BLUSTREAM
MULTICAST

Network Switch Set-up Guides

Ubiquiti
Pro Switch

when used in a 1Gb Blustream Video over IP system, in a single switch configuration system
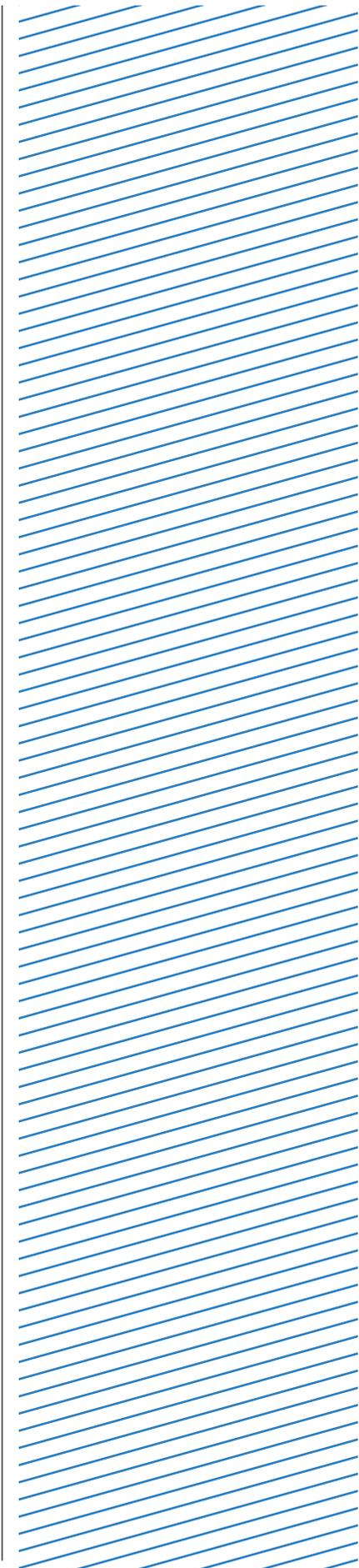
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Introduction

The 1Gb Blustream Video over iP solutions require a 1Gb managed network switch in order for HDMI distribution to be achieved reliably, and without any loss of performance.

The following guide is a step-by-step instruction on how to connect and configure your network switch to support 1Gb Blustream video over IP products.

Please ensure each step is followed and checked at each stage. Before exiting the set-up, it is advisable to reboot the switch, log-in, and double check all settings.

Switch Requirements

The following features need to be enabled on the network switch being used for a Blustream video over IP system:

1. Multicast
2. Jumbo Frames / Jumbo Packets / MTU
3. IGMP Management / Snooping
4. PoE (where being utilised)

Feature explanation:

- **Multicast** (one-to-many or many-to-many distribution) is a group communication where information is addressed to a group of network devices simultaneously (Blustream video over IP products).

- **Jumbo Frames / Jumbo Packets / MTU** are Ethernet frames with more than 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 HDMI distribution. Without this enabled, the ability for the IP***UHD-TX units to transmit the HDMI data will not be achievable.

- **IGMP Management & IGMP Snooping** is the process of listening to Internet Group Management Protocol (IGMP) network traffic. The feature allows a network switch to listen in on the IGMP conversation between hosts, routers & receivers (IP***UHD Transmitters, the network switch, and IP***UHD Receivers). By listening to this flow of traffic the switch maintains a map of which links need which IP multicast streams i.e. which Blustream video over IP products are active and where the signal is being distributed to.

- **PoE** (Power over Ethernet) the Blustream IP***UHD and ACM devices are all capable of being powered by PoE. Power Supply Units are available for Blustream IP***UHD and ACM devices, however, the products are not sold with these included. PoE can be disbaled on the switch if external PSU's are being used.

Network Topology for Multicast

Our recommendation for the set-up of a Blustream video over IP system would be to have the customers business, or home network be kept independent of the Blustream video over IP distribution network. This negates the possibility of data flowing through one network reducing the performance of the other and vice-versa. The Blustream Control Module will act as a "bridge" between the two networks allowing for control data to be seamlessly transmitted between the two networks.

Where the the business / home network and video over IP network are sharing a switch/es (not recommended). We would suggest creating a separate VLAN for the video over IP network, ensuring there is a minimum 1Gb of bandwidth allocated to the VLAN. A networking professional should be consulted when designing this type of system to ensure the networks can co-exist on the same infrastructure.

# Managing the Switch and Firmware

The Ubiquiti Pro switch is managed through the UniFi Network server. In order to follow the steps in this guide to configure the switch for use with a Blustream video over IP system the switch should first be adopted into the UniFi Network server.

Some of the features required for a video over IP system are only available in newer versions of Ubiquiti firmware, please ensure the minimum firmware versions are:

UniFi Network Server, version 8.4.59 or later
UniFi Pro Switch, version 7.1.26 or later

If required please update the firmware to the minimum versions above through the UniFi Network Server settings.
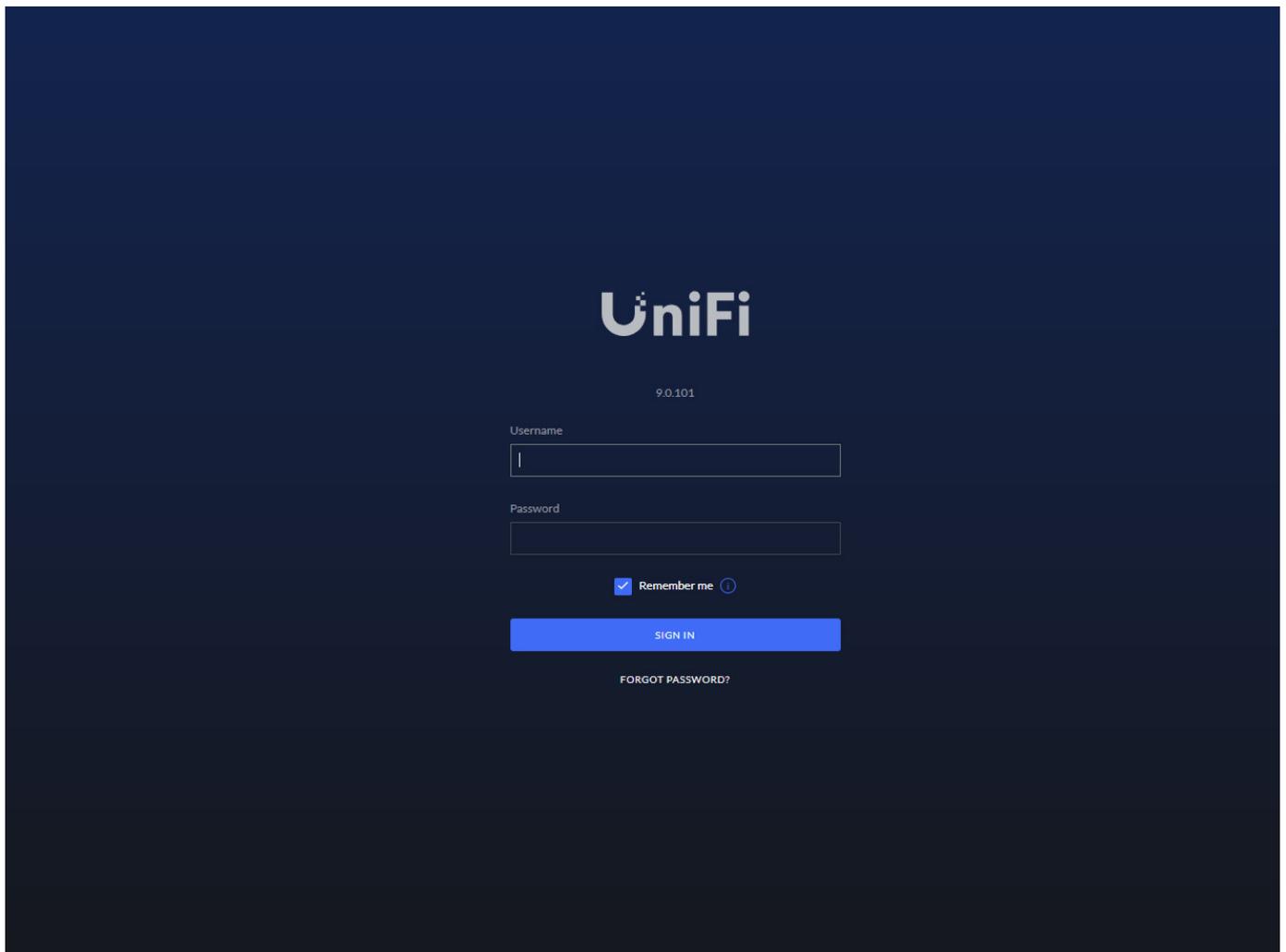
Create a New VLAN and Enable IGMP Snooping

A new VLAN will need to be created for the video network, settings required to support a video over IP system will then need to be enabled on this VLAN. First, create the VLAN and enable IGMP Snooping:

Go to Settings > Networks > New Virtual Network

Enter a name for the VLAN, for example "VoIP"
Enter a VLAN ID, for example "100" (this can be any VLAN ID not already in use)
Enable IGMP snooping by selecting the tick box

Now click "Apply Changes".
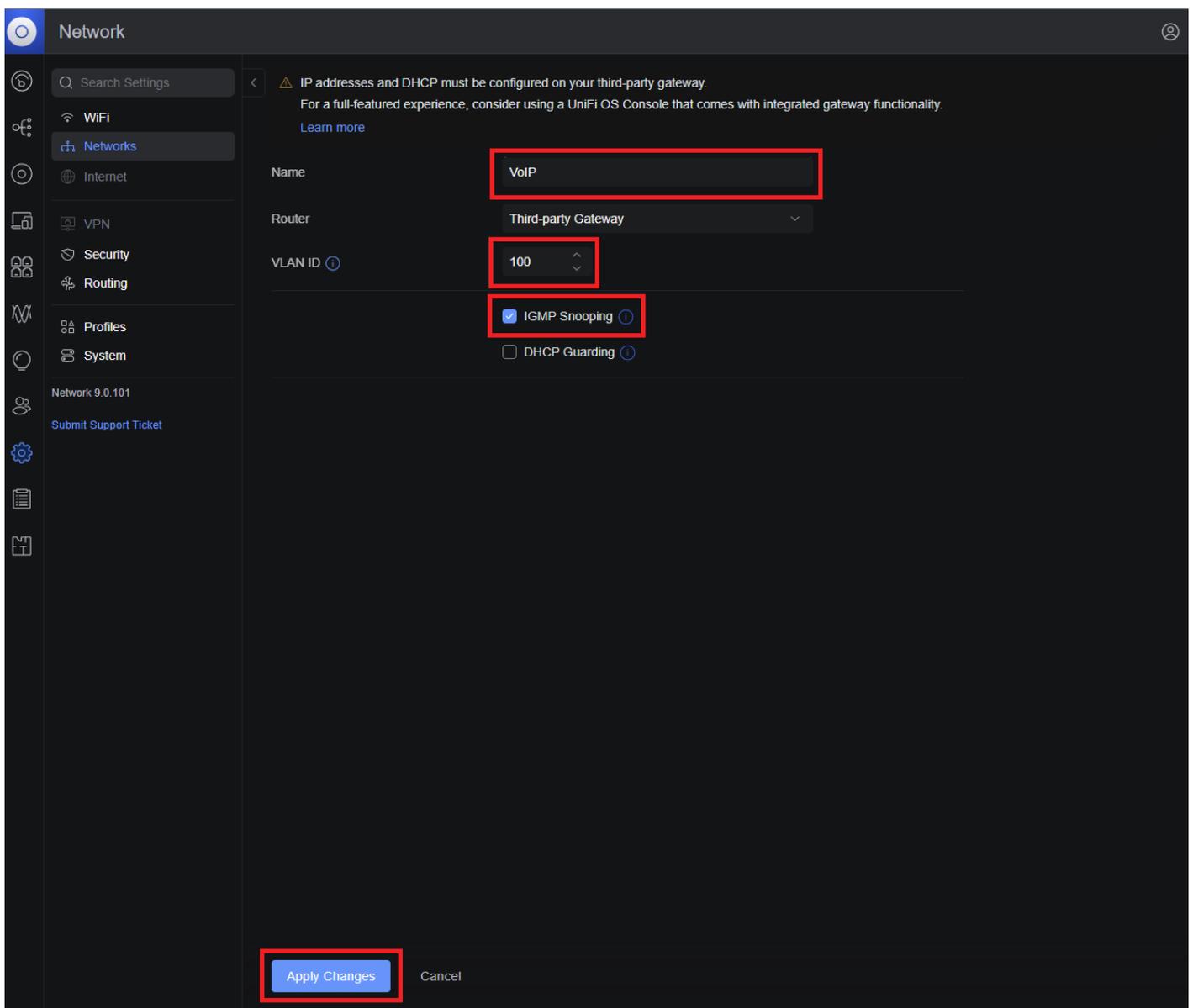
Enable Fast Leave

To enable Fast Leave on the video VLAN:

Go to Settings > Networks > Multicast Settings

In this section, enable "Fast Leave" by checking the tick box, make sure the video VLAN is selected in the box below and click "Apply Changes".
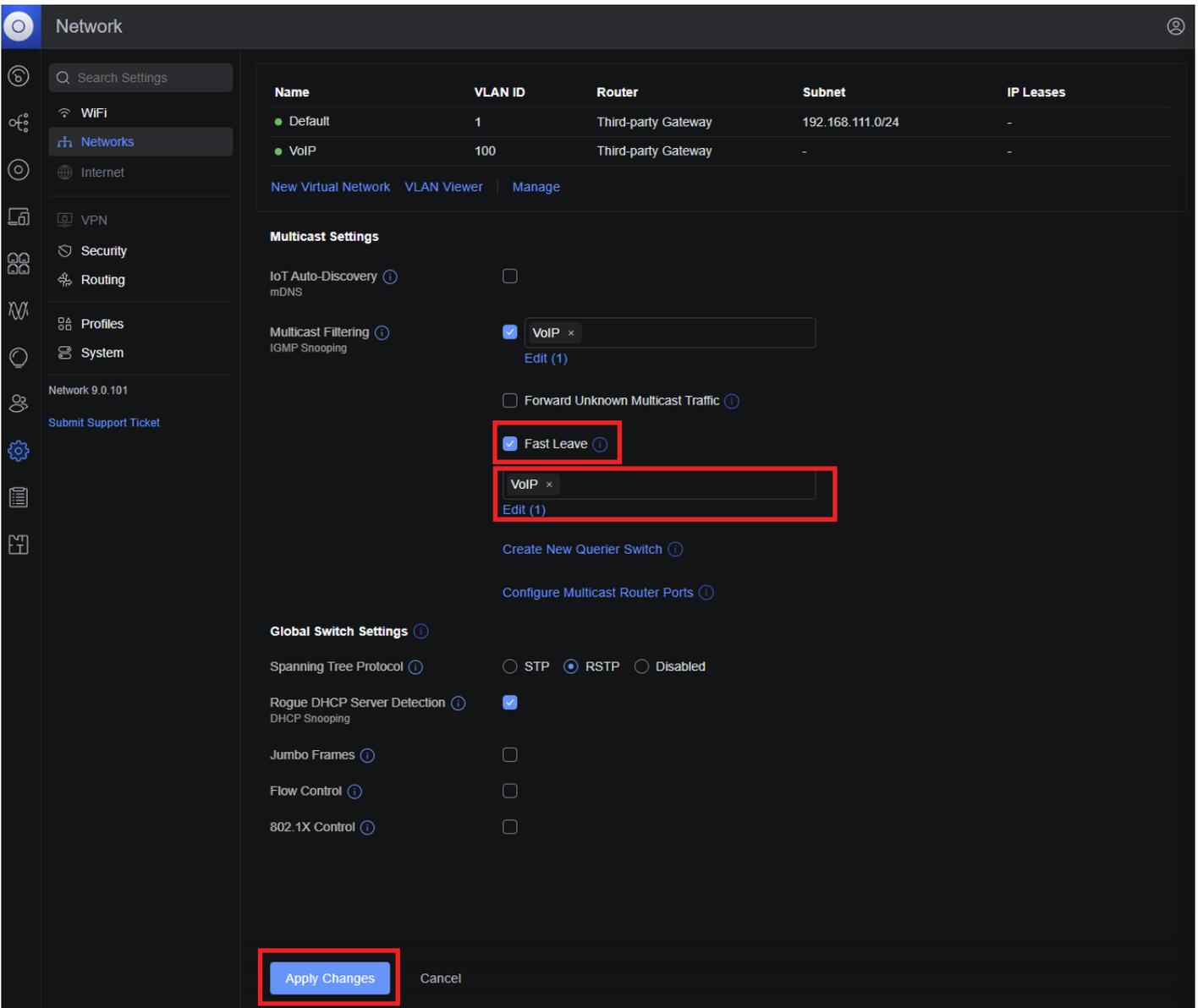
Create New Querier Switch

A Querier Switch should be selected for the video network to ensure the correct switch is the IGMP querier for the video VLAN.

Go to Settings > Networks > Multicast Settings > "Create New Querier Switch"

Select the video VLAN that you created, select the video switch as the querier and "Auto" for the Querier Address. Then click Create.

Jumbo Frames

To enable Jumbo Frames on the video switch:

Go to UniFi Devices > Select the video switch > Settings

Now check the tick box to enable Jumbo Frames and click "Apply Changes".
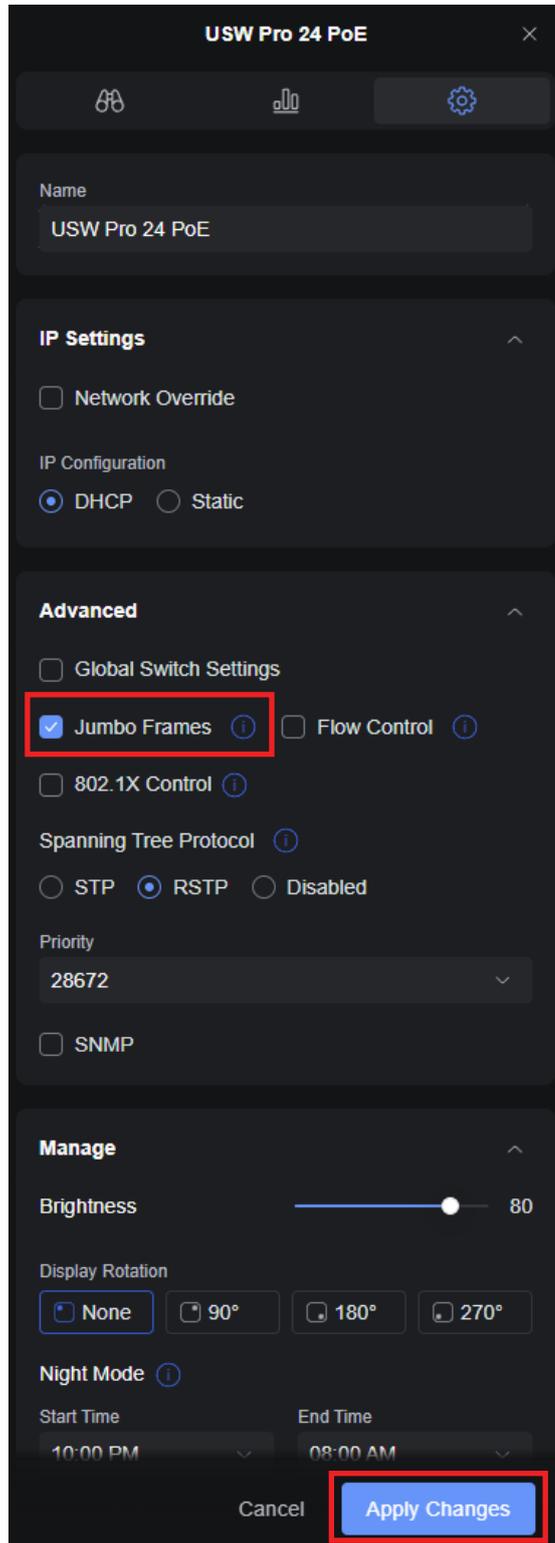
Assign Ports to the VLAN

Now the ports that the Blustream IP transmitters/receivers/ACM Video LAN are connected to need to be assigned to the new "VoIP" video VLAN that was created.

Go to Ports > select the video switch

Click the port you will be using for VoIP, change the "Native VLAN/Network" drop down to the newly created "VoIP" video VLAN

Select "Block All" for "Tagged VLAN Management"

Click Apply Changes and the switch/ports are now configured for use with a Blustream 1Gb video over IP system.

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