

OmniSwitch 6850 Series

Getting Started Guide

060208-10, Rev. B
October 2006



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

Lithium Batteries Caution. There is a danger of explosion if the Lithium battery in your chassis is incorrectly replaced. Replace the battery only with the same or equivalent type of battery recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions. The manufacturer's instructions are as follows:

Return the module with the Lithium battery to Alcatel. The Lithium battery will be replaced at Alcatel's factory.

The features and specifications described in this guide are subject to change without notice.

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This OmniSwitch product contains components which may be covered by one or more of the following U.S. Patents:

- U.S. Patent No. 6,339,830
- U.S. Patent No. 6,070,243
- U.S. Patent No. 6,061,368
- U.S. Patent No. 5,394,402
- U.S. Patent No. 6,047,024
- U.S. Patent No. 6,314,106
- U.S. Patent No. 6,542,507
- U.S. Patent No. 6,874,090



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Table of Contents

OmniSwitch 6850 Series	1	Setting Up the Hardware	12
Features	1	Items Required	12
Stand-Alone and Stacked		Site Preparation	12
Configurations	2	Environmental Requirements	12
Stand-Alone	2	Electrical Requirements	12
Stacked Configurations	3	Weight Considerations	12
Network Applications	3	OS6850-24L	12
Availability Features	4	OS6850-48L	12
Chassis Types	4	OS6850-P24L	13
OmniSwitch 6850-24L (OS6850-24L)	4	OS6850-P48L	13
OmniSwitch 6850-48L (OS6850-48L)	5	OS6850-U24X	13
OmniSwitch 6850-P24L (OS6850-P24L)	5	OS6850-24	13
OmniSwitch 6850-P48L (OS6850-P48L)	6	OS6850-48	13
OmniSwitch 6850-U24X (OS6850-U24X)	6	OS6850-24X	13
OmniSwitch 6850-24 (OS6850-24)	7	OS6850-48X	13
OmniSwitch 6850-48 (OS6850-48)	7	OS6850-P24	13
OmniSwitch 6850-24X (OS6850-24X)	8	OS6850-P48	13
OmniSwitch 6850-48X (OS6850-48X)	8	OS6850-P24X	13
OmniSwitch 6850-P24 (OS6850-P24)	9	OS6850-P48X	14
OmniSwitch 6850-P48 (OS6850-P48)	9	Items Included	14
OmniSwitch 6850-P24X (OS6850-P24X)	10	Unpacking and Initial Setup	15
OmniSwitch 6850-P48X (OS6850-P48X)	10	Unpacking the Chassis	15
Power Supplies	11	Recommendations	15
		Instructions	15

Setting Up the Switch	16
Airflow Considerations	16
Installation Options	16
Installing the Switch on a Tabletop or Bench	17
Tabletop Mounting Steps	17
Rack-Mounting the Switch	18
Rack Mounting Steps	18
Installing Combo Port SFPs	20
Installing Backup Power Supply Components	20
Completing a Stacked Configuration	21
Cabling Stacked Configurations	21
Redundant Stacking Cable Connections	21
Supported Cabling Patterns	21
Cabling Steps	21
Connections and Cabling	24
Connecting the Serial Cable	24
Serial Connection Default Settings	24
Booting OmniSwitch 6850 Series Switches	25
Booting a Stand-alone Switch	25
Booting Stacked Configurations	26
Dynamic Slot Numbering and Management Role Assignment	27
Manual Slot Numbering and Management Role Assignment	28

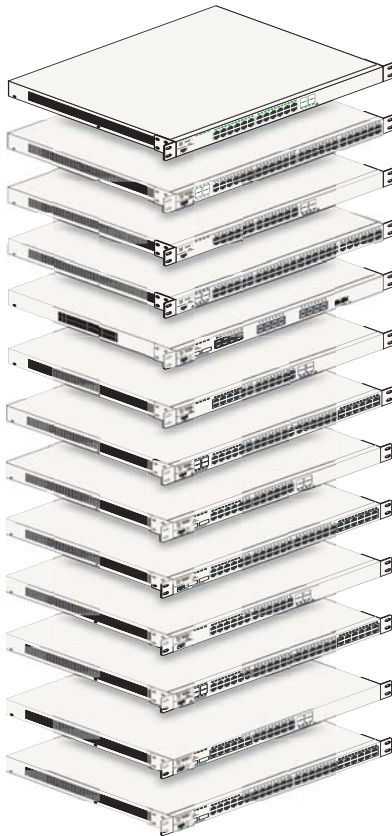
Your First Login Session	29
Logging in to the Switch	29
Assigning an IP Address to the Switch	30
Unlocking Session Types	31
Unlocking All Session Types	31
Unlocking Specified Session Types	31
How many sessions are allowed?	31
Changing the Login Password	32
Setting the System Time Zone	32
Setting the Date and Time	33
Setting Optional System Information	33
Specifying an Administrative Contact	33
Specifying a System Name	33
Specifying the Switch's Location	34
Viewing and Saving Changes	34
Assigning Slot Numbers for a Stack	35
CLI Basics	37
CLI Assistance Features	37
Syntax Checking	37
Command Line (?) Help	38
Partial Keyword Completion	38
Deleting Characters	38
Inserting Characters	39
Previous Command Recall	39
Prefix Recognition	39
Prefix Prompt	40

Command History	40
Command Logging	41
Enabling Command Logging	41
Common CLI Commands	42
Offline Configuring	43
Syntax Checking	43
Scheduling a Configuration File to be Applied at a Later Time	44
Generating Snapshots of the Current Configuration	44
Files and Directories	45
Boot and Image Files	45
boot.params File	45
boot.cfg File	45
Image Files	46
Working and Certified Directories	47
Working Directory	47
Certified Directory	48
How can I tell which directory the switch is currently using?	48
Can I save changes to the Certified directory? ..	49
What happens when the switch boots?	49
Working and Certified Are Identical	49
Working and Certified Are Different	50
My Working and Certified directories are dif- ferent. Can I force a reboot from the Working directory?	50

Loading Software	51
Stand-Alone Configurations	51
Using WebView	53
Browser Compatibility	53
Logging In to WebView	53
Navigating WebView	54
Online Help	56
Additional Information	56
Troubleshooting	56
Hardware Basics	57
LED States	57
10/100/1000 LEDs	57
1000 SFP LEDs	57
10000 XFP1 LEDs	57
10000 XFP2 LEDs	57
OmniSwitch 6850-24L Front Panel	58
OmniSwitch 6850-48L Front Panel	59
OmniSwitch 6850-P24L Front Panel	60
OmniSwitch 6850-P48L Front Panel	61
OmniSwitch 6850-U24X Front Panel	62
OmniSwitch 6850-24 Front Panel	63
OmniSwitch 6850-48 Front Panel	64
OmniSwitch 6850-24X Front Panel	65
OmniSwitch 6850-48X Front Panel	66
OmniSwitch 6850-P24 Front Panel	67
OmniSwitch 6850-P48 Front Panel	68

OmniSwitch 6850-P24X Front Panel	69
OmniSwitch 6850-P48X Front Panel	70
OmniSwitch 6850 Series LEDs	71
OmniSwitch 6850 Series Rear Panel	72
User Documentation on CD	73

OmniSwitch 6850 Series



OmniSwitch 6850-24L

OmniSwitch 6850-48L

OmniSwitch 6850-P24L

OmniSwitch 6850-P48L

OmniSwitch 6850-U24X

OmniSwitch 6850-24

OmniSwitch 6850-48

OmniSwitch 6850-24X

OmniSwitch 6850-48X

OmniSwitch 6850-P24

OmniSwitch 6850-P48

OmniSwitch 6850-P24X

OmniSwitch 6850-P48X

Features

The OmniSwitch 6850 Series is an advanced fixed configuration family of Ethernet switches. These switches provide wire rate Layer 2 forwarding and Layer 3 routing with advanced services. All except OS6850-48X, OS6850-P48X, and OS6850-U24X offer four combo ports consisting of four shared 10/100/1000 ports and four 1000 Mbps fiber SFP ports.

- The OmniSwitch 6850-24L (OS6850-24L) is a stackable edge/workgroup switch offering 20 unshared 10/100Base-T ports, as well as four combo ports individually configurable to be 10/100/1000Base-T or 1000Base-X high speed connections.
- The OmniSwitch 6850-48L (OS6850-48L) is a stackable edge/workgroup switch offering 44 unshared 10/100Base-T ports, as well as four combo ports individually configurable to 10/100/1000Base-T or 1000Base-X high speed connections.
- The OmniSwitch 6850-P24L (OS6850-P24L) is a stackable edge/workgroup switch offering 20 unshared 10/100Base-T PoE ports, as well as four combo ports individually configurable to be 10/100/1000Base-T or 1000Base-X high speed connections.
- The OmniSwitch 6850-P48L (OS6850-P48L) is a stackable edge/workgroup switch offering 44 unshared

10/100Base-T PoE ports, as well as four combo ports individually configurable to 10/100/1000Base-T or 1000Base-X high speed connections.

- The OmniSwitch 6850-U24X (OS6850-U24X) is a stackable edge/workgroup switch offering 24 1000Base-X MiniGBIC SFP ports, two (2) 10 Gigabit XFP slots, as well as two combo ports individually configurable to 10/100/1000Base-T ports.
- The OmniSwitch 6850-24 (OS6850-24) is a 24-port, 10/100/1000 fixed stackable chassis with four combo fiber SFP ports.
- The OmniSwitch 6850-48 (OS6850-48) is a 48-port, 10/100/1000 fixed stackable chassis with four combo fiber SFP ports.
- The OmniSwitch 6850-24X (OS6850-24X) is a 24-port, 10/100/1000 fixed stackable chassis with four combo fiber SFP ports. This switch also includes two 10-Gigabit XFP ports.
- The OmniSwitch 6850-48X (OS6850-48X) is a 48-port, 10/100/1000 fixed stackable chassis. This switch also includes two 10-Gigabit XFP ports.
- The OmniSwitch 6850-P24 (OS6850-P24) is a 24-port, 10/100/1000 PoE fixed stackable chassis with four combo fiber SFP ports.
- The OmniSwitch 6850-P48 (OS6850-P48) is a 48-port, 10/100/1000 PoE fixed stackable chassis with four combo fiber SFP ports.

- The OmniSwitch 6850-P24X (OS6850-P24X) is a 24-port, 10/100/1000 PoE fixed stackable chassis with four combo fiber SFP ports. This switch also includes two 10-Gigabit XFP ports.
- The OmniSwitch 6850-P48X (OS6850-P48X) is a 48-port, 10/100/1000 PoE fixed stackable chassis. This switch also includes two 10-Gigabit XFP ports.

The OmniSwitch 6850 Series switches are based on the same software architecture as OmniSwitch 9000 Series switches (e.g., OS9700). They are designed to meet the most stringent requirements for mission-critical networks.

Note. The 20 and 44 unshared 10/100Base-T PoE or non-PoE ports of the 24/48 Lite versions are software upgradeable to 10/100/1000BaseT ports. Please contact your Alcatel representative for more information.

Stand-Alone and Stacked Configurations

Stand-Alone

A stand-alone OmniSwitch 6850 Series switch is ideal for small and medium-sized network edge applications, offering 24 ports (OS6850-24, OS6850-24X, OS6850-P24, OS6850-P24X, OS6850-24L, OS6850-P24L, OS6850-U24X) and 48 ports (OS6850-48, OS6850-48X, OS6850-P48, OS6850-P48X, OS6850-48L, OS6850-P48L) switches.

These switches provide support for enterprise-based devices, such as computer workstations or IP telephones.

A single OmniSwitch 6850 Series switch also supports 10-Gigabit Ethernet uplinks for high-bandwidth connections to a backbone or server.

Stacked Configurations

In addition to working as individual, stand-alone switches, OmniSwitch 6850 Series switches can also be linked together to form a single, high-density virtual chassis known as a *stack*.

Note. You cannot mix OS6800 and OS6850 switches in a stack.

Stacking switches provides scalability by allowing users to quickly and easily expand 10/100/1000 port density. Twenty-four 10/100/1000 ports are added for each OS6850-24, OS6850-24X, OS6850-P24, OS6850-P24X, and OS6850-U24X switch brought into the stack; forty-eight 10/100/1000 ports are added for each OS6850-48, OS6850-48X, OS6850-P48, OS6850-P48X, and switch.

Twenty-four 10/100 ports are added for each OS6850-24L and OS6850-P24L switch brought into the stack; forty-eight 10/100 ports are added for each OS6850-48L and OS6850-P48L switch.

Up to eight switches can be stacked. OmniSwitch 6850 Series switches can be mixed and matched in *any combination* within

the stack. This provides a virtual chassis with a 10/100/1000 capacity of up to 384 ports.

Note. Switches should be added one at a time in a stack.

As with the stand-alone configuration, a stacked virtual chassis configuration provides Gigabit Ethernet uplinks and 10-Gigabit Ethernet uplinks to a backbone or server.

Network Applications

The OmniSwitch 6850 Series offers effective availability, resiliency, and security features and are ideal for the following network applications:

- Enterprise workgroups/LAN wiring closets
- Edge deployments and branch offices
- L3 aggregation/distribution layer switches in three-tier networks
- Small enterprise core switching
- Quality of Service (QoS) for mission critical applications
- Data center server clusters

Availability Features

The switch provides a broad variety of availability features. Availability features are hardware- and software-based safeguards that help to prevent the loss of data flow in the unlikely event of a subsystem failure. In addition, some availability features allow users to maintain or replace hardware components without powering off the switch or interrupting switch operations. Combined, these features provide added resiliency and help to ensure that the switch or virtual chassis is consistently available for day-to-day network operations.

Some key availability features include:

- Management Module Redundancy
- Software Rollback
- Backup Power Supplies
- Hot Swapping
- Hardware Monitoring

For information on these availability features, refer to the *OmniSwitch 6850 Series Hardware Users Guide*.

Chassis Types

OmniSwitch 6850-24L (OS6850-24L)

The OmniSwitch 6850-24L is a stackable edge/workgroup switch offering 20 unshared 10/100Base-T ports, as well as four combo ports individually configurable to be 10/100/1000Base-T or 1000Base-X high speed connections.



The front panel of the OS6850-24L chassis contains the following major components:

- System status and slot indicator LEDs
- (20) Unshared 10/100Base-T ports
- (4) Shared combo 10/100/1000Base-T ports
- (4) Combo SFP slots for 1000Base-X connections
- Console port (RJ-45)
- USB port (USB 2.0)

For more information on the OS6850-24L chassis details, refer to [“Hardware Basics” on page 57](#).

Note. USB 2.0 is not supported in this release.

OmniSwitch 6850-48L (OS6850-48L)

The OmniSwitch 6850-48L is a stackable edge/workgroup switch offering 44 unshared 10/100Base-T ports, as well as four combo ports individually configurable to 10/100/1000Base-T or 1000Base-X high speed connections.



The front panel of the OS6850-48L chassis contains the following major components:

- System status and slot indicator LEDs
- (44) Unshared 10/100Base-T ports
- (4) Shared combo 10/100/1000Base-T ports
- (4) Combo SFP slots for 1000Base-X connections
- Console port (RJ-45)
- USB port (USB 2.0)

For more information on the OS6850-48L chassis details, refer to [“Hardware Basics” on page 57](#).

Note. USB 2.0 is not supported in this release.

OmniSwitch 6850-P24L (OS6850-P24L)

The OmniSwitch 6850-P24L is a stackable edge/workgroup switch offering 20 unshared 10/100Base-T PoE ports, as well as four combo ports individually configurable to be 10/100/1000Base-T or 1000Base-X high speed connections.



The front panel of the OS6850-P24L chassis contains the following major components:

- System status and slot indicator LEDs
- (20) Unshared 10/100Base-T PoE ports
- (4) Shared combo 10/100/1000Base-T PoE ports
- (4) Combo SFP slots for 1000Base-X connections
- Console port (RJ-45)
- USB port (USB 2.0)

For more information on the OS6850-P24L chassis details, refer to [“Hardware Basics” on page 57](#).

Note. USB 2.0 is not supported in this release.

OmniSwitch 6850-P48L (OS6850-P48L)

The OmniSwitch 6850-P48L is a stackable edge/workgroup switch offering 44 unshared 10/100Base-T PoE ports, as well as four combo ports individually configurable to 10/100/1000Base-T or 1000Base-X high speed connections.



The front panel of the OS6850-P48L chassis contains the following major components:

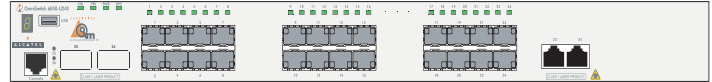
- System status and slot indicator LEDs
- (44) Unshared 10/100Base-T PoE ports
- (4) Shared combo 10/100/1000Base-T PoE ports
- (4) Combo SFP slots for 1000Base-X connections
- Console port (RJ-45)
- USB port (USB 2.0)

For more information on the OS6850-P48L chassis details, refer to [“Hardware Basics” on page 57](#).

Note. USB 2.0 is not supported in this release.

OmniSwitch 6850-U24X (OS6850-U24X)

The OmniSwitch 6850-U24X is a stackable edge/workgroup switch offering 24 1000Base-X MiniGBIC SFP ports, two (2) 10 Gigabit XFP slots, as well as two combo ports individually configurable to 10/100/1000Base-T ports.



The front panel of the OS6850-U24X chassis contains the following major components:

- System status and slot indicator LEDs
- (22) Unshared 1000Base-X MiniGBIC SFP ports
- (2) Shared combo 1000Base-X MiniGBIC SFP ports
- (2) Combo RJ-45 10/100/1000Base-T ports
- (2) 10 Gigabit XFP slots
- Console port (RJ-45)
- USB port (USB 2.0)

For more information on the OS6850-U24X chassis details, refer to [“Hardware Basics” on page 57](#).

Note. USB 2.0 is not supported in this release.

OmniSwitch 6850-24 (OS6850-24)

The OmniSwitch 6850-24 is a stackable edge/workgroup switch offering 24 10/100/1000Base-T ports, as well as four SFP ports for high-speed connections.



The front panel of the OS6850-24 chassis contains the following major components:

- System status and slot indicator LEDs
- (20) Unshared 10/100/1000Base-T ports
- (4) Shared combo 10/100/1000Base-T ports
- (4) Combo SFP slots for 1000Base-X connections
- Console port (RJ-45)
- USB port (USB 2.0)

For more information on the OS6850-24 chassis details, refer to [“Hardware Basics” on page 57](#).

Note. USB 2.0 is not supported in this release.

OmniSwitch 6850-48 (OS6850-48)

The OmniSwitch 6850-48 is a stackable edge/workgroup switch offering 48 10/100/1000Base-T ports, as well as four SFP ports for high-speed connections.



The front panel of the OS6850-48 chassis contains the following major components:

- System status and slot indicator LEDs
- (44) Non-combo 10/100/1000Base-T ports
- (4) Combo 10/100/1000Base-T ports
- (4) Combo SFP slots for 1000Base-X connections
- Console port (RJ-45)

For more information on the OS6850-48 chassis details, refer to [“Hardware Basics” on page 57](#).

Note. USB 2.0 is not supported in this release.

OmniSwitch 6850-24X (OS6850-24X)

The OmniSwitch 6850-24X is a stackable edge/workgroup switch offering 24 10/100/1000Base-T ports, as well as four SFP ports for high-speed connections. This switch also includes two 10-Gigabit XFP ports.



The front panel of the OS6850-24X chassis contains the following major components:

- System status and slot indicator LEDs
- (20) Unshared 10/100/1000Base-T ports
- (4) Shared combo 10/100/1000Base-T ports
- (4) Combo SFP slots for 1000Base-X connections
- (2) 10-Gigabit XFP slots
- Console port (RJ-45)
- USB port (USB 2.0)

For more information on the OS6850-24X chassis details, refer to [“Hardware Basics” on page 57](#).

Note. USB 2.0 is not supported in this release.

OmniSwitch 6850-48X (OS6850-48X)

The OmniSwitch 6850-48X is a stackable edge/workgroup switch offering 48 10/100/1000Base-T ports. This switch also includes two 10-Gigabit XFP ports.



The front panel of the OS6850-48X chassis contains the following major components:

- System status and slot indicator LEDs
- (48) Unshared 10/100/1000Base-T ports
- (2) 10-Gigabit XFP slots
- Console port (RJ-45)
- USB port (USB 2.0)

For more information on the OS6850-48X chassis details, refer to [“Hardware Basics” on page 57](#).

Note. USB 2.0 is not supported in this release.

OmniSwitch 6850-P24 (OS6850-P24)

The OmniSwitch 6850-P24 is a stackable edge/workgroup switch offering 24 Power over Ethernet (PoE) 10/100/1000Base-T ports, as well as four SFP ports for high-speed connections.



The front panel of the OS6850-P24 chassis contains the following major components:

- System status and slot indicator LEDs
- (20) Unshared 10/100/1000Base-T PoE ports
- (4) Shared combo 10/100/1000Base-T PoE ports
- (4) Combo SFP slots for 1000Base-X connections
- Console port (RJ-45)
- USB port (USB 2.0)

For more information on the OS6850-P24 chassis details, refer to [“Hardware Basics” on page 57](#).

Note. USB 2.0 is not supported in this release.

OmniSwitch 6850-P48 (OS6850-P48)

The OmniSwitch 6850-P48 is a stackable edge/workgroup switch offering 48 Power over Ethernet (PoE) 10/100/1000Base-T ports, as well as four SFP ports for high-speed connections.



The front panel of the OS6850-P48 chassis contains the following major components:

- System status and slot indicator LEDs
- (44) Unshared 10/100/1000Base-T PoE ports
- (4) Shared combo 10/100/1000Base-T PoE ports
- (4) Combo SFP slots for 1000Base-X connections
- Console port (RJ-45)
- USB port (USB 2.0)

For more information on the OS6850-P48 chassis details, refer to [“Hardware Basics” on page 57](#).

Note. USB is not supported in this release.

OmniSwitch 6850-P24X (OS6850-P24X)

The OmniSwitch 6850-P24X is a stackable edge/workgroup switch offering 24 Power over Ethernet (PoE) 10/100/1000Base-T ports, as well as four SFP and two XFP ports for high-speed connections.



The front panel of the OS6850-P24X chassis contains the following major components:

- System status and slot indicator LEDs
- (20) Unshared 10/100/1000Base-T PoE ports
- (4) Shared combo 10/100/1000Base-T PoE ports
- (4) Combo SFP slots for 1000Base-X connections
- (2) 10-Gigabit XFP slots
- Console port (RJ-45)
- USB port (USB 2.0)

For more information on the OS6850-P24X chassis details, refer to [“Hardware Basics” on page 57](#).

Note. USB 2.0 is not supported in this release.

OmniSwitch 6850-P48X (OS6850-P48X)

The OmniSwitch 6850-P48X is a stackable edge/workgroup switch offering 48 Power over Ethernet (PoE) 10/100/1000Base-T ports, as well as four SFP and two XFP ports for high-speed connections.



The front panel of the OS6850-P48X chassis contains the following major components:

- System status and slot indicator LEDs
- (48) Unshared 10/100/1000Base-T PoE ports
- (4) Combo SFP slots for 1000Base-X connections
- (2) 10-Gigabit XFP slots
- Console port (RJ-45)
- USB port (USB 2.0)

For more information on the OS6850-P48X chassis details, refer to [“Hardware Basics” on page 57](#).

Note. USB 2.0 is not supported in this release.

Note. The 20 and 44 unshared 10/100Base-T PoE or non-PoE ports of the 24/48 Lite versions are software upgradeable to 10/100/1000BaseT ports. Please contact your Alcatel representative for more information.

Power Supplies

OmniSwitch 6850 Series switches support power supply components. The components include:

- PS-120W-DC backup power supply module
- PS-126W-AC backup power supply module
- PS-360W-AC backup power supply module
- PS-510W-AC backup power supply module
- Backup power supply connector cable

When backup power supply components are installed, the primary (factory-installed) power supply continues to take on the full power load for switch operations. Meanwhile, the backup power supply operates in active standby mode. If the primary power supply fails unexpectedly, the backup power supply automatically takes up the full power load without disrupting the switch.

The OmniSwitch 6850 Series backup power supply system is chassis-based with each chassis supporting up to eight backup power supplies. This provides 1:1 redundancy for stacks of up to eight switches

Setting Up the Hardware

Items Required

In addition to the materials and components provided in the OmniSwitch 6850 Series shipment, you must provide the following items in order to complete this installation:

- Grounding wrist strap
- Phillips screwdriver
- Serial cable
- Rack mount screws, if applicable

Site Preparation

Environmental Requirements

OmniSwitch 6850 Series switches have the following environmental and airflow requirements:

- The installation site must maintain a temperature between 0° and 45° Celsius (32° and 113° Fahrenheit) and not exceed 95 percent maximum humidity (non-condensing) at any time.
- Be sure to allow adequate room for proper air ventilation and access at the front, back, and sides of the switch. No clearance is necessary at the top or bottom of the chassis. Refer to [page 16](#) for minimum clearance requirements.

Electrical Requirements

OmniSwitch 6850 Series switches have the following general electrical requirements:

- Each switch requires one grounded AC power source.
- Grounded AC power source must be 110V for North American installations (220V international).
- Each supplied AC power cord is approximately 2 meters (6.5 feet) long. Do not use extension cords.

Weight Considerations

OS6850-24L

A single OS6850-24L weighs approximately 14 lbs (6.24 Kgs). A stack of eight OS6850-24L switches weighs approximately 112 lbs (50 Kgs).

OS6850-48L

A single OS6850-48L weighs approximately 14 lbs (6.24 Kgs). A stack of eight OS6850-48L switches weighs approximately 112 lbs (50 Kgs).

OS6850-P24L

A single OS6850-P24L weighs approximately 14 lbs (6.24 Kgs). A stack of eight OS6850-P24L switches weighs approximately 112 lbs (50 Kgs).

OS6850-P48L

A single OS6850-P48L weighs approximately 14 lbs (6.24 Kgs). A stack of eight OS6850-P48L switches weighs approximately 112 lbs (50 Kgs).

OS6850-U24X

A single OS6850-U24X weighs approximately 14 lbs (6.24 Kgs). A stack of eight OS6850-U24X switches weighs approximately 112 lbs (50 Kgs).

OS6850-24

A single OS6850-24 weighs approximately 14 lbs (6.24 Kgs). A stack of eight OS6850-24 switches weighs approximately 112 lbs (50 Kgs).

OS6850-48

A single OS6850-48 weighs approximately 14 lbs (6.24 Kgs). A stack of eight OS6850-48 switches weighs approximately 112 lbs (50 Kgs).

OS6850-24X

A single OS6850-24X weighs approximately 14 lbs (6.24 Kgs). A stack of eight OS6850-24X switches weighs approximately 112 lbs (50 Kgs).

OS6850-48X

A single OS6850-48X weighs approximately 14 lbs (6.24 Kgs). A stack of eight OS6850-48X switches weighs approximately 112 lbs (50 Kgs).

OS6850-P24

A single OS6850-P24 weighs approximately 14 lbs (6.24 Kgs). A stack of eight OS6850-P24 switches weighs approximately 112 lbs (50 Kgs).

OS6850-P48

A single OS6850-P48 weighs approximately 14 lbs (6.24 Kgs). A stack of eight OS6850-P48 switches weighs approximately 112 lbs (50 Kgs).

OS6850-P24X

A single OS6850-P24X weighs approximately 14 lbs (6.24 Kgs). A stack of eight OS6850-P24X switches weighs approximately 112 lbs (50 Kgs).

OS6850-P48X

A single OS6850-P48X weighs approximately 14 lbs (6.24 Kgs). A stack of eight OS6850-P48X switches weighs approximately 112 lbs (50 Kgs).

Items Included

Your OmniSwitch 6850 Series switch order includes the following items:

- OmniSwitch 6850 Series chassis
- Rack mount flanges with attachment screws (rack mount flanges may be pre-installed on some orders)
- Power cord (country-specific)
- OmniSwitch 6850 Series-specific user documentation:

OmniSwitch 6850 Series Getting Started Guide

OmniSwitch 6850 Series Hardware Users Guide

OmniSwitch CLI Reference Guide

OmniSwitch 6800/6850/9000 Switch Management Guide

OmniSwitch 6800/6850/9000 Network Configuration Guide

OmniSwitch 6800/6850/9000 Advanced Routing Configuration Guide

Depending on the items ordered for your specific network requirements, the following optional items may also be included:

- Stacking cables (per order)
- Combo port SFPs (per order)
- 10-Gigabit XFPs (per order)
- Backup power supply components and cables (per order)

Unpacking and Initial Setup

Unpacking the Chassis

To protect your OmniSwitch chassis and hardware components from electrostatic discharge (ESD) and physical damage, read all unpacking recommendations and instructions carefully before beginning.

Recommendations

- Unpack your OmniSwitch chassis as close as possible to the location where it will be installed.
- Depending on your order, Small Form-Factor Pluggables (SFPs), stacking cables and backup power supply components may be packaged separately. In order to greatly reduce exposure to electrostatic discharge (ESD) and physical damage, do not unpack these items until they are ready to be installed.

Instructions

- 1** Carefully cut the tape along the seam at the top of the box containing the chassis.
- 2** Lift the box's top flaps. Remove any smaller boxes or pouches that are enclosed and set them aside.
- 3** Lift the chassis out of the packaging.

- 4** Carefully remove any foam pads and protective plastic from the switch chassis.

Note. Alcatel provides factory-installed blank cover plates for empty backup power supply or 10-Gigabit expansion module bays. Do not remove these cover plates unless a backup power supply or expansion module is to be installed immediately at the corresponding bay.

- 5** If you are installing multiple switches in a stacked configuration, repeat steps 1 through 4 for the remaining switches that will make up the stack.
- 6** Once all OmniSwitch 6850 Series switches have been removed from their packaging, continue to “Setting Up the Switch.”

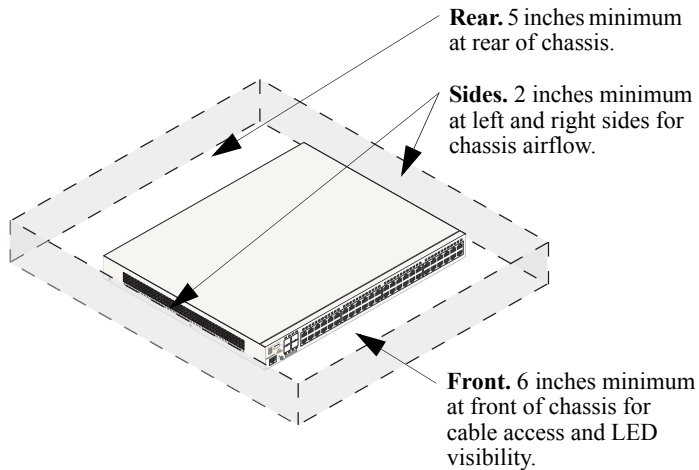
Setting Up the Switch

Note. Due to their airflow and access requirements, OmniSwitch 6850 Series switches cannot be wall-mounted.

Airflow Considerations

Be sure that your switch is placed in a well-ventilated, static-free environment. Always allow adequate clearance at the front, rear, and sides of the switch.

The following diagram shows recommended minimum clearances for adequate chassis airflow and access to components at the rear of the chassis.



Chassis Top View

Never obstruct the air vents located at the left and right sides of the chassis.

Note. Clearance is not required at the top and bottom of the chassis. For detailed chassis airflow diagrams, refer to the *OmniSwitch 6850 Series Hardware Users Guide*.

Installation Options

There are two ways in which the OmniSwitch 6850 Series switches can be installed:

- Tabletop installation
- Rack-mount installation

For information on setting up a switch as a tabletop unit, refer to “Installing the Switch on a Tabletop or Bench.” For information on rack-mounting the switch, refer to [“Rack-Mounting the Switch” on page 18](#).

Installing the Switch on a Tabletop or Bench

OmniSwitch 6850 Series switches can be installed freestanding as tabletop units. Place your switch on a stable, flat, and static-free surface.

Note. OmniSwitch 6850 Series switches must be placed “right side up.” Never attempt to operate a switch positioned on its side.

Note. If you are installing a single (i.e., stand-alone) switch, continue to “[Connections and Cabling](#)” on page 24 for additional setup procedures.

Tabletop Mounting Steps

To install the switch as a tabletop unit, follow the steps below:

- 1 Position the chassis on the table or bench where it is to be installed.
- 2 Be sure that adequate clearance has been provided for chassis airflow and access to the front, back, and sides of the switch. For recommended clearances, refer to [page 16](#). Also, be sure that you have placed the chassis within reach of all required AC power sources.

If you are placing multiple switches in a stacked configuration, carefully stack the remaining switches, one on top of the other. Up to eight switches may be stacked to form a single virtual chassis. Be sure to maintain adequate clearance at the front, rear, left, and right side of all switches (see [page 16](#)). Also, be sure that you have placed all switches in the stack within reach of required AC power sources.

Rack-Mounting the Switch

Refer to the important guidelines below before installing the OmniSwitch chassis in a rack.

- It is recommended that two people install the switch in the rack—one person to hold the chassis and position it in the rack, and a second person to secure the chassis to the rack using attachment screws (not supplied).
- Alcatel provides two rack-mount flanges with each OmniSwitch 6850 Series switch. These flanges support standard 19-inch rack mount installations. These flanges must be attached to the chassis before the switch can be rack mounted.

Note. If you are installing the switch in a 23-inch wide rack, Alcatel offers optional 23-inch rack-mounting hardware. For more information, contact your Alcatel representative.

- Alcatel does not provide rack-mount screws. Use the screws supplied by the rack vendor.
- To prevent a rack from becoming top heavy, it is recommended that you install heavier equipment at the bottom of the rack whenever possible.
- If you are installing the switch in a relay rack, be sure to install and secure the rack as per the rack manufacturer's specifications.

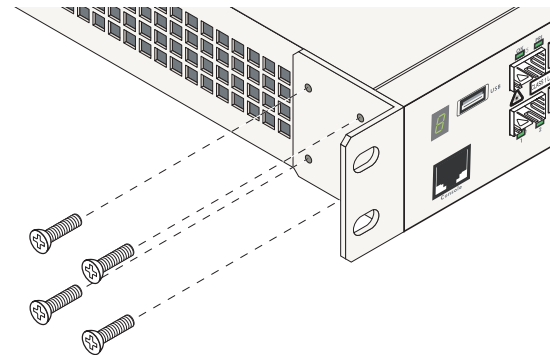
- Review [page 16](#) for important chassis airflow and access recommendations before installing.

Rack Mounting Steps

To rack-mount the switch, follow the steps below.

Note. Rack-mount flanges may come factory-installed in some cases. If this is the case, skip steps 1 and 2 below.

- 1** Align the holes in the provided rack-mount flanges with the four threaded holes in the OmniSwitch chassis. These threaded holes are located in the left and right sides of the chassis, near the front panel.
- 2** Attach the flanges to the chassis using the provided Phillips-head screws. Be sure to tighten each of the screws firmly using a Phillips screwdriver.



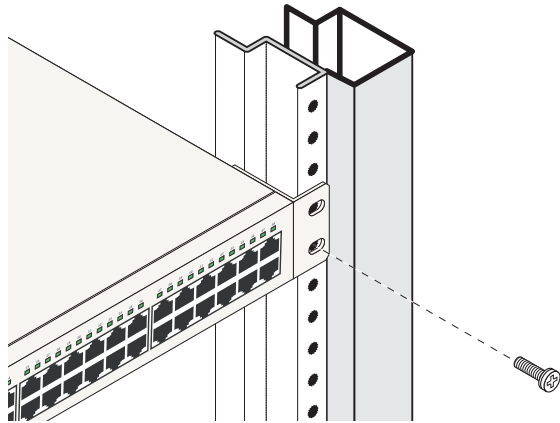
Attaching a Rack-Mount Flange

3 After the rack-mount flanges are secured to the chassis, mark the holes on the rack where the switch is to be installed.

4 Lift and position the switch until the rack-mount flanges are flush with the rack post.

5 Align the holes in the flanges with the rack holes that were marked in step 3.

6 Once the holes are aligned, insert a rack-mount screw (not provided) through the *bottom hole of each flange*. Tighten both screws until they are secure.



Attaching the Switch to the Rack

Note. Be sure to install the screws in the *bottom hole* of each flange, as shown, before proceeding.

7 Once the screws at the bottom of each flange are secure, install the remaining two rack-mount screws. Be sure that all screws are securely tightened.

8 If you are installing multiple switches in a rack to form a stacked configuration, repeat steps 1 through 7 for all switches in the stack.

Note. When rack mounting multiple switches in a stacked configuration, be sure to place all switches in vertically-adjacent rack positions. This will ensure that all required stacking cables will have adequate length for the installation.

Installing Combo Port SFPs

OmniSwitch 6850 Series switches offer Gigabit Ethernet combo ports, located on the front panel (see [page 64](#)). These combo ports support hot-swappable fiber Small Form-Factor Pluggables (SFPs). For instructions on installing and removing combo port SFPs, refer to the instruction card provided with the SFP product.

Note. Combo port preferences are user-configurable via the system software. Refer to the “Configuring Ethernet Ports” in the *OmniSwitch 6800/6850/9000 Network Configuration Guide* for complete details.

Note. For further details regarding supported SFP and XFP transceivers, refer to the *OmniSwitch 6850 Series Hardware Users Guide*.

Installing Backup Power Supply Components

For detailed information on installing backup power supply components—including the backup power supply, connector cables, and power cords—refer to the *OmniSwitch 6850 Series Hardware Users Guide*.

Completing a Stacked Configuration

Cabling Stacked Configurations

In order to connect stacked switches into a virtual chassis, all modules in the stack must be connected via stacking cables (provided).

Redundant Stacking Cable Connections

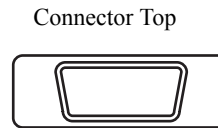
In addition to the stacking cables installed between adjacent switch, the top-most switch and bottom-most switch in the stack must be connected using a redundant stacking cable. Refer to the OmniSwitch 6850 Series Hardware Users Guide for more information on the redundant stacking cable connection.

Supported Cabling Patterns

Each switch provides two stacking ports: stacking port A and stacking port B. Cables can be connected in any pattern. In other words, the cable connected to stacking port A of one switch can be connected to either stacking port A or stacking port B of the adjacent switch. However, it is strongly recommended that the cabling pattern remains consistent across the stack. For a cabling diagram and additional information on cabling the stack, refer to the OmniSwitch 6850 Series Hardware Users Guide.

Cabling Steps

1 Before inserting a stacking cable into one of the stacking ports, be sure to orient the stacking cable connector properly. The wide portion of the connector must be facing up. Refer to the diagram below for more information.



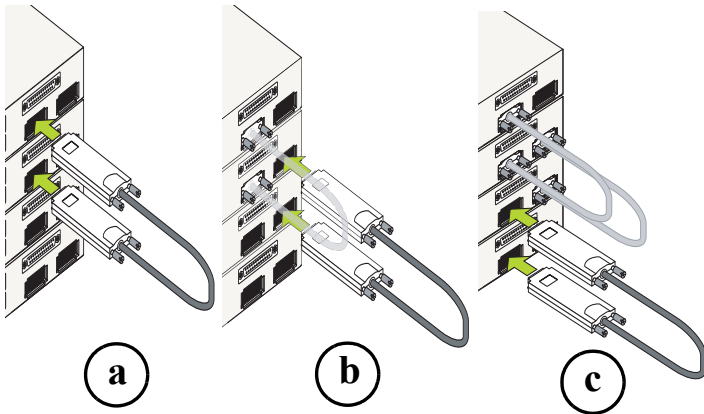
When orienting the stacking cable connector, be sure that the wider portion of the connector is facing up, as shown. Otherwise, the stacking cable will not fit properly in the chassis' stacking port.

End View of Stacking Cable Connector

- 2** Starting from the top of the stack, insert one end of the stacking cable into either stacking port A or stacking port B. The stacking port (A or B) depends on your preferred cabling pattern. Refer to the OmniSwitch 6850 Series Hardware Users Guide for detailed information on cabling patterns. Be sure that cable connector is completely inserted and fully seated in the chassis.
- 3** Insert the other end of the stacking cable into the stacking port of the switch immediately below. Once again, the stacking port (A or B) depends on the preferred cabling pattern.

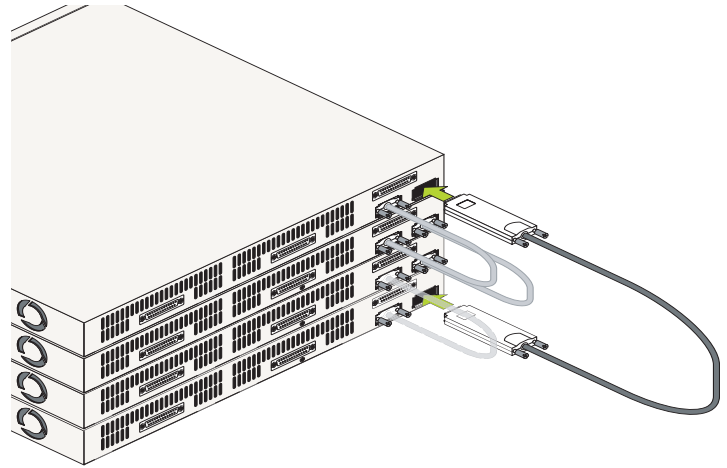
4 Repeat this procedure until all switches in the stack are connected (see illustrations a, b, and c below).

Reminder. The diagram below shows one supported stacking cable pattern. For additional supported cabling patterns, refer to the OmniSwitch 6850 Series Hardware Users Guide.



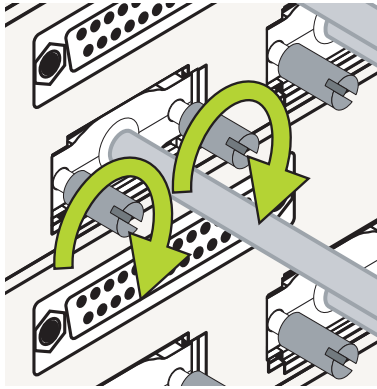
Connecting the Switches in the Stack

5 To provide added resiliency and redundancy, you must install the redundant stacking cable to connect the top switch in the stack to the bottom switch. Connect the redundant cable now. Refer to the diagram below for more information



Redundant Connection Between Top and Bottom Switches

6 Once all stacking cable connectors are inserted, tighten the captive screws at the left- and right-hand sides of each connector, as shown. Be sure not to overtighten the screws.



Tightening Stacking Connector Captive Screws

7 Now that all switches in the stack are connected, the next step is to connect all required network and management cables. Refer to [“Connections and Cabling” on page 24](#) for more information.

Connections and Cabling

Once your switch is properly set up and all the required hardware components are installed, you should connect all network and management cables required for your network applications. Connections may include:

- RJ-45 cable connection to the console port
- Single mode or multimode fiber cables to combo port SFPs as required by your network
- Ethernet cables to 10/100/1000 or 10/100 Ethernet ports as required by your network

Connecting the Serial Cable

The console port, located on the chassis front panel, provides a serial connection to the switch and is required when logging into the switch for the first time. By default, this RJ-45 connector provides a DTE console connection.

Serial Connection Default Settings

The default settings for the serial connection are as follows:

baud rate	9600
parity	none
data bits (word size)	8
stop bits	1

Note. For information on modifying these settings, refer to the *OmniSwitch 6850 Series Hardware Users Guide*.

Booting OmniSwitch 6850 Series Switches

Booting a Stand-alone Switch

The OmniSwitch 6850 Series switch does not use an on/off switch. The power cord is the switch's only connect/disconnect device. The power connector socket is located on the switch's rear panel. For more information, refer to [“OmniSwitch 6850 Series Rear Panel” on page 72](#).

To boot the switch, plug the power cord (provided) into the power connector socket at the switch's rear panel. Next, plug the power cord into an easily-accessible power source, such as a grounded AC outlet or an Uninterruptible Power Supply (UPS).

The switch immediately begins the boot process. Allow a few moments for the switch to boot completely, then verify the status of all LEDs on the switch's front panel. A successful boot for a stand-alone switch displays the following LED states:

LED States for a Stand-alone Switch

OK	Solid green
PRI	Solid green
PWR	Solid green

LED States for a Stand-alone Switch

BPS	Solid amber, if BPS attached is failed; off, if no operational BPS is attached; solid green if an operational BPS is attached and operating normally. See page 71 for more information.
XFP1	Off (applies to all OmniSwitch 6850 Series switches except for the OmniSwitch 6850-24X, OmniSwitch 6850-P24X, OmniSwitch 6850-48X, OmniSwitch 6850-P48X, and OmniSwitch 6850-U24X).
XFP2	Off (applies to all OmniSwitch 6850 Series switches except for the OmniSwitch 6850-24X, OmniSwitch 6850-P24X, OmniSwitch 6850-48X, OmniSwitch 6850-P48X, and OmniSwitch 6850-U24X).

LED States for a Stand-alone Switch

Slot Indicator	1–8 (non-blinking), depending on the slot number value in the boot.slot.cfg file. See the <i>OmniSwitch 6850 Series Hardware Users Guide</i> for detailed information. The default value is 1.
----------------	---

If any of the LED state differs from the states shown in the table above, refer to [page 71](#) for more information. Contact Alcatel Customer Support if the unexpected LED state persists.

Booting Stacked Configurations

Once the switches have been connected into a virtual chassis and the network cables have been attached, the next step is to manually power on the stack. The OmniSwitch 6850 Series switch does not use an on/off switch. The power cord is the switch's only connect/disconnect device. The power connector socket is located on the switch's rear panel. For more information, refer to "[OmniSwitch 6850 Series Rear Panel](#)" on [page 72](#).

To boot the stack, plug the power cord (provided) into the power connector socket at the rear panel of each switch in the stack. Next, plug all power cords, in rapid succession, into easily-accessible power sources, such as grounded AC outlets or an Uninterruptible Power Supply (UPS).

Important. Be sure to power on all switches in the stack in *rapid succession*; otherwise, switches may be assigned unintended stack management roles. Refer to the *OmniSwitch 6850 Series Hardware Users Guide* for detailed information.

The stack immediately begins the boot process. Allow a few moments for all elements in the stack to boot completely, then verify the status of all LEDs on the switch's front panel.

A successful boot for a stacked configuration displays the following LED states.

LED States for a Stacked Configuration

OK	Solid green for all switches.
PRI	Solid green for the primary management module; solid amber for the secondary management module; off for switches operating in idle roles. Detailed information for primary, secondary, and idle roles is provided in the <i>OmniSwitch 6850 Series Hardware Users Guide</i> .
PWR	Solid green for all switches.
BPS	Solid amber, if BPS attached is failed; off, when no operational BPS is attached; solid green if an operational BPS is attached and operating normally. See page 71 for more information.

LED States for a Stacked Configuration

XFP1	Off (applies to all OmniSwitch 6850 Series switches except for the OmniSwitch 6850-24X, OmniSwitch 6850-P24X, OmniSwitch 6850-48X, OmniSwitch 6850-P48X, and OmniSwitch 6850-U24X).
XFP2	Off (applies to all OmniSwitch 6850 Series switches except for the OmniSwitch 6850-24X, OmniSwitch 6850-P24X, OmniSwitch 6850-48X, OmniSwitch 6850-P48X, and OmniSwitch 6850-U24X).
Slot Indicator	1–8 (non-blinking), depending on the slot number assignment for each corresponding switch. See the <i>OmniSwitch 6850 Series Hardware Users Guide</i> for detailed information.

If any of the LED state differs from the states shown in the table above, refer to [page 71](#) for more information. Contact Alcatel Customer Support if the unexpected LED state persists.

Dynamic Slot Numbering and

Management Role Assignment

When a stack of OmniSwitch 6850 Series switches boots, the system software automatically detects the switch in the stack with the lowest MAC address. This switch is assigned the primary management role and, by default, is given the slot number 1. The module connected to the primary's stacking port A is automatically assigned the secondary management role and given the slot number 2.

As the other modules in the stack become operational, they are assigned idle roles and are automatically assigned unique slot numbers (3–8, depending on the number of switches in the stack). The slot numbering for idle modules is determined by each module's physical location in the stack.

Note. As the slot numbers are dynamically assigned, **boot.slot.cfg** files are auto-generated in the /flash directory of each switch. When the stack is subsequently booted, each switch reads its slot number assignment from this file and comes up accordingly.

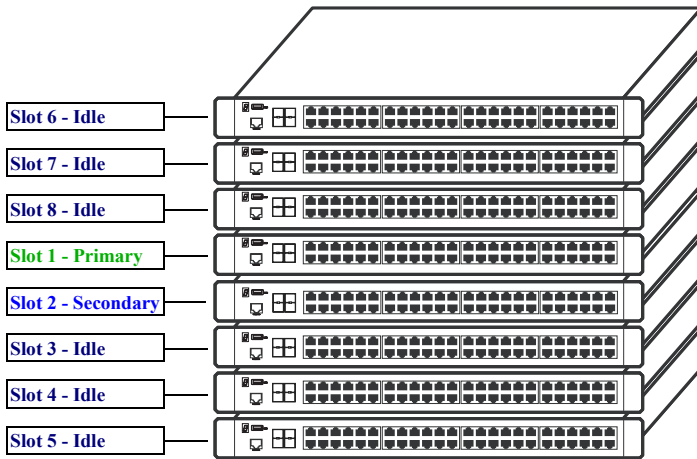
In the example below, the fourth switch from the top is elected the primary management module for the stack. (It can be assumed that this switch has the lowest MAC address in the stack.) This switch is automatically assigned slot number 1.

Manual Slot Numbering and Management Role Assignment

Slot numbers for a stack, as well as primary and secondary management roles, can be manually assigned.

By controlling the stack's slot numbering and management module assignments, users can create a customized stack topology. For example, the primary management module (slot 1) can be assigned to the top-most switch in the stack; the secondary management module (slot 2) can be assigned to the switch immediately below, and so on.

Refer to “[Assigning Slot Numbers for a Stack](#)” on page 35 for steps for manually assigning slot numbers.



The switch immediately below is connected to the primary switch's stacking port A and, as a result, is assigned the secondary management role and given slot number 2.

The system software allows the switch immediately below slot 2 to have the next slot number preference. It is assigned an idle role and given the slot number 3. The switch immediately below slot 3 is given the slot number 4, and so on. When the bottom of the stack is reached, the slot numbering sequence resumes at the top of the stack, as shown. This helps ensure a more ordered and manageable stack topology.

Your First Login Session

Once the switch or stack has successfully booted and you have accessed your computer's terminal emulation software via the console port, you are ready to log in to the switch's Command Line Interface (CLI) and configure basic information.

Complete the following steps during your first login session:

- Log in to the switch or stack
- Unlock session types
- Change the login password
- Set the date and time
- Set optional system information
- Save your changes

Note. You must be connected to the switch via the *console port* before initiating your first login session. If you are using OmniSwitch 6850 Series switches in a stacked configuration, you must be connected to the console port of the stack's primary switch.

Logging in to the Switch

When you first log in to the switch or stack, you will be prompted for a login (i.e., *user*) name and password. During this first login session, only one user name option and one password option is available:

- Login (i.e., user name)—**admin**
- Password—**switch**

To log in to the switch or stack, enter **admin** at the login prompt:

```
login: admin
```

Next, enter the factory default password, **switch**, at the password prompt:

```
password: switch
```

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 OmniSwitch 6850 Series
Software Version 6.1.2.159.R01 GA, November 20, 2005.

Copyright (c), 1994-2005 Alcatel Internetworking, Inc. All
Rights reserved.

OmniSwitch(TM) is a trademark of Alcatel Internetworking,
Inc. registered in the United States Patent and Trademark
Office.

->
```

More Information on User Accounts. 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 and user privileges, refer to the “Managing Switch User Accounts” chapter of your *OmniSwitch 6800/6850/9000 Switch Management Guide*.

Assigning an IP Address to the Switch

Assigning an IP address to your OmniSwitch 6850 Series switch is an important step in the setup process.

Remote sessions such as Telnet, FTP, and WebView require an IP address. The IP address for these session types serves as a destination point for the remote session. Therefore, before the switch can support any remote login sessions, a valid IP address must be configured.

To assign an IP address to a switch, simply assign an IP address to the switch’s default VLAN 1 by entering the **ip interface** command at the CLI prompt. Be sure that the command begins with the command syntax

```
ip interface address
```

exactly as shown, followed by the IP address. For example:

```
-> ip interface vlan_1 address 172.2.120.1
vlan 1
```

Unlocking Session Types

Security is a key feature on OmniSwitch 6850 Series switches. As a result, when you access the switch for the first time, you must use a *direct console port connection*. All other session types (Telnet, FTP, WebView, SNMP, etc.) are “locked out” until they are manually unlocked by the user.

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

Note. When you unlock session types, you are granting switch access to non-local sessions (e.g., Telnet). As a result, users who know the correct user login and password will have remote access to the switch. For more information on switch security, refer to the “Managing Switch User Accounts” chapter of your *OmniSwitch 6800/6850/9000 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 Specified Session Types

You can also unlock session types on a one-by-one basis. For example, to unlock Telnet sessions only, enter the following command:

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

To unlock WebView (HTTP) sessions only, enter the following command:

```
-> aaa authentication http local
```

You cannot specify more than one session type in a single command line. However, you can still unlock multiple session types by using the **aaa authentication** command in succession. For example:

```
-> aaa authentication http local  
-> aaa authentication telnet local  
-> aaa authentication ftp local
```

How many sessions are allowed?

Once a session type has been unlocked, the following number of sessions is allowed for each type:

Telnet sessions allowed	4 concurrent sessions
FTP sessions allowed	4 concurrent sessions
HTTP (Web browser) sessions allowed	4 concurrent sessions
Total sessions (Telnet, FTP, HTTP, console)	13 concurrent sessions
SNMP sessions allowed	50 concurrent sessions

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 29).
- 2 Enter the keyword **password** and press **Enter**.
- 3 Enter your new password at the prompt (refer to the note below).

Note. Typically, the password should be a string of non-repeating characters. The switch’s authentication software uses the first occurrence of the character series to uniquely identify the password. For example, the password *engreng* is the same as *engr*. A better password might be *engr2735*.

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

Note. Be sure to remember or securely record all new passwords; overriding configured passwords on OmniSwitch 6850 Series switches is restricted.

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 in order to access the switch.

User Accounts. The switch allows a maximum of 50 user accounts in the local user database. For information on creating additional user types and assigning individual passwords, refer to the “Managing Switch User Accounts” chapter of your *OmniSwitch 6800/6850/9000 Switch Management Guide*.

Setting the System Time Zone

The switch’s default time zone is UTC (also referred to as Greenwich Mean Time).

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 example, to set the system clock to run on Pacific Standard Time, enter the following command.

```
-> system timezone pst
```

To enable Daylight Savings Time, enter the following command.

```
-> system daylight savings time enable
```

Many other time zone variables are supported. For detailed information on configuring a time zone for the switch, refer to your *OmniSwitch 6800/6850/9000 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*. For example:

```
-> system time 18:35:00
```

The switch uses a 24-hour clock; the time value shown in the above example would set the time to 6:35 PM.

To set the current date for the switch, enter **system date**, followed by the current date in *mm/dd/yyyy*. For example:

```
-> system date 06/27/2005
```

Setting Optional System Information

This section provides information on configuring optional system parameters, including:

- the switch's administrative contact
- a system name
- the switch's physical location

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, enter **system contact**, followed by a text string of up to 254 characters. If you include spaces between words in the text string, be sure to enclose the string in quotes (" ").

For example:

```
-> system contact "JSmith js@company.com"
```

Specifying a System Name

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

To specify a system name, enter **system name**, followed by a text description of up to 19 characters.

Note. You *cannot* include spaces between words when entering a system name.

For example:

```
-> system name EngSwitch3
```

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, enter **system location**, followed by a text description of up to 254 characters. If you include spaces between words in the text string, be sure to enclose the string in quotes (" ").

For example:

```
-> system location "NMS Lab--NE Rack"
```

Viewing and Saving Changes

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

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

When the **write memory** command is entered, changes are automatically saved to the main configuration file (**boot.cfg**) and placed in the **/flash/working** directory. For more information on the **boot.cfg** file, refer to [page 45](#).

Note. If the switch reboots following a **write memory** command entry, the switch will run from the **/flash/certified** directory. As a result, subsequent configuration changes cannot be saved using the **write memory** command until the switch is once again running from the **/flash/working** directory. See [page 47](#) for important information on these directories.

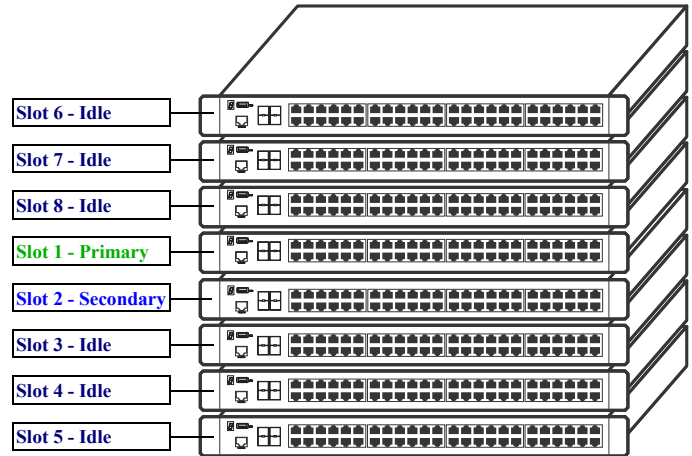
This completes the initial configuration process. Your OmniSwitch 6850 Series switch is now ready for additional configuration and network operation. Refer to the following sections for more information on using your switch, as well as additional built-in features.

For stacked configurations, be sure to refer to [“Assigning Slot Numbers for a Stack” on page 35](#)

Assigning Slot Numbers for a Stack

It may be desirable to manually assign slot numbers within a stacked configuration in order to create a sequential numbering scheme from the top of the stack to the bottom (or vice-versa). For example, the preferred physical location of the primary management module may be either the top or the bottom of the chassis. This can be achieved by manually assigning slot numbers.

To manually assign slot numbers to one or more modules in a stack, use the **stack set slot** command. This command writes slot information to the **boot.slot.cfg** file located in a switch's **/flash** directory. It is this *saved slot* information that the switch will assume following a reboot.



This example shows a stack in which the primary and secondary switches are physically positioned in the middle of the stack. Although the stack will operate normally with this primary and secondary module positioning, it may be preferable for management purposes to have the primary and secondary switches at either the top or the bottom of the stack. For this example, the primary and secondary roles will be assigned to the top of the stack. To reassign the slot numbers, follow the steps below:

1 Use the **stack set slot** command to reassign slot numbers, starting from the top of the stack. For example:

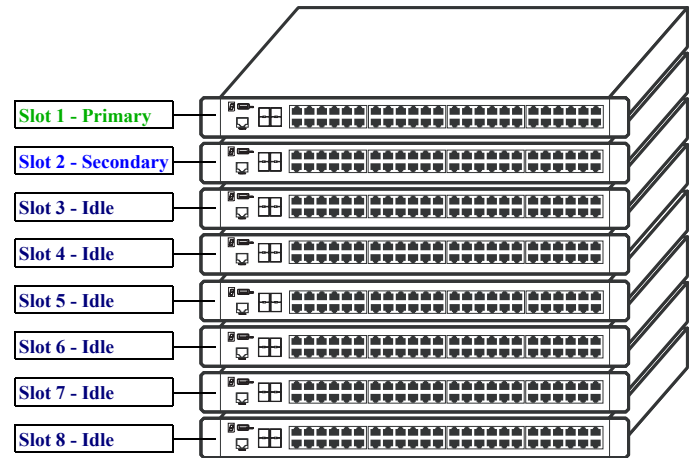
```
-> stack set slot 6 saved-slot 1
-> stack set slot 7 saved-slot 2
-> stack set slot 8 saved-slot 3
-> stack set slot 1 saved-slot 4
-> stack set slot 2 saved-slot 5
-> stack set slot 3 saved-slot 6
-> stack set slot 4 saved-slot 7
-> stack set slot 5 saved-slot 8
```

2 Use the **reload all** command to reload all modules in the stack. For example:

```
-> reload all
```

Because slot 6 is the top-most switch in the stack, it is reassigned the slot 1 (i.e., primary) position; because slot 7 is located immediately below slot 6, it is reassigned the slot 2 (i.e., secondary) position, etc.

When the stack comes up following the reboot, the manually-configured slot numbers display as follows:



The initial setup for your stacked configuration of OmniSwitch 6850 Series switches is now complete. Refer to the following sections for additional information on your OmniSwitch product.

CLI Basics

The Command Line Interface (CLI) allows you to configure and monitor your switch by entering single-line commands. The CLI can be accessed through terminal or Telnet sessions.

Note. Configuring the switch using the CLI is also referred to as “online configuration.”

The following section provides basic information on CLI assistance features. For detailed information on the CLI, including syntax conventions, usage rules, command documentation, and a quick reference card, refer to the *OmniSwitch CLI Reference Guide* and the “Using the CLI” chapter in the *OmniSwitch 6800/6850/9000 Switch Management Guide*.

CLI Assistance Features

The CLI provides built-in features that assist you while entering commands. These features include:

- Syntax checking
- Command line help
- Partial keyword completion
- Deleting and inserting characters
- Previous command recall
- Prefix recognition
- Prefix prompt
- Command history

Note. The software supports vt100 terminal emulation; CLI assistance features may be limited if your terminal emulation software is using a setting other than vt100.

Syntax Checking

If you make a mistake while entering command syntax, the CLI provides clues about how to correct the error. Whenever a command error is entered, two indicators are displayed:

- An error message describing the type of error.
- A carat (^) character indicating where the error occurred.

For example, the syntax

```
-> show vlan router port mac status
```

results in the following error:

```
-> show vlan router port mac status
                        ^
ERROR: Invalid entry: "port"
```

Because **port** is not a valid syntax for the command, the error message shows it as an invalid entry and the carat indicates where the problem has occurred. For this example, the valid command syntax is

```
-> show vlan router mac status
```

Command Line (?) Help

The CLI provides additional help in the form of the question mark (?) character. The ? character provides information that helps you build your command syntax. For example, if you enter

```
-> show vlan router
```

at the command line and are unsure of the next keyword, you can enter the ? character for additional options (be sure to include a space between the last keyword and the ? character):

```
-> show vlan router ?  
      ^  
  
      MAC IP  
(Vlan Manager Command Set)
```

The carat character (^) indicates the point where you invoked the command line help. Possible keyword options, along with the corresponding command set, are displayed. Here, you can continue building the command by entering either **mac** or **ip**.

Some command completion options may indicate user-defined information. For example: <**string**>, <**slot/port**>, <**hh:mm:ss**>, etc. The option <**cr**> indicates that the command can be completed by pressing **Enter**.

Note. The ? character can be entered at any time. In addition, you can type the ? character alone at the CLI prompt to display root keywords for *all* command sets.

Partial Keyword Completion

The CLI has a partial keyword recognition feature. Instead of typing the entire keyword, you can type only the minimum number of characters needed to uniquely identify the keyword, then press the **Tab** key. The CLI will complete the keyword and place the cursor at the end of the command line.

If you do not enter enough characters to uniquely identify the keyword, pressing the **Tab** key will have no effect.

If you enter characters that do not belong to an applicable keyword, pressing the **Tab** key will remove the characters and place the cursor back to its previous position.

Deleting Characters

You can delete CLI command characters by using the **Backspace** key or the **Delete** key. The **Backspace** key deletes each character in the line, one at a time, from right to left.

To change incorrect syntax with the **Delete** key, use the **Left Arrow** key to move the cursor to the left of the character to be deleted, then use the **Delete** key to remove characters to the right of the cursor.

Inserting Characters

To insert a character between characters that are already typed, use the **Left** and **Right Arrow** keys to place the cursor into position, then type the new character. Once the syntax is correct, execute the command by pressing **Enter**. In the following example, the user enters the wrong syntax to execute a command. The result is an error message.

```
-> show micrcode
      ^
ERROR: Invalid entry: "micrcode"
```

To correct the syntax without retyping the entire command line, use the **!!** command to recall the previous syntax. Then, use the **Left Arrow** key to position the cursor between the “r” and the “c” characters. To insert the missing character for this example, type “o” as shown:

```
-> !!
-> show microcode
```

Previous Command Recall

To recall the last command executed by the switch, press the **Up Arrow** key at the prompt and the previous command will display on your screen. You can execute the command again by pressing **Enter**, or you can edit it first by deleting or inserting characters.

Prefix Recognition

Prefix recognition is a CLI feature that reduces redundant command line entry by storing commonly-used prefix information for certain commands. The CLI assumes this stored prefix information when the next command is entered. For example, if you enter

```
-> vlan 32
```

at the command line, the CLI will store the **vlan 32** prefix information. If you want to create enable classification of tagged packets received on mobile ports enter

```
-> mobile-tag enable
```

instead of the full command:

```
-> vlan 32 mobile-tag enable
```

The following command families support prefix recognition:

- AAA
- Interface
- Link Aggregation
- Quality of Service (QoS)
- Spanning Tree
- VLAN Management

Prefix Prompt

You can set the CLI to display the current command prefix *as the command prompt* by entering the following command:

```
-> prompt prefix
```

After entering this command, your command prompt will include current stored prefix information until a new prompt is specified. For example, the following is a prompt for a user who has begun configuring VLAN 32:

```
-> vlan 32
```

To set the prompt back to the default arrow (`->`), enter the following syntax, exactly as shown, at the prefix prompt:

```
-> prompt string
```

Command History

You can view a list of up to 30 of the most recently executed commands via the **show history** command. For example:

```
-> show history
1 aaa authentication default local
2 password
3 system timezone pst
4 system daylight savings time enable
5 system time 14:58:00
6 system date 11/06/2002
7 system contact "JSmith js@company.com"
8 system name EngSwitch3
9 system location "NMS Lab--NE Rack"
10 show system
11 modify boot parameters
12 show history
```

Note that the most recent commands are displayed *lower* in the list. For this reason, the **show history** command will always be listed last.

You can recall commands from the history list by entering an exclamation point (!). For example:

```
-> !4
-> show temperature
```

The CLI prints the fourth command from the history list (in this case, **show temperature**) at the CLI prompt.

You can also recall the *last* command in the history list by entering two exclamation points (!!). For example:

```
-> !!
-> show history
```

To specify the number of commands displayed in the history list (1 - 30), use the **history size** command. For example:

```
-> history size 10
```

To view the current history list settings, use the **show history parameters** command. For example:

```
-> show history parameters
History size: 30
CurrentSize: 10
Index Range: 1-10
```

Command Logging

OmniSwitch 6850 Series switches provide command logging. This feature allows users to record up to 100 of the most recent commands entered via Telnet and console sessions. In addition to a list of commands entered, the results of each command entry are recorded. Results include information such as whether a command was executed successfully, or whether a syntax or configuration error occurred.

Note. The **command history** feature differs from the **command logging** feature in that command history buffers up to 30 of the most recent commands. The command information is *not* written to a separate log file. Also, the command history feature includes only general keyword syntax (i.e., it does not record full syntax, date and time, session IP address, and entry results). For more information on command history, refer to [page 40](#).

Refer to the sections below for more information on configuring and using CLI command logging. For detailed information related to command logging commands, refer to the *OmniSwitch CLI Reference Guide*.

Enabling Command Logging

By default, command logging is *disabled*. To enable command logging on the switch, enter the following command:

```
-> command-log enable
```

When command logging is enabled via the **command-log enable** syntax, a file called **command.log** is automatically created in the switch's **/flash** directory. Once enabled, configuration commands entered on the command line will be recorded to this file until command logging is disabled.

The **command.log** file has a 66402-byte capacity. This capacity allows up to 100 of the most recent commands to be recorded. Because all CLI command logging information is archived to the **command.log** file, command history information will be lost if the file is deleted.

Note. The **command.log** file cannot be deleted while the command logging feature is enabled. Before attempting to remove the file, be sure to disable command logging.

For detailed information on command logging, refer to the *OmniSwitch 6800/6850/9000 Switch Management Guide*.

Common CLI Commands

The following table lists some basic CLI commands that will help you get acquainted with the CLI interface. Enter each command exactly as shown. For complete descriptions of these commands, refer to your *OmniSwitch CLI Reference Guide*.

write memory	Saves current configuration changes to the /flash/working directory's boot.cfg file. For more information, refer to page 45 .
show running-directory	Displays the current running directory. For more information, refer to page 48 .
vlan	Creates a new VLAN.
show vlan	Displays a list of VLANs configured on the switch.
ip interface	Configures an IP interface to enable IP routing on a VLAN.
show chassis	Displays basic configuration and status information for the switch chassis.
show module	Displays basic information for switches in a stacked configuration.

show ni	Displays basic hardware and status information for a stand-alone switch, or for all switches installed in a stacked configuration.
show cmm	Displays basic hardware and status information for a stand-alone switch, or for the primary or secondary switches installed in a stacked configuration.
stack set slot	Displays basic information about the switch.
show microcode	Displays the version of software currently installed on the switch.
session timeout	Modifies the amount of time before Telnet and console sessions time out.
who	Displays all active login sessions (e.g., Console, Telnet, FTP, HTTP, Secure Shell, Secure Shell FTP)
exit	Ends the current Telnet or console session.

Offline Configuring

You can configure OmniSwitch 6850 Series switches using an ASCII-based text file. This is referred to as *offline configuring*. With offline configuring, CLI commands may be typed into a text document (referred to as a *text-based configuration file*) and then uploaded and applied to the switch.

An ASCII-based configuration file can be viewed or edited at any time using a standard text editor (e.g., WordPad). The switch also offers its own text editing buffer, so a file can be edited in the flash file directory without having to be downloaded to a workstation.

Because they are portable, stand-alone documents, configuration files allow users to easily clone switch configurations. Moreover, the ability to store a broad range of network information in a single text file facilitates troubleshooting, testing, and overall network readability.

Syntax Checking

Offline configuration includes a syntax check feature. This function will report syntax errors or typos that might cause a command to be rejected by the switch when a configuration file is applied.

Scheduling a Configuration File to be Applied at a Later Time

You can apply a file to the switch immediately. You can also schedule a file to be applied either at a specific date and time, or after a specific amount of time has passed. Timer sessions can greatly facilitate maintenance tasks, such as synchronized batch updates.

Generating Snapshots of the Current Configuration

A generated snapshot captures the switch's current configuration settings in a single text file. Captured configuration settings can then be viewed or edited offline at any time. Troubleshooting is greatly facilitated, as aggregate network information can be read at a glance.

Snapshot files can be used as configuration files for a single switch or for multiple switches. This allows easy cloning of switch configurations for networks requiring multiple, similarly-configured switches. Simply place the snapshot file in the appropriate directory of the switch(es) you want to configure and use the CLI to apply the file.

For detailed information on offline configuring and the features described above, refer to the *OmniSwitch 6800/6850/9000 Switch Management Guide*.

Files and Directories

Boot and Image Files

Although the flash memory on OmniSwitch 6850 Series switches can contain many file types (e.g., log and snapshot files), there are four specific file types that provide key switch and network functions. These files include the **boot.cfg** file, **boot.params** file, **boot.slot.cfg** file, and image (.img) files.

boot.params File

The **boot.params** file provides IP address, gateway, and mask information for the switch. This information is required for Ethernet connections to the switch.

This file also contains default console port parameters (baud rate, etc.) and can be modified via the **modify boot parameters** CLI command.

In order to be read by the switch, the **boot.params** file must be placed in the **/flash** directory. If the file is deleted for any reason, a new **boot.params** file will be automatically generated on the next system boot. However, all user-configured information, such as IP address, gateway, and mask information, will be lost. Therefore, it is recommended that you keep a backup copy of this file at all times.

boot.cfg File

The **boot.cfg** file stores your network configuration parameters. When you first boot the switch, no **boot.cfg** file is present. This file is automatically generated when you first issue a **write memory** command to save your configuration changes. The file is then automatically placed in the **/flash/working** directory.

Important. Your switch must be running from the **/flash/working** directory in order to save changes to the **boot.cfg** file. Refer to “[Working and Certified Directories](#)” on page 47 for more information.

Once the configuration parameters stored in the **boot.cfg** file are considered tested and reliable, the file can be copied to the **/flash/certified** directory and become part of the “last known good” software for the switch.

If all copies of this file are deleted and a system boot occurs, your network configuration will be lost. Therefore, it is recommended that you keep a backup copy of this file at all times.

Image Files

Image files (those files with **.img** extensions) contain an executable code that provides support for the system, Ethernet ports, and network functions. In other words, they serve as essential drivers for switch and network operations.

Although these files may be backed up to the root flash directory or any user-defined subdirectory, they must be present in the **/flash/working** and **/flash/certified** directories for the switch to operate and pass traffic.

If you delete all copies of an image file, you will be required to contact Alcatel Customer Support for replacements. Therefore, it is recommended that you keep backup copies on your computer's hard drive or a locally-accessible server.

For a complete list of OmniSwitch 6850 Series image files, along with their functions, refer to the following table.

K2os.img	Contains the OmniSwitch 6850 Series operating system software.
Kbase.img	Contains base code for the switch.
Krelease.img	Contains release number information for the system software package.
Keni.img	Provides support for 10/100/1000 and Gigabit Ethernet.
Kadvrout.img	Alcatel's Advanced Routing software package. Optional.

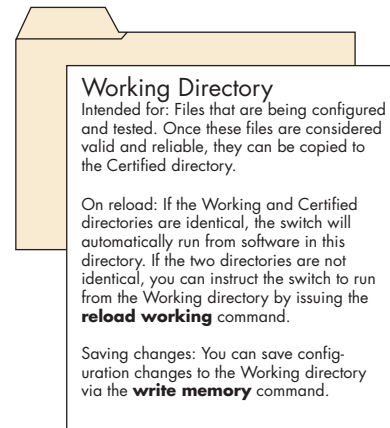
Ksecu.img	Provides enhanced security features for the switch, such as Authenticated VLANs (AVLANs).
K2diag.img	Provides enhanced hardware diagnostics for the switch.

Working and Certified Directories

OmniSwitch 6850 Series switches offer flash memory with 8 MB base ROM space and 64 MB extended ROM. This memory is used to store files, including boot and image files, that are used for switch operations.

The **/flash** directory contains two subdirectories: **/working** and **/certified**. These directories work together to provide the *image rollback* resiliency feature. Image rollback allows the switch to return to a prior “last known good” version of software in the event of a system software problem.

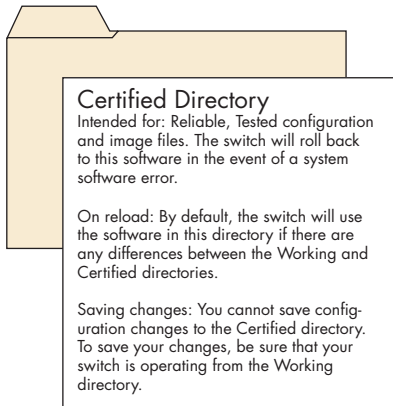
Working Directory



The **/flash/working** directory is intended for software that is still being configured for your network. Changes made while configuring your switch are saved to the **boot.cfg** file in the **/flash/working** directory.

Once the **/flash/working** directory’s configuration and image files are road-tested and considered valid and reliable for your network, they can be copied to the **/flash/certified** directory.

Certified Directory



The software in the **/flash/certified** directory should be treated as the “gold master” for the switch. When you place configuration and image files in this directory, you are “certifying” them as tested and reliable. If the switch is running from the **/flash/working** directory and experiences a software problem, it will “roll back” to the last known good software in the **/flash/certified** directory on the next reboot.

How can I tell which directory the switch is currently using?

When you first boot the switch, the **/flash/working** directory is used; this allows you to save your initial configuration changes to the **boot.cfg** file. However, subsequent boots may result in your switch running from the **/flash/certified** directory. Therefore, verifying the current running directory is a key step any time you are configuring or monitoring the switch.

View the switch’s current running directory by entering the **show running-directory** command. For example:

```
-> show running-directory

CONFIGURATION STATUS
  Running CMM                : PRIMARY,
  CMM Mode                   : DUAL CMMs,
  Current CMM Slot           : 1,
  Running configuration      : WORKING,
  Certify/Restore Status     : CERTIFY NEEDED
SYNCHRONIZATION STATUS
  Flash Between CMMs        : SYNCHRONIZED,
  Running Configuration     : NOT AVAILABLE,
  Stacks Reload on Takeover: ALL STACKs (SW
Activation)
```

In this example, the switch is using the **/flash/working** directory. For more information on the **show running-directory** command output, refer to the “CMM Commands” chapter in the *OmniSwitch CLI Reference Guide*.

Can I save changes to the Certified directory?

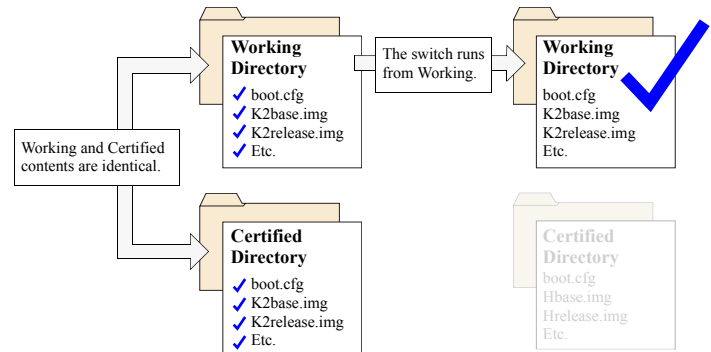
No. The **/flash/certified** directory is intended to store only tested, reliable configuration and image files. Configuration changes must be saved to the **boot.cfg** file in the **/flash/working** directory. Once those changes have been road-tested, the contents of the **/flash/working** directory can be copied to the **/flash/certified** directory via the **copy working certified** command.

What happens when the switch boots?

During the boot process, the switch compares the contents of the **/flash/working** and **/flash/certified** directories. Based on this comparison, the switch determines which directory to use as its running software.

Working and Certified Are Identical

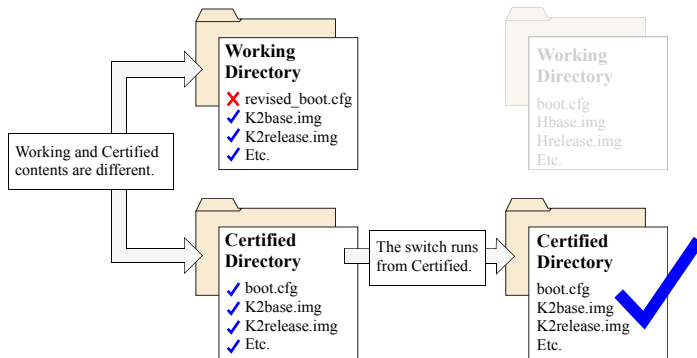
If the software in the **/flash/working** and **/flash/certified** directories are completely identical, the switch considers the software in both directories to be equally reliable. In this case, the switch will run from the **/flash/working** directory.



When the switch is running from the **/flash/working** directory software, configuration changes can be saved via the **write memory** command.

Working and Certified Are Different

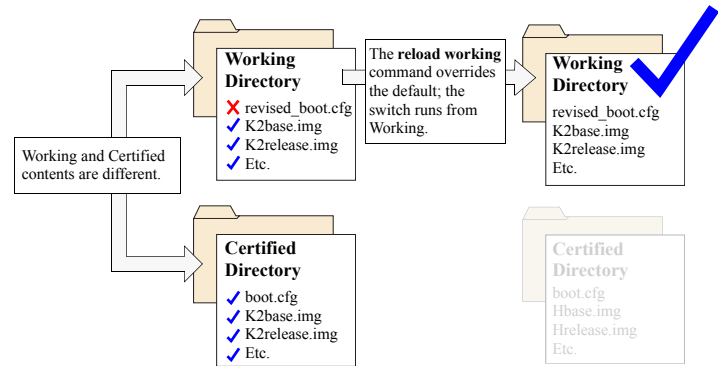
If the software in the **/flash/working** directory differs *even slightly* from the software in the **/flash/certified** directory, the switch will automatically run from the **/flash/certified** directory.



When the switch runs from the **/flash/certified** directory, configuration changes *cannot* be saved via the **write memory** command

My Working and Certified directories are different. Can I force a reboot from the Working directory?

Yes. If its configuration and image files are known to be reliable, you can override the default and initiate a reboot from the **/flash/working** directory. This is done via the **reload working** command. For more information, refer to your *OmniSwitch CLI Reference Guide*.



Note. For detailed information on using directories, refer to the “Managing CMM Directory Content” chapter in the *OmniSwitch 6800/6850/9000 Switch Management Guide*.

Loading Software

The following section describes the procedure for loading new release software to your switch. Note that the procedure varies slightly for stand-alone and stacked OmniSwitch 6850 Series configurations. Follow the steps that apply to your system.

Note. For more detailed information on loading software and working with directories in both stand-alone and stacked configurations, refer to the “Managing CMM Directory Content” chapter in the *OmniSwitch 6800/6850/9000 Switch Management Guide*.

Stand-Alone Configurations

- 1 Verify that all required image files from the new software release are located on your computer’s hard drive or a *locally-accessible* server.
- 2 Establish an FTP session to the switch, then access the `/flash/working` directory.

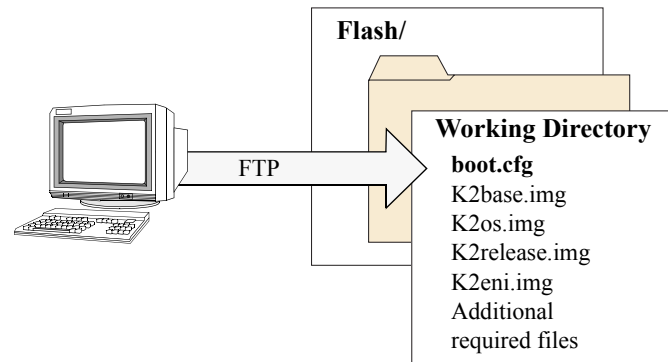
Note. Before attempting to establish an FTP session, be sure that you have first unlocked the FTP session type via the **aaa authentication** command. Otherwise, an FTP login error will occur. See “[Unlocking Session Types](#)” on [page 31](#) for more information.

- 3 Using your FTP client or the CLI’s **rm** command, delete all **.img** files from the `/flash/working` directory. You can use the asterisk (*) wildcard to delete all **.img** files at once. For example:

```
-> rm working/*.img
```

Important. Do not delete the **boot.cfg** file. Otherwise, any configuration changes you have saved will be lost. Also, do not delete files from the `/flash/certified` directory.

- 4 Using your FTP client, upload all required **.img** files from the new software release to the `/flash/working` directory.



5 Use the **install** command after the software files have been transferred to the switch via FTP. For example:

```
-> install /flash/working/*.img
```

Note. For more information on the **install** command, refer to the *OmniSwitch 6800/6850/9000 Switch Management Guide* or the *CLI Reference Guide*.

6 Reload the switch from the **/flash/working** directory. To do this, enter

```
-> reload working no rollback-timeout
```

at the CLI prompt.

Note. This reload process will take a few moments to complete.

Following the reload, the switch will come up running from the **/flash/working** directory (i.e., the new release software) until the next system reboot. Meanwhile, the software in the **/flash/certified** directory remains unchanged and available as a last known good version if an error should occur with the new software.

Once the release software is considered valid and reliable with your network configuration, the contents of the **/flash/working** directory can be copied to the **/flash/certified** directory via the **copy working certified** command.

Using WebView

The switch can be configured and monitored using WebView, Alcatel's Web-based device management tool. WebView software is pre-installed in the switch; you are not required to load additional software.

Note. Although WebView software is pre-installed, you must first enable HTTP sessions for your switch before you can log in. Refer to [“Unlocking Session Types” on page 31](#) for more information.

Browser Compatibility

The following Web browsers are recommended for use with WebView:

- Internet Explorer 6.0 and later for Windows NT, 2000, XP, 2003
- Netscape 7.1 for Windows NT, 2000, XP
- Netscape 7.0 for Solaris SunOS 5.8

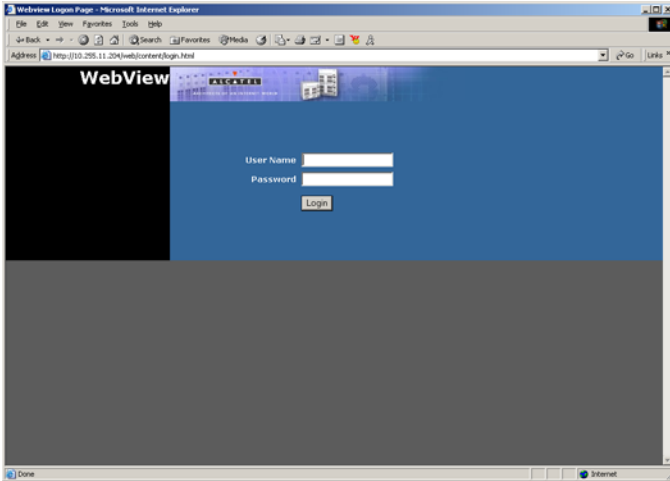
Logging In to WebView

Note. Before attempting to establish a WebView session, be sure that you have first unlocked the HTTP session type via the **aaa authentication** command. Otherwise, a login error will occur. See [“Unlocking Session Types” on page 31](#) for more information.

To access WebView and log in to a switch:

- 1 Open any Alcatel-tested Web browser (see [page 53](#)).

2 Enter the switch's IP address in the browser's "Address" text field ("Location:" for Netscape users). The login screen displays:

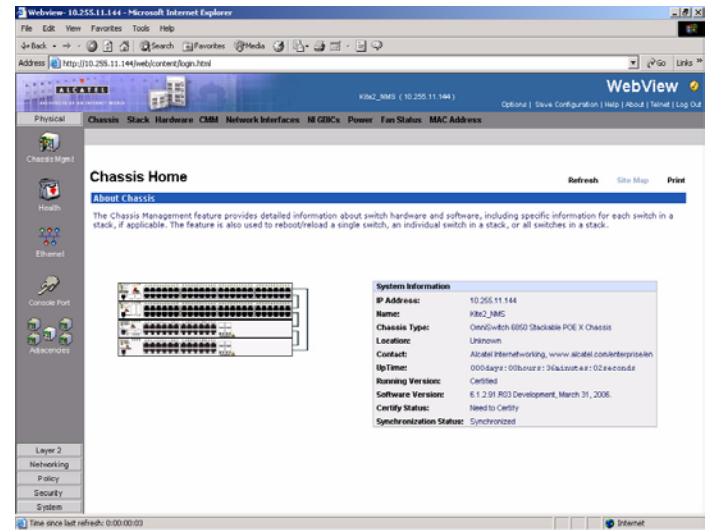


3 Enter the user name and password at the login prompt.

Remember, if you have already changed the user name and password for your switch, be sure to use the new information. If you have not changed your user name or password, the factory defaults are **admin** and **switch**, respectively. Refer to the "Managing Switch User Accounts" chapter of your *OmniSwitch 6800/6850/9000 Switch Management Guide* for information on modifying the default user name and password.

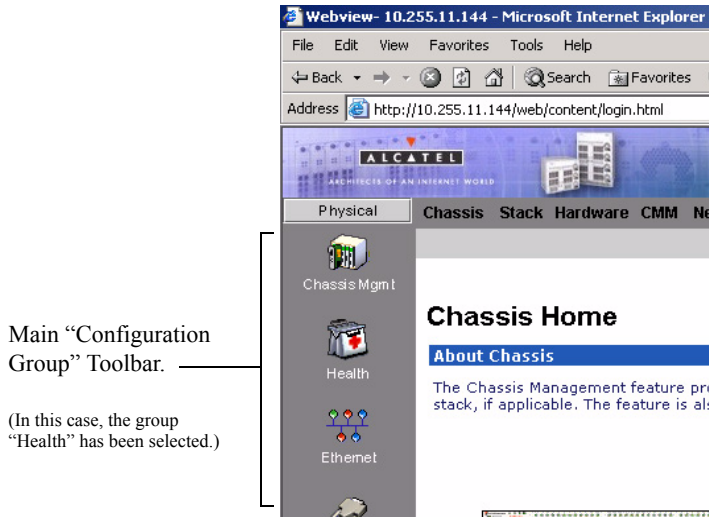
Navigating WebView

After you have successfully logged in, the Chassis Management home page displays:



The Chassis Management home page provides a physical representation of the switch, as well as basic system information. This is the main launching point for WebView.

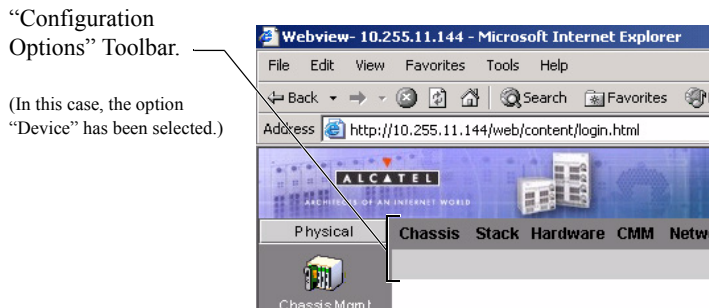
Navigate the application by clicking on the “Configuration Group” buttons in the left-hand toolbar



Main “Configuration Group” Toolbar.

(In this case, the group “Health” has been selected.)

Refine your navigation by selecting “Configuration Options” for each group from the items displayed in the grey, horizontal navigation bar:



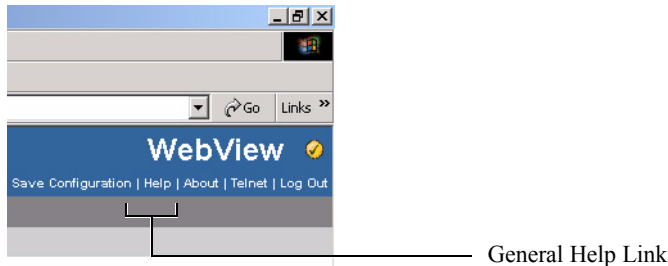
“Configuration Options” Toolbar.

(In this case, the option “Device” has been selected.)

Site Maps. WebView also provides site maps for each configuration group. Site maps allow you to view complete page contents under each feature. By providing quick, easy access to specific pages, site maps can reduce time spent searching through the WebView application. To access site maps, click the “Site Map” link included on each configuration group Home page, (e.g., Health).

Online Help

General online help is available through the main Help link located in the top WebView banner:



Detailed, context-based help is provided for each status table and configuration dialog window:

VLAN Administration

VLAN	Description	Admin Status	Operational Status	Flat STP Status	1st STP Status	Authentication	IP	VLAN Tag Part Status
1	VLAN 1	Enabled	Active	Enabled	Enabled	Disabled	On	Disabled

[Summary View]

Admin Status: Enabled Apply
Flat STP Status: Enabled Apply
1st STP Status: Enabled Apply

Buttons: Add, Modify, Delete, Refresh, Help

Context-specific Help button. (In this case, for the VLAN Administration table.)

Additional Information

For more information on using WebView, refer to “Using WebView” in the *OmniSwitch 6800/6850/9000 Switch Management Guide*.

Troubleshooting

The WebView login screen does not display.

This suggests either a physical or network connection issue. Try the following options:

- Be sure that you have a good physical Ethernet cable connection to the switch.
- Be sure your computer has a valid Ethernet connection and IP address.
- Verify that all required WebView image files are installed in the current running directory. See [page 53](#) for more information.

The login screen displays, but the login fails.

This suggests either a user name and password or Authenticated Switch Access error. Try the following options:

- Check that you are using the correct user name and password. If you have already changed the user name and password for your switch, be sure to use the new information. If you have not changed the user name and password, the factory defaults are **admin** and **switch**, respectively.
- Be sure that you have “unlocked” HTTP sessions on the switch. To unlock HTTP sessions, enter the following command:

```
-> aaa authentication http local
```

See [page 31](#) for information on unlocking session types.

Hardware Basics

This provides front and rear panel drawings, beginning on [page 64](#). In addition, LED states are described below.

LED States

10/100/1000 LEDs

There is one LED for each 10/100/1000 port. Displays solid green for a valid link; displays blinking green when transmitting or receiving packets in a link up state for non-PoE. Displays solid amber for a valid link; displays blinking amber when transmitting or receiving packets in a link up state for PoE.

1000 SFP LEDs

There is a single LED for 1000 Mbps SFP ports. Displays solid green for a valid link; displays blinking green when transmitting or receiving packets in a link up state; off when no link is detected.

10000 XFP1 LEDs

This LED corresponds to XFP port 25 on OS6850-P24X switches and port 49 on OS6850-P48X switches. Displays

solid green when the port is up; displays blinking green when the port is transmitting or receiving packets in a link up state; off when no link is detected.

10000 XFP2 LEDs

This LED corresponds to XFP port 26 on OS6850-P24X switches and port 50 on OS6850-P48X switches. Displays solid green when the port is up; displays blinking green when the port is transmitting or receiving packets in a link up state; off when no link is detected.

Note. The 20 and 44 unshared 10/100Base-T PoE or non-PoE ports of the 24/48 Lite versions are software upgradeable to 10/100/1000BaseT ports. Please contact your Alcatel representative for more information.

OmniSwitch 6850-24L Front Panel

USB Port

High speed USB 2.0 port, which can be used for quick upgrades.

Status and Slot Indicator LEDs

For information on the OS6850-24L's status and slot indicator LEDs, refer to [page 71](#).



Console Port

The OS6850-24L front panel provides one RJ-45 port for console connections. Console connections are used by network administrators for switch management. This female RJ-45 connector provides a DTE console connection.

10/100Mbps and 10/100/1000Mbps Ports

The OS6850-24L provides 20 fixed 10/100BaseT non-combo ports (1–20) and 4 fixed 10/100/1000BaseT combo ports (21–24). These ports are auto-sensing and auto-MDIX and use RJ-45 connectors.

Combo SFP Ports

The OS6850-24L provides four combo SFP slots for 1000Base-X high-speed connections.

By default, when an SFP is installed in a combo port, it takes over the port number of the corresponding RJ-45 Ethernet port. In other words, if an SFP is installed in the slot labeled 24, Ethernet port 24 would no longer be available and cannot be used for 10/100/1000 traffic. This default setting is referred to as “preferred fiber.” Refer to “Configuring Ethernet Ports” in the *Network Configuration Guide* for detailed information, including steps for configuring combo port settings.

OmniSwitch 6850-48L Front Panel

Status and Slot Indicator LEDs

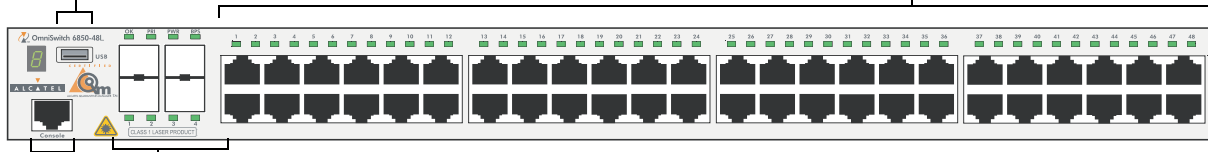
For detailed information on OS6850-48L status and slot indicator LEDs, refer to [page 71](#).

USB Port

High speed (480 Mbps) USB 2.0 port, which can be used for quick upgrades.

10/100Mbps and 10/100/1000Mbps Ports

The OS6850-48L provides 44 fixed 10/100BaseT ports (5–48) and 4 fixed 10/100/1000BaseT combo ports (1–4). These ports are auto-sensing and auto-MDIX and use RJ-45 connectors.



Console Port

The OS6850-48L front panel provides one RJ-45 port for console connections. Console connections are used by network administrators for switch management. This female RJ-45 connector provides a DTE console connection.

Combo SFP Ports

The OS6850-48L provides four combo SFP slots for 1000Base-X high-speed connections.

By default, when an SFP is installed in a combo port, it takes over the port number of the corresponding RJ-45 Ethernet port. In other words, if an SFP is installed in the slot labeled 4, Ethernet port 4 would no longer be available and cannot be used for 10/100/1000 traffic. This default setting is referred to as “preferred fiber.” Refer to “Configuring Ethernet Ports” in the *Network Configuration Guide* for detailed information, including steps for configuring combo port settings.

OmniSwitch 6850-P24L Front Panel

USB Port

High speed USB 2.0 port, which can be used for quick upgrades.

Status and Slot Indicator LEDs

For information on the OS6850-P24L's status and slot indicator LEDs, refer to [page 71](#).



Console Port

The OS6850-P24L front panel provides one RJ-45 port for console connections. Console connections are used by network administrators for switch management. This female RJ-45 connector provides a DTE console connection.

10/100Mbps and 10/100/1000Mbps Ports

The OS6850-P24L provides 20 fixed 10/100BaseT non-combo PoE ports (1–20) and 4 fixed 10/100/1000BaseT combo PoE ports (21–24). These ports are auto-sensing and auto-MDIX and use RJ-45 connectors.

Combo SFP Ports

The OS6850-P24L provides four combo SFP slots for 1000Base-X high-speed connections.

By default, when an SFP is installed in a combo port, it takes over the port number of the corresponding RJ-45 Ethernet port. In other words, if an SFP is installed in the slot labeled 24, Ethernet port 24 would no longer be available and cannot be used for 10/100/1000 traffic. This default setting is referred to as “preferred fiber.” Refer to “Configuring Ethernet Ports” in the *Network Configuration Guide* for detailed information, including steps for configuring combo port settings.

OmniSwitch 6850-P48L Front Panel

Status and Slot Indicator LEDs

For detailed information on OS6850-P48L status and slot indicator LEDs, refer to [page 71](#).

USB Port

High speed (480 Mbps) USB 2.0 port, which can be used for quick upgrades.

10/100Mbps and 10/100/1000Mbps Ports

The OS6850-P48L provides 44 fixed 10/100BaseT PoE ports (5–48) and 4 fixed 10/100/1000BaseT combo PoE ports (1–4). These ports are auto-sensing and auto-MDIX and use RJ-45 connectors.



Console Port

The OS6850-P48L front panel provides one RJ-45 port for console connections. Console connections are used by network administrators for switch management. This female RJ-45 connector provides a DTE console connection.

Combo SFP Ports

The OS6850-P48L provides four combo SFP slots for 1000Base-X high-speed connections.

By default, when an SFP is installed in a combo port, it takes over the port number of the corresponding RJ-45 Ethernet port. In other words, if an SFP is installed in the slot labeled 4, Ethernet port 4 would no longer be available and cannot be used for 10/100/1000 traffic. This default setting is referred to as “preferred fiber.” Refer to “Configuring Ethernet Ports” in the *Network Configuration Guide* for detailed information, including steps for configuring combo port settings.

OmniSwitch 6850-U24X Front Panel

USB Port

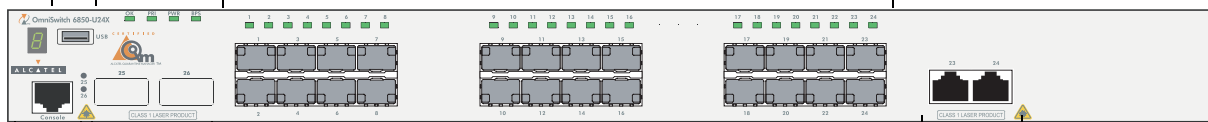
High speed USB 2.0 port, which can be used for quick upgrades.

1000Mbps SFP Ports

The OS6850-U24X provides 22 non-combo SFP slots for 1000Base-X MiniGBIC SFP ports (1–22) and 2 combo SFP slots for 1000Base-X MiniGBIC SFP ports (23–24).

Status and Slot Indicator LEDs

For information on the OS6850-U24X's status and slot indicator LEDs, refer to [page 71](#).



Console Port

The OS6850-U24X front panel provides one RJ-45 port for console connections. Console connections are used by network administrators for switch management. This female RJ-45 connector provides a DTE console connection.

XFP Ports

The OS6850-U24X front panel provides two ports for 10 Gbps Small Form Factor Pluggable (XFP) transceivers.

Combo RJ-45 10/100/1000 Ports

The OS6850-U24X provides two combo 10/100/1000BaseT ports.

By default, when an SFP is installed in a combo port, it takes over the port number of the corresponding RJ-45 Ethernet port. In other words, if an SFP is installed in the slot labeled 24, Ethernet port 24 would no longer be available and cannot be used for 10/100/1000 traffic. This default setting is referred to as “preferred fiber.” Refer to “Configuring Ethernet Ports” in the *Network Configuration Guide* for detailed information, including steps for configuring combo port settings.

OmniSwitch 6850-24 Front Panel

USB Port

High speed USB 2.0 port, which can be used for quick upgrades.

Status and Slot Indicator LEDs

For information on the OS6850-24's status and slot indicator LEDs, refer to [page 71](#).



Console Port

The OS6850-24 front panel provides one RJ-45 port for console connections. Console connections are used by network administrators for switch management. This female RJ-45 connector provides a DTE console connection.

10/100/1000Mbps Ports

The OS6850-24 provides 20 fixed 10/100/1000BaseT non-combo ports (1–20) and 4 fixed 10/100/1000BaseT combo ports (21–24). These ports are auto-sensing and auto-MDIX and use RJ-45 connectors.

Combo SFP Ports

The OS6850-24 provides four combo SFP slots for 1000Base-X high-speed connections.

By default, when an SFP is installed in a combo port, it takes over the port number of the corresponding RJ-45 Ethernet port. In other words, if an SFP is installed in the slot labeled 24, Ethernet port 24 is no longer available and cannot be used for 10/100/1000 traffic. This default setting is referred to as “preferred fiber.” Refer to “Configuring Ethernet Ports” in the *Network Configuration Guide* for detailed information, including steps for configuring combo port settings.

OmniSwitch 6850-48 Front Panel

Status and Slot Indicator LEDs

For detailed information on OS6850-48 status and slot indicator LEDs, refer to [page 71](#).

USB Port

High speed (480 Mbps) USB 2.0 port, which can be used for quick upgrades.

10/100/1000Mbps Ports

The OS6850-48 provides 44 fixed 10/100/1000BaseT ports (5–48) and 4 fixed 10/100/1000BaseT combo ports (1–4). These ports are auto-sensing and auto-MDIX and use RJ-45 connectors.



Console Port

The OS6850-48 front panel provides one RJ-45 port for console connections. Console connections are used by network administrators for switch management. This female RJ-45 connector provides a DTE console connection.

Combo SFP Ports

The OS6850-48 provides four combo SFP slots for 1000Base-X high-speed connections.

By default, when an SFP is installed in a combo port, it takes over the port number of the corresponding RJ-45 Ethernet port. In other words, if an SFP is installed in the slot labeled 4, Ethernet port 4 is no longer available and cannot be used for 10/100/1000 traffic. This default setting is referred to as “preferred fiber.” Refer to “Configuring Ethernet Ports” in the *Network Configuration Guide* for detailed information, including steps for configuring combo port settings.

OmniSwitch 6850-24X Front Panel

USB Port

High speed USB 2.0 port, which can be used for quick upgrades.

10/100/1000Mbps Ports

The OS6850-24X provides 20 fixed 10/100/1000BaseT non-combo ports (1–20) and 4 fixed 10/100/1000BaseT combo ports (21–24). These ports are auto-sensing and auto-MDIX and use RJ-45 connectors.

Status and Slot Indicator LEDs

For information on the OS6850-24X's status and slot indicator LEDs, refer to [page 71](#).



Console Port

The OS6850-24X front panel provides one RJ-45 port for console connections. Console connections are used by network administrators for switch management. This female RJ-45 connector provides a DTE console connection.

XFP Ports

The OS6850-24X front panel provides two ports for 10 Gbps Small Form Factor Pluggable (XFP) transceivers.

Combo SFP Ports

The OS6850-24X provides four combo SFP slots for 1000Base-X high-speed connections.

By default, when an SFP is installed in a combo port, it takes over the port number of the corresponding RJ-45 Ethernet port. In other words, if an SFP is installed in the slot labeled 24, Ethernet port 24 is no longer available and cannot be used for 10/100/1000 traffic. This default setting is referred to as “preferred fiber.” Refer to “Configuring Ethernet Ports” in the *Network Configuration Guide* for detailed information, including steps for configuring combo port settings.

OmniSwitch 6850-48X Front Panel

USB Port

High speed USB 2.0 port, which can be used for quick upgrades.

10/100/1000Mbps Ports

The OS6850-48X provides 48 fixed 10/100/1000BaseT non-combo ports (1–48). These ports are auto-sensing and auto-MDIX and use RJ-45 connectors.

Status and Slot Indicator LEDs

For information on the OS6850-48X's status and slot indicator LEDs, refer to [page 71](#).



Console Port

The OS6850-48X front panel provides one RJ-45 port for console connections. Console connections are used by network administrators for switch management. This female RJ-45 connector provides a DTE console connection.

XFP Ports

The OS6850-48X front panel provides two ports for 10 Gbps Small Form Factor Pluggable (XFP) transceivers.

OmniSwitch 6850-P24 Front Panel

USB Port

High speed USB 2.0 port, which can be used for quick upgrades.

Status and Slot Indicator LEDs

For information on the OS6850-P24's status and slot indicator LEDs, refer to [page 71](#).



Console Port

The OS6850-P24 front panel provides one RJ-45 port for console connections. Console connections are used by network administrators for switch management. This female RJ-45 connector provides a DTE console connection.

10/100/1000Mbps PoE Ports

The OS6850-P24 provides 20 fixed 10/100/1000BaseT non-combo PoE ports (1–20) and 4 fixed 10/100/1000BaseT combo PoE ports (21–24). These ports are auto-sensing and auto-MDIX and use RJ-45 connectors.

Combo SFP Ports

The OS6850-P24 provides four combo SFP slots for 1000Base-X high-speed connections.

By default, when an SFP is installed in a combo port, it takes over the port number of the corresponding RJ-45 Ethernet port. In other words, if an SFP is installed in the slot labeled 24, Ethernet port 24 is no longer available and cannot be used for 10/100/1000 traffic. This default setting is referred to as “preferred fiber.” Refer to “Configuring Ethernet Ports” in the *Network Configuration Guide* for detailed information, including steps for configuring combo port settings.

OmniSwitch 6850-P48 Front Panel

Status and Slot Indicator LEDs

For information on the OS6850-P48's status and slot indicator LEDs, refer to [page 71](#).

USB Port

High speed (480 Mbps) USB 2.0 port, which can be used for quick upgrades.

10/100/1000Mbps PoE Ports

The OS6850-P48 provides 44 fixed 10/100/1000BaseT non-combo PoE ports (5–48) and 4 fixed 10/100/1000BaseT combo PoE ports (1–4). These ports are auto-sensing and auto-MDIX and use RJ-45 connectors.



Console Port

The OS6850-P48 front panel provides one RJ-45 port for console connections. Console connections are used by network administrators for switch management. This female RJ-45 connector provides a DTE console connection.

Combo SFP Ports

The OS6850-P48 provides four combo SFP slots for 1000Base-X high-speed connections.

By default, when an SFP is installed in a combo port, it takes over the port number of the corresponding RJ-45 Ethernet port. In other words, if an SFP is installed in the slot labeled 4, Ethernet port 4 is no longer available and cannot be used for 10/100/1000 traffic. This default setting is referred to as “preferred fiber.” Refer to “Configuring Ethernet Ports” in the *Network Configuration Guide* for detailed information, including steps for configuring combo port settings.

OmniSwitch 6850-P24X Front Panel

USB Port

High speed USB 2.0 port, which can be used for quick upgrades.

10/100/1000Mbps PoE Ports

The OS6850-P24X provides 20 fixed 10/100/1000BaseT non-combo PoE ports (1–20) and 4 fixed 10/100/1000BaseT combo PoE ports (21–24). These ports are auto-sensing and auto-MDIX and use RJ-45 connectors.

Status and Slot Indicator LEDs

For information on the OS6850-P24X's status and slot indicator LEDs, refer to [page 71](#).



Console Port

The OS6850-P24X front panel provides one RJ-45 port for console connections. Console connections are used by network administrators for switch management. This female RJ-45 connector provides a DTE console connection.

XFP Ports

The OS6850-P24X front panel provides two ports for 10 Gbps Small Form Factor Pluggable (XFP) transceivers.

Combo SFP Ports

The OS6850-P24X provides four combo SFP slots for 1000Base-X high-speed connections.

By default, when an SFP is installed in a combo port, it takes over the port number of the corresponding RJ-45 Ethernet port. In other words, if an SFP is installed in the slot labeled 24, Ethernet port 24 is no longer available and cannot be used for 10/100/1000 traffic. This default setting is referred to as “preferred fiber.” Refer to “Configuring Ethernet Ports” in the *Network Configuration Guide* for detailed information, including steps for configuring combo port settings.

OmniSwitch 6850-P48X Front Panel

Status and Slot Indicator LEDs

For information on the OS6850-P48X's status and slot indicator LEDs, refer to [page 71](#).

USB Port

High speed (480 Mbps) USB 2.0 port, which can be used for quick upgrades.



Console Port

The OS6850-P48X front panel provides one RJ-45 port for console connections. Console connections are used by network administrators for switch management. This female RJ-45 connector provides a DTE console connection.

XFP Ports

The OS6850-P48X front panel provides two ports for 10 Gbps Small Form Factor Pluggable (XFP) transceivers.

10/100/1000Mbps PoE Ports

The OS6850-P48X provides 48 fixed 10/100/1000BaseT non-combo PoE ports (1–48). These ports are auto-sensing and auto-MDIX and use RJ-45 connectors.

OmniSwitch 6850 Series LEDs

Slot Indicator LED

The slot indicator LED displays the switch's current slot number in a stacked configuration (i.e., 1 – 8). Displays 0 when the switch is booting. Blinks 1–8 if the switch is in pass-through mode.

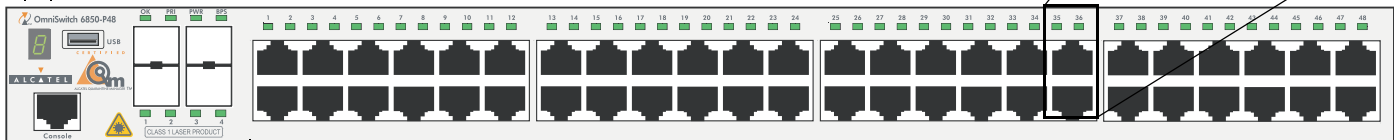
OK. Solid green when the switch has passed hardware diagnostic tests and the system software is operational. Solid amber when a hardware or system software failure occurs. Blinks amber when the software is in a transitional state (e.g., when software is being downloaded to the switch).

PRI. Solid green when the switch is either a stand-alone switch or the primary switch in a stack; solid amber if the switch status is secondary; off if the switch is idle (i.e., neither primary or secondary).

PWR. Solid green when the primary (i.e., factory-installed) power supply status is OK and the power supply is operating normally. Solid amber in the event of a power supply failure.

BPS. Solid green when an optional redundant power supply is installed and operational. Solid amber if a redundant power supply failure occurs; off when no redundant power supply is installed.

System Status LEDs



Combo Port LEDs

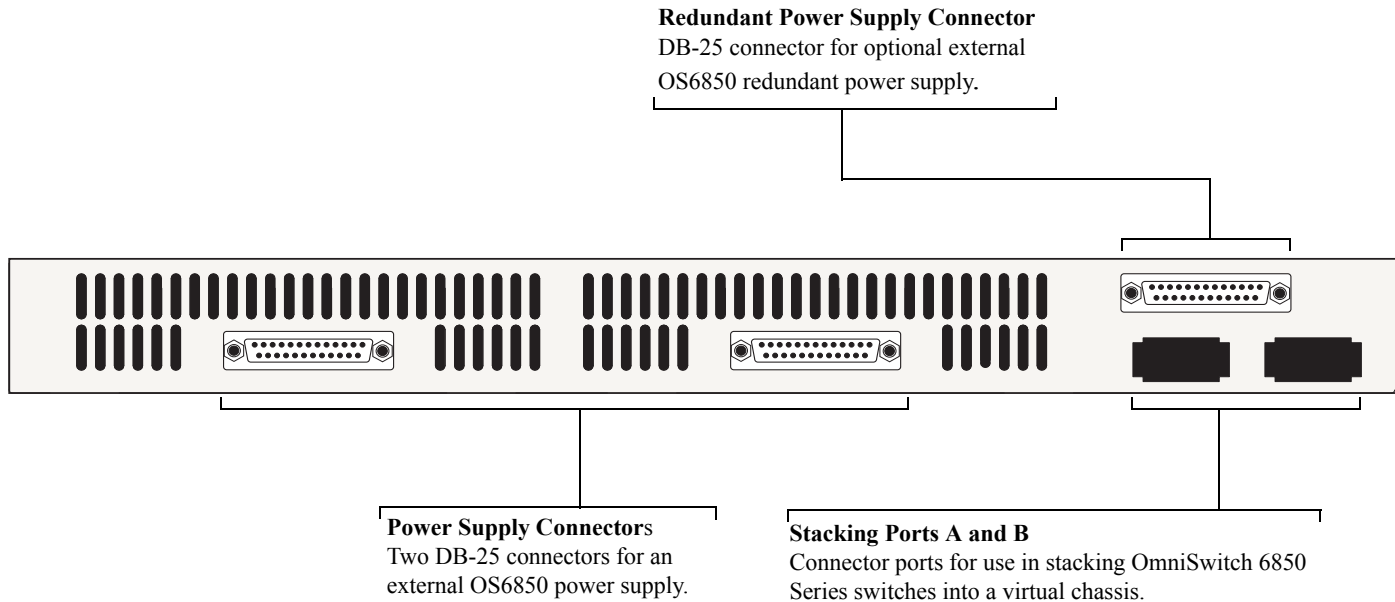
Displays solid green when an SFP is installed in the corresponding port and a link state exists; blinks green when transmitting or receiving traffic; off when no activity is present or no SFP is installed.

By default, when an SFP is installed, it takes over the port number of the corresponding RJ-45 Ethernet port. If an SFP is installed in the slot labeled 45, Ethernet port 45 is no longer available and cannot be used for 10/100/1000 traffic. For detailed information on changing combo port settings, see “Configuring Ethernet Ports” in the *Network Configuration Guide*.

Ethernet Port LEDs

Ethernet port has one built-in status LED. This LED indicates the data speed and link/activity status for each corresponding Ethernet port. See [page 57](#) for more information.

OmniSwitch 6850 Series Rear Panel



User Documentation on CD

The CD that accompanies this *Getting Started Guide* contains comprehensive Alcatel user documentation, including the following manuals:

- *OmniSwitch 6850 Series Getting Started Guide*

Describes the hardware and software procedures for getting an OmniSwitch 6850 Series switch up and running. Also provides information on fundamental aspects of OmniSwitch hardware components and software architecture.

- *OmniSwitch 6850 Series Hardware Users Guide*

Complete technical specifications and procedures for all OmniSwitch 6850 Series hardware, including chassis, power supplies, fans, combo ports, stacking procedures, optional backup power supplies, etc.

- *OmniSwitch CLI Reference Guide*

Complete reference to all CLI commands supported on the OmniSwitch 6850 Series. Includes syntax definitions, default values, examples, usage guidelines, and CLI-to-MIB variable mappings.

- *OmniSwitch 6800/6850/9000 Switch Management Guide*

Includes procedures for readying a switch for integration into a network. Topics include the software directory architecture, image rollback protections, authenticated switch access, managing switch files, system configuration, using SNMP, and using web management software (WebView).

- *OmniSwitch 6800/6850/9000 Network Configuration Guide*

Includes network configuration procedures and descriptive information on all the major software features and protocols included in the base software package. Chapters cover Layer 2 information (Ethernet and VLAN configuration), Layer 3 information (static routes), security options (authenticated VLANs), Quality of Service (QoS), and link aggregation.

- *OmniSwitch 6800/6850/9000 Advanced Routing Configuration Guide*

Includes network configuration procedures and descriptive information on all the software features and protocols included in the advanced routing software package.

Chapters cover multicast routing (DVMRP and PIM-SM) and OSPF.

To load the CD and access the user documentation, refer to the instructions printed on the CD packaging.

All documentation is in PDF format and requires the Adobe Acrobat Reader program for viewing. Acrobat Reader freeware is available at www.adobe.com.

Global Search. In order to take advantage of the documentation CD's global search feature, it is recommended that you select the option for *searching PDF files* when downloading Acrobat Reader freeware from the Adobe Website.

To verify that you are using Acrobat Reader with the global search option, look for the following button in the toolbar.:



If you cannot locate a button with the document image behind the binoculars (as shown), then the global search feature is *not* available in the version of Acrobat Reader you are currently using.

Printing PDFs. When printing pages from the documentation PDFs, de-select Fit to Page if it is selected in your print dialog. Otherwise pages may print with slightly smaller margins.
