Alcatel-Lucent Enterprise

OmniSwitch 6865

Hardware Users Guide
Part No. 060435-10, Rev A
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Alcatel·Lucent ⒜
Enterprise

This user guide documents OmniSwitch 6865 hardware, including chassis and associated components. The specifications described in this guide are subject to change without notice.

Contents

Related Documentation

The following related documents can found at **enterprise.alcatel-lucent.com/userguides**:

- *OmniSwitch CLI Reference Guide*
- *OmniSwitch AOS Switch Management Guide*
- *OmniSwitch AOS Network Configuration Guide*
- *OmniSwitch AOS Advanced Routing Configuration Guide*
- *OmniSwitch AOS Data Center Guide*
- *OmniSwitch Transceivers Guide*

Product Release Notes

Release Notes can be downloaded from the **Customer Support website** (account login required).

Customer Support

Web: support.esd.alcatel-lucent.com

Email: ebg_global_supportcenter@al-enterprise.com

OmniSwitch 6865-P16X

The Alcatel-Lucent Enterprise OmniSwitch® 6865 series are Gigabit Ethernet (GigE) and 10 Gb Ethernet (GigE) switches designed for demanding electrical and severe temperature environments.

OmniSwitch 6865-P16X (Side Mounted Power Supply Tray Shown)

OmniSwitch 6865-P16X Chassis Specifications	
Fans	None
Power Supplies	2 total (1 primary PSU and 1 optional backup PSU)
Rack Unit Dimensions	2 RU (additional 1/2 RU required for airflow at top and bottom of chassis)
Dimensions (WxHxD)	21.6 cm (8.5 in) x 8.81 cm (3.47 in) x 26 cm (10.24 in)
Weight	5.07 kg (11.18 lb)
Operating Temperature	With airflow: -40°C to 74°C (-40°F to 165°F) Without airflow: -40°C to 65°C (-40°F to 149°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Operating and Storage Humidity	5% to 95% non-condensing
Altitude	4000m/13,000 feet
75W HPoE Ports	4
30W PoE+ Ports	8
SFP Ports	2
1G/10G SFP+ Ports	2
1588v2 Capability	Supported

OmniSwitch 6865-P16X Chassis Specifications	
Power Consumption (Idle)	32W
Power Consumption (Full Load)	34W

Chassis Front Panel
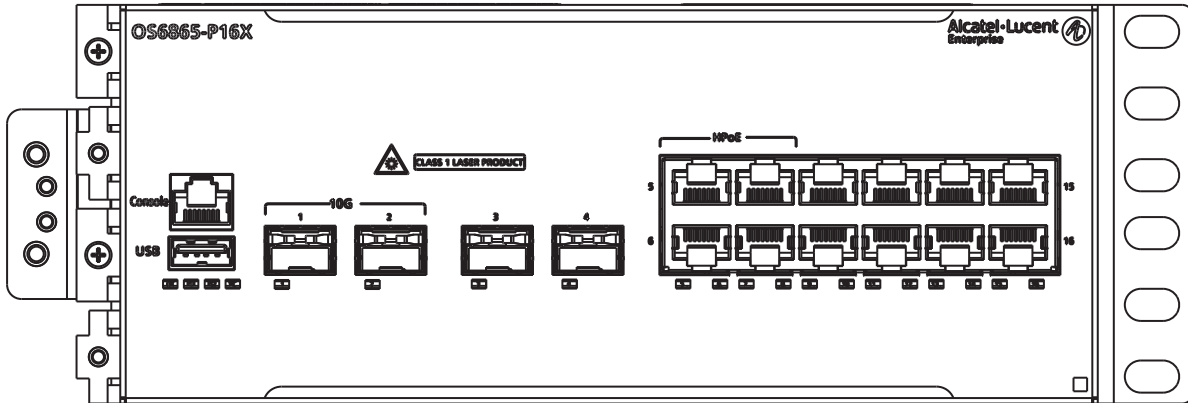
Front Panel Descriptions (Left to Right)	
Console (RJ45)	For console or modem
USB Type A	For storage devices that can download code or save configuration information, such as flash-based pen drives or external hard drives
Ports 1 and 2	Two (2) fixed SFP+ (1G/10G)
Ports 3 and 4	Two (2) 1000 Base-X SFP
Ports 5 through 8	10/100/1000 Base-T PoE+ (supporting 75W HPoE per port)
Ports 9 through 16	10/100/1000 Base-T PoE+ (supporting 30W PoE per port)

Note: For LED descriptions, refer to .

Chassis Rear Panel

Grounding Block

PS2

PS1
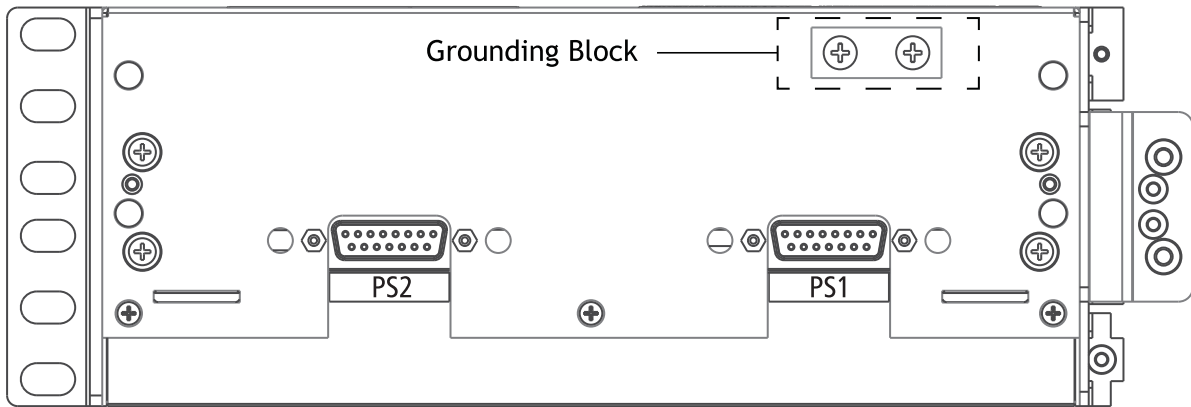
Rear Panel Descriptions (Left to Right)	
PS2	Power Supply Connector
PS1	Power Supply Connector
Grounding Block	Location shown in diagram above

Power Supply
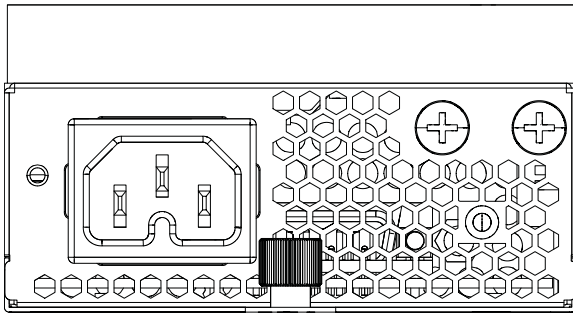
Power Supply Front
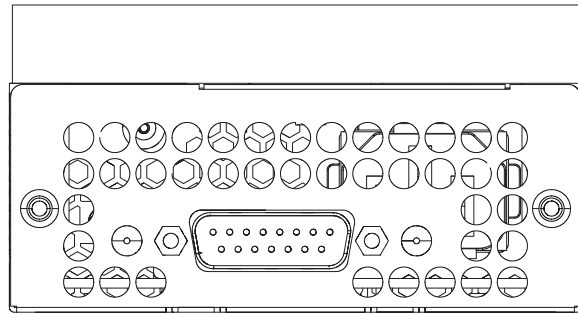
Power Supply Rear

OS6865-BP Power Supply	
Description	Modular AC power supply. Each power supply provides up to 180W of system and PoE power to a OS6865-P16X switch. Up to two (2) power supplies may be installed.
Dimensions (H x W x L)	5.1 cm x 9.5 cm x 18.1 cm (2 in x 3.74 in x7.12 in)
Weight	1.7 Kg (3.75 lbs)
Input Voltage	90 VAC to 260 VAC
Input Current	3A /100V - 127 VAC 1.5A /200V - 240 VAC
Max output power/current	180 W/3.22 A
Fans	0

Front-of-Supply Component Descriptions (Left to Right)	
Power Cord Connector	
Thumb Screw	
Grounding Block	
Status LED	Solid Green indicates normal operation

Rear-of-Supply Component Descriptions
DB-15 Connector (with Guide Pins)

Getting Started

Preparing for the Installation

Alcatel-Lucent Enterprise products must be installed by a professional installer. It is the responsibility of the installer to comply with product specifications and all applicable local and national codes.

When preparing for installation, unpack the product as close as possible to the location where it will be installed.

Caution: An operating OmniSwitch 6865-P16X may be hot to the touch.

Elevated Operating Ambient Temperature

If installed in a closed or multi-rack assembly, the operating ambient temperature of the rack environment may be greater than the room's ambient temperature. Therefore, consideration should be given to the maximum rated ambient temperature (Tmra).

Reduced Air Flow

Installation of the equipment should be such that the amount of air flow required for safe operation of the equipment is not compromised. Refer to "Airflow Considerations" on page 8 for more information.

Mechanical Loading

Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven loading.

Circuit Overloading

Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits could have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Earthing

Reliable earthing of rack mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch (e.g., use of power strips).

Additional Electrical Requirements

OmniSwitch 6865-P16X switches have the following general electrical requirements:

- OmniSwitch 6865-P16X switches offer AC power supply support.

- Each supplied AC power cord is 2 meters (approx. 6.5 feet). Do not use extension cords.

- Each switch requires one grounded electrical outlet per power supply.

> **Redundant AC Power.** It is recommended that each AC outlet resides on a separate circuit. With redundant AC, if a single circuit fails, the switch's remaining power supplies (on separate circuits) can remain operational.

Electrical Surge Warning

In order to help protect equipment against electrical surges please take note of the following recommendations and guidelines:

1. Earth grounding of all devices is fundamental to ensure long term reliability.

- All electrical equipment must be installed by a qualified, licensed electrician.

- Every power supply that is connected to building power should be earth grounded.

- Earth grounding for the power cable, should be verified to be 0.01 ohm or less.

- Each switch should be grounded to same earth ground as the power supply.

- Each powered device, such as an AP or camera, should be connected to earth ground.

- Each surge suppression device should be connected to earth ground.

2. Shielded cables (STP) offer some minimal level of additional protection over unshielded Ethernet cables (UTP) but the use of a surge protector is still recommended.

- It is suggested to use STP Cat5e or better for 1Gbps Ethernet switches for any outdoor application or applications where Ethernet cables come in close proximity to alternating current conductors.

- Always install cables according to manufacturer requirements.

3. For any connections where integrity of the cabling within a building ground is questionable (i.e outdoor connections), copper Ethernet ports must be connected with an appropriate surge protection device, inline, between the PSE and PD per the manufacturer's recommendations for connection and grounding.

4. Caution should be taken for any cable connected to any outdoor device, not only on the device grounding, but to ensure that any outdoor device cables that could carry surge currents, do not pass those surge currents to upstream Ethernet switches.

Caution - Category 5e, Category 6, and Category 6a cables can store large amounts of static electricity due to the dielectric properties of their construction materials in addition, this build up of electricity could lead to a Cable Discharge Event (CDE). A CDE can occur due to the differential in charges on the cable and the equipment it's being connected to. It is recommended that installers momentarily ground all copper Ethernet cables (especially in new cable runs) to a suitable and safe earth ground before connecting them to the port.

> **Note:** Failure to follow the above recommendations could result in voiding the warranty of the affected ALE product.

Airflow Considerations

To ensure proper airflow, be sure that the switch is placed in a well-ventilated area and provide minimum recommended clearances.

> **Important.** A clearance of 1/2 RU (approx. 0.875″ inches) is required at the top and bottom of the chassis.
>
> When mounting the chassis on a flat service (e.g., table) be sure that the top of the switch, with the larger heat sinks, is facing out and away from the mounting surface.

Preparing the Chassis and Power Supply Tray Assembly

The power supply tray may be mounted at the side or the rear of the chassis. Side mounted tray assemblies are typically used for rack mount applications; rear mounted tray assemblies are typically used for table and ceiling mount applications.

Side Mount Power Supply Tray

1. To mount the power supply tray to the side of the chassis, be sure that the attachment brackets are installed in the positions show below.

Front Chassis-to-Tray Bracket

Rear Chassis-to-Tray Bracket

Front Tray-to-chassis Bracket
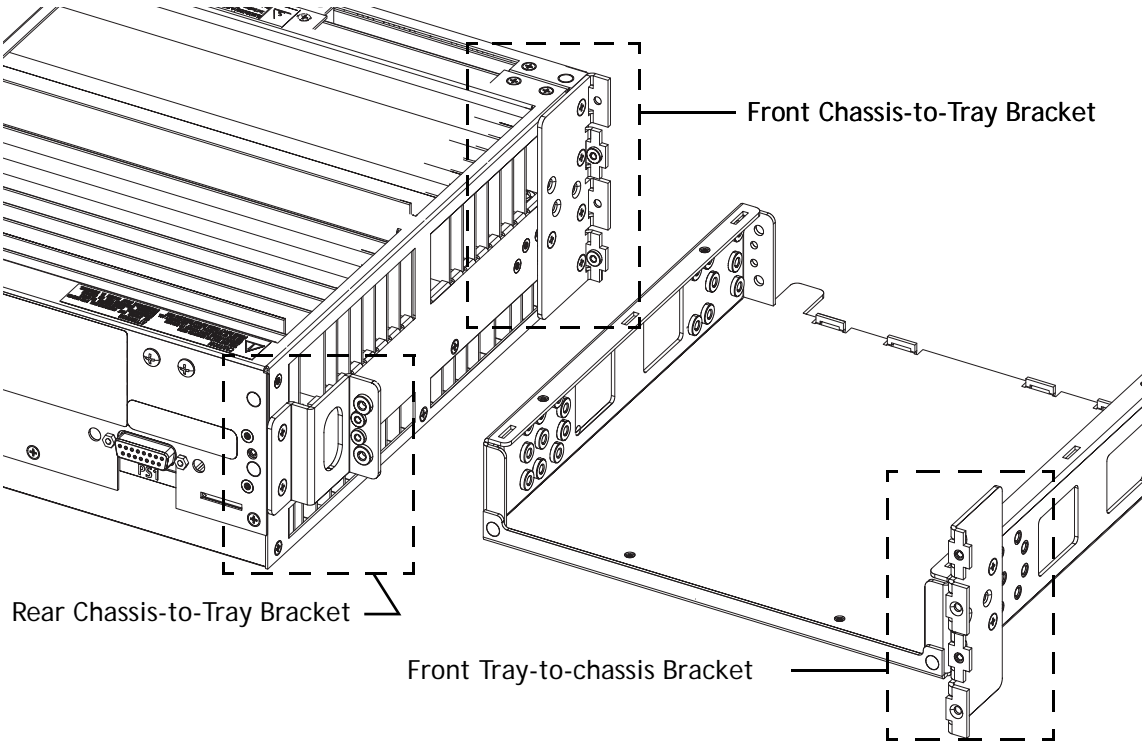
Required Brackets for Side Mount Power Supply Tray (Brackets may be factory-installed.)

2. Align the holes in the power supply tray and fasten the two parts into a single assembly using the attachment screws.
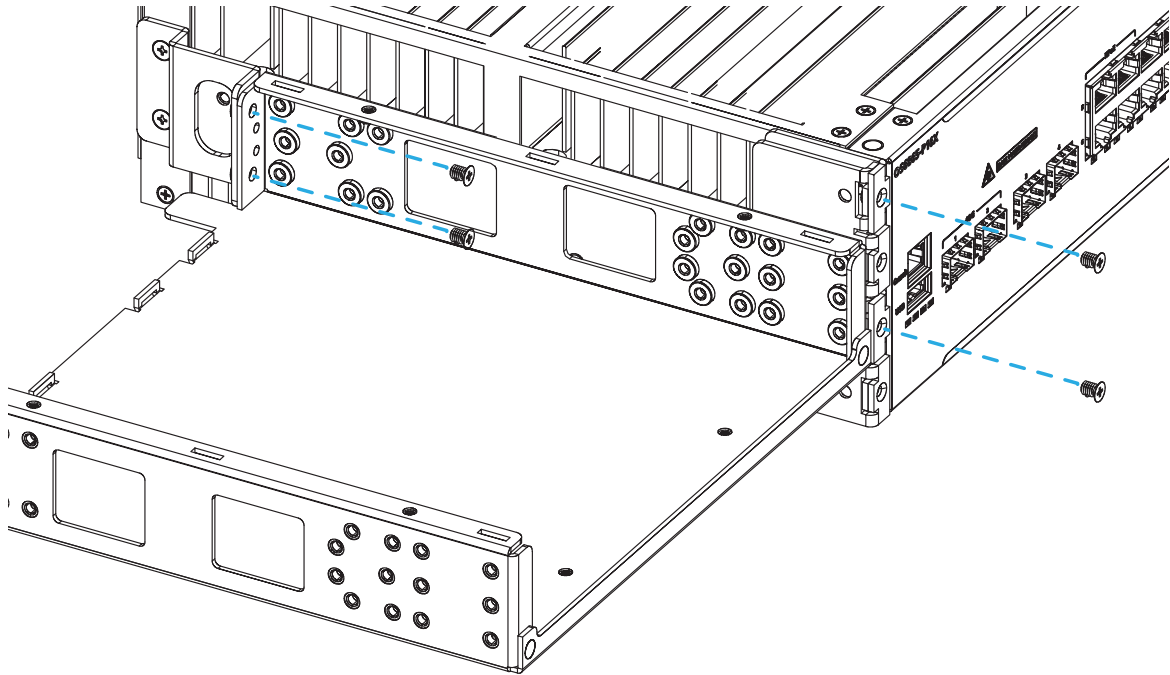
Rear Mount Power Supply Tray

Note: For rear mount power supply assemblies, factory-installed power tray brackets (shown on page 9) should be removed.

1. To mount the power supply tray to the rear of the chassis, insert the tray tabs into the slots at the rear panel of the chassis. Once the tabs are inserted and the face of the tray is flush against the chassis rear panel, insert and tighten the attachment screws.
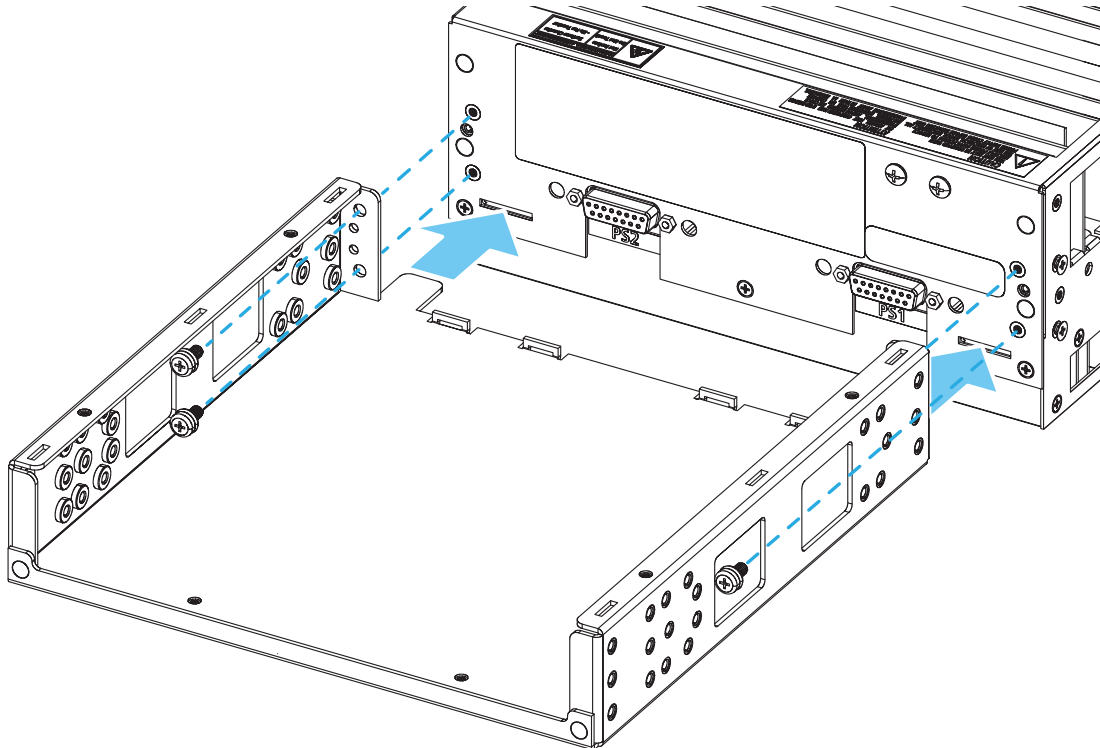
Attaching Rack Mount Flanges

Before rack mounting, rack mount flanges must be installed at the left and right sides of the chassis/ tray assembly. To attach the flanges, align the holes in with the threaded holes in the side of the chassis and power supply tray. Insert and tighten the attachment screws.
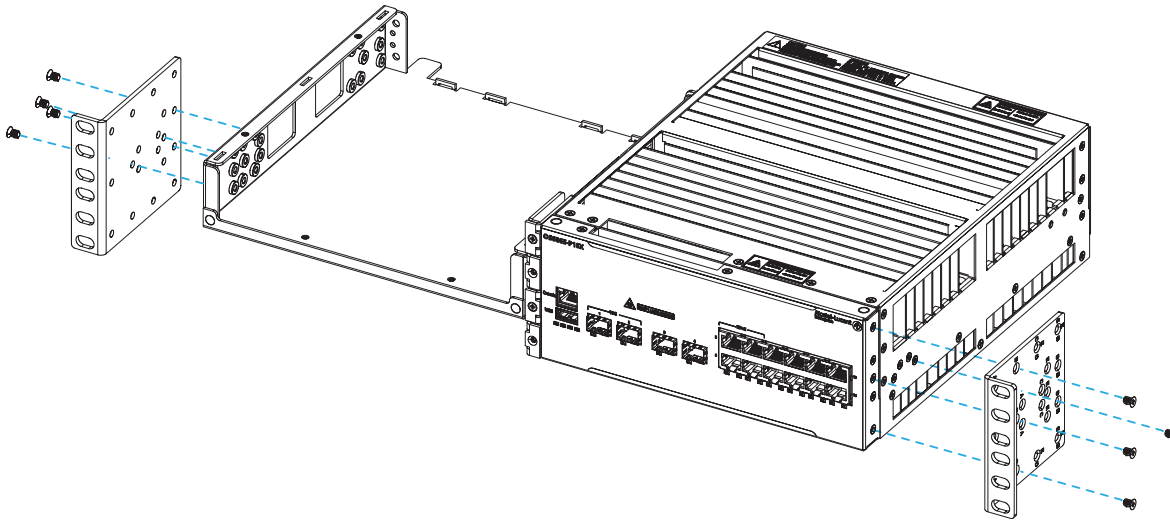
Attaching Table Mount Feet

1. Before table mounting, table mount feet must be installed at the left and right sides of the chassis/ tray assembly. To install the feet, align the holes with the threaded holes in the sides of the chassis and power supply tray, as shown below. Insert and tighten the attachment screws.

> **Important**. Table mount feet provide the 1/2 RU clearance required at the bottom of the chassis. Do not attempt to operate the OS6865-P16X on a tabletop surface without these feet properly installed.
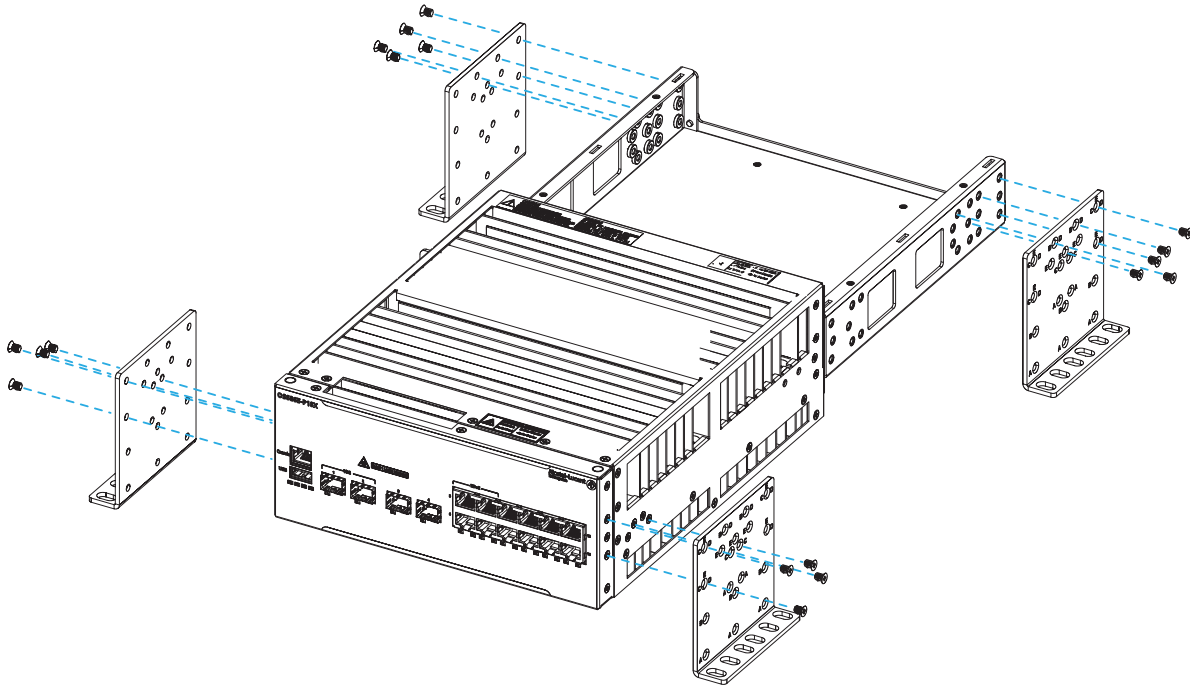
Attaching Table Mount Feet
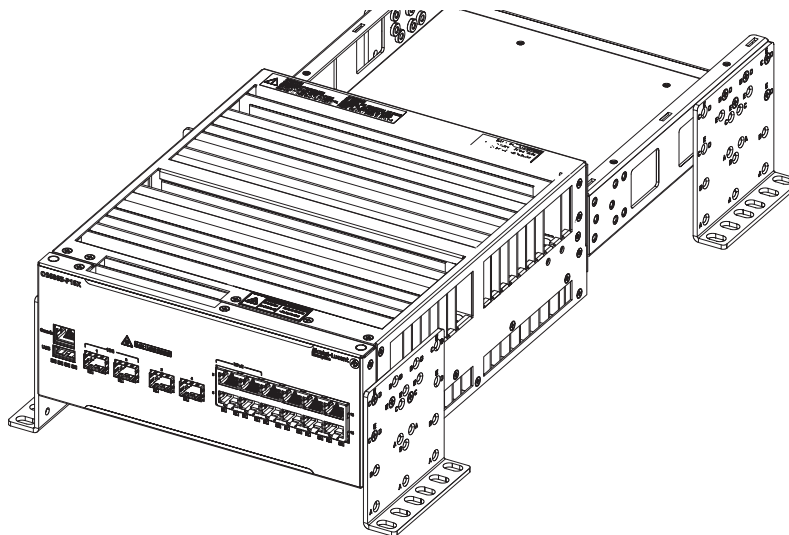
Table Mount Assembly with 1/2 RU Space Under Chassis

Attaching Ceiling Mount Brackets

1. Ceiling mount brackets must be installed at the left and right sides of the chassis/tray assembly. To install the brackets, align the holes with the threaded holes in the sides of the chassis and power supply tray, as shown below. Insert and tighten the attachment screws.

    Important. Ceiling mount brackets provide the 1/2 RU clearance required at the top of the chassis. Do not attempt to operate the OS6865-P16X in a ceiling mount installation without these brackets properly installed.
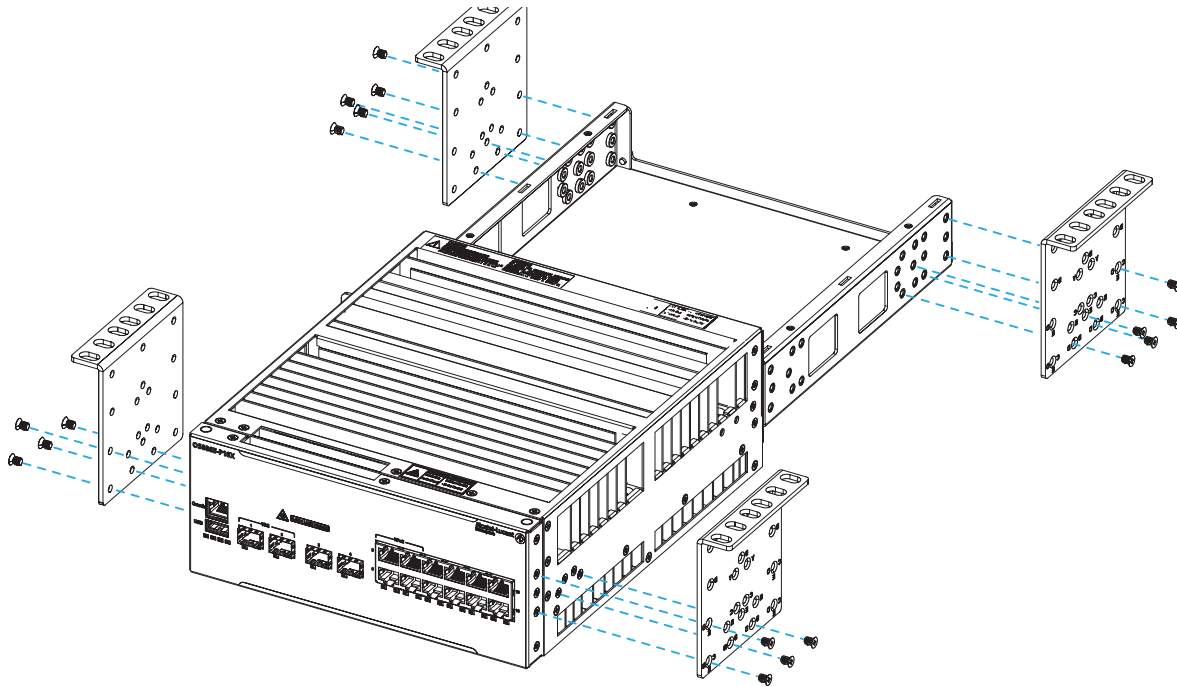
Attaching Ceiling Mount Brackets
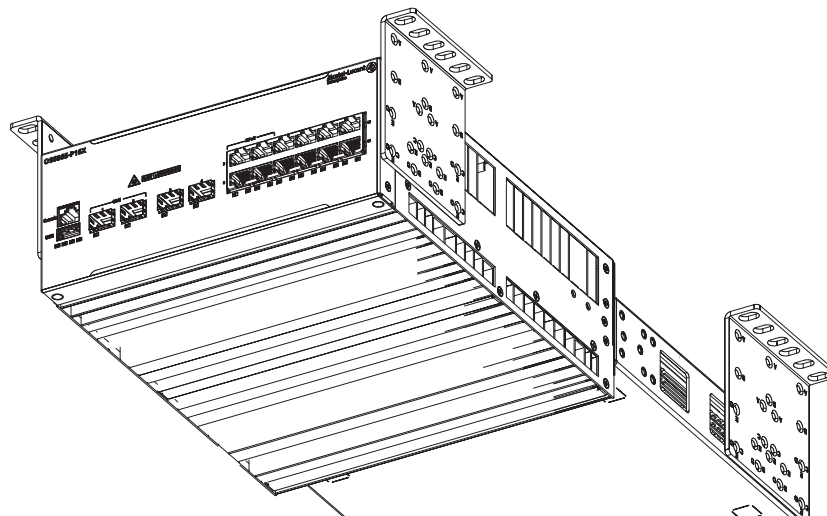
Ceiling Mount Assembly with 1/2 RU Space Above Chassis

Installing Power Supplies

Once the chassis and tray are assembled and the mounting brackets are attached, install the power supplies.

> **Note.** Whenever connecting or disconnecting a power supply to/from a chassis, the power supply must be disconnected from the power source.

Installing Power Supplies for Side Mount Trays

1. Slide the power supply into the tray and insert the tabs located at the bottom-rear of the power supply into the slots at the base of the power supply tray.
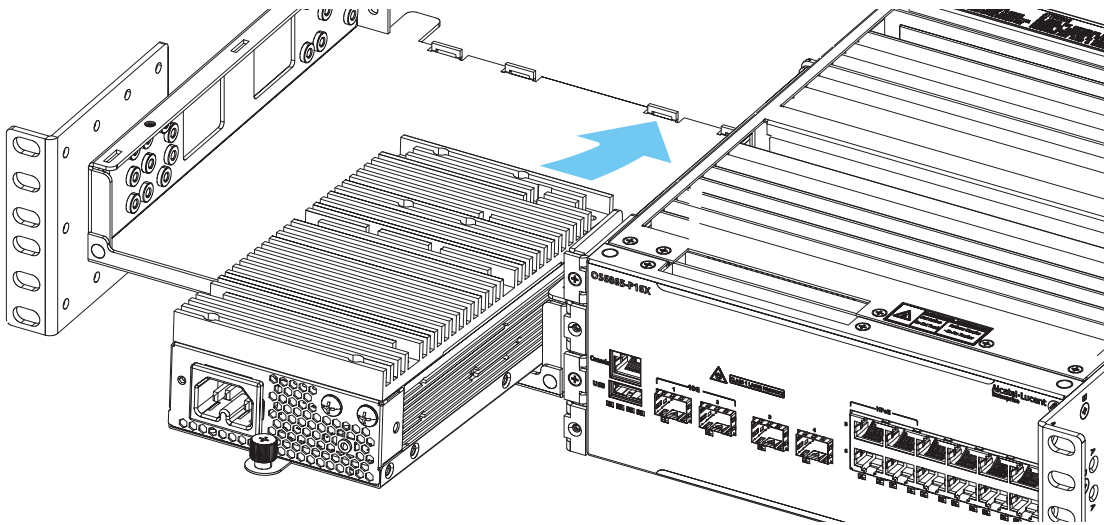
2. Align and tighten the thumb screw at the front of the power supply unit.
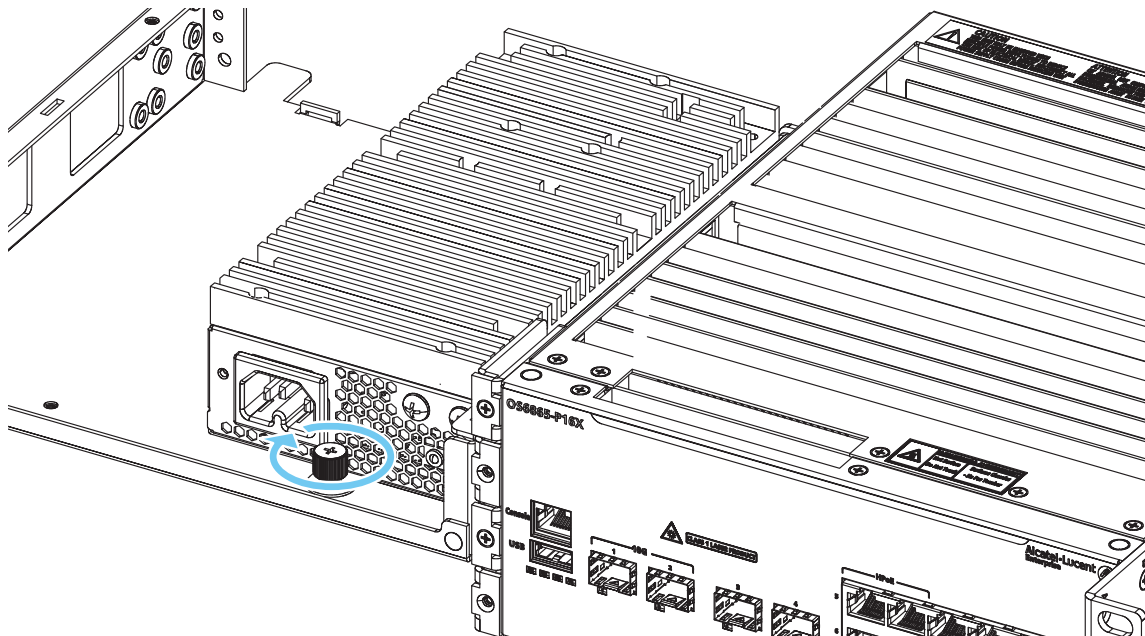
3. Plug the power supply-to-chassis connector cable (provided) into the DB-15 connectors located at the rear of the power supply and the chassis.

Power Supply-to-Chassis Cable (Provided)
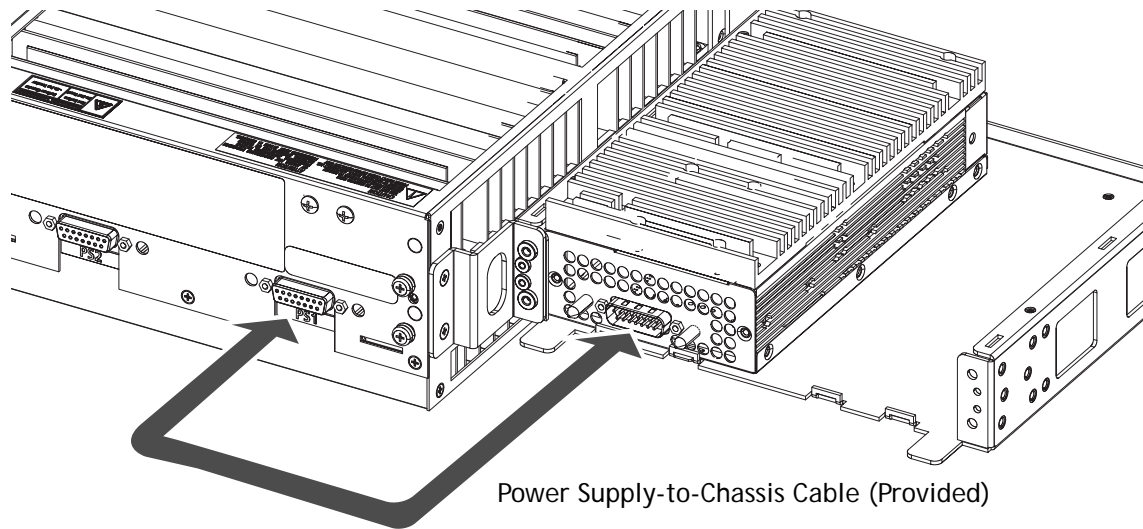
4. For redundant power supply configurations, repeat these steps for the additional power supply at the other side of the power supply tray.

> **Note**. The switch does not provide an on/off switch. Instead, the switch powers on when a power cord is plugged into the power supply's front panel and plugged into a power source.
>
> Do not connect to a power source until all power supplies and power supply-to-chassis cables are installed and the switch is ready to boot.

Installing Power Supplies for Rear Mount Trays

1. Orient the power supply as shown below. Insert the guide pins (located on either side of the DB-15 connector) into the guide holes in the rear of the chassis.

Hole for Guide Pin
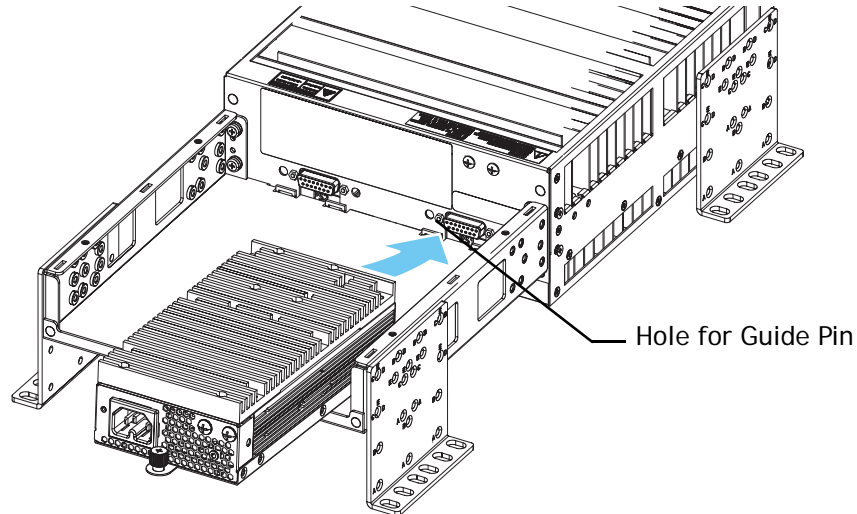
For this example, table mount assembly shown.

2. Push the power supply into place until the connector is fully seated and tighten the thumb screw at the front of the power supply unit.
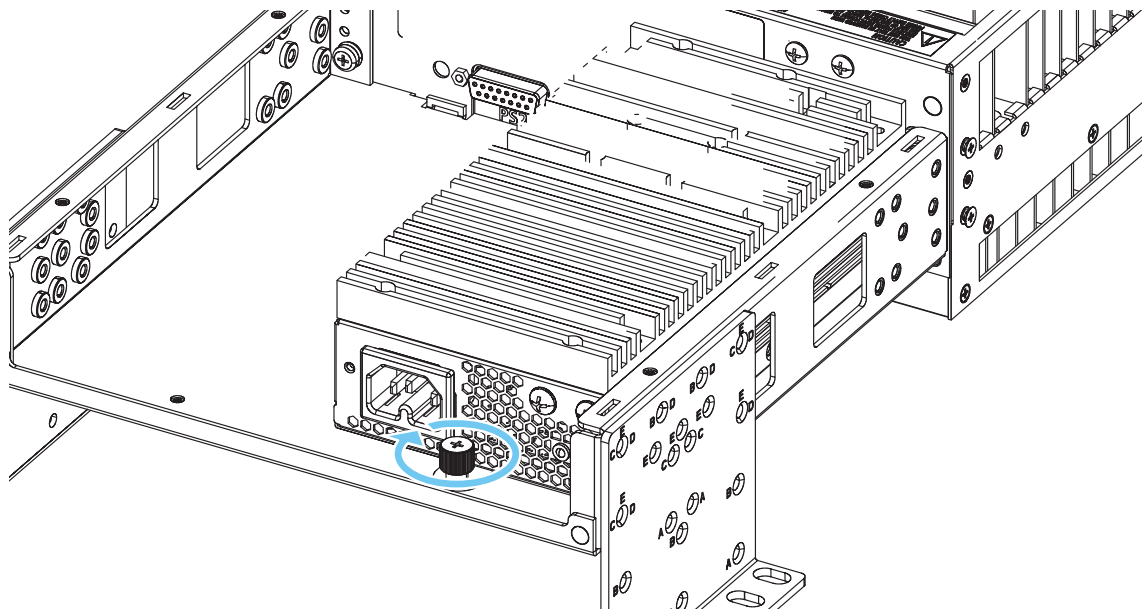
3. For redundant power supply configurations, repeat these steps using the power supply connector and thumb screw hole located at the other side of the chassis and power supply tray.

   Note. The switch does not provide an on/off switch. Instead, the switch powers on when a power cord is plugged into the power supply's front panel and plugged into a power source.

Do not connect to a power source until all power supplies and power supply-to-chassis cables are installed and the switch is ready to boot.

Mounting the OS6865-P16X

Rack Mounting

General Rack Mounting Recommendations

- Install the OmniSwitch 6865-P16X in the rack using the rack manufacturer's recommended attachment screws (not provided). Always follow rack manufacturer's specifications when installing.

- The OmniSwitch 6865-P16X is 2 RU high, PLUS requires and additional clearance of 1/2 RU at both the top and bottom of the chassis. Be sure to accommodate these spacing requirements when rack mounting the switch. (Pre-marking the holes on the rack where the switch is to be installed can be helpful.)

- Use an additional person to help lift and position the chassis/power supply assembly in the rack during installation.

- To keep the rack from becoming top heavy, install switches toward the bottom of the rack first.

Table Mounting

Important. Table mount feet provide the 1/2 RU clearance required at the bottom of the chassis. Do not attempt to operate the OS6865-P16X on a tabletop surface without these feet properly installed. For information on installing, refer to *"Attaching Table Mount Feet" on page 13*.

1. Place the assembly on the tabletop surface. Refer to all requirements—including those outlined in the *"Preparing for the Installation"* and *"Airflow Considerations"*—before placing the switch.

2. Fasten the assembly to the surface using attachment bolts or screws as appropriate for the surface material.
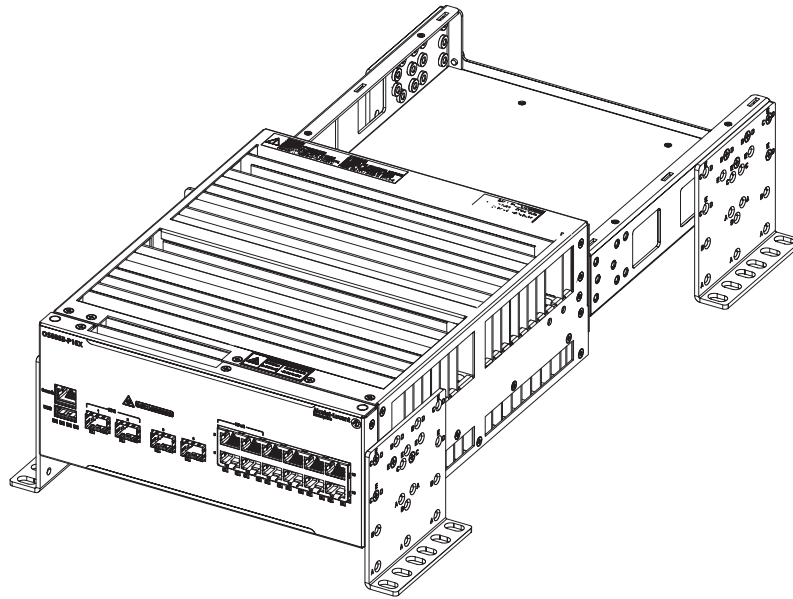
Ceiling Mounting

Important. Ceiling mount brackets provide the 1/2 RU clearance required at the top of the chassis. Do not attempt to operate the OS6865-P16X in a ceiling mount installation without these brackets properly installed. For information on installing, refer to "Attaching Ceiling Mount Brackets" on page 14.

1. Fasten the assembly to the surface using attachment bolts or screws as appropriate for the surface material.
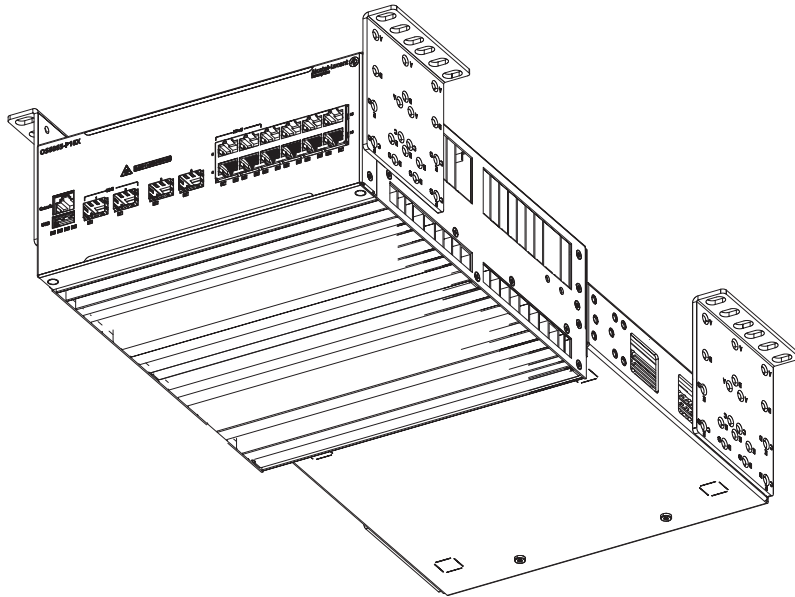
Connections and Cabling

Once the switch is properly installed, connect all network and management cables required for network applications.

Network Cable Installation Warning

Never install exposed network cables outdoors. Install network cables per manufacturer requirements.

For additional information on cabling for console, USB, and other connections, refer to the *OmniSwitch AOS Switch Management Guide*.

Serial Connection to the Console Port

The console port provides a serial connection to the switch using an RJ45 connector and is required when logging into the switch for the first time.

Serial Connection Default Settings	
baud rate	9600
parity none	none
data bits (word size)	8
stop bits	1

For information on modifying these settings, refer to the *OmniSwitch AOS Switch Management Guide*.

Booting the Switch

The switch does not have a power on/power off switch. To boot a switch, plug a power cord into the power supply unit and then plug the cord into an easily-accessible, properly grounded power outlet. (Do not use an extension cord.)

The switch will power on and boot automatically.

Connect any redundant power supply power cords and plug them into a power outlet as well.

System and Port LEDs

During the boot process, component LEDs will flash and change color, indicating different stages of the boot.

System LEDs	
OK	• Solid Green: Normal operation • Solid Amber: Software error detected • Blinking Green: Diagnostics in progress
VC	• Off: The switch is booting • Solid Green: This unit is Master, normal operation • Solid Amber: This unit is Slave, normal operation • Blinking Green: Diagnostics in progress • Blinking Amber: Diagnostics in progress (Slave, unit number identified by the number of blinks/pauses)
PS1	• Off: Power supply not present • Solid Green: Normal operation • Solid Amber: Power supply error detected
PS2	• Off: Power supply not present • Solid Green: Normal operation • Solid Amber: Power supply error detected

SFP/SFP+ Port LEDs	
SFP and SFP+ Ports	• Off: No link or link down • Solid Green: Link up • Blinking Green: Link up with activity

RJ45 (PoE) Ports	• Off: No link or link down
	• Solid Green: Link up (no PoE)
	• Blinking Green: Link up (no PoE) with activity
	• Solid Amber: Link up (PoE devices connected)
	• Blinking Amber: Link up (PoE devices connected) with activity

Note. Be sure the boot process is complete before checking LED status. If LEDs indicate persist errors, contact Alcatel-Lucent Customer Support.

Once the switch has completely booted, connect to the console port and log in to the switch's Command Line Interface (CLI) and configure basic information. For more information, refer to .

The First Login Session

To complete the setup process, follow these steps during the first login session:

- Log in to the switch

- Unlock session types

- Change the login password

- Set the date and time

- Set optional system information

- Save changes

> **Important.** Connect to the switch via the console port before initiating the first login session.

Logging In to the Switch

At the login and password prompts, use the switch's default settings:

Login:	*admin*
Password:	*switch*

> **Note.** A user account includes a login name, password, and user privileges. Privileges determine whether the user has read or write access to the switch and which commands the user is authorized to execute. For detailed information on setting up and modifying user accounts, refer to the *OmniSwitch Switch Management Guide*.

The default welcome banner—which includes information such as the current software version and system date—displays, followed by the CLI command prompt:

```
Welcome to the Alcatel-Lucent Enterprise OS6865 8.3.1, June 03, 2016.

Copyright (c) 1994-2014 Alcatel-Lucent.  All Rights Reserved.
Copyright (c) 2014-2016 Alcatel-Lucent Enterprise.  All Rights Reserved.

OmniSwitch(tm) is a trademark of Alcatel-Lucent,
registered in the United States Patent and Trademark Office.

->
```

Unlocking Session Types

Remote session types (Telnet, FTP, WebView, SNMP) are restricted until they are manually unlocked by the user.

The CLI command used to unlock session types is **aaa authentication**.

> **Note.** Unlocking session types grants switch access to non-local sessions (e.g., Telnet). As a result, anyone with the correct user login and password will have remote access to the switch.

For more information on switch security, refer to the *OmniSwitch AOS Switch Management Guide*.

Unlocking All Session Types

To unlock all session types, enter the following command syntax at the CLI prompt:

```
-> aaa authentication default local
```

Unlocking Specific Session Types

You can also unlock specific session types (console, telnet, ftp, http, snmp, ssh). For example, to unlock Telnet sessions, enter the following command:

```
-> aaa authentication telnet local
```

Refer to the *OmniSwitch CLI Reference Guide* for complete **aaa authentication** command syntax options.

Changing the Login Password

Change the login password for admin user sessions by following the steps below:

1. Be sure that you have logged into the switch as user type *admin* (see "Logging In to the Switch" on page 25).
2. Type **password** at the prompt and press Enter.
3. Enter the new password at the prompt.

> **Note.** Be sure to remember or securely record all new passwords; overriding configured passwords on an OmniSwitch is restricted.

4. You will be prompted to re-enter the password. Enter the password a second time.

New password settings are automatically saved in real time to the local user database; the user is not required to enter an additional command in order to save the password information. Also note that new password information is retained following a reboot. All subsequent login sessions, including those through the console port, will require the new password to access the switch.

For detailed information on managing login information, including user names and passwords, refer to the *OmniSwitch Switch Management Guide*.

Setting the System Time Zone

The switch's default time zone is UTC. If you require a time zone that is specific to your region, or if you need to enable Daylight Savings Time (DST) on the switch, you can configure these settings via the **system timezone** and **system daylight-savings-time** commands.

For detailed information on configuring a time zone for the switch, refer to the *OmniSwitch AOS Switch Management Guide*.

Setting the Date and Time

Set the current time for the switch by entering system time, followed by the current time in *hh:mm:ss*. To set the current date for the switch, enter system date, followed by the current date in *mm/dd/yyyy*.

Setting Optional Parameters

Specifying an Administrative Contact

An administrative contact is the person or department in charge of the switch. If a contact is specified, users can easily find the appropriate network administrator if they have questions or comments about the switch.

To specify an administrative contact, use the **system contact** command.

Specifying a System Name

The system name is a simple, user-defined text description for the switch.

To specify a system name, use the **system name** command.

Specifying the Switch's Location

It is recommended that you use a physical labeling system for locating and identifying your switch(es). Examples include placing a sticker or placard with a unique identifier (e.g., the switch's default IP address) on each chassis.

However, if no labeling system has been implemented or if you need to determine a switch's location from a remote site, entering a system location can be very useful.

To specify a system location, use the **system location** command.

Viewing Your Changes

To view your current changes, enter **show system** at the CLI prompt.

Saving Your Changes

Once you have configured this basic switch information, save your changes by entering **write memory** at the CLI command prompt.

Managing Power over Ethernet (PoE)

Important: Alcatel-Lucent Enterprise recommends that PoE-enabled switches with attached IP telephones have operational power supply redundancy at all times for 911 emergency requirements.

In addition, both the switch and the power supply should be plugged into an Uninterruptible Power Source (UPS).

Power over Ethernet Specifications		
Maximum PoE Budget (One Power Supply)	140W	
Maximum PoE Budget (Two Power Supplies)	320W	
Ports supporting IEEE 802.3at PoE	12	
IEEE Standards supported	IEEE 802.3; 802.af; 802.3at	
Power over Ethernet Settings	**Default**	**Related Command**
PoE operational status	Disabled	**lanpower slot service**
Total power available to a port	75000 milliwatts on ports 5-8; 30000 milliwatts on ports 9-16	**lanpower power**
Total power available to an entire slot		**lanpower slot maxpower**
Power priority level for a port	low	**lanpower priority**
Capacitor detection method	Disabled	**lanpower capacitor-detection**
Priority disconnect status	Enabled	**lanpower slot priority-disconnect**

Determining the Power Available for Powered Devices (PDs)

Viewing Power Supply Status

To view the type and status for installed power supplies, use the **show powersupply** command.

Viewing PoE Status

To view current PoE status and settings, uncluding the amount of PoE power available for incoming powered devices, use the **show lanpower slot** command.

PoE Class Detection

Powered devices can be classified into different classes as shown in the table below. Class detection allows for automatic maximum power adjustment based on the power class detected. This will prevent the switch from delivering more than the maximum power allowed based on a device's class.

During class detection, the switch will allocate the maximum amount of power allowed based on the class detected. Once powered, if the device uses less than the maximum, the remaining power will be made available for other devices.

Class	Usage Classification	Current (mA)	Power Range (Watts)	Class Description
0	Default	0-4	0.44-30.00	Unimplemented
1	Optional	9-12	0.44-3.84	Very Low Power
2	Optional	17-20	3.84-6.49	Low Power
3	Optional	26-30	6.49-12.95	Mid Power
4	Optional	36-44	12.95-30.00	High Power

Although class-detection is disabled by default, power is still provided to incoming PDs (if available in the power budget). However, to strictly enforce class detection as specified in the 802.3at standard, class detection must be enabled using the **lanpower slot class-detection** command.

Enabling class detection will reset all PoE ports.

PoE Operational Status

Enabling PoE

By default, PoE is administratively enabled in the switch's system software. However, in order to physically activate PoE, you must issue the **lanpower slot service** command on a slot-by-slot basis before any connected devices will receive inline power.

To activate power to PoE-capable in a switch, enter the corresponding slot number only. For example:

```
-> lanpower slot 2/1 service start
```

If power to a particular port has been administratively disconnected, you can reactivate power to the port using the lanpower port admin-state command. For example:

```
-> lanpower port 1/1/1-16 admin-state enable
```

> **Note.** You cannot use the **lanpower port admin-state** command to initially activate PoE on a port. This syntax is intended only to reactivate power to those that have been disconnected via the **lanpower slot service** command. To initially activate PoE, you must use the **lanpower slot service** command as described above.

Disabling PoE

To disable PoE on a particular port, use the **lanpower port admin-state** command. For example:

```
-> lanpower port 1/1/12 admin-state disable
```

To disable PoE for all PoE-capable ports in a slot, use the **lanpower slot service** command. For example:

```
-> lanpower slot 1/1 service stop
```

Configuring the Total Power Available to a Port

By default, each port is authorized by the system software to use up to a maximum amount of milliwatts to power any attached device.

This value can be increased or decreased based on the allowed ranges.

Increasing the total power available to an individual port may provide a more demanding powered device with additional power required for operation. Decreasing the total power available to a port helps to preserve inline power and assists in the overall management of the switch's power budget.

To increase or decrease the total power available to an individual port, use the **lanpower power** command.

> **Note.** Since the power allowance is being set for an individual port, chassis/slot/port values must be specified.

Configuring the Total Power Available to a Slot

Like the maximum port power allowance, the system software also provides a maximum slot-wide power allowance. By default, each slot is authorized by the system software to use a number of watts to power all devices connected to its ports depending on which power supply is used.

As with the maximum port power allowance, the user can either increase or decrease this value based on the allowed ranges.

> **Note.** Decreasing the slot-wide power could cause lower priority ports to lose power if the new value is less than the total PoE power currently being consumed.

To increase or decrease the total power available to a slot, use the **lanpower slot maxpower** command.

Since you are setting the power allowance for an individual slot, you must specify a chassis/slot value in the command line. For example, the syntax

```
-> lanpower slot 1/1 maxpower 400
```

reduces the power allowance of chassis 3, slot 1 to 400 watts. This value is now the maximum amount of power the slot can use to power all attached devices (until the value is modified by the user).

> **Note.** Changing the maximum power available to a slot or port does not reserve or immediately allocate that power. These settings are only used for configuring a maximum amount of power that may be used, any unused power is still available and remains a part of the overall PoE budget.

Setting Timers and Other User-Defined PoE Power Rules

The **lanpower power-rule** command allows user to set additional rules for PoE power (e.g., setting PoE to turn on or off on specific dates or at specific times). Refer to the *OmniSwitch AOS CLI Command Reference Guide* for more information.

Setting Port Priority Levels

As not all Powered Devices (PDs) connected to the switch have the same priority within a network setting, the OmniSwitch allows the administrator to specify priority levels on a port-by-port basis. Priority levels include low, high, and critical.

The default priority level for a port is low.

- **Low.** This default value is used for port(s) that have low-priority devices attached. In the event of a power management issue, inline power to low-priority is interrupted first (i.e., before critical and high priority).

- **High.** This value is used for port(s) that have important, but not mission-critical, devices attached. If other ports in the chassis have been configured as critical, inline power to high-priority is given second priority.

- **Critical.** This value is used for port(s) that have mission-critical devices attached, and therefore require top (i.e., critical) priority. In the event of a power management issue, inline power to critical is maintained as long as possible.

To change the priority level for a particular port, use the lanpower priority command. Since the switch allows you to set priority levels on a port-by-port basis, be sure to specify chassis/slot/port information in the command line. For example, the syntax

```
-> lanpower port 1/1/6 priority critical
```

changes the priority value of port 6 to the highest priority level of critical. Now that the default value has been reconfigured, this port should be reserved for those PDs that are mission critical for network operations.

Setting the Capacitor Detection Method

By default, the capacitor detection method is disabled. To enable it, use the lanpower capacitor-detection command. For example:

```
-> lanpower slot 1/1 capacitor-detection enable
```

> **Note.** The capacitive detection method should only be enabled to support legacy IP phones. This feature is not compatible with IEEE specifications. Please contact your Alcatel-Lucent sales engineer or Customer Support representative to find out which Alcatel-Lucent IP phones models need capacitive detection enabled.

Understanding Priority Disconnect

Priority disconnect is used by the system software in determining whether an incoming PD will be granted or denied power when there are too few watts remaining in the PoE power budget for an additional device. For example, if there are only 2 watts available in the current PoE power budget and a user plugs a 3.5W powered device into a PoE port, the system software must determine whether the device will be powered on.

Based on priority disconnect rules, in some cases one or more existing devices may be powered down in order to accommodate the incoming device. In other cases, the incoming device will be denied power.

Priority disconnect rules involve the port priority status of an incoming device (i.e., low, high, and critical), as well as the port's physical port number. Understanding priority disconnect rules is especially helpful in avoiding power budget deficits and the unintentional shutdown of mission-critical devices when PDs are being added in tight power budget conditions.

> **Reminder.** Priority disconnect applies only when there is inadequate power remaining in the power budget for an incoming device.

For information on setting the priority disconnect status, refer to the section below. For information on setting the port priority status (a separate function from priority disconnect), refer to "Setting Port Priority Levels" on page 34.

Setting Priority Disconnect Status

By default, priority disconnect is enabled in the switch's system software. For information on changing the priority disconnect status, refer to the information below.

Disabling Priority Disconnect

When priority disconnect is disabled and there is inadequate power in the budget for an additional device, power will be denied to any incoming PD, regardless of its port priority status (i.e., low, high, and critical) or physical port number.

To disable priority disconnect, use the lanpower slot priority-disconnect command. For example:

```
-> lanpower slot 1/1 priority-disconnect disable
```

Enabling Priority Disconnect

To enable priority disconnect, use the lanpower slot priority-disconnect command. For example:

```
-> lanpower slot 1/1 priority-disconnect enable
```

Priority Disconnect is Enabled; Same Priority Level on All Devices

> **Reminder.** Priority disconnect examples are applicable only when there is inadequate power remaining to power an incoming device.

When a PD is being connected to a port with the same priority level as all other in the slot, the physical port number is used to determine whether the incoming PD will be granted or denied power. Due to the support of different PoE standards and PoE hardware on each platform the internal port priority is different for each platform. The following tables should be used to determine PoE priority:

PoE Physical Port Priority

48 (Highest) -> 1 (Lowest)

Priority Disconnect is Enabled; Incoming PD Port has Highest Priority Level

> **Reminder.** Priority disconnect examples are applicable only when there is inadequate power remaining to power an incoming device.

When a PD is being connected to a port with a higher priority level than all other in the slot, the incoming PD will automatically be granted power over the other devices, regardless of its physical port number.

In order to avoid a power budget deficit, another port in the slot is disconnected. In determining which port to power off, the system software first selects the port with the lowest configured priority level. For example, if a critical priority device is being added to a slot in which five existing devices are attached to high priority and one device is attached to a low priority port, the low priority port is automatically disconnected, regardless of its physical port number.

If all existing devices are attached to with the same lower priority level, the system software disconnects the port with both the lowest priority level and the highest priority physical port number. For example, if a critical priority device is being added to a slot in which six existing devices are attached to high priority, the high priority port with the lowest physical port priority number is automatically disconnected.

Priority Disconnect is Enabled; Incoming PD Port has Lowest Priority Level

> **Reminder.** Priority disconnect examples are applicable only when there is inadequate power remaining to power an incoming device.

When a PD is being connected to a port with a lower priority level than all other in the slot, the incoming PD will be denied power, regardless of its physical port number. Devices connected to other higher-priority will continue operating without interruption.

Priority Disconnect is Disabled

> **Reminder.** Priority disconnect examples are applicable only when there is inadequate power remaining to power an incoming device.

When priority disconnect is disabled, power will be denied to any incoming PD, regardless of its port priority status (i.e., low, high, and critical) or physical port number.

Compliance and Certifications

Commercial Safety

- UL 60950

- IEC 60950-1; all national deviations

- EN 60950-1; all deviations

- CAN/CSA-C22.2 No. 60950-1-03

- NOM-019 SCFI, Mexico

- AS/NZ TS-001 and 60950:2000, Australia

- UL-AR, Argentina

- UL-GS Mark, Germany

- EN 60825-1 Laser

- EN 60825-2 Laser

- CDRH Laser

Commercial EMI/EMC

- FCC CRF Title 47 Subpart B (Class A)

- VCCI (Class A)

- AS/NZS 3548 (Class A)

- CE marking for European countries (Class A)

  - EN 55022 (Emission Standard)

  - EN 61000-3-3

  - EN 61000-3-2

  - EN 55024 (Immunity Standards)

  - EN 61000-4-2

  - EN 61000-4-3

  - EN 61000-4-4

  - EN 61000-4-5

  - EN 61000-4-6

  - EN 61000-4-8

  - EN 61000-4-11

- IEEE802.3: Hi-pot Test (1.5 KV AC or 2.25 KV DC on all Ethernet Ports)

  Note. For questions regarding these or other certifications, please contact Alcatel-Lucent Enterprise.

China RoHS: Hazardous Substance Table

部件名称 Part Name	有毒和危险品 Toxic and Hazardous Substances or Elements					
	铅 (Pb)	水银 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴化苯 (PBB)	多溴化二苯醚 (PBDE)
电路模块 (Circuit Boards)	X	O	O	O	O	O
电缆及电缆组件 (Cables & Cable Accessories)	X	O	O	O	O	O
金属部件 (Metal Parts)	X	O	O	O	O	O
塑料和聚合物部件 (Plastic and Polymeric parts)	O	O	O	O	O	O
可插拔模块 (Pluggable modules)	X	O	O	O	O	O
电池 (Batteries)	O	O	O	O	O	O

本表格依据 SJ/T 11364 的规定编制

O = 表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下
(indicates that the content of the toxic and hazardous substance in all the Homogeneous Materials of the part is below the concentration limit requirement as described in GB/T 26572).

X = 表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求 (indicates that the content of the toxic and hazardous substance in at least one Homogeneous Material of the part exceeds the concentration limit requirement as described in GB/T 26572).

California Proposition 65 Warning

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Products are packaged using one or more of the following packaging materials:
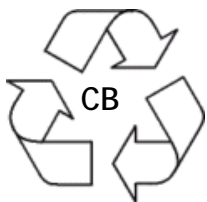
Corrugated Cardboard   Corrugated Fiberboard   Low-Density Polyethylene

Waste Electrical and Electronic Equipment (WEEE) Statement

The product at end of life is subject to separate collection and treatment in the EU Member States, Norway and Switzerland, and is therefore marked with the symbol:

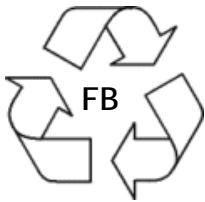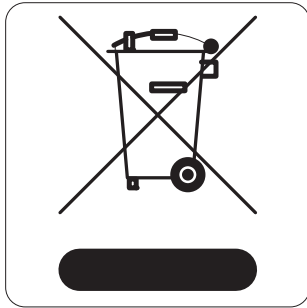Treatment applied at end of life of the product in these countries shall comply with the applicable national laws implementing directive 2002/96EC on Waste Electrical and Electronic Equipment (WEEE).

FCC Class A, Part 15

This equipment has been tested and found to comply with the limits for 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 instructions in this guide, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to correct the interference at his own expense.

The user is cautioned that changes and modifications made to the equipment without approval of the manufacturer could void the user's authority to operate this equipment. It is suggested that the user use only shielded and grounded cables to ensure compliance with FCC Rules.

If this equipment does cause interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

*   Reorient the receiving antenna.

*   Relocate the equipment with respect to the receiver.

*   Move the equipment away from the receiver.

*   Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.

Canada Class A Statement

This equipment does not exceed Class A limits per radio noise emissions for digital apparatus, set out in the Radio Interference Regulation of the Canadian Department of Communications.

Avis de conformitè aux normes du ministère des Communications du Canada

Cet èquipement ne dèpasse pas les limites de Classe A d íèmission de bruits radioèlectriques pour les appareils numèriques,telles que prescrites par le RÈglement sur le brouillage radioèlectrique ètabli par le ministère des Communications du Canada.

JATE

This equipment meets the requirements of the Japan Approvals Institute of Telecommunications Equipment (JATE).

CISPR22 Class A Warning

This is a Class A product. In a domestic environment, this product may cause radio interference. Under such circumstances, the user may be requested to take appropriate countermeasures.

Korea Emissions Statement

A 급 기기 (업무용 방송통신 기자재) 이 기기는 업무용 (A 급) 전자파적합기기로서 판 매자 또는 사용자는 이 점을 주의하시기 바라 며 , 가정외의 지역에서 사용하는 것을 목적으 로 합니다 .	Class A Equipment (Business equipment) This equipment is registered for Electromagnetic Conformity Registration as business equipment (A), not home equipment. Sellers or users are required to take caution in this regard.

VCCI

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

Class A Warning for Taiwan and Other Chinese Markets

This is a Class A Information Product. When used in a residential environment, it may cause radio frequency interference. Under such circumstances, the user may be requested to take appropriate countermeasure.

Translated Safety Warnings

Chassis Lifting Warning

Two people are required when lifting the chassis. Due to its weight, lifting the chassis unassisted can cause personal injury. Also be sure to bend your knees and keep your back straight when assisting with the lifting of the chassis.

Français: Le châssis doit être soulevé par deux personnes au minimum. Pour éviter tout risque d'accident, maintenez le dos droit et poussez sur vos jambes. Ne soulevez pas l'unité avec votre dos.

Deutsch: Sicherheitshinweise Hinweise zur Anhebung des Chassis Zum Anheben des Chassis werden zwei Personen benötigt. Aufgrund des Gewichts kann das Anheben ohne Unterstützung zu Personenschäden führen. Heben Sie das Chassis aus den Knien und halten Sie den Rücken gerade wenn Sie beim Anheben des Chassis assistieren.

Español: Se requieren dos personas para elevar el chasis. Para evitar lesiones, mantenga su espalda en posición recta y levante con sus piernas, no con su espalda.

Electrical Storm Warning

To avoid a shock hazard, do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.

Français: Ne pas travailler sur le système ni brancher ou débrancher les câbles pendant un orage.

Deutsch: Hinweise bei Unwetter Um elektrische Schläge zu vermeiden dürfen während eines Gewitters and diesem Gerät keine Kabel angeschlossen oder gelöst werden, sowie keinerlei Installationen, Wartungen oder Konfigurationen vorgenommen werden.

Español: Para evitar peligro de descargas, no conecte o desconecte ningun cable, ni realice ninguna instalación, maintenimiento o reconfiguración de este producto durante una tormenta eléctrica.

Installation Warning

Only personnel knowledgeable in basic electrical and mechanical procedures should install or maintain this equipment.

Français: Toute installation ou remplacement de l'appareil doit être réalisée par du personnel qualifié et compétent.

Deutsch: Installationshinweise Dieses Gerät soll nur von Personal installiert oder gewartet werden, welches in elektrischen und mechanischen Grundlagen ausgebildet ist.

Español: Estos equipos deben ser instalados y atendidos exclusivamente por personal adecuadamente formado y capacitado en técnicas eléctricas y mecánicas.

Invisible Laser Radiation Warning

Lasers emit invisible radiation from the aperture opening when no fiber-optic cable is connected. When removing cables do not stare into the open apertures. In addition, install protective aperture covers to fiber with no cable connected.

Français: Des radiations invisibles à l'oeil nu pouvant traverser l'ouverture du port lorsque aucun câble en fibre optique n'y est connecté, il est recommandé de ne pas regarder fixement l'intérieur de ces ouvertures. Installez les caches connecteurs prévus à cet effet.

Deutsch: Hinweise zur unsichtbaren Laserstrahlung Die Laser strahlen an der Blendenöffnung unsichtbares Licht ab, wenn keine Glasfaserkabel angeschlossen sind. Blicken Sie nicht in die Öffnungen und installieren Sie unverzüglich die Abdeckungen über den Glasfaseranschlüssen.

Español: Debido a que la apertura del puerto puede emitir radiación invisible cuando no hay un cable de fibra conectado, procurar no mirar directamente a las aperturas para no exponerse a la radiación.

Power Disconnection Warning

Your switch may be equipped with multiple power supplies (redundant power supply configurations). To reduce the risk of electrical shock, be sure to disconnect all power connections before servicing or moving the unit.

Français: Il se peut que cette unité soit équipée de plusieurs raccordements d'alimentation. Pour supprimer tout courant électrique de l'unité, tous les cordons d'alimentation doivent être débranchés.

Deutsch: Hinweise zur Spannungsfreischaltung Ihr Gerät ist mit mehreren Netzteilen ausgerüstet. Um die Gefahr des elektrischen Schlages zu verringern, stellen sie sicher, daß alle Netzverbindungen getrennt sind bevor das Gerät gewartet oder bewegt wird.

Español: Antes de empezar a trabajar con un sistema, asegurese que el interruptor está cerrado y el cable eléctrico desconectado.

Proper Earthing Requirement Warning

To avoid shock hazard:

- The power cord must be connected to a properly wired and earth receptacle.

- Any equipment to which this product will attached must also be connected to properly wired receptacles.

- Use 22AWG solid copper conductor for ground leads connecting the frame to ground and DC return.

- Cleaning and dressing of grounding points during installation is strongly recommended. Also, do not forget the antioxidant.

- To ground the equipment properly, connect a Panduit Corporation UL listed Lug, P/N: LCD8-10AL to the two threaded holes located on the rear using 8AWG copper conductors. Use Panduit Corporation, P/N: CT-940CH for crimping.

Français: Pour éviter tout risque de choc électrique:

- Ne jamais rendre inopérant le conducteur de masse ni utiliser l'équipement sans un conducteur de masse adéquatement installé.

- En cas de doute sur la mise à la masse appropriée disponible, s'adresser à l'organisme responsable de la sécurité électrique ou à un électricien.

Deutsch: Hinweise zur geforderten Erdung des Gerätes Aus Sicherheitsgründen:

- Darf das Netzkabel nur an eine Schutzkontaktsteckdose angeschloossen werden.

- Dürfen für den Anschluß anderer Geräte, welche mit diesem Gerät verbunden sind, auch nur Schutzkontaktsteckdosen verwendet werden.

Español: Para evitar peligro de descargas:

- Para evitar peligro de descargas asegurese de que el cable de alimentación está conectado a una toma de alimentación adecuadamente cableada y con toma de tierra.

- Cualquier otro equipo a cual se conecte este producto también debe estar conectado a tomas de alimentación adecuadamente cableadas.

Read Important Safety Information Warning

This guide contains important safety information users must be aware of when working with hardware components in this system. Read this guide in its entirety before installing, using, or servicing this equipment.

Français: Avant de brancher le système sur la source d'alimentation, consultez les directives d'installation disponibles dans ceci guide.

Deutsch: Bitte lesen - Sicherheitshinweise Dieses guide enthält wichtige Sicherheitsinformationen, über die sie sich beim Arbeiten mit den Hardwareeinheiten bewußt sein sollten. Sie sollten diese Hinweise lesen, bevor sie installieren, reparieren oder die Anlage verwenden.

Español: Esto guide contiene información importante de seguridad sobre la cual usted debe estar enterado al trabajar con los componentes de dotación física en este sistema. Usted debe leer esta guía antes de instalar, usar o mantener este equipo.

Restricted Access Location Warning

This equipment should be installed in a location that restricts access. A restricted access location is one where access is secure and limited to service personnel who have a special key, or other means of security.

Français: Le matériel doit être installé dans un local avec accès limité ou seules les personnes habilitées peuvent entrer.

Deutsch: Hinweis zu Umgebungen mit beschränktem Zutritt Die Anlage sollte an einem Standort mit beschränktem Zutritt installiert sein. Ein Standort mit beschränktem Zutritt stellt sicher, daß dort nur Servicepersonal mit Hilfe eines Schlüssels oder eines anderen Sicherheitssystems Zugang hat.

Español: Este equipo se debe instalar en un sitio con acceso restrinjido. Un sitio con el acceso restrinjido es uno seguro y con acceso limitado al personal de servicio que tiene una clave especial u otros medios de seguridad.

Wrist Strap Warning

Because electrostatic discharge (ESD) can damage switch components, you must ground yourself properly before continuing with the hardware installation. For this purpose, Alcatel-Lucent Enterprise provides a grounding wrist strap and a grounding lug located near the top-right of the chassis. For the grounding wrist strap to be effective in eliminating ESD, the power supplies must be installed in the chassis and plugged into grounded AC outlets.

Français: L'électricité statique (ESD) peut endommager les composants du commutateur. Pour cette raison Alcatel-Lucent Enterprise joint à l'envoi du châssis un bracelet antistatique à brancher sur la prise mise à la terre située en bas à droite du commutateur. Vous devrez mettre ce bracelet avant toute intervention hardware.

Deutsch: Hinweise zur ESD (Elektrostatischen Aufladung) Weil elektrostatische Aufladung (ESD) Teile der Anlage beschädigen könnten, müssen sie sich selbst erden, bevor sie mit der Hardware Installation beginnen. Zu diesem Zweck stellt Alcatel-Lucent Enterprise ein Erdungsarmband und eine Erdungsöse an der oberen rechten Seite des Chassis zur Verfügung. Um eine sichere Erdungsfunktion des Erdungsarmbandes sicherzustellen, müssen die Netzteile installiert und mit dem Schutzleiter des Versorgungsstromkreises verbunden sein.

Español: La descarga electrostática (ESD) puede dañar componentes eletrónicos. Usted debe asegurarse que está en contacto con tierra antes de hacer la instalación del equipo. Con este fin, Alcatel-Lucent Enterprise proporciona una pulsera de muñeca para conectar al chasis en la toma de tierra situada en la parte superior derecha del chasis. Para que la correa de muñeca sea eficaz en la eliminación de ESD, las fuentes de alimentación deben estar instaladas en el chasis y conectadas a enchufes CA con tierra adecuada.

Instrucciones de seguridad en español

Advertencia sobre el levantamiento del chasis

Se requieren dos personas para levantar el chasis. Debido a su peso, la elevación del chasis sin ayuda puede causar daños corporales. También es seguro doblar sus rodillas y guardar su espalda derecho al ayudar a levantar el chasis.

Advertencia de las tapaderas en blanco

Porque regulan la circulación de aire y ayudan a proteger componentes internos del chasis, las tapaderas en blanco deben seguir instaladas en las ranuras vacías del módulo y la fuente de alimentación siempre.

Advertencia en caso de tormenta eléctrica

Para evitar peligro de descargas, no conecte o desconecte ningun cable, ni realice ninguna instalación, maintenimiento o reconfiguratión de este producto durante una tormenta eléctrica.

Advertencia de instalación

Solamente el personal bien informado en procedimientos eléctricos y mecánicos básicos debe instalar o mantener este equipo.

Advertencia de radiación láser invisible

Los lasers emiten radiación invisible de la apertura abierta cuando no se conecta ningún cable de fibra óptica. Al quitar los cables no mire fijamente en las aberturas abiertas. Además, instale las cubiertas protectoras de la abertura a las salidas de la fibra sin el cable conectado.

Advertencia de la batería de litio

Hay un peligro de la explosión si la batería del litio en su chasis se substituye incorrectamente. Substituya la batería solamente por el mismo o el equivalente de tipo de batería recomendado por el fabricante. Deseche las baterías usadas según las instrucciones del fabricante. Las instrucciones del fabricante son como sigue: Devuelva el módulo con la batería del litio a Alcatel-Lucent. La batería del litio será substituida en la fábrica de Alcatel-Lucent.

Advertencia sobre la tensión de operación

Para reducir el riesgo del choque eléctrico, matenga sus manos y dedos fuera de la fuente de alimentación y no toque la placa madre mientras que el interruptor está funcionando.

Advertencia sobre la desconexión de la fuente

Su interruptor esta equipado por fuentes de alimentación múltiples. Para reducir el riesgo de choque eléctrico, asegúrese desconectar todas las conexiones de alimentación antes de mantener o de mover la unidad.

Advertencia sobre una apropiada conexión a tierra

Para evitar peligro de descargas:

El cable de alimentación debe estar conectado a una toma de alimentación adecuadamente cableada y con toma de tierra.

Cualquier equipo al cual se conecte este producto debe estar también conectado a tomas de alimentación adecuadamente cableadas.

Leer "información importante de seguridad"

La Guía de "Comenzando a Usar" que acompaña este equipo contiene información importante de seguridad sobre la cual usted debe saber al trabajar con los componentes de dotación física en este sistema. Usted debe leer esta guía antes de instalar, de usar, o de mantener este equipo.

Advertencia de acceso restringido

Este equipo se debe instalar en una ubicación que restrinja el acceso. Una ubicación con acceso restringido es una donde está seguro y limitado el acceso al personal de servicio que tiene un clave especial, u
otros medios de la seguridad.

Advertencia de pulsera antiestática

Debido a que la descarga electrostática (ESD) puede dañar componentes del interruptor, usted debe conectarse
a tierra correctamente antes de continuar con la instalación del equipo. Para este propósito, Alcatel-Lucent proporciona una pulsera antiestática y un terminal que pone a tierra situados cerca de la parte superior
derecha del chasis. Para que la pulsera antiestática sea eficaz en la eliminación de ESD, las fuentes de alimentación se deben instalar en el chasis y enchufar en las salidas de CA con descarga a tierra.

Clase de seguridad

Cumple con 21CFR 1040.10 y 1040.11 ó sus equivalentes.