



# Dell PowerConnect 8024, 8024F, M8024, and M8024-k

## Switch Configuration Guide for EqualLogic SANs

Dell Storage Engineering  
October 2013



[SIFeedback@Dell.com](mailto:SIFeedback@Dell.com)

## Revisions

Date	Description
October 2013	Initial release

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# 1 Introduction

This document shows how to configure Dell™ PowerConnect™ 8024, 8024F, M8024, and M8024-k switches for use with 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 8024 and 8024F switches using the virtual 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

Dell PowerConnect 8024, 8024F, M8024, and M8024-k	
Switch vendor	Dell PowerConnect
Switch model	PowerConnect 8024, PowerConnect 8024F, PowerConnect M8024, PowerConnect M8024-k
Switch firmware	5.1.1.7 and 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: [support.dell.com](http://support.dell.com).



## 2 Dell recommended switch configuration for 8024 and 8024F

These steps show how to configure two PowerConnect 8024 or 8024F series switches with a LAG. The switches are interconnected using four 10 GbE Small Form-factor Pluggable (SFP+) ports, and the LAG is configured for Dynamic Link Aggregation Control Protocol (LACP).

For configuring M8024 and M8024-k with a LAG, skip to Section 3. For configuring PowerConnect 8024 or 8024F series switches in a virtual stack configuration, skip to Section 4.

### 2.1 Cabling diagram for 8024 and 8024F

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

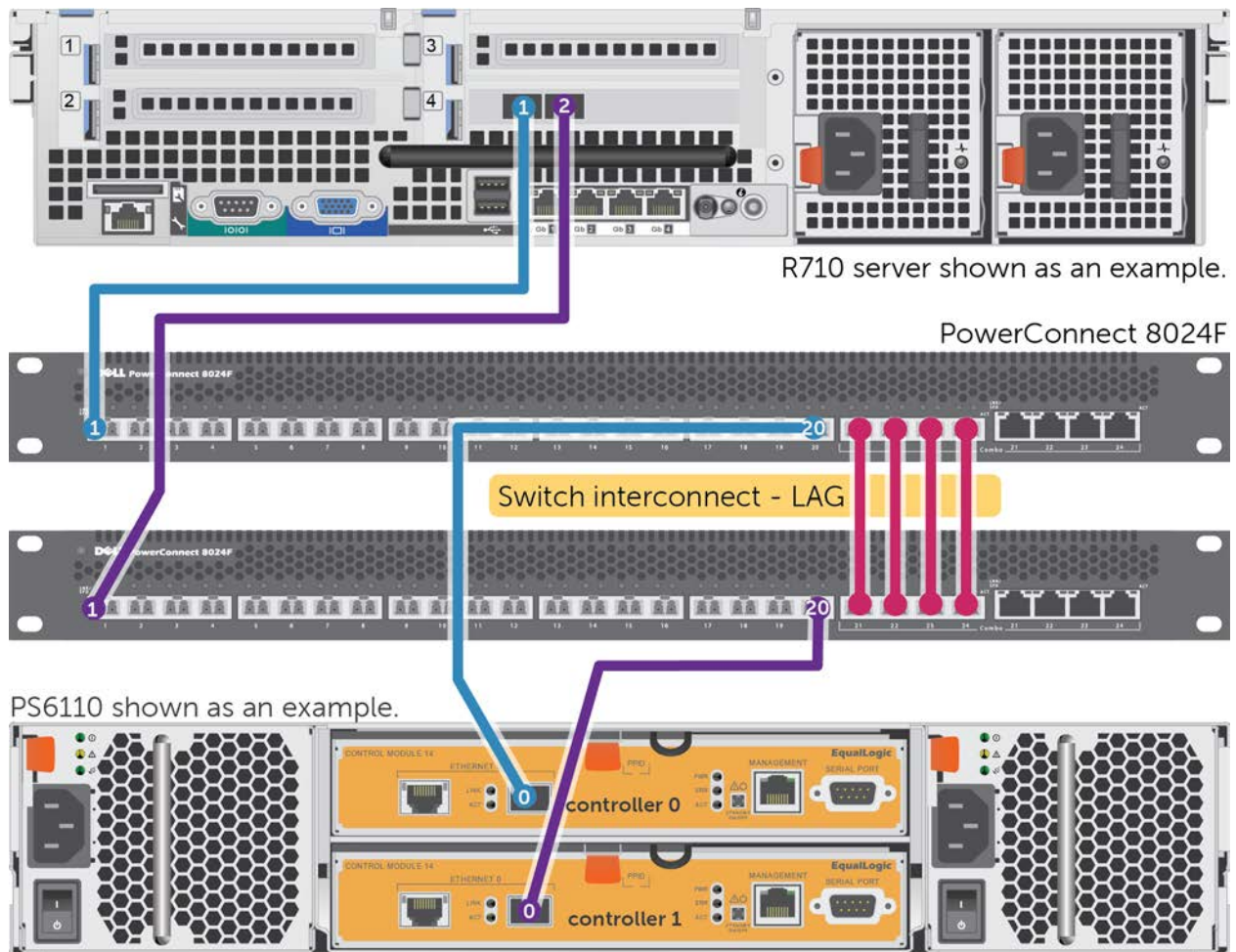


Figure 1 Cabling diagram

## 2.2 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 LAG cables between the switches. See this configuration in Figure 1.

## 2.3 Check firmware version

```
console>enable
```

```
console#show version
```

**Note:** If the active version displayed here is not 5.1.1.7 or later, please visit [support.dell.com](http://support.dell.com) and download the latest update for your switches.

## 2.4 Delete startup configuration

**Note:** All configuration settings will be deleted.

```
console#clear config
```

```
console>enable
```

```
console#copy running-config startup-config
```

```
console#reload
```

```
Are you sure you want to reload the stack? (y/n) y
```

**Note:** The switch will reboot.

## 2.5 Disable DCB

**Note:** The PowerConnect 8024 and 8024F switches do not support Enhanced Transmission Selection (ETS), therefore Data Center Bridging (DCB) must be manually disabled using the following steps:

```
console>enable
```

```
console#configure
```

```
console(config)#no dcb enable
```



## 2.6 Configure out of band (OOB) management port

```
console(config)#interface out-of-band  
  
console(config-if)#ip address ipaddress mask gateway  
  
console(config-if)#exit
```

## 2.7 Configure login credentials

```
console(config)#line telnet  
  
console(config-telnet)#login authentication default  
  
console(config-telnet)#exit  
  
console(config)#ip http authentication local  
  
console(config)#username admin password yourpassword privilege 15  
  
console(config)#enable password yourpassword
```

## 2.8 Configure Jumbo Frames

```
console(config)#interface range tengigabitethernet all  
  
console(config-if)#mtu 9216  
  
console(config-if)#exit
```

## 2.9 Enable flow control

```
console(config)#flowcontrol  
This operation may take a few minutes.  
Management interfaces will not be available during this time.  
  
Are you sure you want to continue? (y/n)y
```

## 2.10 Configure spanning tree portfast on edge ports

```
console(config)#interface range tengigabitethernet 1/0/1-20  
  
console(config-if)#spanning-tree portfast  
  
console(config-if)#exit
```





## 2.11 Configure port channel for LAG

These commands configure the switch interconnect as a LAG.

```
console(conf)#interface Port-channel 1  
  
console(conf-if-Po1)#mtu 9216  
  
console(conf-if-Po1)#exit
```

## 2.12 Configure SFP+ ports for LAG

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

```
console(conf)#interface range Tengigabitethernet 1/0/21-24  
  
console(conf-if)#channel-group 1 mode active  
  
console(conf-if)#exit  
  
console(conf)#exit
```

## 2.13 Save configuration

```
console#copy running-config startup-config
```

This operation may take a few minutes.

Management interfaces will not be available during this time.

```
Are you sure you want to save? (y/n)y
```

## 2.14 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 Dell recommended switch configuration for M8024 and M8024-k

These steps show you how to configure two PowerConnect M8024 or M8024-k series switches with a LAG. The switches are interconnected using four 10 GbE Small Form-factor Pluggable (SFP+) ports, and the LAG is configured for Dynamic Link Aggregation Control Protocol (LACP).

#### 3.1 Cabling diagram for M8024 and M8024-k

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

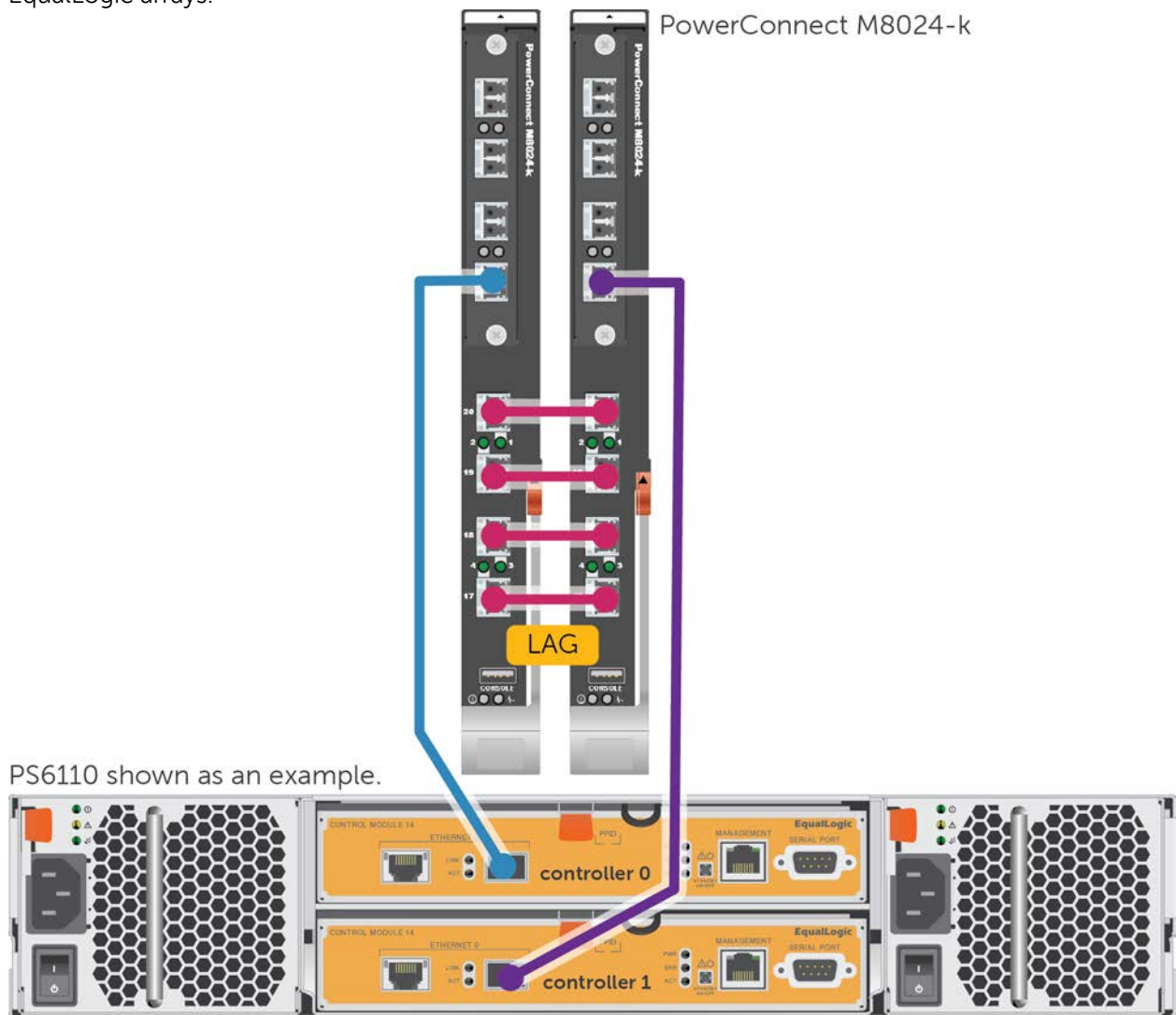


Figure 2 Cabling diagram

## 3.2 Hardware configuration

1. Ensure the blade chassis and switch modules are powered on.
2. Connect a serial cable to the serial port of the first switch or optionally use the Chassis Management Controller (CMC) to connect to the switch module.
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 LAG cables between the switches. See this configuration in Figure 2.

## 3.3 Check firmware version

```
console>enable
```

```
console#show version
```

**Note:** If the active version displayed here is not 5.1.1.7 or later, please visit [support.dell.com](http://support.dell.com) and download the latest update for your switches.

## 3.4 Delete startup configuration

**Note:** All configuration settings will be deleted

```
console#clear config
```

```
console>enable
```

```
console#copy running-config startup-config
```

```
console#reload
```

```
Are you sure you want to reload the stack? (y/n) y
```

**Note:** The switch will reboot.



## 3.5 Check current operational mode

**Note:** Before proceeding, the “System Operational Mode” must be set to “Normal”. Some switches, such as the M8024k, ship from the factory in simple mode.

```
console>enable
```

```
console#configure
```

```
console(config)#no mode simple
```

Switching modes will immediately clear the configuration. Are you sure you want to continue? (y/n) **y**

Switch has unsaved changes.

Are you sure you want to continue? (y/n) **y**

**Note:** The switch will reboot. If the switch reports “Normal mode already active”, then you may proceed to the next step without rebooting.

## 3.6 Disable DCB

**Note:** The PowerConnect M8024-k switches do not support Enhanced Transmission Selection (ETS), therefore Data Center Bridging (DCB) must be manually disabled using the following steps. If you have the M8024 switch, skip this section.

```
console>enable
```

```
console#configure
```

```
console(config)#no dcb enable
```

## 3.7 Configure out of band (OOB) management port

```
console(config)#interface out-of-band
```

```
console(config-if)#ip address ipaddress mask gateway
```

```
console(config-if)#exit
```

## 3.8 Configure login credentials

```
console(config)#line telnet
```

```
console(config-telnet)#login authentication default
```

```
console(config-telnet)#exit
```



```
console(config)#ip http authentication local

console(config)#username admin password yourpassword privilege 15

console(config)#enable password yourpassword
```

## 3.9 Configure Jumbo Frames

```
console(config)#interface range tengigabitethernet all

console(config-if)#mtu 9216

console(config-if)#exit
```

## 3.10 Enable flow control

```
console(config)#flowcontrol

This operation may take a few minutes.
Management interfaces will not be available during this time.

Are you sure you want to continue? (y/n)y
```

## 3.11 Configure spanning tree portfast on edge ports

```
console(config)#interface range tengigabitethernet 1/0/1-16

console(config-if)#spanning-tree portfast

console(config-if)#exit
```

## 3.12 Configure port channel for LAG

These commands configure the switch interconnect as a LAG.

```
console(conf)#interface port-channel 1

console(conf-if-po1)#mtu 9216

console(conf-if-po1)#exit
```

## 3.13 Configure SFP+ ports for LAG (M8024-k)

**Note:** The commands in this section assign the four built-in external 10Gb SFP+ ports to the Port Channel on the M8024-k. If you have the M8024 switch, skip this step and proceed to Section 3.14.

```
console(conf)#interface range tengigabitethernet 1/0/17-20
```



```
console(conf-if)#channel-group 1 mode active

console(conf-if)#exit

console(conf)#exit
```

## 3.14 Configure SFP+ ports for LAG (M8024)

**Note:** The commands in this section assign four 10Gb SFP+ ports from an optional expansion module in the first expansion slot, to the Port Channel. If you have the M8024-k switch, see section 3.13 instead.

```
console(conf)#interface range tengigabitethernet 1/1/1-4

console(conf-if)#channel-group 1 mode active

console(conf-if)#exit

console(conf)#exit
```

## 3.15 Save configuration

```
console#copy running-config startup-config
```

This operation may take a few minutes.  
Management interfaces will not be available during this time.

Are you sure you want to save? (y/n)**y**

## 3.16 Configure additional switch

Repeat the commands from section 3 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.



## 4 Optional virtual stack configuration for 8024 and 8024F

**Note:** If you wish to use a virtual stack configuration instead of LAG, follow the instruction below instead of section 2 or 3.

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.

Do not connect the cables between the stacked switches (this will be done in a later step).

**On both switches**, enter the following commands:

### 4.1 Check firmware version

```
console>enable
```

```
console#show version
```

**Note:** If the active version displayed is not 5.1.1.7 or later, please visit [support.dell.com](http://support.dell.com) and download the latest update for your switches.

### 4.2 Delete startup configuration

**Note:** All configuration settings will be deleted

```
console#clear config
```

```
console>enable
```

```
console#copy running-config startup-config
```

```
console#reload
```

```
Are you sure you want to reload the stack? (y/n) y
```

**Note:** The switch will reboot.

**On the first switch only**, proceed with the following steps:



### 4.3 Configure virtual stack ports (switch 1)

```
console(config)#stack
console(config-stack)#stack-port tengigabitethernet 1/0/21 stack
console(config-stack)#stack-port tengigabitethernet 1/0/22 stack
console(config-stack)#stack-port tengigabitethernet 1/0/23 stack
console(config-stack)#stack-port tengigabitethernet 1/0/24 stack
console(config-stack)#exit
console(config)#exit
```

### 4.4 Save configuration

```
console#copy running-config startup-config
```

This operation may take a few minutes.  
Management interfaces will not be available during this time.

Are you sure you want to save? (y/n)**y**

### 4.5 Prepare the first switch for stack membership:

```
console>enable
```

(Provide the enable password you set previously)

```
console#config
console(config)#stack
console(config-stack)#member 2 2
console(config-stack)#exit
console(config)#exit
console#copy running-config startup-config
```

### 4.6 Configure virtual stack ports (switch 2)

**On the second switch only**, enter the following:

```
console#configure
console(config)#switch 1 renumber 2
```

All the switches in the stack will be reset to perform Manager unit renumbering and the configuration of Manager switch interfaces will be cleared.

Are you sure you want to renumber? (y/n)**y**





**Note:** the switch will reboot.

```
console>enable
console#configure
console(config)#stack
console(config-stack)#stack-port tengigabitethernet 2/0/21 stack
console(config-stack)#stack-port tengigabitethernet 2/0/22 stack
console(config-stack)#stack-port tengigabitethernet 2/0/23 stack
console(config-stack)#stack-port tengigabitethernet 2/0/24 stack
console(config-stack)#exit
console(config)#exit
```

## 4.7 Save configuration (switch 2)

```
console#copy running-config startup-config
```

This operation may take a few minutes.

Management interfaces will not be available during this time.

Are you sure you want to save? (y/n)**y**

## 4.8 Final configuration

Power off switch 2, and then connect the cables between the stacked switches (ports 21-24).

Power on switch 2 and wait until it has fully booted.

From the first switch (master) complete the configuration for the stack:

```
console>enable
console#show switch
```

**Note:** Before proceeding ensure that the status for all switches in the stack show **OK**.

## 4.9 Disable DCB

**Note:** The PowerConnect 8024 and 8024F switches do not support Enhanced Transmission Selection (ETS), therefore Data Center Bridging (DCB) must be manually disabled using the following steps:

```
console#configure

console(config)#no dcb enable
```



## 4.10 Configure out of band (OOB) management port

```
console(config)#interface out-of-band  
  
console(config-if)#ip address ipaddress mask gateway  
  
console(config-if)#exit
```

## 4.11 Configure login credentials

```
console(config)#line telnet  
  
console(config-telnet)#login authentication default  
  
console(config-telnet)#exit  
  
console(config)#ip http authentication local  
  
console(config)#username admin password yourpassword privilege 15  
  
console(config)#enable password yourpassword
```

## 4.12 Configure Jumbo Frames

```
console(config)#interface range tengigabitethernet all  
  
console(config-if)#mtu 9216
```

## 4.13 Configure spanning tree portfast on edge ports

```
console(config-if)#spanning-tree portfast  
  
console(config-if)#exit
```

## 4.14 Enable flow control

```
console(config)#flowcontrol  
This operation may take a few minutes.  
Management interfaces will not be available during this time.  
  
Are you sure you want to continue? (y/n)y  
  
console(config)#exit
```



## 4.15 Save configuration

```
console#copy running-config startup-config
```

This operation may take a few minutes.

Management interfaces will not be available during this time.



## Additional resources

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

[DellTechCenter.com](http://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:  
<http://en.community.dell.com/dell-groups/dtcmedia/m/mediagallery/19852516/download.aspx>
- Dell EqualLogic Compatibility Matrix:  
<http://en.community.dell.com/dell-groups/dtcmedia/m/mediagallery/19856862/download.aspx>

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>





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