Visionary Solutions Inc. x4000 Products Integration with Q-SYS Designer from QSC

This document describes the QSC Q-SYS Designer x4000 plugins that are provided by Visionary Solutions for simple product integration with Q-SYS, and provides step-by-step configuration instructions. We provide three (3) separate plugins:

1. The Virtual Matrix Router Plugin
2. The individual Encoder Plugin (E4x00)
3. The individual Decoder Plugin (D4x00)

From our experience most users will want to use the individual encoder/decoder plugins to build a custom matrix per the instructions below. We include the Virtual Matrix Router plugin mostly as an example / demonstration of the various types of control and UCI features that can be achieved through Q-SYS. Also, the Virtual Matrix Router plugin has a useful auto-discovery feature that will allow you to discover our endpoints on the network.

We have created a complete API implementation through Q-SYS exposing all options and parameters for configuration from the embedded webpages… see product manuals for details about each field. (*Figure 5.-encoder / Figure 7.-decoder)*

Plugins

1. The Virtual Matrix Router Plugin

Configuration Options

To configure the plugin, (push it to run on the core or in emulation mode) - click Reset Config.

#1: Automatic Discovery

(*Figure 1.* Configuration Tab > Automatic Detection Section)
In deployments where devices are installed on a properly configured Multicast Network, and the QSC Core (or emulation device) is located on the same segment, then simply clicking **Discover** allows the QSC device to send a Multicast Query onto the Network and any devices on that Network should reply to the query and therefore announce their presence and connection information.

This function is repeatable in the sense that if you add more devices to the Network, you can **Discover** again. Old units will be retained and not duplicated, and any new units will be added to the end of the list. If you would like to remove devices that were previously discovered but are no longer present, you will need to click **Reset Config** and then **Discover** again. This function can also be used after Configuration option #2 or option #3 have been used without trashing or duplicating the existing list.

#2: Static Contiguous IP Range

(*Figure 1.* Configuration Tab > Configuration Section)
In deployments where you have control of the static IP addresses of the devices but not necessarily Multicast functionality, this is a good option for you. For example, if you have 4 encoders and 4 decoders, you could place the encoders at 192.168.1.101, 192.168.1.102, 192.168.1.103, and 192.168.1.104 respectively, and the decoders at

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192.168.1.111, 192.168.1.112, 192.168.1.113, and 192.168.1.114 respectively. You can then run the QSC design plugin and insert the following information:

Encoder Count: 4
Encoder Base IP: 192.168.1.101
Decoder Count: 4
Decoder Base IP: 192.168.1.111

Once the fields are populated, press Enterin the final field. The plugin will create a listing and then query each device via Unicast to verify its presence and collect the necessary information from each device. This configuration method should work even when the devices are not on the same subnet so long as Unicast routing is configured.

#3: Manual Device Insertion

(*Figure 1.* Configuration Tab > Add Device Section)
In deployments where there is no Multicast functionality and no control over IP addressing, this may be your only option. In this mode you can select the type of Device and then specify the unit's IP address and click the **Add** button. You can add each unit one by one until they are all represented in the controls.
Like Discovery, this option can be used in combination with other configuration modes. You can perform automatic Discovery or populate the contiguous range information for the bulk of the initialization and then use this feature to
add any extra or out of range devices. This configuration method should work even when the devices are not on the same subnet so long as Unicast routing is configured.

Additional Configuration Options:

oneClick Routing

(*Figure 1.* Configuration Tab > Configuration Section)
Select “Enable” or “Disable” – When enabled select the encoder thumbnail image and then select the decoder thumbnail image (routing tab) and the video will automatically route without having to click one of the “update” buttons.

Decoder Info

(*Figure 1.* Configuration Tab > Configuration Section)
Select “Enable” or “Disable” – When enabled there is a box under each decoder indicating the name of the encoder they are currently connected to.

Group Configuration:

Grouping

(*Figure 1.* Configuration Tab > Groups Section)
To configure a group:

a. Enter a name for the group in the “Add/Edit Name” field.
b. In the “Add/Edit Index List” field, list the decoders that are to be part of that group. Decoders are identified numerically as 1 – 9, and so on. If you have 20 decoders in your system, they would be numbered 1 through 20. To include a decoder in a group, enter the decoders separated by commas. For example, First group enter 1,2,3, next group 2,5,7.
c. When complete, click **Add**.

This is all the configuration information the Visionary x4000 Virtual Matrix Router needs to be able to completely control your setup through Q-SYS Designer.

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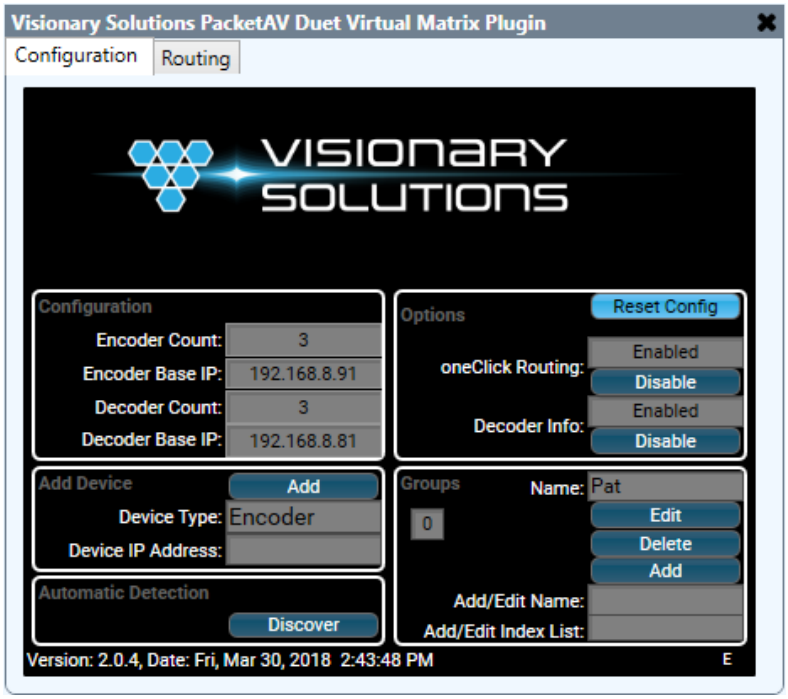
Figure 1.

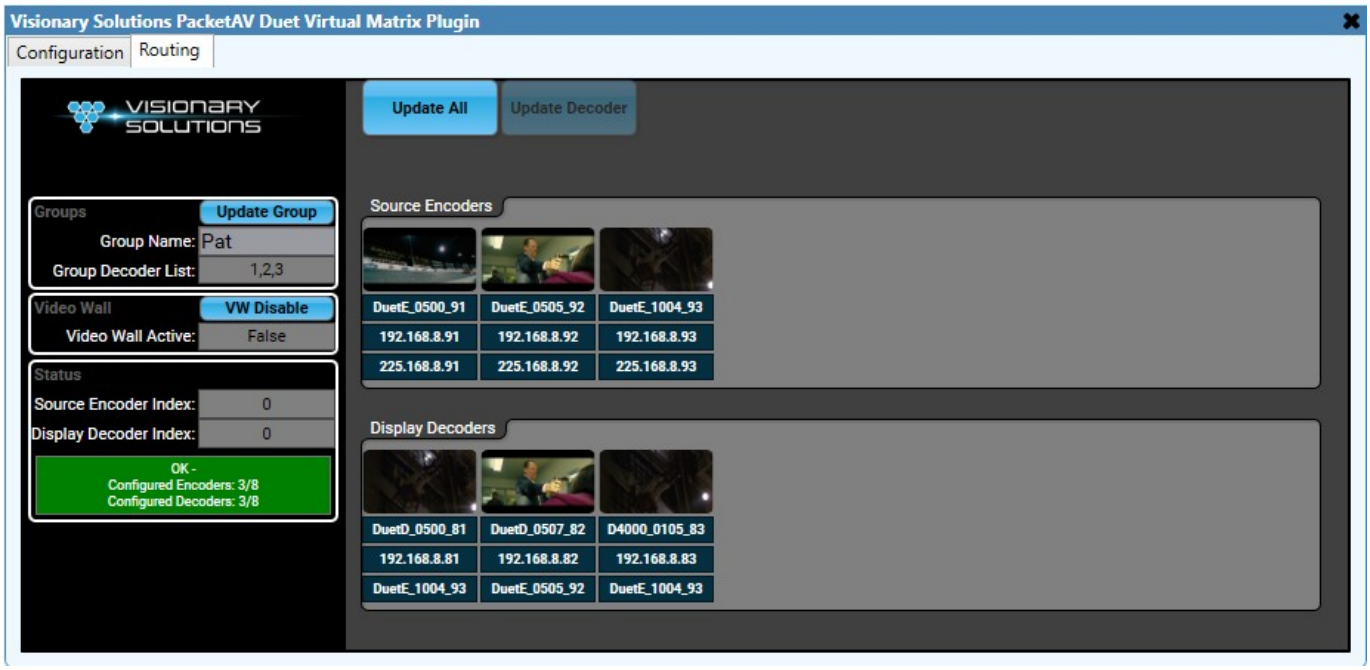


Using the Plugin

For a video demonstration on how to use the Visionary Virtual Matrix Router plugin, go to https://youtu.be/O3oPrUc9hIw

NOTE: the video was made before grouping, thumb nailing, and routing were combined into one plugin object.

Figure 2.



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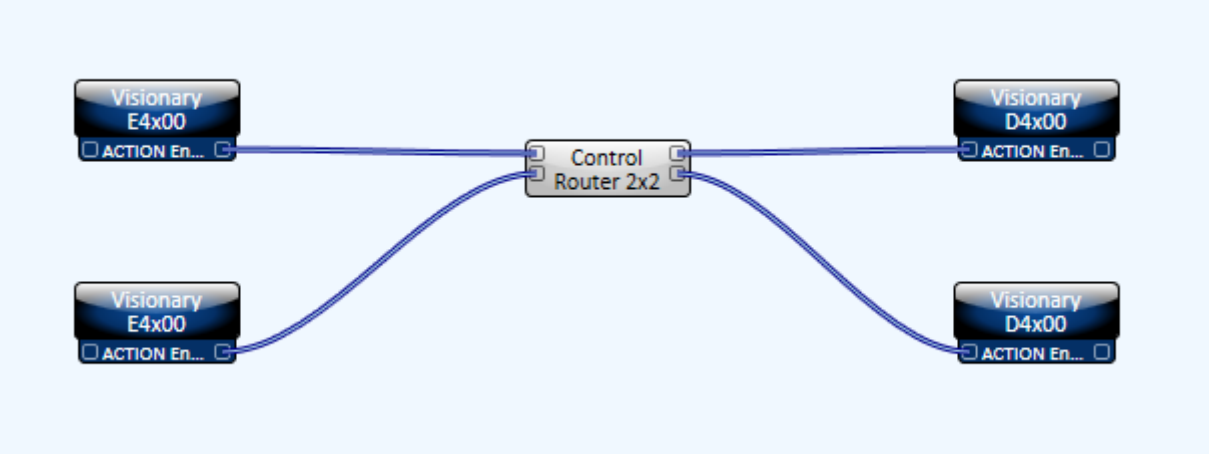
2. The Individual Encoder and Decoder Plugins

Using the Plugins

Basic example of how to utilize the Visionary X4x00 device plugins to build a 2 x 2 matrix:

(1) Open a new or existing Qsys design
(2) From the components Panel on the lower right hand side navigate to Plugins->Visionary->PacketAV
(3) Click on the E4x00 plugin and drag it to the center in the design area
(4) Click once on the new plugin box and you should see properties appear on the upper half of the right side of the screen
(5) Click to expand the ACTION section and then click on the 'Encoder IP Address' column to expose that control pin
(6) Click on the E4x00 plugin box and then press CTRL-C to copy and CTRL-V to paste
(7) Now you should have 2 copies of the E4x00 object with the same pin(s) exposed
(8) From the components Panel on the lower right hand side navigate to Plugins->Visionary->PacketAV
(9) Click on the D4x00 plugin and drag it to the center in the design area
(10) Click once on the new plugin box and you should see properties appear on the upper half of the right side of the screen
(11) Click to expand the ACTION section and then click on the 'Encoder IP Address' column to expose that control pin
(12) Click on the D4x00 plugin box and then press CTRL-C to copy and CTRL-V to paste
(13) Now you should have 2 copies of the D4x00 object with the same pin(s) exposed
(14) From the components Panel on the lower right hand side navigate to 'Control Components' then drag in a 'Control Router' to the design
(15) Click on the 'Control Router' box to see the Properties in the upper right hand corner
(16) Change the input and output count values to 2 for a 2 x 2 router
(17) Click on the Exposed Pin 'ACTION Encoder Address' on the first E4x00 object and drag it to the first input on the left side of the Control Router
(18) Click on the Exposed Pin 'ACTION Encoder Address' on the second E4x00 object and drag it to the second input on the left side of the Control Router
(19) Click on the first output of the Control Router and drag it to the exposed ACTION Encoder Address of the first D4x00
(20) Click on the second output of the Control Router and drag it to the exposed ACTION Encoder Address of the second D4x00

Figure 3.



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At this point you have configured the base pieces and connections for the 2 x 2 design, so the next thing to do is Push it to run on the core (or Emulate)

(1) Once running double click on each E4x00 object to display the actual plugin interface, enter the Encoder IP Address into the Encoder Address field (*Figure 4*).
(2) Once running double click on each D4x00 object to display the actual plugin interface, enter the Decoder IP Address into the Decoder Address field (*Figure 6*).
(3) Assuming the addresses entered are correct the system will query parameters of each device and populate the fields with that information
(4) Verify that the devices are streaming by enabling the 'Live Thumbnail View' and check for valid video images
(5) Route the Encoder to Decoder using the input/output buttons on the 'Control Router' object

Bi-Directional RS232 Control:

Configure necessary serial parameters in the config page of each endpoint to match the device you are going to connect to and control (see RS232 section in product manual) once set – save and reboot. (*Figure 5 / Figure 7*)

Encoder or Decoder Serial TX Data (*Figure 4 / Figure 6*) – any ASCii based text that is entered in this field will be transmitted over the RS232 port to the connected device and if the device replies with an acknowledgement it will show up in Serial RX Data field.

Enter ASCii text and press enter to send OR expose the control pin for the Serial TX data and connect to it with any custom component from Q-SYS (ex. a “button”) and populate the necessary serial data from an external component.

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Figure 4.

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Figure 5.

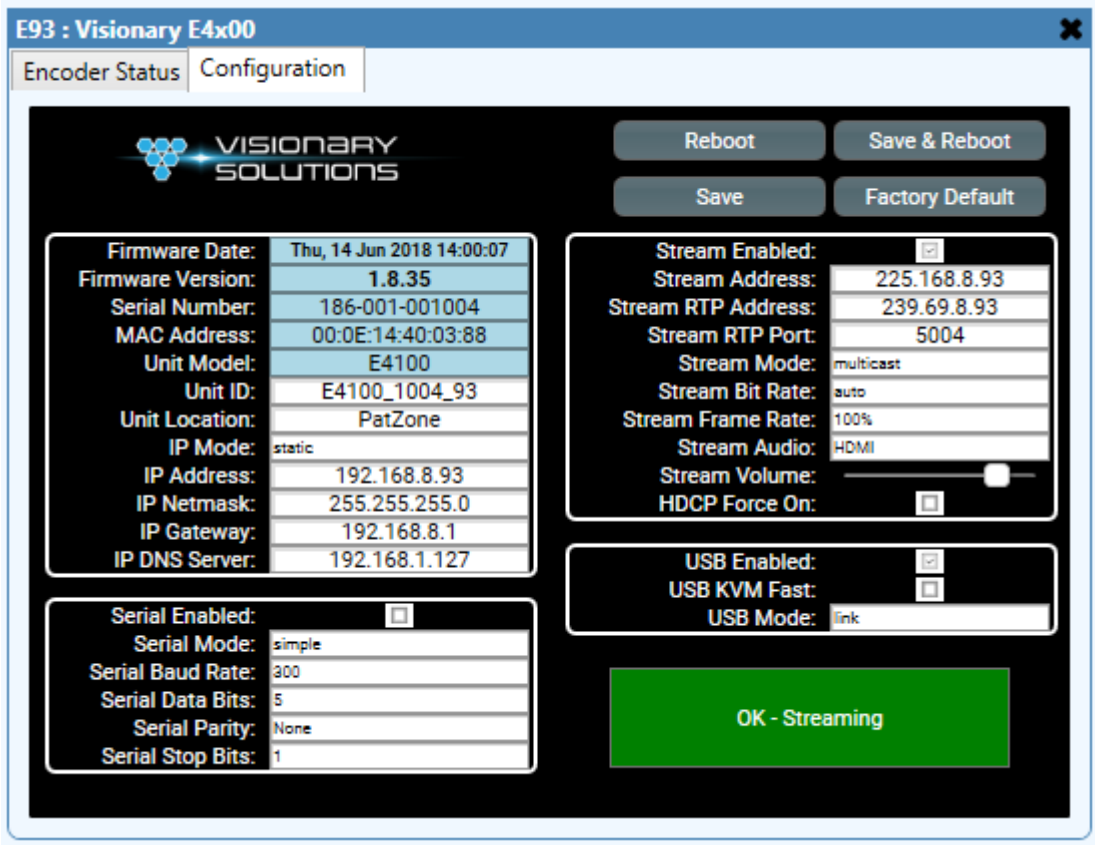

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Figure 6.

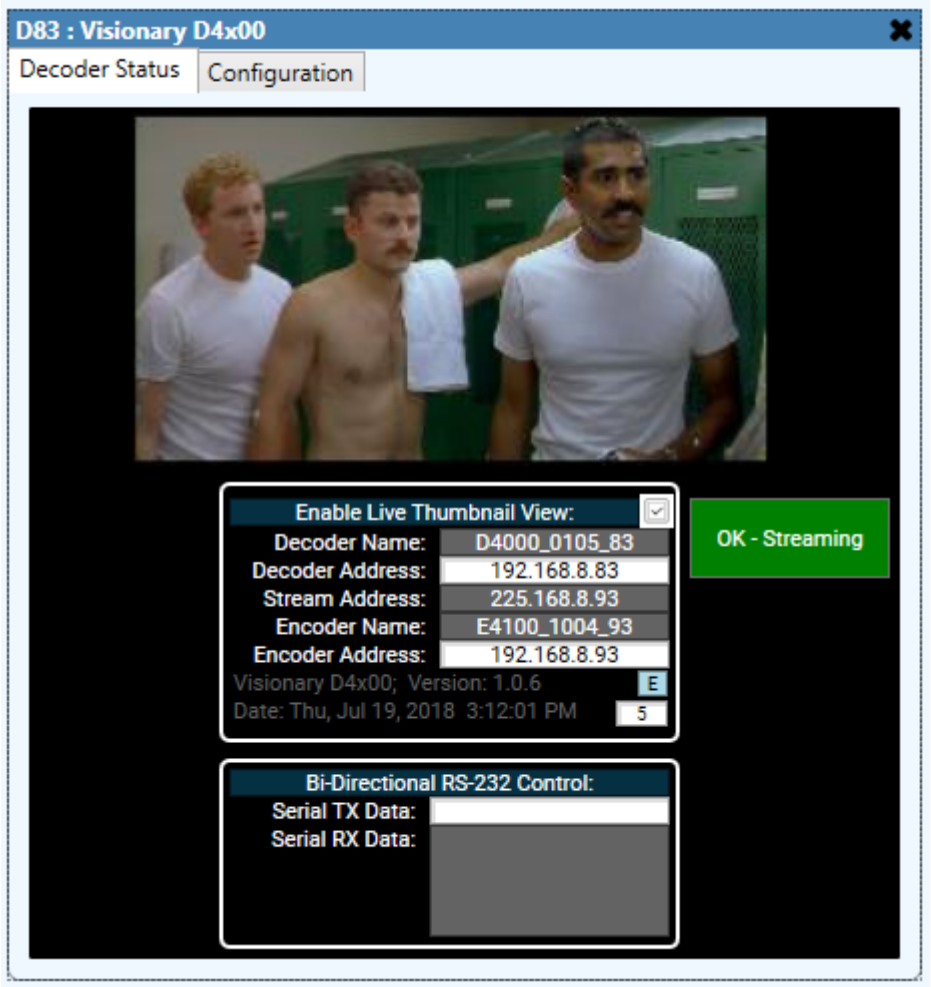

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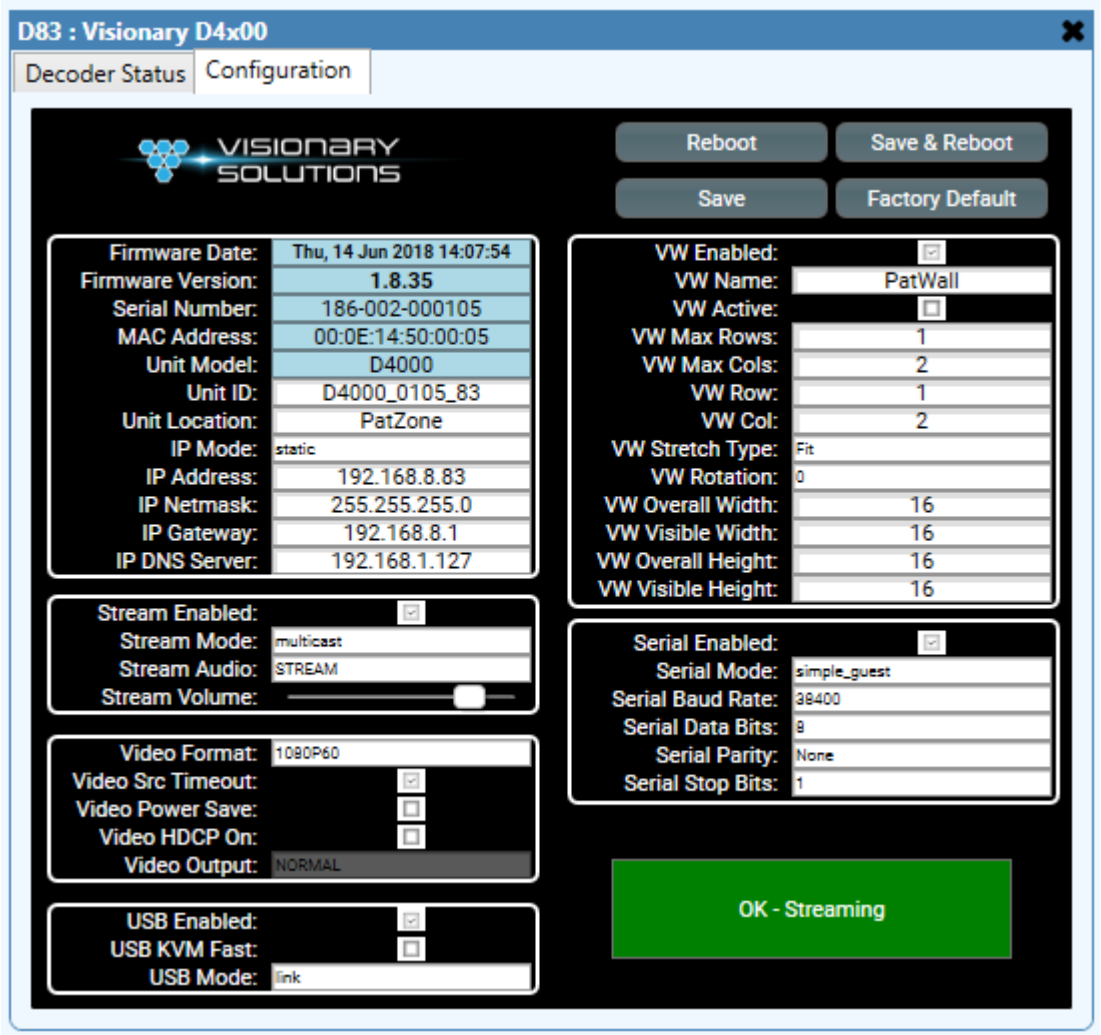
Figure 7.



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