SAVANT

Video over IP Network

NetGear M4300 8x8F | M4300 12x12F | M4300 24x24F | M4300 96X

Configuration Guide

Document Number:	009-1552-03
Document Date:	May 2018
Document Supports:	da Vinci 8.8

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1 Overview

This document provides the necessary features/capabilities that any 10G switch needs to have to work correctly with the Savant Video over IP System. It also provides information on how to enable these features for the 10G switches that Savant has qualified.

2 Network Topology

Savant recommends that the 10G Switch is connected to the same switch that the Host is connected to. Unmanaged switches should not be connected to the 10G Switch that the Video over IP system is using. The image below is a basic network diagram. It does not imply all network connections.

- 10G connections to the PAV-VIMxS/VIMAPxS devices use SFP+ ports. Either fiber or Direct Attach Copper cables can be used.
- 10G connections to the PAV-VOMVP1x can use either SFP+ ports with fiber cabling or RJ-45 ports with CAT-6 or above cabling, depending on the cable length.

Diagram using PAV-VIM8S

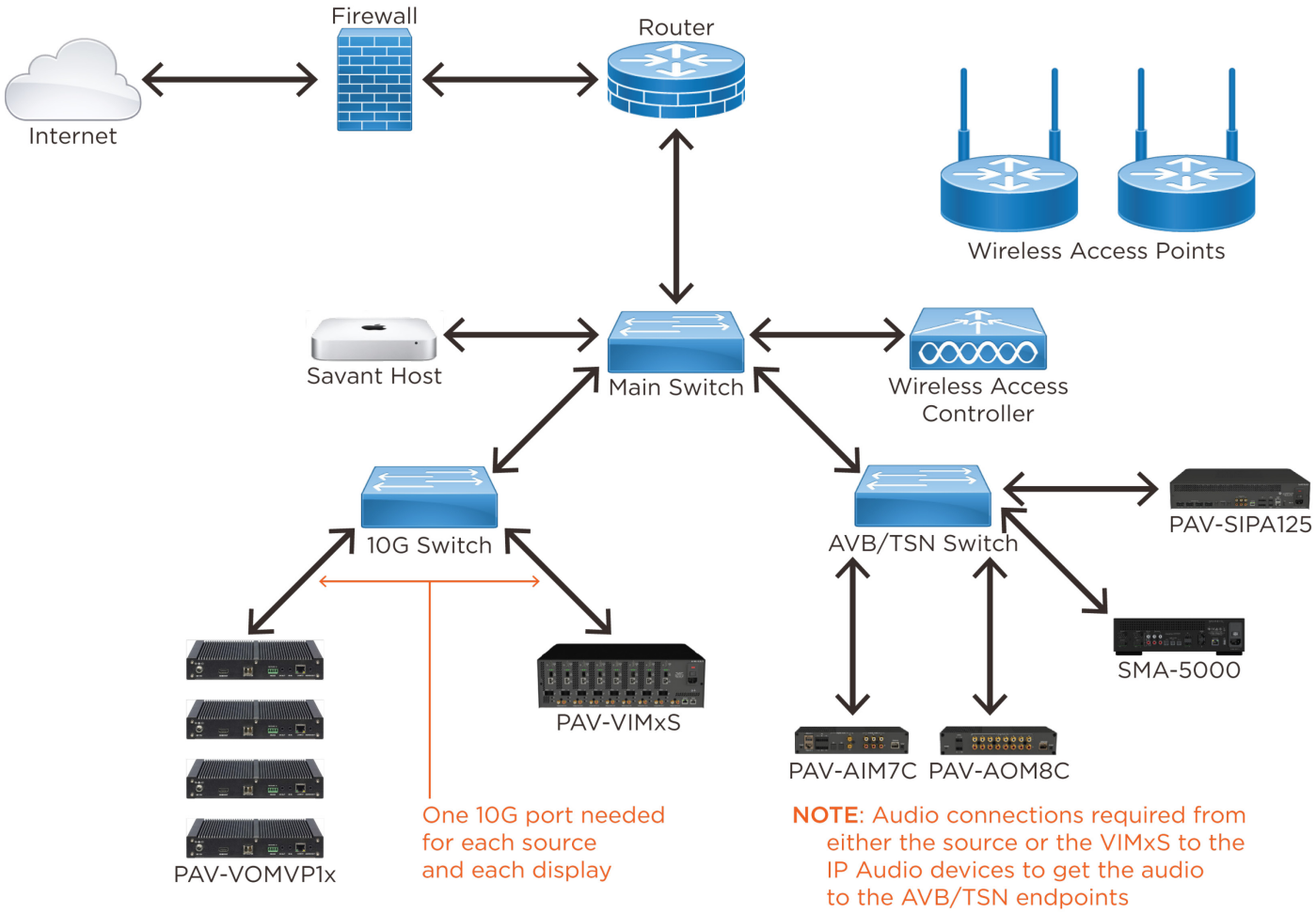
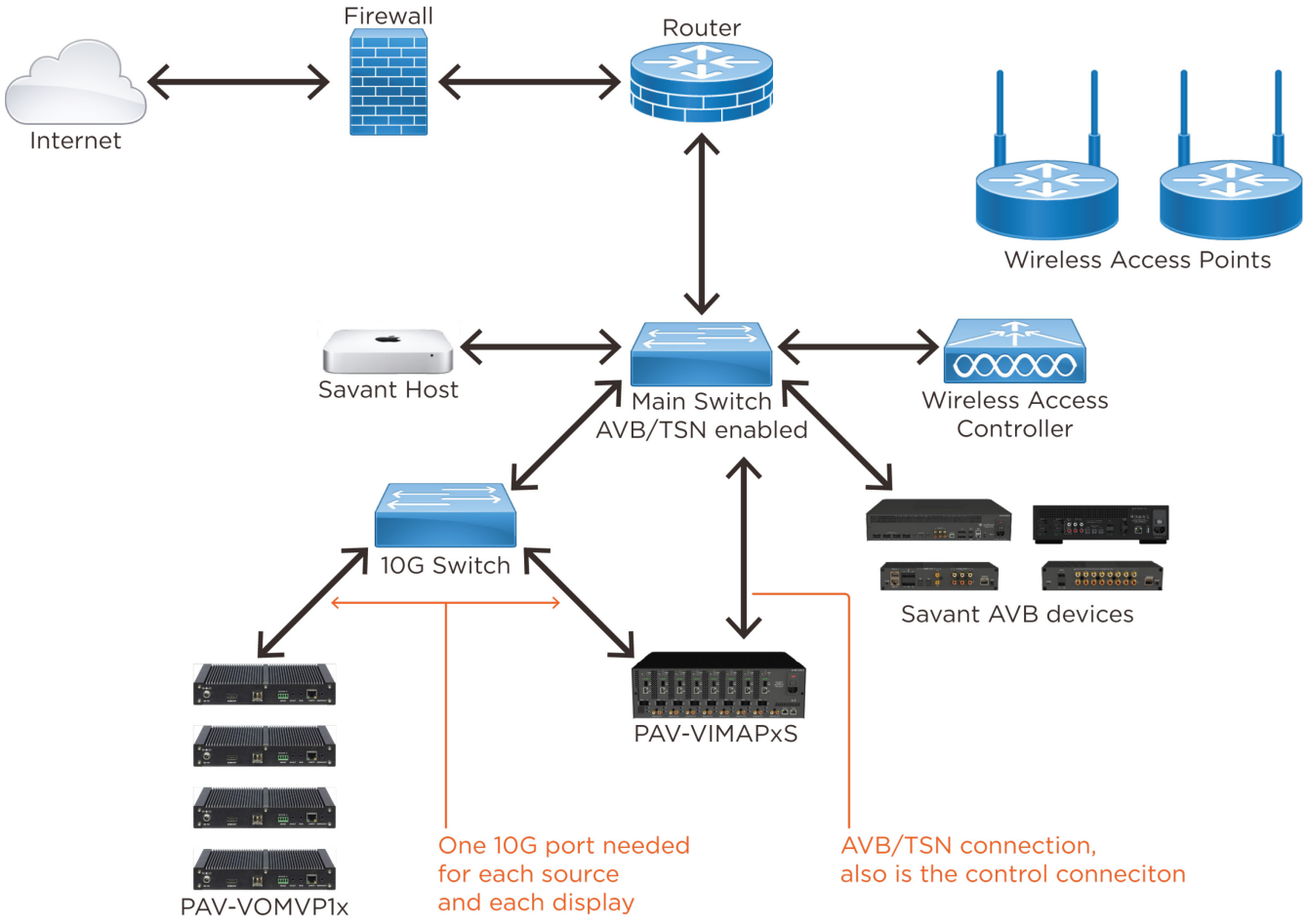


Diagram using PAV-VIMAP8S



3 Auto-Configure (Recommended Method)

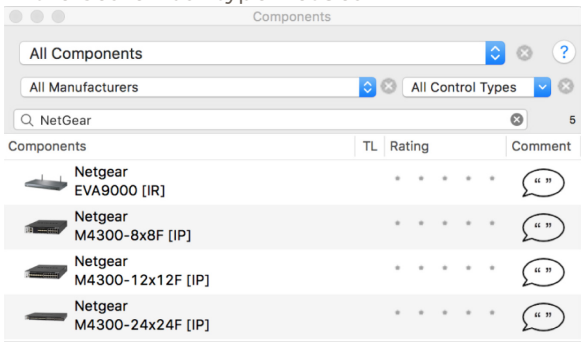
This process will allow the Host to check the configuration of the NetGear switch every time it is restarted and will send the configuration if the check fails. To use this feature it must be enabled in Blueprint in the active configuration.

⚠ **IMPORTANT! DO NOT** make the video connections until the Auto-Configure has run the first time. The only connections that should be made to the switch being configured are Power and a single network connection.

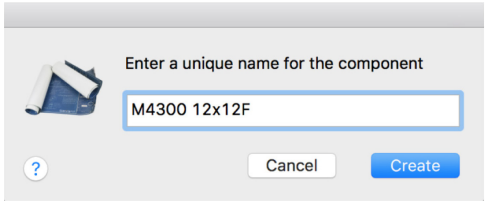
In an open configuration do the following:

NOTE: If the Switch is placed in the Layout window and has an IP Address assigned in Blueprint skip to step 10.

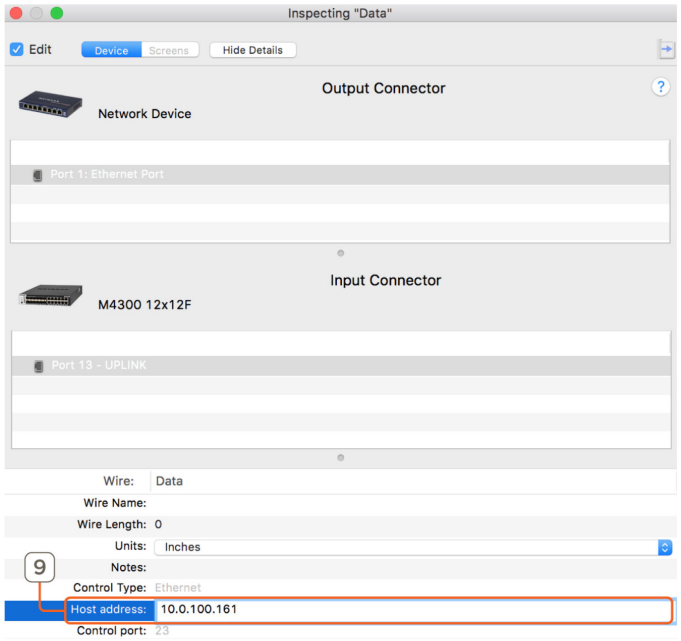
1. Click **Show Library**.
2. In the Search bar type NetGear.



3. Select the M4300 10G switch that is needed and drag it into a Shared Equipment zone.
4. Name the Device.



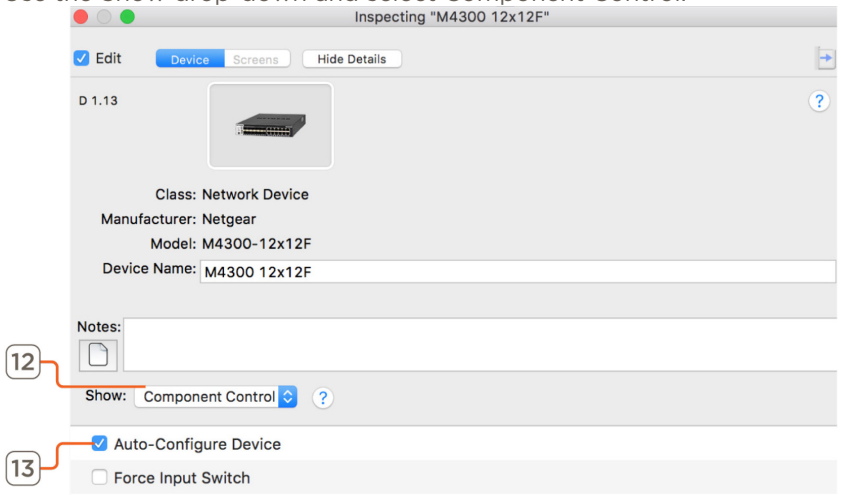
5. Place the M4300 10G switch in the Layout window.
6. Make Control Connection.
7. Select the Control Connection.
8. Open Inspector.
9. Enter the IP Address of the switch on the Host address field.



NOTES:

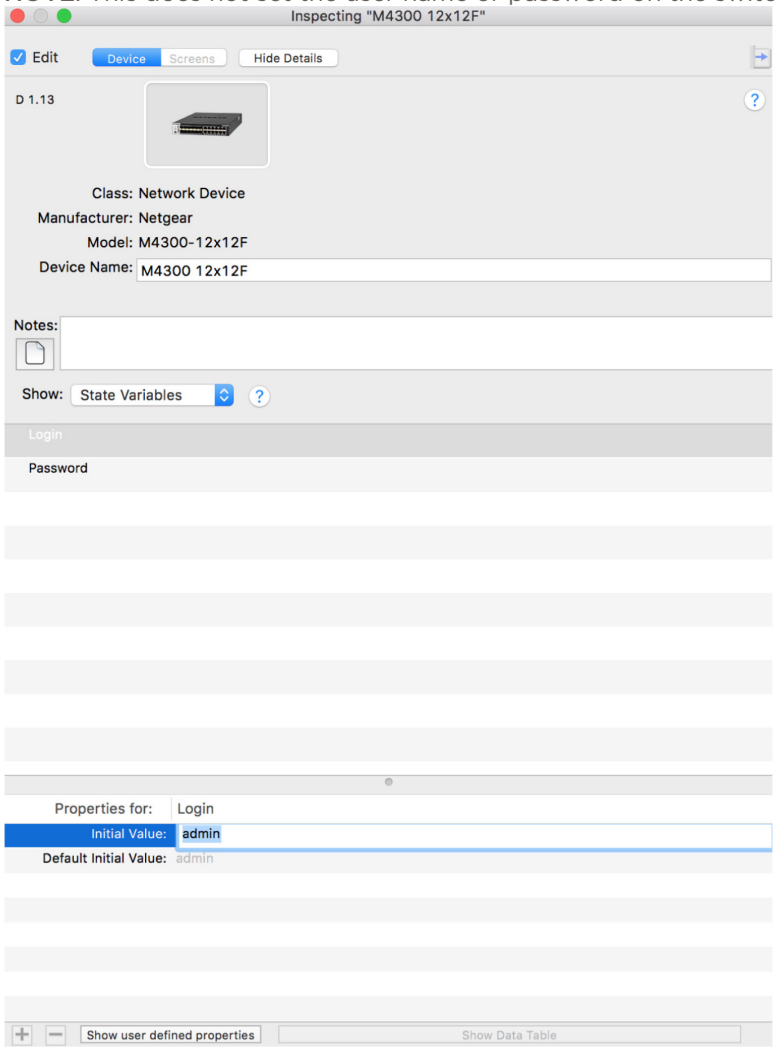
- This is needed for System Monitor information to populate.
- In the physical installation this control connection uses one of the RJ-45 10G connections. This is the switch's uplink port that is configured in the Savant Video over IP Network Configuration Guide.

10. Select the M4300 10G switch.
11. Open Inspector.
12. Use the Show drop-down and select Component Control.



13. Select the Auto-Configure Device check-box.
14. Change the Show drop-down to State Variables.

15. The User Name and Password can be set if they have been changed in the switch.
NOTE: This does not set the user name or password on the switch.



IMPORTANT! This only for the local user. DO NOT CHANGE the Enable password.

4 Script Configure (Legacy)

These steps are to be done with the switch at its Factory default settings. DO NOT set a password on the switch before running this script.

⚠ **IMPORTANT!**

- This section is included as reference only. For information on the recommended method see the 3. Auto Configure (Recommended Method) section above.
- **DO NOT** make the video connections until the script is complete. The only connections that should be made to the switch being configured are Power and a single network connection. For the correct port, refer to step 7 below.

1. Download the Configuration scripts, use the Link below:
   http://cdn.software.s3.amazonaws.com/scripts/Netgear/ConfigScripts.zip
2. Using Finder navigate to the download location.
3. Move the ConfigScript.zip to the Desktop of your SDE.
4. Double click on the ConfigScripts.zip to unzip the folder
5. Open the ConfigScripts folder
6. Move the Script for the switch that is in use to the Desktop.
7. Connect the upper left RJ-45 port on the Netgear switch to the main switch. See the port number based on the model in use below.
   M4300-8X8F port 9
   M4300-12X12F port 13
   M4300-24X24F port 25
8. Use a network scanning software to find the IP address of the switch
9. Open Terminal on the SDE
10. Type: sh ~/Desktop/<NameOfScriptFile>.sh
    Example: sh ~/Desktop/M4300-24X24F-Config.sh
11. Enter the IP Address of the Netgear switch.
    Once enter is pressed the script will run and configure the switch. The images below show what will display in the terminal window (Left image shows the beginning of the script; Right image shows the end of the script).

```
Last login: Wed Jan 10 16:58:53 on ttys004
csmith-mbp:~ chris.smith$ sh ~/Desktop/ConfigScripts/M4300-24X24F-Config.sh
IMPORTANT! The only connections that should be made to the switch being configured are power and a single main network uplink plugged into port 25.
DO NOT have any other copper or fiber connections made to this switch until the configuration is complete.
This configuration tool assumes the default login for the network switch (user: admin & no password)
Enter the IP address of the Netgear switch and press Enter:
10.0.1.9
Please wait while the switch is being configured. This can take up to 45 seconds...
Trying 10.0.1.9...
Connected to 10.0.1.9.
Escape character is '^]'.

User:admin
Password:
(M4300-24X24F) >
(M4300-24X24F) >enable

(M4300-24X24F) #clear config
```

```
(M4300-24X24F) (Config-router)#exit

(M4300-24X24F) (Config)#router ospf

(M4300-24X24F) (config-router)#exit

(M4300-24X24F) (Config)#ipv6 router ospf

(M4300-24X24F) (Config-rtr)#exit

(M4300-24X24F) (Config)#exit

(M4300-24X24F) #save

This operation may take a few minutes.
Management interfaces will not be available during this time.
Are you sure you want to save? (y/n) y

Config file 'startup-config' created successfully .


Configuration Saved!

(M4300-24X24F) #
(M4300-24X24F) #Connection closed by foreign host.
csmith-mbp:~ chris.smith$
```

5 Manual Configuration

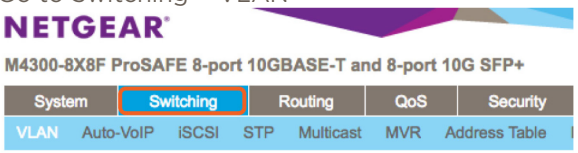
This section gives the settings for the Savant qualified Netgear 10G ProSafe M4300 switches. Only the settings needed for the Audio Video over IP environment are described and no other setting are noted. These steps are to be done with the switch at its Factory default settings.

⚠ **IMPORTANT!**

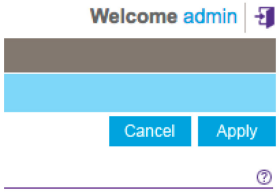
- This section is included as reference only. For information on the recommended method see the 3. Auto Configure (Recommended Method) section above.
- **DO NOT** make the video connections until the configuration is complete. The only connections that should be made to the switch being configured are Power and a single network connection. For the correct port, refer to step 7 below.

5.1 VLAN Setup

1. Use a network scanning software to find the IP Address of the switch.
2. Connect to the Switch via a web browser. By entering the IP Address in the browsers address bar.
3. Enter the User ID and Password:
   Default: admin
   Password: (leave, blank there is no password by default)
4. Go to Switching > VLAN

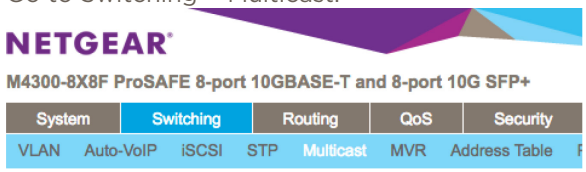


5. Add a VLAN.
6. Enter VLAN ID and VLAN Name. Below are Savant's recommendations.
   VLAN ID: 1
   VLAN Name: default
7. Click Apply in the upper right corner of the browser window.

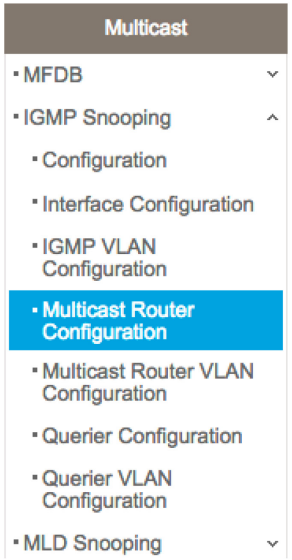


5.2 Multicast

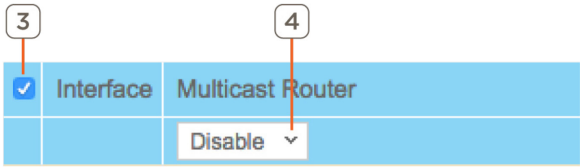
2. Go to Switching > Multicast.



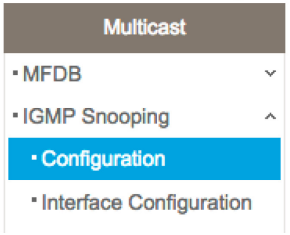
2. Click on IGMP Snooping > Multicast Router Configuration.



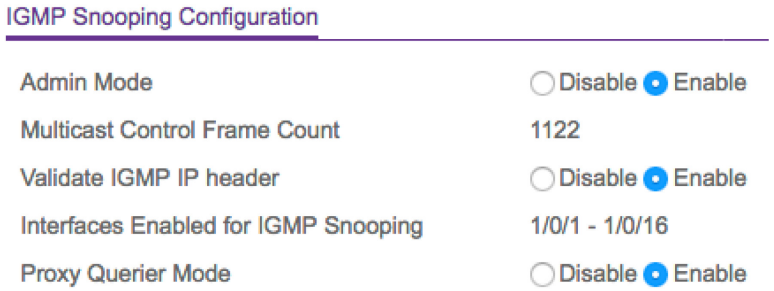
3. Click the Check box to select all



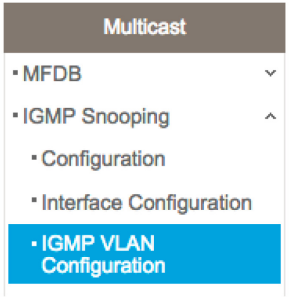
4. Select Disable in Multicast Router.
5. Click Apply in the upper right corner of the browser window.
6. Still inside Switching > Multicast, go to IGMP Snooping > Configuration.



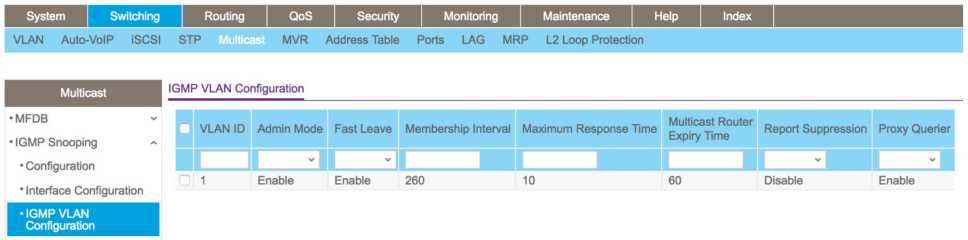
7. Enable Admin Mode, Validate IGMP IP header, and Proxy Querier Mode.



8. Click Apply in the upper right corner of the browser window.
9. Still inside Switching > Multicast, go to IGMP Snooping > IGMP VLAN Configuration.

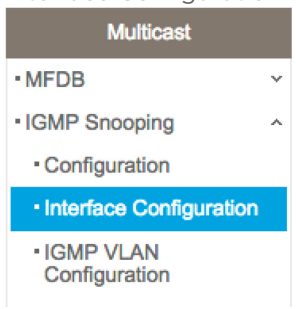


10. Adjust to the setting in the table below.

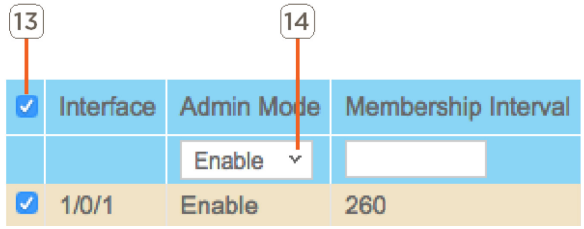


Category	Value
VLAN ID	1
Admin Mode	Enable
Fast Leave	Enable
Membership Interval	260
Maximum Response Time	10
Multicast Router Expiry Time	60
Report Suppression	Disable
Proxy Querier	Enable

11. Click Apply in the upper right corner of the browser window.
12. Still inside Switching > Multicast, go to IGMP Snooping > Interface Configuration.



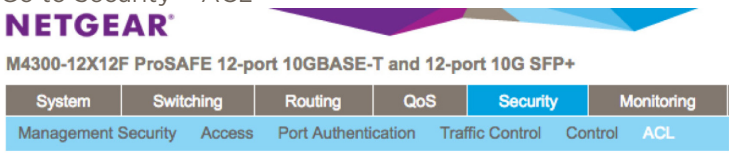
13. Select all Ports



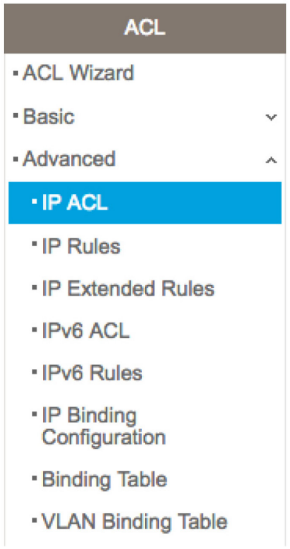
14. Change Admin Mode to Enabled.
15. Click Apply in the upper right corner of the browser window.

5.3 Access Control List (ACL) Creation

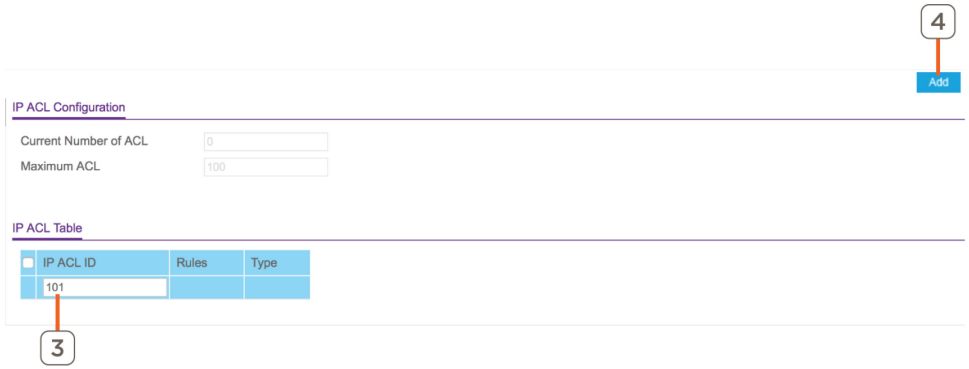
8. Go to Security > ACL



2. Click on Advance > IP ACL.

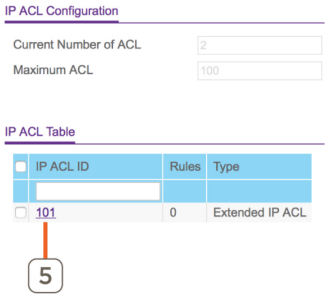


3. In the IP ACL ID field enter: 101.

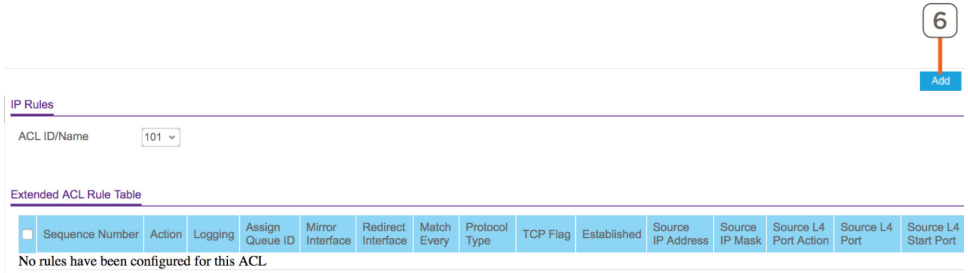


4. Select **Add** in the top right corner.

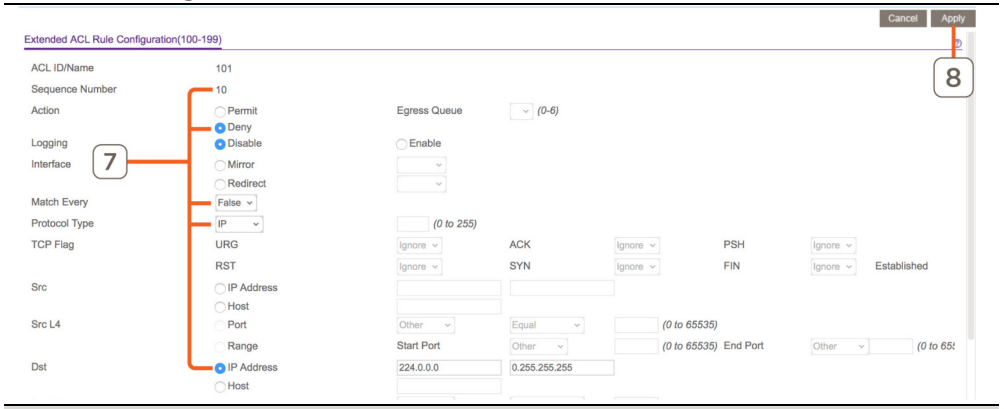
5. Select the 101 Hyperlink that is now under “IP ACL ID”.



6. Select **Add** in the top right corner to start creating rules for ACL 101.



7. Enter the settings shown below.

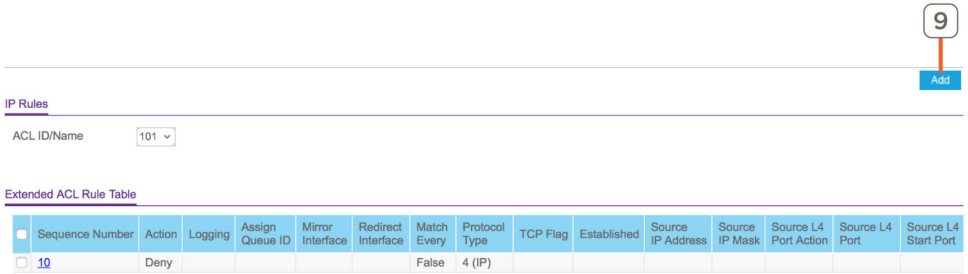


Category	Value	
Sequence Number	10	
Action	Deny	
Match Every	False	
Protocol Type	IP	
Dst	224.0.0.0	0.255.255.255

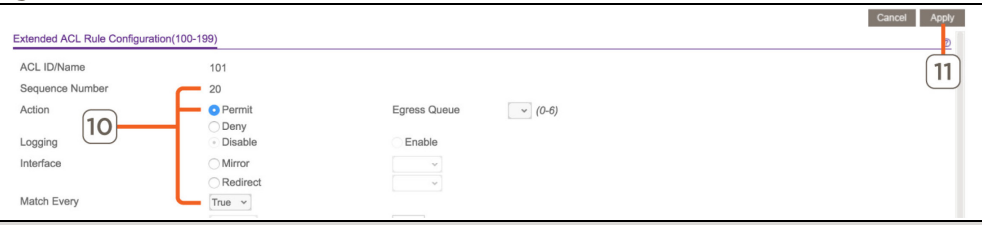
Make no other changes

8. Select **Apply**.

9. Select **Add** in the top right corner to start creating rules for ACL 101.

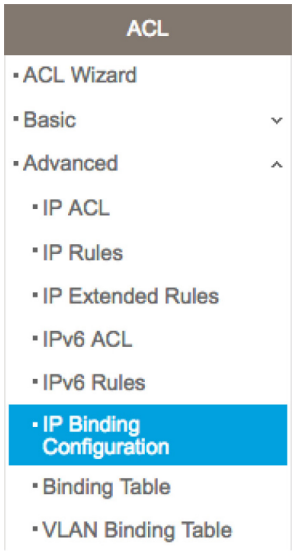


10. Enter the settings shown below.



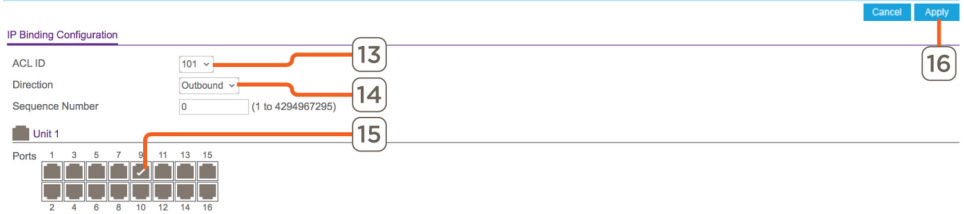
Category	Value
Sequence Number	20
Action	Permit
Match Every	True

11. Select **Apply.**
12. Click **Advanced > IP Binding Configuration**.



13. Select ACL ID 101.

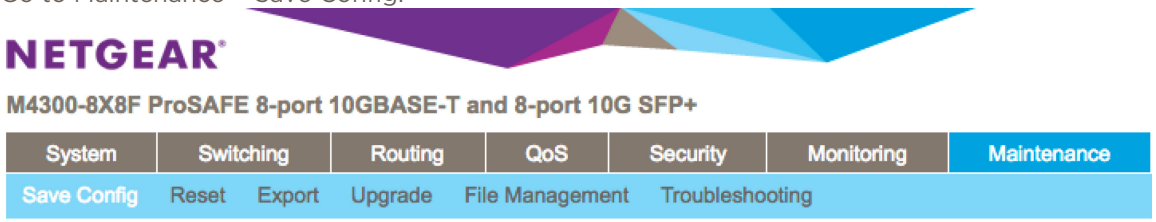
14. Change the Direction to outbound.



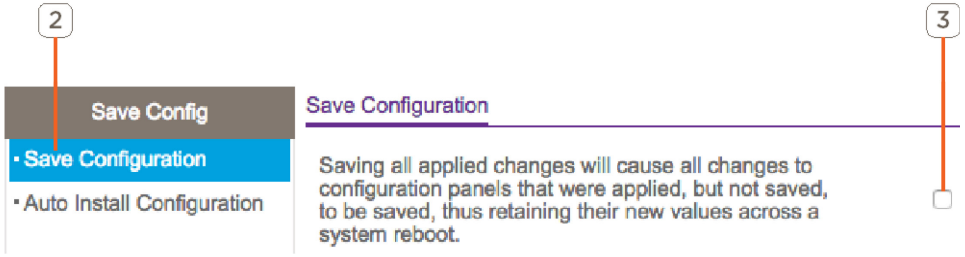
15. Click the port that this rule is to be applied. Below is a list by model of the Savant recommended port.
    M4300-8X8F port 9
    M4300-12X12F port 13
    M4300-24X24F port 25
16. Select Apply in the top right corner.

5.4 Save Configuration

1. Go to Maintenance > Save Config.



2. Click Save Configuration



3. Click the Check-box
4. Click Apply in the upper right corner of the browser window.

Appendix A: 10G Switch Requirements

The following list is the settings that need to be configured on any Switch that is being used for the Audio/Video over IP system.

IMPORTANT!

Not all of these settings are on all network switches.

- 10G Managed Switch with SFP+ ports
- IGMP Snooping Enabled.
- Enable IGMP Snooping on all ports for the VLAN in use.
- IGMP Querier Enabled.
- Enable IGMP Querier on all ports for the VLAN in use.
- Filter/Drop Unregistered Multicast Traffic Enabled.
- Unregistered Multicast Flooding Disabled.
- FASTLEAVE enabled (Optional*).
- Enable FASTLEAVE on all ports for the VLAN in use (Optional*).

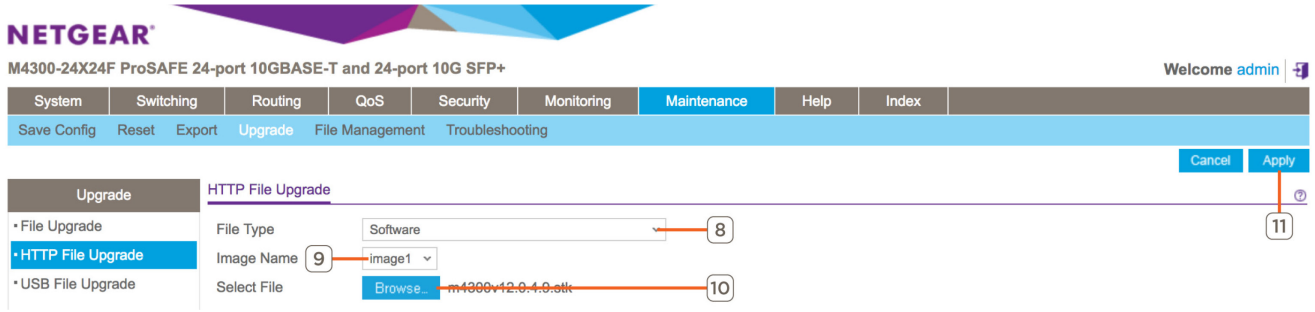
* FASTLEAVE will make changing services faster.

Appendix B: Static IP

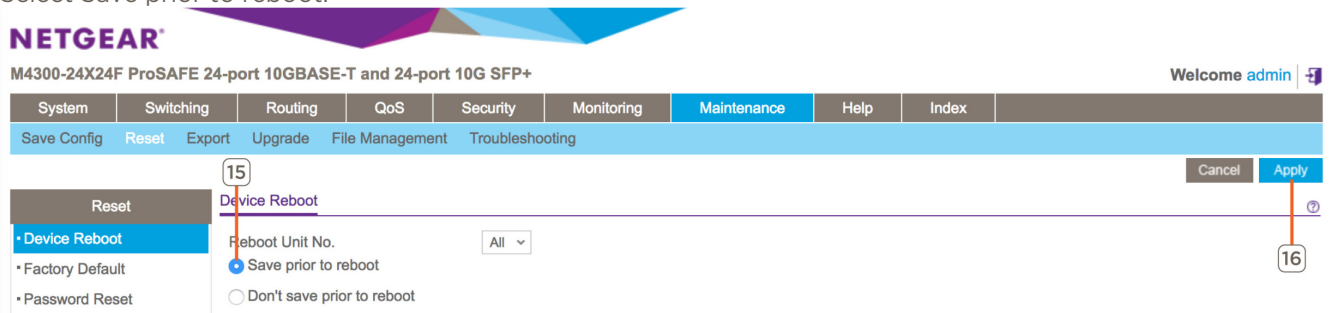
If the switch needs to have a Static IP Address set it needs to be done before the rest of the configuration is done. To set a Static IP Address for the Netgear M4300 switches see the manufactures documentation.

Appendix C: Switch Firmware

1. Download the NetGear firmware version 12.0.4.9 from the following location:
   http://www.downloads.netgear.com/files/GDC/M4300/GSM_XSM4300_V12.0.4.9.zip
   NOTE: The above firmware is the recommended build as of the da Vinci 8.8 release.
2. Un-compress the firmware .zip file.
3. Use a network scanning software to find the IP Address of the switch.
4. Connect to the Switch via a web browser. By entering the IP Address in the browsers address bar.
5. Enter the User ID and Password:
   Default: admin
   Password: (leave, blank there is no password by default)
6. Go to **Maintenance > Upgrade > HTTP File Upgrade**.
7. Select Software.



8. Select image1.
9. Click Browse... and navigate to the download location.
10. Click Open.
11. Click Apply.
    This process will take a couple of minutes to complete.
12. Select image2.
13. Repeat steps 9 through 11.
14. Go to Maintenance > Reset > Device Reboot.
15. Select Save prior to reboot.



16. Click Apply.

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