Dell Networking S5000

Switch Configuration Guide for SC Series iSCSI SANs

Dell Storage Engineering
February 2016
## Revisions

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 2014</td>
<td>Initial release</td>
</tr>
<tr>
<td>February 2016</td>
<td>Update for FW version 9.9.0.0</td>
</tr>
</tbody>
</table>

This white paper is for informational purposes only, and may contain typographical errors and technical inaccuracies. The content is provided as is, without express or implied warranties of any kind.

© 2014–2016 Dell Inc. All rights reserved. Dell, the DELL logo, and the DELL badge are trademarks of Dell Inc. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Dell disclaims any proprietary interest in the marks and names of others.
Table of contents

Revisions ............................................................................................................................................. 2

1 Introduction ......................................................................................................................................... 4
  1.1 Audience ......................................................................................................................................... 4
  1.2 Switch details .................................................................................................................................. 4
  1.3 Cabling diagram .......................................................................................................................... 5

2 Dell recommended switch configuration ............................................................................................ 6
  2.1 Hardware configuration .................................................................................................................. 6
  2.2 Delete startup configuration ......................................................................................................... 6
  2.3 Disabling Data Center Bridging (DCB) configuration ...................................................................... 6
  2.4 Configure out of band (OOB) management port ............................................................................ 7
  2.5 Configure route for OOB management port (optional) ................................................................... 7
  2.6 Configure login credentials .......................................................................................................... 7
  2.7 Enable switch ports ....................................................................................................................... 7
  2.8 Enable Jumbo Frames .................................................................................................................... 8
  2.9 Enable flow control ....................................................................................................................... 8
  2.10 Configure spanning tree on edge ports ......................................................................................... 8
  2.11 Configure VLAN .......................................................................................................................... 8
  2.12 Save configuration ....................................................................................................................... 9
  2.13 Configure additional switch ....................................................................................................... 9

3 Configure UPM ports as Ethernet Pass-through (Optional) ................................................................. 10
  3.1 View the current configuration .................................................................................................... 10
  3.2 Configure port group 0 as Ethernet Pass-through ........................................................................ 10
  3.3 To revert Ethernet Pass-through to FC ports ............................................................................. 11

Additional resources ............................................................................................................................ 12
1 Introduction
This document shows how to configure Dell™ Networking S5000 switches for use as a dedicated iSCSI SAN with Dell SC Series storage using Dell best practices.

1.1 Audience
This switch configuration guide describes an optimal configuration following Dell best practices for an SC Series 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>
<thead>
<tr>
<th>Table 1</th>
<th>Switch specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dell Networking S5000</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Switch vendor</strong></td>
<td>Dell</td>
</tr>
<tr>
<td><strong>Switch model</strong></td>
<td>S5000</td>
</tr>
<tr>
<td><strong>Switch firmware</strong></td>
<td>9.9.9.0 or later</td>
</tr>
</tbody>
</table>

**Note:** For proper functionality, the switch must be at the 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: [www.force10networks.com](http://www.force10networks.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 SC Series.

R620 server shown as an example.

Figure 1  Cabling diagram
2 Dell recommended switch configuration

These steps outline how to configure two S5000 switches for use as an iSCSI SAN with SC Series storage.

2.1 Hardware configuration

1. Power on the two switches.
2. Connect a serial cable to the serial port of the first switch.
3. Using any terminal utility, open a serial connection session to the switch.
4. Open the terminal emulator and configure it to use the serial port (usually COM1, but this may vary depending on the system). Configure serial communications for 9600,N,8,1 and no flow control.

2.2 Delete startup configuration

**Note:** This example assumes a switch at its default configuration settings. Using the `delete startup-config` command will set the startup configuration file to its default settings. You should always backup your configuration settings prior to performing any configuration changes.

```
FTOS> enable
FTOS# delete startup-config
Proceed to delete startup-config [confirm yes/no] yes
FTOS# reload
System configuration has been modified. Save? [yes/no] no
Proceed with reload [confirm yes/no] yes
```

**Note:** The switch will reboot.

2.3 Disabling Data Center Bridging (DCB) configuration

**Note:** For non-DCB environments, DCB must be manually disabled using the following steps:

```
FTOS> enable
FTOS# configure
FTOS(conf)# no dcb enable
FTOS(conf)# exit
FTOS# copy running-config startup-config
```
2.4 Configure out of band (OOB) management port

FTOS>enable
FTOS>#config
FTOS(conf)#interface Managementethernet 0/0
FTOS(conf-if-ma-0/0)#no shutdown
FTOS(conf-if-ma-0/0)#ip address ipaddress mask
FTOS(conf-if-ma-0/0)#exit

2.5 Configure route for OOB management port (optional)

FTOS (conf)#management route X.Y.Z.0 /24 A.B.C.1

**Note:** X.Y.Z.0 is the network your management system is connecting from and A.B.C.1 is the gateway for the switch. If your management system is on the same subnet as the switch, the previous step may be omitted. The example above assumes a class C subnet mask.

2.6 Configure login credentials

FTOS(conf)#username admin password yourpassword privilege 15
FTOS(conf)#enable password yourpassword

2.7 Enable switch ports

**Option 1:** You can enable ports individually by entering the port number

FTOS(conf)#interface tengigabitethernet 0/0
FTOS(conf-if-te-0/0)#switchport
FTOS(conf-if-te-0/0)#no shutdown
FTOS(conf-if-te-0/0)#exit

**Option 2:** You can enable multiple ports at once using the "range" parameter

FTOS(conf)#interface range tengigabitethernet 0/0 - 47

**Note:** The message below will be displayed if there are FC ports.

% Warning: Non-existing ports (non configured) are ignored by interface-range
2.8 Enable Jumbo Frames

FTOS(conf-if-range-te-0/0-47)#mtu 12000

2.9 Enable flow control

FTOS(conf-if-range-te-0/0-47)#flowcontrol rx on tx off

2.10 Configure spanning tree on edge ports

Note: Use the following command only on server- and storage-connected edge ports.

FTOS(conf-if-range-te-0/0-47)#spanning-tree rstp edge-port

FTOS(conf-if-range-te-0/0-47)#exit

FTOS(conf)#protocol spanning-tree rstp

FTOS(conf-rstp)#no disable

FTOS(conf-rstp)#exit

2.11 Configure VLAN

Note: Dell recommends assigning a unique vlan_id (between 2-4094) for each switch fabric. For example, assign VLAN 100 on the first switch and VLAN 200 on the second switch. The following example assigns all the ports to the VLAN, however, you may also assign individual ports to the VLAN after they are enabled (Section 2.7). If you prefer to use the default VLAN, then you may skip this section entirely.

FTOS(config)#interface vlan vlan_id

FTOS(config-if-vl-###)#no shutdown

FTOS(config-if-vl-###)#untagged tengigabitethernet 0/0-47

FTOS#exit
2.12 Save configuration
   FTOS#copy running-config startup-config

2.13 Configure additional switch
   Repeat the commands from Section 2 to configure the second switch.
3 Configure UPM ports as Ethernet pass-through (optional)

The FC ports on the Unified Port Module (UPM) can be configured as Ethernet pass-through. Use this section only if the UPM module is used. The 12 ports are divided into six port groups numbered 0-5. Two ports in each port group can be configured separately as FC or Ethernet pass-through.

**Note:** This operation requires a reload for the changes to take effect.

3.1 View the current configuration

Use this command to view the current mode of the ports and also the port group mapping.

```
FTOS# show system stack-unit 0 port-group portmode
```

<table>
<thead>
<tr>
<th>PortGroupId</th>
<th>Ports</th>
<th>Mode (Curr Boot)</th>
<th>Mode (Next Boot)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0,1</td>
<td>FC</td>
<td>FC</td>
</tr>
<tr>
<td>1</td>
<td>2,3</td>
<td>FC</td>
<td>FC</td>
</tr>
<tr>
<td>2</td>
<td>4,5</td>
<td>FC</td>
<td>FC</td>
</tr>
<tr>
<td>3</td>
<td>6,7</td>
<td>FC</td>
<td>FC</td>
</tr>
<tr>
<td>4</td>
<td>8,9</td>
<td>FC</td>
<td>FC</td>
</tr>
<tr>
<td>5</td>
<td>10,11</td>
<td>FC</td>
<td>FC</td>
</tr>
</tbody>
</table>

3.2 Configure port group 0 as Ethernet pass-through

```
FTOS(conf)# stack-unit 0 port-group 0 portmode Ethernet
```

Changing port mode on slot 0 port-group 0 will make interface configs of 0 and 1 obsolete after a save and reload.

[confirm yes/no]: yes

Please save and reload for the changes to take effect.

**Note:** Save and reload is required.
3.3 To revert Ethernet pass-through to FC ports

FTOS(conf)# no stack-unit 0 port-group 0 portmode ethernet

Changing port mode on slot 0 port-group 0 will make interface configs of 0 and 1 obsolete after a save and reload.

[confirm yes/no]: yes

Please save and reload for the changes to take effect.

**Note:** Save and reload is required.
Additional resources

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

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 Storage Compatibility Matrix.**