



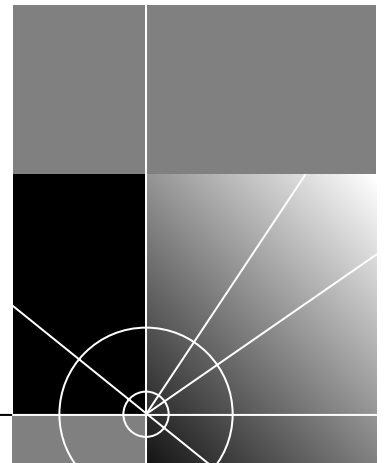
# Visitor and Community Network Access Concentrator

## SERVICE MANUAL

Release 2.0

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

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# CONTENTS

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## ABOUT THIS GUIDE

Conventions	7
Related Documentation	8
Year 2000 Compliance	8

---

## 1 OVERVIEW

Visitor and Community Network System Major Features and Benefits	9
Features	9
Benefits	10
Applications	11
VCN AC Features	13
Management Features	16

---

## 2 INSTALLING THE VCN ACCESS CONCENTRATOR

Safety Precautions	19
Précautions de Sécurité	20
Sicherheitsvorkehrungen	20
Preparing the Site for the VCN Access Concentrator	21
Installing the VCN Access Point Punch-down Block with a Patch Panel	23
Installing the VCN Access Point Punch-Down Block Without a Patch Panel	25
Installing the VCN Access Concentrator	27
Mounting the VCN Access Concentrator in the 19-inch Rack	28
Connecting Cables to the Rack Via Patch Panel	30
Note on Insertion of Line Cards in the VCN Access Concentrator	33
Connecting Cables to the Rack Without a Patch Panel	33
Mounting the Ethernet Switch	36
Configuring the Ethernet Switch for the VCN Access Concentrator	36
Powering Up the Ethernet Switch	45
Powering Up the VCN Access Concentrator	45

Proper Selection of Power Cord	45
Selection Du Cable D'alimentation	46
Richtige Auswahl des Stromkabels	46
Troubleshooting	47

---

### **3 MANAGING THE VCN ACCESS CONCENTRATOR**

Real Time LED Indications	49
Using the Management Terminal for Local and Central Management	50
Management Terminal Requirements	50
Connecting the PC Terminal Emulator	51
Line Card Management	52
Local Menus	52
Loading a New Software Release Through the LMA	72
Central Management	80
Overview	80
Central Management Menus in the LMA Interface	82
Central Management Via Telnet	104
Telnet Menus	106
Remote Software Download	112
Overview	112
Requirements	112
Procedure	113
Solving Problems in Remote Software Download	122

---

### **A TROUBLESHOOTING**

Power-on Self Test (POST)	125
Using Front Panel LEDs to Solve Problems	126
Using a PC Terminal Emulator to Solve Problems	127
Ethernet Traffic Counters	127
HDLC Traffic Counters	128
Abnormal Indications from Traffic Counts	129
Error Messages	129
Telnet Connection Problems	130
Inability to Connect	130
Broken Session	131

---

## **B PRODUCT SPECIFICATION**

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## **C TERMINAL EMULATION SETTINGS**

---

## **D TECHNICAL SUPPORT**

Online Technical Services	141
World Wide Web Site	141
3Com Knowledgebase Web Services	141
3Com FTP Site	142
3Com Bulletin Board Service	142
3Com Facts Automated Fax Service	143
Support from Your Network Supplier	143
Support from 3Com	143
Returning Products for Repair	145

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## **GLOSSARY**

---

## **INDEX**

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## **3COM CORPORATION LIMITED WARRANTY**

---

## **EMC STATEMENTS**

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## **SAFETY STATEMENT**



# ABOUT THIS GUIDE

This guide describes the 3Com® Visitor and Community Network Access Concentrator (VCN AC) Release 2.0, how to manage and operate the VCN AC and how to troubleshoot the VCN AC once installed.

This guide is intended for technicians who are responsible for setting-up, operating, and troubleshooting the VCN AC.



*The NCU (Network Concentration Unit) name has been changed in release II and is referred to as Visitor and Community Network Access Concentrator.*



*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:

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

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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"> <li>■ Emphasize a point.</li> <li>■ Denote a new term at the place where it is defined in the text.</li> <li>■ Identify menu names, menu commands, and software button names. Examples: From the <i>Help</i> menu, select <i>Contents</i>. Click <i>OK</i>.</li> </ul>

## Related Documentation

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

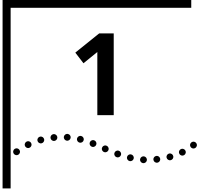
- Visitor and Community Network Access Point Service Manual
- Visitor and Community Network Access Concentrator Service Manual
- Visitor and Community Network Access Point Mounting Guide
- Visitor and Community Network Access Concentrator Installation Guide

## 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>





# OVERVIEW

This chapter provides an overview of the Visitor and Community Network Access Concentrator (VCN AC), its operation and advantages.

This chapter includes the following topics:

- [Visitor and Community Network System Major Features and Benefits](#)
- [Applications](#)
- [VCN AC Features](#)

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## Visitor and Community Network System Major Features and Benefits

A Visitor and Community Network (VCN) system consists of a VCN 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 geographic range is four 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 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:

- Existing wiring is used for simultaneous voice calls and data connections. During installation, re-wiring is not required and business operations continue normally.

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 permits a hotel to provide new data communication services without forfeiting any POTS revenues.

- The system's ready-to-use, out-of-the-box, room-by-room installation provides easy and cost-effective setup in an existing facility's telecom wiring closet or private branch exchange (PBX) room. Its non-disruptive installation prevents complete hotel or floor shut downs.
- The system is totally manageable from the user VCN AP to the VCN AC. Management software provides a real-time view of system status with troubleshooting tools. Both the VCN AP and VCN AC support local management through a terminal emulating computer connection. In the VCN AC, all port cards can be centrally managed from the first card. The VCN AC supports secure remote management through a Telnet connection in the Internet or Intranet. A single VCN AP can be used to remotely download software to a VCN AC attached to an Ethernet switch and to the APs attached to the VCN AC.
- The system facilitates low cost of ownership through the re-use of common cabling systems, such as Category 5. The system presents a low cost solution while providing customers with multiple services over a single wire, and providing operators of hotels, residential telecommunications, and office towers a single manageable network. It offers low cost maintenance and flexible tracking capabilities and is

readily integrated with existing hotel and multiple dwelling unit (MDU) billing systems.

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

- 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.

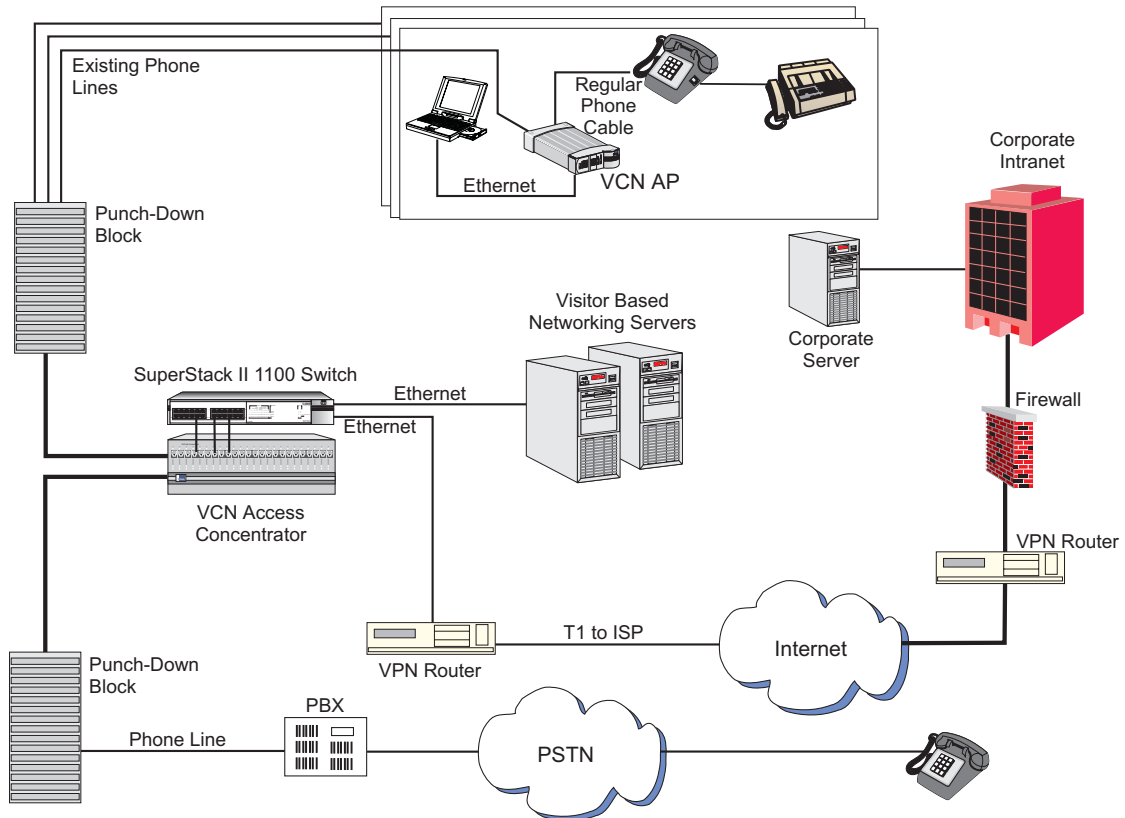
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## Applications

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 Application

The VCN AC is connected to the VCN APs, the analog PBX, and an Ethernet switch, e.g. a 3Com VCN Services Switch or a SuperStack II Switch 1100. A standard metallic pair telephone line connects each VCN AP to a VCN AC co-located with the analog PBX or local telephone exchange.



*The Visitor and Community Network solution also works with the SuperStack II Switch 3300.*

When a personal computer equipped with an Ethernet card is plugged into the Ethernet port of the VCN AP, the Visitor and Community Network system provides fast internet and other network services for data transmissions, and allows voice channels to be used simultaneously.

A person can speak on the telephone attached to the VCN AP and simultaneously send data from his computer. A telephone extension based on the same cable as the first telephone can be used at the same time as the first telephone. The telephone extension does not share the same wire pair as the computer and does not pass through the VCN AC.

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

The VCN AC separates voice and data channels upstream and joins voice and data channels downstream toward the end user for all VCN APs it services.

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.

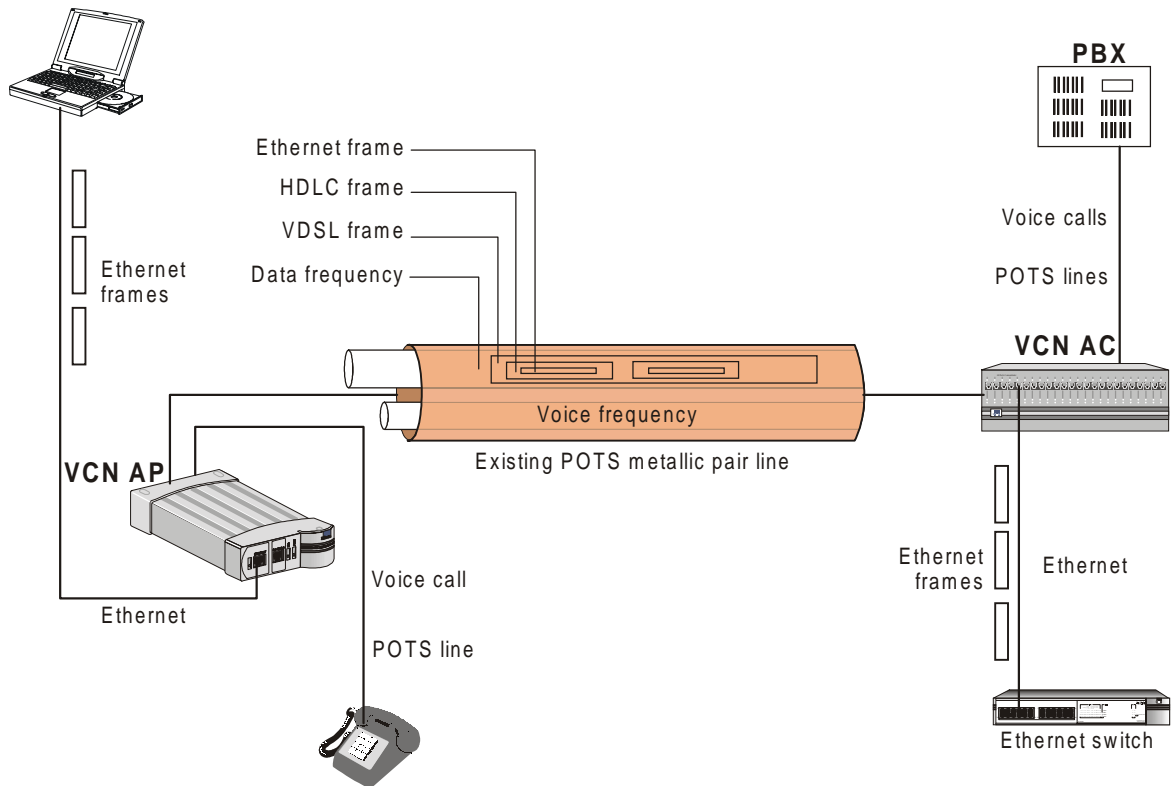
Existing LAN infrastructure can be extended to locations currently lacking LAN cabling through the Visitor and Community Network System.

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

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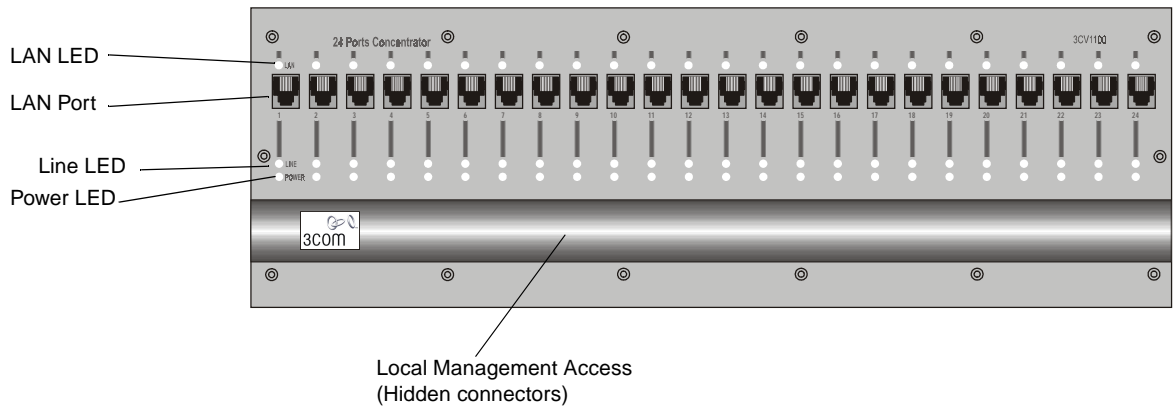
## VCN AC Features

The main VCN AC feature is to combine data and analog voice in the direction of the VCN APs and to split voice and data in the direction from the VCN APs (see [Figure 2](#)). Analog voice (telephone) is routed to the analog PBX. Data is transferred to the Ethernet switch. The VCN AC allows simultaneous transfer of voice and data of up to 10 Mbps full duplex on each telephone extension line.

**Figure 2** Transfer of Ethernet Frames in Visitor and Community Network

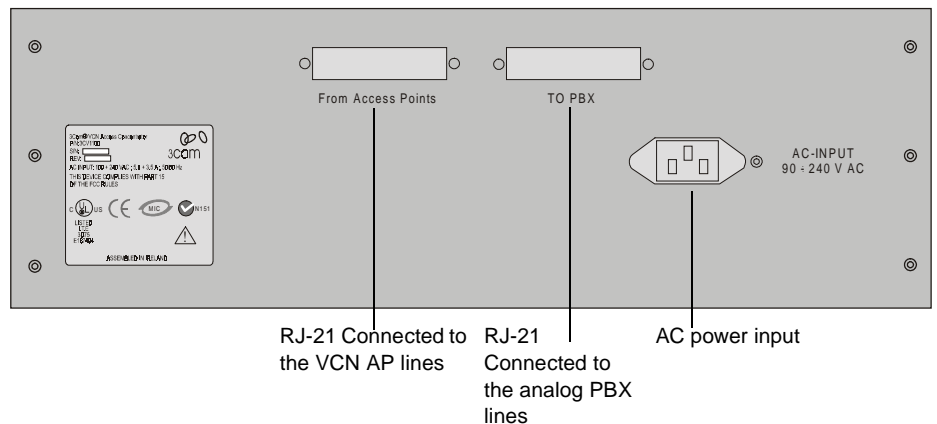
The user's Ethernet frames are encapsulated in HDLC frames carried in VDSL. Voice and data traffic are carried in their respective frequency ranges in the wire pair that connects the VCN AP to the VCN AC. Voice traffic, including facsimile and analog modem traffic, are not modified.

[Figure 3](#) shows the front panel of the VCN AC. The 24 LAN ports of the VCN AC are connected to the Ethernet switch. Each port is an RJ-45 connector.

**Figure 3** VCN AC Front Panel

The VCN AC is connected to the VCN AP via the FROM VCN AP RJ-21 connector on the back panel (Figure 4). The first 24 of the 25 wire pairs in the connector, are used to connect 24 VCN APs.

The VCN AC separates the data traffic from the analog conversations. The analog conversations are connected to the PBX via 24 of the 25 wire pairs in the TO PBX RJ-21 connector.

**Figure 4** VCN AC Back Panel

The AC-INPUT connector on the back panel provides power to the VCN AC.

## Management Features

The VCN AC provides the following management features:

### Real Time LED Indications

The LEDs on the front panel ([Figure 3](#)) provide real-time indications of the status of each line in the VCN AC. [Table 3](#) describes the VCN AC front panel LEDs.

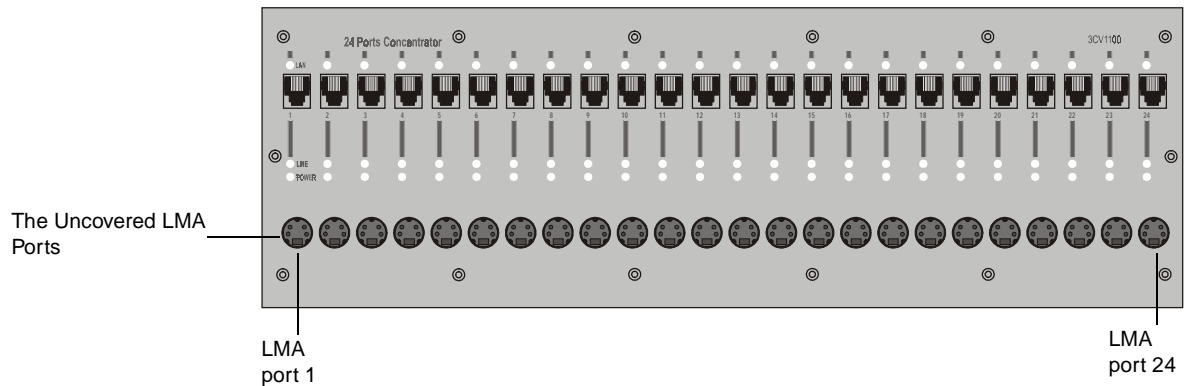
**Table 3** VCN AC Front Panel LEDs

LED	State	Used to
LAN	Green	Indicate connection of the VCN AC to the Ethernet Switch.
LINE	OFF	Indicate VCN AC is not connected to the line.
	Flashing green	Indicate data transmission over the VDSL line.
POWER	OFF	Indicate that the VCN AC is not powered.
	Orange	Indicate that the power-on self-test failed if the LED remains orange for more than 30 seconds.
	Green	Indicate that the unit is functional.

### Local Management

The VCN AC enables local management of every communication port. [Figure 5](#) shows the VCN AC front panel with the Local Management Access (LMA) ports uncovered. For every VCN AC communication port there is an LMA port. The LMA ports are for connecting ASCII terminals that provide the management interface. The user monitors and manages each communication card through a management terminal directly attached to the card LMA port. Line status information on the VCN AP-VCN AC connection is available.



**Figure 5** The Uncovered LMA ports of the VCN AC

## Central Management

Central management of all VCN AC ports is performed through LMA port 1 (the leftmost LMA of the VCN AC) or Telnet. The user sends commands to the management agent in card slot 1 through a locally attached management terminal or remotely through a Telnet session. The management agent controls the communications ports by sending them commands and receiving responses through a proprietary management message set. The user monitors and manages the VCN AC from a single point and can view status and statistical information on the VCN AP-VCN AC lines as well as perform certain configurational options such as setting full or half duplex.

## Remote Management

An VCN AC can be centrally and remotely managed via Telnet. Instead of attaching a terminal to the LMA, the user connects to the VCN AC management agent (in the leftmost card slot) through the Telnet protocol over the Internet. Access is password protected. Messages in the management user interface are carried in the VCN AC card slot 1 LAN port, which is connected by an Ethernet link to an Ethernet switch. It is not necessary for LMA port 1 to be used.



# 2

## INSTALLING THE VCN ACCESS CONCENTRATOR

This chapter contains safety precautions, information needed for installing the VCN AP punch-down block, and instructions on how to mount, install, and connect the VCN AC.

This chapter includes the following topics:

- [Safety Precautions](#)
- [Preparing the Site for the VCN Access Concentrator](#)
- [Installing the VCN Access Concentrator](#)
- [Powering Up the Ethernet Switch](#)
- [Powering Up the VCN Access Concentrator](#)
- [Troubleshooting](#)

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### Safety Precautions



**WARNING:** Do not plug in, turn on or attempt to operate an obviously damaged unit.



**CAUTION:** All servicing should be undertaken ONLY by qualified service personnel. there are no user serviceable parts inside the unit.



**WARNING:** Be sure to unplug the power supply cord from the wall socket BEFORE attempting to remove and/or replace the power supply.



**CAUTION:** Do not operate the unit in location where the maximum ambient temperature exceeds 40 degrees C.



**CAUTION:** Ensure that the chassis ventilation openings in the unit are not obstructed.



**CAUTION:** The power supply provided 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.

---

## Précautions de Sécurité



**AVERTISSEMENT:** Si l'unité est visiblement endommagée NE PAS la brancher au secteur, ni tenter de la mettre en fonction.



**ATTENTION:** Toute intervention sera effectuée UNIQUEMENT par un personnel qualifié. L'unité ne comporte pas de pièces à remplacer par l'utilisateur.



**AVERTISSEMENT:** Assurez vous que vous avez bien débranché le câble d'alimentation électrique de la prise de courant AVANT d'essayer de démonter le bloc d'alimentation.



**ATTENTION:** Ne pas faire fonctionner l'unité dans un endroit où la température ambiante dépasse 40 degrés C.



**ATTENTION:** Vérifiez que les ouvertures de ventilation du châssis ne sont pas obturées.



**ATTENTION:** 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.

---

## Sicherheitsvorkehrungen



**WARNUNG:** 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.



**VORSICHT:** Alle Wartungsdienste sollten nur von qualifiziertem Wartungspersonal durchgeführt werden. Die Einheit enthält keine Teile, die der Benutzer selbst warten kann.



**WARNUNG:** Ziehen Sie den Stromstecker aus der Steckdose, **bevor** Sie die Energieversorgung entfernen und/oder austauschen.



**VORSICHT:** *BEDIENEN Sie die Einheit **nicht**, wenn die Temperatur am Standort 40 Grad C übersteigt.*



**VORSICHT:** *Gewährleisten Sie, daß die Ventilationsöffnungen des Chassis der Einheit nicht blockiert sind.*

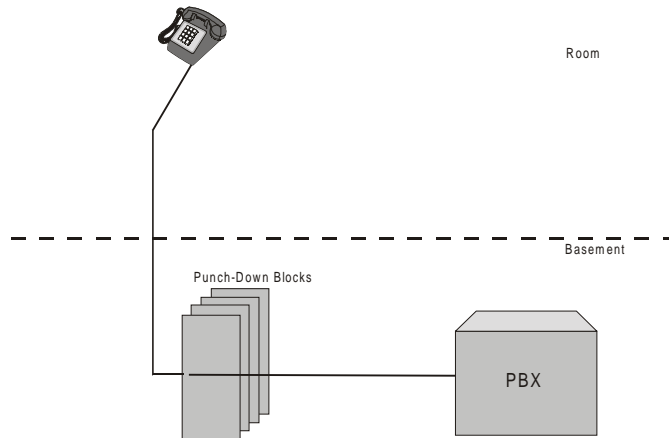


**VORSICHT:** *Die Energieversorgung wählt automatisch entweder 100-120 V WS oder 200-240 V WS, 60/50 Hz, wie auf dem Sicherheitsaufkleber neben der Energiezufuhr angegeben. Gewährleisten Sie, daß die vorhandene Stromleistung des Hauptstromnetzes innerhalb eines dieser möglichen Bereiche liegt.*

## Preparing the Site for the VCN Access Concentrator

The punch-down block that connects POTS terminals to a PBX is known as the PBX punch-down block. [Figure 6](#) displays the infrastructure before the Visitor and Community Network system is installed.

**Figure 6** Before the VCN Access Concentrator is Installed



Before installing the VCN AC in the communications room, perform the following tasks:

- 1 Install the VCN AP punch-down block in addition to the existing punch-down block.
- 2 Install a rack for the VCN AC.



**CAUTION:** *Installation should be performed only by a qualified technician*

The VCN AP punch-down block, which carries both data and voice, can be connected to an optional patch panel, which connects the circuits between the VCN AC and punch-down blocks.

If there is no patch panel, the VCN AC unit connects directly to the VCN AC punch-down block and VCN AP punch-down blocks.

The VCN AC unit should be installed at the PBX punch-down block location, usually in the basement or wiring closet of a building.

The unit is installed in a 19-inch rack along with the SuperStack II Switch 1100/3300 and an optional patch panel.

There are two methods for installing the Visitor and Community Network system:

- With a patch panel.
- Without a patch panel.

## Installing the VCN Access Point Punch-down Block with a Patch Panel

To install the VCN AP punch-down block when there is a patch panel, perform the following steps:

- 1 Select the wire pairs according to their position in the RJ-11 telephone connector in the rear of the VCN AP. The two outside wires comprise the outer wire pair and the two inside wires comprise the inner wire pair, as shown in [Figure 7](#) and [Figure 8](#).



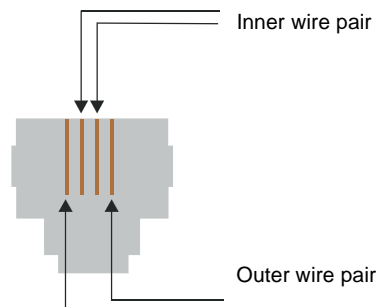
Where there is only one telephone line in a room, the two wires are connected to the inner wire pair of the phone connector shown in [Figure 7](#) and [Figure 8](#). The outer wire pair of the phone connector is not used.

- The inner wire pair carries both voice and digital data.
- The outer wire pair carries only voice.

**Figure 7** VCN Access Point Rear Pane



**Figure 8** The Four Wires of the Telephone Cable



- 2 Disconnect the punch-down Krone connector for the inner wire pair from the PBX punch-down block.



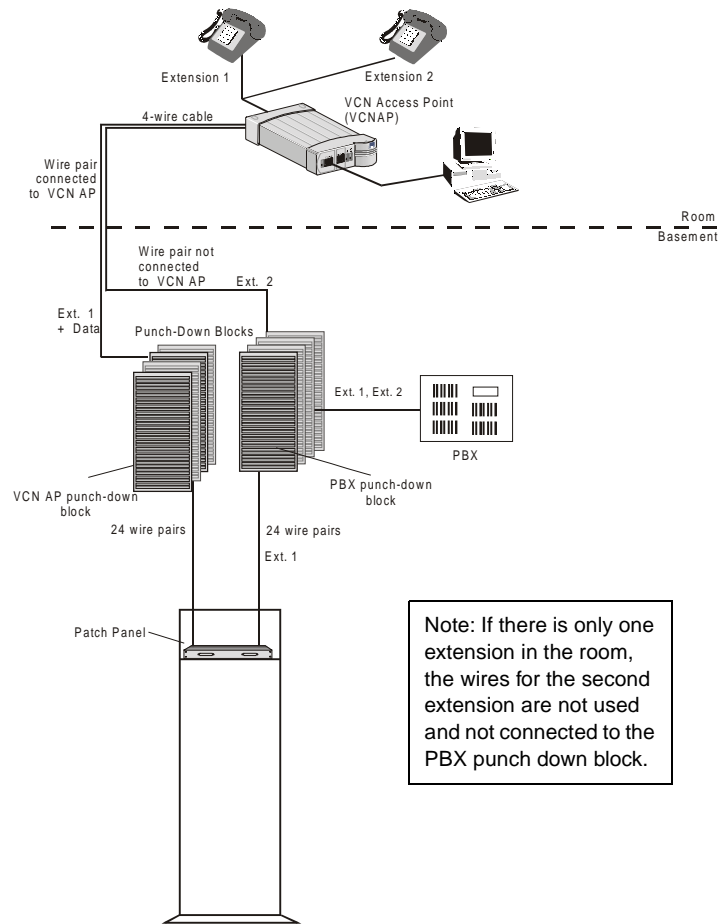
The outer wire pair remains connected to the PBX punch-down block since it will not carry data.

- 3** Connect the Krone connector of the inner wire pair to the new VCN AP punch-down block, which has been added.
- 4** Connect another punch-down Krone connector from the VCN AP punch-down block to the back of the patch panel.
- 5** Connect an additional punch-down Krone connector from the patch panel to the PBX punch-down block to carry voice transmissions of the inner wire pair to the PBX.
- 6** Repeat [step 1](#) through [step 5](#) for up to 24 telephone lines.

[Figure 9](#) shows the resulting infrastructure.



**Figure 9** VCN Access Point Punch-Down Block Installation with a Patch Panel



*The installed patch panel must have 48 wire connectors - two for each port.*

**Installing the VCN Access Point Punch-Down Block Without a Patch Panel**

To install the VCN AP punch-down block in the absence of a patch panel, perform the following steps:

- 1 Select the wire pairs according to their position in the RJ-11 telephone connector in the rear of the VCN AP. The two outside wires comprise the

outer wire pair and the two inside wires comprise the inner wire pair, as shown in [Figure 10](#) and [Figure 11](#).



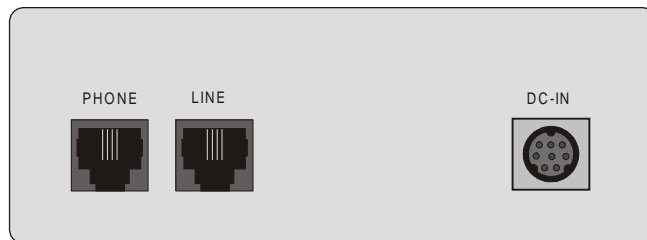
*Where there is only one telephone line in a room, the two wires are connected to the inner wire pair of the phone connector shown in [Figure 10](#) and [Figure 11](#). The outer wire pair of the phone connector is not used.*

- The inner wire pair carries both voice and digital data.
  - The outer wire pair only carries voice.
- 2 Disconnect the punch-down Krone connector for the inner wire pair from the PBX punch-down block.

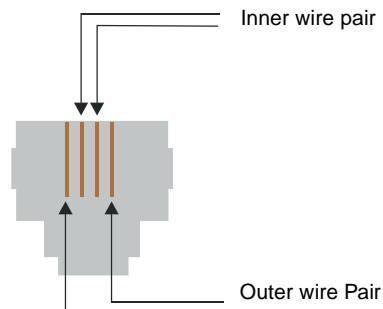


*The outer wire pair remains connected to the PBX punch-down block since it will not carry data.*

**Figure 10** VCN Access Point Rear Panel

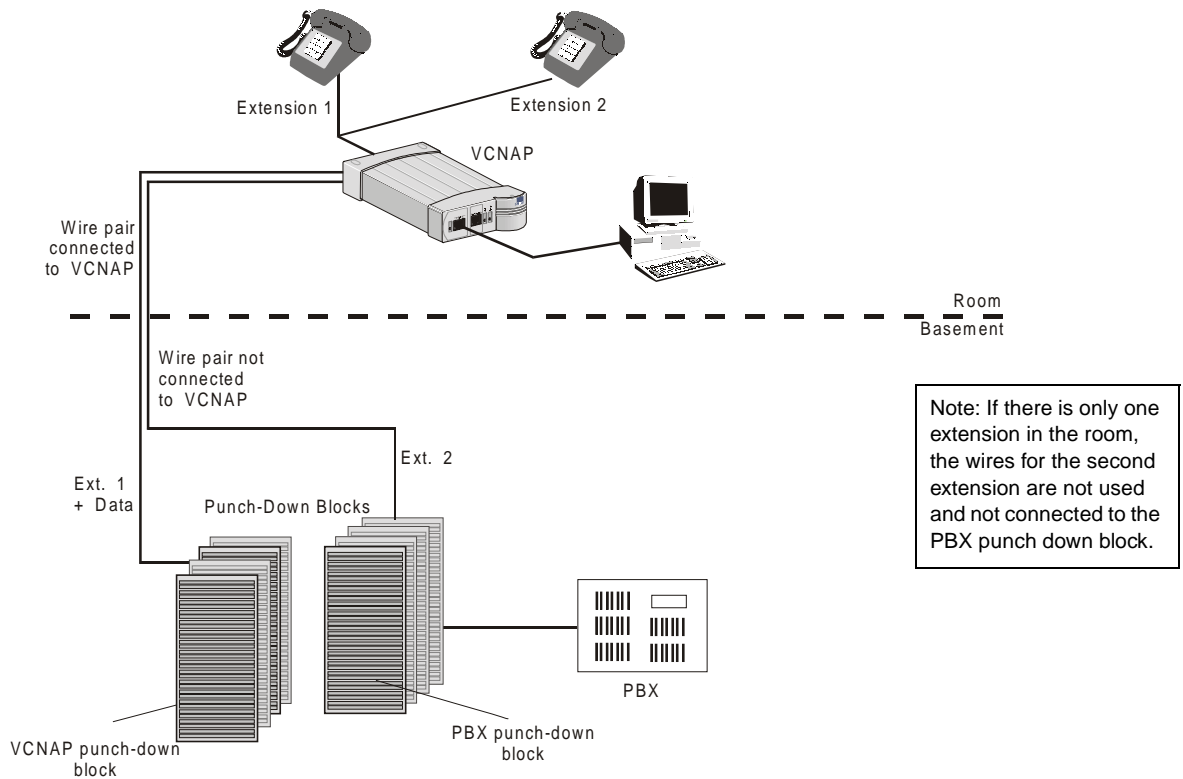


**Figure 11** The Four Wires of the Telephone Cable



- 3 Connect the punch-down Krone connector of the inner wire pair to the added VCN AP punch-down block. Refer to [Figure 12](#).

**Figure 12** VCN Access Point Punch-down Block Installation without a Patch Pane



4 Repeat [step 1](#) through [step 3](#) for up to 24 telephone lines.



*The VCN AP and PBX punch-down blocks must each have an RJ-21 connector.*

## Installing the VCN Access Concentrator

Before installing the VCN AC make sure that:

- The unit is accessible and can be connected easily.
- Cabling is away from:
  - Sources of electrical noise such as radios, transmitters and broadband amplifiers
  - Power lines and fluorescent lighting fixtures
- Water or moisture cannot enter the case of the unit.

- Air-flow is not restricted around the unit or through the vents in the side of the switch. Make sure you provide a minimum of 2.5 cm (1 inch) clearance between the SuperStack II Switch 1100/3300 and the VCN AC

It is recommended to have a ventilated or air conditioned room.

- The VCN AC is within cable reach of both the patch panel and the SuperStack II Switch 1100/3300 for which the unit is to be attached.

### Mounting the VCN Access Concentrator in the 19-inch Rack

[Table 4](#) lists the accessories needed for mounting the VCN AC in the 19-inch rack.

**Table 4** The VCN Access Concentrator Accessory Set

No.	Part	Quantity
1	VCN AC unit	1
2	19-inch brackets	2
3	Handles	2
4	Screws for handles	4
5	Screws for brackets	8

In addition to the VCN AC unit, you will find a box containing the cable kit needed to install the VCN AC.

[Table 5](#) lists the cable kit parts.

**Table 5** The Cable Kit

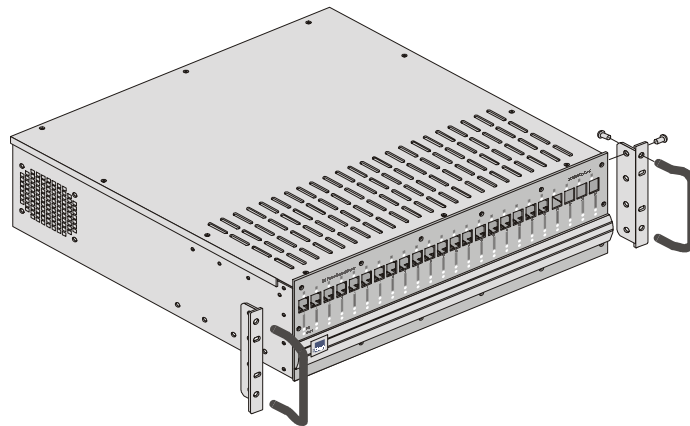
No.	Part	Quantity
1	Power Cord	1
2	UTP CAT-5 Patch Cords	24
3	Flat cables (1.5 m each) with RJ-21 connectors	2

To mount the VCN AC:

- 1 Insert one handle into the two outermost bracket holes as shown in [Figure 13](#).

Ensure that the handle is pointing outward from the unit.

**Figure 13** Fitting a Bracket for Rack Mounting



- 2 Tighten the handle from the rear with the two screws enclosed for this purpose, using a number 3 Phillips screwdriver (not supplied).
- 3 Repeat steps 1 and 2 for the second handle.
- 4 Match the four holes of the bracket to the four mounting holes on one side of the VCN AC, as shown in [Figure 13](#).
- 5 Using the four screws enclosed for this purpose, screw the bracket to the VCN AC unit.
- 6 Repeat steps 4 and 5 for the second bracket.



**CAUTION:** You must use the screws supplied with the mounting brackets. Damage caused to the unit by using incorrect screws invalidates your warranty.

- 7 Insert the VCN AC into the 19-inch rack and secure with two suitable screws on each side (not provided).

Ensure that ventilation holes are not obstructed.

## Connecting Cables to the Rack Via Patch Panel

The process of connecting cables to the rack varies depending on whether or not a patch panel is used. The procedure of connecting the punch-down blocks to the patch-panel is described in [“Preparing the Site for the VCN Access Concentrator”](#) on [page 21](#).

### Back Panel Connections



*To connect the back panel of the VCN AC, use the 2 flat cables with RJ-21 connectors supplied with the VCN AC.*

To connect the VCN AC to the patch-panel, perform the following steps:

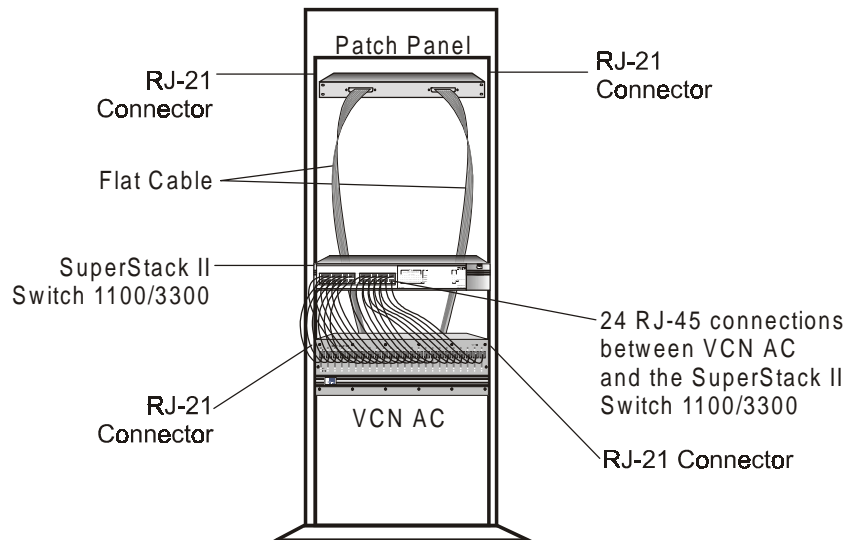
- 1 Connect the RJ-21 connector labeled “FROM VCN AP” at the back of the VCN AC to the “FROM VCN AP” connector on the front of the patch panel using one of the 50-pin twisted pair flat cables.
- 2 Connect the RJ-21 connector labeled “TO PBX” at the back of the VCN AC to the “TO PBX” connector on the front of the patch panel using the second 50-pin twisted pair flat cable.

## Front Panel Connections

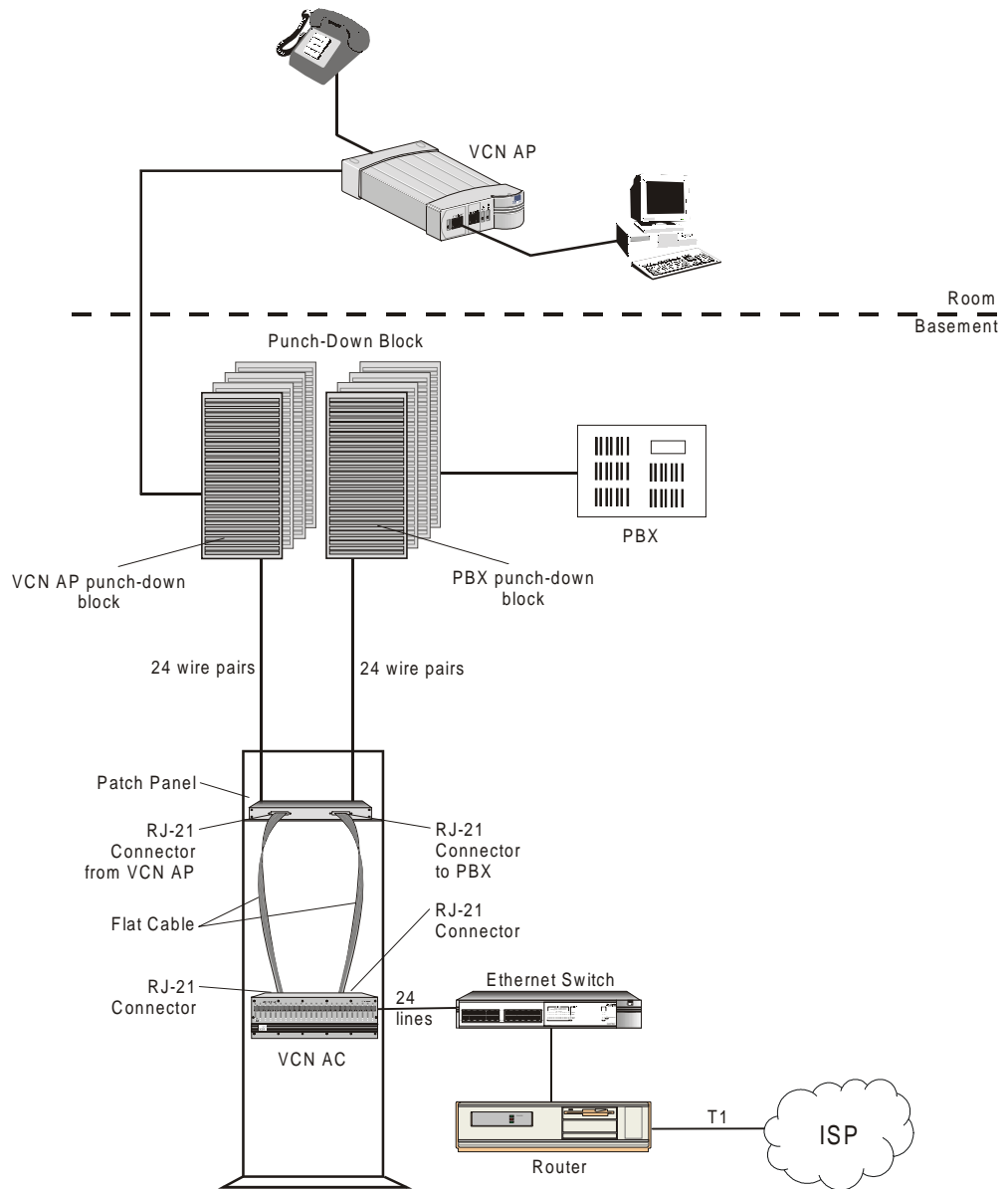
Refer to [“Preparing the Site for the VCN Access Concentrator”](#) on [page 21](#) before connecting the VCN AC to the SuperStack II Switch 1100/3300 through the front.

[Figure 14](#) displays the rack after it has been wire connected.

**Figure 14** Patch Panel and the SuperStack II Switch 1100/3300 Connected to the VCN Access Concentrator



[Figure 15](#) shows all the connections in the network.

**Figure 15** VCN Access Concentrator Installed with a Patch Panel

Using RJ-45 connector terminated cables, connect the VCN AC LAN ports to the Ethernet switch.



If your switch is the SuperStack II 1100 or 3300, connect to the front panel ports. If your switch is not the SuperStack II 1100 or 3300, follow the procedures for your switch.

### Note on Insertion of Line Cards in the VCN Access Concentrator

Note the following:



*The card in VCN AC slot 1 provides central management and is different from the remaining cards. This card has a factory installed MAC address and must not be inserted in any slot other than slot 1.*

### Connecting Cables to the Rack Without a Patch Panel

This section describes how to connect the rack without a patch panel. The VCN AC connects directly to the VCN AP and PBX punch-down blocks at the back with RJ-21 connectors.

#### Back Panel Connections

Perform the following steps to connect the VCN AC to the punch-down blocks.

- 1 Connect one RJ-21 flat cable to the VCN AP punch-down block through the RJ-21 connector labeled "FROM VCN AP".
- 2 Connect the other RJ-21 flat cable to the PBX punch-down block through the RJ-21 connector labeled "TO PBX".



*To connect the back panel of the VCN AC, use the 2 flat cables with RJ-21 connectors supplied with the VCN AC.*



*The pin assignments of the two RJ-21 connectors at the back of the VCN AC must match the pin assignments of the RJ-21 connectors of the two punch-down blocks.*

To correctly align the RJ-21 connectors on the VCN AC and the punch-down blocks, see [Table 6](#).

**Table 6** Pin Assignment for the RJ-21 Connector

VCN AC Port No.	First Pin	Second Pin
1	1	26
2	2	27
3	3	28
4	4	29

**Table 6** Pin Assignment for the RJ-21 Connector (continued)

VCN AC Port No.	First Pin	Second Pin
5	5	30
6	6	31
7	7	32
8	8	33
9	9	34
10	10	35
11	11	36
12	12	37
13	13	38
14	14	39
15	15	40
16	16	41
17	17	42
18	18	43
19	19	44
20	20	45
21	21	46
22	22	47
23	23	48
24	24	49

[Figure 16](#) depicts the pin numbering scheme on the female RJ-21 connectors which are used on both the “TO PBX” and the “From Access Points” ports on the VCN AC.

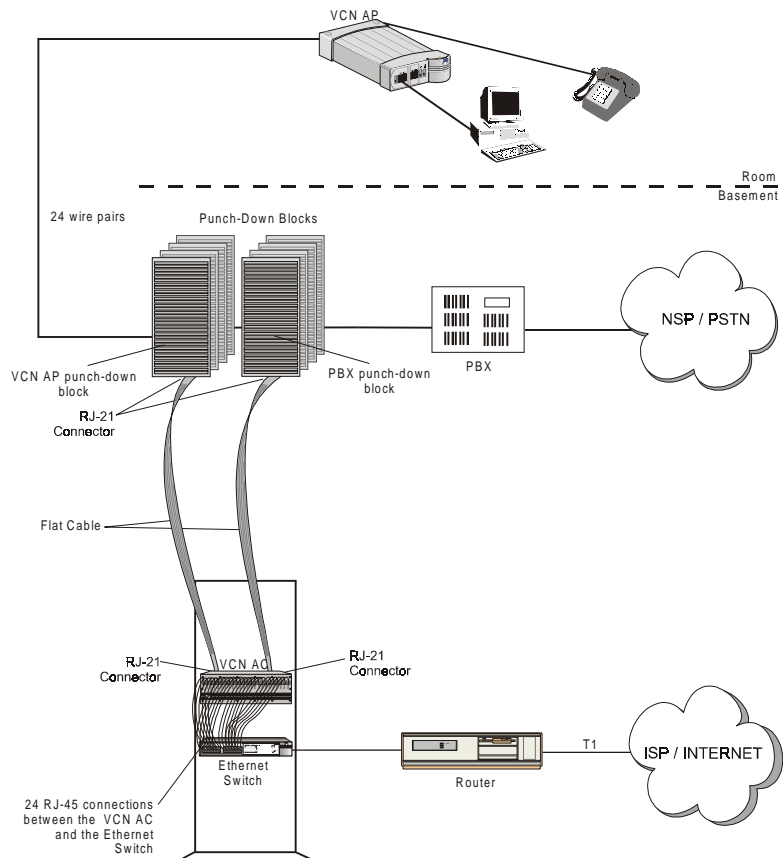
**Figure 16** Female RJ-21 Connector

## Front Panel Connections

Refer to [“Preparing the Site for the VCN Access Concentrator”](#) on [page 21](#) before connecting the VCN AC to SuperStack II Switch 1100/3300 through the front.

[Figure 17](#) displays the infrastructure after the VCN AC has been installed without a patch panel.

**Figure 17** The VCN Access Concentrator Unit Installed Without a Patch Panel



Using RJ-45 connector terminated cables, connect the VCN AC LAN ports to the Ethernet switch.

If your switch is the SuperStack II 1100 or 3300, connect to the front panel ports. If your switch is not the SuperStack II 1100 or 3300, follow the procedures for your switch.

### Mounting the Ethernet Switch

For instructions on mounting and powering-up the SuperStack II Switch 1100, see the *SuperStack II Switch 1100/3300 User Guide*.

If your switch is not a SuperStack II 1100 or 3300, follow the procedures for your switch.

### Configuring the Ethernet Switch for the VCN Access Concentrator

This section describes the procedure for configuring the Ethernet switch.

#### Sequence of Configuration

The following is the sequence of configuration actions:

- 1 Define the desired VLANs, if any, on your switch.
- 2 Define the MAC addresses for all of the 24 VCN AC ports and all APs attached to the AC.
- 3 Connect the VCN AC.



*Defining the VLANs after the VCN AC and AP MAC addresses may make some of the addresses inaccessible.*



*The default VCN AC VLAN for management is VLAN 1 tagged.*



*If MAC addresses are not defined before the VCN AC is connected, the switch will flood the entire network with the initial messages sent through the VCN AC, since the destination addresses are unknown.*



*Not more than one VCN AC may be connected to a switch.*

The remainder of this section describes the procedure for defining MAC addresses for the VCN AC and VCN APs.

#### Inserting MAC Addresses for VCN Access Concentrator Ports

Detailed instructions are presented here for both manual and automated procedures for the SuperStack II 1100 and 3300 Ethernet switches.

General guidance is provided for non-SuperStack switches.

**Procedures for a non-SuperStack Switch** Automated procedures for non-SuperStack switches are not available. For a non-SuperStack switch, the [Manual Procedures for SuperStack II 1100/3300](#) serve as a general outline for manual MAC address insertion, but the user follows the detailed instructions in the non-SuperStack switch user guide. Implement the MAC addresses listed in [Table 7](#) for the VCN AC. Repeat the procedure to define the MAC addresses of the 24 VCN APs attached to the VCN AC. Start with the lowest VCN AP MAC address of 00-C0-DA-40-80-19 and assign addresses for up to 24 VCN APs consecutively.

**Manual Procedures for SuperStack II 1100/3300** Enter every one of the 24 VCN AC port MAC addresses through the SuperStack II web management interface.

Refer to the SuperStack® II Switch Management Guide, and follow the instructions in the section “Inserting Permanent Entries” for the Switch Database dialog. You will need to use a web browser on the computer connected to the switch.



*Insert the VCN AC port MAC addresses before connecting the VCN AC to the Ethernet switch.*

To manually insert a MAC address for an VCN AC port:

- 1 From the *Port Filter* list box, select a port for the entry. Ignore the *VLAN Filter* list box.
- 2 In the *Enter MAC Address* field, enter the MAC (Ethernet) address for the port.
- 3 From the *Select Action Type* list box, select *Insert*.
- 4 Click the *Apply* button.  
The Display Database Entries table displays the new entry.
- 5 Repeat steps 1 through 4 for every port.



*The Display Database Entries table is not automatically updated with the new entry.*

To update the table:

- 1 From the *Select Action Type* list box, select *Display All*.
- 2 Click the *Apply* button.

[Table 7](#) lists the MAC addresses in hexadecimal format.

Repeat the procedure to define the MAC addresses of the 24 VCN APs. Start with the lowest VCN AP MAC address of 00-C0-DA-40-80-19 and assign addresses consecutively.

**Table 7** VCN AC Port and VCN AP MAC Addresses

<b>VCN AC Port No.</b>	<b>MAC Address</b>	<b>VCN AP No.</b>	<b>MAC Address</b>
1	00-C0-DA-40-80-01	1	00-C0-DA-40-80-19
2	00-C0-DA-40-80-02	2	00-C0-DA-40-80-1A
3	00-C0-DA-40-80-03	3	00-C0-DA-40-80-1B
4	00-C0-DA-40-80-04	4	00-C0-DA-40-80-1C
5	00-C0-DA-40-80-05	5	00-C0-DA-40-80-1D
6	00-C0-DA-40-80-06	6	00-C0-DA-40-80-1E
7	00-C0-DA-40-80-07	7	00-C0-DA-40-80-1F
8	00-C0-DA-40-80-08	8	00-C0-DA-40-80-20
9	00-C0-DA-40-80-09	9	00-C0-DA-40-80-21
10	00-C0-DA-40-80-0A	10	00-C0-DA-40-80-22
11	00-C0-DA-40-80-0B	11	00-C0-DA-40-80-23
12	00-C0-DA-40-80-0C	12	00-C0-DA-40-80-24
13	00-C0-DA-40-80-0D	13	00-C0-DA-40-80-25
14	00-C0-DA-40-80-0E	14	00-C0-DA-40-80-26
15	00-C0-DA-40-80-0F	15	00-C0-DA-40-80-27
16	00-C0-DA-40-80-10	16	00-C0-DA-40-80-28
17	00-C0-DA-40-80-11	17	00-C0-DA-40-80-29
18	00-C0-DA-40-80-12	18	00-C0-DA-40-80-2A
19	00-C0-DA-40-80-13	19	00-C0-DA-40-80-2B
20	00-C0-DA-40-80-14	20	00-C0-DA-40-80-2C
21	00-C0-DA-40-80-15	21	00-C0-DA-40-80-2D
22	00-C0-DA-40-80-16	22	00-C0-DA-40-80-2E
23	00-C0-DA-40-80-17	23	00-C0-DA-40-80-2F
24	00-C0-DA-40-80-18	24	00-C0-DA-40-80-30

Every VCN AC and attached VCN APs have the same set of 48 MAC addresses.

The VCN AC connects to the SuperStack II Switch 1100/3300 from the front. Connect the VCN AC and the SuperStack II Switch 1100/3300 with up to 24 RJ-45 connections, one for each port. All ports use the UTP CAT 5 patch cords supplied with the VCN AC.



*The MAC addresses differ only in the 2 lowest order numbers. After the first address is entered, the user needs to change only the two right-most numbers while entering each address.*

### **Automated Procedures for SuperStack II 1100/3300**

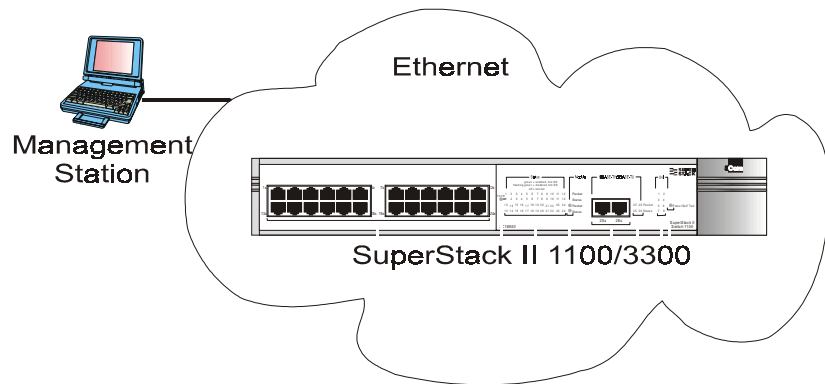
The automated procedure uses files fetched from the 3Com web site\_ <http://support.3com.com/software/vcns.htm>. Use a PC with one of the following Microsoft operating systems:

- Windows 95
- Windows 98
- Windows 2000
- Windows NT4

Download the files from the web site into your PC. One of the files is ConfApp.exe. The remaining files are dlls that support the ConfApp application.

Connect your PC to any IP-based network to which the switch is connected. [Figure 18](#) shows the station connected to an Ethernet containing the SuperStack II switch.

**Figure 18** Connection of Management Station



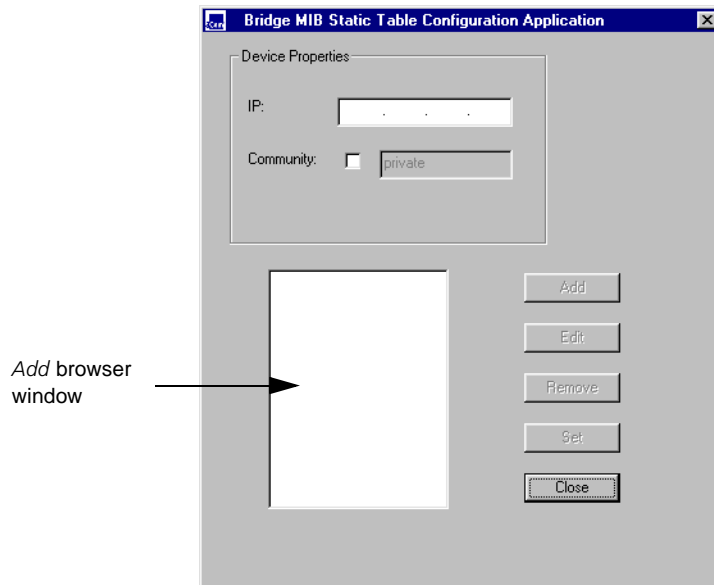
To install VCN AC and VCN AP addresses at one or more SuperStack II 1100/3300 switches, perform the following steps:

- 1 Run the ConfApp application; do one of the following:
  - Double click the *ConfApp* icon in the Windows desktop.
  - Double click *ConfApp.exe* in its folder displayed under My Computer.
  - Select *Start > Run*; type the *ConfApp.exe* path followed by **ConfApp.exe** and press <Enter>.

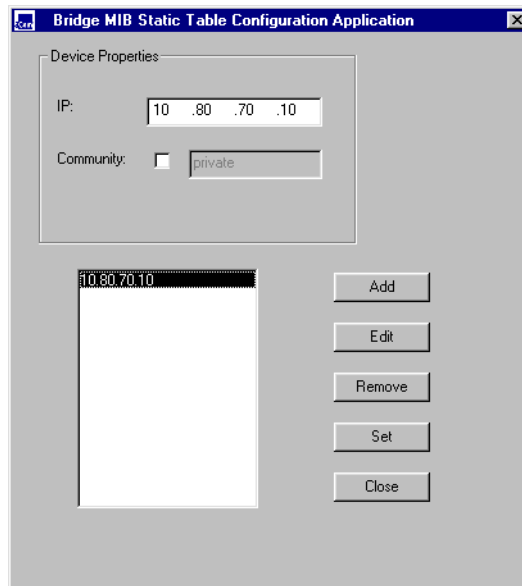


The *ConfApp* screen appears ([Figure 19](#)).

**Figure 19** ConfApp Screen



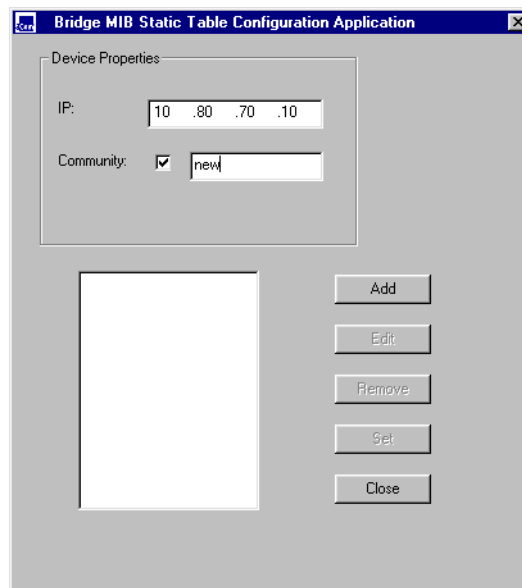
- 2 To select a switch, type the switch <IP address> in the *IP* data field. The address appears in the *Add browser window* ([Figure 20](#)).

**Figure 20** Entering the Switch Address

- 3 Click the *Community* checkbox to enable changing the *Community* data field if <Community string> applies.
  - a Type the <Community string> in the *Community* data field to enter a non-default value. See [Figure 21](#).



*The default Community string is private.*

**Figure 21** Community Parameter

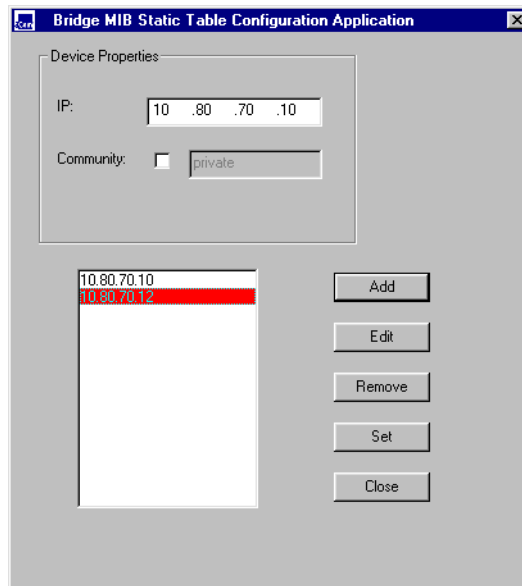
**4** To be able to install the VCN AC and VCN AP MAC addresses, click *Add*.



*If the IP address is invalid, it appears red in the Add browser window.*



*To delete an erroneous IP address, select the address in the Add browser window and click *Remove*. See [Figure 22](#).*

**Figure 22** Removing Wrong Address

To configure additional SuperStack II switches, repeat [step 2](#) through [step 4](#).

- 5 After all switches have been selected, click *Set*. Clicking *Set* configures switches with valid VCN AC and VCN AP IP addresses.

Switches corresponding to invalid IP addresses are not configured with the VCN AC and VCN AP MAC addresses. Error messages appear in the ConfApp screen when a *Set* operation is attempted for invalid IP addresses. Similarly, attempting to *Set* a switch which is not connected to a VCN AC results in the same error messages.

For each wrong switch address the following message appears:

```
Error Setting the agent.
```

Click *OK* to close the message.

At the end of the entire *Set* operation the following message appears to inform that the set operation is complete and that switches at invalid addresses are not configured:

```
End of Setting.
Agents from red lines were not set!
```

Erroneous switch addresses appear in red at the end of the *Set* operation.

Click *OK* to close the message.

If there are no errors at the end of the entire *Set* operation, the following message appears:

```
All agents were set successfully.
```

Click *OK* to close the message.

More switch addresses can be entered in the menu after each set operation. Previously used addresses can be removed by selecting them and clicking *Remove*. You can execute any number of set operations.

When you are finished, click *Close*.

---

## Powering Up the Ethernet Switch

For instructions on powering-up the SuperStack II Switch 1100/3300, see *the SuperStack II Switch 1100/3300 User Guide*.

For other switches, see the corresponding user guide

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## Powering Up the VCN Access Concentrator

The VCN AC does not have a power switch. It is powered-up once the power cord is plugged into the back of the VCN AC and to the mains.

### Proper Selection of Power Cord

Review the following instructions for proper selection of the power cord for this unit:



**CAUTION:** Use only the power cord supplied with this unit.

If power cord(s) were not supplied with the unit, select as follows:

- **For units installed in the USA and Canada:** Select a flexible, three-conductor power cord that is UL-listed and CSA certified, with individual conductor wire size of #18 AWG, and with maximum length of 4.5 meters. The power cord termination should be MEMA Type 5-15P (three prong earthing) at one end and IEC appliance inlet coupler at the other end.

The following types are acceptable: SV, SVE, SVO, SVT, SVTO, SVTOO, S, SE, SO, SOO, ST, STO, STOO, SJ, SJE, SJO, SJOO, SJT, SJTOO, SP-3, SPE-3, SPT-3, G, W.

- For units installed in all other countries: Select ONLY a flexible, three-conductor power cord, approved by the cognizant safety organization of your country. The power cord must be type HAR (harmonized), with individual conductor wire size of 0.75 sq.mm. The power cord termination should be a suitably-rated earthing-type plug at one end and IEC appliance inlet coupler at the other end. Both of the power cord terminations must carry the certification label (mark) of the cognizant safety organization of your country.

### Selection Du Cable D'alimentation

*Examinez les instructions suivantes pour sélectionner le câble d'alimentation de l'unité.*



**ATTENTION:** *Utilisez seulement le câble d'alimentation fourni avec l'unité.*

Au cas où un câble d'alimentation n'a pas été fourni avec l'unité, sélectionnez le câble selon les instructions suivantes:

- **Pour les unités installées aux USA et au Canada:** Sélectionner un câble flexible, à trois conducteurs qui se trouve dans la liste UL et est certifié CSA; le diamètre de chaque conducteur doit être #18 AWG, d'une longueur maximale de 4,5 mètres. Le câble doit être équipé de prise MEMA Type 5-15P (masse triple) à une extrémité et prise d'appareil IEC à l'autre extrémité.

Chacun des types suivants est acceptable: SV, SVE, SVO, SVT, SVTO, SVTOO, S, SE, SO, SOO, ST, STO, STOO, SJ, SJE, SJO, SJOO, SJT, SJTOO, SP-3, SPE-3, SPT-3, G, W.

- **Pour les unités installées dans d'autres pays** Sélectionner UNIQUEMENT un câble flexible, à trois conducteurs, approuvé par l'organisme approprié de sécurité. Le câble électrique DOIT ÊTRE de Type HAR (Harmonisé), le diamètre de chaque conducteur doit être de 0,75 mm<sup>2</sup>. Une extrémité du câble doit être équipée d'une prise avec mise à la masse appropriée IEC, l'autre d'une prise d'accouplement. Les deux extrémités du câble doivent comporter les marques de l'organisme de sécurité du pays correspondant.

### Richtige Auswahl des Stromkabels

Lesen Sie die nachstehenden Anweisungen zur Auswahl des Stromkabels für diese Einheit genauestens.



**VORSICHT:** Verwenden Sie ausschließlich die Stromkabel, die mit dieser Einheit geliefert werden.

Falls KEIN(E) Stromkabel mit der Einheit geliefert wurden, wählen Sie unter den nachstehend genannten Möglichkeiten aus:

- **Für Einheiten, die in den U.S.A. und Kanada installiert werden:** Wählen Sie ein flexibles drei-phasiges Stromkabel mit individueller Kabeldrahtgröße der Nr. 18 AWG und mit einer maximalen Länge von 4,5 Metern. Das Kabel muß in der IL-Liste geführt werden und von CSA zugelassen sein. Das Kabel sollte an einem Ende mit einem Stecker des Typs MEMA 5-15P (drei-polige Erdung) ausgestattet sein und am anderen Ende mit einem IEC Gerätestecker.

Die folgenden Typen sind akzeptierbar: SV, SVE, SVO, SVT, SVTO, SVTOO, S, SE, SO, SOO, ST, STO, STOO, SJ, SJE, SJO, SJOO, SJT, SJTOO, SP-3, SPE-3, SPT-3, G, W.

- **Für Einheiten, die in anderen Ländern installiert werden:** wählen Sie AUSSCHLIESSLICH ein flexibles, drei-phasiges Stromkabel, das in Ihrem Land durch die zuständige Organisation für Sicherheitsbestimmungen genehmigt ist. Das Stromkabel MUSS vom Typ HAR (harmonisiert) mit einer individuellen Größe von 0,75 mm<sup>2</sup> sein. Das Kabel sollte mit einem geeigneten Stecker mit Erdung an einem Ende ausgestattet sein und mit einem IEC Gerätestecker am anderen Ende. Beide Kabelenden müssen einen Zulassungsaufkleber der zuständigen Organisation für Sicherheitsbestimmungen Ihres Landes aufweisen.

---

## Troubleshooting

See on [page 16](#), for VCN AC LED states. For more information, refer to [Appendix A Troubleshooting](#).



**CAUTION:** All servicing should be undertaken ONLY by qualified service personnel. There are no user serviceable parts inside the unit.





# 3

## MANAGING THE VCN ACCESS CONCENTRATOR

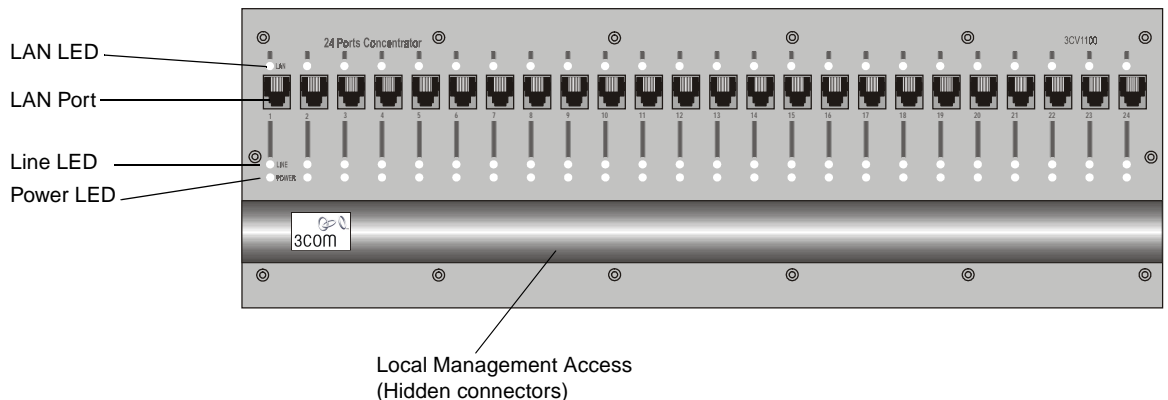
This chapter describes the following:

- [Real Time LED Indications](#)
- [Using the Management Terminal for Local and Central Management](#)
- [Line Card Management](#)
- [Central Management](#)
- [Remote Software Download](#)

### Real Time LED Indications

The LEDs on the front panel ([Figure 23](#)) provide real-time indications of the status of each line in the VCN AC.

**Figure 23** VCN Access Concentrator Front Panel



[Table 8](#) describes the VCN AC front panel LEDs.

**Table 8** VCN Access Concentrator Front Panel LEDs and Connectors

LED	State	Used to
LAN	Green	Indicate connection of the VCN AC to the Ethernet Switch.
LINE	OFF	Indicate VCN AC is not connected to the line.
	Flashing green	Indicate data transmission over the VDSL line.
POWER	OFF	Indicate that the VCN AC is not powered.
	Orange	Indicate that the power-on self-test failed if the LED remains orange for more than 30 seconds.
	Green	Indicate that the unit is functional.

## Using the Management Terminal for Local and Central Management

For service and maintenance through local or central management, you need a terminal or computer used as a terminal emulator.

### Management Terminal Requirements

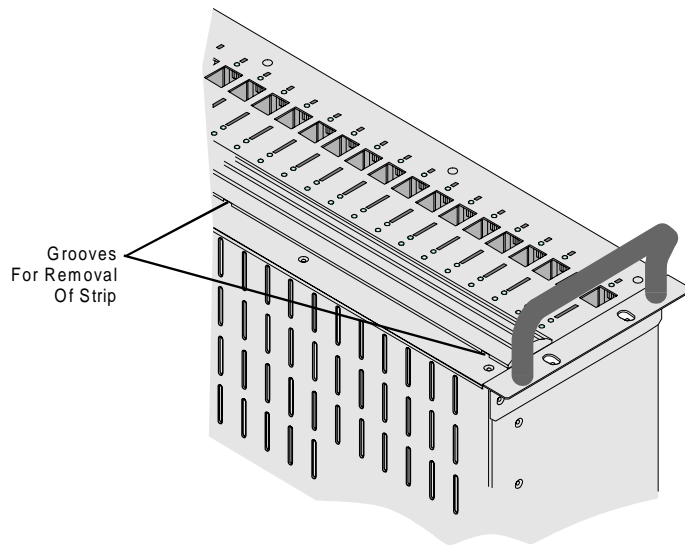
Use a PC equipped with a terminal application capable of 115,200 bps serial communication with a VCN AC. Refer to [Appendix C Terminal Emulation Settings](#).

## Connecting the PC Terminal Emulator

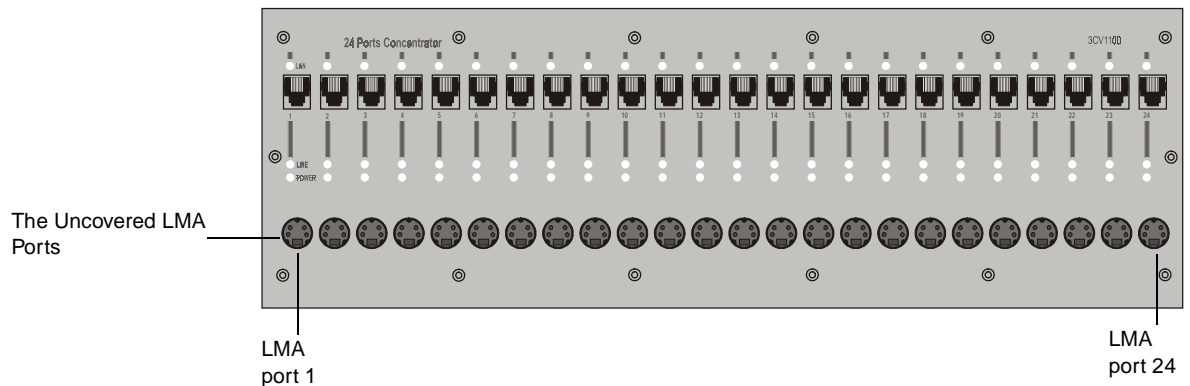
To connect the PC to the LMA port:

- 1 Remove the cover from the LMA section of the VCN AC, shown in [Figure 24](#). Insert a screw driver in each of the three grooves and pry the cover loose to reveal the LMA section shown in [Figure 25](#).

**Figure 24** Removing the Cover from the LMA Section



**Figure 25** The Uncovered LMA Section of VCN Access Concentrator



- 2 Connect the LMA port to the PC serial port (COM1 or 2) with the cable provided.
- 3 Plug the end of the cable with the four-pin MiniDIN connector into one of the 24 VCN AC LMA ports. For central management or to manage the first port, plug the MiniDIN into port LMA port 1. To locally manage another port, plug the MiniDIN into the LMA connector of that port.

---

## Line Card Management



This section describes local management.

*All lower level menus are accessed by selecting a menu item from the menu you are viewing and typing the item number. You return to the previous menu, the higher level menu, by typing 0 (zero) and pressing <Enter>.*

### Local Menus

In this section you will find information on how to monitor and control an LC through its LMA port.

In most menus, except where indicated, the option labeled 0 is for returning to a higher level menu ([Figure 26](#)).

#### Figure 26 Return to Previous Menu Option

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

### 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 make a mistake in your Login ID, an error message appears:

```
Login incorrect
```

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

### Line Card Main Menu

The *Line Card Main Menu* appears at the end of the login dialog.

If another menu appears, type 0 (zero) and press <Enter> repeatedly until the *Line Card Main Menu* appears as shown in [Figure 27](#). This menu allows you to manage the port.

**Figure 27** Line Card Main Menu

```
Line Card Main Menu
-----

1. LC version
2. Debug menu
3. Management menu
4. VDSL control
5. Test control
6. Flash actions
7. LC Configuration
0. Exit

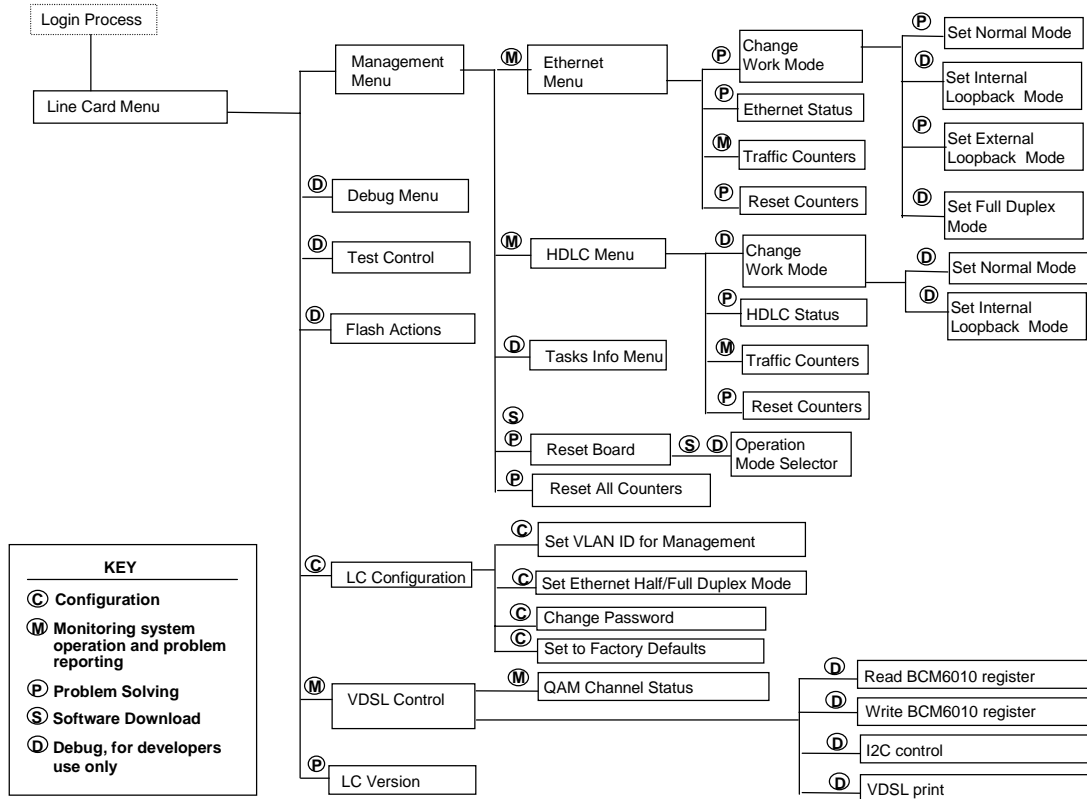
Please enter your choice:
```

### Line Card Menu Hierarchy and Summary

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 in problem solving.

**Figure 28** Line Card Menu Structure



[Table 9](#) 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 9** Number Sequence Corresponding to Submenus

Menu Name	Submenu	Number Sequence
<a href="#">Line Card Main Menu</a>		
	<a href="#">LC Version</a>	1
<a href="#">Management Menu</a>		3
	<a href="#">The Ethernet Menu</a>	31
	<a href="#">Ethernet Traffic Counters</a>	3 1 1
	<a href="#">Ethernet Status</a>	3 1 2
	<a href="#">Reset Ethernet Counters</a>	3 1 3
	<a href="#">Change Ethernet Work Mode Menu</a>	3 1 4
	<a href="#">The HDLC Menu</a>	3 2
	<a href="#">HDLC Traffic Counters</a>	3 2 1
	<a href="#">HDLC Status</a>	3 2 2
	<a href="#">Reset HDLC Counters</a>	3 2 3
	<a href="#">Change HDLC Work Mode</a>	3 2 4
	<a href="#">Reset All Counters</a>	3 4
	<a href="#">Reset the Line Card</a>	3 5
<a href="#">The VDSL Control Menu</a>		4
	<a href="#">VDSL OAM Channel Status Report</a>	4 1
<a href="#">The LC Configuration Menu</a>		7
	<a href="#">Set VLAN ID for Management</a>	7 1
	<a href="#">Set Ethernet Half/Full Duplex Mode</a>	7 2
	<a href="#">Change Password</a>	7 3
	<a href="#">Set to Factory Defaults</a>	7 4

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

### Line Card Main Menu of Port 1

The *Line Card Main Menu* of Port 1 ([Figure 29](#)) is entered from the *Main Menu* of Central Management (refer to the section [Central Management](#)). It is identical to the *Line Card Main Menu* of other ports except for option 0 which returns the user to the Central Management *Main Menu*. In the Port 1 Line Card Main Menu, entering option 0 causes the *VCN Access Concentrator Menu* to appear.

**Figure 29** Line Card Main Menu of Port 1

```
Line Card Main Menu
-----

1. LC version
2. Debug menu
3. Management menu
4. VDSL control
5. Test control
6. Flash actions
7. LC Configuration
0. Return to previous menu

Please enter your choice:
```

### LC Version

To check the software and hardware version of the line card (LC), type **1** in the *Line Card Main Menu*. The screen in [Figure 30](#) appears:

**Figure 30** Version Screen

```
System Display
-----

HW Version:      1.0
SW Version:      3.5
SW Date:         Jul 16 2000,
SW Time:         10:56:28
LC Slot Number: 1

Press ENTER to continue ...
```

Press <Enter> to return to the Line Card Main Menu.



## Management Menu

To display the *Management Menu*, type **3** in the *Line Card Main Menu* and press <Enter>. The *Management Menu*, shown in [Figure 31](#), appears.

**Figure 31** Line Card 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 *Line Card Main Menu* type **3** and press <Enter>.
- 2** In the *Management Menu*, type **1** and press <Enter>. The options in [Figure 32](#) appear.

**Figure 32** The Ethernet Menu

```

      Ethernet Menu
      -----
      1. Traffic Counters
      2. Ethernet Status
      3. Reset Counters
      4. Change Work Mode
      0. Return to Previous Menu

      Please Enter your choice:
  
```

The *Ethernet Menu* options are described in [Table 10](#).

**Table 10** Ethernet Menu Options

<b>Ethernet Menu Options</b>	<b>Feature</b>	<b>How to use</b>
Traffic counters	Displays traffic counters	Refer to <a href="#">“Ethernet Traffic Counters” on page 58</a> .
Ethernet Status	Displays line status, including normal or loopback mode and duplex mode	Refer to <a href="#">“Ethernet Status” on page 59</a> .
Reset Counters	Returns traffic counters to zero	To reset Ethernet counters from the <i>Ethernet Menu</i> , type <b>3</b> and press <Enter>.
Change Work Mode	Enables setting internal and external loopbacks, normal mode, and the setting of half and full duplex mode	Refer to <a href="#">“Change Ethernet Work Mode Menu” on page 60</a> .

### Ethernet Traffic Counters

The Ethernet traffic counters count normal frames and errored frames transferred between the VCN AC and the Ethernet Switch.

To check the Ethernet traffic counters, type **1** in the Ethernet Menu ([Figure 32](#)), and press <Enter> to view Ethernet traffic counters; the Ethernet traffic counters screen appears ([Figure 33](#)).

**Figure 33** A Typical Ethernet Traffic Counters Screen

```
      Ethernet Traffic Counters
      -----

Transmit counters

Tx frames           - 148361
Tx errors           - 41
Discards            - 0

Receive counters

Rx frames           - 148361

Rx frames           - 0
CRC errors          - 0
Discarded           - 0
Alignment errors    - 0
Overruns            - 0
Collisions          - 0
Frames too long     - 0
Frames too short    - 0

Press ENTER to continue ...
```

### Ethernet Status

To check Ethernet line status, type **2** and press <Enter> in the *Ethernet Menu*; the *Ethernet Status* screen in [Figure 34](#) appears:

**Figure 34** Ethernet Status Screen

```

                                Ethernet status
                                -----

Scc channel numbers             - 2
Work mode                       - normal operation
Transmit enable                 - yes
Receive enable                  - yes
Heartbeat checking              - no
Retry limit                     - 15
Maximum length of rx frame     - 1522 bytes
Minimum length of rx frame     - 64 bytes

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

### Reset Ethernet Counters

To reset Ethernet counters, type **3** in the Ethernet Menu and press <Enter>.

### 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 35](#) appear.

**Figure 35** 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 [Set Ethernet Half/Full Duplex Mode](#), on [page 71](#), 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 *Line Card Main Menu* type **3** and press <Enter>.
- 2 In the *Management Menu*, type **2** and press <Enter>. The *options* in [Figure 36](#) appear.

**Figure 36** 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:

```

The *HDLC Menu* options are described in [Table 10](#).

**Table 11** HDLC Menu Options

HDLC Menu Options	Feature	How to use
Traffic counters	Displays traffic counters	Refer to <a href="#">“HDLC Traffic counters” on page 63</a> .
HDLC Status	Displays line status, including normal or loopback mode and duplex mode	Refer to <a href="#">“HDLC Status” on page 64</a> .
Reset Counters	Returns traffic counters to zero	To reset HDLC counters from the <i>HDLC Menu</i> , type <b>3</b> and press <Enter>.
Change Work Mode	Enables setting internal and external loopbacks, normal mode, and the setting of half and full duplex mode	Refer to <a href="#">“Change HDLC Work Mode” on page 65</a> .

### HDLC Traffic counters

The HDLC traffic counter counters normal frames and errored frames over the link between the VCN AP and the VCN AC.

## HDLC Traffic Counters

In the HDLC Menu, type **1**; the HDLC traffic counter screen appears ([Figure 37](#)).

**Figure 37** HDLC Traffic Counters

```
HDLC Traffic Counters
-----

Transmit counters

Tx frames           - 55
Retransmissions    - 0
Tx errors           - 0
Discards            - 0

Receive counters

Rx frames           - 56
Crc errors          - 0
Discards            - 0
Abort sequences     - 1
Overruns            - 0
Not mine            - 0
Frames too long     - 0
Dpll errors         - 0
Frames not aligned  - 1

Press ENTER to continue ...
```

## HDLC Status

To check HDLC line status, type **2** and press <Enter> in the *HDLC Menu*; the *HDLC Status* screen in [Figure 38](#) appears:



**Figure 38** HDLC Status Screen

```
HDLC Status
-----
Scc channel numbers           - 3
Work mode                     - normal operation
Transmit enable               - yes
Receive enable                - yes
Maximum length of rx frame   - 1600 bytes

Press ENTER to continue ...
```

### Reset HDLC Counters

To reset HDLC counters, type 3 in the HDLC Menu and press <Enter>.

### 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 39](#) appear.

**Figure 39** 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.*

## The VDSL Control Menu

To check the VDSL parameters:

- 1 In the *Line Card Main Menu* ([Figure 27](#)), type **4**; the *VDSL Control Menu* shown in [Figure 40](#) appears.

**Figure 40** VDSL Control Menu.

```
VDSL Control 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:
```

- 2 Type **1** in the *VDSL Control Menu* and press <Enter>; the *QAM Channel Status* report appears:

**Figure 41** 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(@QPSK):               40.250 dB

Upstream parameters

US Symbol rate:            4.910 Mbaud
US Constellation:          2^2
US Bit rate:               9.820 Mbps
SNR(@QPSK):               36.932 dB
SNR Estimate:             36.27 dB

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

[Figure 41](#) contains the following information:

- QAM Status: In lock—the line to the VCN AP is connected. The alternate state is Out of lock—the line to the VCN AP is not connected.
- Restarts, the number of times the line to the VCN AP 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.

### Reset All Counters

To reset all traffic counters, type **4** in the *Management Menu* ([Figure 31](#)) and press <Enter>; the message appears:

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

To reset the counters, type **y** and press <Enter>. The confirmation appears ([Figure 42](#)).

**Figure 42** Action Confirmed

```
The action has been done
Press ENTER
```

To reject the option, type **n** and press <Enter>. The message appears:

**Figure 43** Action Canceled

```
The action has been canceled
Press ENTER to continue ...
```

### Reset the Line Card

To reset the LC board, type **5** in the *Management Menu* ([Figure 31](#)) and press <Enter>; the messages in [Figure 44](#) appear:

**Figure 44** 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 47](#)) appears.

If this menu is ignored for 5 seconds, default execution from the flash begins and the messages in [Figure 54](#) and [Figure 55](#) appear:

The Login message appears:

Login:

## The LC Configuration Menu

To view the *LC Configuration Menu*, type 7 and press <Enter> in the *Line Card Main Menu*; the screen in [Figure 45](#) appears. The VLAN ID and the Ethernet duplex mode are displayed followed by the menu options.

**Figure 45** LC Configuration Menu

```

                                LC Configuration Menu
                                -----

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

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

Please enter your choice:

```



*After changing the parameters controlled by this menu, perform a card reset to ensure that the card operates with your selected values.*

### Set VLAN ID for Management



*The default VCN AC VLAN for management is VLAN 1 tagged.*

To set the management VLAN ID:

- 1 In the *Line Card Main Menu*, type 7 and press <Enter>.
- 2 In the *LC Configuration Menu*, type 1 and press <Enter>.

The dialog in [step Figure 46](#) appears.

**Figure 46** LC VLAN ID Dialog

```

Note: In a topology with VCN Concentrator, the concentrator's
      agent setting may override existing setting. For more information
      please refer to the service manual.
Enter VLAN ID (1 - 4094, 0 for none) [none]:

```

The system expects a number in the indicated range. Type a number in the range 0-4094 and press <Enter>.

After any number the user enters, the message appears:

```
Action has been done.
```

The first line in the *LC Configuration Menu* confirms the user VLAN ID entry.

### Set Ethernet Half/Full Duplex Mode

To set the Ethernet duplex mode:

- 1 In the *Line Card Main Menu*, type **7** and press <Enter>.
- 2 In the *LC Configuration Menu*, type **2** and press <Enter>.

The dialog appears:

```
Enter 'f' for full duplex or 'h' for half duplex [f]:
```

- To establish Ethernet full duplex mode, type **f** and press <Enter>.
- To establish Ethernet full duplex mode, type **h** and press <Enter>.

After either entry, the message appears:

```
Action has been done.
```

The second line of the *LC Configuration Menu* ([Figure 45](#)) provides confirmation.

### Change Password

To change the LC password:

- 1 In the *Line Card Main Menu*, type **7** and press <Enter>.
- 2 In the *LC Configuration Menu*, type **3** and press <Enter>. The message appears:

```
Enter the old password:
```

- 3 Respond by entering your current password. The message appears:

```
Enter the new password (up to 8 characters): *****
```

- 4 Respond by entering your new password. The message appears:

```
Confirm new password (up to 8 characters): *****
```

The message appears:

```
The password was changed and saved in a non-volatile memory
```

### Set to Factory Defaults

To restore factory default IP parameters and password:

- 1 In the *Line Card Main Menu*, type **7** and press <Enter>.
- 2 In the *LC Configuration Menu*, type **4** and press <Enter>.

The message appears:

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

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

To reject, type **n** and press <Enter> .

To proceed, type **y** and press <Enter>. The messages appear:

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

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

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

### Loading a New Software Release Through the LMA

This section describes the procedure for loading a software release into an VCN AC Line Card through the LMA.

Before you download new software, ensure that the service cable is connected to the PC that has been configured to use Procomm Plus application. See [Appendix C](#) for configuring terminal emulation settings.

To download new software perform the following steps:

- 1 Attach your terminal emulating PC to the LMA port of the VCN Access Concentrator Line Card where you want to load the software.
- 2 Press any key to view the *Line Card Main Menu* on the terminal screen. If another menu appears, type **0** (zero) and press <Enter> repeatedly until the *Line Card Main Menu* appears ([Figure 27](#)).
- 3 From the Line Card Main Menu, type **3**. The *Management Menu* appears ([Figure 31](#)).
- 4 From the *Management Menu* type **5** (Reset board) and press <Enter>. The following dialog appears:

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

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



- 5 Type **y** and press <Enter> to reset. A message that the system is going down is displayed followed by the *Operation Mode Selector Menu* in [Figure 47](#):

**Figure 47** 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.

*****

```

- 6 Type **s**; the downloading message in [Figure 48](#) appears.



*The choice of **s** in the Operation Mode Selector ([Figure 47](#)), is the default; if the Software Download Menu displays for 5 seconds, execution from the flash automatically begins. The choice 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.*

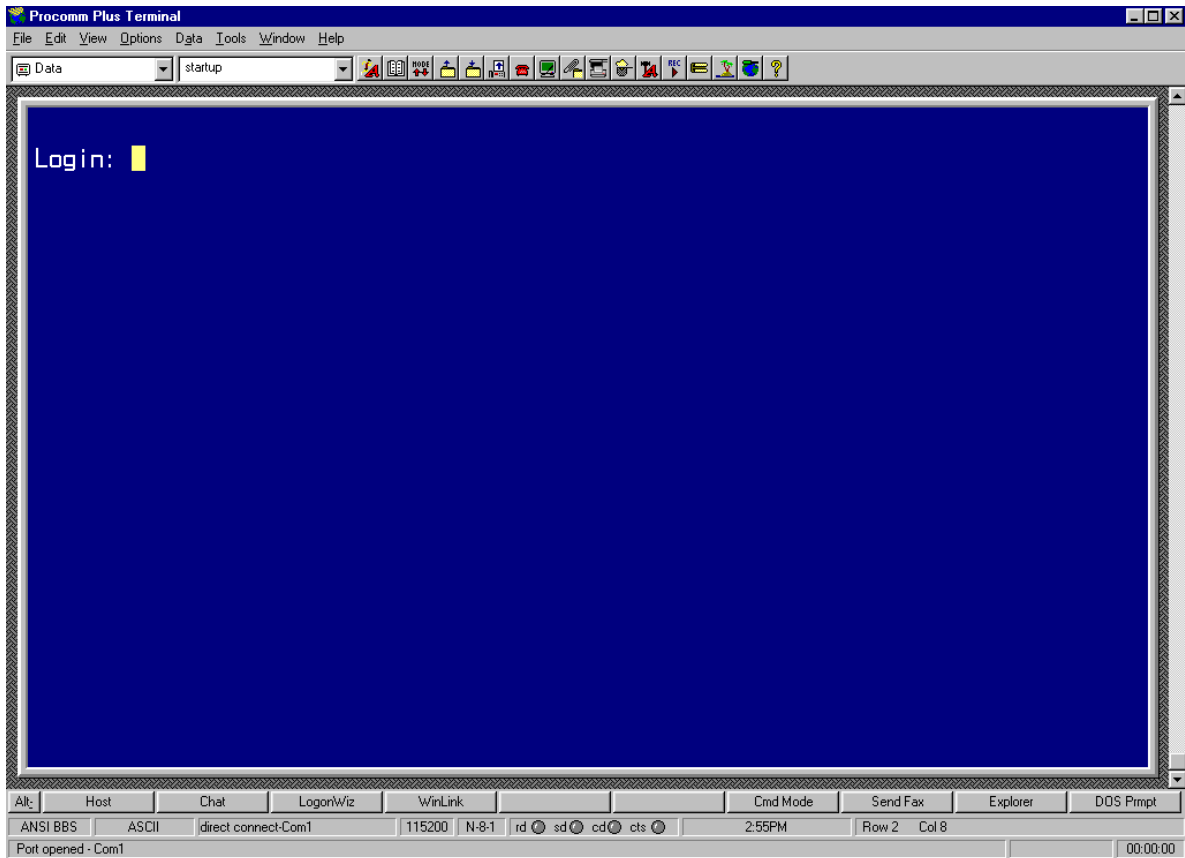
**Figure 48** The Downloading Message

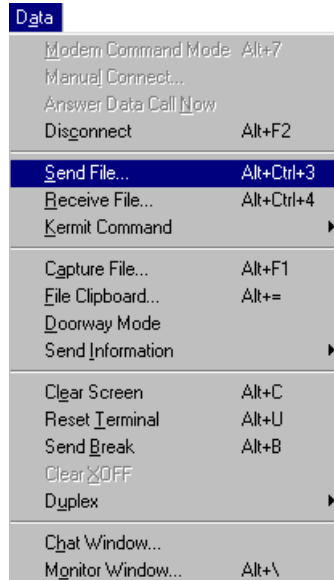
```

*****
Load Procedure via Serial Line
*****
Waiting for downloading...

```

- 7 In the Procomm Plus window shown in [Figure 49](#), select *Data > Send File* ([Figure 50](#)).

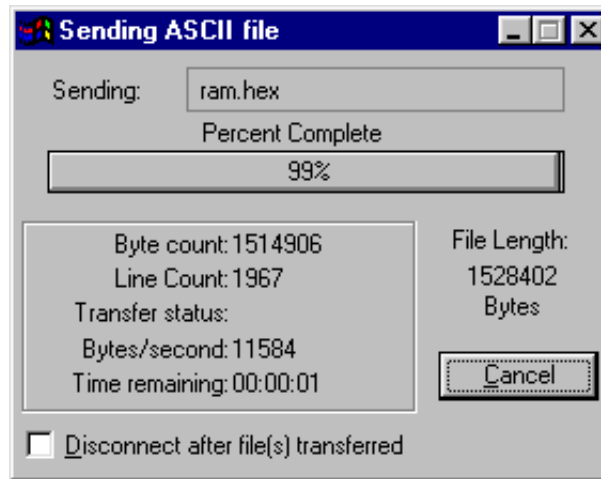
**Figure 49** Procomm Plus Terminal Screen

**Figure 50** Procom Plus Data > Send File Menu

The screen shown in [Figure 51](#) appears

**Figure 51** Sending File Using ASCII Screen

- 8 Browse for the correct file, select the file and click open. The file is downloading.
- 9 While the file is downloading, the status screen shown in [Figure 52](#) appears:

**Figure 52** Status Screen

The VCN AC port software is downloaded to the flash memory in the VCN AC, and the messages in [Figure 53](#) appear:

**Figure 53** File Downloaded Messages

```
File has been downloaded successfully!!!

SW image validation passed!!!

  Start saving to the FLASH!
Sector passed number-0
Sector passed number-1
Sector passed number-2
Sector passed number-3
Sector passed number-4
Sector passed number-5
Sector passed number-6
Sector passed number-7
Sector passed number-8
Sector passed number-9
Sector passed number-10
Sector passed number-11
Flash erased OK!
Storage1 has been erased!
Application buffer address - 99e8
Last write address - 2880004
Last write data - 10
Last written data - 10
Data counter - 1
Indicator has been written!
Application buffer address - 160000
Last write address - 2880008
Last write data - 0
Last written data - 0
Data counter - 393211
SW image has been saved!
Application buffer address - 66d0
Last write address - 2880000
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!!!
*****
```

**Figure 54** Software Execution Messages

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

After the software download, the port starts to execute the software from the flash memory. The port runs a selftest, and the messages shown in [Figure 55](#) appear:

**Figure 55** Port Self-test Message

```
Ethernet MAC address is 00.c0.da.40.80.54  
HDLC selftest passed!  
Ethernet selftest passed!  
I2C selftest passed!  
SMC2 task created!  
SMC2 task started!  
SMC2 task created!  
SMC2 task started!  
SMC2 selftest passed!  
VDSL selftest passed!  
MNG task created!  
MNG task started!  
AGENT task created!  
IP task created!  
IP task started!  
LED task created!  
LED task started!  
LMA task created  
LMA task started  
Telnet CLI task created
```

Then the *Login* prompt appears; refer to [page 52](#) for more information.

If, instead of the messages in [Figure 55](#) through [Figure 55](#), one of the following messages appear, the software load failed:

- Flash Error
- SW image validation failed

Try to load the software again. If the problem persists, replace the port in the VCN AC.

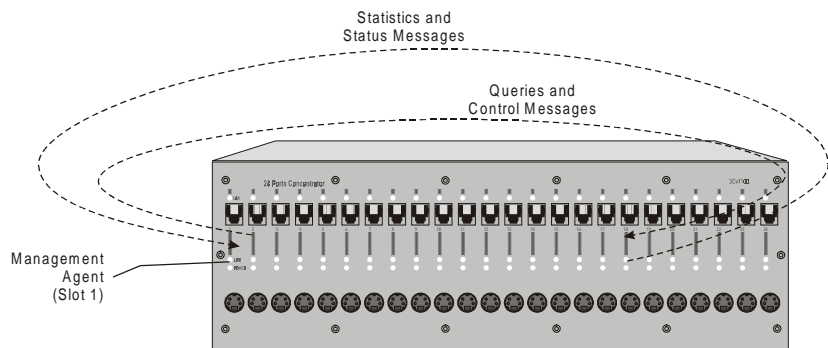
When you are finished using the local management, exit your terminal emulation program and disconnect your personal computer from the local management port.

## Central Management

This section describes central management.

**Overview** The management agent in the card, in VCN AC slot 1, performs central management of the VCN AC through a proprietary protocol. The management agent supports monitoring and control of all 24 VCN AC ports.

**Figure 56** Central Management Message Flow



Starting with hardware release 2.0, management messages between card 1 and the other 23 VCN AC cards are carried over an internal serial link. Central management message flow is displayed in [Figure 56](#). The internal serial link is not shown in the figure.

In previous releases, management messages between card 1 and the other 23 VCN AC cards are carried over the Ethernet through the Ethernet switch to which the VCN AC is connected. The flows in [Figure 56](#) pass through the Ethernet switch to which the VCN AC is connected. The Ethernet links used by management messages are not shown in the figure.

There are two user interfaces for central management:

- A terminal emulating computer attached to the LMA port in VCN AC slot1
- A Telnet session between a management computer and the VCN AC

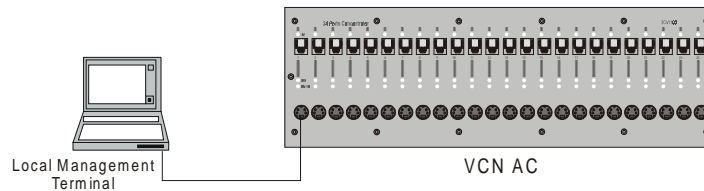
The user commands cause the Management Agent in VCN AC slot 1 to issue queries and control messages to all the cards in the VCN AC. The



management receives status and statistics messages from the cards in the VCN AC and displays responses to the user commands on the user's screen.

In LMA access, the user's computer is directly attached through the VCN AC LMA port ([Figure 57](#)).

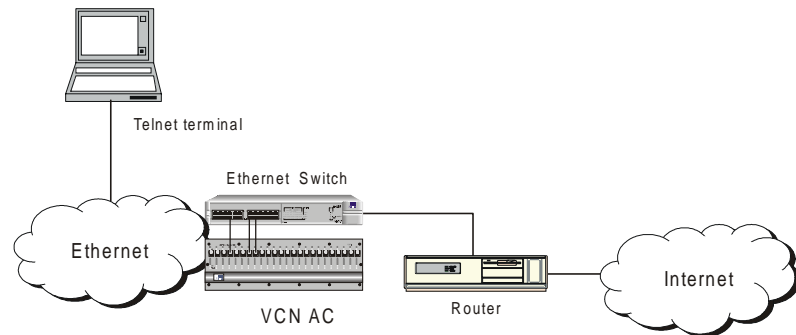
**Figure 57** LMA Access for Central Management

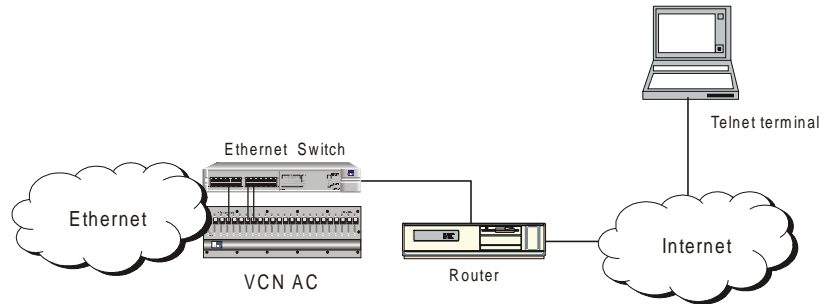


Refer to [Central Management Menus in the LMA Interface](#) for the menus that appear in the LMA interface.

In remote access, the user communicates with the management agent through Telnet on his computer. His computer is attached either through the local Ethernet network ([Figure 58](#)) or through the Internet ([Figure 59](#)).

**Figure 58** Connecting the Management Terminal in the Ethernet



**Figure 59** Connecting the Management Terminal in the Internet

Refer to [Central Management Via Telnet](#) for the Telnet menus.

### Central Management Menus in the LMA Interface

This section describes the Central Management Menus accessed through the LMA interface of slot 1.

In most menus, except where indicated, the option labeled 0 is for returning to a higher level menu ([Figure 60](#)).

**Figure 60** Return to Previous Menu Option

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

To access central management choose one of the following:

- plug the MiniDin 4-pin connector into the Line Card 1 LMA port. LMA Port 1 is the port for central management.
- Establish a Telnet session remotely; refer to [Central Management Via Telnet, page 104](#).

When you are finished using the central management menus via LMA, exit your terminal emulation program and disconnect your personal computer from the central management port.

### Login Process

When the terminal is plugged into the LC1 LMA port, the login prompt appears ([Figure 61](#)).

**Figure 61** Login Process

```
Login: 1234
Password: ***
```

To complete login:

- 1 Enter your login ID and press <Enter>. The password prompt appears.
- 2 Enter 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 D Technical Support](#).

When the login procedure completes, the *VCN Access concentrator Menu* ([Figure 62](#)) appears. If you make a mistake in your login ID, an error message appears:

```
Login incorrect
```

**Figure 62** VCN Access Concentrator Menu

```
VCN Access Concentrator
-----

1. Management agent menu
2. LC menu
0. Exit

Please enter your choice:
```

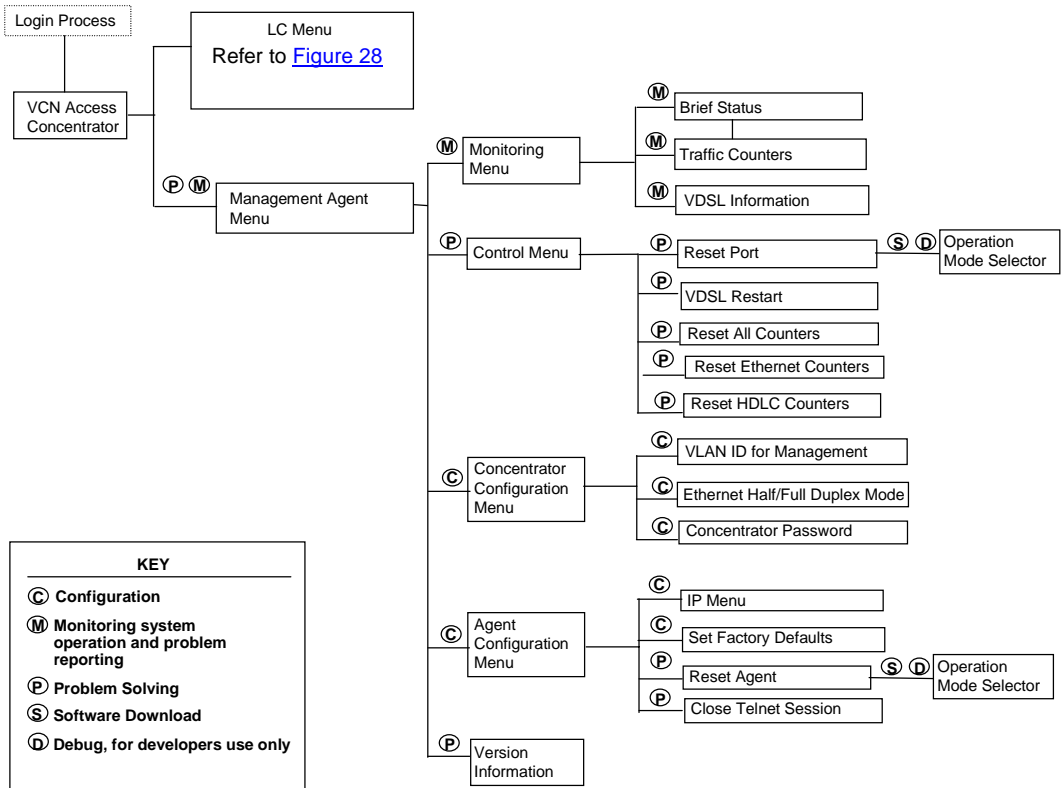
## Central Management Menu Hierarchy and Summary

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 63](#) summarizes the menu hierarchy. The abbreviations next to the menu names are suggestions for how the menus are used. The *Operation Mode Selector Menu* is labeled both **S** and **D**. This menu is labeled **S** for software downloading, which is performed through the LMA port. The menu is also labeled **D** for debugging; the debug options

are not described here since they are used only by developers. All the remaining menus are fully described.

**Figure 63** Central Management Menu Structure



[Table 12](#) provides a summary of all central management menus. Click on a menu or submenu in the table to access a detailed description of its use.

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

**Table 12** Central Management Menus and Corresponding Number Sequence

Menu Name	Submenu	Number Sequence
<a href="#">VCN Access Concentrator Menu</a>		
	<a href="#">Management Agent Menu</a>	1
	<a href="#">Line Card Main Menu for Line Card 1</a>	2
<a href="#">Management Agent Menu</a>		1
	<a href="#">Version Information</a>	1 1
<a href="#">Monitoring Menu</a>		1 2
	<a href="#">Brief Status of All Ports</a>	1 2 1
	<a href="#">Traffic Counters for Selected Port</a>	1 2 2
	<a href="#">Detailed Port Status</a>	1 2 1 [port number]
	<a href="#">VDSL Information for Selected Port</a>	1 2 3
<a href="#">Control Menu</a>		1 3
	<a href="#">Change Port Selection in Control Menu</a>	1 3 1
	<a href="#">Reset Port</a>	1 3 2
	<a href="#">VDSL Restart</a>	1 3 3
	<a href="#">Reset all Counters</a>	1 3 4
	<a href="#">Reset Ethernet counters</a>	1 3 5
	<a href="#">Reset HDLC counters</a>	1 3 6
<a href="#">Concentrator Configuration Menu</a>		1 4
	<a href="#">Change VLAN ID for Management</a>	1 4 1
	<a href="#">Change Ethernet Half or Full Duplex Mode</a>	1 4 2
	In Line Cards	1 4 2 1
	In Access Points	1 4 2 2
	In Both	1 4 2 0
	<a href="#">Change the Concentrator Password</a>	1 4 3
<a href="#">Agent Configuration Menu</a>		1 5
	<a href="#">IP Menu</a>	1 5 1 1
	<a href="#">Close Telnet Session</a>	1 5 2
	<a href="#">Set Factory Defaults</a>	1 5 3
	<a href="#">Reset Agent</a>	1 5 4

### VCN Access Concentrator Menu

The *VCN Access Concentrator Menu* is shown in [Figure 62](#).



All lower level menus are accessed by typing the item number corresponding to a selected item and pressing <Enter>. You return to the previous menu, the higher level menu, by entering 0 (zero) and pressing <Enter>.



Pressing 0 in the VCN Access concentrator Menu exits the management system.

### Management Agent Menu

To access central management:

- In the *VCN Access Concentrator Menu*, type 1 and press <Enter>.

The Management Agent Menu appears ([Figure 64](#)).

**Figure 64** Management Agent Menu

```
Management Agent Menu
-----

1. Version Information
2. Monitoring Menu
3. Control Menu
4. Concentrator Configuration Menu
5. Agent Configuration Menu
0. Return to Previous Menu

Please enter your choice:
```

### Line Card Main Menu for Line Card 1

The local management menus for the card in slot 1 are reached from the *VCN Access Concentrator Menu* in the central management system.

To enter the *Line Card Main Menu*, type **2** in the *VCN Access Concentrator Menu* ([Figure 62, page 83](#)) and press <Enter>; the *Line Card Main Menu* appears ([Figure 65](#))

**Figure 65** Slot 1 Line Card Main Menu

```
Line Card Main Menu
-----

1. LC version
2. Debug menu
3. Management menu
4. VDSL control
5. Test control
6. Flash actions
7. LC Configuration
0. Return to previous menu

Please enter your choice:
```

All the menus that are reached from the *Line Card Main Menu* in LMA port 1 are identical to the local management menus for the other ports. See "[Local Menus](#)", [page 52](#), for the menu you reach from the *Line Card Main Menu*. The difference between this menu and the *Line Card Main Menu* of the other LMA ports is that entering **0** in this menu returns the system to the *VCN Access Concentrator Menu*.

### Version Information

To view hardware and software version information:

In the *Management Agent Menu* ([Figure 64](#)), type **1** and press <Enter>.

The Hardware and Software Version screen ([Figure 66](#)) appears.

**Figure 66** Hardware and Software Version

```
System Display
-----
HW Version:      1.0
SW Version:      3.5
SW Date:         Jul 11 2000,
SW Time:         17:05:12
LC Slot Number: 1

Press ENTER to continue ...
```

### Monitoring Menu

To monitor VCN AC ports, type **2** in the *Management Agent Menu* ([Figure 64](#)) and press <Enter>.

The *Monitoring Menu* shown in [Figure 67](#) appears.



**Figure 67** Monitoring Menu

```

Monitoring Menu
-----
1. Brief Status
2. Traffic Counters
3. VDSL Information
0. Return to Previous Menu

Please enter your choice:
    
```

**Brief Status of All Ports**

To view a brief status report of all ports, type **1** in the *Monitoring Menu*; the VCN AC *Brief Status Report* appears ([Figure 68](#)).

**Figure 68** Brief Status Report

Port	Status	VDSL							
		Link	Upstream		Downstream		Restarts	Traffic counters	
			Rate	SNR	Rate	SNR		TX	RX
1	Ok	Up	9.82	33.5	9.82	39.7	1		1
2	Ok	Up	9.82	31.9	9.82	39.6	1	483891033	1
3	Ok	Up	9.82	31.7	9.82	40.5	1	2	483867247
4	Ok	Up	9.82	33.0	9.82	40.5	1	2	1
5	Ok	Up	9.82	33.6	9.82	41.2	1	2	1
6	Ok	Down	0.00	0.0	0.00	0.0	0	0	0
7	Ok	Up	9.82	35.7	9.82	41.6	1	2	1
8	Ok	Up	9.82	31.2	9.82	41.0	1	2	1
9	Ok	Up	9.82	33.6	9.82	41.0	1	2	1
10	Ok	Up	9.82	33.0	9.82	39.6	1	2	1
11	Ok	Up	9.82	33.1	9.82	41.0	1	2	1
12	Ok	Up	9.82	33.2	9.82	40.9	1	2	1

Press ENTER to continue ...

The report includes the following information:

- Port Status
  - ok, port is operational.

- Fail, port is not operational.
- Link
  - Up, the connection to VCN AP is up.
  - Down, the connection to VCN AP is down.
- Rate, in Mbps
- SNR, signal to noise ratio
- Restarts, the number of times the link to the VCN AP is restarted
- Traffic counters, in Ethernet frames on the link to the VCN AP
  - TX, towards the VCN AP.
  - RX, from the VCN AP.

To view the status of ports 13 through 24, press <Enter>.

After the continuation of the status report for ports 13 through 24, the following options displayed in [Figure 69](#) appear:

**Figure 69** Refresh Brief Status or View Port Statistical Detail

```
Enter  R to refresh, or
       0 to return to the menu, or
       Port number (1 - 24): r
```

To refresh the brief status report, enter **r**, and press <Enter>.

To view detailed port statistics, enter the port number, and press <Enter>. The report in [Figure 71](#) appears.

### Detailed Port Status

To view detailed port statistics:

- 1 In the *Monitoring Menu*, type **1** and press <Enter> to continue.
- 2 At the end of the Brief Status report ([Figure 69](#)), enter a number in the range **1** to **24**.

The detailed report appears ([Figure 71](#)).

### Traffic Counters for Selected Port

To select traffic counters, type **2** in the *Monitoring Menu* ([Figure 67](#)), press <Enter>, and the desired port number, and press <Enter>, as in [Figure 70](#).

**Figure 70** Select Traffic Counters and Port

```
Please enter your choice: 2
Enter port number (1 - 24):1
```

Detailed Ethernet and HDLC traffic counters appear, as in [Figure 71](#).

**Figure 71** Traffic Counters for Selected Port

Traffic Counters for Port 3		
Transmit counters	Ethernet counters	HDLC counters
Tx frames_____	484073854	2
Tx errors_____	0	0
Discards_____	0	-
-----		
Receive counters		
Rx frames_____	0	484073854
CRC errors_____	0	0
Frames not aligned	0	1
Overruns_____	0	0
Frames too long___	0	0
Discards_____	0	110
Collisions_____	0	-
Frames too short__	0	-
Abort sequences___	-	4
Not mine_____	-	0
Press ENTER to continue ...		

In [Figure 71](#), the traffic directions for Ethernet and HDLC are indicated:

- Ethernet
  - TX, from the VCN AP.
  - RX, to the VCN AP.
- HDLC
  - TX, to the VCN AP.
  - RX, from the VCN AP.

Pressing <Enter> displays VDSL information for the selected port, as in [Figure 73](#).

The dialog in [Figure 72](#) appears.

**Figure 72** Prompt for Continuation of Traffic Counters Screen

```
Enter  R to refresh, or  
       0 to return to the menu, or  
       Port number (1 - 24):
```

To view a more recent Traffic Counters ([Figure 71](#)) and VDSL Information ([Figure 73](#)) screens, type **r** and press <Enter>.

To return to the *Monitoring Menu* type **0** and pressing <Enter>.

To view Traffic Counters ([Figure 71](#)) and VDSL Information ([Figure 73](#)) screens for a selected port, type the <port number> and press <Enter>.

### **VDSL Information for Selected Port**

To select VDSL information for a particular port:

- 1** In the *Monitoring Menu*, type **3** and press <Enter>.
- 2** Enter the desired port number and press <Enter>.

The VDSL information report ([Figure 73](#)) appears.

**Figure 73** VDSL Information for Selected Port

```
VDSL Information for Port 3
-----
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(@QPSK):          40.500 dB

Upstream parameters

US Symbol rate:      4.910 Mbaud
US Constellation:    2^2
US Bit rate:         9.820 Mbps
SNR(@QPSK):          31.678 dB
SNR Estimate:        31.09 dB

Enter  R to refresh, or
        0 to return to the menu, or
        Port number (1 - 24):
```

[Figure 73](#) contains the following information:

- QAM Status: In lock—the link to the VCN AP is connected.  
The alternate state is Out of lock—the link to the VCN AP is not connected.
- SNR, signal to noise ratio.
- Restarts, the number of times the link to the VCN AP is restarted.
- Warm start, a start using link information that existed before the start when the link was operational.

## Control Menu

To be able to control VCN AC ports, type **3** in the *Management Agent Menu* ([Figure 64](#)), [Figure 64](#) and press <Enter>; the Control Menu appears ([Figure 74](#)).

**Figure 74** Control Menu

```

Control Menu
-----

Selected port: 1

1. Change port selection
2. Reset port
3. VDSL restart
4. Reset all counters
5. Reset Ethernet counters
6. Reset HDLC counters
0. Return to previous menu

Please enter your choice:

```

Option 1 provides port selection. Options 2 through 6 use the port number you select in Option 1 or the default port, which is port 1.

## Change Port Selection in Control Menu

The default port is 1 in the *Control Menu* ([Figure 74](#)), the first port. To change the port in the *Control Menu*:

- 1 Type **1** and press <Enter>
- 2 Type the port number and press <Enter>.
  - To select all ports, type **0** as the port number; and press <Enter>.

## Reset Port

To reset a port in the *Port Control Menu* ([Figure 74](#)), type **2** and press <Enter>.

- For commands involving port 1, the following message appears:

```

This action will reset the agent
Do you want to proceed (Y / [N] ) ?;

```

Type **y** to proceed or **n** to abort and press <Enter>. The default is **n**.

If you type "N", the message appears:

```
The action has been canceled
```

If you type **y**, the following message appears

```
The system is going down
```

The *Operation Mode Selector menu* ([Figure 75](#)) appears.

- For commands involving ports 2 through 24, the following message appears:

```
This action will reset port
Do you want to proceed (Y/[N])? :
```

Type **y** to proceed or **n** to abort and press <Enter>. The default is **n**.

If you type "N", the message appears:

```
The action has been canceled
```

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

If you type **y**, the following message appears:

```
The system is going down
```

This is followed by the *Operation Mode Selector menu* ([Operation Mode Selector Menu](#)).

**Figure 75** 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.
```

The default selection in the *Operation Mode Selector* menu is **F**, software execution from the flash. If the user waits 5 seconds, software execution from the flash occurs. For the other options, see the section [Loading a New Software Release Through the LMA](#).

The messages in [Figure 76](#) appear.

### Figure 76 Restart 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
*****
```

This is followed by the messages in [Figure 54](#) and [Figure 55](#), and the *Login* prompt.

### VDSL Restart

To restart VDSL in the *Port Control Menu* ([Figure 74](#)), type **3** and press <Enter>. The following message appears:

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

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

```
The action has been done
```

To abort type **n** and press <Enter>.

### Reset all Counters

To reset all traffic counters in the *Port Control Menu* ([Figure 74](#)), type **4**. The following message appears:

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

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

```
The action has been done
```

To abort type **n** and press <Enter>.



### Reset Ethernet counters

To reset Ethernet traffic counters only in the *Port Control Menu* ([Figure 74](#)), type **5** and press <Enter>. The following message appears:

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

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

```
The action has been done
```

Type **n** and press <Enter> to abort.

### Reset HDLC counters

To reset HDLC traffic counters, In the *Port Control Menu* ([Figure 74](#)), type **6** and press <Enter>. The following message appears:

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

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

```
The action has been done
```

Type **n** and press <Enter> to abort.

### Concentrator Configuration Menu

To configure the concentrator, type **4** in the *Management Agent Menu* ([Figure 64](#)) and press <Enter>. The *Concentrator Configuration Menu* ([Figure 77](#)) appears:

**Figure 77** Concentrator Configuration Menu

```

Concentrator Configuration Menu
-----
Current VLAN ID for Management: None

1. Change VLAN Id for Management
2. Change Ethernet Half/Full Duplex Mode
3. Change the Concentrator Password
0. Return to Previous Menu

Please enter your choice:

```

**Change VLAN ID for Management**

*The default VCN AC VLAN for management is VLAN 1 tagged.*

To change the management VLAN ID:

- 1 Type **4** in the *Management Agent Menu* ([Figure 64](#)) and press <Enter>; the *Concentrator Configuration Menu* ([Figure 77](#)) appears.
- 2 Type **1** and press <Enter> ; the following dialog appears:

```
Please enter VLAN ID (1 - 4094, 0 for none) [none]:
```

You must enter a number in the range 0 - 4094. Pressing <Enter> without typing a number results in the error message:

```
Wrong Entry
```

After the desired number is entered; the message appears:

```
This will change the management VLAN ID for the concentrator
and Access Points.
```

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

- 3 To
  - confirm type **y** and press <Enter>; the statement appears:  
Action has been done.
  - cancel type **n** and press <Enter>; the statement appears:  
Action has been canceled.

## Change Ethernet Half or Full Duplex Mode

To set the Ethernet duplex mode on:

- one line
- all lines
- VCN APs
- line cards in the VCN AC
- VCN APs and the lines cards in the VCN AC

**1** Type **4** in the *Management Agent Menu* ([Figure 64](#)) and press <Enter>; the *Concentrator Configuration Menu* ([Figure 77](#)) appears.

**2** Type **2** and press <Enter> ; the following dialog appears:

```
Which cards would you want to change?
Select: 1 - to change Line Cards only,
        2 - to change Access Points only,
        0 - for both:
```

**3** Type your selection and press <Enter>.

The system requests which line cards or VCN APs you want to change:

```
Enter port number (1 - 24, 0 for all): 1
```

**4** Enter a port number in the range 1 - 24 or select all by entering 0; the following dialog then appears:

```
Enter   F - for full duplex,
        H - for half duplex:
```

**5** Type **f** or **h** and press <Enter>.

The system confirms the change you selected with the statement that starts:

```
You are going to change the Ethernet mode
```

and completes the statement with the AP or AC port(s) you selected and the mode you selected. Then the statement appears:

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

**6** To

- confirm type **y** and press <Enter>; the statement appears:

```
Action has been done.
```

- cancel type **n** and press <Enter>; the statement appears:

```
Action has been canceled.
```

## Change the Concentrator Password

- 1 To change the password for all line cards in the concentrator, type **3** in the *Concentrator Configuration Menu* ([Figure 77](#)) and press <Enter>. The message appears:

```
This action will change the password in
all line cards in the Access Concentrator
```

```
Enter the old password: *****
```

- 2 Type your current password and press <Enter>. The message appears:

```
Enter the new password (up to 8 characters): *****
```

- 3 Type your new password and press <Enter>. The message appears:

```
Confirm new password (up to 8 characters): *****
```

- 4 Type your new password and press <Enter>. The message appears:

```
The password was changed and saved in all line cards
```



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

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

## Agent Configuration Menu

To configure VCN AC management, type **5** in the *Management Agent Menu* ([Figure 64](#)) and press <Enter>. The *Agent Configuration Menu* ([Figure 78](#)) appears:

**Figure 78** Agent Configuration Menu

```
Agent Configuration Menu
-----
1. IP Menu
2. Close Telnet Session
3. Reset to Factory Defaults
4. Reset the Agent card
0. Return to Previous Menu

Please enter your choice:
```

## IP Menu

To change network parameters, type **1** in the *Agent Configuration Menu* and press <Enter>. The *IP Menu* appears ([Figure 79](#)).

**Figure 79** IP Menu

```
Network Parameters Configuration
-----

IP Address: 0.0.0.0
Subnet Mask: 0.0.0.0
Default Gateway: 0.0.0.0

1. Change
0. Return to previous menu

Please enter your choice:
```

To change network parameters, type **1** and press <Enter>. The question appears:

```
Enter IP Address [10.80.0.11]:
```

The address that appears is the current address. To change the address, type the new address and press <Enter>.

To avoid changing the address, only press <Enter>.

The question appears:

```
Enter Subnet Mask [255.255.0.0]:
```

The mask that appears is the current mask. To change the mask, type the new mask and press <Enter>.

To avoid changing the mask, only press <Enter>.

The question appears:

```
Enter Default Gateway [10.80.0.1]:
```

The gateway that appears is the current gateway. To change the gateway, type the new gateway and press <Enter>.

To avoid changing the gateway, only press <Enter>.

The menu in [Figure 79](#) re-appears. To change the network parameters again, type **1** and press <Enter>.

To save new network parameters:

- 1 Type **0** and press <Enter>.

The question appears:

```
Do you want to save changes? Y/N [N]
```

- 2 To

- Save changes, type **y** and press <Enter>.

The messages appear:

```
The IP parameters were saved in a non-volatile memory.
```

```
The changes will take effect after reset
```

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



*After the user resets Port 1 or the agent, the modified network parameters take effect.*

- Discard changes, type **n** and press <Enter> n.

### **Close Telnet Session**

Since Telnet sessions are used in remote network management, it is possible for local and remote central management sessions to be active simultaneously.

To close a Telnet session, type **3** in the *Agent Configuration Menu*, and press <Enter>.

If a Telnet session does not exist, the message appears:

```
There isn't any opened Telnet session
```

If a Telnet session exists, the message appears:

```
This will close the currently opened Telnet session
```

To close the Telnet session, type **y** and press <Enter>.

The message appears:

```
The action has been done
```



*A message regarding session close does not appear on the Telnet screen.*

To cancel session close, type **n** and press <Enter>.

The message appears:

```
The action has been canceled
```

The default is **n**.

### Set Factory Defaults

To restore the user password and network parameters to the factory defaults, type **4** in the *Agent Configuration Menu* ([Figure 78](#)) and press <Enter>.

The messages appear:

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

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

Confirm or discard the change:

- To confirm,
  - a Type **y** and press <Enter>.

The messages appear ([Figure 80](#)):

**Figure 80** Factory Defaults are Set

```
The factory's default settings were written to the
non-volatile memory
Note: some of the changes will take effect just after reset

Press ENTER to continue ...
```

- b To use the changes, reset the card (refer to [Reset Port](#) for Line Card 1) or the management agent (refer to [Reset Agent](#)).

- To discard changes and keep current settings, type **n** and press <Enter>.

### Reset Agent

To reset the Management Agent, type **s** in the *Agent Configuration Menu* ([Figure 78](#)) and press <Enter>.

The message appears:

```
This action will reset the agent
```

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

To reject, type **n** and press <Enter>; the message appears:

```
The action has been canceled
```

```
Press ENTER to continue
```

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

```
The system is going down..
```



*Performing Agent Reset terminates a Telnet management session that may be in progress. The Telnet user will not receive a warning.*

The *Operation Mode Selector* menu appears ([Figure 75](#)). This is followed by the messages in [Figure 54](#) and [Figure 55](#) and the *Login* prompt.

## Central Management Via Telnet

This section describes central management of an VCN AC through a remote connection using the Telnet protocol.

### Overview

The remote management interface utilizes the standard Telnet remote terminal emulation protocol.



*Only one management session is permitted at a time. The user of central management through the LMA can close a remote Telnet session to enforce this limit.*



*The management station cannot Telnet through a VCN AP to the VCN AC.*



Security is provided through login ID and password.

User messages reach the VCN AC management agent in LC1.

### **Telnet Connection**

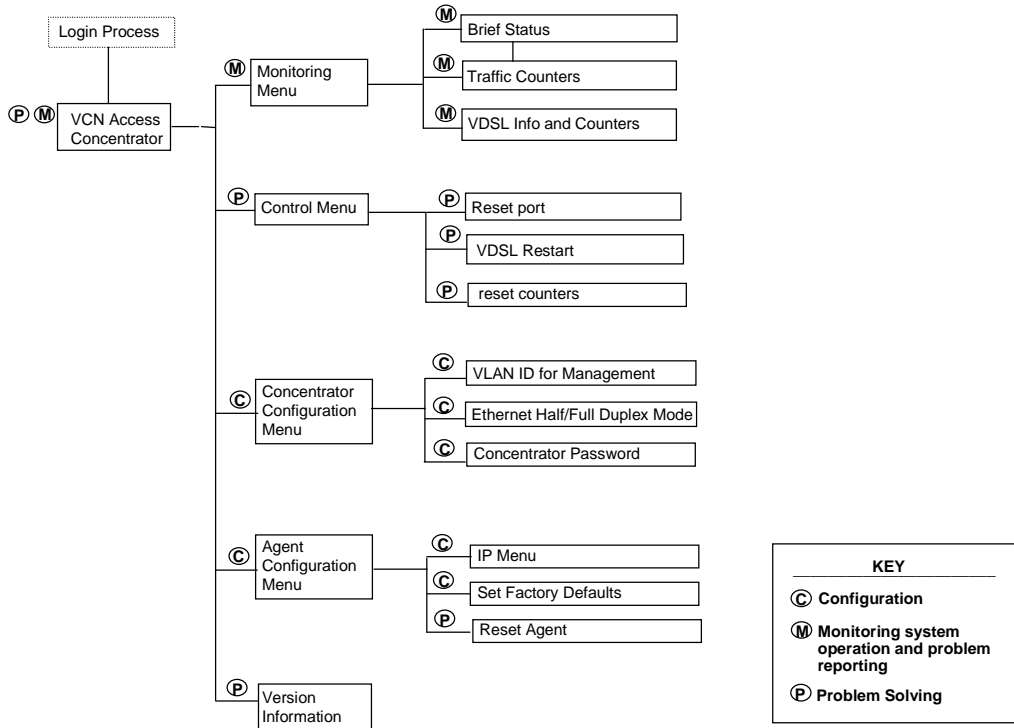
To connect to the management agent, set your Telnet terminal emulation to VT100 and use the management agent's IP address in the program.



*PC users may find their Telnet program .exe file in the C:\Windows folder.*

### **Structure of Remote Menus**

Remote Management utilizes a subset of the Central Management Menus. The *Line Card Main Menu*, the Line Card submenus, and software download do not appear in the remote interface. Remaining menus are nearly the same; compare [Figure 81](#) to [Figure 63](#).

**Figure 81** Telnet Menu Structure

Using LMA menu options that reset the management agent or the LC in slot 1 terminate Telnet sessions without warning the Telnet user.

The chart in [Figure 81](#) summarizes the menu hierarchy. The abbreviations next to the menu names are suggestions for how the menus are used.

**Telnet Menus** [Table 13](#) provides a summary of all central management menus. Click on a menu or submenu in the table to access a detailed description of its use.

To save time, enter the numbers in the sequence on the right to obtain the menu listed to the left of the sequence. After typing each number in the number sequence press the <Enter> key.

**Table 13** Central Management Menus and Corresponding Number Sequence

Menu Name	Submenu	Number Sequence
<a href="#">VCN Access Concentrator Menu</a>	<a href="#">Hardware and Software Version</a>	1
<a href="#">Monitoring Menu</a>		2
	<a href="#">Brief Status of All Ports</a>	2 1
	<a href="#">Traffic Counters for Selected Port</a>	2 2
	<a href="#">Detailed Port Status</a>	2 1 [port number]
<a href="#">Control Menu</a>		3
	<a href="#">Change Port Selection in Control Menu</a>	3 1
	<a href="#">Reset Port</a>	3 2
	<a href="#">VDSL Restart</a>	3 3
	<a href="#">Reset all Counters</a>	3 4
	<a href="#">Reset Ethernet counters</a>	3 5
	<a href="#">Reset HDLC counters</a>	3 6
<a href="#">Concentrator Configuration Menu</a>		4
	<a href="#">Change VLAN ID for Management</a>	4 1
	<a href="#">Change Ethernet Half or Full Duplex Mode</a>	4 2
	In Line Cards	4 2 1
	In Access Points	4 2 2
	In Both	4 2 0
	<a href="#">Change the Concentrator Password</a>	4 3
<a href="#">Agent Configuration Menu</a>		5
	<a href="#">IP Menu</a>	5 1 1
	<a href="#">Set Factory Defaults</a>	5 2
	<a href="#">Reset Agent</a>	5 3\

When the user starts his Telnet session, the login process begins ([Figure 82](#)).

## Telnet Login

**Figure 82** Login Process

```
~~~~~  
3COM  
VCN Access Concentrator  
~~~~~  
  
Note: Only one Telnet session supported  
  
Login: admin  
  
Password:
```

For information on the Login Process, refer to the procedure following [Figure 61](#).

## VCN Access Concentrator Menu

After the login sequence, the first menu of remote management, *VCN Access Concentrator Menu* ([Figure 83](#)), appears.

**Figure 83** VCN Access Concentrator

```
VCN Access Concentrator  
-----  
  
1. Version Information  
2. Monitoring Menu  
3. Control Menu  
4. Concentrator Configuration Menu  
5. Agent Configuration Menu  
0. Exit  
  
Please enter your choice:
```

The menus reached from this menu are nearly the same as the central management menus that appear in the LMA interface. Differences in procedures are described here.

## Hardware and Software Version

To view hardware and software version information, type **1** in the *VCN Access Concentrator Menu* ([Figure 83](#)), and press <Enter>.

The Hardware and Software Version screen ([Figure 84](#)) appears.

**Figure 84** Hardware and Software Version

```
System Display
-----
HW Version:      1.0
SW Version:      3.5
SW Date:         Jul 11 2000,
SW Time:         17:05:12
LC Slot Number:  1

Press ENTER to continue ...
```

## Monitoring Menu

To monitor VCN AC ports, type **2** in the *VCN Access Concentrator Menu* ([Figure 83](#)), and press <Enter>. The *Monitoring Menu* in [Figure 67](#) appears.

The options in this menu are the same as in the *Monitoring Menu* in the LMA interface. For more information, see the text that follows [Figure 67](#).

## Control Menu

To be able to control VCN AC ports, type **2** in the *VCN Access Concentrator Menu* ([Figure 83](#)), and press <Enter>; the *Control Menu* appears ([Figure 74](#)).

The options in this menu are the same as in the *Control Menu* in the LMA interface. For more information, see the text that follows [Figure 74](#).

## Concentrator Configuration Menu

To configure the concentrator, type **4** in the *VCN Access Concentrator Menu* ([Figure 83](#)) and press <Enter>. The *Concentrator Configuration Menu* in [Figure 77](#) appears.

The options in this menu are the same as in the *Concentrator Configuration Menu* in the LMA interface. For more information, see the text that follows [Figure 77](#).

### Agent Configuration Menu

To configure VCN AC management, type **5** in the *VCN Access Concentrator* ([Figure 83](#)) and press <Enter>. The *Agent Configuration Menu* ([Figure 85](#)) appears:

**Figure 85** Agent Configuration Menu

```
Configuration Menu
-----
1. IP Menu
2. Reset to Factory Defaults
3. Reset the Agent card
0. Return to Previous Menu

Please enter your choice:
```

### IP Menu

To change IP parameters, type **1** in the *Agent Configuration Menu* and press <Enter>. The *IP Menu* appears ([Figure 79](#)).

The options in this menu are identical to the options in the *IP Menu* of the LMA interface. For more information, see the text following [Figure 79](#).

### Set Factory Defaults

To restore the user password and network parameters to the factory defaults, type **2** in the *Agent Configuration Menu* ([Figure 85](#)) and press <Enter>.

The procedures in this menu are identical to the procedures in the *Set Factory Defaults* of the LMA interface. For more information, see [Set Factory Defaults, page 103](#).

### Reset Agent

To reset the Management Agent, type **3** in the *Agent Configuration Menu* ([Figure 85](#)) and press <Enter>.

The procedures in this menu are identical to the procedures in the *Reset Agent* of the LMA interface. For more information, see [Reset Agent, page 104](#).

### Exiting the Telnet Management Session

The Telnet management session can be closed in the following ways:

- The LMA user closes the session through the LMA interface.  
No notification appears on the Telnet screen.
- The management agent or LC 1 is reset.  
No notification appears on the Telnet screen.
- The Telnet user closes the Telnet program or disconnects the Telnet work station.
- The Telnet user ends the Telnet session by using the `Exit` option in the central management menus.

To end the Telnet session by using the `Exit` option, perform the following:

- 1 In the *VCN Access Concentrator Menu*, type `0` and press `<Enter>`; the message appears:  

```
Are you sure you want to terminate the Telnet session? (y/n)
[n]:
```
- 1 To terminate, type `y` and press `<Enter>`; the message appears:  

```
Aborting due to user request...
The Telnet session is closed.
```

---

## 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 the section [Loading a New Software Release Through the LMA](#) in this chapter. For the VCN AP, refer to the Visitor and Community Network Access Point Service Manual, [Appendix C, Loading Software Through Local Access](#).



## Procedure



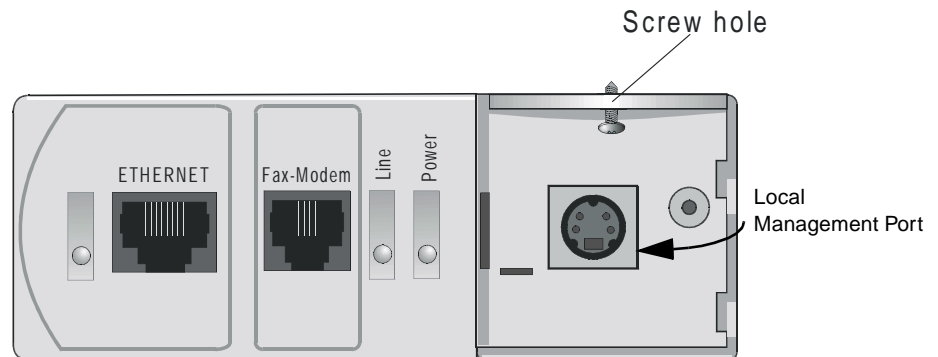
**Recommendation:** Prior to performing remote software download, configure your switch. Perform the procedure in [Chapter 2, Managing the VCN Access Concentrator](#), section [Configuring the Ethernet Switch for the VCN Access Concentrator](#).

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 [Figure 86](#).

**Figure 86** LMA Section of the VCN Access Point

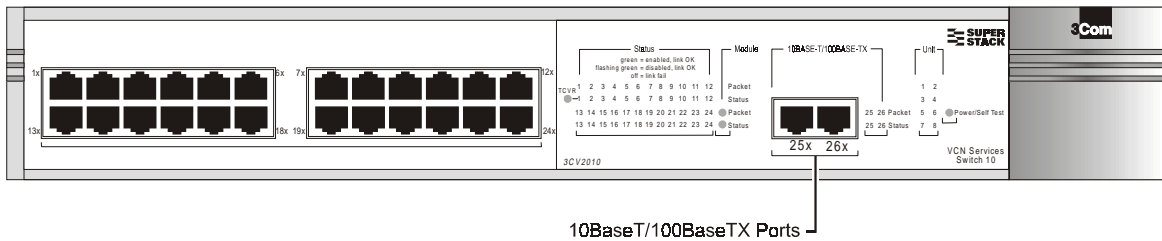
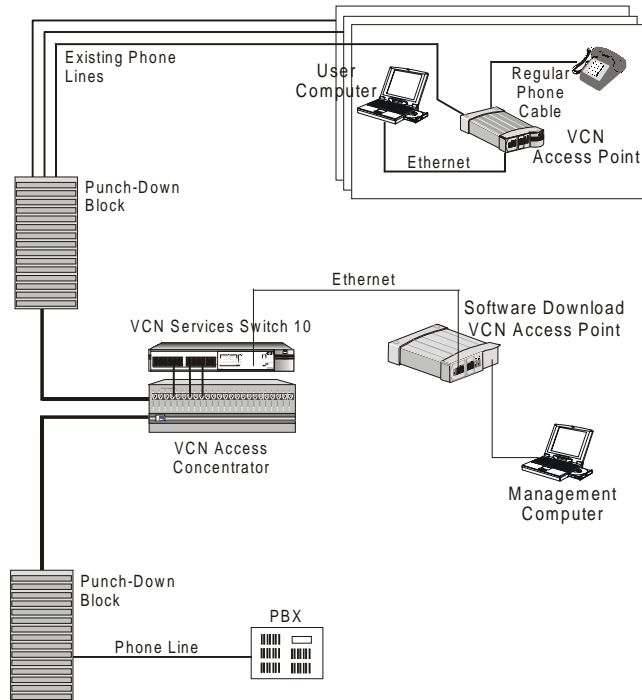


- 2 Connect the management computer to the VCN AP LMA port.
- 3 Using RJ-45 connectors, connect the Ethernet port of the VCN AP to an Ethernet switch 10BaseT port, as shown in [Figure 87](#). Refer to [Figure 88](#) for the network configuration.



**Recommendation:** Attach the downloading VCN AP to port

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

**Figure 87** The VCN Service Switch 10 Front Pane**Figure 88** Software Download Network Configuration

- 4** In the *VCN AP Main Menu* ([Figure 89](#)) type **8**, and press <Enter> for the *VCN AP Software Download Menu*.

**Figure 89** 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:
```

A warning appears, followed by a prompt asking if you want to proceed ([Figure 90](#)).

**Figure 90** 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 VCN AP *Software Download Menu* ([Figure 91](#)) appears.

**Figure 91** VCN AP 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 92](#)).

**Figure 92** 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 93](#)).
  - Type **0** and press <Enter> to download the software to all LC cards.
 

The downloading messages and the downloading results table appear ([Figure 93](#)).
  - Type **r** and press <Enter> to cancel.
 

The VCN AP *Software Download Menu* ([Figure 91](#)) reappears.

**Figure 93** LC Downloading Results

Begin sending version...

Sending version complete

Waiting for acknowledge...

Downloading complete.

Downloading complete. See results in the table:

LC number	Downloading status	LC number	Downloading 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 94](#)).

**Figure 94** 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 95](#)).
  - Type **0** to download software to all VCN AP cards and press <Enter>.
 

The downloading messages and the downloading results table appear ([Figure 95](#)).
  - Type **r** and press <Enter> to cancel.
 

The VCN AP *Software Download Menu* ([Figure 91](#)) reappears.



**Figure 95** 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 *AP Downloading State Table* appears.

## Solving Problems in Remote Software Download

If the [LC Downloading Results](#) in [Figure 93](#) show download failed for one or more Line Cards or the [AP Downloading Results](#) in [Figure 95](#) 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.
- 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 [Chapter 2, Managing the VCN Access Concentrator](#), 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. 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 [Chapter 2, Managing the VCN Access Concentrator](#), 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. Refer to Visitor and Community Based Networking Access Point Service Manual, 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, Managing the VCN Access Concentrator](#), 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. For technical support information refer to [Appendix D, "Technical Support"](#).

---

## Power-on Self Test (POST)

When the VCN AC is powered-up, each port of the VCN AC starts immediately the power-on self test (POST) sequence; the POWER LED turns orange. If the VCN AC is not powered, the power LED remains OFF. Check the power connections to ensure that the unit is connected to an ac power source.

The power-on self test runs individually for each VCN AC port and it verifies that every component of the port is fully functional. The power-on self test lasts for 30 seconds, during which time the power LED is orange. If the power-on self test is successfully completed, the power LED for each port turns green. If the power-on self test detected a port failure, the power LED of that port remains orange. In this case, contact your supplier.

Check the front panel LEDs to determine each port's status during the POST as presented in [Table 14](#).

**Table 14** Determining the VCN AC Port Status During the 30-second Self Test

State	LAN	Line	Power	Notes
Off	Off	Off	Off	VCN AC is not connected to a power source or failed.
Power-on	On	Off	Orange	
Port failure	Off/On	Off/On	On in Orange	More than 30-seconds since power-on.

The normal VCN AC port status are presented in [Table 15](#).

**Table 15** Normal VCN AC Port Status

	LAN State	Line State	Power State
If a port is connected	Green	Green	Green
If a port is not connected	Off	Off	Off

## Using Front Panel LEDs to Solve Problems

Refer to [“Real Time LED Indications”, page 16](#), for a description of the indicator LEDs.

Use the front panel LEDs to determine the status of a VCN AC port after POST.

**Table 16** VCN AC Port LED Indications following POST

Problem	Solution
The port power LED remains Off after power connection	Check the main power cable connections. Plug in the power cable if necessary.
The power LED remains orange for longer than 30 seconds.	A hardware fault has been detected at this port. Power the VCN AC off and then on. If the problem persists, contact your supplier.
The LINE LED is not green	Check the line connection. If the line connections are appropriate, the local modem is not functioning. Power the VCN AC off and than on. If the problem persists, contact your supplier.
The LAN LED is off	Check the Ethernet cable. The problem could be in the VCN AC or in the Ethernet Switch. <ol style="list-style-type: none"> <li>1 Check that the RJ-45 cable between the VCN AC and the Ethernet Switch is connected.</li> <li>2 If the Ethernet LED is still off, replace the RJ-45 cable.</li> <li>3 If after the cable has been replaced, the VCN AC Ethernet LED is still off, use an alternative port.</li> <li>4 If, after the cable has been replaced, the Ethernet Switch Ethernet LED is off, use an alternative port on the switch.</li> <li>5 If the problem persists, contact your supplier.</li> </ol>

## Using a PC Terminal Emulator to Solve Problems

Refer to [Appendix C, "Terminal Emulation Settings"](#) for setting the parameters of a terminal emulation program. Then refer to [Chapter 3, Managing the VCN Access Concentrator](#), to operate the management menus.

### Ethernet Traffic Counters

The normal frame counters indicate traffic between the VCN AC and the Superstack II Switch 1100. Some errored frame counters indicate errors, relating to the VCN AC port, RJ-45 cable or the SuperStack II Switch 1100.

[Table 17](#) presents normal count indications of the Ethernet traffic counters and probable causes for abnormal indications.

**Table 17** Ethernet Traffic Counters

Counter	Counts the Frames	Normal Count	Abnormal Count Indicates
Tx frame	Sent via the Ethernet Port.	Increased as traffic is generated	No data transmitted Possible hardware failure: <ul style="list-style-type: none"> <li>■ VCN AC port Tx channel</li> <li>■ User Ethernet cable</li> <li>■ No VCN AC port connection</li> </ul>
Rx frame	Received via the Ethernet port	Increased as traffic is generated	No data received Possible hardware failure: <ul style="list-style-type: none"> <li>■ VCN AC port Rx Channel</li> <li>■ User Ethernet cable</li> <li>■ No VCN AC port connection</li> </ul>
Rx collision	The VCN AC port 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.	Collisions on the line: hardware failure of VCN AC port

**Table 17** Ethernet Traffic Counters (continued)

Counter	Counts the Frames	Normal Count	Abnormal Count Indicates
CRC error, overrun, Alignment error, frame too long, frame too short	Containing receive errors.	Zero	Hardware failure: VCN AC port, Ethernet cable or Ethernet switch

## HDLC Traffic Counters

The normal frame counters indicate HDLC traffic counters between the CPE and the VCN AC. Some errored frame counters indicate fatal errors, requiring replacement of the VCN AC, or handling of environmental noise over the line.

[Table 18](#) presents normal counter indications and probable causes of abnormal counter indications.

**Table 18** 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 AC was unable to send	Low	VCN AC software limitation
Rx discarded	The VCN AC (CO) was unable to receive	Low, unless the traffic is bi-directional	VCN AC software limitation
Overrun, Not mine, DPLL error Abort sequence, Non aligned, CRC error, Frame too long	Containing Receive errors	Low	VCN AC hardware failure if the number of errors is growing.



## Abnormal Indications from Traffic Counts

[Table 19](#) provides a quick reference to problem identification by using frame counts:

**Table 19** Summary of Problems Indicated by Counts of Errored Frames

Problem	Solution
Errored frame count of one of the following Ethernet traffic counters differs from zero: CRC error, Overrun, Alignment error, Frame too long, or Frame too short.	Use an alternative VCN AC port or replace the RJ-45 cable, or replace the Ethernet switch. (in this order)
Errored frame count of one of the following HDLC traffic counters differs from zero: Retransmission, Tx error, Overrun, Not mine, or DPLL error. Or errored frame count of the following HDLC traffic counters are frequently incremented: Abort sequence, Nonaligned, CRC error, Frame too long.	Use an alternative VCN AC port or replace the VCN AC unit.

## 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 enter!` 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 an LMI port and later reconnects to the same port, 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 enter!` to be displayed on the screen. Press the ENTER key a few times until a menu appears.*

- Fatal

Almost all error messages that do appear are fatal. Contact Technical Support when an error message, except for `wrong enter!`, appears. The most common fatal error messages are listed in [Table 20](#).

**Table 20** 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.

**Table 20** Fatal Error Messages (continued)

Error message	Significance	User Action
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.
No MAC address for agent!	No MAC address on the card in slot 1. This is the card that provides central management for the VCN AC.	Contact Technical Support.



*Boot-up and initialization are processes that occur when a card in a VCN AC slot is reset. Reset occurs when the user selects `Reset board` or `Reset port` from the menu system.*

## Telnet Connection Problems

Telnet connection problems take two forms:

- The user cannot connect the management computer to the management agent; refer to [Inability to Connect](#)
- An established Telnet session is broken; refer to [Broken Session](#).

### Inability to Connect

An inability to connect can have a number of causes which should be verified. Some problems are not location dependent while other problems are.

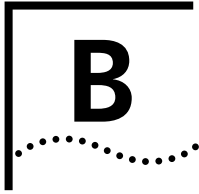
- Perform these location independent checks:
  - You are using a good cable.
  - Your Telnet terminal emulation is VT100.
  - You are using the correct IP address of the management agent.
  - Your login ID and password are correct.
  - Another Telnet session does not exist. Only one Telnet session is supported.

- The computer is in the IP network external to the Ethernet network supported by the managed VCN AC. Perform this check:
  - Your service provider—to include your company's Intranet service—may be experiencing problems.
- The computer is in the local Ethernet network supported by the managed VCN AC. Perform this check:
  - The management computer is in the same IP network as the management agent.
  - The management computer and the VCN AC have the same half or full Ethernet duplex mode.
  - The management computer and the VCN AC have the same VLAN ID.

**Broken Session** A broken session can be caused by the following:

- A physical connection in the path between the management computer and the managed VCN AC was broken.
- An LMA user closed the session; refer to [Close Telnet Session, page 102](#).
- Port 1 of the VCN AC was reset.
- The management agent was reset.

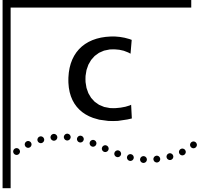




# PRODUCT SPECIFICATION

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	
Mains	110W for 110V (steady state, full traffic) 120W for 220V (steady state, full traffic) 90-240 VAC, 47-60 Hz, 120 W.
Standards Compliance	
Safety	UL 1950 C-UL, FCC/ICES EN60950
EMC	FCC 47 CFR part 15, Class A AS/NZS 3548 VCCI Class A CISPR22 Class A CAN/CSA-CISPR22 Class A
Ethernet	IEEE 802.3, 802.1q 1536 bytes maximum frame length
Private Branch Exchange (PBX)	Analog
Management Interface	1 RS-232 port on each CO Card
Agency Certifications	UL, C-UL
Environmental	
Operating Temperature	0°- 60°C
Relative humidity	95% non-condensing





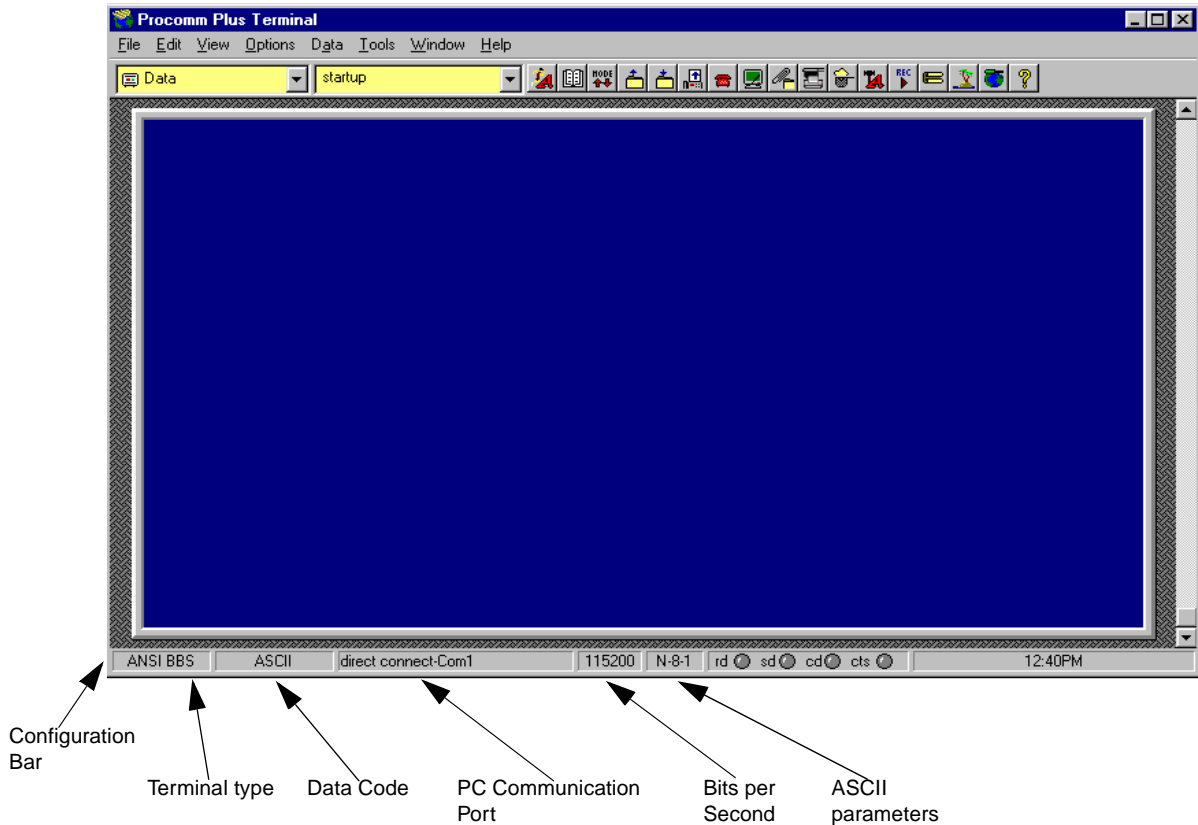
# TERMINAL EMULATION SETTINGS

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.

To set 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.
  - Select *Start > Programs > Procomm Plus*.

The *Procomm Plus Terminal* screen in [Figure 96](#) appears.

**Figure 96** Procomm Plus Terminal Screen

- 2 Establish the terminal settings in one of the two following ways:
  - From the Configuration Bar, establish the settings listed in [Table 21](#):

**Table 21** Procomm Plus Settings

Number From Left	Function	Settings
1	Type of Terminal	ANSI BBS
2	Data Code	ASCII
3	PC serial communication port	COMx
4	Bits per second	115200

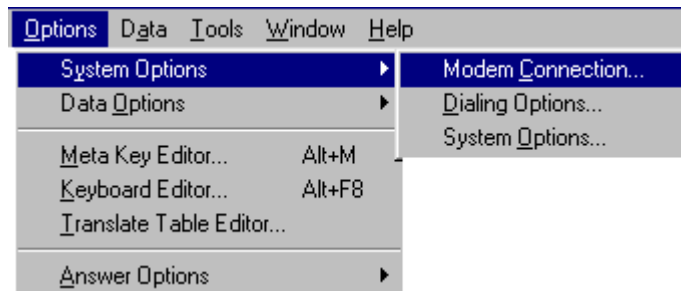


**Table 21** Procomm Plus Settings (continued)

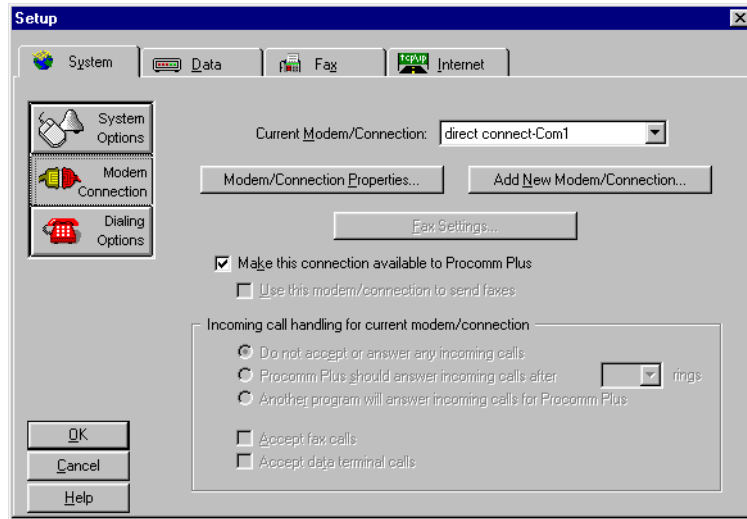
Number From Left	Function	Settings
5	ASCII parameters	8-N-1 8 bits No parity 1 stop bit

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

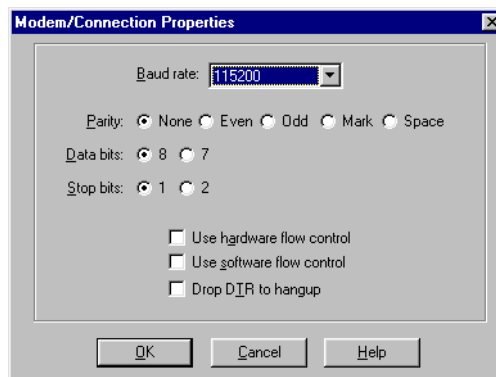
- From the menu bar:
  - a Select *Options > Systems > Modem Connections*.

**Figure 97** Procomm Options

The *Setup* window opens.

**Figure 98** Procomm Setup Window

- b** Select *System Tab*.
- c** From the Current Modem/Connection window, select *direct connect-ComX*, where X represents the number of your com port.
- d** Click *Modem/Connection Properties*.  
The *Modem/Connection Properties* window opens.

**Figure 99** Connection Properties Window

- e** From the *Baud rate* window, select 115200.
- f** Select the following parameters:

- *Parity:* None.
- *Data bits:* 8.
- *Stop bits:* 1.
- Flow control

*Use hardware flow control* is the default.

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

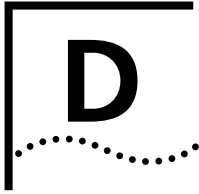


**g** Click *OK*.

**h** 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.

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## 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 BBS)
- 3Com Facts<sup>SM</sup> 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**

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### 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
<b>Asia, Pacific Rim</b>			
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		
<b>Europe</b>			
From anywhere in Europe, call:	+31 (0)30 6029900 phone		
	+31 (0)30 6029999 fax		
<b>Europe, South Africa, and Middle East</b>			
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		
<b>Latin America</b>			
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
<b>North America</b>			
	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	



# GLOSSARY

- ac** Alternating Current. Electric current that reverses its direction of flow periodically according to frequency measured in hertz, or cycles per second.
- CO** Central Office. Another name for the Line Card (LC), a card in the VCN AC chassis; the card provides an Ethernet port and an LMI port.
- Constellation** The digital bit rate per analog symbol.
- dc** Direct Current. Electric current that does not reverse its direction of flow.
- DS** Down stream. The direction in VDSL towards the user workstation.
- EMC** Electromagnetic compatibility
- HDLC** High-level Data Link Control. HDLC is a bit oriented, synchronous protocol that applies to the data-link message packaging layer (layer 2 of the ISO/OSI model) for computer communications. Messages are transmitted in units called frames, which contain differing amounts of data but which must be organized in a particular way.
- Hz** Abbreviation for hertz, electrical cycles per second.
- ID** Identifier used for the management login procedure.
- ISP** Internet service Provider. A business that supplies Internet connectivity services to individuals, businesses and other organizations within a local area.
- IT** Information Technology
- Krone connectors** Connectors on patch cords used to connect or jumper patch panels
- LAN** Local Area Network. A group of computers and other devices dispersed over a relatively limited area and connected by a communications link that enables every device to interact with any other on the network.

- LC** Line Card. A card in the VCN AC chassis; the card provides an Ethernet port and an LMI port.
- LED** Light Emitting Diode. A semi-conductor device that converts electrical energy into light, used, for example, for the activity lights on the VCN AC and VCN AP units and appears in green or orange.
- LMA** Local Management Access.
- MAC** Media Access Control. A protocol that defines the way workstations gain access to transmission media, most widely used in reference to LANs. For IEEE LANs, the MAC layer is the lower sublayer of the data link layer protocol.
- MAC address** Media Access Control address; also called hardware or physical address. A data link layer address associated with a particular LAN device. MAC addresses are 6 bytes long.
- Mbaud** Megabaud
- Mbps** Megabits per second.
- MiniDIN** A connector which connects the VCN AC to the Local Management Interface.
- NA** Not Applicable. Wherever this appears, it means that the specified condition is irrelevant for the case mentioned.
- NAT** Network Address Translation. The process of converting between IP addresses used within an Intranet or other private network and Internet IP addresses. This approach makes it possible to use a large number of addresses within the local Intranet without depleting the limited number of available numeric Internet IP addresses.
- NAU** Network Access Unit. In this case it is the unit installed in a room which enables both voice and high speed data services simultaneously on the existing telephone line. Another name for the VCN AP.
- NCU** Network Concentration Unit. Another name for the VCN AC.
- NIC** Network Interface Card. An expansion card or other device used to connect a computer to a local area network.
- NSP** Network Service Provider

- POTS** Plain Old Telephone Service. Basic dial telephone connections to the public switched network, without any added features or functions.
- Rx** Short for Receive Data. A line used to carry received serial data from one device to another, such as from a modem to a computer.
- rx** Short for Receive Data.
- SNR** signal to noise ratio
- Symbol Rate** The analog modem baud rate.
- Tx** Short for Transmit data. A line used to carry transmitted data from one device to another, as from a computer to a modem.
- tx** Short for Transmit data.
- US** Up stream. The direction in VDSL away from the user workstation.
- Vac** Volts Alternating Current. The measure of the peak-to-peak voltage swing of an electrical signal.
- VCN** Visitor and Community Network. The system that deploys the VCN Access Concentrator and the VCN Access point(s).
- VCN AC** VCN Access Concentrator, formerly called NCU.
- VCN AP** VCN Access Point, formerly called NAU.
- Vdc** Voltage of direct current.
- VDSL** Very high bit rate Digital Subscriber Line. The data line which connects the VCN AC to the VCN AP unit. Operates at a rate of 1-10 Mbps.



# INDEX

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## Numbers

3Com bulletin board service (3Com BBS) 142  
3Com Knowledgebase Web Services 141  
3Com URL 141  
3ComFacts 143  
4-wire routing 23 to 24, 25 to 26  
4-wire support 23 to 24, 25 to 26

---

## A

ac power source 125  
aligning  
    RJ-21 connectors 33

---

## B

back panel connection 33  
bulletin board service 142

---

## C

cable kit  
    for installation 28  
central management port 82  
connecting  
    back panel of VCN AC 30  
    cables to rack via patch panel 30  
connecting cables to rack  
    without patch panel 33  
conventions  
    notice icons, About This Guide 7  
    text, About This Guide 8

---

## D

default Line Card operation 73  
default VLANs 36, 70, 98

---

## E

Ethernet card 12  
Ethernet counters  
    reset 97

Ethernet over VDSL 14, 112  
Ethernet port 12  
Ethernet status 59  
Ethernet switch configuration, sequence of 36  
Ethernet traffic counts 58

---

## F

fax service (3ComFacts) 143  
four wire routing 23 to 24, 25 to 26  
four wire support 23 to 24, 25 to 26  
front panel connection 31

---

## H

hardware version 56  
HDLC counters 97  
HDLC status 64  
HDLC traffic counts 64

---

## I

inserting  
    MAC address for a port 36  
installing  
    VCN AC 21, 27  
    VCN AP punch-down block 23  
    Visitor and Community Network System 22  
intranet 13

---

## L

LAN  
    Local Area Network 13  
LC Downloading State Table 116  
Line Card Main Menu 56  
LMA connector 52  
LMA section 51  
Local Management port 55  
    LMA port 51, 52  
local telephone exchange 12

---

## M

MAC address  
     hexadecimal format 38  
     inserting for a port 36  
 management agent 80  
 Management Menu 57  
 menus 86  
 MIBs 142  
 MiniDIN 4-pin connector 52  
 mounting  
     accessories needed 28  
 mounting VCN AC in 19-inch rack 28  
 multiple dwelling units 11  
 multiple tenant units 11

---

## N

network supplier support 143

---

## O

online technical services 141

---

## P

patch panel 22  
     optional 22  
 PBX 12  
     punch-down block 21, 22, 24, 33  
 port control 94, 109  
 port main menu 56  
 port selection 94  
 port status 90  
 POTS 9, 10  
 POWER LED 125  
 powering up  
     SuperStack II Switch 1100/3300 45  
     VCN AC 45  
 power-on self test,POST 125  
 punch-down  
     Krone connector 23, 26  
 punch-down block  
     PBX 21  
     VCN AP 22

---

## Q

QAM Channel Status 67

---

## R

Remote software download  
     Requirements 112  
 reset

    all counters 96  
     Ethernet counters 97  
     HDLC counters 97  
     port 94  
 reset traffic counters  
     Ethernet 58  
     HDLC 60, 63, 65  
 returning products for repair 145  
 RJ-21 connectors 30  
     aligning correctly 33  
     female numbering scheme 34  
 RJ-45 connections 39

---

## S

sequence of Ethernet switch configuration 36  
 serial port 52  
 Software Download VLAN ID 116  
 software version 56  
 SuperStack II 1100/3300  
     connecting VCN AC 36  
     mounting 36  
 SuperStack II Switch 1100/3300  
     powering up 45

---

## T

technical support  
     3Com Knowledgebase Web Services 141  
     3Com URL 141  
     bulletin board service 142  
     fax service 143  
     network suppliers 143  
     product repair 145  
 Telnet  
     remote management 104 to 111

---

## U

URL 141  
 user interface 50

---

## V

VCN AC  
     accessory set 28  
     mounting in 19-inch rack 28  
     powering up 45  
     rack mounting 21  
 VCN AC port status  
     after POST 126  
     POST 125  
 VCN Access Point 112



- VCN AP 12
    - punch\_down block 22
    - Software Download Menu 112
    - software downloading VCN AP 112
  - VCN AP punch-down block
    - installing 23
  - VDSL 67, 92
    - QAM 67
    - restart 96
  - VDSL Control Menu 67
  - Visitor and Community Network System
    - installing 22
  - Visitor and Community Network system 11
  - VLAN ID
    - management default 70
  - VLANS
    - default 36, 70, 98
- 

**W**

- World Wide Web (WWW) 141



# 3Com Corporation 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 Access Concentrator Unit

---

### 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:

Ninety (90) days

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.

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### 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.

---

## **ADDITIONAL 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.

*3Com's Web and Bulletin Board Service* are available at no charge, and provide software and firmware upgrades, a bug list, and technical information about 3Com products.

*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.

---

## **WARRANTIES EXCLUSIVE**

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.

---

## **LIMITATION OF LIABILITY**

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.

---

## **DISCLAIMER**

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

## EMC STATEMENTS

---

### FCC CLASS A VERIFICATION STATEMENT

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case, the user will be required to correct the interference at the user's own expense.

Changes or modifications not expressly approved by 3Com could void the user's authority to operate this equipment.

---

### CSA STATEMENT

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

Cet appareil numérique de la classe A 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 A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

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

---

### 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

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

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### AUSTRALIAN COMPLIANCE

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

## SAFETY STATEMENT

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### 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



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