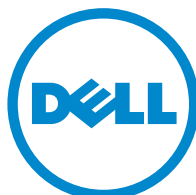


Dell PowerConnect J-Series J-EX4500 Ethernet Switch

Hardware Guide



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www.dell.com

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Table of Contents

	About This Guide	xiii
	How to Use This Guide	xiii
	Downloading Software	xiv
	Documentation Symbols Key	xiv
	Repair and Warranty	xv
	Requesting Technical Support	xvi
Part 1	Switch and Components Overview and Specifications	
Chapter 1	Dell PowerConnect J-Series J-EX4500 Switch Overview	3
	J-EX4500 Switches Hardware Overview	3
	J-EX4500 Switches	4
	Virtual Chassis Module	5
	Uplink Modules	5
	Power Supplies	5
	J-EX4500 Switch Models	6
	Identifying J-EX4500 Switch Models	7
	Chassis Physical Specifications for J-EX4500 Switches	7
	Front Panel of a J-EX4500 Switch	8
	Rear Panel of a J-EX4500 Switch	9
	J-EX4500 Switch Hardware and CLI Terminology Equivalents	10
Chapter 2	Component Descriptions	13
	LCD Panel in J-EX4500 Switches	13
	LCD Panel Modes	14
	LCD Panel Menus	14
	Chassis Status LEDs in J-EX4500 Switches	17
	Field-Replaceable Units in J-EX4500 Switches	18
	Network Port and Uplink Module Port LEDs in J-EX4500 Switches	18
	Management Port LEDs in J-EX4500 Switches	20
	AC Power Supply in J-EX4500 Switches	21
	AC Power Supply LEDs in J-EX4500 Switches	23
	Cooling System and Airflow in a J-EX4500 Switch	24
	Uplink Modules in J-EX4500 Switches	27
	Virtual Chassis Module in J-EX4500 Switches	29
Chapter 3	Component Specifications	33
	USB Port Specifications for a J-EX Series Switch	33
	Console Port Connector Pinout Information for a J-EX Series Switch	34
	Management Port Connector Pinout Information for a J-EX4500 Switch	34

	Network Port and Uplink Module Port Connector Pinout Information for J-EX4500 Switches	35
	Virtual Chassis Ports Connector Pinout Information for J-EX4500 Switches	36
	Optical Interface Support in J-EX4500 Switches	40
	SFP+ Direct Attach Cables for J-EX Series Switches	46
	Cable Specifications	47
	Standards Supported by These Cables	48
	Grounding Cable and Lug Specifications for J-EX4500 Switches	48
Part 2	Planning for Switch Installation	
Chapter 4	Site Preparation	53
	Site Preparation Checklist for J-EX4500 Switches	53
	General Site Guidelines	54
	Site Electrical Wiring Guidelines for J-EX Series Switches	55
	Environmental Requirements and Specifications for J-EX Series Switches	56
Chapter 5	Rack and Cabinet Requirements	57
	Rack Requirements for J-EX4500 Switches	57
	Cabinet Requirements for J-EX4500 Switches	58
	Clearance Requirements for Airflow and Hardware Maintenance for J-EX4500 Switches	60
Chapter 6	Cable Requirements	63
	Network Cable Specifications for J-EX4500 Switches	63
Chapter 7	Planning Power Requirements	65
	AC Power Specifications for J-EX4500 Switches	65
	AC Power Cord Specifications for a J-EX4500 Switch	65
Chapter 8	Planning the Virtual Chassis	69
	Understanding J-EX4500 Virtual Chassis Hardware Configurations	69
	Planning J-EX4200 and J-EX4500 Virtual Chassis	70
	Number and Location of Switches in a Virtual Chassis	70
	Cabling Requirements for a Virtual Chassis	70
	Power Requirements for a Virtual Chassis	71
Part 3	Installing and Connecting the Switch and Switch Components	
Chapter 9	Installing the Switch	75
	Installing and Connecting a J-EX4500 Switch	75
	Unpacking a J-EX4500 Switch	76
	Mounting a J-EX4500 Switch	78
	Mounting a J-EX4500 Switch on Two Posts in a Rack or Cabinet	78
	Mounting a J-EX4500 Switch on Four Posts in a Rack or Cabinet	81
	Mounting a J-EX4500 Switch in a Recessed Position in a Rack or Cabinet	85
Chapter 10	Installing Switch Components	87
	Installing and Removing J-EX4500 Switch Hardware Components	87
	Installing a Power Supply in a J-EX4500 Switch	88
	Installing a Fan Tray in a J-EX4500 Switch	89

	Installing an Uplink Module in a J-EX4500 Switch	91
	Installing a Virtual Chassis Module in a J-EX4500 Switch	93
	Connecting a Virtual Chassis Cable to a J-EX4500 Switch	95
	Installing a Transceiver in a J-EX Series Switch	96
Chapter 11	Connecting the Switch	99
	Connecting Earth Ground to a J-EX Series Switch	99
	Connecting Earth Ground to a J-EX4500 Switch	100
	Connecting AC Power to a J-EX4500 Switch	101
	Connecting a J-EX Series Switch to a Network for Out-of-Band Management . .	103
	Connecting a J-EX Series Switch to a Management Console	104
	Connecting a J-EX Series Switch to a Modem	105
	Setting the Serial Console Speed for the Switch	106
	Configuring the Modem	107
	Connecting the Modem to the Console Port	108
	Connecting a Fiber-Optic Cable to a J-EX Series Switch	109
Chapter 12	Performing Initial Configuration	111
	J-EX4500 Default Configuration	111
	Connecting and Configuring a J-EX Series Switch (CLI Procedure)	117
	Connecting and Configuring a J-EX Series Switch (J-Web Procedure)	118
Part 4	Removing the Switch and Switch Components	
Chapter 13	Removing the Switch	125
	Removing a J-EX4500 Switch from a Rack or Cabinet	125
Chapter 14	Removing Switch Components	127
	Installing and Removing J-EX4500 Switch Hardware Components	127
	Removing a Power Supply from a J-EX4500 Switch	128
	Removing a Fan Tray from a J-EX4500 Switch	130
	Removing an Uplink Module from a J-EX4500 Switch	131
	Removing a Virtual Chassis Module from a J-EX4500 Switch	133
	Disconnecting a Virtual Chassis Cable from a J-EX4500 Switch	135
	Disconnecting a Fiber-Optic Cable from a J-EX Series Switch	136
	Removing a Transceiver from a J-EX Series Switch	137
	Removing a Cage Nut from a Rack	138
Part 5	Switch and Component Maintenance	
Chapter 15	Routine Maintenance	143
	Maintaining Fiber-Optic Cables in J-EX Series Switches	143
Part 6	Returning Hardware	
Chapter 16	Getting Help	147
	Obtaining Assistance	147
	Online Services	148
	Automated Order-Status Service	149
	Support Service	149
	Dell Enterprise Training and Certification	149

	Problems With Your Order	149
	Product Information	149
	Returning Items for Warranty Repair or Credit	149
	Before You Call	150
	Diagnostics Checklist	150
	Contacting Dell	151
	Locating the Serial Number on a J-EX4500 Switch or Component	151
	Listing the Switch and Components Details with the CLI	152
	Locating the Chassis Serial Number ID Label on a J-EX4500 Switch	152
	Locating the Serial Number ID Labels on FRUs in a J-EX4500 Switch	153
	Packing a J-EX4500 Switch or Component for Shipping	154
	Packing a J-EX4500 Switch for Shipping	154
	Packing J-EX4500 Switch Components for Shipping	156
	Dell Support	156
Part 7	Safety Information	
Chapter 17	General Safety Information	159
	General Safety Guidelines and Warnings for J-EX Series Switches	159
	Definitions of Safety Warning Levels for J-EX Series Switches	160
	Fire Safety Requirements for J-EX Series Switches	162
	Qualified Personnel Warning for J-EX Series Switches	163
	Warning Statement for Norway and Sweden for J-EX Series Switches	164
Chapter 18	Radiation and Laser Warnings	165
	Laser and LED Safety Guidelines and Warnings for J-EX Series Switches	165
	General Laser Safety Guidelines	165
	Class 1 Laser Product Warning	165
	Class 1 LED Product Warning	166
	Laser Beam Warning	166
	Radiation from Open Port Apertures Warning for J-EX Series Switches	168
Chapter 19	Installation and Maintenance Safety Information	171
	Installation Instructions Warning for J-EX Series Switches	171
	Chassis Lifting Guidelines for J-EX4500 Switches	172
	Ramp Warning for J-EX Series Switches	172
	Rack-Mounting and Cabinet-Mounting Warnings for J-EX Series Switches	173
	Grounded Equipment Warning for J-EX Series Switches	177
	Maintenance and Operational Safety Guidelines and Warnings for J-EX Series Switches	178
	Jewelry Removal Warning	178
	Lightning Activity Warning	179
	Operating Temperature Warning	180
	Product Disposal Warning	182
Chapter 20	Power and Electrical Safety Information	185
	General Electrical Safety Guidelines and Warnings for J-EX Series Switches	185
	Prevention of Electrostatic Discharge Damage on J-EX Series Switches	186
	AC Power Electrical Safety Guidelines for J-EX Series Switches	188
	AC Power Disconnection Warning for J-EX Series Switches	189

	Multiple Power Supplies Disconnection Warning for J-EX Series Switches	190
	TN Power Warning for J-EX Series Switches	190
	Action to Take After an Electrical Accident	191
Part 8	Compliance Information	
Chapter 21	Compliance Information	195
	Agency Approvals for J-EX Series Switches	195
	Compliance Statements for EMC Requirements for J-EX Series Switches	196
	Canada	196
	European Community	197
	Japan	197
	United States	197
	FCC Part 15 Statement	197
	Declarations of Conformity for J-EX4500 Switches	198
	Compliance Statements for Acoustic Noise for J-EX Series Switches	199
Part 9	Index	
	Index	203

About This Guide

- How to Use This Guide on page xiii
- Downloading Software on page xiv
- Documentation Symbols Key on page xiv
- Repair and Warranty on page xv
- Requesting Technical Support on page xvi

How to Use This Guide

This guide, the *Dell PowerConnect J-Series J-EX4500 Ethernet Switch Hardware Guide*, covers Dell PowerConnect J-Series J-EX4500 Ethernet switches.

To download the Dell PowerConnect J-EX Series documentation listed in Table 1 on page xiii, see the following Dell support website:

<http://www.support.dell.com/manuals>

Table 1: List of J-EX Series Guides

Title	Description
<i>Dell PowerConnect J-Series J-EX4500 Ethernet Switch Hardware Guide</i>	Component descriptions, site preparation, installation, replacement, and safety and compliance information for J-EX4500 switches
<i>Dell PowerConnect J-Series J-EX4200 Ethernet Switch Hardware Guide</i>	Component descriptions, site preparation, installation, replacement, and safety and compliance information for J-EX4200 switches
<i>Dell PowerConnect J-Series J-EX8208 Ethernet Switch Hardware Guide</i>	Component descriptions, site preparation, installation, replacement, and safety and compliance information for J-EX8208 switches
<i>Dell PowerConnect J-Series J-EX8216 Ethernet Switch Hardware Guide</i>	Component descriptions, site preparation, installation, replacement, and safety and compliance information for J-EX8216 switches
<i>Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS</i>	Software feature descriptions, configuration examples, and tasks for the Junos Operating System (Junos OS) for J-EX Series switches

To download additional Junos OS documentation for J-EX Series and all other PowerConnect J-Series products, see the following Juniper Networks support website:

<http://www.juniper.net/support/partners/dell>.

If the information in the latest release notes differs from the information in the documentation, follow the release notes.

Downloading Software

You can download Junos OS for J-EX Series switches from the Download Software area at juniper.net/support/csc/swdist-domestic/. To download the software, you must have a Juniper Networks user account. For information about obtaining an account, see <http://www.support.dell.com>.

Documentation Symbols Key

Notice Icons		
Icon	Meaning	Description
	Informational note	Indicates important features or instructions.
	Caution	Indicates a situation that might result in loss of data or hardware damage.
	Warning	Alerts you to the risk of personal injury or death.
	Laser warning	Alerts you to the risk of personal injury from a laser.

Text and Syntax Conventions		
Convention	Description	Examples
Bold text like this	Represents text that you type.	To enter configuration mode, type the configure command: user@host> configure
Fixed-width text like this	Represents output that appears on the terminal screen.	user@host> show chassis alarms No alarms currently active
<i>Italic text like this</i>	<ul style="list-style-type: none"> Introduces important new terms. Identifies book names. Identifies RFC and Internet draft titles. 	<ul style="list-style-type: none"> A policy <i>term</i> is a named structure that defines match conditions and actions. <i>Junos System Basics Configuration Guide</i> RFC 1997, <i>BGP Communities Attribute</i>
<i>Italic text like this</i>	Represents variables (options for which you substitute a value) in commands or configuration statements.	Configure the machine's domain name: [edit] root@# set system domain-name <i>domain-name</i>

Text and Syntax Conventions		
Convention	Description	Examples
Plain text like this	Represents names of configuration statements, commands, files, and directories; IP addresses; configuration hierarchy levels; or labels on routing platform components.	<ul style="list-style-type: none"> To configure a stub area, include the stub statement at the [edit protocols ospf area area-id] hierarchy level. The console port is labeled CONSOLE.
< > (angle brackets)	Enclose optional keywords or variables.	stub <default-metric metric>;
(pipe symbol)	Indicates a choice between the mutually exclusive keywords or variables on either side of the symbol. The set of choices is often enclosed in parentheses for clarity.	broadcast multicast <i>(string1 string2 string3)</i>
# (pound sign)	Indicates a comment specified on the same line as the configuration statement to which it applies.	rsvp { # Required for dynamic MPLS only
[] (square brackets)	Enclose a variable for which you can substitute one or more values.	community name members [community-ids]
Indentation and braces ({ })	Identify a level in the configuration hierarchy.	<pre>[edit] routing-options { static { route default { nexthop address; retain; } } }</pre>
:(semicolon)	Identifies a leaf statement at a configuration hierarchy level.	
J-Web GUI Conventions		
Bold text like this	Represents J-Web graphical user interface (GUI) items you click or select.	<ul style="list-style-type: none"> In the Logical Interfaces box, select All Interfaces. To cancel the configuration, click Cancel.
> (bold right angle bracket)	Separates levels in a hierarchy of J-Web selections.	In the configuration editor hierarchy, select Protocols>Ospf .

Repair and Warranty



CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by

Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

.....
For more information, see “Getting Help” on page 147.

Requesting Technical Support

For technical support, see <http://www.support.dell.com>. For more information, see “Getting Help” on page 147.

PART 1

Switch and Components Overview and Specifications

- Dell PowerConnect J-Series J-EX4500 Switch Overview on page 3
- Component Descriptions on page 13
- Component Specifications on page 33

CHAPTER 1

Dell PowerConnect J-Series J-EX4500 Switch Overview

- J-EX4500 Switches Hardware Overview on page 3
- J-EX4500 Switch Models on page 6
- Identifying J-EX4500 Switch Models on page 7
- Chassis Physical Specifications for J-EX4500 Switches on page 7
- Front Panel of a J-EX4500 Switch on page 8
- Rear Panel of a J-EX4500 Switch on page 9
- J-EX4500 Switch Hardware and CLI Terminology Equivalents on page 10

J-EX4500 Switches Hardware Overview

Dell PowerConnect J-Series J-EX4500 Ethernet Switches provide high performance, scalable connectivity, and carrier-class reliability for high-density environments such as campus-aggregation and data-center networks.

You can manage J-EX4500 switches using the same Junos interfaces that you use for other Junos platforms—the Junos operating system (Junos OS) command-line interface (CLI) and the J-Web graphical interface.



NOTE: You can configure and manage a standalone J-EX4500 switch with the J-Web interface, but the J-Web interface does not support configuration and management of a J-EX4500 Virtual Chassis.

J-EX Series Ethernet Switches run Junos OS, which provides Layer 2 and Layer 3 switching, routing, and security services. The same Junos OS code base that runs on J-EX Series switches also runs on Dell PowerConnect J-SRX Series Services Gateways.

- J-EX4500 Switches on page 4
- Virtual Chassis Module on page 5
- Uplink Modules on page 5
- Power Supplies on page 5

J-EX4500 Switches

J-EX4500 switches provide connectivity for high-density 10-Gigabit Ethernet data center top-of-rack and aggregation deployments. Typically, J-EX4500 switches are used in data centers where they can be positioned as the top device in a rack to provide connectivity for all devices in the rack.

You can connect two individual J-EX4500 switches together to form one unit and manage the unit as a single chassis, called a *Virtual Chassis*. You can add up to eight Dell PowerConnect J-EX4200 member switches to form a *mixed Virtual Chassis*.

The J-EX4500 switch is 2 rack units (2 U) in size. Each switch is designed to optimize rack space utilization and cabling. See Figure 1 on page 4 and Figure 2 on page 4.

Figure 1: J-EX4500 Switch Front

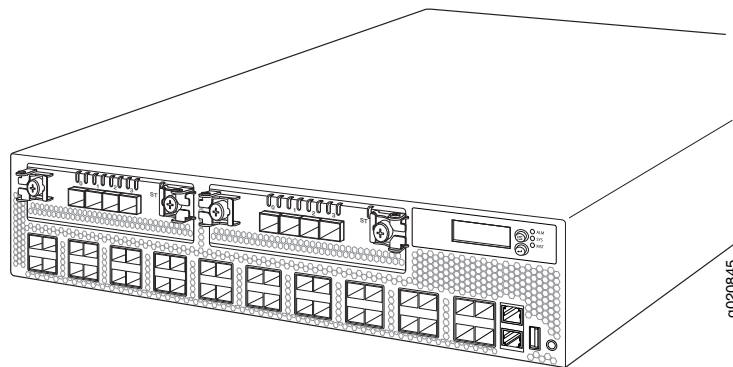
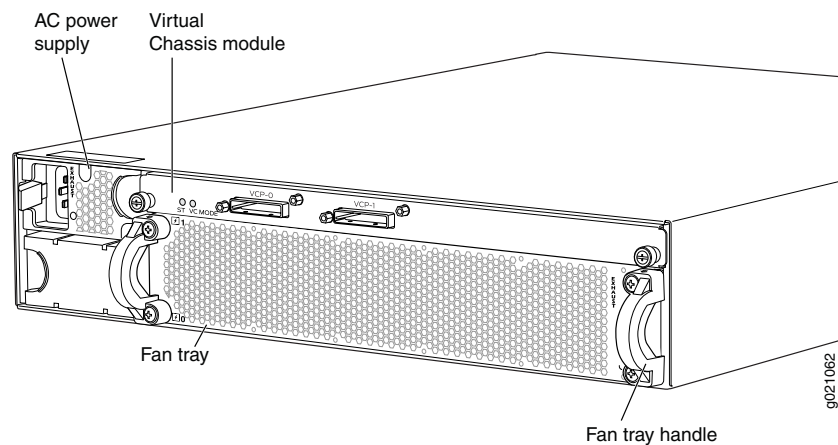


Figure 2: J-EX4500 Switch Rear



J-EX4500 switches are available in two models—one with front-to-back airflow and the other with back-to-front airflow. Both models provide 40 wire-speed 10-gigabit small form-factor pluggable (SFP+) network ports that can house either 1-Gigabit Ethernet connectors or 10-Gigabit Ethernet connectors. Both models support two optional high-speed uplink modules.



NOTE: The network ports are located on the front of the switch.

To provide carrier-class reliability, J-EX4500 switches include:

- Dual redundant, load-sharing power supplies that are field-replaceable, hot-removable, and hot-insertable.
- A field-replaceable fan tray with five fans. The switch remains operational if a single fan fails.
- Redundant Routing Engines in a Virtual Chassis configuration. This redundancy enables graceful Routing Engine switchover (GRES).
- Junos OS with its modular design that enables failed system processes to gracefully restart.

Virtual Chassis Module

J-EX4500 switches ship with the Virtual Chassis module preinstalled horizontally on the rear of the chassis. The Virtual Chassis module is an offline field-replaceable unit (FRU).

The Virtual Chassis module has two dedicated Virtual Chassis ports (VCPs) that can be used to interconnect the switch with J-EX4200 switches or another J-EX4500 switch to form a Virtual Chassis. Only two J-EX4500 switches can be interconnected into a Virtual Chassis composed exclusively of J-EX4500 switches.

J-EX4200 switches and J-EX4500 switches can be connected together in the same Virtual Chassis through their dedicated VCPs to form a mixed J-EX4200 and J-EX4500 Virtual Chassis. A mixed Virtual Chassis supports up to two J-EX4500 switches and up to eight J-EX4200 switches.

You can also interconnect J-EX4500 switches to form a Virtual Chassis through SFP+ uplink module ports or SFP+ network ports configured as VCPs.



CAUTION: Operating a J-EX4500 switch without the Virtual Chassis module installed is not supported. You cannot start the switch unless the Virtual Chassis module is installed in the chassis.

Uplink Modules

Optional uplink modules are available for J-EX4500 switches. Two uplink modules can be installed in a switch. Each uplink module provides four SFP+ ports for connecting to core devices in a data center. You can install SFP or SFP+ transceivers in these ports.

Power Supplies

J-EX4500 switches support AC power supplies and ship with one power supply installed. You can install a second AC power supply in your switch. See “AC Power Supply in J-EX4500 Switches” on page 21.



CAUTION: Mixing power supplies with front-to-back and back-to-front airflow in the same chassis is not supported.

Related Documentation

- J-EX4500 Switch Models on page 6
- Field-Replaceable Units in J-EX4500 Switches on page 18

J-EX4500 Switch Models

The J-EX4500 switch is available in two models—one with front-to-back airflow and the other with back-to-front airflow. Table 2 on page 6 lists the two models for a J-EX4500 switch and the components included in each model.



NOTE: The network ports are located on the front of the switch.

Table 2: J-EX4500 Switch Models and Their Components

Model	Access Port Configuration	Direction of Airflow	Switch Components
GYTPN	40-port GbE/10GbE SFP/SFP+	Front-to-back	<ul style="list-style-type: none"> • Chassis • One fan tray—displaying an EXHAUST label and arrow icons pointing towards you • One AC power supply—displaying an EXHAUST label and arrow icon pointing toward you • One jumper cable • One power supply cover panel • Two uplink module cover panels • One Virtual Chassis module
TX9CD	40-port GbE/10GbE SFP/SFP+	Back-to-front	<ul style="list-style-type: none"> • Chassis • One fan tray—displaying an INTAKE label and arrow icons pointing away from you • One AC power supply—displaying an INTAKE label and arrow icon pointing away from you • One jumper cable • One power supply cover panel • Two uplink module cover panels • One Virtual Chassis module



NOTE: Uplink modules, transceivers, Virtual Chassis cables, and Virtual Chassis cable connector retainers are not part of the J-EX4500 switch's shipping configuration. If you want to purchase uplink modules, transceivers, Virtual Chassis cables and cable connector retainers, or additional power supplies for your switch configuration, you must order them separately.



CAUTION: Mixing power supplies with front-to-back airflow and back-to-front airflow in the same chassis is not supported.

Related Documentation

- Chassis Physical Specifications for J-EX4500 Switches on page 7
- Front Panel of a J-EX4500 Switch on page 8
- Rear Panel of a J-EX4500 Switch on page 9
- J-EX4500 Switches Hardware Overview on page 3

Identifying J-EX4500 Switch Models

Purpose Identify the model number of your J-EX4500 switch.

Action Check the value of the **Routing Engine (FRU Model Number)** field in the output of the **show chassis hardware extensive** CLI command.

```
user@switch>show chassis hardware extensive
```

```
.....
Routing Engine 0 REV 00D 750-026816 DE0210022651 EX4500-40F
  Jedec Code: 0x7fb0          EEPROM Version: 0x02
  P/N: 750-026816          S/N: DE0210022651
  Assembly ID: 0x095a      Assembly Version: 05.00
  Date: 01-21-2010        Assembly Flags: 0x00
  Version: REV 00D        CLEI Code: COMUX00CRA
  ID: EX4500-40F          FRU Model Number: GYTPN
.....
```

The model number of your switch is one of the following:

- GYTPN
- TX9CD

Meaning The model number indicates the direction of airflow of the chassis:

- GYTPN—Front-to-back airflow
- TX9CD—Back-to-front airflow

Related Documentation

- J-EX4500 Switch Models on page 6

Chassis Physical Specifications for J-EX4500 Switches

The J-EX4500 switch chassis is a rigid sheet-metal structure that houses the other switch components. Table 3 on page 8 summarizes the physical specifications of the switch chassis.

Table 3: Physical Specifications of the J-EX4500 Switch Chassis

Description	Value
Chassis height	3.5 in. (8.9 cm)
Chassis width	<ul style="list-style-type: none"> 17.25 in. (43.82 cm) The outer edges of the front-mounting brackets extend the width to 19 in. (48.3 cm).
Chassis depth	<ul style="list-style-type: none"> 21.1 in. (53.6 cm)
Weight	<ul style="list-style-type: none"> J-EX4500 switch with 1 AC power supply: 37 lb (17 kg) AC power supply: 3 lb (1.3 kg)

You can mount the switch on a standard 19-in. two-post rack. You can also mount the switch on a standard 19-in. four-post rack or in a standard 19-in. enclosed cabinet.

Related Documentation

- Rack Requirements for J-EX4500 Switches on page 57
- Cabinet Requirements for J-EX4500 Switches on page 58
- Mounting a J-EX4500 Switch on page 78
- Installing and Connecting a J-EX4500 Switch on page 75
- Installing and Removing J-EX4500 Switch Hardware Components on page 87

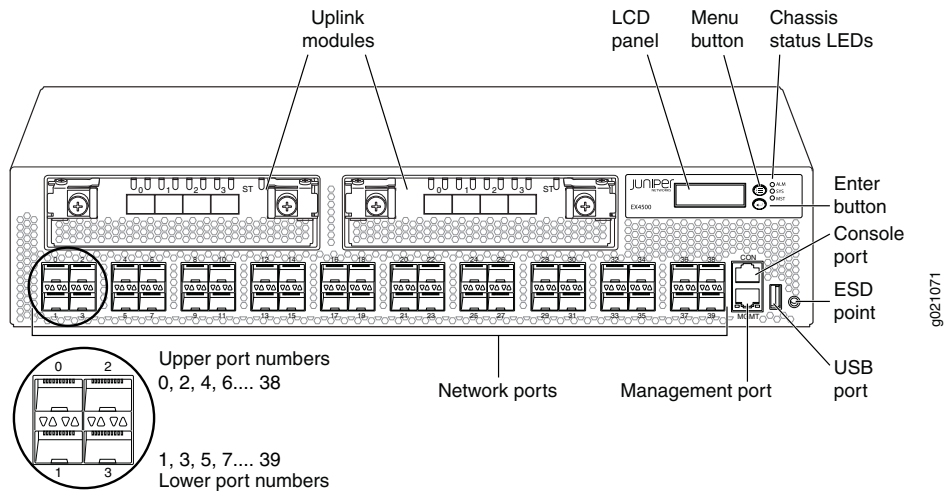
Front Panel of a J-EX4500 Switch

The front panel of a J-EX4500 switch consists of the following components:

- 40 SFP+ network ports
- Network port LEDs
- Two slots for installing uplink modules—Installing the uplink modules is optional.
- LCD panel and the LCD navigation buttons
- Chassis status LEDs
- Console port
- Management port
- Management port LEDs
- USB port
- ESD point

Figure 3 on page 9 shows the front panel of a J-EX4500 switch.

Figure 3: J-EX4500 Switch Front Panel



Related Documentation

- Rear Panel of a J-EX4500 Switch on page 9
- LCD Panel in J-EX4500 Switches on page 13
- Chassis Status LEDs in J-EX4500 Switches on page 17
- Network Port and Uplink Module Port LEDs in J-EX4500 Switches on page 18
- Uplink Modules in J-EX4500 Switches on page 27
- Optical Interface Support in J-EX4500 Switches on page 40
- Installing and Removing J-EX4500 Switch Hardware Components on page 87

Rear Panel of a J-EX4500 Switch

The rear panel of the J-EX4500 switch consists of the following components:

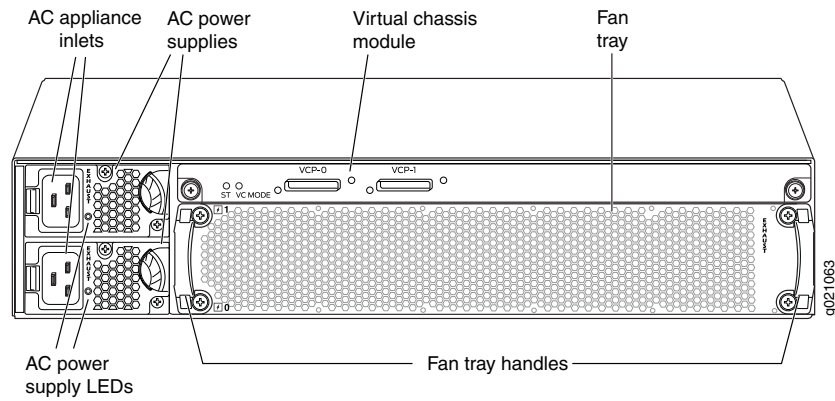
- Power supply or power supplies
- AC appliance inlet
- AC power supply LED
- Fan tray
- Virtual Chassis module



NOTE: The protective earthing terminal is located on the left side of the chassis. See “Connecting Earth Ground to a J-EX Series Switch” on page 99.

Figure 4 on page 10 shows the rear panel of a J-EX4500 switch.

Figure 4: J-EX4500 Switch Rear Panel



Related Documentation

- Front Panel of a J-EX4500 Switch on page 8
- Cooling System and Airflow in a J-EX4500 Switch on page 24
- AC Power Supply in J-EX4500 Switches on page 21
- Virtual Chassis Module in J-EX4500 Switches on page 29
- Installing and Removing J-EX4500 Switch Hardware Components on page 87

J-EX4500 Switch Hardware and CLI Terminology Equivalents

Table 4 on page 10 describes the hardware terms used in J-EX4500 switch documentation and the corresponding terms used in the Junos OS command line interface (CLI).

Table 4: CLI Equivalents of Terms Used in Documentation for J-EX4500 Switches

Hardware Item (CLI)	Description (CLI)	Value (CLI)	Item In J-EX4500 Documentation	Additional Information
Chassis	EX4500-40F	–	Switch chassis	“Chassis Physical Specifications for J-EX4500 Switches” on page 7

Table 4: CLI Equivalents of Terms Used in Documentation for J-EX4500 Switches (*continued*)

Hardware Item (CLI)	Description (CLI)	Value (CLI)	Item In J-EX4500 Documentation	Additional Information
PIC (<i>n</i>)	Abbreviated name of the Physical Interface Card (PIC)	<i>n</i> is a value in the range of 0–3.	The switch does not have actual PIC devices; see entries for PIC 0 through PIC 3 for the equivalent item on the switch.	See the information about interface naming conventions in the <i>Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS</i> at http://www.support.dell.com/manuals .
	40x 1/10GE	PIC 0	Built-in network ports on the front panel of the switch	“Front Panel of a J-EX4500 Switch” on page 8
	4x XE SFP+	PIC 1	Uplink module installed in the left slot on the front panel of the switch	“Uplink Modules in J-EX4500 Switches” on page 27
	4x XE SFP+	PIC 2	Uplink module installed in the right slot on the front panel of the switch	“Uplink Modules in J-EX4500 Switches” on page 27
	Virtual Chassis module	PIC 3	Virtual Chassis module	“Virtual Chassis Module in J-EX4500 Switches” on page 29
Xcvr (<i>n</i>)	Abbreviated name of the transceiver	<i>n</i> is a value equivalent to the number of the port in which the transceiver is installed.	Optical transceivers	“Optical Interface Support in J-EX4500 Switches” on page 40
Power supply (<i>n</i>)	One of the following: <ul style="list-style-type: none"> PS1000W/1200W AC Front-to-back airflow PS1000W/1200W AC Back-to-front airflow 	<i>n</i> is a value in the range of 0–1. The value corresponds to the power supply slot number. NOTE: Mixing power supplies with front-to-back and back-to-front airflow in the same chassis is not supported.	AC power supply	“AC Power Supply in J-EX4500 Switches” on page 21
Fan tray	One of the following: <ul style="list-style-type: none"> Fan tray, front-to-back airflow Fan tray, back-to-front airflow 	–	Fan tray	“Cooling System and Airflow in a J-EX4500 Switch” on page 24

Related Documentation

- J-EX Series Switches Hardware and CLI Terminology Mapping
- J-EX4500 Switches Hardware Overview on page 3

CHAPTER 2

Component Descriptions

- LCD Panel in J-EX4500 Switches on page 13
- Chassis Status LEDs in J-EX4500 Switches on page 17
- Field-Replaceable Units in J-EX4500 Switches on page 18
- Network Port and Uplink Module Port LEDs in J-EX4500 Switches on page 18
- Management Port LEDs in J-EX4500 Switches on page 20
- AC Power Supply in J-EX4500 Switches on page 21
- AC Power Supply LEDs in J-EX4500 Switches on page 23
- Cooling System and Airflow in a J-EX4500 Switch on page 24
- Uplink Modules in J-EX4500 Switches on page 27
- Virtual Chassis Module in J-EX4500 Switches on page 29

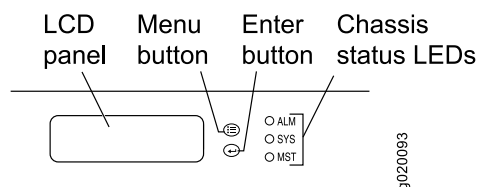
LCD Panel in J-EX4500 Switches

The LCD panel on the front panel of J-EX4500 switch shows two lines of text, that each can contain a maximum of 16 characters. The LCD panel displays a variety of information about the switch and also provides a menu to perform basic operations such as initial setup and reboot.

There are two navigation buttons—**Menu** and **Enter**—to the right of the LCD panel.

See Figure 5 on page 13.

Figure 5: LCD Panel in J-EX4500 Switches



You can configure the second line of the LCD panel to display a custom message. If the LCD panel is configured to display a custom message, the **Menu** button and the **Enter** button are disabled. See instructions for configuring the LCD panel on J-EX Series switches in the *Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS* at <http://www.support.dell.com/manuals>.

The LCD panel has a backlight. If the LCD panel remains idle for 60 seconds, the backlight turns off. You can turn on the backlight by pressing the **Menu** or **Enter** button once. After turning on the backlight, you can toggle between the LCD panel menus by pressing the **Menu** button and navigate through the menu options by pressing the **Enter** button.



NOTE: The chassis viewer in the J-Web interface also displays the LCD panel. From the J-Web interface, you can view real-time status information in the LCD panel. See the description of the J-Web dashboard for J-EX Series switches in the *Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS* at <http://www.support.dell.com/manuals>.

This topic describes:

- LCD Panel Modes on page 14
- LCD Panel Menus on page 14

LCD Panel Modes

The LCD panel operates in four modes: boot, idle, status, and maintenance.

The LCD panel operates in boot mode during switch reboot. The boot mode displays the key milestones in the switch boot process. The boot mode does not have any menu options. After the boot process is complete, the LCD panel automatically reverts to the Idle menu.

When the LCD panel is in idle, status, or maintenance mode, you can perform basic setup and maintenance and display switch status. (See Table 5 on page 15.)

The first line of the text on the LCD panel displays the slot number, the role of the switch, and the hostname. For a standalone J-EX4500 switch, the slot number is always **00** and the role is always **RE**.

In a J-EX4500 switch that is a member of a Virtual Chassis, the first line of the LCD panel displays the following information:

- Slot number—the member ID for the Virtual Chassis member
- Role of the switch in a Virtual Chassis—**RE** for the master switch, **BK** for a backup switch, and **LC** for a linecard member switch
- Hostname

LCD Panel Menus

The LCD panel has three menus: Idle, Status, and Maintenance. You can toggle between the LCD panel menus by pressing the **Menu** button and navigate through the menu options by pressing the **Enter** button.

Table 5 on page 15 describes the LCD panel menu options.

Table 5: LCD Panel Menu Options in J-EX4500 Switches

Menu	Purpose	Options
IDLE	Displays status indicators for network ports and the number of chassis alarms. The number of alarms is updated every second.	<p>In the Idle menu:</p> <ul style="list-style-type: none"> Press Enter to cycle through the Status LED modes, which are port status indicators: <ul style="list-style-type: none"> ADM (administrative status) DPX (duplex) SPD (speed) <p>See “Network Port and Uplink Module Port LEDs in J-EX4500 Switches” on page 18 for information on the Status LED modes.</p> Press Menu to exit the Idle menu and go to the Status menu.
STATUS	Displays the status of VCPs (where applicable), power supplies, fan tray fans and chassis temperature, and the Junos OS version.	<p>The Status menu has the following options:</p> <ul style="list-style-type: none"> Show VCP status—Choose one of the following: <ul style="list-style-type: none"> Press Enter to display the Virtual Chassis port (VCP) status: Up, Down. <p>NOTE: This option is supported only on J-EX4500 switches in a Virtual Chassis configuration and not on standalone J-EX4500 switches.</p> <ul style="list-style-type: none"> Press Menu to go to the next option in the Status menu. Show PSU Status—Choose one of the following: <ul style="list-style-type: none"> Press Enter to display the status of power supplies: OK, Fld (Failed), ABS (Absent). Press Menu to go to the next option in the Status menu. Show Environment Status—Choose one of the following: <ul style="list-style-type: none"> Press Enter to display the status of the fan tray and the chassis temperature: <ul style="list-style-type: none"> Fan tray status: OK, Fld, ABS Chassis temperature status: OK, High, Shutdown Press Menu to go to the next option in the Status menu. Show Junos Version Status—Choose one of the following: <ul style="list-style-type: none"> Press Enter to display the version of Junos OS for J-EX Series switches loaded on the switch. Press Menu to go to the next option in the Status menu. EXIT STAT MENU?—Choose one of the following: <ul style="list-style-type: none"> Press Enter to exit the Status menu. Press Menu to return to the Show PSU Status option. <p>You can disable the Status menu or the options in the Status menu in the LCD panel. See instructions for configuring the LCD panel in the <i>Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS</i> at http://www.support.dell.com/manuals.</p>

Table 5: LCD Panel Menu Options in J-EX4500 Switches (*continued*)

Menu	Purpose	Options
MAINT (Maintenance Menu)	Provides options you can use to configure and troubleshoot the switch.	<p>The Maintenance menu has the following options to configure and troubleshoot the switch:</p> <ul style="list-style-type: none"> • SYSTEM HALT?—Choose one of the following: <ul style="list-style-type: none"> • Press Enter to halt the switch. Press Enter again to confirm the halt. • Press Menu to go to the next option in the Maintenance menu. • SYSTEM REBOOT?—Choose one of the following: <ul style="list-style-type: none"> • Press Enter to reboot the switch. Press Enter again to confirm the reboot. • Press Menu to go to the next option in the Maintenance menu. • LOAD RESCUE?—Choose one of the following: <ul style="list-style-type: none"> • Press Enter to roll back the switch to the previous valid configuration. Press Enter again to confirm the rollback. • Press Menu to go to the next option in the Maintenance menu. • REQUEST VC PORT?—Choose one of the following: <ul style="list-style-type: none"> • Press Enter to configure an uplink module port or a network port to be a Virtual Chassis port (VCP), or to delete a VCP from the switch configuration. (When you delete the VCP, the port is reset to an uplink module port or network port.) <p>NOTE: This option is supported only on J-EX4500 switches in a Virtual Chassis configuration and not on J-EX4500 standalone switches.</p> <ul style="list-style-type: none"> • Press Menu to go to the next option in the Maintenance menu. • FACTORY DEFAULT?—Choose one of the following: <ul style="list-style-type: none"> • Press Enter to restore the switch to the factory default configuration. Press Enter again to confirm the restoration. The LCD flashes a success or failure message and returns to the Idle menu. • Press Menu to go to the next option in the Maintenance menu. • ENTER EZSETUP?—Choose one of the following: <ul style="list-style-type: none"> • Press Enter to launch EZSetup. Press Enter again to confirm the launch. EZSetup configures DHCP and enables the J-Web user interface on the switch. The LCD flashes a success or failure message for approximately 10 seconds and returns to the Idle menu. • Press Menu to go to the next option in the Maintenance menu. <p>NOTE: You can use EZSetup only on a standalone switch that is in the factory default configuration.</p> <p>For information about EZSetup, see “Connecting and Configuring a J-EX Series Switch (J-Web Procedure)” on page 118.</p> • EXIT MAINT MENU?—Choose one of the following: <ul style="list-style-type: none"> • Press Enter to exit the Maintenance menu. • Press Menu to return to the SYSTEM HALT option. <p>You can disable the Maintenance menu or the options in the Maintenance menu in the LCD panel. See instructions for configuring the LCD panel in the <i>Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS</i> at http://www.support.dell.com/manuals.</p>

- Related Documentation**
- Front Panel of a J-EX4500 Switch on page 8
 - Field-Replaceable Units in J-EX4500 Switches on page 18
 - Connecting and Configuring a J-EX Series Switch (CLI Procedure) on page 117
 - Connecting and Configuring a J-EX Series Switch (J-Web Procedure) on page 118

Chassis Status LEDs in J-EX4500 Switches

The front panel of a J-EX4500 switch has three chassis status LEDs (labeled with **ALM**, **SYS**, and **MST**) on the far right side of the panel, next to the **Menu** and **Enter** buttons (see Figure 6 on page 17).

Figure 6: Chassis Status LEDs in a J-EX4500 Switch

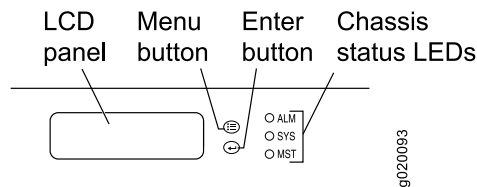


Table 6 on page 17 describes the chassis status LEDs in a J-EX4500 switch, their colors and states, and the status they indicate. You can view the colors of the three LEDs remotely through the CLI by issuing the operational mode command **show chassis led**.

Table 6: Chassis Status LEDs in a J-EX4500 Switch

LED Label	Color	State and Description
ALM (alarm)	Unlit	There is no alarm.
	Red	There is a major alarm.
	Amber	There is a minor alarm.
SYS (system)	Green	<ul style="list-style-type: none"> • On steadily—Junos OS for J-EX Series switches has been loaded on the switch. • Blinking—The switch is booting. • Off—The switch is powered off.
MST (master)	Green	In a standalone J-EX4500 switch: <ul style="list-style-type: none"> • On steadily—The switch is functioning normally. • Off—The switch is powered off.
		In a Virtual Chassis configuration: <ul style="list-style-type: none"> • On steadily—The switch is the master in the Virtual Chassis configuration. • Blinking—The switch is the backup in a Virtual Chassis configuration. • Off—The switch is a linecard member in the Virtual Chassis configuration.

A major alarm (red) indicates a critical error condition that requires immediate action.

A minor alarm (amber) indicates a noncritical condition that requires monitoring or maintenance. A minor alarm that is left unchecked might cause interruption in service or performance degradation.

All three LEDs can be lit simultaneously.

**Related
Documentation**

- Front Panel of a J-EX4500 Switch on page 8
- For information about checking active alarms with the J-Web interface and understanding alarm types and severity levels, see the *Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS* at <http://www.support.dell.com/manuals>.

Field-Replaceable Units in J-EX4500 Switches

Field-replaceable units (FRUs) are components that you can replace at your site. The field-replaceable units (FRUs) in J-EX4500 switches are:

- Power supplies
- Fan tray
- Uplink module(s)
- Virtual Chassis module
- SFP+ transceivers
- SFP transceivers



NOTE: Uplink modules, transceivers, Virtual Chassis cables, and Virtual Chassis cable connector retainers are not part of the standard package and must be ordered separately.

The power supplies, fan tray, uplink module(s), and transceivers are hot-removable and hot-insertable: You can remove and replace them without powering off the switch or disrupting switch functions.

The Virtual Chassis module is offline field-replaceable: You can remove and replace the module, but the switch must be powered off first.

**Related
Documentation**

- Installing and Removing J-EX4500 Switch Hardware Components on page 87

Network Port and Uplink Module Port LEDs in J-EX4500 Switches

Each network port and uplink module port on a J-EX4500 switch has two LEDs that indicate link/activity and status. The figures in this topic show the location of these LEDs:

- Figure 7 on page 19 shows the location of the LEDs on the network ports on the front panel of a J-EX4500 switch. The LEDs point toward the port to which the LEDs belong.
- Figure 8 on page 19 shows the location of the LEDs on the uplink module ports on the SFP+ uplink module.

Figure 7: Network Port LEDs

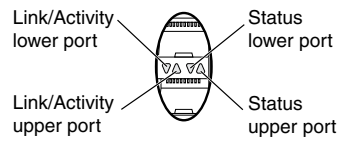
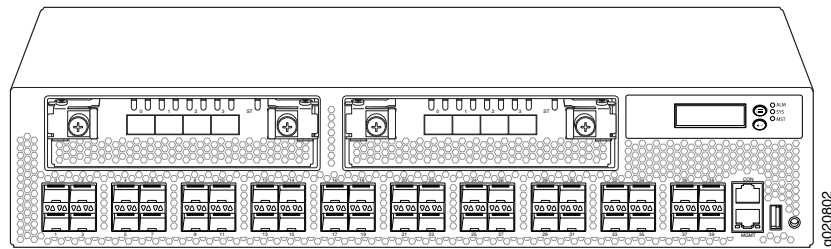
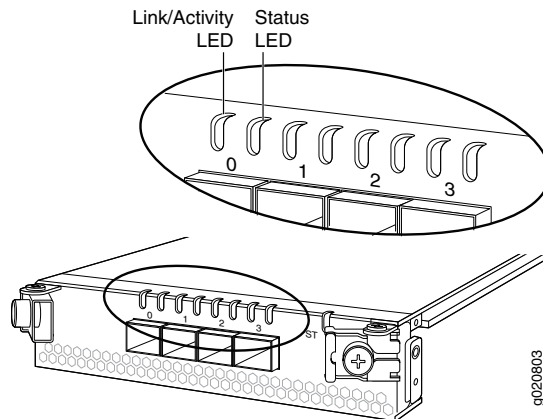


Figure 8: Uplink Module Port LEDs



The LEDs labeled Link/Activity LED in Figure 7 on page 19 and Figure 8 on page 19 indicate link activity.

Table 7 on page 19 describes the Link/Activity LED.

Table 7: Link/Activity LED on Network Ports and Uplink Module Ports in J-EX4500 Switches

LED	Color	State and Description
Link/Activity	Green	<ul style="list-style-type: none"> • Blinking—The port and the link are active, and there is link activity. • On steadily—The port and the link are active, but there is no link activity. • Off—The port is not active.

The Status LED in Figure 7 on page 19 and Figure 8 on page 19 indicate the status of one of the three port parameters. The port parameters are administrative status, duplex mode, and speed.

Table 8 on page 20 describes the Status LED on network ports and uplink module ports in J-EX4500 switches. From the Idle menu of the LCD, use the **Enter** button on the LCD panel to toggle between the ADM, DPX, and SPD indicators.

Table 8: Status LED on Network Ports and Uplink Module Ports in J-EX4500 Switches

LED	LCD Indicator	State and Description
Status	LED: ADM	Indicates the administrative status (enabled or disabled). The status indicators are: <ul style="list-style-type: none"> Green—Port is administratively enabled. Unlit—Port is administratively disabled.
	LED: DPX	Indicates the duplex mode. The status indicators for network ports on the front panel are: <ul style="list-style-type: none"> Green—Port is set to full-duplex mode. Unlit—Port is set to half-duplex mode. The uplink module ports are always set to full-duplex mode; therefore, the LED is always green.
	LED: SPD	Indicates the speed. The speed indicators are: <ul style="list-style-type: none"> Blinking green—1 Gbps Steadily green—10 Gbps

- Related Documentation**
- Front Panel of a J-EX4500 Switch on page 8
 - Uplink Modules in J-EX4500 Switches on page 27

Management Port LEDs in J-EX4500 Switches

The management port on the front panel of a J-EX4500 switch has two LEDs that indicate link/activity and port status (see Figure 9 on page 21).

Figure 9: LEDs on the Management Port on a J-EX4500 Switch

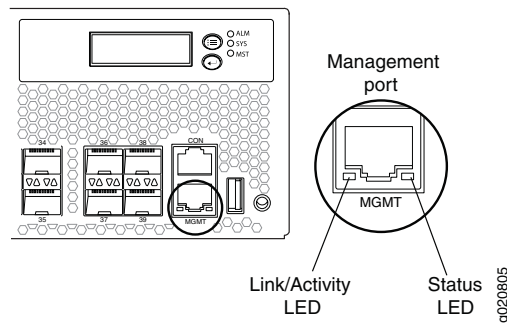


Table 9 on page 21 describes the Link/Activity LED.

Table 9: Link/Activity LED on the Management Port on a J-EX4500 Switch

LED	Color	State and Description
Link/Activity	Green	<ul style="list-style-type: none"> Blinking—The port and the link are active, and there is link activity. On steadily—The port and the link are active, but there is no link activity. Off—The port is not active.

Table 10 on page 21 describes the Status LED.

Table 10: Status LED on the Management Port on a J-EX4500 Switch

LED	Color	State and Description
Status	Green	Indicates the speed. The speed indicators are: <ul style="list-style-type: none"> One blink per second—10 Mbps Two blinks per second—100 Mbps Three blinks per second—1000 Mbps

Related Documentation

- Front Panel of a J-EX4500 Switch on page 8
- Connecting a J-EX Series Switch to a Network for Out-of-Band Management on page 103

AC Power Supply in J-EX4500 Switches

The AC power supply in J-EX4500 switches is a hot-insertable and hot-removable field-replaceable unit (FRU).

The switch is shipped with one power supply. A cover panel is installed in the second power supply slot. You can add a second power supply to the switch.

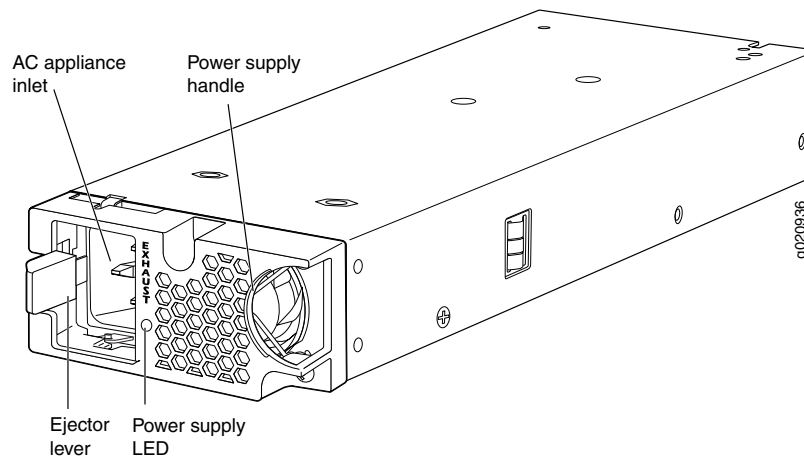
Power supplies are installed at the rear of the chassis in slots labeled 1 and 0. Both power supplies are accessible from the rear of the chassis.



WARNING: The switch is pluggable type A equipment installed in a restricted-access location. It has a separate protective earthing terminal provided on the chassis in addition to the grounding pin of the power supply cord. This separate protective earthing terminal must be permanently connected to earth ground. See “Connecting Earth Ground to a J-EX Series Switch” on page 99

Each AC power supply weighs approximately 3 lb (1.3 kg) and has an independent 12 A rated AC appliance inlet on its front. Each inlet requires a dedicated AC power feed. Each AC power supply has a fan, a bicolor LED on the faceplate that indicates the status of the power supply, an orange ejector lever with an arrow icon, and an **EXHAUST** or **INTAKE** label. See Figure 10 on page 22.

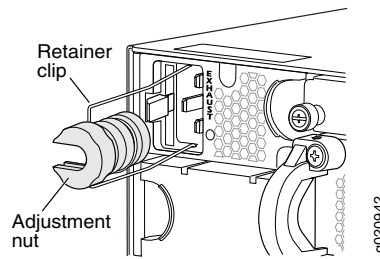
Figure 10: AC Power Supply



Each AC power supply has an ejector lever that holds the power supply in place. The ejector lever locks into the corresponding hole in the chassis on the left side of the AC appliance inlet. For instructions for installing the power supply, see “Installing a Power Supply in a J-EX4500 Switch” on page 88.

Each AC power supply comes with a power cord retainer (Figure 11 on page 23) that holds in place the jumper cable shipped with the switch or the separately orderable power cord with plug appropriate for your geographic location. The power cord retainer has a clip and an adjustment nut. The L-shaped ends of the retainer clip hook into the bracket holes on each side of the AC appliance inlet. The adjustment nut holds the jumper cable or power cord in the correct position. For instructions for installing the power cord retainer, see “Installing a Power Supply in a J-EX4500 Switch” on page 88.

Figure 11: Power Cord Retainer for an AC Power Supply



Each power supply has its own fan and is cooled by its own internal cooling system. The airflow for a power supply is either from the front of the power supply to the back or from the back of the power supply to the front depending on the switch model you purchase.

To determine the airflow direction of the power supply, check the power supply label and the arrow icon on the ejector lever.

- Front-to-back airflow—The label says **EXHAUST**, and the arrow points *toward* you.
- Back-to-front airflow—The label says **INTAKE**, and the arrow points *away from* you.

The label and arrow icon on the power supply must match the label and icons on the installed fan tray. The match indicates that the direction of airflow through the fan tray matches the direction of airflow through the power supply.



CAUTION: To prevent overheating of the chassis, verify that the direction of airflow through the power supply matches the direction of airflow through the fan tray.

Each AC power supply provides power to all components in the switch. The two power supplies provide full power redundancy to the switch. If one power supply fails or is removed, the second power supply balances the electrical load without interruption. The switch reassesses the power required to support the switch configuration and issues error messages if the available power is insufficient.

The output for the AC power supply is 12 VDC. The output power is 1000 W.

Related Documentation

- Installing a Power Supply in a J-EX4500 Switch on page 88
- AC Power Specifications for J-EX4500 Switches on page 65
- AC Power Supply LEDs in J-EX4500 Switches on page 23

AC Power Supply LEDs in J-EX4500 Switches

An AC power supply has one bicolor LED on its faceplate. This LED displays information about the status of the power supply. See Figure 12 on page 24.

Figure 12: AC Power Supply LEDs in J-EX4500 Switches

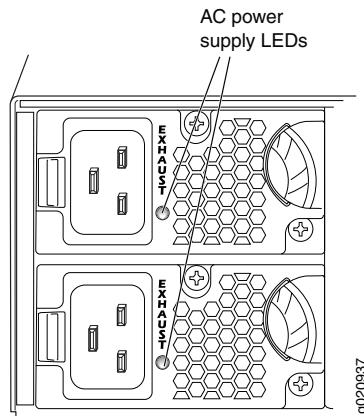


Table 11 on page 24 describes the LED on an AC power supply in a J-EX4500 switch.

Table 11: Power Supply LED on J-EX4500 Switches

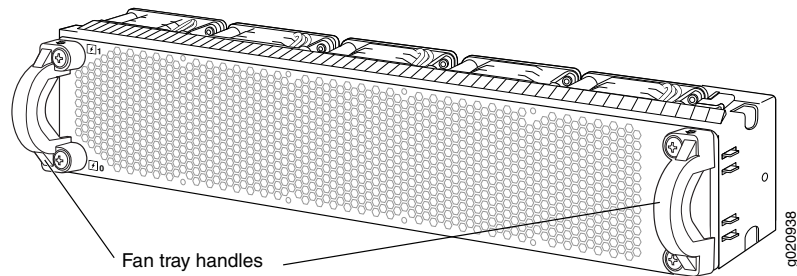
LED State	Description
Unlit	Indicates one of the following: <ul style="list-style-type: none"> Power supply is disconnected from AC power feed. AC power input voltage is not within normal operating range. No AC power input.
Green	<ul style="list-style-type: none"> On steadily—Power supply is functioning normally. Blinking—Power supply has failed.
Amber	<ul style="list-style-type: none"> On steadily—Power supply has failed. Blinking—Power supply has failed.

- Related Documentation**
- AC Power Specifications for J-EX4500 Switches on page 65
 - AC Power Cord Specifications for a J-EX4500 Switch on page 65
 - Connecting AC Power to a J-EX4500 Switch on page 101

Cooling System and Airflow in a J-EX4500 Switch

The cooling system in a J-EX4500 switch consists of a single fan tray. The fan tray is a hot-insertable and hot-removable field-replaceable unit (FRU). The fan tray contains five fans (see Figure 13 on page 25).

Figure 13: Fan Tray Used in a J-EX4500 Switch

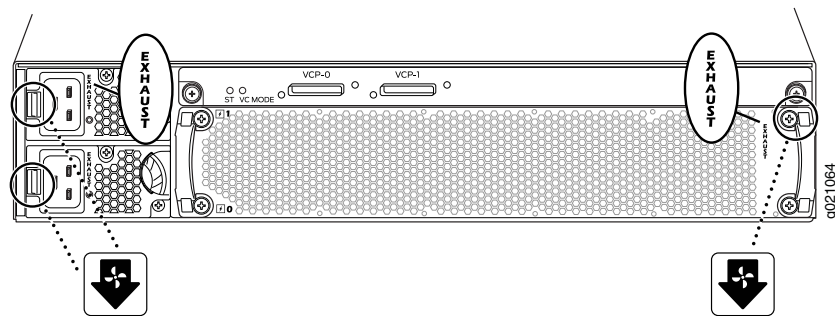


The fan tray installs horizontally in the rear of the chassis. The fan tray has two handles, one on each side, that facilitate handling of the fan tray.

You remove and replace the fan tray from the rear of the chassis. The switch continues to operate for a limited time (15 seconds) during the replacement of the fan tray without thermal shutdown.

The fan tray provides front-to-back or back-to-front airflow depending on the switch model you purchase. Each fan tray displays an **INTAKE** or **EXHAUST** label on the right side and arrow icons on the tops of the handles to indicate the airflow direction. (See Figure 14 on page 25.)

Figure 14: Fan Tray Airflow Indicators

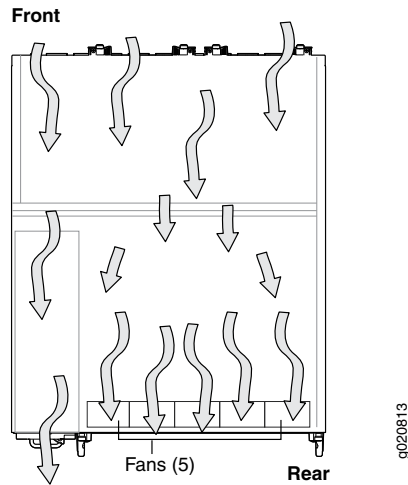


In the front-to-back model (**EXHAUST** labels and arrows pointing *toward* you), the air intake to cool the chassis is located on the front of the chassis. Air is pulled into the chassis and pushed toward the fan tray. Hot air exhausts from the rear of the chassis. See Figure 15 on page 26.



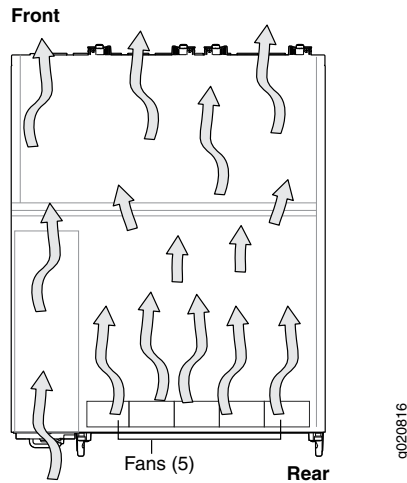
NOTE: The network ports are located on the front of the switch.

Figure 15: Front-to-Back Airflow Through the J-EX4500 Switch Chassis (EXHAUST Labels, Arrows Pointing at You)



In the back-to-front model (**INTAKE** labels and arrows pointing *away from you*), the air intake to cool the chassis is located on the rear of the chassis. Air is pulled into the chassis and pushed away from the fan tray. Hot air exhausts from the front of the chassis. See Figure 16 on page 26.

Figure 16: Back-to-Front Airflow Through the J-EX4500 Switch Chassis (INTAKE Labels, Arrows Pointing Away)



The label and arrow icons on the installed fan tray must match the label and arrow icon on the power supply. The match indicates that the power supply has the correct airflow for this model. See "AC Power Supply in J-EX4500 Switches" on page 21.



CAUTION: To prevent overheating of the chassis, verify that the label and arrow icons on the installed fan tray match the label and arrow icon on the power supply. A match indicates that the direction of airflow through the fan tray matches the direction of airflow of the power supply.

Temperature sensors in the chassis monitor the temperature within the chassis. The fan tray used in the switch comes with load-sharing redundancy that can tolerate a single fan failure at room temperature (below 113°F/45°C) to still provide sufficient cooling.

Under normal operating conditions, the fans in the fan tray run at less than full speed. If a fan fails or the ambient temperature rises above the threshold 113°F (45°C), the speed of the remaining fans is automatically adjusted to keep the temperature within the acceptable range, 32°F (0°C) through 113°F (45°C).

The system raises an alarm if the fan fails or if the ambient temperature inside the chassis rises above the acceptable range. If the temperature inside the chassis rises above the threshold temperature, the system shuts down automatically.

You can check the status of fans and the chassis temperature from the Environment Status option in the Status menu on the LCD panel. See “LCD Panel in J-EX4500 Switches” on page 13.

You cannot replace a single fan. If one or more fans fail, you must replace the entire fan tray.

Related Documentation

- Installing a Fan Tray in a J-EX4500 Switch on page 89
- Removing a Fan Tray from a J-EX4500 Switch on page 130
- Field-Replaceable Units in J-EX4500 Switches on page 18
- Rear Panel of a J-EX4500 Switch on page 9
- Prevention of Electrostatic Discharge Damage on J-EX Series Switches on page 186

Uplink Modules in J-EX4500 Switches

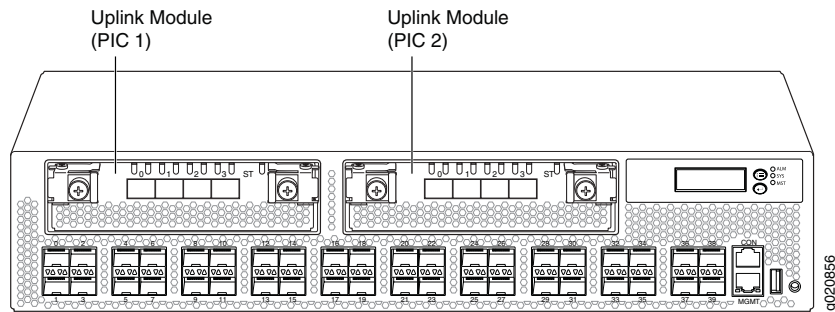
J-EX4500 switches support SFP+ uplink modules. The SFP+ uplink module is a hot-insertable and hot-removable field replaceable unit (FRU).



NOTE: Uplink modules and transceivers are not part of the J-EX4500 switch's shipping configuration. You must order them separately.

You can install up to two SFP+ uplink modules in a J-EX4500 switch. Both uplink modules install horizontally on the front of the chassis. The uplink module slot on the left is PIC 1. The uplink module slot on the right is PIC 2. See Figure 17 on page 28.

Figure 17: Uplink Module Slots in a J-EX4500 Switch



Each SFP+ uplink module provides four ports. Each module can house four 10-gigabit small form-factor pluggable (SFP+) transceivers or four 1-gigabit small form-factor pluggable (SFP) transceivers.



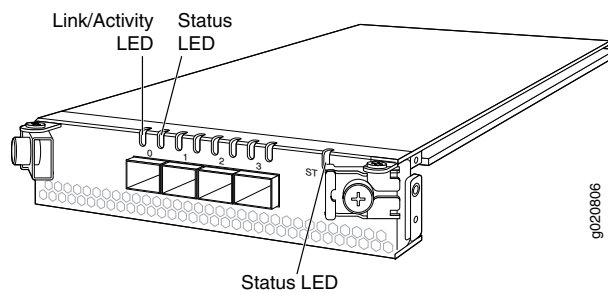
NOTE: When a new uplink module is installed in the switch or an existing uplink module is replaced with another uplink module, the switch detects the newly installed uplink module. The switch creates the required interfaces when new transceivers are installed in those ports.

The operating mode for an SFP+ uplink module is shown in the output of the `show chassis pic fpc-slot slot number pic-slot 1` command.

You can use the uplink module ports to connect an access switch to a distribution switch.

Figure 18 on page 28 shows the SFP+ uplink module.

Figure 18: SFP+ Uplink Module



The SFP+ uplink module has an LED on the faceplate (labeled ST) that indicates the status of the uplink module. See Figure 18 on page 28.

Table 12 on page 29 describes the LED on the uplink module in a J-EX4500 switch.

Table 12: Uplink Module Status LED

LED	State	Description
ST (status)	Unlit	<ul style="list-style-type: none"> The uplink module is offline. The chassis is powered off.
	Green	<ul style="list-style-type: none"> The uplink module is online and functioning normally.

Each uplink module port has a pair of LEDs that indicate the link/activity and status of the port. See “Network Port and Uplink Module Port LEDs in J-EX4500 Switches” on page 18 for details about the uplink module port LEDs.

The SFP+ uplink modules are shipped with dust covers preinstalled in the ports.

Related Documentation

- Network Port and Uplink Module Port LEDs in J-EX4500 Switches on page 18
- Network Port and Uplink Module Port Connector Pinout Information for J-EX4500 Switches on page 35
- Optical Interface Support in J-EX4500 Switches on page 40
- SFP+ Direct Attach Cables for J-EX Series Switches on page 46
- For an overview of J-EX Series Ethernet switch interfaces, see the see the *Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS* at <http://www.support.dell.com/manuals>.
- Installing an Uplink Module in a J-EX4500 Switch on page 91
- Removing an Uplink Module from a J-EX4500 Switch on page 131

Virtual Chassis Module in J-EX4500 Switches

The Virtual Chassis module is installed horizontally on the rear panel of a J-EX4500 switch chassis. The Virtual Chassis module has two dedicated Virtual Chassis ports (VCPs) that can be used to interconnect the J-EX4500 switch with a J-EX4200 switch or a J-EX4500 switch in a Virtual Chassis configuration. The module is an offline field-replaceable unit (FRU).

The Virtual Chassis module comes preinstalled in the switch chassis.



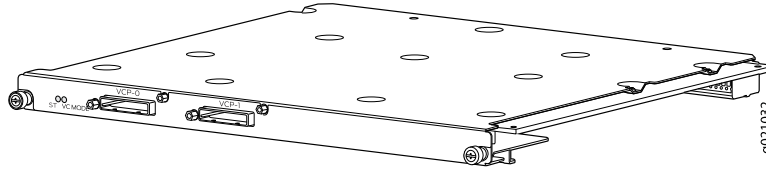
NOTE: Virtual Chassis cables and cable connector retainers are not part of the J-EX4500 switch shipping configuration and must be purchased separately.



CAUTION: Operating a J-EX4500 switch without the Virtual Chassis module installed is not supported. You cannot start the switch unless the Virtual Chassis module is installed in the chassis.

Figure 19 on page 30 shows the Virtual Chassis module.

Figure 19: Virtual Chassis Module



The Virtual Chassis module has two LEDs (labeled ST and VC MODE) on the left side of its faceplate that indicate the status and the operating mode of the Virtual Chassis module. See Figure 20 on page 30.

Figure 20: Virtual Chassis Module LEDs

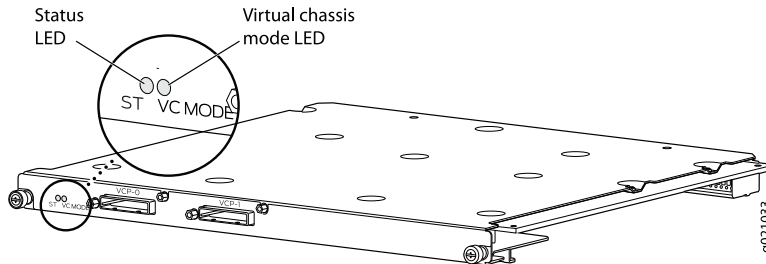


Table 13 on page 30 describes the LEDs on the Virtual Chassis module in a J-EX4500 switch.

Table 13: Virtual Chassis Module LEDs

LED	State	Description
ST (status)	Green	The Virtual Chassis module is functioning normally.
	Unlit	One of the following: <ul style="list-style-type: none"> The Virtual Chassis module is not functioning normally. The switch has been powered off.
VC Mode	Green	The Virtual Chassis module and VCPs are active.
	Unlit	The Virtual Chassis module is operating in Intraconnect mode. The VCPs are not active.

The Virtual Chassis module has two captive screws on the faceplate that secure the module to the switch chassis. To remove or replace the Virtual Chassis module, follow the instructions in “Removing a Virtual Chassis Module from a J-EX4500 Switch” on page 133.

Related Documentation

- Rear Panel of a J-EX4500 Switch on page 9

- [Field-Replaceable Units in J-EX4500 Switches on page 18](#)
- [Installing a Virtual Chassis Module in a J-EX4500 Switch on page 93](#)

CHAPTER 3

Component Specifications

- USB Port Specifications for a J-EX Series Switch on page 33
- Console Port Connector Pinout Information for a J-EX Series Switch on page 34
- Management Port Connector Pinout Information for a J-EX4500 Switch on page 34
- Network Port and Uplink Module Port Connector Pinout Information for J-EX4500 Switches on page 35
- Virtual Chassis Ports Connector Pinout Information for J-EX4500 Switches on page 36
- Optical Interface Support in J-EX4500 Switches on page 40
- SFP+ Direct Attach Cables for J-EX Series Switches on page 46
- Grounding Cable and Lug Specifications for J-EX4500 Switches on page 48

USB Port Specifications for a J-EX Series Switch

The following Dell USB flash drives have been tested and are officially supported for the USB port on all J-EX Series switches:

- 1-GB USB flash drive (WFXDH)
- 2-GB USB flash drive (T8GCH)
- 4-GB USB flash drive (7XMF7)



CAUTION: Any USB memory product not listed as supported for J-EX Series switches has not been tested. The use of any unsupported USB memory product could expose your switch to unpredictable behavior. Dell can provide only limited support for issues related to unsupported hardware. We strongly recommend that you use only supported USB flash drives.

All USB flash drives used on the switches must have the following features:

- USB 2.0 or later
- Formatted with a FAT or MS-DOS file system

Related Documentation

- See Front Panel of a J-EX4500 Switch on page 8 for port location.

- For information about booting the switch from a software package stored on a USB flash drive, see the *Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS* at <http://www.support.dell.com/manuals>.

Console Port Connector Pinout Information for a J-EX Series Switch

The console port on a J-EX Series switch is an RS-232 serial interface that uses an RJ-45 connector to connect to a console management device. The default baud rate for the console port is 9600 baud.

Table 14 on page 34 provides the pinout information for the RJ-45 console connector. An RJ-45 cable and an RJ-45 to DB-9 serial port adapter are supplied with the switch.



NOTE: If your laptop or PC does not have a DB-9 male connector pin and you want to connect your laptop or PC directly to a J-EX Series switch, use a combination of the RJ-45-to-DB-9 female adapter supplied with the switch and a USB-to-DB-9 male adapter. You must provide the USB-to-DB-9 male adapter.

Table 14: J-EX Series Switches Console Port Connector Pinout Information

Pin	Signal	Description
1	RTS Output	Request to send
2	DTR Output	Data terminal ready
3	TxD Output	Transmit data
4	Signal Ground	Signal ground
5	Signal Ground	Signal ground
6	RxD Input	Receive data
7	CD Input	Data carrier detect
8	CTS Input	Clear to send

Related Documentation

- See Front Panel of a J-EX4500 Switch on page 8 for port location.
- Connecting a J-EX Series Switch to a Management Console on page 104

Management Port Connector Pinout Information for a J-EX4500 Switch

The management port on a J-EX4500 switch uses an RJ-45 connector to connect to a management device for out-of-band management.

The port uses an autosensing RJ-45 connector to support a 10/100/1000Base-T connection. Two LEDs on the port indicate link/activity on the port and the administrative status of the port. See “Management Port LEDs in J-EX4500 Switches” on page 20.

Table 15 on page 35 provides the pinout information for the RJ-45 connector for the management port. An RJ-45 cable, with a connector attached, is supplied with the switch.

Table 15: Management Port Connector Pinout Information for J-EX4500 Switches

Pin	Signal	Description
1	TRP1+	Transmit/receive data pair 1
2	TRP1-	Transmit/receive data pair 1
3	TRP2+	Transmit/receive data pair 2
4	TRP3+	Transmit/receive data pair 3
5	TRP3-	Transmit/receive data pair 3
6	TRP2-	Transmit/receive data pair 2
7	TRP4+	Transmit/receive data pair 4
8	TRP4-	Transmit/receive data pair 4

- Related Documentation**
- See Front Panel of a J-EX4500 Switch on page 8 for port location.
 - Connecting a J-EX Series Switch to a Network for Out-of-Band Management on page 103

Network Port and Uplink Module Port Connector Pinout Information for J-EX4500 Switches

The network ports and uplink module ports on a J-EX4500 switch have two LEDs on each port that indicate link/activity on the port and the port status. See “Network Port and Uplink Module Port LEDs in J-EX4500 Switches” on page 18.

Table 16 on page 35 provides the pinout information for the network port and uplink module port connector pinout.

Table 16: Network Port and Uplink Module Port Connector Pinout Information for J-EX4500 Switches

Pin	Signal	Description
1	VeeT	Module transmitter ground
2	TX_Fault	Module transmitter fault
3	TX_Disable	Transmitter disable

Table 16: Network Port and Uplink Module Port Connector Pinout Information for J-EX4500 Switches (continued)

Pin	Signal	Description
4	SDA	2-wire serial interface data line
5	SCL-	2-wire serial interface clock
6	MOD_ABS	Module absent
7	RS0	Rate select 0, optionally controls SFP+ module receiver.
8	RX_LOS	Receiver loss of signal indication
9	RS1	Rate select 1, optionally controls SFP+ transmitter.
10	VeeR	Module receiver ground
11	VeeR	Module receiver ground
12	RD-	Receiver inverted data output
13	RD+	Receiver non inverted data output
14	VeeR	Module receiver ground
15	VccR	Module receiver 3.3 V supply
16	VccT	Module transmitter 3.3 V supply
17	VeeT	Module transmitter ground
18	TD+	Transmitter non inverted data input
19	TD-	Transmitter inverted data input
20	VeeT	Module transmitter ground

- Related Documentation**
- Front Panel of a J-EX4500 Switch on page 8
 - Uplink Modules in J-EX4500 Switches on page 27

Virtual Chassis Ports Connector Pinout Information for J-EX4500 Switches

J-EX4500 switches use a 68-pin connector cable to interconnect switches to form a Virtual Chassis. Table 17 on page 37 provides the Virtual Chassis ports (VCPs) connector pinout information.

Table 17: Virtual Chassis Ports (VCPs) Connector Pinout Information

Pin Number	Pin Name
A1	GND
A2	P1TXP0
A3	P1TXN0
A4	GND
A5	P1TXP1
A6	P1TXN1
A7	GND
A8	P1TXP2
A9	P1TXN2
A10	GND
A11	P1TXP3
A12	P1TXN3
A13	GND
A14	NC
A15	NC
A16	GND
A17	NC
A18	NC
A19	NC
A20	NC
A21	NC
A22	GND
A23	P2TXP0
A24	P2TXN0

Table 17: Virtual Chassis Ports (VCPs) Connector Pinout Information (*continued*)

Pin Number	Pin Name
A25	GND
A26	P2TXP1
A27	P2TXN1
A28	GND
A29	P2TXP2
A30	P2TXN2
A31	GND
A32	P2TXP3
A33	P2TXN3
A34	GND
B1	GND
B2	P1RXP0
B3	P1RXN0
B4	GND
B5	P1RXP1
B6	P1RXN1
B7	GND
B8	P1RXP2
B9	P1RXN2
B10	GND
B11	P1RXP3
B12	P1RXN3
B13	GND
B14	NC

Table 17: Virtual Chassis Ports (VCPs) Connector Pinout Information (*continued*)

Pin Number	Pin Name
B15	NC
B16	NC
B17	NC
B18	NC
B19	NC
B20	NC
B21	NC
B22	GND
B23	P2RXP0
B24	P2RXN0
B25	GND
B26	P2RXP1
B27	P2RXN1
B28	GND
B29	P2RXP2
B30	P2RXN2
B31	GND
B32	P2RXP3
B33	P2RXN3
B34	GND

Related Documentation

- Planning J-EX4200 and J-EX4500 Virtual Chassis on page 70
- Understanding J-EX4200 and J-EX4500 Virtual Chassis Components
- Understanding J-EX4500 Virtual Chassis Hardware Configurations on page 69
- Connecting a Virtual Chassis Cable to a J-EX4500 Switch on page 95

Optical Interface Support in J-EX4500 Switches

Uplink module ports on J-EX4500 switches support SFP and SFP+ transceivers. This topic describes the optical interfaces supported for those transceivers. It also lists the copper interface supported for the SFP transceivers.



NOTE: For your J-EX4500 switch, use only the optical transceivers and optical connectors described in this manual. For more information, contact Dell.

The Gigabit Ethernet SFP and SFP+ transceivers installed in J-EX4500 switches support digital optical monitoring (DOM): you can view the diagnostic details for these transceivers by issuing the operational mode CLI command **show interfaces diagnostics optics**.

The following tables describe the optical interface support over single-mode fiber-optic (SMF) and multimode fiber-optic (MMF) cables for SFP and SFP+ transceivers and over the copper interface for SFP transceivers:

- Table 18 on page 41—Optical interface support and copper interface support for Gigabit Ethernet SFP transceivers.
- Table 19 on page 43—Optical interface support for Gigabit Ethernet SFP+ transceivers.

Table 18: Optical Interface Support and Copper Interface Support for Gigabit Ethernet SFP Transceivers in J-EX4500 Switches

Ethernet Standard	Specifications	
1000Base-T	Model Number	EX-SFP-1GE-T
	Rate	10/100/1000 Mbps
	Connector Type	RJ-45
	Fiber Count	Copper
	Transmitter Wavelength	–
	Minimum Launch Power	–
	Maximum Launch Power	–
	Minimum Receiver Sensitivity	–
	Maximum Input Power	–
	Fiber Type	Copper
	Core/Cladding Size	–
	Modal Bandwidth	–
	Distance	100 m (328 ft)
	DOM Support	Not available
	Software required	Junos OS for J-EX Series switches, Release 10.2 or later

Table 18: Optical Interface Support and Copper Interface Support for Gigabit Ethernet SFP Transceivers in J-EX4500 Switches (*continued*)

Ethernet Standard	Specifications	
1000Base-LX	Model Number	EX-SFP-1GE-LX
	Rate	1000 Mbps
	Connector Type	LC
	Fiber Count	Dual
	Transmitter Wavelength	1310 nm
	Minimum Launch Power	−9.5 dBm
	Maximum Launch Power	−3 dBm
	Minimum Receiver Sensitivity	−25 dBm
	Maximum Input Power	−3 dBm
	Fiber Type	SMF
	Core/Cladding Size	9/125 μm
	Modal Bandwidth	–
	Distance	10 km (6.2 miles)
	DOM Support	Available
	Software required	Junos OS for J-EX Series switches, Release 10.2 or later

Table 19: Optical Interface Support for Gigabit Ethernet SFP+ Transceivers in J-EX4500 Switches

Ethernet Standard	Specifications			
10GBase-SR	Model Number	EX-SFP-10GE-USR		
	Rate	10 Gbps		
	Connector Type	LC		
	Fiber Count	Dual		
	Transmitter Wavelength	850 nm		
	Minimum Launch Power	-7.3 dBm		
	Maximum Launch Power	-1.3 dBm		
	Minimum Receiver Sensitivity	-11.1 dBm		
	Maximum Input Power	-9.9 dBm		
	Fiber Type	MMF		
	Core/Cladding Size	62.5/125 μm	50/125 μm	50/125 μm
	Fiber Grade	OM1	OM3	OM3
	Modal Bandwidth	200 MHz/km	500 MHz/km	1500 MHz/km
	Distance	10 m (32.8 ft)	30 m (98.4 ft)	100 m (328 ft)
	DOM Support	Available		
	Software required	Junos OS for J-EX Series switches, Release 10.2 or later		

Table 19: Optical Interface Support for Gigabit Ethernet SFP+ Transceivers in J-EX4500 Switches (*continued*)

Ethernet Standard	Specifications					
10GBase-SR	Model Number	EX-SFP-10GE-SR				
	Rate	10 Gbps				
	Connector Type	LC				
	Fiber Count	Dual				
	Transmitter Wavelength	850 nm				
	Minimum Launch Power	-7.3 dBm				
	Maximum Launch Power	-1 dBm				
	Minimum Receiver Sensitivity	-9.9 dBm				
	Maximum Input Power	-1 dBm				
	Fiber Type	MMF				
	Core/Cladding Size	62.5/125 μ m	62.5/125 μ m	50/125 μ m	50/125 μ m	50/125 μ m
	Fiber Grade	FDDI	OM1	-	OM2	OM3
	Modal Bandwidth	160 MHz/km	200 MHz/km	400 MHz/km	500 MHz/km	1500 MHz/km
	Distance	26 m (85 ft)	33 m (108 ft)	66 m (216 ft)	82 m (269 ft)	300 m (984 ft)
	DOM Support	Available				
	Software required	Junos OS for J-EX Series switches, Release 10.2 or later				

Table 19: Optical Interface Support for Gigabit Ethernet SFP+ Transceivers in J-EX4500 Switches (*continued*)

Ethernet Standard	Specifications	
10GBase-LR	Model Number	EX-SFP-10GE-LR
	Rate	10 Gbps
	Connector Type	LC
	Fiber Count	Dual
	Transmitter Wavelength	1310 nm
	Minimum Launch Power	−8.2 dBm
	Maximum Launch Power	0.5 dBm
	Minimum Receiver Sensitivity	−18 dBm
	Maximum Input Power	0.5 dBm
	Fiber Type	SMF
	Core/Cladding Size	9/125 μm
	Modal Bandwidth	–
	Distance	10 km (6.2 miles)
	DOM Support	Available
	Software required	Junos OS for J-EX Series switches, Release 10.2 or later

Table 19: Optical Interface Support for Gigabit Ethernet SFP+ Transceivers in J-EX4500 Switches (continued)

Ethernet Standard	Specifications	
10GBase-ER	Model Number	EX-SFP-10GE-ER
	Rate	10 Gbps
	Connector Type	LC
	Fiber Count	Dual
	Transmitter Wavelength	1550 nm
	Minimum Launch Power	-4.7 dBm
	Maximum Launch Power	4 dBm
	Minimum Receiver Sensitivity	-11.3 dBm
	Maximum Input Power	-1 dBm
	Fiber Type	SMF
	Core/Cladding Size	9/125 μ m
	Modal Bandwidth	-
	Distance	40 km (24.8 miles)
	DOM Support	Available
	Software required	Junos OS for J-EX Series switches, Release 11.1 or later

- Related Documentation**
- Front Panel of a J-EX4500 Switch on page 8
 - Installing a Transceiver in a J-EX Series Switch on page 96
 - Removing a Transceiver from a J-EX Series Switch on page 137

SFP+ Direct Attach Cables for J-EX Series Switches

Small form-factor pluggable plus transceiver (SFP+) direct attach copper (DAC) cables, also known as Twinax cables, are suitable for in-rack connections between servers and switches. They are suitable for short distances up to 7 m, making them ideal for highly cost-effective networking connectivity within a rack and between adjacent racks.

This topic describes:

- Cable Specifications on page 47
- Standards Supported by These Cables on page 48

Cable Specifications

SFP+ direct attach cables are available in three lengths and are supported on SFP+ uplink module ports in J-EX4500 switches:

- 1 m (3.3 ft)
- 3 m (9.9 ft)
- 7 m (23 ft)



NOTE: We recommend that you use only SFP+ direct attach cables purchased from Dell with J-EX Series switches.

The cables are hot-removable and hot-insertable: You can remove and replace them without powering off the switch or disrupting switch functions. A cable comprises a low-voltage cable assembly that connects directly into two SFP+ ports, one at each end of the cable. The cables use high-performance integrated duplex serial data links for bidirectional communication and are designed for data rates up to 10 Gbps.

Table 20 on page 48 describes the cable specifications.

Table 20: SFP+ Direct Attach Copper (DAC) Passive Cable Specifications

Model	Specification	Value
<ul style="list-style-type: none"> 1-m DAC SFP+ Cable EX-SFP-10GE-DAC-1m 	Rate	10 Gbps full-duplex serial transmission
<ul style="list-style-type: none"> 3-m DAC SFP+ Cable EX-SFP-10GE-DAC-3m 	Connector type	SFP+ passive Twinax cable assembly
<ul style="list-style-type: none"> 7-m DAC SFP+ Cable EX-SFP-10GE-DAC-7m 	Supply voltage	3.3 V
	Power consumption (per end)	0.57 W
	Storage temperature	-40°C to 85°C
	Cable type	Twinax
	Wire AWG	<ul style="list-style-type: none"> 30 AWG (1-m and 3-m lengths) 24 AWG (7-m length)
	Minimum cable bend radius	1 in.
	Cable characteristic impedance	100 ohms
	Crosstalk between pairs	2% maximum
	Time delay	1.31 nsec/ft
	Length	<ul style="list-style-type: none"> 1 m (3.3 ft) 3 m (9.9 ft) 7 m (23 ft)

Standards Supported by These Cables

The cables comply with the following standards:

- SFP mechanical standard SFF-843—see <ftp://ftp.seagate.com/sff/SFF-8431.PDF>.
- Electrical interface standard SFF-8432—see <ftp://ftp.seagate.com/sff/SFF-8432.PDF>.
- SFP+ Multi-Source Alliance (MSA) standards

Related Documentation

- Optical Interface Support in J-EX4500 Switches on page 40
- Installing a Transceiver in a J-EX Series Switch on page 96
- Removing a Transceiver from a J-EX Series Switch on page 137

Grounding Cable and Lug Specifications for J-EX4500 Switches

For installations that require a separate grounding conductor to the chassis, the switch must be adequately grounded before power is connected to ensure proper operation and to meet safety and electromagnetic interference (EMI) requirements. To ground a

J-EX4500 switch, connect a grounding cable to earth ground and then attach it to the chassis grounding points.



CAUTION: For installations that require a separate grounding conductor to the chassis, use the protective earthing terminal on the switch chassis to connect to earth ground. Before switch installation begins, a licensed electrician must attach a cable lug to the grounding cables that you supply. See “Connecting Earth Ground to a J-EX Series Switch” on page 99. A cable with an incorrectly attached lug can damage the switch.

A pair of threaded inserts (PEM nuts) is provided on the left side towards the rear corner of the chassis for connecting the switch to earth ground. The grounding points fit UNC 10-32 screws. The grounding points are spaced at 0.625 in. (15.86 mm).

The grounding cable that you provide for a J-EX4500 switch must be 14 AWG (2 mm²), minimum 90°C wire, or as permitted by the local code.



NOTE: Grounding is provided to an AC-powered switch when you plug its power supplies into grounded AC power receptacles.



WARNING: The switch is pluggable type A equipment installed in a restricted-access location. It has a separate protective earthing terminal provided on the chassis in addition to the grounding pin of the power supply cord. This separate protective earthing terminal must be permanently connected to earth ground for installations that require a separate grounding conductor to the chassis.

**Related
Documentation**

- AC Power Supply in J-EX4500 Switches on page 21
- Installing a Power Supply in a J-EX4500 Switch on page 88

PART 2

Planning for Switch Installation

- Site Preparation on page 53
- Rack and Cabinet Requirements on page 57
- Cable Requirements on page 63
- Planning Power Requirements on page 65
- Planning the Virtual Chassis on page 69

CHAPTER 4

Site Preparation

- Site Preparation Checklist for J-EX4500 Switches on page 53
- General Site Guidelines on page 54
- Site Electrical Wiring Guidelines for J-EX Series Switches on page 55
- Environmental Requirements and Specifications for J-EX Series Switches on page 56

Site Preparation Checklist for J-EX4500 Switches

The checklist in Table 21 on page 53 summarizes the tasks you need to perform when preparing a site for J-EX4500 switch installation.

Table 21: Site Preparation Checklist

Item or Task	For More Information	Performed By	Date
Environment			
Verify that environmental factors such as temperature and humidity do not exceed switch tolerances.	"Environmental Requirements and Specifications for J-EX Series Switches" on page 56		
Power			
Measure distance between external power sources and switch installation site.			
Locate sites for connection of system grounding.			
Calculate the power consumption and requirements.	"AC Power Specifications for J-EX4500 Switches" on page 65		
Hardware Configuration			
Choose the number and types of switches you want to install.	"J-EX4500 Switches Hardware Overview" on page 3		

Table 21: Site Preparation Checklist (*continued*)

Item or Task	For More Information	Performed By	Date
Rack or Cabinet			
Verify that your rack or cabinet meets the minimum requirements for the installation of the switch.	<p>"Rack Requirements for J-EX4500 Switches" on page 57</p> <p>"Cabinet Requirements for J-EX4500 Switches" on page 58</p>		
Plan rack or cabinet location, including required space clearances.	"Clearance Requirements for Airflow and Hardware Maintenance for J-EX4500 Switches" on page 60		
Secure the rack or cabinet to the floor and building structure.			
Cables			
Acquire cables and connectors:			
<ul style="list-style-type: none"> Determine the number of cables needed based on your planned configuration. Review the maximum distance allowed for each cable. Choose the length of cable based on the distance between the hardware components being connected. 			
Plan the cable routing and management.			

- Related Documentation**
- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
 - General Site Guidelines for J-EX Series Switches on page 54
 - Installing and Connecting a J-EX4500 Switch on page 75
 - Mounting a J-EX4500 Switch on page 78

General Site Guidelines

Efficient switch operation requires proper site planning and maintenance and proper layout of the equipment, rack or cabinet (if used), and wiring closet.

To plan and create an acceptable operating environment for your device and prevent environmentally caused equipment failures:

- Keep the area around the chassis free from dust and conductive material, such as metal flakes.
- Follow prescribed airflow guidelines to ensure that the cooling system functions properly and that exhaust from other equipment does not blow into the intake vents of the device.

- Follow the prescribed ESD prevention procedures to avoid damaging the equipment. Static discharge can cause components to fail completely or intermittently over time.
- Install the device in a secure area to which only authorized personnel have access.

Related Documentation

- Prevention of Electrostatic Discharge Damage on J-EX Series Switches on page 186
- Clearance Requirements for Airflow and Hardware Maintenance for J-EX4500 Switches on page 60
- Environmental Requirements and Specifications for J-EX Series Switches on page 56

Site Electrical Wiring Guidelines for J-EX Series Switches

Table 22 on page 55 describes the factors you must consider while planning the electrical wiring at your site.



WARNING: It is particularly important to provide a properly grounded and shielded environment and to use electrical surge-suppression devices.

Table 22: Site Electrical Wiring Guidelines

Site Wiring Factor	Guidelines
Signaling limitations	<p>If your site experiences any of the following problems, consult experts in electrical surge suppression and shielding:</p> <ul style="list-style-type: none"> • Improperly installed wires cause radio frequency interference (RFI). • Damage from lightning strikes occurs when wires exceed recommended distances or pass between buildings. • Electromagnetic pulses (EMPs) caused by lightning damages unshielded conductors and electronic devices.
Radio frequency interference	<p>To reduce or eliminate radio frequency interference (RFI) from your site wiring, do the following:</p> <ul style="list-style-type: none"> • Use twisted-pair cable with a good distribution of grounding conductors. • If you must exceed the recommended distances, use a high-quality twisted-pair cable with one ground conductor for each data signal when applicable.
Electromagnetic compatibility	<p>If your site is susceptible to problems with electromagnetic compatibility (EMC), particularly from lightning or radio transmitters, seek expert advice.</p> <p>Some of the problems caused by strong sources of electromagnetic interference (EMI) are:</p> <ul style="list-style-type: none"> • Destruction of the signal drivers and receivers in the switch • Electrical hazards as a result of power surges conducted over the lines into the equipment

Related Documentation

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- General Electrical Safety Guidelines and Warnings for J-EX Series Switches on page 185

- Prevention of Electrostatic Discharge Damage on J-EX Series Switches on page 186
- AC Power Supply in J-EX4500 Switches on page 21

Environmental Requirements and Specifications for J-EX Series Switches

The switch must be installed in a rack or cabinet housed in a dry, clean, well-ventilated, and temperature-controlled environment.

Ensure that these environmental guidelines are followed:

- The site must be as dust-free as possible, because dust can clog air intake vents and filters, reducing the efficiency of the switch cooling system.
- Maintain ambient airflow for normal switch operation. If the airflow is blocked or restricted, or if the intake air is too warm, the switch might overheat, leading to the switch temperature monitor shutting down the switch to protect the hardware components.

Table 23 on page 56 provides the required environmental conditions for normal switch operation.

Table 23: J-EX Series Switch Environmental Tolerances

Description	Tolerance
Altitude	No performance degradation to 10,000 ft (3048 m)
Relative humidity	Normal operation ensured in relative humidity range of 10% through 85%, noncondensing
Temperature	Normal operation ensured in temperature range of 32° F through 113° F (0° C through 45° C)
Seismic	Complies with Zone 4 earthquake requirements as per GR-63, Issue 3.



NOTE: Install J-EX Series switches only in restricted areas, such as dedicated equipment rooms and equipment closets, in accordance with Articles 110–16, 110–17, and 110–18 of the National Electrical Code, ANSI/NFPA 70.

Related Documentation

- Clearance Requirements for Airflow and Hardware Maintenance for J-EX4500 Switches on page 60

CHAPTER 5

Rack and Cabinet Requirements

- Rack Requirements for J-EX4500 Switches on page 57
- Cabinet Requirements for J-EX4500 Switches on page 58
- Clearance Requirements for Airflow and Hardware Maintenance for J-EX4500 Switches on page 60

Rack Requirements for J-EX4500 Switches

You can mount the switch on two-post racks or four-post racks.

Rack requirements consist of:

- Rack type
- Mounting bracket hole spacing
- Rack size and strength
- Rack connection to the building structure

Table 24 on page 57 provides the rack requirements and specifications for the switch.

Table 24: Rack Requirements and Specifications for the Switch

Rack Requirement	Guidelines
Rack type	<p>Use a two-post rack or a four-post rack. You can mount the switch on any two-post or four-post rack that provides bracket holes or hole patterns spaced at 1 U (1.75 in./4.45 cm) increments and that meets the size and strength requirements to support the weight.</p> <p>A U is the standard rack unit defined in <i>Cabinets, Racks, Panels, and Associated Equipment</i> (document number EIA-310-D) published by the Electronics Industry Association (http://www.eia.org).</p> <p>The rack must meet the strength requirements to support the weight of the chassis.</p>
Mounting bracket hole spacing	<p>The holes in the mounting brackets are spaced at 1 U (1.75 in. or 4.45 cm), so that the switch can be mounted in any rack that provides holes spaced at that distance.</p>

Table 24: Rack Requirements and Specifications for the Switch (*continued*)

Rack Requirement	Guidelines
Rack size and strength	<ul style="list-style-type: none"> • Ensure that the rack complies with the standard for a 19-in. rack as defined in <i>Cabinets, Racks, Panels, and Associated Equipment</i> (document number EIA-310–D) published by the Electronics Industry Association (http://www.eia.org). • Ensure that the rack rails are spaced widely enough to accommodate the switch chassis' external dimensions of 1.75 in. (4.45 cm) height, 17.5 in. (44.5 cm) width, and 10.5 in. (26.7 cm) depth.. The outer edges of the front-mounting brackets extend the width of the chassis to 19 in. (48.2 cm). • The rack must be strong enough to support the weight of the switch. • Ensure that the spacing of rails and adjacent racks allows for the proper clearance around the switch and rack.
Rack connection to building structure	<ul style="list-style-type: none"> • Secure the rack to the building structure. • If earthquakes are a possibility in your geographical area, secure the rack to the floor. • Secure the rack to the ceiling brackets as well as wall or floor brackets for maximum stability.

One pair of mounting brackets for mounting the switch on two posts of a rack is supplied with each switch. For mounting the switch on four posts of a rack or cabinet, you can order a four-post rack-mount kit separately.

Related Documentation

- Chassis Physical Specifications for J-EX4500 Switches on page 7
- Clearance Requirements for Airflow and Hardware Maintenance for J-EX4500 Switches on page 60
- Rack-Mounting and Cabinet-Mounting Warnings for J-EX Series Switches on page 173
- Mounting a J-EX4500 Switch on page 78

Cabinet Requirements for J-EX4500 Switches

You can mount the switch in a cabinet that contains a 19-in. rack.

Cabinet requirements consist of:

- Cabinet size
- Clearance requirements
- Cabinet airflow requirements

Table 25 on page 59 provides the cabinet requirements and specifications for the switch.

Table 25: Cabinet Requirements and Specifications for the Switch

Cabinet Requirement	Guidelines
Cabinet size	<ul style="list-style-type: none"> You can mount the switch in a cabinet that contains a 19-in. rack as defined in <i>Cabinets, Racks, Panels, and Associated Equipment</i> (document number EIA-310–D) published by the Electronics Industry Association (http://www.eia.org). <p>NOTE: The rack must meet the strength requirements to support the weight of the switch. A J-EX4500 switch with two power supplies weighs 40 lb (approximately 18 kg). If you mount multiple units in one rack, that rack must support the total weight of the units.</p> <ul style="list-style-type: none"> The minimum cabinet size must be able to accommodate the maximum external dimensions of the switch.
Cabinet clearance	<ul style="list-style-type: none"> The outer edges of the mounting brackets extend the width of the chassis to 19 in. (48.3 cm). The minimum total clearance inside the cabinet is 30 in. (76.2 cm) between the inside of the front door and the inside of the rear door.
Cabinet airflow requirements	<p>When you mount the switch in a cabinet, ensure that ventilation through the cabinet is sufficient to prevent overheating.</p> <ul style="list-style-type: none"> Ensure adequate cool air supply to dissipate the thermal output of the switch or switches. Ensure that the cabinet allows the chassis hot exhaust air to exit the cabinet without recirculating into the switch. An open cabinet (without a top or doors) that employs hot air exhaust extraction from the top allows the best airflow through the chassis. If the cabinet contains a top or doors, perforations in these elements assist with removing the hot air exhaust. Install the switch in the cabinet in a way that maximizes the open space on the side of the chassis that has the hot air exhaust. This maximizes the clearance for critical airflow. Route and dress all cables to minimize the blockage of airflow to and from the chassis. Ensure that the spacing of rails and adjacent cabinets allows for the proper clearance around the switch and cabinet. A cabinet larger than the minimum required provides better airflow and reduces the chance of overheating.

Related Documentation

- Chassis Physical Specifications for J-EX4500 Switches on page 7
- Clearance Requirements for Airflow and Hardware Maintenance for J-EX4500 Switches on page 60
- Rack-Mounting and Cabinet-Mounting Warnings for J-EX Series Switches on page 173
- Mounting a J-EX4500 Switch on page 78

Clearance Requirements for Airflow and Hardware Maintenance for J-EX4500 Switches

When planning the site for installing a J-EX4500 switch, you must allow sufficient clearance around the switch.

Follow these clearance requirements:

- Allow at least 6 in. (15.2 cm) of clearance on each side of the chassis. For the cooling system to function properly, the airflow around the chassis must be unrestricted. See Figure 21 on page 60 and Figure 22 on page 60.

Figure 21: Front-to-Back Airflow Through the J-EX4500 GYTPN Switch Chassis

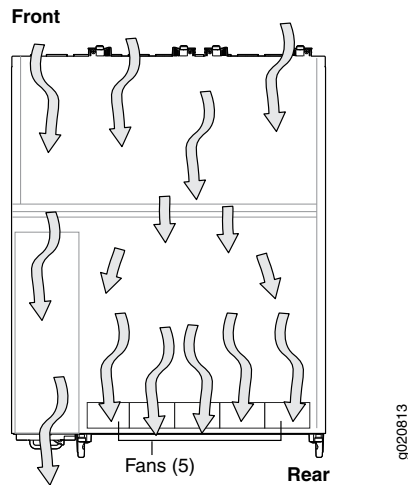
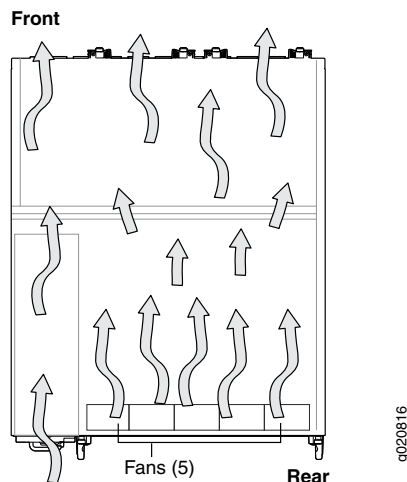
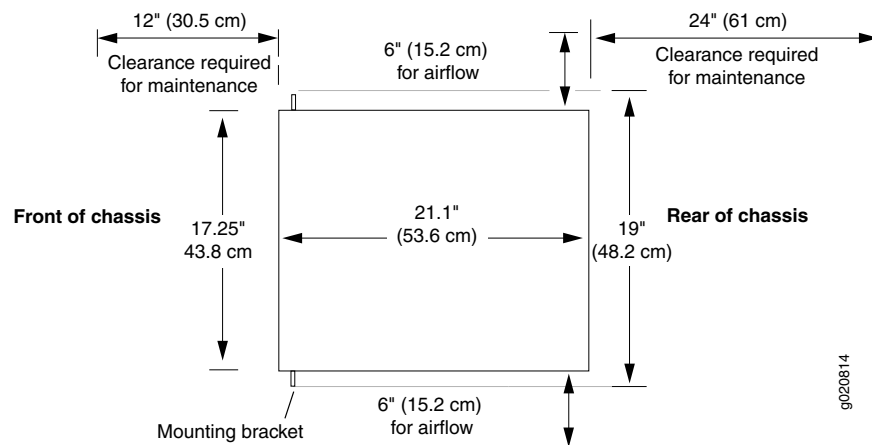


Figure 22: Back-to-Front Airflow Through the J-EX4500 TX9CD Switch Chassis



- If you are mounting the switch on a rack or cabinet along with other equipment, ensure that the exhaust from other equipment does not blow into the intake vents of the chassis.
- Leave at least 12 in. (30.5 cm) in front of and 24 in. (61 cm) behind the switch. Allow at least 6 in. (15.2 cm) of clearance on each side of the chassis. Leave adequate space at the front and back of the switch for service personnel to remove and install hardware components. NEBS GR-63 recommends that you allow at least 30 in. (76.2 cm) in front of the rack or cabinet and 24 in. (61 cm) behind the rack or cabinet. See Figure 23 on page 61.

Figure 23: Clearance Requirements for Airflow and Hardware Maintenance for a J-EX4500 Switch Chassis



Related Documentation

- Rack Requirements for J-EX4500 Switches on page 57
- Cabinet Requirements for J-EX4500 Switches on page 58
- General Site Guidelines for J-EX Series Switches on page 54
- Rack-Mounting and Cabinet-Mounting Warnings for J-EX Series Switches on page 173
- Cooling System and Airflow in a J-EX4500 Switch on page 24

CHAPTER 6

Cable Requirements

- Network Cable Specifications for J-EX4500 Switches on page 63

Network Cable Specifications for J-EX4500 Switches

J-EX4500 switches have interfaces that use various types of network cables.

For instructions on connecting the switch to a network for out-of-band management using an Ethernet cable with an RJ-45 connector, see “Connecting a J-EX Series Switch to a Network for Out-of-Band Management” on page 103.

For instructions on connecting the switch to a management console using an Ethernet cable with an RJ-45 connector, see “Connecting a J-EX Series Switch to a Management Console” on page 104.

Related Documentation

- Management Port Connector Pinout Information for a J-EX4500 Switch on page 34
- Console Port Connector Pinout Information for a J-EX Series Switch on page 34
- Front Panel of a J-EX4500 Switch on page 8
- Virtual Chassis Ports Connector Pinout Information for J-EX4500 Switches on page 36
- Cabling Requirements for a Virtual Chassis on page 70

CHAPTER 7

Planning Power Requirements

- AC Power Specifications for J-EX4500 Switches on page 65
- AC Power Cord Specifications for a J-EX4500 Switch on page 65

AC Power Specifications for J-EX4500 Switches

Table 26 on page 65 lists the AC power specifications for a 1000 W power supply used in J-EX4500 switches.

Table 26: Power Specifications for an AC Power Supply Used in J-EX4500 Switches

Item	Specifications
AC input voltage	Operating range—100–240 VAC
AC input line frequency	50–60 Hz
AC input current rating	12 A
AC output power	1000 W

- Related Documentation**
- AC Power Supply in J-EX4500 Switches on page 21
 - AC Power Supply LEDs in J-EX4500 Switches on page 23
 - AC Power Cord Specifications for a J-EX4500 Switch on page 65

AC Power Cord Specifications for a J-EX4500 Switch



NOTE: A jumper cable for each power supply was shipped with your switch. If your site uses a power distribution unit (PDU) to distribute power to the rack that houses the switch, you do not have to purchase AC power cords.

Each AC power supply for the J-EX4500 switch has a single AC appliance inlet located on the power supply that requires a dedicated AC power feed. If your site does not use a PDU, you need an AC power cord for your geographical location for each power supply on the switch.

Detachable power cords are separately orderable as a field-replaceable unit (FRU) item. Each cord is 2.5 m (approximately 8 ft) long. The coupler type is C19 as described by the International Electrotechnical Commission (IEC) standard 60320. The plug at the male end of the power cord fits into the power source outlet that is standard for your geographical location. The appliance coupler at the female end of the cord inserts into the AC appliance inlet on the faceplate of the AC power supply.



NOTE: In North America, AC power cords must not exceed 4.5 m (approximately 15 ft) in length, to comply with National Electrical Code (NEC) Sections 400-8 (NFPA 75, 5-2.2) and 210-52 and Canadian Electrical Code (CEC) Section 4-010(3). The cords separately orderable as FRUs are in compliance.

Table 27 on page 66 lists the AC power cord specifications for a J-EX4500 switch for the countries and regions listed in the table.

Table 27: AC Power Cord Specifications for a J-EX4500 Switch

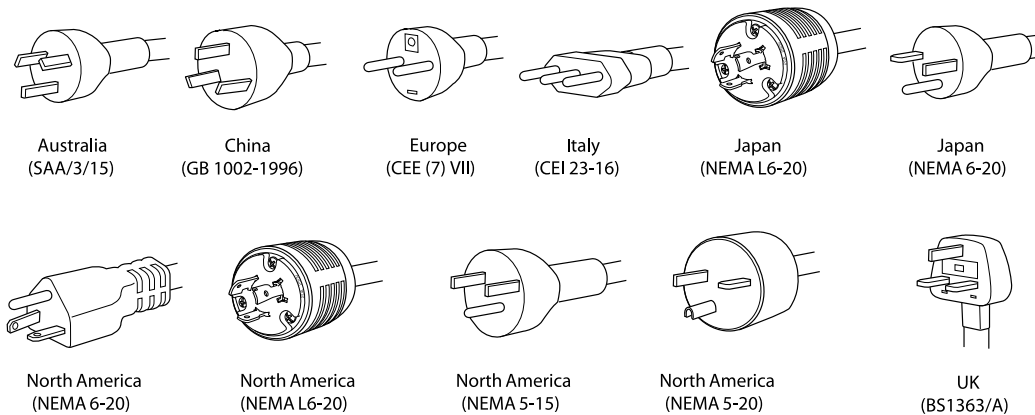
Country/Region	Electrical Specification	Plug Standard
Argentina	250 VAC, 16 A	RA/3/20, IRAM 2073
Australia	250 VAC, 15 A, 50 Hz	AS/NZS 3112
Brazil	250 VAC, 16 A	BR/3/20, NBR 14136:2002
China	250 VAC, 16 A, 50 Hz	GB 1002
Europe (except Italy, Switzerland, and United Kingdom)	250 VAC, 16 A, 50 Hz	CEE (7) VII
India	250 VAC, 16 A	ZA/3, SABS 164/1:1992
Israel	250 VAC, 16 A	IL/3, SI 32/1971
Italy	250 VAC, 16 A, 50 Hz	CEI 23-16
Japan	250 VAC, 16 A, 50 Hz	NEMA 6-20 NEMA L6-20
Korea	250 VAC, 16 A, 50 Hz	CEE (7) VII

Table 27: AC Power Cord Specifications for a J-EX4500 Switch (continued)

Country/Region	Electrical Specification	Plug Standard
North America	125 VAC, 15 A, 50 Hz	NEMA 5-15
	125 VAC, 20 A, 50 Hz	NEMA 5-20
	250 VAC, 16 A, 50 Hz	NEMA 6-20
		NEMA L6-20
Switzerland	250 VAC, 16 A, 50 Hz	SEV 1011 SEV 5934/2
South Africa	250 VAC, 16 A	ZA/3, SABS 164/1:1992
United Kingdom	250 VAC, 13 A, 50 Hz	BS 1363/A

Figure 24 on page 67 shows the plug on the power cord for many of the countries and regions listed in Table 27 on page 66.

Figure 24: AC Plug Types



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CAUTION: The AC power cord for the J-EX4500 switch is intended for use with this switch only and not for any other use.

Power Cable Warning (Japanese)

WARNING: The attached power cable is only for this product. Do not use the cable for another product.

注意

付属の電源コードセットはこの製品専用です。
他の電気機器には使用しないでください。

9017283



CAUTION: Power cords must not block access to switch components.



WARNING: The switch is pluggable type A equipment installed in a restricted-access location. It has a separate protective earthing terminal provided on the chassis in addition to the grounding pin of the power supply cord. This separate protective earthing terminal must be permanently connected to earth ground. See “Connecting Earth Ground to a J-EX Series Switch” on page 99.

Related Documentation

- AC Power Supply in J-EX4500 Switches on page 21
- AC Power Electrical Safety Guidelines for J-EX Series Switches on page 188
- AC Power Disconnection Warning for J-EX Series Switches on page 189
- General Electrical Safety Guidelines and Warnings for J-EX Series Switches on page 185
- Connecting AC Power to a J-EX4500 Switch on page 101

CHAPTER 8

Planning the Virtual Chassis

- Understanding J-EX4500 Virtual Chassis Hardware Configurations on page 69
- Planning J-EX4200 and J-EX4500 Virtual Chassis on page 70

Understanding J-EX4500 Virtual Chassis Hardware Configurations

Up to two J-EX4500 switches can be interconnected into a Virtual Chassis composed exclusively of J-EX4500 switches.

J-EX4200 and J-EX4500 switches can be connected together into the same Virtual Chassis to form a mixed J-EX4200 and J-EX4500 Virtual Chassis. A mixed Virtual Chassis supports up to two J-EX4500 switches and up to eight J-EX4200 switches.

The Virtual Chassis configuration requires designating one of the members as the master switch, and another as the backup switch. All other switches in the configuration are designated as being in the line card role. You manage Virtual Chassis operation through the master switch. Each switch in the Virtual Chassis is assigned a unique identifier that is displayed on the switch LCD panel.

In a mixed Virtual Chassis, a J-EX4500 switch must be configured in the master and backup roles. For configuration details, see the *Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS* at <http://www.support.dell.com/manuals>.



NOTE: You can configure and manage a standalone J-EX4500 switch with the J-Web interface, but the J-Web interface does not support configuration and management of a J-EX4500 Virtual Chassis.

Related Documentation

- For more information about the J-EX4200 and J-EX4500 Virtual Chassis and components, see the *Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS* at <http://www.support.dell.com/manuals>.
- Planning J-EX4200 and J-EX4500 Virtual Chassis on page 70
- Virtual Chassis Ports Connector Pinout Information for J-EX4500 Switches on page 36

Planning J-EX4200 and J-EX4500 Virtual Chassis

Before interconnecting J-EX4200 and J-EX4500 switches in a Virtual Chassis configuration, you must consider the following factors:

- Number and Location of Switches in a Virtual Chassis on page 70
- Cabling Requirements for a Virtual Chassis on page 70
- Power Requirements for a Virtual Chassis on page 71

Number and Location of Switches in a Virtual Chassis

You can interconnect J-EX4200 and J-EX4500 switches separately and together as follows to form Virtual Chassis:

- **J-EX4200 Virtual Chassis**—Two to ten switches can form a Virtual Chassis composed exclusively of J-EX4200 switches.
- **J-EX4500 Virtual Chassis**—Only two switches can be interconnected into a Virtual Chassis composed exclusively of J-EX4500 switches.
- **Mixed Virtual Chassis**—Up to eight J-EX4200 switches and up to two J-EX4500 switches can be interconnected in the same mixed Virtual Chassis.

You can mount the switches in a single rack or install them on multiple racks.

For information on the size and strength of J-EX4200 switches and chassis weights and dimensions, see the *Dell PowerConnect J-Series J-EX4200 Ethernet Switch Hardware Guide* at <http://www.support.dell.com/manuals>.

For information on the size and strength of racks for J-EX4500 switches and chassis weights and dimensions, see “Rack Requirements for J-EX4500 Switches” on page 57 and “Chassis Physical Specifications for J-EX4500 Switches” on page 7.

Cabling Requirements for a Virtual Chassis

To interconnect J-EX4200 and J-EX4500 switches into a Virtual Chassis configuration through Virtual Chassis ports (VCPs), you use the 0.5-m-long (1.64-ft-long) Virtual Chassis cable supplied with the J-EX4200 switch. The cable and its cable connector retainer are not supplied with the J-EX4500 switch and must be purchased separately.

If you need cables longer than 0.5 m (1.64 ft) for your Virtual Chassis configuration, you can purchase them separately. The longest Virtual Chassis cable is 5 m (16.4 ft).

To interconnect J-EX4200 switches that are installed farther apart, you must configure the SPF+ uplink module ports as Virtual Chassis ports and use them to interconnect the switches.

To interconnect J-EX4500 switches that are installed farther apart, you must configure either the uplink module ports or the SFP+ network ports as Virtual Chassis ports and use them to interconnect the switches.



NOTE: Virtual Chassis cables and cable connector retainers are not part of the J-EX4500 switch shipping configuration and must be purchased separately.

Power Requirements for a Virtual Chassis

Plan the installation site to meet the power requirements of the switches in a Virtual Chassis.

Related Documentation

- For an overview of J-EX4200 and J-EX4500 Virtual Chassis components, see the *Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS* at <http://www.support.dell.com/manuals>.
- For information about J-EX4200 Virtual Chassis port connector pinouts, hardware configuration, cabling examples, and clearance requirements, see the *Dell PowerConnect J-Series J-EX4200 Ethernet Switch Hardware Guide* at <http://www.support.dell.com/manuals>.
- Virtual Chassis Ports Connector Pinout Information for J-EX4500 Switches on page 36
- Understanding J-EX4500 Virtual Chassis Hardware Configurations on page 69
- Clearance Requirements for Airflow and Hardware Maintenance for J-EX4500 Switches on page 60

PART 3

Installing and Connecting the Switch and Switch Components

- Installing the Switch on page 75
- Installing Switch Components on page 87
- Connecting the Switch on page 99
- Performing Initial Configuration on page 111

CHAPTER 9

Installing the Switch

- Installing and Connecting a J-EX4500 Switch on page 75
- Unpacking a J-EX4500 Switch on page 76
- Mounting a J-EX4500 Switch on page 78
- Mounting a J-EX4500 Switch on Two Posts in a Rack or Cabinet on page 78
- Mounting a J-EX4500 Switch on Four Posts in a Rack or Cabinet on page 81
- Mounting a J-EX4500 Switch in a Recessed Position in a Rack or Cabinet on page 85

Installing and Connecting a J-EX4500 Switch

To install and connect a J-EX4500 switch:

1. Follow instructions in “Unpacking a J-EX4500 Switch” on page 76.
2. Mount the switch by following instructions appropriate for your site:
 - “Mounting a J-EX4500 Switch on Two Posts in a Rack or Cabinet” on page 78 (using the mounting brackets provided)
 - “Mounting a J-EX4500 Switch on Four Posts in a Rack or Cabinet” on page 81 (using the separately orderable four-post rack-mount kit)
3. Follow instructions in “Connecting Earth Ground to a J-EX Series Switch” on page 99.
4. Follow instructions for connecting power as appropriate for your site:
 - Connecting AC Power to a J-EX4500 Switch on page 101
5. Perform initial configuration of the switch by following instructions in “Connecting and Configuring a J-EX Series Switch (CLI Procedure)” on page 117 or “Connecting and Configuring a J-EX Series Switch (J-Web Procedure)” on page 118.
6. Set the switch’s management options by following the appropriate instructions:
 - Connecting a J-EX Series Switch to a Network for Out-of-Band Management on page 103
 - Connecting a J-EX Series Switch to a Management Console on page 104

- Related Documentation**
- Rack Requirements for J-EX4500 Switches on page 57
 - Cabinet Requirements for J-EX4500 Switches on page 58
 - Clearance Requirements for Airflow and Hardware Maintenance for J-EX4500 Switches on page 60

Unpacking a J-EX4500 Switch

The J-EX4500 switches are shipped in a cardboard carton, secured with foam packing material. The carton has an accessory compartment and contains the quick start instructions.



CAUTION: J-EX4500 switches are maximally protected inside the shipping carton. Do not unpack the switches until you are ready to begin installation.

To unpack the switch:

1. Open the carton.
2. Pull out the packing material holding the switch in place.
3. Verify the parts received against the inventory on the label attached to the carton and listed in Table 28 on page 76.
4. Save the shipping carton and packing materials in case you need to move or ship the switch later.

Table 28: Inventory of Components Provided with a J-EX4500 Switch

Component	Quantity
Switch	1
Virtual Chassis module (preinstalled)	1
Fan tray (preinstalled)	1
Power supply (preinstalled)	1 AC
Power supply jumper cable	1
Power cord retainer clip	1
Cover panels for slots without installed components	<ul style="list-style-type: none"> • Power supply cover panel: 1 • Uplink module cover panels: 2
Dust covers for ports	40

Table 28: Inventory of Components Provided with a J-EX4500 Switch (*continued*)

Component	Quantity
Mounting brackets	2
Mounting screws	20
Rubber feet	4
Cage nuts for a round-hole rack (clip nuts), #10-32, 0.375-in. (9.525-mm), for mounting the switch in a rack or cabinet	8
Cage nuts for a square-hole rack, #10-32, 0.375-in. (9.525-mm), for mounting the switch in a rack or cabinet	8
Phillips pan-head screws, #10-32 x 5/8-in (15.8-mm), for mounting the switch in a rack or cabinet	8
Phillips pan-head screws, #12-24 x 1/2-in. (12.7-mm), for mounting the switch in a rack or cabinet	8
Washers, #10, for mounting the switch in a rack or cabinet	8
Accessory kit box	1
<i>Quick Start</i> installation instructions	1
<i>Dell PowerConnect Safety, Environmental, and Regulatory Information</i>	1
<i>End User License Agreement</i>	1
<i>Dell PowerConnect Warranty and Support Information</i>	1
<i>Registration and Software Updates for Your Dell PowerConnect J-Series Product</i>	1
<i>Open Source Code Notice</i>	1
Ethernet cable, RJ-45/RJ-45, 4-pair stranded UTP, category #5	1
RJ-45-to-DB-9 serial port adapter	1

Related Documentation

- Installing and Connecting a J-EX4500 Switch on page 75
- Connecting and Configuring a J-EX Series Switch (CLI Procedure) on page 117
- Connecting and Configuring a J-EX Series Switch (J-Web Procedure) on page 118

Mounting a J-EX4500 Switch

You can mount a J-EX4500 switch:

- On two posts in a 19-in. rack or cabinet by using the mounting brackets provided with the switch.
- On four posts in a 19-in. rack or cabinet by using the separately orderable four-post rack-mount kit.
- In a position recessed 2 in. (5.08 cm) from the front of a 19-in. rack or cabinet by using the separately orderable four-post rack-mount kit. You can mount the switch in this recessed position on four-post racks and cabinets.

The holes in the mounting brackets are placed at 1 U (1.75 in. or 4.45 cm) apart so that the switch can be mounted in any rack or cabinet that provides holes spaced at that distance.

Related Documentation

- Mounting a J-EX4500 Switch on Two Posts in a Rack or Cabinet on page 78
- Mounting a J-EX4500 Switch on Four Posts in a Rack or Cabinet on page 81
- Mounting a J-EX4500 Switch in a Recessed Position in a Rack or Cabinet on page 85
- Connecting Earth Ground to a J-EX Series Switch on page 99

Mounting a J-EX4500 Switch on Two Posts in a Rack or Cabinet

You can mount a J-EX4500 switch on two posts of a 19-in. rack or cabinet by using the mounting brackets provided with the switch. (The remainder of this topic uses “rack” to mean “rack or cabinet.”)

You can mount the switch on four posts of a four-post rack by using the mounting brackets provided with the separately orderable four-post rack-mount kit. See “Mounting a J-EX4500 Switch on Four Posts in a Rack or Cabinet” on page 81.

Before mounting the switch on two posts in a rack:

- Verify that the site meets the requirements described in “Site Preparation Checklist for J-EX4500 Switches” on page 53.
- Place the rack in its permanent location, allowing adequate clearance for airflow and maintenance, and secure it to the building structure.
- Read “General Safety Guidelines and Warnings for J-EX Series Switches” on page 159, with particular attention to “Chassis Lifting Guidelines for J-EX4500 Switches” on page 172.
- Remove the switch from the shipping carton (see “Unpacking a J-EX4500 Switch” on page 76).

Ensure that you have the following parts and tools available:

- Phillips (+) screwdriver, number 2
- Flat-blade (-) screwdriver if you are installing the switch in a rack with square, nonthreaded holes
- 2 mounting brackets and 20 mounting screws (provided in the accessory box shipped with the switch)
- 8 screws—and 8 cage nuts and washers if your rack requires them—of the appropriate size to secure the chassis to the rack (provided)
- Dust covers for ports



NOTE: One person must be available to lift the switch while another secures the switch to the rack.



CAUTION: If you are mounting multiple units on the rack, mount the heaviest unit at the bottom and mount the others from bottom to top in order of decreasing weight.

To mount the switch on two posts in a rack:

1. If your rack has unthreaded round or square holes:
 - a. Determine the location on the rack where you want to mount the switch, and install 4 cage nuts in the appropriate holes in each rack post.

Use Figure 25 on page 79 or Figure 26 on page 79 to help you with cage-nut installation.

Figure 25: Installing a Round-Hole Cage Nut (Clip Nut)

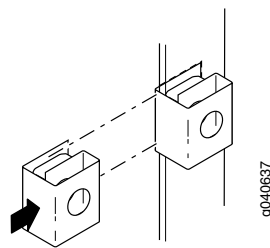
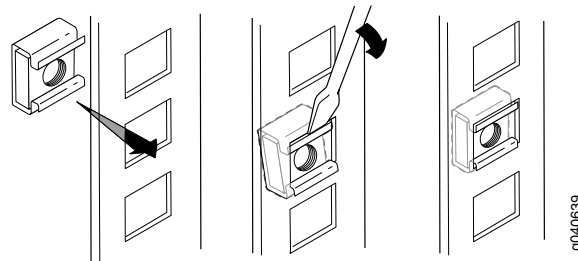
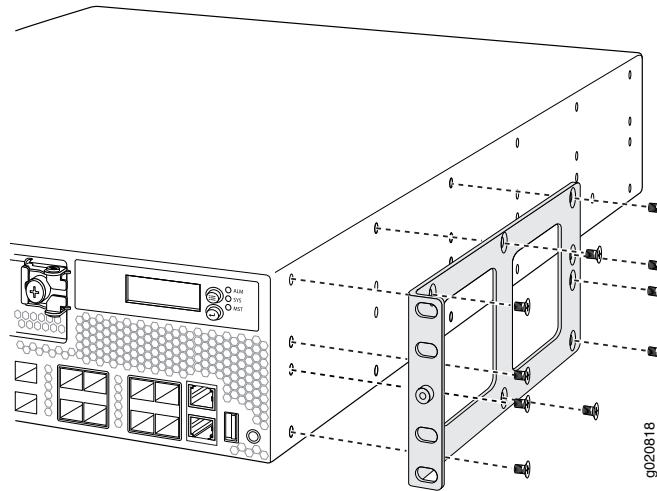


Figure 26: Installing a Square-Hole Cage Nut



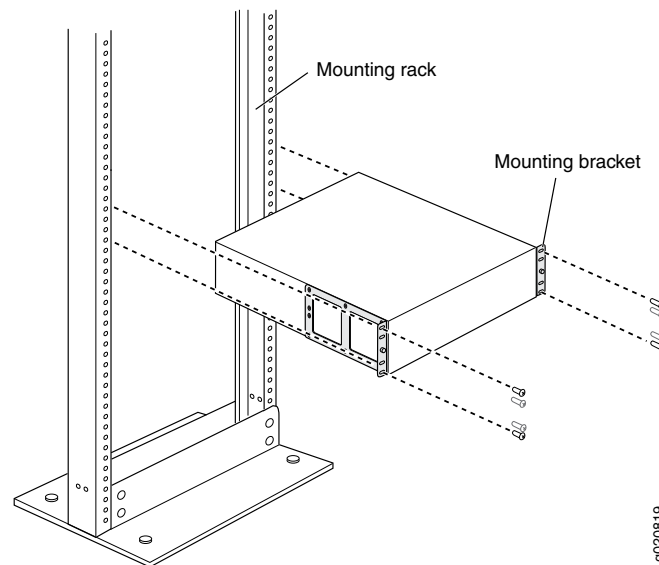
- b. To ensure that the switch chassis is level after installation, verify that the cage nuts on one side of the rack are aligned with the cage nuts on the other side.
2. Place the switch on a flat, stable surface.
3. Align the mounting brackets along the front or rear of the side panels of the switch chassis depending on whether you are front-mounting or rear-mounting the switch. See Figure 27 on page 80.

Figure 27: Attaching the Mounting Bracket Along the Front of the Switch



4. Align the bottom holes in the mounting brackets with holes on the side panels of the switch chassis.
5. Insert mounting screws into the aligned holes. Tighten the screws.
6. Ensure that the other holes in the mounting brackets are aligned with the holes in the side panels. Insert a screw in each hole and tighten the screws.
7. Have one person grasp both sides of the switch, lift the switch, and position it as follows in the rack. See Figure 28 on page 81.
 - If you installed cage nuts, align the bottom hole in each bracket with the bottom cage nut in each post.
 - If your rack has threaded holes, align the mounting bracket holes with the threaded holes in the rack rail, and align the bottom hole in each bracket with a hole in each post, making sure the chassis is level.

Figure 28: Mounting the Switch on Two Posts in a Rack



8. Have a second person secure the switch to the rack with the appropriate hardware:
 - If you installed cage nuts, install the appropriate screws with washers through the rack holes and into the cage nuts in each post.
 - If your rack has threaded holes, install screws into the aligned rack holes in each post.
9. Tighten the screws.
10. Ensure that the switch chassis is level by verifying that all screws on one side of the rack are aligned with the screws on the other side.
11. We recommend that you insert dust covers in any unused ports.

Related Documentation

- Connecting Earth Ground to a J-EX Series Switch on page 99
- Connecting AC Power to a J-EX4500 Switch on page 101
- Connecting and Configuring a J-EX Series Switch (CLI Procedure) on page 117
- Connecting and Configuring a J-EX Series Switch (J-Web Procedure) on page 118
- Rack-Mounting and Cabinet-Mounting Warnings for J-EX Series Switches on page 173

Mounting a J-EX4500 Switch on Four Posts in a Rack or Cabinet

You can mount a J-EX4500 switch on four posts of a 19-in. rack or cabinet by using the separately orderable four-post rack-mount kit. (The remainder of this topic uses “rack” to mean “rack or cabinet.”)

You can mount the switch on two posts in either a two-post rack or a four-post rack by using the mounting brackets provided with the switch. See “Mounting a J-EX4500 Switch on Two Posts in a Rack or Cabinet” on page 78.



NOTE: If you are mounting the switch on four posts, ensure that the rack is 21.5 in. through 31.5 in. deep if you will mount the switch flush with the rack front and that the rack is 23.5 in. through 32.5 in. deep if you will mount the switch 2 in. recessed from the rack front, thus ensuring that the protective earthing terminal is accessible through the opening in the rear bracket.

Before mounting the switch on four posts in a rack:

- Verify that the site meets the requirements described in “Site Preparation Checklist for J-EX4500 Switches” on page 53.
- Place the rack in its permanent location, allowing adequate clearance for airflow and maintenance, and secure it to the building structure.
- Read “General Safety Guidelines and Warnings for J-EX Series Switches” on page 159, with particular attention to “Chassis Lifting Guidelines for J-EX4500 Switches” on page 172.
- Remove the switch from the shipping carton (see “Unpacking a J-EX4500 Switch” on page 76).
- Have two persons available to mount the switch. One person will support the switch in a level position, and the second person will secure the switch to the rack.

Ensure that you have the following parts and tools available:

- Phillips (+) screwdriver, number 2
- Flat-blade screwdriver if you are installing the switch in a rack with square, nonthreaded holes
- 12 flat-head M4x6-mm Phillips mounting screws (provided with the four-post rack-mount kit)
- One pair of front brackets
- One pair of rear brackets
- 8 screws—and 8 cage nuts and washers if your rack requires them—to secure the chassis and the rear brackets to the rack (provided)



CAUTION: If you are mounting multiple units on a rack, mount the heaviest unit at the bottom of the rack and mount the other units from the bottom of the rack to the top in decreasing order of the weight of the units.

To mount the switch on four posts in a rack:

1. If your rack has unthreaded round or square holes:
 - a. Determine the location on the rack where you want to mount the switch, and install 2 cage nuts in the appropriate holes in each rack post, front and rear.

Use Figure 29 on page 83 or Figure 30 on page 83 to help you with cage-nut installation.

Figure 29: Installing a Round-Hole Cage Nut (Clip Nut)

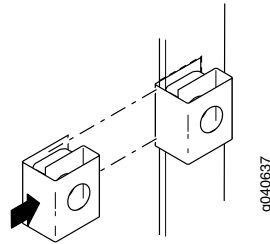
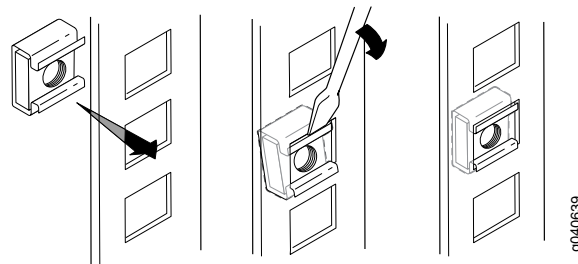


Figure 30: Installing a Square-Hole Cage Nut



- b. To ensure that the switch chassis is level after installation, verify that the cage nuts on the front of the rack are aligned with the cage nuts in the back.
2. Place the switch on a flat, stable surface.
 3. Align a front bracket (either flush with the front of the chassis or 2-in.-recessed from the front of the chassis) along the side panel of the switch chassis. Align the two holes in the front of the brackets with the two holes on the front of the side panel.

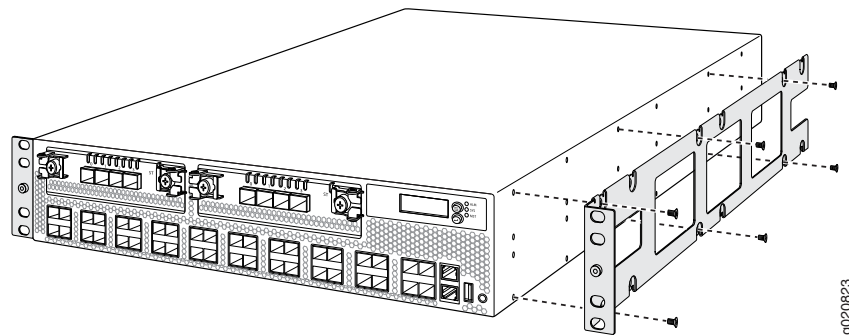


NOTE: Each side of the chassis has twelve holes for attaching the front brackets to the switch.

Six holes on the chassis side align with six holes in the front bracket when the front bracket is mounted flush with the chassis front or recessed 2 in. (5.08 cm) from the front of the chassis.

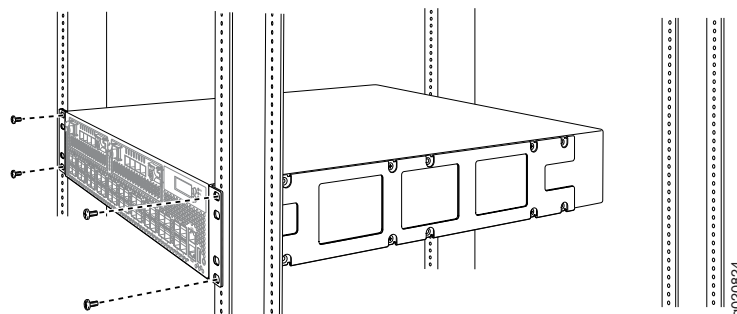
4. Insert M4x6-mm Phillips flat-head mounting screws into the two aligned holes and tighten the screws. Ensure that the remaining four holes in the front bracket are aligned with the four holes in the side panel. See Figure 31 on page 84.

Figure 31: Attaching the Front Bracket to the Switch Chassis



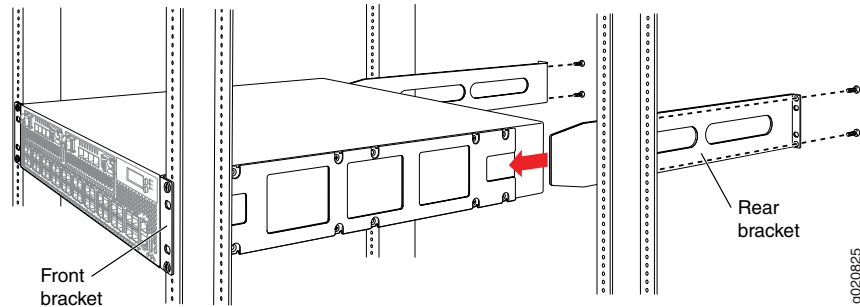
5. Insert M4x6-mm Phillips flat-head mounting screws into the remaining four holes in the front bracket and tighten the screws.
6. Repeat Steps 2 through 4 for attaching the front bracket to the other side of the chassis.
7. Have one person grasp both sides of the switch, lift the switch, and position it as follows in the rack. See Figure 32 on page 84.
 - If you installed cage nuts, position the switch so that the bottom hole in each mounting bracket is aligned with the bottom cage nut in each post.
 - If your rack has threaded holes, position the switch so that the side-rail bracket holes are aligned with the holes in each front post. Align the bottom hole in each mounting bracket with a hole in each rack post, making sure the chassis is level.

Figure 32: Mounting the Switch on the Front Posts in a Rack



8. Have a second person secure the front of the switch to the rack by using the appropriate screws for your rack:
 - If you installed cage nuts, install the appropriate screws with washers through the rack holes and into the cage nuts in each front post.
 - If your rack has threaded holes, install screws into the aligned rack holes in each front post.
9. Slide the rear brackets into the front brackets. See Figure 33 on page 85.

Figure 33: Sliding the Rear Brackets to the Rear of a Four-Post Rack



10. Attach the rear brackets to the rear post by using the appropriate hardware for your rack.
 - If you installed cage nuts, install the appropriate screws with washers through the rack holes and into the cage nuts in each rear post.
 - If your rack has threaded holes, install screws into the aligned rack holes in each rear post.
11. Tighten the screws.
12. Ensure that the switch chassis is level by verifying that all the screws on the front of the rack are aligned with the screws at the back of the rack.

Related Documentation

- Connecting Earth Ground to a J-EX Series Switch on page 99
- Connecting AC Power to a J-EX4500 Switch on page 101
- Connecting and Configuring a J-EX Series Switch (CLI Procedure) on page 117
- Connecting and Configuring a J-EX Series Switch (J-Web Procedure) on page 118
- Mounting a J-EX4500 Switch in a Recessed Position in a Rack or Cabinet on page 85
- Rack-Mounting and Cabinet-Mounting Warnings for J-EX Series Switches on page 173

Mounting a J-EX4500 Switch in a Recessed Position in a Rack or Cabinet

You can mount a J-EX4500 switch in a rack or cabinet such that the switch is recessed inside the rack from the rack front by 2 inches. Use the front brackets provided in the separately orderable four-post rack-mount kit to mount the switch in a recessed position.

Reasons to mount the switch in a recessed position include:

- You are mounting the switch in a cabinet and the cabinet doors will not close completely unless the switch is recessed.
- The switch you are mounting has an uplink module with transceivers installed in it—the transceivers in the uplink module ports protrude from the front of the switch.

To mount the switch in a recessed position on four posts, follow the instructions in “Mounting a J-EX4500 Switch on Four Posts in a Rack or Cabinet” on page 81.



.....

NOTE: You cannot mount the J-EX4500 switch in a recessed position in a two-post rack or cabinet.

.....

**Related
Documentation**

- [Connecting Earth Ground to a J-EX Series Switch on page 99](#)
- [Rack-Mounting and Cabinet-Mounting Warnings for J-EX Series Switches on page 173](#)

CHAPTER 10

Installing Switch Components

- Installing and Removing J-EX4500 Switch Hardware Components on page 87
- Installing a Power Supply in a J-EX4500 Switch on page 88
- Installing a Fan Tray in a J-EX4500 Switch on page 89
- Installing an Uplink Module in a J-EX4500 Switch on page 91
- Installing a Virtual Chassis Module in a J-EX4500 Switch on page 93
- Connecting a Virtual Chassis Cable to a J-EX4500 Switch on page 95
- Installing a Transceiver in a J-EX Series Switch on page 96

Installing and Removing J-EX4500 Switch Hardware Components

The J-EX4500 switch chassis is a rigid sheet-metal structure that houses the hardware components. The field-replaceable units (FRUs) in the switch are:

- Power supply
- Fan tray
- Uplink module
- Virtual Chassis module
- SFP transceiver
- SFP+ transceiver

The power supply, fan tray, uplink module, and transceivers are hot-removable and hot-insertable: You can remove and replace them without powering off the switch or disrupting switch functions.

The Virtual Chassis module is offline field-replaceable: You can remove and replace the module, but the switch must be powered off first.

See these topics for instructions for installing and removing components:

- Installing a Power Supply in a J-EX4500 Switch on page 88
- Removing a Power Supply from a J-EX4500 Switch on page 128
- Installing a Fan Tray in a J-EX4500 Switch on page 89

- Removing a Fan Tray from a J-EX4500 Switch on page 130
- “Installing an Uplink Module in a J-EX4500 Switch” on page 91.
- Removing an Uplink Module from a J-EX4500 Switch on page 131
- Installing a Virtual Chassis Module in a J-EX4500 Switch on page 93
- Removing a Virtual Chassis Module from a J-EX4500 Switch on page 133
- Installing a Transceiver in a J-EX Series Switch on page 96
- Removing a Transceiver from a J-EX Series Switch on page 137

Related Documentation

- Cooling System and Airflow in a J-EX4500 Switch on page 24
- AC Power Supply in J-EX4500 Switches on page 21
- Uplink Modules in J-EX4500 Switches on page 27
- Virtual Chassis Module in J-EX4500 Switches on page 29
- Optical Interface Support in J-EX4500 Switches on page 40

Installing a Power Supply in a J-EX4500 Switch

The power supply in J-EX4500 switches is a hot-removable and hot-insertable field-replaceable unit (FRU): You can remove and replace it without powering off the switch or disrupting switch functions.

Before you install an AC power supply in the switch:

- Ensure you understand how to prevent ESD damage. See “Prevention of Electrostatic Discharge Damage on J-EX Series Switches” on page 186.



.....
NOTE: Each power supply must be connected to a dedicated power source outlet.
.....

To install a power supply in the switch (see Figure 34 on page 89):

1. Ensure that you have the correct power supply:
 - Match the label on the power supply with the label on the fan tray, and verify that both say **EXHAUST** or both say **INTAKE**.
 - Match the arrow on the power supply's ejector lever with the arrows on the fan tray handles, and verify that they are pointing in the same direction.

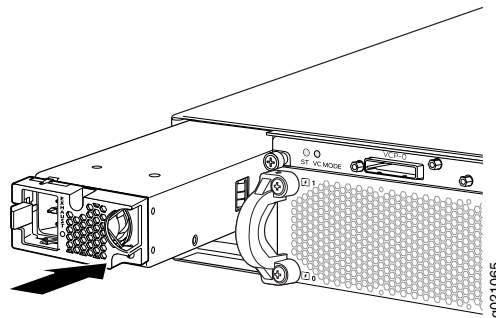
See “AC Power Supply in J-EX4500 Switches” on page 21.



CAUTION: Operating the switch with an incorrect power supply might cause the chassis to overheat.

2. Attach the electrostatic discharge (ESD) grounding strap to your bare wrist, and connect the strap to the ESD point on the chassis.
3. If the power supply slot has a cover panel on it, pull the handle of the cover panel outwards and remove it. Save the cover panel for later use.
4. Taking care not to touch power supply pins, leads, or solder connections, remove the power supply from the bag.
5. Using both hands, place the power supply in the power supply slot on the rear panel of the switch and slide it in until it is fully seated. You will hear a distinct click sound when the power supply is fully seated in the chassis.

Figure 34: Installing a Power Supply in a J-EX4500 Switch



Related Documentation

- Removing a Power Supply from a J-EX4500 Switch on page 128
- AC Power Supply in J-EX4500 Switches on page 21
- AC Power Cord Specifications for a J-EX4500 Switch on page 65
- Rear Panel of a J-EX4500 Switch on page 9

Installing a Fan Tray in a J-EX4500 Switch

A J-EX4500 switch has a single fan tray. The fan tray is a hot-insertable and hot-removable field-replaceable unit (FRU); you can remove and replace the fan tray

while the switch is running without turning off power to the switch or disrupting switching functions.

The fan tray installs horizontally on the rear of the chassis. Handles on each side of the front faceplate facilitate handling of the fan tray.

Before you begin to install a fan tray:

- Ensure you understand how to prevent ESD damage. See “Prevention of Electrostatic Discharge Damage on J-EX Series Switches” on page 186.

Ensure that you have the following parts and tools available to install a fan tray in the switch:

- Electrostatic discharge (ESD) grounding strap



CAUTION: The fan tray can be removed and replaced while the switch is operating. However, the fan tray must be replaced within 30 seconds of removing the fan tray to prevent the chassis from overheating.

To install a fan tray in a J-EX4500 switch (see Figure 35 on page 91):

1. Ensure that you have the correct fan tray. The label and arrows on the fan tray must match the label and arrows on the power supply. See “Cooling System and Airflow in a J-EX4500 Switch” on page 24.
-



CAUTION: Operating the switch with an incorrect fan tray might cause the chassis to overheat.

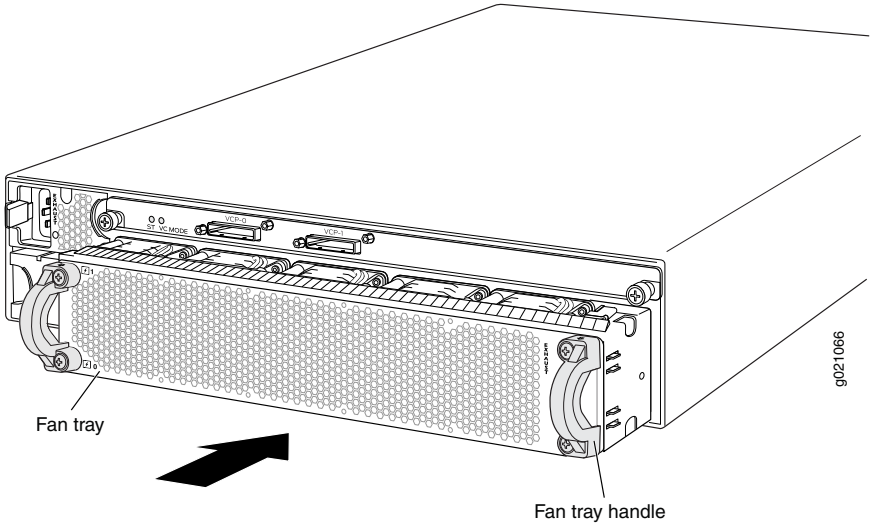
2. Attach the electrostatic discharge (ESD) grounding strap to your bare wrist, and connect the strap to the ESD point on the chassis.
 3. Hold the handles of the fan tray and align the tray with the fan tray guides on the fan tray slot.
-



NOTE: Ensure that the power supply labels, 1 and 0, are on the left side corners of the fan tray.

4. Slide in the fan tray until it is fully seated in the chassis.

Figure 35: Installing a Fan Tray in a J-EX4500 Switch



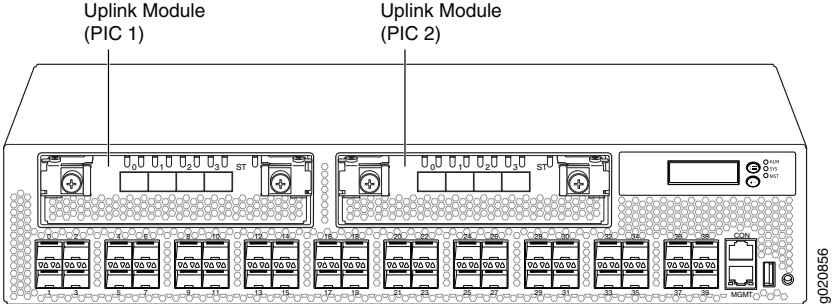
- Related Documentation**
- Removing a Fan Tray from a J-EX4500 Switch on page 130
 - Cooling System and Airflow in a J-EX4500 Switch on page 24
 - Field-Replaceable Units in J-EX4500 Switches on page 18

Installing an Uplink Module in a J-EX4500 Switch

The uplink module in J-EX4500 switches is a hot-removable and hot-insertable field-replaceable unit (FRU): You can remove and replace it without powering off the switch or disrupting switch functions.

You can install up to two SFP+ uplink modules in a J-EX4500 switch. Both uplink modules install horizontally on the front of the chassis. The uplink module slot on the left is PIC 1. The uplink module slot on the right is PIC 2. See Figure 36 on page 91.

Figure 36: Uplink Module Slots in a J-EX4500 Switch



Each SFP+ uplink module provides four ports. Each module can house four 10-gigabit small form-factor pluggable (SFP+) transceivers or four 1-gigabit small form-factor pluggable (SFP) transceivers.



NOTE: When a new uplink module is installed in the switch or an existing uplink module is replaced with another uplink module, the switch detects the newly installed uplink module. The switch creates the required interfaces when new transceivers are installed in those ports.

Before you begin installing an uplink module in the switch, ensure that you have taken the necessary precautions to prevent ESD damage (see “Prevention of Electrostatic Discharge Damage on J-EX Series Switches” on page 186).

Ensure that you have the following parts and tools available:

- Electrostatic discharge (ESD) grounding strap (If a grounding strap is not available, follow the alternative grounding method described in Step 1 of the following procedure.)
- Phillips (+) screwdriver, number 2

To install an uplink module in a J-EX4500 switch (see Figure 37 on page 93):

1. Attach the electrostatic discharge (ESD) grounding strap to your bare wrist, and connect the strap to the ESD point on the chassis.

If a grounding strap is not available, hold the uplink module in its antistatic bag in one hand and touch the exposed, bare metal of the switch with the other hand to ground yourself and the component.

2. If the uplink module slot has a cover panel on it, pull one of the ejector levers on the cover panel inward, to unseat the cover panel. Use this ejector lever to slide the cover panel out. Save the cover panel for later use.
3. Taking care not to touch module components, pins, leads, or solder connections, remove the uplink module from its bag.
4. Loosen the captive screws in the ejector levers using the Phillips screwdriver, number 2. Pull the ejector levers outward until they are fully open.



NOTE: If you are removing an uplink module and installing another uplink module, wait for at least 10 seconds after removing the uplink module before installing the new or the same uplink module. If you do not wait for at least 10 seconds, the interfaces on the uplink module might not come up.

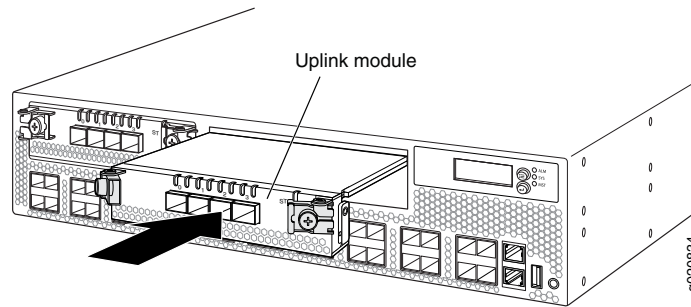


CAUTION: Before you slide the uplink module into the slot on the switch chassis, ensure the uplink module is aligned correctly. Misalignment might cause the pins to bend, making the uplink module unusable.

6. Using both hands, place the uplink module in the empty slot and slide it in gently until it is fully seated.

7. Push both ejector levers towards the uplink module's faceplate to latch the module in place.
8. Tighten the captive screws in both ejector levers using the Phillips screwdriver, number 2. When the **ST** LED turns green, the uplink module is ready for use.

Figure 37: Installing an Uplink Module in a J-EX4500 Switch



Related Documentation

- Removing an Uplink Module from a J-EX4500 Switch on page 131
- Installing a Transceiver in a J-EX Series Switch on page 96
- Installing and Removing J-EX4500 Switch Hardware Components on page 87
- Front Panel of a J-EX4500 Switch on page 8

Installing a Virtual Chassis Module in a J-EX4500 Switch

The Virtual Chassis module is installed horizontally on the rear panel of the switch. See “Rear Panel of a J-EX4500 Switch” on page 9. Use the procedure described in this topic to install the Virtual Chassis module.



CAUTION: Operating a J-EX4500 switch without the Virtual Chassis module installed is not supported. You cannot start the switch unless the Virtual Chassis module is installed in the chassis.

Before you begin installing the Virtual Chassis module in the switch:

- Ensure that you have taken the necessary precautions to prevent electrostatic discharge (ESD) damage (see “Prevention of Electrostatic Discharge Damage” on page 186).
- Have instructions and tools available for removing and installing the fan tray. If the fan tray is installed, you must remove it as part of the procedure for installing the Virtual Chassis module. After you install the module, you must install the fan tray. See “Removing a Fan Tray from a J-EX4500 Switch” on page 130 and “Installing a Fan Tray in a J-EX4500 Switch” on page 89.

Ensure that you have the following parts and tools available:

- ESD grounding strap

- Phillips (+) screwdriver, number 2
- A replacement Virtual Chassis module



NOTE: You must remove the fan tray from the J-EX4500 switch before installing the Virtual Chassis module. See “Removing a Fan Tray from a J-EX4500 Switch” on page 130.

To install a Virtual Chassis module in the switch (see Figure 38 on page 95):

1. Ensure that the switch is powered off:
 - If the AC power source outlet has a power switch, set it to the OFF (0) position.
 - If the AC power source outlet does not have a power switch, gently pull out the male end of the jumper cable or power cord connected to the power source outlet.
2. Ensure that the fan tray has been removed from the switch. See “Removing a Fan Tray from a J-EX4500 Switch” on page 130.
3. Attach the ESD grounding strap to your bare wrist, and connect the strap to the ESD point on the chassis.
4. Taking care not to touch module components, pins, leads, or solder connections, remove the Virtual Chassis module from its bag.
5. Loosen the captive screws on the front faceplate of the module using the screwdriver.

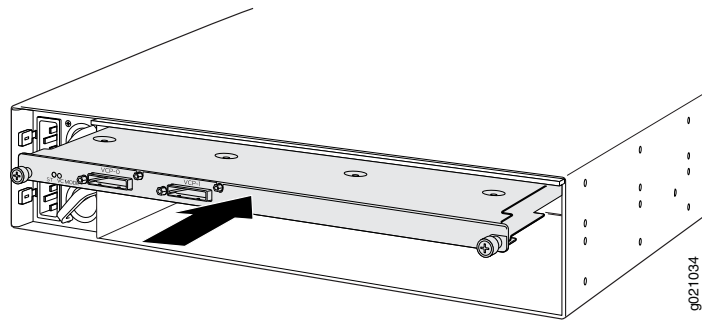


CAUTION: Before you slide the Virtual Chassis module into the slot on the switch chassis, ensure the module is aligned correctly. Misalignment might cause the pins to bend, making the module unusable.

6. Using both hands, place the Virtual Chassis module in the empty slot and slide it in until it is fully seated.
7. Tighten the captive screws using the screwdriver.
8. Reinstall the fan tray in the switch chassis. See “Installing a Fan Tray in a J-EX4500 Switch” on page 89.
9. Connect power to the switch. See “Connecting AC Power to a J-EX4500 Switch” on page 101.

When the status (ST) LED on the Virtual Chassis module turns green, the module is ready for use.

Figure 38: Installing the Virtual Chassis Module in a J-EX4500 Switch



Related Documentation

- Removing a Virtual Chassis Module from a J-EX4500 Switch on page 133
- Installing and Removing J-EX4500 Switch Hardware Components on page 87

Connecting a Virtual Chassis Cable to a J-EX4500 Switch

The Virtual Chassis module has two dedicated Virtual Chassis ports (VCPs) that can be used to interconnect the J-EX4500 switch with J-EX4200 switches or with another J-EX4500 switch to form a Virtual Chassis. The Virtual Chassis module is installed on the rear side of the switch chassis. Use the procedure described in this topic to connect a Virtual Chassis cable to a dedicated VCP port on a Virtual Chassis module.

Ensure that you have the following parts and tools available:

- Phillips (+) screwdriver, number 2

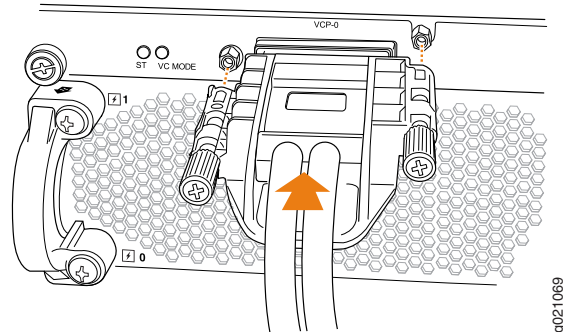


NOTE: Virtual Chassis cables and cable connector retainers are not part of the J-EX4500 switch shipping configuration and must be purchased separately.

To connect a Virtual Chassis cable to a dedicated VCP on a J-EX4500 switch (see Figure 39 on page 96) :

1. Taking care not to touch module components, pins, leads, or solder connections, remove the Virtual Chassis cable from its bag.
2. Using both hands, place the Virtual Chassis cable connector in the empty VCP and slide it in gently until it is fully seated.
3. Slide the cable connector retainer over the Virtual Chassis cable connector.
4. Tighten the screws on the cable connector retainer by using the screwdriver.

Figure 39: Connecting a Virtual Chassis Cable to a Dedicated VCP on a Virtual Chassis Module



Related Documentation

- Disconnecting a Virtual Chassis Cable from a J-EX4500 Switch on page 135
- Understanding J-EX4500 Virtual Chassis Hardware Configurations on page 69
- Planning J-EX4200 and J-EX4500 Virtual Chassis on page 70
- Virtual Chassis Ports Connector Pinout Information for J-EX4500 Switches on page 36

Installing a Transceiver in a J-EX Series Switch

The transceivers for J-EX Series switches are hot-removable and hot-insertable field-replaceable units (FRUs): You can remove and replace them without powering off the switch or disrupting switch functions.



NOTE: For your J-EX4500 switch, use only the optical transceivers and optical connectors described in this manual. For more information, contact Dell.

Before you begin installing a transceiver in a J-EX Series switch, ensure that you have taken the necessary precautions for safe handling of lasers (see “Laser and LED Safety Guidelines and Warnings for J-EX Series Switches” on page 165).

Ensure that you have a rubber safety cap available to cover the transceiver.

Figure 40 on page 97 shows how to install an SFP transceiver. The procedure is the same for all transceiver types.

To install a transceiver in a J-EX Series switch:



CAUTION: To avoid electrostatic discharge (ESD) damage to the transceiver, do not touch the connector pins at the end of the transceiver.

1. Remove the transceiver from its bag.
2. Check to see whether the transceiver is covered by a rubber safety cap. If it is not, cover the transceiver with a rubber safety cap.



WARNING: Do not leave a fiber-optic transceiver uncovered except when inserting or removing a cable. The rubber safety cap keeps the port clean and prevents accidental exposure to laser light.

3. If the port in which you want to install the transceiver is covered with a dust cover, remove the dust cover and save it in case you need to cover the port later. If you are hot-swapping a transceiver, wait for at least 10 seconds after removing the transceiver from the port before installing a transceiver.
4. Using both hands, carefully place the transceiver in the empty port. The connectors must face the switch chassis.



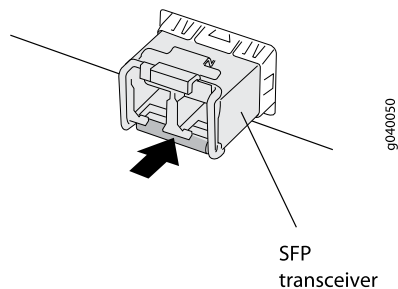
CAUTION: Before you slide the transceiver into the port, ensure the transceiver is aligned correctly. Misalignment might cause the pins to bend, making the transceiver unusable.

5. Slide the transceiver in gently until it is fully seated.
6. Remove the rubber safety cap when you are ready to connect the cable to the transceiver.



WARNING: Do not look directly into a fiber-optic transceiver or into the ends of fiber-optic cables. Fiber-optic transceivers and fiber-optic cables connected to transceivers emit laser light that can damage your eyes.

Figure 40: Installing a Transceiver in a J-EX Series Switch



**Related
Documentation**

- Removing a Transceiver from a J-EX Series Switch on page 137
- Connecting a Fiber-Optic Cable to a J-EX Series Switch on page 109
- Optical Interface Support in J-EX4500 Switches on page 40

Connecting the Switch

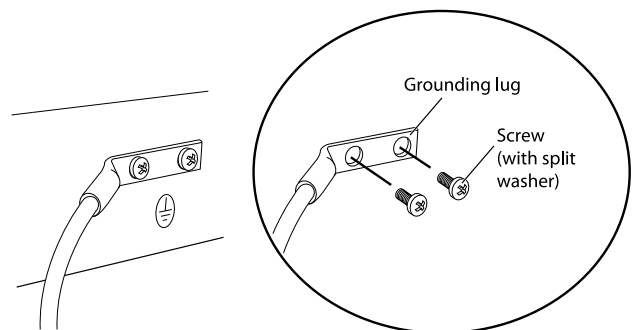
- Connecting Earth Ground to a J-EX Series Switch on page 99
- Connecting AC Power to a J-EX4500 Switch on page 101
- Connecting a J-EX Series Switch to a Network for Out-of-Band Management on page 103
- Connecting a J-EX Series Switch to a Management Console on page 104
- Connecting a J-EX Series Switch to a Modem on page 105
- Connecting a Fiber-Optic Cable to a J-EX Series Switch on page 109

Connecting Earth Ground to a J-EX Series Switch

To meet safety and electromagnetic interference (EMI) requirements and to ensure proper operation, you must connect the switches to earth ground before you connect them to power.

For installations that require a separate grounding conductor to the chassis, use the protective earthing terminal on the J-EX Series switch chassis to connect to the earth ground (see Figure 41 on page 99).

Figure 41: Connecting a Grounding Cable to a J-EX Series Switch



Before you connect earth ground to the protective earthing terminal of a J-EX Series switch, ensure that a licensed electrician has attached an appropriate grounding lug to the grounding cable.



CAUTION: Using a grounding cable with an incorrectly attached lug can damage the switch.

Follow this procedure.

- Connecting Earth Ground to a J-EX4500 Switch on page 100

Connecting Earth Ground to a J-EX4500 Switch

The protective earthing terminal is located on the left rear of the chassis in a J-EX4500 switch.

An AC-powered J-EX Series switch chassis gets additional grounding when you plug the power supply in the switch into a grounded AC power outlet by using an AC power cord appropriate for your geographical location. See “AC Power Cord Specifications for a J-EX4500 Switch” on page 65.



NOTE: If you plan to mount your switch on four posts of a rack or cabinet, mount your switch in the rack or cabinet before attaching the grounding lug to the switch. See “Mounting a J-EX4500 Switch on Four Posts in a Rack or Cabinet” on page 81

Ensure that you have the following parts and tools available:

- Grounding cable for your J-EX4500 switch—The grounding cable must be 14 AWG (2 mm²), minimum 90°C wire, or as permitted by the local code.
- Grounding lug for your grounding cable. See “Grounding Cable and Lug Specifications for J-EX4500 Switches” on page 48.
- Washers and 10-32x.25-in. screws to secure the grounding lug to the protective earthing terminal
- Phillips (+) screwdriver, number 2

To connect earth ground to a J-EX4500 switch:

1. Connect one end of the grounding cable to a proper earth ground, such as the rack in which the switch is mounted.
2. Place the grounding lug attached to the grounding cable over the protective earthing terminal. See Figure 41 on page 99.



NOTE: If you mounted the switch on four posts of a rack using the four-post rack-mount kit, the protective earthing terminal on the switch is accessible through the slot on the left rear bracket.

The protective earthing terminal on the switch mounted on four posts is available only if the rack is 27.5 in. (approximately 70 cm) deep through 30.5 in. (approximately 77.5 cm) deep for a switch mounted flush with the rack front and 29.5 in. (approximately 75 cm) deep through 32.5 in. (approximately 82.5 cm) deep for a switch mounted 2 in. (approximately 5 cm) recessed from the rack front.

3. Secure the grounding lug to the protective earthing terminal with screws.
4. Dress the grounding cable and ensure that it does not touch or block access to other switch components and that it does not drape where people could trip over it.

Related Documentation

- Connecting AC Power to a J-EX4500 Switch on page 101
- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- Grounded Equipment Warning for J-EX Series Switches on page 177

Connecting AC Power to a J-EX4500 Switch

The AC power supply in a J-EX4500 switch is a hot-removable and hot-insertable field-replaceable unit (FRU). After you have installed at least one power supply, you can connect power to the switch.



CAUTION: Operating the switch with an incorrect power supply might cause the chassis to overheat. See “Installing a Power Supply in a J-EX4500 Switch” on page 88.



CAUTION: To meet safety and electromagnetic interference (EMI) requirements and to ensure proper operation, you must connect the switch to earth ground before you connect it to power.

For installations that require a separate grounding conductor to the chassis, use the protective earthing terminal on the switch chassis to connect to the earth ground. For instructions on connecting the switch to ground using a separate grounding conductor, see “Connecting Earth Ground to a J-EX Series Switch” on page 99.

The switch gets additional grounding when you plug the power supply in the switch into a grounded AC power outlet by using the AC power cord appropriate for your geographical location. See “AC Power Cord Specifications for a J-EX4500 Switch” on page 65.



NOTE: Each power supply must be connected to a dedicated AC power source outlet.

Before you begin to connect power to the switch:

- Ensure you understand how to prevent ESD damage. See “Prevention of Electrostatic Discharge Damage on J-EX Series Switches” on page 186.
- Install power supplies in the switch. See “Installing a Power Supply in a J-EX4500 Switch” on page 88.

Ensure that you have the following parts and tools available to connect power to the switch:

- Electrostatic discharge (ESD) grounding strap
- AC jumper cables or a separately orderable AC power cords appropriate for your geographical location. See “AC Power Cord Specifications for a J-EX4500 Switch” on page 65.

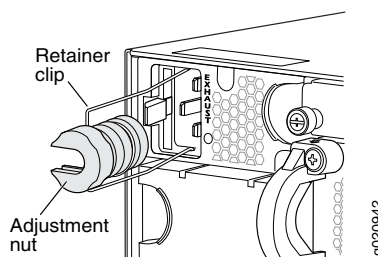


WARNING: Ensure that the power cords do not block access to switch components or drape where people can trip on them.

To connect AC power to the switch:

1. Attach the electrostatic discharge (ESD) grounding strap to your bare wrist, and connect the strap to the ESD point on the chassis.
2. Ensure that the power supply is fully inserted in the chassis. See “Installing a Power Supply in a J-EX4500 Switch” on page 88.
3. Squeeze the two sides of the power cord retainer clip, and insert the L-shaped ends of the clip into the holes in the bracket on each side of the AC appliance inlet. See Figure 42 on page 102.

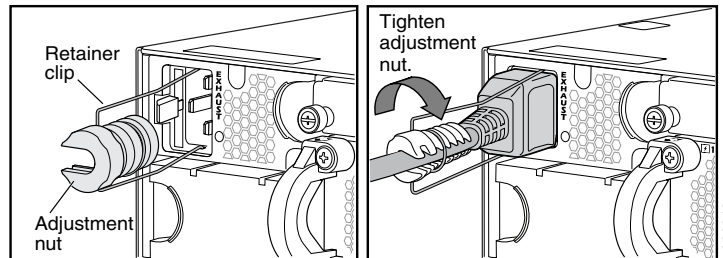
Figure 42: Power Cord Retainer in an AC Power Supply



4. Locate the jumper cable or cables shipped with the switch, or the separately orderable power cord or cords with plugs appropriate for your geographical location. (For power cord information, see “AC Power Cord Specifications for a J-EX4500 Switch” on page 65.)

5. Insert the coupler end of the jumper cable or power cord into the AC appliance inlet.
6. Push the retainer clip toward the cord until the cord slides into the slot in the adjustment nut. Turn the nut until it is tight against the base of the coupler and the slot in the nut is turned 90° from the top of the switch. See Figure 43 on page 103.
7. If the AC power source outlet has a power switch, set it to the OFF (O) position.
8. Insert the jumper cable or power cord plug into an AC power source outlet.
9. If the AC power source outlet has a power switch, set it to the ON (I) position.
10. Verify that the LED on the power supply faceplate is lit and is on steadily.
11. Repeat Steps 2 through 10 for a second power supply, if needed.

Figure 43: Connecting the Power Supply Cord to a J-EX4500 Switch



Related Documentation

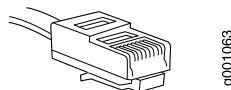
- AC Power Supply in J-EX4500 Switches on page 21
- AC Power Supply LEDs in J-EX4500 Switches on page 23

Connecting a J-EX Series Switch to a Network for Out-of-Band Management

You can monitor and manage a J-EX Series switch using a dedicated management channel. J-EX Series switches have a management port with an RJ-45 connector for out-of-band management. Use the management port to connect the J-EX Series switch to the management device.

Ensure that you have an Ethernet cable with an RJ-45 connector available. One such cable is provided with the switch. Figure 44 on page 103 shows the RJ-45 connector of the Ethernet cable supplied with the switch.

Figure 44: Ethernet Cable Connector



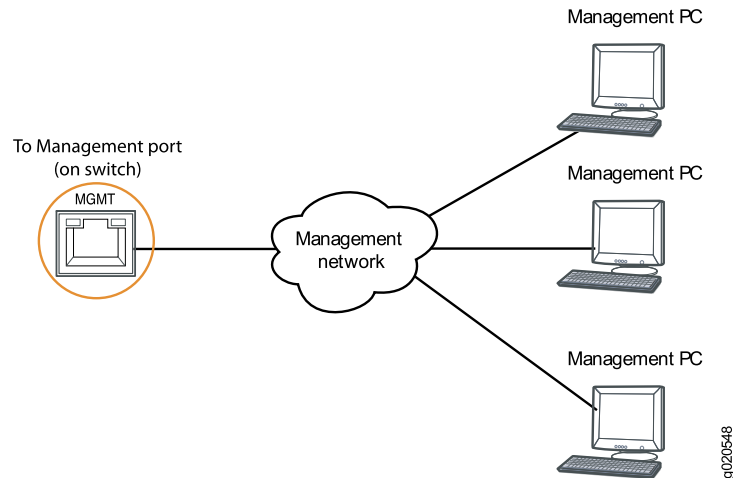
To connect a J-EX Series switch to a network for out-of-band management (see Figure 45 on page 104):

1. Connect one end of the Ethernet cable to the management port (labeled **MGMT**) on the J-EX Series switch.

For the location of the **MGMT** port, see “Front Panel of a J-EX4500 Switch” on page 8

2. Connect the other end of the Ethernet cable to the management device.

Figure 45: Connecting a J-EX Series Switch to a Network for Out-of-Band Management



Related Documentation

- Connecting a J-EX Series Switch to a Management Console on page 104
- Management Port Connector Pinout Information for a J-EX4500 Switch on page 34

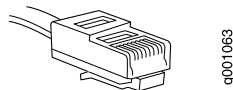
Connecting a J-EX Series Switch to a Management Console

You can configure and manage a J-EX Series switch using a dedicated console. Every J-EX Series switch has a console port with an RJ-45 connector. Use the console port to connect the J-EX Series switch to the management console or to a console server. The console port accepts a cable with an RJ-45 connector.

Ensure that you have an Ethernet cable with an RJ-45 connector available. An RJ-45 cable and an RJ-45-to-DB-9 serial port adapter are supplied with the switch.

Figure 46 on page 104 shows the RJ-45 connector of the Ethernet cable supplied with the switch.

Figure 46: Ethernet Cable Connector



NOTE: If your laptop or PC does not have a DB-9 male connector pin and you want to connect your laptop or PC directly to a J-EX Series switch, use a combination of the RJ-45-to-DB-9 female adapter supplied with the switch and a USB-to-DB-9 male adapter. You must provide the USB-to-DB-9 male adapter.

To connect a J-EX Series switch to a management console (see Figure 47 on page 105 and Figure 48 on page 105):

1. Connect one end of the Ethernet cable into the console port (labeled **CON** or **CONSOLE**) on the J-EX Series switch.

For the location of the **CON/CONSOLE** port, see “Front Panel of a J-EX4500 Switch” on page 8.

2. Connect the other end of the Ethernet cable into the console server (see Figure 47 on page 105) or management console (see Figure 48 on page 105).

To configure the switch from the management console, see “Connecting and Configuring a J-EX Series Switch (CLI Procedure)” on page 117 or “Connecting and Configuring a J-EX Series Switch (J-Web Procedure)” on page 118.

Figure 47: Connecting a J-EX Series Switch to a Management Console Through a Console Server

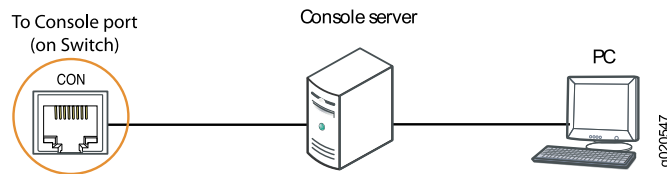
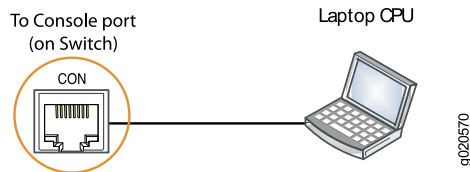


Figure 48: Connecting a J-EX Series Switch Directly to a Management Console



Related Documentation

- Connecting a J-EX Series Switch to a Network for Out-of-Band Management on page 103
- Console Port Connector Pinout Information for a J-EX Series Switch on page 34

Connecting a J-EX Series Switch to a Modem

You can connect a J-EX Series switch to a modem through the console port on the switch.

Before you connect the switch to a modem:

- Perform the initial setup and configuration of the switch. See “Connecting and Configuring a J-EX Series Switch (CLI Procedure)” on page 117 or “Connecting and Configuring a J-EX Series Switch (J-Web Procedure)” on page 118.

Ensure that you have the following parts available before you begin to connect the switch to the modem:

- A modem (not provided)
- A desktop or notebook computer (not provided)

- An RJ-45-to-DB-9 adapter and an Ethernet cable (provided)
- A phone cable (not provided)
- If your computer does not have a DB-9 male connector pin, a USB-to-DB-9 male adapter (not provided)
- An adapter to connect the RS-232 DB-25 connector on the modem to the RJ-45-to-DB-9 adapter on the switch (not provided)

This topic describes:

1. Setting the Serial Console Speed for the Switch on page 106
2. Configuring the Modem on page 107
3. Connecting the Modem to the Console Port on page 108

Setting the Serial Console Speed for the Switch

Before you can connect the switch to a modem, the switch's serial console speed must be set to 115200 baud.



NOTE: The default serial console speed is 9600 baud.

To change the serial console speed:

1. Power on the switch. The loader script starts.
2. You are prompted with:

Hit [Enter] to boot immediately, or space bar for command prompt.

Press the Spacebar to pause the switch in the loader state (after Junos OS has loaded on the switch but before the software starts).

The **loader>** prompt appears.

3. Set the baud rate:

```
loader> set baudrate=115200
```

Press Enter.

4. Press Enter when you see the following message:

Switch baud rate to 115200 bps and press Enter.

The **loader>** prompt reappears.

5. Save the new serial console speed:

```
loader> save
```

Press Enter. The serial console speed is now set to 115200 baud.

6. Boot the software:

```
loader> boot
```

The boot process proceeds as normal and ends with a login prompt.

Configuring the Modem

Before you connect the modem, you must configure the modem with required port settings.



NOTE: The following procedure uses Hayes-compatible-modem commands to configure the modem. If your modem is not Hayes-compatible, see the documentation for your modem for the equivalent modem commands.

To configure the modem:

1. Connect the modem to the desktop or notebook computer.
2. Power on the modem.
3. From the computer, start your asynchronous terminal emulation application (such as Microsoft Windows HyperTerminal) and select the COM port to which the modem is connected (for example, COM1).
4. Configure the port settings shown in Table 29 on page 107.

Table 29: Port Settings

Port Settings	Value
Bits per second	115200
Data bits	8
Parity	None
Stop bits	1
Flow control	None

5. In the HyperTerminal window, type **at**. Press Enter.
The modem sends an OK response to verify that it can communicate successfully with the COM port on your desktop or notebook computer.
6. To configure the modem to answer a call on the first ring, type **ats0=1** at the prompt. Press Enter.
7. To configure the modem to accept modem-control DTR signals, type **at&d1** at the prompt. Press Enter.
8. To disable flow control on the modem, type **at&k0** at the prompt. Press Enter.
9. To set the fixed serial port speed on the modem, type **at&b1** at the prompt. Press Enter.



NOTE: You must set the serial port to the fixed speed so that the modem will not adjust the serial port speed to the negotiated line speed.

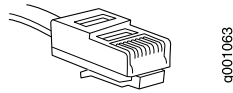
- To save the new modem settings, type **at&w0** at the prompt. Press Enter.

The modem sends an OK message. The modem is now ready to be connected to the switch.

Connecting the Modem to the Console Port

The console port on every J-EX Series switch accepts a cable with an RJ-45 connector. Figure 49 on page 108 shows the RJ-45 connector of the Ethernet cable supplied with the switch.

Figure 49: Ethernet Cable Connector



NOTE: If your laptop or PC does not have a DB-9 male connector pin and you want to connect your laptop or PC directly to the switch, use a combination of the RJ-45-to-DB-9 female adapter supplied with the switch and a USB-to-DB-9 male adapter. You must provide the USB-to-DB-9 male adapter.



NOTE: Most modems have an RS-232 DB-25 connector. You must separately purchase an adapter to connect your modem to the RJ-45-to-DB-9 adapter and Ethernet cable supplied with the switch.

To connect a modem to the console port:

- Turn off power to the switch.
- Turn off power to the modem.
- Connect one end of the cable to the console port (labeled **CON** or **CONSOLE**) on the switch.

For the location of the console port, see “Front Panel of a J-EX4500 Switch” on page 8.
- Connect the other end of the cable to the RJ-45-to-DB-9 serial port adapter supplied with your switch.
- Connect the serial port adapter to the DB-9-female-to-DB-25-male adapter or other adapter appropriate for your modem.
- Plug the modem adapter into the DB-25 connector on the modem.
- Connect one end of the phone cable to the modem and the other end to your telephone network.

8. Turn on the power to your modem.
9. Power on the switch.

Related Documentation

- Connecting a J-EX Series Switch to a Management Console on page 104
- Console Port Connector Pinout Information for a J-EX Series Switch on page 34

Connecting a Fiber-Optic Cable to a J-EX Series Switch

J-EX Series switches have field-replaceable unit (FRU) optical transceivers to which you can connect fiber-optic cables.

Before you begin connecting a fiber-optic cable to an optical transceiver installed in a J-EX Series switch, ensure that you have taken the necessary precautions for safe handling of lasers (see “Laser and LED Safety Guidelines and Warnings for J-EX Series Switches” on page 165).

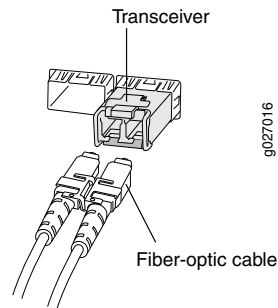
To connect a fiber-optic cable to an optical transceiver installed in a J-EX Series switch:



WARNING: Do not look directly into a fiber-optic transceiver or into the ends of fiber-optic cables. Fiber-optic transceivers and fiber-optic cables connected to transceivers emit laser light that can damage your eyes.

1. If the fiber-optic cable connector is covered by a rubber safety cap, remove the cap. Save the cap.
2. Remove the rubber safety cap from the optical transceiver. Save the cap.
3. Insert the cable connector into the optical transceiver (see Figure 50 on page 109).

Figure 50: Connecting a Fiber-Optic Cable to an Optical Transceiver Installed in a J-EX Series Switch



4. Secure the cables so that they are not supporting their own weight. Place excess cable out of the way in a neatly coiled loop. Placing fasteners on a loop helps cables maintain their shape.



.....

CAUTION: Do not bend fiber-optic cables beyond their minimum bend radius. An arc smaller than a few inches in diameter can damage the cables and cause problems that are difficult to diagnose.

Do not let fiber-optic cables hang free from the connector. Do not allow fastened loops of cables to dangle, which stresses the cables at the fastening point.

.....

**Related
Documentation**

- Disconnecting a Fiber-Optic Cable from a J-EX Series Switch on page 136
- Installing a Transceiver in a J-EX Series Switch on page 96
- Maintaining Fiber-Optic Cables in J-EX Series Switches on page 143
- Optical Interface Support in J-EX4500 Switches on page 40

Performing Initial Configuration

- J-EX4500 Default Configuration on page 111
- Connecting and Configuring a J-EX Series Switch (CLI Procedure) on page 117
- Connecting and Configuring a J-EX Series Switch (J-Web Procedure) on page 118

J-EX4500 Default Configuration

Each J-EX Series switch is programmed with a factory default configuration that contains the values set for each configuration parameter when a switch is shipped. The default configuration file sets values for system parameters such as **syslog** and **commit**, configures Ethernet switching on all interfaces, enables IGMP snooping, and enables the LLDP and RSTP protocols.



NOTE: Interfaces `xe-0/0/0` through `xe-0/0/39` are the network interface ports. Optional uplink modules provide four 10-gigabit small form-factor pluggable (SFP+) transceivers (`xe-0/1/0` through `xe-0/1/3`) or four 1-gigabit small form-factor pluggable (SFP) transceivers (`xe-0/2/0` through `xe-0/2/3`). Although you can install only one uplink module, the interfaces for both are shown below.

When you commit changes to the configuration, a new configuration file is created, which becomes the active configuration. You can always revert to the factory default configuration. See the *Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS* at <http://www.support.dell.com/manuals>.

This topic shows the factory default configuration file of a J-EX4500 switch:

```
system {
  syslog {
    user * {
      any emergency;
    }
  }
  file messages {
    any notice;
    authorization info;
  }
  file interactive-commands {
    interactive-commands any;
  }
}
```

```
    }  
  }  
  commit {  
    factory-settings {  
      reset-chassis-lcd-menu;  
      reset-virtual-chassis-configuration;  
    }  
  }  
}  
interfaces {  
  xe-0/0/0 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/0/1 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/0/2 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/0/3 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/0/4 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/0/5 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/0/6 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/0/7 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/0/8 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/0/9 {
```



```
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/10 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/11 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/12 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/13 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/14 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/15 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/16 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/17 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/18 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/19 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/20 {
    unit 0 {
```

```
        family ethernet-switching;
    }
}
xe-0/0/21 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/22 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/23 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/24 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/25 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/26 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/27 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/28 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/29 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/30 {
    unit 0 {
        family ethernet-switching;
    }
}
xe-0/0/31 {
    unit 0 {
        family ethernet-switching;
```

```
    }  
  }  
  xe-0/0/32 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/0/33 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/0/34 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/0/35 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/0/36 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/0/37 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/0/38 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/0/39 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/1/0 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/1/1 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }  
  xe-0/1/2 {  
    unit 0 {  
      family ethernet-switching;  
    }  
  }
```

```
}
xe-0/1/3 {
  unit 0 {
    family ethernet-switching;
  }
}
xe-0/2/0 {
  unit 0 {
    family ethernet-switching;
  }
}
xe-0/2/1 {
  unit 0 {
    family ethernet-switching;
  }
}
xe-0/2/2 {
  unit 0 {
    family ethernet-switching;
  }
}
xe-0/2/3 {
  unit 0 {
    family ethernet-switching;
  }
}
}
protocols {
  igmp-snooping {
    vlan all;
  }
  rstp;
  lldp {
    interface all;
  }
  lldp-med {
    interface all;
  }
}
ethernet-switching-options {
  storm-control {
    interface all;
  }
}
}
```

Related Documentation

- To revert to the factory default configuration, see the *Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS* at <http://www.support.dell.com/manuals>.
- Connecting and Configuring a J-EX Series Switch (CLI Procedure) on page 117
- Connecting and Configuring a J-EX Series Switch (J-Web Procedure) on page 118
- For information about configuration files and interfaces, see the *Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS* at <http://www.support.dell.com/manuals>.

Connecting and Configuring a J-EX Series Switch (CLI Procedure)

There are two ways to connect and configure a J-EX Series switch: one method is through the console using the CLI and the other is using the J-Web interface. This topic describes the CLI procedure.



NOTE: To run the EZSetup script, the switch must have the factory default configuration as the active configuration. If you have configured anything on the switch and want to run EZSetup, revert to the factory default configuration. For instructions, see the *Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS* at <http://www.support.dell.com/manuals>.

Before you begin connecting and configuring a J-EX Series switch through the console using the CLI:

- Set the following parameter values in the console server or PC:
 - Baud Rate—9600
 - Flow Control—None
 - Data—8
 - Parity—None
 - Stop Bits—1
 - DCD State—Disregard

To connect and configure the switch from the console:

1. Connect the console port to a laptop or PC using the RJ-45 to DB-9 serial port adapter. The RJ-45 cable and RJ-45-to-DB-9 serial port adapter are supplied with the switch, and the console port is located on the front panel of the switch.
2. At the Junos OS shell prompt **root%**, type **ezsetup**.
3. Enter the hostname. This is optional.
4. Enter the root password you plan to use for this device. You are prompted to re-enter the root password.
5. Enter **yes** to enable services like Telnet and SSH. By default, Telnet is not enabled and SSH is enabled.



NOTE: When Telnet is enabled, you are not able to log in to a J-EX Series switch through Telnet using root credentials. Root login is allowed only for SSH access.

6. Use the Management Options page to select the management scenario:



NOTE: On J-EX4500 switches, only the out-of-band management option is available.

- **Configure out-of-band management.** Specify the IP address and gateway of the management interface. Use this IP address to connect to the switch.
7. Specify the SNMP Read Community, Location, and Contact to configure SNMP parameters. These parameters are optional.
8. Specify the system date and time. Select the time zone from the list. These options are optional.
9. When the configured parameters are displayed, enter **yes** to commit the configuration. The configuration is committed as the active configuration for the switch.
10. For standalone operation of the J-EX4500 switch, set the PIC mode to intraconnect:

```
user@switch> request chassis pic-mode intraconnect
```

11. For standalone operation only, verify that the green ST (status) LED on the Virtual Chassis module is on steadily and that the VC MODE LED is off.
12. Observe the ALM (alarm) LED to the right of the LCD panel.
- A lit amber (minor) alarm LED is normal. It indicates that the switch has no rescue configuration set. To save the current configuration as a rescue configuration that you can return to with the rollback command, enter the following command:

```
user@switch> request system configuration rescue save
```

You can now use the CLI or log in to the J-Web interface to continue configuring the switch. If you use the J-Web interface to continue configuring the switch, the Web session is redirected to the new management IP address. If the connection cannot be made, the J-Web interface displays instructions for starting a J-Web session.

To configure the switch in a J-EX4500 Virtual Chassis or mixed Virtual Chassis, see the *Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS* at <http://www.support.dell.com/manuals>.

Related Documentation

- Connecting and Configuring a J-EX Series Switch (J-Web Procedure) on page 118
- Installing and Connecting a J-EX4500 Switch on page 75

Connecting and Configuring a J-EX Series Switch (J-Web Procedure)

There are two ways to connect and configure a J-EX Series switch: one method is through the console using the CLI and the other is using the J-Web interface. This topic describes the J-Web procedure.



NOTE: Before you begin the configuration, enable a DHCP client on the management PC you will connect to the switch so that the switch can obtain an IP address dynamically.

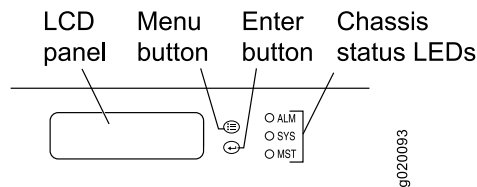


NOTE: Read the following steps before you begin the configuration. You must complete the initial configuration using EZSetup within 10 minutes. The switch exits EZSetup after 10 minutes and reverts to the factory default configuration, and the PC loses connectivity to the switch. The LCD displays a count-down timer when the switch is in initial setup mode.

To connect and configure the switch using the J-Web interface:

1. Use the **Menu** and **Enter** buttons located to the right of the LCD panel (see Figure 51 on page 119) to transition the switch into initial setup mode:

Figure 51: LCD Panel in a J-EX4500 Switch



- a. Press the **Menu** button until you see **MAINTENANCE MENU**. Then press the **Enter** button.
 - b. Press **Menu** until you see **ENTER EZSetup**. Then press **Enter**.
If EZSetup does not appear as an option in the menu, select **Factory Default** to return the switch to the factory default configuration. EZSetup is displayed in the menu only when the switch is set to the factory default configuration.
 - c. Press **Enter** to confirm setup and continue with EZSetup.
2. Connect the Ethernet cable from the Ethernet port on the PC to the port labeled **MGMT** on the front panel of the switch.
These ports are configured as the DHCP server with the default IP address, **192.168.1.1**. The switch can assign an IP address to the management PC in the IP address range **192.168.1.2** through **192.168.1.253**.
 3. From the PC, open a Web browser, type **http://192.168.1.1** in the address field, and press Enter.
 4. On the J-Web login page, type **root** as the username, leave the password field blank, and click **Login**.
 5. On the Introduction page, click **Next**.
 6. On the Basic Settings page, modify the hostname, the root password, and date and time settings:

- Enter the hostname. This is optional.
- Enter a password and reenter the password.
- Specify the time zone.
- Synchronize the date and time settings of the switch with the management PC or set them manually by selecting the appropriate option button. This is optional.

Click **Next**.

7. Use the Management Options page to select the management scenario:



NOTE: On J-EX4500 switches, only the out-of-band management option is available.

- **Out-of-band Management—Configure management port.**

Select this option to configure only the management interface. Click **Next**. Specify the IP address and default gateway for the management interface.

8. Click **Next**.
9. On the Manage Access page, you may select options to enable Telnet, SSH, and SNMP services. For SNMP, you can configure the read community, location, and contact.
10. Click **Next**. The Summary screen displays the configured settings.
11. Click **Finish**. The configuration is committed as the active switch configuration.



NOTE: After the configuration is committed, the connectivity between the PC and the switch might be lost. To renew the connection, release and renew the IP address by executing the appropriate commands on the management PC or by removing and reinserting the Ethernet cable.

12. For standalone operation of the J-EX4500 switch, log in to the CLI and set the PIC mode to intraconnect:

```
user@switch: request chassis pic-mode intraconnect
```

13. For standalone operation only, verify that the green ST (status) LED on the Virtual Chassis module is on steadily and that the VC MODE LED is off.

14. Observe the ALM (alarm) LED to the right of the LCD panel.

A lit amber (minor) alarm LED is normal. It indicates that the switch has no rescue configuration set. To save the current configuration as a rescue configuration that you can return to with the rollback command, enter the following command:

```
user@switch> request system configuration rescue save
```

You can now use the CLI or the J-Web interface to continue configuring the switch. If you use the J-Web interface to continue configuring the switch, the Web session is redirected

to the new management IP address. If the connection cannot be made, the J-Web interface displays instructions for starting a J-Web session.



NOTE: You can configure and manage a standalone J-EX4500 switch with the J-Web interface, but the J-Web interface does not support configuration and management of a J-EX4500 Virtual Chassis.

To use the CLI to configure the switch in a J-EX4500 Virtual Chassis or mixed Virtual Chassis, see the *Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS* at <http://www.support.dell.com/manuals>.

**Related
Documentation**

- Connecting and Configuring a J-EX Series Switch (CLI Procedure) on page 117
- Installing and Connecting a J-EX4500 Switch on page 75

PART 4

Removing the Switch and Switch Components

- Removing the Switch on page 125
- Removing Switch Components on page 127

Removing the Switch

- Removing a J-EX4500 Switch from a Rack or Cabinet on page 125

Removing a J-EX4500 Switch from a Rack or Cabinet

If you need to relocate an installed J-EX4500 switch, use the procedure described in this topic. (The remainder of this topic uses “rack” to mean “rack or cabinet.”)



NOTE: When you remove multiple switches from a rack, remove the switch in the top of the rack first and proceed to remove the rest of the switches from top to bottom.



CAUTION: At least two people must be available to lift a switch chassis out of a rack—one person to unscrew the mounting screws from the brackets and the second person to hold the chassis.

Before removing the switch from a rack:

- Ensure that the rack or cabinet is stable and secured to the building.
- Ensure that there is enough space to place the removed switch in its new location and along the path to the new location.
- Read “General Safety Guidelines and Warnings for J-EX Series Switches” on page 159, with particular attention to “Chassis Lifting Guidelines for J-EX4500 Switches” on page 172.
- Ensure that the switch has been safely powered off and that you have unplugged (disconnected) the jumper cables or power cords.
- Ensure that you have disconnected any cables or wires attached to the switch.

Ensure that you have the following parts and tools available to remove the switch:

- A Phillips (+) screwdriver, number 2 or number 3, depending on the size of your rack mounting screws.

- If you installed the switch with square-hole cage nuts, a flat-blade (-) screwdriver to remove the cage nuts
- A labeled bag to hold the removed screws—and the removed cage nuts and washers, if applicable

To remove a J-EX4500 switch from a rack:

1. Use the appropriate Phillips (+) screwdriver to remove the mounting screws that attach the chassis front-mounting brackets to the rack.
2. Place the removed screws in a labeled bag. You will need them when you reinstall the chassis.
3. Lift the chassis from the rack and carefully move the chassis to its new location.
4. If you installed the switch with cage nuts:
 - a. Remove the cage nuts from the rack.

Use Figure 52 on page 126 or Figure 53 on page 126 to help you with cage-nut removal.

Figure 52: Removing a Round-Hole Cage Nut (Clip Nut)

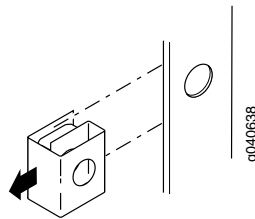
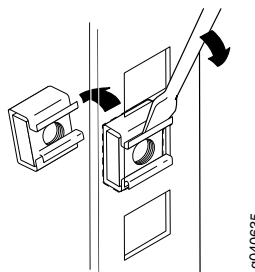


Figure 53: Removing a Square-Hole Cage Nut



- b. Place the removed cage nuts in the labeled bag with the screws and washers. You will need them when you reinstall the chassis.

Related Documentation

- Mounting a J-EX4500 Switch on page 78

Removing Switch Components

- Installing and Removing J-EX4500 Switch Hardware Components on page 127
- Removing a Power Supply from a J-EX4500 Switch on page 128
- Removing a Fan Tray from a J-EX4500 Switch on page 130
- Removing an Uplink Module from a J-EX4500 Switch on page 131
- Removing a Virtual Chassis Module from a J-EX4500 Switch on page 133
- Disconnecting a Virtual Chassis Cable from a J-EX4500 Switch on page 135
- Disconnecting a Fiber-Optic Cable from a J-EX Series Switch on page 136
- Removing a Transceiver from a J-EX Series Switch on page 137
- Removing a Cage Nut from a Rack on page 138

Installing and Removing J-EX4500 Switch Hardware Components

The J-EX4500 switch chassis is a rigid sheet-metal structure that houses the hardware components. The field-replaceable units (FRUs) in J-EX4500 switches are:

- Power supply
- Fan tray
- Uplink module
- Virtual Chassis module
- SFP transceiver
- SFP+ transceiver

The power supply, fan tray, uplink module, and transceivers are hot-removable and hot-insertable: You can remove and replace them without powering off the switch or disrupting switch functions.

The Virtual Chassis module is offline field-replaceable: You can remove and replace the module, but the switch must be powered off first.

See these topics for instructions for installing and removing components:

- Installing a Power Supply in a J-EX4500 Switch on page 88
- Removing a Power Supply from a J-EX4500 Switch on page 128

- Installing a Fan Tray in a J-EX4500 Switch on page 89
- Removing a Fan Tray from a J-EX4500 Switch on page 130
- “Installing an Uplink Module in a J-EX4500 Switch” on page 91.
- Removing an Uplink Module from a J-EX4500 Switch on page 131
- Installing a Virtual Chassis Module in a J-EX4500 Switch on page 93
- Removing a Virtual Chassis Module from a J-EX4500 Switch on page 133
- Installing a Transceiver in a J-EX Series Switch on page 96
- Removing a Transceiver from a J-EX Series Switch on page 137

Related Documentation

- Cooling System and Airflow in a J-EX4500 Switch on page 24
- AC Power Supply in J-EX4500 Switches on page 21
- Uplink Modules in J-EX4500 Switches on page 27
- Virtual Chassis Module in J-EX4500 Switches on page 29
- Optical Interface Support in J-EX4500 Switches on page 40

Removing a Power Supply from a J-EX4500 Switch

The power supply in J-EX4500 switches is a hot-removable and hot-insertable field-replaceable unit (FRU): You can remove and replace it without powering off the switch or disrupting switch functions.

Before you begin removing a power supply from the switch:

- Ensure you understand how to prevent ESD damage. See “Prevention of Electrostatic Discharge Damage on J-EX Series Switches” on page 186.

Ensure that you have the following parts and tools available to remove the power supply from the switch chassis:

- An antistatic bag or an antistatic mat
- Replacement power supply or a cover panel for the power supply slot



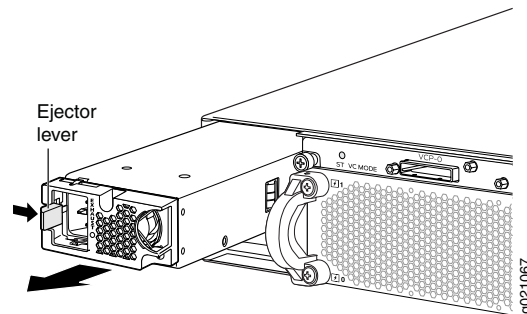
CAUTION: Do not leave the power supply slot empty for a long time while the switch is operational. Either replace the power supply promptly or install a cover panel over the empty slot.

To remove a power supply from the switch (see Figure 54 on page 129):

1. Place the antistatic bag or the antistatic mat on a flat, stable surface.
2. Attach the electrostatic discharge (ESD) grounding strap to your bare wrist, and connect the strap to the ESD point on the chassis.

3. Disconnect power from the switch by performing one of the following tasks:
 - If the AC power source outlet has a power switch, set it to the OFF (0) position.
 - If the AC power source outlet does not have a power switch, gently pull out the male end of the jumper cable or power cord connected to the power source outlet.
4. Turn the adjustment nut of the power cord retainer counterclockwise till you can see the jumper cable or power cord. Pull the cord from the slot in the adjustment nut.
5. Remove the female end of the jumper cable or power cord from the AC appliance inlet on the power supply faceplate.
6. Push the power cord retainer clip to one side of the appliance inlet. Squeeze the two sides of the power cord retainer clip, and pull the L-shaped ends of the clip from the holes on each side of the AC appliance inlet to completely remove the power retainer clip.
7. Push the ejector lever until the power supply is unseated.
8. Grasp the power supply handle and pull firmly to slide the power supply halfway out of the chassis.
9. Taking care not to touch power supply pins, leads, or solder connections, place one hand under the power supply to support it. Grasp the power supply handle with your other hand and pull the power supply completely out of the chassis.
10. Place the power supply in the antistatic bag or on the antistatic mat placed on a flat, stable surface.
11. If you are not replacing the power supply, install the cover panel over the slot.

Figure 54: Removing a Power Supply from a J-EX4500 Switch



Related Documentation

- Installing a Power Supply in a J-EX4500 Switch on page 88
- Installing and Removing J-EX4500 Switch Hardware Components on page 87
- AC Power Supply in J-EX4500 Switches on page 21
- Field-Replaceable Units in J-EX4500 Switches on page 18
- AC Power Cord Specifications for a J-EX4500 Switch on page 65
- Rear Panel of a J-EX4500 Switch on page 9

Removing a Fan Tray from a J-EX4500 Switch

A J-EX4500 switch has a single fan tray. The fan tray is a hot-removable and hot-insertable field-replaceable unit (FRU); you can remove and replace the fan tray while the switch is running without turning off power to the switch or disrupting switching functions.



CAUTION: Do not remove the fan tray unless you have a replacement fan tray available.

The fan tray is installed horizontally on the rear of the chassis.

Before you remove a fan tray:

- Ensure you understand how to prevent ESD damage. See “Prevention of Electrostatic Discharge Damage on J-EX Series Switches” on page 186.

Ensure that you have the following parts and tools available to remove a fan tray from the switch chassis:

- Electrostatic discharge (ESD) grounding strap
- Replacement fan tray
- An antistatic bag or an antistatic mat



CAUTION: The fan tray can be removed and replaced while the switch is operating. However, the fan tray must be replaced within 30 seconds of removing the fan tray to prevent overheating of the chassis.

To remove a fan tray from the switch chassis (see Figure 55 on page 131):

1. Place the antistatic bag or the antistatic mat on a flat, stable surface.
2. Attach the electrostatic discharge (ESD) grounding strap to your bare wrist, and connect the strap to the ESD point on the chassis.
3. Squeeze both handles of the fan tray to release the latches that lock the fan tray in the chassis.

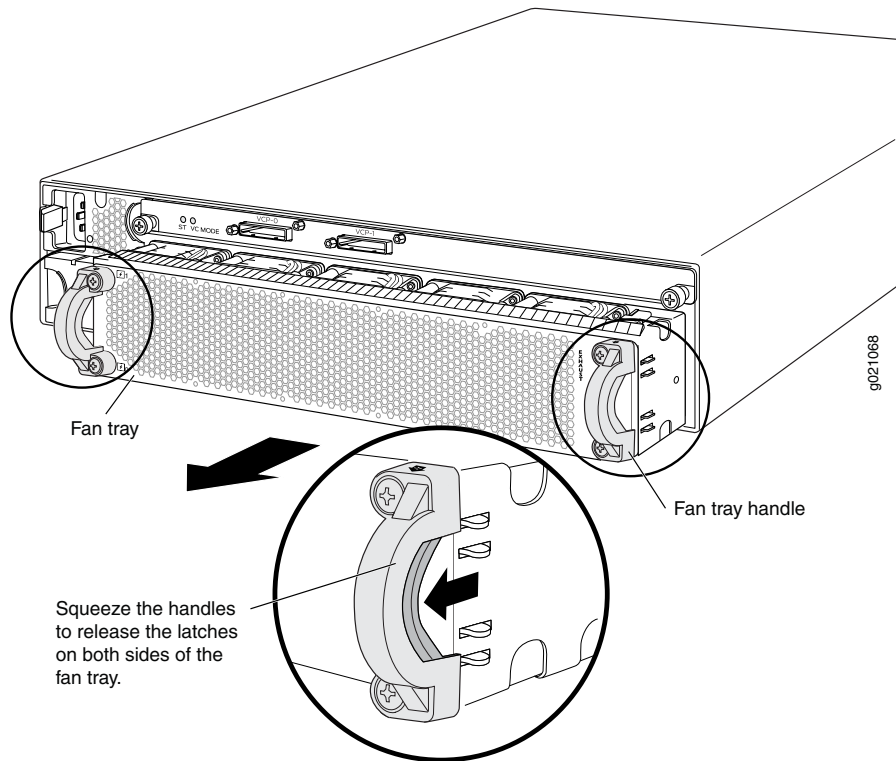


WARNING: To avoid injury, do not touch the fans with your hands or any tools as you slide the fan tray out of the chassis—the fans might still be spinning.

4. Grasp the handles on the fan tray and pull firmly to slide the fan tray halfway out of the chassis.

5. When the fan stops spinning, slide the fan tray completely out of the chassis.
6. Place the fan tray in the antistatic bag or on the antistatic mat placed on a flat, stable surface.

Figure 55: Removing a Fan Tray from a J-EX4500 Switch



Related Documentation

- Installing a Fan Tray in a J-EX4500 Switch on page 89
- Cooling System and Airflow in a J-EX4500 Switch on page 24
- Field-Replaceable Units in J-EX4500 Switches on page 18

Removing an Uplink Module from a J-EX4500 Switch

The uplink module in J-EX4500 switches is a hot-removable and hot-insertable field-replaceable unit (FRU): You can remove and replace it without powering off the switch or disrupting switch functions.

You can install up to two SFP+ uplink modules in a J-EX4500 switch. Both uplink modules install horizontally on the front of the chassis. See “Front Panel of a J-EX4500 Switch” on page 8.

Before you begin removing an uplink module from the switch:

- Ensure that you have taken the necessary precautions to prevent ESD damage (see “Prevention of Electrostatic Discharge Damage on J-EX Series Switches” on page 186).

- If any transceivers are installed in the uplink module, remove them before you remove the uplink module. For instructions on removing transceivers, see “Removing a Transceiver from a J-EX Series Switch” on page 137.

Ensure that you have the following parts and tools available:

- Electrostatic discharge (ESD) grounding strap
- Phillips screwdriver, number 2
- A replacement uplink module or cover panel
- An antistatic bag or antistatic mat

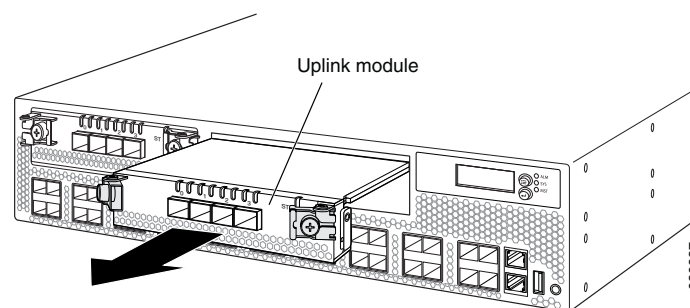


CAUTION: Do not leave the uplink module slot empty for a long time while the switch is operational. Either replace the uplink module promptly or install a cover panel over the empty slot.

To remove an uplink module from the switch (see Figure 56 on page 132):

1. Attach the electrostatic discharge (ESD) grounding strap to your bare wrist, and connect the strap to the ESD point on the chassis.
2. Loosen the captive screws in the ejector levers using the Phillips screwdriver, number 2.
3. Pull both the ejector levers outward until they are fully open.
4. Using both hands, gently pull the ejector levers to slide the uplink module halfway out of the chassis.
5. Using both hands, hold the front edge of the uplink module and slide it completely out of the chassis.
6. Place the uplink module in an antistatic bag or on an antistatic mat placed on a flat, stable surface.

Figure 56: Removing an Uplink Module from a J-EX4500 Switch



Related Documentation

- Installing an Uplink Module in a J-EX4500 Switch on page 91
- Installing and Removing J-EX4500 Switch Hardware Components on page 87
- Field-Replaceable Units in J-EX4500 Switches on page 18

- Front Panel of a J-EX4500 Switch on page 8

Removing a Virtual Chassis Module from a J-EX4500 Switch

The Virtual Chassis module is installed horizontally on the rear panel of the switch. See “Rear Panel of a J-EX4500 Switch” on page 9. Use the procedure described in this topic to remove the module from the switch chassis.



CAUTION: Operating a J-EX4500 switch without the Virtual Chassis module installed is not supported. You cannot start the switch unless the Virtual Chassis module is installed in the chassis.

Before you begin removing the Virtual Chassis module from the switch:

- Ensure that you have taken the necessary precautions to prevent electrostatic discharge (ESD) damage (see “Prevention of Electrostatic Discharge Damage” on page 186).
- Have instructions and tools for removing the fan tray. See “Removing a Fan Tray from a J-EX4500 Switch” on page 130.

Ensure that you have the following parts and tools available:

- ESD grounding strap
- Phillips screwdriver, number 2
- A replacement Virtual Chassis module. (Install the replacement module immediately after removing the module. Operating the switch without this module is not supported.)
- An antistatic bag or antistatic mat



NOTE: You must remove the fan tray from the switch before removing the Virtual Chassis module. See “Removing a Fan Tray from a J-EX4500 Switch” on page 130.

To remove the Virtual Chassis module from the switch (see Figure 57 on page 134):

1. Halt the switch using the request system halt CLI command:

```
user@switch> request system halt
```

Wait until a message appears confirming that switch operation has halted.

2. Power off the switch by performing one of the following:
 - If the AC power source outlet has a power switch, set it to the OFF (O) position.
 - If the AC power source outlet does not have a power switch, gently pull out the male end of the jumper cable or power cord connected to the power source outlet.

3. Attach the ESD grounding strap to your bare wrist, and connect the strap to the ESD point on the chassis.
4. Remove the fan tray from the switch. See "Removing a Fan Tray from a J-EX4500 Switch" on page 130.
5. Loosen the captive screws on the front faceplate of the module using the screwdriver.
6. Position your fingers under the module as shown in Figure 57 on page 134 and pull outwards to unseat and eject the module.

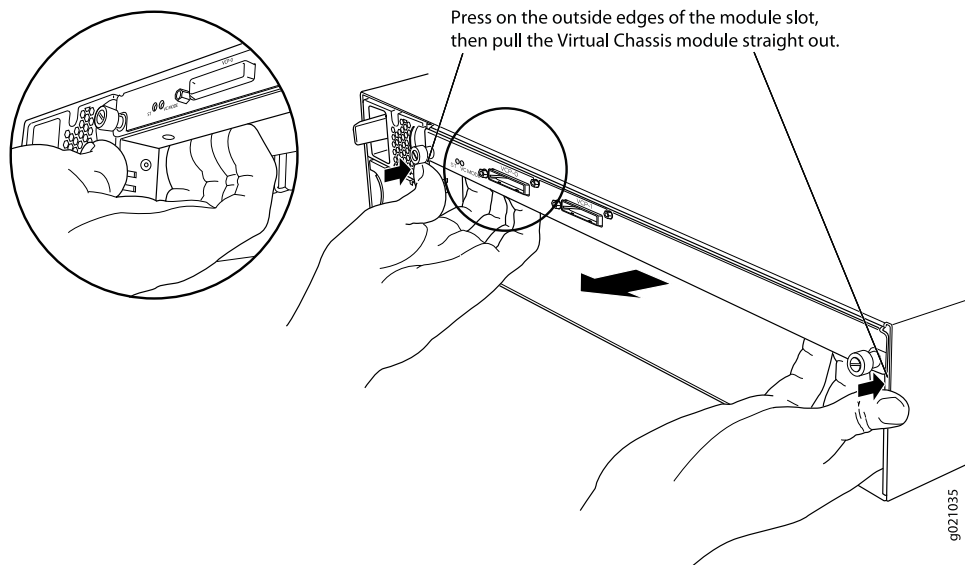


NOTE: Do not use the captive screws to pull the module out from the chassis. Pull from underneath the front edge of the module.

7. Using both hands, gently slide the Virtual Chassis module halfway out of the chassis.
8. Place one hand under the module to support it and slide it completely out of the chassis.
9. Place the Virtual Chassis module in an antistatic bag or on an antistatic mat placed on a flat, stable surface.

Promptly install the replacement Virtual Chassis module. See "Installing a Virtual Chassis Module in a J-EX4500 Switch" on page 93.

Figure 57: Removing the Virtual Chassis Module from a J-EX4500 Switch



Related Documentation

- Installing a Virtual Chassis Module in a J-EX4500 Switch on page 93
- Installing and Removing J-EX4500 Switch Hardware Components on page 87

Disconnecting a Virtual Chassis Cable from a J-EX4500 Switch

The Virtual Chassis module has two dedicated Virtual Chassis ports (VCPs) that can be used to interconnect the J-EX4500 switch with J-EX4200 switches or J-EX4500 switches to form a Virtual Chassis. The Virtual Chassis module is installed on the rear side of the switch chassis. Use the procedure described in this topic to disconnect a Virtual Chassis cable from the dedicated VCP port on a Virtual Chassis module.

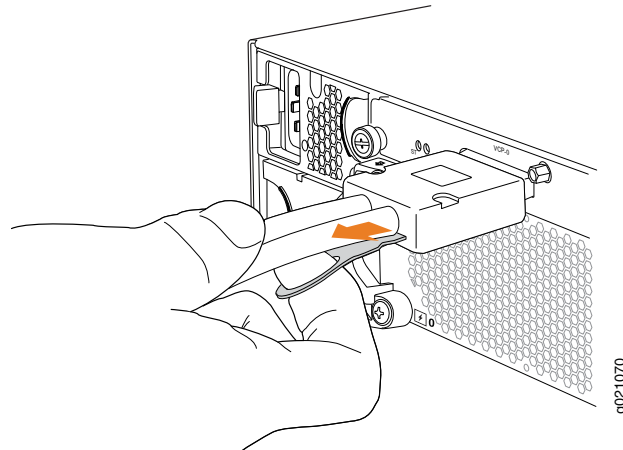
Ensure that you have the following parts and tools available:

- Phillips (+) screwdriver, number 2

To disconnect a Virtual Chassis cable from a dedicated VCP on a J-EX4500 switch (see Figure 58 on page 135):

1. Loosen the screws on the cable connector retainer by using the screwdriver.
2. Slide the cable connector retainer back.
3. Gently pull the release pull tab on the Virtual Chassis cable connector to release the lock holding the Virtual Chassis cable connector in the Virtual Chassis port.
4. Gently pull the Virtual Chassis cable connector out of the Virtual Chassis port.

Figure 58: Disconnecting a Virtual Chassis Cable from a Dedicated VCP on a Virtual Chassis Module



NOTE: Virtual Chassis cables and cable connector retainers are not part of the J-EX4500 switch shipping configuration and must be purchased separately.

Related Documentation

- Connecting a Virtual Chassis Cable to a J-EX4500 Switch on page 95
- Understanding J-EX4500 Virtual Chassis Hardware Configurations on page 69
- Understanding J-EX4200 and J-EX4500 Virtual Chassis Components

- Planning J-EX4200 and J-EX4500 Virtual Chassis on page 70
- Virtual Chassis Ports Connector Pinout Information for J-EX4500 Switches on page 36

Disconnecting a Fiber-Optic Cable from a J-EX Series Switch

J-EX Series switches have field-replaceable unit (FRU) optical transceivers to which you can connect fiber-optic cables.

Before you begin disconnecting a fiber-optic cable from an optical transceiver installed in a J-EX Series switch, ensure that you have taken the necessary precautions for safe handling of lasers (see “Laser and LED Safety Guidelines and Warnings for J-EX Series Switches” on page 165).

Ensure that you have the following parts and tools available:

- A rubber safety cap to cover the transceiver
- A rubber safety cap to cover the fiber-optic cable connector

To disconnect a fiber-optic cable from an optical transceiver installed in the switch:

1. Disable the port in which the transceiver is installed by issuing the command:

```
[edit interfaces]
```

```
user@switch# set interface-name disable
```



WARNING: Do not look directly into a fiber-optic transceiver or into the ends of fiber-optic cables. Fiber-optic transceivers and fiber-optic cables connected to transceivers emit laser light that can damage your eyes.

2. Carefully unplug the fiber-optic cable connector from the transceiver.
 3. Cover the transceiver with a rubber safety cap.
-



WARNING: Do not leave a fiber-optic transceiver uncovered except when inserting or removing a cable. The rubber safety cap keeps the port clean and prevents accidental exposure to laser light.

4. Cover the fiber-optic cable connector with the rubber safety cap.

Related Documentation

- Connecting a Fiber-Optic Cable to a J-EX Series Switch on page 109
- Removing a Transceiver from a J-EX Series Switch on page 137
- Maintaining Fiber-Optic Cables in J-EX Series Switches on page 143
- Optical Interface Support in J-EX4500 Switches on page 40

Removing a Transceiver from a J-EX Series Switch

The transceivers for J-EX Series switches are hot-removable and hot-insertable field-replaceable units (FRUs): You can remove and replace them without powering off the switch or disrupting switch functions.

Before you begin removing a transceiver from a J-EX Series switch, ensure that you have taken the necessary precautions for safe handling of lasers (see “Laser and LED Safety Guidelines and Warnings for J-EX Series Switches” on page 165).

Ensure that you have the following parts and tools available:

- An antistatic bag or an antistatic mat
- Needlenose pliers
- Rubber safety caps to cover the transceiver and fiber-optic cable connector
- A dust cover to cover the port

Figure 59 on page 138 shows how to remove an SFP transceiver. The procedure is the same for all transceiver types.

To remove a transceiver from a J-EX Series switch:

1. Place the antistatic bag or antistatic mat on a flat, stable surface.
2. Label the cable connected to the transceiver so that you can reconnect it correctly.



WARNING: Do not look directly into a fiber-optic transceiver or into the ends of fiber-optic cables. Fiber-optic transceivers and fiber-optic cables connected to transceivers emit laser light that can damage your eyes.



WARNING: Do not leave a fiber-optic transceiver uncovered except when inserting or removing a cable. The rubber safety cap keeps the port clean and prevents accidental exposure to laser light.



CAUTION: Do not bend fiber-optic cables beyond their minimum bend radius. An arc smaller than a few inches in diameter can damage the cables and cause problems that are difficult to diagnose.

3. Remove the cable connected to the transceiver (see “Disconnecting a Fiber-Optic Cable from a J-EX Series Switch” on page 136). Cover the transceiver and the end of each fiber-optic cable connector with a rubber safety cap immediately after disconnecting the fiber-optic cables.
4. Using your fingers, pull the ejector lever on the transceiver to unlock the transceiver.



CAUTION: Before removing the transceiver, make sure you open the ejector lever completely until you hear it click. This prevents damage to the transceiver.

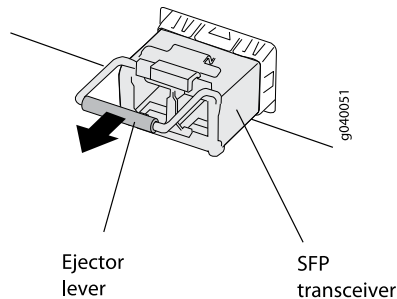
5. Using the needlenose pliers, pull the ejector lever out from the transceiver.
6. Grasp the transceiver ejector lever and gently slide the transceiver approximately 0.5 in. (1.3 cm) straight out of the port.



CAUTION: To avoid electrostatic discharge (ESD) damage to the transceiver, do not touch the connector pins at the end of the transceiver.

7. Using your fingers, grasp the body of the transceiver and pull it straight out of the port.
8. Place the transceiver in the antistatic bag or on the antistatic mat placed on a flat, stable surface.
9. Place the dust cover over the empty port.

Figure 59: Removing a Transceiver from a J-EX Series Switch



- Related Documentation**
- Installing a Transceiver in a J-EX Series Switch on page 96
 - Optical Interface Support in J-EX4500 Switches on page 40

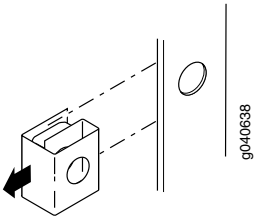
Removing a Cage Nut from a Rack

Ensure that you have the following parts and tools available:

- A flat-blade (-) screwdriver for square-hole cage nuts

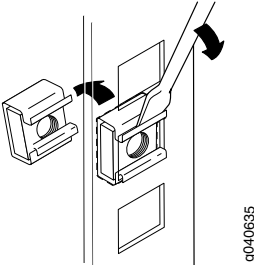
To remove a round-hole cage nut from a rack, see Figure 60 on page 139.

Figure 60: Removing a Round-Hole Cage Nut (Clip Nut)



To remove a square-hole cage nut from a rack, see Figure 61 on page 139.

Figure 61: Removing a Square-Hole Cage Nut



PART 5

Switch and Component Maintenance

- Routine Maintenance on page 143

Routine Maintenance

- Maintaining Fiber-Optic Cables in J-EX Series Switches on page 143

Maintaining Fiber-Optic Cables in J-EX Series Switches

Fiber-optic cables connect to optical transceivers that are installed in J-EX Series switches.

To maintain fiber-optic cables:

- When you unplug a fiber-optic cable from a transceiver, place rubber safety caps over the transceiver and on the end of the cable.
- Anchor fiber-optic cables to avoid stress on the connectors. When attaching a fiber-optic cable to a transceiver, be sure to secure the fiber-optic cable so that it is not supporting its own weight as it hangs to the floor. Never let a fiber-optic cable hang free from the connector.
- Avoid bending fiber-optic cables beyond their minimum bend radius. Bending fiber-optic cables into arcs smaller than a few inches in diameter can damage the cables and cause problems that are difficult to diagnose.
- Frequent plugging and unplugging of fiber-optic cables in and out of optical instruments can damage the instruments, which are expensive to repair. Attach a short fiber extension to the optical equipment. Any wear and tear due to frequent plugging and unplugging is then absorbed by the short fiber extension, which is easier and less expensive to replace than the instruments.
- Keep fiber-optic cable connections clean. Micro-deposits of oil and dust in the canal of the transceiver or cable connector can cause loss of light, reduction in signal power, and possibly intermittent problems with the optical connection.

To clean the transceiver canal, use an appropriate fiber-cleaning device such as RIFOCS Fiber Optic Adaptor Cleaning Wands (part number 946). Follow the directions in the cleaning kit you use.

After cleaning the transceiver, make sure that the connector tip of the fiber-optic cable is clean. Use only an approved alcohol-free fiber-optic cable cleaning kit such as the Optex Cletop-S[®] Fiber Cleaner. Follow the directions in the cleaning kit you use.

Related Documentation

- Connecting a Fiber-Optic Cable to a J-EX Series Switch on page 109
- Laser and LED Safety Guidelines and Warnings for J-EX Series Switches on page 165

- [Optical Interface Support in J-EX4500 Switches on page 40](#)

PART 6

Returning Hardware

- [Getting Help on page 147](#)

CHAPTER 16

Getting Help

This chapter contains information about getting help for questions about the PowerConnect J–EX Series switches. The topics covered in this section include:

- Obtaining Assistance on page 147
- Dell Enterprise Training and Certification on page 149
- Problems With Your Order on page 149
- Product Information on page 149
- Returning Items for Warranty Repair or Credit on page 149
- Before You Call on page 150
- Contacting Dell on page 151
- Locating the Serial Number on a J-EX4500 Switch or Component on page 151
- Packing a J-EX4500 Switch or Component for Shipping on page 154
- Dell Support on page 156

Obtaining Assistance

If you experience a problem with your switch, you can complete the following steps to diagnose and troubleshoot the problem:

1. Fill out the diagnostics checklist. See “Diagnostics Checklist” on page 150.
2. Use Dell's extensive suite of online services available at Dell Support (<http://www.support.dell.com>) for help with installation and troubleshooting procedures. See “Online Services” on page 148 for a more extensive list of Dell Support
3. If the preceding steps have not resolved the problem, see “Contacting Dell” on page 151.



.....
NOTE: Call Dell Support from a telephone near or at the computer so that the support staff can assist you with any necessary procedures.
.....



.....
NOTE: Dell's Express Service Code system may not be available in all countries.
.....

When prompted by Dell's automated telephone system, enter your Express Service Code to route the call directly to the proper support personnel. For instructions on using the Dell Support, see "Support Service" on page 149.



NOTE: Some of the following services are not always available in all locations outside the continental U.S. Call your local Dell representative for information on availability.

Online Services

You can learn about Dell products and services on the following websites:

- <http://www.dell.com>
- <http://www.dell.com/ap> (Asian/Pacific countries only)
- <http://www.dell.com/jp> (Japan only)
- <http://www.euro.dell.com> (Europe only)
- <http://www.dell.com/la> (Latin American and Caribbean countries)
- <http://www.dell.ca> (Canada only)

You can access Dell Support through the following websites and e-mail addresses:

- Dell Support websites
 - <http://www.support.dell.com>
 - <http://support.jp.dell.com> (Japan only)
 - <http://support.euro.dell.com> (Europe only)
- Dell Support e-mail addresses
 - mobile_support@us.dell.com
 - support@us.dell.com
 - la-techsupport@dell.com (Latin America and Caribbean countries only)
 - apsupport@dell.com (Asian/Pacific countries only)
- Dell Marketing and Sales e-mail addresses
 - apmarketing@dell.com (Asian/Pacific countries only)
 - sales_canada@dell.com (Canada only)
- Anonymous file transfer protocol (FTP)
 - <ftp://ftp.dell.com>

Log in as **user: anonymous**, and use your e-mail address as your password.

Automated Order-Status Service

To check on the status of any Dell products that you have ordered, you can go to <http://www.support.dell.com>, or you can call the automated order-status service. A recording prompts you for the information needed to locate and report on your order. For the telephone number to call for your region, see “Contacting Dell” on page 151.

Support Service

Dell's support service is available 24 hours a day, 7 days a week, to answer your questions about Dell hardware. Our support staff use computer-based diagnostics to provide fast, accurate answers. To contact Dell's support service, see “Before You Call” on page 150 and then see the contact information for your region.

Dell Enterprise Training and Certification

Dell Enterprise Training and Certification is available; see <http://www.dell.com/training> for more information. This service may not be offered in all locations.

Problems With Your Order

If you have a problem with your order, such as missing parts, wrong parts, or incorrect billing, contact Dell for customer assistance. Have your invoice or packing slip handy when you call. For the telephone number to call for your region, see “Contacting Dell” on page 151.

Product Information

If you need information about additional products available from Dell, or if you would like to place an order, visit the Dell website at <http://www.dell.com>. For the telephone number to call for your region or to speak to a sales specialist, see “Contacting Dell” on page 151.

Returning Items for Warranty Repair or Credit

Prepare all items being returned, whether for repair or credit, as follows:

1. Call Dell to obtain a Return Material Authorization (RMA) Number, and write it clearly and prominently on the outside of the box. For the telephone number to call for your region, see “Contacting Dell” on page 151.
2. Include a copy of the invoice and a letter describing the reason for the return.
3. Include a copy of the Diagnostics Checklist (see “Diagnostics Checklist” on page 150), indicating the tests that you have run and any error messages reported by the Dell Diagnostics.
4. Include any accessories that belong with the item(s) being returned (such as power cables and guides) if the return is for credit.
5. Pack the equipment to be returned in the original (or equivalent) packing materials. See “Packing a J-EX4500 Switch or Component for Shipping” on page 154.

You are responsible for paying shipping expenses. You are also responsible for insuring any product returned, and you assume the risk of loss during shipment to Dell. Collect On Delivery (C.O.D.) packages are not accepted.

Returns that are missing any of the preceding requirements will be refused at Dell's receiving dock and returned to you.

Before You Call



NOTE: Have your Express Service Code ready when you call. The code helps Dell's automated-support telephone system direct your call more efficiently.

Remember to fill out the Diagnostics Checklist (see "Diagnostics Checklist" on page 150). If possible, turn on your computer before you call Dell for assistance and call from a telephone at or near the computer. You may be asked to type some commands at the keyboard, relay detailed information during operations, or try other troubleshooting steps possible only at the computer itself. Ensure that the computer documentation is available.



WARNING: Before working inside your switch, follow the safety instructions in the Safety, Environmental, and Regulatory Information that shipped with your system.

Diagnostics Checklist

Name:

Date:

Address:

Phone number:

Service Tag (bar code on the back or bottom of the device):

Express Service Code:

Return Material Authorization Number (if provided by Dell support technician):

Operating system and version:

Devices:

Expansion cards:

Are you connected to a network? Yes No

Network, version, and network adapter:

Programs and versions:

See your operating system documentation to determine the contents of the system's start-up files. If the switch is connected to a printer, print each file. Otherwise, record the contents of each file before calling Dell.

Error message, beep code, or diagnostic code:

Description of problem and troubleshooting procedures you performed:

Contacting Dell

For customers in the United States, call 800-WWW.DELL (800.999.3355).



NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Visit <http://www.support.dell.com>.
2. Click your country or region at the bottom of the page. For a full listing of countries and regions, click **All**.
3. In the Support menu, click **All Support**.
4. Choose the method of contacting Dell that is convenient for you.

Locating the Serial Number on a J-EX4500 Switch or Component

Before contacting Dell to request an RMA, you must find the serial number and agency label on the switch or component.

If the switch is operational and you can access the CLI, you can list serial numbers for the switch and for some components with a CLI command. If you do not have access to the CLI or if the serial number for the component does not appear in the command output, you can locate the serial number ID label on the physical switch or component.



NOTE: If you want to find the serial number on the physical switch component, you will need to remove the component from the switch chassis, for which you must have the required parts and tools available. See “Installing and Removing J-EX4500 Switch Hardware Components” on page 87.

- Listing the Switch and Components Details with the CLI on page 152
- Locating the Chassis Serial Number ID Label on a J-EX4500 Switch on page 152
- Locating the Serial Number ID Labels on FRUs in a J-EX4500 Switch on page 153

Listing the Switch and Components Details with the CLI

To list the switch and switch components and their serial numbers, enter the CLI command **show chassis hardware**.

The following output lists the switch components and serial numbers for a J-EX4500 switch:

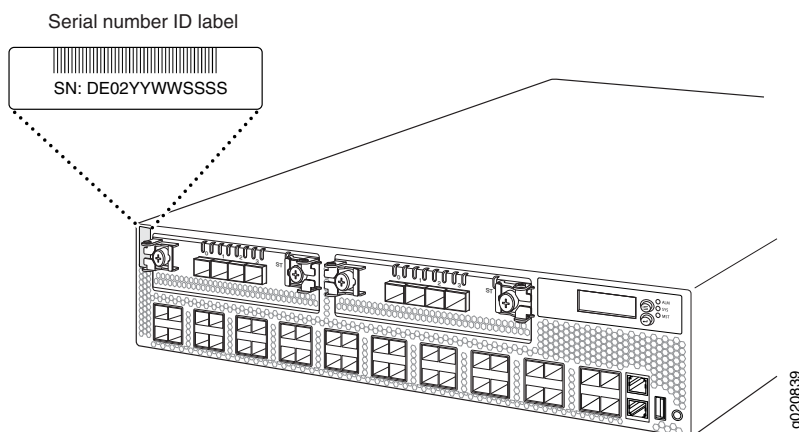
```
user@switch> show chassis hardware
Hardware inventory:
Item          Version  Part number  Serial number  Description
Chassis                               DE0210022645  DELL J-EX4500
Routing Engine 0 REV 00D  750-026816  DE0210022645  EX4500-40F
FPC 0         REV 00D  750-026816  DE0210022645  EX4500-40F
  CPU                               BUILTIN      BUILTIN      FPC CPU
  PIC 0         BUILTIN  BUILTIN      BUILTIN      40x 1/10GE
    Xcvr 0       REV 01   740-030658  AD0946A01VT  SFP+-10G-USR
    Xcvr 1       REV 01   740-030658  AD0946A01WE  SFP+-10G-USR
    Xcvr 2       REV 01   740-030658  AD0946A01VW  SFP+-10G-USR
    Xcvr 3       REV 01   740-030658  AD0946A01WC  SFP+-10G-USR
  PIC 1         REV 01   711-028852  DJ0210020927  4x XE SFP+
  PIC 3         REV 00A  711-030220  DL0210020858  Virtual Chassis module
(EX4500 LB)
Power Supply 1 REV      PS 1050W AC
Fan Tray      Fan Tray, Front to back
Airflow
```

For information about the **show chassis hardware** command, see the *Dell PowerConnect J-Series Ethernet Switch Complete Software Guide for Junos OS* at <http://www.support.dell.com/manuals>.

Locating the Chassis Serial Number ID Label on a J-EX4500 Switch

The serial number ID label is located on the front left corner of the chassis on a J-EX4500 switch. See Figure 62 on page 152.

Figure 62: Location of the Serial Number ID Label on a J-EX4500 Switch



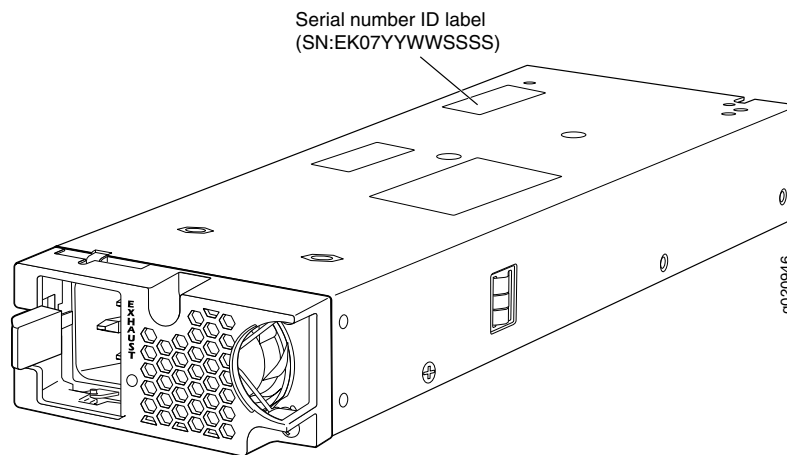
Locating the Serial Number ID Labels on FRUs in a J-EX4500 Switch

The power supplies, fan tray, and uplink modules installed in J-EX4500 switches are field-replaceable units (FRUs). The Virtual Chassis module is an offline field-replaceable FRU.

For each of these FRUs, you must remove the FRU from the switch chassis to see the FRU's serial number ID label.

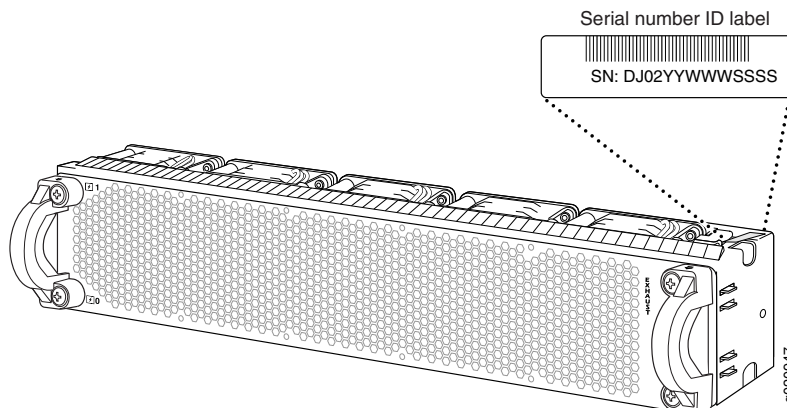
- **Power Supply**—The serial number ID label is on the top of the power supply. See Figure 63 on page 153 to see the location of the serial number ID label. See “Removing a Power Supply from a J-EX4500 Switch” on page 128.

Figure 63: Location of the Serial Number ID Label on an AC Power Supply Used in a J-EX4500 Switch



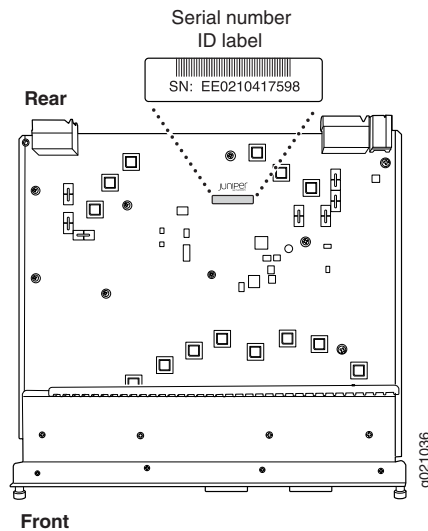
- **Fan tray**—The serial number ID label is on the top right corner of the fan tray. See Figure 64 on page 153 to see the location of the serial number ID label. See “Removing a Fan Tray from a J-EX4500 Switch” on page 130.

Figure 64: Location of the Serial Number ID Label on the Fan Tray Used in a J-EX4500 Switch



- **Uplink module**—The serial number ID label is on the circuit board. See “Removing an Uplink Module from a J-EX4500 Switch” on page 131.
- **Virtual Chassis module**—The serial number ID label is on the circuit board towards the rear of the module. Figure 65 on page 154 shows the location of the serial number ID label. See Removing a Virtual Chassis Module from a J-EX4500 Switch.

Figure 65: Location of the Serial Number ID Label on the Virtual Chassis Module Used in a J-EX4500 Switch



Packing a J-EX4500 Switch or Component for Shipping

If you are returning a J-EX4500 switch or component for repair or replacement, pack the item as described in this topic.

Before you begin packing the switch or component:

- Ensure that you have retrieved the original shipping carton and packing materials. Contact Dell if you do not have these materials, to learn about approved packing materials. See “Returning Items for Warranty Repair or Credit” on page 149.
- Ensure you understand how to prevent ESD damage. See “Prevention of Electrostatic Discharge Damage on J-EX Series Switches” on page 186.

This topic describes:

1. Packing a J-EX4500 Switch for Shipping on page 154
2. Packing J-EX4500 Switch Components for Shipping on page 156

Packing a J-EX4500 Switch for Shipping

If you need to transport the switch to another location or return the switch, you need to pack the switch securely in its original packaging to prevent damage during transportation.

Before you pack the switch:

1. On the console or other management device connected to the switch, enter the CLI operational mode and issue the following command to shut down the switch software:

```
user@switch>request system halt
```

Wait until a message appears on the console confirming that the operating system has halted.

2. Disconnect power from the switch by performing one of the following:
 - If the power source outlet has a power switch, set it to the OFF (O) position.
 - If the power source outlet does not have a power switch, gently pull out the male end of the jumper cable or power cord connected to the power source outlet.
3. Remove the cables that connect the switch to all external devices. See “Disconnecting a Fiber-Optic Cable from a J-EX Series Switch” on page 136.
4. Remove all optical transceivers installed in the switch. See “Removing a Transceiver from a J-EX Series Switch” on page 137.

Ensure that you have the following parts and tools available to pack the switch:

- Phillips (+) screwdriver, number 2
- The original switch packing material (cardboard box, accessory box and its contents, and foam padding)
- Electrostatic discharge (ESD) grounding strap
- Antistatic bag



CAUTION: Do not pack the switch in anything except its original container or the switch might be damaged in transit.

To pack the switch:

1. If the switch is installed in a rack, or cabinet, have one person support the weight of the switch while another person unscrews and removes the mounting screws.
2. Remove the switch from the rack or cabinet (see “Removing a J-EX4500 Switch from a Rack or Cabinet” on page 125) and place the switch on a flat, stable surface.
3. Use the Phillips (+) screwdriver, number 2 to remove the rack mounting brackets from the switch chassis.
4. Place the switch in an antistatic bag.
5. Place the bottom portion of the packaging foam in the shipping carton.
6. Place the switch inside the cavity in the bottom packaging foam.
7. Place the top portion of the packaging foam on top of the switch.
8. If you are returning accessories or field-replaceable units (FRUs) with the switch, pack them as instructed in “Packing J-EX4500 Switch Components for Shipping” on page 156.

9. Place the accessory box vertically by the rear end of the chassis in the shipping carton.
10. Close the top of the cardboard shipping box and seal it with packing tape.
11. Write the RMA number on the exterior of the box to ensure proper tracking.

Packing J-EX4500 Switch Components for Shipping

To pack the switch components, follow the instructions here.

Ensure that you have the following parts and tools available:

- Antistatic bag, one for each component
- Electrostatic discharge (ESD) grounding strap



.....
CAUTION: Do not stack switch components. Return individual components in separate boxes if they do not fit together on one level in the shipping box.
.....

To pack the switch components:

- Place individual components in antistatic bags.
- Use the original packing materials if they are available. If the original packing materials are not available, ensure the component is adequately packed to prevent damage during transit. The packing material you use must be able to support the weight of the component.
- Ensure that the components are adequately protected by wrapping them well with packing materials. Pack the component in an oversized box (if the original box is not available) with extra packing material around the unit so that the component is prevented from moving around inside the box.
- Securely tape the box closed.
- Write the RMA number on the exterior of the box to ensure proper tracking.

Related Documentation

- Returning Items for Warranty Repair or Credit on page 149
- Unpacking a J-EX4500 Switch on page 76

Dell Support

If you need assistance while troubleshooting a switch, please go to the Dell Support website at <http://www.support.dell.com>.

PART 7

Safety Information

- General Safety Information on page 159
- Radiation and Laser Warnings on page 165
- Installation and Maintenance Safety Information on page 171
- Power and Electrical Safety Information on page 185

General Safety Information

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- Definitions of Safety Warning Levels for J-EX Series Switches on page 160
- Fire Safety Requirements for J-EX Series Switches on page 162
- Qualified Personnel Warning for J-EX Series Switches on page 163
- Warning Statement for Norway and Sweden for J-EX Series Switches on page 164

General Safety Guidelines and Warnings for J-EX Series Switches

The following guidelines help ensure your safety and protect the J-EX Series switch from damage. The list of guidelines might not address all potentially hazardous situations in your working environment, so be alert and exercise good judgment at all times.

- Perform only the procedures explicitly described in the hardware documentation for this product. Make sure that only authorized service personnel perform other system services.
- Keep the area around the chassis clear and free from dust before, during, and after installation.
- Keep tools away from areas where people could trip over them while walking.
- Do not wear loose clothing or jewelry, such as rings, bracelets, or chains, which could become caught in the chassis.
- Wear safety glasses if you are working under any conditions that could be hazardous to your eyes.
- Do not perform any actions that create a potential hazard to people or make the equipment unsafe.
- Never attempt to lift an object that is too heavy for one person to handle.
- Never install or manipulate wiring during electrical storms.
- Never install electrical jacks in wet locations unless the jacks are specifically designed for wet environments.
- Operate the J-EX Series switch only when it is properly grounded.
- Ensure that the separate protective earthing terminal provided on this product is permanently connected to earth.

- Replace fuses only with fuses of the same type and rating.
- Do not open or remove chassis covers or sheet-metal parts unless instructions are provided in the hardware documentation for this product. Such an action could cause severe electrical shock.
- Do not push or force any objects through any opening in the chassis frame. Such an action could result in electrical shock or fire.
- Avoid spilling liquid onto the J-EX Series switch chassis or onto any switch component. Such an action could cause electrical shock or damage the switch.
- Avoid touching uninsulated electrical wires or terminals that have not been disconnected from their power source. Such an action could cause electrical shock.
- Always ensure that all modules, power supplies, and cover panels are fully inserted and that the installation screws are fully tightened.

Related Documentation

- AC Power Electrical Safety Guidelines for J-EX Series Switches on page 188
- General Electrical Safety Guidelines and Warnings for J-EX Series Switches on page 185
- Maintenance and Operational Safety Guidelines and Warnings for J-EX Series Switches on page 178
- Laser and LED Safety Guidelines and Warnings for J-EX Series Switches on page 165
- Installation Instructions Warning for J-EX Series Switches on page 171
- Grounded Equipment Warning for J-EX Series Switches on page 177

Definitions of Safety Warning Levels for J-EX Series Switches

The documentation for J-EX Series switches uses the following levels of safety warnings (there are two “Warning” formats):



.....
NOTE: You might find this information helpful in a particular situation, or you might overlook this important information if it was not highlighted in a Note.
.....



.....
CAUTION: You need to observe the specified guidelines to avoid minor injury or discomfort to you or severe damage to the J-EX Series switch.
.....



.....
WARNING: This symbol alerts you to the risk of personal injury from a laser.
.....



.....
WARNING: This symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards
.....

involved with electrical circuitry and be familiar with standard practices for preventing accidents.



WARNING: Waarschuwing Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische schakelingen betrokken risico's en dient u op de hoogte te zijn van standaard maatregelen om ongelukken te voorkomen.



WARNING: Varoitus Tämä varoitusmerkki merkitsee vaaraa. Olet tilanteessa, joka voi johtaa ruumiinvammaan. Ennen kuin työskentelet minkään laitteiston parissa, ota selvää sähkökytkentöihin liittyvistä vaaroista ja tavanomaisista onnettomuuksien ehkäisykeinoista.



WARNING: Attention Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant causer des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers posés par les circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents.



WARNING: Warnung Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu einer Körperverletzung führen könnte. Bevor Sie mit der Arbeit an irgendeinem Gerät beginnen, seien Sie sich der mit elektrischen Stromkreisen verbundenen Gefahren und der Standardpraktiken zur Vermeidung von Unfällen bewußt.



WARNING: Avvertenza Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di lavorare su qualsiasi apparecchiatura, occorre conoscere i pericoli relativi ai circuiti elettrici ed essere al corrente delle pratiche standard per la prevenzione di incidenti.



WARNING: Advarsel Dette varselsymbolet betyr fare. Du befinner deg i en situasjon som kan føre til personskaade. Før du utfører arbeid på utstyr, må du være oppmerksom på de faremomentene som elektriske kretser innebærer, samt gjøre deg kjent med vanlig praksis når det gjelder å unngå ulykker.



WARNING: **Aviso** Este símbolo de aviso indica perigo. Encontra-se numa situação que lhe poderá causar danos físicos. Antes de começar a trabalhar com qualquer equipamento, familiarize-se com os perigos relacionados com circuitos eléctricos, e com quaisquer práticas comuns que possam prevenir possíveis acidentes.



WARNING: **¡Atención!** Este símbolo de aviso significa peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considerar los riesgos que entraña la corriente eléctrica y familiarizarse con los procedimientos estándar de prevención de accidentes.



WARNING: **Varning!** Denna varningssymbol signalerar fara. Du befinner dig i en situation som kan leda till personskada. Innan du utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till vanligt förfarande för att förebygga skador.

**Related
Documentation**

- Warning Statement for Norway and Sweden for J-EX Series Switches on page 164
- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- Installation Instructions Warning for J-EX Series Switches on page 171
- Maintenance and Operational Safety Guidelines and Warnings for J-EX Series Switches on page 178
- Grounded Equipment Warning for J-EX Series Switches on page 177
- Laser and LED Safety Guidelines and Warnings for J-EX Series Switches on page 165

Fire Safety Requirements for J-EX Series Switches

In the event of a fire emergency involving switches and other network equipment, the safety of people is the primary concern. You should establish procedures for protecting people in the event of a fire emergency, provide safety training, and properly provision fire-control equipment and fire extinguishers.

In addition, you should establish procedures to protect your equipment in the event of a fire emergency. Dell products should be installed in an environment suitable for electronic equipment. We recommend that fire suppression equipment be available in the event of a fire in the vicinity of the equipment and that all local fire, safety, and electrical codes and ordinances be observed when installing and operating your equipment.

Fire Suppression

In the event of an electrical hazard or an electrical fire, you should first turn power off to the equipment at the source. Then use a Type C fire extinguisher, which uses noncorrosive fire retardants, to extinguish the fire.

Fire Suppression Equipment

Type C fire extinguishers, which use noncorrosive fire retardants such as carbon dioxide and Halotron™, are most effective for suppressing electrical fires. Type C fire extinguishers displace oxygen from the point of combustion to eliminate the fire. For extinguishing fire on or around equipment that draws air from the environment for cooling, you should use this type of inert oxygen displacement extinguisher instead of an extinguisher that leaves residues on equipment.

Do not use multipurpose Type ABC chemical fire extinguishers (dry chemical fire extinguishers). The primary ingredient in these fire extinguishers is monoammonium phosphate, which is very sticky and difficult to clean. In addition, in the presence of minute amounts of moisture, monoammonium phosphate can become highly corrosive and corrodes most metals.

Any equipment in a room in which a chemical fire extinguisher has been discharged is subject to premature failure and unreliable operation. The equipment is considered to be irreparably damaged.



NOTE: To keep warranties effective, do not use a dry chemical fire extinguisher to control a fire at or near a Dell switch. If a dry chemical fire extinguisher is used, the unit is no longer eligible for coverage under a service agreement.

We recommend that you dispose of any irreparably damaged equipment in an environmentally responsible manner.

Related Documentation

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- General Electrical Safety Guidelines and Warnings for J-EX Series Switches on page 185
- In Case of Electrical Accident: Action to Take on a J-EX Series Switch on page 191

Qualified Personnel Warning for J-EX Series Switches



WARNING: Only trained and qualified personnel should install or replace the J-EX Series switch.

Waarschuwing Installatie en reparaties mogen uitsluitend door getraind en bevoegd personeel uitgevoerd worden.

Varoitus Ainoastaan koulutettu ja pätevä henkilökunta saa asentaa tai vaihtaa tämän laitteen.

Attention Tout installation ou remplacement de l'appareil doit être réalisé par du personnel qualifié et compétent.

Warnung Gerät nur von geschultem, qualifiziertem Personal installieren oder auswechseln lassen.

Avvertenza Solo personale addestrato e qualificato deve essere autorizzato ad installare o sostituire questo apparecchio.

Advarsel Kun kvalifisert personell med riktig opplæring bør montere eller bytte ut dette utstyret.

Aviso Este equipamento deverá ser instalado ou substituído apenas por pessoal devidamente treinado e qualificado.

¡Atención! Estos equipos deben ser instalados y reemplazados exclusivamente por personal técnico adecuadamente preparado y capacitado.

Varning! Denna utrustning ska endast installeras och bytas ut av utbildad och kvalificerad personal.

**Related
Documentation**

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- General Electrical Safety Guidelines and Warnings for J-EX Series Switches on page 185
- AC Power Electrical Safety Guidelines for J-EX Series Switches on page 188

Warning Statement for Norway and Sweden for J-EX Series Switches



WARNING: The equipment must be connected to an earthed mains socket-outlet.

Advarsel Apparatet skal kobles til en jordet stikkontakt.

Varning! Apparaten skall anslutas till jordat nätuttag.

**Related
Documentation**

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159

Radiation and Laser Warnings

- Laser and LED Safety Guidelines and Warnings for J-EX Series Switches on page 165
- Radiation from Open Port Apertures Warning for J-EX Series Switches on page 168

Laser and LED Safety Guidelines and Warnings for J-EX Series Switches

J-EX Series switches are equipped with laser transmitters, which are considered a Class 1 Laser Product by the U.S. Food and Drug Administration and are evaluated as a Class 1 Laser Product per EN 60825–1 requirements.

Observe the following guidelines and warnings:

- General Laser Safety Guidelines on page 165
- Class 1 Laser Product Warning on page 165
- Class 1 LED Product Warning on page 166
- Laser Beam Warning on page 166

General Laser Safety Guidelines

When working around ports that support optical transceivers, observe the following safety guidelines to prevent eye injury:

- Do not look into unterminated ports or at fibers that connect to unknown sources.
- Do not examine unterminated optical ports with optical instruments.
- Avoid direct exposure to the beam.



WARNING: Unterminated optical connectors can emit invisible laser radiation. The lens in the human eye focuses all the laser power on the retina, so focusing the eye directly on a laser source—even a low-power laser—could permanently damage the eye.

Class 1 Laser Product Warning



WARNING: Class 1 laser product.

Waarschuwing Klasse-1 laser produkt.

Varoitus Luokan 1 lasertuote.

Attention Produit laser de classe I.

Warnung Laserprodukt der Klasse 1.

.....



WARNING: Avvertenza Prodotto laser di Classe 1.

Advarsel Laserprodukt av klasse 1.

Aviso Produto laser de classe 1.

¡Atención! Producto láser Clase I.

Varning! Laserprodukt av klass 1.

.....

Class 1 LED Product Warning

.....



WARNING: Class 1 LED product.

Waarschuwing Klasse 1 LED-product.

Varoitus Luokan 1 valodiodituote.

Attention Alarme de produit LED Class I.

Warnung Class 1 LED-Produktwarnung.

.....



WARNING: Avvertenza Avvertenza prodotto LED di Classe 1.

Advarsel LED-produkt i klasse 1.

Aviso Produto de classe 1 com LED.

¡Atención! Aviso sobre producto LED de Clase 1.

Varning! Lysdiodprodukt av klass 1.

.....

Laser Beam Warning

.....



WARNING: Do not stare into the laser beam or view it directly with optical instruments.

.....



WARNING: Waarschuwing Niet in de straal staren of hem rechtstreeks bekijken met optische instrumenten.



WARNING: Varoitus Älä katso säteeseen äläkä tarkastele sitä suoraan optisen laitteen avulla.



WARNING: Attention Ne pas fixer le faisceau des yeux, ni l'observer directement à l'aide d'instruments optiques.



WARNING: Warnung Nicht direkt in den Strahl blicken und ihn nicht direkt mit optischen Geräten prüfen.



WARNING: Avvertenza Non fissare il raggio con gli occhi né usare strumenti ottici per osservarlo direttamente.



WARNING: Advarsel Stirr eller se ikke direkte p strlen med optiske instrumenter.



WARNING: Aviso Não olhe fixamente para o raio, nem olhe para ele directamente com instrumentos ópticos.



WARNING: ¡Atención! No mirar fijamente el haz ni observarlo directamente con instrumentos ópticos.



WARNING: Varning! Rikta inte blicken in mot strålen och titta inte direkt på den genom optiska instrument.

Related Documentation

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- Radiation from Open Port Apertures Warning for J-EX Series Switches on page 168
- Installation Instructions Warning for J-EX Series Switches on page 171
- Grounded Equipment Warning for J-EX Series Switches on page 177
- Optical Interface Support in J-EX4500 Switches on page 40

Radiation from Open Port Apertures Warning for J-EX Series Switches



.....
WARNING: Because invisible radiation might be emitted from the aperture of the port when no fiber cable is connected, avoid exposure to radiation and do not stare into open apertures.
.....



.....
WARNING: Waarschuwing Aangezien onzichtbare straling vanuit de opening van de poort kan komen als er geen fiberkabel aangesloten is, dient blootstelling aan straling en het kijken in open openingen vermeden te worden.
.....



.....
WARNING: Varoitus Koska portin aukosta voi emittoitua näkymätöntä säteilyä, kun kuitukaapelia ei ole kytkettynä, vältä säteilylle altistumista äläkä katso avoimiin aukkoihin.
.....



.....
WARNING: Attention Des radiations invisibles à l'il nu pouvant traverser l'ouverture du port lorsqu'aucun câble en fibre optique n'y est connecté, il est recommandé de ne pas regarder fixement l'intérieur de ces ouvertures.
.....



.....
WARNING: Warnung Aus der Port-Öffnung können unsichtbare Strahlen emittieren, wenn kein Glasfaserkabel angeschlossen ist. Vermeiden Sie es, sich den Strahlungen auszusetzen, und starren Sie nicht in die Öffnungen!
.....



.....
WARNING: Avvertenza Quando i cavi in fibra non sono inseriti, radiazioni invisibili possono essere emesse attraverso l'apertura della porta. Evitate di esporvi alle radiazioni e non guardate direttamente nelle aperture.
.....



.....
WARNING: Advarsel Unngå utsettelse for stråling, og stirr ikke inn i åpninger som er åpne, fordi usynlig stråling kan emitteres fra portens åpning når det ikke er tilkoblet en fiberkabel.
.....



.....
WARNING: Aviso Dada a possibilidade de emissão de radiação invisível através do orifício da via de acesso, quando esta não tiver nenhum cabo de fibra conectado, deverá evitar a exposição à radiação e não deverá olhar fixamente para orifícios que se encontrarem a descoberto.
.....



.....
WARNING: ¡Atención! Debido a que la apertura del puerto puede emitir radiación invisible cuando no existe un cable de fibra conectado, evite mirar directamente a las aperturas para no exponerse a la radiación.
.....



.....
WARNING: Varning! Osynlig strålning kan avges från en portöppning utan ansluten fiberkabel och du bör därför undvika att bli utsatt för strålning genom att inte stirra in i oskyddade öppningar.
.....

**Related
Documentation**

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- Laser and LED Safety Guidelines and Warnings for J-EX Series Switches on page 165
- Installation Instructions Warning for J-EX Series Switches on page 171
- Grounded Equipment Warning for J-EX Series Switches on page 177

Installation and Maintenance Safety Information

- Installation Instructions Warning for J-EX Series Switches on page 171
- Chassis Lifting Guidelines for J-EX4500 Switches on page 172
- Ramp Warning for J-EX Series Switches on page 172
- Rack-Mounting and Cabinet-Mounting Warnings for J-EX Series Switches on page 173
- Grounded Equipment Warning for J-EX Series Switches on page 177
- Maintenance and Operational Safety Guidelines and Warnings for J-EX Series Switches on page 178

Installation Instructions Warning for J-EX Series Switches



WARNING: Read the installation instructions before you connect the switch to a power source.

Waarschuwing Raadpleeg de installatie-aanwijzingen voordat u het systeem met de voeding verbindt.

Varoitus Lue asennusohjeet ennen järjestelmän yhdistämistä virtälähteeseen.

Attention Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.

Warnung Lesen Sie die Installationsanweisungen, bevor Sie das System an die Stromquelle anschließen.

Avvertenza Consultare le istruzioni di installazione prima di collegare il sistema all'alimentatore.

Advarsel Les installasjonsinstruksjonene før systemet kobles til strømkilden.

Aviso Leia as instruções de instalação antes de ligar o sistema à sua fonte de energia.

¡Atención! Ver las instrucciones de instalación antes de conectar el sistema a la red de alimentación.

Varning! Läs installationsanvisningarna innan du kopplar systemet till dess strömförsörjningsenhet.

Related Documentation

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- Laser and LED Safety Guidelines and Warnings for J-EX Series Switches on page 165
- Grounded Equipment Warning for J-EX Series Switches on page 177
- Connecting AC Power to a J-EX4500 Switch on page 101

Chassis Lifting Guidelines for J-EX4500 Switches

The weight of a fully loaded J-EX4500 switch is approximately 37 lb (17 kg). Observe the following guidelines for lifting and moving the switch:

- Before moving the switch to a site, ensure that the site meets the power, environmental, and clearance requirements specified in the “Site Preparation Checklist for J-EX4500 Switches” on page 53.
- Before lifting or moving the switch, disconnect all external cables and wires.
- As when lifting any heavy object, ensure that most of the weight is borne by your legs rather than your back. Keep your knees bent and your back relatively straight. Do not twist your body as you lift. Balance the load evenly and be sure that your footing is firm.

Related Documentation

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- Installation Instructions Warning for J-EX Series Switches on page 171
- Mounting a J-EX4500 Switch on page 78

Ramp Warning for J-EX Series Switches



WARNING: When installing the switch, do not use a ramp inclined at more than 10 degrees.

Waarschuwing Gebruik een oprijplaat niet onder een hoek van meer dan 10 graden.

Varoitus Älä käytä sellaista kaltevaa pintaa, jonka kaltevuus ylittää 10 astetta.

Attention Ne pas utiliser une rampe dont l'inclinaison est supérieure à 10 degrés.

Warnung Keine Rampen mit einer Neigung von mehr als 10 Grad verwenden.

Avvertenza Non usare una rampa con pendenza superiore a 10 gradi.

Advarsel Bruk aldri en rampe som heller mer enn 10 grader.

Aviso Não utilize uma rampa com uma inclinação superior a 10 graus.

¡Atención! No usar una rampa inclinada más de 10 grados

Varning! Använd inte ramp med en lutning på mer än 10 grader.

**Related
Documentation**

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- Laser and LED Safety Guidelines and Warnings for J-EX Series Switches on page 165
- Installation Instructions Warning for J-EX Series Switches on page 171
- Grounded Equipment Warning for J-EX Series Switches on page 177

Rack-Mounting and Cabinet-Mounting Warnings for J-EX Series Switches

Ensure that the rack or cabinet in which the J-EX Series switch is installed is evenly and securely supported. Uneven mechanical loading could lead to a hazardous condition.



WARNING: To prevent bodily injury when mounting or servicing the switch in a rack, take the following precautions to ensure that the system remains stable. The following directives help maintain your safety:

- The switch must be installed in a rack that is secured to the building structure.
- The switch should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting the switch on a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the switch in the rack.



WARNING: **Waarschuwing** Om lichamelijk letsel te voorkomen wanneer u dit toestel in een rek monteert of het daar een servicebeurt geeft, moet u speciale voorzorgsmaatregelen nemen om ervoor te zorgen dat het toestel stabiel blijft. De onderstaande richtlijnen worden verstrekt om uw veiligheid te verzekeren:

- De Dell switch moet in een stellage worden geïnstalleerd die aan een bouwsel is verankerd.
- Dit toestel dient onderaan in het rek gemonteerd te worden als het toestel het enige in het rek is.

- Wanneer u dit toestel in een gedeeltelijk gevuld rek monteert, dient u het rek van onderen naar boven te laden met het zwaarste onderdeel onderaan in het rek.
 - Als het rek voorzien is van stabiliseringshulpmiddelen, dient u de stabilisatoren te monteren voordat u het toestel in het rek monteert of het daar een servicebeurt geeft.
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WARNING: Varoitus Kun laite asetetaan telineeseen tai huolletaan sen ollessa telineessä, on noudatettava erityisiä varotoimia järjestelmän vakavuuden säilyttämiseksi, jotta vältetään loukkaantumiselta. Noudata seuraavia turvallisuusohjeita:

- Dell switch on asennettava telineeseen, joka on kiinnitetty rakennukseen.
 - Jos telineessä ei ole muita laitteita, aseta laite telineen alaosaan.
 - Jos laite asetetaan osaksi täytettyyn telineeseen, aloita kuormittaminen sen alaosasta kaikkein raskaimmalla esineellä ja siirry sitten sen yläosaan.
 - Jos telinettä varten on vakaimet, asenna ne ennen laitteen asettamista telineeseen tai sen huoltamista siinä.
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WARNING: Attention Pour éviter toute blessure corporelle pendant les opérations de montage ou de réparation de cette unité en casier, il convient de prendre des précautions spéciales afin de maintenir la stabilité du système. Les directives ci-dessous sont destinées à assurer la protection du personnel:

- Le rack sur lequel est monté le Dell switch doit être fixé à la structure du bâtiment.
 - Si cette unité constitue la seule unité montée en casier, elle doit être placée dans le bas.
 - Si cette unité est montée dans un casier partiellement rempli, charger le casier de bas en haut en plaçant l'élément le plus lourd dans le bas.
 - Si le casier est équipé de dispositifs stabilisateurs, installer les stabilisateurs avant de monter ou de réparer l'unité en casier.
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WARNING: Warnung Zur Vermeidung von Körperverletzung beim Anbringen oder Warten dieser Einheit in einem Gestell müssen Sie besondere Vorkehrungen treffen, um sicherzustellen, daß das System stabil bleibt. Die folgenden Richtlinien sollen zur Gewährleistung Ihrer Sicherheit dienen:

- Der Dell switch muß in einem Gestell installiert werden, das in der Gebäudestruktur verankert ist.
- Wenn diese Einheit die einzige im Gestell ist, sollte sie unten im Gestell angebracht werden.
- Bei Anbringung dieser Einheit in einem zum Teil gefüllten Gestell ist das Gestell von unten nach oben zu laden, wobei das schwerste Bauteil unten im Gestell anzubringen ist.
- Wird das Gestell mit Stabilisierungszubehör geliefert, sind zuerst die Stabilisatoren zu installieren, bevor Sie die Einheit im Gestell anbringen oder sie warten.



WARNING: Avvertenza Per evitare infortuni fisici durante il montaggio o la manutenzione di questa unità in un supporto, occorre osservare speciali precauzioni per garantire che il sistema rimanga stabile. Le seguenti direttive vengono fornite per garantire la sicurezza personale:

- Il Dell switch deve essere installato in un telaio, il quale deve essere fissato alla struttura dell'edificio.
- Questa unità deve venire montata sul fondo del supporto, se si tratta dell'unica unità da montare nel supporto.
- Quando questa unità viene montata in un supporto parzialmente pieno, caricare il supporto dal basso all'alto, con il componente più pesante sistemato sul fondo del supporto.
- Se il supporto è dotato di dispositivi stabilizzanti, installare tali dispositivi prima di montare o di procedere alla manutenzione dell'unità nel supporto.



WARNING: Advarsel Unngå fysiske skader under montering eller reparasjonsarbeid på denne enheten når den befinner seg i et kabinett. Vær nøye med at systemet er stabilt. Følgende retningslinjer er gitt for å verne om sikkerheten:

- Dell switch må installeres i et stativ som er forankret til bygningsstrukturen.
- Denne enheten bør monteres nederst i kabinettet hvis dette er den eneste enheten i kabinettet.
- Ved montering av denne enheten i et kabinett som er delvis fylt, skal kabinettet lastes fra bunnen og opp med den tyngste komponenten nederst i kabinettet.
- Hvis kabinettet er utstyrt med stabiliseringsutstyr, skal stabilisatorene installeres før montering eller utføring av reparasjonsarbeid på enheten i kabinettet.



WARNING: Aviso Para se prevenir contra danos corporais ao montar ou reparar esta unidade numa estante, deverá tomar precauções especiais para se certificar de que o sistema possui um suporte estável. As seguintes directrizes ajudá-lo-ão a efectuar o seu trabalho com segurança:

- O Dell switch deverá ser instalado numa prateleira fixa à estrutura do edifício.
- Esta unidade deverá ser montada na parte inferior da estante, caso seja esta a única unidade a ser montada.
- Ao montar esta unidade numa estante parcialmente ocupada, coloque os itens mais pesados na parte inferior da estante, arrumando-os de baixo para cima.
- Se a estante possuir um dispositivo de estabilização, instale-o antes de montar ou reparar a unidade.



WARNING: ¡Atención! Para evitar lesiones durante el montaje de este equipo sobre un bastidor, o posteriormente durante su mantenimiento, se debe poner mucho cuidado en que el sistema quede bien estable. Para garantizar su seguridad, proceda según las siguientes instrucciones:

- El Dell switch debe instalarse en un bastidor fijado a la estructura del edificio.
- Colocar el equipo en la parte inferior del bastidor, cuando sea la única unidad en el mismo.
- Cuando este equipo se vaya a instalar en un bastidor parcialmente ocupado, comenzar la instalación desde la parte inferior hacia la superior colocando el equipo más pesado en la parte inferior.
- Si el bastidor dispone de dispositivos estabilizadores, instalar éstos antes de montar o proceder al mantenimiento del equipo instalado en el bastidor.



WARNING: Varning! För att undvika kroppsskada när du installerar eller utför underhållsarbete på denna enhet på en ställning måste du vidta särskilda försiktighetsåtgärder för att försäkra dig om att systemet står stadigt. Följande riktlinjer ges för att trygga din säkerhet:

- Dell switch måste installeras i en ställning som är förankrad i byggnadens struktur.
- Om denna enhet är den enda enheten på ställningen skall den installeras längst ned på ställningen.

- Om denna enhet installeras på en delvis fylld ställning skall ställningen fyllas nedifrån och upp, med de tyngsta enheterna längst ned på ställningen.
- Om ställningen är försedd med stabiliseringsdon skall dessa monteras fast innan enheten installeras eller underhålls på ställningen.

**Related
Documentation**

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- Installation Instructions Warning for J-EX Series Switches on page 171
- Grounded Equipment Warning for J-EX Series Switches on page 177
- Mounting a J-EX4500 Switch on page 78

Grounded Equipment Warning for J-EX Series Switches



WARNING: The switch is intended to be grounded. During normal use, ensure that you have connected earth ground to the switch chassis.

Waarschuwing Deze apparatuur hoort geaard te worden. Zorg dat de host-computer tijdens normaal gebruik met aarde is verbonden.

Varoitus Tämä laitteisto on tarkoitettu maadoitettavaksi. Varmista, että isäntälaitte on yhdistetty maahan normaalikäytön aikana.

Attention Cet équipement doit être relié à la terre. S'assurer que l'appareil hôte est relié à la terre lors de l'utilisation normale.

Warnung Dieses Gerät muß geerdet werden. Stellen Sie sicher, daß das Host-Gerät während des normalen Betriebs an Erde gelegt ist.

Avvertenza Questa apparecchiatura deve essere collegata a massa. Accertarsi che il dispositivo host sia collegato alla massa di terra durante il normale utilizzo.

Advarsel Dette utstyret skal jordes. Forviss deg om vertsterminalen er jordet ved normalt bruk.

Aviso Este equipamento deverá estar ligado à terra. Certifique-se que o host se encontra ligado à terra durante a sua utilização normal.

¡Atención! Este equipo debe conectarse a tierra. Asegurarse de que el equipo principal esté conectado a tierra durante el uso normal.

Varning! Denna utrustning är avsedd att jordas. Se till att värdenheten är jordad vid normal användning.

**Related
Documentation**

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159

- Connecting Earth Ground to a J-EX Series Switch on page 99

Maintenance and Operational Safety Guidelines and Warnings for J-EX Series Switches

While performing the maintenance activities for J-EX Series switches, observe the following guidelines and warnings:

- Jewelry Removal Warning on page 178
- Lightning Activity Warning on page 179
- Operating Temperature Warning on page 180
- Product Disposal Warning on page 182

Jewelry Removal Warning



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WARNING: Before working on equipment that is connected to power lines, remove jewelry, including rings, necklaces, and watches. Metal objects heat up when connected to power and ground and can cause serious burns or can be welded to the terminals.
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WARNING: Waarschuwing Alvorens aan apparatuur te werken die met elektrische leidingen is verbonden, sieraden (inclusief ringen, kettingen en horloges) verwijderen. Metalen voorwerpen worden warm wanneer ze met stroom en aarde zijn verbonden, en kunnen ernstige brandwonden veroorzaken of het metalen voorwerp aan de aansluitklemmen lassen.
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WARNING: Varoitus Ennen kuin työskentelet voimavirtajohtoihin kytkettyjen laitteiden parissa, ota pois kaikki korut (sormukset, kaulakorut ja kellot mukaan lukien). Metalliesineet kuumenevat, kun ne ovat yhteydessä sähkövirran ja maan kanssa, ja ne voivat aiheuttaa vakavia palovammoja tai hitsata metalliesineet kiinni liitäntänapoihin.
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WARNING: Attention Avant d'accéder à cet équipement connecté aux lignes électriques, ôter tout bijou (anneaux, colliers et montres compris). Lorsqu'ils sont branchés à l'alimentation et reliés à la terre, les objets métalliques chauffent, ce qui peut provoquer des blessures graves ou souder l'objet métallique aux bornes.
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WARNING: Warnung Vor der Arbeit an Geräten, die an das Netz angeschlossen sind, jeglichen Schmuck (einschließlich Ringe, Ketten und Uhren) abnehmen. Metallgegenstände erhitzen sich, wenn sie an das Netz und die Erde
.....

angeschlossen werden, und können schwere Verbrennungen verursachen oder an die Anschlußklemmen angeschweißt werden.



WARNING: **Avvertenza** Prima di intervenire su apparecchiature collegate alle linee di alimentazione, togliersi qualsiasi monile (inclusi anelli, collane, braccialetti ed orologi). Gli oggetti metallici si riscaldano quando sono collegati tra punti di alimentazione e massa: possono causare ustioni gravi oppure il metallo può saldarsi ai terminali.



WARNING: **Advarsel** Fjern alle smykker (inkludert ringer, halskjeder og klokker) før du skal arbeide på utstyr som er koblet til kraftledninger. Metallgjenstander som er koblet til kraftledninger og jord blir svært varme og kan forårsake alvorlige brannskader eller smelte fast til polene.



WARNING: **Aviso** Antes de trabalhar em equipamento que esteja ligado a linhas de corrente, retire todas as jóias que estiver a usar (incluindo anéis, fios e relógios). Os objectos metálicos aquecerão em contacto com a corrente e em contacto com a ligação à terra, podendo causar queimaduras graves ou ficarem soldados aos terminais.



WARNING: **¡Atención!** Antes de operar sobre equipos conectados a líneas de alimentación, quitarse las joyas (incluidos anillos, collares y relojes). Los objetos de metal se calientan cuando se conectan a la alimentación y a tierra, lo que puede ocasionar quemaduras graves o que los objetos metálicos queden soldados a los bornes.



WARNING: **Varning!** Tag av alla smycken (inklusive ringar, halsband och armbandsur) innan du arbetar på utrustning som är kopplad till kraftledningar. Metallobjekt hettas upp när de kopplas ihop med ström och jord och kan förorsaka allvarliga brännskador; metallobjekt kan också sammansvetsas med kontakterna.

Lightning Activity Warning



WARNING: Do not work on the system or connect or disconnect cables during periods of lightning activity.



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WARNING: **Waarschuwing** Tijdens onweer dat gepaard gaat met bliksem, dient u niet aan het systeem te werken of kabels aan te sluiten of te ontkoppelen.
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WARNING: **Varoitus** Älä työskentele järjestelmän parissa äläkä yhdistä tai irrota kaapeleita ukkosilmalla.
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WARNING: **Attention** Ne pas travailler sur le système ni brancher ou débrancher les câbles pendant un orage.
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WARNING: **Warnung** Arbeiten Sie nicht am System und schließen Sie keine Kabel an bzw. trennen Sie keine ab, wenn es gewittert.
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WARNING: **Avvertenza** Non lavorare sul sistema o collegare oppure scollegare i cavi durante un temporale con fulmini.
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WARNING: **Advarsel** Utfør aldri arbeid på systemet, eller koble kabler til eller fra systemet når det tordner eller lyner.
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WARNING: **Aviso** Não trabalhe no sistema ou ligue e desligue cabos durante períodos de mau tempo (trovoada).
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WARNING: **¡Atención!** No operar el sistema ni conectar o desconectar cables durante el transcurso de descargas eléctricas en la atmósfera.
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WARNING: **Varning!** Vid åska skall du aldrig utföra arbete på systemet eller ansluta eller koppla loss kablar.
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Operating Temperature Warning



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WARNING: To prevent the switch from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of
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113° F (45° C). To prevent airflow restriction, allow at least 6 in. (15.2 cm) of clearance around the ventilation openings.



WARNING: **Waarschuwing** Om te voorkomen dat welke switch van de Dell router dan ook oververhit raakt, dient u deze niet te bedienen op een plaats waar de maximale aanbevolen omgevingstemperatuur van 45° C wordt overschreden. Om te voorkomen dat de luchtstroom wordt beperkt, dient er minstens 15,2 cm speling rond de ventilatie-openingen te zijn.



WARNING: **Varoitus** Ettei Dell switch-sarjan reititin ylikuumentuusi, sitä ei saa käyttää tilassa, jonka lämpötila ylittää korkeimman suositellun ympäristölämpötilan 45° C. Ettei ilmanvaihto estyisi, tuuletusaukkojen ympärille on jätettävä ainakin 15,2 cm tilaa.



WARNING: **Attention** Pour éviter toute surchauffe des routeurs de la gamme Dell switch, ne l'utilisez pas dans une zone où la température ambiante est supérieure à 45° C. Pour permettre un flot d'air constant, dégagez un espace d'au moins 15,2 cm autour des ouvertures de ventilations.



WARNING: **Warnung** Um einen Router der switch vor Überhitzung zu schützen, darf dieser nicht in einer Gegend betrieben werden, in der die Umgebungstemperatur das empfohlene Maximum von 45° C überschreitet. Um Lüftungsverschluß zu verhindern, achten Sie darauf, daß mindestens 15,2 cm lichter Raum um die Lüftungsöffnungen herum frei bleibt.



WARNING: **Avvertenza** Per evitare il surriscaldamento dei switch, non adoperateli in un locale che ecceda la temperatura ambientale massima di 45° C. Per evitare che la circolazione dell'aria sia impedita, lasciate uno spazio di almeno 15.2 cm di fronte alle aperture delle ventole.



WARNING: **Advarsel** Unngå overoppheting av eventuelle rutere i Dell switch Disse skal ikke brukes på steder der den anbefalte maksimale omgivelsestemperaturen overstiger 45° C (104° F). Sørg for at klaringen rundt lufteåpningene er minst 15,2 cm (6 tommer) for å forhindre nedsatt luftsirkulasjon.



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WARNING: Aviso Para evitar o sobreaquecimento do encaminhador Dell switch, não utilize este equipamento numa área que exceda a temperatura máxima recomendada de 45° C. Para evitar a restrição à circulação de ar, deixe pelo menos um espaço de 15,2 cm à volta das aberturas de ventilação.
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WARNING: ¡Atención! Para impedir que un encaminador de la serie Dell switch se recaliente, no lo haga funcionar en un área en la que se supere la temperatura ambiente máxima recomendada de 45° C. Para impedir la restricción de la entrada de aire, deje un espacio mínimo de 15,2 cm alrededor de las aperturas para ventilación.
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WARNING: Varning! Förhindra att en Dell switch överhettas genom att inte använda den i ett område där den maximalt rekommenderade omgivningstemperaturen på 45° C överskrids. Förhindra att luftcirkulationen inskränks genom att se till att det finns fritt utrymme på minst 15,2 cm omkring ventilationsöppningarna.
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Product Disposal Warning



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WARNING: Disposal of this product must be handled according to all national laws and regulations.
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WARNING: Waarschuwing Dit produkt dient volgens alle landelijke wetten en voorschriften te worden afgedankt.
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WARNING: Varoitus Tämän tuotteen lopullisesta hävittämisestä tulee huolehtia kaikkia valtakunnallisia lakeja ja säännöksiä noudattaen.
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WARNING: Attention La mise au rebut définitive de ce produit doit être effectuée conformément à toutes les lois et réglementations en vigueur.
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WARNING: Warnung Dieses Produkt muß den geltenden Gesetzen und Vorschriften entsprechend entsorgt werden.
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WARNING: Avvertenza L'eliminazione finale di questo prodotto deve essere eseguita osservando le normative italiane vigenti in materia
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WARNING: Advarsel Endelig disponering av dette produktet må skje i henhold til nasjonale lover og forskrifter.
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WARNING: Aviso A descartagem final deste produto deverá ser efectuada de acordo com os regulamentos e a legislação nacional.
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WARNING: ¡Atención! El desecho final de este producto debe realizarse según todas las leyes y regulaciones nacionales
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WARNING: Varning! Slutlig kassering av denna produkt bör skötas i enlighet med landets alla lagar och föreskrifter.
.....

**Related
Documentation**

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- General Electrical Safety Guidelines and Warnings for J-EX Series Switches on page 185
- AC Power Electrical Safety Guidelines for J-EX Series Switches on page 188
- Laser and LED Safety Guidelines and Warnings for J-EX Series Switches on page 165
- Installation Instructions Warning for J-EX Series Switches on page 171
- Grounded Equipment Warning for J-EX Series Switches on page 177

Power and Electrical Safety Information

- General Electrical Safety Guidelines and Warnings for J-EX Series Switches on page 185
- Prevention of Electrostatic Discharge Damage on J-EX Series Switches on page 186
- AC Power Electrical Safety Guidelines for J-EX Series Switches on page 188
- AC Power Disconnection Warning for J-EX Series Switches on page 189
- Multiple Power Supplies Disconnection Warning for J-EX Series Switches on page 190
- TN Power Warning for J-EX Series Switches on page 190
- Action to Take After an Electrical Accident on page 191

General Electrical Safety Guidelines and Warnings for J-EX Series Switches



WARNING: Certain ports on the switch are designed for use as intrabuilding (within-the-building) interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE, Issue 4) and require isolation from the exposed outside plant (OSP) cabling. To comply with NEBS requirements and protect against lightning surges and commercial power disturbances, the intrabuilding ports *must not* be metallically connected to interfaces that connect to the OSP or its wiring. The intrabuilding ports on the switch are suitable for connection to intrabuilding or unexposed wiring or cabling only. The addition of primary protectors is not sufficient protection for connecting these interfaces metallically to OSP wiring.



CAUTION: Before removing or installing components of a switch, attach an ESD strap to an ESD point and place the other end of the strap around your bare wrist. Failure to use an ESD strap could result in damage to the switch.

- Install the J-EX Series switch in compliance with the following local, national, and international electrical codes:
 - United States—National Fire Protection Association (NFPA 70), United States National Electrical Code.
 - Other countries—International Electromechanical Commission (IEC) 60364, Part 1 through Part 7.

- Evaluated to the TN power system.
- Canada—Canadian Electrical Code, Part 1, CSA C22.1.
- Locate the emergency power-off switch for the room in which you are working so that if an electrical accident occurs, you can quickly turn off the power.
- Make sure that grounding surfaces are cleaned and brought to a bright finish before grounding connections are made.
- Do not work alone if potentially hazardous conditions exist anywhere in your workspace.
- Never assume that power is disconnected from a circuit. Always check the circuit before starting to work.
- Carefully look for possible hazards in your work area, such as moist floors, ungrounded power extension cords, and missing safety grounds.
- Operate the J-EX Series switch within marked electrical ratings and product usage instructions.
- To ensure that the J-EX Series switch and peripheral equipment function safely and correctly, use the cables and connectors specified for the attached peripheral equipment, and make certain they are in good condition.

You can remove and replace many switch components without powering off or disconnecting power to the switch, as detailed elsewhere in the hardware documentation for this product. Never install equipment if it appears damaged.

**Related
Documentation**

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- AC Power Electrical Safety Guidelines for J-EX Series Switches on page 188

Prevention of Electrostatic Discharge Damage on J-EX Series Switches

Switch components that are shipped in antistatic bags are sensitive to damage from static electricity. Some components can be impaired by voltages as low as 30 V. You can easily generate potentially damaging static voltages whenever you handle plastic or foam packing material or if you move components across plastic or carpets. Observe the following guidelines to minimize the potential for electrostatic discharge (ESD) damage, which can cause intermittent or complete component failures:

- Always use an ESD grounding strap when you are handling components that are subject to ESD damage, and make sure that it is in direct contact with your skin.

If a grounding strap is not available, hold the component in its antistatic bag (see Figure 66 on page 187) in one hand and touch the exposed, bare metal of the switch with the other hand immediately before inserting the component into the switch.



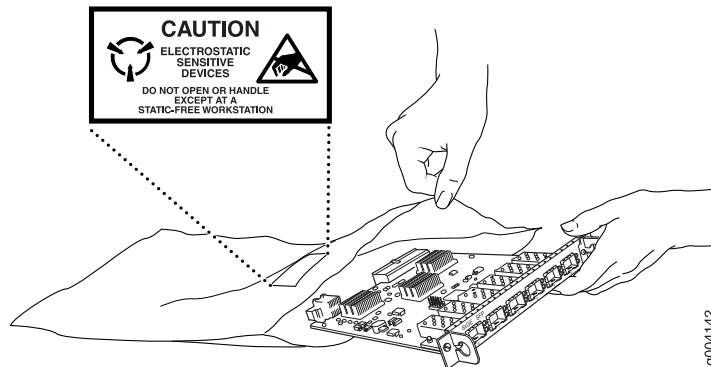
WARNING: For safety, periodically check the resistance value of the ESD strap. The measurement must be in the range of 1 through 10 Mohms.

- When handling any component that is subject to ESD damage and that is removed from the chassis, make sure the equipment end of your ESD strap is attached to the ESD point on the chassis.

If no grounding strap is available, touch the exposed, bare metal of the switch to ground yourself before handling the component.

- Avoid contact between the component that is subject to ESD damage and your clothing. ESD voltages emitted from clothing can damage components.
- When removing or installing a component that is subject to ESD damage, always place it component-side up on an antistatic surface, in an antistatic card rack, or in an antistatic bag (see Figure 66 on page 187). If you are returning a component, place it in an antistatic bag before packing it.

Figure 66: Place a Component into an Antistatic Bag



CAUTION: ANSI/TIA/EIA-568 cables such as category 5e and category 6 can get electrostatically charged. To dissipate this charge, always ground the cables to a suitable and safe earth ground before connecting them to the system.

Related Documentation

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- See Front Panel of a J-EX4500 Switch on page 8 for the ESD point location.

AC Power Electrical Safety Guidelines for J-EX Series Switches



CAUTION: For switches with AC power supplies, an external surge protective device (SPD) must be used at the AC power source.

The following electrical safety guidelines apply to AC-powered switches:

- Note the following warnings printed on the chassis:

“**CAUTION:** THIS UNIT HAS MORE THAN ONE POWER SUPPLY CORD. DISCONNECT ALL POWER SUPPLY CORDS BEFORE SERVICING TO AVOID ELECTRIC SHOCK.”

“**ATTENTION:** CET APPAREIL COMPORTE PLUS D'UN CORDON D'ALIMENTATION. AFIN DE PRÉVENIR LES CHOCS ÉLECTRIQUES, DÉBRANCHER TOUT CORDON D'ALIMENTATION AVANT DE FAIRE LE DÉPANNAGE.”

- AC-powered switches are shipped with a three-wire electrical cord with a grounding-type plug that fits only a grounding-type power outlet. Do not circumvent this safety feature. Equipment grounding must comply with local and national electrical codes.
- You must provide an external certified circuit breaker rated minimum 20 A in the building installation.
- The power cord serves as the main disconnecting device for the switch. The socket outlet must be near the switch and be easily accessible.
- For J-EX Series switches that have more than one power supply connection, you must ensure that all power connections are fully disconnected so that power to the switch is completely removed to avoid electric shock. To disconnect power, unplug all power cords (one for each power supply).

Power Cable Warning (Japanese)

WARNING: The attached power cable is only for this product. Do not use the cable for another product.

注意

附属の電源コードセットはこの製品専用です。
他の電気機器には使用しないでください。

g017253

Related Documentation

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- General Electrical Safety Guidelines and Warnings for J-EX Series Switches on page 185
- Multiple Power Supplies Disconnection Warning for J-EX Series Switches on page 190
- Connecting AC Power to a J-EX4500 Switch on page 101

AC Power Disconnection Warning for J-EX Series Switches



WARNING: Before working on the switch or near power supplies, unplug all the power cords from an AC switch.

Waarschuwing Voordat u aan een frame of in de nabijheid van voedingen werkt, dient u bij wisselstroom toestellen de stekker van het netsnoer uit het stopcontact te halen.

Varoitus Kytke irti vaihtovirtalaitteiden virtajohto, ennen kuin teet mitään asennuspohjalle tai työskentelet virtalähteiden läheisyydessä.

Attention Avant de travailler sur un châssis ou à proximité d'une alimentation électrique, débrancher le cordon d'alimentation des unités en courant alternatif.

Warnung Bevor Sie an einem Chassis oder in der Nähe von Netzgeräten arbeiten, ziehen Sie bei Wechselstromeinheiten das Netzkabel ab bzw.

Avvertenza Prima di lavorare su un telaio o intorno ad alimentatori, scollegare il cavo di alimentazione sulle unità CA.

Advarsel Før det utføres arbeid på kabinettet eller det arbeides i nærheten av strømforsyningsenheter, skal strømledningen trekkes ut på vekselstrømsenheter.

Aviso Antes de trabalhar num chassis, ou antes de trabalhar perto de unidades de fornecimento de energia, desligue o cabo de alimentação nas unidades de corrente alternada.

¡Atención! Antes de manipular el chasis de un equipo o trabajar cerca de una fuente de alimentación, desenchufar el cable de alimentación en los equipos de corriente alterna (CA).

Varning! Innan du arbetar med ett chassi eller nära strömförsörjningsenheter skall du för växelströmsenheter dra ur nätsladden.

Related Documentation

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- General Electrical Safety Guidelines and Warnings for J-EX Series Switches on page 185
- AC Power Electrical Safety Guidelines for J-EX Series Switches on page 188

Multiple Power Supplies Disconnection Warning for J-EX Series Switches



WARNING: For J-EX Series switches that have more than one power supply connection, you must ensure that all power connections are fully disconnected so that power to the switch is completely removed.

Related Documentation

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- General Electrical Safety Guidelines and Warnings for J-EX Series Switches on page 185
- AC Power Electrical Safety Guidelines for J-EX Series Switches on page 188

TN Power Warning for J-EX Series Switches



WARNING: The switch is designed to work with a TN power system.

Waarschuwing Het apparaat is ontworpen om te functioneren met TN energiesystemen.

Varoitus Koje on suunniteltu toimimaan TN-sähkövoimajärjestelmien yhteydessä.

Attention Ce dispositif a été conçu pour fonctionner avec des systèmes d'alimentation TN.

Warnung Das Gerät ist für die Verwendung mit TN-Stromsystemen ausgelegt.

Avvertenza Il dispositivo è stato progettato per l'uso con sistemi di alimentazione TN.

Advarsel Utstyret er utfomet til bruk med TN-strømsystemer.

Aviso O dispositivo foi criado para operar com sistemas de corrente TN.

¡Atención! El equipo está diseñado para trabajar con sistemas de alimentación tipo TN.

Varning! Enheten är konstruerad för användning tillsammans med elkraftssystem av TN-typ.

Related Documentation

- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
- General Electrical Safety Guidelines and Warnings for J-EX Series Switches on page 185
- Grounded Equipment Warning for J-EX Series Switches on page 177
- Multiple Power Supplies Disconnection Warning for J-EX Series Switches on page 190

Action to Take After an Electrical Accident

If an electrical accident results in an injury, take the following actions in this order:

1. Use caution. Be aware of potentially hazardous conditions that could cause further injury.
2. Disconnect power from the switch.
3. If possible, send another person to get medical aid. Otherwise, assess the condition of the victim, then call for help.

- Related Documentation**
- General Safety Guidelines and Warnings for J-EX Series Switches on page 159
 - General Electrical Safety Guidelines and Warnings for J-EX Series Switches on page 185
 - AC Power Electrical Safety Guidelines for J-EX Series Switches on page 188

PART 8

Compliance Information

- Compliance Information on page 195

CHAPTER 21

Compliance Information

- Agency Approvals for J-EX Series Switches on page 195
- Compliance Statements for EMC Requirements for J-EX Series Switches on page 196
- Declarations of Conformity for J-EX4500 Switches on page 198
- Compliance Statements for Acoustic Noise for J-EX Series Switches on page 199

Agency Approvals for J-EX Series Switches

J-EX Series switches comply with the following standards:

- Safety
 - CAN/CSA-22.2 No. 60950-1-03/UL 60950-1. Safety of Information Technology Equipment
 - EN 60950-1:2001. Safety of Information Technology Equipment
 - EN 60825-1 Safety of Laser Products – Part 1: Equipment Classification, Requirements and User's Guide
- EMC
 - FCC 47CFR Part 15 Class A (USA)
 - EN 55022 Class A Emissions (Europe)
 - ICES-003 Class A
 - VCCI Class A (Japan)
 - AS/NZS CISPR 22 Class A (Australia/New Zealand)
 - CISPR 22 Class A
 - EN 55024
 - EN 300386
 - EN 61000-3-2 Power Line Harmonics
 - 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 Common Immunity
- EN 61000-4-11 Voltage Dips and Sags

Related Documentation

- Compliance Statements for EMC Requirements for J-EX Series Switches on page 196
- Compliance Statements for Acoustic Noise for J-EX Series Switches on page 199

Compliance Statements for EMC Requirements for J-EX Series Switches

This topic describes the EMC requirements for J-EX Series switches for:

- Canada on page 196
- European Community on page 197
- Japan on page 197
- United States on page 197
- FCC Part 15 Statement on page 197

Canada

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

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

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. Industry Canada does not guarantee the equipment will operate to the users' satisfaction.

Before installing this equipment, users should ensure that it is permissible to connect the equipment to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the inside wiring associated with a single line individual service may be extended by means of a certified connector assembly. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.



CAUTION: Users should not attempt to make electrical ground connections by themselves, but should contact the appropriate inspection authority or an electrician, as appropriate.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

European Community

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

Japan

この装置は、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。 VCCI-A

The preceding translates as follows:

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

VCCI-A

United States

The J-EX Series switch 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 designed 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 and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Part 15 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 designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or TV technician for help.

Declarations of Conformity for J-EX4500 Switches

JUNIPER
NETWORKS

Declaration of Conformity

CE

Juniper Networks, Inc.
1194 N. Mathilda Ave
Sunnyvale, CA 94089 USA

declares that under our sole responsibility the products

EX4500 Ethernet Switch

are in conformity with the provisions of the following EC Directives, including all amendments, and with national legislation implementing these directives:

Low Voltage Directive 2006/95/EC
EMC Directive 2004/108/EC

The following harmonized standards were applied:

EN 300 386 V1.4.1: 2008
EN 55022 Class A: 2006, including A1: 2007
EN 55024 +A1+A2: 1998
EN 60950-1: 2005

This product carries the CE Mark, which was first affixed in 2010.

Place	Signature	Date
Sunnyvale, CA		4/21/2010

Kevin Kimma
Regulatory Compliance Manager
1194 N. Mathilda Ave
Sunnyvale, CA 94089 USA

Doc: 10 EX4500

s02100e

PART 9

Index

- Index on page 203

Index

Symbols

2-post rack	
installation.....	78
removing the switch.....	125
4-post rack	
installation.....	81
removing the switch.....	125

A

AC plug types.....	67
AC power	
connecting.....	101
disconnecting.....	129
disconnection warning.....	189
power cord specifications.....	65
power supply LEDs.....	23
safety guidelines and warnings.....	188
accident, steps to take.....	191
acoustic noise compliance.....	199
agency approvals.....	195
airflow	
back-to-front.....	26
clearance requirements.....	60
cooling system.....	24
front-to-back.....	26
maintaining.....	56
alarm (ALM) LED.....	17
ALM (alarm) LED.....	17
altitude, acceptable range.....	56
approvals, agency.....	195
arrow icons	
location.....	25
matching on power supply and fan	
tray.....	23, 26
Australia-New Zealand Declaration of	
Conformity.....	198

B

back-to-front airflow.....	26
before you call.....	150

boot mode, LCD panel.....	14
---------------------------	----

C

cabinet removal.....	125
cables	
AC plug types.....	67
AC power cord specifications.....	65
direct attach copper (DAC), SFP+.....	46
fiber-optic, maintaining.....	143
grounding, connecting.....	99
grounding, specifications.....	48
jumper cable.....	65
network cable specifications.....	63
reducing radio frequency interference	
(RFI).....	55
Twinax.....	46
Virtual Chassis cabling requirements.....	70
cage nuts	
installing.....	79, 83
removing.....	126, 138
Canadian EMC compliance.....	196
certification and training, Dell.....	149
chassis	
component serial number labels.....	152
physical specifications.....	7
status LEDs.....	17
checklist for site preparation.....	53
clearance requirements.....	60
clip nuts See cage nuts	
compliance	
acoustic noise.....	199
Canadian EMC.....	196
declarations of conformity.....	198
EMC requirements.....	196
European EMC.....	197
FCC EMC.....	197
general standards.....	195
Japanese EMC.....	197
United States EMC.....	197

components	
for each model.....	6
installation.....	87
list by model.....	6
overview.....	1
packing for shipping.....	156
provided with the switch.....	76
serial number label.....	152
configuration, factory default.....	111
restoring from the LCD panel.....	16
configuring the switch	
CLI.....	117
J-Web.....	118
conformity declarations	198
connecting	
AC power.....	101
fiber-optic cable.....	109
management console connection.....	104
modem connection.....	105
out-of-band management connection.....	103
switch to earth ground.....	99, 100
Virtual Chassis cable.....	95
connector port pinouts.....	34
console port	
pinouts.....	34
setting the speed for a modem	
connection.....	106
contacting Dell.....	151
conventions, documentation.....	xiv
cooling system.....	24
<i>See also</i> fan tray	
<i>See also</i> temperature	
cooling, ensuring.....	56
customer support.....	xvi, 147
D	
DAC cables <i>See</i> direct attach copper (DAC) cables	
declarations of conformity.....	198
default factory configuration.....	111
Dell automated order-status service.....	149
Dell Enterprise Training and Certification.....	149
Dell online services.....	148
Dell product information.....	149
Dell Support.....	147
Dell support service, contacting.....	149
Dell, contacting.....	151
depth, chassis.....	7
diagnostic checklist.....	150
direct attach copper (DAC) cables	
overview.....	46
passive, specifications.....	48
standards supported.....	48
disconnecting	
fiber-optic cable.....	136
power.....	129
Virtual Chassis cable.....	135
documentation conventions.....	xiv
downloading software.....	xiv
E	
e-mail addresses, Dell.....	148
earth ground, connecting.....	99, 100
earthquakes	
tested toleration for shock.....	56
electricity	
wiring guidelines.....	55
EMC (electromagnetic compatibility)	
preventing problems with.....	55
requirements.....	196
standards.....	195
EMI (electromagnetic interference)	
standards.....	195
suppressing.....	55
ENTER EZSETUP? on LCD panel.....	16
environmental specifications.....	56
ESD wrist strap	
alternative grounding method to.....	187
correct use of.....	186
verifying resistance, for safety.....	187
EU Declaration of Conformity.....	198
European EMC compliance.....	197
European Union Declaration of Conformity.....	198
EXHAUST labels	
location.....	25
matching on power supply and fan	
tray.....	23, 26
EZSetup	
configuring the switch with J-Web.....	119
configuring the switch with the CLI.....	117
launching from the LCD panel.....	16
F	
factory default configuration.....	111
restoring from the LCD panel.....	16
FACTORY DEFAULT? on LCD panel.....	16

-
- fan tray
 - arrow icon indicators.....25
 - description.....24
 - EXHAUST label.....25
 - installation.....89
 - INTAKE label.....25
 - removal.....130
 - serial number.....153
 - FCC EMC compliance.....197
 - fiber-optic cable
 - connecting.....109
 - disconnecting.....136
 - maintaining.....143
 - field-replaceable units (FRUs).....18
 - fire safety requirements.....162
 - four-post rack
 - installation.....81
 - removing the switch.....125
 - front panel.....9
 - description.....8
 - LCD panel.....13
 - front-to-back airflow.....26
 - FRUs (field-replaceable units).....18
 - FTP site, Dell.....148
- G**
- Gigabit Ethernet SFP transceivers.....41
 - Gigabit Ethernet SFP+ transceivers.....43
 - grounding.....48
 - equipment warning.....177
 - grounding strap, correct use of.....186
 - See also* ESD wrist strap
 - grounding the switch.....99, 100
 - See also* grounding cable
 - grounding cable
 - cable and lug specifications.....48
 - connecting.....99
- H**
- halting the switch, from the LCD panel.....16
 - hardware information, Dell support service.....149
 - hardware overview.....3
 - height, chassis.....7
 - humidity (relative), acceptable.....56
- I**
- IDLE menu, LCD panel.....15
 - injury, steps to take.....191
- installation**
- cage nuts.....79, 83
 - fan tray.....89
 - four-post rack.....81
 - options.....78
 - overview.....75
 - power supply.....88
 - recessed position.....85
 - switch components.....87
 - transceiver.....96
 - two-post rack.....78
 - uplink module.....91
 - Virtual Chassis module.....93
- INTAKE labels**
- location.....25
 - matching on power supply and fan
 - tray.....23, 26
- inventory of switch components.....76
- J**
- Japanese EMC compliance.....197
 - Japanese power cord warning.....68
 - jumper cable.....65
- L**
- labels, serial number.....152
 - LAN port LEDs.....18
 - lasers
 - beam warning.....166
 - Class 1 product warning.....165
 - open aperture warning.....168
 - safety guidelines.....165
 - LCD panel
 - description.....13
 - menus.....14
 - modes of operation.....14
 - LEDs
 - AC power supplies.....23
 - ALM17
 - chassis status.....17
 - Class 1 product warning.....166
 - front panel.....17
 - Link/Activity on management port.....21
 - Link/Activity on network ports.....19
 - Link/Activity on uplink module ports.....19
 - management port.....20
 - MST.....17
 - network ports.....18
 - safety warnings.....165
-

SFP+ uplink module ports.....	18
ST, uplink module.....	29
ST, Virtual Chassis module.....	30
status (speed) on management port.....	21
Status on network ports.....	20
Status on uplink module ports.....	20
SYS.....	17
uplink module status.....	29
VC Mode, Virtual Chassis module.....	30
Virtual Chassis module status.....	30
lightening activity warning.....	179
Link/Activity LEDs	
management port.....	21
network ports.....	19
uplink module ports.....	19
LOAD RESCUE? on LCD panel.....	16
lug, grounding, specifications.....	48
<i>See also</i> grounding cable	
M	
MAINT menu, LCD panel.....	16
maintenance	
fiber-optic cables.....	143
routine.....	143
warnings.....	178
management connection	
modem connection.....	105
out-of-band management channel.....	103
with a dedicated console.....	104
management console connection.....	104
management port	
LED locations.....	20
Link/Activity LED.....	21
pinouts.....	34
port status (speed) LED.....	21
master (MST) LED.....	17
menus, LCD panel.....	14
mixed Virtual Chassis	
description.....	70
models, switch	
identifying.....	7
overview.....	6
modem connection	
configuring the modem.....	107
connecting.....	105
setting the serial console speed.....	106
modes of operation, LCD panel.....	14
MST (master) LED.....	17
N	
network cable	
connecting for out-of-band	
management.....	103
connecting to a management console.....	104
specifications.....	63
network ports	
LED locations.....	19
Link/Activity LED.....	19
locations.....	9
pinouts.....	35
status indicators on LCD panel.....	15
Status LEDs.....	20
New Zealand-Australia Declaration of	
Conformity.....	198
O	
online services, Dell.....	148
optical interfaces.....	40
order status, checking.....	149
out-of-band management connection.....	103
P	
packing materials	
packing components for shipping.....	156
packing the switch for shipping.....	154
packing the switch for shipping.....	154
passive DAC cable specifications.....	48
personnel warning.....	163
pinouts	
console port.....	34
management port.....	34
network ports.....	35
uplink module ports.....	35
Virtual Chassis port connector.....	36
ports	
management <i>See</i> management port	
network <i>See</i> network ports	
port LEDs.....	18
Virtual Chassis <i>See</i> Virtual Chassis ports	
(VCPs)	
power	
AC power cord specifications.....	65
AC power, connecting.....	101
disconnecting.....	129
powering off the switch.....	129
powering on the switch.....	101

- power supplies
 - AC LEDs.....23
 - arrow icon indicator.....23
 - description.....21
 - EXHAUST label.....23
 - installation.....88
 - INTAKE label.....23
 - overview.....5
 - removal.....128
 - serial number label.....153
- powering off the switch.....129
- powering on the switch.....101
- problems with your order.....149
- product disposal.....182

- R**
- rack installation
 - overview.....75
 - requirements.....57
 - safety guidelines and warnings.....173
 - ventilation guidelines.....56
- rack removal.....125
- radio frequency interference (RFI), reducing.....55
- ramp angle requirement.....172
- rear panel.....10
- rebooting the switch, from the LCD panel.....16
- recessed installation.....85
- relative humidity, acceptable.....56
- removal
 - cage nuts.....126, 138
 - component overview.....127
 - fan tray.....130
 - power supply.....128
 - switch.....125
 - transceiver.....137
 - uplink module.....131
 - Virtual Chassis module.....133
- repair and warranty
 - limitations.....xv
 - return procedure.....149
- request chassis pic-mode intraconnect
 - command.....118, 120
- request system configuration rescue save
 - command.....118, 120
- REQUEST VC PORT? on LCD panel.....16
- restoring the factory default configuration, from the LCD panel.....16

- retainer
 - AC power cord.....102
 - Virtual Chassis cable connector.....70, 95
- Return Materials Authorization See RMA (Return Materials Authorization) return
- returning hardware
 - packing components for shipping.....156
 - packing the switch for shipping.....154
 - parts and tools required.....154
- returning the switch.....147
- RMA (Return Materials Authorization) return
 - before you call.....150
 - diagnostics checklist.....150
 - getting help.....147
 - packing components for shipping.....156
 - packing the switch for shipping.....154
 - parts and tools required.....154
 - procedure.....149
- rolling back the switch configuration, from the LCD panel.....16

- S**
- safety guidelines and warnings
 - AC power.....188
 - electrical.....185
 - electrical warning.....55
 - fan blade warning.....130
 - fiber-optic cable warning.....97
 - fiber-optic transceiver warning.....97
 - fire safety.....162
 - general.....159
 - grounded equipment.....177
 - grounding warning.....22
 - in case of electrical accident.....191
 - Japanese power cord warning.....68
 - jewelry removal.....178
 - lasers and LEDs.....165
 - levels.....160
 - lightening activity.....179
 - maintenance and operation.....178
 - operating temperature.....180
 - personnel warning.....163
 - power cord warning.....102
 - power disconnection.....189
 - product disposal.....182
 - rack-mounting.....173
 - ramps.....172
 - read installation instructions.....171

TN power system.....	190	support	
warning symbol.....	160	customer, getting help.....	147
safety standards.....	195	technical, requesting.....	xvi
seismic (earthquake), tested level.....	56	troubleshooting, requesting.....	156
serial number		support service, Dell, contacting.....	149
chassis components, label.....	152	symbols key, documentation.....	xiv
fan tray.....	153	SYS (system) LED.....	17
locating.....	151	system (SYS) LED.....	17
power supply.....	153	SYSTEM HALT? on LCD panel.....	16
uplink module.....	154	SYSTEM REBOOT? on LCD panel.....	16
Virtual Chassis module.....	154	T	
SFP Gigabit Ethernet transceivers		technical support.....	xvi
installation.....	96	temperature	
list.....	41	cooling system.....	24
removing.....	137	normal operation range.....	56
SFP+ Gigabit Ethernet transceivers		warning.....	180
installation.....	96	TN power system.....	190
list.....	43	tolerances.....	56
removing.....	137	tools and equipment for hardware return.....	154
SFP+ uplink module <i>See uplink module</i>		training and certification, Dell.....	149
shipping carton		transceivers	
packing components for shipping.....	156	description.....	40
packing the switch for shipping.....	154	direct attach copper (DAC), SFP+ cables.....	46
show chassis hardware command		Gigabit Ethernet SFP transceivers.....	41
locating component serial numbers.....	152	Gigabit Ethernet SFP+ transceivers.....	43
show chassis hardware extensive command		installation.....	96
identifying the switch model.....	7	removing.....	137
signaling limitations.....	55	Twinax cables.....	46
site		troubleshooting switch components	
environmental specifications.....	56	warranty limitations.....	xv
preparation checklist.....	53	troubleshooting the switch	
<i>See also site preparation</i>		getting Dell support.....	156
site preparation		warranty limitations.....	xv
clearance requirements.....	60	turning the switch off.....	129
electrical wiring guidelines.....	55	turning the switch on.....	101
environmental specifications.....	56	two-post rack	
general guidelines.....	54	installation.....	78
rack requirements.....	57	removing the switch.....	125
software, downloading.....	xiv	U	
ST LED		uninstalling <i>See removal</i>	
uplink module.....	29	United States EMC compliance.....	197
Virtual Chassis module.....	30	unpacking the switch.....	76
standards compliance.....	195	uplink module	
Status LEDs		description.....	27
management port speed.....	21	installation.....	91
network ports.....	20	Link/Activity LED.....	19
uplink module ports.....	20	overview.....	5
STATUS menu, LCD panel.....	15		
status of your order, checking.....	149		

port LED locations.....	19	electrical warning.....	55
port locations.....	9	fan blade warning.....	130
port pinouts.....	35	fiber-optic cable warning.....	97
port status LED.....	20	fiber-optic transceiver warning.....	97
removal.....	131	general.....	159
serial number.....	154	grounded equipment.....	177
status LED.....	29	grounding warning.....	22
URLs, Dell.....	148	Japanese power cord warning.....	68
USB flash drives supported.....	33	jewelry removal.....	178
USB port specifications.....	33	laser and LED.....	165
V		levels defined.....	160
VC Mode LED.....	30	lightening activity.....	179
VCPs See Virtual Chassis ports		maintenance and operational.....	178
ventilation guidelines.....	56	operating temperature.....	180
Virtual Chassis		personnel.....	163
cabling requirements.....	70	power cord warning.....	102
configurations, overview.....	69	power disconnection.....	189
mixed, description.....	70	product disposal.....	182
planning.....	69	rack-mounting requirements.....	173
planning factors.....	70	ramp angle.....	172
rack requirements.....	70	read installation instructions.....	171
Virtual Chassis cable		symbol.....	160
connecting.....	95	TN power system.....	190
disconnecting.....	135	warranty and repair	
pinouts.....	36	limitations.....	xv
Virtual Chassis module		return procedure.....	149
description.....	29	websites, Dell.....	148
installation.....	93	weight, chassis.....	7
overview.....	5	width, chassis.....	7
removal.....	133	wiring guidelines	
serial number.....	154	radio frequency interference (RFI).....	55
status LED.....	30	signaling limitations.....	55
VC Mode LED.....	30	suppressing electromagnetic interference (EMI).....	55
Virtual Chassis ports (VCPs)		wrist strap, ESD, correct use of.....	186
cable connection.....	95	<i>See also</i> ESD wrist strap	
cable disconnection.....	135		
connector pinouts.....	36		
description.....	29		
LED.....	30		
overview.....	5		
REQUEST VC PORT? from the LCD panel.....	16		
status indicators on LCD panel.....	15		
W			
warnings			
AC power.....	188		
earthed mains socket (Norway and Sweden only).....	164		

