

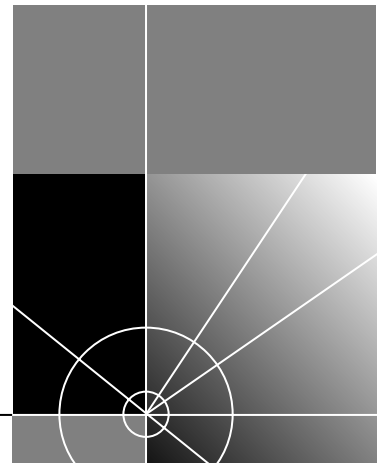


Visitor and Community Network Access Point Service Manual

Release 2.0

<http://www.3com.com/>

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Guide written by Ruth Zach and Ronald Schwarz. Illustrated by Pearl Goldberg and Ronald Schwarz. Produced by 3Com corporation.

ABOUT THIS GUIDE

This guide describes the 3Com® Visitor and Community Network Access Point Release 2.0, its installation, operation, management, and troubleshooting.



The NAU (Network Access Unit) name has been changed in release II and is referred to as Visitor and Community Network Access Point.

This guide is intended for technicians who install or service the VCN Access Point at customer sites.



If release notes are shipped with your product and the information there differs from the information in this guide, follow the instructions in the release notes.

Most user guides and release notes are available in Adobe Acrobat Reader Portable Document Format (PDF) or HTML on the 3Com World Wide Web site:

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Conventions

[Table 1](#) and [Table 2](#) list conventions that are used throughout this guide.

Table 1 Notice Icons

Icon	Notice Type	Description
	Information note	Information that describes important features or instructions
	Caution	Information that alerts you to potential loss of data or potential damage to an application, system, or device
	Warning	Information that alerts you to potential personal injury

Table 2 Text Conventions

Convention	Description
Screen displays	This typeface represents information as it appears on the screen.
The words "enter" and "type"	When you see the word "enter" in this guide, you must type something, and then press Return or Enter. Do not press Return or Enter when an instruction simply says "type."
Words in []	Default values are bracketed in "[]".
Keyboard key names	If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press Ctrl+Alt+Del
Words in <i>italics</i>	Italics are used to: <ul style="list-style-type: none"> ■ Emphasize a point. ■ Denote a new term at the place where it is defined in the text. ■ Identify menu names, menu commands, and software button names. Examples: From the <i>Help</i> menu, select <i>Contents</i>. Click <i>OK</i>.

Related Documentation

The Visitor and Community Based Networking System documentation set includes the following documents:

- Visitor and Community Based Networking Access Point Service Manual
- Visitor and Community Based Networking Access Concentrator Service Manual
- Visitor and Community Based Networking Access Point Mounting Guide
- Visitor and Community Based Networking Access Concentrator Installation Guide

Year 2000 Compliance

For information on Year 2000 compliance and 3Com products, visit the 3Com Year 2000 Web page:

<http://www.3com.com/products/yr2000.html>

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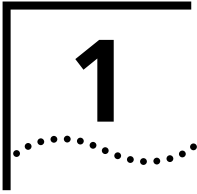
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OVERVIEW

This chapter provides an overview of the Visitor and Community Network Access Point.

The chapter includes the following topics:

- [Visitor and Community Network Major Features and Benefits](#)
- [Visitor and Community Network Applications](#)
- [VCN Access Point Features](#)

Visitor and Community Network Major Features and Benefits

A Visitor and Community Network system (VCN) consists of a Access Concentrator (VCN AC) and up to 24 VCN Access Points (VCN AP) connected by conventional 4-wire telephone cables.

Features

The following are the major features of the Visitor and Community Network system:

- The Visitor and Community Network system works over existing cabling infrastructure and supports all Plain Old Telephone Services (POTS) while simultaneously providing Ethernet connectivity at speeds up to 10 Mbps full duplex.
- The Visitor and Community Network system's geographic range is 4 kilo feet from an VCN AP to an VCN AC over Category 1 to Category 5 cabling.
- The system supports Ethernet 802.1Q frames transparently. The maximum supported frame length is 1536 bytes.
- The customer can simultaneously engage in two analog toll quality conversations while sending high speed digital data on the POTS cable.

- The system provides fast Internet connectivity and fast corporate access to end-users.

Benefits

The Visitor and Community Network system provides the following benefits:

- Use existing wiring for simultaneous voice calls and data connections without the need for re-wiring. The system enables a customer to use a telephone extension to place calls while sending and receiving digital data over the same cable. A second extension over the same telephone cable can be used to place another call, send faxes, or connect an analog modem.

The customer receives Internet services more conveniently at faster speeds. Hotel guests traveling on business can access corporate Intranets and use e-mail over much more convenient connections than is currently possible.

The system allows a hotel to provide new data communication services without forfeiting any POTS revenues.

- The system's ready-to-use, out-of-the-box installation provides easy and cost-effective setup. Its non-disruptive installation avoids complete hotel and floor shut downs.
- The system is totally manageable and provides real-time status with troubleshooting tools. Both the VCN AP and VCN AC support local management through a terminal emulating computer connection. A Telnet connection in the Internet or Intranet, supports secure remote management of the VCN AC in addition to software download.
- The system presents a low cost of ownership while providing customers with multiple services over a single wire, and providing operators of hotels, residential telecommunications, and office towers a single manageable network. Its low cost derives from the re-use of common cabling systems, such as Category 5. It offers low cost maintenance and flexible tracking capabilities and is readily integrated with existing hotel and multiple dwelling unit (MDU) billing systems.
- The Visitor and Community Network system provides a foundation for future services such as IP telephony. The system offers the capability to present local advertising and local interest information from a Visitor and Community Network (VCN) server to users on their computer monitors. Via a VCN server, Internet, video on demand, and gaming services can be billed.

The system is easily expanded to cover the required number of rooms.

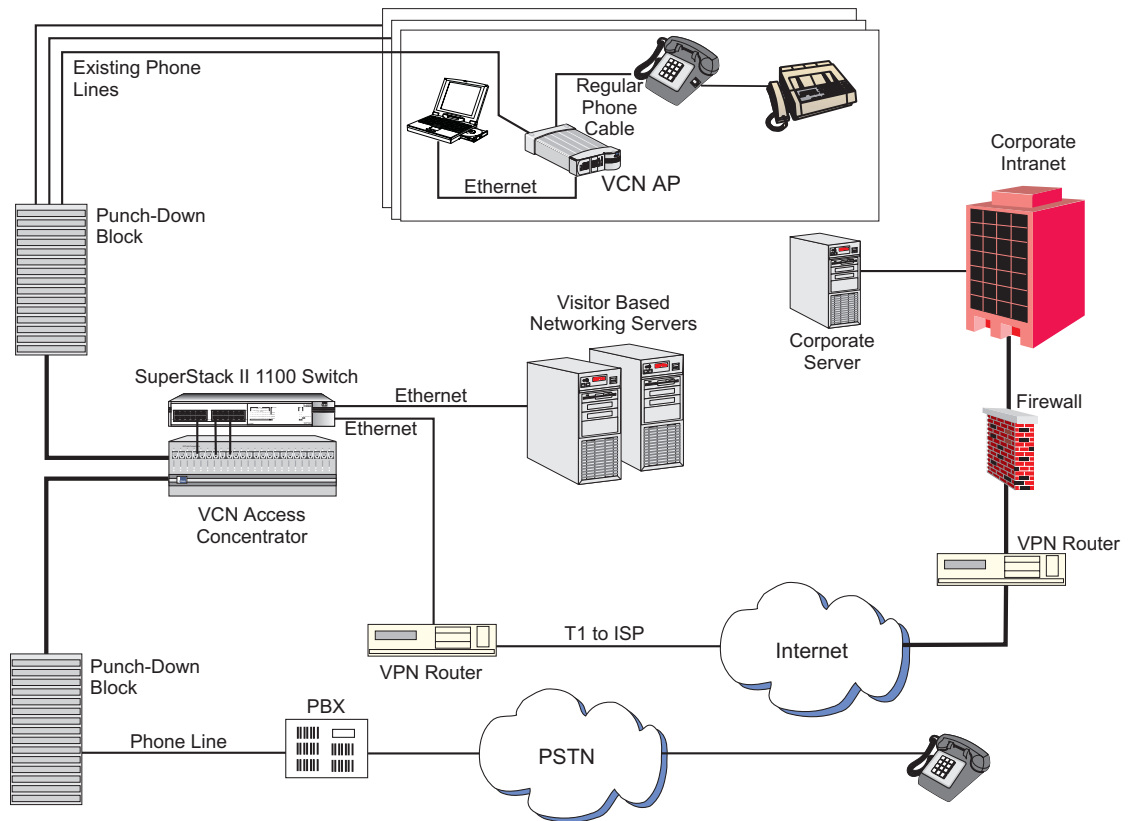
Visitor and Community Network Applications

The Visitor and Community Network system serves the following applications:

- Multiple Dwelling Units (MDU)
MDUs include apartment houses and hotels.
- Multiple Tenant Units (MTU)
MTUs comprise mainly office complexes.

[Figure 1](#) shows a typical MTU/MDU application.

Figure 1 MTU/MDU Visitor and Community Network Systems Application



When personal computer equipped with an Ethernet card is plugged into the Ethernet port of the VCN AP, the system provides fast internet and

other network services for data transmissions while allowing voice channels to be used simultaneously.

The VCN AP connects to the VCN AC via a standard copper wire pair. The VCN AC connects to the analog PBX or local telephone exchange and to a 10 Base-T switch, e.g. 3Com® VCN Services Switch 10.

After connecting the telephone and the computer to the VCN AP, a person can send data from his computer and speak on the telephone simultaneously. An additional telephone extension based on the same cable remains available for conversation but, does not go through the VCN AC since the two telephones do not share the same wire pair.

Thus a hotel or a residence that installs Visitor and Community Network is able to add many more communication services without losing any existing capability.

The VCN AP joins voice and data channels in the direction of the VCN AC and separates voice and data channels toward the end user.

The Visitor and Community Network System facilitates intra-campus data communications over a high speed Local Area Network (LAN), i.e., Intranet. If the campus is connected to an ISP, the system enables the users on the campus to use the Internet.

Existing LAN infrastructure can be extended to locations currently lacking LAN cabling through the Visitor and Community Network system.

Services that do not need the LAN, for example, voice and fax, continue to operate normally.

VCN Access Point Features

The VCN Access Point has the following features:

- The VCN AP is a network access device that allows a user to have an Ethernet data connection, available in most PCs and laptops, over a telephone extension line and simultaneously use the same line for telephone calls.
- Voice traffic is carried in its native frequency band over the copper pair wire which connects the VCN AP to the VCN AC.
- The VCN AP combines voice and data in the direction of the VCN AC, which separates voice and data, by sending voice to the analog PBX

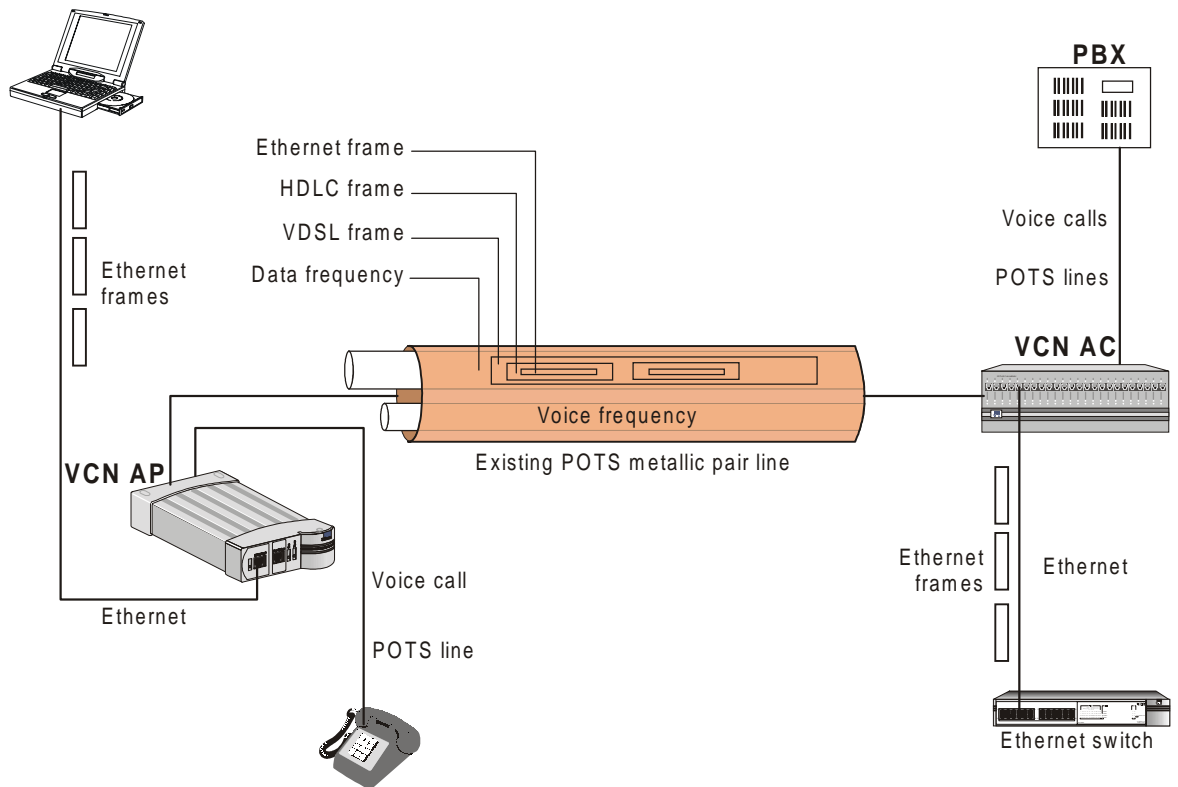
and data to the SuperStack II 1100 Switch. The VCN AP also splits voice and data in the direction from the VCN AC. Data is sent up to 10 Mbps full duplex.



The solution also works with the VCN Services Switch 10 and the SuperStack II Switch 3300.

- The user's Ethernet frames are encapsulated in HDLC frames carried in VDSL. Voice and data traffic are carried in their respective frequency ranges in the wire pair that connects the VCN AP to the VCN AC. Voice traffic, including facsimile and analog modem traffic, are not modified. Refer to [Figure 2](#).

Figure 2 Transfer of Ethernet Frames to VDSL frames in VCN System

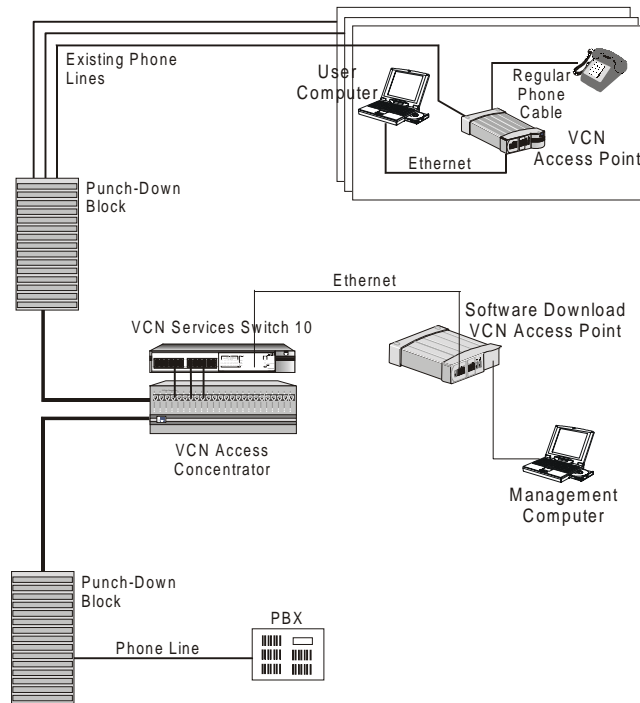


- The VCN AP supports 4-wire telephone cable. The additional 2 wires which exist in every telephone cable will remain available for an additional extension. In telephone sets that have two RJ-11 jacks, the

additional line may be used independently of the VCN AP for connecting an analog modem or facsimile use.

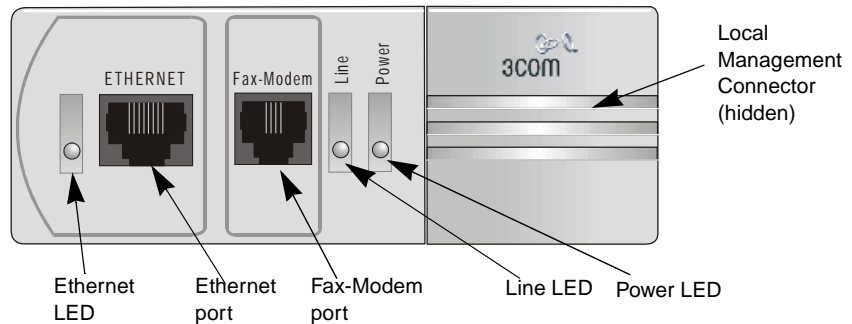
- The VCN AP supports remote software download of VCN APs and VCN Access Concentrators through a special download menu and through a special network configuration—the VCN AP is connected to the Ethernet switch directly through the VCN AP Ethernet port. Refer to [Figure 3](#).

Figure 3 VCN AP Software Download Network Configuration



Operational Controls

This section describes the connectors and LED indicators of the VCN AP. [Figure 4](#) displays the VCN AP Unit Front View.

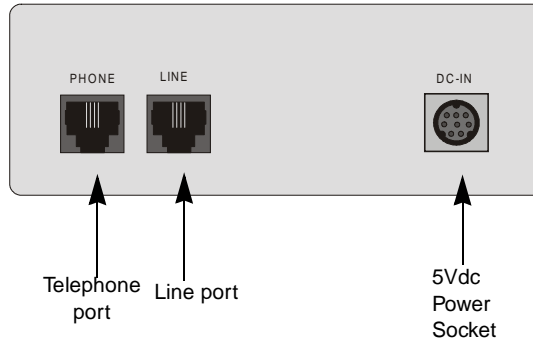
Figure 4 The VCN AP Unit Front View

[Table 3](#) describes the LEDs and connectors on the front panel.

Table 3 The VCN Access Point LEDs and Connectors - Front View

Item	Type	State	Used to
Ethernet	LED	Green	Indicate connection of the VCN AP to a PC
Ethernet	RJ-45	-	Connect the VCN AP to a PC
Fax-Modem	RJ-11 port	-	Connect a fax machine or a fax modem of a PC for sending/receiving faxes or making dial-up data transfers.
Line	LED	OFF	indicate VCN AP is not connected to the line
		Green	Indicate connection of the VCN AP to the VCN AC
		Flashing in Green	Indicate data transmission to the VCN AP
Power	LED	OFF	Indicate that the VCN AP is not powered
		Orange	After 30 seconds, indicate that the power-on-self-test (POST) failed
		Green	Indicate that the VCN AP is functional
LMI	4-pin MiniDin connector (hidden)	-	Connect the ASCII terminal for monitoring and troubleshooting.

[Figure 5](#) displays the back panel of the VCN AP.

Figure 5 VCN AP Unit Back Panel

[Table 4](#) describes the connectors on the back panel.

Table 4 The VCN AP Unit LEDs and Connectors - Back Panel

Item	Type	State	Used to
Telephone	RJ-11 port	-	Connect the telephone set
Line	RJ-11 port	-	Connect the VCN AP to the room telephone socket
DC-IN	8-pin MiniDIN DC Power port	-	Connect the AC/DC adapter

2

SAFETY INFORMATION

This chapter provides safety information in English, French and German.

The topics covered in this chapter are:

- [Safety Precautions](#)
- [Précautions de sécurité concernant le VCN Access Point](#)
- [Sicherheitsvorkehrungen für den VCN Access Point](#)

Safety Precautions

The following safety precautions should be taken before installing the VCN Access Point:



To reduce the risk of electrocution and fire:

- All servicing should be undertaken *only* by qualified service personnel. There are no user serviceable parts in the unit.
- Do *not* plug in, turn on or attempt to operate an obviously damaged unit.
- DO *not* operate the unit in a location where the maximum ambient temperature exceeds 40 degrees C.
- Be sure to unplug the power supply cord from the wall socket *before* attempting to remove and/or replace the unit.
- The power supply provides for automatic selection of either 100-120 Vac or 200-240 Vac, 60/50 Hz, as indicated on the safety label adjacent to the power inlet. *Ensure* that the available voltage supply at the mains is within one of these two ranges.
- Use only the special power adapter supplied with the unit.

Précautions de sécurité concernant le VCN Access Point



Attention: Réduisez les risques d'électrocution et d'incendie

- Toute intervention sera effectuée *uniquement* par un personnel qualifié. L'unité ne comporte pas de pièces à remplacer par l'utilisateur.
- Si l'unité est visiblement endommagée *ne pas* la brancher au secteur, ni tenter de la mettre en fonction.
- *Ne pas faire fonctionner* l'unité dans un endroit où la température ambiante dépasse 40 degrés C.
- Assurez vous que vous avez bien débranché le câble d'alimentation électrique de la prise de courant *avant* d'essayer de déplacer ou de remplacer l'unité.
- Le bloc d'alimentation sélectionne automatiquement la tension d'entrée (soit 100-120 V soit 200-240 V, alternatif 60/50 Hz) comme indiqué sur l'étiquette de sécurité apposé à côté de la prise. *Assurez-vous* que la tension disponible au secteur se trouve dans la plage appropriée.
- N'employez que l'adaptateur d'alimentation fourni avec l'unité.

Sicherheitsvorkehrungen für den VCN Access Point



Warnung: Um das Risiko eines elektrischen Stromschlages mit möglicher Todesfolge und eines Feuers zu reduzieren:

- Alle Wartungsdienste sollten *nur* von qualifiziertem Wartungspersonal durchgeführt werden. Die Einheit enthält keine Teile, die der Benutzer selbst warten kann.
- Schließen Sie die Einheit *unter keinen Umständen* an das Stromnetz an, schalten diese ein oder versuchen diese zu benutzen, wenn die Einheit klar erkennbar beschädigt ist.
- *Bedienen* Sie die Einheit *nicht*, wenn die Temperatur am Standort 40 Grad C übersteigt.
- Ziehen Sie den Stromstecker aus der Steckdose, *bevor* Sie die Energieversorgung entfernen und/oder austauschen.

- Die Energieversorgung wählt automatisch entweder 100-120 V WS oder 200-240 V WS, 60/50 Hz, wie auf dem Sicherheitsaufkleber neben der Energiezufuhr angegeben. *Gewährleisten* Sie, daß die vorhandene Stromleistung des Hauptstromnetzes innerhalb eines dieser möglichen Bereiche liegt.
- Verwenden Sie nur den besonderen Adapter, der mit der Einheit geliefert wird.



3

INSTALLING AND OPERATING THE VCN ACCESS POINT

This chapter provides the information about installing, setting up, powering up and operating the VCN Access Point. The following topics are described:

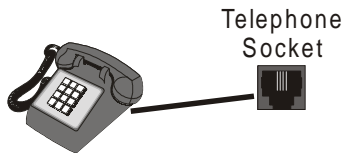
- [Prerequisites for Installation](#)
- [Installing the VCN Access Point](#)
- [Operating the VCN Access Point](#)

Prerequisites for Installation

Before installing the VCN AP, check that you have all the necessary components and accessories listed in [Table 5](#) and that you have the required outlets in the room where you will be installing the unit.

The initial communications setup in a room is illustrated in the [Figure 6](#).

Figure 6 Initial Room Communications Setup



The accessories needed for installation are included in the package provided with the VCN AP set. Prior to carrying out installation, compare the VCN AP package contents with items listed in [Table 5](#):

Table 5 Unpacking List

NO.	Item	Quantity	Supplied by
1	VCN AP	1	3Com
2	PC (desktop, laptop or palm held) equipped with Ethernet Card.	1	End User

Table 5 Unpacking List (continued)

NO.	Item	Quantity	Supplied by
3	ac/dc adapter	1	3Com
4	Line cable (RJ-11)	1	3Com
5	Laptop/PC cable (RJ-45)	1	End User or Customer on Request
6	FAX cable (RJ-11)	1	End User or Customer on Request
7	4-pin MiniDIN Control Cable	1	3Com, for Local Management or Troubleshooting Only
8	Long screws ¹	3	3Com
9	Short screws ^{1,2}	3	3Com.
10	Wall anchors ¹	3	3Com
11	Template ²	1	3Com, for Installation only
12	Rubber pads ³	4	3Com

¹ For VCN AP wall installation
² For installing VCN AP under the table
³ For VCN AP table top installation

The VCN AC must be installed before the VCN AP. Refer to the Visitor and Community Based Networking Concentrator Unit Service Manual.

Installing the VCN Access Point

The VCN AP may be conveniently mounted on one the following:

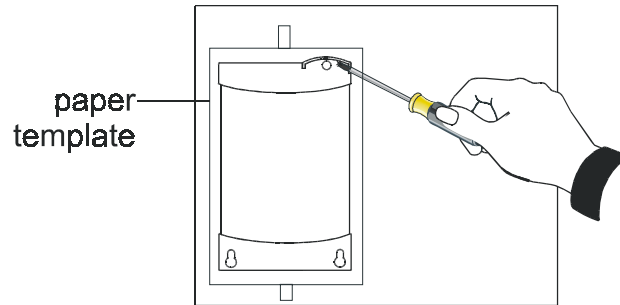
- a wall, see [page 23](#).
- under a table, see [page 27](#).
- on top of a table, see [page 32](#).

Mounting the VCN Access Point on a Wall

To mount the VCN AP on a wall perform the following tasks.

- 1 Apply the paper template to the wall as shown in [Figure 7](#).

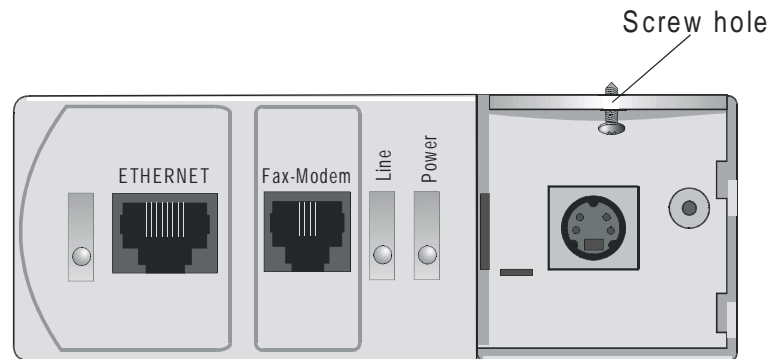
Figure 7 Using the Paper Template to Mark the Wall



The partially curved edge of the template corresponds to the curved cover that is part of the VCN AP front panel.

- 2 Remove the cover by sliding it downward and then pulling it outward. See [Figure 8](#).

Figure 8 Removing Curved Cover



All three holes in the VCN AP are plugged.

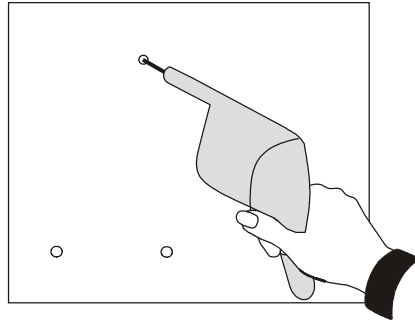
- 3 Remove the plugs from the two large holes by prying them out with the tip of your screwdriver.
- 4 Remove the plug from the small hole by forcing it out from the bottom with a pointy instrument (for example a nail).

- 5 Where the three crosshairs of the template holes intersect, indent the surface with a sharp tool (for example a nail). See [Figure 7](#).
- 6 Remove the template.
- 7 Drill the indented holes with a drill bit of the same diameter as the wall anchors. See [Figure 9](#).

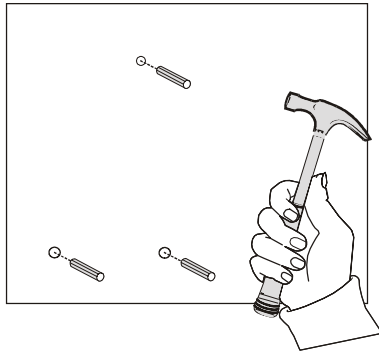


Note: If the provided anchors are not suited to your wall, you must obtain and insert suitable anchors that match the diameter of the provided screws.

Figure 9 Drill Holes for Anchors



- 8 Insert the three anchors. See [Figure 10](#).

Figure 10 Inserting Anchors

- 9 Drive two of the three long screws provided into the bottommost anchors to the distance indicated in [Figure 11](#). See [Figure 12](#).

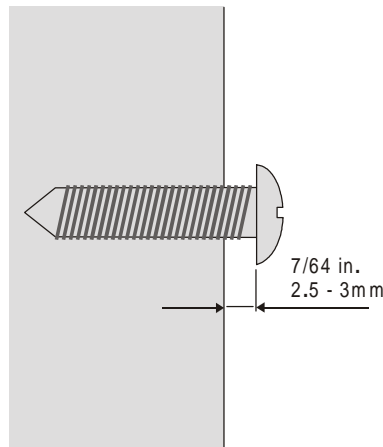
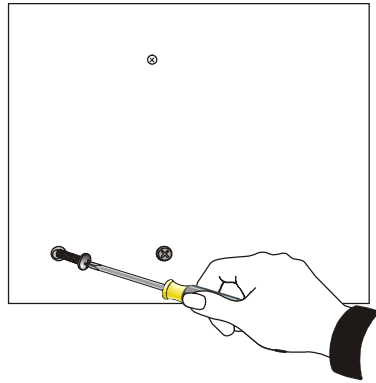
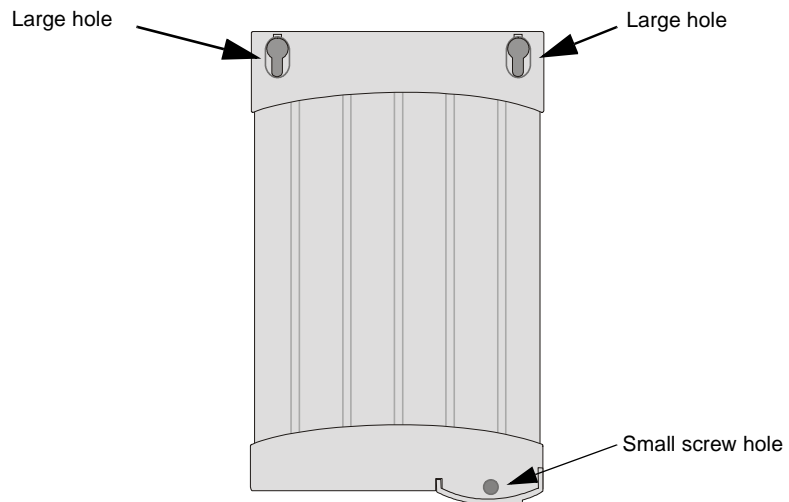
Figure 11 Offset of the Screw Head from the Wall

Figure 12 Driving Screws into the Wall

- 10** Align the two large holes of the VCN AP (see [Figure 13](#)) with the two already driven screws and insert the screw heads into the holes .
Shift the VCN AP downward so that the screw shanks slip into the slots and the topmost indented hole is aligned with the VCN AP's small screw hole.

Figure 13 Screw Holes in the Top of the VCN AP

- 11** Drive the last screw into the wall anchor to the full depth.

- 12 Reinsert the curved cover by reversing the sequence of [step 2](#). See [Figure 14](#) and [Figure 15](#).

Figure 14 VCN AP without Curved Cover

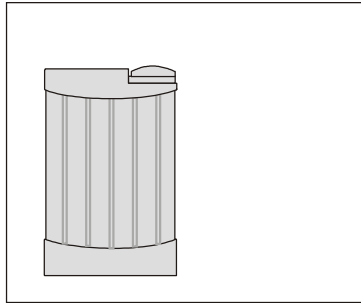
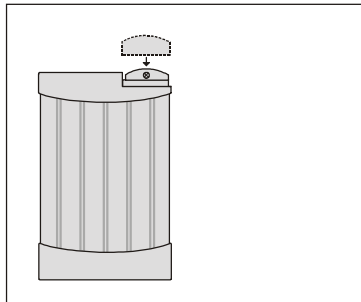
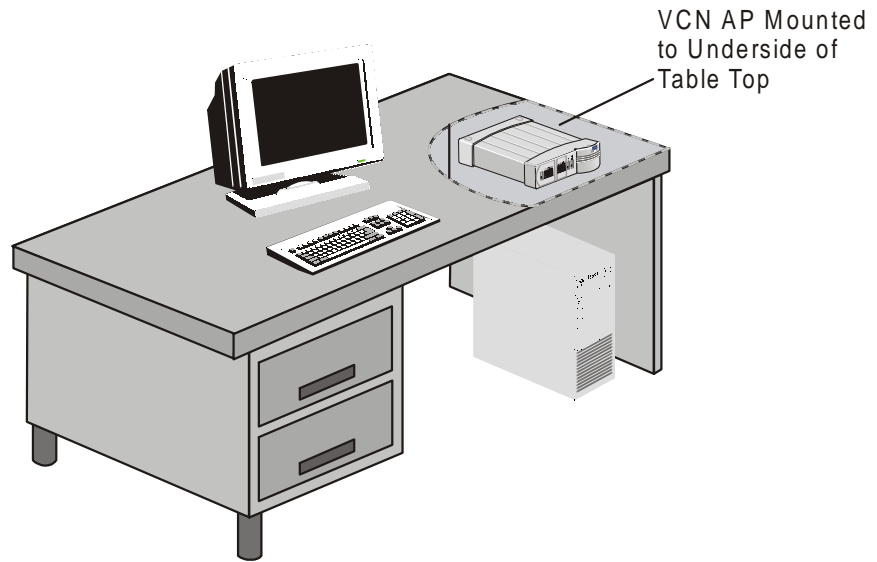


Figure 15 Placing Curved Cover on VCN AP



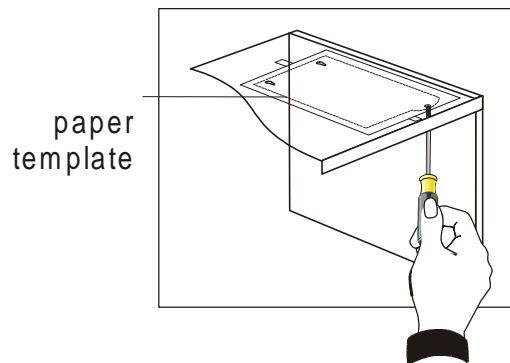
Mounting the VCN Access Point Under a Table

Two screws support the rear side of the VCN AP and an additional screw is used to fasten its front. Find an appropriate location for the VCN AP on the lower surface of a table, as in [Figure 16](#).

Figure 16 Mounting Underneath a Table

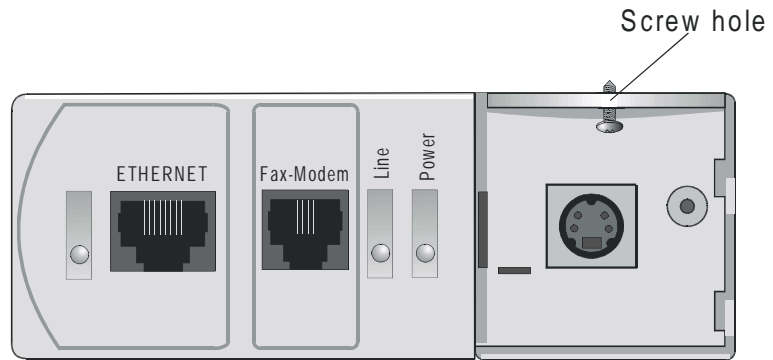
To mount the VCN AP under a table, perform the following tasks:

- 1 Tape the paper template (see [Figure 17](#)) to the under side of the table. Make sure that the straight edge is farthest away from you and the partially curved edge is nearest to you.

Figure 17 Using the Paper Template to Mark the Table

The partially curved edge of the template corresponds to the curved cover that is part of the VCN AP's front panel.

- 2 Remove the cover by sliding it downward and then pulling it outward. See [Figure 18](#).

Figure 18 Removing Curved Cover

All three holes in the VCN AP are plugged.

- 3 Remove the plugs from the two large holes by prying them out with the tip of your screwdriver.
- 4 Remove the plug from the small front hole by forcing it out from the bottom with a pointy instrument (for example, a nail).
- 5 Where the crosshairs of the template holes intersect, indent the surface with a sharp tool (for example, a nail).
- 6 Remove the template. See [Figure 17](#).

- 7 Insert two of the three short screws provided into the farthest indented holes ([Figure 19](#)) and drive them to the distance indicated in [Figure 20](#).

Figure 19 Driving Two Screws into the Table

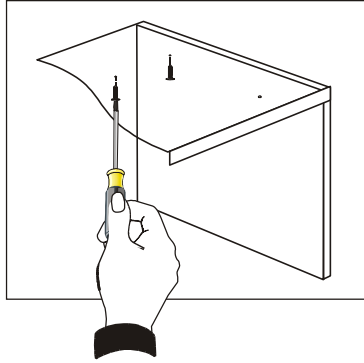
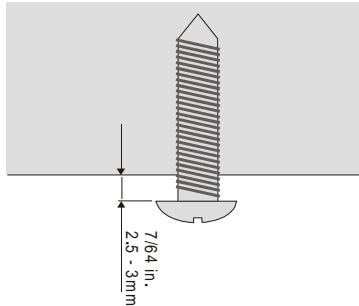


Figure 20 Offset of the Screw Head from the Table



- 8 Align the two large holes of the VCN AP (see [Figure 21](#)) with the two already driven screws.
- 9 Insert the screw heads into the holes and then shift the VCN AP forward so that the screw shanks slip into the slots and the closest indented hole is aligned with the VCN AP's small screw hole. See [Figure 22](#).

Figure 21 Screw Holes in the Top of the VCN AP

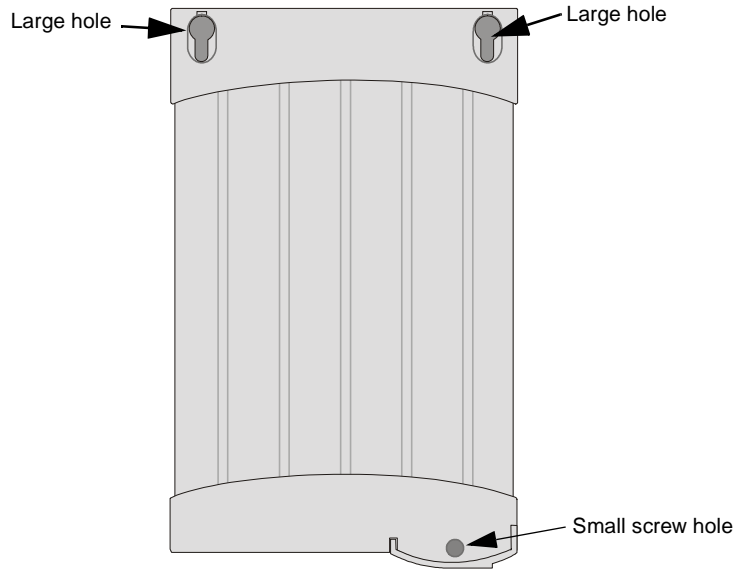
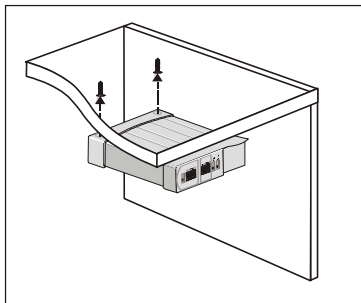
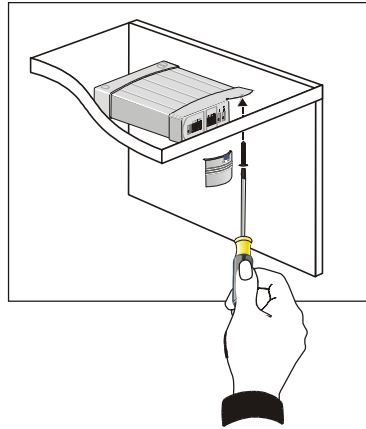


Figure 22 Inserting the VCN AP under the Table



- 10 Drive the last short screw through the small screw hole and into the surface full depth. See [Figure 23](#).

Figure 23 Completion of Mounting the VCN AP Under the Table



- 11 Reinsert the curved cover by reversing the sequence of [step 2](#).

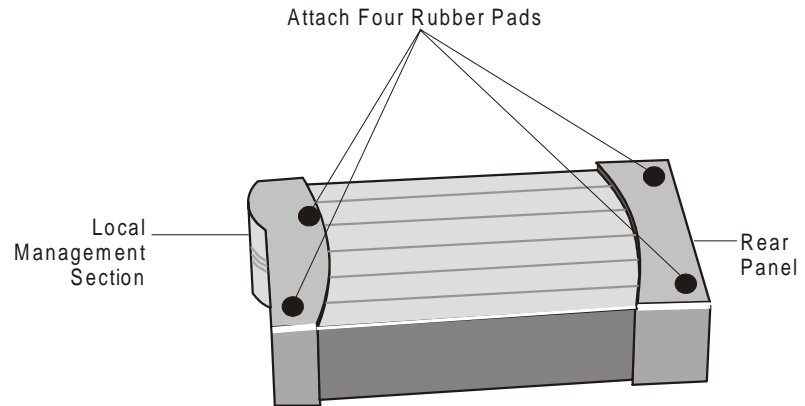
Placing the VCN AP on Top of a Table

Four rubber pads must be attached to the VCN AP bottom to provide stability when the VCN AP is used on top of a table.

To mount the VCN AP on top of a table perform the following tasks:

- 1 Stick the four rubber pads to the bottom of the VCN AP as shown in [Figure 24](#).

Figure 24 Preparing VCN AP for Table Top Use



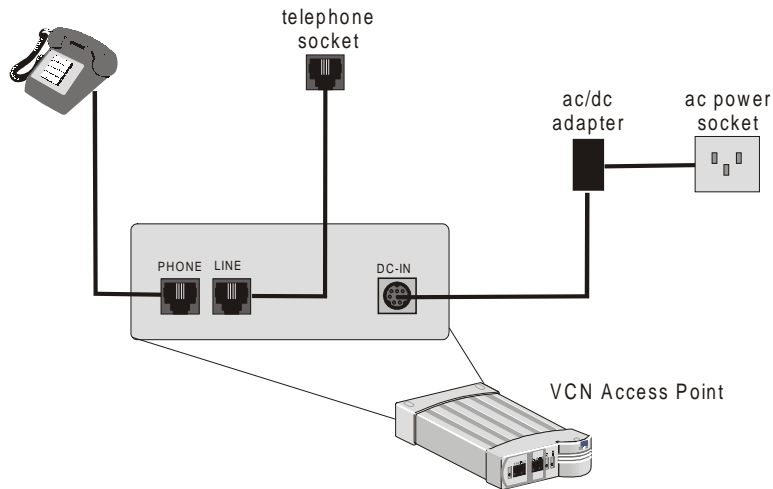
- 2 Turn the VCN AP over and place it on top of a table near the ac power and telephone sockets in the room.

Connecting the VCN AP

To enable VCN AP operation, connect the following from the rear of the unit:

- Connect the RJ-11 cable coming out from the telephone set to the VCN AP PHONE port at the front.
- Connect an RJ-11 cable from the VCN AP LINE port to the wall telephone socket.
- Connect the ac/dc adapter to the DC-IN port in the VCN AP and to the ac power socket in the room.

The resulting connections are illustrated in [Figure 25](#).

Figure 25 Preparation of the VCN Access Point

- Connect an RJ-45 cable from the user's PC to the Ethernet port at the front of the VCN AP. The user's PC must be equipped with an Ethernet card. If the user's PC does not have an Ethernet card installed, the modem card connects in the Fax-Modem port at the front of the VCN AP. In such case, the data does not go through the VDSL line and cannot make use of the 10 Mbps full duplex connectivity.
- If the telephone set has an additional RJ-11 port, it can be used independently of the VCN AP for fax or modem.

Thirty seconds after the VCN AP is connected to power, check that the Power and Line LEDs on the VCN AP front panel are green. Refer to [Figure 8](#) on [page 23](#).

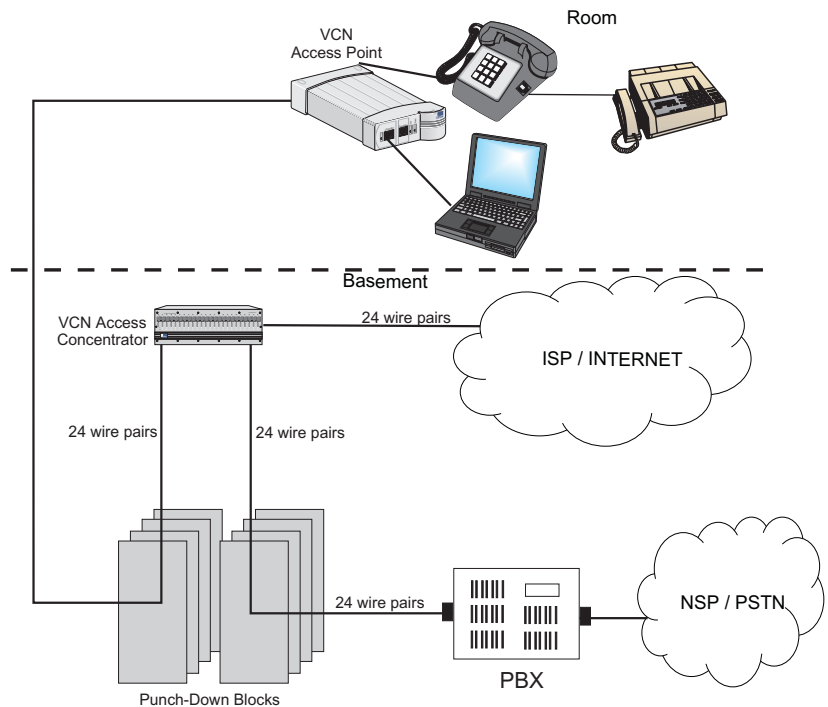


The VCN AP does not have an ON/OFF switch. The unit is powered on as soon as it is connected to ac power.



If the LEDs on the VCN AP do not turn green, refer to [Appendix A Troubleshooting](#), section ["Power-on Self Test \(POST\)"](#).

[Figure 26](#) illustrates the VCN Access Point-VCN Access Concentrator network after the VCN AP is installed and a user computer is attached to the VCN AP. The user has both access to the Public Switched Telephone Network (PSTN) and a high speed connection to an Internet Service Provider (ISP) as well as an additional connection to a fax or Modem.

Figure 26 Communications Access via the VCN AP

Operating the VCN Access Point

After the installing and mounting the VCN Access Point it is ready for use. The VCN AP may be used for the following:

- [Making a Voice Call](#)
- [Sending and Receiving Data Traffic](#)
- [Sending and Receiving Faxes](#)

Making a Voice Call

You can make a voice call without connecting the VCN AP to power or to any front panel connection.

To place a voice call:

- 1 Check that the telephone port is connected to a telephone set and the LINE port on the rear of the VCN AP is connected to the wall telephone socket.
- 2 Use the telephone set as if it were connected directly to the wall socket.

- 3 If the telephone set has an additional RJ-11 port, it can be used independently of the VCN AP for fax. Connect an RJ-11 cable between the fax machine or the PC fax modem to the PC RJ-11 port on the VCN AP.

Sending and Receiving Data Traffic

To send or receive data traffic:

- 1 Connect a RJ-45 cable between the Ethernet port and the PC Ethernet card.



NOTE: *No password or account number specific to the local ISP is needed, however, your normal log-in procedure should be observed, including access privileges like user ID, password, etc.*

- 2 Run your network application: browser, e-mail etc.

Sending and Receiving Faxes

You can make a fax call without connecting the VCN AP to power.

To send or receive faxes:

- 1 Connect a RJ-11 cable between the fax machine or the PC fax modem and the VCN AP Fax-Modem port.
- 2 Use the fax machine and the telephone set in accordance with the fax machine user manual.
- 3 If the telephone set has an additional RJ-11 port, it can be used independently of the VCN AP for fax or modem. Connect an RJ-11 cable between the fax machine or the PC fax modem to the PC RJ-11 port.

4

USING THE LOCAL MANAGEMENT ACCESS

This chapter describes using the Local Management Access (LMA) and remote management. The LMA is accessible via a terminal emulating computer connected to the LMA port on the VCN Access Point. The terminal is used for monitoring and problem solving. Remote software downloading is done via a Telnet program which can monitor the VCN Access Concentrator from a remote terminal.

The following topics are described:

- [Using the Management Terminal](#)
- [VCN Access Point Menu](#)
- [Remote Software Download](#)

Using the Management Terminal

A computer with terminal emulation software provides the user interface to the local management of the VCN Access Point.

Management Terminal Requirements

For service and maintenance, use a PC equipped with a terminal application capable of 115,200 bps serial communication with a VCN AP. Refer to [Appendix E Terminal Emulation Settings](#).

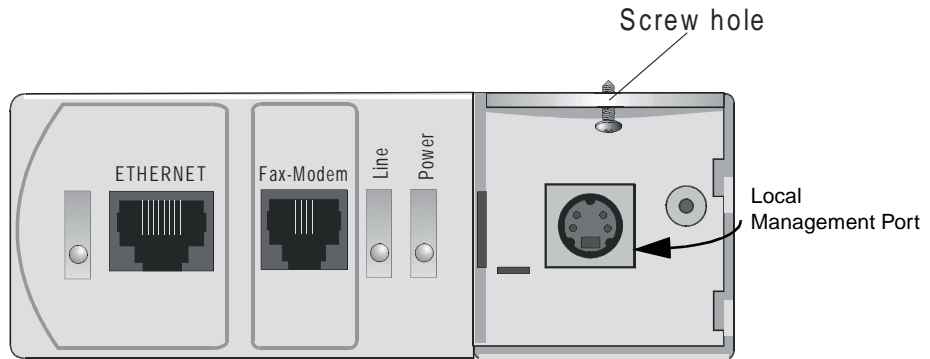
The cable for connecting the management computer has a DB 9 pin connector for the computer and a 4 pin MiniDIN connector for the VCN AP LMA port. If you do not have the cable, contact your 3Com representative. Refer to [Appendix D Pin Assignments for LMA Cable](#) for a detailed description of the cable and the LM connectors.

Connecting the PC Terminal Emulator

Perform the steps below to connect the PC to the LMA port:

- 1 Remove the cover from the LMA section of the VCN AP as in the figure below.

Figure 27 LMA Section of the VCN Access Point



- 2 Connect the LMA port to the PC serial port (COM1 or 2) with the cable provided you; if you do not have the cable, contact 3Com. Plug the end of the cable with the a four-pin MiniDIN connector into the VCN AP LMA port.

VCN Access Point Menus

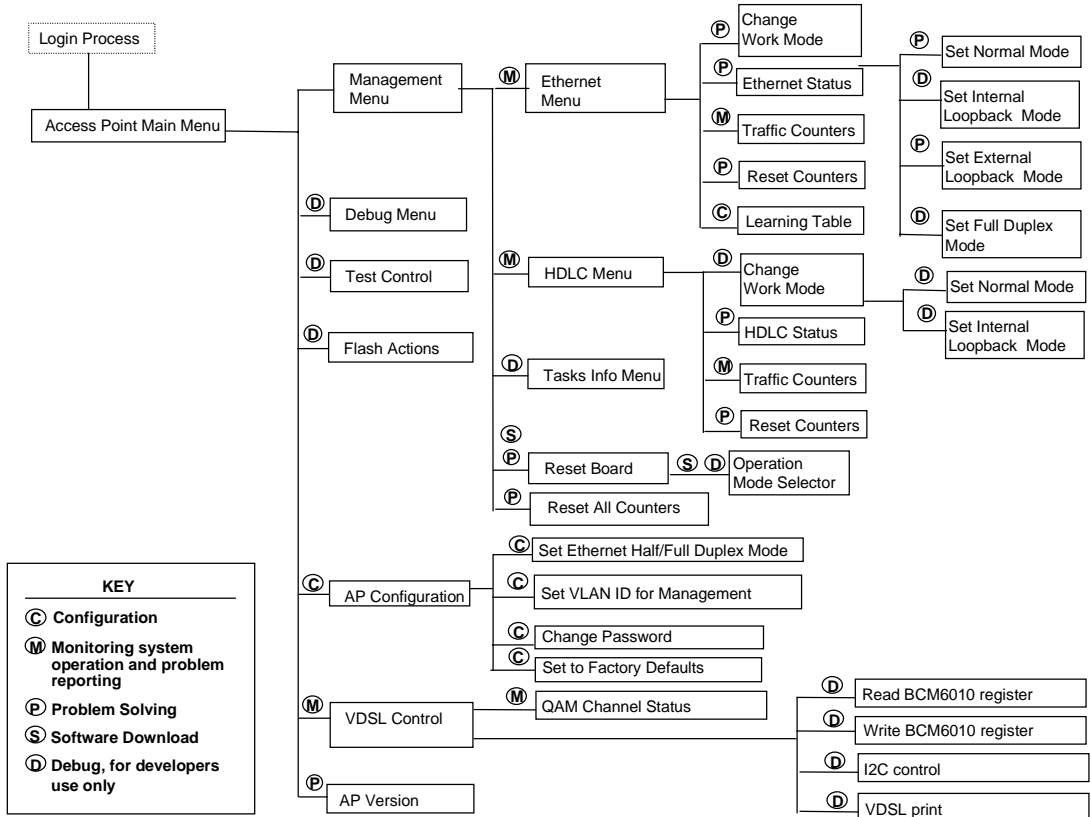
This section describes the menus.

Summary and Structure of the Menus

This section provides a menu hierarchy to describe the structure of the menu system and a menu summary to help the network administrator use the management system efficiently.

The chart in [Figure 28](#) summarizes the menu hierarchy. The abbreviations next to the menu names are suggestions for how the menus are used. Most of the menus labeled **D** are not described further in this chapter since they are used mainly by developers for debugging. The debug menus for performing loopbacks are described since loopbacks can be used by network administrators to solve problems.

Figure 28 Menu Hierarchy



[Table 6](#) provides a summary of the line card menus, the submenus and the corresponding number sequence. Click a menu or submenu name to receive more information.

After typing each number in the number sequence press the <Enter> key.

Table 6 Number Sequence Corresponding to Submenus

Menu Name	Submenu	Number Sequence
Access Point Main Menu		
	AP Version	1
Management Menu		3
	The Ethernet Menu	31
	Ethernet Traffic Counters	3 1 1
	Ethernet Status	3 1 2
	Reset Counters	3 1 3
	Change Ethernet Work Mode Menu	3 1 4
The HDLC Menu		3 2
	HDLC Traffic Counters	3 2 1
	HDLC Status	3 2 2
	Reset Counters	3 2 3
	Change HDLC Work Mode	3 2 4
Reset All Counters		3 4
Reset the Board		3 5
VDSL Menu		4
	VDSL OAM Channel Status Report	4 1
AP Configuration Menu		7
	Set VLAN ID for Management	7 1
	Set Ethernet Half/Full Duplex Mode	7 2
	Change Password	7 3
	Set to Factory Defaults	7 4

Login After connecting the management terminal to one of the LMA ports 2 through 24, press any key. The login dialog appears:

Login:

Type your Login ID and press <Enter>.

Password:

Type your password and press <Enter>.



The default login is **admin**; the default password is null—just press <Enter>.



If you forget your password, contact technical support. Refer to [Appendix F Technical Support](#).

When you complete Login, the *Access Point Main Menu* appears. If the login was unsuccessful, the following message appears:

```
Login incorrect
```

Access Point Main Menu

In reconnecting to the VCN AP, the last used menu often appears. In most menus, except where indicated, the option labeled 0 is for returning to a higher level menu ([Figure 29](#)).

Figure 29 Return to Previous Menu Option

```
0. Return to previous menu
```

Press any key to view the *Access Point Main Menu* on the terminal screen. If another menu appears, type 0 (zero) and press <Enter> repeatedly until the *Access Point Main Menu* appears.

Figure 30 VCN AP Main Menu

```
Access Point Main Menu
-----
1. AP Version
2. Debug Menu
3. Management Menu
4. VDSL control
5. Test control
6. Flash actions
7. AP Configuration
8. Software Download Menu
0. Exit

Please enter your choice:
```

AP Version Confirm VCN AP functionality by checking the software and hardware versions and dates.

- 1 To check the software version, enter **1** In the *Main Menu* ([Figure 30, page 41](#)). The following screen appears:

Figure 31 Version Screen

```
System Display
-----
HW Version:    1.0
SW Version:    3.5
SW Date:       Jul 23 2000,
SW Time:       15:56:28

Press ENTER to continue ...
```

- 2 Press <Enter> to return to the *Main Menu*.

Management Menu To display the *Management Menu*, type **3** in the *Main Menu* and press <Enter>. The *Management Menu* appears:

Figure 32 VCN AP Management Menu

```
Management Menu
-----

1. Ethernet Menu
2. HDLC Menu
3. Tasks Info Menu
4. Reset All Counters
5. Reset Board
0. Return To Previous Menu

Please enter your choice:
```

The Ethernet Menu To view the Ethernet Menu:

- 1 In the *VCN AP Main Menu* enter 3.
- 2 In the *Management Menu*, enter 1. The *Ethernet Menu* appears

Figure 33 Ethernet Menu.

```
          Ethernet Menu
          -----
1. Traffic Counters
2. Ethernet Status
3. Reset Counters
4. Change Work mode
5 Learning table
0. Return to previous menu

Please Enter your choice:
```

Ethernet Traffic Counters

The Ethernet traffic counters count normal frames and errored frames transferred between the user's PC and the VCN AP.

To check the Ethernet traffic counters, type **1** in the *Ethernet Menu* and press <Enter>; the *Ethernet Traffic Counters* screen appears:

Figure 34 Ethernet Traffic Count Screen

```

                Ethernet traffic counters
                -----

transmit counters
Tx frames      - 6107
Tx error       - 0
Discarded      - 0

Receive counters
Rx frames      - 159
Crc errors     - 0
Discarded      - 0
Alignment error - 0
Overrun        - 0
Collision      - 0
Frame too long - 0
Frame too short - 0

press <Enter> to continue
```

Ethernet Status

To check Ethernet status, press **2** in the *Ethernet Menu*; the *Ethernet Status* screen appears:

Figure 35 Ethernet Status Screen

```

                Ethernet Status
                -----

Scc channel numbers      - 2
Work Mode                 - normal mode
Transmit enable          - yes
Receive Enable           - yes
Heartbeat checking       - no
Retry Limit              - 15
Maximum length of rx frame - 1522
Maximum length of tx frame - 64 bytes

press <Enter> to continue...
```

Reset Counters

To reset Ethernet counters:

- 1 In the *Ethernet Menu*, type **3** and press <Enter>. The following message appears:

```
Do you want to proceed (Y/[N])? :
```

- 2 Type **y** and press <Enter> to perform the reset. The following message appears:

```
The action has been done !
```

Learning Table

To view the MAC and IP addresses of the user's PC, type **5** in the *Ethernet Menu* and press <Enter>. If a PC is connected, the *Learning Table* in [Figure 36](#) appears.

Figure 36 A Typical MAC Address Display

```
Learning table:
-----
MAC address: 00-60-08-BC-F7-7F
IP address : 191.28.68.25

Press <Enter> to continue.....
```

If a PC is not connected, the message in [Figure 37](#) appears.

Figure 37 Station not Connected Message

```
Learning table:
-----

Station not connected

press <Enter> to continue...
```

Change Ethernet Work Mode Menu

To change the Ethernet loopback mode or the duplex mode, use the *Change Work Mode Menu*. In the *Ethernet Menu*, type **4** and press <Enter>. The options in [Figure 38](#) appear.

Figure 38 Change Work Mode Menu

```
Change Work Mode Menu
-----

Current Working Mode of Ethernet: Normal Operation

1. Set Normal Mode
2. Set Internal Loopback Mode
3. Set Extenal Loopback Mode
4. Set Full Duplex Mode
0. Return to Previous Menu

Please enter your choice:
```

In the *Change Work Mode Menu*, the current working mode is shown to be one of:

- Normal Operation

Normal operation is lack of loopbacks and half duplex.

- Internal Loopback Mode
- External Loopback Mode
- Full Duplex Mode

The full duplex mode is displayed if a previous operation changed the mode to full duplex.

Refer to [Setting Duplex Mode](#), on [page 47](#), for changing the duplex mode.

Setting Internal Loopback Mode

To set internal loopback mode, type **2** and press <Enter>. The message appears:

```
This action will change the working mode of Ethernet!
Do you want to proceed (Y/[N])? :
```

To confirm type **y**; to discard, type **n**; and and press <Enter>.

When you proceed, the message appears:

```
Action has been done.
```

When you discard the operation, the message appears:

```
The action has been canceled
```

Setting External Loopback Mode

To set external loopback mode, type **3** and press <Enter>. The message appears:

```
This action will change the working mode of Ethernet!  
Do you want to proceed (Y/[N])? :
```

To confirm type **y**; to discard, type **n**; and and press <Enter>.

When you proceed, the message appears:

```
Action has been done.
```

When you discard the operation, the message appears:

```
The action has been canceled
```

Setting Normal Mode

To set normal mode, type **1** and press <Enter>. The message appears:

```
This action will change the working mode of Ethernet!  
Do you want to proceed (Y/[N])? :
```

To confirm type **y**; to discard, type **n**; and and press <Enter>.

When you proceed, the message appears:

```
Action has been done.
```

When you discard the operation, the message appears:

```
The action has been canceled
```



Normal mode is both lack of loopbacks and half duplex operation.

Setting Duplex Mode

To change the duplex mode to full, type **4** in the *Change Work Mode Menu*, and press <Enter>. The messages appear:

This action will change the working mode of Ethernet!
Note: the change will NOT be saved after reset.
For changing and saving use the configuration menu
Do you want to proceed (Y/[N])? :

To confirm type **y**; to discard, type **n**; and and press <Enter>.

When you proceed, the message appears:

```
Action has been done.
```

When you discard the operation, the message appears:

```
The action has been canceled
```

The HDLC Menu To view the *HDLC Menu*,

- 1 In the *Main Menu* type **3** and press <Enter>. The *Management Menu* appears ([Figure 32](#)).
- 2 In the *Management Menu* type **2** and press <Enter>. The *HDLC Menu* appears ([Figure 39](#)).

Figure 39 HDLC Menu.

```
HDLC Menu
-----
1. Traffic Counters
2. HDLC Status
3. Reset counters
4. Change Work mode
0. Return to previous menu

Please Enter your choice... :
```

HDLC Traffic Counters

The HDLC traffic counter counts normal frames and errored frames over the common telephone and data line, thus indicating the behavior of the connection between the VCN AP and the VCNA C.

To check the HDLC traffic counters, type **1** in the HDLC Menu and press <Enter>; the *HDLC Traffic Counters Screen* appears ([Figure 40](#)).

Figure 40 HDLC Traffic Counters Screen

```
HDLC Traffic Counters
-----

Transmit counters

Tx frames           - 3
Retransmissions     - 0
Tx errors           - 0
Discards            - 0

Receive counters

Rx frames           - 6
Crc errors          - 10219
Discards            - 0
Abort sequences     - 23017
Overruns            - 0
Not mine            - 0
Frames too long     - 0
Dpll errors         - 0
Frames not aligned  - 39201

Press ENTER to continue ...
```

Reset Counters

To reset HDLC counters:

- 1 In the *HDLC Menu*, type **3** and press <Enter>. The message appears:
Do you want to proceed(Y/[N])? :
- 2 Type **y** and press <Enter> to perform the reset.

HDLC Status

To check HDLC status, enter **2** in the HDLC menu; the HDLC Status screen appears:

Figure 41 HDLC Status Screen

```
                HDLC Status
                -----
Scc channel numbers      - 3
Work Mode                - normal mode
Transmit enable         - yes
Receive Enable          - yes
Maximum length of rx frame- 1518

press <Enter> to continue...
```

Change HDLC Work Mode

To change the HDLC loopback mode, use the *Change Work Mode Menu*. In the *HDLC Menu*, type **4** and press <Enter>. The options in [Figure 42](#) appear.

Figure 42 Change HDLC Work Mode Menu

```
Current Working Mode of HDLC: Normal Operation

1. Set Normal Mode
2. Set Internal Loopback Mode
0. Return to Previous Menu

Please enter your choice:
```

In the *Change Work Mode Menu*, the current working mode is shown to be one of:

- Normal Operation
Normal operation is lack of loopbacks.
- Internal Loopback Mode

Setting Internal Loopback Mode

To set internal loopback mode, type **2** and press <Enter>. The message appears:

```
This action will change the working mode of HDLC!
```

Do you want to proceed (Y/[N])? :

To confirm type **y**; to discard, type **n**; and and press <Enter>.

When you proceed, the message appears:

Action has been done.

When you discard the operation, the message appears:

The action has been canceled

Setting Normal Mode

To set normal mode, type **1** and press <Enter>. The message appears:

This action will change the working mode of HDLC!

Do you want to proceed (Y/[N])? :

To confirm type **y**; to discard, type **n**; and and press <Enter>.

When you proceed, the message appears:

Action has been done.

When you discard the operation, the message appears:



Normal mode is lack of loopbacks.

Reset All Counters To reset all counters, perform the following steps:

- 1** In the *Main Menu*, type **3** and press <Enter>; the *Management Menu* appears.
- 2** In the *Management Menu*, type **4** and press <Enter>; a confirmation message appears. The counters have been reset.

Reset the Board To reset the VCN AP, type **5** in the *Management Menu* ([Figure 32](#)) and press <Enter>; the messages in [Figure 43](#) appear:

Figure 43 Reset Board Confirmation

This action will reset the whole board

Do you want to proceed (Y/[N])? :

To reject, press <Enter> or type **n** and press <Enter>. The *Management Menu* reappears.

To proceed type **y** and press <Enter>; the message appears:

The system is going down...

The *Operation Mode Selector Menu* ([Figure 44](#)) appears.

Figure 44 Operation Mode Selector Menu

```

*****
3Com NCD. (C)
10Base-S Boot loader V2.00
Date: Jun 15 1999, Time: 16:13:31

CPE modem Operation Mode Selector.
Enter:
      S - for Serial loading           OR
      D - for Debug operation          OR
      F - for SW execution from the Flash OR
      C - for MAC address programming.
*****

```

If this menu is ignored for 5 seconds, execution from the flash begins and the messages in [Figure 45](#) through [Figure 47](#) appear. This is the default option **F**.

Option **c** is for entering the MAC address. This is normally performed in the factory.

Option **D** is for debugging. This option is for developers only.

Option **s** is for downloading software through the LMA port. For more information see [Appendix C Loading Software Through Local Access](#).

To use an option, type its letter.

To continue with the reset operation without performing the other options, do one the followin steps:

- Wait 5 seconds.

- Enter **F**.

Figure 45 Reset messages

```
*****  
SW is being executed from Flash! Please wait...  
*****  
SW image is being copied to the SDRAM  
Entering BOOT_image_get!  
Read FLASH start!  
Read address is - 2880008  
Read FLASH OK!  
SW image validation passed!  
  
SW image is being executed!  
*****
```

Figure 46 Start of Software Execution

```
Start executing main!  
Watchdog initialized OK !
```

Figure 47 Self-test Messages

```
HDLC selftest passed!  
Ethernet selftest passed!  
I2C selftest passed!  
VDSL selftest passed!  
MNG task created!  
MNG task started!  
LED task created!  
LED task started!  
DWN task created!  
DWN task started!  
LMA task created  
LMA task started
```

Then the Login prompt appears.

VDSL Menu To view the *VDSL Menu*, type **4** in the Main Menu and press <Enter>; the *VDSL Menu* appears.

Figure 48 VDSL Menu

```

VDSL Menu
-----
1. QAM channel status
2. Read BCM6010 register
3. Write BCM6010 register
4. I2C control
5. VDSL print
0. Return to previous menu

Please Enter your choice:

```

VDSL QAM Channel Status Report

To check the VDSL parameters, enter 1 in the VDSL Control Menu; the QAM Channel Status report appears:

Figure 49 VDSL QAM Channel Status Report

```

QAM Channel Status
-----

QAM status:                In lock
VDSL restarts:             1
VDSL warm starts:         0

Downstream parameters

DS Symbol rate:           1.964 Mbaud
DS Constellation:         2^5
DS Bit rate:               9.820 Mbps
SNR Estimate:             40.30 dB

Upstream parameters

US Symbol rate:           4.910 Mbaud
US Constellation:         2^2
US Bit rate:               9.820 Mbps

Press ENTER to continue ...

```

Figure 49 contains the following information:

- QAM Status: In lock—the line to the VCN Access Concentrator (VCN AC) is connected.

The alternate state is Out of lock—the line to the VCN AC is not connected.

- Restarts, the number of times the line to the VCN AC undergoes a cold restart. A cold restart occurs when there is a prolonged break in the line.
- Warm restart, a restart using information that existed the previous time the link was operational. A warm start occurs when the line is briefly disconnected or line noise occurs over a period of time.
- SNR, signal to noise ratio.

AP Configuration Menu

To configure the VCN AP, type **7** in the *Access Point Main Menu* and press <Enter> ; the following options appear ([Figure 50](#)):

Figure 50 The AP Configuration Menu

```
AP Configuration Menu
-----

Current VLAN ID for Management:      None
Current Ethernet mode:              Half Duplex

1. Set VLAN ID for Management
2. Set Ethernet Half/Full Duplex Mode
3. Change Password
4. Reset to Factory Defaults
0. Return to Previous Menu

Please enter your choice: 0
```

Set VLAN ID for Management

To set the VLAN ID perform the following steps:

- 1 In the *AP Configuration Menu* enter **1**.
- 2 Enter the VLAN ID number or enter **0** for none; a note appears as well as a confirmation, as shown in [Figure 51](#).

Figure 51 Setting VLAN ID Message Screen.

```
Please enter your choice: 1
Note: In a topology with VCN Concentrator, this setting
may override the concentrator agent settings. For more
information please refer to the service manual.

Enter VLAN ID (1-4094, 0 for none) [none]: 2

Action has been done
```

Set Ethernet Half/Full Duplex Mode

To set Ethernet half/full duplex mode, perform the following steps:

- 1 In the *AP Configuration Menu* enter 2.
- 2 Enter the desired mode; a confirmation message appears.

Action has been done.

Change Password

To change the password, do as follows:

- 1 In the *AP Configuration Menu*, enter 3.
- 2 You are prompted to enter the old password followed by the new password and a confirmation, as in [Figure 52](#):

Figure 52 Changing Password Message

```
Enter the old password:
Enter the new password (up to 8 characters):
Confirm new password (up to 8 characters):
The password was changed and saved in a non-volatile memory
```



If you forget your password, contact technical support. Refer to [Appendix F Technical Support](#).

Set to Factory Defaults

To set VCN AP to factory defaults perform the following steps:

- 1 In the *AP Configuration Menu*, type **4** and press <Enter>; a warning message that the action will set the system to their default value appears:

```
This action will return the system parameters to their
default values!
```

```
Do you want to proceed (Y/[N])?:
```

- 2 Type **y** and press <Enter>; the system is set to factory default. The following messages appear:

```
The factory's default settings were written to the
non-volatile memory
```

```
Note: some of the changes will take effect after reset
```

Closing the Local Management Interface

When you are finished using the local management menus, exit your terminal emulation program and disconnect your personal computer from the Local Management port.

Remote Software Download

This section describes the remote software downloading procedure.

Overview The VCN Access Point is an Ethernet over VDSL modem that combines the transmission of voice and data in the direction of the VCN Access Concentrator and separates voice and data in the direction from the VCN AC towards the user.

A VCN AP can be directly attached to the Ethernet switch for the purpose of downloading a software release update to other VCN APs and to the line cards in the VCN ACs. In this application, the VCN AP is connected directly to the Ethernet network through the Ethernet port and sends and receives data only. The user is connected to the VCN AP LMA port and operates a *Software Download Menu* to perform the software download.

Requirements The following are the requirements for downloading software:

- The downloading VCN AP software is version 3.5 or later.
- The software of the receiving VCN AC LCs is version 3.5 or later.
- The software of the receiving VCN APs is version 3.0 or later.
- The remaining requirements for the VCN APs and VCN AC are the same as for all operational units.

If the software requirements are not met, then local downloading procedures must be used. For the VCN AC, refer to Visitor and Community Based Networking Access Concentrator Service Manual, Chapter 3, the section Loading a New Software Release Through the LMA.

For the VCN AP, refer to [Appendix C, Loading Software Through Local Access](#) in this manual.

Procedure



Recommendation: Prior to performing remote software download, configure your switch. Perform the procedure in Visitor and Community Network Access Concentrator Service Manual, Managing the VCN Access Concentrator, section Configuring the Ethernet Switch for the VCN Access Concentrator.

To use the VCN AP to download software perform the following steps:

Downloading Software to the LCs in the VCN AC

- 1 Remove the cover of the LMA section of the VCN AP to reveal the LMA port, as shown in [page 38, Figure 27](#).
- 2 Connect the management computer to the VCN AP LMA port.
- 3 Using RJ-45 connectors, connect the Ethernet port of the VCN AP to an Ethernet switch 10BaseT port; refer to [Figure 53](#). Refer to [Figure 54](#) for the network configuration.



Recommendation: Attach the downloading VCN AP to port

- 26 in the VCN Services Switch 10.
- 26 in the the SuperStack II Switch 1100.
- 24 in the VCN Services Switch 100.
- 24 in the SuperStack II Switch 3300.

Figure 53 The VCN Service Switch 10 Front Pane

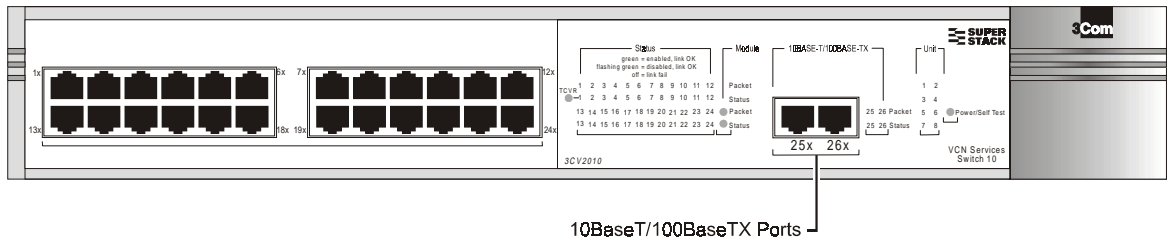
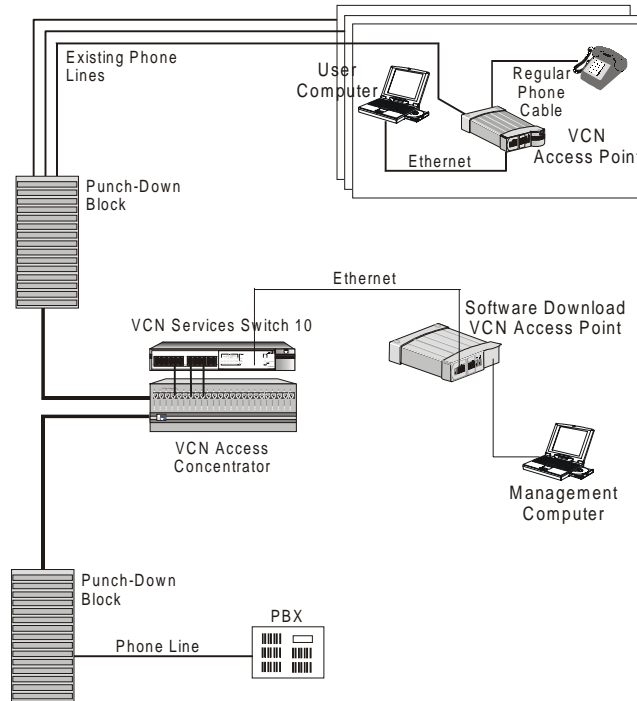


Figure 54 Software Download Network Configuration

- 4 In the *VCN AP Main Menu* ([Figure 30](#)) type **8**, and press <Enter> for the *Software Download Menu*.

A warning appears, followed by a prompt asking if you want to proceed ([Figure 55](#)).

Figure 55 Remote software Download Warning and Prompt

```
***** WARNING *****
*Choosing this menu will discontinue normal VCN AP operation. *
*VDSL line will be stopped. Reset board to renew VDSL connection*
*****
Do you want to proceed (YES/[NO])? :
```

- 5 To proceed, type **yes** and press <Enter>; the *Software Download Menu* ([Figure 56](#)) appears.

Figure 56 Software Download Menu

```
Software Download Menu
-----

1. AP Version
2. Download LC
3. Download AP
4. LC Downloading State
5. AP Downloading State
6. Change the VLAN Id for Downloading
7. Reset Board

Please enter your choice:
```

- 6** To download software to LCs do as follows:
- a** Check the VLAN IDs of the VCN AP and the VCN AC.
 - b** To change the VLAN ID of the AP to make it the same as the AC, type **6** in the *Software Download Menu* and press <Enter>. The following dialog appears:

Current VLAN ID for downloading:

Please enter new VLAN ID (1 - 4094, 0 for none):

- c** Enter the AC VLAN ID and press <Enter>. The message appears:

Action has been done.



Software Download will not occur if the VCN AP is not in the same VLAN as the VCN AC.

- d** In the *Software Download Menu*, type **2** and press <Enter>. The *LC Downloading State Table* appears ([Figure 57](#)).

Figure 57 The LC Downloading State Table

LC downloading state table

LC number	Downloading status	LC number	Downloading status
1	Not downloaded	13	Not downloaded
2	Not downloaded	14	Not downloaded
3	Not downloaded	15	Not downloaded
4	Not downloaded	16	Not downloaded
5	Not downloaded	17	Not downloaded
6	Not downloaded	18	Not downloaded
7	Not downloaded	19	Not downloaded
8	Not downloaded	20	Not downloaded
9	Not downloaded	21	Not downloaded
10	Not downloaded	22	Not downloaded
11	Not downloaded	23	Not downloaded
12	Not downloaded	24	Not downloaded

Enter LC number (1 - 24, 0 for all, R for return):

- e At the end of the *LC Downloading State Table*, do one of the following:
 - Type the number of an LC to receive the software download and press <Enter>.

The downloading messages and the downloading results table appear ([Figure 58](#)).
 - Type 0 and press <Enter> to download the software to all LC cards.

The downloading messages and the downloading results table appear ([Figure 58](#)).
 - Type r and press <Enter> to cancel.

The VCN AP *Software Download Menu* ([Figure 56](#)) reappears.

Figure 58 LC Downloading Results

```
Begin sending version...
```

```
Sending version complete
```

```
Waiting for acknowledge...
```

```
Downloading complete.
```

```
Downloading complete. See results in the table:
```

```
-----
```

LC	Downloading	LC	Downloading
number	status	number	status
1	Successful	13	Successful
2	Successful	14	Successful
3	Successful	15	Successful
4	Successful	16	Successful
5	Successful	17	Successful
6	Successful	18	Successful
7	Successful	19	Successful
8	Successful	20	Successful
9	Successful	21	Successful
10	Successful	22	Successful
11	Successful	23	Successful
12	Successful	24	Successful

```
-----
```

```
Press ENTER to continue ...
```

Downloading Software to VCN APs:

To download software to VCN APs do as follows:

- 1 Perform [step 1](#) through [step 5](#) above.
- 2 Check the VLAN IDs of the downloading VCN AP and the receiving VCN APs.
- 3 To change the VLAN ID of the AP to make it the same as the receiving VCN APs, type **6** in the VCN AP *Software Download Menu* and press <Enter>. The following dialog appears:

Current VLAN ID for downloading:

Please enter new VLAN ID (1 - 4094, 0 for none):

- 4 Enter the AP VLAN ID and press <Enter>. The message appears:
Action has been done.



Software Download will not occur if the downloading VCN AP is not in the same VLAN as the receiving VCN APs.

- 5 In the *Software Download Menu* type **3** and press <Enter>. The *AP Downloading State Table* appears ([Figure 59](#)).

Figure 59 AP Downloading State Table

AP downloading state table

AP number	Downloading status	AP number	Downloading status
1	Not downloaded	13	Not downloaded
2	Not downloaded	14	Not downloaded
3	Not downloaded	15	Not downloaded
4	Not downloaded	16	Not downloaded
5	Not downloaded	17	Not downloaded
6	Not downloaded	18	Not downloaded
7	Not downloaded	19	Not downloaded
8	Not downloaded	20	Not downloaded
9	Not downloaded	21	Not downloaded
10	Not downloaded	22	Not downloaded
11	Not downloaded	23	Not downloaded
12	Not downloaded	24	Not downloaded

Enter AP number (1 - 24, 0 for all, R for return):

6 At the end of the *AP Downloading State Table*, do one of the following:

- Type the number of VCN AP to receive the software download and press <Enter>.

The downloading messages and the downloading results table appear ([Figure 60](#)).
- Type 0 to download software to all VCN AP cards and press <Enter>.

The downloading messages and the downloading results table appear ([Figure 60](#)).
- Type r and press <Enter> to cancel.

The VCN AP *Software Download Menu* ([Figure 56](#)) reappears.

Figure 60 AP Downloading Results

```

Begin sending version...

Sending version complete

Waiting for acknowledge...

Downloading complete.

Downloading complete. See results in the table:

-----
|  AP  | Downloading  | |  AP  | Downloading  |
| number | status      | | number | status      |
-----
|    1 | Successful  | |   13 | Successful  |
|    2 | Successful  | |   14 | Failed     |
|    3 | Successful  | |   15 | Failed     |
|    4 | Successful  | |   16 | Failed     |
|    5 | Failed     | |   17 | Failed     |
|    6 | Failed     | |   18 | Successful |
|    7 | Failed     | |   19 | Failed     |
|    8 | Failed     | |   20 | Successful |
|    9 | Failed     | |   21 | Successful |
|   10 | Failed     | |   22 | Successful |
|   11 | Failed     | |   23 | Successful |
|   12 | Failed     | |   24 | Successful |
-----

Press ENTER to continue ...

```

Check Software Download for the LC Cards:

To check the software download results in the LC cards, type **4** and press <Enter> in the *Software Download Menu*. The LC Downloading State Table appears.

Check Software Download for the VCN APs:

To check the software download results of the VCN APs, type **5** and press <Enter> in the *Software Download Menu*. The VCN AP Downloading State appears.

Solving Problems in Remote Software Download

If the [LC Downloading Results](#) in [Figure 58](#) show download failed for one or more Line Cards or the [AP Downloading Results](#) in [Figure 60](#) show download failed for one or more APs, follow the procedures this section to solve the problems.

Download Failed for all LCs and all VCN APs

Check the following:

- Downloading VCN AP software version.
If the version is not 3.5 or later, locally download version 3.5 or the later version to the VCN AP. Refer to [Appendix C, Loading Software Through Local Access](#).
- Downloading VCN AP connections to the network.
- Check the configuration of your switch and perform the following step:
Run the ConfApp program on the switch or perform manual configuration according to Visitor and Community Based Networking Access Concentrator Service Manual, the section [Configuring the Ethernet Switch for the VCN Access Concentrator](#).

Perform remote software download again.

Download Failed for One or More Line Cards but not All

Check the following:

- Software version of the failed LCs.
If the version is not 3.5 or later, locally download the current software. Refer to the Visitor and Community Based Networking Access Concentrator Service Manual. Remote software download need not be performed after this step.
- Check the physical path between the downloading VCN AP and the VCN AC.
- Check the configuration of your switch and perform the following steps:
Run the ConfApp program on the switch or perform manual configuration according to Visitor and Community Based Networking Access Concentrator Service Manual, the section [Configuring the Ethernet Switch for the VCN Access Concentrator](#).

Perform remote software download again.

Download Failed for One or More VCN APs but not All

Check the following:

- AP software version of the failed APs.

If the version is not 3.0 or later, locally download the current software version to the VCN AP. Refer to [Appendix C, Loading Software Through Local Access](#). Remote software download need not be performed after this step.

- Check the physical path between the downloading VCN AP and the VCN APs.
- Check the VDSL connection between the failed APs and the VCN AC.
- Check the configuration of your switch and perform the following steps:

Run the ConfApp program on the switch or perform manual configuration according to [Chapter 2, Using the Local Management Access](#), section [Configuring the Ethernet Switch for the VCN Access Concentrator](#).

Perform remote software download again.



TROUBLESHOOTING

This appendix explains how to identify and correct problems, and how to perform related diagnostic tasks.

If you have problems that are not addressed in this chapter, contact 3Com Technical Support or your service person. Refer to [Appendix F](#) for technical support information.

Power-on Self Test (POST)

When the VCN Access Point is plugged-in, the VCN AP immediately starts the power-on self test (POST) sequence as indicated by the power LED flashing in green. If the VCN AP is not powered, the power LED remains OFF. Check the power connections and the ac/dc adapter.

The power-on self test verifies that every component of the VCN AP is fully functional. The power-on self test lasts for 30 seconds at the most, during which time it is orange. If the power-on self test is successfully completed, the power LED turns green. If the power-on self test detected a VCN AP failure, the power LED remains orange. In this case, contact 3Com technical support; refer to [Appendix F, Technical Support](#).

Use the front panel LEDs to determine each port's status:

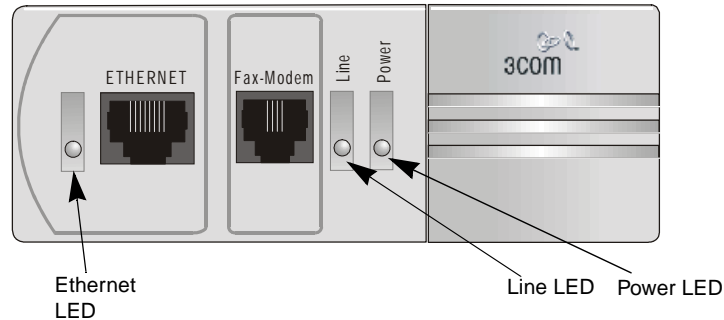
Table 7 Determining VCN AP Status During POST

State	Ethernet	Line	Power	Notes
Off	-	-	Off	VCN AP is not connected to a power source or failed.
Power-on	-	-	Orange	Test is in progress
Power-on	-	-	Off	VCN AP failed

Using Front Panel LEDs to Solve Problems

This section describes the use of the LEDs to solve problems. [Figure 61](#) displays the VCN AP LED indicators.

Figure 61 The VCN AP Unit Front View



[Table 8](#) describes the LEDs.

Table 8 The VCN AP LEDs

LED	State	Indicates
Ethernet	Green	VCN AP connected a PC.
Line	OFF	VCN AP is not connected to the line.
	Green	VCN AP connected to the VCN AC.
	Flashing Green	Data transmission to or from the VCN AC.
Power	OFF	VCN AP is not powered.
	Orange	First 30 seconds after connection to the power main, power-on-self-test (POST) in progress. After 30 seconds, POST failed.
	Green	The VCN AP is functioning.

Use the front panel LEDs to determine the VCN AP status after POST. [Table 9](#) provides detailed information summarized in [Table 10](#).

Table 9 Determining VCN AP status from the LED Indications after POST

State	Ethernet	Line	Power	Notes
OFF	OFF	OFF	OFF	VCN AP is not connected to a power source.
Power-on	ON if user data cable is connected. OFF if user cable is not connected.	OFF if the line is not connected. If the line is connected, it is steady green for 2 minutes after POST; After 2 minutes it can be steady green if there is no traffic, and flashing green if there is traffic. The above states are normal. If the LED is not steady green during the first 2 minutes after POST, there is a communication problem. Any other appearance after the first 2 minutes indicates the presence of a problem.	During POST, the LED is orange. If the LED remains orange after 30 seconds, the VCN AP is faulty and should be replaced.	If the Power LED remains orange after 30 seconds (POST), the technician uses the RS-232 LMI connector and terminal emulation to view the VCN AP diagnostic messages on his terminal screen.
Voice Call	Not Applicable (NA)	NA	NA	Connection to power is not needed to make a voice call. An Ethernet connection is not required.

Table 9 Determining VCN AP status from the LED Indications after POST

State	Ethernet	Line	Power	Notes
Fax/Modem Call	Not Applicable (NA)	NA	NA	No power is needed to make a fax/modem call. An Ethernet connection is not required.
Data Transfer from PC	ON	Flashing in green	ON	Indicates data is passing through the VCN AP. There is a valid connection between the VCN AP and the user PC. Data is passing between the user PC and the network through the VCN AP.

Table 9 Determining VCN AP status from the LED Indications after POST

State	Ethernet	Line	Power	Notes
VCN AP Failure Indicated			<p>OFF after connection: Possible causes:</p> <ul style="list-style-type: none"> ■ faulty power adapter ■ problem in the VCN AP 	<p>Replace ac/dc adapter and try again. If the problem is eliminated, the problem was the adapter. If not, the problem is in the VCN AP; replace it and send it to 3Com.</p>
		<p>OFF and the user data cable is connected.</p>	<p>ON (green)</p>	<p>One of the items below failed:</p> <ul style="list-style-type: none"> ■ user data cable ■ user PC NIC ■ VCN AP <p>Try replacing each of the first 2 items. If the problem is not eliminated, the problem is in the VCN AP; replace it and send it to 3Com.</p>
		<p>The Line LED does not turn steady green during 2 minutes after POST</p>		<p>Possible causes are:</p> <ul style="list-style-type: none"> ■ no connection ■ wiring ■ VCN AC ■ punch down block/patch panel <p>Power the VCN AP OFF, then ON. If the VCN AP starts properly, the problem is solved. If not, replace it and send it to 3Com.</p>

Table 10 Summary of VCN AP LED Indications after POST

Problem	Solution
The power LED remains OFF after power connection	Check the power connections and the ac/dc adapter. Plug in the power cable if necessary.
The power LED remains orange longer than 30 seconds.	A hardware fault has been detected in the VCN AP. Power the VCN AP OFF and then ON. If the problem persists, contact 3Com.
The Line LED is not green.	Check the line connection. If the line connections are appropriate, the VCN AP is not functioning. Power the VCN AP OFF and then ON. If the problem persists, contact 3Com.
The Ethernet LED is OFF.	Check the Ethernet cable. The problem could be in your NIC or in the VCN AP. Power the VCN AP OFF and then ON. If the problem persists, contact 3Com.

Using a PC Terminal Emulator to Solve Problems

Refer to [Appendix E](#) for setting the parameters of a terminal emulation program. Then refer to [Chapter 4 Using the Local Management Access](#) for connecting the management PC to the VCN AP to operate the management menus.

Ethernet Traffic Counts

The normal frame counters indicate traffic between the VCN AP and user PC. Some errored frame counters indicate fatal errors, requiring replacement of the VCN AP, Ethernet cable or the user's PC Network Interface Card (NIC).

The following table depicts normal count indications of the Ethernet traffic counters and probable causes for abnormal indications.

Table 11 Ethernet Traffic Counters

Counter	Counts the Frames	Normal Count	Abnormal Count Indicates
Tx frame	Sent via the Ethernet Port.	Increases as traffic is generated	No data transmitted; hardware problem: <ul style="list-style-type: none"> ■ VCN AP Tx channel ■ User Ethernet cable ■ No VCN AP connection
Rx frame	Received via the Ethernet port.	Increases as traffic is generated	No data received; hardware problem: <ul style="list-style-type: none"> ■ VCN AP Rx channel ■ User Ethernet cable ■ No VCN AP connection
Rx collision	The VCN AP was unable to receive due to collisions on the line	Zero or steady. For non-zero count, reset the counter and wait a reasonable period of time to check for no significant increase.	VCN AP port hardware failure.
CRC error, overrun, Alignment error, frame too long, frame too short	Containing receive fatal errors.	Zero	Hardware failure: VCN AP, Ethernet cable or PC NIC

HDLC Traffic Counts

Normal frame counts indicate traffic between the VCN AP and the VCN AC. Some errored frame counters indicate fatal errors, requiring replacement of the VCN AP (failure between the analog front-end section and the CPU section), or handling of environmental noise over the line.

The following table depicts normal counter indications and probable causes of abnormal counter indications.

Table 12 HDLC Traffic Count Indicators

Counter	Counts the Frames	Normal Count	Abnormal count indicates
Tx frames	Sent via the telephone line	High	No transmit data
Rx frames	Received via telephone line	High	No receive data
Tx discarded	The VCN AP was unable to send	Low	VCN AP software failure
Rx discarded	The VCN AP was unable to receive	Low, unless the traffic is bi-directional	VCN AP software limitation
Overrun, Not mine, DPLL error, Abort sequence, Non aligned, CRC error, Frame too long	Containing Receive fatal errors	Zero/low	VCN AP hardware failure if abnormal count is growing significantly by the minute

Summary of Abnormal Indications from Traffic Counts

The following provides a quick reference to problem identification by using frame counts:

Table 13 Summary of Problems Indicated by Counts of Errored Frames

Problem	Solution
The following Ethernet traffic counters are growing significantly: CRC error, Overrun, Alignment error, Frame too long, or Frame too short.	Replace in this order: the VCN AP, or the Ethernet cable, or the PC NIC.
The following HDLC traffic counters are growing significantly: Tx error, Overrun, Not mine, DPLL error, Abort sequence, Nonaligned, CRC error, Frame too long.	Replace the VCN AP.

Error Messages

There are two types of error messages that appear on the management terminal screen:

- Advisory

The only error message of this type is `wrong entry!` It appears when the user enters the wrong response to a menu. The user solves the problem by re-entering his response.



When a user disconnects the management terminal from the LMI port and later reconnects, the LMI menu system stays in the same state and expects the same user input after reconnect. During reconnect the user may press the wrong sequence of keys and cause `wrong entry!` to be displayed on the screen. Type `o` and press <Enter> a few times until the desired menu appears.

- Fatal

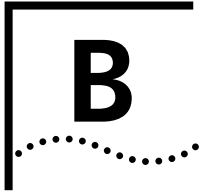
Almost all error messages that do appear are fatal. Contact Technical Support when an error message, except for `wrong entry!`, appears. The most common fatal error messages are listed in [Table 14](#).

Table 14 Fatal Error Messages

Error message	Significance	User Action
FATAL ERROR: SDRAM test failed!	Hardware error during boot-up	Contact Technical Support.
FATAL ERROR: failed FLASH access!	Hardware error during boot-up	Contact Technical Support.
Ethernet selftest failed!	Hardware error during initialization	Contact Technical Support.
HDLC selftest failed!	Hardware error during initialization	Contact Technical Support.
I2C selftest failed!	Hardware error during initialization	Contact Technical Support.
DRAM data bus test fail!	Hardware error	Contact Technical Support.
DRAM address bus test fail!	Hardware error	Contact Technical Support.

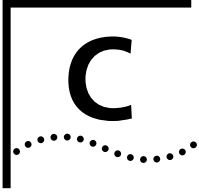


Boot-up and initialization are processes that occur when the VCN AP is reset. Reset occurs when the user selects `Reset board` from the menu system.



PRODUCT SPECIFICATION

Line Data Rate	Up to 10 Mbps, symmetric
Range	up to 4000 ft
Cabling	CAT1 to CAT5
Voice	Dial Tone, Toll Quality, PBX features support
Power requirements	
VCN AP Mains	90-260 ac, 47-63 Hz, 6 Watt maximum
ac/dc adapter	3.3 Vdc /1.5 A, 5 Vdc /150 mA, -5 Vdc /50 mA
Standards Compliance	
Safety	UL 1950 C-UL, CSA22.#950 EN60950 IEC950 TS-001
EMC	FCC Part 15 Class B AS/NZS 3548 VCCI Class B CISPR22 Class B CAN/CSA-CISPR22 Class B EN 55022 Class B, Amendment A1, Amendment A2 EN 55024 IEC 61000-4-2 through 61000-4-6, IEC 61000-4-11
Ethernet	IEEE 802.3
Management interface	1 RS-232 port
Environmental	
Operating Temperature	0°- 50°C
Relative humidity	95% non-condensing



LOADING SOFTWARE THROUGH LOCAL ACCESS

This appendix describes how to load a new software release into the VCN AP through the LMA port.

Loading software requires using a PC in terminal emulation mode. Refer to [Appendix E Terminal Emulation Settings](#) for a description of terminal emulation procedures.

To load software into an VCN AP, perform the following steps:

- 1** Attach your terminal emulating PC to the LMA port on the VCN AP.
- 2** Press any key to view the VCN AP Main Menu on the terminal screen. If another menu appears, press 0 (zero) and ENTER repeatedly until the Main Menu appears.
- 3** In the Main Menu ([Figure 62](#)) type 3, and press ENTER.

Figure 62 VCN AP Main Menu

```
VCN AP Main Menu
-----
1. VCN AP Version
2. Debug Menu
3. Management Menu
4. VDSL control
5. Test control
6. Flash actions
7. VCN AP Configuration
8. Software Download Menu
0. Exit

Please enter your choice:
```

The Management Menu appears:

Figure 63 VCN AP Management Menu

```
Management Menu
-----
1. Ethernet menu
2. HDLC menu
3. Tasks info menu
4. Reset all counters
5. Reset board
0. Return to main menu

Please enter your choice:
```

- 4 In the Management Menu type 5 to reset the VCN AP. The dialog in [Figure 64](#) appears:

Figure 64 Confirm Reset Board

```
:
This action will reset the whole board!

Do you want to proceed (Y/[N])? :
```

- 5 Type **y** to reset. The screen in [Figure 65](#) appears:

Figure 65 Software Download Option

```

*****
          3Com NCD. (C)
          10Base-S Boot loader V2.00
          Date: Jun 15 1999, Time: 16:13:31

CPE modem Operation Mode Selector.
Enter:
          S - for Serial loading           OR
          D - for Debug operation          OR
          F - for SW execution from the Flash OR
          C - for MAC address programming.

*****

```

- 6 Type **s**; the downloading message appears ([Figure 71](#)).



*The option of **F** in the Software Download Menu ([Figure 65](#)), is the default; if the Software Download Menu displays for 5 seconds, execution from the flash automatically begins. The option of **D** is for debug purposes only and should only be carried out by system developers. Option **C** is for entering the MAC address. This is normally performed in the factory.*

Figure 66 Software Downloading Message

```

*****
Load procedure via Serial Line.
*****

Waiting for downloading...

```

7 In the *Procomm* window (Figure 67), select *Data > Send File* (Figure 68).

Figure 67 Procomm Plus Terminal Screen

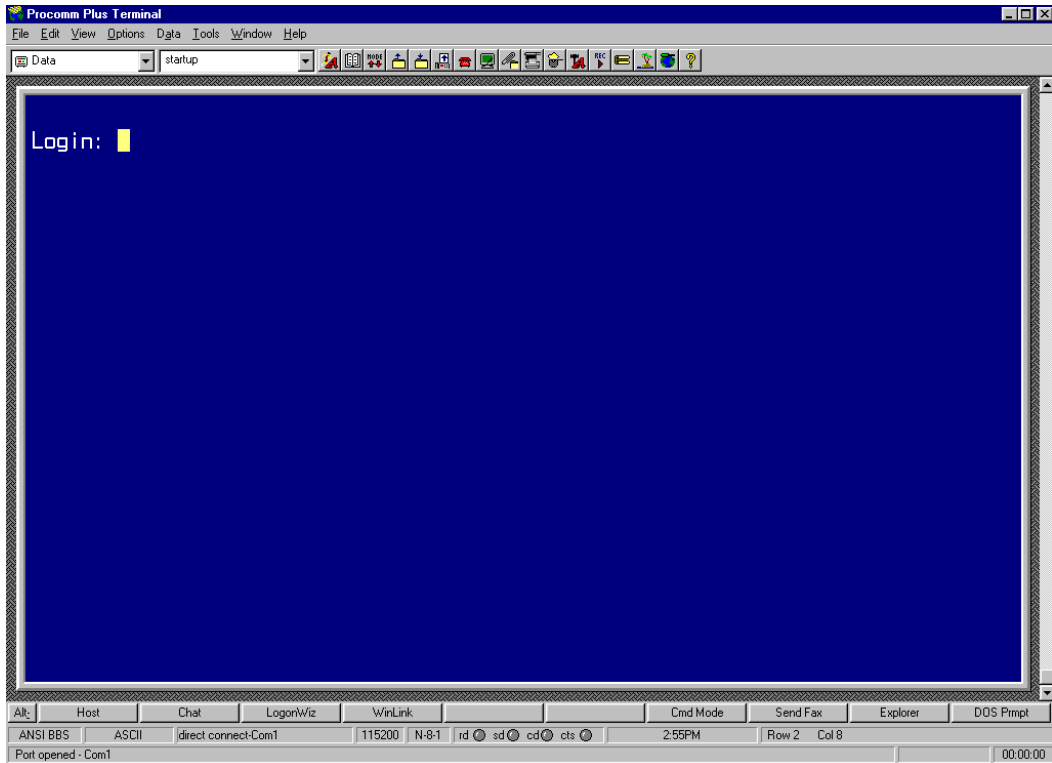
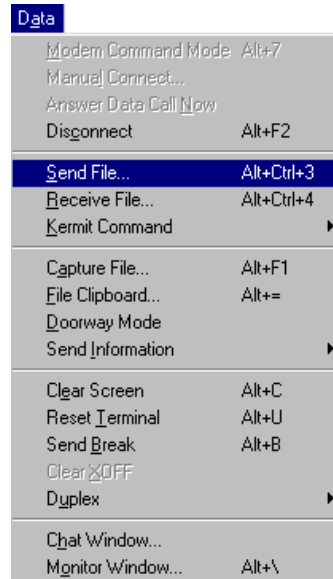
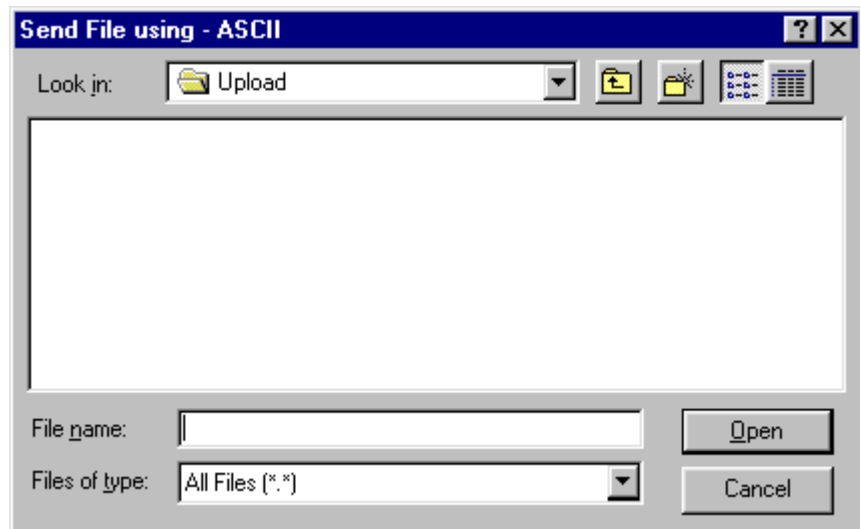


Figure 68 Procomm Plus Data > Send File Menu

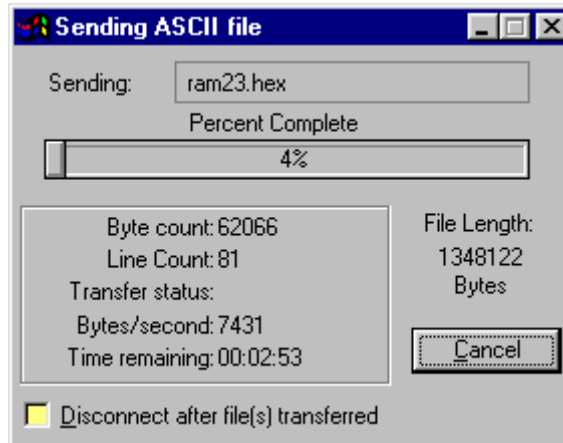
The screen in [Figure 69](#) appears.

Figure 69 Send File Using ASCII Screen

8 Select the correct file and click *Open*.

While the file is downloading, the status window in [Figure 70](#) appears:

Figure 70 Send File Status Window



The VCN AP software is downloaded to the flash memory in the VCN AP, and the messages in [Figure 71](#) and [Figure 72](#) appear:

Figure 71 Software Downloading Message

```
Start saving to the FLASH!
Sector passed number-12
Sector passed number-13
Sector passed number-14
Sector passed number-15
Sector passed number-16
Sector passed number-17
Sector passed number-18
Sector passed number-19
Sector passed number-20
Sector passed number-21
Sector passed number-22
Sector passed number-23
Flash erased OK!
Storage2 has been erased!
Application buffer address - 99e8
Last write address - 2940004
Last write data - f
Last written data - f
Data counter - 1
Indicator has been written!
Application buffer address - 160000
Last write address - 2940008
Last write data - 0
Last written data - 0
Data counter - 393211
SW image has been saved!
Application buffer address - 66d0
Last write address - 2940000
Last write data - 55aa
Last written data - 55aa
Data counter - 1
Signature has been written!
The SW version has been saved to the FLASH!
SW image is being executed!!!
*****

Start executing main!
Watchdog initialized OK !
```

Figure 72 Self-Test Messages

```
HDLC selftest passed!  
Ethernet selftest passed!  
I2C selftest passed!  
VDSL selftest passed!  
MNG task created!  
MNG task started!  
LED task created!  
LED task started!  
DWN task created!  
DWN task started!  
LMA task created  
LMA task started
```

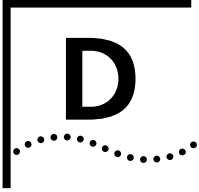
The *Login* prompt appears.

After the software download, the unit starts to execute the software from the flash memory.

If, instead of the messages in [Figure 71](#), one of the following messages appear, the software load failed:

- Flash Error
- SW image validation failed

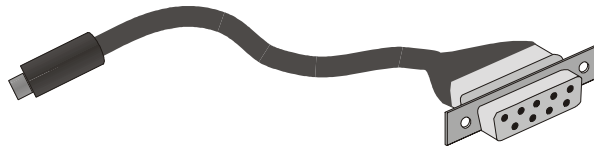
Action: Try to load the software again. If the problem persists, replace the VCN AP.



PIN ASSIGNMENTS FOR LMA CABLE

This appendix describes the pin assignments for the LMA cable, see [Figure 73](#). The cable is used in an RS-232 connection.

Figure 73 Local Management Access Cable



Connector for Local Management Terminal

The connector for the local management (LM) terminal emulating computer is displayed in [Figure 74](#). The connector consists of a DB 9-pin female connector. [Table 15](#) describes the pin assignments.

Figure 74 DB 9-Pin Female Connector

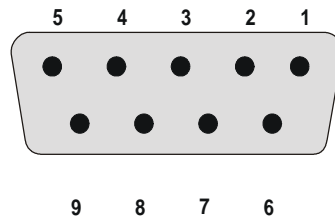


Table 15 LM Terminal Connector Pin Assignment

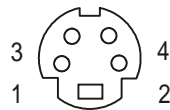
Pin No.	Assignment
1	Not used
2	Tx
3	Rx
4	Not used
5	Ground (GND)

Table 15 LM Terminal Connector Pin Assignment

Pin No.	Assignment
6	Not used
7	Not used
8	Not used
9	Not used

Connector for the LMA Port of the VCN AP

The connector for the LMA port of the VCN AP is described below. The connector consists of a MiniDIN 4-pin male connector, see [Figure 75](#). [Table 16](#) describes the pin assignments.

Figure 75 MiniDIN 4-Pin Connector Pin Numbering**Table 16** LMA Port Connector Pin Assignment

Pin No.	Assignment
1	Tx
2	Rx
3	GND
4	GND

Local Management Cable Wiring

This section describes the connection of the pins in the LM terminal connector to the pins in the VCN AP LMA port connector within the cable. [Figure 76](#) depicts the connections in the cable. [Table 17](#) lists the pin connections for the wires in the cable. The Tx and Rx directions relate to the VCN AP, not the LM terminal.

Figure 76 LM Cable Wiring

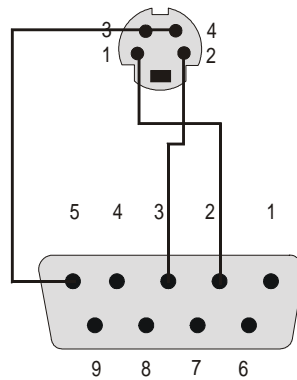
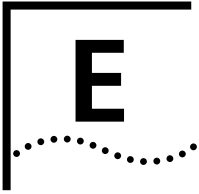


Table 17 LM Cable Connections

MiniDIN Pin No.	DB-9 Pin No.	Assignment
1	2	Tx
2	3	Rx
3	5	GND
4	5	GND



TERMINAL EMULATION SETTINGS

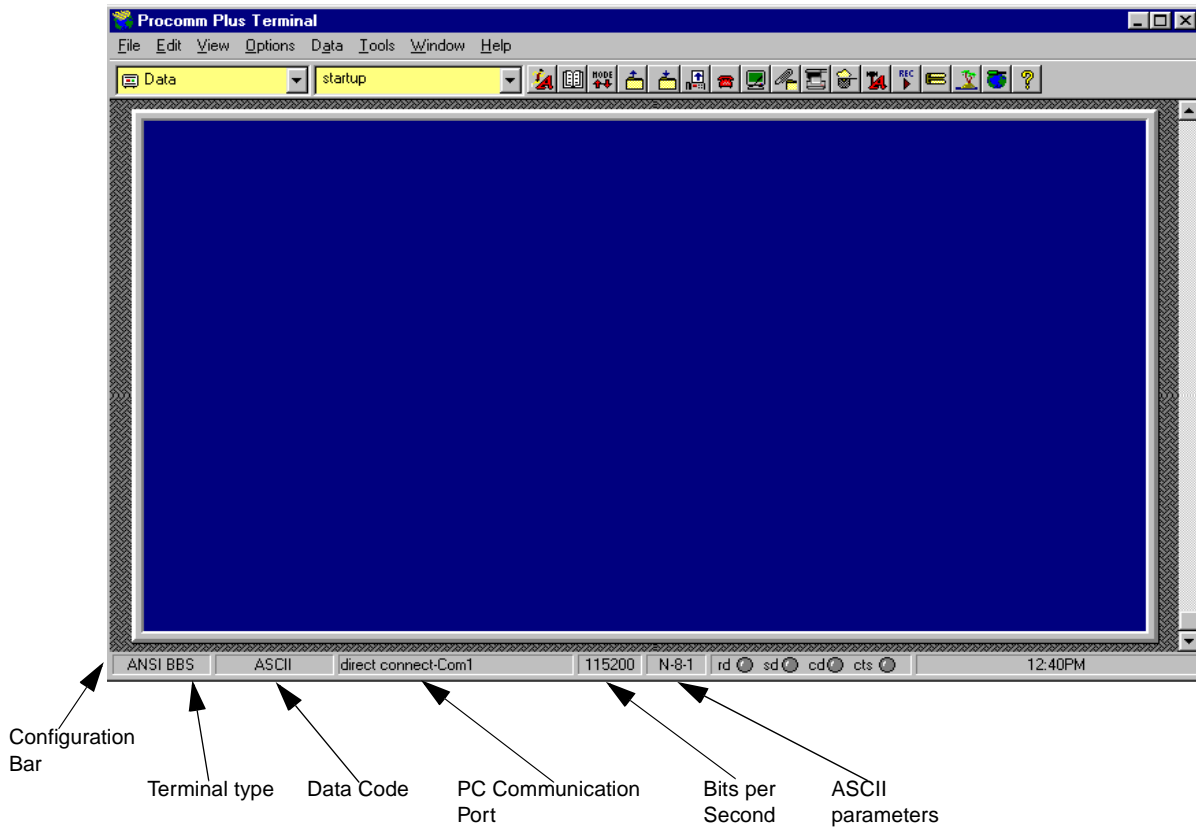
This appendix describes the terminal emulation settings for Procomm Plus. Procomm Plus is presented here as an example of a terminal emulation program; you can use another program with similar settings.

Defining the Terminal Emulation Settings

To define the terminal emulation settings:

- 1 Start the Procomm Plus terminal emulator through one of the procedures below:
 - Double-click the Procomm Plus shortcut if it appears on the PC Desktop.
 - or*
 - Select *Start > Programs > Procomm Plus*.

The *Procomm Plus Terminal* screen in [Figure 77](#) appears.

Figure 77 Procomm Plus Terminal Screen

Establishing Terminal Settings

Terminal settings can be established in one of two ways:

- [Using the Configuration Bar](#)
- [Using the Menu Bar](#)

Using the Configuration Bar

To establish terminal settings using the configuration bar:

- 1 From the Configuration Bar, establish the settings listed in [Table 18](#).

Table 18 Procomm Plus Settings

No From Left	Function	Settings
1	Type of Terminal	ANSI BBS

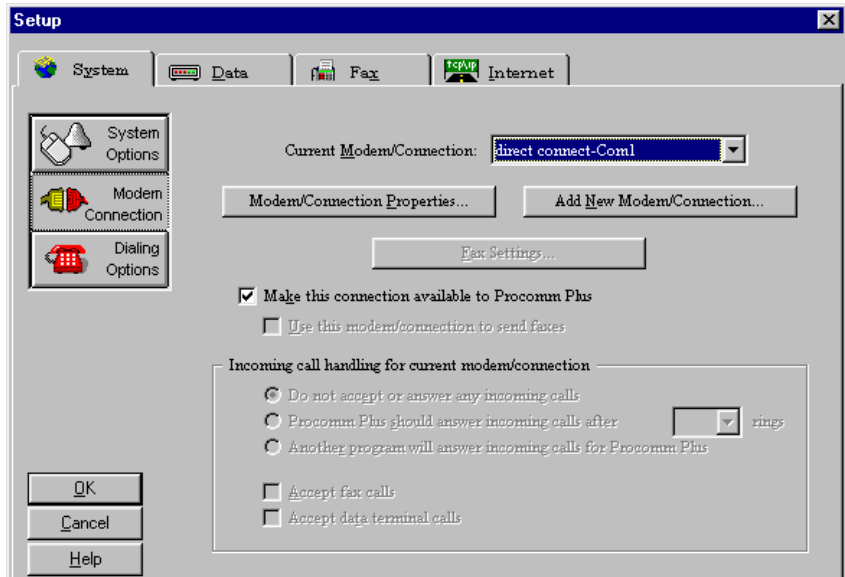
Table 18 Procomm Plus Settings (continued)

No From Left	Function	Settings
2	Data Code	ASCII
3	PC serial communication port	COMx
4	Bits per second	115200
5	ASCII parameters	8-N-1: 8 bits No parity 1 stop bit

- 2 If necessary, click the appropriate button to display a list of all possible settings and select the required settings.

Using the Menu Bar To establish terminal settings using the menu bar:

- 1 Select *Options > System Options > Modem Connection*. The Setup window as shown in [Figure 78](#) opens.

Figure 78 Procomm Setup Window

- 2 Select *System Tab*.

- 3 From the Current Modem/Connection window, select *direct connect-ComX*, where X represents the number of your com port.
- 4 Click *Modem/Connection Properties*. The *Modem/Connection Properties* window as shown in [Figure 79](#) opens.

Figure 79 Connection Properties Window



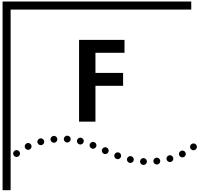
- 5 From the *Baud rate* window, select 115200.
- 6 Set the following parameters:
 - *Parity*: None.
 - *Data bits*: 8.
 - *Stop bits*: 1.
 - Flow control
 - *Use hardware flow control* is the default.
 - *Use software flow control*



Set Use software flow control if your computer works better with software flow control.

- 7 Click *OK*.
- 8 Click *OK*.

Your terminal is now ready for local management functions and for downloading software.



TECHNICAL SUPPORT

3Com provides easy access to technical support information through a variety of services. This appendix describes these services.

Information contained in this appendix is correct at time of publication. For the most recent information, 3Com recommends that you access the 3Com Corporation World Wide Web site.

Online Technical Services

3Com offers worldwide product support 24 hours a day, 7 days a week, through the following online systems:

- [World Wide Web Site](#)
- [3Com Knowledgebase Web Services](#)
- [3Com FTP Site](#)
- [3Com Bulletin Board Service](#)
- [3Com Facts Automated Fax Service](#)

World Wide Web Site

To access the latest networking information on the 3Com Corporation World Wide Web site, enter this URL into your Internet browser:

<http://www.3com.com/>

This service provides access to online support information such as technical documentation and software, as well as support options that range from technical education to maintenance and professional services.

3Com Knowledgebase Web Services

This interactive tool contains technical product information compiled by 3Com expert technical engineers around the globe. Located on the World Wide Web at <http://knowledgebase.3com.com>, this service gives all 3Com customers and partners complementary, round-the-clock access to technical information on most 3Com products.

3Com FTP Site

Download drivers, patches, software, and MIBs across the Internet from the 3Com public FTP site. This service is available 24 hours a day, 7 days a week.

To connect to the 3Com FTP site, enter the following information into your FTP client:

- Hostname: **ftp.3com.com**
- Username: **anonymous**
- Password: **<your Internet e-mail address>**



You do not need a user name and password with Web browser software such as Netscape Navigator and Internet Explorer.

3Com Bulletin Board Service

The 3Com BBS contains patches, software, and drivers for 3Com products. This service is available through analog modem or digital modem (ISDN) 24 hours a day, 7 days a week.

Access by Analog Modem

To reach the service by modem, set your modem to 8 data bits, no parity, and 1 stop bit. Call the telephone number nearest you:

Country	Data Rate	Telephone Number
Australia	Up to 14,400 bps	61 2 9955 2073
Brazil	Up to 28,800 bps	55 11 5181 9666
France	Up to 14,400 bps	33 1 6986 6954
Germany	Up to 28,800 bps	4989 62732 188
Hong Kong	Up to 14,400 bps	852 2537 5601
Italy	Up to 14,400 bps	39 2 27300680
Japan	Up to 14,400 bps	81 3 5977 7977
Mexico	Up to 28,800 bps	52 5 520 7835
P.R. of China	Up to 14,400 bps	86 10 684 92351
Taiwan, R.O.C.	Up to 14,400 bps	886 2 377 5840
U.K.	Up to 28,800 bps	44 1442 438278
U.S.A.	Up to 53,333 bps	1 847 262 6000

Access by Digital Modem

ISDN users can dial in to the 3Com BBS using a digital modem for fast access up to 64 Kbps. To access the 3Com BBS using ISDN, call the following number:

1 847 262 6000

3Com Facts Automated Fax Service

The 3Com Facts automated fax service provides technical articles, diagrams, and troubleshooting instructions on 3Com products 24 hours a day, 7 days a week.

Call 3Com Facts using your Touch-Tone telephone:

1 408 727 7021

Support from Your Network Supplier

If you require additional assistance, contact your network supplier. Many suppliers are authorized 3Com service partners who are qualified to provide a variety of services, including network planning, installation, hardware maintenance, application training, and support services.

When you contact your network supplier for assistance, have the following information ready:

- Product model name, part number, and serial number
- A list of system hardware and software, including revision levels
- Diagnostic error messages
- Details about recent configuration changes, if applicable

If you are unable to contact your network supplier, see the following section on how to contact 3Com.

Support from 3Com

If you are unable to obtain assistance from the 3Com online technical resources or from your network supplier, 3Com offers technical telephone support services. To find out more about your support options, call the 3Com technical telephone support phone number at the location nearest you.

When you contact 3Com for assistance, have the following information ready:

- Product model name, part number, and serial number
- A list of system hardware and software, including revision levels
- Diagnostic error messages
- Details about recent configuration changes, if applicable

Here is a list of worldwide technical telephone support numbers:

Country	Telephone Number	Country	Telephone Number
Asia, Pacific Rim			
Australia	1 800 678 515	P.R. of China	10800 61 00137 or
Hong Kong	800 933 486		021 6350 1590
India	+61 2 9937 5085	Singapore	800 6161 463
Indonesia	001 800 61 009	S. Korea	
Japan	0031 61 6439	From anywhere in S. Korea:	00798 611 2230
Malaysia	1800 801 777	From Seoul:	(0)2 3455 6455
New Zealand	0800 446 398	Taiwan, R.O.C.	0080 611 261
Pakistan	+61 2 9937 5085	Thailand	001 800 611 2000
Philippines	1235 61 266 2602		
Europe			
From anywhere in Europe, call:	+31 (0)30 6029900 phone		
	+31 (0)30 6029999 fax		
Europe, South Africa, and Middle East			
From the following countries, you may use the toll-free numbers:			
Austria	0800 297468	Netherlands	0800 0227788
Belgium	0800 71429	Norway	800 11376
Denmark	800 17309	Poland	00800 3111206
Finland	0800 113153	Portugal	0800 831416
France	0800 917959	South Africa	0800 995014
Germany	0800 1821502	Spain	900 983125
Hungary	00800 12813	Sweden	020 795482
Ireland	1800 553117	Switzerland	0800 55 3072
Israel	1800 9453794	U.K.	0800 966197
Italy	1678 79489		
Latin America			
Argentina	AT&T +800 666 5065	Mexico	01 800 CARE (01 800 2273)
Brazil	0800 13 3266	Peru	AT&T +800 666 5065
Chile	1230 020 0645	Puerto Rico	800 666 5065
Colombia	98012 2127	Venezuela	AT&T +800 666 5065
North America			
	1 800 NET 3Com		
	(1 800 638 3266)		
	Enterprise Customers:		
	1 800 876-3266		

Returning Products for Repair

Before you send a product directly to 3Com for repair, you must first obtain an authorization number. Products sent to 3Com without authorization numbers will be returned to the sender unopened, at the sender's expense.

To obtain an authorization number, call or fax:

Country	Telephone Number	Fax Number
Asia, Pacific Rim	+ 65 543 6500	+ 65 543 6348
Europe, South Africa, and Middle East	+ 31 30 6029900	+ 31 30 6029999
Latin America	1 408 326 2927	1 408 326 3355

From the following countries, you may call the toll-free numbers; select option 2 and then option 2:

Austria	0800 297468	
Belgium	0800 71429	
Denmark	800 17309	
Finland	0800 113153	
France	0800 917959	
Germany	0800 1821502	
Hungary	00800 12813	
Ireland	1800553117	
Israel	1800 9453794	
Italy	1678 79489	
Netherlands	0800 0227788	
Norway	800 11376	
Poland	00800 3111206	
Portugal	0800 831416	
South Africa	0800 995014	
Spain	900 983125	
Sweden	020 795482	
Switzerland	0800 55 3072	
U.K.	0800 966197	
U.S.A. and Canada	1 800 NET 3Com (1 800 638 3266)	1 408 326 7120 (not toll-free)
	Enterprise Customers: 1 800 876 3266	

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3Com Corporation LIMITED WARRANTY

LIMITED WARRANTY

This warranty applies to customers located in the United States, Australia, Canada (except Quebec), Ireland, New Zealand, U.K., and other English language countries, and countries for which a translation into the local language is not provided

Visitor and Community Network

HARDWARE:

3Com warrants to the end user ("Customer") that this hardware product will be free from defects in workmanship and materials, under normal use and service, for the following length of time from the date of purchase from 3Com or its authorized reseller:

3Com's sole obligation under this express warranty shall be, at 3Com's option and expense, to repair the defective product or part, deliver to Customer an equivalent product or part to replace the defective item, or if neither of the two foregoing options is reasonably available, 3Com may, in its sole discretion, refund to Customer the purchase price paid for the defective product. All products that are replaced will become the property of 3Com. Replacement products may be new or reconditioned. 3Com warrants any replaced or repaired product or part for ninety (90) days from shipment, or the remainder of the initial warranty period, whichever is longer.

SOFTWARE

3Com warrants to Customer that each software program licensed from it will perform in substantial conformance to its program specifications, for a period of ninety (90) days from the date of purchase from 3Com or its authorized reseller. 3Com warrants the media containing software against failure during the warranty period. No updates are provided. 3Com's sole obligation under this express warranty shall be, at 3Com's option and expense, to refund the purchase price paid by Customer for any defective software product, or to replace any defective media with software which substantially conforms to applicable 3Com published specifications. Customer assumes responsibility for the selection of the appropriate applications program and associated reference materials. 3Com makes no warranty or representation that its software products will meet Customer's requirements or work in combination with any hardware or applications software products provided by third parties, that the operation of the software products will be uninterrupted or error free, or that all defects in the software products will be corrected. For any third-party products listed in the 3Com software product documentation or specifications as being compatible, 3Com will make reasonable efforts to provide compatibility, except where the noncompatibility is caused by a "bug" or defect in the third party's product or from use of the software product not in accordance with 3Com's published specifications or User Guide.

THIS 3COM PRODUCT MAY INCLUDE OR BE BUNDLED WITH THIRD-PARTY SOFTWARE, THE USE OF WHICH IS GOVERNED BY A SEPARATE END-USER LICENSE AGREEMENT. THIS 3COM WARRANTY DOES NOT APPLY TO SUCH THIRD-PARTY SOFTWARE. FOR THE APPLICABLE WARRANTY, PLEASE REFER TO THE END-USER LICENSE AGREEMENT GOVERNING THE USE OF SUCH SOFTWARE.

YEAR 2000 WARRANTY

In addition to the Hardware Warranty and Software Warranty stated above, 3Com warrants that each product sold or licensed to Customer on and after January 1, 1998, that is date sensitive will continue performing properly with regard to such date data on and after January 1, 2000, provided that all other products used by Customer in connection or combination with the 3Com product, including hardware, software, and firmware, accurately exchange date data with the 3Com product, with the exception of those products identified at 3Com's Web site, <http://www.3com.com/products/yr2000.html>, as not meeting this standard. If it appears that any product that is stated to meet this standard does not perform properly with regard to such date data on and after January 1, 2000, and Customer notifies 3Com before the later of April 1, 2000, or ninety (90) days after purchase of the product from 3Com or its authorized reseller, 3Com shall, at its option and expense, provide a software update which would effect the proper performance of such product, repair such product, deliver to Customer an equivalent product to replace such product, or if none of the foregoing is feasible, refund to Customer the purchase price paid for such product.

Any software update or replaced or repaired product will carry a Year 2000 Warranty for ninety (90) days after purchase or until April 1, 2000, whichever is later.

OBTAINING WARRANTY SERVICE

Customer must contact a 3Com Corporate Service Center or an Authorized 3Com Service Center within the applicable warranty period to obtain warranty service authorization. Dated proof of purchase from 3Com or its authorized reseller may be required. Products returned to 3Com's Corporate Service Center must be preauthorized by 3Com with a Return Material Authorization (RMA) number or User Service Order (USO) number marked on the outside of the package, and sent prepaid and packaged appropriately for safe shipment, and it is recommended that they be insured or sent by a method that provides for tracking of the package. Responsibility for loss or damage does not transfer to 3Com until the returned item is received by 3Com. The repaired or replaced item will be shipped to Customer, at 3Com's expense, not later than thirty (30) days after 3Com receives the defective product.

3Com shall not be responsible for any software, firmware, information, or memory data of Customer contained in, stored on, or integrated with any products returned to 3Com for repair, whether under warranty or not.

Dead- or Defective-on-Arrival. In the event a product completely fails to function or exhibits a defect in materials or workmanship within the first forty-eight (48) hours of installation but no later than thirty (30) days after the date of purchase, and this is verified by 3Com, it will be considered dead- or defective-on-arrival (DOA) and a replacement shall be provided by advance replacement. The replacement product will normally be shipped not later than three (3) business days after 3Com's verification of the DOA product, but may be delayed due to export or import procedures. The shipment of advance replacement products is subject to local legal requirements and may not be available in all locations. When an advance replacement is provided and Customer fails to return the original product to 3Com within fifteen (15) days after shipment of the replacement, 3Com will charge Customer for the replacement product, at list price.

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IF A 3COM PRODUCT DOES NOT OPERATE AS WARRANTED ABOVE, CUSTOMER'S SOLE REMEDY FOR BREACH OF THAT WARRANTY SHALL BE REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE PAID, AT 3COM'S OPTION. TO THE FULL EXTENT ALLOWED BY LAW, THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, TERMS, OR CONDITIONS, EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, INCLUDING WARRANTIES, TERMS, OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, SATISFACTORY QUALITY, CORRESPONDENCE WITH DESCRIPTION, AND NONINFRINGEMENT, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. 3COM NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, OR USE OF ITS PRODUCTS.

3COM SHALL NOT BE LIABLE UNDER THIS WARRANTY IF ITS TESTING AND EXAMINATION DISCLOSE THAT THE ALLEGED DEFECT OR MALFUNCTION IN THE PRODUCT DOES NOT EXIST OR WAS CAUSED BY CUSTOMER'S OR ANY THIRD PERSON'S MISUSE, NEGLIGENCE, IMPROPER INSTALLATION OR TESTING, UNAUTHORIZED ATTEMPTS TO OPEN, REPAIR, OR MODIFY THE PRODUCT, OR ANY OTHER CAUSE BEYOND THE RANGE OF THE INTENDED USE, OR BY ACCIDENT, FIRE, LIGHTNING, POWER CUTS OR OUTAGES, OTHER HAZARDS, OR ACTS OF GOD.

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TO THE FULL EXTENT ALLOWED BY LAW, 3COM ALSO EXCLUDES FOR ITSELF AND ITS SUPPLIERS ANY LIABILITY, WHETHER BASED IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND, OR FOR LOSS OF REVENUE or profits, LOSS OF BUSINESS, loss of information or data, OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, USE, PERFORMANCE, FAILURE, OR INTERRUPTION OF ITS PRODUCTS, EVEN IF 3COM OR ITS AUTHORIZED RESELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND LIMITS ITS LIABILITY TO REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE paid, AT 3COM'S OPTION. THIS DISCLAIMER OF LIABILITY FOR DAMAGES WILL NOT BE AFFECTED IF ANY REMEDY PROVIDED HEREIN SHALL FAIL OF ITS ESSENTIAL PURPOSE.

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Some countries, states, or provinces do not allow the exclusion or limitation of implied warranties or the limitation of incidental or consequential damages for certain products supplied to consumers, or the limitation of liability for personal injury, so the above limitations and exclusions may be limited in their application to you. When the implied warranties are not allowed to be excluded in their entirety, they will be limited to the duration of the applicable written warranty. This warranty gives you specific legal rights which may vary depending on local law.

GOVERNING LAW

This Limited Warranty shall be governed by the laws of the State of California, U.S.A. excluding its conflicts of laws principles and excluding the United Nations Convention on Contracts for the International Sale of Goods.

3Com Corporation

5400 Bayfront Plaza

P.O. Box 58145

Santa Clara, CA 95052-8145

(408) 326-5000

June 7, 1999

Ninety (90) days

INCLUDED SERVICES:

Telephone Support, with coverage for basic troubleshooting only, will be provided for ninety (90) days from the date of purchase, on a commercially reasonable efforts basis. Telephone support is available from 3Com only if Customer purchased this product directly from 3Com, or if Customer's reseller is unable to provide telephone support. Please refer to the Technical Support appendix in the User Guide for telephone numbers.

Software Updates, consisting of software and firmware upgrades, software update notifications, and the latest code download through the 3Com Software Library, will be provided for ninety (90) days from the date of purchase. To qualify for this software updates service, Customer must register on the 3Com Web site and provide date of product purchase, product number, and serial number.

EMC STATEMENTS

FCC CLASS B VERIFICATION STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CSA STATEMENT

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

VCCI STATEMENT

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラス B 情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

EMC DIRECTIVE COMPLIANCE STATEMENT

This equipment was tested and found to conform to the Council Directive 89/336/EEC for electromagnetic compatibility. Conformity with this Directive is based upon compliance with the following harmonized standards:

- EN 55022 Limits and Methods of Measurement of Radio Interference
- EN 50082-1 Electromagnetic Compatibility Generic Immunity Standard: Residential, Commercial, and Light Industry

This equipment conforms to the Class B limits of EN 55022.

AUSTRALIAN COMPLIANCE

This product conforms to the EMC Frameworks and meets the Class B limits of AS3548.

SAFETY STATEMENT

LOW VOLTAGE DIRECTIVE COMPLIANCE

This equipment was tested and found to conform to the Council Directive 72/23/EEC for safety of electrical equipment. Conformity with this Directive is based upon compliance with the following harmonized standard:

- EN 60950 Safety of Information Technology Equipment