CISCO SG550X SERIES

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### MOIP SWITCH CONFIGURATION: CISCO SG550X SERIES

APPLICATION OF THIS CONFIGUATION DOCUMENT: This configuration guide applies to the configuration of SG550X Series switches in the network topology shown below for optimal operation of the Binary 900-seires Media over IP (MoIP) system. Variations from this specific topology are possible; however advanced configurations and setup of control systems and network access points, for example, will require referencing the Cisco SG550X Series switch user manuals and or contacting Cisco Technical Support.

RECOMMENDATION: Prior to beginning the installation process for more complex networking topologies and Binary MoIP; it is recommended to validate your specific use-case to minimize any issues related to your specific topology before going on site to complete the installation.

GENERAL NETWORKING RESTRICTION: Each Binary MoIP Transmitter on the system can generate up to 500 Mbps (0.5 Gbps). When deploying a Binary MoIP solution across multiple switches, the throughput/bandwidth of the uplink between every switch on which MoIP devices are connect must support the bit rate for all transmitters in total. To calculate the uplink bandwidth required multiple 0.5 Gbps per TX by the number of TX on the system whether they are on the same switch or spread out across multiple switches.

For example, if sixteen (16) MoIP Transmitters are deployed on the network below, the uplinks between switches must all support at least 8 Gbps (16 TX times 0.5 Gbps per TX). In this specific example, the SG550X has 10 Gbps uplink capabilities to support this example.

NETWORK TOPOLOGY

Router

Unit ID: 1 Master Switch

Unit ID: 2 Backup Switch

Unit ID: 3 Slave Switch
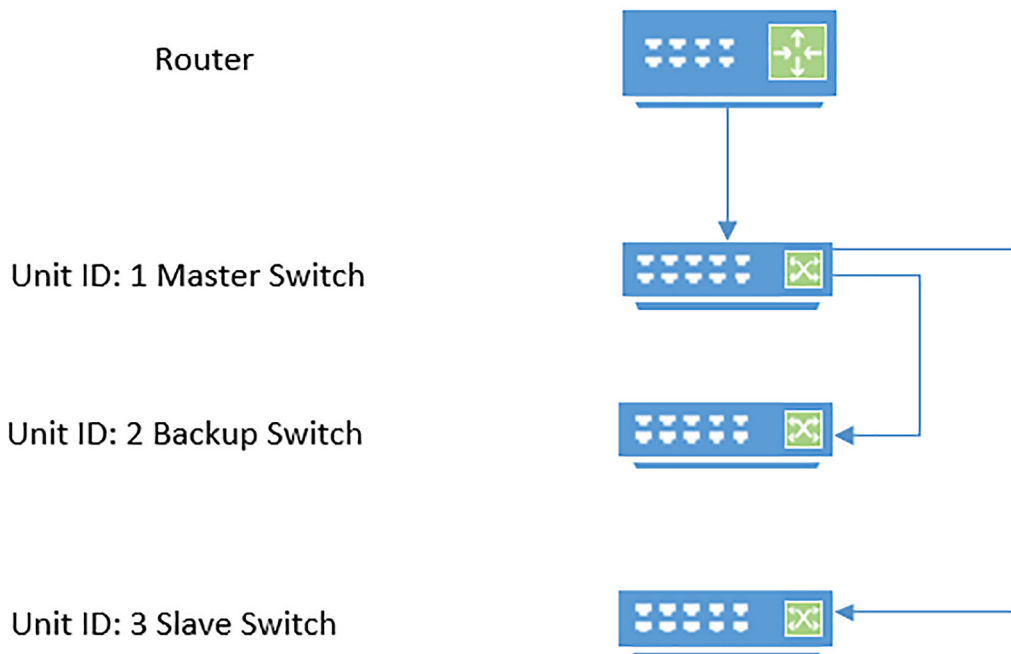
TOPOLOGY SETUP

1. Document the MAC addresses for all switches top down, these will be needed in a later step.

2. Connect all switches to the network as seen in the diagram above.

3. Change the Master switch's IP address to a number outside of your DHCP pool. This will aid the head switch in being chosen as the multicast querier in a later step.

4. Verify the MAC address of the last slave switch and log in.

    a. Navigate to **Administration**>**Stack Management**
       » Stack Mode: **Native**
       » On the switch display – **Select 1 SFP port as your stacking port**.
       » Unit ID After Reset: **3**
    b. **Apply** and Reboot

5. Verify the MAC address of the backup switch and log in.

    a. Navigate to **Administration**>**Stack Management**.
       » Stack mode: **Native**
       » On the switch display – **Select the 1 SFP ports as your stacking ports**.
       » Unit ID After Reset: **2**
    b. **Apply** and Reboot

6. Verify MAC address of 3rd switch in the rack and log into the 1st slave switch

    a. Navigate to "Administration>Stack Management"
       » Stack mode: **Native**
       » On the switch display – **Select 2 SFP ports as your stacking ports**.
       » Unit ID After Reset: **1**.
    b. **Apply** and Reboot

7. After all switches are fully booted the stack will be accessible via Master switch IP address.

    a. If the switches do not negotiate as in the diagram below, reboot the stack.

8. Verify Stack order via LEDs on front of switch

CONFIGURE THE SWITCHES

NOTE: All Settings will be applied to ALL switch ports. If you want to verify, change Unit ID on each configuration page to make sure settings were applied to all ports.

1. On the top right-hand side of the screen, change **Display Mode:** to Advanced
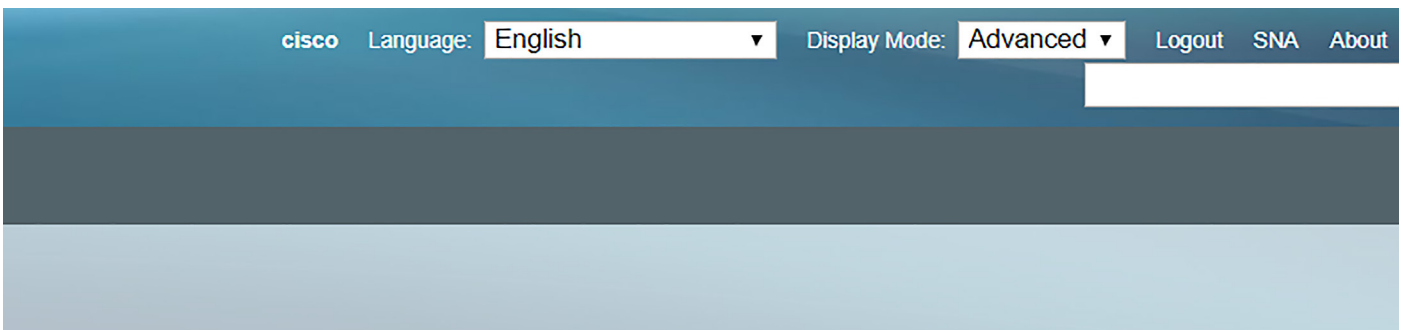
2. Navigate to Port **Management**>**Port Settings**

    a. Enable **Jumbo Frames**

    b. **Apply**

    c. **REBOOT STACK**

Port Settings

Link Flap Prevention: ☑ Enable

Jumbo Frames: ☑ Enable

Jumbo frames configuration changes will take effect after saving the configuration and rebooting the switch.

[Apply] [Cancel]

3. Navigate to **Port Management**>**Green Ethernet**>**Port Settings**.

    a. Ensure **802.3 Energy Efficient Ethernet** is **Disabled**

    b. **Apply**

    c. **Save**

4. Navigate to **Multicast**>**Properties**.

    a. Enable **Bridge Multicast Filtering Status**

    b. **Apply**

    c. **Save**

Bridge Multicast Filtering Status: ☑ Enable

5. Navigate to **Multicast**>**IPv4 Multicast Configuration**>**IGMP Snooping**.

    a. Enable **IGMP Snooping Status** & **IGMP Querier Status**.

    b. Apply

    c. **Save**

    d. Edit **VLAN 1** in **IGMP Snooping Table**.

IGMP Snooping Status: ☑ Enable

IGMP Querier Status: ☑ Enable

» **Enable** the following:

- » IGMP Snooping Status
- » MRouter Ports Auto Learn
- » Last Memory Query Counter
- » IGMP Querier Status
- » IGMP Querier Election
- » IGMP Querier Version (v2)
- » Querier Source IP Address (Auto)
  - » This should be the IP address of your Stack

» **Apply**

e. **Save**

VLAN ID:	1 ▾
IGMP Snooping Status:	☑ Enable
MRouter Ports Auto Learn:	☑ Enable
Immediate Leave:	☐ Enable
⚙ Last Member Query Counter:	◉ Use Query Robustness (2)
	◯ User Defined [_____] (Range: 1 - 7)
IGMP Querier Status:	☑ Enable
IGMP Querier Election:	☑ Enable
IGMP Querier Version:	◉ v2
	◯ v3
Querier Source IP Address:	◉ Auto
	◯ User Defined [192.168.1.99 ▾]

6. Navigate to **Multicast**>**Forward All**

   a. Select **None** for all ports
   b. **Apply**
   c. **Save**

7. Navigate to **Multicast**>**Unregistered Multicast**.

   a. Select **Filtering** for all ports
   b. **Apply**
   c. **Save**