Chain and Ring Topologies on the SG550XG and SG350XG Switches

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Objective

To create a stack, you can link your SG350XG or SG550XG stackable switches together and have them operate under a Chain or Ring topology.

Note: Hybrid stacking of both an SG350XG and SG550XG switch in a stack is not supported.

The objective of this document is to explain Chain and Ring topologies, and show you how to configure them physically and in the web-based graphical user interface.

Applicable Devices

SG350XG

SG550XG

Software Version

v2.1.0.46

Stacking Topologies Overview

Chain Topology

A chain topology is a linear connection between all units via stacking links. Starting with one switch, each unit connects to its next, neighboring switch through a single link between their stack ports, until the last unit has been linked with the one before it.

The chain topology is not considered to be very robust because it does not have full redundancy. If a link between two units fails, the switch stack will be truncated from where the failure occurred.

Ring Topology

In a Ring topology, all units in the stack are connected in a loop, creating failover capability.

It is similar to a chain, except the last unit connects back to the first unit providing additional redundancy in the case of a failed stack link.

The failure of one link in a ring causes the topology to revert to a chain and maintains stack functionality. As a result, a ring topology is more reliable than a chain and provides a more stable stack operation.

Setting Up Chain and Ring Topologies

To physically set up the two stack topologies in this demonstration, we will use 4 SG550XG Switches.

Chain Topology

Step 1. Take a cable and connect the first and second switch together. To connect units to each other with the stacking links, you can use any network port on the switch as a stack port.

Note: Take note of the port numbers you use to connect the switches. You will need to designate these ports as stack ports in the Graphical User Interface Configuration for the stack topology.

Step 2. Connect the second and third switch together using a stacking cable.

Step 3. Connect the third and fourth switch together using a stacking cable.

Note: If you have more than four units in your stack, repeat this process for every subsequent switch until the last unit is connected to the one before it.

Ring Topology

Step 1. Follow the Chain Topology Physical Configuration steps to connect your switches into a chain topology. A ring topology uses the same configuration as a chain, except the last unit connects back to the first.

Step 2. Connect the last switch back to the first switch using a stacking cable.

Graphical User Interface Configuration

After you have physically established a ring or chain topology, you must complete the stack set-up through configurations in the graphical user interface. This is where you must designate the appropriate ports being used for each unit as stack ports.

Note: Steps 1 through 4 must be performed on each stack member.

Step 1. Log in to the web configuration utility of each switch and choose **Administration > Stack Management**.

Note: For more information on accessing your network device interfaces, please refer to the *Network Discovery and Management via FindIT*.

The stack management page shows the current *Stack Topology*, and which switch in your stack is the *Stack Primary*. In addition, it provides a visual *Stack Topology View* of the current stack. Since stack ports haven't been configured yet, each switch is designated as the primary of its own single-unit chain topology.

Step 2. Under the *Unit View and Stack Port Configuration* section, click on the ports you want to designate as stacking ports for each switch. These should be the same ports you used to connect your switches earlier.

Note: In order to enable stacking, at least two stacking ports must be selected in the graphical user interface. By default, all ports are defined as network ports. The user can configure 0, 2-4 ports on the SG350XG and 0, 2-8 ports on the SG550XG to function as stack ports.

Step 3. In the *Unit ID After Reset* drop-down list, choose **auto** in order to automatically assign each stack member a unique unit ID. The assignment process will be based on each unit's MAC address, and determine the initial Primary, Back Up and Member units. If you'd like more information, you can watch our *Auto-Numbering* episode.

Step 4. Click **Apply and Reboot** to save the changes for each switch. A confirmation window will open asking if you would like to continue. Click **OK** and your device will reboot.

Viewing Stack Configurations

Step 1. After all switches have finished rebooting, log in to the web configuration utility of the stack Primary unit and choose **Administration > Stack Management**.

The *Stack Management* page appears showing the updated information on our established chain or ring topology

Step 2 (optional). Under the *Stack Topology View* section, you can select each individual switch for viewing or editing stack member configurations. Clicking an individual unit will show you which of its stacking ports are active, and whether the unit is the Primary, Back-up or Member unit in the topology.

Step 3 (optional). A brief overview of your stack configuration is also available if you navigate to **Status and Statistics > System Summary**.The *System Summary* page shows the units in your stack, as well as information on individual serial numbers and PID VID numbers

Conclusion

The SG350XG and SG550XG support stacking under two types of topologies: Chain and Ring. The Ring topology is generally more favorable than the Chain due to its additional redundancy, but both can be used to establish a functional switch stack. To configure them, you will need to physically link ports between each switch, and then designate those ports as stack ports in the graphical user interface. This concludes our tutorial on Ring and Chain Topologies.