Nortel Ethernet Switch 470

Installation

ATTENTION

Clicking on a PDF hyperlink takes you to the appropriate page. If necessary, scroll up or down the page to see the beginning of the referenced section.

NN47210-301 (217108-C)

Document status: Standard
Document version: 01.01
Document date: 22 February 2007

Trademarks

Restricted rights legend

Statement of conditions

International regulatory statements of conformity

This is to certify that the Nortel Ethernet Switches 460 and 470 were evaluated to the international regulatory standards for electromagnetic compliance (EMC) and safety and were found to have met the requirements for the following international standards:

- EMC - Electromagnetic Emissions - CISPR 22, Class A
- EMC - Electromagnetic Immunity - CISPR 24

- Electrical Safety - IEC 60950, with CB member national deviations

Further, the equipment was certified as compliant with the following national standards.

National electromagnetic compliance (EMC) statements of compliance

FCC statement (USA only)

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

ICES statement (Canada only)

Canadian Department of Communications Radio Interference Regulations

This digital apparatus (Nortel Ethernet Switches 460 and 470) do not exceed the Class A limits for radio-noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

Règlement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique (Nortel Ethernet Switches 460 and 470) respecte les limites de bruits radioélectriques visant les appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada.

CE marking statement (Europe only)

EN 55 022 statements

This is to certify that the Nortel Ethernet Switches 460 and 470 are shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC. Conformity is declared by the application of EN 55 022 Class A (CISPR 22).

CAUTION

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

EN 55 024 statement

This is to certify that the Nortel Ethernet Switches 460 and 470 are shielded against the susceptibility to radio interference in accordance with the application of Council Directive 89/336/EEC. Conformity is declared by the application of
EN 55 024 (CISPR 24).

CE Declaration of Conformity

This product conforms to the provisions of the R&TTE Directive 1999/5/EC.

VCCI statement (Japan/Nippon only)

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

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This is a Class A product based on the standard of the Bureau of Standards, Metrology and Inspection (BSMI) CNS 13438, Class A.

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

MIC notice for Ethernet Switches 460 and 470 (Republic of Korea only)

This device was approved for use in Business applications only per the Class A requirements of the Republic of Korea Ministry of Information and Communications (MIC). This device may not be sold for use in a non-business application.

Observe the Regulatory Marking label on the bottom surface of the chassis for specific certification information pertaining to this model. Each model in the Ethernet Switch Series, which is approved for shipment to/usage in Korea is labeled as such, with all appropriate text and the appropriate MIC reference number.

National safety statements of compliance

CE marking statement (Europe only)

EN 60 950 statement

This is to certify that the Nortel Ethernet Switches 460 and 470 are in compliance with the requirements of EN 60 950 in accordance with the Low Voltage Directive. Additional national differences for all European Union countries were evaluated for compliance.

NOM statement Ethernet Switches 460 and 470 (Mexico only)

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Importer:	Nortel Networks de México, S.A. de C.V. Avenida Insurgentes Sur #1605 Piso 30, Oficina Col. San Jose Insurgentes Deleg-Benito Juarez México D.F. 03900
Tel:	52 5 480 2100
Fax:	52 5 480 2199
Input:	Ethernet Switch 460, Ethernet Switch 470 100 - 120 VAC 16A 50 to 60 Hz 200 - 240 VAC 12 A 50 to 60 Hz

Información NOM (unicamente para México)

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Tel:	52 5 480 2100
Fax:	52 5 480 2199
Embarcar a:	Ethernet Switch 460, Ethernet Switch 470
	100 - 120 VAC 16A 50 to 60 Hz
	200 - 240 VAC 12 A 50 to 60 Hz

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Revision History

Date Revised	Version	Reason for revision
February 2007	01.01	Updated product and document references for Release 3.7 software.

About this guide

This guide provides instructions to install the Nortel Ethernet Switch 470-24T, Ethernet Switch 470-48T, Ethernet Switch 470-24T-PWR, and Ethernet Switch 470-48T-PWR on a table or in an equipment rack. For more detailed information about the switch, refer to the *Nortel Ethernet Switch 460/470 Overview — System Configuration (NN47210-501)*.

Note: The term *Ethernet Switch 470* is used in this guide to describe features or procedures that are common to all four types of Ethernet Switch 470:

- Ethernet Switch 470-24T
- Ethernet Switch 470-48T
- Ethernet Switch 470-24T-PWR
- Ethernet Switch 470-48T-PWR

The term Ethernet Switch 470 (non-PWR) refers to the Ethernet Switch 470-24T and Ethernet Switch 470-48T.
The term Ethernet Switch 470-PWR refers to the Ethernet Switch 470-24T-PWR and the Ethernet Switch 470-48T-PWR.

This guide includes information about the following topics:

- Environmental requirements for the installation site
- Installing the switch on a table ("Installing the switch on a table or shelf" (page 11)) or in a rack (" Installing the switch in an equipment rack" (page 11))
- Network connection requirements (" Connection requirements" (page 13))
- Connecting AC power ("Connecting AC power" (page 16))
- Descriptions of LEDs ("Ethernet Switch 470 (non-PWR) LEDs" (page 21)and Figure 9 "Ethernet Switch 470-PWR LEDs" (page 25))
- Initial switch setup ("Initial switch setup" (page 26))

Before you begin

Ensure the area where you install and use the Ethernet Switch 470 meets the following environmental requirements:

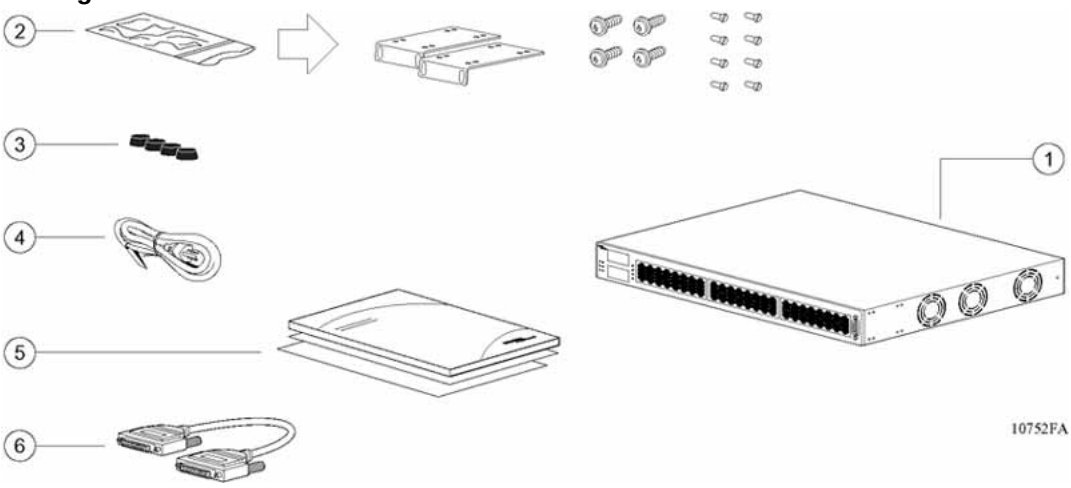
- Ambient temperature between 32° and 104° F (0° and 40° C)
- Relative humidity between 5% and 85% noncondensing
- No nearby heat sources such as hot air vents or direct sunlight
- No nearby sources of severe electromagnetic noise
- No excessive dust
- Adequate power source within six feet; one 15-Amp circuit required for each power supply
- At least 2 inches (5.08 cm) on each side of the switch unit for ventilation
- Adequate space at the front and rear of the switch for access to cables

If you are installing a single Ethernet Switch 470 on a table or shelf, ensure the surface can support at least 15 to 20 pounds (7 to 9 kilograms).

Package contents

Figure 1 "Package contents" (page 10) shows the package contents that accompany each Ethernet Switch 470.

Figure 1
Package contents



1 = Ethernet Switch 470 (Ethernet Switch 470-48T shown)

2 = Rack-mounting hardware:

- Rack-mount brackets
- Screws for attaching brackets to the switch

- Screws for attaching the switch to the equipment rack

3 = Rubber footpads

4 = AC power cord

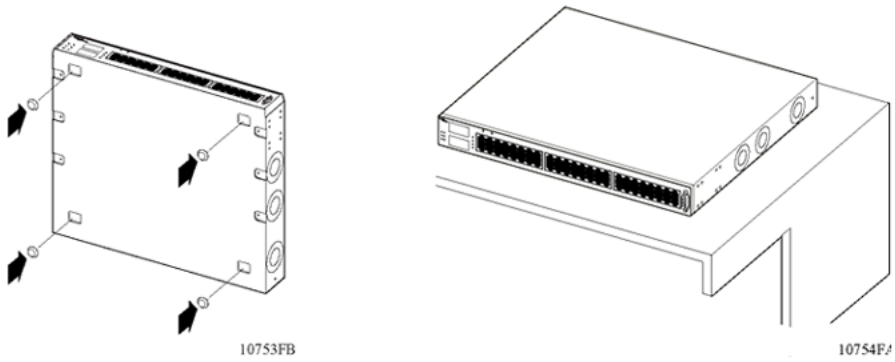
5 = Documentation

6 = Stacking cable

Installing the switch on a table or shelf

You can install a single Ethernet Switch 470 on any flat surface that can safely support the weight of the switch and attached cables (15 to 20 pounds or 7 to 9 kilograms). Figure 2 "Installing switch on table or shelf" (page 11) provides instructions on installing the switch on a table or shelf.

Figure 2
Installing switch on table or shelf



1 Attach the rubber feet at the marked locations.

2 Set the switch on a table or shelf.

Note: Allow at least 2 inches (5.1 cm) on each side for proper ventilation and at least 5 inches (12.7 cm) at the back for power cord clearance.

CAUTION
Do not set a Nortel Ethernet Routing Switch Power Supply 15 (RPS 15) or Ethernet Switch Power Supply Unit 10 on top of an Ethernet Switch 470. The Power Supply Unit 10 weighs approximately 100 pounds (45 kg) and the RPS 15 weighs approximately 40 pounds (17 kg). The switch housing is not strong enough to support this weight. (For translations of this statement, see "Translations of the Safety Messages" (page 34).)

Installing the switch in an equipment rack

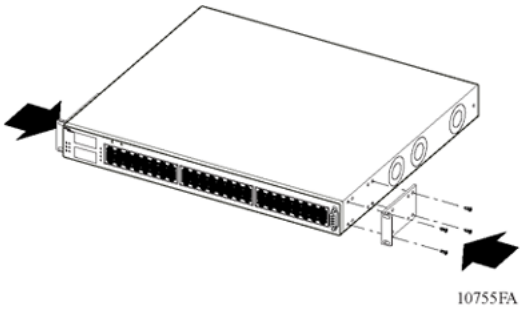
Required tool: Phillips screwdriver for attaching brackets to the switch

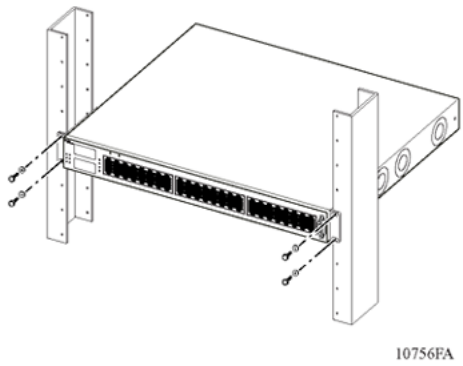
Rack requirements:

- A space of 2.8 inches is required for each switch in an EIA or IEC standard 19-inch (48.2-centimeter) equipment rack.
- The rack must be bolted to the floor and braced, if necessary.
- The rack must be grounded to the same grounding electrode used by the power service in the area. The ground path must be permanent and must not exceed 1 ohm of resistance from the rack to the grounding electrode.

Figure 3 "Installing switch in a rack" (page 12) provides instructions on installing the switch in a rack.

Figure 3
Installing switch in a rack





1 Attach a bracket to each side of the switch.

2 Slide the switch into the rack. Insert and tighten the rack-mount screws.

CAUTION
When mounting this device in a rack, do not stack units directly on top of one another in the rack. Each unit must be secured to the rack with appropriate mounting brackets. Mounting brackets are not designed to support multiple units. (For translations of this statement, see "Translations of the Safety Messages" (page 34).)

Installing Stacking Cables

Note: Do not install stacking cables on an Ethernet Switch 470 that does not have at least v2.2 software loaded. Similarly, set the Unit Select switch in the Off (down = Off) position on ALL units running v2.1 software.

See *Nortel Ethernet Switch 460/470 Overview — System Configuration (NN47210-501)* for a complete description of cable installation and other important information about stacking of Ethernet Switches 470. Go to www.nortel.com/support to see this guide.

Connection requirements

Table 1 "Cable requirements" (page 13) describes the data cable requirements for the Ethernet Switch 470.

Table 1
Cable requirements

Required cables:	
10/100BASE-T ports	For 10 Mb/s operation: Category 3, 4, or 5 UTP cable with an RJ-45 connector For 100 Mb/s operation: Category 5 or better UTP cable with an RJ-45 connector
Console Port	Serial cable with DB-9 female connector.
GBIC ports	Varies with the installed GBIC; refer to the documentation that was shipped with the GBIC for specifications.

Gigabit Interface Converters (GBIC)

The Ethernet Switch 470 (non-PWR) and Ethernet Switch 470-PWR provide two shared, full-sized GBIC slots for high-speed uplink connectivity. GBICs must be ordered separately. For information about installing GBICs in the Ethernet Switch 470 (non-PWR) and Ethernet Switch 470-PWR, refer to *Installing SFP and XFP Transceivers and GBICs* (318034-C). For information about supported GBIC types and configurations, see *Nortel Ethernet Switch 460/470 Overview — System Configuration (NN47210-501)*.

WARNING
Fiber optic equipment can emit laser or infrared light that can injure your eyes. Never look into an optical fiber or connector port. Always assume that fiber optic cables are connected to a light source. (For translations of this statement, see "Translations of the Safety Messages" (page 34).)

Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) is a discharge of stored static electricity that can damage equipment and impair electrical circuitry. These electrostatic voltages can result from friction, including, but not exclusive to, pulling cabling through conduits, walking across carpeted areas, and building up of static charge in clothing. ESD damage occurs when electronic components are improperly handled and can result in complete or intermittent failures. While networking equipment is commonly designed and tested to withstand common mode ESD events, voltage sometimes can be discharged to some connector pins but not others, or to some pins before others, which has the potential to damage the networking equipment.

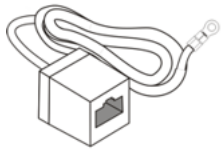
To protect your Nortel Ethernet Switch against ESD damage, take the following preventive measures before connecting any data cables to the device:

- Always use anti-static wrist straps. Make sure the strap is adjusted to provide good skin contact.
- Ensure that work surfaces and equipment racks are properly grounded for protection against electrostatic discharge. The common point must be connected to the building ground wire. In a properly wired building, the nearest reliable ground is typically at the electrical outlet.
- Avoid contact between equipment and clothing. The wrist or ankle strap only protects the equipment from ESD voltages on the body; ESD voltages on clothing can still cause damage.
- Avoid touching any connector pins.
- Do not remove the wrist or ankle strap until the installation is complete.

Preventing ESD damage in new cable installations

With new cable installations, Nortel recommends that you use an ESD discharge cable to reduce the potential for damage from static that can build up in cables.Figure 4 "Sample ESD cable" (page 15) shows a sample ESD discharge cable.

Figure 4
Sample ESD cable



To install the ESD discharge cable:

Step	Action
1	Connect the ground lug on the ESD discharge cable to a safe and suitable earth ground.
2	Briefly connect all RJ-45 cable connectors to the female RJ-45 connector of the ESD discharge cable and then connect each RJ-45 cable connector to the switch.
3	Leave cables connected to the networking equipment. When cables are connected to networking equipment, the cables do not build up charge.

—End—

RJ-45 pin assignments

Note: The RJ-45 ports on the switch are wired as MDI-X connectors to connect end stations using straight-through cables. If you are connecting an RJ-45 port to another MDI-X port, such as another switch or a hub, use a crossover cable.

Table 2 "Signal power pair RJ-45 port connector pin assignments" (page 15) shows the RJ-45 pin assignments on the Ethernet Switch 470-PWR for the signal power pair, which is the only available setting.

Table 2
Signal power pair RJ-45 port connector pin assignments

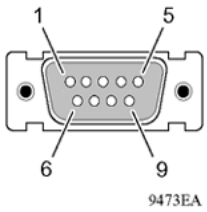
Pin	Signal	Description
1	RX+/power+	Receive Data+/power+
2	RX-/power+	Receive Data-/power+
3	TX+/power-	Transmit Data+/power-
4	Not applicable	Not applicable

5	Not applicable	Not applicable
6	TX-/power-	Transmit Data-/power-
7	Not applicable	Not applicable
8	Not applicable	Not applicable

Console port pin assignments

Table 3 "Pin assignments in the port" (page 16) describes the pin assignments in the console port connector.

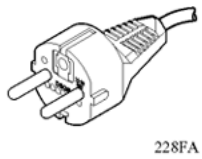
Table 3
Pin assignments in the port

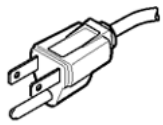
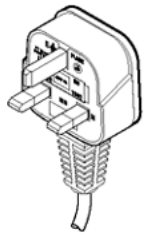
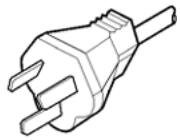
Connector	Pin number	Signal
	1	Carrier detect (not used)
	2	Transmit data (TXD)
	3	Receive data (RXD)
	4	Data terminal ready (not used)
	5	Signal ground (GND)
	6	Not used
	7	Request to send (not used)
	8	Not used
	9	Ring indicator (not used)

Connecting AC power

Required cable: AC power cord that meets the requirements of your local electrical code. Refer to Table 4 " International power cord specifications" (page 16) for plug specifications.

Table 4
International power cord specifications

Country/plug description	Specifications	Typical plug
Continental Europe: • CEE7 standard VII male plug • Harmonized cord (HAR marking on the outside of the cord jacket to comply with the CENELEC Harmonized Document HD-21)	220 or 230 VAC 50 Hz Single phase	

Country/plug description	Specifications	Typical plug
U.S./Canada/Japan: • NEMA5-15P male plug • UL-recognized (UL stamped on cord jacket) • CSA-certified (CSA label secured to the cord)	100 or 120 VAC 50-60 Hz Single phase	 227FA
United Kingdom: • BS1363 male plug with fuse • Harmonized cord	240 VAC 50 Hz Single phase	 229FA
Australia: • AS3112-1981 male plug	240 VAC 50 Hz Single phase	 230FA

DANGER

Use only power cords that have a grounding path. Without a proper ground, a person who touches the switch is in danger of receiving an electrical shock. Lack of a grounding path to the switch can result in excessive emissions. (For translations of this statement, see "Translations of the Safety Messages" (page 34).)

The Ethernet Switch 470 does not have a power switch. When you connect the AC power cord to a suitable AC power outlet, the switch powers up immediately.Figure 5 "Connecting the AC power cord to the Ethernet Switch 470 (non-PWR)" (page 18) shows how to connect the AC power cable to the Ethernet Switch 470 (non-PWR).Figure 6 "Connecting the AC power cord to the Ethernet Switch 470-PWR" (page 18) shows how to connect the AC power cable to the Ethernet Switch 470-PWR.

Figure 5
Connecting the AC power cord to the Ethernet Switch 470 (non-PWR)

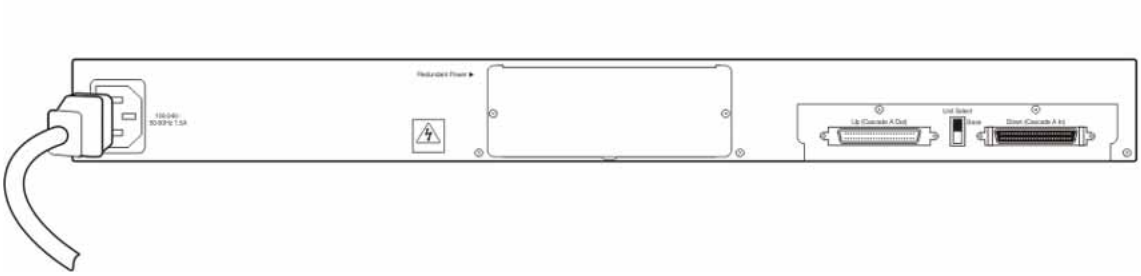
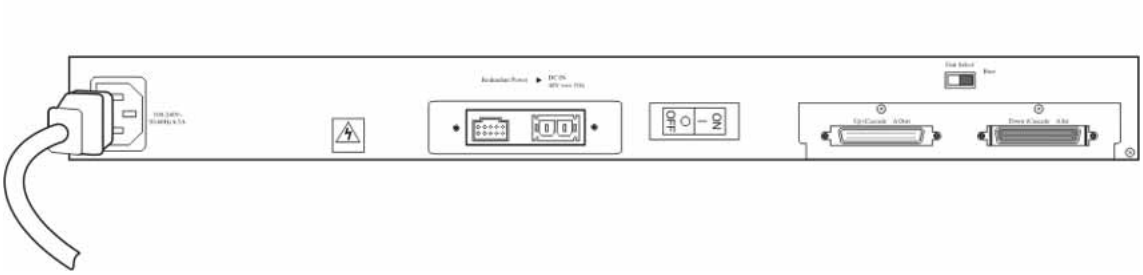


Figure 6
Connecting the AC power cord to the Ethernet Switch 470-PWR



Connect the AC power cord to the back of the switch and then connect the cord to a power outlet.

WARNING
Disconnecting thef AC power cord is the only way to turn off power to this device. Always connect the power cord in a location that can be reached quickly and safely in case of an emergency. (For translations of this statement, see "Translations of the Safety Messages" (page 34).)

Note: The ON/OFF switch on the Ethernet Switch 470-PWR is a manual switch to turn off the DC power only. Connect the optional redundant DC power device in the receptacle to the left of the switch, labeled Redundant Power.

Power specifications

AC Power specifications

Table 5 "AC Power specifications for Ethernet Switch 470 (non-PWR)" (page 19) describes the AC Power specifications for the Ethernet Switch 470 (non-PWR).

Table 5
AC Power specifications for Ethernet Switch 470 (non-PWR)

Input current:	Maximum 1.5 A
Input voltage (rms):	100-240 VAC at 50-60 Hz
Power consumption:	90 W
Thermal rating:	324 BTU/h maximum

AC Power specifications

Table 6 "AC Power specifications for Ethernet Switch 470-PWR" (page 19) describes the AC Power specifications for the Ethernet Switch 470-PWR.

Table 6
AC Power specifications for Ethernet Switch 470-PWR

Input current:	6.5 A at 115 VAC or 3.25 A at 230 VAC
Input voltage (rms):	100-240 VAC at 50-60 Hz
Power consumption:	600 W maximum
Thermal rating:	850 Btu/h maximum

DC power specifications for Ethernet Switch 470 (non-PWR)

The redundant power supply slot on the Ethernet Switch 470 (non-PWR) units provides a space for the –48 V DC-to-DC converter. (The –48 V DC-to-DC converter must be ordered separately.) With the –48 V DC-to-DC converter, you can connect a backup power supply unit to these switches.

Nortel provides optional redundant power supply units (RPSU) for this purpose. The Ethernet Switch Power Supply Unit 10 (formerly known as BayStack 10) and Ethernet Routing Switch Redundant Power Supply 15 (RPS 15) are power supply units that provide uninterrupted operation to Ethernet Switch 470 (non-PWR) units in the event that any of the switch power supplies fail.

Table 7 "Power Supply Unit 10 DC power specifications" (page 20) provides DC power specifications for one of the four modules in the Power Supply Unit 10.

Table 7
Power Supply Unit 10 DC power specifications

Output current:	4.2A maximum
Output voltage:	–48 VDC
Output power:	200 W maximum

Table 8 "RPS 15 DC power specifications" (page 20) provides DC power specifications for the RPS 15 unit.

Table 8
RPS 15 DC power specifications

Input current:	10 A maximum
Input voltage:	100-240 VAC at 50-60 Hz
Inrush current:	40 A maximum (regardless of ambient temperature)
Output current:	12.0 A
Output voltage:	47.5 VDC
Output power:	600 W

For more information aboutthe DC-DC converter for Ethernet Switch 470 (non-PWR) units, refer to *Installation and Reference for the BayStack 470 100 Watt DC-DC Converter Module* (214475-A). For more information aboutthe Power Supply Unit 10, refer to *Installation and Reference for the BayStack 10 Power Supply Unit* (208296-C). For more information aboutconnecting the RPS 15, refer to *Installing the Nortel Ethernet Routing Switch Redundant Power Supply 15* (217070-A).

DC power specifications for Ethernet Switch 470-PWR

While the Ethernet Switch 470 (non-PWR) is supported by both the Power Supply Unit 10 and RPS 15 units, the Ethernet Switch 470-PWR is only supported by the RPS 15. provides DC power specifications for the RPS 15 unit.

To provide DTE power to all 48 ports at 15.4 W per port, the Nortel Ethernet Switch 470-PWR must use power from the RPS 15. describes the amount of power available to the Ethernet Switch 470-24T-PWR and 470-48T-PWR using different power configurations.

Table 9
Available power on Ethernet Switch 470-24T-PWR and 470-48T-PWR

Input power configuration	Ethernet Switch 470-24T-PWR		Ethernet Switch 470-48T-PWR	
	Max DTE power per switch	Average power per port	Max DTE power per switch	Average power per port
AC input only	370 Watts	15.4 W/port	370 Watts	7.7 W/port
RPS 15 input only	370 Watts	15.4 W/port	370 Watts	7.7 W/port
AC + RPS 15 input, non-redundant power-sharing mode	740 Watts	15.4 W/port	740 Watts	15.4W/port

To connect to a backup power supply, the Ethernet Switch 470 (non-PWR) requires a DC-DC converter module. As a result, when you connect the switch to the RPS 15, you must use either the AA0005021 or AA0005020 DC connector cable.

However, the Ethernet Switch 470-PWR provides a built-in DC connector to connect to the power supply unit and therefore does not require the DC-DC converter module. As a result, when you connect the Ethernet Switch 470-PWR to the RPS 15, you must use the AA0005018 DC connector cable (similar to the Ethernet Routing Switch 5520 and 5530 devices).

For information aboutconnecting an RPS 15 to a device using the AA0005018 cable, refer to *Installing the Nortel Ethernet Routing Switch Redundant Power Supply 15* (217070-A).

Ethernet Switch 470 (non-PWR) LEDs

Figure 7 "Ethernet Switch 470 (non-PWR) LEDs" (page 22), Table 10 "Switch LEDs on the Ethernet Switch 470" (page 22), andTable 11 "Port LEDs on the Ethernet Switch 470 (non-PWR)" (page 23) provide descriptions of the LEDs on the Ethernet Switch 470 (non-PWR). The tables describe LED operations for a switch that completed its power-on self-tests.

Figure 7
Ethernet Switch 470 (non-PWR) LEDs

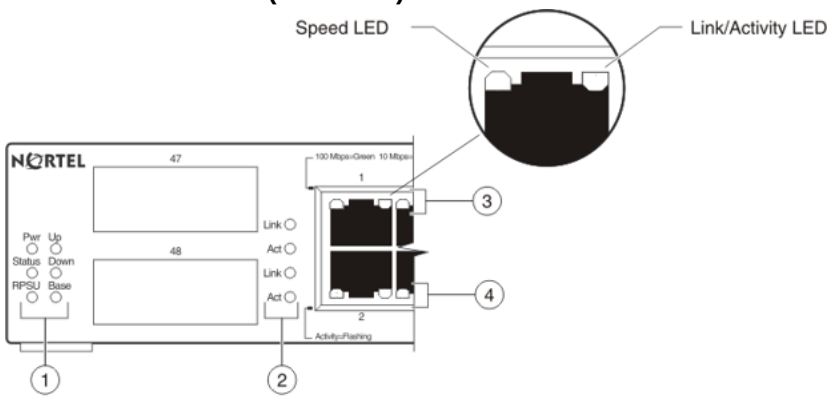


Table 10
Switch LEDs on the Ethernet Switch 470

Label	Color/Status	Meaning
Pwr	Green/steady	Power is available to the switch internal circuitry.
	Off	There is no power to the switch, or the power supply failed.
Status	Green/steady	The power-on self test is complete, and the switch is operating normally.
	Green/blinking	A nonfatal error occurred during the self-test.
	Off	The switch failed the self-test.
RPSU	Green/steady	The switch is connected to an RPSU (redundant power supply unit) and can receive power if necessary.
	Off	The switch is not connected to an RPSU, or the RPSU is not supplying power.
Up	Green/steady	The switch is connected to the Down connector on the *upstream* unit.
	Amber/steady	This unit detected a problem with the switch connected to the Up connector. To maintain the integrity of the stack, this unit bypassed its upstream neighbor and wrapped the stack backplane onto an alternate path.
	Green or amber/blinking	The software version on this unit is incompatible or the software cannot obtain a unit ID because the Renumber Stack Unit table is full. This unit is on the stack ring but cannot participate in the stack configuration.
	Off	The switch is in stand-alone mode.

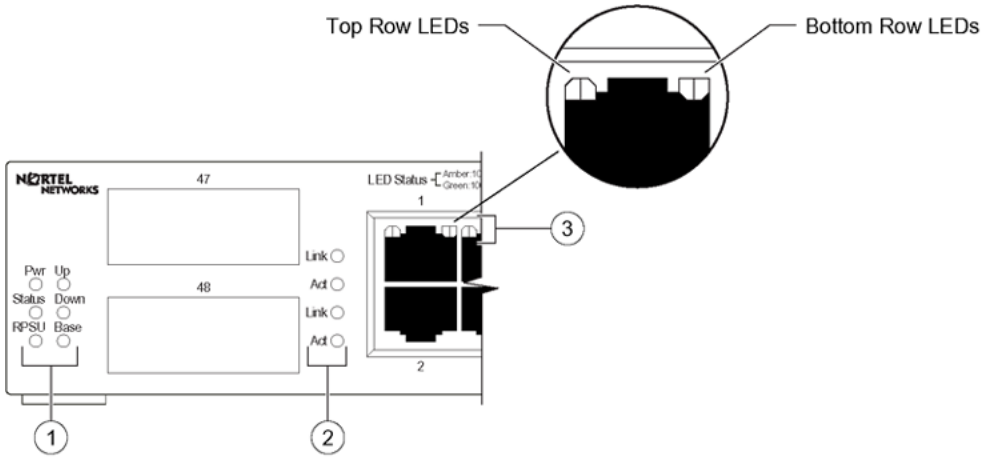
Label	Color/Status	Meaning
Dwn	Green/steady	The switch is connected to the Up connector on the *downstream* unit.
	Amber/steady	This unit detected a problem with the switch connected to the Down connector. To maintain the integrity of the stack, this unit bypassed its downstream neighbor and wrapped the stack backplane onto an alternate path.
	Green or amber/blinking	The software version is incompatible or is unable to obtain a unit ID because the Renumber Stack Unit table is full. This unit is on the stack ring but is unable to participate in the stack configuration.
	Off	The switch is in stand-alone mode.
Base	Green/steady	This switch is the stack base unit.
	Green/blinking	There is a stack configuration error. Either *multiple* base units or *no* base units are configured in the stack.
	Amber	This unit is operating as the *temporary base unit* in the stack configuration.
	Off	This switch is not the stack base unit, or is operating in stand-alone mode.

Table 11
Port LEDs on the Ethernet Switch 470 (non-PWR)

Label	Color/Status	Meaning
10/100	Green/steady	This port is set to operate at 100 Mb/s, and the link is good.
	Green blinking	This port was disabled by software.
	Amber/steady	This port is set to operate at 10 Mb/s, and the link is good.
	Amber/blinking	This port was disabled by software.
	Off	The link is bad, or nothing is connected to this port.
Activity	Green/blinking	There is activity on this port.
	Off	There is no activity on this port.

Figure 8 "Ethernet Switch 470 (non-PWR) LEDs - previous version" (page 24) shows the LEDs on the previous version of the Ethernet Switch 470 (non-PWR), which has all port LEDs situated on the top row of ports. The LED descriptions in Table 10 "Switch LEDs on the Ethernet Switch 470" (page 22), andTable 11 "Port LEDs on the Ethernet Switch 470 (non-PWR)" (page 23) remain applicable to these switches.

Figure 8
Ethernet Switch 470 (non-PWR) LEDs - previous version



1 = Switch LEDs
2 = GBIC Port LEDs
3 = 10/100 Port LEDs

Ethernet Switch 470-PWR port LED indicators

On Ethernet Switch 470-PWR devices, the switch LEDs operate in the same manner as those on the Ethernet Switch 470 (non-PWR) (see Table 10 " Switch LEDs on the Ethernet Switch 470" (page 22)). However, unlike the Ethernet Switch 470 (non-PWR), the 10/100 port LEDs on the Ethernet Switch 470-PWR are used to indicate both Ethernet status (Link and Activity) as well as PoE status.Figure 9 "Ethernet Switch 470-PWR LEDs" (page 25) andTable 12 "Port LEDs on the Ethernet Switch 470-PWR" (page 25)provide detailed descriptions of these port LEDs.

Figure 9
Ethernet Switch 470-PWR LEDs

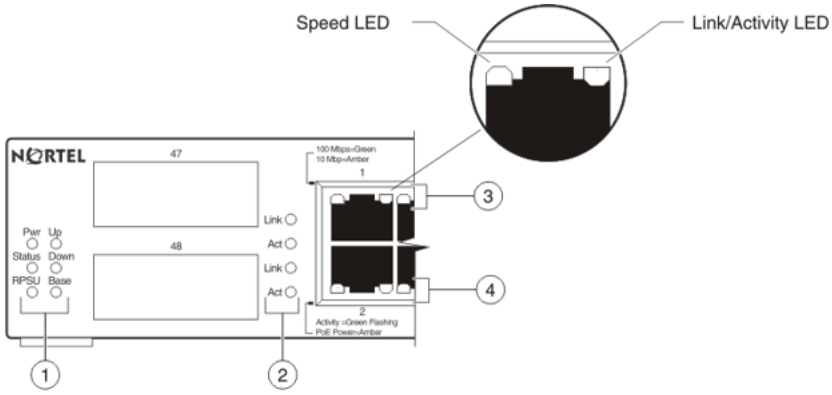


Table 12
Port LEDs on the Ethernet Switch 470-PWR

Label	Color/Status	Meaning
Speed LED	Green/steady	This port is set to operate at 100 Mb/s, and the link is good.
	Green/blinking	This port is disabled for data transmission and reception by software.
	Amber/steady	This port is set to operate at 10 Mb/s, and the link is good.
	Amber/blinking	This port is disabled for data transmission and reception by software.
	Three blinks of amber followed by green	Not enough power in the unit to provide power to this 10 Mb/s port.
	Three blinks of amber followed by green followed by an off period	Not enough power in the unit to provide power to this 10 Mb/s port, and this port is disabled for data transmission and reception by software.
	Three blinks of green followed by amber	Not enough power in the unit to provide power to this 100 Mb/s port.
	Three blinks of green followed by amber followed by an off period	Not enough power in the unit to provide power to this 100 Mb/s port, and this port is disabled for data transmission and reception by software.
	Off	The link is bad, or nothing is connected to this port.

Label	Color/Status	Meaning
Link/Activity LED	Green/steady	Not applicable.
	Green/blinking	Link activity with no PoE supplied to this port. The rate of blinking indicates the level of activity on the link.
	Amber/steady	No link activity but PoE is supplied to this port.
	Amber/blinking	Not applicable.
	Amber and green/blinking	Link activity with PoE supplied to this port. The rate of blinking indicates the level of activity on the link.
	Off	No activity and no PoE is supplied to the port.

Initial switch setup

The Ethernet Switch 470 begins switching as soon as you attach network devices and connect the switch to power. To manage the switch using Telnet or SNMP or to perform TFTP operations, you must set certain IP parameters. In addition, if you are connecting Ethernet Switches 470 into a stack configuration, you must supply additional parameters to properly set up the stack. Refer to the *Nortel Ethernet Switch 460/470 Overview — System Configuration (NN47210-501)* for more information about the console menus and configuring your Ethernet Switch 470.

Setting IP parameters

For the initial setup of a stand-alone switch or a stack configuration, you must set the following IP parameters:

- IP address of the switch or the stack
- Subnet mask
- Gateway address

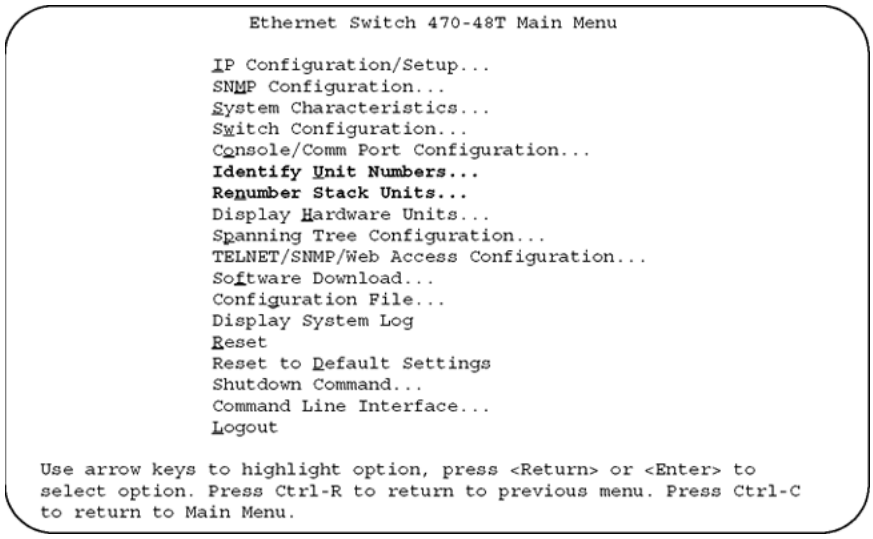
Setting IP parameters using the Console Interface

To set the IP parameters using the Console Interface:

Step	Action
1	Connect a terminal to the Console port on the switch.
2	Set the terminal protocol as described in the *Nortel Ethernet Switch 460/470 Overview — System Configuration (NN47210-501)*.
3	Connect the switch to a power outlet.
4	After the Nortel logo is displayed, press [Ctrl]-Y to display the Main Menu.

The Main Menu for a stand-alone switch appears (see Figure 10 "Ethernet Switch Console Interface main menu" (page 27)). If the switch is part of a stack configuration, the screen is refreshed within 20 seconds to show the Main Menu for a stack configuration. The Main Menu for a stack configuration includes stack features (in bold text in Figure 10 "Ethernet Switch Console Interface main menu" (page 27)).

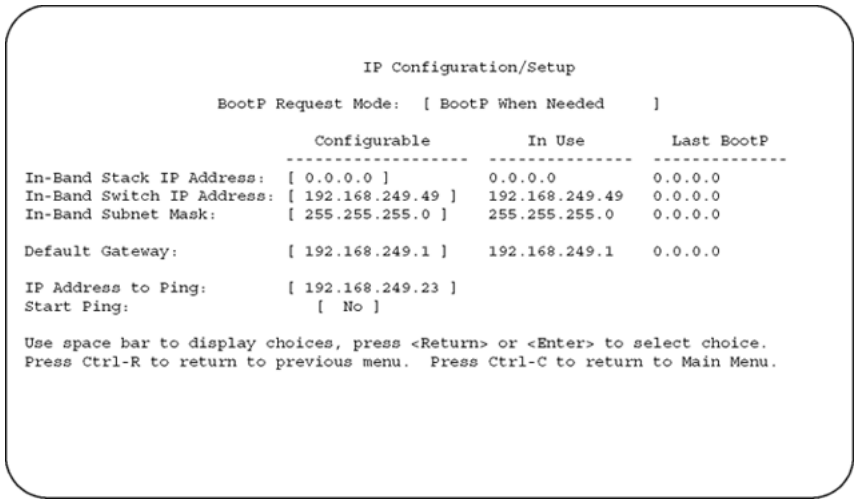
Figure 10
Ethernet Switch Console Interface main menu



5 Select IP Configuration/Setup (or press i) to display the IP Configuration/Setup menu (see Figure 11 "IP Configuration/Setup screen" (page 28)).

Note: The default management VLAN in the Ethernet Switch 470 is VLAN 1. To manage the switch, ensure the network management station is on the management VLAN or is connected to the management VLAN through routers.

Figure 11
IP Configuration/Setup screen



6 For a stand-alone switch, in the In-Band Switch IP Address field, enter the IP address of the switch in dotted-decimal notation.

Note: If the In-Band Subnet Mask field does not already contain a value when you enter the IP address in the In-Band IP Address field, the switch software provides an in-use default value for the In-Band Subnet Mask field. This value is based on the class of the entered IP address.

7 For a stack configuration, in the In-Band Stack IP Address field, enter the Stack IP address in dotted decimal notation.

Note: The In-Band Switch IP Address field lets this switch operate as a stand-alone switch. However, this field is not required for the operation of the stack. You cannot enter the same IP address in both fields.

8 In the In-Band Subnet Mask field, enter the IP subnet mask address.

9 In the Default Gateway field, enter the default gateway address.

—End—

Setting IP parameters using the CLI

To set the IP parameters using the CLI:

Step	Action
1	Connect a terminal to the Console port on the switch.

2 Set the terminal protocol as described in Nortel Ethernet Switch 460/470 Overview — System Configuration (NN47210-501).

3 Connect the switch to a power outlet.

4 After the Nortel logo is displayed, press [Ctrl]-Y to display the Main Menu (see Figure 10 on page 30).

5 Select Command Line Interface (or press c) to display the CLI.

6 Type **enable** at the command line, and press Enter.

The CLI is now in the PrivExec command mode.

7 Type **configure** at the command line, and press Enter.

The CLI is now in the config command mode.

8 Set the IP address using the **ip address** command, as described in the following section.

—End—

ip address command

The **ip address** command sets the IP address and subnet mask for the switch or a stack. The syntax for the **ip address** command is:

```
ip address [switch|stack|unit] <XXX.XXX.XXX.XXX> [netmask
<XXX.XXX.XXX.XXX>]
```

The **ip address** command is in the config command mode.

If you do not enter either the stack or switch parameter, the system automatically modifies the stack IP address when in stack mode, and modifies the switch IP address when in stand-alone mode.

Parameters and variables	Description
switch|stack|unit	Specifies to set the IP address and netmask for the switch, stack, or unit.
XXX.XXX.XXX.XXX	Enter IP address in dotted decimal notation; netmask is optional.
netmask	Sets the IP subnet mask for the switch or stack.

Setting the default management system using the CLI

With the **cmd-interface** command you can set the default management interface when you use the console port or Telnet.

The syntax for the **cmd-interface** command is:

```
cmd-interface [cli|menu]
```

The **cmd-interface** command is in the privExec command mode.

Disabling the banner using the CLI

With the **banner disabled** command you can skip the opening banner that appears when you initially connect to the switch using the console port or Telnet.

The syntax for the **banner disabled** command is:

```
banner disabled
```

The **banner disabled** command is in the privExec command mode.

Web-based management Quick Start page

When the IP address is set, you can use the Web-based management interface to configure basic switch parameters using the Quick Start page.

To access the Quick Start page:

Step	Action
1	Start your web browser.
2	In the web address field, enter the IP address for your host switch or stack, and press Enter. The switch or stack home page appears.
3	From the main navigation menu in the left-hand window, choose Administration > Quick Start. The Quick Start page appears (Figure 12).

Figure 12
Quick Start page

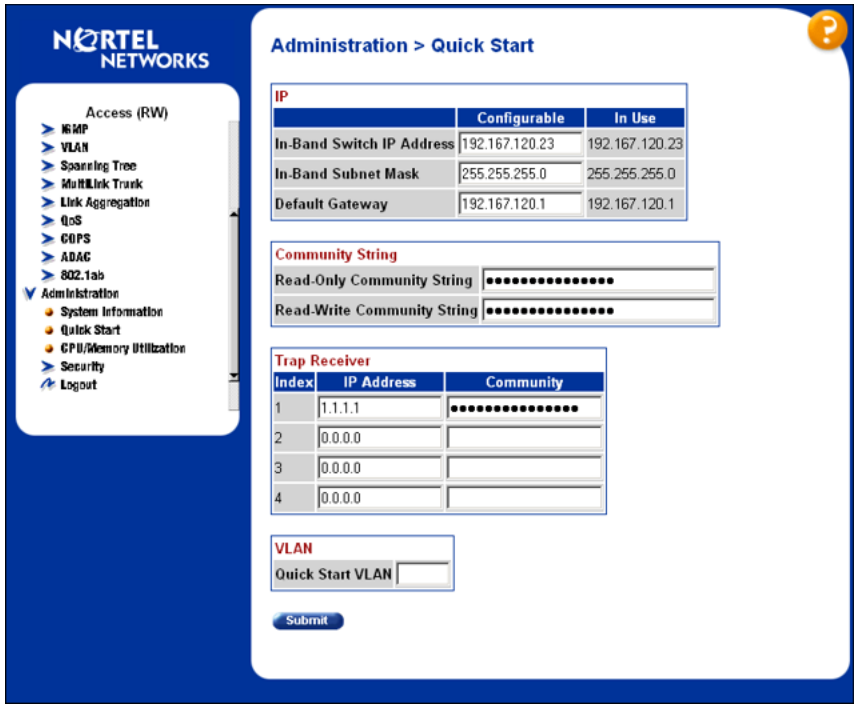


Table 13
Quick Start page items

Section	Item	Description
IP	In-Band Switch IP Address (In a stack, this field appears as In-Band Stack Address.)	Type a new switch (or stack) IP address in the appropriate format. Note: When the IP address is entered in the In-Band IP Address field, and the In-Band Subnet Mask field value is not present, the software provides an in-use default value for the In-Band Subnet Mask field. This field is based on the class of the IP address entered in the In-Band IP Address field.
	In-Band Subnet Mask	Type a new subnet mask in the appropriate format.
	Default Gateway	Type an IP address for the default gateway in the appropriate format.
Community String	Read-Only Community String	Type a character string to identify the community string for the SNMPv1 read-only community, for example, public or private. The default value is public.
	Read-Write Community String	Type a character string to identify the community string for the SNMPv1 read-write community, for example, public or private. The default value is private.

Section	Item	Description
Trap Receiver	Index	The number of the trap receiver.
	IP Address	Type the network address for the SNMP manager that is to receive the specified trap.
	Community	Type the community string for the specified trap receiver.
VLAN	Quick Start VLAN	Type the number to assign to the initial VLAN.

4 Complete the fields as described in Table 14.

5 Click Submit.

—End—

Related publications

For more information about using the Ethernet Switch 470, refer to the following publications:

- *Nortel Ethernet Switch 460/470 Release Notes — Software Release 3.7 (NN47210-400)*

  Documents important changes about the software and hardware that are not covered in other related publications.

- *Nortel Ethernet Switch 460/470 Overview — System Configuration (NN47210-501)*

  Describes how to configure and manage basic switching features on Ethernet Switches 460 and 470.

- *Nortel Ethernet Switch 460/470 Security — Configuration (NN47210-500)*

  Describes how to configure and manage security features on Ethernet Switches 460 and 470.

- *Nortel Ethernet Switch 460/470 Configuration — VLANs, Spanning Tree, and MultiLink Trunking (NN47210-505)*

  Describes how to configure and manage Virtual Local Area Network (VLAN), Spanning Tree Protocol (STP), and Multilink Trunk (MLT) features on Ethernet Switches 460 and 470.

- *Nortel Ethernet Switch 460/470 Configuration — Quality of Service and IP Filtering (NN47210-502)*

  Describes how to configure and manage Quality of Service and IP Filtering features on Ethernet Switches 460 and 470.

- *Nortel Ethernet Switch 460/470 Configuration — System Monitoring (NN47210-503)*

  Describes how to display system statistics, configure system logging, and configure network monitoring on Ethernet Switches 460 and 470.

- *Nortel Ethernet Switch 460/470 Configuration — IP Multicast Routing Protocols (NN47210-504)*

  Describes how to configure and manage IP Multicast and IGMP features on Ethernet Switches 460 and 470.

- *Installing SFP and XFP transceivers and GBICs* (318034-C)

  Describes how to install GBICs, Small Form Factor Pluggable (SFP) transceivers, and 10 Gigabit Small Form Factor Pluggable (XFP) transceivers.

- *Installing the Nortel Ethernet Routing Switch Redundant Power Supply 15* (217070-A)

  Describes installation procedures for the Nortel Ethernet Routing Switch Redundant Power Supply 15.

- *Installation and Reference for the BayStack 10 Power Supply Unit* (208296-C)

  Describes installation procedures for the Nortel Ethernet Switch Power Supply Unit 10.

- *Release Notes for the BayStack 10 Power Supply Unit* (208560-B)

  Documents important changes about the RPSU/UPS that are not covered in other related publications.

- *Installation and Reference for the BayStack 470 100 Watt DC-DC Converter Module* (214475-A)

  Provides installation information aboutthe DC-DC converter for Ethernet Switch 470 (non-PWR) units..

How to get help

This section explains how to get help for Nortel products and services.

Getting help from the Nortel web site

The best way to get technical support for Nortel products is from the Nortel Technical Support web site:

www.nortel.com/support

This site provides quick access to software, documentation, bulletins, and tools to address issues with Nortel products. From this site, you can:

- download software, documentation, and product bulletins

- search the Technical Support Web site and the Nortel Knowledge Base for answers to technical issues
- sign up for automatic notification of new software and documentation for Nortel equipment
- open and manage technical support cases

Getting help over the phone from a Nortel Solutions Center

If you do not find the information you require on the Nortel Technical Support web site, and you have a Nortel support contract, you can also get help over the phone from a Nortel Solutions Center.

In North America, call 1-800-4NORTEL (1-800-466-7835).

Outside North America, go to the following web site to obtain the phone number for your region:

www.nortel.com/callus

Getting help from a specialist using an Express Routing Code

To access some Nortel Technical Solutions Centers, you can use an Express Routing Code (ERC) to quickly route your call to a specialist in your Nortel product or service. To locate the ERC for your product or service, go to:

www.nortel.com/erc

Getting help through a Nortel distributor or reseller

If you purchased a service contract for your Nortel product from a distributor or authorized reseller, contact the technical support staff for that distributor or reseller.

Translations of the Safety Messages

CAUTION
This device is a Class A product. In a domestic environment, this device can cause radio interference, in which case the user can be required to take appropriate measures.

CAUTION
Achtung: Dieses Gerät ist ein Produkt der Klasse A. In Wohngebieten kann dieses Gerät Funkstörungen verursachen. In diesem Fall muß der Benutzer die erforderlichen Maßnahmen zur Beseitigung ergreifen.

CAUTION
Attention: Ce périphérique est un produit de classe A. Il peut provoquer des interférences radio dans un environnement domestique;si tel est le cas, l 'utilisateur devra prendre les mesures qui s 'imposent.

CAUTION
Precaución: Este dispositivo es un producto de Clase A. En un entorno doméstico, este dispositivo puede ocasionar interferencias de radio, en cuyo caso, el usuario deberá tomar las medidas necesarias.

CAUTION
Attenzione: Il dispositivo descritto nel presente documento è un prodotto di Classe A. Se usato in ambienti domestici, può provocare interferenze radio. In tal caso, l 'utente è tenuto a prendere provvedimenti adeguati.

CAUTION
注意：この機器は、クラスAの製品です。国内の環境で、この機器は電波障害を引き起こす恐れがあります。
この場合、ユーザは適切な対策を講じる必要があります。

CAUTION
注意：本设备属于A类设备。在居住环境中，本设备可能会造成无线电干扰。在这种情况下，用户可能需要采取适当的措施。

CAUTION
警告：该设备是 A 类产品。在住宅区内使用该设备可能会产生射频干扰，此时用户应采取相应的措施。

CAUTION
Do not set a Nortel Ethernet Routing Switch Power Supply 15 (RPS 15) or Ethernet Switch Power Supply Unit 10 on top of an Ethernet Switch 470. The Power Supply Unit 10 weighs approximately 100 pounds (45 kg) and the RPS 15 weighs approximately 40 pounds (17 kg). The switch housing is not strong enough to support this weight.

CAUTION
Achtung: Stellen Sie keinesfalls eine Nortel Ethernet Routing Switch Power Supply 15 (RPS 15) -Netzstromversorgung oder eine Ethernet Switch Power Supply Unit 10 -Einheit oben auf einen Ethernet Switch 470. Eine Power Supply Unit 10 -Netzstromversorgung wiegt ungefähr 45 kg und ein RPS 15 ungefähr 17 kg. Das Gehäuse des Switches ist nicht für solche Belastungen ausgelegt.

CAUTION

Attention : ne placez pas d'unité d'alimentation Nortel Ethernet Routing Switch Power Supply 15 (RPS 15) ou d'unité Ethernet Switch Power Supply Unit 10 au-dessus de l'Ethernet Switch 470. Les unités Power Supply Unit 10 et RPS 15 pesant respectivement 45 et 17 kg, le boîtier n'est pas assez résistant pour supporter cette masse.

CAUTION

Precaución: No coloque una unidad de fuente de alimentación Nortel Ethernet Routing Switch Power Supply 15 (RPS 15) ni una unidad Ethernet Switch Power Supply Unit 10 en un Ethernet Switch 470. La fuente de alimentación Power Supply Unit 10 tiene un peso aproximado de 45 kg (100 lb) y la unidad RPS 15 pesa alrededor de 17 kg (40 lb), y la caja del interruptor no puede aguantar este peso.

CAUTION

Attenzione: non posizionare un alimentatore Nortel Ethernet Routing Switch Power Supply 15 (RPS 15) o un'unità Ethernet Switch Power Supply Unit 10 sulla parte superiore di uno Ethernet Switch 470. L'alimentatore Power Supply Unit 10 pesa circa 45 kg (100 libbre) mentre l'unità RPS 15 pesa circa 17 kg (40 libbre) e il rivestimento dello switch non è sufficientemente resistente per sostenere questo peso.

CAUTION

When mounting this device in a rack, do not stack units directly on top of one another in the rack. Each unit must be secured to the rack with appropriate mounting brackets. Mounting brackets are not designed to support multiple units.

CAUTION

Achtung: Wenn diese Einheit in einem Rack montiert wird, muß ein gewisser Abstand zur nächsten Einheit gelassen werden. Jede Einheit muß mit geeignetem Befestigungsmaterial gesichert werden. Das Befestigungsmaterial ist nicht für die gleichzeitige Befestigung mehrerer Einheiten geeignet.

CAUTION

Attention: si vous installez le module dans une baie, ne l'empilez pas directement sur un autre. Chaque module doit être fixé à sa propre baie à l'aide des supports de montage appropriés. Ces supports ne sont pas conçus pour résister à plusieurs modules.

CAUTION

Precaución: Cuando monte este dispositivo en un bastidor, no apile las unidades directamente una encima de otra. Cada unidad debe fijarse en el bastidor con las abrazaderas de montaje adecuadas. Las abrazaderas de montaje no están diseñadas para sostener varias unidades.

CAUTION

Attenzione: se il dispositivo viene installato in un rack, non impilare le unità direttamente una sull'altra. Ogni unità deve essere fissata al rack con le staffe di montaggio appropriate. Le staffe di montaggio non sono state progettate per supportare più unità.

CAUTION

注意：この装置をラックに設置する場合は、ラック内のユニットを直接積み重ねないようにしてください。各ユニットは専用の取り付けブラケットでラックに固定する必要があります。取り付けブラケットは複数のユニットを支えるようには設計されていません。

CAUTION

警告：在机架中安装此设备时，请勿将多个部件叠放在机架中。必须用合适的安装托架将各个部件固定在机架中。安装托架无法支撑多个部件。

CAUTION

注意：在機箱中掛載此裝置時，請不要直接在機箱中的另一個裝置上直接堆放裝置。每一裝置都必須使用適當的掛載托架以固定在機架中。掛載托架不能用來支撐多個裝置。

DANGER

Use only power cords that have a grounding path. Without a proper ground, a person who touches the switch is in danger of receiving an electrical shock. Lack of a grounding path to the switch can result in excessive emissions.

DANGER

Vorsicht: Verwenden Sie nur Netzkabel mit Schutzerdung. Ohne ordnungsgemäße Schutzerdung besteht für Personen, die den Switch berühren, die Gefahr eines elektrischen Schlages. Eine nichtvorhandene Schutzerdung kann zu sehr starken Abstrahlungen führen.

DANGER

Danger: n 'utilisez que des cordons d 'alimentation équipés de trajet de mise à la terre. Sans mise à la terre adaptée, vous risquez de recevoir une décharge électrique en touchant le commutateur. Par ailleurs, l'absence de trajet de mise à la terre peut générer des émissions excessives.

DANGER

Peligro: Utilice únicamente cables de alimentación con toma de tierra. De lo contrario, al tocar el interruptor puede recibir una descarga eléctrica. Si no hay un circuito de toma de tierra en el enchufe, puede producirse un exceso de emisiones.

DANGER

Pericolo: Utilizzare esclusivamente cavi di alimentazione dotati di un percorso per la messa a terra. Senza un 'adeguata messa a terra, chiunque tocchi lo switch corre il rischio di ricevere una scossa elettrica. L 'assenza di un percorso per la messa a terra erso lo switch può comportare un eccesso di emissioni.

DANGER

危険：接地経路を持つ電源コードを必ず使用するようにしてください。適切な接地がない状態でスイッチに触ると、感電する危険性があります。また、スイッチへの接地経路がないと、過度な放電を引き起こす可能性があります。

DANGER

危險：請勿使用沒有接地的電線。若未妥善接地，接觸開關的人員可能有遭受觸電的危險。開關若缺乏接地則可能有漏電之虞。

DANGER

危险：请仅使用接地的电源线。如果电源线不接地或接地不当，接触交换机的人员可能会受到电击。如果交换机不接地，则可能导致放电过量。

WARNING

Disconnecting the AC power cord is the only way to turn off AC power to this device. Always connect the AC power cord in a location that can be reached quickly and safely in case of an emergency.

WARNING

Warnung: Das Gerät kann nur durch Ziehen des Netzsteckers ausgeschaltet werden. Schließen Sie das Netzkabel an einer Steckdose an, die in Notfällen schnell und sicher zugänglich ist.

WARNING

Avertissement: pour mettre le module hors tension, vous devez impérativement déconnecter le cordon d'alimentation. En outre, vous devez dégager un espace minimal dans la zone de câblage pour pouvoir y accéder facilement en cas d'urgence.

WARNING
Advertencia: Para apagar el dispositivo debe desenchufar el cable. Conecte siempre el cable de alimentación a una toma segura y de fácil acceso por si se produjera alguna situación de emergencia.

WARNING
Avviso: l 'unico modo per disattivare questo dispositivo consiste nello scollegare il cavo di alimentazione. Collegare sempre il cavo di alimentazione ad una presa che sia facilmente e rapidamente accessibile in caso di emergenza.

WARNING
警告：この装置の電源は、電源コードを抜かない限り切断できません。緊急の場合にすばやく安全に切断できる場所に電源コードを接続してください。

WARNING
警告：若要關閉此裝置的電源，拔掉插頭是唯一的方法。 爲了因應緊急狀況，請將電源線連接到可以快速插拔的地方。

WARNING
警告。断开交流电源线是切断本设备的交流电源的唯一方法。交流电源线一定要连接到在紧急时刻可以快速安全地接触到的位置。

WARNING
Fiber optic equipment can emit laser or infrared light that can injure your eyes. Never look into an optical fiber or connector port. Always assume that fiber optic cables are connected to a light source.

WARNING
Vorsicht: Glasfaserkomponenten können Laserlicht bzw. Infrarotlicht abstrahlen, wodurch Ihre Augen geschädigt werden können. Schauen Sie niemals in einen Glasfaser-LWL oder ein Anschlußteil. Gehen Sie stets davon aus, daß das Glasfaserkabel an eine Lichtquelle angeschlossen ist.

WARNING
Avertissement: L'équipement à fibre optique peut émettre des rayons laser ou infrarouges qui risquent d'entraîner des lésions oculaires. Ne jamais regarder dans le port d'un connecteur ou d'un câble à fibre optique. Toujours supposer que les câbles à fibre optique sont raccordés à une source lumineuse.

WARNING

Advertencia: Los equipos de fibra óptica pueden emitir radiaciones de láser o infrarrojas que pueden dañar los ojos. No mire nunca en el interior de una fibra óptica ni de un puerto de conexión. Suponga siempre que los cables de fibra óptica están conectados a una fuente luminosa.

WARNING

Avvertenza: Le apparecchiature a fibre ottiche emettono raggi laser o infrarossi che possono risultare dannosi per gli occhi. Non guardare mai direttamente le fibre ottiche o le porte di collegamento. Tenere in considerazione il fatto che i cavi a fibre ottiche sono collegati a una sorgente luminosa.

Nortel Ethernet Switch 470

Installation

Publication: NN47210-301
Document status: Standard
Document version: 01.01
Document date: 22 February 2007

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