Cisco Catalyst 3750X

Rapid EqualLogic Configuration Series
Implementation Guide

Dell Storage Engineering
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Revisions

Date	Description
April 2012	initial release
June 2012	Minor edits
February 2013	Added note about this document does not apply for FS Series deployments.
March 2014	Added LAG section
April 2014	Minor edits
December 2016	Section 2.7 and 3.5 revised QoS buffer optimizations

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1 Introduction

This document shows how to configure Cisco® Catalyst® 3750X switches for use with Dell™ EqualLogic™ PS Series storage using Dell best practices. The recommended configuration uses link aggregation groups (LAGs) for inter-switch connections. An optional configuration is provided for the Catalyst 3750X switches using the stacking feature.

For more information on EqualLogic SAN design recommendations, see the EqualLogic Configuration Guide at
http://en.community.dell.com/dell-groups/dtcmedia/m/mediagallery/19852516/download.aspx.

1.1 Audience

This switch configuration guide describes an optimal 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.

Table 1   Switch specifications

Cisco Catalyst 3750X	
switch vendor	Cisco
switch model	Catalyst 3750X
switch firmware	15.0(2)SE4 or later

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

The latest firmware updates and documentation can be found at: http://www.cisco.com/techsupport.

2 Dell recommended configuration for Cisco Catalyst 3750X

Note: This configuration does not apply for EqualLogic FS Series deployments.

These steps show how to configure two Cisco Catalyst 3750X series switches with a Link Aggregation Group (LAG) interconnect. The switches are interconnected using the optional Cisco C3KX-NM-10G network modules, and the LAG is configured for Dynamic Link Aggregation Control Protocol (LACP).

For configuring Cisco Catalyst 3750X switches in a stack configuration, skip to Section 3.

2.1 Hardware configuration

To perform this configuration you will need the following:

1. A DB9 to RJ45 serial cable (provided with the Cisco switch).
2. A management station (server, desktop, or laptop) running Windows (XP, 7, 2003, 2008) in close proximity to the switch (i.e. the serial cable must connect from this system to the switch). You may also use a Windows host server for this.
3. Power on the two switches.
4. Connect a serial cable to the serial port of the first switch.
5. Using Putty or another terminal utility, open a serial connection session to the switch.
6. 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.
7. Connect the LAG cables between the Cisco C3KX-NM-10G network module ports denoted as G2/TE1 and G4/TE2 of each switch.
8. For the Servers and SAN correct connections, refer to the cabling diagram in the Preparation document selected from the Rapid EqualLogic Configuration Portal at http://en.community.dell.com/techcenter/storage/w/wiki/3615.rapid-equallogic-configuration-portal-by-sis.aspx

2.2 Check firmware version

```
Switch>enable
Switch#show version
```

Note: If the active version displayed here is not 15.0(2)SE4 or later, please visit http://www.cisco.com/techsupport and download the latest update for your switches.

2.3   Delete startup configuration

Note: All configuration settings will be deleted.

```
Switch#write erase
Switch#reload
```

Note: The switch will reboot.

2.4   Configure out of band (OOB) management port

```
Switch>enable
Switch#config
Configuring from terminal, memory, or network [terminal]? [Enter]
Switch(config)#interface fastethernet 0
Switch(config-if)#ip address ipaddress mask
Switch(config-if)#no shutdown
Switch(config-if)#exit
Switch(config)#ip default-gateway gateway
```

2.5   Setup the ports

```
Switch(config)#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)#no storm-control unicast level
Switch(config-if-range)#no shutdown
Switch(config-if-range)#exit
Switch(config)#system mtu jumbo 9198
```

2.6   Configure port channel for LAG

```
Switch(config)#interface Port-channel 1
Switch(config-if)#flowcontrol receive on
Switch(config-if-range)#no spanning-tree portfast
Switch(config-if)#switchport mode dynamic auto
Switch(config-if)#exit
Switch(config)#interface range tenGigabitEthernet 1/1/1-2
```

```
Switch(config-if-range)#channel-group 1 mode active
Switch(config-if-range)#flowcontrol receive on
Switch(config-if-range)#no spanning-tree portfast
Switch(config-if-range)#no shutdown
Switch(config-if-range)#exit
```

2.7 Configure QOS and optimize buffers for EQL iSCSI use

```
Switch(config)#mls qos queue-set output 1 buffers 10 70 10 10
Switch(config)#mls qos queue-set output 1 threshold 1 100 100 100 400
Switch(config)#mls qos queue-set output 1 threshold 2 2000 100 10 2000
Switch(config)#mls qos queue-set output 1 threshold 3 100 100 100 400
Switch(config)#mls qos queue-set output 1 threshold 4 100 100 100 400
Switch(config)#mls qos
```

2.8 Configure telnet access

```
Switch(config)#enable password 0 yourpassword
Switch(config)#line vty 0
Switch(config-line)#password 0 yourpassword
Switch(config-line)#exit
Switch(config)#exit
```

2.9 Save the configuration and activate it

```
Switch#copy run start
Destination filename [startup-config]? [Enter]
Switch#reload
```

2.10 Configure additional switch

Repeat the commands from Section 2 to configure the second switch.

Note: The preceding procedure places all switch ports in the default VLAN. If you prefer to place ports in a non-default VLAN, refer to the documentation for your switch.

3 Optional stack configuration

Note: One advantage of stacked switches is that they can be managed as a single switch; however firmware updates will update all members of the stack simultaneously and therefore should only be done during planned downtime.

These steps show how to configure two Cisco series switches with a stack. The switches are interconnected using the stacking ports in the rear of each unit,

9. Stack two Cisco 3750X switches using the appropriate stacking cables and turn the power on.
10. Connect a serial cable to the switch indicating it is the master or primary switch to access the console.
11. Using Putty or another terminal utility, open a serial connection session to the switch.
12. 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.
13. For out-of-band network management, connect the LAN (client or management) network to the switch port labeled "10/100TX" on the back of the switch.

3.1 Check firmware version

```
Switch>enable
Switch#show version
```

Note: If the active version displayed here is not 15.0(2)SE4 or later, please visit http://www.cisco.com/techsupport and download the latest update for your switches.

3.2 Delete startup configuration

Note: All configuration settings will be deleted.

```
Switch#write erase
Switch#reload
```

Note: The switch will reboot.

3.3 Configure out of band (OOB) management port

```
Switch>enable
```

```
Switch#config
Configuring from terminal, memory, or network [terminal]? [Enter]
Switch(config)#interface fastethernet 0
Switch(config-if)#ip address ipaddress mask
Switch(config-if)#no shutdown
Switch(config-if)#exit
Switch(config)#ip default-gateway gateway
```

3.4   Setup the ports

```
Switch(config)#interface range gig 1/0/1-48, gig 2/0/1-48
Switch(config-if-range)#flowcontrol receive on
Switch(config-if-range)#spanning-tree portfast
Switch(config-if-range)#no storm-control unicast level
Switch(config-if-range)#no shutdown
Switch(config-if-range)#exit
Switch(config)#system mtu jumbo 9198
```

3.5   Configure QOS and optimize buffers for EQL iSCSI use

```
Switch(config)#mls qos queue-set output 1 buffers 10 70 10 10
Switch(config)#mls qos queue-set output 1 threshold 1 100 100 100 400
Switch(config)#mls qos queue-set output 1 threshold 2 2000 100 10 2000
Switch(config)#mls qos queue-set output 1 threshold 3 100 100 100 400
Switch(config)#mls qos queue-set output 1 threshold 4 100 100 100 400
Switch(config)#mls qos
```

3.6   Configure telnet access

```
Switch(config)#enable password 0 yourpassword
Switch(config)#line vty 0
Switch(config-line)#password 0 yourpassword
Switch(config-line)#exit
Switch(config)#exit
```

3.7   Save the configuration and activate it

```
Switch#copy run start
Destination filename [startup-config]? [Enter]
Switch#reload
```

Note: The preceding procedure places all switch ports in the default VLAN. If you prefer to place ports in a non-default VLAN, refer to the documentation for your switch.

A   Technical support and 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.

A.1   Related resources

Referenced or recommended Dell publications:

- Dell PS Series Configuration Guide:

  http://en.community.dell.com/dell-groups/dtcmedia/m/mediagallery/19852516

- Dell Storage Compatibility Matrix

  http://en.community.dell.com/techcenter/storage/w/wiki/5069.dell-storage-compatibility-matrix