

# Installing the Z9000 System



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.

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# Preface

## About this Guide

This guide provides site preparation recommendations, step-by-step procedures for rack mounting and desk mounting, inserting optional modules, and connecting to a power source.


After you have completed the hardware installation and power-up of the Z9000, refer to the *FTOS Configuration Guide for the Z9000* for software configuration information and the *FTOS Command Reference for the Z9000* for Command Line Interface (CLI) information.

 **NOTE:** The Z9000 requires minimum FTOS version 8.3.11.0.


 **CAUTION:** Wear grounding wrist straps when handling this equipment to avoid ESD damage.

### **WARNING:**

**WARNING:** The installation of this equipment shall be performed by trained and qualified personnel only. Read this guide before installing and powering up this equipment. This equipment contains two power cords. Disconnect both power cords before servicing.

 **WARNING:** This equipment contains optical transceivers, which comply with the limits of Class 1 laser radiation.






 **WARNING:** Visible and invisible laser radiation may be emitted from the aperture of the optical transceiver ports when no cable is connected. Avoid exposure to laser radiation and do not stare into open apertures

## Information symbols and warnings



The following graphic symbols are used in this document to bring attention to hazards that exist when handling the Z9000 and its components. Please read these alerts and heed their warnings and cautions.

[Table 1-1](#) describes symbols contained in this guide.

**Table 1-1. Information Symbols**

Symbol	Warning	Description
	Danger	This symbol warns that improper handling and installation could result in bodily injury. Before you begin work on this equipment, be aware of hazards involving electrical circuitry, networking environments, and instigate accident prevention procedures.
	Caution	This symbol informs you that improper handling and installation could result in equipment damage or loss of data.
	Warning	This symbol informs you that improper handling may reduce your component or system performance.


**Table 1-1. Information Symbols**

Symbol	Warning	Description
	Note	This symbol informs you of important operational information.
	ESD Warning	This symbol identifies that Electrostatic precautions should be taken when handling the device.

## Related publications

For more information about the Z9000, refer to the following documents:

- FTOS Configuration Guide for the Z9000 system
- FTOS Command Reference for the Z9000 system
- *FTOS Release Notes for the Z9000 system*

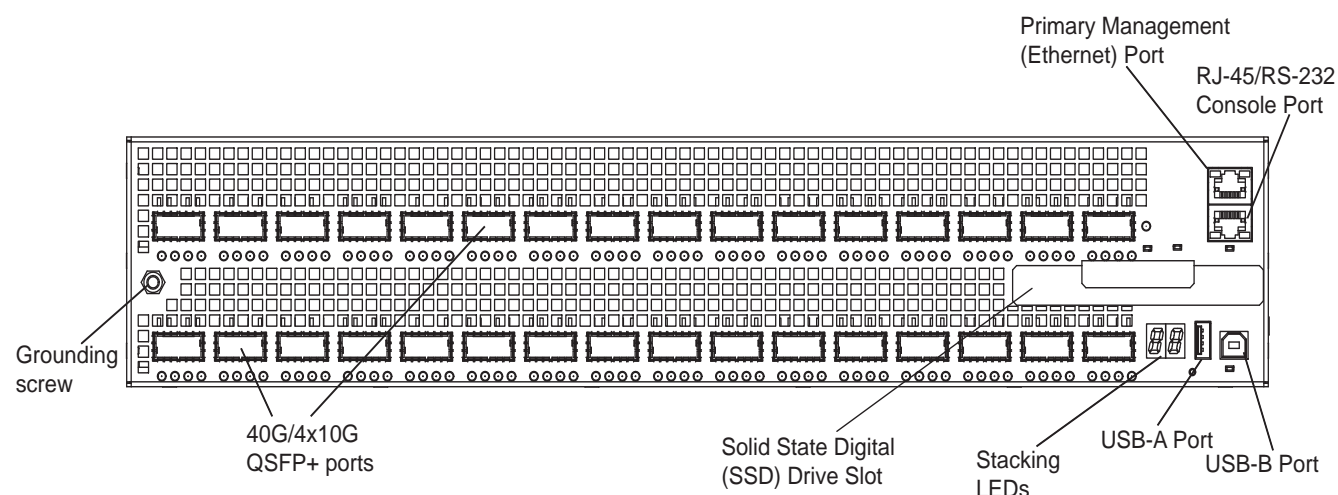
 **NOTE:** For the most recent documentation and software, please visit iSupport (registration for access to some sections is required):  
<https://www.force10networks.com/CSPortal20/Main/SupportMain.aspx>

# The Z9000 System

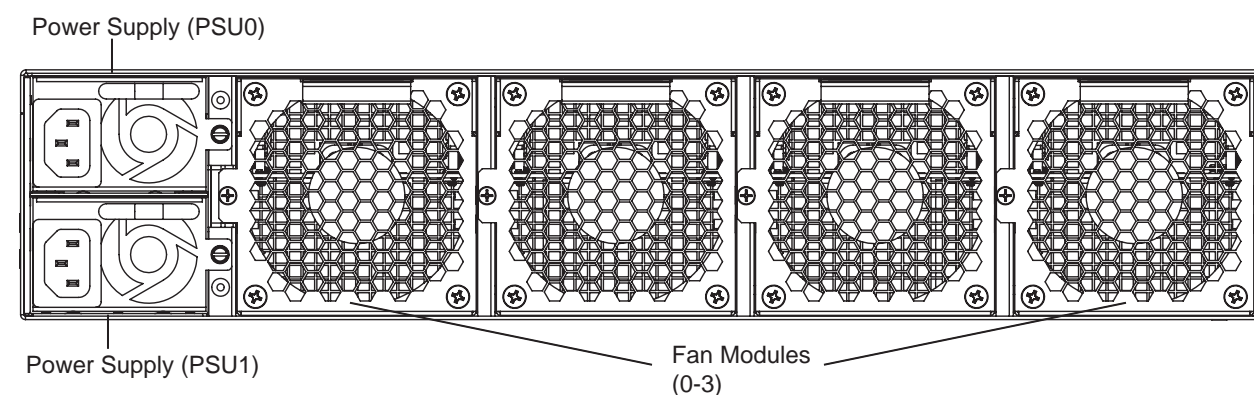
## Introduction

The Dell Force10 Networks' Z9000 platform is a next generation switch/router product designed to meet the requirements for distributed Data Center cores. It is a 2-rack unit (RU) chassis that supports 32 ports of 40GE QSFP+ or 128 ports of 10GE SFP+ (with breakout cables). The Z9000 includes an RS-232 console port and a management port for system access. As shown in [Figure 2-1](#), the Z9000's I/O (Input/Output) side contains the 32 40G QSFP+ auto-sensing ports, and management ports. The Z9000's PSU (Power Supply Unit) side ([Figure 2-2](#)) contains the Power Supply Units and fan modules.

**Figure 2-1. The Z9000 I/O side view**



**Figure 2-2. The Z9000 PSU side view**



## Orderable Z9000 components

The Z9000 can be ordered in several different configurations. Optional modules and optics are ordered separately.

**Table 2-1. Supported Hardware Components**

Hardware	Catalog Number
32-port 40G QSFP+ ports, 1 AC power supply, 1 fan subsystem (airflow from I/O side to power supply side)	<b>Z9000-AC</b>
32-port 40G QSFP+ ports, 1 AC power supply, 1 fan subsystem (airflow from power supply side to I/O side)	<b>Z9000-AC-R</b>
32-port 40G QSFP+ ports, 1 DC power supply, 1 fan subsystem (airflow from I/O side to power supply side)	<b>Z9000-DC</b>
32-port 40G QSFP+ ports, 1 DC power supply, 1 fan subsystem (airflow from power supply side to I/O side)	<b>Z9000-DC-R</b>
Z9000 Series – Fan with airflow from I/O side to PSU side	<b>Z9000-FAN</b>
Z9000 Series – Fan with airflow from PSU side to I/O side	<b>Z9000-FAN-R</b>
Z9000 Series – AC Power supply with airflow from I/O side to PSU side	<b>Z9000-PWR-AC</b>
Z9000 Series – AC Power supply with airflow from PSU side to I/O side	<b>Z9000-PWR-AC-R</b>
Z9000 Series – DC Power supply with airflow from I/O side to PSU side	<b>Z9000-PWR-DC</b>
Z9000 Series – DC Power supply with airflow from PSU side to I/O side	<b>Z9000-PWR-DC-R</b>
Z9000 Series – Solid State Drive (SSD)	<b>Z9000-SSD</b>

**Table 2-2. Supported optics and cables**

Optic Size	Optic Type	Reach (Meters)	Catalog Number
<b>40 Gig</b>	QSFP+ short reach optics	100 M (with OM3 fiber) 150 M (with OM4 fiber)	GP-QSFP-40GE-1SR
	QSFP+ long reach optics		GP-QSFP-40GE-1LR
	Active Fiber Direct attach cable	10 M 50 M	CBL-QSFP-40GE-10M CBL-QSFP-40GE-50M
	Passive Copper Direct attach cable	1 M 5M	CBL-QSFP-40GE-PASS-1M CBL-QSFP-40GE-PASS-5M
	40GE QSFP+ to 4 SFP+ optical breakout cable (optics not included)	5 M	CBL-QSFP-4x10GSFP-5M
	40GE QSFP+ to 4 SFP+ passive copper breakout cable (optics not included)	5 M	CBL-QSFP-4x10GSFP-PASS-5M

To successfully install the Z9000, ensure that you have the following:

- Z9000 chassis
- Optics (must be ordered separately, they do NOT come with the base system)
- At least one grounded power source per chassis
- Cable to connect the power source to the chassis (included)



- Mounting brackets for rack installation (included)
- Screws for rack installation (included)
- #1#2 Phillips screwdrivers (not supplied)
- Ground cable (not supplied)
- Ground cable screws (not included)
- USB cable (included)
- Copper/fiber cables

Other optional components are:

- Solid State Drive (included)
- Spare Power Supply Unit
- Spare Fan module
- Spare optics
- Breakout cable

## Features

The Z9000 offers the following:

- Z9000 CPU and switch processor
- Hot swappable redundant power supplies
- 19-inch rack-mountable
- Standard 2U chassis height
- Up to 128K MAC address entries supported with hardware assisted aging
- Supports 12K jumbo frames

## Ports

- External Serial RS-232 port (RJ45 type)
- Remote management port
- 32-port 40G QSFP+ ports
- USB-A port
- USB-B port
- Solid State Digital (SSD) drive

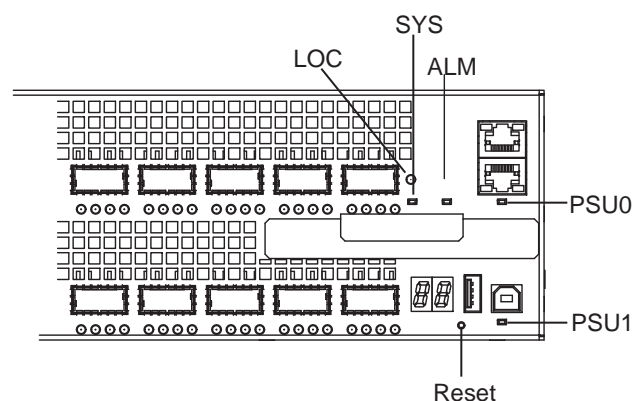
## System status

Z9000 status information is viewed in several ways, including LEDs and boot menu options. Status information is also seen through the CLI show commands and with SNMP traps. For details on those options, see the *FTOS Command Reference for the Z9000* and the *FTOS Configuration Guide for the Z9000*.

### LED displays

As shown in figure below, the Z9000 includes LED displays on the I/O side of the chassis. When the Z9000 powers up, or reloads, the PSU LED is solid yellow.

The system LEDs are:



- System status (SYS)
- Power status (PSU)
- Alarm status (ALM)
- System locator beacon (LOC)
- System Reset (Reset)

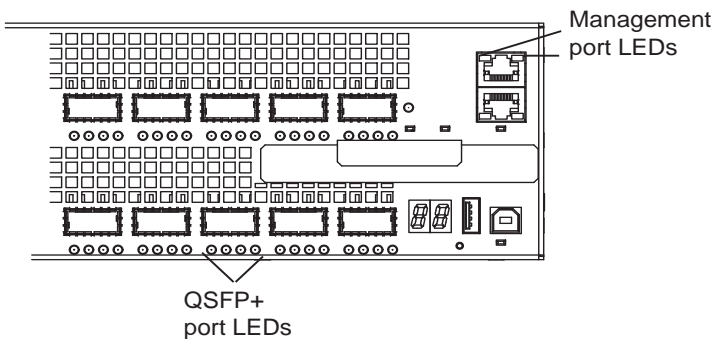
**Table 2-3. System LED displays**

Label	LED Color/Display	Description
System status (SYS)	Off	No power
Located on I/O panel	Green solid	Normal operation
	Amber solid	Error during boot-up
Power status (PSU0, PSU1)	Green solid	Normal operation
Located on I/O panel	Amber solid	Power supply missing or failed
Alarm status (ALM)	Off	No alarm
Located on I/O panel	Amber solid	Minor alarm
	Red solid	Critical alarm
System locator (LOC)	Off	No activity
Located on I/O panel	Blue solid	System beacon/locator

In addition to the system LEDs, each port has status indicator LEDs, described in [Table 2-4](#).

When the QSFP+ ports are operating in 40G mode, the left-most LED for the port is lit. When the ports are operating in 4x10G mode, only the LEDs associated with an active port will light.

The port LEDs are:



**Table 2-4. Port LED Displays**

Feature	Description
QSFP+ Port LED	<p>Link LED</p> <p>Green — Link up on this port</p> <p>When the QSFP+ ports are operating in 40G mode, the left-most LED is lit. When the ports are operating in 4x10G mode, only the LEDs associated with an active port will light.</p> <p>Blinking Green — Activity, transmitting or receiving packet at this port.</p> <p>Off —No link</p>
Management (Ethernet) Port LEDs	<p>Link LED (right side of port)</p> <p>Green — Link up at 1G speed</p> <p>Amber — Link up at 100M or 10Mspeed</p> <p>Off —No link</p> <p>Activity LED (left side of port)</p> <p>Blinking Green — Activity, transmitting or receiving packet at this port.</p> <p>Off —No traffic</p>



# Site Preparations

The Z9000 is suitable for installation as part of a Common Bond Network (CBN). It can be installed in

- network telecommunication facilities
- data centers
- other locations where the National Electric Code (NEC) applies

This chapter covers the following topics:

- [Site selection](#)
- [Cabinet placement](#)
- [Rack mounting](#)
- [Grounding](#)
- [Fans and airflow](#)
- [Power](#)
- [Storing components](#)

For detailed Z9000 specifications, refer to [Chapter 8, Z9000 Specifications](#).

**NOTE:** Install the Z9000 unit into a rack or cabinet before installing any optional components.

## Site selection

Dell Force10 Networks' equipment is intended for installation in restricted access areas. A restricted access area is one in which access can only be gained by service personnel through the use of a special tool, lock, key or other means of security and access is controlled by the authority responsible for the location.

Make sure that the area where you install your Z9000 chassis meets the following safety requirements:

- Near an adequate power source. Connect the system to the appropriate branch circuit protection as defined by your local electrical codes.
- Environmental temperature between 32° to 104°F (0° to 40°C).
- Relative humidity that does not exceed 85% non-condensing.
- In a dry, clean, well-ventilated and temperature-controlled room, away from heat sources such as hot air vents or direct sunlight.
- Away from sources of severe electromagnetic noise.
- Positioned in a rack or cabinet, or on a desktop with adequate space in the front, rear, and sides of the unit for proper ventilation, and access.

## Cabinet placement

The Z9000 should be installed only in indoor cabinets designed for use in a controlled environment as described in the Site Selection heading. The Z9000 should not be installed in outside plant cabinets.

The cabinet must meet the following criteria:

- Minimum cabinet size and airflow are according to the EIA standard.
- Minimum of 5 inches (12.7 cm) between the intake and exhaust vents and the cabinet wall.

## Rack mounting

When you prepare your equipment rack, ensure that the rack is earth ground. The equipment rack must be grounded to the same ground point used by the power service in your area. The ground path must be permanent.

## Grounding

The Z9000 is for use in a Common Bond Network. You must connect grounding cables as described in [Chapter 4, Install the Z9000](#).

## Fans and airflow

The Z9000 system fans support with 2 air flow options. Be sure to order the fans suitable to support your site's proper ventilation. Use a single type of fan in your system. Do not mix Reverse and Normal fans in a single chassis.

- Normal airflow is from I/O panel to power supply. The grab-handle has a label indicating Exhaust.
- Reverse airflow is from power supply to I/O panel. The grab-handle has a label indicating Intake.

For proper ventilation, position the Z9000 chassis in an equipment rack (or cabinet) with a minimum of five inches (12.7 cm) of clearance around exhaust vents. When two Z9000 systems are installed near each other, position the two chassis at least 5 inches (12.7 cm) apart to permit proper airflow. The acceptable ambient temperature ranges are listed in [Environmental Parameters](#).

The fan speed increases and decreases automatically based upon the system's state and temperature. The switch never intentionally turns off the fans.


Use the show logging command to see the log messages. For details, see the System Logs chapters of the *FTOS Command Reference* and *FTOS Configuration Guide*.


## Power

Use the appropriate power cord with the Z9000 chassis to connect the chassis to the applicable power source. An AC power cord is included with the system.

When installing AC systems, follow the requirements of the National Electrical Code, ANSI/NFPA 70 where applicable.


The system is powered-up as soon as the power cord is connected between the system and the power source.

 **CAUTION:** Always disconnect the power cable, before the power supply slots are serviced

 **CAUTION:** The power supply cord is used as the main disconnect device on the AC and DC system; ensure that the socket-outlet is located/installed near the equipment and is easily accessible.

## Storing components

If you do not install your system and components immediately, Dell Force10 Networks recommends that you properly store the Z9000 and all optional components until you are ready to install them.

 **WARNING:** Electrostatic discharge (ESD) damage can occur when components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the Z9000 and its accessories. After you remove the original packaging, place the Z9000 and its components on an antistatic surface.

Follow these storage guidelines:

- Storage temperature should remain constant ranging from -4° to 158° F (-20°C to 70° C).
- Store on a dry surface or floor, away from direct sunlight, heat, and air conditioning ducts.
- Store in a dust-free environment.






# Install the Z9000

To install the Z9000 system, Dell Force10 recommends that you complete the installation procedures in the order presented below.

Always handle the system and its components with care. Avoid dropping the Z9000 switch or its field replaceable units.

- 1 [Install the Z9000 chassis in a rack or cabinet](#)
  - a [Attach mounting brackets](#)
  - b [Install chassis into rack or cabinet](#)
- 2 [Attach ground cable](#)
- 3 [Install the QSFP+ optics](#)
  - [Splitting QSFP ports to SFP+ ports](#)
- 4 [Install the Solid State Drive](#)
- 5 [Supply power and power up the system](#)

 **WARNING:** Always wear an ESD-preventive wrist or heel ground strap when handling the Z9000 and its components. As with all electrical devices of this type, take all the necessary safety precautions to prevent injury when installing this system. Electrostatic discharge (ESD) damage can occur if components are mishandled.

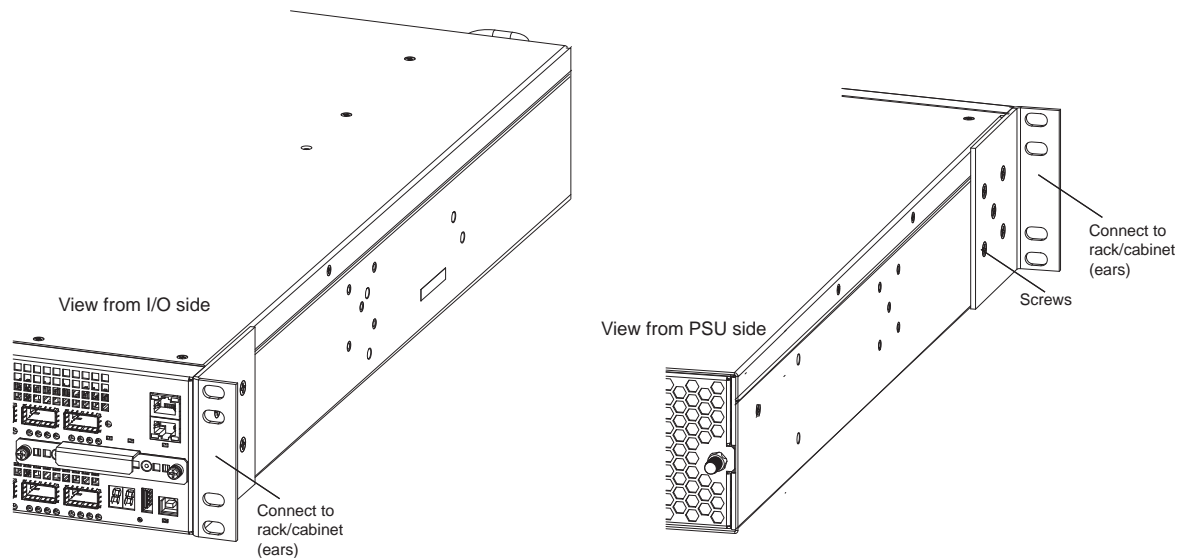
## Install the Z9000 chassis in a rack or cabinet

### Attach mounting brackets

The Z9000 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.

Follow these steps to attach the brackets to the chassis:

Step	Task
1	Take the brackets and screws out of their packaging.
2	Attach the brackets to the sides of the chassis on either side, using four screws for each bracket. Attach the bracket so that the “ear” faces to the outside of the chassis.

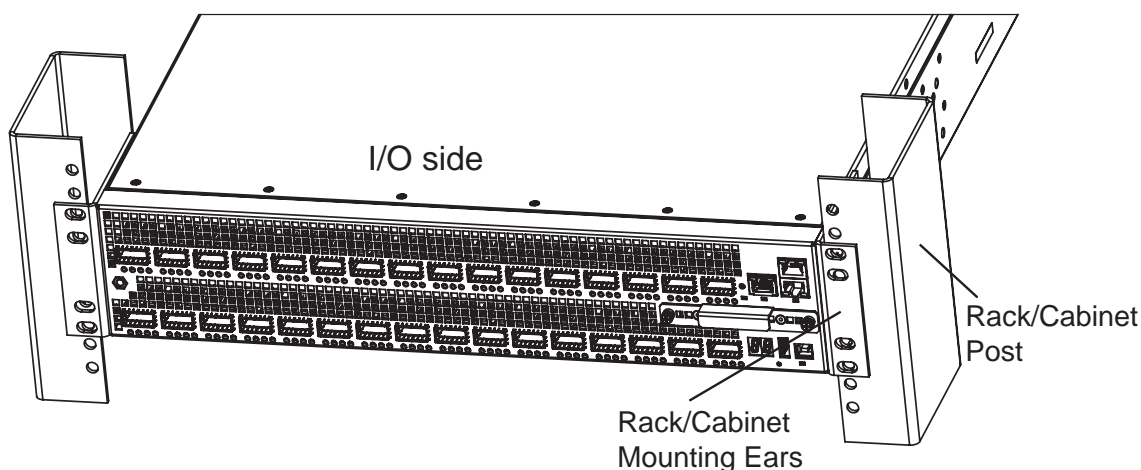


### Install chassis into rack or cabinet

Ensure that there is adequate clearance surrounding the rack or within the cabinet to permit access and airflow. Follow the steps below to install a switch into a two-post 19-inch equipment rack, using the already attached mounting brackets.

Step	Task
1	Dell Force10 recommends that one person hold the Z9000 chassis in place while another attaches the brackets to the posts.

Step	Task ( <i>continued</i> )
2	Attach the bracket “ears” to the rack or cabinet posts, using two screws for each bracket. Ensure the screws are tightened firmly. The example here shows the mounting on the I/O side, but either side can be used.



## Attach ground cable

Use a single M4x0.7 screw for attaching a ground cable to the chassis. The cable itself is not included. Dell Force10 recommends a 6AWG one-hole lug, #10 hole size, 63" spacing (not included in shipping) to properly ground the chassis. The one-hole lug must be a UL recognized, crimp-type lug.

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

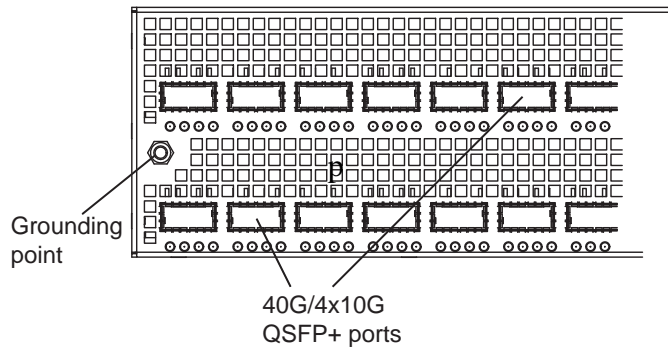
**CAUTION:** Grounding conductors *must* be made of copper. Do not use aluminum conductors.

Follow these steps to connect the ground cable to the chassis.

**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 (1) M4x0.7 screw 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.

Step	Task ( <i>continued</i> )
3	Attach the one-hole lug to the chassis as shown, using the supplied screw with captive internal tooth lock washer. The screw should be torqued to 20 in-lbs.



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

## Install the QSFP+ optics

The Z9000 has 32 QSFP+ optical ports. For supported optics, refer to <http://www.force10networks.com/products/specifications.asp>.

**⚠ WARNING:** Electrostatic discharge (ESD) damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the Z9000 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.

To install QSFP+ optics into an open port, follow the steps below:

Step	Task
1	Position the optic 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. <b>NOTE:</b> Both rows of QSFP+ ports require that the 40G optics be inserted with the tabs facing up.

## Remove the QSFP+ optics

Remove an optic by pushing the tab on the optic and sliding the optic from the port.

When removing optics with Direct Attach Cables (DACs), pull the release tab firmly and steadily to remove the optic from the port. You may need to gently push the optic into the port to ensure it is seated properly, prior to pulling the tab.

Do not jerk or tug repeatedly on the tab.

## Splitting QSFP ports to SFP+ ports

The Z9000 supports splitting a single 40G QSFP port into four 10G SFP+ ports using one of the supported breakout cables (refer to [Table](#) for a list of supported cables).

You must enter the `stack-unit portmode` command for the system to recognize the port type change.

`stack-unit stack-unit port number portmode quad`

- *stack-unit*: Enter the stack member unit identifier of the stack member to reset. Range: 0 - 11
- *number*: Enter the port number of the 40G port to be split. Range:0-31

#### Important Points

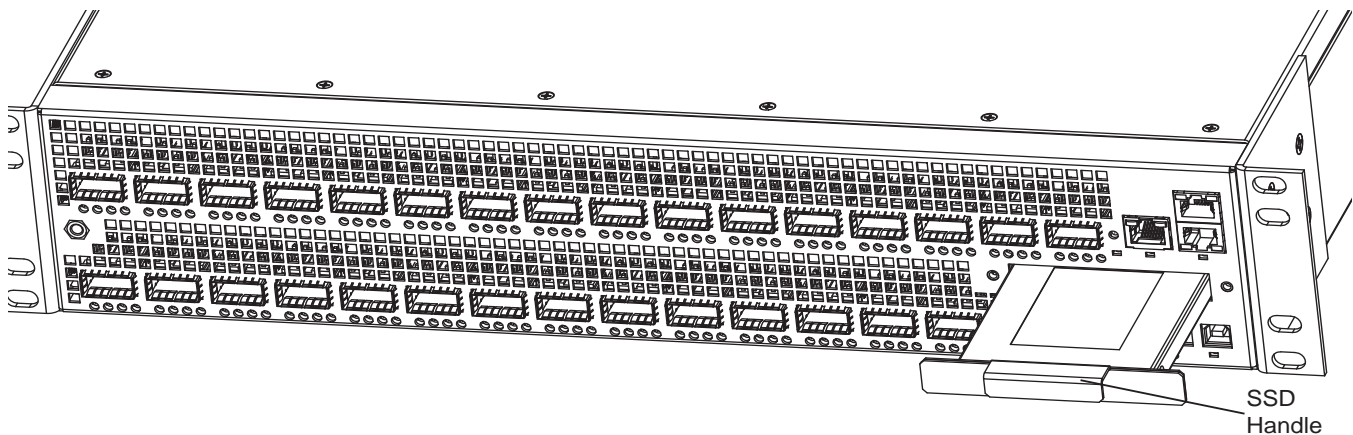
- Splitting a 40G port into 4x10G port is supported only on a standalone unit.
- Split ports cannot be used as stack-link to stack an Z9000.
- Split ports Z9000 unit cannot be a part of any stacked system.
- The unit number with the split ports must be the default (stack-unit 0)
- This can be verified using **show system brief** command. If the unit ID is different than 0, then it must be renumbered to 0 before ports are split, by using the **stackunit id renumber 0** command in EXEC mode.
- The quad port must be in a default configuration before it can be split into 4x10G ports. The 40G port is lost in the config when the port is split, so be sure the port is also removed from other L2/L3 feature configurations.
- The system must be reloaded after issuing the CLI for the change to take effect.

## Install the Solid State Drive

The Z9000 includes a Solid State Drive (SSD) that acts as another storage device. The SSD is shipped installed with the Z9000 system, and is located in a slot on the lower-right area on the I/O side ([Figure 2-1](#)).

The SSD is field replaceable, supporting drives that use 12 Volts and/or 5.0 Volts. Be sure to use only drives supported by Dell Force10 Networks.

**Figure 4-1. Removing the SSD**



To remove and replace an SSD, follow the steps below.

Step	Task
1	Loosen the retaining screws on the SSD.
2	Use the handle to pull the SSD out of the slot.
3	Remove the SSD, and set aside.
4	Use the SSD handle to slide the new SSD into the slot and firmly press in place.
5	Finger tighten the retaining screws.

## Supply power and power up the system

Supply power to the Z9000 after the chassis is mounted in a rack or cabinet.

Dell Force10 Networks 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 Z9000.
- 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.



**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



**WARNING:** Electrostatic discharge (ESD) damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the Z9000 and its components.

### Power up sequence

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

The SYS LED does not light up until the boot-up sequence is complete. When the boot-up is complete the, SYS LED is steadily lit green.

### AC power

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

As soon as the cable is connected between the Z9000 and the power source, the chassis is powered-up; there is no on/off switch.

### DC power

- 1 Remove the small plastic cover from the DC connectors.

- 2 Ensure that the power source is turned off. Do not attach the DC cable to the DC connectors while the power source is on.
- 3 Attach the connectors to the PSUs, making sure that the connections are secure.
- 4 Replace the plastic cover over the DC connectors.

As soon as the cable is connected between the Z9000 and the power source, the chassis is powered-up; there is no on/off switch.

## Hot-swap units in a stack

[Not supported in Beta]

You can add, remove, or swap units in an existing stack. The units in the stack and the new units can be already powered up or they can be powered down.

All units in a stack must run the same version of the operating system. If you attempt to attach a unit with a different version of the operating system to an existing stack, the CLI will display an error, and the unit will not be added until you install compatible software.

The order in which the units come on-line or are added to or removed from the stack can affect how the stack identifies them, and how the units identify themselves, influencing unit numbers, management addresses, and other elements of the configuration file.

Unit identification within the stack is determined by the selected identification algorithm. The default algorithm has the units self-identify as Unit 0 through Unit *last* based on the order in which they come on-line. So, when setting up a new set of switches in a stack, you should have no trouble forcing the identification of the management unit and unit IDs by methodically supplying power to the units in your preferred sequence.

Similarly, when you add a new unit to the stack, the unit will be gracefully added as Unit *last* (the lowest unused number) with the current configuration. Attaching a new unit may cause each unit in the stack to reload, and the subsequent configuration file in each unit includes the awareness of the new unit.

If you have a pre-configured unit that you want to add to the stack, but you want to make sure that the configuration does not override the configuration of the stack, it is best to add the unit while it is powered down, in order to avoid stack management conflicts.


For details on removing a unit from a stack and other stacking commands, see the Stacking chapter in the *Z9000 FTOS Configuration Guide* and the Stacking Commands chapter in the *Z9000 FTOS Command Reference*.






# Power Supplies


The Z9000 is designed to support two hot-swappable power supplies. The Z9000 supports AC and DC power supplies with two air-flow directions (Normal and Reversed). Two power supplies are required for full redundancy, but the system will operate with a single power supply.

 **NOTE:** If using a single PSU, you must install a blank plate in the other PSU slot. Dell Force10 recommends using PSU0, if installing only one power supply.

The Z9000 is orderable as an empty chassis (Z9000P) or with an AC or DC power supply. The Z9000-AC/Z9000-AC-R system comes from the factory with 1 AC power supply and 4 fan modules installed in the chassis. The Z9000-DC/Z9000-DC-R system comes from the factory with 1 DC power supply and 4 fan modules installed in the chassis. Power supplies are field replaceable. When running with full redundancy (2 power supplies installed and running) a power supply unit can be removed and replaced while the other is running without disrupting traffic.

## WARNING:

 **WARNING:** To prevent electrical shock, make sure the Z9000 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.

 **WARNING:** Electrostatic discharge (ESD) damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the Z9000 and its components.


## Components

The following power supply options are available for the Z9000.


- AC power supply with integrated fan (Catalog# Z9000-PWR-AC)
- AC power supply with integrated reverse flow fan (Catalog# Z9000-PWR-AC-R)
- DC power supply with integrated fan (Catalog# Z9000-PWR-DC)
- DC power supply with integrated reverse flow fan (Catalog# Z9000-PWR-DC-R)

## Install a power supply

The power supply units in the Z9000 are field replaceable. When both power supplies are up and running, one power supply can be removed without interrupting traffic. To remove and replace a power supply unit, use the following procedure.

 **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:

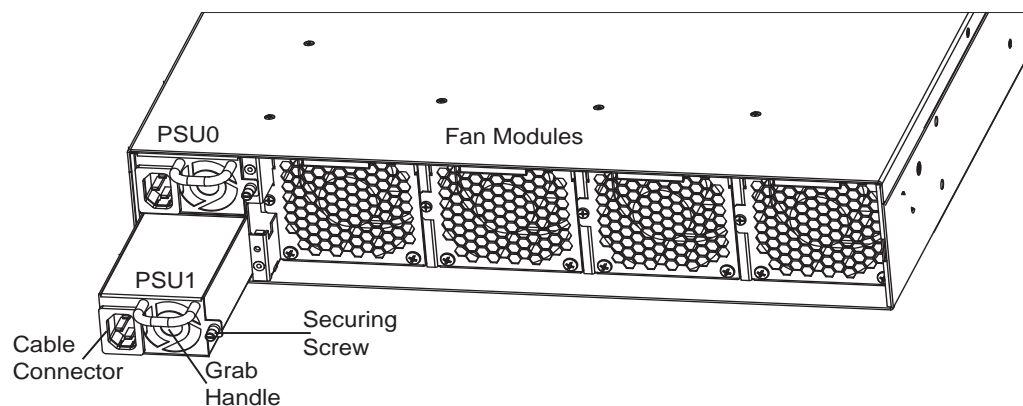
 **WARNING:** Prevent exposure and contact with hazardous voltages. Do not attempt to operate this system with the safety cover removed.

**CAUTION:** Be sure that the DC power source is turned OFF before attaching the cables to the DC connectors on the Z9000.

Power Supply 0 (PSU0) is on the top; Power Supply 1 (PSU1) is on the bottom.

## Install a new AC power supply

**Figure 5-1. AC Power Supply**



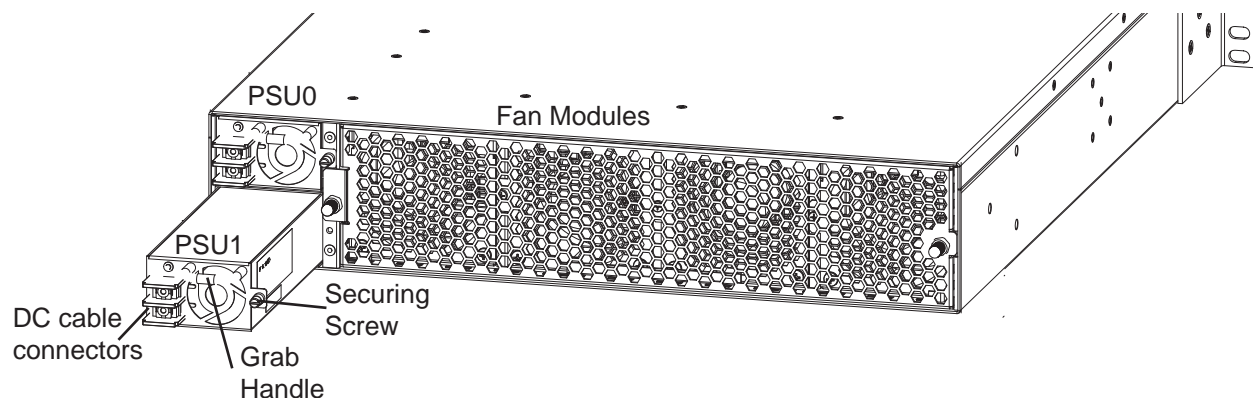
To install a new power supply, follow the steps below:

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 Z9000 chassis.

Step	Task
1	Take the power supply unit out of the shipping box.
2	Using the grab handle, slide the unit into the power supply bay.
3	Tighten the securing screw on the side of the PSU.
4	Attach power cables.
5	The system powers up <i>as soon as the cables are connected</i> between the power supply and the power source.

## Install a new DC power supply

**Figure 5-2. DC Power Supply**





To install a new power supply, follow the steps below:

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 Z9000 chassis.

Step	Task
1	Take the power supply unit out of the shipping box.
2	Remove the small plastic cover over the DC cable connectors. Do not throw the cover away; you will replace it when installation is complete.
3	Ensure that the DC power source is turned OFF.
4	Using the grab handle, slide the unit into the power supply bay.
5	Tighten the securing screw on the side of the PSU.
6	Attach power cables.
7	Replace the small plastic cover over the DC cable connectors.
8	Turn the DC power source ON.

## Replace a power supply

 **NOTE:** If a power supply fails, it must be completely replaced. There are no field servicable components in the module itself. Refer to [Chapter 9, Technical Support](#) to request a hardware replacement.

 **NOTE:** If using a single PSU, you must install a blank plate in the other PSU slot. Dell Force10 recommends using PSU0, if installing only one power supply.

## Replace an AC power supply

To replace a power supply, follow the steps below:

Step	Task
1	Disconnect the power cable from the power supply.
2	Use the grab handle to slide the unit out of the power supply bay.
3	Using the grab handle on the replacement unit, slide it into the power supply bay.
4	Tighten the securing screw on the side of the PSU. Ensure that the module is secure.
5	Attach power cable to the new module.
6	The system powers up <i>as soon as the cables are connected</i> between the power supply and the power source.

## Replace a DC power supply

To replace a power supply, follow the steps below:

Step	Task
1	Turn the DC power source OFF.
2	Remove the small plastic cover over the DC cable connectors. Do not throw the cover away; you will replace it when installation is complete.
3	Disconnect the power cable from the power supply.
4	Use the grab handle to slide the unit out of the power supply bay.

Step	Task
5	Using the grab handle on the replacement unit, slide it into the power supply bay.
6	Tighten the securing screw on the side of the PSU. Ensure that the module is secure.
7	Replace the small plastic cover over the DC cable connectors.
8	Attach the power cable to the new module.
9	Turn the DC power source ON.


# Fans

The Z9000 comes from the factory with 1 power supply and 4 fan modules installed in the chassis. The fan modules are hot-swappable, if 2 or more fans are installed and running.

The Z9000 supports 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 airflow is from I/O panel to power supply. The grab-handle has a label indicating Exhaust.
- Reverse airflow is from power supply to I/O panel. The grab-handle has a label indicating Intake.

There are environmental factors that could decrease the amount of time required between fan 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).

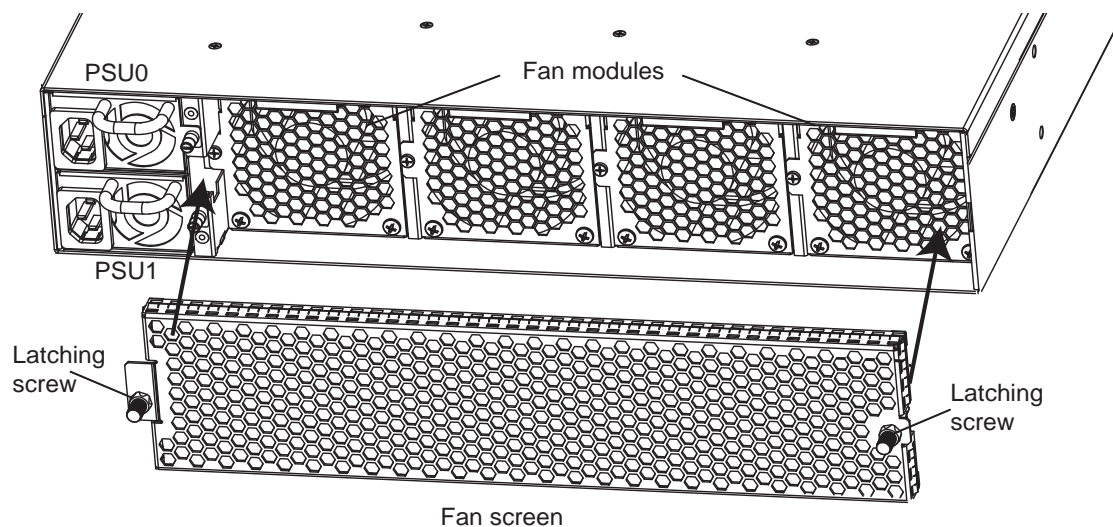
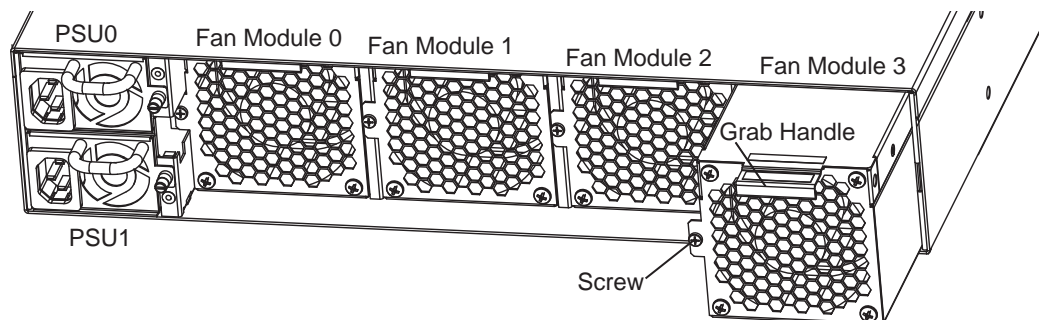
 **CAUTION:** Fans should be checked at six-month intervals and replaced as necessary. Regularly monitor the speeds of the cooling fans in order to accurately determine replacement intervals.

## Components

- Z9000 Fan module (Catalog# Z9000-FAN)
- Z9000 Fan module - Reverse flow (Catalog# Z9000-FAN-R)

## Install a fan module

The fan modules in the Z9000 are field replaceable. Module Slot 0 is on the left; Module Slot 3 is on the right.

**Figure 6-1. Removing the fan module screen****Figure 6-2. Replacing the fan module**


To install a new fan module, follow the steps below:

Step	Task
1	Twist the latching screws so that the fan screen detaches from the chassis.
2	Remove the screen, and set aside.
3	Take the fan module out of the shipping box.
4	Using the grab handle, slide the module in to the bay.
5	Tighten the securing screw on the side of the module.
6	Replace the fan screen.
7	Twist the latches so the screen is securely attached.

## Replace a fan module

To replace a fan module, follow the steps below.

Step	Task
1	Twist the latching screws so that the fan screen detaches from the chassis.
2	Remove the screen, and set aside.

Step	Task
3	Loosen the securing screw on the side of the unit.  <b>CAUTION:</b> Steps 2-3 must be completed in within 1 minute, or the chassis will power down.
4	Use the grab handle to slide the module out of the bay.
5	Using the grab handle on the replacement module, slide it into the bay.
6	Tighten the captive screw on the module with a screwdriver. Ensure that the module is secure.
7	Replace the fan screen.
8	Twist the latches to the screen is securely attached.





## Access ports

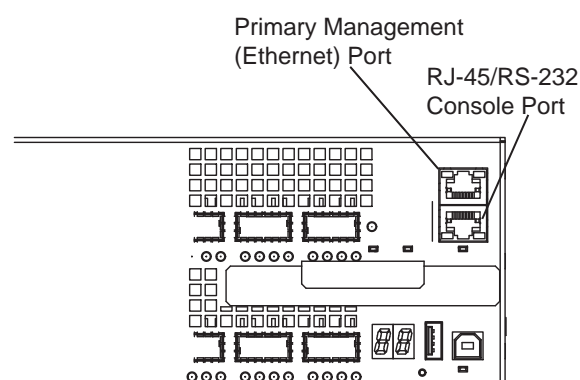
The Z9000 has 2 management ports available for system access: a console port and a USB-B port. The USB-B ports acts exactly as the console port. The terminal settings are the same for both access ports.

### Access the RJ-45 console port (RS-232)

**NOTE:** Before starting this procedure, be sure you have a terminal emulation program already installed on your PC. Contact Dell Force10 Networks Technical Support for assistance.

The RS-232 console port is labeled on the Z9000 chassis. It is in the upper right-hand corner, as you face the I/O side of the chassis.

**Figure 7-1. Z9000 serial console port connector**



To access the console port, follow the procedures below. Refer to [Table 7-1](#) for the console port pinout.

Step	Task
1	Install an RJ-45 copper cable into the console port. Use a rollover cable to connect the Z9000 console port to a terminal server.
2	Connect the other end of the cable to the DTE terminal server.
3	Default terminal settings on the console are set as follows: <ul style="list-style-type: none"> <li>• 9600 baud rate</li> <li>• No parity</li> <li>• 8 data bits</li> <li>• 1 stop bit</li> <li>• No flow control</li> </ul>

## Access the RJ-45 console port with a DB-9 adapter

You can connect to the console using an RJ-45 to DB-9 adapter along with the RJ-45 rollover cable if the DTE has a DB-9 interface. [Table 7-1](#) lists the pin assignments.

**Table 7-1. Pin Assignments Between the Console and a DTE Terminal Server**

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
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

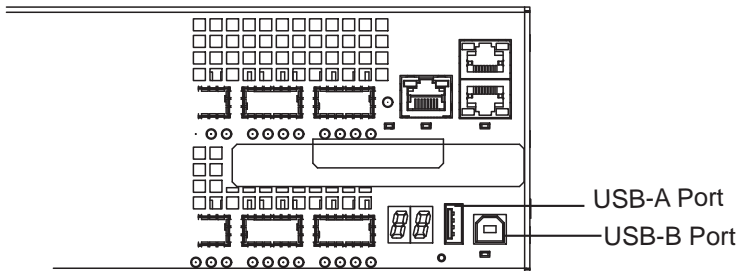
## Access the USB-B console port

The terminal settings are the same for the USB-B port and the console port.

- 9600 baud rate
- No parity
- 8 data bits
- 1 stop bit
- No flow control

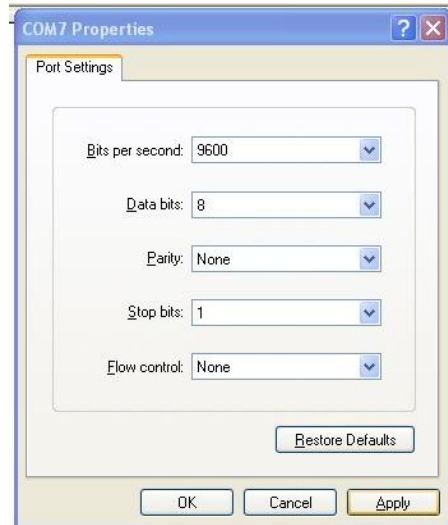
When the USB-B port is connected, it becomes the primary connection and the system sends all messages to the USB-B drive when it is connected.

**Figure 7-2. Z9000 USB-B port connector**

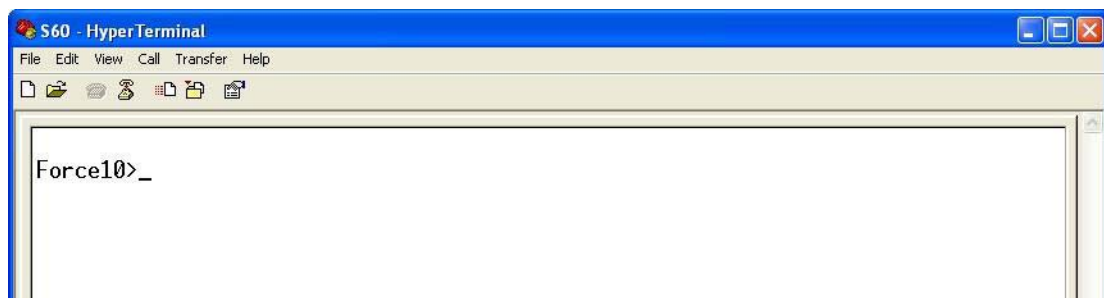


**NOTE:** Before starting this procedure, be sure you have a terminal emulation program already installed on your PC. You will also require appropriate drivers for the USB device in use. Contact Dell Force10 Networks Technical Support for assistance.

Step	Task
1	Power on the PC (XP operating system recommended)
2	Connect the USB-A end of cable into an available USB port on the PC
3	Connect the USB-B end of cable into the USB-B console port on the Z9000
4	Power on the Z9000.
5	Install necessary USB device drivers (internet connection required). Contact Dell Force10 Networks Technical Support for assistance if necessary.
6	Open your terminal software emulation program to access the Z9000.
7	Using the terminal settings shown here, set the terminal connection settings. <ul style="list-style-type: none"><li>• 9600 baud rate, No parity, 8 data bits, 1 stop bit, No flow control</li></ul>



- 8 The CLI command prompt appears (shown below) when you are connected to the Z9000.



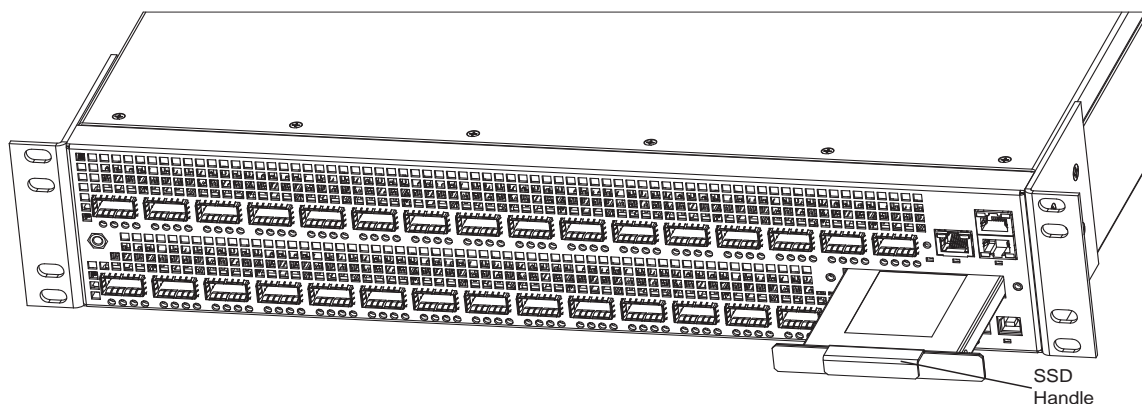
## Access the Solid State Drive (SSD)

A 32GB Solid State Drive (SSD) is shipped with the system, as well as being separately orderable. The SSD acts as an external flash and is accessed as **slot0:** on the Z9000. The SSD contents are viewed and managed through the CLI, similarly to that of the Flash drives

The SSD is field replaceable, supporting drives that use 12 Volts and/or 5.0 Volts. Be sure to use only drives supported by Dell Force10 Networks.

**NOTE:** The SSD *cannot* be hot-swapped. The system requires a reboot to recognize a new or reseated SSD.

**Figure 7-3. SSD Drive**



### Install an SSD.

Step	Task
1	Shut down the system. The SSD cannot be hot swapped and the system must be rebooted to recognize a new or reseated SSD.
1	Take the SSD out of the shipping box.
2	Using the grab handle, slide the SSD into the slot.
3	Restart the system.

Included here are some key commands, but not all of the commands supported by the SSD. Refer to the *Z9000 Command Line Reference Guide* for a complete discussion of the commands supported by the SSD.

### View files on the SSD

Use the **dir slot0:** command to view files on the SSD.

```
Force10#dir slot0:
```

```
Directory of flash:
```

```

 1  drw-      32768   Jan 01 1980 00:00:00  .
 2  drwx       512   Jul 23 2007 00:38:44  ..
```

```

3 drw-      8192   Mar 30 1919 10:31:04  TRACE_LOG_DIR
4 drw-      8192   Mar 30 1919 10:31:04  CRASH_LOG_DIR
5 drw-      8192   Mar 30 1919 10:31:04  NVTRACE_LOG_DIR
6 drw-      8192   Mar 30 1919 10:31:04  CORE_DUMP_DIR
7 d---      8192   Mar 30 1919 10:31:04  ADMIN_DIR

```

--More--

## Copy files to and from the SSD

Use the **copy** command to copy files to or from the SSD.

Copy from an FTP site to the SSD:

```

Forcel0#copy ftp://myusername:mypassword@10.10.10.10//FTOS/FTOS-ZB-8.3.11.0.bin
slot0://
Destination file name [FTOS-ZB-8.3.11.0.bin.bin]:
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
26292881 bytes successfully copied

```

Copy from the internal FLASH to the SSD.

```

Forcel0#copy flash: slot0:boot-image
Destination file name [FTOS-ZB-8.3.11.0.bin.bin]:
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
26292881 bytes successfully copied

```

## Remove files from the SSD

Use the **delete** command to remove files from the SSD.

```

Forcel0#delete slot0://[filepath]

```



# Z9000 Specifications

This chapter contains these major sections:

- Chassis Physical Design
- [Agency Compliance](#)

## Chassis Physical Design

Parameter	Specifications
Height	3.48 inches (8.8 cm)
Width	17.32 inches (44.0 cm)
Depth	24.00 inches (61.00 cm)
Chassis weight with factory-installed components	xx lbs (approx.) (xx kg)
Rack clearance required	Front: 5-inches (12.7 cm) Rear: 5-inches (12.7 cm)
Thermal Dissipation	2654 BTH/h (270W)

## Environmental Parameters

Parameter	Specifications
Temperature	32° to 104°F (0° to 40°C) -40° to 158°F (-20° to 70°C)
Maximum altitude	No performance degradation to 10,000 feet (3,048 meters)
Relative humidity	10 to 85% non-condensing

## AC Power Requirements

Parameter	Specifications
Nominal Input Voltage	100 to 240 VAC, 50/60 Hz
Maximum AC Power Supply Input Current	8.00 A @ 100/120VAC 4.00 A @ 200/240 VAC
Maximum System Power Input	789 W

## DC Power Requirements

Parameter	Specifications
Nominal Input Voltage	36 to 72 VDC
Maximum Power Supply Input Current	2.8A @ 36 VDC 1.85 A @ 72 VDC
Maximum System Power Input	360 W

## IEEE Standards

The Z9000 complies with the following IEEE standards:

- 802.3ae 10 Gigabit Ethernet
- 802.3ab 1000Base-T
- 802.1p L2 Prioritization
- 802.1Q VLAN Tagging, Double VLAN Tagging (Q in Q), GVRP
- 802.1s Multiple Spanning Tree Protocol
- 802.1w Rapid Spanning Tree Protocol
- 802.3ad Link Aggregation with LACP
- 802.1D Bridging, GARP, GMRP
- 802.3x Flow Control
- 802.1ac Frame Extension for VLAN tagging
- 802.1x Port based Network Access Control

## Agency Compliance

The Z9000 is designed to comply with the following safety and agency requirements.

### USA Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designated to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance to the instructions, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to take whatever measures necessary to correct the interference at their own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Dell Force10 Networks is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications in the equipment. Unauthorized changes or modification could void the user's authority to operate the equipment.



This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian Department of Communication Statement

**Industry Canada Class A emission compliance statement**

This Class A digital apparatus complies with Canadian ICES-003.


**Avis de conformité à la réglementation d'Industrie Canada**

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

European Union EMC Directive Conformance Statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. Dell Force10 can not accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of this product, including the fitting of non-Dell Force10 option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

 **WARNING:** This is a Class A product. In a domestic environment, this device may cause radio interference, in which case, the user may be required to take adequate measures.

European Community Contact

Dell Force10 Networks, EMEA - Central

Dahlienweg 19

66265 Heusweiler

Germany

<http://www.force10networks.com/german/>

Tel: +49 172 6802630

Email: EMEA Central Sales

Japan: VCCI Compliance for Class A Equipment

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

This is Class A product based on the standard of the Voluntary Control Council For Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.


**WARNING:** AC Power cords are for use with Dell Force10 Networks equipment only. Do not use Dell Force10 Networks AC power cords with any unauthorized hardware.

本製品に同梱いたしております電源コードセットは、本製品専用です。  
本電源コードセットは、本製品以外の製品ならびに他の用途でご使用いただくことは出来ません。製品本体には同梱された電源コードセットを使用し、他製品の電源コードセットを使用しないで下さい。

#### Korean Certification of Compliance

A급 기기 (업무용 방송통신기자재)	이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.
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#### Korean Package Label

	 [equipment type]
품명(Product Name)	Ethernet Switch
모델명(Model)	[model number]
신청인(Applicant)	Force10 Networks, Inc.
제조사(Manufacturer)	Delta Networks, (Dongguan) Ltd.
제조년월(Manufacturing Date)	[date]
제조국(Country of Origin)	China

#### Safety Standards and Compliance Agency Certifications

- CUS UL 60950-1, 2nd Edition
- CSA 60950-1-03, 2nd Edition
- EN 60950-1, 2nd Edition
- EN 60825-1, 1st Edition
- EN 60825-1 Safety of Laser Products—Part 1: Equipment Classification Requirements and User's Guide
- EN 60825-2 Safety of Laser Products—Part 2: Safety of Optical Fibre Communication Systems
- FDA Regulation 21CFR 1040.10 and 1040.11
- IEC 60950-1, 2nd Ed, including all National Deviations and Group Differences

## Electromagnetic Compatibility (EMC)

### *Emissions*

- International: CISPR 22: 2006, Class A
- Australia/New Zealand: AS/NZS CISPR 22: 2006, Class A
- Canada: ICES-003, Issue-4, Class A
- Europe: EN55022 2006 (CISPR 22: 2006), Class A
- Japan: VCCI V3/ 2007.04 Class A
- USA: FCC CFR47 Part 15, Subpart B, Class A

### *Immunity*

- EN 300 386 v1.3.3: 2005 EMC for Network Equipment
- EN55022 2006, Class A
- EN 55024 1998 + A1: 2001 + A2: 2003
- EN 61000-3-2 Harmonic Current Emissions
- EN 61000-3-3 Voltage Fluctuations and Flicker
- EN 61000-4-2 ESD
- EN 61000-4-3 Radiated Immunity
- EN 61000-4-4 EFT
- EN 61000-4-5 Surge
- EN 61000-4-6 Low Frequency Conducted Immunity

### Product Recycling and Disposal

This switch must be recycled or discarded according to applicable local and national regulations. Dell Force10 Networks encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. Dell Force10 offers a variety of product return programs and services in several countries to assist equipment owners in recycling their IT products.

### *Waste Electrical and Electronic Equipment (WEEE) Directive for Recovery, Recycle and Reuse of IT and Telecommunications Products*

Dell Force10 switches are labeled in accordance with European Directive 2002/96/EC concerning waste electrical and electronic equipment (WEEE). The Directive determines the framework for the return and recycling of used appliances as applicable throughout the European Union. This label is applied to various products to indicate that the product is not to be thrown away, but rather reclaimed upon end of life per this Directive.

The European WEEE symbol



In accordance with the European WEEE Directive, electrical and electronic equipment (EEE) is to be collected separately and to be reused, recycled, or recovered at end of life. Users of EEE with the WEEE marking per Annex IV of the WEEE Directive, as shown above, must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to customers for the return, recycling and recovery of WEEE. Customer participation is important to minimize any potential effects of EEE on the environment and human health due to the potential presence of hazardous substances in EEE.

Dell Force10 Networks products, which fall within the scope of the WEEE, are labeled with the crossed-out wheelie-bin symbol, as shown above, as required by WEEE.

For information on Dell Force10 product recycling offerings, see the WEEE Recycling instructions on iSupport at: <https://www.force10networks.com/CSPortal20/Support/WEEEandRecycling.pdf>. For more information, contact the Dell Force10 Technical Assistance Center (TAC) (see [Contacting the Technical Assistance Center](#)).

#### *SD card removal*

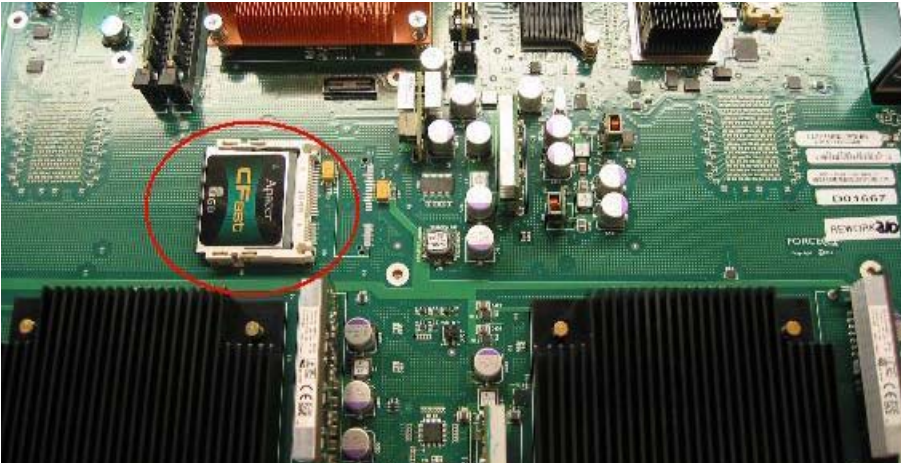
The SD card can be removed and re-installed, to support high security environments. Dell Force10 Networks recommends the card be removed only when necessary. It should only be removed and replaced by authorized personnel.

**CAUTION:** The SD card should only be removed to support high security operations and after discussions with Dell Force10 Technical Support or your Dell Force10 representative.

To open the case and remove the SD card:

- 1 Remove the small phillips screws that connect the top to the body. The screws are located on the top and the sides of the chassis.
- 2 Slide the top backwards until its front flange slides free of the faceplate, then lift it off.
- 3 Gently push the SD card to release it from the slot.

#### 4 Remove the card.



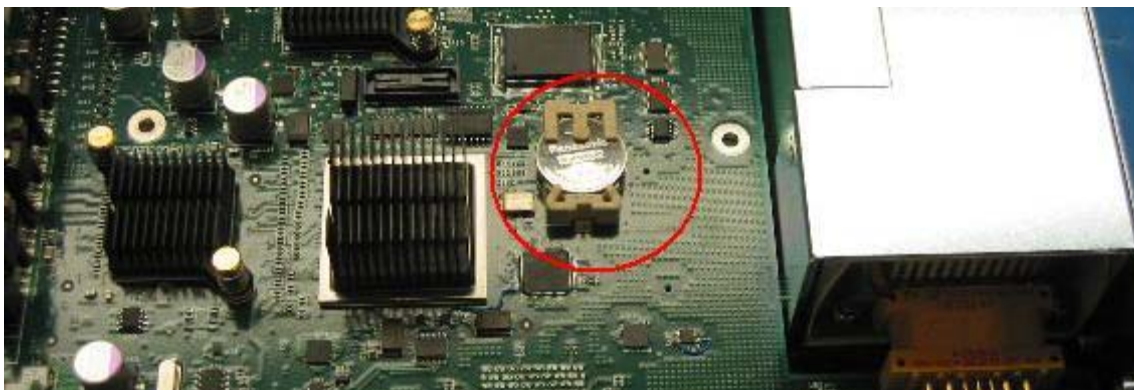
#### Battery replacement

The lithium battery is *not field replaceable*. It should only be removed and replaced by authorized personnel. Contact Dell Force10 Technical Support for assistance if the battery requires replacement.

**⚠ WARNING:** Always wear an ESD-preventive wrist or heel ground strap when handling the Z9000 and its components. As with all electrical devices of this type, take all the necessary safety precautions to prevent injury when installing this system. Electrostatic discharge (ESD) damage can occur if components are mishandled.

To open the case and remove the battery:

- 1 Remove the small phillips screws that connect the top to the body. The screws are located on the top and the sides of the chassis.
- 2 Slide the top backwards until its front flange slides free of the faceplate, then lift it off.
- 3 Insert a small, flat screw driver blade under the battery and in one of the slots of the plastic retainer underneath the battery.
- 4 Lever the battery up against the coin cell clip (the hold-down lead on top of the battery) far enough to provide room for the battery to be lifted above the edge of its retainer.



Batteries or packaging for batteries are labeled in accordance with European Directive 2006/66/EC concerning batteries and accumulators and waste batteries and accumulators. The Directive determines the framework for the return and recycling of used batteries and accumulators as applicable throughout the European Union. This label is applied to various batteries to indicate that the battery is not to be thrown away, but rather reclaimed upon end of life per this Directive.

In accordance with the European Directive 2006/66/EC, batteries and accumulators are labeled to indicate that they are to be collected separately and recycled at end of life. The label on the battery may also include a chemical symbol for the metal concerned in the battery (Pb for lead, Hg for mercury and Cd for cadmium). Users of batteries and accumulators must not dispose of batteries and accumulators as unsorted municipal waste, but use the collection framework available to customers for the return, recycling and treatment of batteries and accumulators.

Customer participation is important to minimize any potential effects of batteries and accumulators on the environment and human health due to the potential presence of hazardous substances. For proper collection and treatment, contact your local Dell Force10 Networks representative.

**Figure 8-1. The European WEEE Symbol**



**For California:**

**Perchlorate Material** — Special handling may apply.

See: <http://www.dtsc.ca.gov/hazardouswaste/perchlorate>

The foregoing notice is provided in accordance with California Code of Regulations Title 22, Division 4.5 Chapter 33. Best Management Practices for Perchlorate Materials.

# Technical Support

This appendix contains these major sections:

- [The iSupport website](#)
- [Contacting the Technical Assistance Center](#)
- [Requesting a hardware replacement](#)

## The iSupport website

iSupport provides a range of documents and tools to assist you with effectively using Dell Force10 equipment and mitigating the impact of network outages. Through iSupport you can obtain technical information regarding Dell Force10 products, access to software upgrades and patches, and open and manage your Technical Assistance Center (TAC) cases. Dell Force10 iSupport provides integrated, secure access to these services.

### Accessing iSupport services

The URL for iSupport is <http://www.force10networks.com/support/>. You must have a userid and password to access iSupport services. If you do not have one, you can request one at the website:

- 1 On the Dell Force10 Support page, click the **Account Request** link.
- 2 Fill out the User Account Request form, and click **Send**. You will receive your userid and password by E-Mail.
- 3 To access iSupport services, click the **LOGIN** link, and enter your userid and password.



# Contacting the Technical Assistance Center

<b>How to Contact Dell Force10 TAC</b>	Log in to iSupport at <a href="http://www.force10networks.com/support/">http://www.force10networks.com/support/</a> and select the <b>Service Request</b> tab.
<b>Information to Submit When Opening a Support Case</b>	<ul style="list-style-type: none"> <li>• Your name, company name, phone number, and E-mail address</li> <li>• Preferred method of contact</li> <li>• Model number</li> <li>• Software version number</li> <li>• Symptom description</li> <li>• Screen shots illustrating the symptom, including any error messages. These can include: <ul style="list-style-type: none"> <li>• Output from the show tech-support [non-paged] command (This report is very long, so the storage buffer in your terminal program should be set high.)</li> <li>• Output from the show logging eventlog [unit] command, where unit is the stack ID of the member unit that experienced the failure (This report is included as a section in the output of show tech-support.)</li> <li>• Console captures showing the error messages</li> <li>• Console captures showing the troubleshooting steps taken</li> <li>• Saved messages to a syslog server, if one is used</li> </ul> </li> </ul>
<b>Managing Your Case</b>	Log in to iSupport, and select the <b>Service Request</b> tab to view all open cases and RMAs.
<b>Downloading Software Updates</b>	Log in to iSupport, and select the <b>Software Center</b> tab.
<b>Technical Documentation</b>	Log in to iSupport, and select the <b>Documents</b> tab. This page can be accessed without logging in via the <b>Documentation</b> link on the iSupport page.
<b>Contact Information</b>	<p>E-mail: <a href="mailto:support@force10networks.com">support@force10networks.com</a></p> <p>Web: <a href="http://www.force10networks.com/support/">http://www.force10networks.com/support/</a></p> <p>Telephone:</p> <p>US and Canada: 866.965.5800</p> <p>International: 408.965.5800</p>



# Requesting a hardware replacement

To request replacement hardware, follow these steps:

Step	Task
1	Determine the part number and serial number of the component. To list the numbers for all components installed in the chassis, use the show hardware command.
2	<p>Request a Return Materials Authorization (RMA) number from TAC by opening a support case. Open a support case by:</p> <ul style="list-style-type: none"><li>• Using the Create Service Request form on the iSupport page (see <a href="#">Contacting the Technical Assistance Center</a>).</li><li>• Contacting Dell Force10 directly by E-mail or by phone (see <a href="#">Contacting the Technical Assistance Center</a>). Provide the following information when using E-mail or phone:</li><li>• Part number, description, and serial number of the component.</li><li>• Your name, organization name, telephone number, fax number, and e-mail address.</li><li>• Shipping address for the replacement component, including a contact name, phone number, and e-mail address.</li><li>• A description of the failure, including log messages. This generally includes:<ul style="list-style-type: none"><li>• Output from the show tech-support [non-paged] command (This report is very long, so the storage buffer in your terminal program should be set high.)</li><li>• Output from the show logging eventlog [unit] command, where unit is the stack ID of the member unit that experienced the failure (This report is included as a section in the output of show tech-support.)</li><li>• Console captures showing the error messages</li><li>• Console captures showing the troubleshooting steps taken</li><li>• Saved messages to a syslog server, if one is used</li></ul></li></ul>







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