

# VCube AJA OEM-2K Router panel guide

## About this guide

When VCube is equipped with either the AJA **Kona 3** (formerly called the Xena 2K) or the AJA **Kona LHi** then the AJA OEM-2K Router panel must be used in parallel with the standard VCube settings to properly route video signals, perform up or down size picture conversion, generate test pattern signals and choose which groups of audio channels accompanying the SDI video inputs signals may be used for capture in VCube currently (up till version 3.0). The following guide shows how to perform basic routing operations in VCube using both the Quick Settings and the OEM-2K Router panel starting with a simple SD example.

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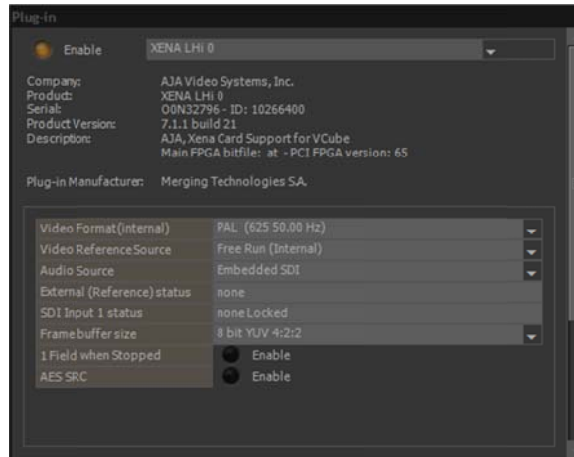
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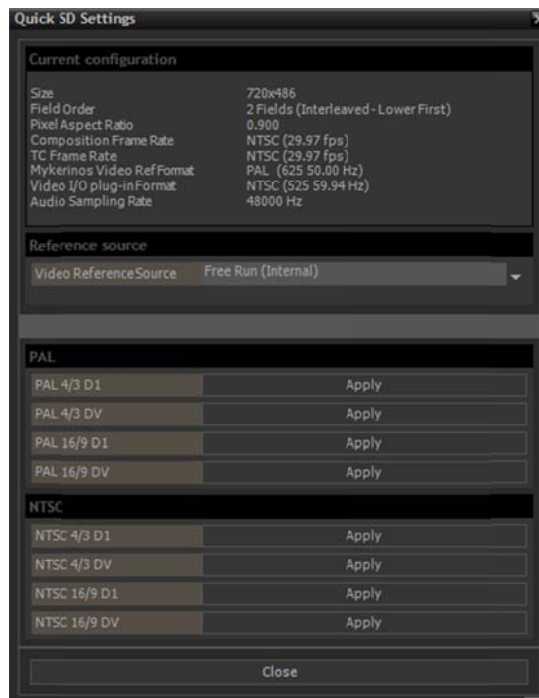
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## Section 1: PAL/NTSC routing:

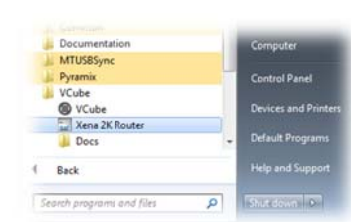
1. Start VCube and activate the AJA board using the Settings/Video I/O page by clicking on “Enable”.



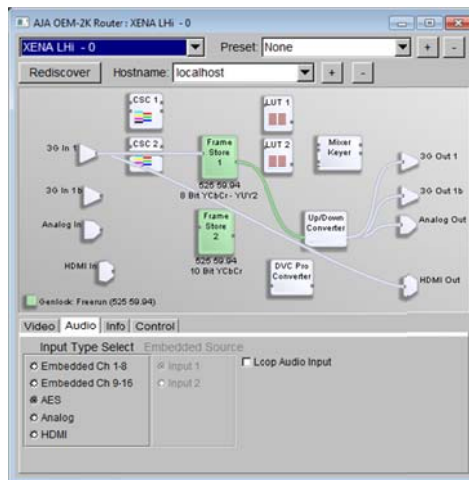
2. Press **Alt+F5** to call up the “Quick SD Settings” panel and choose the PAL or NTSC format you wish to set VCube’s timeline, timecode, and the AJA’s video engine to.



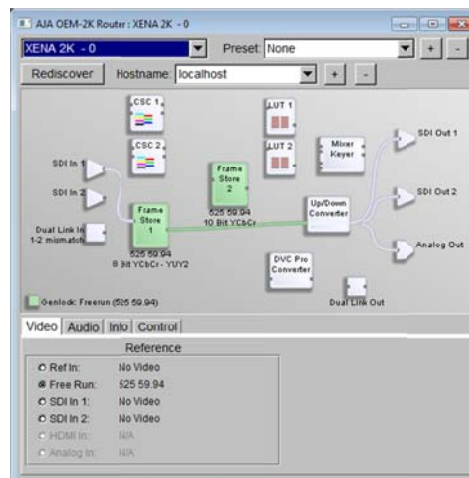
3. From the Windows “Start” button /All Programs/Merging Technologies/VCube folder click on the “Xena 2K Router”.



4. The Router panel opens and looks something like this for the AJA LHI :



5. Or like this for the AJA Kona3 (formerly called Xena 2K):



These panels are where all the routing happens between the AJA board and VCube.

**Panel object explanations:**

The AJA OEM-2K Router panel has many “objects” that are interconnected graphically to represent the internal signal flow of the AJA board itself. These objects are the shapes and wavy lines in the panel itself. The panels’ signal flows from left to right. → Physical inputs and outputs are the smaller triangular shapes at either side of the panel. *Notice how physical inputs are placed on the left side while the outputs are placed on the right side of the panel.*

- Each large square box is a function of the AJA board itself, each having its own input routing anchor points on its left side and output anchor points on its right side. These anchor points show where a virtual video cable may be connected.

- The wavy green, blue or white lines between boxes and triangles represent virtual video cables. SD signals are colored green while HD signals are blue. A white cable represents a cable that has a missing signal or an invalid parameter at that cable's source.
- These routing cable lines may be erased by click-dragging them away from their anchor points and releasing them or selecting one with the mouse and pressing the Delete key.
- To create a new connection click-drag on a source anchor point, hover over the desired destination anchor point on the next object box and release.
- The box marked "Frame store 1" represents the VCube.
- The box marked "Up/Down Converter" allows to convert HD to SD or SD to HD video in real-time as well as crop and resize video frames to fit the newly scaled picture sizes (ex: letterbox, anamorphic, etc.).
- The box marked "DVC Pro Converter" adjusts signal and format differences to adapt for Panasonic® DVC Pro standards.

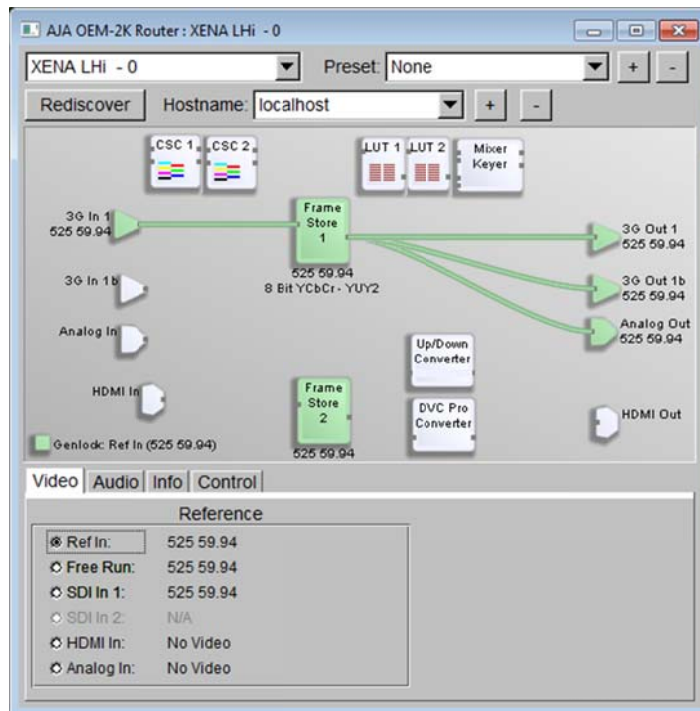
As of version 3 and before the following AJA routing panel functions are **not implemented** so they should just be ignored while using VCube with the routing panel:

- Frame Store 2
- CSC 1 and CSC 2
- LUT 1 and LUT 2
- Mixer Keyer
- Dual Link inputs and outputs

Notice also the **differences** between the two panels.

- The LHi has HDMI inputs and outputs while the Kona3 does not.
- The LHi also has 3G inputs and outputs that the Kona3 does not have.

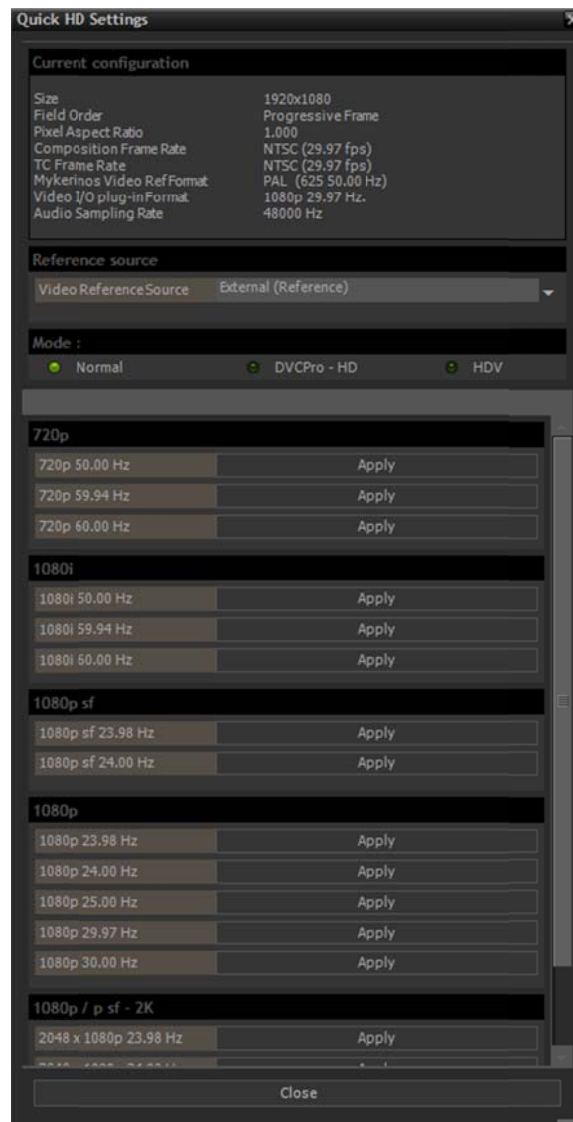
6. The following is an **NTSC** routing example which allows for recording to VCube from an SDI source and playback to both SDI outputs as well as the analog output using the LHI:



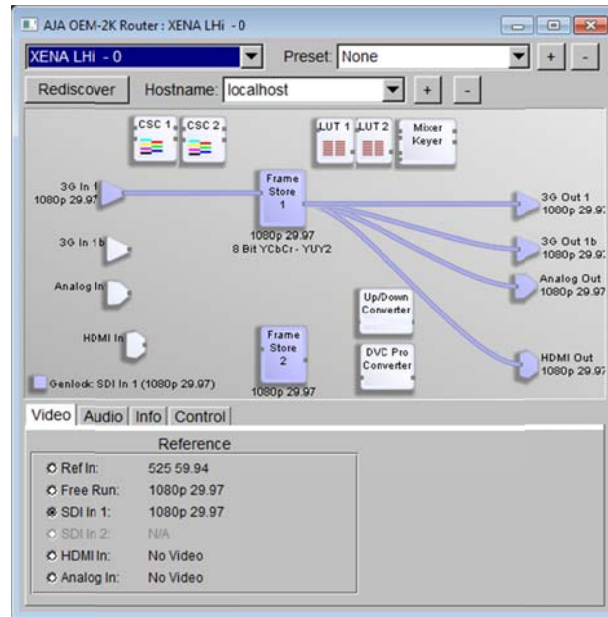
Notice that the Genlock Ref In button in the lower right corner is green to show that a valid NTSC black burst signal is fed to the "Ref In" cable of the AJA LHi. *This "Ref In" BNC is physically on all AJA breakout cables and should not be confused with the SDI or analog Video Inputs of any AJA board.* Notice also that the "SDI In 1" in the Video panel is showing a valid SDI signal input to the AJA board. *It is generally good practice to always provide a dedicated Ref signal equally distributed to each machine in the chain when working with video equipment so that all machines share the same reference source at all times no matter which order they are connected in.*

## Section 2: HD routing

1. Start VCube and activate the AJA board using the Settings/Video I/O page by clicking on “Enable” (if it is not already active).
2. Press **Alt+F6** to call up the “Quick HD Settings” panel and choose the HD format you wish to set VCube’s timeline, timecode, and the AJA’s video engine to. In this example, 1080p 29.97 is used but any HD preset will do according to your needs.



3. From the Windows “Start” button /All Programs/Merging Technologies/VCube folder click on the “Xena 2K Router”.
4. The Router panel will look something like this:



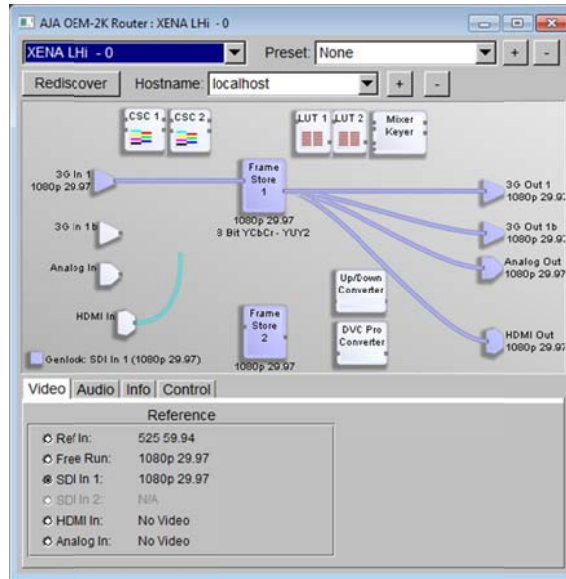
*The Quick HD settings automatically sets the AJA board to the same internal engine format as the VCube time line as well as many other settings throughout VCube and Virtual Transport so it is highly recommended to **always begin a new composition of any kind with a Quick setting preset.***

This example is ready to record 1080p 29.97 HD video from the AJA's SDI input straight into VCube and play back to all outputs in HD but you may also need other options. You may need to record from the HDMI or analog inputs instead of the SDI input or even output to an SD video monitor or external VTR after performing a real-time down conversion to NTSC. These scenarios are possible from this panel with a little explanation so the following section will walk you through the simple steps needed to achieve these additional functions.

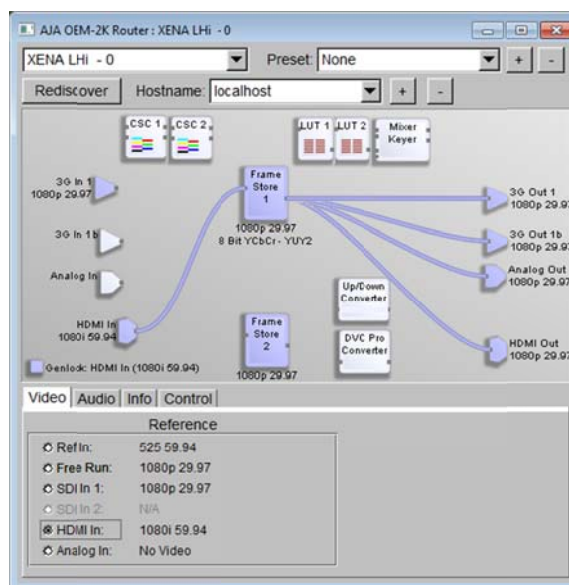
### Section 3: Change the input source to HDMI (AJA LHi only)

To change the input source from the SDI input to the HDMI input on the AJA LHi do the following:

- Click on the small grey square at the tip of the “HDMI In” shape and drag the mouse towards the small grey input square on the “Frame Store 1” box releasing the mouse when it is hovering exactly over the input square. This draws out a routing cable (see turquoise line in the next screenshot) that follows the mouse pointer to the desired connection point.



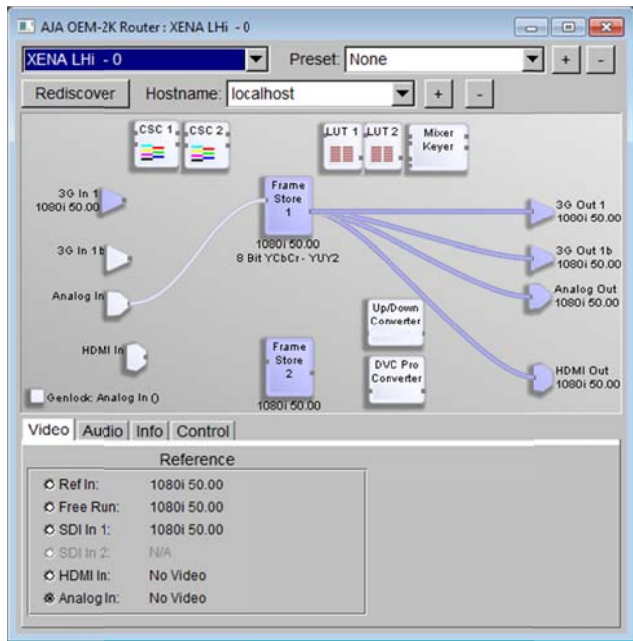
Once the end of the cable has been dropped to the input point on the “Frame Store 1” the old connection from the “3G In 1” is automatically erased and the new routing looks like this:





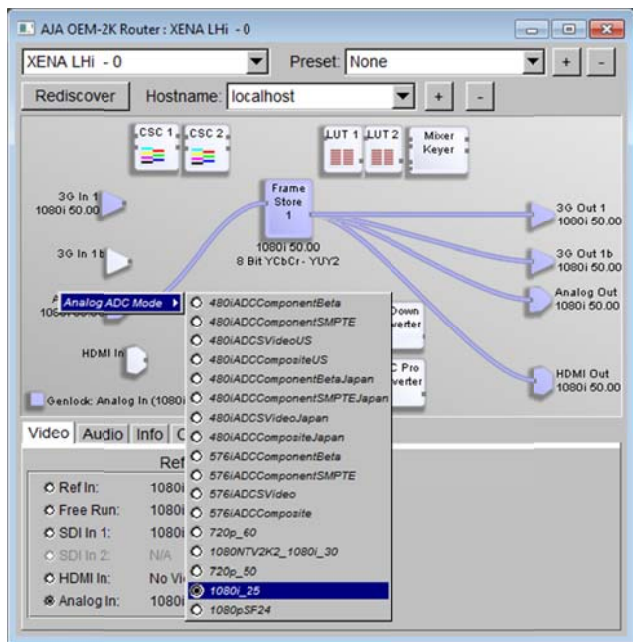
#### Section 4: Change the input source to Analog (AJA LHi Only)

- Click on the “Analog In” routing point and drag it to the “Frame Store 1” input putting point as shown here:

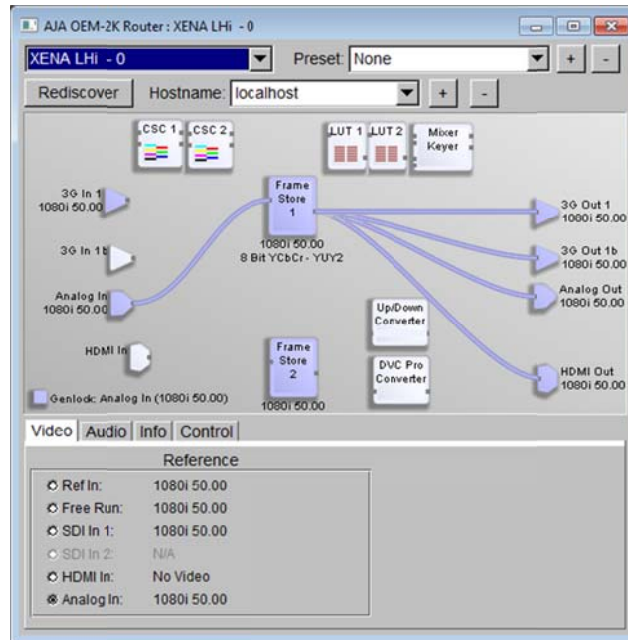


If the signal provided for on the physical cable does not match the format of the analog input itself then you will need to adjust the “Analog ADC Mode” from the drop-down menu on the “Analog In” object itself.

Right-click on the “Analog In” object to see the “Analog ADC Mode” drop-down menu choices and choose the format that corresponds to the actual video source.



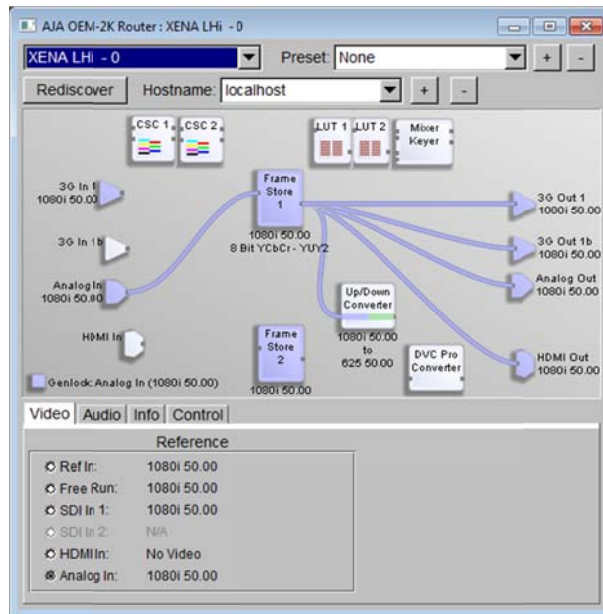
Once the proper Mode format is selected the input cable should change from white to either blue (HD) or green (SD) to indicate a valid video source from the "Analog In" to the "Frame Store 1" as shown in this screenshot:



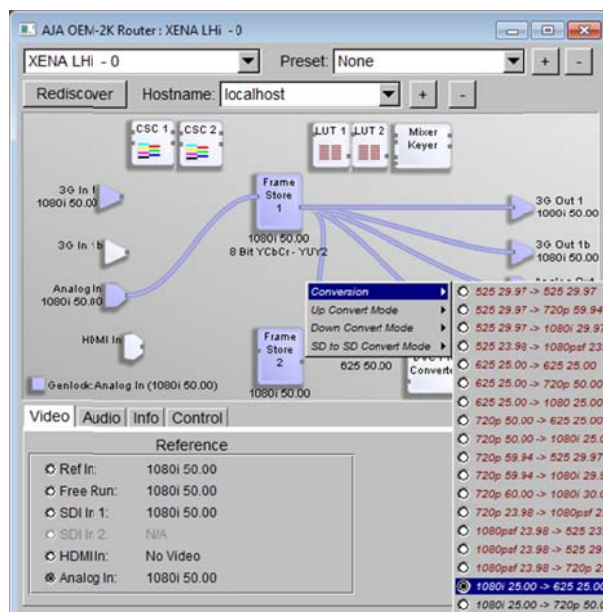
## Section 5: Down Convert HD video to SD

The AJA Kona3 and LHi both possess powerful real-time up and down conversion capabilities for use either before or after a third party video software program like VCube. Using this up/down conversion object allows for display of HD video to an SD device like a monitor, projector, VTR or other external device instantly without having to first downsize and render a composition in VCube to fit the standard of the external device. Here is an example using the previous example's 1080i 50Hz HD signal source and the "Up/Down Conversion" object box to down convert the HD signal to PAL and output it to all physical outputs.

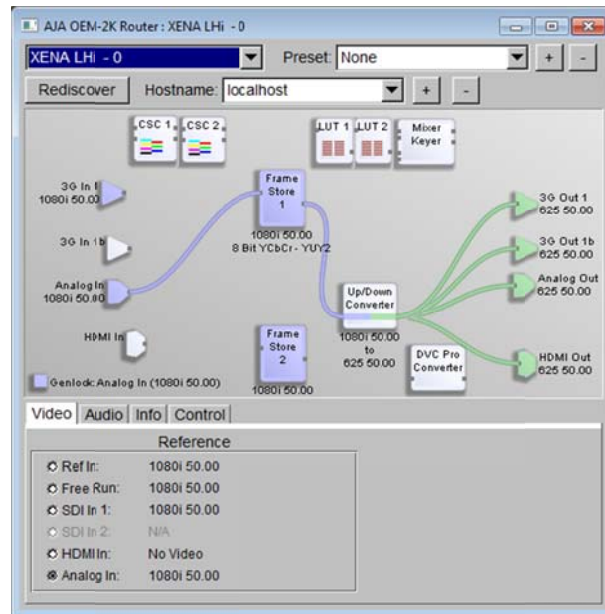
- Click-drag a connection from the "Frame Store 1" to the "Up/Down Converter" box.



- Right-click on the "Up/Down Converter" box and choose the "1080i 25.00 -> 625 25.00" setting.



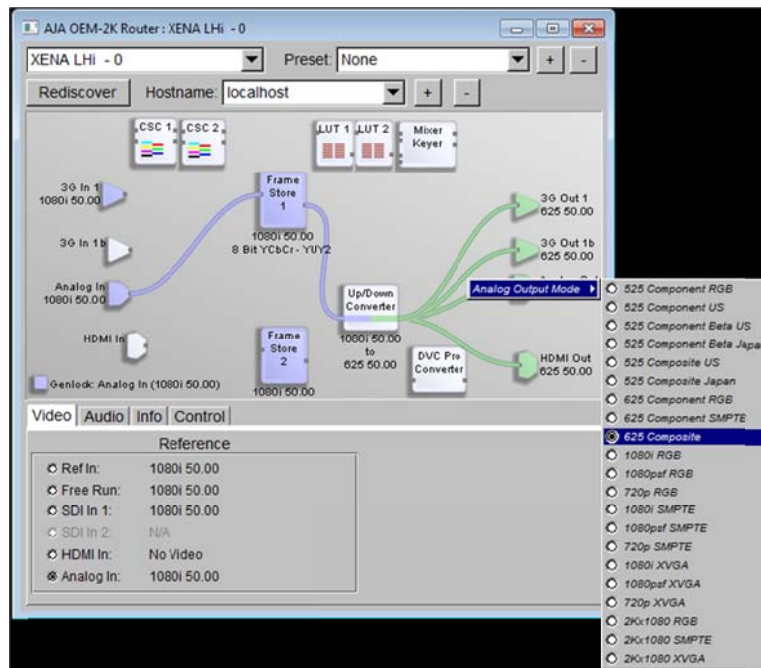
- Click-drag connections from the “Up/Down Converter” box to all desired outputs to feed them PAL video signals as needed.



## Section 6: Changing the Analog Out format

Changing the Analog Out video format to match the outgoing video signal and the external analog video device is done with the following procedure. The example is designed to show how to display the PAL signal used in the previous example to a standard definition monitor with coaxial input (composite BNC) by changing the “Analog Output Mode” drop-down menu settings.

- Right-click on the “Analog Out” object to display the “Analog Output Mode” drop-down menu and chose “625 Composite”.

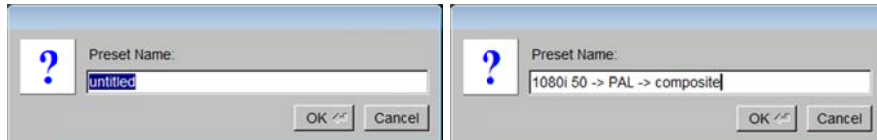


The down-converted PAL signal will now properly display to a PAL monitor.

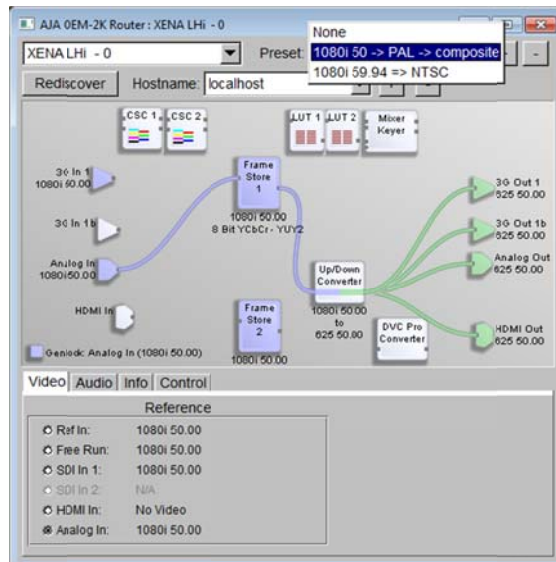
## Section 7: AJA Router Preset utility

The “Preset” utility allows for any routing configuration made in the AJA OEM-2K Router panel to be saved and recalled for future use easily.

- To create a Preset with the current settings click on the “+” symbol, name the preset in the pop-up dialog box and click “OK” to save it to the drop-down list.



- To recall a preset click on the “Down Arrow” symbol in the Preset menu



- To Erase a preset, select it in the Preset drop-down menu and click on the “-” symbol.