Cisco Catalyst 4948

Switch Configuration Guide for EqualLogic SANs

Dell Storage Engineering
June 2014
# Revisions

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
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<tr>
<td>June 2014</td>
<td>Initial release</td>
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1 Introduction
This document illustrates how to configure Cisco® Catalyst 4948 switches for use with EqualLogic™ PS Series storage using Dell™ best practices. The recommended configuration uses a link aggregation group (LAG) for inter-switch connections.

If you are following the Rapid EqualLogic Configuration steps at http://en.community.dell.com/techcenter/storage/w/wiki/3615.rapid-equallogic-configuration-portal-by-sis.aspx, use Sections 1 and 2 in this Switch Configuration Guide.

For more information on EqualLogic SAN design recommendations, see the EqualLogic Configuration Guide at: www.delltechcenter.com/page/equallogic+configuration+guide.

1.1 Audience
This switch configuration guide describes a verified configuration following Dell best practices for an EqualLogic iSCSI SAN and is intended for storage or network administrators and deployment personnel.

1.2 Switch details
The table below provides an overview of the switch configuration. This switch configuration guide covers setup instructions for both the Catalyst 4948-10G and 4948E switch models.

Table 1 Switch specifications

<table>
<thead>
<tr>
<th>Switch specifications</th>
<th>Cisco Catalyst 4948</th>
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<tr>
<td>Switch vendor</td>
<td>Cisco</td>
</tr>
<tr>
<td>Switch model</td>
<td>Catalyst 4948E and Catalyst 4948-10G</td>
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</table>
| Switch firmware        | 4948-10G: 15.0(2)SG8 or later  
                          | 4948E: 15.2(1)E2 or later |

Note: For proper functionality, the switch must be at the firmware version shown in the table above before proceeding with configuration. Using previous firmware versions may have unpredictable results.

The latest firmware updates and documentation can be found at: www.cisco.com. This site requires a login.
1.3 Cabling diagram

The cabling diagram shown below represents the Dell recommend method for deploying your servers and EqualLogic arrays.

![Cabling diagram](image)

**Note:** The Catalyst 4948E uses 10 Gb SFP+ modules and the Catalyst 4948-10G uses 10-Gigabit Ethernet X2 modules for the Port-channel. Figure 1 shows the Catalyst 4948E with 10 Gb SFP+ interfaces used for the port-channel.
Dell recommended switch configuration

These steps show you how to configure two Cisco Catalyst 4948 switches. The switches are interconnected using the 10 Gbps ports configured as a LAG.

**Note:** The configuration steps in this section are only recommended when the switch is used as a dedicated SAN for iSCSI traffic.

2.1 Hardware configuration

1. Power on both switches.
2. Connect a serial cable to the management port.
3. Using any terminal utility, open a serial connection session to the switch.
4. Open your terminal emulator and configure it to use the serial port (usually COM1 but this may vary depending on your system). Configure serial communications for 9600,N,8,1 and no flow control.
5. Connect the cables between switch 1 and switch 2 as shown in Figure 1, for ports 49-50 or 49-52. These will be used as your switch inter-connect links.

2.2 Startup configuration file

**Note:** This example assumes a switch at its default configuration settings. Always back up your configuration settings prior to performing any configuration changes.

```bash
Switch>enable
Switch#erase startup-config
Erasing the nvram filesystem will remove all configuration files! Continue? [confirm]
Switch#reload
```

**Note:** If your system reboots to the following error message “Could not find a valid file in BOOT environment variable”, then you must set the system image name and location using the ROM Monitor utility.

```bash
rommon 1>boot -help
```

or

```bash
rommon 1>confreg
```

**Note:** Consult your Cisco product users guide for setting the boot system image or contact Cisco support.
2.3 Basic system configuration

The following steps configure network connectivity for management of the switch.

Switch>enable
Switch#configure
Switch(config)#interface fastEthernet 1
Switch(config-if)#ip address ip-address subnet-mask
Switch(config-if)#exit

**Note:** Configuring the IP route is optional and dependent on network topology

Switch(config)#ip route vrf mgmtVrf destination destination-mask gateway

2.4 Configure Port-Channel Interfaces

Switch(config)#interface port-channel 1
Switch(config-if)#switchport
Switch(config-if-range)#mtu 9198
Switch(config-if-range)#exit

**Note:** Ports 49 and 50 are used for the port-channel.

Switch(config)#interface range tenGigabitEthernet 1/49 - 50
Switch(config-if-range)#mtu 9198
Switch(config-if-range)#channel-group 1 mode active
Switch(config-if-range)#exit

**Note:** Only Rx flow control is supported on the port-channel.

Switch(config)#interface port-channel 1
Switch(config-if)#flowcontrol receive on
Switch(config-if)#exit
2.5 Configuring Edge-Ports
Perform this step for each individual port that is connected to a storage controller or a host interface port, or you can specify a range of ports to configure. This section enables link-level flow control (802.3x) and jumbo frames.

Switch(config)#interface range GigabitEthernet 1/1-48
Switch(config-if-range)#flowcontrol receive on
Switch(config-if-range)#mtu 9198
Switch(config-if-range)#switchport
Switch(config-if-range)#exit

2.6 Configure portfast on edge ports
Switch(config)#interface range GigabitEthernet 1/1-48
Switch(config-if-range)#spanning-tree portfast
Switch(config-if-range)#exit

Note: Switch ports 49 -50 are part of port-channel 1 so they must not be included in the above range.

2.7 Enable LLDP
Switch(config)#lldp run
switch(config)#exit

2.8 Save configuration
Switch#copy running-config startup-config

2.9 Configure additional switch
Repeat the commands from Sections 2.1 through 2.9 to configure the second switch.
Additional resources

Support.dell.com is focused on meeting your needs with proven services and support.

Support.cisco.com for support and information regarding Cisco networking products.

DellTechCenter.com is an IT Community where you can connect with Dell Customers and Dell employees for the purpose of sharing knowledge, best practices, and information about Dell products and your installations.

Referenced or recommended Dell publications:

- Dell EqualLogic Configuration Guide:  
- Dell EqualLogic Compatibility Matrix:  

For EqualLogic best practices white papers, reference architectures, and sizing guidelines for enterprise applications and SANs, refer to Storage Infrastructure and Solutions Team Publications at:

- http://dell.to/sM4hJT