auto-sense cable direction, so a cross-over cable is not needed.



"Y" adaptor cable (part number 23700040) for connecting the 9430 to RS-232 and 100 Mb Ethernet interfaces

Step 2: Assigning the Layering Engine a New IP Address and Subnet Mask

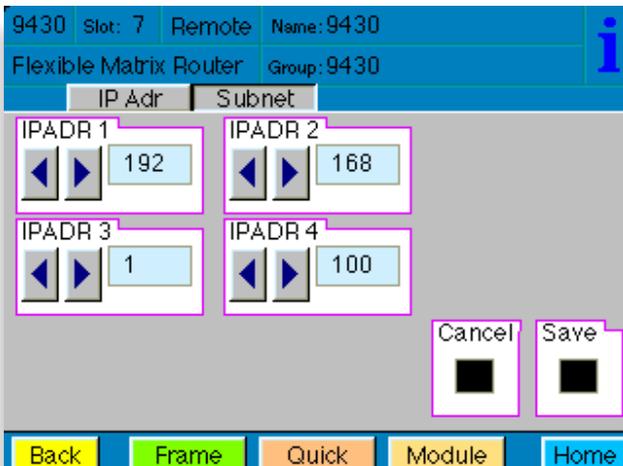
When you initially power up the Layering Engine as received from the factory, it will take the self-assigned static IP address of 192.168.1.100. You must modify its IP address and subnet mask to be compatible with your network's environment.

These are general instructions. We recommend that you consult your IT staff if you are uncertain about any of these network configuration settings.

Note: For customers who have neither Avenue PC nor Avenue Touch Screen, please refer to our website to download the "Model P9425 Avenue Layering Engine Installation, Configuration and Operations Guide." See the section in Chapter 4 called "For Customers Not Using Avenue Touch Screen or Avenue PC."

To Set the IP Address

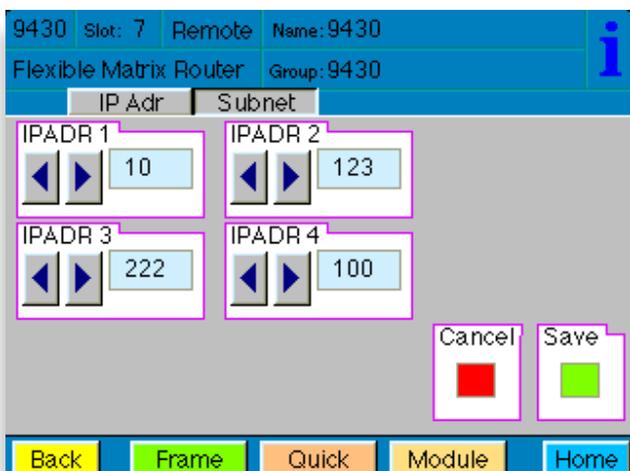
1. From the Avenue frame, select the 9430 module from the Touch Screen. The 9430 menus display.



The Touch Screen interface showing the IP address of the 9430 as received from the factory

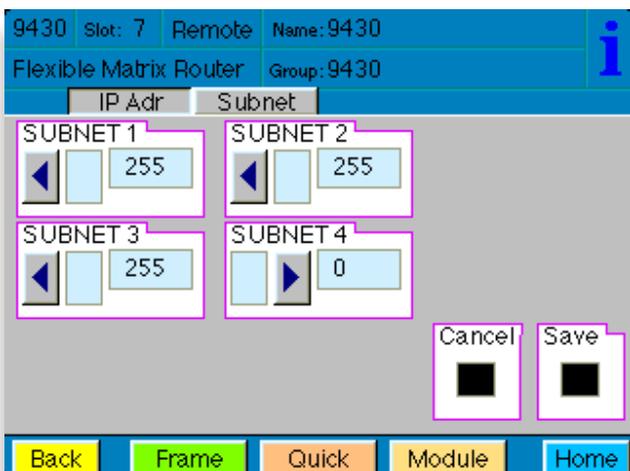
- From the **IP Adr** menu, enter the IP address you want to use that is compatible with your own network. The simplest method is to touch each number field, using the keypad to enter the new numbers. For example, you may want to change the IP address to something like the following: 10.123.222.100.
- Press **Save**. Both the **Cancel** and **Save** buttons turn black to indicate that your new settings have been saved.

Note that when using Avenue PC instead of the Touch Screen interface, after entering numbers into the number fields, you will need to hit the “enter” or “return” key for the change to register.



A new IP address has been entered, but not yet saved

The subnet mask must be set in accordance with the size and topology of your network. The default setting as received from the factory is for a smaller network: 255.255.255.0. For a larger network, a typical setting is 255.255.0.0. If in doubt, use the setting for a larger network.



The Subnet menu showing typical settings for a smaller network

To Set the Subnet Mask

- From the **Subnet** menu, modify the settings as needed. Use the arrow buttons to change the settings, or touch each number field to use the keypad.
- When finished, press **Save**. Both the **Cancel** and **Save** buttons turn black to indicate that your new settings have been saved.

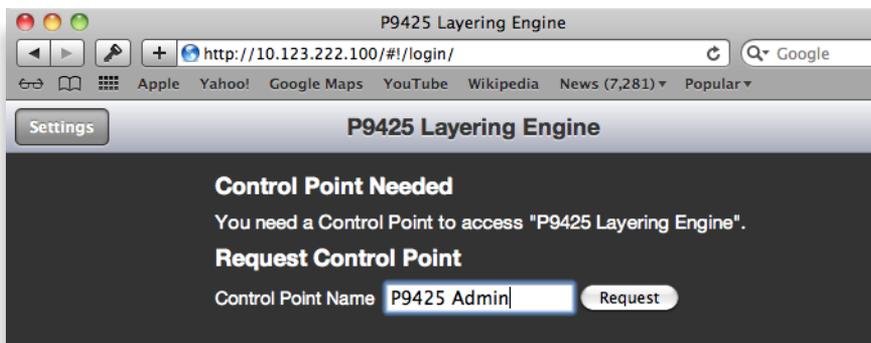
You can now browse to the 9430 from a computer on your network as described in the next step.

Step 3: Establishing Initial Control Point and Profile for Administrator Functions

Now that you have set the Layering Engine's IP address and subnet mask in a manner that suits your network environment, you can start the configuration process. From the controlling computer, connect to the 9430 to establish an initial Control Point for administrator functions.

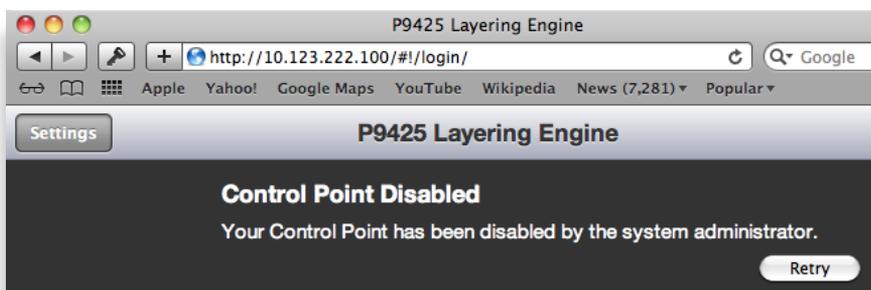
To Create an Initial Control Point

1. Navigate to the Layering Engine's new IP address with your browser. The Control Point Needed window displays.
2. From the Control Point Needed window, enter the name you want to use to refer to the initial Control Point (for example, "P9425 Admin").



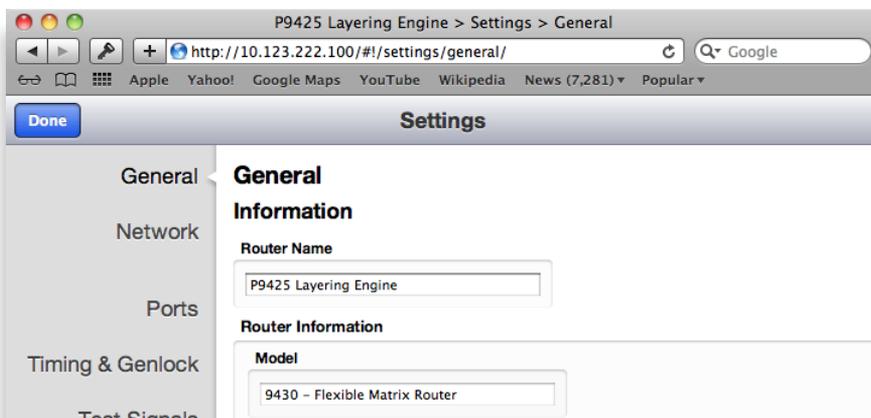
The Control Point Needed window

3. Click **Request**. The message "Control Point Disabled" displays.



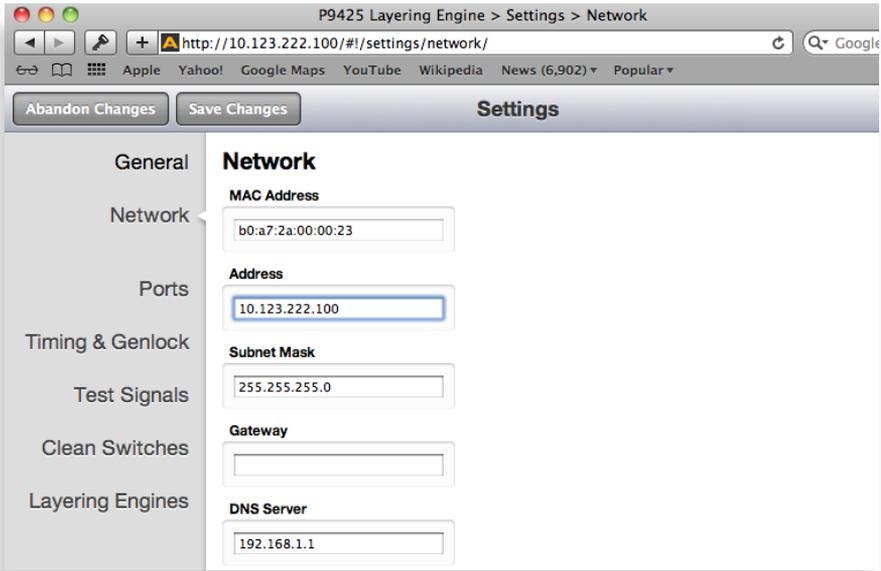
The "Control Point Disabled" message displaying after requesting an initial Control Point

4. Click **System Settings** in the upper left part of the browser window. The Settings > General window displays.



The Settings > General window

- From the left navigation panel, click **Network**. The Settings > Network window displays.



The Settings > Network window

- Set the Gateway and DNS Server parameters according to your network configuration. In general, these settings will be required only in installations with extended networking requirements, such as a remote site connected by VPN.
- From the left navigation panel, click **Control Points**. The Settings > Control Points window displays. The Control Point you just requested is listed under Pending Authorization.

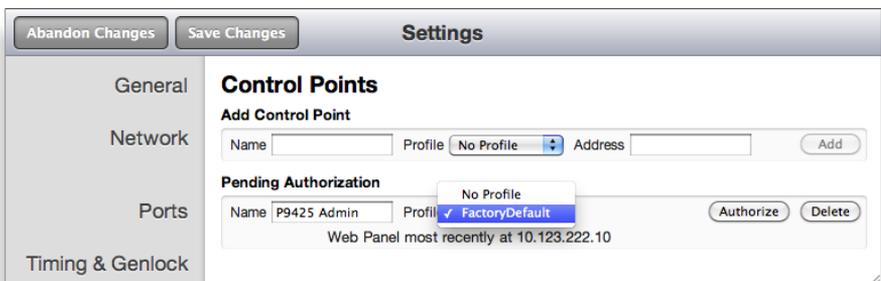


The Settings > Control Points window

To Assign a Profile to the P9425 Admin Control Point

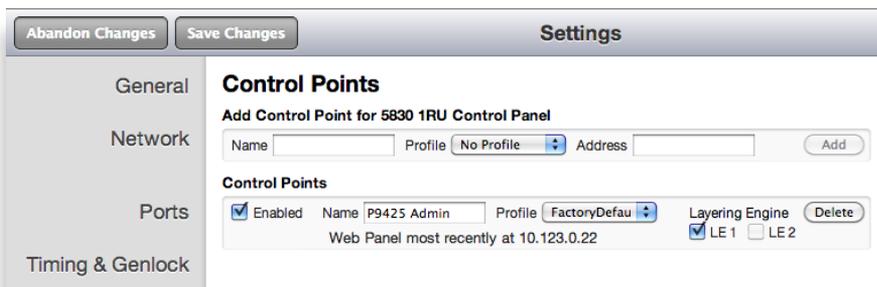
You must assign a Profile that defines which resources this Control Point can access. To begin with, choose the Factory Default Profile. It provides access to the eight Inputs, two Test Signal Generators, and two Outputs of the basic 9430 module.

- From the Profile drop-down control, select **FactoryDefault**.

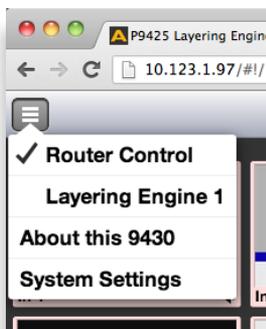


Selecting the Factory Default Profile from the Settings > Control Points window

- Click **Authorize**. The P9425 Admin Control Point now displays in the list of authorized Control Points.



- Select both the **Enabled** checkbox and the **LE1** checkbox.



Important!

In order to be able to access the Layering Engine interface, it is necessary to select the **LE 1** checkbox that is associated with the control point you are using. If the **LE 1** checkbox is not selected, the upper left pull-down menu will not display the Layering Engine option.

- Click **Save Changes** in the upper left area of the window.
- Click **Done**.

You are now presented with a 9430 control view with thumbnail icons. Without video signals present, the thumbnails will indicate “No Input.” In the example below, however, video signals are connected to 9430 Inputs 1 - 8.



The 9430 Router control web interface showing video thumbnail images for 8 video inputs (In 1 through In 8), 2 test signal generators named TSG 1 and TSG 2, and 2 destinations named Out 1 and Out 2. In this example, In 1 is being routed to Out 1 while In 2 is being routed to Out 2.

For a full explanation of creating custom profiles and configuring ports, see the “Model P9425 Avenue Layering Engine Installation, Configuration and Operations Guide” available through our website.

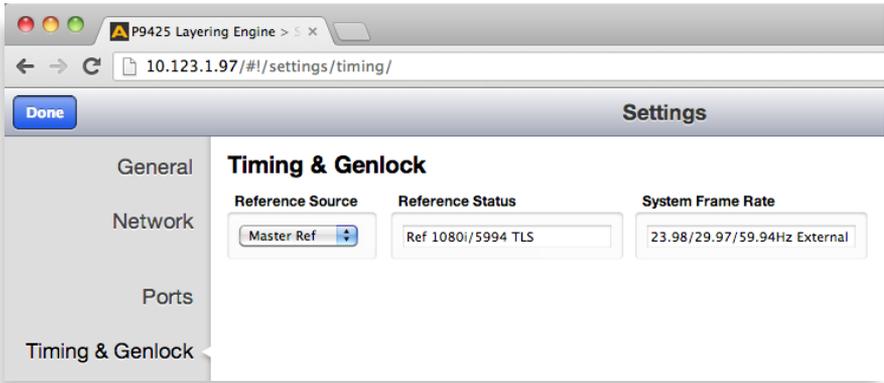
Step 4: Configuring the Reference Source, System Frame Rate and Vertical Interval Switch Point for 9430 and Layering Engine

In this next section, you'll be establishing the reference source for the 9430, along with the system frame rate and vertical interval switch point for both the 9430 and the Layering Engine sub-module.

Selecting the 9430 Reference Source

To configure the reference source for the 9430:

1. From the upper left pull-down menu, select **System Settings**. The Settings > General Information page displays.
2. From the left navigation panel, select **Timing & Genlock**. The Timing & Genlock page displays.

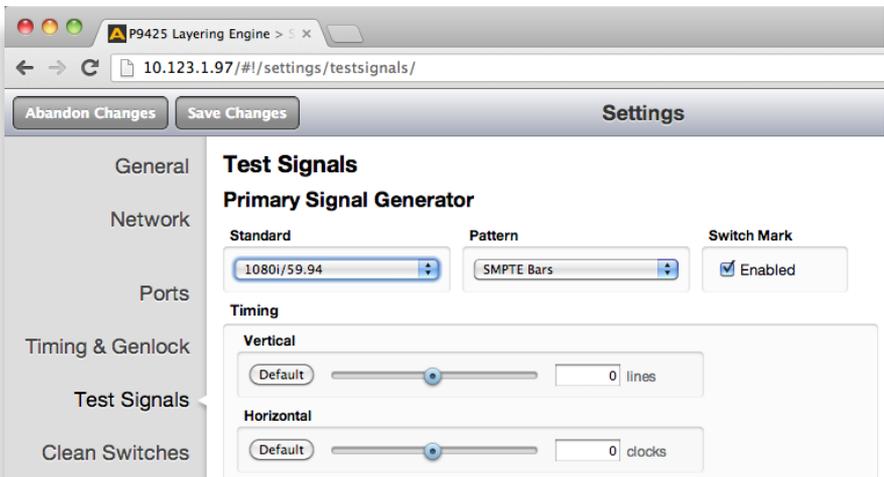


3. From the Reference Source pull-down control, select one of these options:
 - **Master Ref** – the frame reference will come through the Avenue Frame Master Reference input.
 - **Internal** – the frame reference will come from the 9430's internal precision reference.
4. Click **Save Changes**.
5. Click **Done**.

Selecting the 9430 System Frame Rate and Vertical Interval Switch Point

To configure the system frame rate and vertical interval switch point for the 9430:

1. From the upper left pull-down menu, select **System Settings**. The Settings > General Information page displays.
2. From the left navigation panel, select **Test Signals**. The Test Signals page displays.

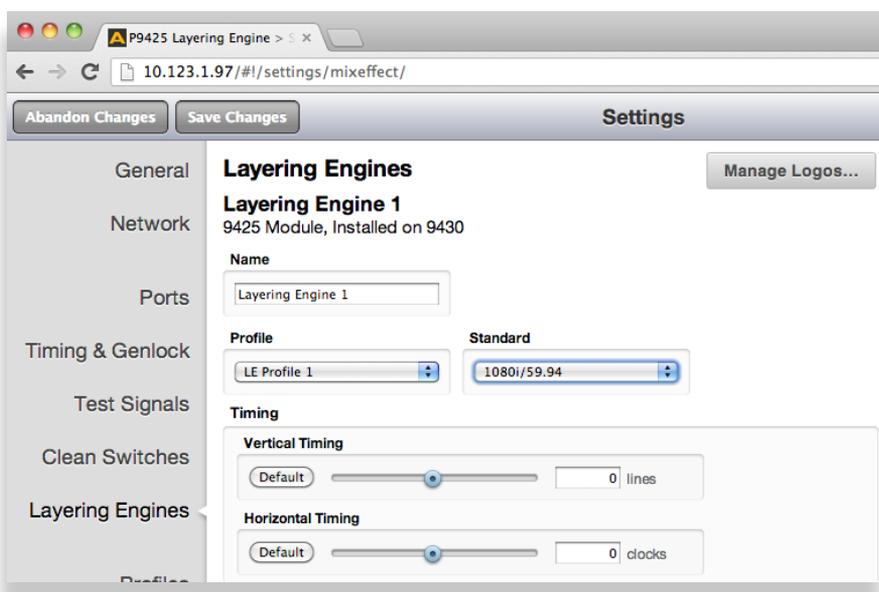


- From the Primary Signal Generator area, make a selection from the Standard pull-down control. This selection determines the system frame rate and the vertical interval switch point for the 9430.
- Click **Save Changes**.
- Click **Done**.

Selecting the Layering Engine System Frame Rate and Vertical Interval Switch Point

To configure the system frame rate and vertical interval switch point for the Layering Engine:

- From the upper left pull-down menu, select **System Settings**. The Settings > General Information page displays.
- From the left navigation panel, select **Layering Engines**. The Layering Engines page displays.



- From the Layering Engine 1 area, make a selection from the Standard pull-down control. This selection determines the system frame rate and the vertical interval switch point for the Layering Engine sub-module.

Important!

The choice of system frame rate standard is CRITICAL for the Layering Engine sub-module to function correctly with the 9430.

The standard you select for the 9430 Primary Signal Generator (from the Test Signals tab) and the standard you select for the Layering Engine (from the Layering Engines tab) must be set to standards with identical frame rates. The standards themselves do not need to be identical, but the standards must have identical frame rates.

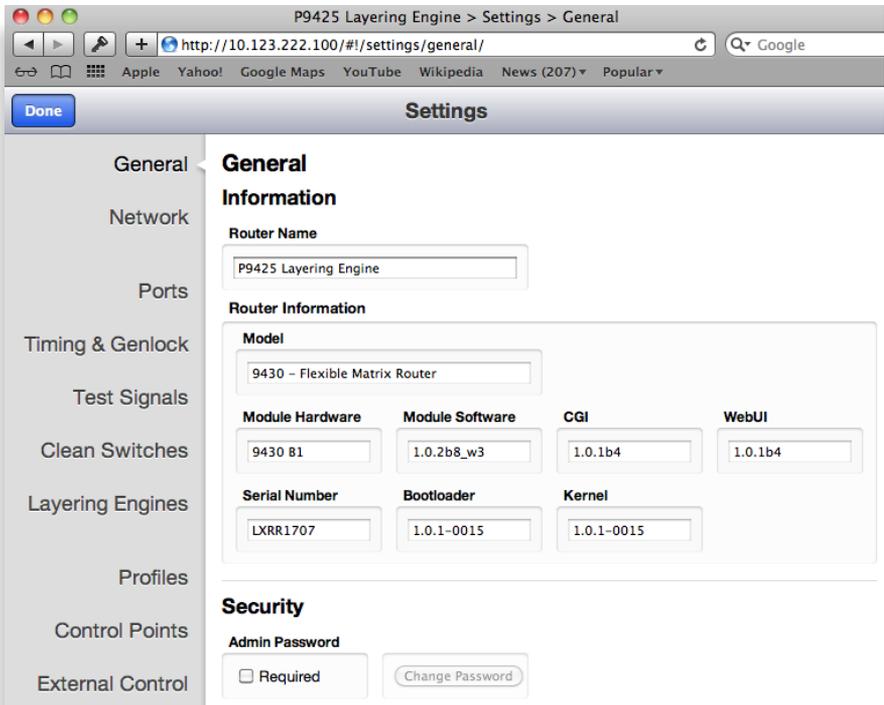
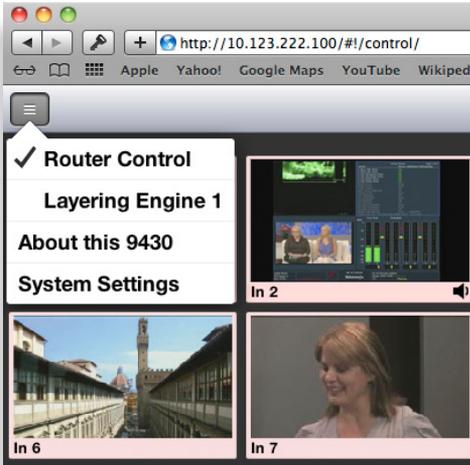
For example, if the Primary Test Signal Generator is configured for SD 525, then the Layering Engine will work in any of the 59.94 Hz family of standards.

Step 5: Routing Virtual Ports ME1 Program and ME1 Preview to Outputs 1 and 2

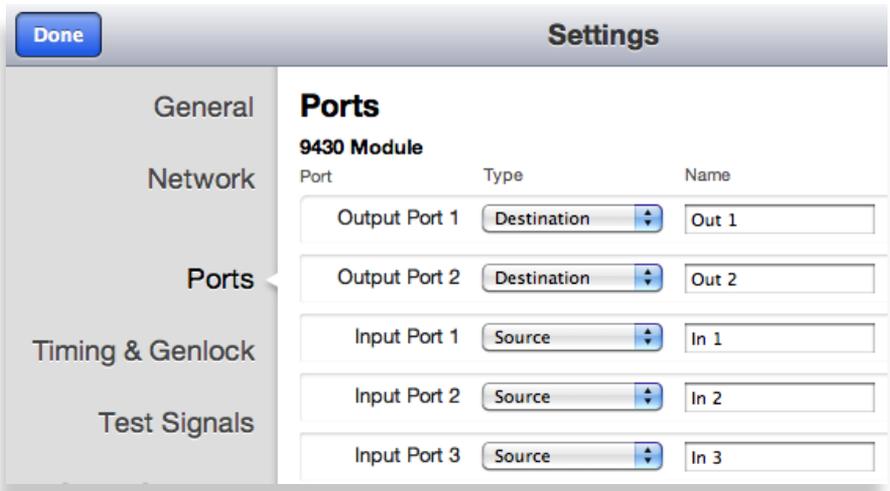
The Layering Engine architecture uses virtual ports to generate the Program Output and Preview Output. In order for the signals from the virtual ports to be sent to the outputs, the virtual ports must be configured as Sources, then routed to specific BNC Outputs. In the case of an 8 x 2 P9425, virtual ports ME1 Program and ME1 Preview must be routed to Outputs 1 and 2. In the case of an expanded Layering Engine that uses one or two 9440s, virtual ports ME1 Program and ME1 Preview could be routed to any two 9440 I/O ports provided that those ports are configured as Destinations.

To Assign Virtual Ports ME1 Program and ME1 Preview as Sources

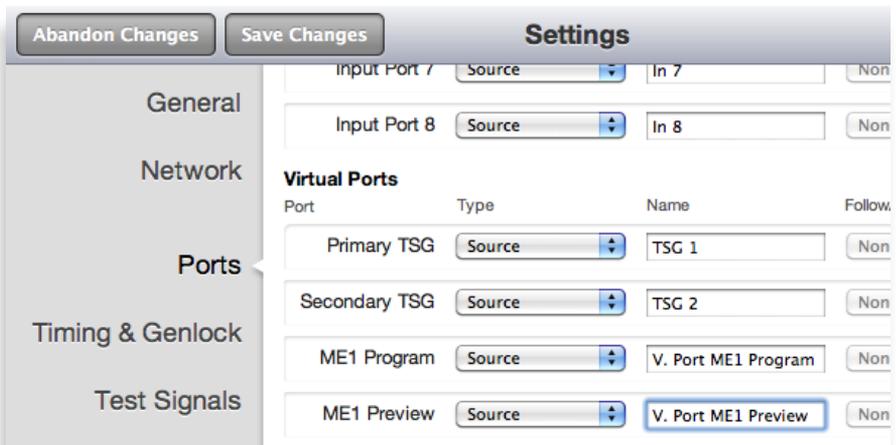
1. From the upper left corner of the browser user interface, click the pull-down menu icon, and select **System Settings**. The Settings > General page displays.



2. From the left navigation panel, select Ports. The Ports page displays.



3. Scroll down the Ports page to find the Virtual Ports.



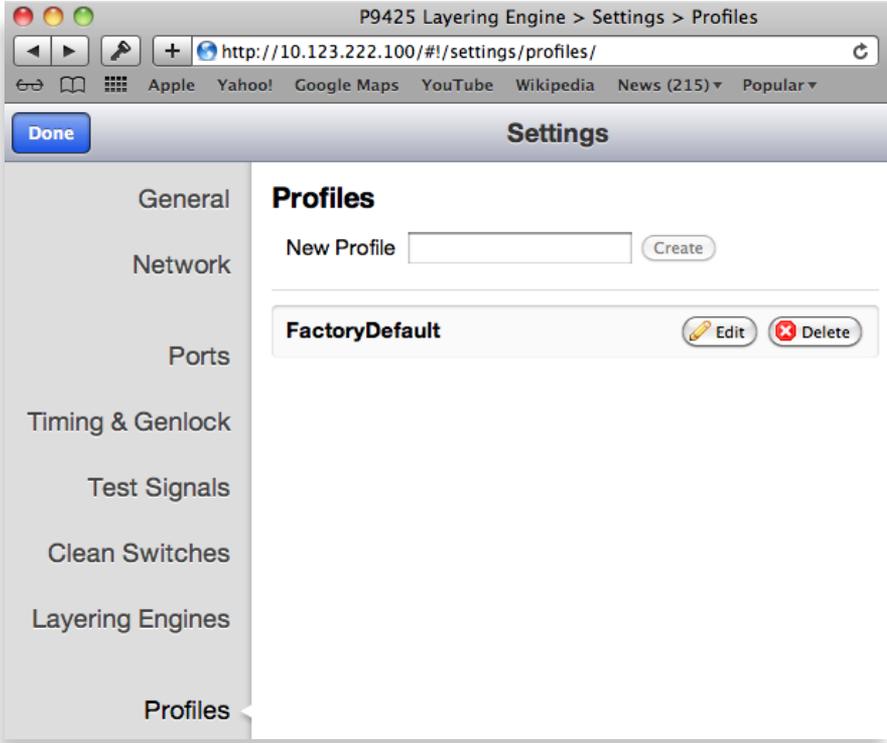
4. For virtual ports ME1 Program and ME1 Preview, use the Type pull-down controls to assign them both as **Source**, as shown above.
5. In the Name field to the right of ME1 Program and ME1 Preview, enter a name. To maximize clarity for upcoming steps, you could use names such as "V. Port ME1 Program," and "V. Port ME1 Preview."
6. In the upper left corner of the Settings page, click **Save Changes**, then click **Done**. The Router Control page displays.



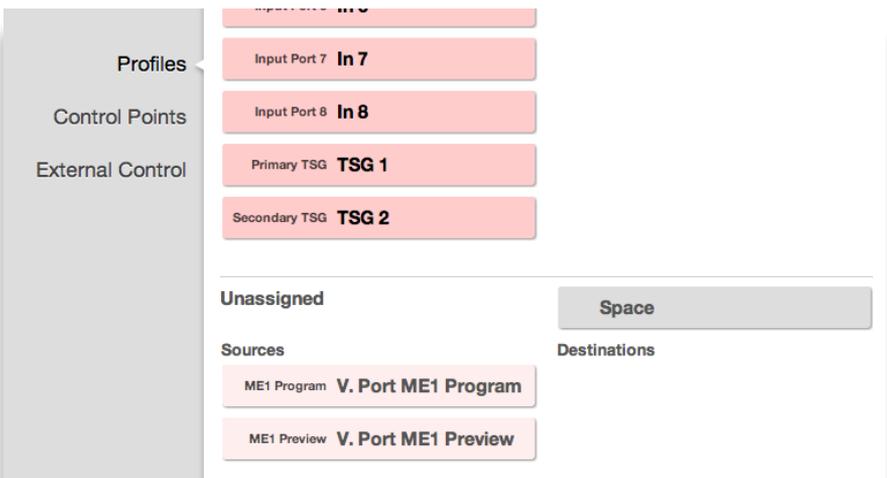
To Create a Profile that Includes Virtual Ports ME1 Program and ME1 Preview

Next, it is necessary to create or edit a Profile so that it includes Virtual Ports ME1 Program and ME1 Preview. As a result, it will be possible to route these virtual ports to the output BNCs.

1. From the upper left corner of the browser user interface, select **System Settings** from the pull-down control. The Settings > General page displays.
2. From the left navigation panel, select **Profiles**. The Settings > Profiles page displays.



3. In this case, we will edit the Factory Default Profile to include the virtual port sources. Next to the FactoryDefault profile, click **Edit**. The Settings > Edit Profile page displays. Notice the unassigned sources at the bottom of the page for the virtual ports.



4. Click and drag the unassigned Sources for ME1 Program and ME1 Preview up into the Assigned area of the profile.

P9425 Layering Engine > Settings > Profile > FactoryDefault

http://10.123.222.100/#!/settings/profiles/FactoryDefault/

Abandon Changes Save Changes Settings

Edit Profile: Print Label

Assigned Sources

- Input Port 1 **In 1**
- Input Port 2 **In 2**
- Input Port 3 **In 3**
- Input Port 4 **In 4**
- Input Port 5 **In 5**
- Input Port 6 **In 6**
- Input Port 7 **In 7**
- Input Port 8 **In 8**
- Primary TSG **TSG 1**
- Secondary TSG **TSG 2**
- ME1 Program **V. Port ME1 Program**
- ME1 Preview **V. Port ME1 Preview**

Destinations

- Output Port 1 **Out 1**
- Output Port 2 **Out 2**

Unassigned Space

Sources Destinations

5. Click **Save Changes**. Click **Done**. The Router Control page displays.

P9425 Layering Engine

http://10.123.222.100/#!/control/

P9425 Layering Engine Preferences

Sources

- In 1
- In 2
- In 3
- In 4
- In 5
- In 6
- In 7
- In 8
- TSG 1
- TSG 2
- V. Port ME1 Program
- V. Port ME1 Preview

Destinations

- In 5 **Out 1** No Input
- In 6 **Out 2** No Input

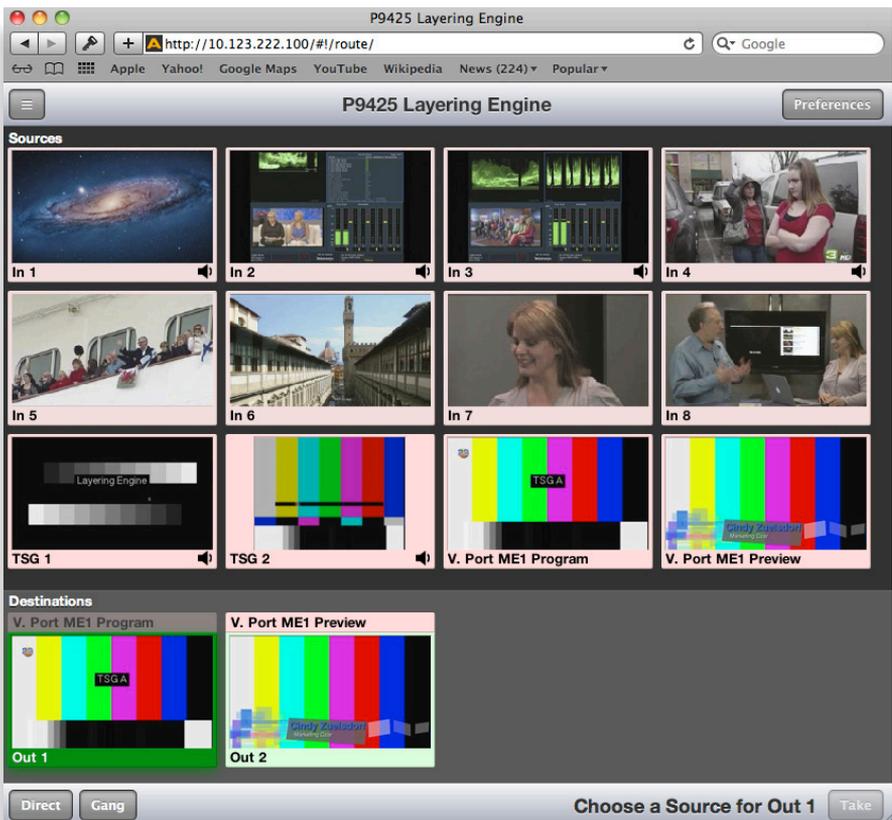
Direct Gang Choose a Source for Out 1 Take

To Route Virtual Ports ME1 Program and ME1 Preview to Outputs 1 and 2

From the Router Control page, notice that you can now see video thumbnails representing virtual port ME1 Program and virtual port ME1 Preview as Sources that can be routed.

1. From the Router Control page, select the video thumbnail for virtual port ME1 Program.
2. Select the video thumbnail for destination Out 1.
3. Click **Take** in the lower right corner.
4. Select the video thumbnail for virtual port ME1 Preview.
5. Select the video thumbnail for destination Out 2.
6. Click **Take** in the lower right corner.

At this point, you have finished this process, and the Program and Preview signals from the Layering Engine are now routed to BNC Outputs 1 and 2.



An example of the Router Control page after virtual ports ME1 Program and ME1 Preview have been routed to Outputs 1 and 2

Step 6: Creating Layering Engine Profiles

Whereas the purpose of a 9430 Router profile is to give you access to sources and destinations for routing, the purpose of a Layering Engine profile is to give you access to the resources you need to create the Layering Engine output. An effective Layering Engine profile gives you access to all the video inputs that you may want to use for backgrounds and keys.

To Create a Layering Engine Profile

1. From the upper left corner of the browser user interface, select **System Settings** from the pull-down control. The Settings > General page displays.
2. From the left navigation panel, click **Profiles**. The Profiles page displays.
3. Enter a profile name in the New Profile field.
4. Click **Create**. The new Profile is listed on the Profiles page.
5. Next to the newly created Profile, click **Edit**. The Edit Profile page displays. At the outset of creating a new profile, all the available Sources and Destinations are presented.
6. Click and drag unassigned Sources and Destinations up to the assigned area as needed for this specific profile. Note that you can rearrange the order as desired. Additionally, you can include empty spaces to create groupings of Sources and Destinations by clicking and dragging a Space icon up to be a source or destination.
7. When finished, click **Save Changes** in the upper left part of the screen, then click **Done**.

This newly created Profile is now available to assign to one or more Control Points.

Repeat steps 1 through 6 until you have as many Profiles as you need.

To Assign a Layering Engine Profile to a Control Point

1. From the upper left corner of the browser user interface, select **System Settings** from the pull-down control. The Settings > General page displays.
2. From the left navigation panel, click **Layering Engines**. The Layering Engines page displays.
3. From the Profile drop-down control, select the Profile that you want to assign to the control point.
4. Click **Save Changes**.
5. Click **Done**.

Note: Layering Engine Profiles are assigned through the Layering Engines menu. Router Profiles, in contrast, are assigned through the Control Points menu.

Step 7: Accessing the Web Browser Interface

You can control the Layering Engine through its web browser user interface to perform cuts, mixes, select backgrounds, select video or images as additional layers using Keyer 1 and Keyer 2, populating the LogoStore, and related tasks.

To access the web browser control interface

1. Enter the Layering Engine's IP address into your browser's address bar. The 9430 interface displays.
2. From the upper left pull-down menu, select **Layering Engine 1**. The Layering Engine interface displays, showing the Key Presets Panel, the Voice Over Transition Panel, Keyer 1 and Keyer 2 Transition Panels, Background Transition Panel, Multiple Layer Transition Control Panel, and the Background Source Selection Panel.

The Web Browser Interface at a Glance

The web browser interface is organized into four areas, described in the illustration below by referencing the interface in a clockwise direction, beginning from the upper left area.

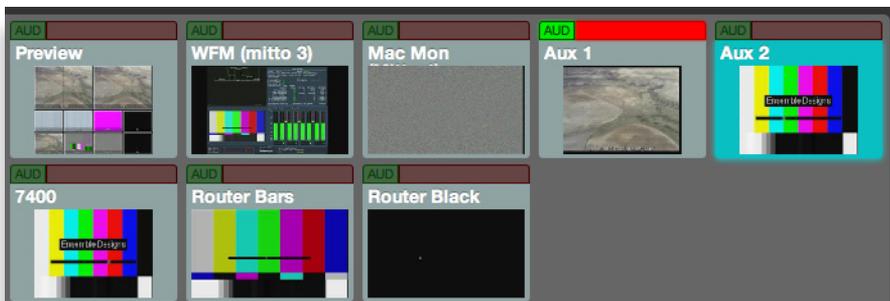
1. Key Presets and Key Layering Resources and Tools	Use this area for assigning a foreground to Keyer 1 or Keyer 2, assigning key presets, or modifying a key.
2. Individual Layer Transition Panels	Use these four controls to mix or cut a single background or layer. For Voice Over, Keyer 1 and Keyer 2, click the corresponding gear icon to access that layer's configuration options.
3. Multiple Layer Transition Control Panel	Use this area to mix or cut a combination of layers simultaneously. Specify the layers that you want to engage by selecting from the corresponding layer button: B, K1, K2, VO. Any combination of layers may be selected. After the mix or cut, the selected layers will be in their opposite state.
4. Background Source Selection Panel	Use this area to select the backgrounds you want to work with. The background thumbnail with the high red tally is going out through the program feed. The background thumbnail that is framed in blue is preset, meaning that it will go to the program feed the next time that the background is cut or mixed.



Working with Backgrounds

The Background Source Selection Panel (lower left area) of the web browser user interface displays thumbnail views of all connected SDI sources that are within the Layering Engines Profile. These thumbnails are regularly being updated to reflect their video content.

Switching backgrounds may be performed using either the Background Transition Panel or the Transition Control Panel. The background thumbnail with the high red tally (the bright red strip) is on air. The background thumbnail with the blue tally is preset to go on air after you perform the next cut or mix.



Background source Aux 1, with the high red tally, is on air. Background source Aux 2, with the blue tally, is preset.

Cutting and Mixing Backgrounds

Cutting and mixing backgrounds involves selecting a background source thumbnail, then using either the Background Transition Panel or the Multiple Layer Transition Control Panel to execute the transition.

To Cut or Mix a Background with the Background Transition Panel

1. From the background source selection panel, select the thumbnail image (representing an SDI source) that you want to use for the background video. The thumbnail turns blue, indicating that it is preset. Preset means that it will go live to the Program Output after the next transition.
2. Select the Mix or Cut button on the Background Transition Panel. The Background you selected is now going to the Program Output. It is also shown in the Background Transition Panel.



The Aux 1 background thumbnail is going to the Program Output, indicated by the high red tally. Additionally, the Background mix and cut control displays the background that is going to the Program Output. Aux 2 is preset, indicated by the blue tally.

3. Select a different Background thumbnail from the Background Source Selection Panel. The frame of your newly selected thumbnail turns blue, indicating that it is preset.
4. Select the Mix or Cut button on the Background Transition Panel. The background thumbnail that was preset is now going to the Program Output, and the Background that had been going to the Program Output is now preset.



Without making any new or different selections, after another mix or cut, the Aux 1 and Aux 2 backgrounds trade places. The Aux 2 background is now going to the Program Output. Aux 1 is now preset.

Working with Foregrounds

About Foregrounds

Two key layers and a background source can be simultaneously combined to produce the program output. The foreground is created by using the Layering Engine's two independent linear keyers. Keyer presets recall the entire configuration of a layer, including whether it is set to go live immediately upon being assigned to a keyer.

The foreground visual interface displays thumbnail views of connected SDI sources. These thumbnails are regularly being updated to reflect their video content. The foreground interface also shows the content stored in the LogoStore as well as the Matte controls. You can adjust input signals and control parameters.

Types of Foreground Inputs

Foreground inputs can be driven by SDI signals from cameras, remote feeds, character generators, graphic and stillstore systems, and video servers. Foreground inputs also include the built-in LogoStore to recall both still and animated graphics, as well as an internal matte generator.

The keyers support linear, luminance and additive keying from a variety of video sources. In linear and additive modes, external key signals are passed to the overlay combiners with the option of fine-tuning the effect with hi/lo clip or clip and gain adjustments.

Assigning Key Presets to Keyers

Once you have selected the background video, you can overlay one or two key layers on top of it. This process involves selecting a foreground, assigning it to a keyer, then using that keyer's transition panel or the multiple layer transition control panel to take it to air.

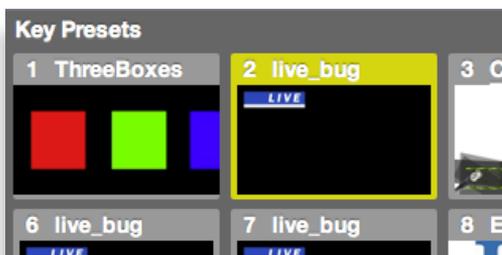
To Assign a Key Preset to Keyer 1

1. From the Key Presets panel in the upper left area of the web browser interface, select the thumbnail for the Key Preset that you want to assign to Keyer 1. The thumbnail you selected displays with a white outline.

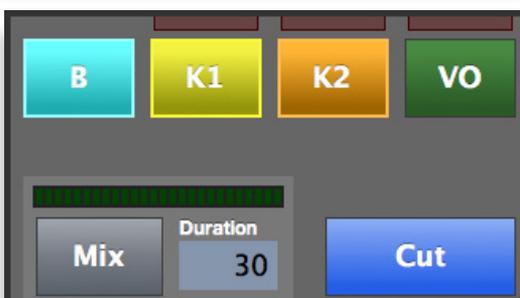


Example of a selected Key Preset. The white border indicates that it is selected, but not yet assigned to a keyer.

2. With the Key Preset still selected, select the Keyer 1 thumbnail within the Keyer 1 Transition Panel. The thumbnail for Keyer 1 updates to show the same content as the selected Key Preset. Additionally, the color of the frames of the thumbnails change to match the color of the K1 button (when it is selected). Once these thumbnail images match, you have successfully assigned the Key Preset to Keyer 1.



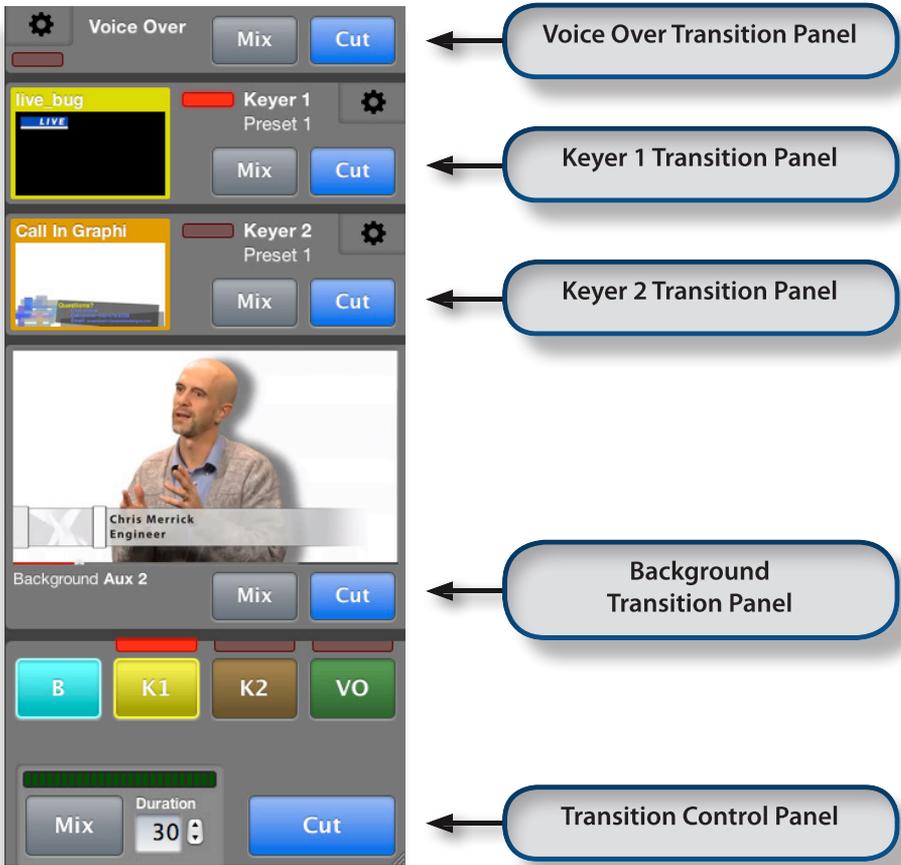
This example illustrates what it looks like after a Key Preset has been assigned to Keyer 1.



To Cut or Mix Keyer 1 with the Keyer 1 Transition Panel

Once you have a Key Preset assigned to Keyer 1, you can cut or mix Keyer 1 so that it displays on top of the background.

1. From the Keyer 1 Transition Panel, select **Mix** or **Cut**. The high tally for Keyer 1 illuminates bright red to indicate that it is being sent to air through the Program Out feed.
2. Alternatively, you can use the Transition Control Panel to mix or cut Keyer 1 to air. The K1 button must be selected before mixing or cutting in order for the Transition Control Panel to engage Keyer 1.



The Five Transition Panels identified individually. The Voice Over, Keyer 1, Keyer 2, and Background Transition Panels can be mixed or cut individually, or all layers can be mixed or cut through the main Transition Control Panel.

For additional assistance, see the “Model P9425 Avenue Layering Engine Installation, Configuration and Operations Guide” available through our website, or contact us at +1 530.478.1830 or service@ensembledesigns.com.