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Santa Clara, CA 95054

# **Installing the Contivity Branch Access Management Software Version 7.20**

**NORTEL**  
**NETWORKS™**

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## Preface

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This manual provides instructions for:

- Configuring the Contivity unit for each type of network environment and Internet connection available
- Installing the Contivity Branch Access (Instant Internet) management software and administration utilities on a network and on individual workstations
- Installing third-party applications



**Note:** This version of the Contivity Branch Access management software also refers to the Instant Internet management software.

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## Before you begin

This guide is intended for network managers who are responsible for configuring the Contivity 100 unit or Contivity 400 unit.

Before you use this manual, write down the model number and serial number of your Contivity unit. You need this information when you call Nortel Networks Technical Support. Model and serial numbers are located on the rear panel of your unit.

**Model #:** \_\_\_\_\_

Example: DM1401E79

**Serial #:** \_\_\_\_\_

Example: I4000181CC404F

Next, follow the instructions in this manual to install the Contivity Branch Access (Instant Internet) management software.

## Text conventions

This manual uses the following text conventions:

**bold courier text** Indicates text that you need to enter and command names and options.

Example: Enter `ipconfig /release`

Example: Use the `winiipcfg` command.

separator ( > )

Shows menu paths.

Example: From the Window Start menu, choose Settings > Control Panel.

## Related publications

For more information about using Contivity Branch Access, refer to the following publications:

- *Important Notice for the Contivity Branch Access Version 7.20* (part number 313368-A)

Provides instructions for viewing documentation and installing the Contivity Branch Access (Instant Internet) management software and third-party applications (Adobe\* Acrobat Reader\*, Netscape Communicator\*, and AniTa Terminal Emulator\*).

- *Setting Up the Contivity 100 Unit* (part number 313369-A)

Provides instructions for installing and administering the Contivity 100 unit hardware.

- *Setting Up the Contivity 400 Unit* (part number 313370-A)

Provides instructions for installing and administering the Contivity 400 unit hardware.

- *Reference for the Contivity Branch Access Command Line Interface Version 7.20* (part number 313372-A)

Provides instructions and CLI commands for remotely accessing the Contivity unit and for administering the unit using out-of-band management.

- *Contivity Branch Access Software and Documentation Version 7.20 CD* (Part number 313374-A)

Provides manuals for using and installing the Contivity Branch Access (Instant Internet) management software and third-party applications. The CD contains the following documents:

- *Installing the Contivity Branch Access Management Software Version 7.20*
- *Setting Up the Contivity 100 Unit*
- *Setting Up the Contivity 400 Unit*
- *Using the Contivity Branch Access Management Software Version 7.20*
- *Reference for the Contivity Branch Access Command Line Interface Version 7.20*

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## Acronyms

The following acronyms are used in this manual:

3DES	Triple Data Encryption Standard
BootP	Bootstrap Protocol
CD	Compact Disc
CES	Contivity Extranet Switch
CHAP	Challenge Handshake Authentication Protocol
CLI	Command Line Interface
CSU	Channel Service Unit
CVS	Contivity VPN Switch
DDS	Digital Data Storage
DHCP	Dynamic Host Configuration Protocol
DIP	Dual Inline Pins (Configuration switches)
DMZ	Demilitarized Zone
DNS	Domain Name Service
DSL	Digital Subscriber Lines
DSU	Data Service Unit
ESP	Encapsulating Security Payload
FTP	File Transfer Protocol
HTTP	Hypertext Transfer Protocol
ID	Identification
IP	Internet Protocol
IPsec	IP security
IPX	Internetwork Packet Exchange
ISDN	Integrated Services Digital Network
ISP	Internet service provider
L2	Layer 2
L4	Layer 4
LAN	Local Area Network
LED	Light Emitting Diode
LMI	Local Management Interface

MAC	Media Access Control
MD5	Message Digest 5
NAT	Network Address Translation
NTP	Network Time Protocol
PAP	Password Authentication Protocol
POP	Point-of-Presence
PPP	Point-to-Point Protocol
PPPoE	Point-to-Point Protocol over Ethernet
PVC	Permanent Virtual Connection
RIP	Routing Information Protocol
ROM	Read-Only-Memory
SHA	Secure Hash Algorithm
SMTP	Simple Mail Transfer Protocol
SNMP	Simple Network Management Protocol
SPID	Service Profile Identifier
SYSLOG	System Log
TCP/IP	Transmission Control Protocol/Internet Protocol
URL	Uniform Resource Locator
VPN	Virtual Private Network
WAN	Wide Area Network
xDSL	Digital Subscriber Lines (x is used to imply all types)

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

<b>Technical Solutions Center</b>	<b>Telephone</b>
EMEA	(33) (4) 92-966-968
North America	(800) 4NORTEL or (800) 466-7835
Asia Pacific	(61) (2) 9927-8800
China	(800) 810-5000

An Express Routing Code (ERC) is available for many Nortel Networks products and services. When you use an ERC, your call is routed to a technical support person who specializes in supporting that product or service. To locate an ERC for your product or service, go to the [www.nortelnetworks.com/servsup](http://www.nortelnetworks.com/servsup) URL. Click the Tools menu item and then click Express Routing Codes under the Other heading.

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# Chapter 1

## Introduction

---

This chapter provides information about the types of network environments in which the Contivity unit works as well as the services that the Contivity Branch Access (Instant Internet) management software provides for your network.

### Flexible Business Solution

Contivity Branch Access provides small- and medium-size businesses and business branches with secure and managed Internet access as well as an extensive set of services that matches the needs of today's business activity.

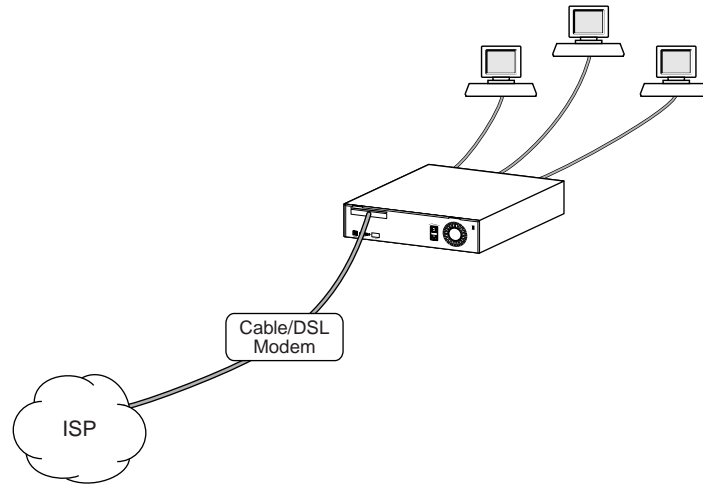
This flexible hardware and software solution simplifies Internet access while significantly lowering costs, and providing higher reliability and easier manageability of networked users.

Contivity Branch Access contains multiple Ethernet\* interfaces for single or redundant external broadband (cable and xDSL) modems as well as single- and dual-analog modems, ISDN connections, and even T1 or E1 connections with CSU/DSU. Any combination of interfaces can serve as primary or automatically switched backup redundant links for 100% uptime service for critical business needs.

Contivity Branch Access also allows for the transparent use of an external Web caching server. Normally, external Web caching servers require that each workstation either be configured for proxy mode or be installed along with an external switching device to make the caching server access transparent. Contivity Branch Access functions as a Layer 4 (L4) switch to transparently accommodate an external Web caching device.

**Figure 1** provides an example of how you can connect your Contivity unit in your network.

**Figure 1** Sample: Connecting the Contivity unit in a network



10231EA

## Advanced routing

Advanced routing features can create multiple subnets per interface and integrate smoothly with the Layer 2 (L2) switch to:

- Add more demilitarized zone (DMZ)-type functions to the existing DMZ Ethernet interface through the 10/100 seven-port Ethernet switch.
- Integrate with Routing Information Protocol (RIP) and RIP2.
- Update the system time with Network Time Protocol (NTP) services.
- Provide Dynamic Host Configuration Protocol (DHCP) services through internal DHCP servers as well as via DHCP relay to central office DHCP servers, Domain Name Service (DNS) proxy caching, and many others.

## High-performance throughput

As a high-performance solution, Contivity Branch Access keeps up with any proposed broadband and routing requirement with an excess of a 200 Mb/s, full-duplex routing throughput capable of saturating Fast Ethernet links which are provide by all Ethernet ports on the unit. Virtual private network (VPN) throughput approaches Ethernet wire speeds with the Contivity 100 unit and substantially exceeds that throughput with the Contivity 400 unit—even while operating Triple Data Encryption Standard (3DES) encryption and either Secure Hash Algorithm (SHA) or Message Digest 5 (MD5) authentication. VPN tunnels through broadband could saturate any existing and proposed links even with full encryption.

## How Contivity Branch Access can function in your network

Before you install the Contivity unit, you should understand your network environment and how the unit functions in the network.

Contivity Branch Access function in your network in three ways. It can:

- **Provide security** – You can isolate your network from the Internet to help ensure network security. You do this for three reasons:
  - To prevent Internet users outside your organization from seeing internal IP addresses.
  - To protect your network from being accessed by intruders or hackers.
  - To permit remote LANs to communicate with your LAN over a virtual private network (VPN) using IP security (IPsec).
- **Control Internet access** – You can restrict your users' access by date and time, and you can restrict access to certain sites or newsgroups.
- **Ease administration** – The Contivity Branch Access (Instant Internet) management software allows you to adopt existing users and groups from your directory services.

## IP networks

For security purposes, on an IP network, you may want to isolate your network from the Internet. You can do this by configuring the network workstations to pass through a router before accessing the Internet. However, using a router to isolate the LAN can be time-consuming to set up and maintain because each LAN user must have a “legal” IP address and be protected from hackers. Contivity Branch Access, on the other hand, makes it easy to isolate your IP network from the Internet by using address translation to translate “illegal” (reserved private) LAN workstation IP addresses into legal IP addresses.

On IP networks with IP workstations, there is essentially no limit to the number of application sessions (instances) that can access the Contivity unit.

### Virtual private networks

You can use IP security (IPsec) to create a virtual private network (VPN). A VPN is a special type of connection that permits remote users or LANs to communicate with another user or LAN over a public network, such as the Internet. When you set up a VPN, you are essentially using a public network as your own private, secure network.

Contivity Branch Access includes a portfolio of VPN options that accept highly variable ISP environments at branch offices while maintaining critical service levels for real business needs. You can install and configure a VPN branch anywhere Internet access is available, through any network or ISP connectivity, with dynamic or fixed IP addressed accounts, and with any alternative connectivity.

## IPX networks

An IPX network is automatically secure because there is no IP traffic on the network. In this type of network, the Contivity Branch Access (Instant Internet) management software provides quick and easy access to the Internet. For IPX networks with IPX workstations, Contivity Branch Access supports up to 250 application sessions. This means that IPX workstations can access the Contivity unit using up to 250 application instances.

## Services Contivity Branch Access provides

[Table 1](#) describes the services that Contivity Branch Access provides for IP networks.

**Table 1** Services Contivity Branch Access provides

Service	Features
<b>Address Translation</b>	The Address Translation service enables the Contivity unit to act like a standard router by routing IP information from one location to another. This service enables the unit to go beyond the simple routing role by translating illegal (reserved private) LAN workstation IP addresses into legal IP addresses. Address Translation supports the IPsec Encapsulating Security Payload (ESP) protocol.
<b>Alarms</b>	System log (SYSLOG) messages and Simple Network Management Protocol (SNMP) traps broadcast alarms to third-party daemons for real-time system updates.
<b>Client Login</b>	Contivity Branch Access provides for user identification with your existing LAN directory to annotate logging and establish access control policies. Contivity Branch Access also provides graphic views of branch throughputs both for Internet access and VPN tunnels.
<b>DHCP Server</b>	Using the Contivity unit as a DHCP server allows you to configure a single option on each workstation, and then configure the unit once. When you install the Contivity Branch Access (Instant Internet) management software, the Install program determines whether or not you are running DHCP on your network. If not, the software configures itself as a DHCP server. If the software does not configure itself as a DHCP server and you want to use this service, you must enable it.
<b>DNS Proxy Server</b>	The Contivity unit acts as a Domain Name Service (DNS) proxy server by translating host names into numerical IP addresses.
<b>IP Routing</b>	The Contivity unit provides access to the Internet through IP routing. It maintains routing tables that help it determine the destination of data packets. This enables non-Windows workstations (Macintosh*, UNIX*, and OS/2*) to access the Internet through the Contivity unit as IP workstations.
<b>Remote Configuration</b>	You can use a Telnet application and CLI commands to configure the Contivity unit from a remote location. Additionally, you can use a terminal emulation application with the CLI commands to configure the unit (out-of-band management). Remote configuration also supports remote recovery, which limits on-site visits by technical support personnel. For details, refer to <i>Reference for the Contivity Branch Access Command Line Interface Version 7.20</i> .
<b>SOCKS Proxy Server</b>	You can configure the Contivity unit as a SOCKS proxy server to handle TCP traffic for SOCKS clients. If you have IP workstations already configured as SOCKS workstations, you can use the unit to connect them to the Internet. For details, refer to <i>Using the Contivity Branch Access Management Software Version 7.20</i> .

**Table 1** Services Contivity Branch Access provides (continued)

<b>Service</b>	<b>Features</b>
<b>VPN Tunnel</b>	You can configure IP security (IPsec) to establish a virtual private network (VPN) tunnel between a Contivity unit and a Contivity VPN Switch (CVS), between a Contivity unit and a BayRS, or between two Contivity Branch Access units. For details, refer to <i>Using the Contivity Branch Access Management Software Version 7.20</i> .
<b>Web Configuration</b>	This feature allows you to access and edit the Contivity Branch Access configuration files using a Web browser.
<b>Web (HTTP) Proxy Server</b>	Enabling the Contivity unit as a Web (HTTP) proxy server provides: <ul style="list-style-type: none"><li>• A single point of contact for LAN workstations</li><li>• A single point for LAN workstations to obtain access to other proxies</li><li>• Web caching (on Contivity 400 units) to the network in addition to individual workstations</li></ul>

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## Chapter 2

# Installation Preparation

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The Contivity Branch Access line of products requires that you obtain Internet access from an Internet service provider (ISP). This chapter provides information to help you prepare for Internet access, make decisions about the type of service you will be using, and select an Internet service provider.

After you select an Internet service provider, follow the instructions in this manual to install the Contivity Branch Access (Instant Internet) management software.

## Selecting an Internet service provider and type of service

There are thousands of ISPs from which to choose. Be sure to choose an ISP that has a local access number so that you do not have to pay long distance charges. You can look in the yellow page directory for local or regional ISPs, or you can call a national ISP and ask if it offers local dial-up access in your area.



**Note:** Only a dial-up connection (analog or ISDN) requires this type of service from an ISP. If you are using a leased line, cable modem, xDSL modem, or external Ethernet device, you do not have to obtain dial-up service.

---

## Installation checklist

Use the checklist in [Table 2](#) to ensure a smooth installation. As you check off each item, record the information in the “[Installation worksheet](#)” on [page 30](#).

**Table 2** Installation checklist

✓	Item	Description
	Type of Account	<p>The Contivity unit can provide access to your entire network through a single Internet Protocol (IP) address for unlimited access to the Internet:</p> <ul style="list-style-type: none"> <li>• If you want to use public IP addresses, request a network account.</li> <li>• If you want to use Network Address Translation (NAT) or you are using your unit as an IPX-to-IP gateway, request a single-user account.</li> </ul> <p>Your ISP will provide you with a user name, password, primary access phone number, optional alternate access phone number, and one or more name server IP addresses.</p>
	Dial-up Protocol: ISDN	<p>If you are using an ISDN dial-up connection in North America, ensure that your ISP supplies true IP service using PPP protocols for ISDN connections.</p> <p>ISDN requires the synchronous PPP protocol with authentication via Password Authentication Protocol (PAP) or Challenge Handshake Authentication Protocol (CHAP).</p> <p>For a 128K connection, the PPP Multilink Protocol (MP) is required. Note that some ISPs use their own proprietary protocols or V.120 rate adaption. The Contivity Branch Access (Instant Internet) management software does not support these proprietary protocols.</p> <p>When you obtain ISDN service, your telephone company may assign one or two Service Profile Identifier (SPID) numbers to your line.</p>

**Table 2** Installation checklist (continued)

✓	Item	Description
	Dial-up Protocol: Analog	<p>If you are using an analog dial-up connection in North America, ensure that your ISP supplies true IP service using PPP protocols for analog connections.</p> <p>Note that some ISPs use their own proprietary protocols. The Contivity Branch Access (Instant Internet) management software does not support these proprietary protocols.</p> <p><b>Note:</b> If you ordered your unit with a dual-analog modem, your ISP must support the PPP Multilink Protocol (MP) over analog lines. If your ISP does not support this protocol, only one modem line is used. In this case, you must change the default hardware setting from two lines to one line after you run the Install program.</p>
	Leased-Line Connection	Leased-line (T1, E1, V.35, or X.21) connections require synchronous PPP or frame relay. The Setup program provides a simple installation process for a single permanent virtual circuit (PVC). To define additional PVCs, you must use the Advanced TCP/IP settings.
	T1 Connection	If you are using a T1 connection, ask your T1 service provider for the framing format, line encoding, data type, line build-out, rate multiplier, and line speed.
	E1 Connection	If you are using an E1 connection, ask your E1 service provider for the framing format, line encoding, and line speed.
	Connect-Time Charges	Some ISPs and local telephone companies charge a flat fee for unlimited connect time, and some charge fees according to the actual amount of time your Contivity unit is dialed in and connected. Be sure that you understand your ISP's and local telephone company's policies.
	PPPoE	If you are connecting using PPPoE, you must obtain a user name and password from your ISP.
	Installation Information	You must provide the ISP's telephone number and your user name and password for access.
	Application Information	<p>Your ISP usually offers some additional services, which you might consider:</p> <ul style="list-style-type: none"> <li>• Access to a NEWS server</li> <li>• Access to a Post Office Protocol (POP) mail server (and a Simple Mail Transfer protocol (SMTP) relay)</li> <li>• Individual POP mail user accounts for each user</li> </ul> <p><b>NOTE:</b> A single-user account from an ISP typically comes with only one POP e-mail account. You can arrange for additional e-mail accounts with your ISP.</p>

## Installation worksheet

This worksheet helps you prepare for software installation. Be sure to fill this worksheet out prior to installing the Contivity Branch Access (Instant Internet) management software.

### *ISP information*

This information is available from your ISP.

**ISP Name Server:** \_\_\_\_\_

**ISP Name Server (optional):** \_\_\_\_\_

*The name server (or domain name server (DNS)) is the numeric IP address of your ISP's name server(s). It follows the format nnn.nnn.nnn.nnn where nnn is a number between 0 and 255.*

### *Telephone company information*

#### **Dial-up Connection Information**

*The information requested in this section can be found in the information that your telephone company provided to you.*

**ISP User Name:** \_\_\_\_\_

*This is the user name you enter to log on to your ISP account.*

**ISP Password:** \_\_\_\_\_

*This is the password you enter to log on to your ISP account. This password may not start with a “\”.*

**ISP Connection Phone Number:** \_\_\_\_\_

*This number is the primary phone number you dial to access your ISP account.*

**ISP Connection Alternate Phone Number:** \_\_\_\_\_

*This number is an alternate or backup phone number you dial to access your ISP account if the primary phone number is not working. This phone number is optional. Not every ISP supplies an alternate phone number.*

### **ISDN Connection Information**

*This information is available from your ISDN service provider. If you are not using an ISDN connection, you do not need to provide this information.*

**ISDN SPID Number:** \_\_\_\_\_

**ISDN SPID Number:** \_\_\_\_\_

*SPID numbers are provided by your telephone company when you install an ISDN line. Usually, two SPID numbers are provided, but sometimes one and sometimes even none is provided. Only those using an ISDN connection need to provide this information.*

**ISDN Phone Number required for answer (optional):** \_\_\_\_\_

**ISDN Phone Number required for answer (optional):** \_\_\_\_\_

### **T1 Connection Information**

*This information is available from your T1 service provider. If you are not using a T1 connection, you do not need to provide this information.*

**Framing Format (ESF or D4):** \_\_\_\_\_

**Line Encoding (B8ZS or AMI):** \_\_\_\_\_

**Data Type (Normal or Inverted):** \_\_\_\_\_

**Line Build-Out (in dB):** \_\_\_\_\_

**Rate Multiplier (64K or 56K):** \_\_\_\_\_

**Line Speed (in Kb/s):** \_\_\_\_\_

**Is ISDN dial backup available if requested:** \_\_\_\_\_

**E1 Connection Information**

*This information is available from your E1 service provider. If you are not using an E1 connection, you do not need to provide this information.*

**Framing Format** (CCS or CAS): \_\_\_\_\_

**Line Encoding** (HDB3 or AMI): \_\_\_\_\_

**Line Speed** (in Kb/s): \_\_\_\_\_

**Is ISDN dial-up backup available if requested:** \_\_\_\_\_

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## Chapter 3

# Understanding the installation environment

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When you install the Contivity Branch Access (Instant Internet) management software, the Install program samples the traffic on your network to determine how to configure itself. However, the installation process also requires some manual configuration when you use IP. Before you begin the installation process, there are some concepts and information to understand and some decisions to make if you are using IP. If you are using the IPX network protocol, you do not need to perform any manual configuration. Refer to [“IPX workstations” on page 38](#).

The information in this chapter and the installation flowchart in [Figure 2 on page 41](#) will help you understand where to begin.

## Understanding your local network environment

To use all or some of the options available with the Contivity Branch Access (Instant Internet) management software you must understand how to set up your local network environment. Use the following guidelines to determine which installation procedures to follow.

### Understanding IP addressing

An IP (Internet Protocol) address is a numeric identifier for a workstation or device on a TCP/IP (Transmission Control Protocol/Internet Protocol) network. IP addresses enable workstations to talk to each other. IP addresses follow the format nnn.nnn.nnn.nnn where nnn is a number between 0 and 255, for example, 134.177.3.28 or 10.1.1.1. Both servers and workstations on a network must have IP addresses.

There are two types of IP addresses:

- **Dynamic** – A dynamic IP address changes. A dynamic IP address is assigned to a workstation by an IP address server as the workstation needs it. Usually there is a particular range (or scope) of IP addresses that your network uses. With dynamic IP addressing, a workstation can have a different IP address each time it connects to the network. Other devices need to know the workstations's IP address so that they can communicate with it. The IP address server manages the assignment of IP addresses to the workstations.
- **Static** – A static (or fixed) IP address does not change. It is assigned to a workstation permanently. The workstation has the same IP address every time it connects to the network and is known to other devices on the network by that IP address. Because the Contivity unit on your network is also the gateway to the Internet, it must have a LAN-side static IP address.

## Understanding DHCP servers

The IP address server that manages the dynamic IP addresses is called a DHCP (Dynamic Host Configuration Protocol) server. You can set up the Contivity unit to be your network's DHCP server and let it do the work of assigning IP addresses to the workstations on your network as needed. This is the recommended configuration.

When you set up the Contivity unit as a DHCP server, configure each of your workstations to get their new IP addresses assigned by the Contivity Branch Access (Instant Internet) management software. Refer to [“Preparing a network with no TCP/IP and no BootP or DHCP server” on page 95.](#)

If you already have a DHCP server, you must configure the DHCP server to use the Contivity unit as the gateway and DNS proxy for the workstations. Refer to [“Preparing a TCP/IP network with an existing BootP or DHCP server” on page 90.](#)

## Understanding gateways and DNS proxies

When you access Internet Web sites through the Contivity unit, the unit functions as both a gateway to the Internet and as a DNS proxy:

- **Gateway** – A gateway is a system that links different networks and enables them to communicate with each other. The Contivity unit is the gateway that links your company's network to the Internet. Depending on your configuration, you may need to configure your workstations to use the Contivity unit as their gateway to the Internet.
- **DNS Proxy** – A DNS (Domain Name Service) proxy translates human-readable domain names into computer-readable IP addresses. For example, the domain name [www.nortelnetworks.com](http://www.nortelnetworks.com) for the Nortel Networks Web site might translate to the IP address 134.177.3.28. After the Contivity Branch Access (Instant Internet) management software translates a domain name into an IP address, the workstations on your network can communicate with the Web site associated with that IP address. Depending on your configuration, you may need to configure each of your workstations to use the Contivity unit as its DNS proxy.

## Understanding static IP addresses

If you are already using static IP addresses for your network workstations, you have two options. You can:

- Change from static IP addresses to dynamic IP addresses by setting up the Contivity unit as a DHCP server. This is the recommended configuration. If you do this, you must configure each of your workstations to allow the Contivity unit to assign its IP address.
- Continue to use static IP addresses. If you do this, you must also assign a static IP address to the Contivity unit and configure each of your workstations to use the unit as the gateway to the Internet and as the Internet DNS proxy. Refer to [“Preparing a TCP/IP network with static IP addresses \(no BootP or DHCP server\)”](#) on page 96.

## Understanding how Contivity Branch Access works with an existing IP address server

Only one IP address server is allowed on a network—either your existing BootP or DHCP server or the Contivity unit. If you already have a BootP or DHCP server or do not want to use the Contivity unit as a DHCP server, you must assign a static IP address to the unit and then be sure the DHCP option for obtaining an IP address is automatically enabled for your workstation. See [“Setting a workstation to get its IP address from the Contivity unit or your existing DHCP server” on page 101](#). You have two options when assigning a static IP address to the unit. You can:

- Use the Contivity unit’s MAC address to reserve a static IP address for the unit before you begin the installation. For more information, see [“Assigning a static IP address to the Contivity unit using a BootP or DHCP server” on page 91](#).
- Allow your existing DHCP server to assign a dynamic IP address to the Contivity unit during the installation and then turn that dynamic IP address into a static IP address.

Either method accomplishes the same task of assigning a static IP address to the Contivity unit.

After you assign a static IP address to the Contivity unit, you must do two things on your DHCP server:

- 1 Exclude that static IP address from the range (or scope) of IP addresses on the DHCP server.
- 2 Configure your DHCP server to use the Contivity unit as the gateway and DNS proxy. Your DHCP server then points the workstations to use the unit as their gateway and DNS proxy server, see [“Configuring your DHCP server to use the Contivity unit as the gateway and DNS proxy” on page 92](#).

For details on setting up your network to use a DHCP server other than the Contivity unit, refer to [“Preparing a TCP/IP network with an existing BootP or DHCP server” on page 90](#).

## Understanding the workstation environment

You can install the Contivity Branch Access (Instant Internet) management software in a Microsoft\* Windows\* 95, Windows 98, Windows Me, Windows NT\*, or Windows 2000 environment. To use all of the functionality available with the Contivity unit, you must understand the configuration of each of the workstations that will be using the unit. Use the following guidelines to determine what installation procedures you should follow for installing the Contivity Branch Access (Instant Internet) management software on your workstations.

### IP workstations

Depending on your configuration, you may need to prepare the IP workstations for the Contivity Branch Access (Instant Internet) management software. In preparing the workstations, you will do one of the following:

- If you are using static IP addresses and do not want to use the Contivity unit as a DHCP server, you must configure the workstations to use the unit as their gateway and DNS proxy server (see [“Configuring a workstation to use the Contivity unit as the gateway and DNS proxy server”](#) on page 105).
- If you are using the Contivity unit as a DHCP server ([page 101](#)), you might need to force the workstations to accept the new network configuration information that the DHCP server provides (see [“Setting a workstation to get new information from the Contivity unit or your existing DHCP server”](#) on [page 103](#)). This is the recommended configuration.
- If your network is configured for printer and file sharing only and if you have not set up any type of networking scheme, you must configure the workstations to obtain an IP address from the Contivity unit. Using a DHCP server is normally the default setting for the Windows 95, Windows 98, Windows Me, and Windows 2000 operating systems.
- If you are using an existing DHCP server, you must configure the workstations to accept the new network configuration information that the DHCP server provides ([page 101](#)).

You can prepare the workstations before you begin configuring the Contivity unit or you can prepare them at the same time that you install the Contivity Branch Access (Instant Internet) workstation software. For details on preparing the workstations, refer to [“Preparing a workstation with TCP/IP”](#) on [page 97](#).

## IPX workstations

If you run the Instant Internet software installation with no command line options, The Contivity Branch Access (Instant Internet) management software automatically installs the software for an IPX network under either of the following conditions:

- The IPX version of the workstation software has previously been installed.
- TCP/IP is not installed.

If TCP/IP is installed and the IPX version of the Contivity Branch Access (Instant Internet) workstation software has not previously been installed, the Install program installs the software for a TCP/IP network.



**Note:** If the Install program detects both TCP/IP and IPX on the workstation, you are given an opportunity to choose which installation to perform on the workstation. You can force the type of installation by selecting Start > Run and, at the Run command line, typing the install command with an option — either `install /ip` for a TCP/IP installation or `install /ipx` for an IPX installation.

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## Chapter 4

# Installing the Contivity Branch Access management software

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This chapter describes how to install the Contivity Branch Access (Instant Internet) management software and configure the Contivity unit.

Before you install the Contivity Branch Access (Instant Internet) management software and configure the Contivity unit, you should:

- Review the [“Installation checklist” on page 28](#) and complete the [“Installation worksheet” on page 30](#).
- Read [Chapter 3, “Understanding the installation environment,” on page 33](#) to determine what additional preparation is necessary for installing the Contivity unit.
- Install the Contivity Branch Access hardware. Depending on your hardware, refer to one of the following manuals on the *Contivity Branch Access Software and Documentation Version 7.20* CD shipped with your Contivity unit:
  - *Setting Up the Contivity 100 Unit* (part number 313369-A)
  - *Setting Up the Contivity 400 Unit* (part number 313370-A)



**Caution:** Before you plug your Contivity unit into a power source, be sure that the power voltage selector switch setting on the unit matches the voltage of your power source. For details, refer to the hardware manual for your unit.



**Caution:** Before you start the Contivity Branch Access Install program, make sure that LED 2 on the front panel of the unit is glowing amber. **DO NOT PROCEED** if LED 2 is not glowing amber.

- If necessary, make sure that your Ethernet device (for example, a router, a cable modem, or xDSL modem) is plugged in and has an active connection to your ISP.
- Prepare your network and workstations for installation. For details, refer to [Appendix A, “Network support,”](#) on page 89 and [Appendix B, “Workstation support,”](#) on page 97.

Installing the Contivity Branch Access (Instant Internet) management software is a two-part process. First, configure the Contivity unit. Second, install the software. Installing the workstation software on each workstation allows you to identify the user and control access or log activity for that user. Installing the workstation software on IP workstations is optional; however, you *must* install the workstation software on IPX workstations.

- **Configure the Contivity unit:**
  - Configure the unit according to your network environment.
  - Configure your connection. This process is different for each connection type available. Select the installation procedure from the list of common connection environments.
- **Install the software:**
  - Copy the Contivity Branch Access (Instant Internet) management software to the network.
  - Install the Contivity Branch Access (Instant Internet) workstation software on each workstation. You can also install the Contivity Branch Access (Instant Internet) management software on each workstation. For IP networks, you must also configure each workstation to either obtain an IP address from a DHCP server or to use the Contivity unit as a gateway and DNS proxy. For details, refer to [Appendix B, “Workstation support,”](#) on page 97.

Use the installation flowchart ([Figure 2](#)) to determine your network environment and then proceed with the installation. You can install and configure the Contivity unit from any workstation that has access to your network.

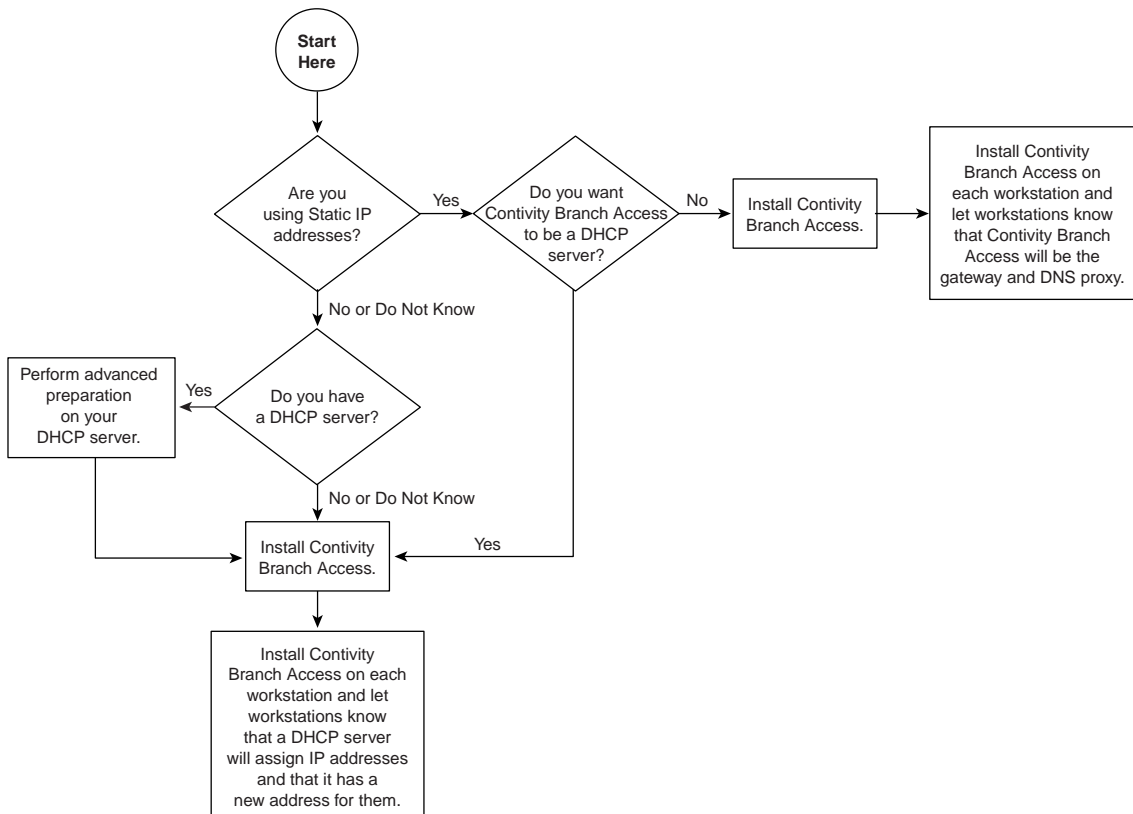
## Installation flowchart

Use the installation decision flowchart in [Figure 2](#) to identify your network environment and to decide which installation procedures to follow. If you do not know the answer to some of the questions, you can install the Contivity Branch Access (Instant Internet) management software and follow the prompts.



**Note:** If you are installing the software in an IPX environment, install the Contivity Branch Access (Instant Internet) management software and then install the software on each workstation.

**Figure 2** Contivity Branch Access TCP/IP installation decision flowchart



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## Configuring the Contivity unit

The first step when installing a Contivity unit is to configure the unit for your network. Before you begin, if you have an existing DHCP server and want to continue using it, you must set up your server according to the information in [“Preparing a TCP/IP network with an existing BootP or DHCP server”](#) on page 90.



**Note:** Read through these installation procedures one time before you attempt to install and configure the Contivity unit. Knowing what is expected during the installation helps the entire process go more smoothly.

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If you need help entering information in a dialog box, press [F1] for online Help.

## Configuring the Contivity unit for your network

Before you start the Install program, make sure that LED 2 on the front panel of the unit is glowing amber.



**Caution: DO NOT PROCEED** if LED 2 is not glowing amber. For more information on interpreting LED indicators, refer to the hardware guide for your Contivity unit.

---

If you are connecting an Ethernet device (for example, a router, a cable modem, or xDSL modem) ensure that the device is plugged in and has an active connection to your ISP.

To configure the Contivity unit for your network using a workstation running Windows 95, Windows 98, Windows Me, Windows NT, or Windows 2000:

- 1 Log on to your network from the workstation where you want to administer the Contivity unit.



**Note:** When using a workstation running Windows NT, you must be logged on with administrator rights to configure the Contivity unit for your network.

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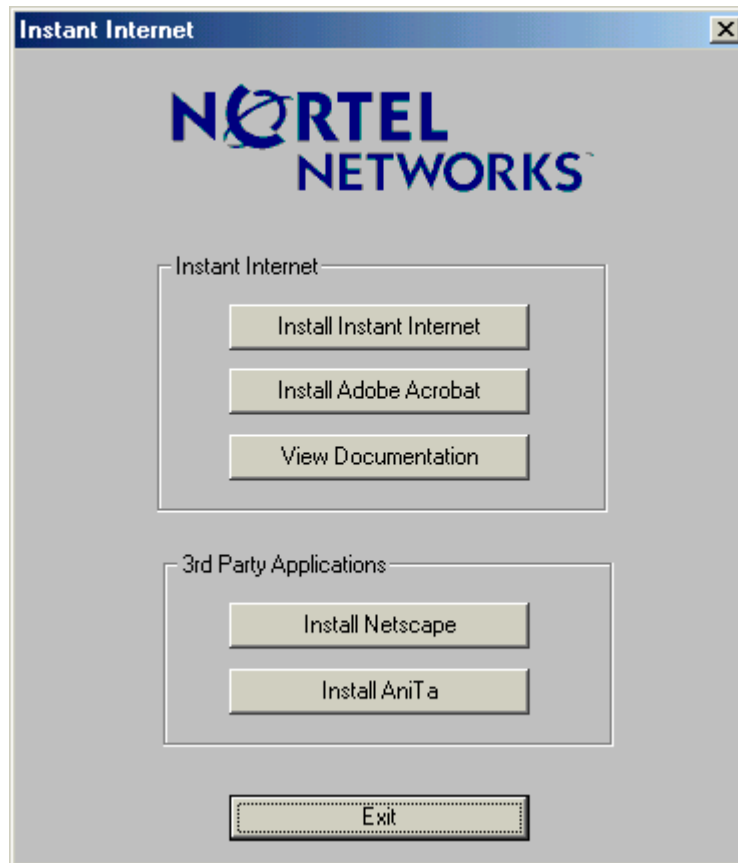
- 2 Insert the *Contivity Branch Access Software and Documentation Version 7.20* CD into the CD-ROM drive.

The Instant Internet installation dialog box opens (Figure 3).



**Note:** This procedure assumes that the Windows AutoPlay feature is enabled for your CD-ROM drive. If this feature is not enabled, or if you are using a Windows 3.1 or Windows for Workgroups workstation, navigate to the **Instinet** folder on the CD and select the **install.exe** file. Skip to step 4.

**Figure 3** Instant Internet installation dialog box



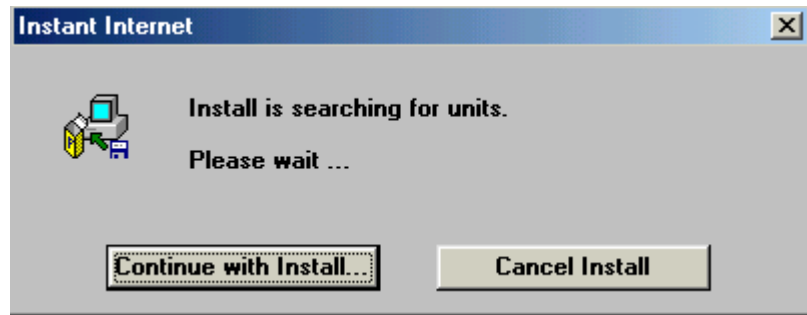
3 Click Install Instant Internet.

The Install program samples the traffic on your network to determine how to configure itself.



**Caution:** If the “Install is searching for units. Please wait...” message is displayed, the Contivity unit did not initialize properly and the installation will not proceed as described in this manual. **DO NOT continue with the installation.**

**Figure 4** Please wait message



To cancel the installation:

- a Click Cancel Install.
- b Turn the unit off and back on.
- c **Wait for LED 2 to glow amber.**
- d Reboot your workstation.
- e Begin the installation again.

For additional information, see [Appendix C, “Troubleshooting and Error messages,”](#) on page 111.

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4 The next steps vary depending on your individual configuration. Read the following options to determine your next step:

- If the Enter Unit’s IP Address dialog box opens, the Install program has determined that your network environment is running TCP/IP and you have assigned static IP addresses for each workstation on the network. Proceed with step 5.

- If the Enter IP Information for Interface dialog box opens, the Install program has determined that your network environment is running TCP/IP, that a DHCP server exists, and that the DHCP server has assigned an IP address to the Contivity unit. Skip to step 7.
- If the Registration Information dialog box opens (Figure 5), the Install program has determined that your network environment is either running IPX or is running TCP/IP and you are using dynamic addressing. Skip to step 8.

- 5** In the Enter Unit's IP Address dialog box, complete the LAN-side static IP address for the Contivity unit and then click OK.

The Install program selects a partial IP address that is available on your subnet. If you change this IP address, be sure to select one that is on your subnet.

A DHCP server confirmation dialog box opens.



**Note:** When you enter the IP address and subnet mask for your Contivity unit, be sure that the unit is on the same network and subnet as your workstation or the Install program will not be able to connect to your unit.

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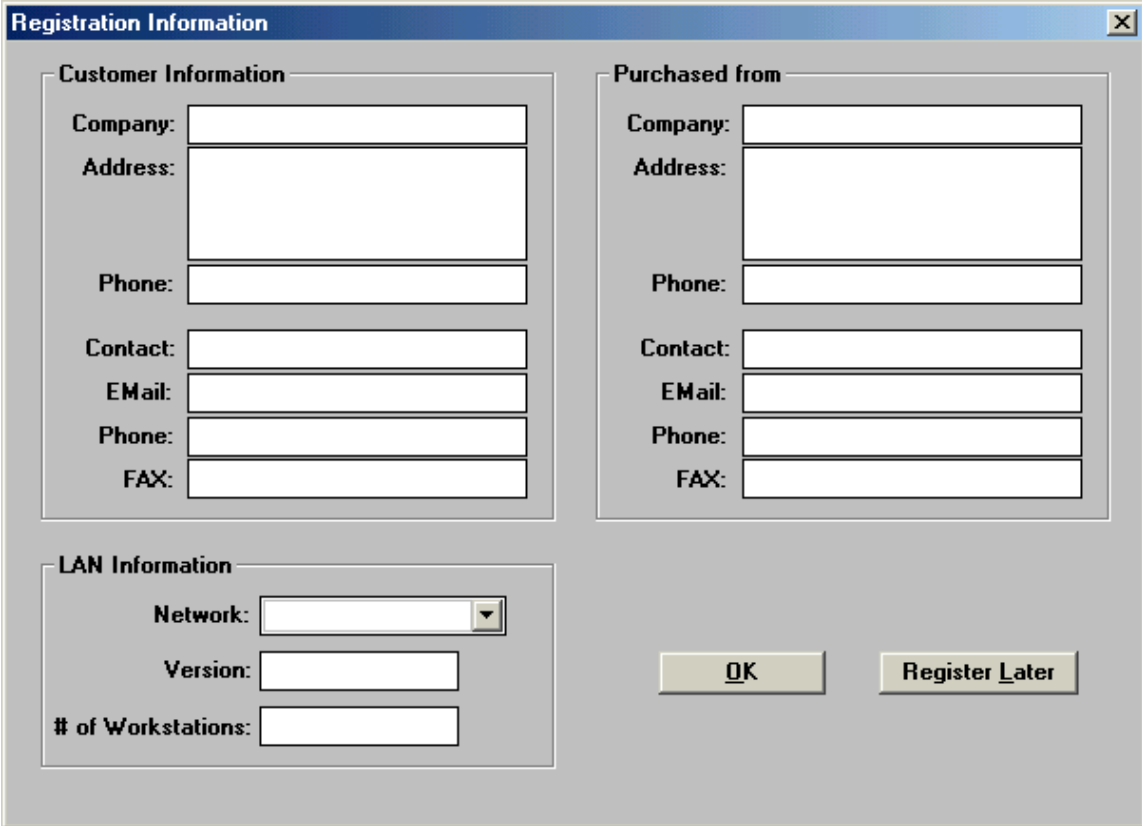
- 6** Select one of the following options:
- To have the Contivity unit assign a dynamic IP address to each workstation, click Yes.
  - To be able to assign static IP addresses for each workstation on your network, including the Contivity unit, click No.

The Registration Information dialog box opens (Figure 5). Skip to Step 8.

For more information about how the Contivity unit functions as a DHCP server, refer to *Using the Contivity Branch Access Management Software Version 7.20*.

- 7** In the Enter IP Information for interface dialog box, do the following:
- a Confirm the IP address that is displayed.
  - b Click the Subnet Mask box to display and confirm the subnet mask.
  - c Click OK.

The Registration Information dialog box opens (Figure 5).

**Figure 5** Registration Information dialog box

The image shows a Windows-style dialog box titled "Registration Information". It is divided into three main sections: "Customer Information", "Purchased from", and "LAN Information".

- Customer Information:** Contains seven text input fields labeled "Company:", "Address:", "Phone:", "Contact:", "EMail:", "Phone:", and "FAX:".
- Purchased from:** Contains six text input fields labeled "Company:", "Address:", "Phone:", "Contact:", "EMail:", and "FAX:".
- LAN Information:** Contains a "Network:" dropdown menu, a "Version:" text input field, and a "# of Workstations:" text input field.

At the bottom right of the dialog box, there are two buttons: "OK" and "Register Later".

**8** Complete the registration information.

When you configure the Contivity unit, the Install program requests registration information and automatically sends this data to Nortel Networks the first time you use the unit to connect to the Internet. As a registered user, you receive the latest product news and information on upgrades by e-mail from Nortel Networks. Be sure to fill out your registration information completely.

You can change your registration information at any time. For more information, refer to *Using the Contivity Branch Access Management Software Version 7.20*.

**9** Click OK.

The Enter Name and Password dialog box opens.

- 10** In the Unit Name box, type a name that identifies the Contivity unit.

You can accept the default name or enter a name that you choose. Nortel Networks recommends that you enter a name that helps you easily identify the Contivity unit. Enter up to 13 letters, digits, and symbols, but no spaces.

If you have more than one Contivity unit, it is important that you assign a unique name to each unit.

- 11** In the Setup Password box, type a password.

A password protects the Contivity unit against unauthorized users. The password is case-sensitive, therefore *password* is not the same as *PASSWORD*, or *Password*.

There are two levels of passwords for a Contivity unit: user and privileged. The password that you enter here is the privileged password and is required to configure the unit. The user password provides a limited display mode; you cannot modify configuration parameters or view the configuration file. You can use Setup to create a user password. For details, see *Using the Contivity Branch Access Management Software Version 7.20*.

If you forget your password and need to configure the unit, you can do so by resetting the Configuration switches on the back of the unit. For details, refer to the hardware manual for your Contivity unit.



**Caution:** You can leave the Password box blank, but doing so allows anyone with access to the Setup or Admin program, a Telnet application, or a Web browser (if you choose to enable Web Configuration), to configure the Contivity unit.

---

- 12** Click OK.

The Setup Password confirmation dialog box opens.

- 13** Retype the password you entered and then click OK.

The type of connection you have determines the next dialog box that opens and the next steps vary.

- 14** Continue with [“Configuring your unit for common connection environments”](#) next.

## Configuring your unit for common connection environments

This section provides some examples of common connection environments and how the Contivity unit functions within those environments. Each connection type has unique configuration settings. Be sure to have your completed “Installation worksheet” ([page 30](#)) on hand.

The Install program identifies your connection type and displays the appropriate configuration prompts. If your Contivity unit has an optional WAN connection (single or dual analog modem, ISDN, T1, E1 or V.35/X.21), the software automatically assumes that the optional connection will be used for your Internet connection. Follow the installation procedure for the appropriate WAN connection, and then use the Setup program to configure your Ethernet ports. For instructions, refer to *Using the Contivity Branch Access Management Software Version 7.20*.

Use the information in [Table 3](#) to determine how to configure your unit and complete the installation.

**Table 3** Common connection environments

Connection type	Description	Procedure
Dial-up	Configure a connection for the built-in modem (single- or dual-analog) that is shipped with the unit.	<a href="#">“Configuring your unit for a dial-up or ISDN connection” on page 49</a>
ISDN	Configure an ISDN connection.	<a href="#">“Configuring your unit for a dial-up or ISDN connection” on page 49</a>
Leased-line	Configure a leased-line connection.	<a href="#">“Configuring your Contivity 400 unit for a leased-line connection” on page 55</a>
Ethernet device	Configure an external high-speed Ethernet device (for example, a router, cable modem, or xDSL modem) that uses an external static IP device, external WAN-side DHCP server, or external WAN-side PPPoE connection. <b>Note:</b> The configuration for dual- or triple-LAN interface units uses additional hardware that is not provided with the Contivity unit.	<a href="#">“Configuring your unit for an Ethernetconnection” on page 61</a>

## Configuring your unit for a dial-up or ISDN connection

Before you begin this installation procedure, obtain Internet service and the following information from your ISP:

- The ISP's connection phone number
- The ISP's DNS IP address(es)
- Your user name and password.



**Note:** If your unit has a dual-analog modem, your ISP must support the PPP Multilink Protocol (MP). If your ISP does not support the PPP Multilink Protocol (MP), you must use the Setup program and change the number of lines from two to one. For details, refer to *Using the Contivity Branch Access Management Software Version 7.20*.

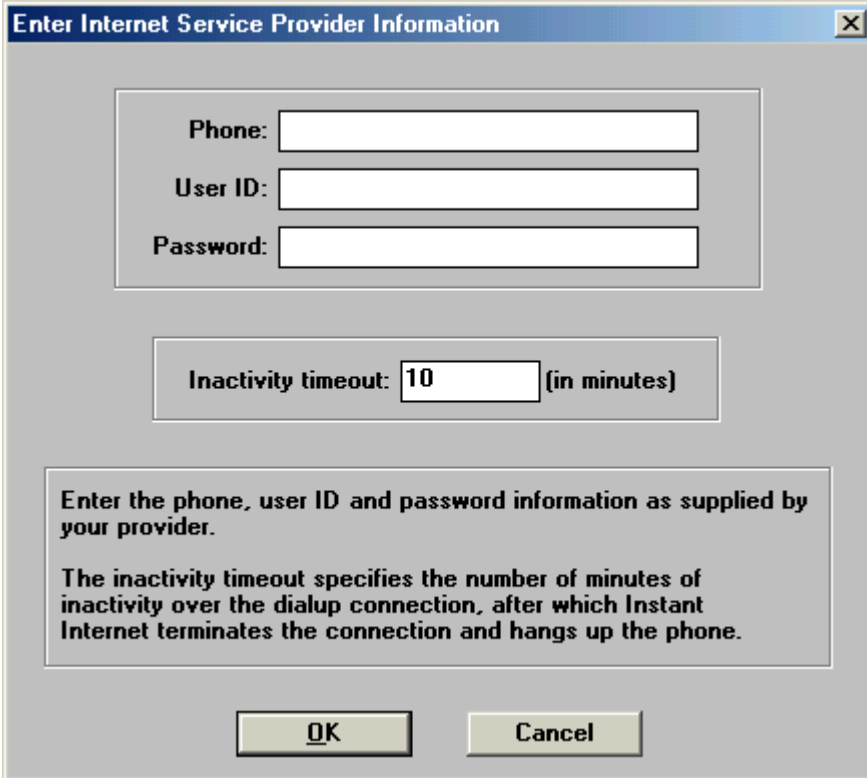
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If you are using ISDN, obtain ISDN service and the following information from your telephone company (Telco):

- The Telco's switch type
- The Telco's SPID number(s) (if required)
- The Telco's connection speed

When you configure the Contivity unit for a dial-up or ISDN connection, it uses certain default settings. You can change the default dial-up modem settings (backup connection phone number, bandwidth on demand, inactivity timeout, modem speaker) or ISDN settings (backup connection phone number, bandwidth on demand, inactivity timeout, inbound voice priority, incoming call settings) after you finish the installation. For details, refer to *Using the Contivity Branch Access Management Software Version 7.20*.

[Figure 6](#) shows the initial dialog box for configuring a dial-up or ISDN connection.

**Figure 6** Enter Internet Service Provider Information dialog box

**Enter Internet Service Provider Information**

Phone:

User ID:

Password:

Inactivity timeout:  (in minutes)

Enter the phone, user ID and password information as supplied by your provider.

The inactivity timeout specifies the number of minutes of inactivity over the dialup connection, after which Instant Internet terminates the connection and hangs up the phone.

To configure the Contivity unit for a dial-up or ISDN connection:

- 1 Complete the following information about your connection to the Internet:
  - **Phone** – Type the phone number that you use to connect to the Internet. If you need to dial a prefix, for example, to get an outside line, enter that prefix followed by a comma.

If your second channel (second phone line on dual analog or B channel on ISDN) has a different phone number, you can enter a secondary phone number. Use a slash (/) to separate the two numbers. If the exchange (first three digits) is the same for both numbers, you can enter only the last four digits of the secondary phone number (for example, 555-1212/555-1213 or 555-1212/1213).



**Note:** You can also designate a backup or alternate phone number to use when the primary phone number is busy or fails during a connection. For details, refer to *Using the Contivity Branch Access Management Software Version 7.20*.

---

- **User ID** – Type the user ID you use to connect to the Internet.
  - **Password** – Type the password you use to connect to the Internet. This password may not begin with a “\”.
- 2** Type the inactivity timeout (in minutes) or use the default of 10 minutes.

The inactivity timeout saves connect-time charges during times when no one is requesting Internet access. It specifies the number of minutes of inactivity over the dial-up connection after which the Contivity unit terminates the connection. When you need access again, the Contivity unit automatically reestablishes a connection in a few seconds.

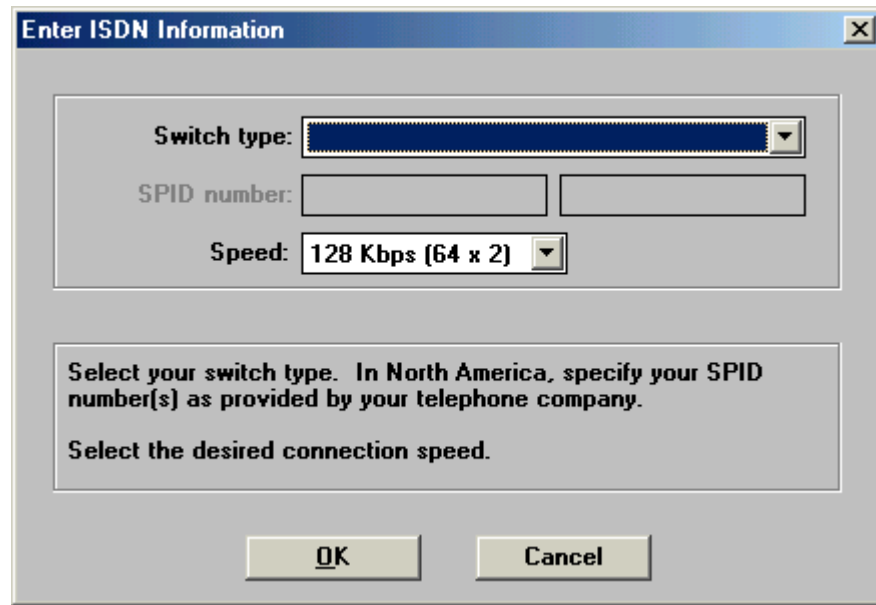
If you enter a value of 0, the inactivity timer is disabled and the Contivity unit maintains the connection regardless of whether or not there is Internet activity. However, if the line becomes unavailable for any reason other than inactivity, a connection must be reestablished.

You can also set the inactivity timeout in seconds rather than minutes. For details, refer to *Using the Contivity Branch Access Management Software Version 7.20*.

- 3** Click OK.
- 4** The next steps vary depending on your individual configuration. Select the option that matches your configuration:
- If you are using the ISDN version, the Enter ISDN Information dialog box opens (Figure 7). Proceed with step 5.
  - If you are installing the dial-up version, skip to step 9.

- 5 Select the switch type for the ISDN connection from the Switch Type list.

**Figure 7** Enter ISDN Information dialog box



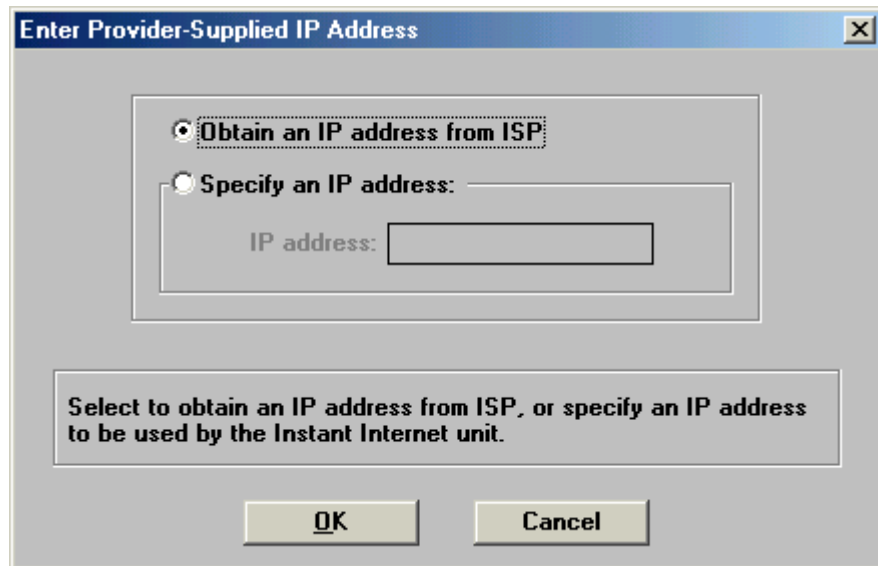
Depending on the switch type you choose, one, both, or none of the SPID number boxes become active.

- 6 If the SPID number box is active, enter the SPID number(s) provided by your local telephone company. Otherwise, skip this step.
- 7 Select the connection speed from the Speed list.

Multilink PPP is required to support 112K or 128K multilink capabilities. Your ISP might not offer multilink PPP; if not, the connection is made using one channel (56K or 64K). Synchronous PPP is required for 56K or 64K.

- 8 Click OK.

The Enter Provider Supplied IP Address dialog box displays.

**Figure 8** Enter Provider-Supplied IP Address dialog box

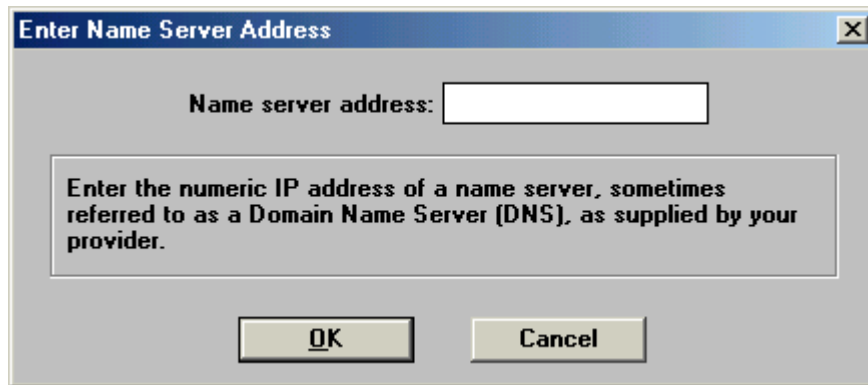
**9** Do one of the following:

- If your Internet Service Provider assigns dynamic IP addresses, select Obtain an IP address from ISP.
- If your Internet Service Provider assigns you a static IP address, select Specify an IP address. In the IP address dialog box, enter the static IP address that your service provider assigned to you.

**10** Click OK.

**11** The next steps vary depending on your individual configuration. Select the option that matches your configuration:

- If the Enter Name Server Address dialog box (Figure 9) opens, proceed with step 12.
- If the Enter Name Server Address dialog box does not open, skip to step 14.

**Figure 9** Enter Name Server Address dialog box

- 12** Enter the IP Address of the DNS server provided by your ISP and then click OK.

If your ISP provided more than one DNS server, enter the first one.

A Name Server message box opens prompting you to enter another DNS server. It is always a good idea to enter more than one DNS server. If one of them is unavailable, the other is used.

- 13** Select whether or not to enter another DNS server.
- To enter another DNS server, click Yes and then repeat step [12](#) until you enter all the DNS servers.
  - After you enter all the DNS servers or to continue without entering another DNS server, click No.

The Instant Internet is Configured dialog box opens.



**Note:** If your ISP does not support the PPP Multilink Protocol (MP) and you have a dual-analog unit, you must use the Setup program and change the number of lines from two to one. For details, refer to *Using the Contivity Branch Access Management Software Version 7.20*.

---

- 14** The remaining steps are the same regardless of your individual configuration. Continue with the procedure “[Finishing the connection configuration](#)” on [page 69](#).

## Configuring your Contivity 400 unit for a leased-line connection

There are three possible leased-line connections available for the Contivity 400 unit.

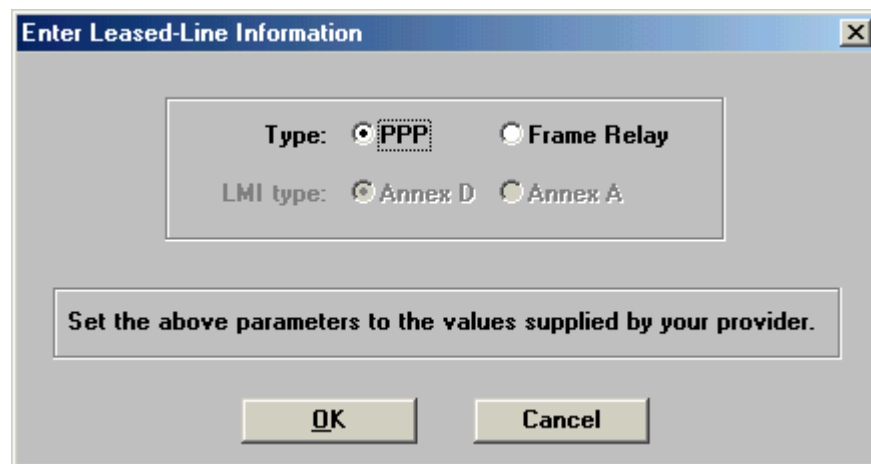
- T1 with ISDN backup
- E1 with ISDN backup
- V.35/X.21 with ISDN backup

When you configure the Contivity 400 unit for a leased-line connection, the ISDN backup connection uses certain default settings. You can change these default settings and configure other ISDN settings (backup connection phone number, bandwidth on demand, inactivity timeout, inbound voice priority, incoming call settings) after you finish the installation procedure. For details, refer to *Using the Contivity Branch Access Management Software Version 7.20*.

To configure the Contivity 400 unit for a leased-line connection:

The Enter Leased Line Information dialog box opens.

**Figure 10** Enter Leased-Line Information dialog box



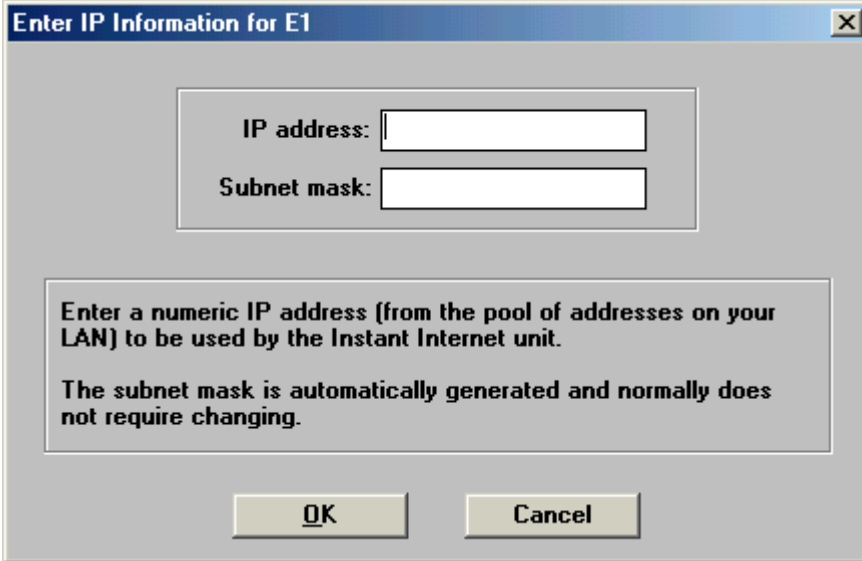
- 1 Select PPP or Frame Relay.

If you select Frame Relay, you must select an LMI type as Annex A or Annex D. The default is Annex D.

- 2 Click OK.

The Enter Information for Interface dialog box opens (Figure 11).

**Figure 11** Enter Information for Interface dialog box

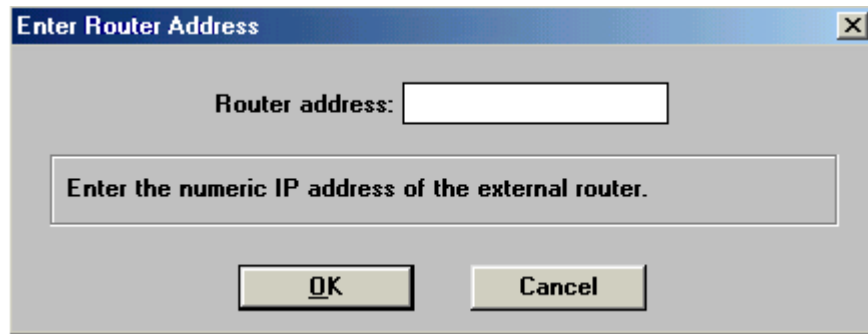


The dialog box is titled "Enter IP Information for E1". It features two input fields: "IP address:" and "Subnet mask:". Below these fields is a text box containing the following instructions: "Enter a numeric IP address (from the pool of addresses on your LAN) to be used by the Instant Internet unit. The subnet mask is automatically generated and normally does not require changing." At the bottom of the dialog are two buttons: "OK" and "Cancel".

- 3 Enter the IP Address that your ISP assigned for the Contivity 400 unit's leased-line interface.

The Install program automatically calculates the numeric subnet mask. Do not change this value unless your network uses nonstandard subnets and you are familiar with IP addressing.

- 4 The next steps vary depending on the selection you made in step 1. Select the option that matches your configuration:
  - If you selected PPP, skip to step 7.
  - If you selected Frame Relay, the Enter Router Address dialog box opens (Figure 12). Proceed with step 5.

**Figure 12** Enter Router Address dialog box

**5** Enter the router's IP address.

This address is the IP address of the external router. Normally, you can leave this box blank and the connection will work properly.

**6** Click OK.

**7** Do one of the following:

- If you have a serial (X.21 or V.35) connection, the Enter Name Server Address dialog box ([Figure 9 on page 54](#)) opens. Skip to step 20.
- If you have a T1 or E1 connection, the Enter T1 Information dialog box opens ([Figure 13](#)) or the Enter E1 Information dialog box opens ([Figure 14](#)). Proceed with step 8.

Figure 13 Enter T1 Information dialog box

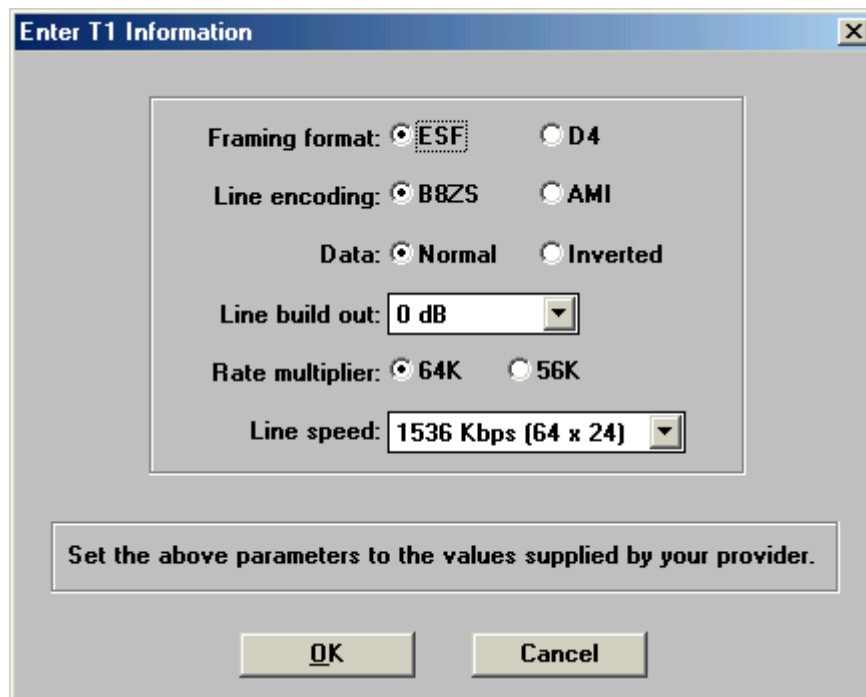
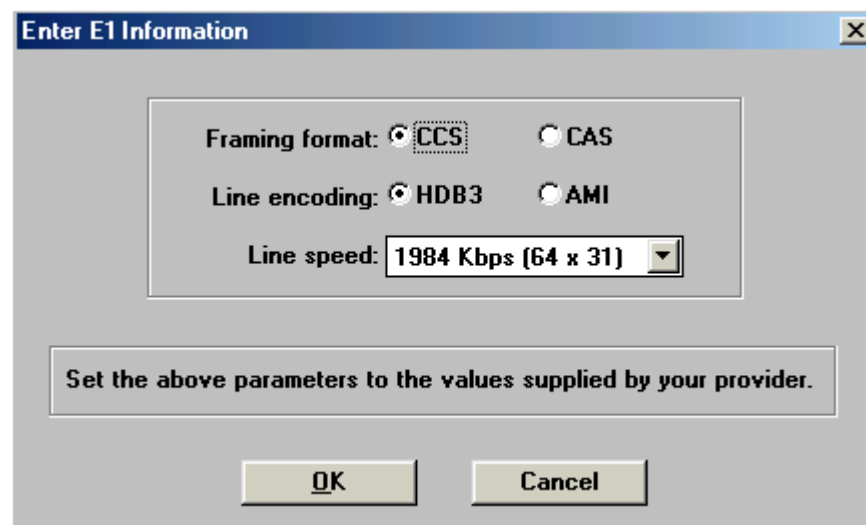


Figure 14 Enter E1 Information dialog box



- 8** Complete the T1 or E1 information as directed by your T1 or E1 service provider.

Your T1 or E1 service provider and your ISP (if they are not the same) should provide the T1 or E1 information for this dialog box. The defaults should work for most installations; however, the line build-out will vary and is determined by the distance from the Contivity 400 unit to the nearest T1 or E1 repeater.



**Note:** These configuration settings *must* match the settings provided by your T1 or E1 service provider and ISP.

---

- 9** Click OK.

- 10** Do one of the following:

- If you do not want to configure a backup interface, click No. Continue with the procedure [“Finishing the connection configuration” on page 69](#).
- If you want to configure a backup interface, click Yes. The Enter Internet Service Provider Information dialog box opens ([Figure 6 on page 50](#)). Proceed with step [11](#).

- 11** Complete the following information about your backup connection to the Internet:

- **Phone** – Type the phone number that you use to connect to the Internet. If you need to dial a prefix, for example, to get an outside line, enter that prefix followed by a comma.

If your B channel has a different phone number, you can enter a secondary phone number. Use a slash (/) to separate the two numbers. If the exchange (first three digits) is the same for both numbers, you can enter only the last four digits of the secondary phone number (for example, 555-1212/555-1213 or 555-1212/1213).

- **User ID** – Type the user ID you use to connect to the Internet.
- **Password** – Type the password you use to connect to the Internet. This password may not begin with a “\”.

- 12** Type the inactivity timeout (in minutes) or use the default of 10 minutes.

The inactivity timeout saves connect-time charges during times when no one is requesting Internet access. It specifies the number of minutes of inactivity over the dial-up connection after which the Contivity 400 unit terminates the connection. When you need access again, the Contivity 400 unit automatically reestablishes a connection in a few seconds.

If you enter a value of 0, the inactivity timer is disabled and the Contivity 400 unit maintains the connection regardless of whether or not there is Internet activity. However, if the line becomes unavailable for any reason other than inactivity, a connection must be reestablished.

You can also set the inactivity timeout in seconds rather than minutes. For details, refer to *Using the Contivity Branch Access Management Software Version 7.20*.

- 13** Click OK.

The Enter ISDN Information dialog box opens ([Figure 7 on page 52](#)).

- 14** Select the switch type for the ISDN connection from the Switch type list.

Depending on the switch type you choose, one, both, or none of the SPID number boxes become active.

- 15** If the SPID number box is active, enter the SPID number(s) provided by your local telephone company. Otherwise, skip to step [16](#).

- 16** Select the connection speed from the Speed list.

Multilink PPP is required to support 112K or 128K multilink capabilities. Your ISP might not offer multilink PPP; if not, the connection is made using one channel (56K or 64K). Synchronous PPP is required for 56K or 64K.

- 17** Click OK.

The Enter Provider Supplied IP Address dialog box displays ([Figure 8 on page 53](#)).

- 18** Do one of the following:

- If your Internet Service Provider assigns Dynamic IP addresses, select Obtain an IP address from ISP.
- If your Internet Service Provider assigns you a static IP address, select Specify an IP address and enter the static IP address that your service provider assigns to you in the IP address dialog box.

**19** Click OK.

The Enter Name Server Address dialog box ([Figure 9 on page 54](#)) opens.

**20** Enter the IP Address of the DNS server provided by your ISP and then click OK.

If your ISP provided more than one DNS server, enter the first one.

A Name Server message box opens prompting you to enter another DNS server. It is always a good idea to enter more than one DNS server. If one of them is unavailable, the other is used.

**21** Select whether or not to enter another DNS server.

- To enter another DNS server, click Yes and then repeat step [20](#) until you enter all the DNS servers.
- After you enter all the DNS servers or to continue without entering another DNS server, click No.

The Instant Internet is Configured dialog box opens.

**22** The remaining steps are the same regardless of your individual configuration. Continue with the procedure [“Finishing the connection configuration” on page 69](#).

## Configuring your unit for an Ethernetconnection

There are three ways to configure a Contivity unit for an external high-speed Ethernet device (for example, a router, cable modem, or xDSL modem) connection:

- To manually configure the device (no DHCP or PPPoE), refer to [“Configuring a static IP connection for an external device”](#) next.
- To configure the device using DHCP, refer to [“Configuring a DHCP connection for an external device” on page 65](#).
- To configure the device using PPPoE, refer to [“Configuring a PPPoE connection for an external device” on page 67](#).

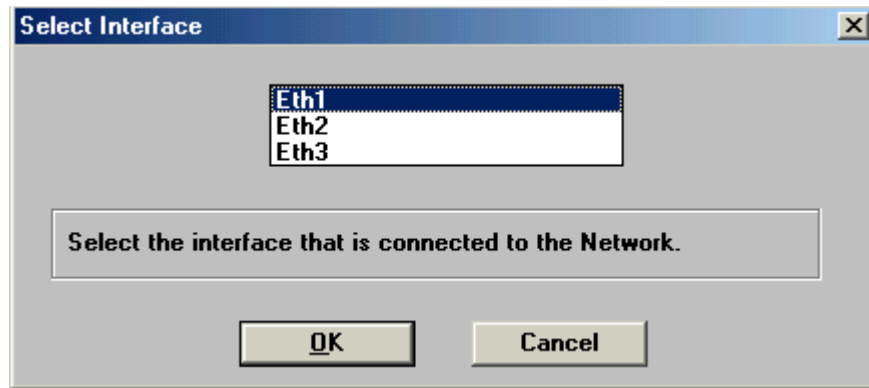
### *Configuring a static IP connection for an external device*

In this procedure, you configure the Contivity unit to use a WAN-side static IP address. If you are using an external Ethernet device, and are not using DHCP or PPPoE, you must manually configure the WAN-side IP address for the external device.

To configure a static IP connection for an external static IP device:

- 1 If the Select Interface dialog box opens (Figure 15), select the interface that is connected to the device and then click OK. If the Select Interface dialog box does not open, skip this step.

**Figure 15** Select Interface dialog box



- 2 In the Enter IP information for interface connected to the static device dialog box (Figure 16), click Specify an IP address.

**Figure 16** Enter IP Information for interface connected to the static device dialog box

**Enter IP Information for Eth2**

Obtain an IP address from ISP (DHCP)

**Specify an IP address:**

IP address:

Subnet mask:

Obtain an IP address from ISP (PPPoE):

User ID:

Password:

Select a method for obtaining an IP Address, or specify an IP address to be used by the Instant Internet unit.

The subnet mask is automatically generated and normally does not require changing.

**OK** **Cancel**

- 3 In the IP address box, enter the IP address of the Contivity unit's static device interface.

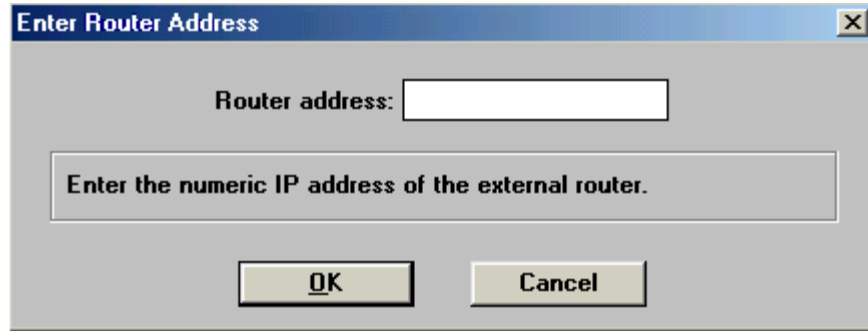
Be sure to enter an IP address that is on your device's network.

The Contivity Branch Access (Instant Internet) management software automatically calculates the numeric subnet mask. Do not change this value unless your network uses nonstandard subnets and you are familiar with IP addressing.

- 4 Click OK.

The Enter Router Address dialog box opens ([Figure 17](#)).

**Figure 17** Enter Router Address dialog box



- 5 Enter the numeric IP address of your external router and then click OK.

The Enter Name Server Address dialog box opens ([Figure 9 on page 54](#)).

- 6 Enter the IP address of the DNS server provided by your ISP and then click OK.

If your ISP provided more than one DNS server, enter the first one.

A Name Server message box opens prompting you to enter another DNS server. It is always a good idea to enter more than one DNS server. If one of them is unavailable, the other is used.

- 7 Select whether or not to enter another DNS server.
  - To enter another DNS server, click Yes and then repeat step 6 until you enter all the DNS servers.
  - After you enter all the DNS servers or to continue without entering another DNS server, click No.

The Instant Internet is Configured dialog box opens.

- 8 The remaining steps are the same regardless of your individual configuration. Continue with the procedure "[Finishing the connection configuration](#)" on [page 69](#).

## *Configuring a DHCP connection for an external device*

In this procedure, you configure the Contivity unit to use a WAN-side DHCP server.



**Note:** Before you begin this procedure, make sure that your Ethernet device (for example, a router, cable modem, or xDSL modem) is plugged in and has an active connection to your ISP.

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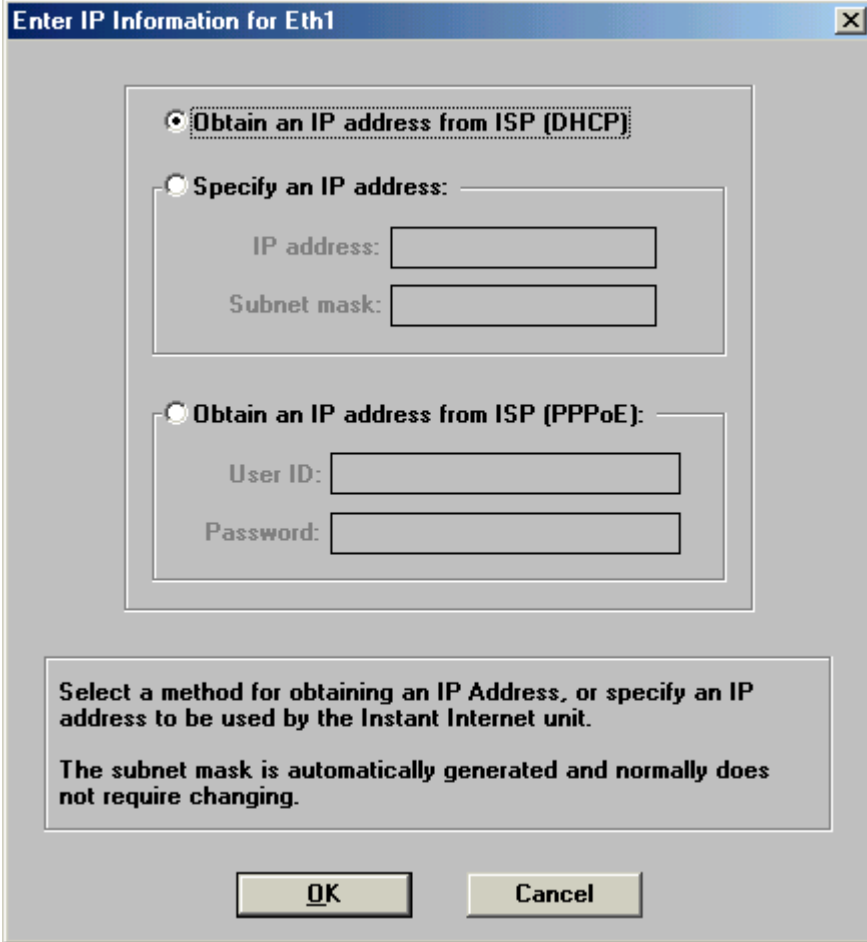
Do one of the following:

- If you have an active and valid connection to your ISP, you do not need to take any action in this procedure. Your external device connection is automatically configured with the DHCP server. Continue with the procedure [“Finishing the connection configuration” on page 69](#).
- If the Enter IP Information for interface connected to DHCP device dialog box ([Figure 18](#)) opens, you are not connected to your ISP or the connection is unavailable. Follow this procedure to set up your external device connection.

To configure a DHCP connection for an external device:

- 1** Select the Obtain an IP address from ISP (DHCP) option (shown in [Figure 18](#)) and then click OK.

**Figure 18** Enter IP Information for interface connected to DHCP device dialog box



**Enter IP Information for Eth1**

Obtain an IP address from ISP (DHCP)

Specify an IP address:

IP address:

Subnet mask:

Obtain an IP address from ISP (PPPoE):

User ID:

Password:

Select a method for obtaining an IP Address, or specify an IP address to be used by the Instant Internet unit.

The subnet mask is automatically generated and normally does not require changing.

**OK** **Cancel**

The Instant Internet is Configured dialog box opens.

- 2 The remaining steps are the same regardless of your individual configuration. Continue with the procedure [“Finishing the connection configuration” on page 69.](#)

## *Configuring a PPPoE connection for an external device*

In this procedure, you configure the Contivity unit to use a WAN-side PPPoE connection. The PPP over Ethernet (PPPoE) option enables you to select from a variety of Internet service providers (ISPs) in Ethernet-like environments, for example, a router, cable modem, or xDSL modem. The Contivity unit implements this protocol internally and provides this capability for an entire network without any need to reconfigure the individual workstations that it serves.



**Note:** Before you begin this procedure, make sure that your external device is plugged in and has an active connection to your router. However, if you cannot connect for any reason, you can still use this procedure to set up your PPPoE connection.

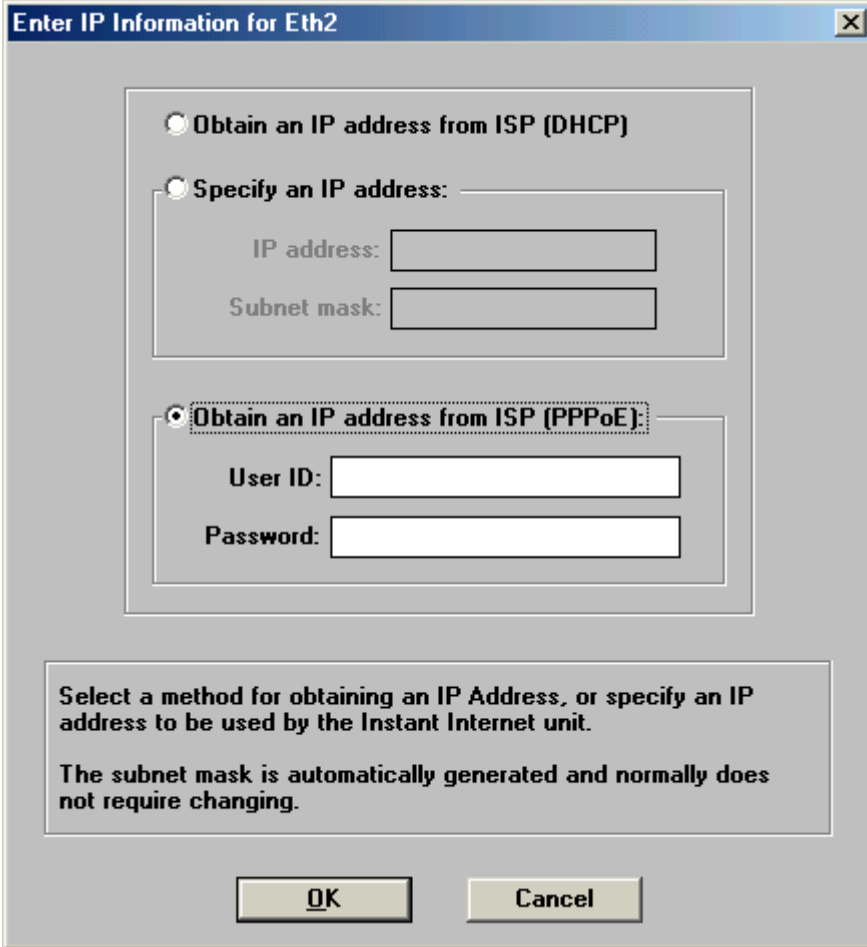
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When you configure the Contivity unit to use a PPPoE connection, certain default settings are defined. You can change these default settings and configure other PPPoE settings (dial-on-demand and inactivity timeout) when you finish the installation. For details, refer to *Using the Contivity Branch Access Management Software Version 7.20*.

To configure a PPPoE connection for an external device:

- 1 Do one of the following:
  - If the Enter User ID and Password dialog box opens, skip to step 2.
  - If the Enter IP Information for interface connected to PPPoE device dialog box (Figure 19) opens, you are not connected to your device, or the connection is unavailable. Select the Obtain an IP address from ISP (PPPoE) option. Proceed with step 2.

**Figure 19** Enter IP Information for interface connected to PPPoE device dialog box



**Enter IP Information for Eth2**

Obtain an IP address from ISP (DHCP)

Specify an IP address:

IP address:

Subnet mask:

Obtain an IP address from ISP (PPPoE):

User ID:

Password:

Select a method for obtaining an IP Address, or specify an IP address to be used by the Instant Internet unit.

The subnet mask is automatically generated and normally does not require changing.

**OK** **Cancel**

- 2 Enter the User ID and Password assigned by your ISP and then click OK.

The User ID follows the format *user@isp*. The Password may not begin with a “\”.

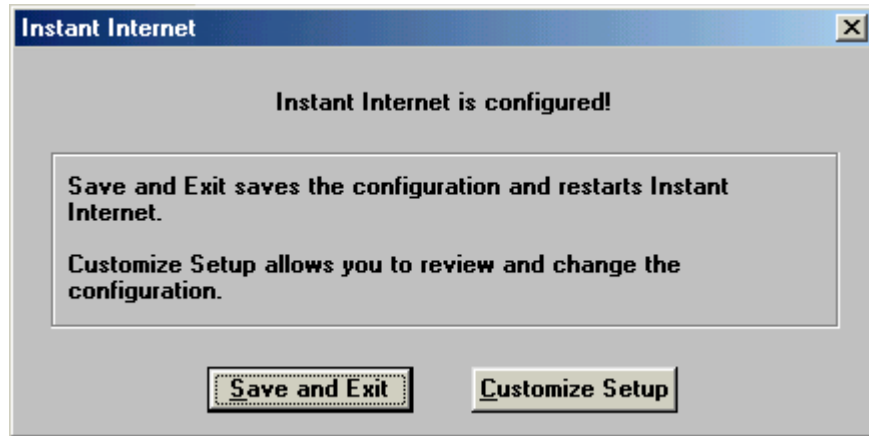
The Instant Internet is Configured dialog box opens.

- 3 The remaining steps are the same regardless of your individual configuration. Continue with the procedure [“Finishing the connection configuration”](#) next.

## Finishing the connection configuration

After you have configured your Contivity unit, the Instant Internet is Configured dialog box opens (Figure 20).

**Figure 20** Instant Internet is configured dialog box



To complete the connection configuration:

- 1 Click Save and Exit.

The Restarting Instant Internet dialog box opens. This restart may take a few minutes. (The number displayed in parentheses is the status or error code. For details, refer to [Appendix C, “Troubleshooting and Error messages,”](#) on [page 111](#).)

Next, you must finish the installation by testing the connection. The Instant Internet Setup dialog box opens.

- 2 Click Yes to test the connection.

The Install program tests the connection, the DNS server, and the host name for the unit and then displays the results.



**Note:** If the test connection fails, continue with the installation and then run the Setup program and test the connection again. For details, refer to [Appendix C, “Troubleshooting and Error messages,”](#) on [page 111](#).

**3** Click OK.

When you finish configuring the Contivity unit for your connection environment, the Install program sets up the network and installs the first copy of the workstation software on the workstation where you are configuring the unit. Continue with [“Installing the software”](#) next.

## Installing the software

You are prompted to select where you want to install the workstation software. You can copy the installation files to the network or you can install the software on each workstation from the CD. Copying the installation files to the network makes quick work of installing the software on each workstation because you do not use the *Contivity Branch Access Software and Documentation Version 7.20* CD to install the software at each workstation. You can also take advantage of the Contivity Branch Access workstation preconfiguration feature. For details, refer to [“Automatically configuring workstations during installation”](#) on page 73. To install the software on each workstation from the CD, see [“Installing the workstation software from the CD”](#) on page 78.



**Note:** When you install the software to a network drive, be sure to select to install the administration utilities (Setup, Admin, Monitor, Tools, and AutoLog).

---

## Copying the management software to the network

To copy the Contivity Branch Access (Instant Internet) management software to the network:

- 1 Enter a destination directory where you want the Contivity Branch Access installation software to reside.

By default, the first available network drive is displayed. Contivity Branch Access (Instant Internet) management software also provides a default directory name (for example, `f:\instinet`). You can change the drive and directory.

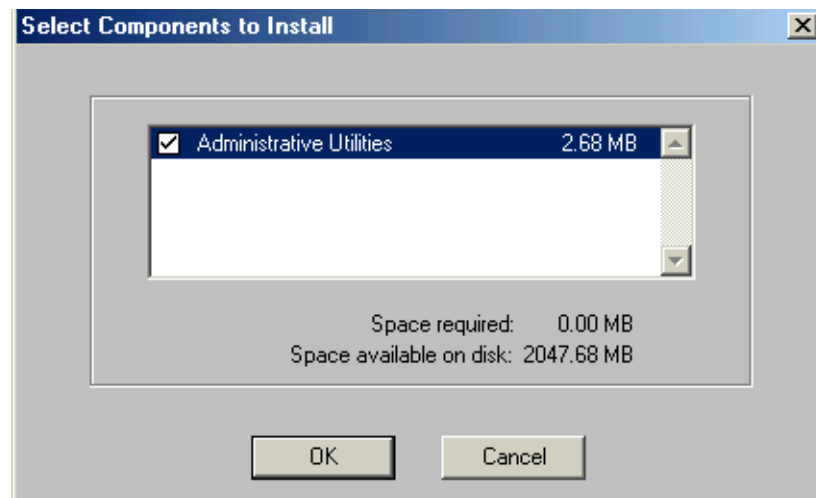


**Note:** If you want to install the Contivity Branch Access (Instant Internet) management software to a network drive at the server that is sharing that network drive, the Install program will perform a local rather than a network installation. You can use the `install.exe /net` command to force a network installation to a local drive.

- 2 Click OK.

The Select Components to Install dialog box opens (Figure 21) prompting you to install the administration utilities (Setup, Admin, Monitor, Tools, and AutoLog).

**Figure 21** Select Components to Install dialog box



- 3 Select the Administrative Utilities check box to copy the administration utilities to the network.

The Contivity unit is shipped with a workstation preconfiguration file that you can use to set default installation settings for the other workstations. If you are going to install many additional workstations or if you want to make sure the administration utilities are not installed on the workstations, you can set these installation defaults in the workstation preconfiguration file. For details, refer to [“Automatically configuring workstations during installation” on page 73](#).

- 4 Click OK.

The Install program begins installing and copying the files from the CD to the specified network directory. When the installation is complete, the Instant Internet Install message box opens.

- 5 Click Continue to complete the workstation installation.

- 6 The Instant Internet Install dialog box opens prompting you for a private (local) or network installation. Continue with step 4 of [“Installing the workstation software from the network” on page 75](#).

- 7 When you have installed the workstation software, continue with the procedure [“Automatically configuring workstations during installation”](#) next to automatically configure workstations and then, to install the workstation software on each workstation, proceed with [“Installing the workstation software on each workstation” on page 75](#).

## Automatically configuring workstations during installation

The preconfiguration feature helps to simplify workstation installation of the Contivity Branch Access (Instant Internet) management software. To use this feature, you must copy the software to the network. For details, refer to [“Copying the management software to the network” on page 71](#).

You edit a template file named `install.cfg` to reflect the default installation settings you want for each workstation. The `install.cfg` file is a text file located in the The Contivity Branch Access directory (for example, `f:\instinet`). It contains sample settings you can use when you install the workstation software from the network.



**Note:** A semicolon at the beginning of a line indicates a comment line that is ignored by the system. As a template file, all lines in the `install.cfg` file are commented, so be sure to remove the semicolon at the beginning of all of the lines.

---

Valid entries in the `install.cfg` file include:

- **Description** – A description of the Workstation Preconfiguration defaults in this file.
- **Type** – Specifies whether to use the Contivity Branch Access (Instant Internet) management software applications from the network (“network”) or copy them to a local (“private”) directory.
- **Directory** – Indicates the destination directory, or the working directory, for the Contivity Branch Access (Instant Internet) management software applications. Note that this directory is a default directory; you are still prompted to provide this information during installation.

To bypass the directory prompt and have the Install program automatically install the workstation software in the default directory, type an asterisk (\*) before the directory path and name. For example, `directory=*c:\instinet`.

- **Unit** – Specifies which Contivity unit the workstations use. This option is for IPX workstations only; the Contivity Branch Access (Instant Internet) management software ignores this entry on TCP/IP workstations.

- **Choice** – Specifies whether you are presented with the option to install the administration utilities. The option `+admin` installs the administration utilities; the option `-admin` does not install them.

To bypass the administration programs prompt and have the Install program automatically use the choice option you entered, type an asterisk (\*) before the directory path and name. For example, `choice=*-admin`.



**Note:** For additional options that apply only to IPX workstations when you have more than one Contivity unit, refer to *Using the Contivity Branch Access Management Software Version 7.20*.

---

Following is an example of a single Contivity Branch Access (Instant Internet) management software workstation preconfiguration file that specifies a default installation to a local drive (`type=private`), and does not install the administration utilities (`choice=-admin`):

```
[DEFAULT]
description=default configuration
type=private
directory=c:\instinet
unit=iibox1
choice=-admin
```

To edit the `install.cfg` file:

- 1 Start any text editing program on your system, for example, Notepad.
- 2 Open the `install.cfg` file.
- 3 Edit the information in this file according to the defaults you want for all workstations.
- 4 Save the file.

## Installing the workstation software on each workstation

There are two ways to install the Contivity Branch Access (Instant Internet) workstation software on each workstation:

- If you copied the installation software to the network, you can install the workstation software on each workstation from the network. For details, refer to [“Installing the workstation software from the network” on page 75](#).

When you install from the network, you can also use the workstation preconfiguration feature to specify workstation settings ahead of time. For details refer to [“Automatically configuring workstations during installation” on page 73](#).



**Note:** Depending on your network configuration, you may need to prepare the workstations for the Contivity Branch Access (Instant Internet) management software. Read the information in [Appendix B, “Workstation support,” on page 97](#) before you begin this installation.

---

- If you did not copy the installation software to the network, you can install the Contivity Branch Access (Instant Internet) workstation software on each workstation from the installation CD. For details, refer to [“Installing the workstation software from the CD” on page 78](#).



**Note:** The workstation software works only on workstations running a Microsoft Windows operating system (Windows 3.x, Windows 95, Windows 98, Windows Me, Windows NT, or Windows 2000).

When installing the workstation software on a Windows NT workstation, you must be logged in with administrative rights.

---

## Installing the workstation software from the network

To install the Contivity Branch Access (Instant Internet) workstation software from the network:

- 1 Choose Start > Run.

The Run dialog box opens.

- 2 Click Browse to locate the install.exe file and then click OK.

- 3 If the workstation has both IP and IPX installed on it, a dialog box opens prompting you to select the type of installation you want to perform. Click the type of installation and then click OK. Otherwise, continue with step 4.

The Instant Internet Install dialog box opens prompting you for a private (local) or network installation.

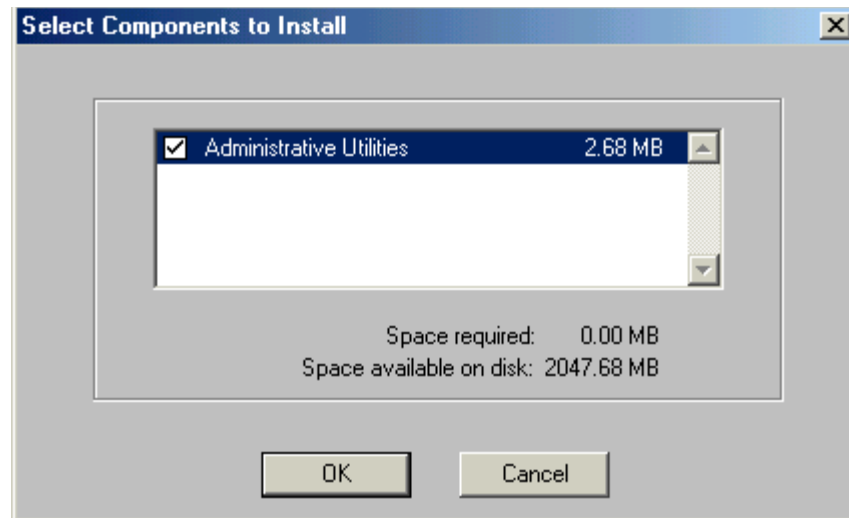
- 4 Click Network.



**Note:** This prompt for a private or network copy of the software is also where you determine if the administration utilities (next prompt) are installed. Nortel Networks recommends that you select Network so that software updates are easily available to all users.

Depending on the information you set in the Workstation Preconfiguration file (if you are installing the software from the network and if you configured the file), the Select Components to Install dialog box may open (Figure 22) prompting you to install the administration utilities (Setup, Admin, Monitor, Tools, and AutoLog). For details on the workstation preconfiguration file, refer to “Automatically configuring workstations during installation” on page 73.

**Figure 22** Select Components to Install dialog box



- 5 Select whether or not to install the administration utilities on this workstation.

Administration utilities are usually reserved for users that need administrative access. You probably do not want to install administration utilities on each workstation. To install the Administration Utilities, select the check box. If you do not want to install the utilities, clear the check box.

- 6 Click OK.

One of the following happens:

- If you are installing the workstation software on an IP workstation, the installation is complete. When you install the IP version of the Contivity Branch Access (Instant Internet) workstation software on Windows 95, Windows 98, Windows Me, Windows NT, or Windows 2000 workstations, the iiLogin program is also installed and the iiLogin icon (Figure 23) appears in your system tray. (For more information about the iiLogin program, refer to *Using the Contivity Branch Access Management Software Version 7.20*). Skip to step 8.

When you install the Contivity Branch Access (Instant Internet) workstation software, the iiLogin program is also installed and the iiLogin icon (Figure 23) appears in your system tray. (For more information about the iiLogin program, refer to *Using the Contivity Branch Access Management Software Version 7.20*).

**Figure 23** iiLogin icon



- If you are installing the workstation software on an IPX workstation, the Contivity Branch Access (Instant Internet) management software must replace your winsock.dll and wsock32.dll files with the Contivity Branch Access versions of these files. A dialog box opens prompting you to rename the original versions of each of these files. Proceed with step 7.

7 Rename the original version of each file.



**Note:** If either the winsock.dll or wsock32.dll files are in use, the rename process fails. The Contivity Branch Access (Instant Internet) management software will be unable to copy the needed version of these files to your workstation, and you will not be able to run the Contivity Branch Access (Instant Internet) management software. If this happens, uninstall the Contivity Branch Access (Instant Internet) management software ([page 87](#)), close all applications that may be using these files (including virus protectors), and restart your workstation before you attempt to install the Contivity Branch Access (Instant Internet) workstation software again.

---

8 In the Instant Internet is installed dialog box, click OK.

Users can now use their Web browser to access the Internet through the Contivity unit. If you do not have a Web browser, you can install the latest version of Netscape Navigator included on the *Contivity Branch Access Software and Documentation Version 7.20* CD. For details on installing the Web browser, see [Chapter 5, “Documentation, third-party applications, and what to do next,” on page 81.](#)

## Installing the workstation software from the CD

To install the Contivity Branch Access (Instant Internet) workstation software from the CD:

- 1 Insert the *Contivity Branch Access Software and Documentation Version 7.20* CD into the CD-ROM drive.

The Instant Internet installation dialog box opens ([Figure 3 on page 43](#)).

- 2 Click Install Instant Internet.
- 3 Enter a destination directory where you want the Contivity Branch Access installation software to reside.

By default, the first available network drive is displayed. The Contivity Branch Access (Instant Internet) management software also provides a default directory name (for example, f:\instinet). You should change the drive to a local drive.

- 4 Click OK.
- 5 Continue with step 5 on [page 77](#) and select whether or not to install the administration utilities on this workstation.



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## Chapter 5

# Documentation, third-party applications, and what to do next

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The *Contivity Branch Access Software and Documentation Version 7.20* CD contains documentation about the Contivity Branch Access product as well as third-party applications you can use to gain the most from Contivity Branch Access.

## Viewing Contivity Branch Access documentation

The Contivity Branch Access documentation is available in Adobe Acrobat format. If you do not have the Adobe Acrobat Reader, you can install the reader included with this software. For instructions on installing the Adobe Acrobat Reader, refer to “[Using third-party applications](#)” next.

To view the Contivity Branch Access documentation:

- 1 Insert the *Contivity Branch Access Software and Documentation Version 7.20* CD into the CD-ROM drive.  
The Instant Internet installation menu opens.
- 2 Click View Documentation.
- 3 Select the manual you want to view.

## Using third-party applications

The following applications are included on the *Contivity Branch Access Software and Documentation Version 7.20* CD:

- **Netscape Communicator** – A Web browser you can use to connect to the Internet. Both 32-bit and 16-bit versions of Netscape Communicator are included on the CD.
- **AniTa Terminal Emulator** – An FTP and Telnet workstation application providing file transfer and remote terminal connection services. Only the 32-bit version of AniTa Terminal Emulator is included on the CD.
- **Adobe Acrobat Reader** – The software you need to use to view the product documentation. Both 32-bit and 16-bit versions of Adobe Acrobat Reader are included on the CD.

### Copying the third-party applications to the network (optional)

After you copy the Contivity Branch Access (Instant Internet) management software to your network, you can copy the third-party applications to your network to make installation easier.

To copy the third-party applications to the network:

- 1 Insert the *Contivity Branch Access Software and Documentation Version 7.20* CD into the CD-ROM drive.
- 2 Start Windows Explorer.
- 3 Navigate to the folder that contains the application you want to copy.
- 4 Select the application you want to copy and then choose Edit > Copy.
- 5 Navigate to the network directory to which you want to copy the file.
- 6 Choose Edit > Paste.

The file is copied to the network directory. Repeat these steps for each third-party application you want to copy to the network.

You can install the third-party applications on individual workstations from the network or from the CD.

## Installing third party software from the CD

To install the third party application software from the CD using a workstation running Windows 95, Windows 98, Windows Me, Windows NT, or Windows 2000 with the Windows AutoPlay feature enabled:

- 1 Insert the *Contivity Branch Access Software and Documentation Version 7.20* CD into the CD-ROM drive.

The Instant Internet installation menu opens.

- 2 Click the application you want to install.
- 3 Follow the prompts to install the software.

To install the third-party application software from the CD using a workstation running Windows 95, Windows 98, Windows Me, Windows NT, or Windows 2000 and the Windows AutoPlay feature is not enabled, choose Start > Run. In the Run dialog box, type d:\autorun (where d: is the letter of your CD-ROM drive). The Instant Internet menu opens.

To install the third-party applications from the CD using a workstation running Windows 3.1 or Windows for Workgroups:

➔ Do one of the following:

- Navigate to the Acrobat folder on your CD and select the ar16e301.exe file.
- Navigate to the Anita folder on your CD and select the Install.exe file.
- Navigate to the Netscape folder on your CD and select the cc16e408.exe file.

## Installing third-party applications on a workstation from the network

To install the third-party applications on a workstation from the network:

- 1 Choose Start > Run.

The Run dialog box opens.

- 2 Click Browse to locate the network directory that contains the third-party application you want to install.

For a list of third-party applications, see [“Using third-party applications” on page 82](#).

- 3 Select the executable file of the application you want to install and then click OK.
- 4 In the Run dialog box, click OK.
- 5 Follow the prompts to install the software.

## Deciding what to do next

Contivity Branch Access is a powerful system that enables you to customize settings and services specifically for your organization. Following are some suggestions for getting started:

- To use a Contivity unit in a virtual private network (VPN), refer to Chapter 2, “IP security and VPN,” in *Using the Contivity Branch Access Management Software Version 7.20*.
- To establish and maintain control over the Internet sites your users and groups of users access, for example, block access to Web sites, newsgroups, and incoming ports, refer to Chapter 3, “User access administration,” in *Using the Contivity Branch Access Management Software Version 7.20*.
- To log and view the Internet sites your users are accessing, refer to Chapter 4, “Internet activity logging,” in *Using the Contivity Branch Access Management Software Version 7.20*.
- To configure alarms for SYSLOG messages and SNMP traps, refer to Chapter 4, “Internet activity logging,” in *Using the Contivity Branch Access Management Software Version 7.20*.

- To use the Contivity unit as a Web, DNS, or SOCKS proxy server, refer to Chapter 5, “Proxy services,” in *Using the Contivity Branch Access Management Software Version 7.20*.
- To adjust the default IP services or configure the IP services on the Contivity unit, refer to Chapter 6, “Advanced IP configuration,” in *Using the Contivity Branch Access Management Software Version 7.20*.
- To speed up the Internet response time even more by caching sites that are accessed on a regular basis, refer to Chapter 7, “Web cache configuration,” in *Using the Contivity Branch Access Management Software Version 7.20*.



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## Chapter 6

# Uninstalling the Contivity Branch Access software

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The uninstall function removes all of the Contivity Branch Access (Instant Internet) management software and applications. To remove third-party applications, refer to the application's documentation.



**Note:** Uninstalling the Contivity Branch Access (Instant Internet) management software preserves all added files (files downloaded after you installed the workstation software).

---

To uninstall the Contivity Branch Access (Instant Internet) management software:

- 1 In the Instant Internet program group or menu (depending on your operating system), select Uninstall.

The Uninstall Instant Internet dialog box opens.

- 2 Click OK.

A confirmation dialog box opens.

- 3 Click OK.



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# Appendix A

## Network support

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Before you install the Contivity Branch Access (Instant Internet) management software on your network server, you must prepare the server to make sure that it can take advantage of all the services that Contivity Branch Access offers. This appendix describes how to prepare common IPX and IP network environments for the Contivity Branch Access (Instant Internet) management software.

### Preparing common network environments for Contivity Branch Access

This section provides some examples of common network environments and how Contivity Branch Access functions within those environments. Choose from the following environments to determine how to set up the Contivity unit:

- Your environment consists of Novell NetWare\* workstations using the IPX protocol. Continue with the procedures in [“Preparing an IPX network”](#) next.
- Your environment uses TCP/IP and you already have a BootP or DHCP server installed and running on your network. Continue with the procedures in [“Preparing a TCP/IP network with an existing BootP or DHCP server”](#) on page 90.
- Your environment is running Windows, but no workstations have TCP/IP enabled, and there is no BootP or DHCP server installed on your network. Continue with the procedures in [“Preparing a network with no TCP/IP and no BootP or DHCP server”](#) on page 95.
- Your network environment is TCP/IP, and you have IP addresses for each workstation on the network. Continue with the procedures in [“Preparing a TCP/IP network with static IP addresses \(no BootP or DHCP server\)”](#) on page 96.

## Preparing an IPX network

Use this preparation procedure if your environment has Novell NetWare workstations using the IPX protocol.

In this network environment, Contivity Branch Access functions as an IPX-to-IP gateway to the Internet. You do not need to install TCP/IP on each workstation. However, you must install the Contivity Branch Access (Instant Internet) workstation software on each workstation. There are no other hardware configuration procedures. For details, refer to [“Installing the workstation software on each workstation” on page 75](#).

## Preparing a TCP/IP network with an existing BootP or DHCP server

Use this preparation procedure if your network environment uses TCP/IP and you already have a BootP or DHCP server installed and running on your network.

During installation, the Contivity Branch Access (Instant Internet) workstation software detects whether you have a BootP or DHCP server running on your network and sets itself up appropriately. If you have a BootP or DHCP server, the Contivity unit requires an IP address during initial setup.

You must assign a permanent (static) IP address to the Contivity unit. You can either enter an IP address that you know is excluded from the BootP or DHCP server’s range of available IP addresses (recommended) or you can accept the IP address it is assigned during installation and then exclude it later.



**Note:** Contivity Branch Access starts up as a BootP client. This means that those using BootP or DHCP servers for their existing IP networks can set the server to assign a specific IP address to the Contivity unit.

---

## Assigning a static IP address to the Contivity unit using a BootP or DHCP server

You must configure your BootP or DHCP server to identify the Contivity unit by its MAC address so that you can assign an IP address to the unit. Following is the general procedures to follow when assigning a permanent IP address to the unit. For detailed instructions, refer to your system's documentation.

To assign a static IP address to the Contivity unit using an existing BootP or DHCP server:

- 1 Determine the Contivity unit's serial number.

The serial number is on a sticker on the back of the unit.

- 2 Translate this number to the unit's MAC address according to the information in [Table 4](#).

**Table 4** MAC address translation

Contivity unit serial number	MAC address
I01xxxxxx	00:C0:11:xx:xx:xx
I0200xxxx	00:00:81:F2:xx:xx
I0300xxxx	00:00:81:F3:xx:xx
I4xxxxxxxxxxxx	xx:xx:xx:xx:xx:xx
I5xxxxxxxxxxxx	xx:xx:xx:xx:xx:xx

For example, the serial number I02001234 has the MAC address of 00:00:81:F2:12:34; the serial number I500E07BF224BB has the MAC address of 00:E0:7B:F2:24:BB.

- 3 From your BootP or DHCP server's range of IP addresses, choose an IP address for your Contivity unit.

This IP address is the static IP address for the unit.

- 4 Map the selected IP address to the unit's MAC address on the DHCP server.

- 5 Install and configure the Contivity Branch Access (Instant Internet) management software according to the procedures in [Chapter 4, “Installing the Contivity Branch Access management software,”](#) on page 39.

When you turn on the Contivity unit, the BootP or DHCP server recognizes the converted MAC address and automatically assigns the IP address to the unit.

### **Configuring your DHCP server to use the Contivity unit as the gateway and DNS proxy**

When you configure your DHCP server to use the Contivity unit as the gateway and DNS proxy, you will exclude the unit’s IP address from the scope of IP addresses on the DHCP server. The DHCP server will then let the workstations know that the Contivity unit is their gateway and DNS proxy server.



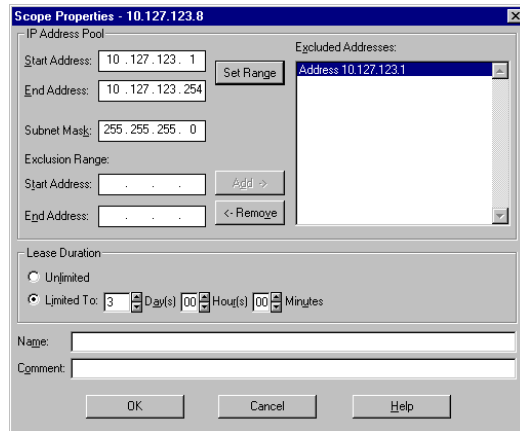
**Note:** The following procedure is an example for a Windows NT DHCP server. Your procedures may be different. Refer to your system documentation for details.

---

To configure the DHCP server to use the Contivity unit as the gateway and DNS proxy server:

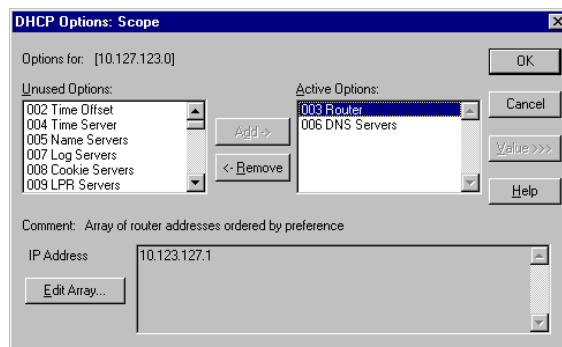
- 1 On the Windows NT Start menu, choose Programs > Administration Tools > DHCP Manager.
- 2 Select your server in the list.
- 3 Choose Scope > Properties.

The Scope Properties dialog box opens ([Figure 24](#)).

**Figure 24** Windows NT Scope Properties dialog box

- 4 In the Exclusion Range area, do the following:
  - a In the Start Address box, enter the Contivity unit's IP address.
  - b In the End Address box, enter the Contivity unit's IP address.
  - c Click Add.
- 5 Click OK.
- 6 Select the scope of addresses you are using for your workstation's LAN.
- 7 Choose DHCP Options > Scope.

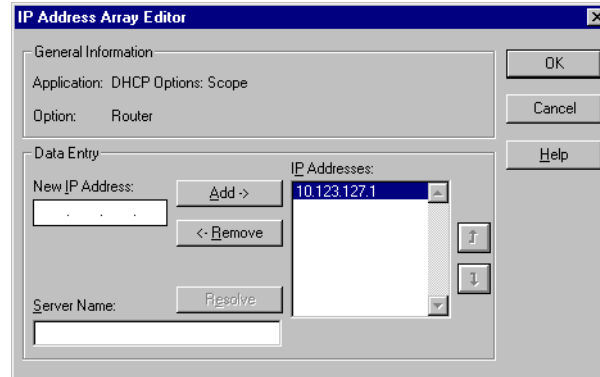
The DHCP Options: Scope dialog box opens (Figure 25).

**Figure 25** Windows NT DHCP Options: Scope dialog box

- 8 In the Active Options area, select Router.
- 9 Click Edit Array.

The IP Address Array Editor dialog box opens (Figure 26).

**Figure 26** Windows NT IP Address Array Editor dialog box



- 10 In the New IP Address box, enter the Contivity unit's IP address.
- 11 Click Add and then click OK.

The IP Address Array Editor dialog box closes.
- 12 In the DHCP Options: Scope dialog box (Figure 25), in the Active Options area, select DNS Servers.
- 13 Click Edit Array.

The IP Address Array Editor dialog box opens (Figure 26).
- 14 In the New IP Address box, enter the Contivity unit's IP address.
- 15 Click Add and then click OK.

When each workstation renews its IP address lease, it will use the Contivity unit as a gateway and DNS proxy server.

Set each workstation to obtain an IP address automatically by selecting the option Use DHCP or Obtain an IP address automatically (depending on your operating system). For more information, refer to [“Setting a workstation to get its IP address from the Contivity unit or your existing DHCP server”](#) on page 101.

You can force a workstation to renew its IP address lease; however, you must renew the lease at each workstation. For details see [“Setting a workstation to get new information from the Contivity unit or your existing DHCP server” on page 103](#). For more information about IP address leases, refer to “Scopes and leases” in *Using the Contivity Branch Access Management Software Version 7.20*.

## Preparing a network with no TCP/IP and no BootP or DHCP server

Use this preparation procedure if you have a Windows environment, no workstation has TCP/IP enabled, and no existing BootP or DHCP server is installed on your network.

To prepare a network with no TCP/IP and no BootP or DHCP server:

- You must install TCP/IP on each workstation (including the workstation you used to configure the Contivity unit) and set each workstation to obtain an IP address automatically by selecting the option Use DHCP or Obtain an IP address automatically (depending on your operating system). For more information, refer to [“Installing TCP/IP on a workstation” on page 98](#) and [“Setting a workstation to get its IP address from the Contivity unit or your existing DHCP server” on page 101](#).

After you run the Install program and configure the Contivity unit as a DHCP server, the unit assigns an IP address to itself and to the workstations that are set up to use it as a DHCP server.

## Preparing a TCP/IP network with static IP addresses (no BootP or DHCP server)

Use this preparation procedure if your network environment is running TCP/IP you have assigned static IP addresses for each workstation on the network.

To prepare a TCP/IP network with static IP addresses and no BootP or DHCP server:

- 1 Choose an IP address for the Contivity unit.

Use this IP address when you configure the workstation to use the Contivity unit as the gateway and DNS proxy. For more information, refer to [“Configuring a workstation to use the Contivity unit as the gateway and DNS proxy server”](#) on page 105.

- 2 Turn on the Contivity unit and run the Install program.

For details, refer to [Chapter 4, “Installing the Contivity Branch Access management software,”](#) on page 39.

- 3 Enter the IP address you selected for the Contivity unit when prompted in the Enter Unit’s IP Address dialog box.

---

## Appendix B

# Workstation support

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Before you install the Contivity Branch Access (Instant Internet) workstation software on each workstation, you must prepare each workstation to make sure it can take advantage of the services that Contivity Branch Access offers. This appendix describes how to prepare IP and IPX workstations for the Contivity Branch Access (Instant Internet) workstation software.

### Preparing a workstation using IPX

If your workstations use IPX, you *must* install the Contivity Branch Access (Instant Internet) workstation software on each IPX workstation.

### Preparing a workstation with TCP/IP

Configuring TCP/IP is platform- and system-dependent. These procedures provide some general guidelines for configuring a workstation with TCP/IP. Refer to your system's documentation for proper installation and configuration instructions.

To configure a workstation with TCP/IP, you *must* do both of the following:

- If TCP/IP is not already installed, you must install it on each workstation. Refer to [“Installing TCP/IP on a workstation”](#) next.
- Configure the TCP/IP settings by doing one of the following:
  - Let the workstations know that the Contivity unit will be the gateway and DNS proxy ([page 105](#)).
  - Let the workstations know that the Contivity unit will assign IP addresses ([page 101](#)) and that it has a new address for them ([page 103](#)).

- Let the workstations know that your existing DHCP server will assign IP addresses ([page 101](#)) and that it has a new address for them ([page 103](#)).

## Installing TCP/IP on a workstation

Depending on your operating system, you may have to install TCP/IP on your IP workstations if it is not already installed. If you have trouble with the following procedure, refer to your operating system documentation.



**Note:** Windows 98, Windows Me, Windows NT and Windows 2000 workstations are already configured with TCP/IP. They are also already configured to obtain an IP address automatically (DHCP).

---

### Installing TCP/IP on a Windows 95 workstation

To install TCP/IP on a Windows 95 workstation:

- 1 From the Windows Start menu, choose Settings > Control Panel.
- 2 Double-click the Network icon.  
The Network dialog box opens.
- 3 Click Add.  
The Select Network Component Type dialog box opens.
- 4 Select Protocol and then click Add.  
The Select Network Protocol dialog box opens.
- 5 In the Manufacturers list, select Microsoft.
- 6 In the Network Protocols list, select TCP/IP.
- 7 Click OK.

You may be prompted for your Windows Installation CD. Follow any instructions displayed on the screen.

TCP/IP is added to the list of installed network components. You are now ready to configure TCP/IP to work with your network.

## Installing TCP/IP on a Windows 98 or Windows Me workstation

To install TCP/IP on a Windows 98 or Windows Me workstation:

- 1 From the Windows Start menu, choose Settings > Control Panel.
- 2 Double-click the Network icon.  
The Network dialog box opens.
- 3 In the Configuration tab, click on Add.  
The Select Network Component Type dialog box opens.
- 4 From the list of items to add, select Protocol.
- 5 Click Add.  
The Select Network Protocol dialog box opens.
- 6 From the list of manufacturers, select Microsoft.
- 7 From the list of protocols, select TCP/IP
- 8 Click OK.
- 9 Click Close.

## Installing TCP/IP on a Windows NT workstation

To install TCP/IP on a Windows NT workstation:

- 1 From the Windows Start menu, choose Settings > Control Panel.
- 2 Double-click the Network icon.  
The Network dialog box opens.
- 3 Click Protocols and then click Add.  
The Select Network Protocol dialog box opens.
- 4 Select the TCP/IP protocol and then click OK.  
You are prompted for the location of your NT installation files.
- 5 Enter the appropriate information and follow any instructions displayed on your screen.  
TCP/IP is added to the list of installed network components.

- 6 Click Close.
- 7 Restart the workstation when prompted.



**Note:** By default, the DHCP option for obtaining an IP address is enabled. If you are not using DHCP, go to [“Configuring a workstation to use the Contivity unit as the gateway and DNS proxy server” on page 105](#)”.

---

TCP/IP is added to the list of installed network components. You are now ready to configure TCP/IP to work with your network.

### **Installing TCP/IP on a Windows 2000 workstation**

To install TCP/IP on a Windows 2000 workstation:

- 1 From the Windows Start menu, choose Settings > Control Panel.
- 2 Double-click the Network and Dialup connection icon.
- 3 Double-click on the Local Area connection.
- 4 Click Properties.
- 5 In the Configuration tab, click on Install.
- 6 From the list of items to add, select Protocol.
- 7 Click Add.
- 8 Select Internet Protocol (TCP/IP).
- 9 Click OK.
- 10 Click Close.

---

## Configuring TCP/IP settings

You can configure the TCP/IP settings on your workstations to work with DHCP or without DHCP.

### Setting a workstation to get its IP address from the Contivity unit or your existing DHCP server

When you install TCP/IP on a Windows 98, Windows Me, Windows NT, or Windows 2000 workstation, the DHCP option for obtaining an IP address is automatically enabled. When you install TCP/IP on a Windows 95 workstation, the DHCP option for obtaining an IP address is not enabled and you must enable it.

To set a Windows 95, Windows 98, or Windows Me workstation to use the Contivity unit as the DHCP server or use your existing DHCP server:

- 1 From the Windows Start menu, choose Settings > Control Panel.
- 2 Double-click the Network icon.  
The Network dialog box opens.
- 3 Select TCP/IP in the list.



**Note:** Be sure to select the TCP/IP for your network, not the TCP/IP for your dial-up adapter.

---

- 4 Click Properties.  
The TCP/IP Properties dialog box opens and IP Address is selected.
- 5 Select the Obtain an IP address automatically option.
- 6 Click DNS Configuration.
- 7 In the DNS Server Search Order area, remove all existing DNS IP addresses.
- 8 Click OK through all dialog boxes to save your changes.
- 9 Continue with the procedure [“Setting a workstation to get new information from the Contivity unit or your existing DHCP server”](#) on page 103.

To set a Windows NT workstation to use the Contivity unit as the DHCP server or use your existing DHCP server:

- 1 From the Windows Start menu, choose Settings > Control Panel.
- 2 Double-click the Network icon.  
The Network dialog box opens.
- 3 Click the Protocols tab.
- 4 Select TCP/IP in the list.



**Note:** Be sure to select the TCP/IP for your network, not the TCP/IP for your dial-up adapter.

---

- 5 Click Properties.  
The TCP/IP Properties dialog box opens and IP Address is selected.
- 6 Select the Obtain an IP address automatically option.
- 7 Click the DNS tab.
- 8 In the DNS Server Search Order area, remove all existing DNS IP addresses.
- 9 Click OK through all dialog boxes to save your changes.
- 10 Continue with the procedure [“Setting a workstation to get new information from the Contivity unit or your existing DHCP server”](#) on page 103.

To set a Windows 2000 workstation to use the Contivity unit as the DHCP server or use your existing DHCP server:

- 1 From the Windows Start menu, choose Settings > Control Panel.
- 2 Double-click the Network and Dialup connections icon.  
The Network and Dialup connections dialog box opens.
- 3 Double-click the Local Area Connection icon.
- 4 Click Properties

- 5 Select TCP/IP in the list.



**Note:** Be sure to select the TCP/IP for your network, not the TCP/IP for your dial-up adapter.

---

- 6 Click Properties.  
The TCP/IP Properties dialog box opens and IP Address is selected.
- 7 Select the Obtain an IP address automatically option.
- 8 Click DNS Configuration.
- 9 In the DNS Server Search Order area, remove all existing DNS IP addresses.
- 10 Click OK through all dialog boxes to save your changes.
- 11 Continue with the procedure [“Setting a workstation to get new information from the Contivity unit or your existing DHCP server”](#) next.

### **Setting a workstation to get new information from the Contivity unit or your existing DHCP server**

After you set a workstation to obtain its IP address from the Contivity unit or your existing DHCP server, you must force the workstations to get the new information from the Contivity unit or the DHCP server before they can use the unit to access the World Wide Web. When each workstation renews its IP address lease, it gets the new configuration information. If you do not want to wait for each workstation to renew its lease on its own, you can force the renewal; however, you must renew the lease at each workstation. For more information about IP address leases, refer to *Using the Contivity Branch Access Management Software Version 7.20*.

To force a Windows 95, Windows 98, or Windows Me workstation to renew its IP address lease:

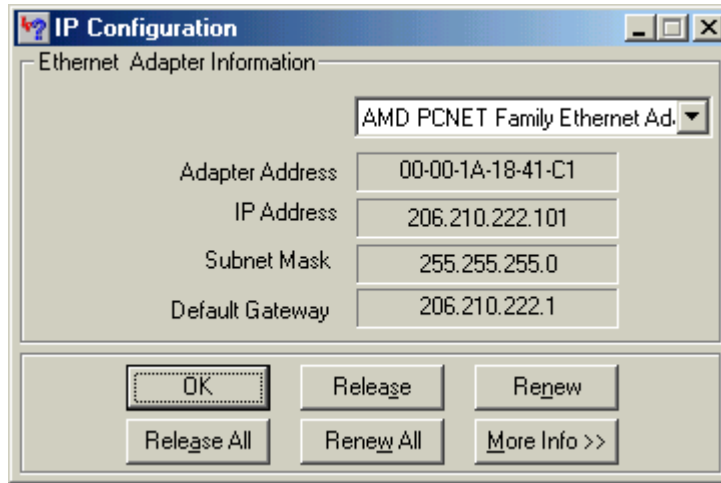
- 1 From the Windows Start menu, choose Run.

The Run dialog box opens.

- 2 In the Open box, type the following:

**winipcfg**

The IP Configuration dialog box opens ([Figure 27](#)).

**Figure 27** IP configuration dialog box

**3** Select the correct Ethernet adapter for your computer.

**4** Click Release.

The current IP address lease is broken and the IP address returns to 0.0.0.0.

**5** Click Renew.

A new IP address is leased for the workstation and the IP Address is filled in along with the default gateway (the Contivity unit's client-side IP address). To verify that the unit's IP address is the DNS server, click More Info.

**6** Click OK.

To force a Windows NT or Windows 2000 workstation to renew its IP address lease:

**1** From the Windows Start menu, choose Run.

The Run dialog box opens.

**2** In the Open box, type `cmd` and click OK.

**3** At the command prompt, enter the following command to break the current IP address lease:

```
ipconfig /release
```

- 4 At the command prompt, enter the following command to get a new IP address lease:

```
ipconfig /renew
```

- 5 At the command prompt, type **exit**.

## **Configuring a workstation to use the Contivity unit as the gateway and DNS proxy server**

If you plan to assign static addresses to each workstation, how you configure TCP/IP depends on your network:

- In a simple network where the Contivity unit is used as the gateway, the default route (such as router, gateway, etc.) should be the IP address of the Contivity unit. The DNS of your workstation should be assigned the IP address of the unit's client-side IP interface.
- In a more complex environment with a router connecting a multiple LANs, you can put the Contivity unit on one LAN, and instruct the router to direct Internet traffic from the other LAN to the Contivity unit. Workstations already configured with the router as their gateway would not change.

If you have trouble with the following procedures, refer to your operating system's documentation.

To configure a Windows 95, Windows 98, or Windows Me workstation to use the Contivity unit as the gateway and DNS proxy server:

- 1 From the Windows Start menu, choose Settings > Control Panel.

The Control Panel window opens.

- 2 Double-click the Network icon.

The Network dialog box opens.

- 3 Select TPC/IP in the list.

- 4 Click Properties.

The TCP/IP Properties dialog box opens and IP Address is selected. The IP address and subnet mask boxes are displayed.

- 5 Click Gateway.

- 6** In the New gateway box, enter the IP address of the Contivity unit's client-side interface and then click Add.

The IP address is added to the Installed Gateways list.

- 7** Click DNS Configuration.

- 8** Select the Enable DNS option.

- 9** In the DNS Server Search Order box, enter the IP address of the Contivity unit's client-side interface (the same IP address you entered for the gateway address in step 6), and then click Add.

The IP address is added to the DNS Search Order list.

- 10** Click OK through all dialog boxes to save the settings.

- 11** At the prompt to restart your system, click Yes.

To configure TCP/IP without DHCP on a Windows NT workstation:

- 1** From the Windows Start menu, choose Settings > Control Panel.

The Control Panel window opens.

- 2** Double-click the Network icon.

The Network dialog box opens.

- 3** Click Protocols.

- 4** Select TCP/IP Protocol.

- 5** Click Properties.

The TCP/IP Properties dialog box opens and IP Address is selected. The workstation's IP Address and subnet mask are displayed.

- 6** In the Default Gateway box, enter the IP address of the Contivity unit's client-side interface.

- 7** Click DNS Configuration.

- 8** In the DNS Server Search Order box, enter the IP address of the Contivity unit's client-side interface (the same IP address you entered for the gateway address in step 6), and then click Add.

The IP address is added to the DNS Search Order list.

- 9** Click OK through all dialog boxes to save the settings.

**10** At the prompt to restart your system, click Yes.



**Note:** At this point, you should be able to ping the Contivity unit, at least on its client-side interface. You will not necessarily be able to ping the router or the DNS configured on the Contivity unit because the unit serves as a firewall when IP forwarding is disabled. For more information on pinging a host, refer to “Testing the Connection to a Host” in *Using the Contivity Branch Access Management Software Version 7.20*.

---

To configure TCP/IP without DHCP on a Windows 2000 workstation:

- 1** From the Windows Start menu, choose Settings > Control Panel.  
The Control Panel window opens.
- 2** Double-click the Network and Dial-up Connection icon.  
The Network and Dial-up Connections dialog box opens.
- 3** Double click the Local Area Connections icon.  
The Local Area Connections Status dialog box opens.
- 4** Click Properties  
The Local Area Connections Properties window opens.
- 5** Select Internet Protocol (TCP/IP) from the component list.
- 6** Click Properties.  
The Internet Protocol (TCP/IP) Properties dialog box opens.
- 7** Select “Use the following IP address” and enter the following information:
  - The IP address of your workstation.
  - The subnet mask of your network.
  - The IP address of the Contivity unit in the Default gateway box.
- 8** Select “Use the following DNS server address” and enter the following information:
  - The IP address of the Contivity unit in the preferred DNS server box.
  - The Alternate DNS server IP address (if applicable).
- 9** Click OK.

10 Click OK.

11 Click Close.

## Identifying IP workstations

The Contivity Branch Access (Instant Internet) management software makes it easy to track and restrict users' access to the Internet. These features depend on a secure and consistent method for identifying the specific user logged into a workstation. While several identification methods exist in the Internet protocol suite, consistent support for these methods is not available on many workstations. Furthermore, the existing methods do not make use of the existing Novell and NT directory services that you may already be using.

To address this problem, the Contivity Branch Access (Instant Internet) management software provides a workstation-side application, iiLogin, which identifies exactly who is logged in to the Contivity unit. This application is automatically installed and placed into the Startup group when you install the Contivity Branch Access (Instant Internet) workstation software on an IP workstation.

In addition, iiLogin provides additional diagnostic and notification services to the user and the administrator, such as error notification and current status information.

Users on workstations that are not running iiLogin cannot be identified by name. Instead they are identified by the IP address of the workstation. For example, if user SCOTTS, a member of the Development NT domain, is working on workstation 10.2.1.99, and that workstation is not running iiLogin, then all Instant Internet reporting and administrative features refer to 10.2.1.99. However, if iiLogin is running, the correct user SCOTTS[Development] is identified.

## Host name access controls for IP workstations

The Domain Name Service (DNS) is the mechanism used by IP workstations to convert host names such as *www.nortelnetworks.com* to IP addresses. Queries from a workstation to a DNS server present the host name and ask for the corresponding IP address. Once translated, the workstation application uses the IP address to contact the named host.

For IPX and other Winsock-based workstations, host name access control checking occurs within the workstation, before any DNS query is performed.

For IP workstations, this is not possible because the DNS query is formed by the operating system's networking software. Instead, the host name access control check can only be performed by the Contivity unit itself. This requires that all IP workstations use the Contivity unit as the DNS proxy server. If a workstation has access to a DNS server other than the Contivity unit, host name access controls cannot be applied to that workstation.

Because the DNS proxy is typically used in conjunction with the IP workstations to provide complete isolation of the local network from the Internet, few problems should occur.

## Using older versions of the Instant Internet workstation software

The Contivity Branch Access (Instant Internet) management software version 7.20 supports only workstation software 3.10 and later. If you have workstations with workstation software earlier than 3.10, you must upgrade those workstations.



---

## Appendix C

# Troubleshooting and Error messages

---

This appendix describes troubleshooting tips, possible solutions, error messages, and ISDN cause codes for the Contivity unit.

### Troubleshooting tips

This section provides a list of suggestions to consider or symptoms to note before calling Nortel Networks Technical Support for help.

#### Unit

These suggestions relate to the condition or state of the unit.

- Does your power voltage selector switch match your power source? Refer to the hardware manual for your unit.
- Is the power cord connected to a functioning power outlet?
- Are all of the LEDs on the front of the unit glowing amber? If so, check the power voltage setting. Refer to the hardware manual for your unit.
- Is LED 1 flashing green? This LED functions as a heartbeat for the unit.
- Are the Configuration switches set for normal operation? Refer to the hardware manual for your unit.
- Did you wait for LED 2 to glow amber before you ran the Install program? If not, reset the unit to factory defaults, wait for LED 2 to glow amber, and then run the Install program. For information on resetting the unit to factory defaults, refer to the hardware manual for your unit.
- Are any of the LEDs on the front of the unit glowing red or amber? What are their exact numbers? For information on interpreting LED indicators, refer to the hardware manual for your unit.
- Does the unit try to restart by itself?

- Is there a dump file?
- Have you rebooted your Contivity unit? Power the unit off and back on.
- Does your unit have the latest firmware?

## Connectivity

These suggestions relate to the condition or state of your Ethernet connection.

- Are you using the proper Ethernet cable for the Ethernet connectors on the back of the unit?
- Are the link lights on?
- Have you tried other Ethernet interfaces on the unit?

## Workstation

These suggestions relate to the condition or state of the workstation connected to the Contivity unit.

- Is the iiLogin icon in the system tray red or green? Red indicates that the workstation is not connected to the unit.
- Can you ping the unit? Refer to *Using the Contivity Branch Access Management Software Version 7.20*.
- Have you rebooted your workstation?

## Cable modem

These suggestions relate to the condition or state of the cable modem connecting the Contivity unit to the Internet.

- Have you rebooted your external modem?
- Do you need to reset your cable modem with a Web browser or another program?
- Is your ISP using the MAC address of your workstation to identify you as a user?

## Possible Solutions

This section provides a list of solutions to try before calling Nortel Networks Technical Support for help.

### Testing the connection to the Internet

You can run a test sequence to verify that the Contivity unit can connect to the Internet. The connection test calls each of the domain name servers listed to confirm that the server exists and is, in fact, a domain name server. Testing the connection also performs a forward and reverse DNS lookup for the Contivity unit's IP address on the default interface.

To test the connection to the Internet:

- 1 Start Setup, and if prompted, select a unit to test.
- 2 Choose Setup > Test Connection.

A dialog box opens indicating the test results and any subsequent actions to take.

If the test connection fails, you are prompted to view the unit log. Click Yes to view the log and use the information in this appendix to troubleshoot the problem.

### Common cable modem problems

You may experience problems if you previously used your cable modem to connect a single workstation to the Internet and are now attaching the cable modem to the Contivity unit for the entire LAN to access the Internet.

When the cable modem was originally installed, it was connected directly to a workstation and the workstation's MAC address could have been recorded within the system.

If the cable modem does not work when connected to the Contivity unit, you can try several things:

- Power the cable modem off and on.

Sometimes the cable modem records the workstation's MAC address and a power cycle is enough to erase the MAC address from its memory.

- Determine if your cable modem has a reset procedure.
  - If the cable modem has a reset button, press and hold it for at least 10 seconds.
  - If the cable modem requires you use a Web browser to reset it, follow the procedures provided by your ISP or the modem's manufacturer.
- Provide the expected host name in the DHCP client request.

ISPs that provide cable modem service occasionally require that the workstation connected to the modem have a specific name. This name is sent with the DHCP request to identify the cable modem account. You can assign the required name to the unit by specifying that name as the unit's host name in the DHCP client request. For details, refer to the `dhcpc` configure command in *Reference for the Contivity Branch Access Command Line Interface Version 7.20*.

- Determine if your ISP has recorded your workstation's MAC address and is configured to connect *only* to that MAC address.

The ISP that supplied your cable modem may have recorded your workstation's MAC address. You can use a CLI command to "spoof" the workstation's MAC address. For details, refer to the `hwaddress` option for the `ifconfig` command in *Reference for the Contivity Branch Access Command Line Interface Version 7.20*.

## Common error messages

Error messages may or may not have a number associated with them. [Table 5](#) describes common error numbers. You may also encounter a problem that does not display a number in the error message.

**Table 5** Common error numbers

<b>Error number</b>	<b>Meaning</b>
18	Your hard disk appears to be full. Free up some space and try running Setup again.
51, 53	Cannot connect to the unit.
55, 57, 59	The previously established connection has been broken.

Table 6 describes error messages you might see when you are connecting to the unit or running Install or Setup. Message numbers vary and an “x” is used in place of the error message number in this table.

**Table 6** Common error messages

Error type	Errors	Solutions
<p>Cannot find the unit</p> <p><b>Note:</b> There is a possible problem if the Waiting for Instant Internet unit to restart message is displayed longer than five minutes.</p>	<ul style="list-style-type: none"> <li>• Install is searching for units</li> <li>• No Instant Internet units found</li> </ul>	<p>Check that:</p> <ul style="list-style-type: none"> <li>• Your workstation and the Contivity unit are on the same local network and subnet.</li> <li>• The cables are connected properly.</li> <li>• You waited for LED 2 to glow amber before you began the installation.</li> </ul> <p>If you think you corrected the problem:</p> <ul style="list-style-type: none"> <li>• Cancel the installation and then run Install again.</li> </ul> <p>If Install still cannot locate the unit:</p> <ul style="list-style-type: none"> <li>• Restart the workstation, restart the unit and <b>wait for LED 2 to glow amber</b>, and run Install again.</li> <li>• Disconnect everything and attach the workstation running Install directly to the Ethernet switch on the unit and run Install again.</li> </ul>
<p>Error messages or Install waits for longer than 5 minutes.</p>	<ul style="list-style-type: none"> <li>• Error 'x' contacting unit</li> <li>• Error 'x' reading configuration</li> <li>• Error 'x' saving configuration</li> <li>• Error 'x' saving 'filename' script file</li> <li>• Error 'x' saving registration file</li> <li>• Error opening service file</li> <li>• Error saving password</li> <li>• Waiting for Instant Internet unit to restart (Status: 'x')</li> </ul>	<ul style="list-style-type: none"> <li>• Check that all cables are connected properly.</li> <li>• Restart the unit.</li> <li>• Restart the workstation.</li> </ul> <p>Use the Configuration switches on the back of the unit to set the unit to factory defaults and then run Install again. For details, refer to the hardware manual for your unit.</p>

**Table 6** Common error messages (continued)

Error type	Errors	Solutions
Connection problems	Error testing name server	<ul style="list-style-type: none"> <li>• Verify that you have entered the correct name server information.</li> <li>• Try another name server or wait several minutes and try again.</li> <li>• Run Setup and test the connection. <a href="#">See "" on page 119.</a></li> </ul>
Connection problems	Line did not initialize	<ul style="list-style-type: none"> <li>• If a status box is displayed on the screen, review the information about the source of the problem, for example, "negotiating" or "dialing."</li> <li>• Check the following: <ul style="list-style-type: none"> <li>• Did you enter the correct phone number?</li> <li>• Do you need to dial a number to get an outside line (for example, 9)?</li> <li>• Did you enter your user ID correctly?</li> <li>• Did you enter your password correctly? Passwords are case-sensitive.</li> <li>• Is an ISDN cause code displayed in the log? <a href="#">See "Common ISDN cause codes" on page 118.</a></li> </ul> </li> <li>• Run Setup and test the connection. <a href="#">See "" on page 119.</a></li> </ul>
Name resolution	<ul style="list-style-type: none"> <li>• The IP address assigned to the interface resolved to an Internet host name that resolves to a different IP address.</li> <li>• The IP address assigned to the interface cannot be resolved to an Internet host name.</li> <li>• The IP address assigned to the interface resolved to an Internet host name but that host name cannot be resolved to an IP address.</li> </ul>	<ul style="list-style-type: none"> <li>• Contact your ISP. Typically, your ISP must enter the appropriate records for this host name into the Domain Name Server (DNS) tables and ensure that they are properly matched.</li> <li>• Run Setup and test the connection. <a href="#">See "" on page 119.</a></li> </ul>

**Table 6** Common error messages (continued)

Error type	Errors	Solutions
PTNETWRK.DLL loading problems	<ul style="list-style-type: none"> <li>Error 2 loading PTTNETWRK</li> <li>PTNET32.DLL cannot start</li> </ul>	<ul style="list-style-type: none"> <li>Ensure that you have Microsoft versions of WINSOCK.DLL and WSOCK32.DLL in the Windows directory. Also, ensure that the Windows SYSBCKUP directory contains a copy of Microsoft's WINSOCK.DLL.</li> </ul> <p><b>NOTE:</b> The WINSOCK.DLL and WSOCK32.DLL dates should match the dates of the other Windows 95 DLLs.</p>
Incompatible versions	<ul style="list-style-type: none"> <li>You cannot use this version of Setup to configure a newer unit.</li> </ul>	<ul style="list-style-type: none"> <li>Install a newer version of the utilities.</li> <li>Reset the unit to factory defaults. For details, refer to the hardware guide for your specific hardware model.</li> </ul>
Workstation configuration	<ul style="list-style-type: none"> <li>No domain controller</li> </ul>	<ul style="list-style-type: none"> <li>Check the workstation's WINS configuration.</li> </ul>
Passwords	<ul style="list-style-type: none"> <li>Incorrect Password</li> </ul>	<ul style="list-style-type: none"> <li>The Contivity Branch Access (Instant Internet) management software has two levels of passwords. Be sure you are supplying the privileged password. (INSTALL and SETUP use privileged).</li> </ul>

## Common ISDN cause codes

If there is a problem with your ISDN line, the unit log is displayed and the appropriate ISDN disconnection cause code is recorded at the end of the log.

[Table 7](#) describes common ISDN cause codes.

**Table 7** Common ISDN cause codes

Cause code	Meaning
16	Normal call clearing [Q.850] – Indicates that the call is being cleared because one of the users involved in the call has requested that the call be cleared. Under normal situations, the source of this cause is not the network.
17	User busy [Q.850] – Indicates that the called party is unable to accept another call because the user busy condition has been encountered. This cause value may be generated by the called user or by the network. In the case of user determined user busy it is noted that the user equipment is compatible with the call.

**Table 7** Common ISDN cause codes (continued)

Cause code	Meaning
18	No user responding [Q.850] – Indicates that a called party has not responded to a call establishment message with either an alerting or connect indication within the prescribed period of time.
19	No answer from user (user alerted) [Q.850] – Indicates that the called party has been alerted but does not respond with a connect indication within the prescribed period of time. Note: This cause is not necessarily generated by Q.931 procedures but may be generated by internal network timers.
21	Call rejected [Q.850] – Indicates that the equipment sending this cause can accept the call (it is neither busy nor incompatible), but will not. This cause may also be generated by the network, indicating that the call was cleared due to a supplementary service constraint. The diagnostic field may contain additional information about the supplementary service and reason for rejection.
31	Normal, unspecified [Q.850] – Used to report a normal event only when no other cause in the normal class applies.
34	No circuit/channel available [Q.850] – Indicates that there is no appropriate circuit/channel presently available to handle the call.
127	Interworking, unspecified [Q.850] – Indicates that an interworking call (usually a call to SW56 service) has ended.
145	Data link failure.
146	TEI or SID (USA) negotiation failure.



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