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Installing the Contivity 4600

NORTEL
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Preface

This guide takes you through the necessary tasks to get your Nortel Networks* Contivity* 4600 up and running. Topics include:

- Introducing the Contivity VPN switch
- Cabling and LEDs
- Rack mounting
- Changing hardware configurations
- Assigning a system identity
- Using the recovery diskette

Complete details for configuring and monitoring the Contivity 4600 are in *Configuring the Contivity VPN Switch*.



Warning: The Contivity 4600 weighs about 60 pounds and should always be carried by two people.

Conventions

This guide refers to the Contivity 4600 as *the switch*. It assumes that you are familiar with Web browsers and their general operation.

Related publications

The following list shows associated documentation located on the CD. It will help you configure and manage the switch.

- *Contivity VPN Switch Release Notes* provide the latest information, including known problems, workarounds, and special considerations for the Contivity VPN Switch.
- *Configuring the Contivity VPN Switch* provides complete details on how to configure, monitor, and troubleshoot the switch.
- *Configuring the Contivity VPN Client* provides information on installing the client, creating custom icons, and using certificates on a client.
- *Contivity VPN Client Release Notes* provide the latest information, including known problems, workarounds, and special considerations for the Contivity VPN Client.
- *Getting Started with the Contivity xxxx* or *Installing the Contivity xxxx* provides complete details to help you set up and get started using your switch.
- *Managing the Contivity Stateful Firewall* describes firewall concepts, how to configure and monitor the firewall, and the firewall commands that you can use from the command line interface.
- *Reference for the Contivity VPN Switch Command Line Interface* provides an introduction to the Contivity Command Line Interface (CLI), describes the three command modes, and defines the available commands. This document helps you to configure switches from the command line and to create scripts for provisioning switches.

Text conventions

This guide uses the following text conventions:

- | | |
|--------------------------|--|
| angle brackets (< >) | Indicate that you choose the text to enter based on the description inside the brackets. Do not type the brackets when entering the command.
Example: If the command syntax is <code>ping <ip_address></code> , you enter <code>ping 192.32.10.12</code> |
| bold Courier text | Indicates command names, options, and text that you need to enter.
Example: Use the dinfo command.
Example: Enter show ip {alerts routes} . |
| braces ({}) | Indicate required elements in syntax descriptions where there is more than one option. You must choose only one of the options. Do not type the braces when entering the command.
Example: If the command syntax is <code>show ip {alerts routes}</code> , you must enter either <code>show ip alerts</code> or <code>show ip routes</code> , but not both. |
| brackets ([]) | Indicate optional elements in syntax descriptions. Do not type the brackets when entering the command.
Example: If the command syntax is <code>show ip interface [-alerts]</code> , you can enter either <code>show ip interface</code> or <code>show ip interface -alerts</code> . |
| ellipsis points (. . .) | Indicate that you repeat the last element of the command as needed.
Example: If the command syntax is <code>ethernet/2/1 [<parameter> <value>] . . .</code> , you enter <code>ethernet/2/1</code> and as many parameter-value pairs as needed. |

<i>italic text</i>	<p>Indicates new terms, book titles, and variables in command syntax descriptions. Where a variable is two or more words, the words are connected by an underscore.</p> <p>Example: If the command syntax is <code>show at <valid_route></code>, <code>valid_route</code> is one variable and you substitute one value for it.</p>
plain Courier text	<p>Indicates command syntax and system output, for example, prompts and system messages.</p> <p>Example: <code>Set Trap Monitor Filters</code></p>
separator (->)	<p>Shows menu paths.</p> <p>Example: <code>Protocols -> IP</code> identifies the IP option on the Protocols menu.</p>
vertical line ()	<p>Separates choices for command keywords and arguments. Enter only one of the choices. Do not type the vertical line when entering the command.</p> <p>Example: If the command syntax is <code>show ip {alerts routes}</code>, you enter either <code>show ip alerts</code> or <code>show ip routes</code>, but not both.</p>
asterisk (*)	<p>Indicates a trademark. See the Title Page for trademark information.</p> <p>Example: <code>Contivity*</code></p> <p>Nortel Networks, the Nortel Networks logo, the Globe mark and Contivity are trademarks of Nortel Networks.</p>

Acronyms

This guide uses the following acronyms:

CSU/DSU	Channel Service Unit/ Digital Service Unit
DIMM	Dual inline memory module
DTE	Data Terminal Equipment
ERC	Express Routing Code
FTP	File Transfer Protocol
HSSI	high speed serial interface
HTTP	HyperText Transfer Protocol
IP	Internet Protocol
IPMI	Intelligent Platform Management Interface
LAN	Local area network
LED	Light emitting diode
PCI	Peripheral component interconnect
PDN	Public data network
SCSI	Small computer system interface
SNMP	Simple Network Management Protocol
TCP	Transmission Control Protocol
URL	Uniform Resource Locator
VPN	Virtual private network
WAN	Wide area network

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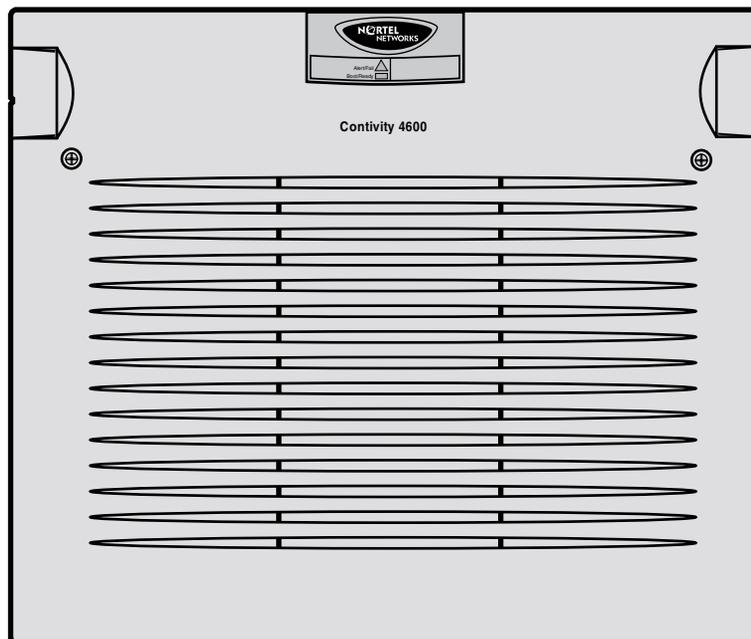
Chapter 1

The Contivity 4600

Introduction

The Contivity 4600 is capable of providing scalable, secure, manageable virtual private network (VPN) access for up to 5000 simultaneous users across the public data network (PDN). [Figure 1](#) shows the front view of the Contivity 4600.

Figure 1 Front view of the Contivity 4600 switch



CS460001A

Physical specifications and operating environment

Table 1 lists the physical specifications and operating environment needed by the switch.

Table 1 Physical specifications and operating environment

<i>Physical</i>	
Depth	17 in (43.2 cm)
Width	17 in (43.2 cm)
Height	14 in (35.6 cm)
Weight	60 lbs (27.2 kg)
Electrical	
<i>Voltage</i>	100 - 240 V~
<i>Current</i>	3.0 A
<i>Frequency</i>	50/60Hz
<i>Operating Environment</i>	
Temperature	0 to 40 degrees C
Relative Humidity	
<i>Operating</i>	10 - 90% noncondensing
<i>Storage</i>	10 - 95% noncondensing
<i>BTU/hr output</i>	2457 btu/hr @ 240V~

Components and accessories

Table 2 lists all of the components and accessories of the Contivity 4600. If for any reason you have not received all of the materials listed, please contact Nortel Networks Customer Service.

Table 2 Components list

Description	Quantity
Contivity 4600	1
Molded serial cable DB9/DB25-to-DB9/DB25	1
Contivity extranet switch CD-ROM	1
Recovery diskette	1
IP Address configuration utility diskette	1
<i>Installing the Contivity 4600</i> (this manual)	1
<i>Contivity VPN Switch Release Notes</i>	1
Mounting brackets and hardware	2
Options: <ul style="list-style-type: none"> • 10/100BASE-TX LAN interface • Dual V.35 interface • Single V.35 interface • Single X.21 interface • T1 CSU/DSU interface • HSSI interface • Hardware accelerator • Memory 	Optional



Note: Power cords are ordered separately.

Optional sliding rail bracket set

Table 3 lists the components of the optional sliding rail bracket set.

Table 3 Optional sliding rail bracket set

Description	Quantity
Slides	2
Slide locking brackets	2
Extender brackets	2
Screws, #8-32 x 3/8 long, 100-degree flathead, Phillips, black	4
Screws, #8-32 x 3/8 long, PPH steel zinc	14

If for any reason you have not received all of the materials listed above, contact Nortel Networks Customer Support.

Healthcheck entries



Note: The hardware Healthcheck entries shown in [Table 4](#) are supported. The range parameters are unknown and left to the Intelligent Platform Management Interface (IPMI) firmware delivered on the system board.

Table 4 Healthcheck entries

Item	Description
Chassis intrusion	Indicates that the box has been opened
Normal temperature range	Board temperature limit unknown
Critical temperature range	Processor temperature
Voltage 12V plus	Voltage out of range
Voltage 2.5VA	Voltage out of range
Voltage 2.5VB	Voltage out of range
Voltage 3.3 plus	Voltage out of range
Voltage 5V plus	Voltage out of range
Chassis fan	Fan not functional
Chassis fan 2	Fan not functional
CPU 1 fan	Fan not functional
CPU 2 fan	Fan not functional
CPU 2	CPU non-operational
Dual power supply	Redundant supply fault

Chapter 2

Cabling the Switch

This chapter describes the cables that you must use with the switch, including pinouts for both LAN and WAN connections. Additionally, illustrations show the power connectors, the serial connector, and the LAN connector. The LAN port and 10/100BASE-TX LAN interface card LEDs are illustrated, and accompanying tables describe the LED status indicators.

Connecting the cables

Use the following procedure to connect the switch's cables.

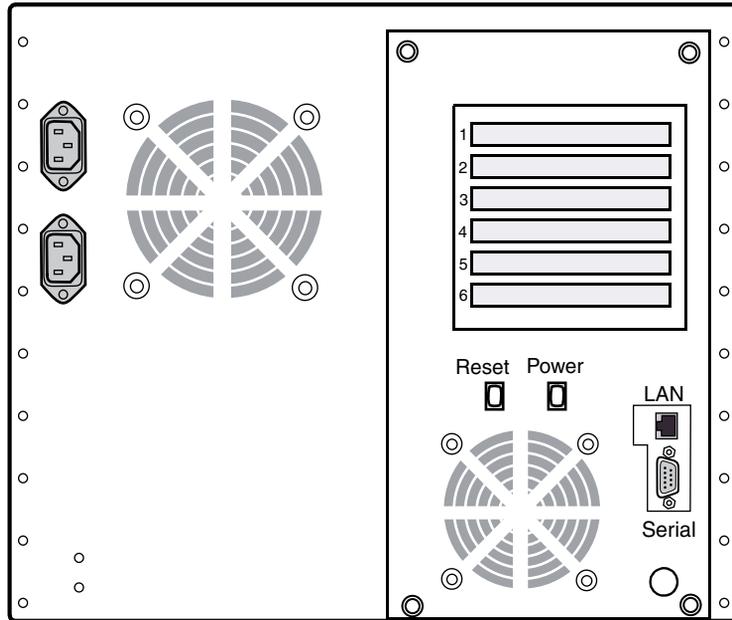


Note: If you have a unit with LAN/WAN cards in Slots 1 through 6, connect the LAN/WAN and serial port cables before you plug the switch's power cord into the outlet. This ensures proper power sequencing upon power up.

- 1 Connect the 10/100BASE-TX LAN RJ-45 connector to the switch.
- 2 Optionally, connect the LAN or WAN card cables.
- 3 Connect the power cords to the back of the switch and to the electrical outlet.

Figure 2 shows the back view of the Contivity 4600.

Figure 2 Back view of the Contivity 4600



CS460002A

Power cord requirements



Warning: Do not modify the AC power cords or use them if they are not the exact type that is required for your power outlet. Connect the LAN and serial port cables before you plug the switch's power cord into the outlet.



Caution: You should protect your switch by plugging it into a surge suppressor. For power source redundancy, connect one power cord to a backup power supply, and the other power cord into the main power supply.

Current rating

The power cords must be rated for the available AC voltage, and must have a current rating that is at least 125 percent of the switch's current rating as stated in Chapter 1.

Wall outlet connector

The power cords must terminate in a male plug with appropriate grounding. The power cords must have certification marks from an acceptable regional agency.

Power supply connector

The connector that you plug into the switch power supply AC receptacle must be an IEC 320, Sheet C13, female.

Cord length and flexibility

The power cord must be less than 4.5 meters (14.7 feet) long, and it must be a flexible HAR (harmonized) cord or VDE-certified cordage to comply with the switch's safety certifications.

LAN interface connections

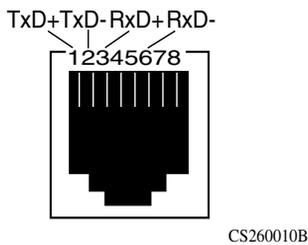
At least one LAN interface connection is for Web management.

100BASE-TX connections require Category 5, twisted-pair wire. The 100BASE-TX specification supports 100 Mb/s transmission over two pairs of Category 5 twisted-pair Ethernet wiring, one pair each for transmit and receive operations.

The maximum recommended cable segment length is 100 meters between a 100BASE-TX repeater and a workstation (due to signal timing requirements). This wiring scheme complies with the EIA 568 wiring standard.

Figure 4 shows the switch connector's 10/100BASE-TX pinouts.

Figure 3 10/100BASE-TX pinouts



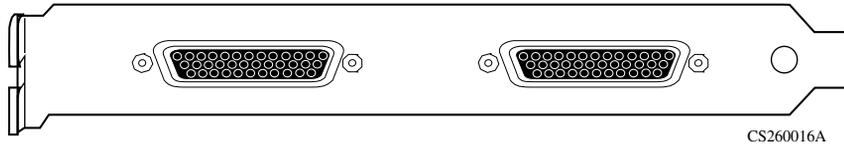
10BASE-T connections can use Category 3, 4, or 5 twisted-pair wiring. The LAN connectors on the rear of the switch are RJ-45 straight through.

Dual V.35 WAN interface (optional)

The dual V.35 WAN connectors are located on a PCI card that offers two separate DB26S connectors that provide the signals needed to interface to V.35 equipment. Included in the accessory box are two cables that map the DB26S signals to a DSU (digital service unit/channel service unit) between the WAN connection and the switch. This section documents the connector and cables used with the V.35 WAN synchronous adapters.

[Figure 4](#) shows the dual V.35 interface.

Figure 4 Dual V35 interface



The cables provided with the WAN PCI card enable the WAN adapter to function as DTE (Data Terminal Equipment). [Table 5](#) shows the DB26S-to-V.35 cable pinouts.

Table 5 DB26S-to-V.35 cable pinouts (dual interface)

Standard-wired end 26-pin male	Signal name	Pair # & conductor	Special-wired end 34-pin male
2	TDA	pair 1A	P
14	TDB	pair 1B	S
3	RDA	pair 2A	R
16	RDB	pair 2B	T
24	ETA	pair 3A	U
11	ETB	pair 3B	W
17	RCA	pair 4A	V
9	RCB	pair 4B	X
15	TCA	pair 5A	Y
12	TCB	pair 5B	AA
4	RTS	pair 6A	C
		pair 6B	no conn
5	CTS	pair 7A	D
		pair 7B	no conn
6	DSR	pair 8A	E
		pair 8B	no conn
8	DCD	pair 9A	F
		pair 9B	no conn
20	DTR	pair 10A	H
		pair 10B	no conn
7	SGND	pair 11A	B
		pair 11B	no conn
1	CGND	pair 12A	A
		pair 12B	no conn

Note the following information about the V.35 DTE cable construction:

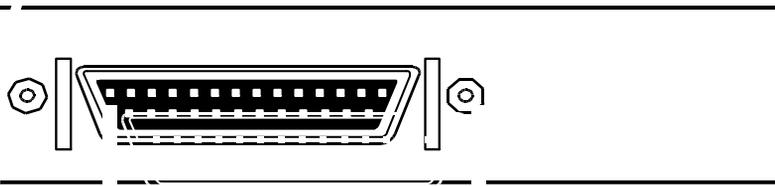
1. Braid must enter and make contact inside the metal connector hood. V.35 conn strain relief must be conductive.
2. All hoods must be metal. V.35 strain relief must be conductive.

Single WAN interface V.35/X.21 (optional)

The V.35/X.21 WAN connector is located on a PCI card that offers a separate connector that provides the signals needed to interface to V.35/X.21. Included in the accessory box are two cables that map the signals to a standard V.35 connector. You need a CSU/DSU (channel service unit/digital service unit) between the WAN connection and the switch. This section documents the connector and cables used with the V.35 and/or those used with X.21 WAN synchronous adapters.

The cables provided with the WAN PCI card enable the WAN adapter to function as DTE (Data Terminal Equipment). [Figure 5](#) shows the single V.35/X.21 WAN interface.

Figure 5 Single V.35/X.21 WAN interface (single interface)



[Table 6](#) on the following page shows the DB28S-to-V.35 cable pinouts. [Table 7](#) shows the DB28S-to-X.21 cable pinouts.

Table 6 DB28S-to-V.35 cable pinouts

Standard-wired end 28-pin male	Signal name	Pair # & conductor	Special-wired end 34-pin male	Notes
2	TXDA	pair 1A	P	
14	TXDB	pair 1B	S	
3	RXDA	pair 2A	R	
16	RXDB	pair 2B	T	
15	TXCA	pair 3A	Y	
12	TXCB	pair 3B	AA	
17	RXCB	pair 4A	V	
9	RXCB	pair 4B	X	
24	SCTEA	pair 5A	U	
11	SCTEB	pair 5B	W	
4	RTSA	pair 6A	C	
19	RTSB	pair 6B	no conn	Note 2
5	CTSA	pair 7A	D	
13	CTSB	pair 7B	no conn	Note 2
6	DSRA	pair 8A	E	
22	DSRB	pair 8B	J	
20	DTRB	pair 9A	H	
23	DTRB	pair 9B	no conn	Note 2
8	DCDA	pair 10A	F	
10	DCDB	pair 10B	no conn	Note 2
18	LL	pair 11A	L	
21	RL	pair 11B	N	
25	TM	pair 12A	NN	
26	M0<-SIGNAL GROUND	pair 12B	B	Note 3
27	M1<-SIGNAL GROUND	pair 13A	B	Note 3
28	M2	pair 13B	no conn	Note 2
1	SHIELD	pair 14A	A	Note 1
7	SIGNAL GROUND	pair 14B	B	Note 3

The following notes apply to the Single V.35 DTE cable:

1. At each end, the cable shield and connector shell must connect respectively to pin A of the 34-pin connector and pin 1 of the standard 28-pin connector.
2. The term "no conn" means the wire is not connected to a pin in the 34-pin connector.
3. Wires 12B, 13A, and 14B connect to pin B in the 34-pin connector.
4. Unused pins in the 34-pin connector need not be present.
5. Do not connect Shield to Signal Ground because these are separate signals.
6. The pair suffix A or B refers to an individual wire within a twisted pair.

Table 7 shows the DB28S-to-X.21 cable pinouts.

Table 7 DB28S-to-X.21 cable pinouts

Standard-wired end 28-pin male	Signal name	Pair ## & conductor	Special-wired end 37-pin male	Notes
2	TXDA	pair 1A	2	
14	TXDB	pair 1B	9	
3	RXDA	pair 2A	4	
16	RXDB	pair 2B	11	
15	TXCA	pair 3A	6	
12	TXCB	pair 3B	13	
17	RXCB	pair 4A	pair 5a	Note 5
9	RXCB	pair 4B	pair5b	Note 5
24	SCTEA	pair 5A	pair4a	Note 5
11	SCTEB	pair 5B	pair4b	Note 5
4	RTSA	pair 6A	3	
19	RTSB	pair 6B	10	
5	CTSA	pair 7A	12	
13	CTSB	pair 7B	no conn	
6	DSRA	pair 8A	no conn	Note 2
22	DSRB	pair 8B	no conn	Note 2
20	DTRB	pair 9A	no conn	Note 2
23	DTRB	pair 9B	no conn	Note 2
8	DCDA	pair 10A	no conn	Note 2
10	DCDB	pair 10B	no conn	Note 2
18	LL	pair 11A	no conn	Note 2
21	RL	pair 11B	no conn	Note 2
25	TM	pair 12A	no conn	Note 2
26	M0	pair 12B	no conn	Note 2
27	M1	pair 13A	no conn	Note 2
28	M2<-SIGNAL GROUND	pair 13B	8	Note 3
1	SHIELD	pair 14A	1	Note 1
7	SIGNAL GROUND	pair 14B	8	Note 3

The following notes apply to the Single X.21 DTE cable:

1. At each end, the cable shield and back shell must connect to pin 1 of the connector.
2. "no conn" means the wire is not connected to a pin in the 15-pin connector.
3. Wires 13B and 14B connect to pin 8 in the 15-pin connector.
4. Unused pins in the 15-pin connector need not be present.
5. Wires of pair 4 connect to wires of pair 5, but not to any pins in the DA-15. Do NOT interconnect Shield to Signal Ground – they are separate signals.
6. The pair suffix A or B refers to an individual wire within a twisted pair.

T1 CSU/DSU WAN interface



Note: The T1 CSU/DSU WAN interface cable is not supplied by Nortel Networks.

This cable has 8-pin male connectors on each end. The T1 CSU/DSU WAN crossover cable crosses the blue wire pair with the orange wire pair. This is different from the commonly available crossover cable used for 10BaseT, which crosses the green wire pair with the orange wire pair.

Figure 6 shows the T1 CSU/DSU interface.

Figure 6 T1 CSU/DSU interface

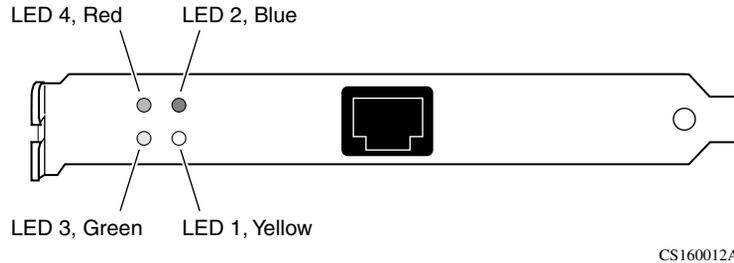


Table 8 shows the T1 CSU/DSU cable pinouts.

Table 8 T1 CSU/DSU cable pinouts

Standard-wired end 28-pin male	Signal name	Pair # & conductor	Special-wired end 8-pin male	Notes
1	RXDA->TXDA	wht/org pair 2A	5	
2	RXDB>TXDA	orange pair 2B	4	
3	not used	wht/grn pair 3A	3	
4	TXDB<-RXDB	blue pair 2B	2	
6	TXDA<-RXDA	wht/blu pair 1A	1	
7	not used	green pair 3B	6	
8	not used	wht/brn pair 4A	7	
9	not used	brown pair 4B	8	

The cable will operate properly if pins 3, 6, 7, and 8 are not connected.



Warning: Do not use Ethernet cable. The T1 CSU/DSU will appear to work, but will not work to specifications. Data may be corrupted.

T3 HSSI interface (optional)

The single T3 WAN connection is located on a PCI card that has a 50-pin SCSI II female connector that provides the signals needed to interface to a T3 modem or modem eliminator. Included in the accessory box is a cable that maps the T3 signals out to a 50-pin SCSI II male connector.

Figure 7 shows the T3 HSSI interface.

Figure 7 T3 HSSI interface

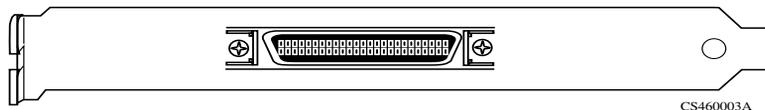


Table 9 shows the T3 HSSI cable pinouts.

Table 9 T3 HSSI cable pinouts

50-pin SCSI male	Signal names	50-pin SCSI male
1	GND	1
2	RCB	2
3	CAB	3
4	RDB	4
5	LCB	5
6	STB	6
7	GND	7
8	TAB	8
9	TTB	9
10	LAB	10
11	TDB	11
12	LBB	12
13	GND	13
19	GND	19

Table 9 T3 HSSI cable pinouts (continued)

24	TESTB	24
25	GND	25
26	GND	26
27	RCA	27
28	CAA	28
29	RDA	29
30	LCA	30
31	STA	31
32	GND	32
33	TAA	33
34	TTA	34
35	LAA	35
36	TDA	36
37	LBA	37
38	GND	38
44	GND	44
49	TESTA	49
50	GND	50

Chapter 3

Rack Mounting

This chapter describes how to mount the Contivity 4600 into a chassis rack. Included are standard rack-mounting considerations that Nortel Networks recommends.



Warning: The Contivity 4600 weighs about 60 pounds and should always be carried by two people

Rack-mount installation procedure

Following are standard rack-mounting considerations that Nortel Networks recommends you follow:

- The maximum recommended ambient temperature is 40 degrees Centigrade. Additionally, make sure the internal temperature of the rack does not exceed 40 degrees.
- Do not block the power supply vents or otherwise restrict airflow when installing the switch in a rack.
- Make sure that your rack is properly stabilized so that it will not tip over under the weight of the switch and other devices.
- Make sure that the electrical branch circuits are capable of handling the switch *and* other units in the rack before installing and powering up the switch.
- Ensure that a reliable Earthing path is maintained in the rack system. The Switch is intended to be connected to an Earth ground.

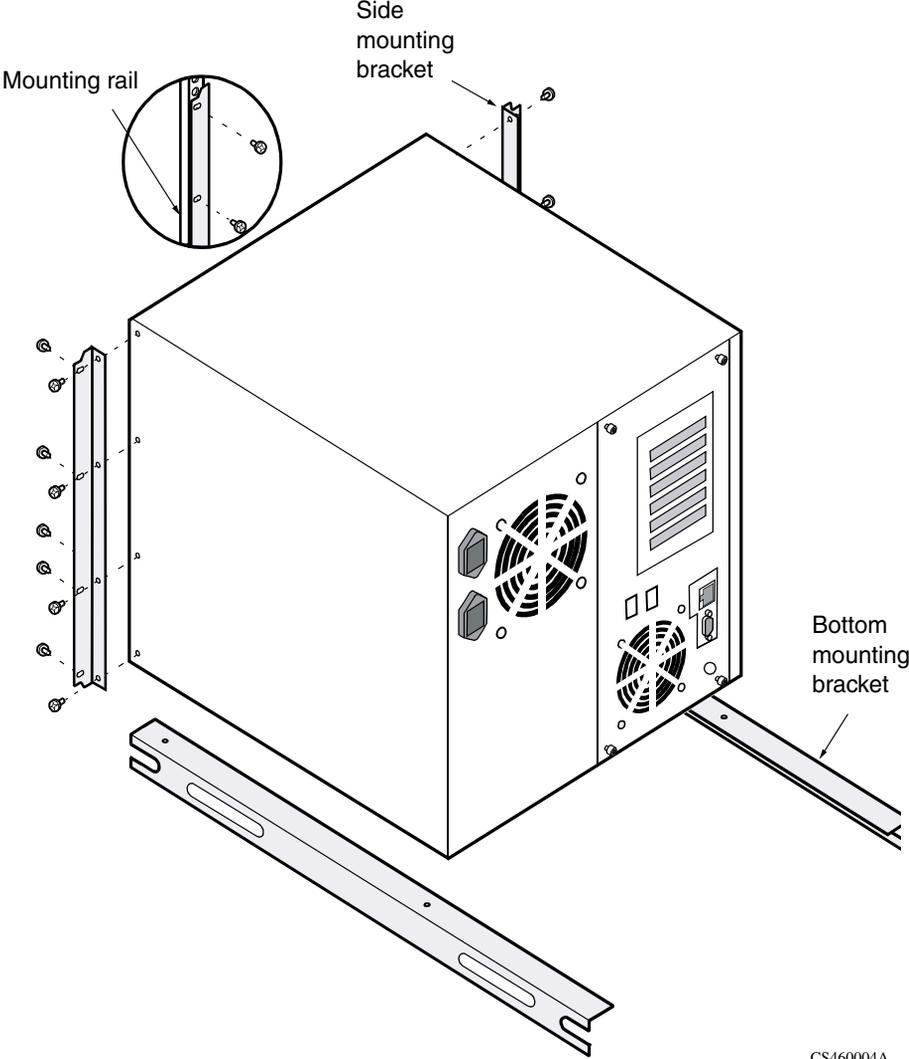
You must have two people available when installing the rack-mount brackets.

Use the rack-mounting hardware that came with your switch to complete the following steps:

- 1** Install the long bottom mounting brackets onto the rack.
- 2** Install the side mounting brackets onto the unit.
- 3** Slide the unit into the rack on top of the horizontal bottom mounting brackets.
- 4** Secure the unit's vertical rack-mount brackets to the vertical rack rails.

[Figure 8](#) shows mounting brackets being attached to a switch in preparation of a rack-mount installation. Position the brackets with the rack-mount bracket facing outward.

Figure 8 Attaching mounting brackets to a Contivity 4600



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Chapter 4

Changing the Hardware Configurations

This section describes how to install or replace hardware components for the Contivity 4600.



Warning: Only Nortel Networks trained service personnel should change existing hardware configurations. *Improper handling of internal components or assemblies, with the power connected, could cause severe injury.*



Caution: Wear an antistatic band when handling electronic components for the switch to avoid damaging them.



Warning: Turn off the switch and unplug both power cords before installing LAN and WAN cards or system memory.

Opening the Contivity 4600

To replace power supplies, replace hard disk drives, or access the diskette drive for system recovery operations, you must remove the switch's front bezel.



Note: Removing the front bezel on the Contivity 4600 activates the chassis intrusion alarm on power only. This intrusion is reported to the system log file.

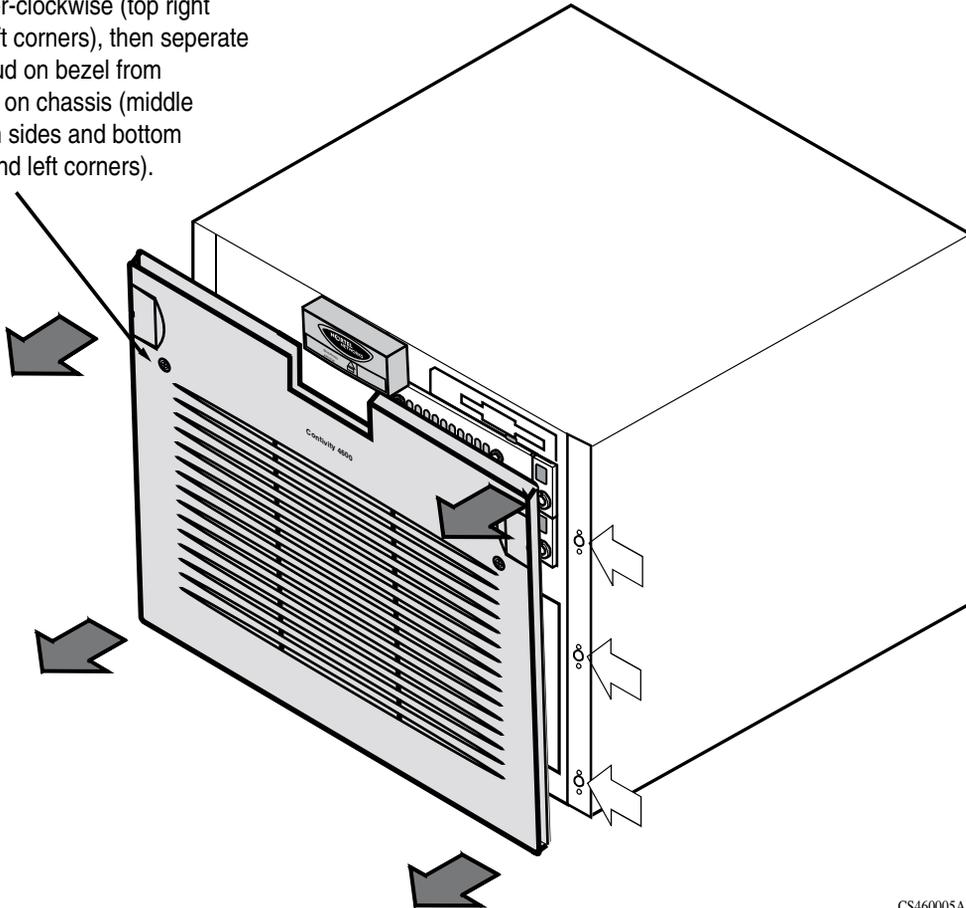
The first few times you remove the front bezel it might seem to resist removal. This is simply because the ball stud and sockets are new. After a few times, removal is easier. Remove the switch front bezel as follows:

- 1** Insert a flat-head screwdriver into the slots on the lower left and right sides of the chassis, and pry the bezel forward.
- 2** Slide your fingers between the front bezel and the switch.
- 3** Pull the bezel forward firmly, separating the ball studs on the bezel from the sockets on the chassis.

[Figure 9](#) shows you how to remove the front bezel from the Contivity 4600. You do not need to turn off the switch to remove the front bezel when installing a power supply or hard disk drive.

Figure 9 Removing the Contivity 4600 front bezel

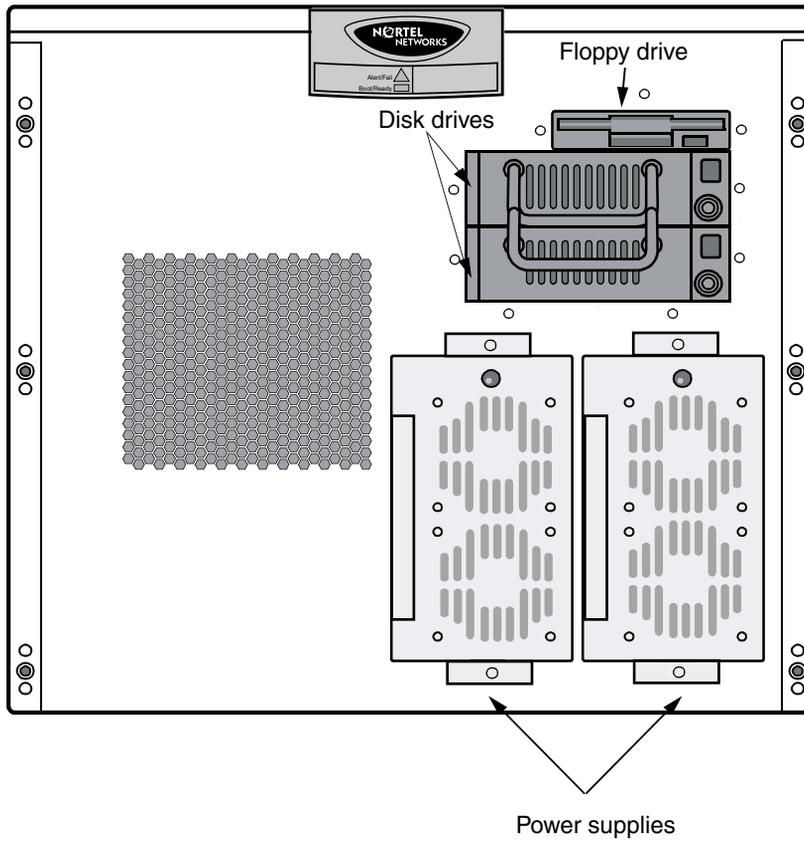
Using a Phillips screwdriver, rotate screws a quarter turn counter-clockwise (top right and left corners), then separate ball stud on bezel from socket on chassis (middle of both sides and bottom right and left corners).



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Figure 10 shows the Contivity 4600 front components.

Figure 10 Contivity 4600 front components

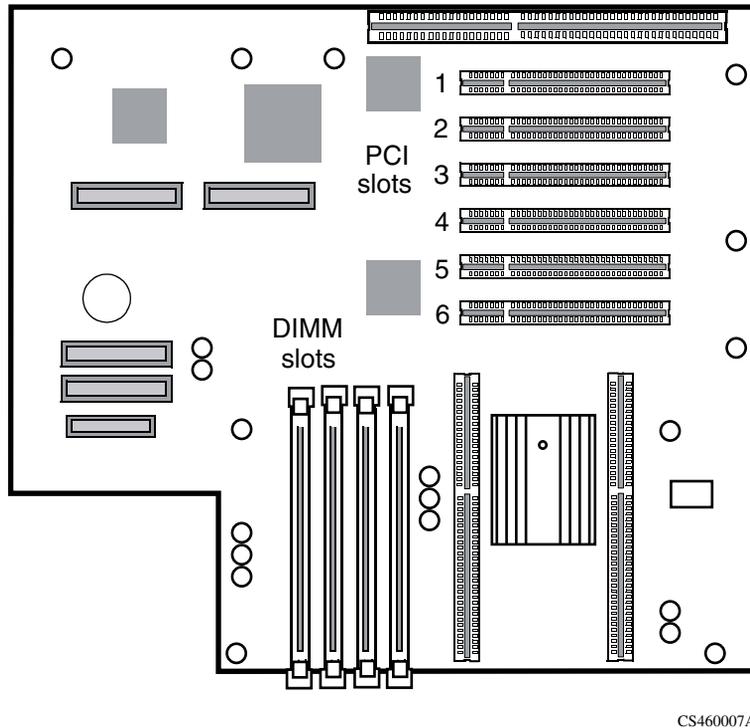


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Contivity 4600 system board layout

This section shows the Contivity 4600 system board. [Figure 11](#) shows a sample Contivity 4600 system board, including the Dual Inline Memory Modules (DIMMs) and peripheral component interconnect (PCI) slots.

Figure 11 Sample Contivity 4600 system board



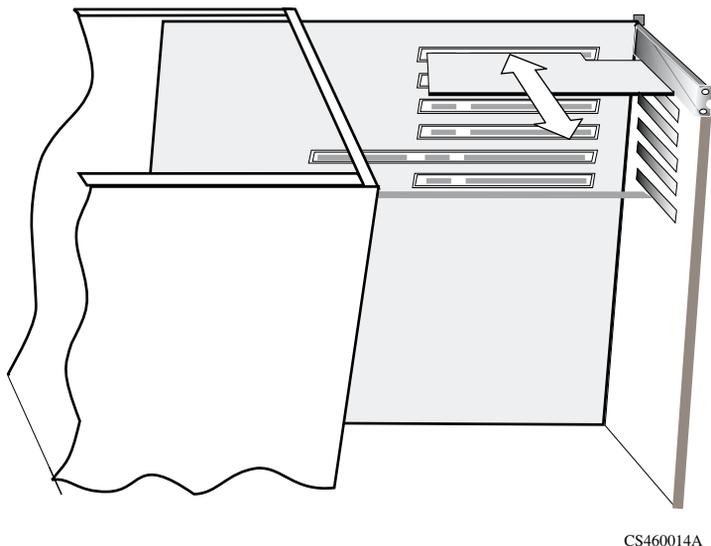
Installing Contivity 4600 LAN/WAN and hardware accelerator cards

This section describes how you install option cards in the switch option card slide-out tray. The following procedure is for Nortel Networks trained service personnel only.

- 1 Turn off the switch and unplug both power cords from the power source.

- 2 Unscrew the four slotted thumb-screws securing the slide-out tray. Pull out the tray by gripping it with the screws. It will only pull out halfway.
- 3 Remove the filler panel screw and pull out the slot filler panel.
- 4 Slide the option card into the intended slot. Make sure the card seats firmly and evenly in the card slot. If the card is not seated properly, it will not work. Populate the slots from Slot 1 to Slot 6 (top to bottom), in that order, as shown in [Figure 12](#).

Figure 12 Installing Contivity 4600 LAN/WAN and hardware accelerator cards



- 5 Secure the option card in the tray with the slot filler panel screw.
- 6 Push in the tray by gripping it with the screws. Tighten the four slotted thumb-screws securing the slide-out tray.
- 7 Plug in both power cords to the power source and turn on the switch.



Caution: Be careful when inserting option cards into the Contivity 4600, because the slide-out tray is not fully supported once pulled out. You should support the back of the tray with your hand while inserting an option card.

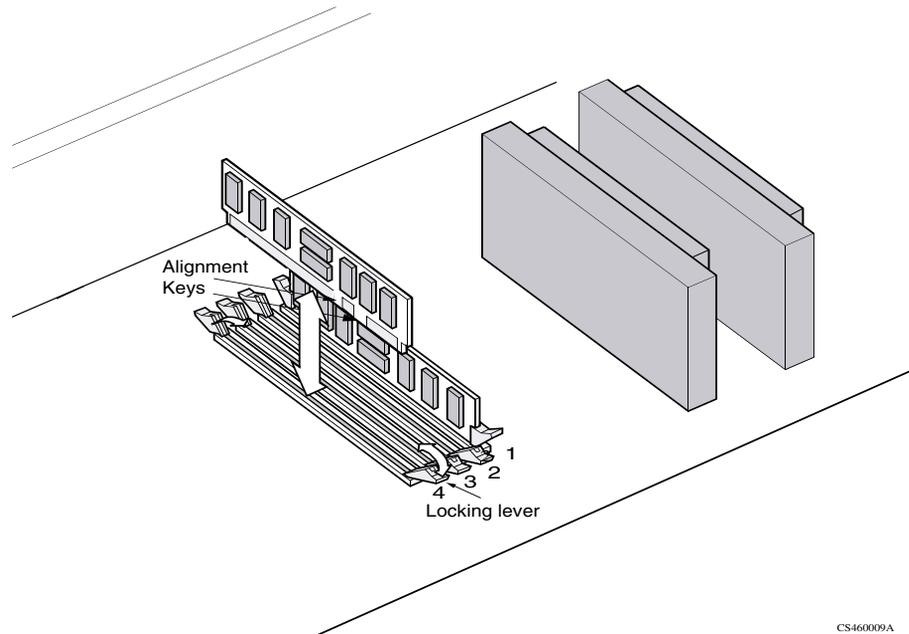
Installing Contivity 4600 DIMMs

Figure 6 shows you how to unlock a DIMM in the Contivity 4600, and remove or install a DIMM. Install a DIMM in the next available slot (for example, if the DIMM #1 slot is populated, then add the next DIMM to the DIMM #2 slot).

To install a DIMM in the Contivity 4600, follow these steps:

- 1 Turn off the switch and unplug both power cords from the power source.
- 2 Unscrew the four slotted thumb-screws securing the slide-out tray. Pull out the tray by gripping it with the screws. It will only pull out halfway.
- 3 Unscrew the slide-out tray at the back of the unit and pull it out using the thumb screws.
- 4 Remove the support bracket by loosening the two secured captive screws and the rear Phillips screw.
- 5 Press down the locking levers on both sides of the next available DIMM slot.
- 6 Place a new DIMM in the slot, making sure to properly position the DIMM's alignment keys, as shown in Figure 6.

Figure 13 Installing Contivity 4600 DIMMs



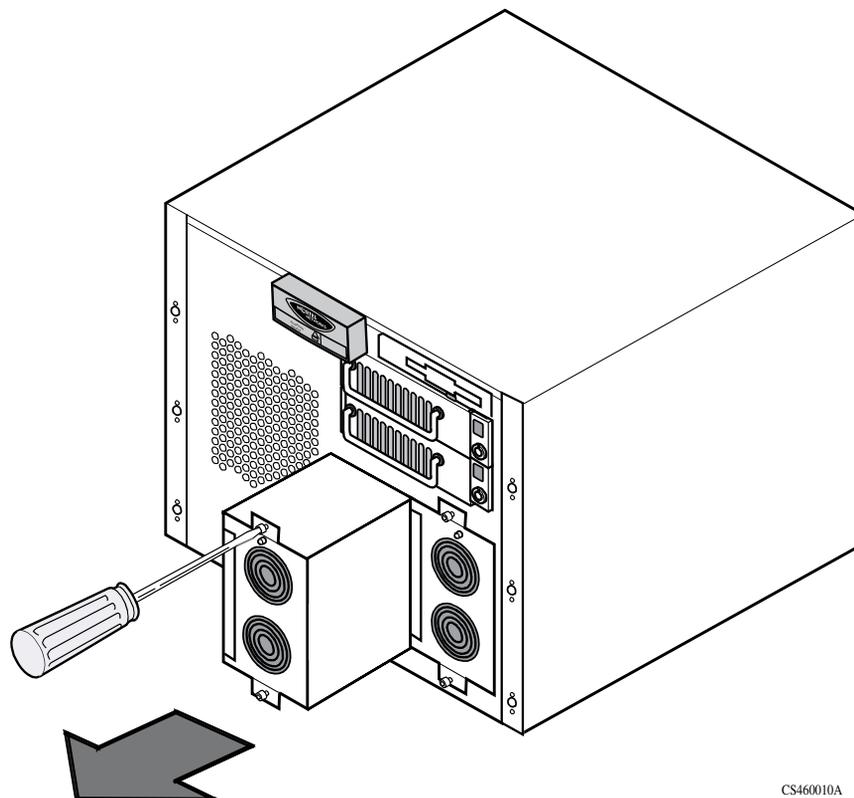
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- 7 Pull up the locking levers on both sides of the next available DIMM, and snap the DIMM into its socket.
- 8 Replace the support bracket by tightening the two secured captive screws and the rear Phillips screw.
- 9 Push in the slide-out tray and tighten the thumb-screws.

Replacing a Contivity 4600 power supply

To remove the power supply:

- 1 Remove the front bezel as shown in [Figure 9](#).
- 2 Use a flat-head screwdriver to unscrew the top and bottom power supply screws, as shown in [Figure 14](#).

Figure 14 Removing a Contivity 4600 power supply

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- 3** Grab the handle and pull the power supply firmly, until the device disengages. Be careful of the sharp sheet-metal edges.
- 4** Insert the new power supply. Make sure it seats firmly in its socket and is locked in. Be sure the green power LED on the front of the power supply is on.
- 5** Secure the power supply screws tightly with a screwdriver.
- 6** Replace the front bezel.

Replacing a Contivity 4600 hard disk drive

Figure 15 shows you how to replace Contivity 4600 hard disk drives for the switch.



Caution: Hard disks are not hot-swappable.

To replace a hard disk drive, you must do the following:

Software

First save any data that has not yet been saved to the hard disk from the disk cache:

- 1 Use your Web browser to navigate to the switch, and go to the Admin → File System display.
- 2 Click the button “Prepare selected device for removal.”

Hardware

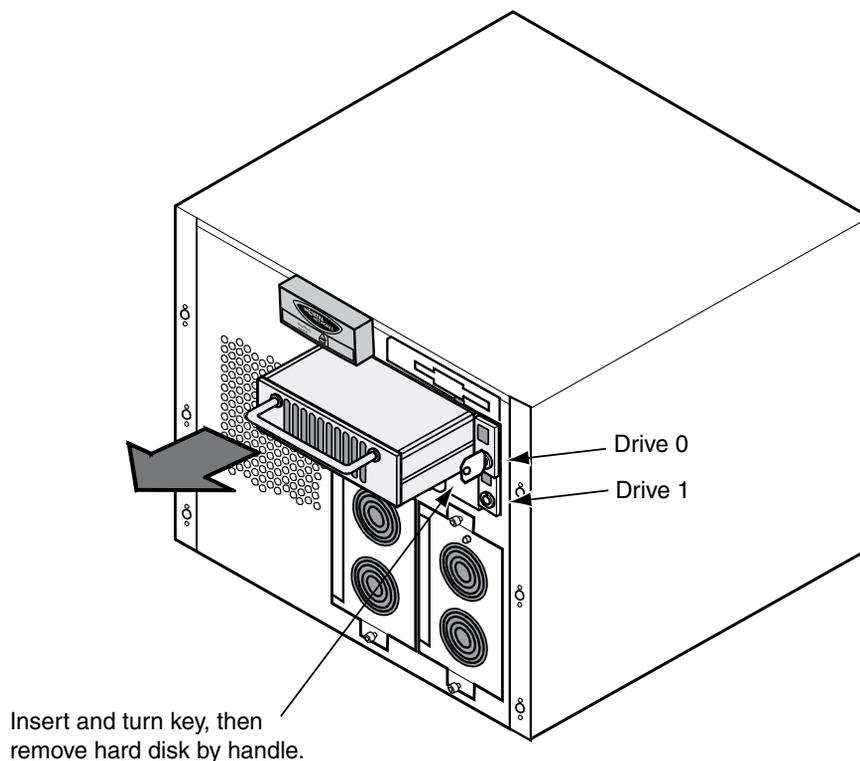
Next, remove the switch’s front bezel as shown in Figure 9, and then follow these steps:

- 1 Insert and turn the hard disk drive key to the right. The LED becomes a “U” for unlocked.



Note: Turning the key shuts off the power to the hard disk drive.

- 2 Pull the handle to remove the hard disk drive, as shown in Figure 15.

Figure 15 Removing a Contivity 4600 hard disk drive

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- 3** Insert the replacement hard drive fully, and lock it by turning the key clockwise. Make sure the hard disk drive LED shows the proper drive number.
- 4** Replace the front bezel.

If you need to reload the software on the disk, see Chapter 5, “Using the Recovery Diskette,” for information on using the recovery diskette. Refer to *Configuring the Contivity VPN Switch* for detailed information on how to assign a system identity, configure, and manage your switch.

Enable the switch by following these steps:

- 1** Use your Web browser to navigate to the switch, and go to the Admin→File System display.
- 2** Click on the drive and click the Enable button.

Chapter 5

Assigning a System Identity

This section describes how to assign a management IP address, subnet mask, and optional default gateway address to your switch. The management IP address is used for all system services, such as HTTP, FTP, and SNMP. The Management IP address enables you to manage the switch from a Web browser.

[Table 10](#) describes the choices you have when first configuring the required switch parameters.

Table 10 Initial configuration options

Initial configuration method	Result	Advantages/ disadvantages
IP Address Configuration Utility (recommended)	Sets management IP address, subnet mask, and default gateway (optional)	Utility diskette makes initial configuration easy
Serial Interface Configuration Menu (optional)		Must connect the serial interface cable

The IP Address Configuration Utility, which comes with your switch, searches for the serial numbers of unconfigured switches. It then displays a table for you to enter the Management IP address, subnet mask, and default gateway (optional).

To configure the switch from the Serial Interface Configuration menu, you must first connect the serial interface cable to the switch. Then you can use a terminal emulation application, such as HyperTerminal*, to enter the management IP address, subnet mask, and default gateway (optional).

Startup configuration requirements

This section describes the fields that you must complete with either the IP Address Configuration utility or the Serial Interface Configuration menu procedure.

Management IP address

Enter a management IP address for the system. You need this address to manage all system services, such as HTTP, FTP, and SNMP. This address must be accessible from one of the switch's private physical interfaces. Therefore, the management IP address must map to the same network as one of the private interfaces.

For example, if you plan to assign IP address 10.2.3.3 with subnet mask 255.255.0.0 to the private physical interface, then the management IP address must reside in the 10.2 network.

Carefully record the management IP address. Later, during the Quick Start or the Guided Configuration, you will be asked to supply IP addresses for the physical interfaces.

Subnet mask

The subnet mask defines how many bits of the IP address represent the network the device is on and how many bits represent the host's ID on the network.

The device uses the subnet mask to determine which IP addresses are directly reachable on the network and which ones must be routed through a gateway. A sample IP address is 10.2.3.3 with a subnet mask of 255.255.0.0. This indicates that all hosts with addresses 10.2.*n.n*, where *n* is any number 0 - 255, are directly reachable.

Default gateway

The default gateway is where packets are routed onto the private or public network if there is not a specific route in the routing table to the desired location.

IP Address Configuration utility

Use this utility for the initial switch configuration.

Requirements

To assign the switch a Management IP address with this utility, you need a PC running Windows* 95, Windows 98, Windows NT*, or Windows 2000 with a functioning TCP/IP stack. The PC must be running on the same subnet as the switch you are configuring and be connected to an operational network connection.

If your environment does not match these requirements, then you must use the Serial Interface configuration.

To test the function of your TCP/IP stack, send a ping command to any host.

Running the IP Address Configuration utility

The program ExtNetIP.exe is on a diskette labeled *IP Address Configuration Utility* that accompanies the switch. You can copy the utility to your hard disk and execute it from there, or you can load it from the diskette drive. The ExtNetIP.exe program launches the IP Address Configuration utility, which allows you to assign a management IP address and subnet mask to the switch. To run ExtNetIP.exe:

- 1 Insert the diskette into the A: drive and select Start → Run, and then type:

```
a:\ExtNetIP.exe
```

or open the My Computer icon on the desktop and open the 3½ Floppy (A:) drive, and then double-click on the icon shown in [Figure 16](#).

Figure 16 ExtNepIP.exe icon



extnetip.exe

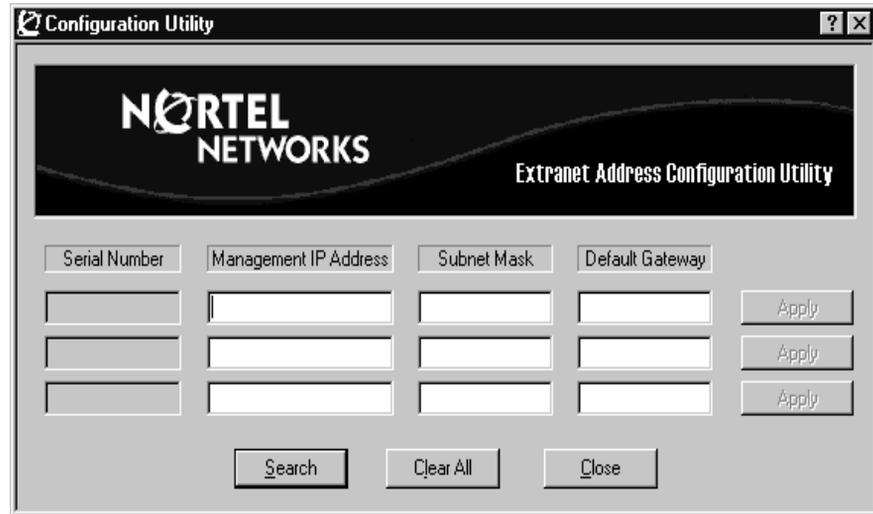
The display shown in [Figure 17](#) appears while the program searches for an unconfigured switch.

Figure 17 Serial number search display



The program automatically enters the serial number for the first available switch into the table of Contivity switches. As shown in [Figure 18](#), a menu appears that allows you to enter the following and allow HTTP management:

- Management IP address
- Management IP subnet mask
- Gateway IP address (optional)

Figure 18 Extranet address configuration utility display

- 2 Assign a management IP address and subnet mask to the switch; the default gateway address is optional and can be added later (refer to “Startup configuration requirements” at the beginning of this chapter for descriptions of the required fields).
- 3 If you have more than one switch, click Search to automatically add the additional switch serial numbers. To verify the switches that have been discovered, you can refer to the serial number on the bar code on the bottom of the switch.
- 4 Click Apply to configure the management IP address, subnet mask, and default gateway on the switch. The Extranet Address Configuration utility display disappears.

After the switch has completed updating its configuration with the management IP address, subnet mask, and optional default gateway, your default Web browser automatically opens the switch Welcome screen.



Note: If you move the switch from one network to another, change the Management IP address and subnet mask accordingly.

You can obtain help from the extNetIP.hlp file, which is the IP Address Configuration Utility Help file.

Because you need to have Microsoft Internet Explorer Version 5.0, the ie5 subdirectory contains the ie5setup.exe file. This file starts the Internet Explorer installation procedure, then links to the Microsoft Web site to download the full Internet Explorer Version 5.0 software. Therefore, you must have Internet access when you run this setup program in order to complete the Internet Explorer installation.

You can install this browser or use a different browser of your choice. Refer to *Configuring the Contivity VPN Switch* for more details on getting the switch up and running.



Note: Nortel Networks recommends that you use the ExtNetIP.exe (the IP Address Configuration Utility). As noted above, you can then assign the necessary IP addressing details to begin managing your switch.

Serial Interface configuration

You can use the following procedure to access the switch from its serial interface. This interface allows you to give the switch a management IP address and subnet mask so that you can use a Web browser for management.

An alternative to the Serial Interface configuration is to use the Nortel Networks IP Address Configuration utility, which Nortel Networks recommends for an initial configuration (refer to “Chapter 3, Startup Configuration Requirements” section in *Configuring the Contivity VPN Switch* for additional information).



Note: The Serial Interface configuration procedure is typically only necessary in a system recovery situation.

Your terminal emulator must use the following communications parameters:

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

- 1 Connect the serial cable (supplied with your switch) from the switch's serial port to a terminal or a communications port of a PC.
- 2 Power on the terminal or PC.
- 3 Using a terminal emulation program, such as HyperTerminal on the PC, press Enter. The Welcome screen appears and you are prompted to supply a user name and password.

```
Welcome to the Contivity Extranet Switch
Copyright 1999,2000,2001 Nortel Networks
```

```
Version: V03_61.01
Creation date: Jul. 7, 2001, 20:51:06
Date: 07/27/2001
Unit Serial Number: 17563
```

```
Please enter the administrator's user name: admin
```

```
Please enter the administrator's password: setup
```



Note: The factory default user name is *admin* and the default password is *setup*.



Note: Before moving the switch from one network to another, change the management IP address, subnet mask, and default gateway. Otherwise, you will need to follow the Serial Interface configuration procedure to access your switch because it will not be accessible from a Web browser with an invalid address.



Note: Before proceeding, verify that you have selected a management IP address routable on the subnet attached to the private interface of the switch and have this information available.

- 4** After the user name and password have been entered, the following menu appears:

Main Menu: System is currently in NORMAL mode.

- 1) Interfaces
- 2) Administrator
- 3) Default Private Route Menu
- 4) Default Public Route Menu
- 5) Create A User Control Tunnel(IPsec) Profile
- 6) Restricted Management Mode FALSE
- 7) Allow HTTP Management TRUE
- 8) Firewall Options
- 9) Shutdown
- B) System Boot Options
- P) Configure Serial Port
- C) Controlled Crash
- L) Command Line Interface
- R) Reset System to Factory Defaults
- E) Exit, Save and Invoke Changes

Please select a menu choice (1 - 9,B,P,C,L,R,E):_

- 5** Enter **1** and press **Enter** to enter the Interface menu:

Interface Menu

- 0) Slot 0, Port 1, Private LAN
Management IP Address = 11.0.0.100
Subnet Mask = 255.0.0.0
Interface IP Address = 11.0.0.10 (Subnet Mask = 255.0.0.0)
Speed/Duplex = AutoNegotiate
- 1) Slot 1, Port 1, Public LAN
IP Address = 192.168.1.20
Subnet Mask = 255.255.255.0
Speed/Duplex = AutoNegotiate

R) Return to the Main Menu.

Please select a menu choice:_

- 6** Select **0** and press **Enter** to enter the Slot 0, Port 1, Private LAN menu and add the management IP address.

The default settings appear, followed by the Configuration menu for the management IP address. The Old Management IP Address field is blank on a new switch.

```
Slot 0, Port 1, Private LAN
Interface IP Address =
Subnet Mask = 0.0.0.0
Speed/Duplex = AutoNegotiate
```

* Type 0.0.0.0 to delete.

```
Old Management IP Address =
New Management IP Address =
```

If you are prepared to assign a management IP address to the private interface, do so at this time at the New Interface IP Address prompt and press Enter. If you do not wish to assign a private IP address at this point, simply press Enter.

```
Old Interface IP Address =
New Interface IP Address =
```

- 7 The subnet mask menu will appear next. Enter the desired subnet mask and press Enter.

```
Old Subnet Mask = 0.0.0.0
New Subnet Mask =
```

The Interface Configuration menu appears. Select the menu option desired and press Enter.

- 8 Follow the screen prompts. The descriptions of the fields required to complete this procedure are in the “Startup configuration requirements” section at the beginning of this chapter.
- 9 After you complete the configuration, type **E** and press **Enter** to save the settings and Exit. You can then manage the switch from a Web browser.



Note: This administrator’s password is also the primary administrator’s password. This password guarantees access to the switch via the serial port or a Web browser. This administrator’s user ID (default=admin) and password (default=setup) combination is also called the *primary administrator*. This person always has access to all screens and controls, including the serial port and the recovery disk. There can be only one primary administrator.

For detailed information on configuring and managing the switch, refer to *Configuring the Contivity VPN Switch*, Chapter 3, “Configuring the Switch,” which describes topics such as:

- Licensing
- The IP Address Configuration utility
- Serial Interface configuration
- Startup configuration requirements
- The Web browser
- Preparing for configuration
- The Welcome screen
- LAN and WAN interfaces
- Using T-1 with integrated CSU/DSU
- The hardware encryption accelerator
- Using Network Time Protocol (NTP)

Chapter 6

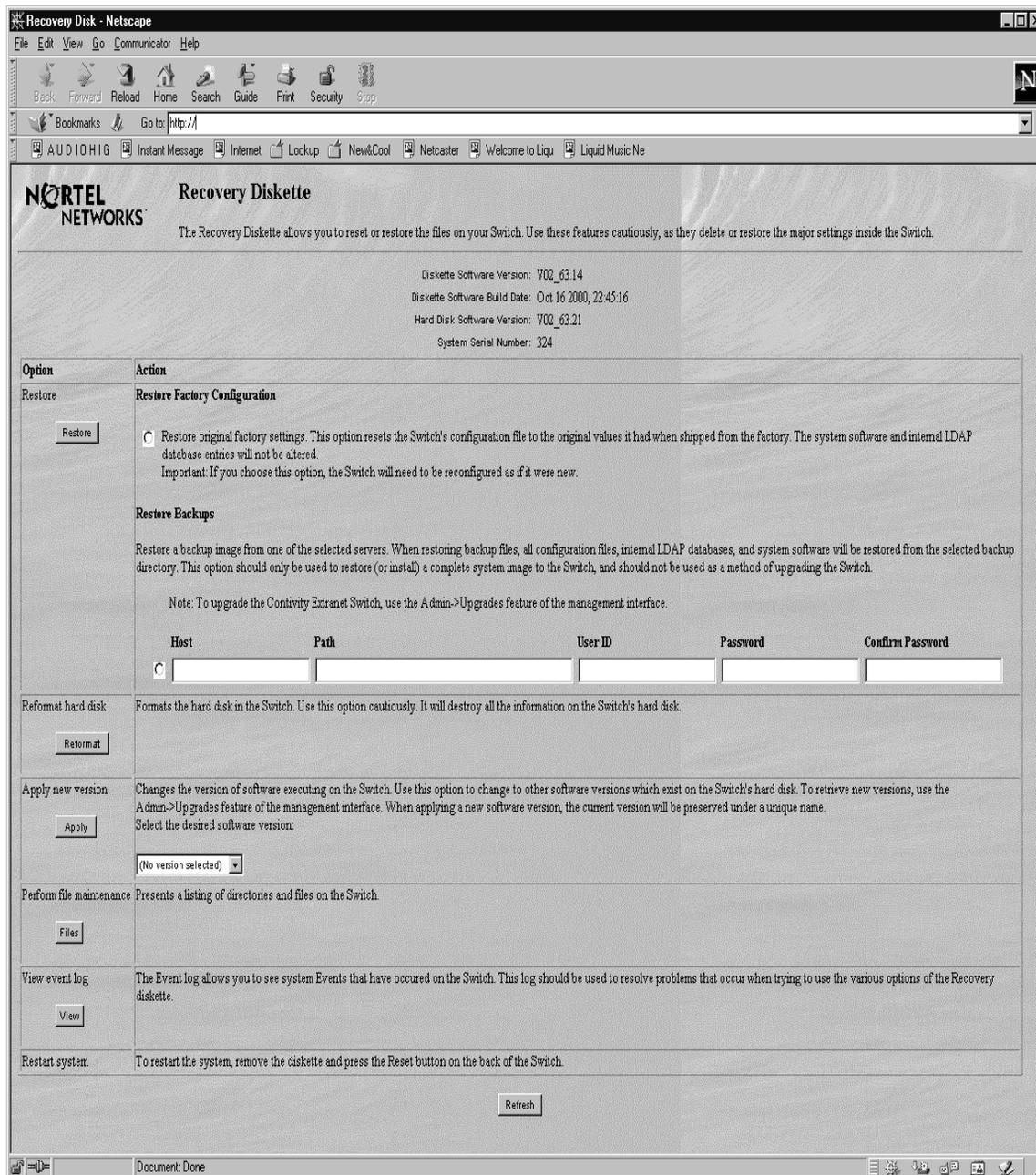
Using the Recovery Diskette

Remove the switch's front bezel. Insert the recovery diskette into the drive and press the Reset button on the back of the switch. This supplies the switch with a minimal configuration utility that allows you to view the switch from a Web browser.

At your Web browser, enter the management IP address of your switch. The Recovery Diskette display shown in [Figure 19](#) appears, which allows you to:

- Restore the factory default configuration or the backup configuration.
- Reformat the switch's hard disk.
- Apply a new software version to the switch.
- Perform file maintenance.
- View the Event log.
- Restart the system.

Figure 19 Recovery diskette display



1 Restore the configuration:

To restore the factory default configuration or the backup configuration, select the hard disk drive to which you want to restore the system files, either ide0 (drive 0) or ide1 (drive 1), and then do one of the following:

- Restore the factory configuration by selecting Restore Factory Configuration, then click Restore to return the switch to its original factory default configuration. This erases data contained in flash memory and also in the configuration file.



Warning: Selecting this option requires you to rebuild your entire switch configuration again from scratch.

An online message specifies the result of the Factory Configuration reset action.

- Or you can restore the switch's previously backed-up configuration by clicking Restore. If you previously chose to automatically back up the file systems, then the backup server host (or IP address) and path name, user ID, and password appear in the table.

Click the radio button of the preferred backup server. The backed-up file system, including software image and configuration files, from the latest backup copy residing on the designated server will be restored onto the hard drive of your switch.

You can use the same backup server for multiple switches. Each switch creates a unique directory based on its serial number. The following example shows the host, path, and serial number (where the serial number [SN] is five digits):

```
C:/software/backup/v101/SN01001
```

The serial number is used to differentiate backup configurations of multiple switches that are saved on the same backup server. The serial number uniquely identifies each switch's backup data.

A blank row in the server backup field always appears to allow you to manually enter a backup server in case you did not configure automatic backup server locations.

Alternatively, a new factory default software image and file system can be restored to the switch's hard disk. Specify the name or address and path of the network file server onto which the software from the Nortel Networks CD has been installed.



Note: This will restore the disk to an operable but “clean” condition with configuration values will be at factory defaults.

To view your switch's serial number when the switch is operational, click Status→System from the navigational menu. The serial number is also listed on the bar code label on the back of the switch.

- 2 Click Reformat if you must reformat the hard disk, for example if you:
 - Have problems restoring your configuration that are not caused by the network or the file/backup server from which the file restoration is being retrieved.
 - Want to reconfigure the switch from scratch.
 - Install a new disk.



Caution: Selecting this option will completely wipe out anything that previously resided on the hard disk.

An online message indicates whether the reformatting of the hard disk was successful.

- 3 Click the drop-down list box to view the available software image and file systems that are stored on the hard disk and select the image version that you want to activate. Then click on Apply.
- 4 Click Files to bring up the File Maintenance display, which allows you to view the entire hard disk file system.
- 5 Click View to display the Event Log beneath the Recovery diskette display. This is especially useful if a Restore operation fails.
- 6 Set the boot disk by clicking the drop-down list box to select the hard disk drive from which you want to boot the switch, either ide0 (drive 0) or ide1 (drive 1). Then click Set.

- 7** Click Synchronize to immediately synchronize the primary and secondary disks. Thereafter, the disks will automatically synchronize every hour.
- 8** Upgrade the system boot software by clicking the drop-down list box to select a drive onto which you want to update the system boot software. Click Upgrade to rewrite the boot software onto the hard disk. You would do this if the system boot sector were to become corrupted.
- 9** Restart the system by removing the diskette and pressing the Reset button on the back of the switch. Then reposition your Web browser to the Management IP address, and click on Reload or Refresh from your browser menu to access the management page of the software running on the hard disk.

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