

Dell Force10 S55 and S60 Systems Quick Start Guide

Regulatory Model: S55/S60



Force10

Dell Force10 S55 and S60 Systems Quick Start Guide

Regulatory Model: S55/S60



Force10

Notes, Cautions, and Warnings



NOTE: A NOTE indicates important information that helps you make better use of your computer.



CAUTION: A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.



WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

If you purchased a Dell n Series computer, any references in this publication to Microsoft Windows operating systems are not applicable.

Information in this publication is subject to change without notice.

© 2011 Dell Inc. All rights reserved.

Reproduction of these materials in any manner whatsoever without the written permission of Dell Inc. is strictly forbidden.

Trademarks used in this text: Dell™, the DELL logo, Dell Precision™, OptiPlex™, Latitude™, PowerEdge™, PowerVault™, PowerConnect™, OpenManage™, EqualLogic™, KACE™, FlexAddress™ and Vostro™ are trademarks of Dell Inc. Intel®, Pentium®, Xeon®, Core™ and Celeron® are registered trademarks of Intel Corporation in the U.S. and other countries. AMD® is a registered trademark and AMD Opteron™, AMD Phenom™, and AMD Sempron™ are trademarks of Advanced Micro Devices, Inc. Microsoft®, Windows®, Windows Server®, MS-DOS® and Windows Vista® are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries. Red Hat Enterprise Linux® and Enterprise Linux® are registered trademarks of Red Hat, Inc. in the United States and/or other countries. Novell® is a registered trademark and SUSE™ is a trademark of Novell Inc. in the United States and other countries. Oracle® is a registered trademark of Oracle Corporation and/or its affiliates. Citrix®, Xen®, XenServer® and XenMotion® are either registered trademarks or trademarks of Citrix Systems, Inc. in the United States and/or other countries. VMware®, Virtual SMP®, vMotion®, vCenter®, and vSphere® are registered trademarks or trademarks of VMWare, Inc. in the United States or other countries.

Other trademarks and trade names may be used in this publication to refer to either the entities claiming the marks and names or their products. Dell Inc. disclaims any proprietary interest in trademarks and trade names other than its own.

Regulatory Model: S55/S60

2011 - 9 P/N 045FRK Rev. A00

About this Guide

This document is intended as a Quick Start Guide to get new systems up and running and ready for configuration. For complete installation and configuration information, refer to the following documents:

Documentation	S55	S60
Hardware installation and power-up instructions	<i>Installing the S55 System</i>	<i>Installing the S60 System</i>
Software configuration	<i>FTOS Configuration Guide for the S55 System</i>	<i>FTOS Configuration Guide for the S60 System</i>
Command line interface	<i>FTOS Command Reference for the S55 System</i>	<i>FTOS Command Reference for the S60 System</i>
Latest updates	<i>Release Notes for the S55 System</i>	<i>Release Notes for the S60 System</i>

Installing the Hardware

This guide assumes all site preparation has been performed before installing the chassis.

Installing the Chassis in a Rack or Cabinet

To install the S55 or S60 systems, Dell Force10 recommends that you complete the installation procedures in the order presented below.



NOTE: Unless stated otherwise, the installation instructions below apply to both the S55 and S60 chassis.

Always handle the system and its components with care. Avoid dropping the switch or its field replaceable units.



CAUTION: Always wear an ESD-preventive wrist or heel ground strap when handling the chassis and its components. As with all electrical devices of this type, take all necessary safety precautions to prevent injury when installing this system. Electrostatic discharge (ESD) damage can occur if components are mishandled.

Attaching Mounting Brackets

The chassis is shipped with mounting brackets (rack ears) and required screws for rack or cabinet installation. The brackets are enclosed in a package with the chassis.



NOTE: Dell Force10 recommends attaching the brackets at the PSU side. This provides the greatest weight support for the chassis in the rack or cabinet.

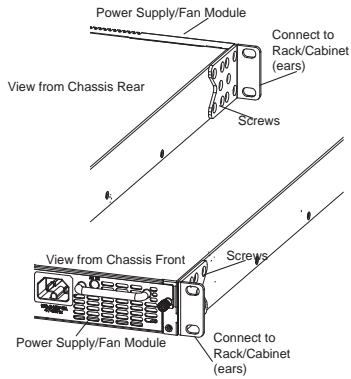
Step	Task
1	Take the brackets and screws out of their packaging.

Step**Task**

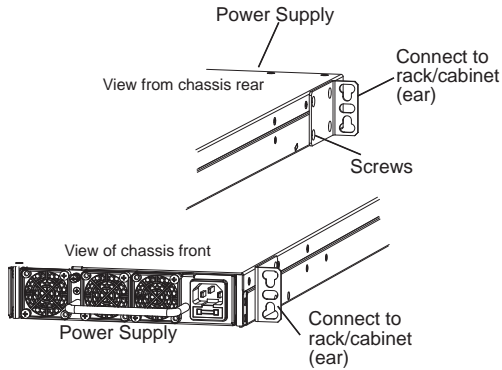
2

Attach the brackets to the sides of the chassis at the PSU end, using four screws for each bracket. Attach the bracket so that the “ear” faces the PSU and the outside of the chassis.

S55



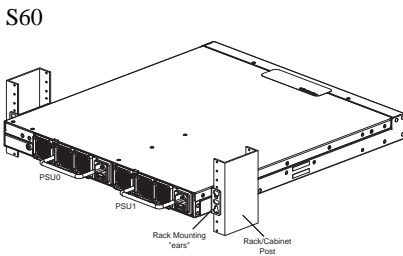
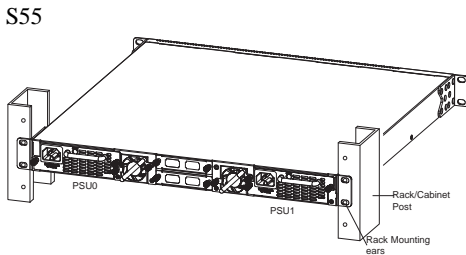
S60



Install Chassis into Rack or Cabinet


Ensure that there is adequate clearance surrounding the rack or within the cabinet to permit access and airflow.

Step	Task
1	Dell Force10 recommends that one person hold the chassis in place while a second person attaches the brackets to the posts.
2	Attach the bracket "ears" to the rack or cabinet posts, using two screws for each bracket. Ensure the screws are tightened firmly.



Attach a Ground Cable to the System

The system is shipped with necessary 10-32 screw(s) for attaching a ground cable to the chassis. The cable itself is not included. Dell Force10 recommends a 6AWG one-hole (for the S55) or two-hole (for the S60) lug, #10 hole size, 63" spacing (not included in shipping) to properly ground the chassis. The lug must be a UL recognized, crimp-type lug.

 **NOTE:** The rack installation ears are not suitable for grounding.

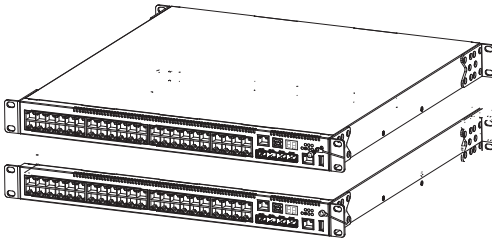
 **CAUTION:** Grounding conductors *must* be made of copper. Do not use aluminum conductors.



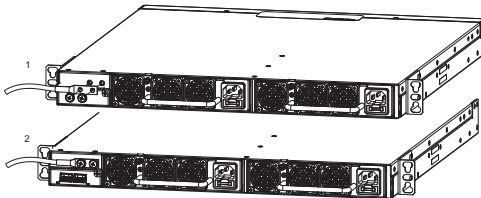
NOTE: Coat the one-hole lug with an anti-oxidant compound prior to crimping. Bring any un-plated mating surfaces to a shiny finish, and coat with an anti-oxidant prior to mating. Plated mating surfaces must be clean and free from contamination.

Step	Task
1	Take the 10-32 screw(s) from the package.
2	Cut cable to desired length. Cable length must facilitate the proper operation of fault interrupt circuits. Dell Force10 recommends using of the shortest cable route allowable.
3	Attach the lug to the chassis as shown, using the supplied 10-32 screw(s) with captive internal tooth lock washer. Each screw should be torqued to 20 in-lbs.

S55



S60



- 4 Attach the other end of the ground cable to a suitable ground point. The rack installation ears are not a suitable grounding point.

The S60 is shipped with 2 10-32 screws for attaching a ground cable to the chassis. The cable itself is not included. Dell Force10 recommends a 6AWG two-hole lug, #10 hole size, 63" spacing (not included in shipping) to properly ground the chassis. The two-hole lug must be a UL recognized, crimp-type lug.

Install the SFP and SFP+ Optics

The chassis are shipped as follows:

- The S55 has 4 SFP optical ports in the PSU side of the chassis in addition to the optional SFP+ optical modules.
- The S60 has 4 SFP optical ports in the front of the chassis in addition to the optional SFP+ optical modules.



CAUTION: Electrostatic discharge (ESD) damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the chassis and its components.



WARNING: Follow all warning labels when working with optical fibers. Always wear eye protection when working with optical fibers. Never look directly into the end of a terminated or unterminated fiber or connector as it may cause eye damage.

Step	Task
1	Position the SFP or SFP+ so it is in the correct position. (The optic has a key that prevents it from being inserted incorrectly.).
2	Insert the optic into the port until it gently snaps into place.



NOTE: For details on Dell Force10 supported optics, refer to <http://www.force10networks.com/products/specifications.asp>

Power Up Sequence

Supply Power and Power Up the System

Dell Force10 recommends re-inspecting your system prior to powering up. Verify that:

- The equipment is properly secured to the rack and properly grounded.
- The equipment rack is properly mounted and grounded.
- The ambient temperature around the unit (which may be higher than the room temperature) is within the limits specified for the unit.
- There is sufficient airflow around the unit.

- The input circuits are correctly sized for the loads and that sufficient over-current protection devices are used.
- All protective covers are in place.
- Blank panels are installed if optional modules are not installed.
- Blank panels are installed if redundant power supplies are not installed on the S55.



NOTE: A US AC power cable is included in the shipping container for powering up an AC power supply. All other power cables must be ordered separately.



CAUTION: Electrostatic discharge (ESD) damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the system and its components.

When the chassis powers up, the fans immediately come on at high speed. The fan speed slows as the system boots up.

The PWR LED blinks until the boot-up sequence is complete. When the boot up is complete the PWD LED is steadily lit.

The Stack ID LED displays a digit to show the position of the unit in a stacking chain. For a single chassis, a 0 displays.

AC Power

Connect the plug to each AC receptacle, making sure that the power cord is secure.

As soon as the cable is connected between the system and the power source, the chassis is powered-up; there is no on/off switch.

DC Power

To connect the chassis to the DC power source, follow the steps below:

Step	Task S55	Task S60
1	Connect the plug to each DC receptacle, making sure that the power cord is secure.	Remove the small plastic cover from the DC connectors.

Step	Task S55	Task S60
2	As soon as the cable is connected between the S55 and the power source, the chassis is powered-up; there is no on/off switch.	Attach the connectors to the both DC power units at the rear of the S60, making sure that the connection is secure.
3		Replace the plastic cover over the DC connectors.
4		Turn the power switch on.

Power Supplies

The S55 and S60 chassis are designed to support two hot-swappable power supplies with integrated fans that provide the cooling for the chassis. There are two types of power supplies (AC or DC) and there are two air-flow directions (Normal and Reversed). Two power supplies are required for full redundancy, but each system will operate with a single power supply.

- In the S55, a blank panel must be attached as redundant power supplies are not installed.
- In the S60, one of the power supply bays can be equipped with a fan only module.



WARNING: To prevent electrical shock, make sure the system is grounded properly. If you do not ground your equipment correctly, excessive emissions may result. Use a qualified electrician to ensure that the power cables meet your local electrical requirements.

Fans

The chassis come from the factory with the following:

- The S55 comes with 1 power supply and 2 fan modules installed in the chassis.
- The S60 comes with 1 power supply and 1 fan module installed in the chassis.

Both the fan modules and the integrated fan-power supply are hot-swappable if a second (redundant) power supply is installed and running. With redundant power supplies, traffic will not be interrupted if a fan module is removed.



NOTE: Both slots must have operating fan units to run the system. If a module is not installed in each slot (either as part of the PSU or as an independent fan module), the system will shut down in 1 minute.

The S55 and the S60 both support two airflow direction options. Only a single direction can be used in a chassis; do not mix fan flow types in a chassis. The system will shutdown in 1 minute, if the airflow directions are mismatched.

- Normal is airflow from I/O panel to power supply
- Reversed is airflow from power supply to I/O panel

There are environmental factors that could decrease the amount of time required between air filter replacements. Check these environmental factors regularly. Any unusual environmental circumstance at the site that causes an increase in temperature and/or particulate matter in the air might affect performance (for example, new equipment installation).

Specifications

Chassis Physical Design

Parameter	S55 Specifications	S60 Specifications
Height	1.73 inches (4.4 cm)	1.7 inches (4.3 cm)
Width	17.32 inches (44.0 cm)	17.32 inches (44.0 cm)
Depth	18.74 inches (47.6cm)	16.73 inches (42.5cm)
Chassis weight with factory-installed components	14.41 pounds (approx.) (6.54 kg)	14.39 pounds (approx.) (6.54 kg)
Rack clearance required	Front: 5-inches (12.7 cm) Rear: 5-inches (12.7 cm)	Front: 5-inches (12.7 cm) Rear: 5-inches (12.7 cm)
Thermal dissipation	461 BTU/hr (135W)	597 BTU/hr
Power Consumption	115 Watts (nominal) 135 Watts (maximum)	175 Watts (nominal) 225 Watts (maximum)

Environmental Parameters

Parameter	S55 Specifications	S60 Specifications
Temperature	32° to 104°F (0° to 40°C) -40° to 158°F (-40° to 70°C)	32° to 122°F (0° to 50°C) -40° to 158°F (-40° to 70°C) non-operating
Maximum altitude	No performance degradation to 10,000 feet (3,048 meters)	No performance degradation to 10,000 feet (3,048 meters)
Relative humidity	10 to 85% non-condensing	10 to 85% non-condensing 5 to 95% non-condensing (non-operating)
Shock	MIL-STD-810	MIL-STD-810
Vibration		Bellcore GR-63

AC Power Requirements


Parameter	S55 Specifications	S60 Specifications
Nominal Input Voltage	100 to 240 VAC, 47-63 Hz	100 to 240 VAC, 50/60 Hz
Maximum AC Power Supply Input Current	5 A	2 A at 100/120 VAC
Maximum System Power Input	135 W	225W


DC Power Requirements


Parameter	S55 Specifications	S60 Specifications
Nominal Input Voltage	-43 to -72 VDC at startup -36 to -72 VDC during normal operation	-40 to - 60 VDC
Maximum Power Supply Input Current	10 A	3.6 A at -48 VDC
Maximum System Power Input	135 W	225W


Power Supplies


The S55 and the S60 are designed to support two hot-swappable power supplies with integrated fans that provide the cooling for the chassis.


 **WARNING:** To prevent electrical shock, make sure the systems are grounded properly. If you do not ground your equipment correctly, excessive emissions may result. Use a qualified electrician to ensure that the power cables meet your local electrical requirements.


 **WARNING:** Electrostatic discharge (ESD) damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the systems and their components.


 **CAUTION:** Remove the power cable from the modules prior to removing the module itself. Power must not be connected prior to insertion in the chassis.


 **WARNING:** Prevent exposure and contact with hazardous voltages. Do not attempt to operate this system with the safety cover removed.

 **CAUTION:** The DC power supply comes with a 6-8inch cord with a snap-in plug that attaches to the DC power supply and screw terminals that attach to the main power. Dell Force10 recommends using a longer cable, to ensure sufficient room.

 **CAUTION:** The power supply is marked + 48V - . Connect the + (plus sign) to the red cable on the 6-8 inch cord; the - (minus sign) connects to the black cable. **BE SURE TO connect the RED to RETURN and connect the BLACK to -48V.**

 **NOTE:** For a NEBS compliant installation, the AC power connections must use a surge protection device (SPD) to protect the AC power supplies from damage to excessive power line surges.

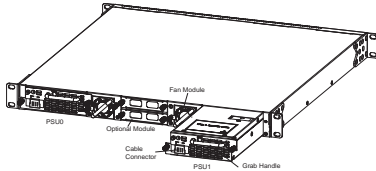
 **NOTE:** To comply with the GR-1089 Lightning Criteria for Equipment Interfacing with AC Power Ports, an external surge protection device (SPD) is intended to be used at the AC input of the router.

 **NOTE:** The DC power return conductor must be isolated from the chassis or frame when connections to the power supply are made.

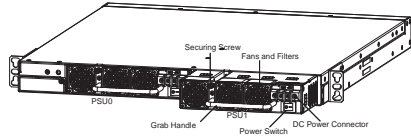
Install a DC Power Supply

The power supply modules should slide into the slots smoothly. Do not force a module into a slot. This may damage the power supply or the chassis.

S55



S60



Step	Task
1	Take the power supply unit out of the shipping box.
2	Remove the small plastic cover over the DC connectors. Do not throw the cover away; you will replace it when installation is complete.
3	Using the grab handle, slide the unit in to the power supply bay.
4	Tighten the securing screw at the top of the unit.
5	Attach power cables.
6	Replace the small plastic cover over the DC connectors.
7	Turn on power if installing a DC unit.

Installing the Software

Navigating CLI Modes

The FTOS prompt changes to indicate the CLI mode. You must move linearly through the command modes, with the exception of the **end** command which takes you directly to EXEC Privilege mode; the **exit** command moves you up one command mode level.

Console Access



NOTE: You must have a password configured on a virtual terminal line before you can Telnet into the system. Therefore, you must use a console connection when connecting to the system for the first time.

The S55/S60 has 2 management ports available for system access: a serial console port and a USB-B port. The USB-B ports acts exactly as the console port.

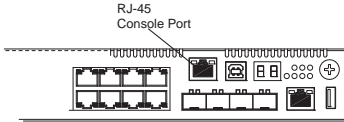
By default, the S55/S60 sends system messages to the serial console port. However, only one console connection can be active at a time. When both the serial console port and the USB-B port are connected, the system defaults to the USB-B port. The console connection is considered inactive if the USB-B port is also connected.

You can switch between console connections by physically connecting or disconnecting the cables. A system message is displayed on the serial console prior to switching to the USB-B console. When the USB-B cable is detached, the system returns to the serial console default.

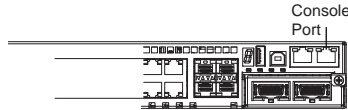
Serial Console

The RS-232 console port is labeled on the chassis. It is in the upper right-hand side, as you face the rear of the chassis.

S55



S60



Step Task

- 1 Install an RJ-45 copper cable into the console port. Use a rollover (crossover) cable to connect the S55 or S60 console port to a terminal server.
 - 2 Connect the other end of the cable to the DTE terminal server.
 - 3 Terminal settings on the console port cannot be changed in the software and are set as follows:
 - 9600 baud rate
 - No parity
 - 8 data bits
 - 1 stop bit
 - No flow control
-

Accessing the RJ-45 console port with a DB-9 adapter

You can connect to the console using an RJ-45 to RJ-45 rollover cable and an RJ-45 to DB-9 female DTE adapter to a terminal server (for example, PC). Table 2-1 lists the pin assignments.

Table 2-1. Pin Assignments Between the Console and a DTE Terminal Server

S55/S60 Console Port	RJ-45 to RJ-45 Rollover Cable		RJ-45 to DB-9 Adapter	Terminal Server Device
Signal	RJ-45 pinout	RJ-45 Pinout	DB-9 Pin	Signal
RTS	1	8	8	CTS

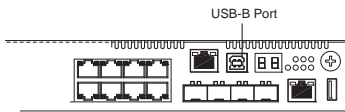
Table 2-1. Pin Assignments Between the Console and a DTE Terminal Server

S55/S60 Console Port	RJ-45 to RJ-45 Rollover Cable	RJ-45 to DB-9 Adapter	Terminal Server Device	
Signal	RJ-45 pinout	RJ-45 Pinout	DB-9 Pin	Signal
NC	2	7	6	DSR
TxD	3	6	2	RxD
GND	4	5	5	GND
GND	5	4	5	GND
RxD	6	3	3	TxD
NC	7	2	4	DTR
CTS	8	1	7	RTS

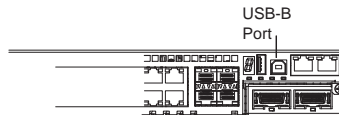
USB-B Console

The USB-B connector port is labeled on the S55/S60 chassis. It is to the left of the management ports, as you face the rear of the chassis.

S55



S60



Step	Task
------	------

- | | |
|---|---|
| 1 | Power on the PC (XP operating system recommended). |
| 2 | Connect the USB-A end of cable (supplied) into an available USB port on the PC. |
| 3 | Connect the USB-B end of cable into the USB-B console port on the chassis. |
| 4 | Power on the chassis. |
| 5 | Install necessary USB device drivers (internet connection required). Contact Dell Force10 TAC for CD, if necessary. |

Step	Task
6	Open your terminal software emulation program to access the chassis.
7	Using the terminal settings shown here, set the terminal connection settings. <ul style="list-style-type: none"> • 9600 baud rate, No parity, 8 data bits, 1 stop bit, No flow control
8	You will see the message below when you are connected to the chassis.

Default Configuration

A version of the Dell Force10 Operating System (FTOS) is pre-loaded onto the chassis, however the system is not configured when you power up for the first time (except for the default hostname, which is `Force10`). You must configure the system using the Command Line Interface (CLI).

Configure Layer 2 (Data Link) Mode

Use the **switchport** command in INTERFACE mode to enable Layer 2 data transmissions through an individual interface. The user can not configure switching or Layer 2 protocols such as spanning tree protocol on an interface unless the interface has been set to Layer 2 mode.

Step	Task	Command Syntax	Command Mode
1	Enable the interface.	no shutdown	INTERFACE
2	Place the interface in Layer 2 (switching) mode.	switchport	INTERFACE

To view the interfaces in Layer 2 mode, use the **show interfaces switchport** command in the EXEC mode.

Configure a Host Name

The host name appears in the prompt. The default host name is `Force10`.

- Host names must start with a letter and end with a letter or digit.
- Characters within the string can be letters, digits, and hyphens.

Task	Command Syntax	Command Mode
Create a new host name.	hostname <i>name</i>	CONFIGURATION

Access the System Remotely

You can configure the system to be accessed remotely by Telnet. Both the S55 and the S60 has a dedicated management port and a management routing table that is separate from the IP routing table.

Step	Task
1	Configure an IP address for the management port.
2	Configure a management route with a default gateway.
3	Configure a username and password.

Configure the Management Port IP Address

Assign IP addresses to the management ports in order to access the system remotely.



NOTE: Assign different IP addresses to each RPM's management port.

Step	Task	Command Syntax	Command Mode
1	Enter INTERFACE mode for the Management port.	interface ManagementEthernet <i>slot/port</i>	CONFIGURATION
2	Assign an IP address to the interface.	ip address <i>ip-address/mask</i>	INTERFACE
3	Enable the interface.	no shutdown	INTERFACE

Configure a Management Route

Define a path from the system to the network from which you are accessing the system remotely. Management routes are separate from IP routes and are only used to manage the system through the management port.

Task	Command Syntax	Command Mode
Configure a management route to the network from which you are accessing the system.	management route <i>ip-address/mask gateway</i>	CONFIGURATION

Configure a Username and Password

Configure a system username and password to access the system remotely.

Task	Command Syntax	Command Mode
Configure a username and password to access the system remotely.	username <i>username password [encryption-type]</i>	CONFIGURATION

Configure the Enable Password

The EXEC Privilege mode is unrestricted by default. Configure a password as a basic security measure. There are two types of enable passwords:

- enable password stores the password in the running/startup configuration using a DES encryption method.
- enable secret is stored in the running/startup configuration in using a stronger, MD5 encryption method.

Dell Force10 recommends using the enable secret password.

Task	Command Syntax	Command Mode
Create a password to access EXEC Privilege mode.	enable [password secret] [level <i>level</i>] [<i>encryption-type</i>] <i>password</i>	CONFIGURATION

Create a Port-based VLAN

The Default VLAN as VLAN 1 is part of the system startup configuration and does not require configuration. To configure a port-based VLAN, you must create the VLAN and then add physical interfaces or port channel (LAG) interfaces to the VLAN.

Task	Command Syntax	Command Mode
Configure a port-based VLAN (if the <i>vlan-id</i> is different from the Default VLAN ID) and enter INTERFACE VLAN mode.	interface vlan <i>vlan-id</i>	CONFIGURATION



NOTE: After you create a VLAN, you must assign interfaces in Layer 2 mode to the VLAN to activate the VLAN.

Use the **show vlan** command in the EXEC privilege mode to view the configured VLANs.

Assign Interfaces to a VLAN

To view just the interfaces that are in Layer 2 mode, enter the **show interfaces switchport** command in the EXEC privilege mode or EXEC mode.

To tag frames leaving an interface in Layer 2 mode, you must assign that interface to a port-based VLAN to tag it with that VLAN ID. To tag interfaces, use these commands in the following sequence:

Step	Task	Command Syntax	Command Mode
1	Access the INTERFACE VLAN mode of the VLAN to which you want to assign the interface.	interface vlan <i>vlan-id</i>	CONFIGURATION
2	Enable an interface to include the IEEE 802.1Q tag header.	tagged <i>interface</i>	INTERFACE

Use the **untagged** command to move untagged interfaces from the Default VLAN to another VLAN:

Step	Task	Command Syntax	Command Mode
1	Access the INTERFACE VLAN mode of the VLAN to which you want to assign the interface.	interface vlan <i>vlan-id</i>	CONFIGURATION
2	Configure an interface as untagged. This command is available only in VLAN interfaces.	untagged <i>interface</i>	INTERFACE

Assign an IP address to a VLAN



NOTE: An IP address cannot be assigned to the Default VLAN, which, by default, is VLAN 1. To assign another VLAN ID to the Default VLAN, use the default **vlan-id** *vlan-id* command.

Task	Command Syntax	Command Mode
Configure an IP address and mask on the interface.	ip address <i>ip-address</i> <i>mask</i> [<i>secondary</i>]	INTERFACE

Connecting the Chassis to the Network

Once you have completed the hardware installation and software configuration, you can connect to your company network by following your company's cabling requirements.



Printed in the U.S.A.

www.dell.com | support.dell.com



045FRKA00