MAX 800
Hardware Installation Guide

Ascend Communications, Inc.
Part Number: 7820-0619-002
For software version 7.0.0

Ascend Customer Service

Ascend Customer Service provides a variety of options for obtaining technical assistance, information about Ascend products and services, and software upgrades.

Finding information and software on the Internet

Visit Ascend's Web site at `http://www.ascend.com` for technical information, product information, and descriptions of available services.

Visit Ascend's FTP site at `ftp.ascend.com` for software upgrades, release notes, and addenda to this manual.

Obtaining technical assistance

You can obtain technical assistance by telephone, email, fax, or modem, as well as over the Internet.

Enabling Ascend to assist you

If you need to contact Ascend for help with a problem, make sure that you have the following information when you call or that you include it in your correspondence:

- Product name and model.
- Software and hardware options.
- Software version.
- If supplied by your carrier, Service Profile Identifiers (SPIDs) associated with your line.
- Your local telephone company's switch type and operating mode, such as AT&T 5ESS Custom or Northern Telecom National ISDN-1.
- Whether you are routing or bridging with your Ascend product.
- Type of computer you are using.
- Description of the problem.

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In the U.S., you can take advantage of Priority Technical Assistance or an Ascend Advantage Pak service contract, or you can call to request assistance.

Priority Technical Assistance

If you need to talk to an engineer right away, call (900) 555-ASND (2763) to reach Ascend's Priority Call queue. The charge of $2.95 per minute does not begin to accrue until you are connected to an engineer. Average wait times are less than three minutes.

Ascend Advantage Pak

Ascend Advantage Pak is a one-year service contract that includes overnight advance replacement of failed products, technical support, software maintenance releases, and software

update releases. For more information, call (800) ASCEND-4 (272-3634), or access Ascend's Web site at `www.ascend.com` and select Services and Support, then Advantage Service Family.

Other telephone numbers

For a menu of Ascend's services, call (800) ASCEND-4 (272-3634). Or call (510) 769-6001 for an operator.

Calling Ascend from outside the United States

You can contact Ascend by telephone from outside the United States at one of the following numbers:

Telephone outside the United States	(510) 769-8027
Asia Pacific (except Japan)	(+61) 3 9656 7000
Austria/Germany/Switzerland	(+33) 492 96 5672
Benelux	(+33) 492 96 5674
France	(+33) 492 96 5673
Italy	(+33) 492 96 5676
Japan	(+81) 3 5325 7397
Middle East/Africa	(+33) 492 96 5679
Scandinavia	(+33) 492 96 5677
Spain/Portugal	(+33) 492 96 5675
UK	(+33) 492 96 5671

For the Asia Pacific Region, you can find additional support resources at `http://apac.ascend.com/contacts.html`.

Obtaining assistance through correspondence

Ascend maintains two email addresses for technical support questions. One is for customers in the United States, and the other is for customers in Europe, the Middle East, and Asia. If you prefer to correspond by fax, BBS, or regular mail, please direct your inquiry to Ascend's U.S. offices. Following are the ways in which you can reach Ascend Customer Service:

- Email from within the U.S.—support@ascend.com
- Email from Europe or the Middle East—EMEAsupport@ascend.com
- Email from Asia Pacific—apac.support@ascend.com
- Fax—(510) 814-2312
- Customer Support BBS (by modem)—(510) 814-2302
- Write to Ascend at the following address:

  Attn: Customer Service
  Ascend Communications, Inc.

One Ascend Plaza
1701 Harbor Bay Parkway
Alameda, CA 94502-3002

Important safety instructions

The following safety instructions apply to the MAX:

1 Product installation should be performed by trained service personnel only.

2 Read and follow all warning notices and instructions marked on the product or included in the manual.

3 The maximum recommended ambient temperature for MAX models is 104° Fahrenheit (40° Celsius). Take care to allow sufficient air circulation or space between units when the MAX is installed in a closed or multirack assembly, because the operating ambient temperature of the rack environment might be greater than room ambient.

4 Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these slots and openings must not be blocked or covered.

5 Installation of the MAX in a rack without sufficient air flow can be unsafe.

6 If the unit is installed in a rack, the rack should safely support the combined weight of all equipment it supports. A MAX 800 weighs 7.25 lbs (3.26 kg).

7 The connections and equipment that supply power to the MAX should be capable of operating safely with the maximum power requirements of the MAX. In the event of a power overload, the supply circuits and supply wiring should not become hazardous. The input rating of the MAX is printed on its nameplate.

8 Models with ac power inputs are intended for use with a three-wire grounding type plug—a plug that has a grounding pin. This is a safety feature. Equipment grounding is vital to ensure safe operation. Do not defeat the purpose of the grounding type plug by modifying the plug or using an adapter.

9 Before installation, use an outlet tester or a voltmeter to check the ac receptacle for the presence of earth ground. If the receptacle is not properly grounded, the installation must not continue until a qualified electrician has corrected the problem.

10 If a three-wire grounding type power source is not available, consult a qualified electrician to determine another method of grounding the equipment.

11 Install only in restricted-access areas in accordance with Articles 110-16, 110-17, and 110-18 of the National Electrical Code, ANSI/NFPA 70.

12 Do not allow anything to rest on the power cord, and do not locate the product where persons will walk on the power cord.

13 Do not attempt to service this product yourself. Opening or removing covers can expose you to dangerous high voltage points or other risks. Refer all servicing to qualified service personnel.

14 General purpose cables are provided with this product. Special cables, which might be required by the regulatory inspection authority for the installation site, are the responsibility of the customer.

15 When installed in the final configuration, the product must comply with the applicable safety standards and regulatory requirements of the country in which it is installed. If

necessary, consult with the appropriate regulatory agencies and inspection authorities to ensure compliance.

16 A rare phenomenon can create a voltage potential between the earth grounds of two or more buildings. If products installed in separate buildings are *interconnected*, the voltage potential might cause a hazardous condition. Consult a qualified electrical consultant to determine whether or not this phenomenon exists and, if necessary, implement corrective action before interconnecting the products.

In addition, if the equipment is to be used with telecommunications circuits, take the following precautions:

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- Avoid using equipment connected to telephone lines (other than a cordless telephone) during an electrical storm. There is a remote risk of electric shock from lightning.
- Do not use a telephone or other equipment connected to telephone lines to report a gas leak in the vicinity of the leak.

Warning: To reduce the risk of fire, communication cable conductors must be 26 AWG or larger.

Avertissement: Afin de reduire les risques d'incendie, les fils conducteurs du cable de communication doivent etre d'un calibre minimum de 26 AWG (American Wire Gauge), cest-a-dire d'un minimum de 0,404 mm.

Warnung: Um Feuerrisiken zu reduzieren, müssen die Kommunikationskabel-Anschlüße 26 AWG oder größer sein.

Contents

About This Guide

The MAX 800 is a Wide Area Network (WAN) access switch for providing remote users with dial-in access to Local Area Networks (LANs).

This guide explains how to install MAX 800 hardware on an Ethernet network and establish the basic security settings required for configuring the equipment to provide the service your sites require.

After installation, the MAX 800 requires software configuration before it begins operation. MAX 800 configuration requirements are described in detail in the documents listed in “Documentation set” on page -xi.

What is in this guide?

Following is a chapter-by-chapter description of the topics in this guide:

- Chapter 1, “Getting Acquainted with the MAX 800,” is an overview of the MAX 800.
- Chapter 2, “Installing the Hardware,” explains how to install the hardware, connect it to the network, and insert PCMCIA cards.
- Chapter 3, “Establishing MAX 800 Security,” explains how to change from the factory-default security settings, which permit unlimited access to the MAX 800, to the appropriate settings for MAX 800 configuration and operation.
- Appendix A, “Security Using the VT100 Interface,” describes how to use the VT100 interface to configure basic security settings for the MAX 800.
- Appendix B, “Troubleshooting,” suggests ways to avoid problems.
- Appendix C, “Hardware Specifications,” lists specifications for MAX 800 hardware.

This guide also includes a glossary and index.

What you should know

This guide is intended for the person who installs the MAX 800. You should understand the following:

- Communications hardware you intend to use, including modems, adapters, and Ethernet equipment.
- WAN and LAN concepts and terms.
- Network protocols you intend to use, such as Transmission Control Protocol/Internet Protocol (TCP/IP), Internet Package Exchange (IPX), or AppleTalk.

Documentation conventions

This section shows the documentation conventions used in this guide:

Convention	Meaning
`Monospace text`	Represents text that appears on your computer's screen, or that could appear on your computer's screen.
Boldface mono-space text	Represents characters that you enter exactly as shown (unless the characters are also in ***`italics`***—see *Italics*, below). If you could enter the characters but are not specifically instructed to, they do not appear in boldface.
Italics	Represent variable information. Do not enter the words themselves in the command. Enter the information they represent. In ordinary text, italics are used for titles of publications, for some terms that would otherwise be in quotation marks, and to show emphasis.
[ ]	Square brackets indicate an optional argument you might add to a command. To include such an argument, type only the information inside the brackets. Do not type the brackets unless they appear in bold type.
|	Separates command choices that are mutually exclusive.
>	Points to the next level in the path to a parameter or menu item. The item that follows the angle bracket is one of the options that appears when you select the item that precedes the angle bracket.
Key1-Key2	Represents a combination keystroke. To enter a combination keystroke, press the first key and hold it down while you press one or more other keys. Release all the keys at the same time. (For example, Ctrl-H means hold down the Control key and press the H key.)
Press Enter	Means press the Enter, or Return, key or its equivalent on your computer.
Note:	Introduces important additional information.
 **Caution:**	Warns that a failure to follow the recommended procedure could result in loss of data or damage to equipment.
 **Warning:**	Warns that a failure to take appropriate safety precautions could result in physical injury.

Documentation set

The MAX 800 documentation set that you received with your MAX 800 consists of the following guides:

- *Start Here* card. Describes the MAX 800 documentation set and how to obtain technical support from Ascend Customer Service.
- *NavisConnect User's Guide.* Describes how to use NavisConnect, an application designed to simplify MAX 800 software configuration.
- *Hardware Installation Guide* for your MAX 800 (this manual). Describes how to physically set up and connect the MAX 800 and implement basic security.
- *Network Configuration Guide* for your MAX 800—describes how to configure the MAX 800 using the VT100 configuration interface.

In addition to the hardcopy manuals included with your MAX 800, you received a copy of the Ascend Documentation Library CD-ROM, which includes the following manuals in electronic format:

- *Administration Guide* for your MAX 800. Describes how to manage and monitor the operation of the MAX 800 using the VT100 configuration interface.
- *MAX Security Supplement*—describes how to set up the MAX 800 security options using the VT100 configuration interface.
- *MAX RADIUS Configuration Guide*—describes how to install and configure Remote Authentication Dial-In User Service (RADIUS), a centralized authentication and accounting service for secure networks.
- *MAX Reference Guide*—contains an alphabetic reference to all MAX 800 parameters.
- *MAX Series Glossary*—contains definitions of networking terms and concepts used in MAX 800 documentation.

You can also read Ascend documentation online through Ascend's World Wide Web site at `http://www.ascend.com/doclibrary`.

Related publications

This guide and documentation set do not provide a detailed explanation of products, architectures, or standards developed by other companies or organizations.

Following are some publications that you may find useful:

- Windows 95 Networking Secrets, Kevin Stoltz
- *Data Link Protocols,* Uyless Black
- *The Basics Book of ISDN,* Motorola University Press
- *ISDN,* Gary C. Kessler
- *TCP/IP Illustrated,* W. Richard Stevens
- *Firewalls and Internet Security,* William R. Cheswick and Steven M. Bellovin

Getting Acquainted with the MAX 800

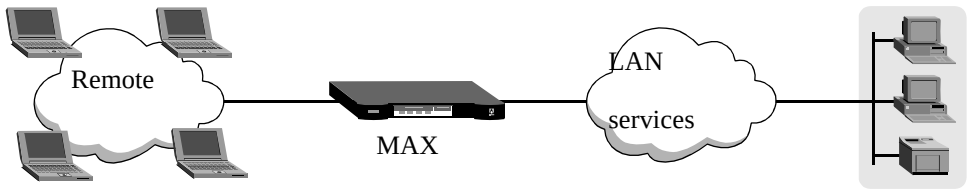
1

The MAX 800 is a flexible, reliable, WAN-access switch providing users with remote access to network devices. This remote-access solution relies on use of credit-card sized adapter cards called PCMCIA cards.

What is the MAX 800?

The MAX 800 is a flexible, scalable switch that provides access to a Wide Area Network (WAN). The MAX 8000 enables mobile workers in small offices and telecommuters to use analog or Integrated Services Digital Network (ISDN) to dial in over a WAN for connection to a LAN. They can access file transfer applications, printers, email, the Internet, and other network devices exactly as if they were connected directly to the local network.

Figure 1-1. A WAN access switch gives remote users access to LAN services



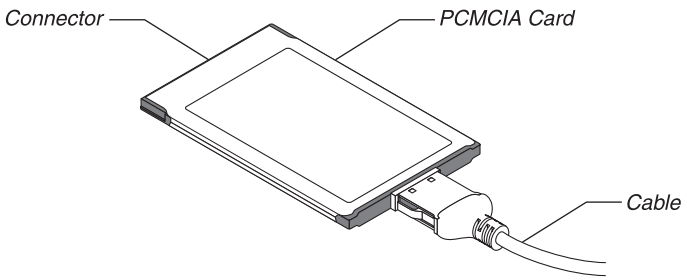
The MAX 800 offers a reliable network-access solution through the use of credit-card sized adapter cards, called PCMCIA cards (also called PC cards), and software upgrades.

What are PCMCIA cards?

A PCMCIA card is a credit card-sized adapter card that slides directly into the MAX 800. It conforms to the specifications of the Personal Computer Memory Card International Association (PCMCIA), which is the technical committee that sets the standards for credit-card sized adapter cards.

Type I PCMCIA cards are 3.3 millimeters thick and are used for various types of memory enhancements. Type II cards are slightly thicker and are used for memory enhancements and communications, such as modems. Type III cards are twice as thick as Type II cards and are used mostly for features that require a larger size, such as ISDN interfaces and removable hard disk drives.

Figure 1-2. A PCMCIA card



The MAX 800 accepts two types of PCMCIA card:

- Type II PCMCIA card modems, which must be on the Ascend list of approved PCMCIA cards. The list is published on the Ascend Web site (`http://www.ascend.com/modemlist`).
- Type III PCMCIA card ISDN adapters manufactured by Ascend.

The MAX 800 supports as many as eight PCMCIA card modems or four Ascend PCMCIA card ISDN adapters. You can also use a combination of modems and ISDN adapters, but each ISDN adapter card requires two PCMCIA card slots.

Installing the Hardware

2

The MAX 800 package contains hardware and software items you can use to set up your MAX 800. You need to evaluate the network connections you require, which items you need, and where to place your MAX 800. Then you can insert the PCMCIA cards and connect the unit to the network.

What is included in your package?

The MAX 800 package includes the following items:

- The MAX 800 unit.
- One of the following ac power cables to connect the power connector to an ac power outlet:
  - 110V (USA/domestic)
  - 220V (nondomestic)
- One straight-through cable to connect the MAX 800 to a workstation providing VT100-terminal emulation for configuring security settings.
- One Rack Mount Adapter Kit that contains two rack-mounting brackets and four screws for mounting the MAX 800 in a rack.
- Two 9-to-25 pin serial adapters (DB9M-DB25F and DB9M-DB25M) for connecting to older workstations or PCs.
- *MAX Companion* CD-ROM, containing NavisConnect (a configuration and management tool for the MAX 800), SecureConnect Firewall; Adobe Acrobat Reader, and selected other programs.
- IntragyAccess, a package including a CD-ROM that contains TCP/IP applications for enterprise-network access. These applications use a single user interface for electronic

messaging, local and remote file transfer and sharing, network printing, and terminal emulation for access to applications running on UNIX, VAX, and IBM mainframe hosts.

- Ascend Documentation Library CD-ROM, containing the Ascend documentation library in English, French, German, and Japanese.

If you ordered PCMCIA card ISDN adapters, you received them in a separate package.

If you are missing any items, contact your Ascend dealer.

What you need before you start

To use the MAX 800, you need a few essential items. You also need a workstation with which to configure them.

Minimum requirements

To use the MAX 800, you must have:

- A functioning 10Base-5 (thick) or 10Base-T (twisted-pair) Ethernet network.
- Approved PCMCIA card modems or Ascend PCMCIA card ISDN adapters. For a list of approved PCMCIA-card modems, visit the Ascend Web site at `http://www.ascend.com/modemlist`
- Analog or ISDN BRI telephone lines to connect to the PCMCIA cards, depending on your setup.

Workstation

After you install the MAX 800 hardware on the network, Ascend recommends that you restrict access to configuration settings by resetting two Security profile parameters and establishing a series of passwords. A Security profile specifies the level of access permitted to incoming callers.

To change these security settings, you can use either (1) NavisConnect configuration software, an application designed to simplify configuration, or (2) the MAX 800 unit's VT100 configuration interface, which is recommended only for administrators with experience configuring Ascend products.

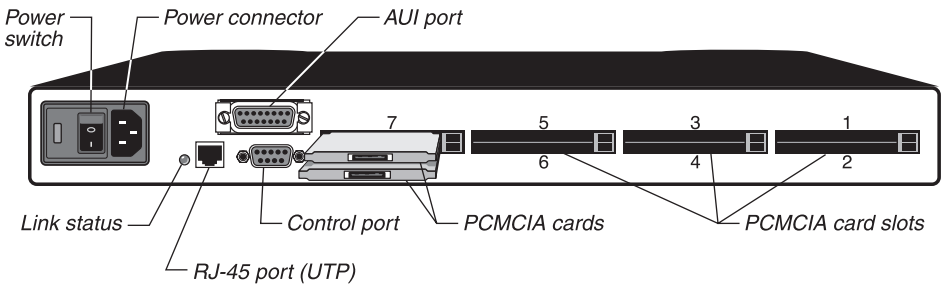
To use NavisConnect, you must install it on an IBM-compatible PC workstation with Microsoft Windows 95, Windows 3.1, Windows 98, or Windows NT 4.0 running on the same subnet as the MAX 800. NavisConnect is on the *MAX Companion* CD-ROM included in your MAX 800 package). The PC must also have an HTML browser installed for access to the NavisConnect online help.

If you want to use the VT100 configuration interface, you need a VT100 terminal or communications software that supports VT100-terminal emulation.

What is on the back panel?

Before you begin setting up the hardware, look at the back of the MAX 800 and refer to Figure 2-1 to identify each back-panel component. If you need more information about any component, read its description in Table 2-1.

Figure 2-1. MAX 800 back panel



Note: Figure 2-1 shows two PCMCIA card modems inserted in slots 7 and 8. One Ascend PCMCIA card ISDN adapter requires two slots.

Table 2-1. MAX 800 back panel components

Back-panel component	Description
Power switch	Turns MAX 800 power on or off.
Power connector	Connects the power cable from a MAX 800 to a grounded power source.
Link status light	Identifies the status of the 10Base-T Ethernet connection. If the light is on, a working connection exists between the MAX 800 10Base-T port and the Ethernet hub.
RJ-45 port	RJ-45 port for unshielded twisted pair (UTP) cable connecting the MAX 800 to a 10Base-T Ethernet network.
AUI port	Attachment Unit Interface (AUI) port for connecting the MAX 800 to a 10Base-5 Ethernet network.
Control port	Connects the MAX 800 to a VT100 terminal, modem, or workstation (with terminal-emulation software) for serial access to the VT100 configuration interface.

Table 2-1. MAX 800 back panel components (continued)

Back-panel component	Description
PCMCIA-card slots	Houses approved PCMCIA-card modems and Ascend PCMCIA card ISDN adapters.

Cables and connectors

Table 2-2 describes the cables and connectors used for the MAX 800 ports.

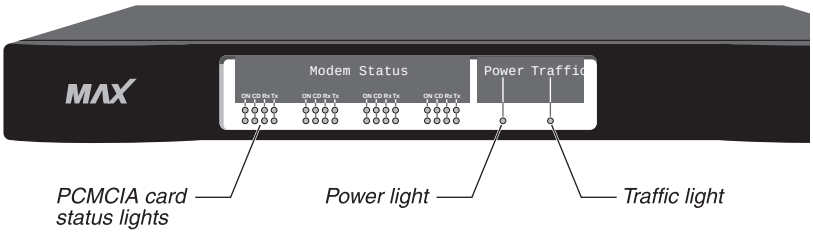
Table 2-2. MAX 800 cables and connectors

Port	Cable and Connectors
UTP	10Base-T Ethernet cabling, which uses unshielded twisted-pair wiring with RJ-45 eight-conductor plugs at each end to connect the MAX 800 to the 10Base-T Ethernet hub through a wall jack.
AUI	10Base-5 Ethernet cabling, which uses coaxial cable with 15-pin D-subminiature connectors at each end to connect the MAX 800 to a 10Base-5 transceiver.
Control	Straight-through cable (supplied) with RS-232 connectors at each end to connect the MAX 800 to a VT100 terminal, a modem, or a workstation running terminal-emulation software.
PCMCIA card slots	Use only PCMCIA cards that are on the Ascend approved list (`http://www.ascend.com/modemlist`), or Ascend PCMCIA card ISDN adapters. Use the cables and connectors supplied by the PCMCIA card manufacturer or refer to the manufacturer's instructions for cable and connection specifications.

What is on the front panel?

The front panel contains 34 indicator lights. Thirty-two lights, labeled Modem Status, correspond to the eight PCMCIA card slots on the back panel. The other two lights indicate power and network traffic.

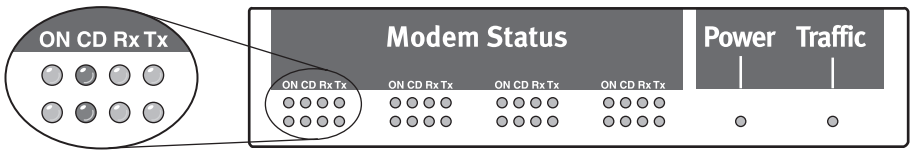
Figure 2-2. MAX 800 front panel



Once you understand what the MAX 800 status-indicator lights represent, why they flash, and when they should not be flashing, you can interpret the status of your MAX 800 and its PCMCIA cards. Figure 2-3 shows the location of the lights.

For information about how to interpret lights that do not operate as described in this section, see to Appendix B, “Troubleshooting.”

Figure 2-3. MAX 800 indicator lights



Power light

The green Power light indicates when the unit has been turned on and is receiving power.

Traffic light

The yellow Traffic light blinks to indicate that the MAX 800 has been properly installed and is transmitting and receiving data across the network.

Indicator light activity for PCMCIA cards

Each of the eight modem slots on the MAX 800 unit’s back panel has four corresponding lights on the front panel. They are:

- ON—Power (green)
- CD—Carrier Detect (red)
- Rx—Receive data (yellow)

- Tx—Transmit data (yellow)

These four lights provide status information corresponding to each of the eight PCMCIA cards optionally plugged into the MAX 800. (See Figure 2-3.)

The activity of the lights and how to interpret them differs depending on which type of card is in use. “Light activity for PCMCIA card modems” describes how to interpret the lights when a PCMCIA card modem is inserted in the corresponding slot. “Light activity for Ascend PCMCIA card ISDN adapters” on page 2-6 explains how to interpret them when a PCMCIA card ISDN adapter is inserted in the corresponding slot.

Light activity for PCMCIA card modems

The following sections describe indicator light activity and interpretation when PCMCIA card modems are in use.

ON

Each of the ON indicator lights indicates whether the corresponding modem is connected correctly and/or recognized by the MAX 800. When this light is on, the modem is ready to receive data.

A flashing ON light means that the MAX 800 does not recognize the modem but is going to attempt to receive data through it anyway and interpret the data as Hayes-compatible modem commands. This happens only when the modem is not on the approved list or is malfunctioning. You can eject the questionable modem or let the MAX 800 attempt to receive data through it.

CD

A CD light turns on when an outside phone line connects to the corresponding modem. The light remains lit until the remote party disconnects from the line.

Rx

An RX light flashes when data is being received over the phone line through the associated modem.

Tx

A TX light flashes when data is being transmitted over the phone line through the associated modem.

Light activity for Ascend PCMCIA card ISDN adapters

The following sections describe indicator light activity and interpretation when PCMCIA card ISDN adapters are in use.

ON

When the ISDN adapter completes its startup diagnostic tests, the lower ON light is illuminated. The upper ON light illuminates after the PCMCIA card establishes network communication. (See Figure 2-3.)

Note: Establishment of network communication occurs only after you properly configure the PCMCIA cards. If you are using NavisConnect to configure and manage your MAX 800, see the *NavisConnect User's Guide*. If you are using the VT100 interface, see the *Network Configuration Guide* for your MAX 800.

CD

A CD light (red) illuminates when a call is in progress. The top light illuminates when a B1 channel call is in progress. The bottom light illuminates when a B2 channel call is in progress.

Rx

An RX light flashes when data is being received over the phone line and through the associated PCMCIA card. The top light is for the B1 channel. The bottom light is for the B2 channel.

Tx

A TX light flashes when data is being transmitted over the phone line through the associated PCMCIA card. The top light is for the B1 channel. The bottom light is for the B2 channel.

Setting up the hardware

When you are ready to set up the MAX 800, gather the package contents and place the unit so that the back panel is facing you. Make sure the power switch is in the Off position (labeled *0*). Then connect the appropriate cables to your PCMCIA-card modems or adapters, insert the cards, and position the unit for use (rack mounted or on a flat surface).

So that you can later configure the unit, you need to set up a controlling computer. You can either run NavisConnect on the same subnet to which you connect the MAX 800, or connect a VT100 terminal or terminal emulator to the MAX 800 control port.

Finally, connect the MAX 800 to your network, plug in the power cord, and switch the unit on.

Inserting the PCMCIA cards

The MAX 800 can accommodate approved Type II PCMCIA-card modems and Ascend Type III PCMCIA card ISDN adapters. You can insert up to eight Type II PCMCIA card modems or up to four Ascend Type III PCMCIA card ISDN adapters. You can place both types of card in a single MAX 800. However, the ISDN adapter PCMCIA cards each take up two PCMCIA card slots.

PCMCIA cards are *hot-swappable*, which means you can insert and eject the cards when the MAX 800 power is on without damaging the cards or the MAX 800. After swapping cards, restart the MAX 800.

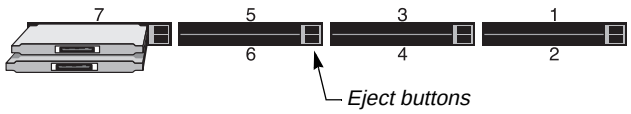
Note: Ascend BRI cards are supported only in MAX 200Plus or MAX 800 units.

To insert a PCMCIA card into the slot:

1. Plug the appropriate cable into each PCMCIA card. Use only the cable supplied with each PCMCIA-card modem or adapter or that recommended by the card's manufacturer.
2. Connect each PCMCIA card to the MAX 800 by pushing the card into a slot on the back panel. Ascend recommends that you begin with slot number one and continue in numerical order. You can, however, use any combination of the eight slots on the back of the MAX 800. Figure 2-4 shows where the slots are located.

   Most PCMCIA cards have an arrow showing the direction in which to insert them. The slots are grouped in twos. To avoid improper positioning, you must hold the card horizontally when inserting it into a slot.

Figure 2-4. PCMCIA-card modems in slots



   Note: You should use PCMCIA-card modems with internal RJ-11 adapters (such as XJACK) only in the upper slots. In this way, the telephone cable plugged into the modem does not interfere with modems in the lower slots.

   When a PCMCIA card is connected firmly, the eject button associated with it pops out.
3. Use the cable recommended by your PCMCIA card manufacturer to connect the card to the telephone wall jack.

   See the manufacturer's documentation before connecting to the telephone system.
4. Check your connection. When a PCMCIA card is connected firmly, the eject button associated with it pops out. When the PCMCIA card has been installed correctly, the green light labeled ON is illuminated.

You can remove PCMCIA cards from the MAX 800 by pushing the eject button to the right of the card you want to remove.

Note: Two modem slots are housed in such a way that they touch each other. Be aware that by pushing one button you might inadvertently eject both modems. To avoid this happening, you can use a finger to hold the modem you do not want to eject in place while pressing the button.

Positioning the MAX 800

You can either rack mount the MAX 800 in a wiring closet or place it on a flat surface.

Rack-mounting the MAX 800

The MAX 800 package includes mounting brackets for attaching the unit to your equipment rack. You can attach the rack-mounting ears to either the front or back of the MAX 800 unit. Proceed as follows:

1. Place the MAX 800 upside down on a flat surface, with the front panel facing you.
2. Align the screw holes on a rack-mount bracket with the screw holes on the MAX 800. You can position the bracket in either direction to accommodate your particular equipment rack.
3. Using a Phillips screwdriver, attach the three screws included with your kit.
4. Follow steps 2 and 3 to attach the other bracket.
5. Follow the equipment rack manufacturer's instructions to attach the MAX 800 to your rack.

Placing the MAX 800 on a flat surface

If you place the MAX 800 on a table, make sure you choose a location where air can circulate. Make sure that none of the unit's side air vents are obstructed.

Setting up a controlling computer

To make sure that the MAX 800 is functioning properly, you have to configure some basic settings after you complete the installation. At the same time, you should configure basic security settings to prevent users from reconfiguring the unit. The *MAX Companion* CD-ROM you received with the MAX 800 includes NavisConnect, which simplifies configuration tasks.

To use NavisConnect, you must install it on a workstation running Windows 3.1, Windows 95 or 98, or Windows NT4.0 on the same subnet to which you connect the MAX 800. The workstation should also have a Web browser installed, so that you can access online help for NavisConnect. To install NavisConnect, place the disk in the CD-ROM drive and use the Windows run function to execute `NavisConnect 1.0.exe`.

Alternatively, you can connect a VT100 terminal, or a computer with VT100-emulation software, to the MAX 800 control port. (Most communications programs include VT100 emulation.) This method is recommended only for administrators with experience in configuring Ascend products. To connect the terminal or computer to the MAX 800, use the supplied straight-through cable to connect the MAX 800 control port to a serial port on the terminal or computer. If using a terminal emulator, be sure to specify the serial port to which you have connected the MAX 800, and set the communications parameters as follows:

- VT100 emulation
- 9600 bps
- 8 data bits
- No parity
- 1 stop bit
- Direct connect

After you have assigned an IP address to the MAX 800, you can also use a Telnet session for configuration. A Telnet session provides an identical VT100-configuration interface to that provided through the control port.

Connecting the MAX 800 to your network

You can connect the MAX 800 directly to your 10Base-5 (thick) or 10Base-T (twisted-pair) Ethernet cabling system. Each MAX 800 can support only one type of Ethernet connection at a time. The MAX 800 automatically senses the type of Ethernet connection.

To install the MAX 800 on your network, follow the instructions for your cabling system.

Connecting the MAX 800 to a 10Base-T Ethernet network

To connect the MAX 800 to a 10Base-T network:

1. Plug the RJ-45 plug at one end of the 10Base-T (twisted pair) cable into the UTP port on the back panel of the MAX 800.
2. Plug the RJ-45 plug at the other end of the 10Base-T cable into the RJ-45 wall jack to access the network hub.

Connecting the MAX 800 to a 10Base-5 Ethernet network

To connect the MAX 800 to 10Base-5 network:

1. Open the slide mechanism on the 15-pin D-subminiature connector on the 10Base-5 coaxial cable. Insert the connector into the MAX 800 unit's AUI port. Push the slide mechanism to secure the connection.
2. Plug the 15-pin connector at the other end of the cable into the 10Base-5 transceiver.

Where to go next?

The next chapter describes how to power on the MAX 800 and set basic security settings to ensure that unauthorized users cannot tamper with the MAX 800 unit's operational settings.

Establishing MAX 800 Security

3

The MAX 800 is shipped from the factory with default security settings enabling you to configure the unit. When you connect the MAX 800 to your network and power it on, you need to protect it from unauthorized configuration and usage by changing the security settings and establishing Telnet and SNMP passwords. You can use either NavisConnect or the VT100 interface to enhance MAX 800 security. This chapter describes how to use NavisConnect. The VT100 interface is recommended only for administrators who have experience in configuring Ascend products. For instructions, see Appendix A, "Security Using the VT100 Interface."

Complete MAX 800 configuration is beyond the scope of this guide. For information about how to configure the MAX 800, see the annotated list of MAX 800 manuals in "Documentation set" on page xiii to determine which manuals you need.

MAX 800 security can be modified in a variety of other ways that are described in detail in the *MAX Security Supplement* and the *MAX RADIUS Configuration Guide*.

MAX 800 security basics

Before the MAX 800 can operate, you must configure the software residing on it. To enable configuration, Ascend ships the unit with its basic security parameters set to all full access privileges. Consequently, once MAX 800 hardware is installed and configured on the network, anyone can dial in and configure the software residing on it.

Ascend recommends that you protect the MAX 800 from unauthorized access as soon as you install it on the network. To do so, you must:

- Configure the Default Security profile to restrict the access privileges granted by default to all callers.
- Configure the Full Access Security profile by changing the password for configuration access privilege from the factory-default password.
- Establish Telnet, SNMP write community, and administrative user passwords.

Changing the Security profile protects the MAX 800 from unauthorized configuration through the VT100 interface. Establishing Telnet, SNMP write community, and administrative user passwords protects the MAX 800 from unauthorized configuration through either the VT100 interface or NavisConnect.

Restricting MAX 800 access with NavisConnect

You can use NavisConnect to assign an IP address to the MAX 800 and restrict configuration access.

NavisConnect is an application for accessing and editing the database of configuration information on the MAX 800. When you use NavisConnect, the application downloads configuration data from the MAX 800. You edit the data on the PC workstation, then save it and load it onto the MAX 800. None of the changes take effect until they are saved and loaded onto the MAX 800.

For detailed information about installing and using NavisConnect, see the *NavisConnect User's Guide* and NavisConnect online help.

Before you start, make sure that you have an IBM-compatible PC workstation with Microsoft Windows 95, Windows 3.1, Windows 98, or Windows NT 4.0 running on the same subnet as the MAX 800. The PC also needs an HTML browser for access to NavisConnect online help.

When you use NavisConnect to perform initial MAX 800 configuration, you first need to assign an IP address to the unit. Before beginning, make sure you have the following information:

- An IP address and optionally, a system name.
- Simple Network Management Protocol (SNMP) passwords. The default read-write community password is `write`.
- Whether you want to enable SNMP host-based security (optional).
- A Telnet password (optional). The default is a null value.
- An administrative-user password (optional).

Installing NavisConnect

NavisConnect is on the *MAX Companion* CD-ROM included in your MAX 800 package.

If you have already installed NavisConnect, proceed to "Starting the MAX 800" on page 3-3. If you have not installed the program, install it on a PC workstation running on the same subnet as the MAX 800.

Information you need for installation

While you are installing NavisConnect, you need to identify the location in which you want to install it. The default destination folder is `C:\Program Files\Ascend\NavisConnect`. If you want to select another destination folder, you do so during the Setup process.

Using NavisConnect Setup

Before starting the installation procedure, exit from all Windows programs.

The NavisConnect Setup program is an installation wizard that installs executable files, help files, and a variety of supporting files in default directory or in a directory that you select.

By default, Setup also places NavisConnect in the Windows Start menu. It is accessible by selecting Start > Programs > NavisConnect > NavisConnect.

To install NavisConnect:

1. Put the *MAX Companion* CD-ROM in the CD-ROM drive.
2. Double-click the NavisConnect program icon or use the Windows Run function to execute `NavisConnect 1.0.exe`. A pop-up dialog box appears notifying you of the progress in unpacking and reading the files in the NavisConnect package. When the process is complete, a welcome screen appears. Click Next to proceed.
3. The Choose Destination Location screen appears. Click Next to accept the default location, `C:\Program Files\Ascend\NavisConnect`, or select another destination folder and click Next.

   Thermometer-style progress indicators appear. The left indicator represents copying of individual files, the center indicator represents progress through the installation, and the right indicator represents the amount of disk space on the target disk. When the process is completed, the Setup Complete screen appears. You can start NavisConnect immediately, or you can exit from the Setup program and use the Windows Start menu to start it later.
4. Click the Finish button.

Starting the MAX 800

To start the MAX 800:

1. If you have not already done so, connect one end of the ac power cord to a power source and the other end to the MAX 800.
2. Press the bottom half of the MAX 800 power switch, labeled *1*, to turn the unit on.

The Power-On Self Test (POST) starts and finishes in about one minute. While the test is running, observe the lights. (For information on what the lights indicate, see “Indicator light activity for PCMCIA cards” on page 2-5 and “Interpreting MAX 800 error messages” on page B-2.)

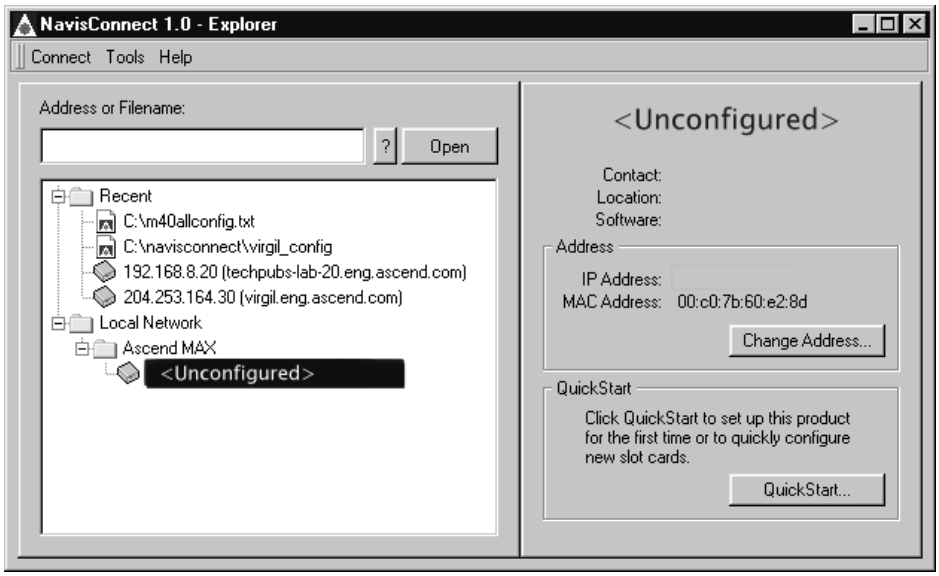
If the Power light is on, the MAX 800 is operating. Continue with “Assigning an IP address and setting passwords” on page 3-3.

If the Power light does not go on, remove the power cord and do not continue. Contact your Ascend dealer.

Assigning an IP address and setting passwords

The NavisConnect Explorer’s Change Address button enables you to assign or change an IP address and Telnet, SNMP, and administrative passwords.To use it:

1. Start NavisConnect (Start > Programs > NavisConnect > Navis-Connect).
2. In the Explorer’s navigation tree, double-click the icon for the unconfigured MAX 800 (`<Unconfigured>`). The Change Address button appears in the device information panel on the right:



3 Click the Change Address button.

The Change Name and Address dialog box appears:

4 Type the IP address and select the subnet mask that together form the IP address of the MAX 800. You can also specify a name so that the MAX 800 can be identified without having to remember the IP address. When finished, click Next. The content of the Change Name and Address dialog box changes to prompt you for additional information.

5 To use NavisConnect, you must enable SNMP. Click Next to continue.

6 Type a read-only and read-write SNMP password. (Although optional, Ascend recommends that you use passwords.) Click Next to continue.

7 Press Next to restrict SNMP-management access to trusted hosts only and to add the PC workstation running NavisConnect to the list of trusted hosts. Click Next to continue.

8 Type a password to be required for users accessing the MAX 800 through a Telnet connection. Also type a password to be required for administrators using NavisConnect to configure the MAX 800. (Although optional, Ascend recommends that you set these passwords.) Click Next.

9 Click the Finish button.

NavisConnect connects to the MAX 800, applies the address and passwords you specified, and downloads its configuration to NavisConnect. After a few moments, the configuration window appears.

Restricting access automatically granted to all callers

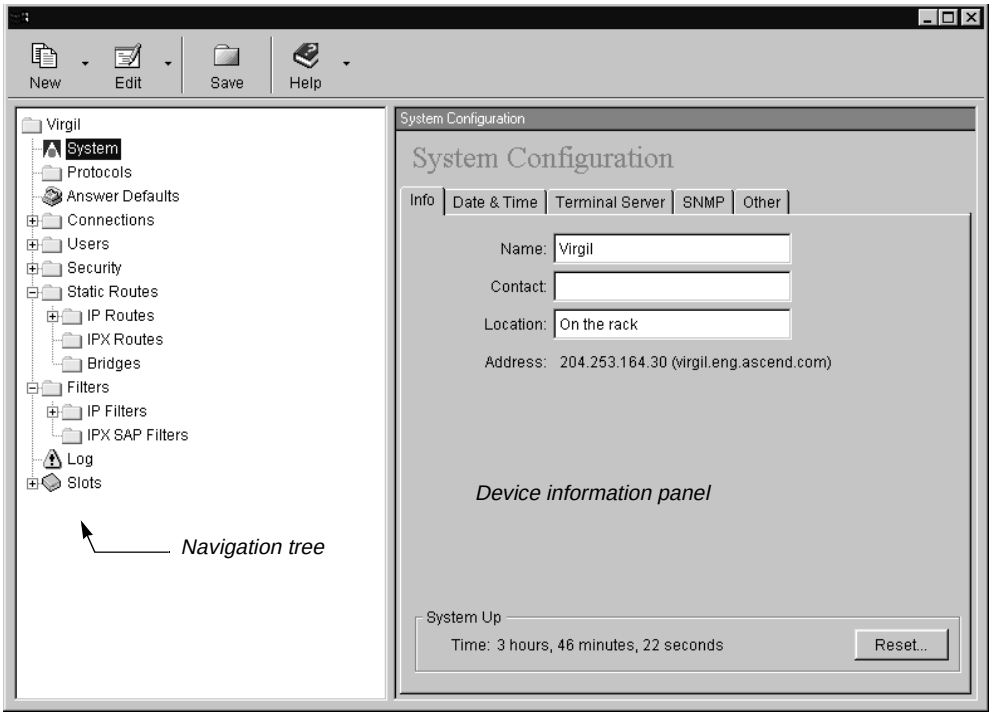
The configuration window appears when you finish assigning the MAX 800 an IP address. To restrict access automatically granted to all callers on a new MAX 800, you must use the configuration window to:

- Configure the Default Security profile.
- Change the Full Access Security profile from the factory default, `Ascend`, to a secure password.

Limiting configuration access with the Default Security profile

Use the configuration window to access and edit the Security profiles. (See Figure 3-1.)

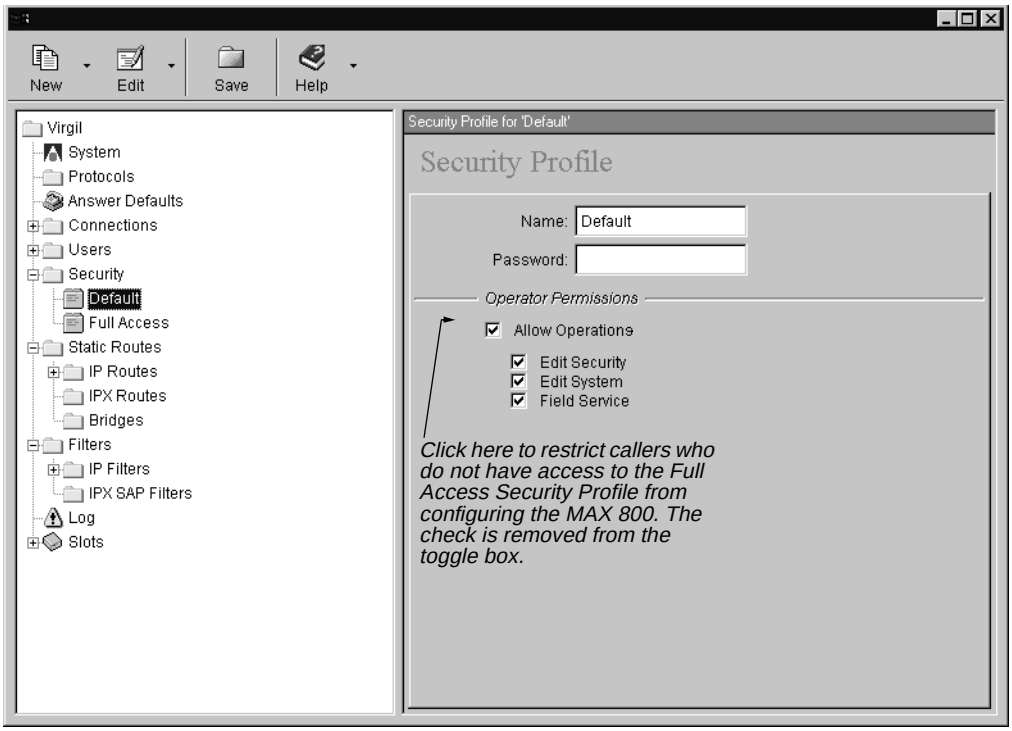
Figure 3-1. NavisConnect configuration window



1 In the navigation tree, double-click Security. Default and Full Access profiles become accessible:

2 Click Default.

The Default Security Profile displays in the device information panel.

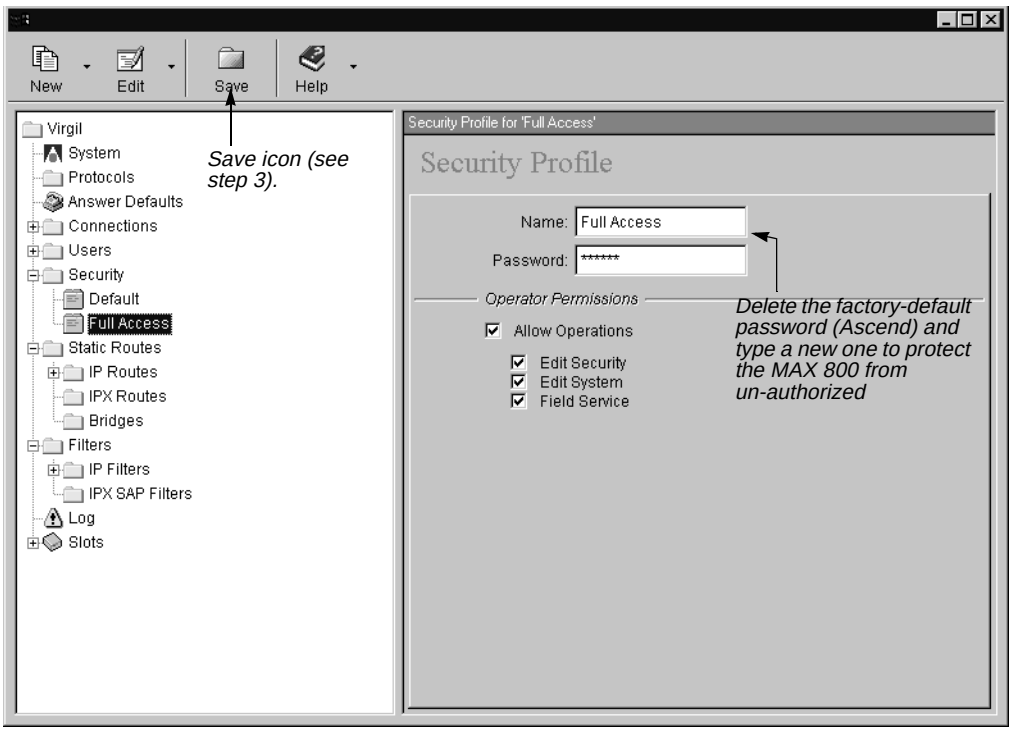


3 Clear the Allow Operations check box. The new setting will be saved when you click the Save icon, as described in the next section.

Changing the password in the Full Access Security profile

After changing the Default Security profile as described in the preceding section:

1 In the navigation tree, click Full Access.
The Full Access Security Profile displays in the device information panel.

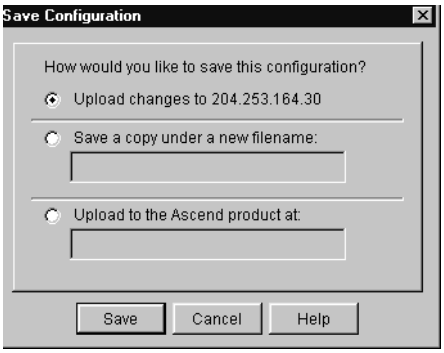


2 Delete the existing password, displayed as six asterisks (******) and type a new password of 20 or fewer characters.

Caution: Do not restrict the configuration access in the Full Access Security profile. Make sure that Allow Operations remains selected.

3 Click the Save icon.

The Save Configuration dialog box appears.



4 Click the Save button to upload the changes to the MAX 800. After saving the changes, you can exit from NavisConnect or you can proceed to configure the MAX 800.

When you reset or power-cycle the MAX 800, the new, restrictive Default Security profile will be in effect for VT100 interface access. To configure the MAX 800 using the VT100 interface, you will be required to supply the new password that you assigned in step 2 to activate the Full Access Security profile.

For information about configuring the MAX 800, see the *NavisConnect User's Guide* and NavisConnect online help. You can also see the *Network Configuration Guide* for the MAX 800and the following documents on the Ascend Documentation Library CD-ROM: the *Administration Guide* for the MAX 800, and the *MAX Series Reference Guide*.

Where to go next?

To use NavisConnect to configure the MAX 800, see the *NavisConnect User's Guide* and NavisConnect online help.

Security Using the VT100 Interface

A

You can connect the MAX 800 unit control port directly to a workstation running VT100-terminal-emulation software and use the VT100 configuration interface to restrict MAX 800 configuration access. If you use this method, you do not have to assign an IP address before restricting access. (After you have assigned an IP address, you can also use Telnet to establish a VT100 configuration session with the MAX 800. The Telnet session establishes a VT100 configuration environment that is identical to the VT100 configuration interface established through the control port.)

This section includes basic instructions for changing Security profile settings and Telnet and SNMP passwords. For detailed information about using the VT100 configuration interface, see the *Network Configuration Guide* for the MAX 800. For more information about MAX 800 security options, see the *MAX Security Supplement*. You can also see the following documents on the Ascend Documentation Library CD-ROM: the *Administration Guide* for the MAX 800, and the *MAX Reference Guide*.

Accessing the VT100 interface

To access the VT100 interface, first connect a terminal or terminal emulator to the control port, as described in “Setting up a controlling computer” on page 2-9. Leave the terminal or emulator running, and start the MAX 800, as described in “Starting the MAX 800” on page 3-3.

When the MAX 800 completes its POST, press any key to display the Main Edit Menu and status windows

Restricting access automatically granted to all callers

To restrict the access automatically granted to all callers on a new MAX 800, you must:

- Restrict the configuration access to the MAX 800 provided by the Default Security profile.
- Change the Full Access Security profile from the factory-default, which is `Ascend`, to a secure password.
- Set a password to be used by all callers requesting Telnet sessions.

- Change the default SNMP read-write community password from `write` to a secure password.

Restricting the default access

1 With the cursor (>) pointing to System, press Enter.

The System menu appears:

```
00-000 System
> 00-100  Sys Config
  00-200  Sys Diag
  00-300  Security
```

2 Press Ctrl-N or the Down Arrow key to move the cursor down until it is pointing to Security:

```
00-000 System
  00-100  Sys Config
  00-200  Sys Diag
> 00-300  Security
```

3 Press Enter to display the Security menu:

```
00-300 Security
> 00-301  Default
  00-302
  00-303  Full Access
```

4 Press Enter again to display the Default Security profile:

```
00-301 Default
> Name=Default
  Passwd=
  Operations=Yes
  Edit Security=Yes
  Edit System=Yes
  Field Service=Yes
```

5 Press Ctrl-N or the Down Arrow key to move the cursor down until it is pointing to Operations:

```
00-301 Default
  Name=Default
  Passwd=
> Operations=Yes
  Edit Security=Yes
  Edit System=Yes
  Field Service=Yes
```

6 Press Enter to change the Operations setting from the default value of Yes to No.

7 Press Ctrl-X, Ctrl-B, or the Left Arrow key to exit from the Default Security profile.

The Exit menu appears:

```
Exit?
> 0=ESC (Don't exit)
  1=Exit and discard
  2=Exit and accept
```

8 Press 2 to exit the profile and save the changes.

The top-level Security menu reappears:

```
00-300 Security
> 00-301  Default
  00-302
  00-303  Full Access
```

9 Continue with “Changing the password in the Full Access Security profile” on page A-3.

Changing the password in the Full Access Security profile

To change the password in the Full Access Security profile:

1 In the top-level Security menu, press Ctrl-N or the Down Arrow key to move the cursor down until it is pointing to Full Access:

```
00-300 Security
  00-301  Default
  00-302
> 00-303  Full Access
```

2 Press Enter to open the Full Access profile:

```
00-303 Full Access
> Name=Full Access
  Passwd=Ascend
  Operations=Yes
  Edit Security=Yes
  Edit System=Yes
  Field Service=Yes
```

3 Press Ctrl-N or the Down Arrow key to move the cursor to `Passwd=Ascend`.

4 Press Enter.

An edit field opens, delimited by brackets:

```
00-303 Full Access
  Name=Full Access
  Passwd:
  [Ascend]


Edit System=Yes
  Field Service=Yes
```

A blinking text cursor appears in the brackets.

5 Type a new, secure password, consisting of no more than 20 characters. The factory-default password is cleared when you type a character.

6 Press Enter to exit from the text entry mode and accept the new password.

7 Press Ctrl-X, Ctrl-B, or the Left Arrow key to exit from the Full Access profile.

The Exit menu appears:

```
Exit?
> 0=ESC (Don’t exit)
  1=Exit and discard
  2=Exit and accept
```

8 Press 2 to exit from the profile and save the changes.

The top-level Security menu appears:

```
00-300 Security
> 00-301  Default
```

```
  00-302
  00-303  Full Access
```

Later, when you reset or power-cycle the MAX 800, the new, restrictive Default profile will be in effect. To configure the MAX 800, you will be required to supply the new password that you assigned in step 5 to activate the Full Access Security profile.

9 Continue with “Setting password protection for Telnet access” on page A-4.

Setting password protection for Telnet access

Assigning a Telnet password ensures that all users requesting Telnet sessions with the MAX 800, either locally or across a WAN, must enter the password. To assign a password:

1 If you have just finished configuring the Security profiles, press Ctrl-X, Ctrl-B, or the Left Arrow key to exit from the Security Profile.

The System menu appears:

```
00-000 System
> 00-100  Sys Config
  00-200  Sys Diag
  00-300  Security
```

2 Press Ctrl-X, Ctrl-B, or the Left Arrow key to exit from the System menu.

The Main menu appears.

3 Press Ctrl-N or the Down Arrow key to move the cursor to Ethernet:

```
  00-000  System
  10-000  PC CARD Modem
  20-000  PC CARD Modem
  30-000  Empty
  40-000  PC CARD Modem
  50-000  PC CARD Modem
  60-000  PC CARD Modem
  70-000  PC CARD Modem
  80-000  PC CARD Modem
> 90-000  Ethernet
```

4 Press Enter. The Ethernet menu appears:

```
90-000 Ethernet
> 90-000  Ethernet
  90-100  Connections
  90-200  Names / Passwords
  90-300  Bridge Adrs
  90-400  Static Rtes
  90-500  Filters
  90-600  Firewalls
  90-700  Answer
  90-800  SNMP Traps
  90-900  IPX Routes
  90-A00  IPX SAP Filters
  90-B00  Mod Config
```

5 Press Ctrl-N or the Down Arrow key to move the cursor to Mod Config:

```
90-000 Ethernet
  90-000  Ethernet
  90-100  Connections
  90-200  Names / Passwords
```

```
  90-300  Bridge Adrs
  90-400  Static Rtes
  90-500  Filters
  90-600  Firewalls
  90-700  Answer
  90-800  SNMP Traps
  90-900  IPX Routes
  90-A00  IPX SAP Filters
> 90-B00  Mod Config
```

6 Press Enter to display the Mod Config menu:

```
90-B00 Mod Config
>  Ether options...
   WAN options...
   SNMP options...
   Route Pref...
   TServ options...
   Bridging=Yes
   IPX Routing=Yes
   AppleTalk=Yes
   Shared Prof=Yes
   Telnet Security=Global
   Telnet PW=xxxxx
   RIP Policy=Split Horzn
   RIP Summary=Yes
   RIP Trigger=Yes
   ICMP Redirects=Accept
   DNS...
```

7 Press Ctrl-N or the Down Arrow key to move the cursor to Telnet PW.

8 Press Enter.

An edit field opens, delimited by brackets:

```
90-B00 Mod Config
   Ether options...
   WAN options...
   SNMP options...
   Route Pref...
   TServ options...
   Bridging=Yes
   IPX Routing=Yes
   AppleTalk=Yes
   Shared Prof=Yes
   Telnet Security=Global
>  Telnet PW:
       []


   ICMP Redirects=Accept
   DNS...
```

A blinking text cursor appears in the brackets.

9 Type a password of 20 or fewer characters.

10 Press Ctrl-X, Ctrl-B, or the Left Arrow key to display the Exit menu:

```
Exit?
> 0=ESC (Don't exit)
  1=Exit and discard
  2=Exit and accept
```

11 Press 2 to exit and save the changed password.

The Ethernet menu reappears.

12 Continue with "Setting password protection for SNMP access" on page A-6.

Setting password protection for SNMP access

An SNMP community string is a password that SNMP manager applications must specify to gain access to the SNMP Management Information Base (MIB). The read community string is `public` by default, enabling SNMP managers to perform read commands. The read-write community string is `write` by default, enabling SNMP managers to perform read and write commands. You should change the read-write community string to a more secure password. To change the password:

1 With the Ethernet menu displayed, press Ctrl-N or the Down Arrow key to move the cursor to SNMP options:

```
90-B00 Mod Config
  Ether options...
  WAN options...
> SNMP options...
  Route Pref...
  TServ options...
  Bridging=Yes
  IPX Routing=Yes
  AppleTalk=Yes
  Shared Prof=Yes
  Telnet Security=Global
  Telnet PW=xxxxx
  RIP Policy=Split Horzn
  RIP Summary=Yes
  RIP Trigger=Yes
  ICMP Redirects=Accept
  DNS...
```

2 Press Enter to display the SNMP Options menu:

```
90-000 Mod Config
  SNMP options...
>  READ Comm=public
   R/W Comm Enable=Yes
   R/W Comm=write
   Security=No
   RD Mgr1=0.0.0.0
   RD Mgr2=0.0.0.0
   RD Mgr3=0.0.0.0
   RD Mgr4=0.0.0.0
   RD Mgr5=0.0.0.0
   WR Mgr1=0.0.0.0
   WR Mgr2=0.0.0.0
   WR Mgr3=0.0.0.0
   WR Mgr4=0.0.0.0
```

```
WR Mgr5=0.0.0.0
Queue Depth=0
```

3. Press Ctrl-N or the Down Arrow key to move the cursor to R/W Comm. The default read-write community string, which is set in the R/W comm parameter, is `write`.
4. To change the password to a secure string, press Enter.

   An edit field opens, delimited by brackets:

   ```
   90-000 Mod Config
   SNMP options...
   READ Comm=public
   R/W Comm Enable=Yes
   R/W Comm=
   []
   ```

   A blinking text cursor appears in the brackets.
5. Type a string of 16 or fewer characters.
6. Press Ctrl-X, Ctrl-B, or the Left Arrow key to display the Exit menu:

   ```
   Exit?
   > 0=ESC (Don't exit)
     1=Exit and discard
     2=Exit and accept
   ```
7. Type 2 to exit and save the changed password.

   The Ethernet menu reappears.
8. Press Ctrl-D to exit from the VT100 configuration interface.

   The context-sensitive DO command menu appears:

   ```
   DO...
   > 0=Esc
     P=Password
     C=Close TELNET
   ```
9. Press C to close the connection.

Troubleshooting

B

Avoiding PCMCIA card problems

To avoid problems with PCMCIA card modems and ISDN adapters, be sure to use the proper cables, card modems, and ISDN adapters.

Use the correct cable

Use the modem cable or ISDN cable provided with your PCMCIA card or one recommended by the manufacturer. Although many cables look alike, you can not be sure that they are wired identically.

If you disconnect more than one cable at a time, label each one.

Use approved PCMCIA card modems

If you use modems, you should use only PCMCIA card modems that are on Ascend's approved modem list. The modem list is maintained on the Ascend Web site (`http://www.ascend.com/modemlist`).

If you install a modem that is not on the approved modem list, the MAX 800 first tries to configure it with a Hayes-compatible setup string. If the MAX 800 is still unable to read your PCMCIA card, the ON light associated with the PCMCIA card slot flashes, indicating that the MAX 800 is trying to configure the card.

If the MAX 800 is able to configure the modem, the light stops flashing in about 15 seconds and remains on. Otherwise, the light continues to blink.

Use Ascend PCMCIA card ISDN adapters

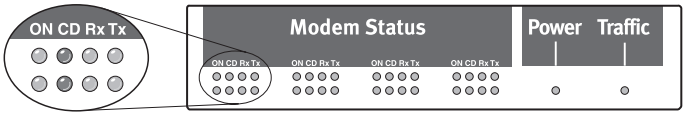
The MAX 800 supports Ascend PCMCIA card ISDN adapters only.

Interpreting MAX 800 error messages

During the Power-On Self Test (POST), the MAX 800 reports three types of errors:

- Noncritical errors, which are informational only.
- Critical errors, which you should notice and remedy, though they do not limit the ability of the MAX 800 to function (for example, a dead battery).
- Fatal errors, which shut down the MAX 800 and may require you to contact Ascend Customer Service for repair.

Figure B-1. MAX 800 indicator lights



The MAX 800 reports errors only during the startup sequence after it is powered on. It reports errors by turning on one or more of the 32 PCMCIA-card status indicator lights (labeled *Modem Status*) on the front as shown in Figure B-1.

The light in the upper left corner (PCMCIA card 1 ON) represents error message 0. The lights are then numbered horizontally from left to right, to match error message numbers from 0 to 15. The lights in the bottom row are numbered, starting with the lower left corner light (PCMCIA card 2 ON), horizontally from left to right, to match error message numbers from 16 to 31.

Note: After startup, while PCMCIA cards are in use, flashing lights are normal and do not indicate errors. For more information about status information obtained from indicator lights during normal operation, see “Indicator light activity for PCMCIA cards” on page 2-5.

During the startup sequence, fatal or critical errors are also output to the control port in the following format:

POST failed: *nnnnnnnn*

where *nnnnnnnn* is a hexadecimal representation of the error bits, with error 0 as the least significant bit and error 31 as the most significant bit.

Generally, errors do not occur individually. More often, they are in groups of associated errors. If an error occurs, write down the error number(s) and contact Ascend Customer Service. Table B-1 describes the various possible errors.

Table B-1. Light error indicators

Light	Severity	Description
0	Fatal	CPU error
1	Unused	
2	Fatal	SIMM DRAM error

Table B-1. Light error indicators (continued)

Light	Severity	Description
3	Critical	Battery error
4	Fatal	SRAM - Compare
5	Fatal	SRAM error
6	Critical	SRAM - Compare error when restored from DRAM
7	Fatal	Timer error
8	Critical	Serial port error
9	Fatal	DMA Controller error
10	Unused	
11	Unused	
12	Unused	
13	Fatal	MACE error (AMD 79C940)
14	Unused	
15	Noncritical	PCMCIA card 1 error
16	Noncritical	PCMCIA card 2 error
17	Noncritical	PCMCIA card 3 error
18	Noncritical	PCMCIA card 4 error
19	Noncritical	PCMCIA card 5 error
20	Noncritical	PCMCIA card 6 error
21	Noncritical	PCMCIA card 7 error
22	Noncritical	PCMCIA card 8 error
23	Unused	
24	Unused	
25	Critical	Interrupt error
26	Unused	
27	Unused	
28	Unused	

Table B-1. Light error indicators (continued)

Light	Severity	Description
29	Unused	
30	Unused	
31	Unused	

Hardware Specifications

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Operating environment

Operating Temperature:	10° to 40° Centigrade
	50° to 104° Fahrenheit
Storage Temperature:	10° to 40° Centigrade
	50° to 104° Fahrenheit
Relative Humidity:	5% to 95% (noncondensing)
Altitude:	0 to 12,000 feet

Power

Internal 100-240 Vac, 50/60 Hz Single Phase Input Current, 1.0A @100 Vac maximum.

Physical description

The MAX 800 base system weighs 7.25 pounds (3.26 kg) and has the following dimensions:

17.625" x 2.0" x 8.25" (44.75 cm x 5.08 cm x 20.95 cm)

Back-panel components

Table C-1 lists the back-panel components of the MAX 800.

Table C-1. Back-panel connectors, ports, and slots

Component	Function
Power connector	AC power (100 to 240 Vac)

Table C-1. Back-panel connectors, ports, and slots

Component	Function
Ethernet ports: AUI for 10Base-5 and UTP (RJ-45) for 10Base-T	One of the two Ethernet ports can be used at a time. The MAX 800 automatically detects which Ethernet system is in use.
Control port (serial)	Serial (DB-9) connector for access to the VT100 configuration interface.
Eight dual-height PC Type II slots (each pair of dual-height Type II slots can be used as one Type III slot)	Expansion modules can supply modems or ISDN BRI connectivity. For details, see the PCMCIA card manufacturer's specifications.

Glossary

10Base-5 Ethernet—An Ethernet cable system using 0.04 inch, 50-ohm coaxial cable wiring with 15-pin D-subminiature connectors at each end. One connector plugs into the AUI port on the MAX 800 back panel, and the other into a 10Base-5 transceiver. 10Base-5 cable standards are defined by the IEEE 802.3 standard. Also known as thick Ethernet.

10Base-T Ethernet—The 802.3 IEEE standard for operating a 10 Mbps Ethernet network with twisted-pair cabling with RJ-45 eight-conductor plugs and a wiring hub. Also known as unshielded twisted-pair (UTP) Ethernet or twisted-pair Ethernet.

AppleTalk—The Apple Computer network system. AppleTalk is a set of network protocols that control network file access, data transmission, and other functions. AppleTalk can be implemented on a variety of cable systems, including LocalTalk, Ethernet, and Token-Ring.

AUI connector—The Attachment Unit Interface (AUI) uses a DB-15 connector that connects to a transceiver on thick Ethernet, twisted-pair, fiber-optic, or other cable systems.

AUI port—The Attachment Unit Interface (AUI) uses a DB-15 port that connects to a transceiver on a cable system, such as thick Ethernet, twisted-pair, or fiber-optic.

B1 channel, B2 channel—ISDN BRI lines consist of two bearer channels (B channels) for dial-up transmission of voice or data and one D channel for call setup and signaling. B1 and B2 denote the two bearer channels.

bps—Binary digits per second. A measure of the capacity of a line.

BRI—See ISDN BRI line.

Carrier Detect—The carrier detect indicators illuminate when an outside phone line connects. They remain lit until the remote party disconnects from the line.

Configuration window (NavisConnect)—Graphical device in NavisConnect for displaying and changing an Ascend product's configuration parameters.

Explorer (NavisConnect)—NavisConnect tool for connecting to an Ascend unit and loading and displaying its parameters. Provides access to the NavisConnect QuickStart program and Syslog, a UNIX-based system activity log.

hot-swappable—Refers to a component, such as a PCMCIA card, that can be removed or inserted without shutting off the system power.

IEEE—Institute of Electrical and Electronic Engineers. The IEEE is an organization that maintains the standards for 10Base-T and other communications specifications.

IPX—Internetwork Packet Exchange. IPX is Novell's connectionless Network-layer protocol derived from XNS' Internetwork Datagram Protocol. IPX performs addressing and routing functions.

ISDN—Integrated Services Digital Network. ISDN is a telecommunications architecture capable of sending voice, data, and video in digital form on a digital line.

ISDN BRI line—ISDN Basic Rate Interface line.

LAN—Local Area Network. A LAN is a network in which two or more computers, located within a limited distance of one another, are connected for file sharing.

manager—An application that receives Simple Network Management Protocol (SNMP) information from an agent. An agent and manager share a database of information, called the Management Information Base (MIB). An agent can use a message called a traps-PDU to send unsolicited information to the manager. A manager that uses the Ascend Enterprise MIB can query the MAX 800, set parameters, sound alarms when certain conditions appear, and perform other administrative tasks.

navigation tree (NavisConnect)—In the NavisConnect Explorer, a navigation device for loading parameters from Ascend units and from configuration files. In the configuration window, a similar device is used for accessing profiles and setting groups.

NavisAccess—An application that delivers superior management for the dial-up and dedicated portions of the network, providing extensive support for discovery and mapping, configuration, fault and performance management, and security.

NavisConnect—A management tool for all True Access Operating System-enabled devices, including MAX 800. NavisConnect has a graphical user interface that can be used for installing and configuring Ascend devices.

PCMCIA card—Credit-card sized computer enhancement hardware with specifications defined by the PCMCIA. Also called PC card.

PCMCIA—The Personal Computer Memory Card International Association, a nonprofit trade and standards association that establishes and maintains the PCMCIA card specifications.

PC card—See PCMCIA card.

POST—Power-On Self Test. A POST is a diagnostic test the MAX 800 performs when it first starts up or after it completes a system reset. During a POST, the MAX 800 checks system memory, configuration, installed cards, compression hardware, and T1 connections.

profile—A collection of settings that enable you to configure various aspects of an Ascend product. For example, a Connection profile enables you to specify the name, password, and network resources for a dial-in caller.

PPP—Point-to-Point Protocol. PPP provides a standard means of encapsulating data packets sent over a single-channel WAN link. It is the standard WAN encapsulation protocol for the interoperability of bridges and routers. PPP also allows direct dial-up access from a personal computer to a corporate LAN or Internet Service Provider (ISP). Using PPP ensures basic

compatibility with non-Ascend devices. Both the dialing side and the answering side of the link must support PPP.

RJ-45 connector—The connector on one end of a 10Base-T cable that fits into the UTP (RJ-45) port on the back panel of the MAX 800.

RJ-45 port—The port on the back panel of the MAX 800, labeled UTP, that accepts the RJ-45 plug on one end of a 10Base-T cable. It is the port used to connect MAX 800 to a twisted-pair network.

Rx—Receive data light. Turns on when data transfers over the phone line through an associated modem. This light blinks to show activity through the modem.

Security Profile—A profile that consists of parameters you can set to control access to the MAX 800.

SNMP—Simple Network Management Protocol. SNMP is a standard way for computers to share networking information. In SNMP, two types of communicating devices exist: agents and managers. An agent provides networking information to a manager application running on another computer. The agent can be polled by the manager, and can also use a message called a traps-PDU to send unsolicited information to the manager when an unusual event occurs. The MAX 800 is an example of an SNMP agent. The agents and managers share a database of information, called the Management Information Base (MIB).

The MAX 800 supports SNMP MIB II, T1 MIB, and Ascend Enterprise MIBs. A manager that uses the Ascend Enterprise MIB can query the MAX 800, set parameters, sound alarms when certain conditions appear, and perform other administrative tasks. You can therefore manage the MAX 800 from a central SNMP manager, such as SunNet Manage or HP Open View.

SNMP security uses the community name that the manager sends with each polling request and that the agent sends with each traps-PDU. Ascend supports two community names: one with read-only, and the other with read/write, access to the MIB.

TCP/IP —Transmission Control Protocol/Internet Protocol. TCP/IP is a family of protocols that defines the format of data packets sent across a network. It is the communications standard for data transmission between different platforms.

TFTP—Trivial File Transfer Protocol. TFTP is a simple file transfer protocol that depends on UDP.

twisted-pair cable—A cable used for both network communications and telephone communications. Also called 10Base-T.

Tx —Transmit data light. Flashes when data is being sent over the phone line.

UDP—User Datagram Protocol. UDP is a Transport-layer protocol that provides connectionless service without packet acknowledgment.

UDP port—A16-bit number that allows multiple processes to use User Datagram Protocol (UDP) services on the same host. A UDP address is the combination of a 32-bit IP address and the 16-bit port number. Examples of well-known UDP ports are 7 (for Echo packets), 161 (for SNMP packets), and 514 (for Syslog packets).

UTP cable—Unshielded Twisted Pair cable. UTP cable consists of two wires twisted two or more times per inch to help cancel out noise. The entire cable has no covering. UTP cable is typically used in telephone lines for voice service, in ARCnet networks, in 10Base-T Ethernet networks, and in particular sections of Token-Ring networks.

UTP port—The MAX 800 port for connecting the 10Base-T cable's RJ-45 connector.

VT100—An ASCII-character data terminal, consisting of a screen and keyboard. Manufactured by Digital Equipment Corporation, the VT100 has become an industry standard data terminal. VT100-emulation software allows a standard PC to act as a VT100 terminal.

VT100 interface—The configuration and monitoring interface established with the MAX 800 through a VT100 or Telnet session with a VT100 emulator or Telnet connection on a workstation or a VT100 terminal.

WAN—Wide Area Network. A WAN is an internet of devices, generally consisting of several networks distributed over a wide geographic distance, connected by telephone lines, and using different hardware platforms and protocol encapsulation.

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