Cisco Catalyst 3850

Switch Configuration Guide for Dell PS Series SANs

Dell Storage Engineering
October 2016
Revisions

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<th>Date</th>
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1 Introduction

This document illustrates how to configure Cisco® Catalyst 3850 switches for use with Dell™ 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, use sections 1 and 2 in this switch configuration guide.

For more information on Dell PS series SAN design recommendations, see the PS Series Configuration Guide.

1.1 Audience

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

1.2 Switch details

Table 1 provides an overview of the switch configuration. This switch configuration guide covers setup instructions for all Catalyst 3850 switch models.

<table>
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<th>Switch specifications</th>
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<tr>
<td><strong>Cisco Catalyst 3850</strong></td>
<td></td>
</tr>
<tr>
<td>Switch vendor</td>
<td>Cisco</td>
</tr>
<tr>
<td>Switch model</td>
<td>Catalyst 3850</td>
</tr>
<tr>
<td>Switch firmware</td>
<td>03.07.04E or later 16.3.1 or later</td>
</tr>
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</table>

**Note:** For proper functionality, the switch must be at the firmware version shown in Table 1 before proceeding with configuration. Using previous firmware versions may have unpredictable results.

**Note:** The latest firmware updates and documentation can be found at: [www.cisco.com](http://www.cisco.com). This site requires a login.
1.3  **Cabling diagram**

The cabling diagram shown in Figure 1 represents the Dell recommend method for deploying your servers and PS Series storage arrays.

*Figure 1  Cabling diagram*

**Note:** Figure 1 shows the Catalyst 3850 with 10 Gb SFP+ interfaces used for the port-channel.
2 Dell recommended switch configuration

These steps show you how to configure two Cisco Catalyst 3850 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 2 x 10 Gb Ethernet ports, at least, between switch 1 and switch 2 as shown in Figure 1. These are used as switch interconnect 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.

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

2.3 Basic system configuration

The following steps will setup the initial configuration for the Cisco switch.

Would you like to enter the initial configuration dialog? [yes/no]: yes

Would you like to enter basic management setup? [yes/no]: yes

Enter host name [Switch]: Switch

The enable secret is a password used to protect access to privileged EXEC and configuration modes. This password, after entered, becomes encrypted in the configuration.

Enter enable secret: <password>
The enable password is used when you do not specify an enable secret password, with some older software versions, and some boot images.

Enter enable password: <password>

The virtual terminal password is used to protect access to the router over a network interface.

Enter virtual terminal password: <password>

Setup account for accessing HTTP server? [yes]: no

Configure SNMP Network Management? [no]: <Enter your choice>

**Note:** The current interface summary is displayed here.

Enter interface name used to connect to the management network from the above interface summary: GigabitEthernet0/0

Configuring interface GigabitEthernet0/0:

Configure IP on this interface? [no]: yes

   IP address for this interface: <management ip address>

   Subnet mask for this interface [255.0.0.0]: <subnet mask>

**Note:** The configuration command script is displayed here.

[0] Go to the IOS command prompt without saving this config.
[1] Return back to the setup without saving this config.
[2] Save this configuration to nvram and exit.

Enter your selection [2]: 2

### 2.4 Configure Jumbo Frames, LLDP, and Spanning Tree

Switch(config)#system mtu 9198
Switch(config)#lldp run
Switch(config)#spanning-tree mode pvst
2.5 Configure policy-map and increase queue multiplier

Switch(config)#policy-map single-queue-buffer
Switch(config-pmap)#class class-default
Switch(config-pmap-c)#bandwidth percent 100
Switch(config-pmap-c)#queue-buffers ratio 100
Switch(config-pmap-c)#exit
Switch(config-pmap)#exit

Note: Cisco issue CSCuu14019 and other related issues require the following buffer multiplier command to prevent output queue drops.

Switch(config)#qos queue-softmax-multiplier 1200

2.6 Configure port-channel interfaces

Switch(config)#interface port-channel 1
Switch(config-if)#switchport
Switch(config-if)#flowcontrol receive on
Switch(config-if)#exit

Note: 10 Gb ports 1/1/3 and 1/1/4 are used for the port-channel. Change the port number in the following command if using other ports for the port channel between two switches.

Switch(config)#interface range tenGigabitEthernet 1/1/3 - 4
Switch(config-if-range)#no shutdown
Switch(config-if-range)#channel-group 1 mode active
Switch(config-if-range)#service-policy output single-queue-buffer
Switch(config-if-range)#exit
2.7 Configuring edge-ports

Perform this step for each individual port that is connected to a storage controller or a host interface port, or specify a range of ports to configure. This section enables link-level flow control (802.3x), portfast, and service policy.

Switch(config)#interface range gigabitEthernet 1/0/1 - 24

**Note:** Configure all the 48 ports for the 48 port model of the switch using the following command.

# interface range gigabitEthernet 1/0/1 - 48

Switch(config-if-range)#flowcontrol receive on
Switch(config-if-range)#spanning-tree portfast
Switch(config-if-range)#service-policy output single-queue-buffer
Switch(config-if-range)#switchport
Switch(config-if-range)#no shutdown
Switch(config-if-range)#exit
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 2.8 to configure the second switch.
A Additional resources

Dell.com/support is focused on meeting customer needs with proven services and support.

Dell TechCenter is an online technical community where IT professionals have access to numerous resources for Dell software, hardware and services.

Storage Solutions Technical Documents on Dell TechCenter provide expertise that helps to ensure customer success on Dell Storage platforms.

See the following additional referenced or recommended Dell publications:

- Dell PS Series Configuration Guide
- Dell Storage Compatibility Matrix