



RTI | Miravue VIP-1 Manual

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The Miravue VIP-1 provides AV distribution over wired and wireless Ethernet networking in the connected home or office. The VIP-1 encodes H.264 video up to its highest supported resolution (1080p) along with audio (Dolby 5.1). The result is a high quality video output signal with low network bandwidth requirements. For the ultimate in flexibility, the VIP-1 can be installed as a transmitter or receiver, and acts as an extension of the RTI control system, delivering IR and RS-232 control to devices.

Miravue VIP-1 Features:

- Miravue VIP-1 can be installed as a transmitter or a receiver.*
- Supports video distribution via wired and wireless Ethernet.*
- Supports HDMI/HDCP 1.x and 2.x video sources and displays (H.264).
- Integrates network video streams (e.g., IP Cameras).
- Built-in scaler matches the display's maximum resolution.
- Forwards IR and RS-232 commands from an RTI control system.
- Automatically provides stereo downmix with lipsync adjust for distributed audio systems.

Best Performance Recommendations

- It is critical that the networking equipment and “transmit mode” (unicast/multicast) are selected properly or network performance will be negatively affected.
- Systems requiring more than 6 VIP-1's should use a managed network switch.
- Each video stream occupies 15Mb of bandwidth. The total bandwidth depends on the number of video sources and transmit mode (unicast/multicast) that is used.
- The VIP-1 should be installed as a video transmitter or a receiver. NOTE: While the VIP-1 may be installed as a transceiver (simultaneously transmitting and receiving video), this implementation should be tested with the video devices and network equipment that will be used.
- Video distribution via wireless Ethernet should utilize a separate wireless network. Also, due to bandwidth requirements, limit the number of VIP-1's to 1-2 set to Unicast mode.
- Due to an HDCP limitation, there is a maximum of 32 video connections (simultaneous views) to a video source encrypted with HDCP.

AUDIO/VIDEO INFORMATION

Video Resolution and Audio Support

The Miravue VIP-1 transceiver encodes H.264 up to its highest supported resolution and audio (i.e., 1080p and Dolby 5.1). If the end display cannot support the video resolution or audio format, the stream is downscaled or downmixed accordingly. The VIP-1 does not support 4k.

Audio Extraction

Audio from the stereo-out port on the VIP-1 can be used with a centralized audio system (e.g., a whole-home audio). If the video source is distributed (i.e., not centralized), the audio from the stereo-out port on the VIP-1

would need to be wired back to the centralized audio system using high-quality shielded 3.5mm male-to-male stereo audio cables.

Audio Sync adjustment

The VIP-1 transceiver web interface setup program allows you to specify which audio stream (i.e., from the HDMI-in port or to the HDMI-out port) is delivered to the stereo-out port and the delay in milliseconds for lip-sync adjust. Only one audio stream can be selected since there is only one stereo-out port. NOTE: Audio settings are configured via the VIP-1 web interface.

IP Network Cameras

The VIP-1 devices can view network-based camera video using RTSP camera streams.

INSTALLATION NOTES:

- MJPEG video streams are not supported.
- You cannot view a camera stream on VIP boxes that have a local source connected.
- Use only VIP-1's that are setup as a receiver with no local source.
- Adjusting the resolution/framerate of the camera can improve the speed at which they connect.
- Tested IP cameras include: LILIN, IC Realtime, AXIS, and Alhua cameras.

The VIP-1 On-Screen Source Select

Using the On-Screen Source Select

Send the OK/Select command using IR via the RTI remote control or the TVs CEC compatible remote to display a list of video sources available on the network. The current source is indicated by a solid bar to the right of the source name. Use the UP and DOWN commands to navigate the menu and OK/Select to switch to the desired video source.

The On-Screen Source List

The on-screen source list is generated using the names of the video sources on the Miravue VIP-1 network plus any network video streams (IP cameras) added to the transceiver. Source names are defined in the two-way driver configuration in Integration Designer programming software. In addition, source names may be set in the VIP-1 web interface.

NOTES:

- Settings made within the web interface will be overwritten by configuration settings made in the RTI control system programming.
- Only video sources and displays that have the same 4-digit group ID (provided in the transceiver setup) will see each other, even if there are other VIP-1 transceivers on the same physical network.

INSTALLATION OVERVIEW

1) VIP-1 Front Panel Ports



IR-REC

Infrared receiver, used for IR control of the VIP-1 via a remote control.

NOTE: This IR receiver is disabled if the IR-IN port is used.

DEFAULT

Button resets the VIP-1 to factory defaults if pressed and held for 10 seconds.

RESET

Button power cycles the VIP-1 if pressed and released.

IR-OUT

- Port delivers infrared control to an external device (e.g. TV, Satellite Receiver) from an RTI control system.
- Connect standard IR emitter to 3.5mm jack.

NOTE: VIP-1 must be configured as an expansion device in the Integration Designer system file.

RS232

- Port delivers serial communication to an external device (e.g. Projector, Blu-Ray) from an RTI control system.
- Connect a three wire cable (Tx, Rx, and GND) between 3.5mm jack and external device.
- RS-232 Jack Pinout: Tip=Rx In, Ring=Tx Out, Sleeve=GND

NOTE: VIP-1 must be configured as an expansion device in the Integration Designer system file.

USB1-2

USB port is used for firmware updates (via USB thumb drive), an extra LAN port when needed (via USB to RJ45 dongle), and keyboard input (not KVM). Valid keys (select, up, down, left, right) to display and navigate the on-screen list of available sources.

2) VIP-1 Rear Panel Ports



HDMI-IN

Connects to a video source (cable/satellite receiver, Blu-ray player, Apple TV, Fire TV, Roku). Refer to website for supported video resolutions, audio formats, and HDMI/HDCP devices.

HDMI-OUT

Connects directly to a video display (e.g., TV or projector) or to an HDMI passthrough device (e.g., Soundbar, AV Receiver) and then to the video display. Refer to website for supported video resolutions, audio formats, and HDMI/HDCP devices.

STEREO

Connects to an external device's stereo audio-in port (e.g., TV, Soundbar, audio matrix). This downmixed (when applicable) analog stream can be delayed for lip sync adjust for either the video source or the video display, but not both. NOTE: Audio settings are configured via the VIP-1 web interface.

IR-IN

Infrared input for infrared control of the VIP-1 using an infrared receiver (purchased separately).

IMPORTANT NOTES:

- The VIP-1 IR-IN input is not compatible with IR delivered using a hard-wired cable directly from an RTI control processor.
- IR passthrough is not supported.
- The built-in IR eye on the front panel is disabled when this jack is in use.

5V

Connects to the included 5VDC/2.4 Amp power supply.

NOTE: Power may also be supplied to the VIP-1 via the Ethernet - PoE port.

ETH

This port is NOT supported and should not be used.

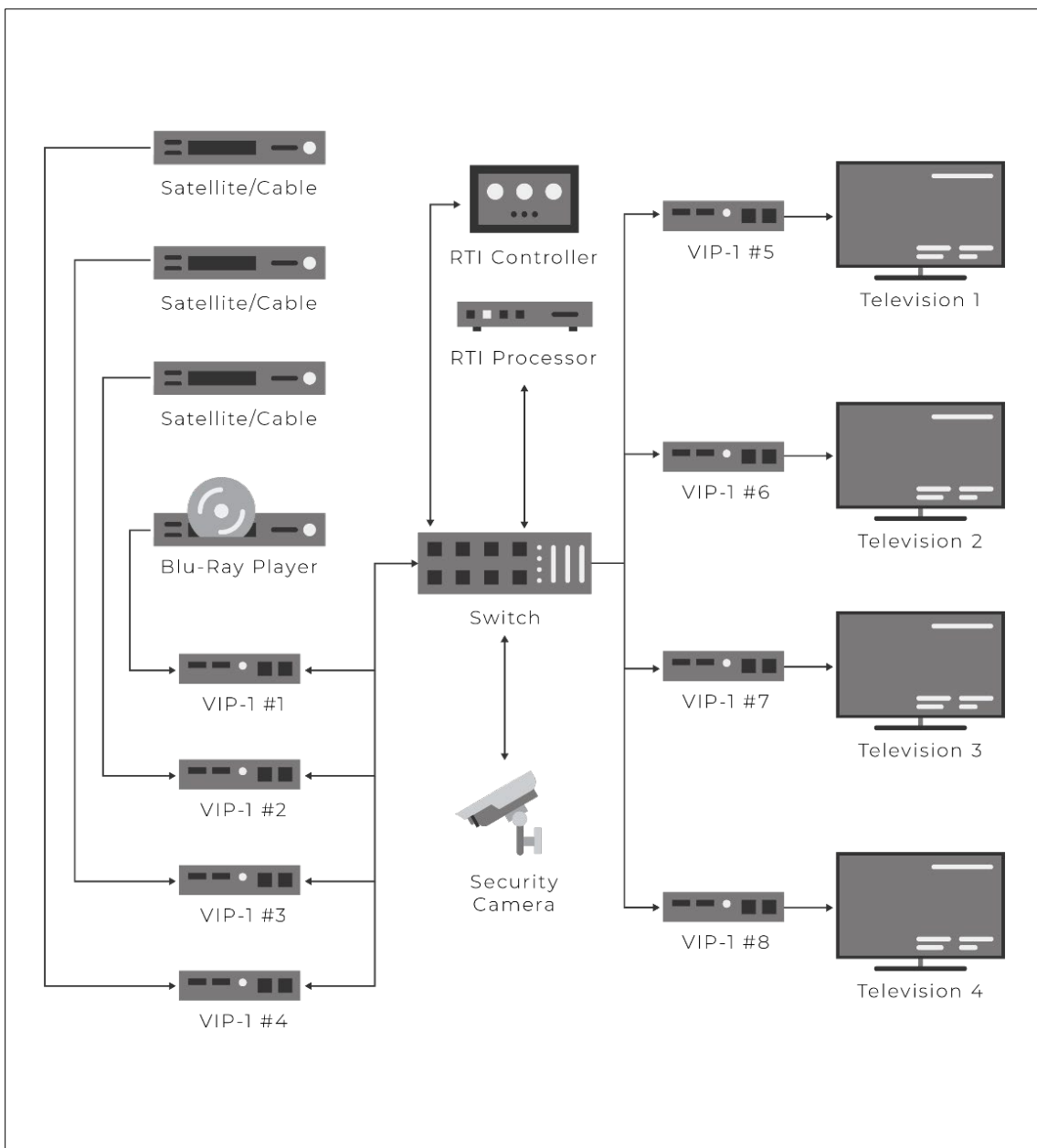
POE

Connects to an Ethernet network switch (10/100/1000Mb, generic or managed) using Ethernet cable (Cat-5/6/7) up to 100m/330ft.

Installation Diagrams

In this **Centralized Design**, the VIP-1s are configured as a video transmitter or receiver. The video sources and displays are each connected to a VIP-1.

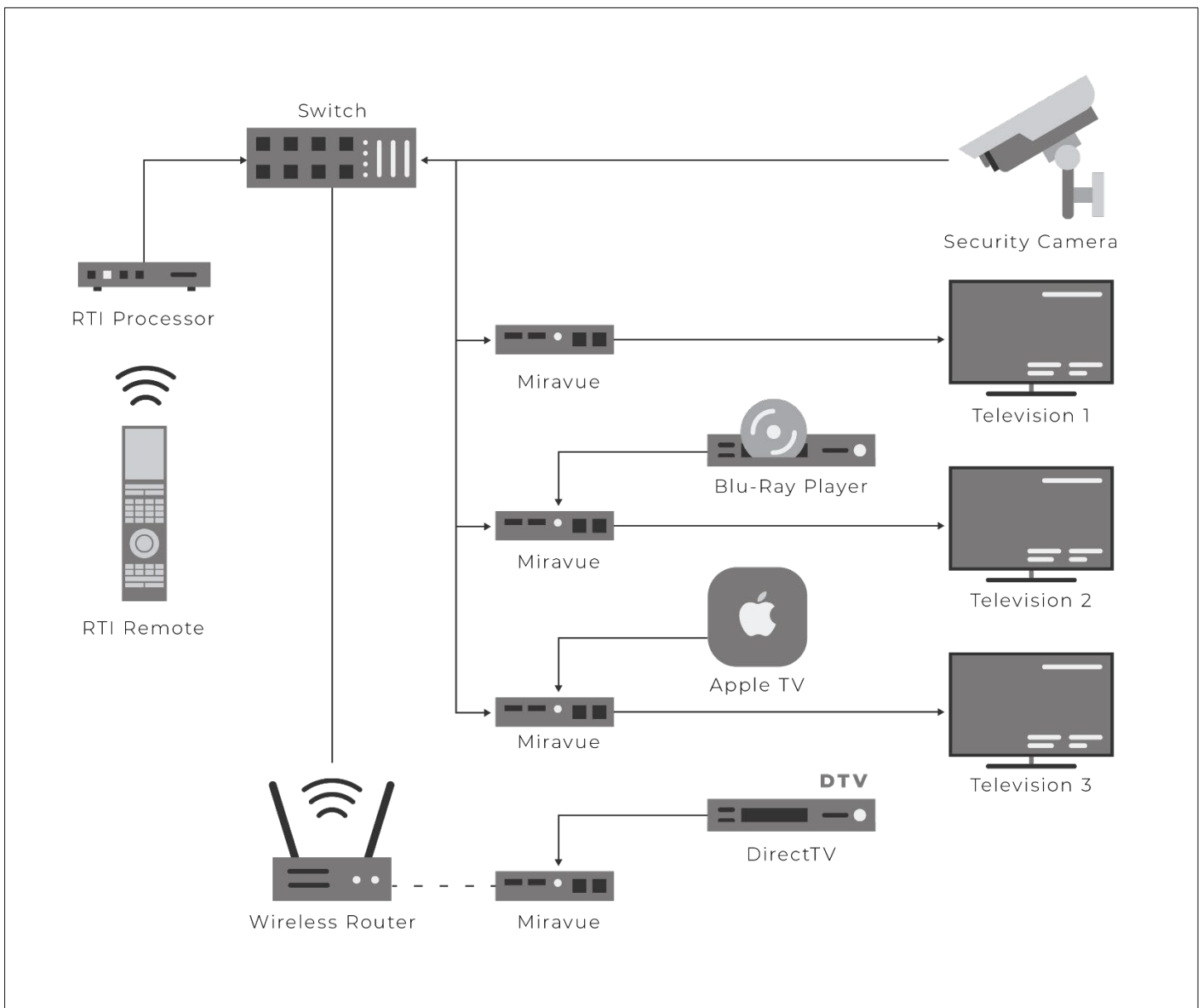
NOTE: The VIP-1 should be installed as a video transmitter or a receiver (as shown). **NOTE:** While the VIP-1 may be installed as a transceiver (simultaneously transmitting and receiving video), this implementation should be tested with the video devices and network equipment that will be used.



In this **Hybrid Design**, VIP-1's are installed in multiple configurations, including:

- As a wired receiver
- As a wired transceiver (simultaneously transmitting and receiving video)
- As a wireless video source

NOTE: While the VIP-1 may be installed as a transceiver (simultaneously transmitting and receiving video), this implementation should be tested with the video devices and network equipment that will be used.



3) VIP-1 Accessories



RMK-3 Rack Mount Kit
for 3 VIP-1 units



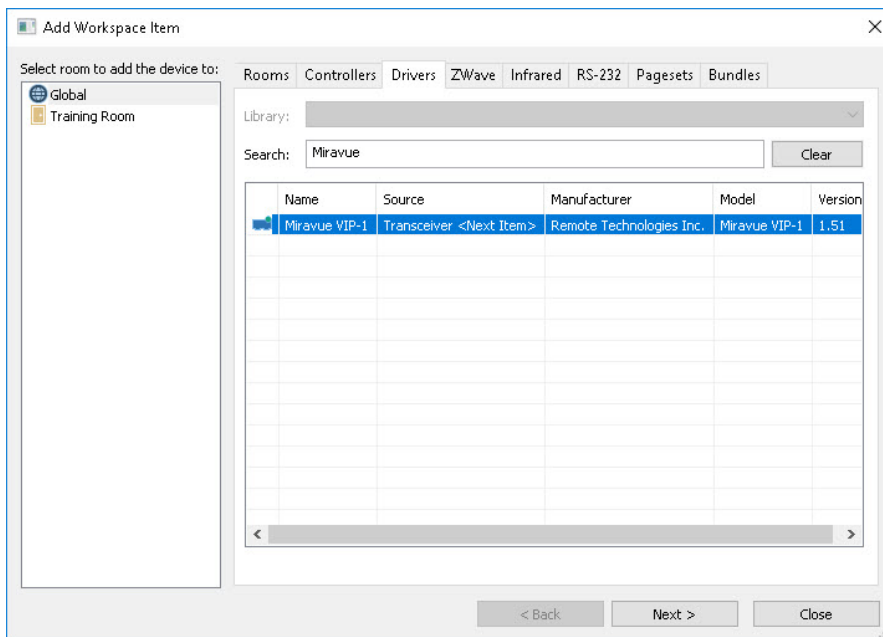
RMK-12 Rack Mount Kit
for 12 VIP-1 units

CONFIGURATION AND PROGRAMMING

4) Miravue VIP-1 Driver Configuration

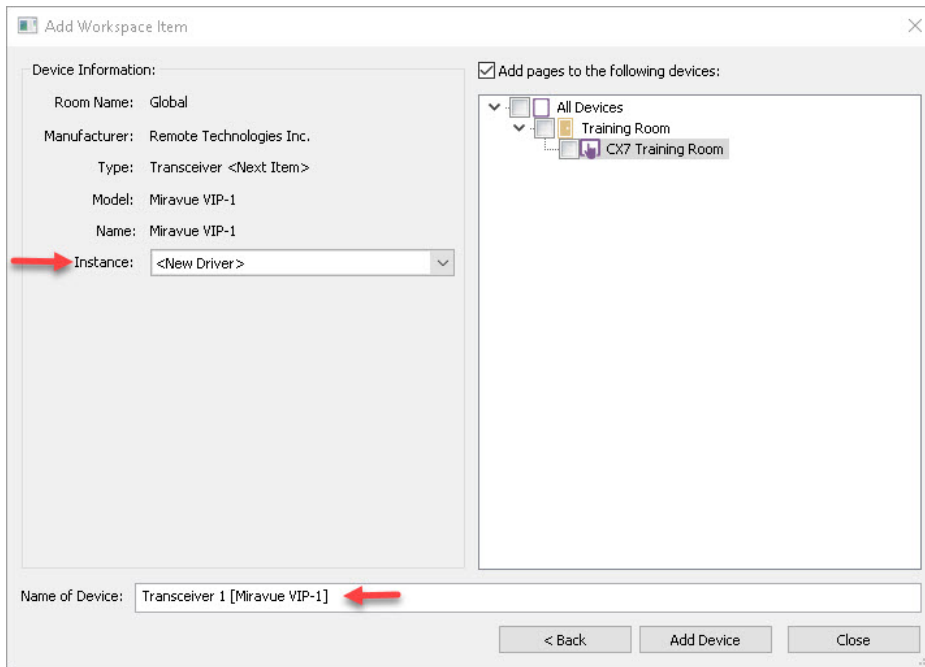
Download the current version of the Miravue driver and documentation on the RTI dealer site. Unzip the contents of the driver to the directory where APEX points to for drivers. This can be changed by clicking the “Options” tab in the top toolbar and selecting “set directories.”

Using the “Add Workspace Item” select the driver tab and search for “Miravue” using the search box.



Select a room or global area where the Miravue should be located and click “Next” to add the driver to APEX. Since this is a new instance of the driver, it will automatically generate a “Transceiver 1” naming convention. It is recommended that you change the name to something that will help you identify the device when programming. Name it “Living Room Miravue” or “Blu-Ray Miravue” depending on the display, source, or location it is serving. Continue this process adding all the Miravue devices to the project file.

Repeat the process to add additional devices, making sure the “Instance” drop-down field is set to the existing driver. This will continue to increment the Miravue count as you add more Miravue VIP-1’s.



5) Configure VIP-1 Driver Properties

Once all VIP-1 devices are added, you must configure the driver properties before continuing. Select the Miravue driver from the driver section of the system tree and select “driver properties.” Enter the settings required for each VIP-1 (described below). Refer to the “Driver Info” tab for additional configuration details.

<ul style="list-style-type: none"> Driver Configuration Driver Utilities... <li style="background-color: #d0d0d0;">Driver Properties Driver Events Driver Info 	<table border="1"> <tr> <td colspan="2" style="background-color: #e0e0e0;">System Settings</td> </tr> <tr> <td>Processor</td> <td>Default (Master)</td> </tr> <tr> <td colspan="2" style="background-color: #e0e0e0;">Connection</td> </tr> <tr> <td>Connection Type</td> <td>Network (TCP)</td> </tr> <tr> <td>Network</td> <td>UPnP (Serial Number)</td> </tr> <tr> <td>TCP Port</td> <td>80</td> </tr> <tr> <td colspan="2" style="background-color: #e0e0e0;">Transceiver Count</td> </tr> <tr> <td>Count</td> <td>7</td> </tr> <tr> <td colspan="2" style="background-color: #e0e0e0;">Transceiver 1</td> </tr> <tr> <td>Send Configuration To Device</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Display Name</td> <td>Living Room</td> </tr> <tr> <td>Source Connected</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Source Name</td> <td>Apple TV</td> </tr> <tr> <td>Transmit Mode</td> <td>Multicast</td> </tr> <tr> <td>Transmit Group ID</td> <td>3655</td> </tr> <tr> <td>Receive Group ID</td> <td>3655</td> </tr> <tr> <td>Serial Number (Network Discovery)</td> <td></td> </tr> <tr> <td colspan="2" style="background-color: #e0e0e0;">Transceiver 2</td> </tr> <tr> <td>Send Configuration To Device</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Display Name</td> <td>Breakfast Area</td> </tr> <tr> <td>Source Connected</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Source Name</td> <td>Cable Box</td> </tr> <tr> <td>Transmit Mode</td> <td>Multicast</td> </tr> <tr> <td>Transmit Group ID</td> <td>3655</td> </tr> <tr> <td>Receive Group ID</td> <td>3655</td> </tr> <tr> <td>Serial Number (Network Discovery)</td> <td></td> </tr> <tr> <td colspan="2" style="background-color: #e0e0e0;">Transceiver 3</td> </tr> <tr> <td>Send Configuration To Device</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Display Name</td> <td>Office</td> </tr> <tr> <td>Source Connected</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Source Name</td> <td>Media PC</td> </tr> <tr> <td>Transmit Mode</td> <td>Multicast</td> </tr> <tr> <td>Transmit Group ID</td> <td>3655</td> </tr> <tr> <td>Receive Group ID</td> <td>3655</td> </tr> <tr> <td>Serial Number (Network Discovery)</td> <td></td> </tr> </table>	System Settings		Processor	Default (Master)	Connection		Connection Type	Network (TCP)	Network	UPnP (Serial Number)	TCP Port	80	Transceiver Count		Count	7	Transceiver 1		Send Configuration To Device	<input checked="" type="checkbox"/>	Display Name	Living Room	Source Connected	<input checked="" type="checkbox"/>	Source Name	Apple TV	Transmit Mode	Multicast	Transmit Group ID	3655	Receive Group ID	3655	Serial Number (Network Discovery)		Transceiver 2		Send Configuration To Device	<input checked="" type="checkbox"/>	Display Name	Breakfast Area	Source Connected	<input checked="" type="checkbox"/>	Source Name	Cable Box	Transmit Mode	Multicast	Transmit Group ID	3655	Receive Group ID	3655	Serial Number (Network Discovery)		Transceiver 3		Send Configuration To Device	<input checked="" type="checkbox"/>	Display Name	Office	Source Connected	<input checked="" type="checkbox"/>	Source Name	Media PC	Transmit Mode	Multicast	Transmit Group ID	3655	Receive Group ID	3655	Serial Number (Network Discovery)	
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Connection Type: Network (TCP)

Network: User has the option of UPnP (Serial Number), UPNP (Friendly Name), or Static Entry (IP Address)

TCP Port: Default is set to 80

Transceiver Count: Enter the transceiver count to match the number of Miravue units in your project file. This will open configuration options for all your devices.

Send Configuration to Device: This checkbox allows the integrator to decide if sending an update to a particular VIP-1 is necessary. In the event an update is needed for only one VIP-1, unchecking this box will prevent units from needing to reboot.

Display Name: Name that is to appear in the web application, the main miravue screen, and the name that is associated with the variable “Name”.

Source Connected: This checkbox asserts that a source is connected to the “HDMI IN” connection of the VIP-1 when checked.

Source Name: Source name that is to appear in web application, in the main miravue screen, as well as the name that is associated to the variable “Local Source Name”.

Transmit Mode: User may choose between “Unicast” and “Multicast” depending on the system configuration. **See “Unicast vs. Multicast Transmit Modes” for important information.**

Transmit Group ID: Make sure all VIP-1 units in the system use the same ID. This becomes increasingly important when multiple systems are in the same network.

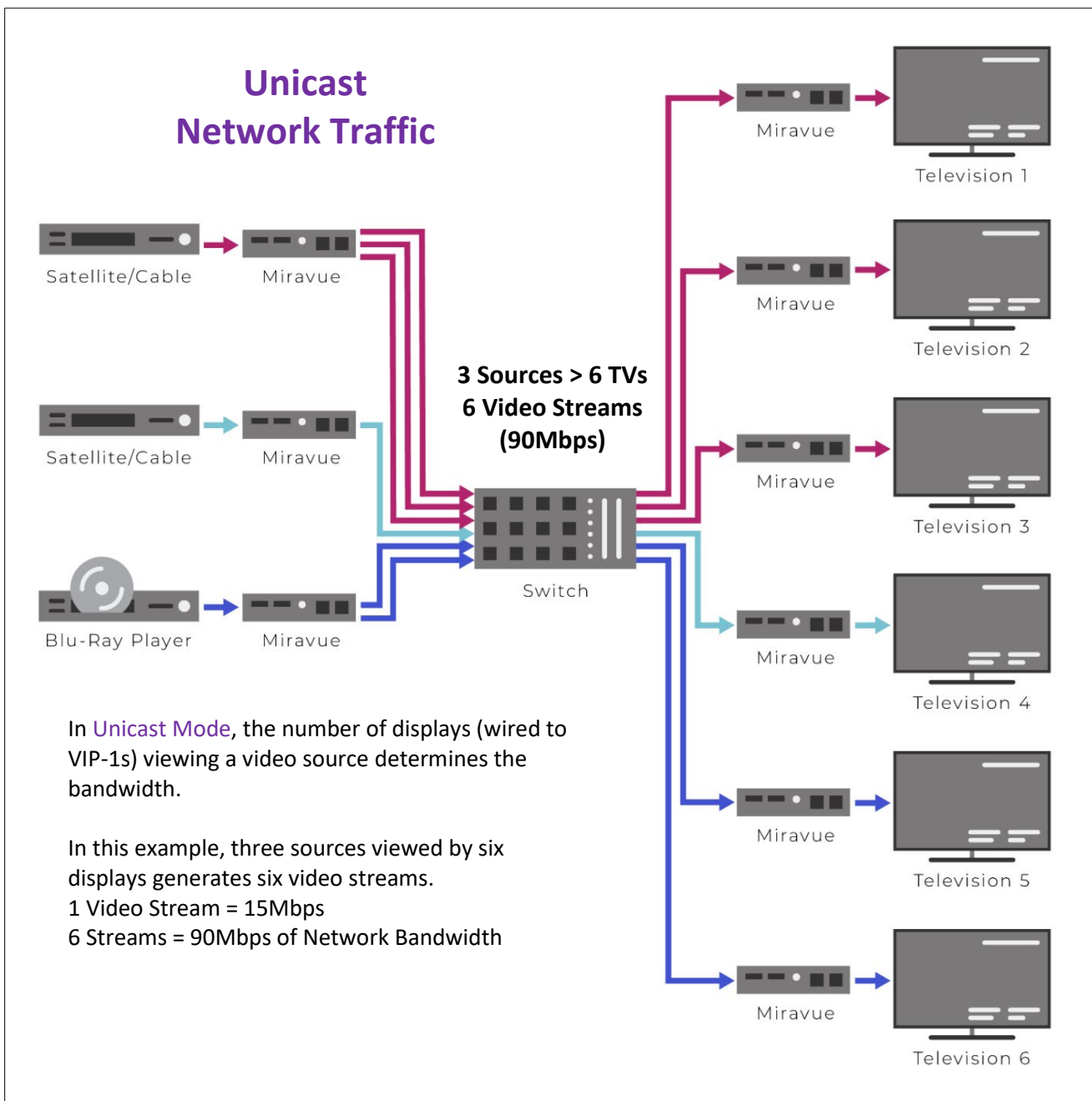
Receive Group ID: Make sure all VIP-1 units in the system use the same ID. This becomes increasingly important when multiple systems are in the same network.

Network Discovery: The option presented here is dependent on what was selected in the “Network” portion of the configuration under “Connection”. If “Serial Number” then enter the serial number. If “Friendly Name” then enter the friendly name. If “Static Entry” then enter that IP Address assigned to the VIP-1 unit.

6) Unicast vs. Multicast Transmit Modes

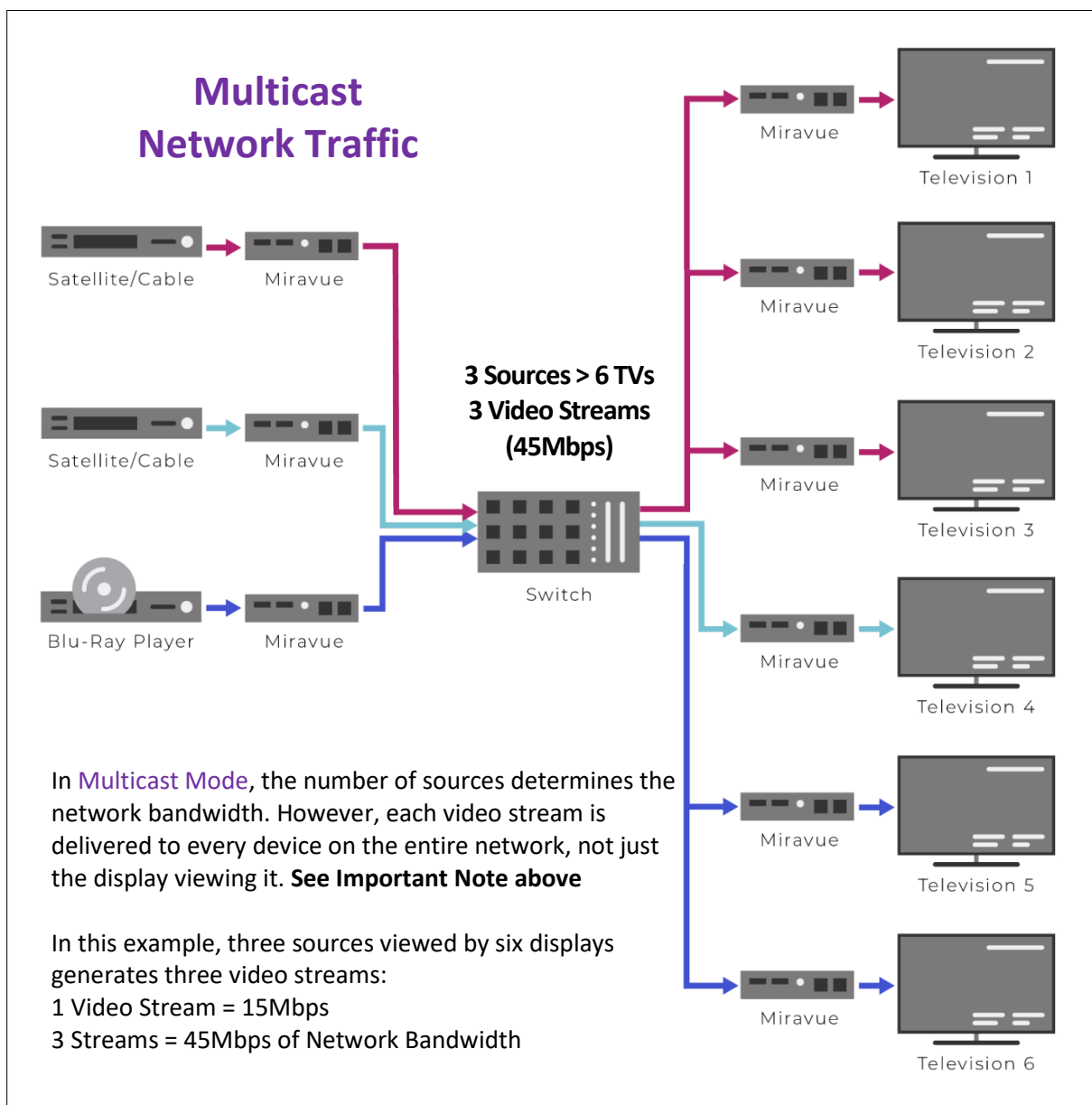
In **Unicast Transmit Mode** is generally recommended and is useful for small networks or for wireless video distribution. In this mode, the VIP-1 delivers a separate video stream from a source to each display (displays do not share video streams). If a source is not being viewed, there is no stream on the network for that source.

NOTE: In Unicast Mode, the maximum simultaneous streams from a single video source is four. If more than four simultaneous connections to a single video source are required, multicast mode should be used.



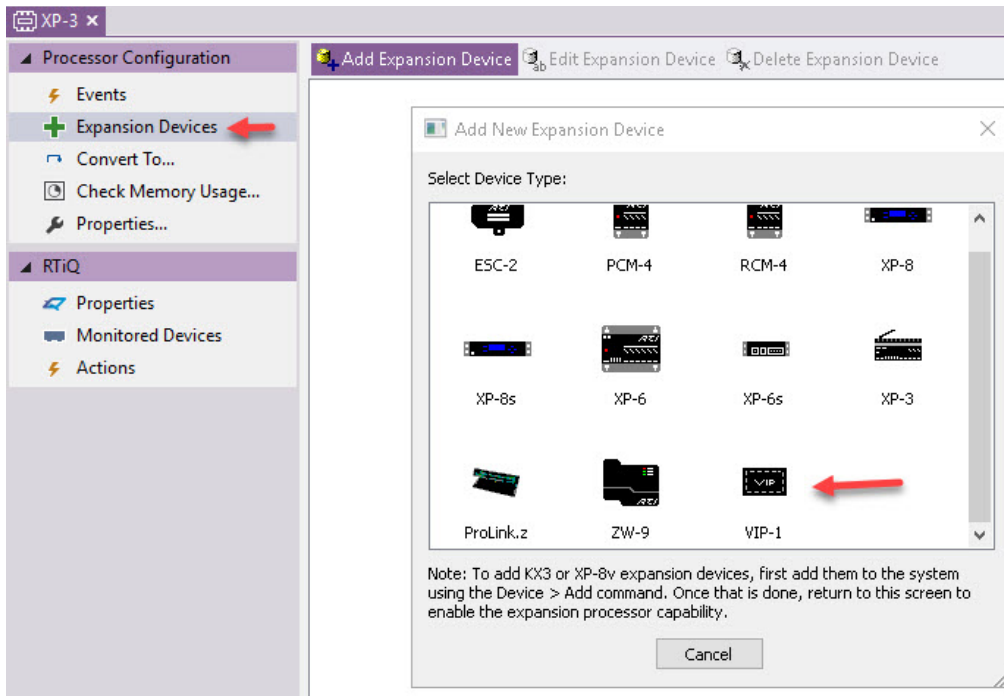
In **Multicast Transmit Mode** the VIP-1 delivers the video stream from each video source to multiple displays. This is useful in larger systems that require more than four displays to view a source.

IMPORTANT NOTE: Caution must be taken in Multicast Mode, each video stream is delivered to every device on the entire network, not just the display viewing it. This allows more displays to view a source, however, this mode can “flood” the network with unwanted data, causing network performance to suffer. Therefore, multicast mode is only recommended when a network switch with “IGMP Snooping with Query” is used, and a VLAN or a separate network is used. IGMP Snooping with Query allows only the desired video stream to be sent to the corresponding VIP-1, reducing network traffic and minimizing the risk of flooding a network with unwanted packets.

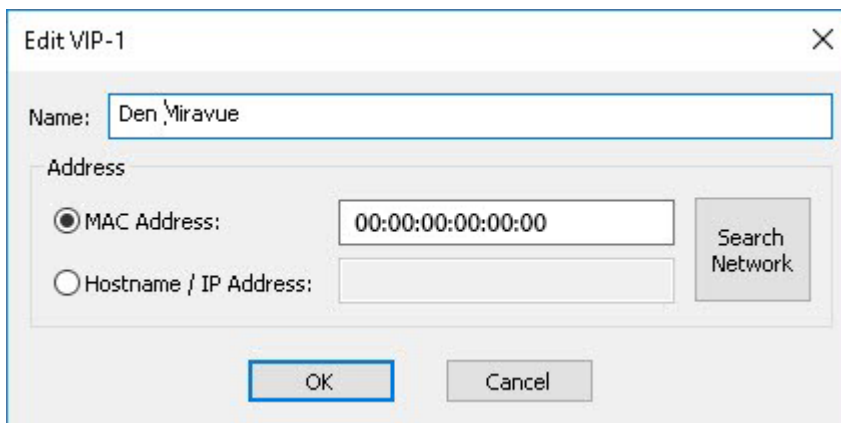


7) Controlling External Devices Via IR and RS-232

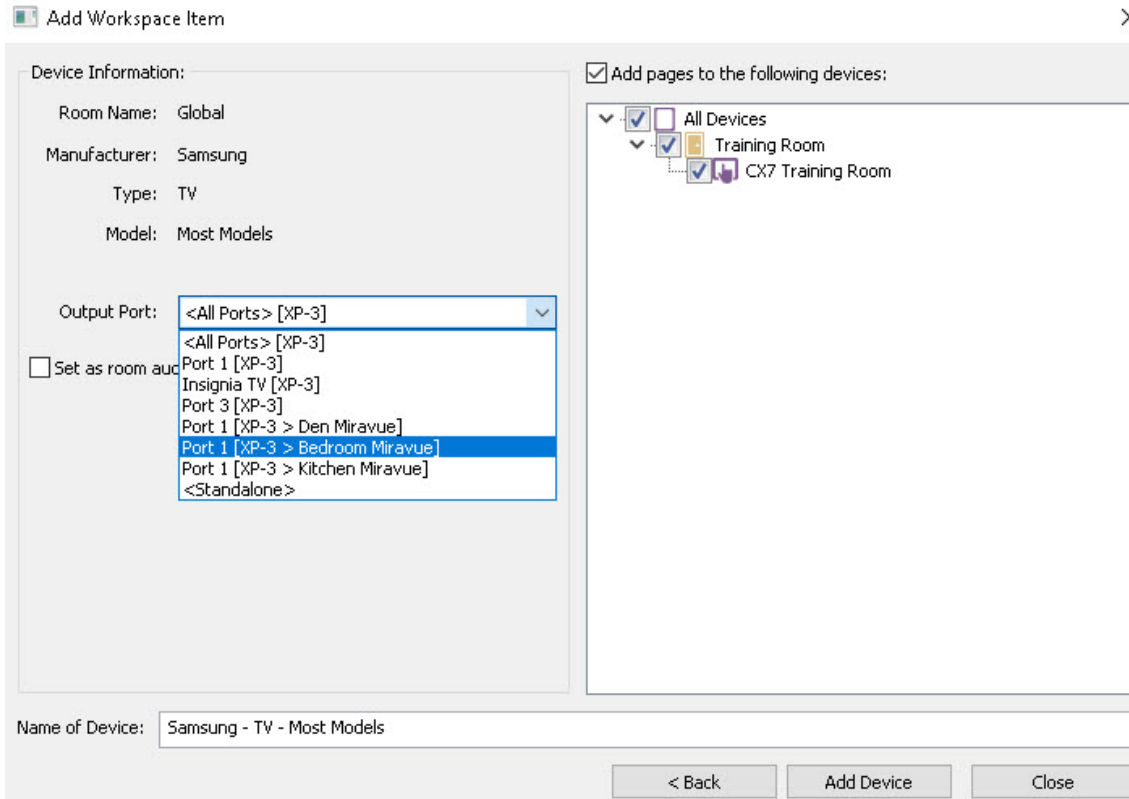
If Miravue VIP-1 devices are being utilized for IR or RS-232 control of external devices from the RTI control system, you must set them up as expansion devices in the Integration Designer System File. Select the processor in the system tree and then “Expansion Devices” in the partition to the right. Next, select “Add Expansion Device” and select “VIP-1” from the list of expansion devices available.



An “Edit VIP-1” popup window will appear. For easier identification, it is recommended to name the Miravue device the same or similar to the project file. Select the MAC radio button and enter the MAC Address you will find on the label at the bottom side of the VIP-1 unit.

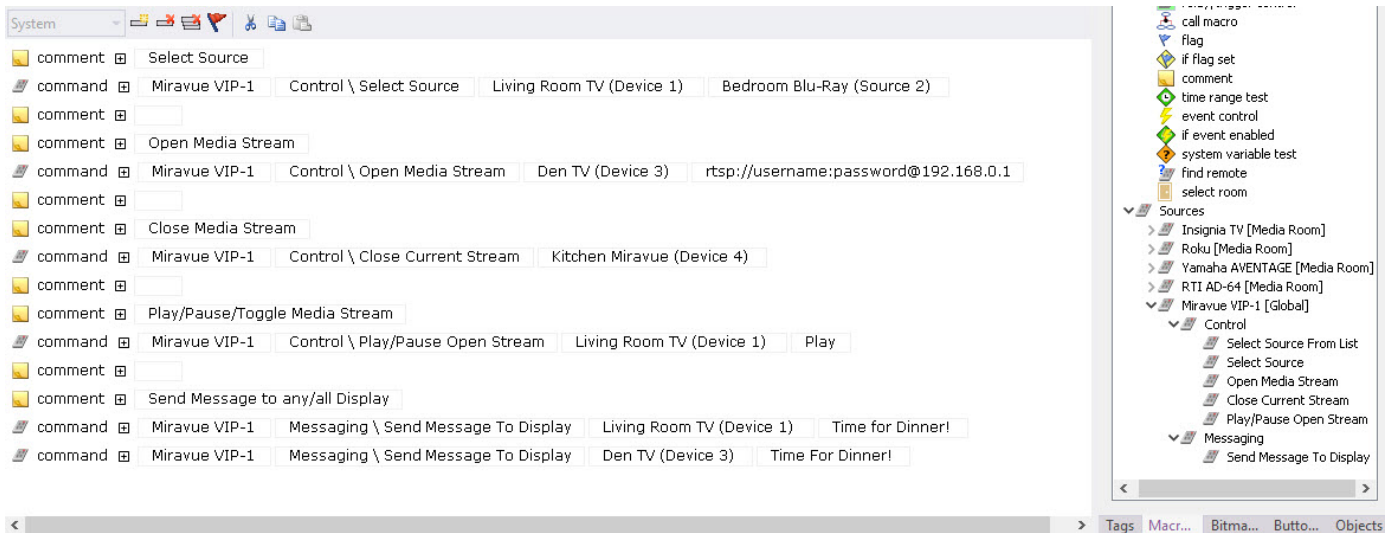


Continue to add expansion devices as needed, repeating the process as described. Miravue devices will now be available as a routable MPIO or RS-232 port when adding devices in the software.



8) Miravue VIP-1 Programming Options

When programming the Miravue using the driver, there are many macro options available.



Select Source from List

Each display has scrolling source list capability. This command can be used to select a source from that scrolling list.

Select Source

Used to select a source connected to a display or a Miravue device being used as a transmitter for a source.

Open Media Stream

Open an RTSP feed by specifying the RTSP path, user and password. Select the display and RTSP path to open the stream.

Close Media Stream

Close a current RTSP feed. Select a display that is broadcasting the RTSP stream.

Play/Pause/Toggle Media Stream

Play, pause or toggle the current stream broadcasting from a display.

Send Message to Display

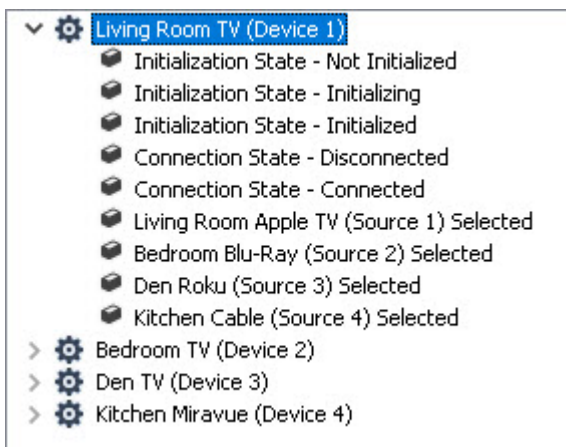
A message can be programmed in a macro that will send a message to any or all displays. Select the display and type a corresponding message.

Each Miravue device comes with several variables that can be used to poll a device and provide two-way feedback.

Button State / Text Feedback



Button State / Reversed and Visible States



Object-based Feedback (2-way scrolling lists)



9) The VIP-1 Web Interface

The settings that need to be adjusted via the web interface varies depending on whether the VIP-1 will be used with an RTI control system or not.

Web Interface Settings:

- With an RTI control system: WiFi settings, Audio Offset.
- Without an RTI control system: All VIP-1 settings are configured via web interface.

IMPORTANT NOTE: If an RTI control system is used, only the WiFi and Audio Offset settings are configured via the web interface. All other settings made via the web interface will be overwritten by the driver configuration in Integration Designer programming.

a. Accessing the Setup Web Interface

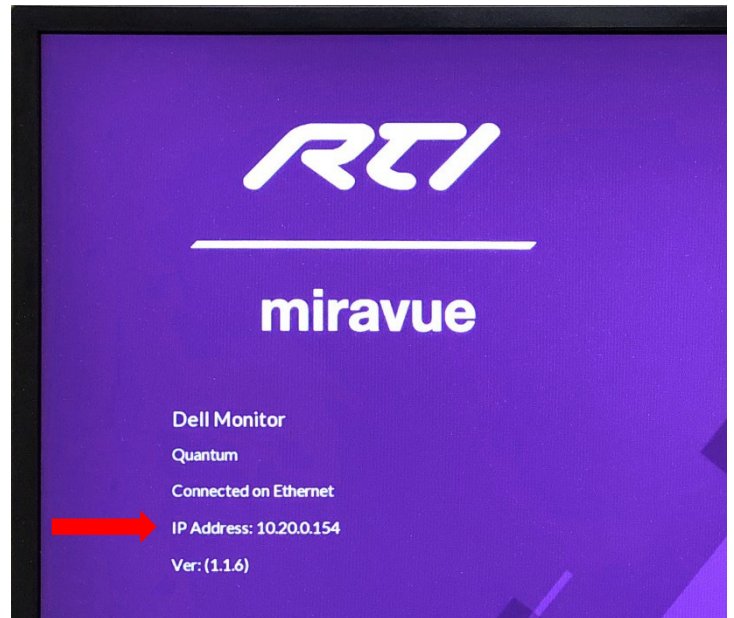
Wired

From a web browser, enter the VIP-1 transceiver's IP address (displayed on a TV via the HDMI-out port). If no DHCP server is found, the transceiver assigns a default IP address. Before entering the IP address, make sure the connecting device is configured to the same network segment (e.g., IP range, subnet mask, gateway, etc.)

Default IP address: 192.168.8.1

Note:

If the VIP-1 transceiver's IP address is later configured outside the IP range of the connected device (laptop, tablet etc), the LAN settings must be re-configured to the same network segment before continuing. If the network settings cannot be determined, pressing the "DEFAULT" button for 10 seconds on the VIP-1 will reset unit back to the factory default, and the networking will be set to DHCP.



VIP-1 HDMI Output Displayed on TV/Monitor

Transceiver Info

Serial: Product serial number

MAC address: Unique network identifier; can be used by a DHCP server to assign a specific IP address

Firmware: Software version number

Hardware: Hardware version number

Important: The serial number, firmware version number, and hardware version number are required to obtain customer support



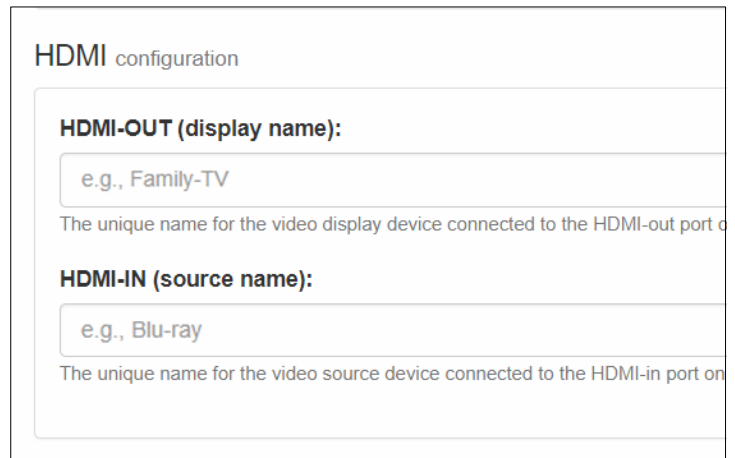
b. HDMI Configuration

HDMI Out

Enter a unique name for the video display device connected to the HDMI-out port on the transceiver

HDMI In

Enter a unique name for the video source device connected to the HDMI-in port on the transceiver (e.g. Blu-ray). This name is used in the on-screen source list.



c. Network Configuration

Transmit & Receive Interface

Select Ethernet (default) to distribute video over a wired network or WiFi to distribute video over WiFi (requires 5Ghz wireless access point). Always choose wired over wireless when practical.

NOTE: WiFi must be configured via the web interface.

Interface Settings

Select DHCP (default) to obtain the transceiver's IP address from a DHCP server or Static to set a specific address and manually enter the IP, subnet mask, gateway, primary DNS, and secondary DNS values where prompted. The transceiver's IP address is displayed via the HDMI-out port at start-up.

Transmit Mode *(See Unicast vs. Multicast Transmit Mode section)*

Select Unicast (default), Multicast, or Disable (if no video source device is connected). Typically unicast is used for smaller systems (or wireless video distribution). Multicast is used with larger systems. (NOTE: Multicast requires a managed network switch configured with IGMP snooping and query).

Group ID

Enter 4-digit group ID (default is 3655). Transceivers will only see other transceivers with the same group ID. This is used to segment transceivers on the same physical network.

WiFi Access Point

This functionality is not supported.

Network configuration

Transmit & receive interface:

Ethernet

Primary interface to transmit and receive audio/video streams

Interface Settings:

DHCP

Transmit mode:

Unicast

Select unicast if the "transmit & receive" interface is to WiFi

Group ID:

3655

Transceivers will only see and communicate with others in the same group

WiFi Access point:

Disabled

Enable/disable the WiFi access point

d. Network Video Streams

Streaming video (e.g., IP cameras) encoded using RTSP video codec.

NOTE: MJPEG video is NOT supported.

Name

Enter the name for the device (e.g., Front Door); used in the on-screen source list.

IP Address

Enter a supported network streaming protocol followed by the IP address (e.g., rtsp://10.1.0.100, rtsp://login:pwd@10.1.0.100).

Adding / Removing Devices

Click plus or minus to add or remove a device.

e. Other Settings

Notifications

Enter the number of seconds (e.g., 0-10) to display automatic "sharing with" (e.g., "Sharing with: Family-TV") and user notifications (e.g., "Half-off special for the next 10 minutes!"). User notifications sent via API. Default is 4 seconds; 0 seconds means no display.

Audio Offset*

Select which audio stream, transmitter (source) or receiver (display), is delivered to the Stereo audio out port and the delay offset in milliseconds (used for lip-sync adjust). Only one (e.g., transmitter or receiver) can be selected since there is only one Stereo audio out port. Dolby 5.1 audio is downmixed when applicable.

*NOTE: This must be configured via the web interface.

Serial Port

This functionality is only used with non-RTI control systems.

Network video streams e.g. IP camera

1 Front-Door

rtsp://xxx.xxx.xxx.xxx



Other settings

Notifications: (0-10 seconds)

4

Number of seconds to display "sharing with" or user notifications (zero means no display).

Audio Offset:

Receiver

0

Select audio delay for transmitter or receiver, values are in milliseconds.

Serial Port settings

Speed (bps):

9600

Parity:

No

Data bits:

8

Stop bits:

1

Flow Control:

none

f. Firmware

Updates

It is recommended that firmware updates are completed via a USB drive, following the instructions included with the firmware file.

Via Setup

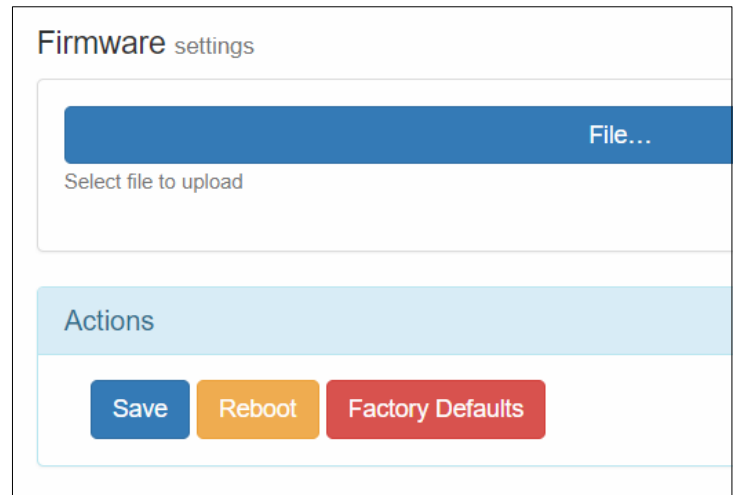
Select the update file using the file browse feature (make sure this file is on the local network). Proceed with the update.

Via USB

Follow the instructions that come with the firmware update.

Important

Once started, do not power off the transceiver until the update process has completed!



g. Actions

Save

Saves the current configuration to the transceiver.

Reboot

Power cycle's the transceiver. Performs the same function as the recessed RESET button on the transceiver.

Factory Defaults

Restores the transceiver to its factory settings. Performs same function as the "Default" button to the left of the RESET button on the transceiver.

Important

Please reboot the transceiver any time a configuration setting has changed (prompted automatically after saving changes).

NETWORKING EQUIPMENT AND CONFIGURATION

Choosing a Network Switch

You can use an unmanaged 10/100/1000Mb switch on smaller systems up to a high-end, fully managed gigabit switch on larger systems. If you configure your network to use multicast mode, a switch that offers “IGMP Snooping with Query” should be used. This will filter out superfluous IP traffic (i.e., sends only the desired stream to the corresponding port so the network isn’t flooded with unwanted packets).

Three levels of network switch integration - Each level requires additional setup but improves the performance of the VIP-1 system and other devices on the local network:

- Small systems: Unmanaged 10/100/1000 switch can be used (up to 6 VIP-1’s set to unicast mode).
- Medium Systems: Managed gigabit switch with IGMP snooping with query.
- Large Systems: Fully managed gigabit switch with IGMP snooping with query and vLAN configured for Miravue VIP-1 traffic.

Network Bandwidth

Each video stream occupies 15Mbps on the wire. The total bandwidth required depends on the number of video sources and the video source transmit mode being used (i.e., either unicast or multicast).

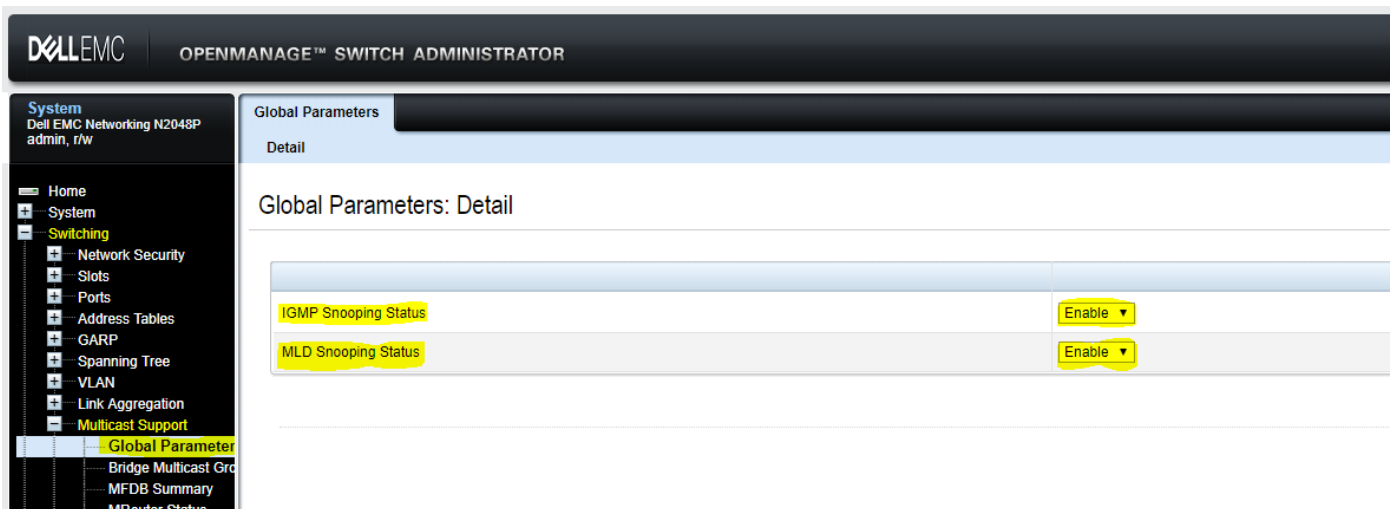
Video Distribution over WiFi

Video distribution via wireless Ethernet should utilize a separate wireless network using the 5GHz frequency and wired to the same network. Also, due to bandwidth requirements, limit the number of VIP-1’s to one or two set to Unicast transmit mode.

NOTE: Wireless communication is configured via the VIP-1 web interface.

Network Switch Configuration – Dell N2048P

The configuration menus and labeling depend on the make/model of the switch. These should only be used as a general example of the setup of IGMP with Query. The setup options are highlighted in yellow.



The screenshot shows the Dell EMC OpenManage Switch Administrator interface. The left sidebar contains a navigation tree with categories like System, Switching, Network Security, and Multicast Support. The main content area is titled "General: Detail" and displays the following configuration parameters:

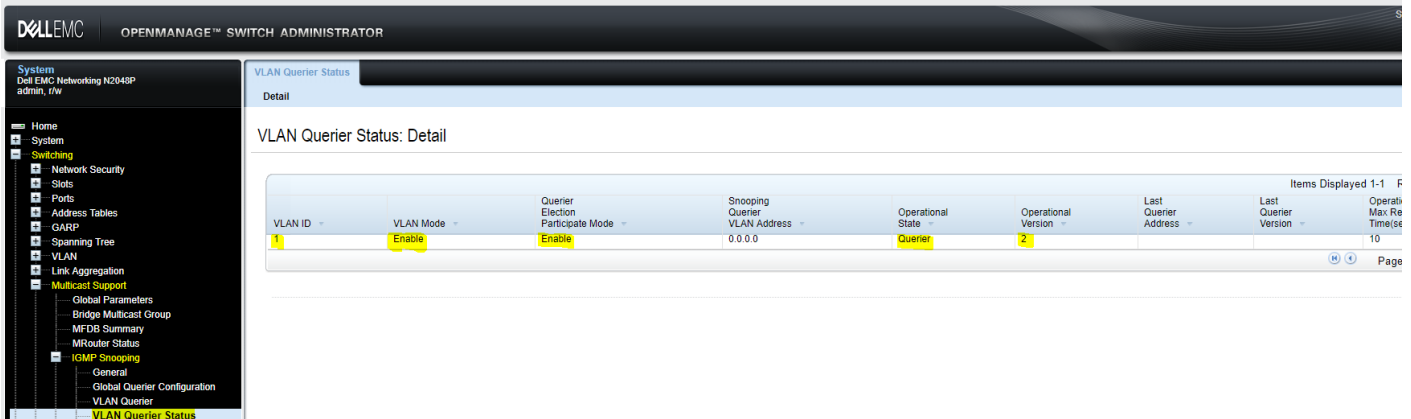
Parameter	Value	Range/Options
VLAN ID	1	
Auto-Learn	Enable	
Report-Suppression	Enable	
Host Timeout	260	(2 to 3600 seconds)
Multicast Router Timeout	300	(1 to 3600 seconds)
Leave Timeout	10	(1 to 25 seconds) Immediate Leave

The screenshot shows the Dell EMC OpenManage Switch Administrator interface. The left sidebar is the same as in the previous screenshot. The main content area is titled "Global Querier Configuration: Detail" and displays the following configuration parameters:

Parameter	Value	Range/Options
IP Address	0.0.0.0	
Snooping Querier Admin Mode	Enable	
IGMP Version	2	(1 to 2)
Query Interval	60	(1 to 1800 seconds)
Expiry interval	125	(60 to 300 seconds)

The screenshot shows the Dell EMC OpenManage Switch Administrator interface. The left sidebar is the same as in the previous screenshots. The main content area is titled "VLAN Querier: Detail" and displays the following configuration parameters:

Parameter	Value	Range/Options
VLAN ID	1	
VLAN Mode	Enable	
Querier Election Participate Mode	Enable	
Snooping Querier VLAN Address	0.0.0.0	



When switching sources with more than 16 VIP-1's to a single source at the same time in a macro, the onscreen notifications may start flashing for a period time. To avoid this issue, make sure to include time delays in the macro when switching large numbers of sources to multiple displays. The driver by default disables the notifications and it is recommended that you leave it off.

Transceiver 1	
Send Configuration To Device	<input checked="" type="checkbox"/>
Display Name	890-4310851
Source Connected	<input checked="" type="checkbox"/>
Source Name	Input 1
Transmit Mode	Multicast
OSD Sharing Messages	Disabled
Transmit Group ID	3655
Receive Group ID	3655
Serial Number (Network Discovery)	890-4310851

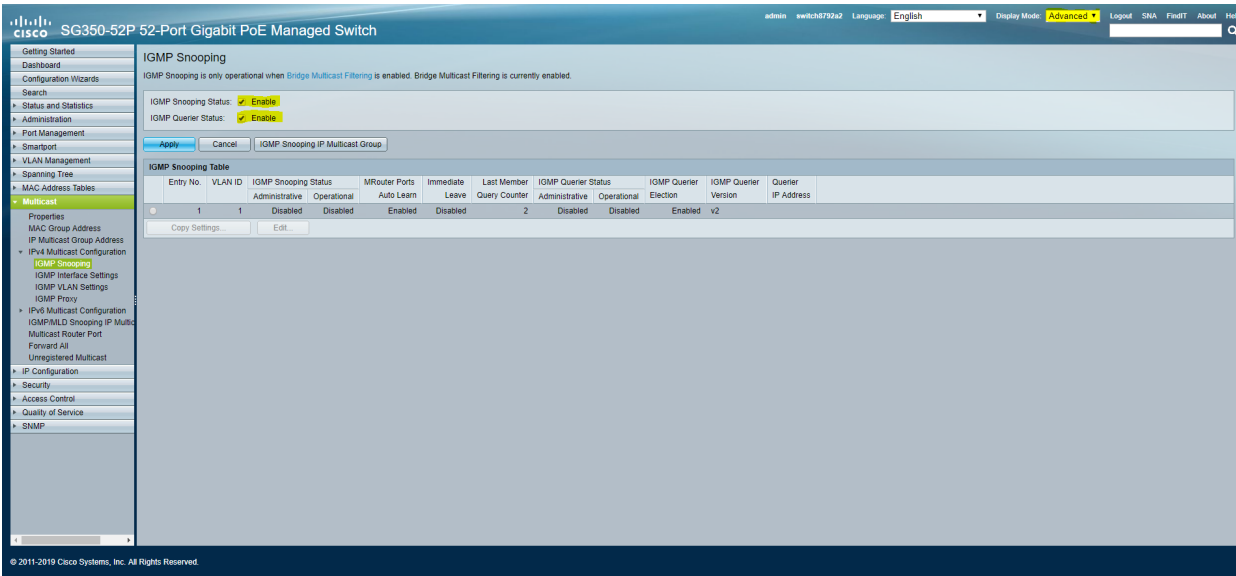
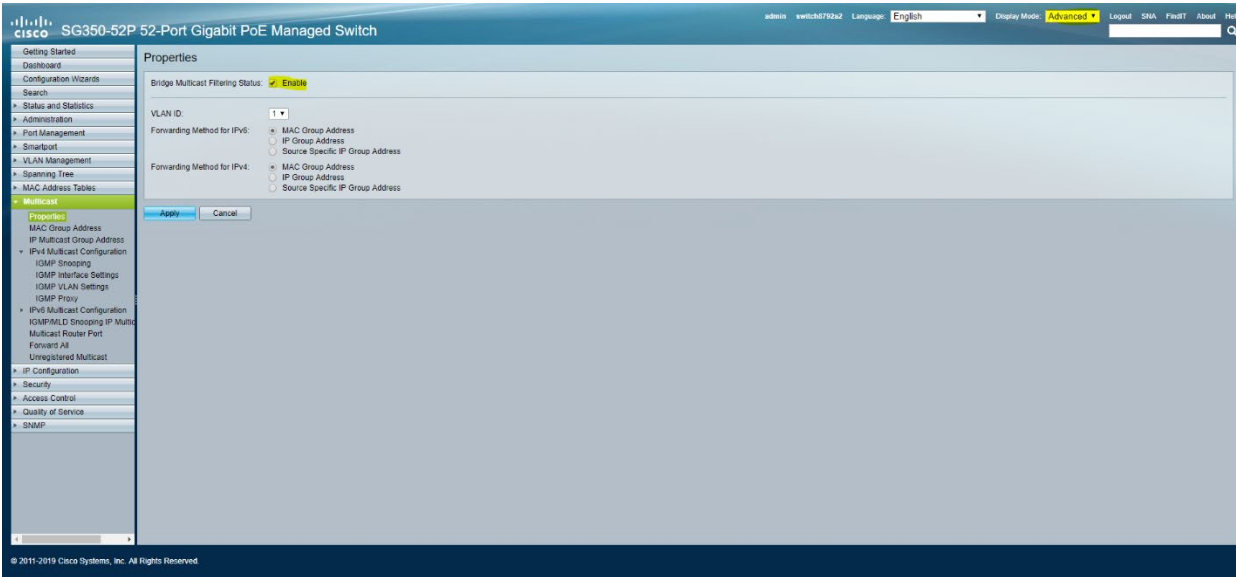
Example of a macro utilizing time delays to avoid overloading the VIP transmitter.

```

command Miravue VIP-1 Control \ Select Source 890-4310851 (Device 1) Input 1 (Source 1)
time delay 2.0
command Miravue VIP-1 Control \ Select Source 890-4310852 (Device 2) Input 1 (Source 1)
time delay 2.0
command Miravue VIP-1 Control \ Select Source 890-4310853 (Device 3) Input 1 (Source 1)
time delay 2.0
command Miravue VIP-1 Control \ Select Source 890-4310854 (Device 4) Input 1 (Source 1)
time delay 2.0
command Miravue VIP-1 Control \ Select Source 890-4310855 (Device 5) Input 1 (Source 1)
time delay 2.0
command Miravue VIP-1 Control \ Select Source 890-4310856 (Device 6) Input 1 (Source 1)
time delay 2.0
command Miravue VIP-1 Control \ Select Source 890-2910406 (Device 7) Input 1 (Source 1)
time delay 2.0
command Miravue VIP-1 Control \ Select Source 890-4310858 (Device 8) Input 1 (Source 1)
time delay 2.0
command Miravue VIP-1 Control \ Select Source 890-2910434 (Device 9) Input 1 (Source 1)
time delay 2.0
command Miravue VIP-1 Control \ Select Source 890-4310860 (Device 10) Input 1 (Source 1)
time delay 2.0
command Miravue VIP-1 Control \ Select Source 890-4310861 (Device 11) Input 1 (Source 1)
time delay 2.0
command Miravue VIP-1 Control \ Select Source 890-4310862 (Device 12) Input 1 (Source 1)
time delay 2.0
command Miravue VIP-1 Control \ Select Source 890-4310863 (Device 13) Input 1 (Source 1)
time delay 2.0
command Miravue VIP-1 Control \ Select Source 890-2910436 (Device 14) Input 1 (Source 1)
time delay 2.0
command Miravue VIP-1 Control \ Select Source 890-4310865 (Device 15) Input 1 (Source 1)
time delay 2.0
command Miravue VIP-1 Control \ Select Source 890-4310866 (Device 16) Input 1 (Source 1)
time delay 2.0
command Miravue VIP-1 Control \ Select Source 890-4310867 (Device 17) Input 1 (Source 1)
    
```

Network Switch Configuration – Cisco SG350-52P switch.

The configuration menus and labeling depend on the make/model of the switch. These should only be used as a general example of the setup of IGMP with Query. The setup options are highlighted in yellow.



The screenshot shows the Cisco configuration interface for an SG350-52P switch. The 'IGMP Snooping' configuration page is active. A dialog box titled 'Edit IGMP Snooping Settings - Google Chrome' is open, showing settings for VLAN 1. The 'Edit' button in the dialog is highlighted with a red circle and an arrow. The main configuration page shows 'IGMP Snooping Status' as 'Enable' and 'IGMP Querier Status' as 'Enable'. The 'IGMP Snooping Table' shows VLAN 1 with 'Administrative' status 'Disabled' and 'Operational' status 'Enabled'.

The screenshot shows the 'Port Settings' configuration page. The 'Link Flap Prevention' and 'Jumbo Frames' options are both checked and highlighted in yellow. Below the settings is a 'Port Settings Table' with 24 entries. The table columns are: Entry No., Port, Port Type, Operational Status, Link Status, Time Range, Port Speed, Duplex Mode, LAG, and Protection State.

Entry No.	Port	Port Type	Operational Status	Link Status	Time Range	Port Speed	Duplex Mode	LAG	Protection State
1	GE1	1000M-Copper	Up	Enabled		1000M	Full		Unprotected
2	GE2	1000M-Copper	Down	Enabled					Unprotected
3	GE3	1000M-Copper	Down	Enabled					Unprotected
4	GE4	1000M-Copper	Down	Enabled					Unprotected
5	GE5	1000M-Copper	Down	Enabled					Unprotected
6	GE6	1000M-Copper	Down	Enabled					Unprotected
7	GE7	1000M-Copper	Down	Enabled					Unprotected
8	GE8	1000M-Copper	Down	Enabled					Unprotected
9	GE9	1000M-Copper	Down	Enabled					Unprotected
10	GE10	1000M-Copper	Down	Enabled					Unprotected
11	GE11	1000M-Copper	Down	Enabled					Unprotected
12	GE12	1000M-Copper	Down	Enabled					Unprotected
13	GE13	1000M-Copper	Down	Enabled					Unprotected
14	GE14	1000M-Copper	Down	Enabled					Unprotected
15	GE15	1000M-Copper	Down	Enabled					Unprotected
16	GE16	1000M-Copper	Down	Enabled					Unprotected
17	GE17	1000M-Copper	Down	Enabled					Unprotected
18	GE18	1000M-Copper	Down	Enabled					Unprotected
19	GE19	1000M-Copper	Down	Enabled					Unprotected
20	GE20	1000M-Copper	Down	Enabled					Unprotected
21	GE21	1000M-Copper	Down	Enabled					Unprotected
22	GE22	1000M-Copper	Down	Enabled					Unprotected
23	GE23	1000M-Copper	Down	Enabled					Unprotected
24	GE24	1000M-Copper	Down	Enabled					Unprotected