



# Cisco SG & CBS Series Switch Configuration Guide for Netvio JP4 Systems

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## Introduction

This guide contains important information about configuring Cisco switches for Netvio JP4 series AVoIP systems. It should be read in full before starting to work on Netvio JP4 solutions.

Netvio's focus on simple and speedy system deployment as well as powerful value add features for both integrators and users, create systems that provide exceptional value and reliability. However, it is important to understand that the most critical part of implementing AV signal distribution over IP infrastructure, is the network. The use of suitable network hardware, correct design and the correct configuration is critical to successfully implementing Netvio JP4 solutions.

Please see the "Netvio JP4 Series AV over IP System Implementation & Design Guide" document available from [netvio.co.uk](http://netvio.co.uk) for full system design information.

Netvio is always happy to assist in the design, specification & configuration of JP4 systems. Please contact [support@netvio.co.uk](mailto:support@netvio.co.uk) to arrange a consultation if you have any questions about the content of this document.

## Supported Switches

This guide is suitable for the following Cisco switch series which have been tested to operate and are supported by Netvio.

- SG300
- SG350
- SG500
- SG550
- CBS350

The User interface pictured in this guide is for the CBS350 however the SG series user interface has a similar layout but a slightly different design.

## Simple Network Topology

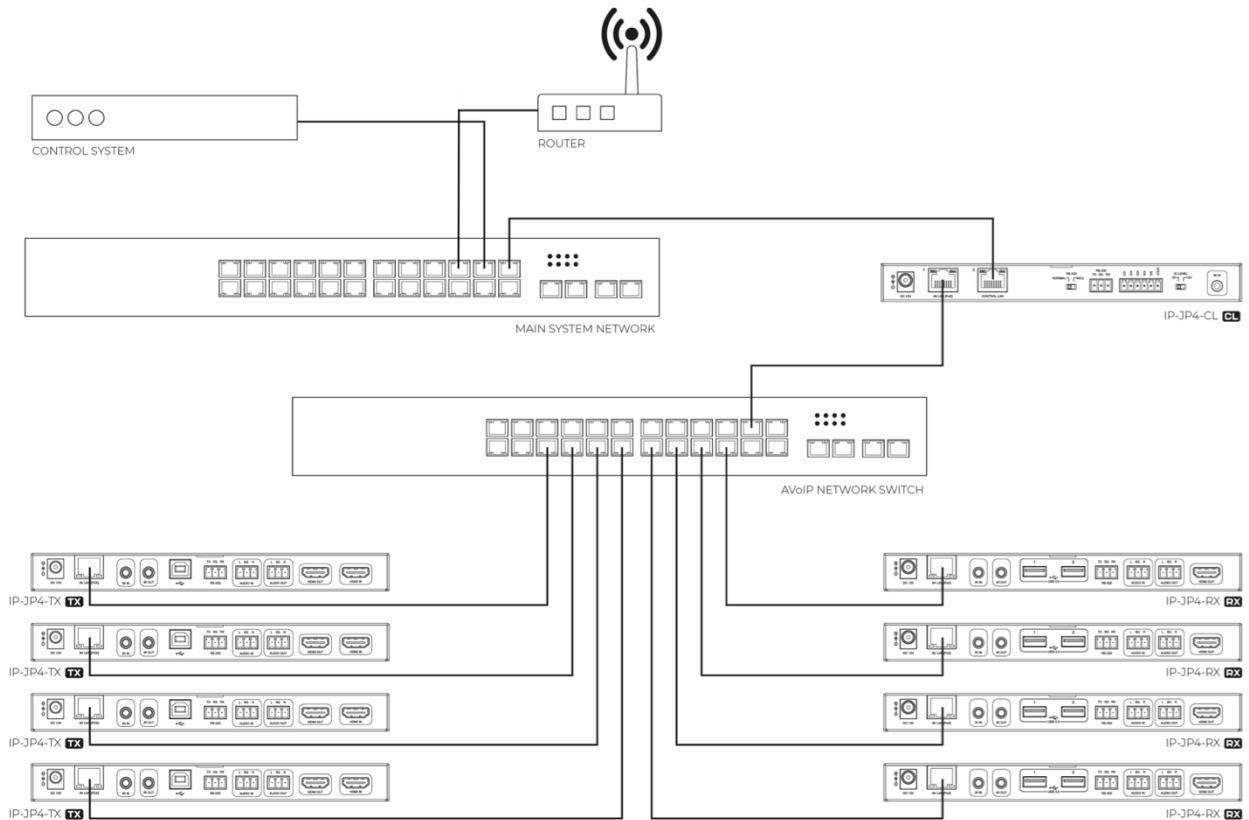
This guide assumes a simple network topology with a dedicated switch or VLAN for AVoIP components and a separate LAN or VLAN for the control network, as pictured in the following diagram.

For information about how to configure the switch for more advanced network topologies or when using the Netvio Go app or HQ Preview streams, please see the 'Advanced Network Topologies' section at the end of this guide.

## System Diagram for Third Party Control Systems

This guide assumes a simple network topology with a dedicated switch or VLAN for AVoIP components and a separate LAN or VLAN for the control network, as pictured in the following diagram.

For use with the Netvio Go app or streaming the HQ Preview stream to third party devices, please see the separate guide.



## Before You Begin

### Do Not Connect any JP4 Devices to the Switch

Before starting, it is essential that there are no JP4 series devices connected to the switch. Having encoders connected to the switch before it is properly configured will result in a broadcast storm that will make it impossible to access the configuration interfaces of the switch and connected devices.

### Reset to Factory Default

Netvio recommend resetting the switch to its factory default state before starting this procedure – even if the unit is brand new out of the box. If any abnormal behaviour is experienced after completing this guide it is likely due to the switch not having been set to the factory default state before completing this guide.

To factory default the switch:

1. Disconnect all devices and Ethernet cables from the switch.
2. Using a pin, press and hold the Reset button on the switch for 15 to 20 seconds.
3. Once all the port LEDs light up, release the Reset button.

## Connecting to the Switches Web GUI Interface

To login into the Cisco network switch the factory default details are:

IP Address: 192.168.1.254 or DHCP  
Username: cisco  
Password: cisco

In order to connect to the network switch your computer will need to be physically connected to the Cisco switch using a Ethernet cable and set to an IP address in the 192.168.1.x range or DHCP.

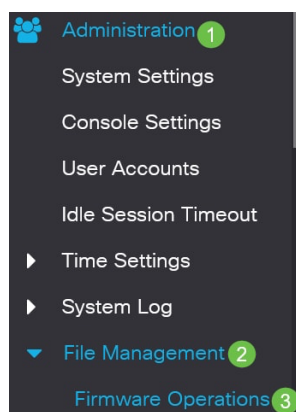
- 1) Open your internet browser.
- 2) Type the network switch default IP address into the address bar.
- 3) Enter the default username and password.

Note: If the switch is not using the factory default settings you will need to know these login details or factory reset the unit using the instructions in the previous section.

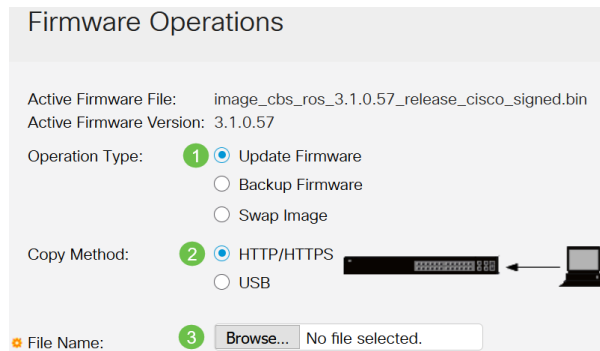
## Update the Switch to the Latest Firmware

Download the latest firmware for your cisco switch from the Cisco website.

- For SG series switches use this [LINK](#) and follow the instructions on the page.
  - For CBS series switches use this [LINK](#) and follow the instructions below.
1. Log in to the web interface of the switch and choose **Administration > File Management > Firmware Operations**.



2. On the 'File Operations page', click the '**Update Firmware**' radio button as the Operation Type.
3. Click the '**HTTP/HTTPS**' radio button as the Copy Method.
4. For the File Name, click '**Choose File**' and locate the previously downloaded firmware file from your computer.



5. Choose the file then click **Open**.
6. Click **Apply**.

For the upgraded firmware version to be applied, the switch must be rebooted.

7. Choose **Administration > Reboot**.

On this page, enter the following:

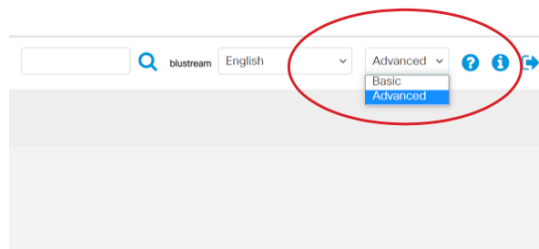
8. Ensure the default of '**Immediate**' is selected.
9. (Optional) Check the Restore to Factory Defaults or Clear Start-up Configuration File check boxes if desired.
10. Click '**Reboot**'.

## Configure the switch for AVoIP

### Enable Advanced Mode

To access all features of the switch required for AVoIP multicasting, you must first enable Advanced mode.

1. In the top left-hand corner of the web interface, Select '**Advanced**' from the drop-down menu.

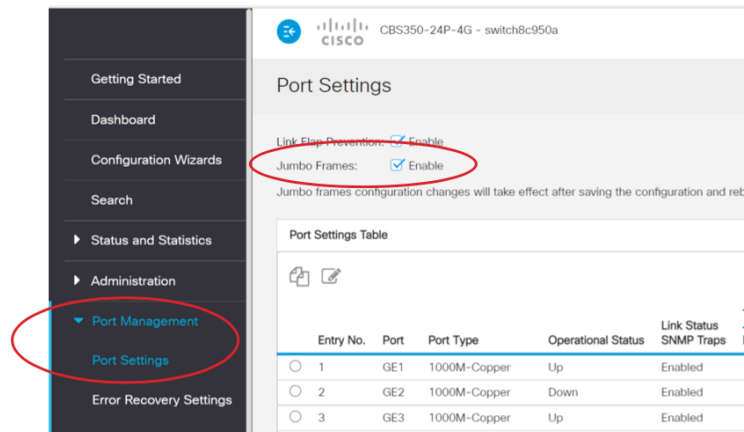


The interface will refresh to show additional menu items.

## Enable Jumbo Frames

To enable Jumbo Frames:

1. Navigate to Port Management > Port Settings.
2. Select the 'Enable' checkbox next to Jumbo Frames.

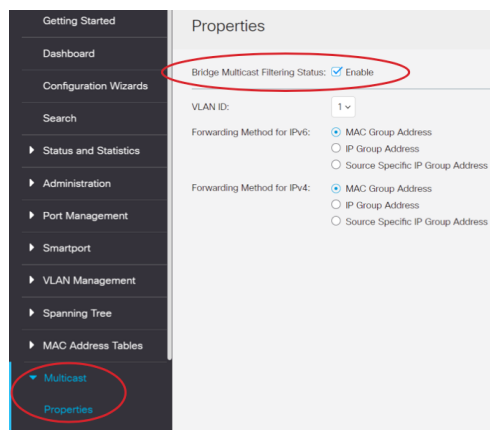


3. Click 'Apply' in the top right to save the setting.

## Enable Multicast

To enable Multicast:

1. Navigate to Multicast > Properties.
2. Select the 'Enable' checkbox next to 'Bridge Multicast Filtering Status'.

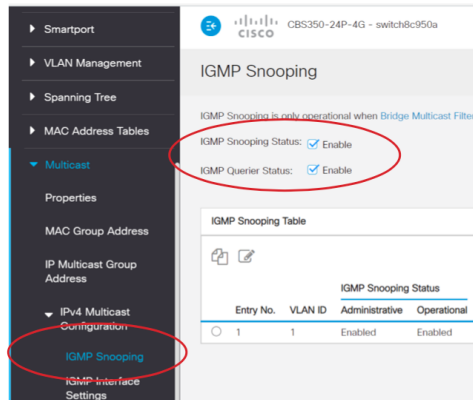


3. Click 'Apply' in the top right to save the setting.

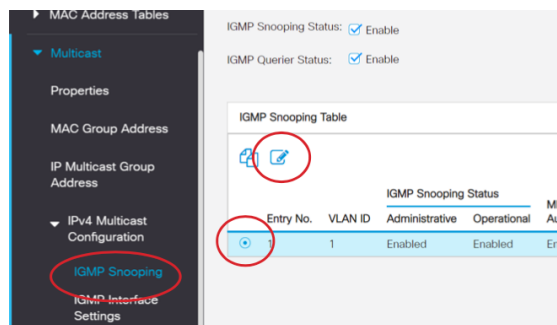
## Enable & Configure IGMP Snooping

To enable IGMP Snooping

1. Navigate to Multicast > IPv4 Multicast Configuration > IGMP Snooping.
2. Select the 'Enable' checkbox next to 'IGMP Snooping Status'.
3. Select the 'Enable' checkbox next to 'IGMP Querier Status'.

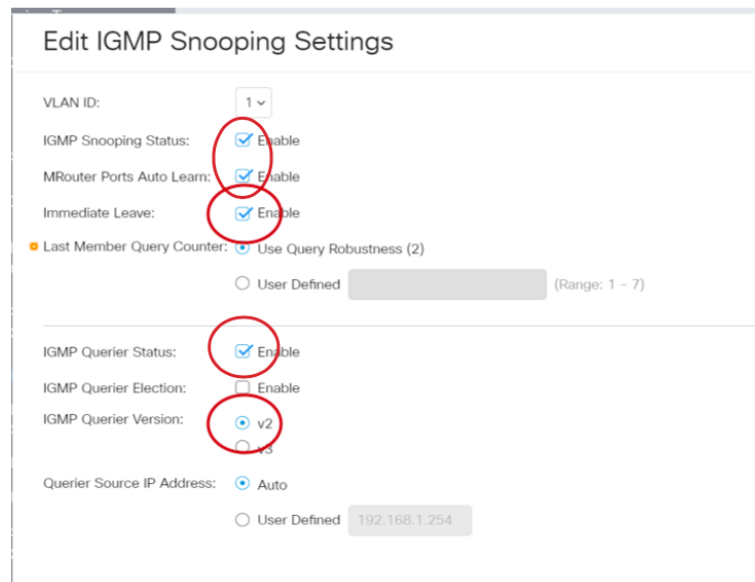


4. Click 'Apply' in the top right to save the settings.
5. On the same page select the radio button next to the VLAN that will house the JP4 AVoIP Encoder and decoders and press the edit 'pencil' button above.



A new page will appear 'Edit IGMP Snooping Settings'

1. Select the 'Enable' checkbox next to IGMP Snooping Status.
2. Select the 'Enable' checkbox next to MRouter Ports Auto Learn.
3. Select the 'Enable' checkbox next to Immediate Leave.
4. Select the 'Enable' checkbox next to IGMP Querier Status.
5. Select the 'v2' radio button next to IGMP Querier version.





4. Click 'Apply' in the top right to save the settings and then 'Close' to close the page.

### Save settings to the Startup Configuration

Although the above settings were applied to the switch at each stage above, they were only applied to the Running Configuration and will be lost if the switch is restarted.

To save the setting to the Startup Configuration:

1. Navigate to Administration > File Management > File Operations.
2. For 'Operation Type' select the 'Duplicate' radio button.
3. For 'Source File Name' select the 'Running Configuration' radio button.
4. For 'Destination File Name' select the 'Startup Configuration' radio button.
5. Click 'Apply' in the top right to save the configuration to non-volatile memory.

### Restart for the settings to take effect

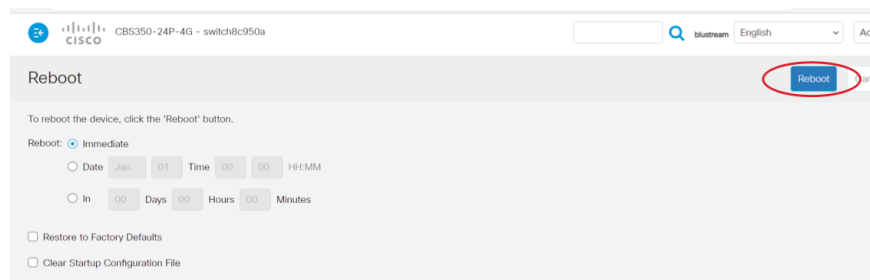
Although many setting take effect immediately, Jumbo frame support requires a reboot for the setting to take effect.

To Restart the switch:

1. Choose Administration > Reboot.

On the Reboot page, enter the following:

2. Ensure the default of Immediate is selected.
3. Click Reboot.



The switch is now configured, you may now connect all the Netvio JP4 devices to the switch and begin configuration of the CL using the Netvio 360 software.

## Glossary

### Multicast

One-to-many or many-to-many distribution is a group communication where information is addressed to a group of network devices simultaneously.

### Jumbo Frames / MTU Size

Ethernet packets have a default size of 1,500 bytes of payload. Conventionally, jumbo frames can carry up to 9,216 bytes of payload and must be activated in order to send large packets of data for UHD AV distribution.

### IGMP & IGMP Snooping

Enabling the switch to listen to Internet Group Management Protocol (IGMP) network traffic allows a network switch to listen in on the IGMP conversation between hosts (encoders), routers (switches) & receivers (decoders). By listening to this flow of traffic the switch maintains a map of which links need which multicast groups.

### PoE (Power over Ethernet)

PoE switches and devices are cable of powering and receiving power over the Ethernet cable. Standard POE can provide up to 15.4W per port. POE+ switches do not have larger power supplies, instead they can provide more power to an individual port. PoE can be disabled on the switch if external PSU's are being used however POE is recommended. Please see the Netvio Network Recommendations Guide for more details on properly specifying POE budgets.