



Dell Networking S3148p/S3124

Switch Configuration Guide for Dell PS Series SANs

Dell Storage Engineering
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Revisions

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1 Introduction

This document illustrates how to configure Dell Networking S3148p or S3124 switches with Dell™ PS Series storage using Dell best practices. The recommended configuration uses Link Aggregation Groups (LAGs) for inter-switch connections. Optional steps are provided in section 3 for stack configurations.

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 information on PS Series SAN design recommendations, see the [EqualLogic Configuration Guide](#).

1.1 Document conventions

Table 1 lists the formatting conventions used in this document.

Table 1 Document conventions

Format	Description	Example
Bold	User input	Dell> enable
<i>Italic</i>	Placeholder or variable	<i>your password</i>
< <i>Italic</i> > < <i>brackets</i> >	Separate variables	< <i>ip address</i> > < <i>mask</i> >

1.2 Audience

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

1.3 Switch details

Table 2 provides an overview of the switch configuration.

Table 2 Switch specifications

Dell Networking S3148p / S3124	
Switch vendor	Dell
Switch model	S3148p or S3124
Switch firmware	9.8.2.0 or later

Note: For proper functionality, the switch must be at the firmware version shown in Table 2 before proceeding with this configuration. Using previous firmware versions may have unpredictable results.

Find the latest firmware updates and documentation at: www.force10networks.com (login required).



1.4 Cabling diagram

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

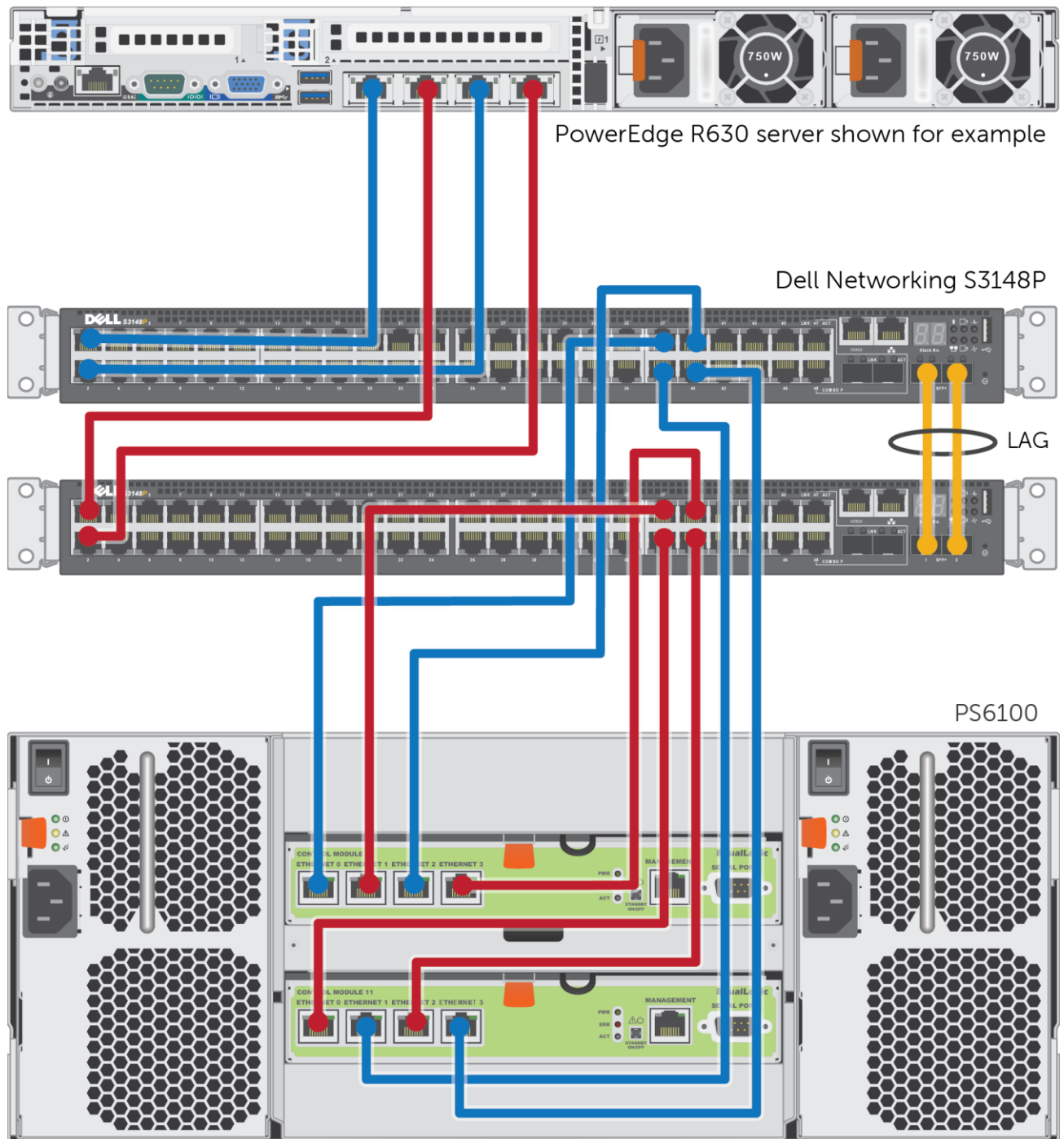


Figure 1 Cabling diagram



2 Dell recommended switch configuration

Follow these steps to configure two S3148p or S3124 switches with a LAG. The switches are interconnected using two of the 10GbE Small Form-factor Pluggable (SFP+) ports, and the LAG is configured for Dynamic Link Aggregation Control Protocol (LACP).

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 PuTTY or another 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 (SFP+) 10GbE cables between the switches.
 - S3148: Connect ports 49 and 50 on switch 1 to ports 49 and 50 on switch 2, respectively. See this configuration in Figure 1.
 - S3124: Connect 10GbE ports 25 and 26 on switch 1 to 25 and 26 ports on switch 2, respectively.

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. Always back up configuration settings prior to performing any configuration changes.

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

Note: The switch will reboot.

2.3 Disable iSCSI optimization

```
Dell>enable
Dell>configure
Dell(conf)#no iscsi enable
```

2.4 Configure out of band (OOB) management port

```
Dell(conf)#interface ManagementEthernet 1/1
Dell(conf-if-ma-1/1)#no shutdown
Dell(conf-if-ma-1/1)#ip address <ipaddress> <mask>
Dell(conf-if-ma-1/1)#exit
```



2.5 Configure route for OOB management port (optional)

```
Dell (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

```
Dell (conf) #username admin privilege 15 password 0 yourpassword  
Dell (conf) #enable password level 15 0 yourpassword
```

2.7 Enable switch ports

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

```
Dell (conf) #interface gigabitethernet 1/1  
Dell (conf-if-gi-1/1) #switchport  
Dell (conf-if-gi-1/1) #no shutdown  
Dell (conf-if-gi-1/1) #no ip address  
Dell (conf-if-gi-1/1) #exit  
Dell (conf) #exit
```

Option 2: You can enable multiple ports at once using the `range` parameter.

```
Dell#configure  
Dell (conf) #interface range gigabitethernet 1/1-1/48
```

Note: For the S3124 switch, use:

```
Dell (conf) #interface range gigabitethernet 1/1-1/24
```

```
Dell (conf-if-range-gi-1/1-1/48) #switchport  
Dell (conf-if-range-gi-1/1-1/48) #no shutdown  
Dell (conf-if-range-gi-1/1-1/48) #no ip address
```

2.8 Enable Jumbo Frames

```
Dell (conf-if-range-gi-1/1-1/48) #mtu 12000
```

2.9 Configure flow control

```
Dell (conf-if-range-gi-1/1-1/48) #flowcontrol rx on tx off
```



2.10 Configure spanning tree on edge ports

Note: Make sure that the following command is used only on server- and storage-connected edge ports.

```
Dell(conf-if-range-gi-1/1-1/48)#spanning-tree rstp edge-port  
Dell(conf-if-range-gi-1/1-1/48)#exit  
Dell(conf)# protocol spanning-tree rstp  
Dell(conf-rstp)#no disable  
Dell(conf-rstp)#exit
```

2.11 Configure LLDP

```
Dell(conf)#protocol lldp  
Dell(conf-lldp)#no disable  
Dell(conf-lldp)#exit
```

2.12 Configure port channel for LAG

These commands configure the switch interconnect as a LAG.

```
Dell(conf)#interface Port-channel 1  
Dell(conf-if-po-1)#mtu 12000  
Dell(conf-if-po-1)#switchport  
Dell(conf-if-po-1)#no shutdown  
Dell(conf-if-po-1)#no ip address  
Dell(conf-if-po-1)#exit
```

2.13 Configure SFP+ ports for LAG

These commands assign 10Gb SFP+ ports to the Port Channel.

```
Dell(conf)#interface range tengigabitethernet 1/49-1/50
```

Note: For the S3124 switch, use:

```
Dell(conf)#interface range tengigabitethernet 1/25-1/26
```

```
Dell(conf-if-range-te-1/49-1/50)#no ip address  
Dell(conf-if-range-te-1/49-1/50)#mtu 12000  
Dell(conf-if-range-te-1/49-1/50)#no shutdown  
Dell(conf-if-range-te-1/49-1/50)#flowcontrol rx on tx off  
Dell(conf-if-range-te-1/49-1/50)#port-channel-protocol lacp  
Dell(conf-if-range-te-1/49-1/50-lacp)#port-channel 1 mode active  
Dell(conf-if-range-te-1/49-1/50-lacp)#exit  
Dell(conf-if-range-te-1/49-1/50)#exit  
Dell(conf)#exit
```



2.14 Save configuration

Dell#**copy running-config startup-config**

2.15 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: If you wish to use a stack configuration instead of LAG, use the following instructions instead of the instructions in section 2.

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.

3.1 Delete startup configuration on all switches

Note: To run the the following commands on the serial console, first connect serially to the switch using steps 1–4 in section 2.1.

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

Note: The switch will reboot. Repeat the above steps for all switches.

3.2 Connect stacking cables for the switches

Connect the stacking cables using the stacking ports available on the switches. Once the stacking cables are connected, the switches will reboot and one of the switches will come up in master mode and others will be standby units.

3.3 Verify stack configuration

From the master switch CLI, confirm that the stack has formed:

```
Dell>enable  
Dell#show redundancy  
Dell#show boot system stack-unit all
```

Note: The switch front panel will show a steady light in the MASTER LED for the master unit and the light will be off for the standby unit. All of the following configuration steps must be performed from the master switch.

3.4 Disable iSCSI optimization

```
Dell#configure  
Dell (conf) #no iscsi enable
```



3.5 Configure out of band (OOB) management port

```
Dell(conf) #interface ManagementEthernet 1/1
Dell(conf-if-ma-1/1) #ip address <ipaddress> <mask>
Dell(conf-if-ma-1/1) #no shutdown
Dell(conf-if-ma-1/1) #exit
```

3.6 Configure route for OOB management port (optional)

```
Dell(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.

3.7 Configure login credentials

```
Dell(conf) #username admin privilege 15 password 0 <yourpassword>
Dell(conf) #enable password level 15 0 <yourpassword>
```

3.8 Configuring switch ports

```
Dell(conf) #interface range gigabitethernet 1/1-1/48
```

Note: For the S3124 switch, use:

```
Dell(conf) #interface range gigabitethernet 1/1-1/24
```

```
Dell(conf-if-range-gi-1/1-1/48) #mtu 12000
Dell(conf-if-range-gi-1/1-1/48) #switchport
Dell(conf-if-range-gi-1/1-1/48) #spanning-tree rstp edge-port
Dell(conf-if-range-gi-1/1-1/48) #flowcontrol rx on tx off
Dell(conf-if-range-gi-1/1-1/48) #no shutdown
Dell(conf-if-range-gi-1/1-1/48) #no ip address
Dell(conf-if-range-gi-1/1-1/48) #exit
Dell(conf) #interface range gigabitethernet 2/1-2/48
```

Note: For the S3124 switch, use:

```
Dell(conf) #interface range gigabitethernet 2/1-2/24
```

```
Dell(conf-if-range-gi-2/1-2/48) #mtu 12000
Dell(conf-if-range-gi-2/1-2/48) #switchport
Dell(conf-if-range-gi-2/1-2/48) #spanning-tree rstp edge-port
Dell(conf-if-range-gi-2/1-2/48) #flowcontrol rx on tx off
Dell(conf-if-range-gi-2/1-2/48) #no shutdown
Dell(conf-if-range-gi-2/1-2/48) #no ip address
Dell(conf-if-range-gi-2/1-2/48) #exit
```



```
Dell(conf)# protocol spanning-tree rstp  
Dell(conf-rstp) #no disable  
Dell(conf-rstp) #exit  
Dell(conf)# protocol lldp  
Dell(conf-lldp) #no disable  
Dell(conf-lldp) #exit  
Dell(conf) #exit
```

3.9 Save configuration and reload

```
Dell#copy running-config startup-config
```

Reload the stack to allow settings to take effect:

```
Dell#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 Additional resources

[Dell.com/support](https://dell.com/support) is focused on meeting your needs with proven services and support.

[DellTechCenter.com](https://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 [*PS Series Configuration Guide*](#)
- [*Dell Storage Compatibility Matrix*](#)
- For Dell PS Series best practices white papers, reference architectures, and sizing guidelines for enterprise applications and SANs, refer to the [PS Series Technical Documents page](#).

