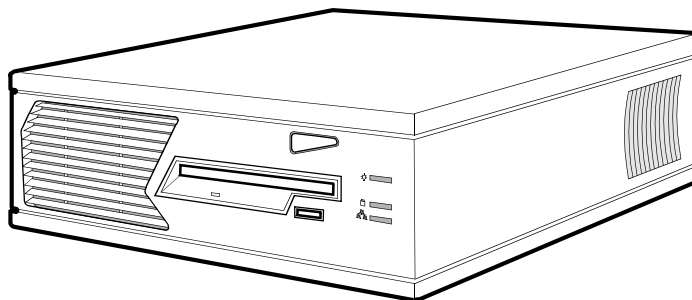


Getting Started with the Contivity Extranet Switch 1500 Series



Part No. 306009-B Rev 00
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Preface

This guide takes you through the necessary tasks to get your Nortel Networks™ Contivity Extranet Switch 1500™ Series up and running. Topics include:

- Introducing the Contivity Extranet Switch
- Preparing Your Site
- Assigning a System Identity
- Managing the Switch
- Installing the Extranet Access Client
- Rack Mounting
- Changing Hardware Configurations

Complete details for configuring and monitoring the Switch are in *Managing the Contivity Extranet Switch*.

Conventions

This guide refers to the Contivity Extranet Switch as the CES or the Switch. It assumes that you are familiar with Web browsers and their general operation.

Documentation

This document uses the following conventions to distinguish among notes of varying importance:



Note: *Take notice.* Notes contain helpful suggestions or references to materials contained in this document.

TIP: *Good idea.* A Tip is something that might be considered a good idea, whether for security reasons or because it will save you time or effort.

IMPORTANT: *Take particular notice.* Important references contain concepts or information that has bearing on other fields or situations (i.e., what you do here affects other fields or options elsewhere).



CAUTION: *Be careful.* In this situation, you might do something that could result in damage to the equipment or loss of data.



WARNING: *Danger.* You are in a situation that could cause bodily injury. Before working on equipment, beware of the hazards involved with electrical circuitry and standard practices for preventing accidents, such as disconnecting equipment from its power source.

Text

This guide uses the following text conventions:

italic text

Indicates new terms and book titles.

screen text

Indicates system output, for example, prompts and system messages.

Example:

Set Nortel Networks Trap Monitor Filters

arrow (→)

Shows menu paths.

Example: Services → Available identifies the Switch services that are available.

User Interface

Help Button

Click the Help button that is located in the upper right of displays to learn about fields on a given page. Where appropriate, the information provides cause and effect of an action; otherwise, it might offer troubleshooting steps.

Related Publications

The following table lists the associated documentation that you will need to configure and manage your Switch and describes the document's objectives.

Related Publications

Document	Objective
<i>Contivity Extranet Switch Release Notes</i>	Provides the latest information, including known problems, workarounds, and special considerations.
<i>Managing the Contivity Extranet Switch</i> (included on the CD)	Provides complete details to configure, monitor, and troubleshoot your Switch.

Nortel Networks Technical Publications

You can print Nortel Networks technical manuals and release notes free, directly from the Internet. Go to *support.baynetworks.com/library/tpubs/*. Find the Nortel Networks product for which you need documentation. Then locate the specific category and model or version for your hardware or software product. Using Adobe Acrobat Reader, you can open the manuals and release notes, search for the sections you need, and print them on most standard printers. You can download Acrobat Reader free from the Adobe Systems Web site, *www.adobe.com*.

You can purchase Nortel Networks documentation sets, CDs, and selected technical publications through the Nortel Networks Collateral Catalog. The catalog is located at *support.baynetworks.com/catalog.html*:

- The “CD ROMs” section lists available CDs.
- The “Guides/Books” section lists books on technical topics.
- The “Technical Manuals” section lists available printed documentation sets.

Make a note of the part numbers and prices of the items that you want to order. Use the “Marketing Collateral Catalog description” link to place an order and to print the order form.

Nortel Networks Customer Service

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

If you purchased a Nortel Networks service program, contact one of the following Nortel Networks Technical Solutions Centers:

Technical Solutions Center	Telephone Number
United States and Canada	800-2LANWAN (800-252-6926); enter Express Routing Code (ERC): 176#
Valbonne, France	33-4-92-96-69-68
Sydney, Australia	61-2-9927-8800
Tokyo, Japan	81-3-5402-7041

Chapter 1

Introducing the Contivity Extranet Switch

The Switch

The Nortel Networks Contivity Extranet Switch 1500 Series provides scalable, secure, manageable extranet access for up to 100 simultaneous users across the Public Data Network (PDN). The Contivity Extranet Switch 1500 Series consists of the 1500, 1510, 1520, and 1530 models.

The Switch includes the most popular tunneling protocols, IP Security (IPsec), Point-to-Point Tunneling Protocol (PPTP), Layer 2 Forwarding Tunneling Protocol (L2TP), and Layer 2 Forwarding (L2F). IPsec uses digital certificates, password-based keys, and tokens for authentication; PPTP, L2TP, and L2F use Challenge Handshake Authentication Protocol (CHAP) or Password Authentication Protocol (PAP) for authentication. The PPTP implementation for the Switch supports MS-CHAP authentication with 56- to 128-bit key encryption.

Figure 1-1 shows an intranet and an extranet.

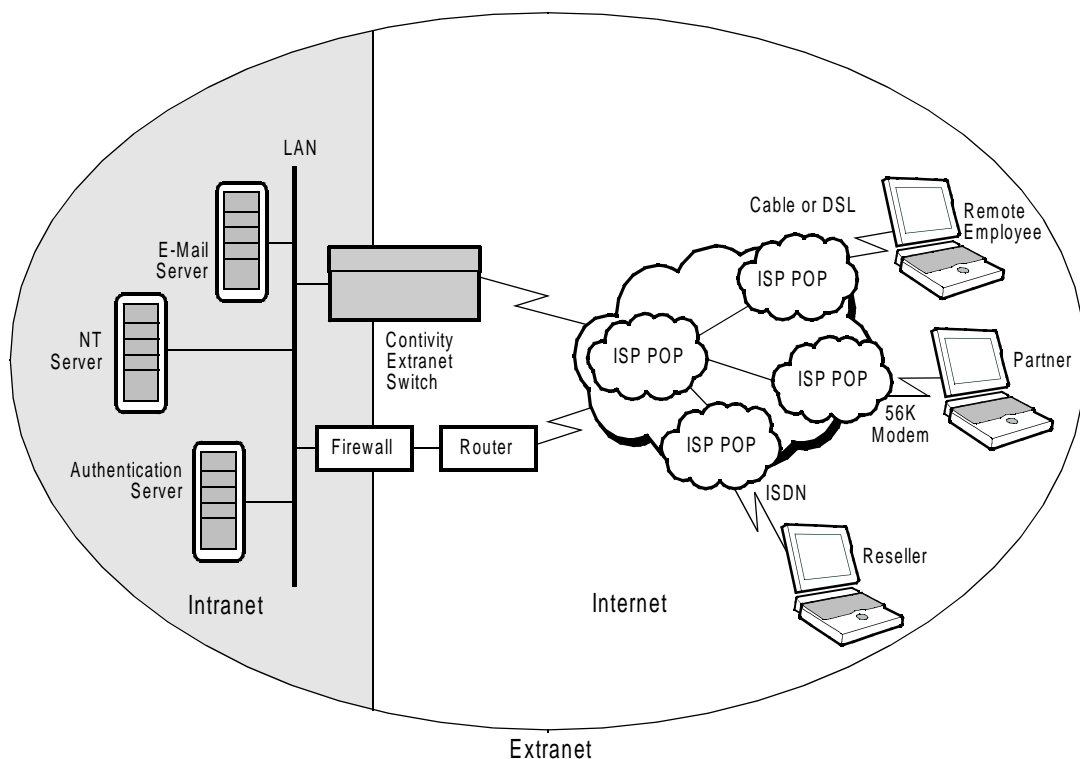


Figure 1-1. An Intranet and the Internet Make Up an Extranet

The Switch provides more security than traditional remote access schemes due to the combination of authorization, authentication, privacy, and access control on a per user basis. Additionally, the IPsec protocol and related Internet Security Association & Key Management Protocol (ISAKMP) and the Oakley key establishment protocol support further enhance the security offering.

For authentication and access control, the Switch supports an internal or external Lightweight Directory Access Protocol (LDAP) server and external Remote Authentication Dial-In User Service (RADIUS) servers.

To restrict access, the Switch uses packet filtering based on Protocol ID, Direction, Source and Destination IP addresses, Source and Destination Ports, and TCP connection establishment. Additionally, Nortel Networks provides you with a set of predefined filters that you can use either directly or tailor to your network needs.

The unique quality of service (QoS) mechanisms include call admission and packet forwarding priorities, and support for Resource ReSerVation Protocol (RSVP).

The HTML and Java Web management interface allows different Switch administrators to have different access rights, including configuration, status, and monitoring. The Switch offers RADIUS accounting support and extensive logging, including events, system, configuration, and security logs.

Figure 1-2 shows a front view of the Switch.

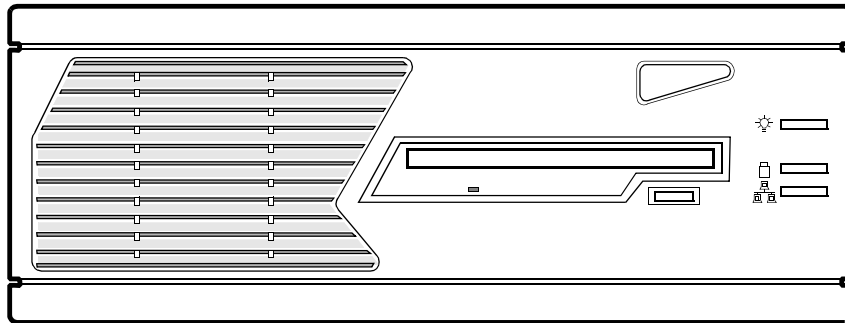


Figure 1-2. The Switch, Front View

The Extranet Switch 1500 Series must be placed *only* in a horizontal position.

Components List

The following table lists all of the components and accessories of the Switch. Examine the product packaging to be sure that you have all the necessary components.

Note that the Extranet Switch 1500 Series has no user-serviceable components.

Description	Quantity
Extranet Switch 1500 Series	1
Power Cord (ordered separately)	0
Molded Serial Cable DB9/DB25-to-DB9/DB25	1
WAN V.35 Cable (only with 1520)	1
Contivity Extranet Switch CD-ROM	1
Recovery Diskette	1
IP Address Configuration Utility Diskette	1
Getting Started Guide (this book)	1
Release Notes	1

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

Chapter 2

Preparing Your Site

This chapter provides information that you should read before you begin cabling and configuring the Contivity Extranet Switch 1500 Series. This information includes selecting an appropriate site, safety guidelines, information on the power cord, voltage settings, and external vent cooling and airflow recommendations.

Selecting a Site

This Switch is designed to operate reliably in a typical office environment. You should select a site that meets the following criteria:

- Has a desktop or surface that is off the floor.
- Has access to a grounded, three-pronged power outlet.
 - Uses a NEMA 5-15R outlet for 100-120 VAC or a NEMA 6-15R outlet for 200-240 VAC (US and Canada).
 - Uses a three-pronged power outlet that is applicable for the region's electrical code (elsewhere).
- Remains dust free and clean.
- Is away from heat sources and is well ventilated.
- Allows adequate clearance for cooling and airflow -- about 10 centimeters (3.93 inches) in back, 5 centimeters (1.96 inches) on each side, and 10 centimeters (3.93 inches) in front.

Safety Guidelines

Hazardous Conditions Inside the Switch

Hazardous voltage, current, and energy levels are present inside the Switch. Do not open the Switch; there are no user-serviceable parts inside. Contact Nortel Networks Customer Support for service.

Switch Power ON/OFF

The On/Off power button on the front panel of the Switch does not completely eliminate (turn off) the AC power from the Switch. To eliminate AC power from the Switch completely, unplug the AC power cord from the power supply or wall outlet.

Check the Voltage Switch



WARNING: Incorrectly setting the voltage will damage the power supply. See Figure 3-1 on page 3-2.



CAUTION: Make sure that the power service connection is through an outlet that is properly grounded.

Before you connect the power cord to the back panel of the Switch, ensure that the voltage selector switch is correctly set to the appropriate AC line source voltage. For line voltages between:

- 100 and 127 VAC, set the power supply line voltage selector to 115V (115 VAC).
- 200 and 240 VAC, set the power supply line voltage selector to 230V (230 VAC).

Verify that the correct voltage (115V or 230V) is visible on the switch. See Figure 3-1 on page 3-2.

External Vent Cooling and Airflow

The Switch has external vents for cooling and air flow on:

- The chassis bezel
- The back panel
- On each of the side panels

Keep the side vents clear of obstruction to ensure proper cooling of the Switch.

Chapter 3

Cabling the Switch

This chapter provides information on the following:

- Cabling
- Local area network (LAN) connections
- Wide area network (WAN) connections
- Serial interface
- LEDs

For the Contivity Extranet Switch 1500 Series:

- The 1500 and 1510 support connections to LAN interfaces
- The 1520 supports connections to Single V.35 interfaces
- The 1530 supports connections to T1 CSU/DSU interfaces

Additionally, this chapter cites the LAN/WAN pinouts and the Switch's LED descriptions. [Figure 3-1](#) shows a back view of the Contivity Extranet Switch that shows various connector locations.

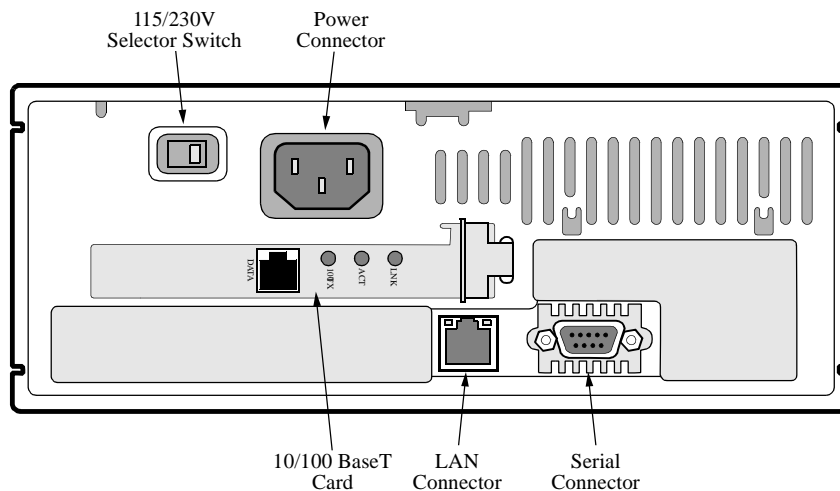


Figure 3-1. Extranet Switch Back View

Connecting the Cables

You must connect your cables as follows:

- Connect the power cord to the back of the Switch and to the electrical outlet.



WARNING: Connect the LAN and serial port cables before you plug the Switch's power cord into the outlet.

- Connect the LAN/WAN card cables as necessary.

Power Cord Requirements



WARNING:

1. Do not modify the AC power cord if it is not the exact type that is required for your power outlet.
 2. Before you connect the power cord to the back panel of the Switch, ensure that the voltage selector switch is correctly set to the appropriate AC line source voltage. See page 2-2.
-

Current Rating



CAUTION: You should protect your Switch by plugging it into a surge suppressor.

The power cord must be rated for the available AC voltage, and it must have a current rating which is at least 125 percent of the Switch's current rating. See the “Physical, Electrical” specifications on page A-1.

Wall Outlet Connector

The power cord must be terminated in a male plug with appropriate grounding. The power cord 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

The LAN interface is available for the Contivity Extranet Switch 1500 and 1510. There is at least one LAN interface connection, which provides a connection to the Web for 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.

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

10BASE-T connections can use Category 3, 4, or 5 twisted-pair wiring.

LAN Speed Selection

The Switch automatically determines the speed of the LAN connection during power-up. To change the speed, simply power down the unit, connect to the desired LAN, and power the unit back up.

Connector Pinouts

The LAN connectors on the Switch are RJ-45 straight-through. The following illustration shows the Switch connector's 10/100BASE-TX pinouts.

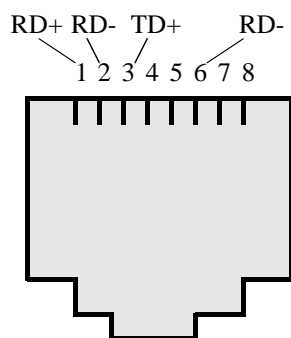


Figure 3-2. 10/100BASE-TX Pinouts

Single V.35 WAN Interface (Optional)

The Single V.35 WAN connector is located on a PCI card that offers a separate DB26S connector that provides the signals needed to interface to V.35 equipment. Included in the accessory box is a cable that maps the DB26S signals to a standard V.35 connector. Table 3-1 shows the cable pinouts.

Table 3-1. DB26S-to-V.35 Cable Pinouts

DB26	Signal	V.35
1	Shield	A
2	TXDA	P
3	RXDA	R
4	RTSA	C
5	CTSA	D
6	DSRA	E
7	GND	B
8	DCDA	F
9	RXCB	X
10	DCDB	no conn
11	SCTEB	W
12	TXCB	AA
14	TXDB	S
15	TXCA	Y
16	RXDB	T
17	RXCA	V
18	LL	L
19	RTSB	no conn
20	DTRA	H
21	RL	N
22	DSRB	j
23	DTRB	no conn
24	SCTEA	U
25	TM	NN

26	M0<-SIGNAL GROUND	B
27	M1<-SIGNAL GROUND	B
28	M2	no conn

The following notes apply to the Single V.35 WAN Interface:

- You will need a DSU/CSU (digital service unit/channel service unit) between the WAN connection and the Switch.
- At each end, Cable shield and connector shell must connect respectively to pin A of 34-pin connector and pin 1 of the standard 28-pin connector.
- The term “no conn” means the wire is not connected to a pin in the 34-pin connector.
- Wires 12B, 13A, and 14B connect to pin B in the 34-pin connector.
- Unused pins in the 34-pin connector need not be present.
- Do not connect Shield to Signal Ground as these are separate signals.
- The pair suffix A or B refers to an individual wire within a twisted pair.

T1 CSU/DSU WAN Interface (Optional)

The T1 CSU/DSU WAN interface is available for the Contivity Extranet Switch 1530. The T1 CSU/DSU WAN crossover cable crosses the blue pair with the orange pair. This is different from the commonly available crossover cable, which crosses the green pair with the orange pair. No cables are supplied with the T1 CSU/DSU. Table 3-2 shows the cable pinouts.

Table 3-2. T1 CSU/DSU Cable Pinouts

DB26S	Signal	T1 CSU/DSU
1	RXDA->TXDA	5
2	RXDB->TXDB	4
3	not used	3
4	TXDB<-RXDB	2
5	TXDA<-RXDA	1
6	not used	6
7	not used	7
8	not used	8

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

Serial Interface Cable (Optional)

Nortel Networks recommends that you use the IP Address Configuration Utility diskette for easy initial IP address configuration (refer to page 4-3 for details). However, Nortel Networks ships a serial cable with the Switch. Optionally, you can use the Serial Interface to provide the Switch with a Management IP Address, subnet mask, and default gateway address (refer to page 4-2 for details). Later, you can use the serial interface configuration menu to perform management functions that you might need if problems were to arise.

The serial cable provided with the Switch is a DB9/DB25-to-DB9/DB25. This provides a crossover (transmit-to-receive and receive-to-transmit). The DB9 connector goes into the Switch and the other DB9 or DB25 connector goes into your workstation. You should ignore the extra DB25 connection that is attached to the Switch. [Table 3-3](#) shows the multiple cable DB-9/DB25 serial interface cable pinouts.

Table 3-3. Multi-DB-9 and DB-25 Connector Pinouts

Serial Port DB-9 Connector		Serial Port DB-25 Connector			Serial Port DB-25 Connector		Serial Port DB-9 Connector	
Pinout	Signal	Pinout	Signal		Pinout	Signal	Pinout	Signal
2	RXD	3	TXD	>	2	RXD	3	TXD
3	TXD	2	RXD	>	3	TXD	2	RXD
4	DTR	20	DSR	>	6	DTR	6	DSR
5	Ground	7	Ground	>	7	Ground	5	Ground
6	DSR	6	DTR	>	20	DSR	4	DTR
7	RTS	4	RTS	>	5	CTS	8	CTS
8	CTS	5	CTS	>	4	RTS	7	RTS

Understanding the LEDs

The **Power LED** is green when the power is on; if it is flashing, there is a hardware failure and you should contact Nortel Networks.

The **Hard Disk LED** is green, and when it flashes the Switch is either reading or writing to the disk.

The **LAN Port LED** is green, and when it flashes the Switch is either transmitting or receiving data.

Start the Switch and confirm that the interfaces are cabled properly by examining the two LEDs located adjacent to the RJ-45 connector of the LAN port, or the LEDs located on the card panel.

Figure 3-3 shows the LAN Port LEDs. Look at the condition of the LEDs, then examine the corresponding LED tables to better understand the indications.

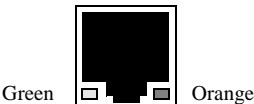


Figure 3-3. LAN Port LEDs

Table 3-4. LAN Port LED Indicators

LED	Indicator	Description
Orange	On	The cable connections between the LAN port and the hub are good.
	Off	The cable connections between the LAN port and the hub are faulty.
	On or Flashing	The LAN port is sending or receiving network data. The frequency of the flashes increases with increased traffic.
Green (100)	On	The LAN port is operating at 100 Mb/s.
	Off	The LAN port is operating at 10 Mb/s.

Figure 3-4 shows the Single V.35 LEDs. Look at the condition of the LEDs, then examine the corresponding LED tables to better understand the indications.

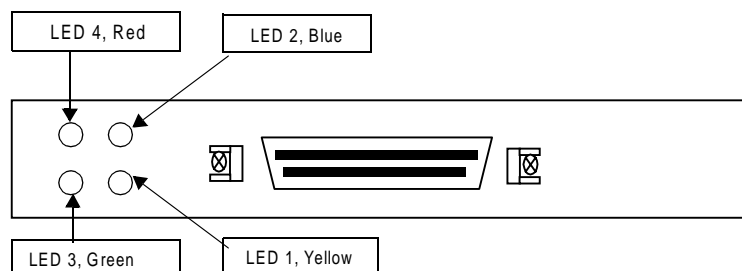


Figure 3-4. Single V.35 LEDs

Table 3-5. Single V.35 LED Indicators

LED	Description
LED1	Power is on to the adapter and the onboard microcode is loaded.
LED2	The signals CDC and DSR are on between the DSU and the adapter. LED2 detects receive link status.
LED3	Cable is detected.
LED4	No external transmit clock source is available.

Figure 3-5 shows the T1 CSU/DSU LEDs. Look at the condition of the LEDs, then examine the corresponding LED tables to better understand the indications.

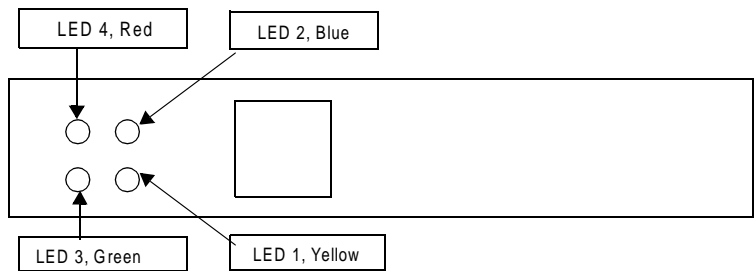


Figure 3-5. T1 CSU/DSU LEDs

Table 3-6. T1 CSU/DSU LED Indicator

LED	Description
LED1, Yellow	Yellow alarm LED is lit when the far-end equipment is in the red alarm condition.
LED2, Blue	Blue alarm LED is lit when receiving an upstream failure denoted by an alarm indication signal (AIS).
LED3, Green	Normal operation.
LED4, Red	Red alarm is lit when a loss of signal (LOS) or out of frame (OOF) condition is detected on the receive signal.
All LEDs off	Port disabled.

Figure 3-6 shows the PCI card 10/100BASE-TX LAN LEDs for the Contivity Extranet Switch 1510. This does not apply to the 1520 or 1530. Look at the condition of the LEDs, then examine the corresponding LED table to better understand the indications.

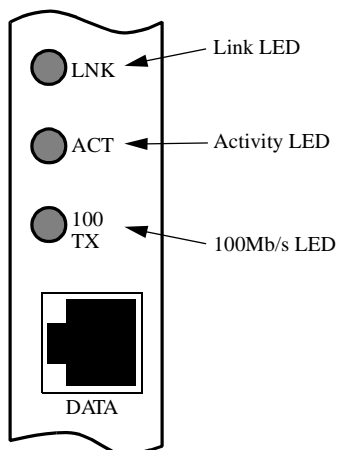


Figure 3-6. 10/100BASE-TX LAN LEDs

Table 3-7. 10/100BASE-TX LAN LED Card Indicators

LED	Indicator	Description
LNK	On	The cable connections between the card and the device to which this interface is attached are good.
	Off	The cable connections between the card and the device to which this interface is attached are faulty.
ACT	On or Flashing	The card is sending or receiving network data. The frequency of the flashes increases with increased traffic.
	Off	The card is not sending or receiving data.
100 TX	On	Operating at 100 Mb/s.
	Off	Operating at 10 Mb/s.

Chapter 4

Assigning a System Identity

This chapter 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.

[Initial Configuration Options](#) [Table 4-1](#) describes the choices you have when first configuring the Switch's required parameters. The IP Address Configuration Utility diskette, 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 to enter the Management IP address, subnet mask, and default gateway (optional).

Table 4-1. 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

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 need 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 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* are directly reachable.

Default Gateway (Optional)

The Default Gateway is where packets are routed onto the private 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 configuration of a Switch.

Requirements

To assign the Switch a Management IP address, you need:

- A PC running Windows 95® or Windows NT® with a functioning TCP/IP stack
- The PC running on the same subnet as the Switch you are configuring
- The PC 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 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 the configuration utility:

1. Insert the diskette into the A: drive and select Start→Run:

a:\ExtNetIP.exe

or, open the “My Computer” icon on the desktop and open the “3½ Floppy (A:)” drive, then double-click on the icon:



extnetip.exe

The following display appears while the program searches for an unconfigured Switch.



Figure 4-1. Serial Number Search Display

The program automatically enters the Serial Number for the first available Switch into the table of Contivity Switches.

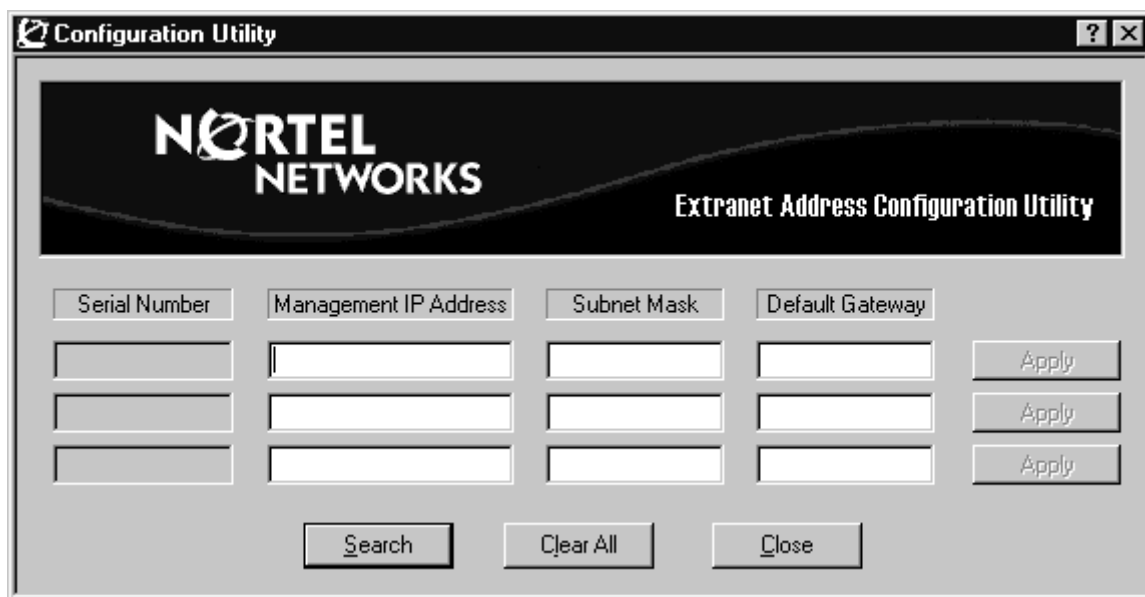


Figure 4-2. IP Address Configuration Utility Display

2. Assign a Management IP Address and Subnet Mask to the Switch; the Default Gateway address is optional and you can add it later (see Startup Configuration Requirements on page 4-2 for descriptions of the required fields).

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. The serial number on the back of the Switch is that of the motherboard manufacturer.

3. Click Apply to configure the Management IP Address, Subnet Mask, and Default Gateway on the Switch. The IP Address Configuration Utility screen disappears.

When the Switch updates its configuration with the Management IP Address, Subnet Mask, and optional Default Gateway, your default Web browser automatically opens to the Contivity Extranet Switch Welcome screen.

4. Click Close to shut down the IP Address Configuration Utility.



Note: Before moving the Switch from one network to another, change the Management IP address, Subnet Mask, and Default Gateway. Otherwise, you 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.

Serial Interface Configuration

Use the IP Address Configuration Utility (see to page 4-3) to configure the Switch with its initial IP address configuration.

Alternatively, you can use the serial interface configuration menu to access the Switch from the serial interface of your PC. Typically the serial interface configuration procedure is only necessary in a system recovery situation. The serial interface configuration menu allows you to give the Switch a Management IP address, Subnet Mask, and Gateway IP Address so that you can use a Web browser for management.

Prerequisites

The terminal emulator on your PC must use the following communications parameters:

- 9600 Baud
- 8 Data bits
- 1 Stop bit
- No Parity
- No Flow Control

Procedure

1. Connect the serial cable from the Switch's serial cable port to a terminal or a PC communications port. It can take the system approximately 3 minutes to start up.
2. Using a terminal emulation program, such as Hyper Terminal, press Enter and supply a user name and password when prompted. The factory default user name and password are:

User name: **admin**

Password: **setup**

A menu appears that allows you to enter the following:

- Management IP Address
 - IP Subnet Mask
 - Gateway IP Address (optional)
 - Allow HTTP Management (default)
 - Interface IP Address
 - Controlled Crash
 - Reset to Factory Defaults
3. Follow the screen prompts. Some of the descriptions of the fields required to complete this procedure are in the section, "Startup Configuration Requirements," on page 4-[4-2](#). Other descriptions follow:

Allow HTTP Management enables you to manage the Switch using a Web browser.

A **Controlled Crash** forces the Switch into a hard crash state, which creates a core dump file that Nortel Networks Customer Support can analyze to help diagnose problems, such as the Switch is hung or it does not respond to PINGs. Do not select "C) Controlled Crash" unless instructed to do so by Nortel Networks.

Reset to Factory Defaults returns the Switch to its factory default configuration.

A sample display follows:

```
Welcome to the Nortel Networks Extranet Switch
Copyright 1998 and 1999, Nortel Networks
Date: 1/29/99
Unit Serial Number: 01001
Please enter the administrator's username: admin
Please enter the administrator's password: setup
1) Management IP Address*
2) IP Subnet Mask
3) Gateway IP Address*
4) Allow HTTP Management
5) Interface IP Address*
C) Controlled Crash
R) Reset to Factory Defaults
E) Exit
*0.0.0.0 resets to factory default value of NULL
Please select a menu choice (1 - 5, C, R, E):
```

Figure 4-3. Sample Serial Interface Display

4. After you complete the configuration, type E to Exit. You can then manage the Switch from a Web browser.

Important: This Administrator's Password is also the Primary Administrator's Password. This password guarantees access to the Switch from the serial port or a Web browser.

Chapter 5

Managing the Switch

This chapter describes the recommended Web browsers, the default login, and passwords that you need to access the Nortel Networks Extranet Switch, and the Quick Start Configuration.

Recommended Web Browsers

Nortel Networks Extranet Manager uses Java, JavaScript, and HTML features. For the management interface to function properly, verify that your Web browser meets the following minimum requirements.

Platforms Supported

The Switch supports Windows 95, Windows 98, Windows NT, and Macintosh® operating systems.

Browser Versions

The Switch supports the following Web browsers:

- Microsoft Internet Explorer--Version 4.0 or later is required.
- Netscape Communicator--Version 4.0 or later is required.

Display Setting

Verify that the system display color setting is 256 colors or greater.

Preparing for Configuration

To properly prepare for Installation and Configuration of the Contivity Extranet Switch, you should have the following:

- A Management IP Address for the system. You need this address to manage all system services, such as HTTP, FTP, and SNMP.
- An IP Address for the LAN port that is available on the system board.
- Any number of Public IP Addresses; for example, one IP address for each Public LAN/WAN Interface.
- A plan to distribute IP addresses to clients when connections are requested; for example, using a DHCP server or an internal client address pool (with an address pool you need a range of IP addresses).
- An Authentication database. If you are not using internal authentication with the LDAP database, be sure you have either the external LDAP or the RADIUS server IP Address and password or Shared Secret (password).
- An external accounting server, such as RADIUS, with its IP Address and Shared Secret (password).
- Client dial-in. Prepare the clients for the type of tunneling protocol they plan to use. The PPTP client application is available for Windows 95 on the Nortel Networks CD, and it comes with the Windows 98 and Windows NT operating systems. Nortel Networks also provides the IPsec client on the Nortel Networks CD.
- A complete network topology of the environment in which you are testing the Switch, including the Switch, the default router address, and any other IP addresses that might be required.

Extranet Switch Welcome Display

The Welcome screen allows you to enter any of the configuration areas for the Extranet Switch, including:

- Quick Start Configuration
- Guided Configuration
- Manage Extranet Switch
- Registration
- Notebook

Before entering the configuration options, you should first register to activate licenses, warranties, and services.

The alternatives you have when first configuring your Switch are shown in [Table 5-1](#). Nortel Networks recommends that you begin with the Quick Start or the Guided Configuration. Once you are familiar with the Switch's navigation menu and capabilities, then you can select Manage Extranet Switch.

Table 5-1. Configuration Alternatives

Configuration Type	Results
Quick Start	Configure and Test a basic PPTP configuration
Guided	Structured Switch configuration and management
Manage	Comprehensive Switch configuration and management

Following is a sample Extranet Switch Welcome display, followed by descriptions of each configuration option. A detailed checklist describes what you need to properly configure your Switch, followed by full details of the different procedures.

Complete details for configuring and monitoring the Switch are in the *Nortel Networks Contivity Extranet Switch Administrator's Guide*.



Figure 5-1. Switch Welcome Display

Quick Start

Click to begin the Quick Start Configuration. This option allows you to configure interfaces, set up PPTP tunnels for up to three users, and establish a connection to the Switch. Provided you have the information required to set up the Switch, the Quick Start can take as little as 15 minutes to complete.

Guided Configuration

Click to begin the Guided Configuration. This option allows access to all Configuration Management facilities. However, the design and structure of the Guided Configuration is best followed using the top-to-bottom layout provided. This approach walks you through the entire Navigational Menu from the Profiles to the Status selections.

Each functional area begins with a summary of the objectives and then steps you through the area (such as, Profiles), one subsection at a time.

Online context-sensitive Help is available for each subsection.

Provided you have the information required to set up the Switch, the Guided Configuration can take two to three hours to complete, depending on whether your configuration is simple or more complicated.

Manage Extranet Switch

Click to begin a standard configuration and management session. This option allows access to all configuration management facilities. You should follow the Quick Start or Guided Configuration for your first configuration.

Registration

Click to register the Switch with Nortel Networks. This only take a few minutes and gives you access to the latest software and technical tips. Your Switch requires Internet access in order to register.

Notebook

Click to activate the notebook display mode. The Contivity Extranet Switch Manager then runs in notebook display mode, which better fits notebook displays.

Logging in and Supplying a Password

Start up a Web browser and enter your Switch's Management IP Address. Select an option in the navigational menu and submenu. When you are prompted for the Login and Password, enter the system default Login and Password in lowercase letters, as follows:

Login: **admin**

Password: **setup**

IMPORTANT: If you change your password and later need to access the Serial Interface Configuration, you must enter the modified password. The factory default password is no longer valid in this case. Also, make sure you change the default Administrator's Login and Password as soon as possible (refer to the Admin→Administrator display). You should then guard the Login and Password carefully. The password is case sensitive.

Quick Start Configuration Prerequisites

This screen acts as a checklist for you to prepare for the Quick Start configuration. Assembling the information beforehand, and verifying that you can establish a PPTP Client session, makes Quick Start easy.

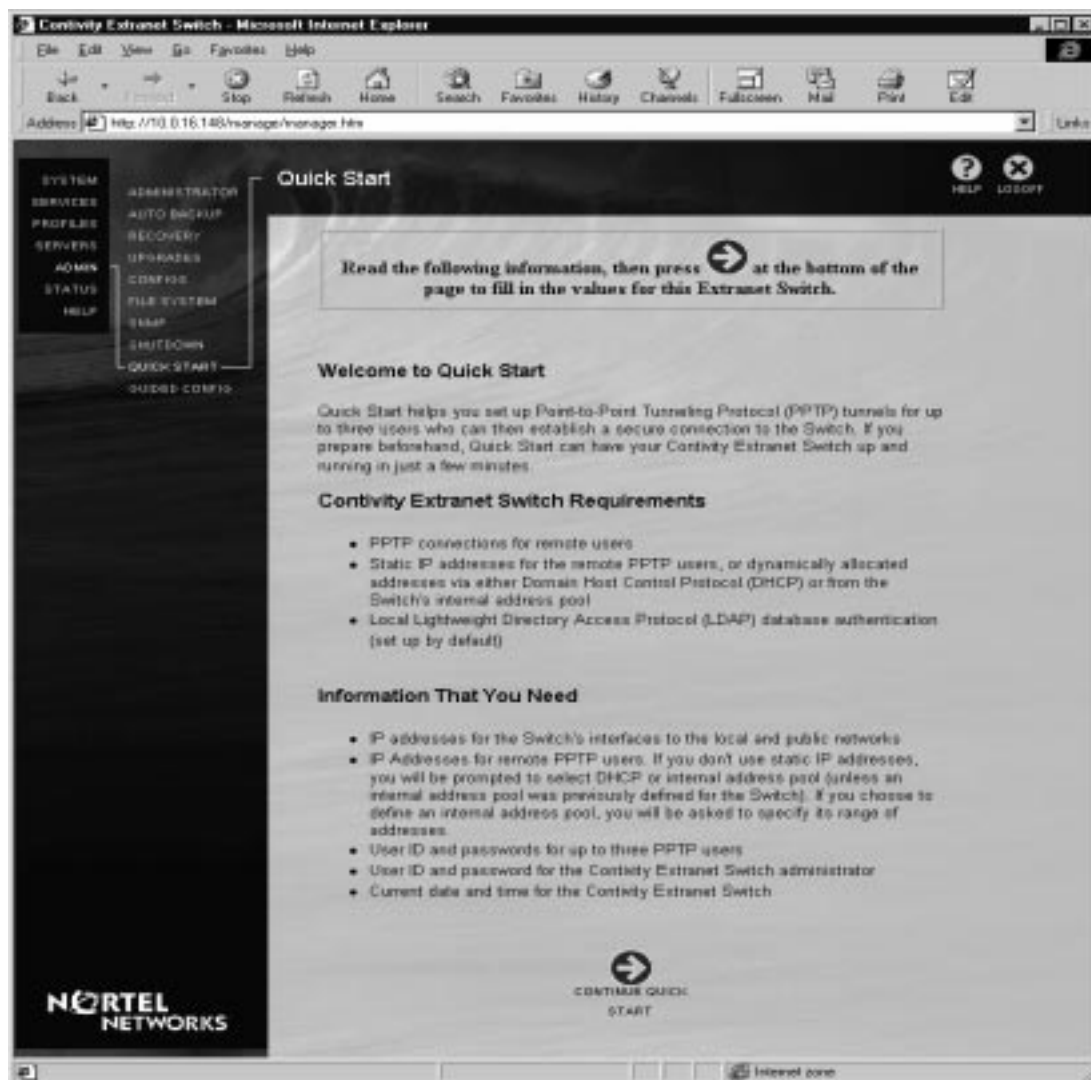


Figure 5-2. Quick Start Prerequisites Display

Required Environment

This section describes the environment that you need for the Quick Start Configuration. If this does not describe your environment, use the Guided Configuration.

Point-to-Point Tunnel Protocol (PPTP) tunnel access method

PPTP is a tunneling protocol supported by Nortel Networks, Microsoft, and other vendors. The PPTP client is available for Windows 95 on the Nortel Networks CD and comes with Windows 98 and Windows NT 4.0 and later operating systems.

Static IP addresses, Dynamic Host Configuration Protocol (DHCP) server address allocation, or an Internal Client Address Pool

A DHCP Server on the private LAN segment dynamically assigns IP addresses on behalf of remote users. The DHCP server is automatically discovered by broadcasting on the private interface that is associated with the Management IP Address. With an Internal Client Address Pool, you need a range of IP addresses.

Local Lightweight Directory Access Protocol (LDAP) database authentication

LDAP is a standard protocol for Internet directory services that is based on directory entries. A *directory service* is a central repository of user information. The local database is internal to the Switch.

The Switch for the Quick Start procedure sets up an LDAP server and associated database locally. Later, you can switch to a network-available external LDAP server using the LDAP Intermediate File (LDIF) data format.

Prerequisites

You must meet the following prerequisites:

- IP configuration information (refer to Startup Configuration Requirements on page 5-7 for additional information):
 - Management IP Address for the Switch
 - Subnet Mask for the local subnet
- User IDs and Passwords:
 - PPTP Users (up to three)
 - Administrator

Post Configuration Testing

To test your configuration, verify that a PPTP remote user can dial in from an external system.

Refer to the *Contivity Extranet Switch Administrator's Guide*, the Switch's online help, and the Microsoft PPTP documentation for additional information.

Configuration

This screen allows you to add a LAN port IP Address and Subnet Mask, establish the tunnel as Private (your private LAN) or Public (public data networks), and configure up to three PPTP Users and an Administrator with User IDs and Passwords. You can also set the system's date and time. The following figure show partial displays of the Quick Start Configuration screen.

Quick Start - Microsoft Internet Explorer

File Edit View Go Favorites Help

Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit

Address http://10.0.16.148/manager/cgi/cgiProc?module=bdp_quick_start&from=0

LAN/WAN Interfaces

Each entry in this section represents an interface on the Contivity Extranet Switch. Interfaces to your Local Network are listed first, followed by Public Network Interfaces(Internet). When configuring Local Network interfaces, use valid Local Network IP addresses. For the Public Network Interfaces, you must use valid public IP addresses.

Read the hint below each interface!

*** Local Network Interface**

Interface IP Address: Subnet Mask:
 Management IP Address:

Hint: The above Local Network Interface which is built into the system board of the Switch, connects the Contivity Extranet Switch to your Local Network. You need to specify both a Management IP Address and an interface IP Address for this connection. Use addresses that are available on your Local Network.

*** Public Network Interface (LAN)**

Interface IP Address: Subnet Mask:

Hint: The above Public Network Interface which is a LAN card in expansion Slot 20(interface 1), is a connection to the Internet. Usually, it is on the same segment as your Internet gateway router. Assign an actual Internet IP address to this interface.

Default Routes

Public:
 Private:

PPTP Users

You must add at least one User ID and Password to be able to tunnel to the Switch.

User ID	Password	Confirm Password	Remote User Static IP Address(1)
* <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

(1) Must be a valid address on the Local Network. It will be assigned to a remote user's system when tunneling into the Local Network. If no address is specified, the Switch will look for a DHCP server on the Local Network to provide available addresses.

Administrator

Figure 5-3. Quick Start Configuration Display

LAN/WAN Interfaces

Interfaces

Lists the Management IP Address, LAN/WAN port, and LAN card.

IP Address

Enter an IP address for each interface on the Switch, including the LAN port. The Switch uses these IP addresses for tunnel creation. The IP Address consists of 32 bits, which are written as four octets in dotted-decimal format as follows:

192.168.34.21

You must supply the interface IP Address configuration information, not the Management IP Address that you already configured through the initial IP Address configuration.

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 are only reachable 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* are directly reachable.

Default Gateway

If the routing table contains no specific route to the desired location, the Default Gateway packets are routed onto the private network.

Type

The default configuration assigns the Management LAN interface as Private and the LAN card interface as Public.

Public

Indicates that this interface is attached to a Public data network like the Internet. On a Public interface, the Switch rejects non-tunneled protocols and accepts only tunneled protocols, such as IPsec, PPTP, L2TP, L2F and the diagnostic protocol PING.

A host can send only enough packets to a Public interface to establish a tunnel connection. If the tunnel is not established before the preset maximum-number-of-packets-allowed counter is reached, then the Switch discards the packets from that host.

Private

Indicates that this interface is attached to the Private network and that it can accept non-tunneled networking protocols such as TCP/IP, FTP, and HTTP. The Private interface also accepts tunneled protocols (such as IPsec, PPTP, L2TP, and L2F) that can be used for secure management access to the Switch.

PPTP Users

User ID

Enter a User ID. The User ID works along with the password as the authentication mechanism when attempting to access your local LAN through the Switch.

Password

Enter a user Password. You should use a minimum of eight characters, including upper and lowercase letters and numbers. Avoid using common names and words found in the dictionary. For example, a password constructed as “AxSessPw4U” is much better than “dog” or “Barney.”



Note: Do not use a password of 16 pound signs (#).

Confirm Password

Reenter the assigned password to verify that you have typed the intended password correctly.

Remote User Static IP Address

Enter an IP Address to be assigned to this user when establishing a PPTP tunnel session. This IP Address is unnecessary if you assign user IP addresses from either a DHCP server or an internal address pool.

Administrator

The Administrator Settings allow you to change the Primary Administrator User ID (UID) and Password. The Primary Administrator User ID and Password combination always has access to all displays and controls. You can also use this UID to access the serial port. There can be only one Primary Administrator.

User ID

Enter an appropriate User ID for the Primary Administrator. This UID has the privileges to modify and view all controls in the Switch.

Password

Enter a user Password for the Primary Administrator.



Note: Do not use a password of 16 pound signs (#).

Confirm Password

Reenter the assigned password for the Primary Administrator to verify that you have typed the intended password correctly.

Date and Time

Date

Enter the current month, day, and year (mm/dd/yyyy).

Time

Enter the current hour, minute, and seconds (hh:mm:ss) as displayed by a 24-hour clock (00:00:00 to 23:59:59).

Automatic Backup

The Automatic Backup screen under the Manage configuration option allows you to configure regular intervals when your system files are saved to designated host backup file servers.

IMPORTANT: You should configure Automatic Backups immediately so that you do not lose system or configuration information in case of problems.

You configure the Automatic Backup servers from the Admin→Automatic Backup display.

Chapter 6

Extranet Access Client Installation

Windows 95

To install the Nortel Networks Extranet Access Client onto a Windows 95 PC, you must copy and load the four files that are on the Nortel Networks Extranet CD in the Client folder onto your hard drive. International software users must go to the Microsoft Web site (<http://support.microsoft.com/support>) to get the MSDUN13 patch.

1. First, install *Msdun12.exe* (Microsoft Dial-up Networking update) by double-clicking on the file name. The installation is self-explanatory. You might need your Windows 95 CD (in case the CD was not copied onto your drive). During the installation you will be asked to reboot your system *twice*.
2. Next, install *Wsockupd.exe* (Winsock update) if you are using the retail version of Windows 95. Reboot your system after installing the update. You now have the Microsoft PPTP tunneling client installed.
3. Complete the IPsec installation by running the *Eac_20d.exe*, (Nortel Networks Extranet Access Client). The installation is self-explanatory. You might need your Windows 95 CD-ROM (in case the CD was not copied onto your drive). When prompted at the end of the installation, reboot your system.
4. If you do not care about operating within the Network Neighborhood, skip this step. To operate within the Network Neighborhood, enable the following items under the Network Control Panel (click the Start menu button, select Settings→Control Panel, then double-click on the Network icon to open the Network Control Panel).

- a. Under the box titled “The following network components are installed,” verify that the Client for Microsoft Networks is listed. If it is not, click on the ADD button, then select CLIENT, then click the ADD button again. Select Microsoft followed by Client for Microsoft Networks and finally the OK button. You will need your Windows 95 CD if it is not already copied onto your system.
- b. Under the same box titled “The following network components are installed,” make sure that NetBEUI is not installed. To verify this, scroll down through the list box and look for any lines that have NetBEUI in them. If there are any lines that include NetBEUI, click on the line, and then click on the Remove button. This forces the Network Neighborhood to use NetBIOS over TCP/IP, which is compatible with the Extranet Switch.
- c. Under the Identity tab, configure the Workgroup to be the same as your company’s internal workgroup. For example, “Nortelnetworks.”
- d. Next under the Identity tab, verify that the Computer Name is different from your PC at work. Otherwise, you would be attempting to log a second unit with the same name onto the network.
- e. If you have made any changes in the Network Control Panel, click OK and then reboot the system.
- f. Double-click on the Extranet Connection Manager icon.
- g. Enter a new Connection Profile Name.
- h. Create a new Dial-up Connection.
- i. Click the Tool button (next to the Dial-up Connection list box), select New, and follow the wizard.
- j. Create a new Extranet Connection.
- k. Click the Tool button (next to the Extranet Connection list box), select New IPsec Connection, and follow the wizard.
- l. Click the Connect button.

Windows 98 and Windows NT 4.0

To install the Nortel Networks Extranet Access Client onto a Windows 98 PC or Windows NT 4.0 workstation, you must copy the Extranet Access Client (*Eac_20d.exe*) that is on the Contivity Extranet Switch CD in the Client folder onto your hard drive.

1. Install *Eac_20d.exe* by double-clicking on the program name. The installation is self-explanatory. When prompted at the end of the installation, reboot your system.

2. If using the Extranet Access Client over a dial-up connection:

Windows NT: Install the Remote Access Service under the Network Control Panel (from the Start menu, select Settings→Control Panel, then double-click on the Network icon to open the Network Control Panel). Select the Services tab and click on Add. Scroll down to select “Remote Access Service” and click on OK.

Windows 98: Under the Network Control Panel (from the Start menu, select Settings→Control Panel), select Add→Adapter→Microsoft→Dial-up Adapter.

3. Under the Protocols tab for Windows NT or under the Network Control Panel for Windows 98, verify that NetBEUI is not installed. If NetBEUI is listed, click on it, then click on the Remove button. This will force the Network Neighborhood to use NetBIOS over TCP/IP, which is compatible with the Switch. Click on the OK button and reboot your system.
4. Double-click on the Extranet Connection Manager icon.
 - a. Enter a new Connection Profile Name.
 - b. Create a new Dial-up Connection.
 - c. Click on the Tool button (next to the Dial-up Connection list box), select New, and follow the wizard.
 - d. Create a new Extranet Connection.
 - e. Click on the Tool button (next to the Extranet Connection list box), select New IPsec Connection, and follow the wizard.
 - f. Click on the Connect button.

Appendix A

Specifications and Compliance

Physical

Depth: 13 in. (33.02 cm)

Width: 9.5 in. (24.13 cm)

Height: 3.5 in. (8.89 cm)

Weight: 10.0 lbs (4.539 kg)

Electrical: 110-127V, 2.0A; 200-240V, 1.25A 50-60Hz

Operating Environment

Temperature: 50°F-95°F (10°C-35°C)

Relative Humidity: 10%-90% non-condensing

Declaration of the Manufacturer or Importer

Nortel Networks hereby certifies that this product is in compliance with EU EMC Directive 89/336/EEC, using standards EN55022 Class B and EN50082-1, and the Low Voltage Directive 73/23/EEC via standard EN60950.

Additional compliance information is in Appendix B, Special Notices.

Safety Compliance

USA: UL 1950, 3rd Edition

Canada: UL certified to CSA C22.2 No. 950-95 for Canada

Europe: TUV to EN60950 2nd Edition, with amendments

International: NEMKO to IEC950 (A1 + A2 + A3)

NEMKO to EN60950 (A1 + A2 + A3)

NEMKO to EMKO-TSE(74-SEC) 207/94

Electromagnetic Compatibility (EMC)

USA: FCC CFR 47 Part 15, Tested Class B

Canada: IC ICES-003 Class B

Europe: EN55022, Class B

EN 61000-3-2, 95

EN50082-1

- IEC 801-2 ESD Susceptibility
- IEC 801-3 Radiated Immunity
- IEC 801-4 Electrical Fast Transient

International: CISPR 22/93, Class B

Japan: VCCI Class B ITE

Harmonics

Europe: EN 61000-3-2, 1995

Japan: MITI Guideline for the Suppression of High Harmonics in Household and General-Use Equipment, 1995 (or meet exception criteria of <75W AC input power).

Appendix B

Special Notices

This appendix provides information on statements of conditions, the Nortel Networks Software License Agreement, and RADIUS attribution.

Statement of Conditions

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Federal Communications Commission (FCC) Compliance Notice: Radio Frequency Notice

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

EN 55 022 Statement

This is to certify that the Nortel Networks Contivity Extranet Switch 1500 Series is shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55 022 Class A (CISPR 22).

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

EC Declaration of Conformity

This product conforms (or these products conform) to the provisions of Council Directive 89/336/EEC and 73/23/EEC. The Declaration of Conformity is available on the Nortel Networks World Wide Web site at www.nortelnetworks.com.

Voluntary Control Council for Interference (VCCI) Statement

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

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

Canadian Department of Communications Radio Interference Regulations

This digital apparatus, the Contivity Extranet Switch 1500 Series, does 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, le Contivity Extranet Switch 1500 Series, 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.

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RADIUS (Remote Authentication Dial-In User Service)

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