



*Installation
Guide:
OmniAccess
601, 602, and
604*

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Alcatel assumes no responsibility for product reliability, performance, or both if the user modifies the .CFG file. Full responsibility for any performance issues resulting from modifications made to the .CFG file, by the user, is assumed by the user.

Hardware Notice



CAUTION: To reduce the risk of fire, use only number 26 AWG or larger UL Listed or CSA Certified Telecommunication Line Cord for all network connections.



CAUTION: Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

The Lithium battery in this product is part of a non-volatile memory device and will retain data for 10 years in the absence of power. Alcatel does not consider the lithium battery in this unit a field replaceable or serviceable part and should not be accessed by the customer.



WARNING: Before working on this equipment be aware of good safety practices and the hazards involved with electrical circuits.

Documentation Feedback

The mission of the Technical Publications group at Alcatel is to provide quality documentation that enhances the user's experience with Alcatel products. We are constantly improving our guides and have a genuine interest in ensuring that our guides are easy to use and enable users to quickly find information they need. We invite you to be part of this process; please email your comments regarding Alcatel product documentation and web content to:

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1***ABOUT THIS GUIDE***

Detailed instructions are provided in this guide for installing, configuring, and troubleshooting the Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router. This guide is designed for network managers, administrators, and technicians who are responsible for the installation and management of networking equipment in Enterprise and Service Provider environments. Knowledge of Telecom technologies and standards including T1, E1, and Ethernet is assumed.

This chapter provides information about the intended audience for this guide, how this guide is organized, typographical conventions, the use of notices, and related documentation.

Organization

The following tables describe the content and organization of this guide.

Table 1 Guide Organization: Chapters

Chapter	Description
1	About This Guide - defines the user audience, and describes the organization of this guide, use of special notices, and other Alcatel user guides.
2	Product Introduction - provides a description of installation site requirements, and cables and tools required for installing the Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router.
3	Installation - describes the system front and back panels and how to install the Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router. Information is also provided about the operator interface, network cabling, and the operator interface.
4	Configuration - describes system configuration, logging in, factory defaults, changing the default password, upgrading software, and the boot process.
5	Troubleshooting - provides information about network indicators, tests, and general troubleshooting tips. A summary of common problems and solutions is also included.

Table 2 Guide Organization: Appendices

Appendix	Description
A	Specifications - lists the electrical, physical, and networking characteristics of the Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router. Cable pinout and related MIB file information is also provided.
B	Compliance and Standards - provides regulatory information and compliance information applicable to the Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router.

Conventions

This guide uses the following typographical conventions:

Table 3 Text Conventions

Font	Description
boldface font	Used for commands that you enter, words that you type, or keyboard keys that you press.
screen font	Used to display a screen capture.

Notices

Notice paragraphs alert you about issues that require your attention. The following paragraphs describe the types of notices used in this guide.

-  **NOTE:** Notes provide tips and useful information regarding the installation and operation of Alcatel systems.
-  **ESD:** ESD notices provide information about how to avoid discharge of static electricity and subsequent damage to Alcatel systems.
-  **CAUTION:** Caution notices provide information about how to avoid possible service disruption or damage to Alcatel systems.
-  **WARNING:** Warning notices provide information about how to avoid personal injury when working with Alcatel systems.

Documentation

Alcatel user guides, which are provided in portable document format (PDF), are included on the *Alcatel Router Documentation* CD-ROM that ships with the OmniAccess 601, OmniAccess 602, and OmniAccess 604 router. The PDF files are also available on the Alcatel website: <http://eservice.ind.alcatel.com>.

To view PDF files, Adobe Acrobat® Reader® 4.0, or newer, must be installed on your workstation. If you do not have the Adobe Acrobat Reader installed on your system, you can obtain it free from the Adobe website: www.adobe.com.

About the Alcatel Router Documentation CD

This product ships with a CD that includes the following documentation:

- *Quick Start Guide: OmniAccess 600-series Routers*
- *Installation Guide: OmniAccess 600-series Routers*
- *Command Reference Guide*
- *Router User Guide*
- *Configuration Guide*
- *Device Manager Web Interface User Guide*
- Supported standard and enterprise MIBs
- Feature summaries
- SNMP trap descriptions with default configurations

Navigation

Upon inserting the *Alcatel Router Documentation* CD into your CD-ROM drive. Click a link to open a pdf version of the target document. If you do not have Adobe Acrobat (version 4.0, or later) or Acrobat Reader installed on your PC, click the Adobe button on the navigation screen to go to the Adobe website, where you can download a free copy of the Acrobat Reader application.

If a browser session is not opened, click "Start\Run," enter the drive letter of your CD-ROM drive in the "Open" entry box, and click "OK."

Printing Documents

To print any pdf document on the CD, follow this procedure.

- 1 Open the desired document by clicking the document link in the CD navigation window.
- 2 Click the "Printer" icon on the Adobe Acrobat tool bar.
- 3 In the "Windows Print" dialog box, select a local default printer in the "Printers" drop down selection box.
- 4 Click "OK."

Related Alcatel Guides

In addition to this guide, the following list includes other available Alcatel documentation:

- *Release Notes*
Printed release notes provide the latest information. If release notes are provided with your product, follow these instructions in addition to those provided in other documentation.
- *Quick Start Guide: OmniAccess 600-series Routers*
This guide is designed to assist users with the initial installation and deployment of the Alcatel Model OmniAccess 601, OmniAccess 602, and Model OmniAccess 604 router. The guide provides a brief overview of the installation and initial configuration processes for the Model OmniAccess 601, OmniAccess 602, and Model OmniAccess 604.

- *Command Reference Guide*
This detailed guide provides a complete description of all Alcatel command line interface (CLI) commands.
- *Router User Guide*
This guide provides descriptions of commands available for Alcatel implementation of BGP (including BGP4), OSPF, RIP and other routing protocols.
- *Configuration Guide*
This guide provides example configurations.
- *Device Manager Web Interface User Guide*
This guide explains how to configure the OmniAccess 600-series Alcatel router using the WebUI.

PRODUCT INTRODUCTION

This chapter provides information about the Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router front and back panels, LEDs, cable connection ports, and panel components.

Overview

This section describes front- and back-panel components of the Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router. Additional information is also provided in following sections about external cables, wiring, and connection points.

The Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 are designed to provide WAN-to-LAN networking connectivity for branch office communication and primary Internet access for medium-size businesses. The OmniAccess 601, OmniAccess 602, and OmniAccess 604 are T1/E1 routers providing one, two, or four WAN ports, two 10/100 Fast Ethernet ports, an AUX port, an ISDN backup port, and a local/remote management Console port.

The routers may be purchased with 1 to 4 ports active. If all the WAN ports are not all activated at the time of purchase then additional ports can be activated via a software license key. Software licence keys may be purchased to activate additional WAN ports to allow scalable bandwidth as your needs grow. Contact Alcatel sales (1-818 880 3500) for more information.

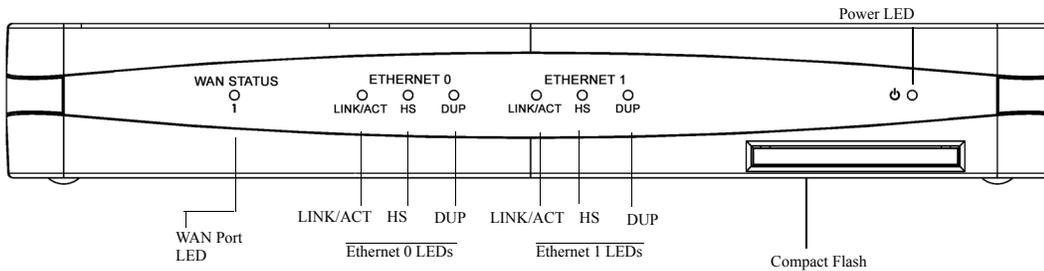
In addition to the command line interface, the Model OmniAccess 600-series routers support a Web User Interface which can be used to configure basic operational and security features. For more information on the Web UI, refer to the *OmniAccess 600-series Router Web User Interface User Guide*.

OmniAccess 601

OmniAccess 601 Front Panel

The router front panel houses the system LEDs.

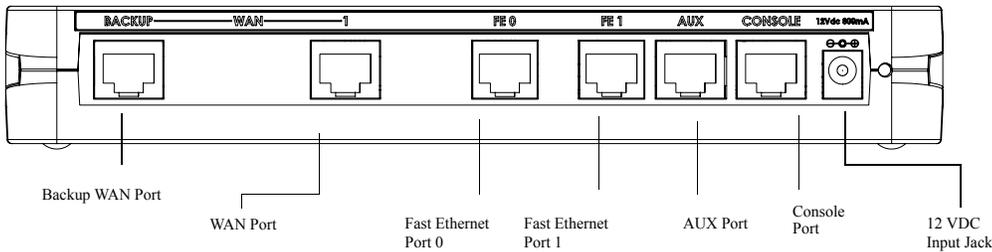
Figure 1 OmniAccess 601 Router Front Panel



OmniAccess 601 Back Panel

The OmniAccess 601 router back panel provides connections for one WAN port, two 10/100 Base-T Ethernet ports, one AUX port, one Console port, and a 12 VDC power input jack.

Figure 2 OmniAccess 601 Router Back Panel



The OmniAccess 601 front-panel LEDs indicate real-time unit status. Table 4 provides information about how to interpret the LED states.

Table 4 LED and Port Descriptions

Port	Description	Color
WAN STATUS 1	Indicates traffic activity on this interface	Green = normal activity Red = alarm state Yellow = test mode
ETHERNET 0 / 1		
LINK/ACT	Indicates traffic activity on this interface	Green = link is operational Blinking Yellow = either receiving or sending traffic Red = packet collisions
HS	Indicates traffic speed on the interface	Off = 10 Mbps Green = 100 Mbps

Table 4 LED and Port Descriptions (continued)

Port	Description	Color
DUP	Indicates the type of duplex mode	Off = Half duplex Green = Full duplex
Power	Indicates system power status	Green = power on Off = power off
Compact Flash	Port for compact flash module	—

Table 5 OmniAccess 601 Back-Panel Ports

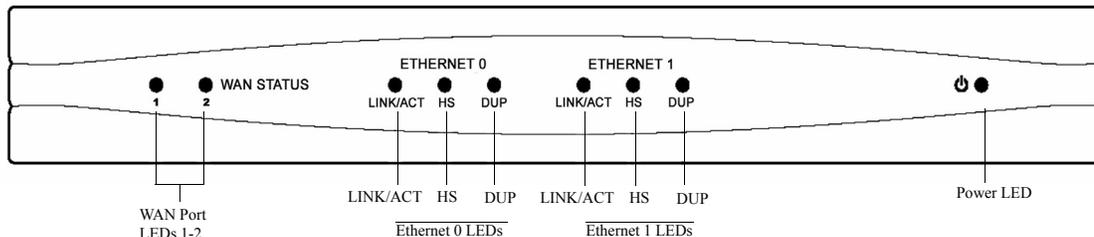
Connector	Description
WAN 1	WAN connection port. This port accepts cables with RJ-48C connectors.
Backup WAN	An ISDN backup option is supported in releases 8.3 and higher. This option provides a backup if the primary network connection is lost. This port accepts cables with RJ-45 connectors.
FE 0 / 1	Ethernet LAN connection ports. These ports accept cables with RJ-45 cable connectors.
AUX	Reverse telnet connection. This port accepts a cable with an RJ-45 cable connector.
Console	Console management port. This port accepts a cable with an RJ-45 cable connector.
DC power	12 VDC power connection. This port accepts the 2 mm. power connector on the DC power supply cable that ships with the OmniAccess 602 router.

OmniAccess 602

OmniAccess 602 Front Panel

The router front panel houses the system LEDs.

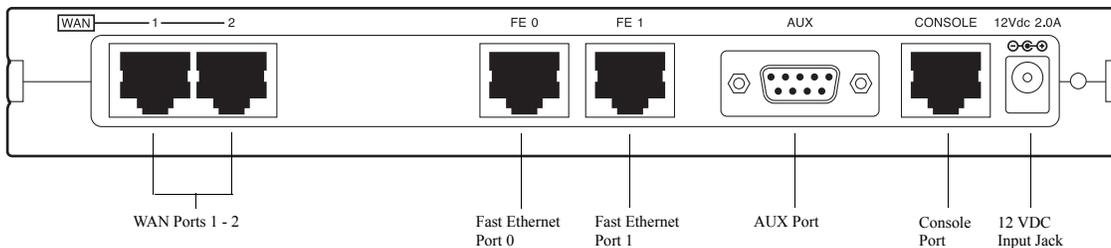
Figure 3 OmniAccess 602 Router Front Panel



OmniAccess 602 Back Panel

The OmniAccess 602 router back panel provides connections for two WAN ports, two 10/100 Base-T Ethernet ports, one AUX port, one Console port, and a 12 VDC power input jack.

Figure 4 OmniAccess 602 Router Back Panel



LEDs

The OmniAccess 602 front-panel LEDs indicate real-time unit status. Table 6 provides information about how to interpret the LED states.

Table 6 LED Descriptions

Port	Description	Color
WAN STATUS 1/ 2	Indicates traffic activity on this interface	Green = normal activity Red = alarm state Yellow = test mode
ETHERNET 0 / 1 LINK/ACT	Indicates traffic activity on this interface	Green = link is operational Blinking Yellow = either receiving or sending traffic Red = packet collisions

Table 6 LED Descriptions (continued)

Port	Description	Color
HS	Indicates traffic speed on the interface	Off = 10 Mbps Green = 100 Mbps
DUP	Indicates the type of duplex mode	Off = Half duplex Green = Full duplex
Power	Indicates system power status	Green = power on Off = power off

Table 7 OmniAccess 602 Back-Panel Ports

Connector	Description
WAN 1 - WAN 2	WAN connection ports. These ports accept cables with RJ-48C connectors.
FE 0 / 1	Ethernet LAN connection ports. These ports accept cables with RJ-45 cable connectors.
AUX	Reverse telnet connection. This port accepts a cable with a male DB-9 connector.
Console	Console management port. This port accepts a cable with an RJ-45 cable connector.
DC power	12 VDC power connection. This port accepts the 2 mm. power connector on the DC power supply cable that ships with the OmniAccess 602 router.

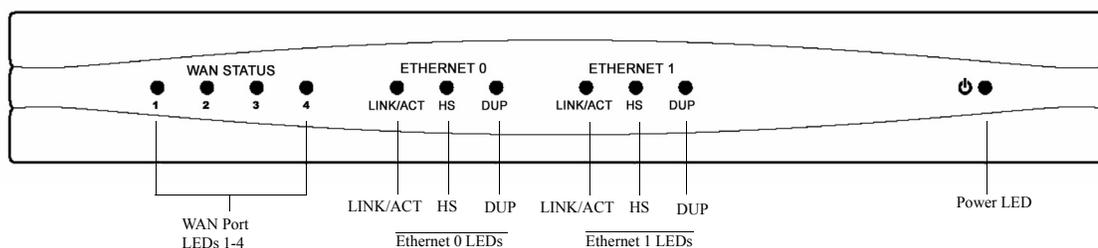
OmniAccess 604

OmniAccess 604 Front Panel

The router front panel houses the system LEDs.

The following section identifies and describes the OmniAccess 604 router network ports and LEDs.

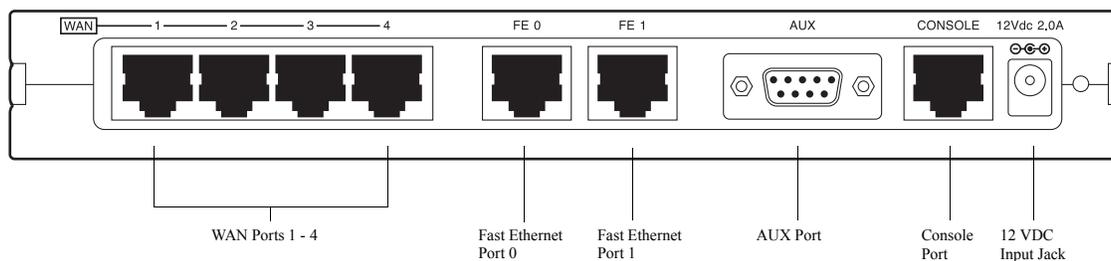
Figure 5 OmniAccess 604 Router Front Panel



OmniAccess 604 Back Panel

The OmniAccess 604 router back panel provides connections for four WAN ports, two 10/100 Base-T Ethernet ports, one AUX port, one Console port, and a 12 VDC power input jack.

Figure 6 OmniAccess 604 Router Back Panel



LEDs

The OmniAccess 604 front-panel LEDs indicate real-time unit status. Table 8 provides information about how to interpret the LED states.

Table 8 LED Descriptions

Port	Description	Color
WAN STATUS 1-4	Indicates traffic activity on this interface	Green = normal activity Red = alarm state Yellow = test mode
ETHERNET 0/1		

Table 8 LED Descriptions (continued)

Port	Description	Color
LINK/ACT	Indicates traffic activity on this interface	Green = link is operational Blinking Yellow = either receiving or sending traffic Red = packet collisions
HS	Indicates traffic speed on the interface	Off = 10 Mbps Green = 100 Mbps
DUP	Indicates the type of duplex mode	Off = Half duplex Green = Full duplex
Power	Indicates system power status	Green = power on Off = power off

Table 9 OmniAccess 604 Back-Panel Ports

Connector	Description
WAN 1 - WAN 4	WAN connection port. These ports accept cables with RJ-48C connectors. If drop and insert is configured, then ports 1 and 2 are reserved for that feature.
FE 0 - FE 1	Ethernet LAN connection ports. These ports accept cables with RJ-45 cable connectors.
AUX	Reverse telnet connection. This port accepts a cable with a male DB-9 connector.
Console	Console management port. This port accepts a cable with an RJ-45 cable connector.
DC power	12 VDC power connection. This port accepts the 2 mm. power connector on the DC power supply cable that ships with the OmniAccess 604 router.

3

INSTALLATION

This chapter describes how to install and prepare the Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router for operation. Information is also provided describing the system front and back panels, operator interface, how to mount the chassis, and how to connect network and power cables.

Before you install the OmniAccess 601, OmniAccess 602, and OmniAccess 604, familiarize yourself with the network interface and power connections described in this chapter.

Site Preparation

Before installing a Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router, ensure that the site conditions comply with the following requirements and that the mounting equipment, tools, and cables are available at the installation site.

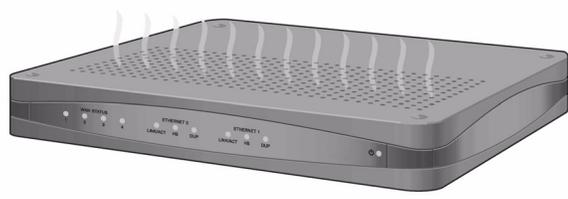
Environment

Site location is important for the proper operation of the OmniAccess 601, OmniAccess 602, and OmniAccess 604 router. Place the unit in a clean, dry environment with adequate air circulation. Allow additional clearance around the system for foot traffic and access to cable connectors on the rear panel.

Figure 7 shows the convection cooling vents on top of the unit. To prevent an over-temperature condition, which could result in system failure or performance degradation, make sure that these vents are not obstructed.

i NOTE: In normal operation, the router will be “warm to the touch.”

Figure 7 Chassis Air Flow



! CAUTION: Do not stack routers on top of each other. Doing so will defeat the convection cooling ability of the router and such action could lead to equipment damage.

Refer to Appendix A for more information about environmental requirements.

Power Requirements

The OmniAccess 601, OmniAccess 602, and OmniAccess 604 router operates on 12 VDC power. A 12 VDC power supply and an AC power cord are shipped with the router.

Network Connection

To successfully complete the installation, the router must be connected to a network. Before you start the installation, make sure that a live network connection is available at the installation site.

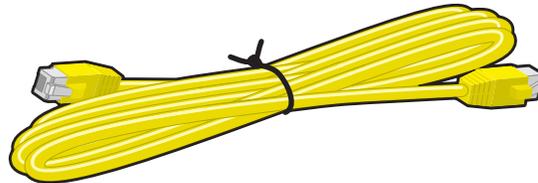
Cables Required

The OmniAccess 601, OmniAccess 602, and OmniAccess 604 router ships with a Console cable. You will need to obtain additional cables for your specific application. The following additional cables are required to install the OmniAccess 601, OmniAccess 602, and OmniAccess 604 router.

- One or two RJ-45, male/male, category 5, 26 AWG (minimum), twisted-pair, straight-through cable (Ethernet LAN connection)
See Table 25 on page 63 for cable pinout information.

Refer to Figure 8 on page 16 to identify this cable.

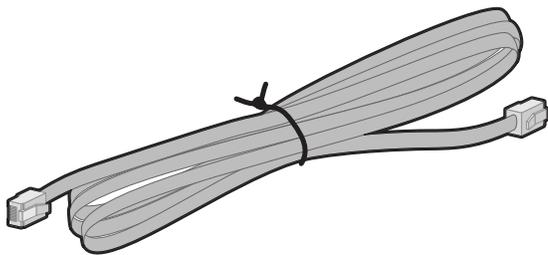
Figure 8 Ethernet Cable



- One or two RJ-48C, male/male, category 5, 26 AWG (minimum), twisted-pair, straight-through WAN cable
See Table 26 on page 63 for cable pinout information.

Refer to Figure 9 to identify this cable.

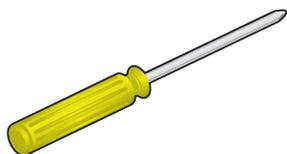
Figure 9 WAN Cable



Tools Required

The following tools are required to install the Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router.

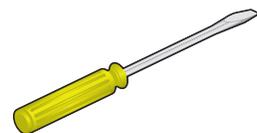
Figure 10 Required Tools



#2 Phillips screwdriver



#3 Phillips screwdriver



1/4 inch flat blade screwdriver

Unpacking and Inspecting

After opening the shipping carton, remove and save all packing materials and boxes.

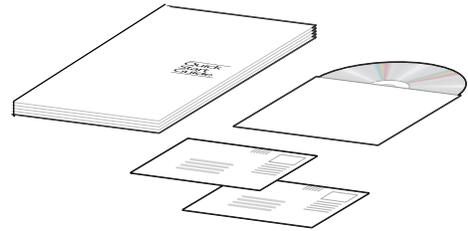
i **NOTE:** Save the packing materials. If you need to return the product, you will need to repack the unit with the original packing material. See the Procedures section in Standard Warranty on page 73 for details about product returns.

Check the packing slip and contents of the shipping carton to ensure that you have received the following items.

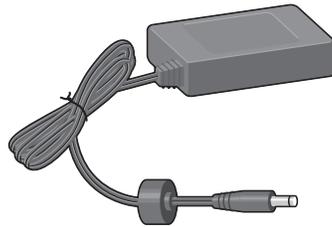
Figure 11 Items Shipped with the OmniAccess 601, OmniAccess 602, and OmniAccess 604 Router



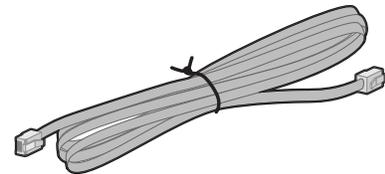
Alcatel router (OmniAccess 604 shown)



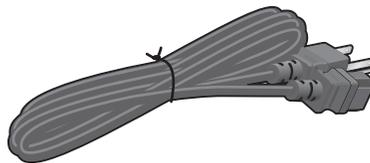
Quick Start Guide, CD ROM, product information



Power supply for OmniAccess 602 and OmniAccess 604 - OmniAccess 601 power supply plugs directly into an AC outlet



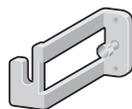
RJ-45 Console cable



AC power cord



Female Console cable to PC adapter



Power supply cord retainer bracket



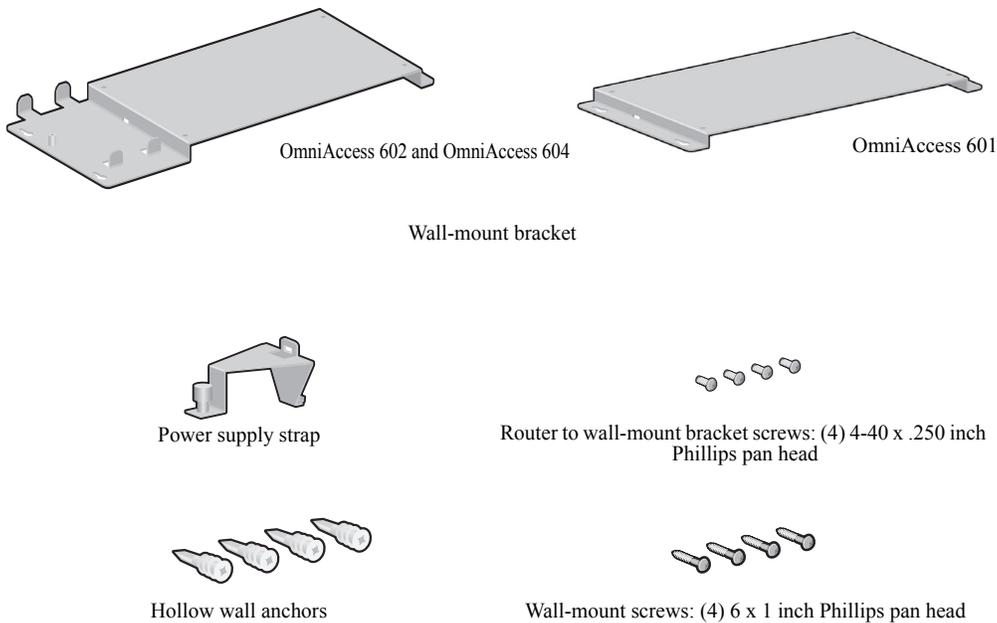
Male DB-25 modem adapter

Inspect the OmniAccess 601, OmniAccess 602, and OmniAccess 604 and the shipping carton for damage that may have occurred during shipping. If you discover damage or that items are missing, contact Alcatel Technical Support. Refer to the Alcatel website for contact information: <http://eservice.ind.alcatel.com>.

Wall-Mounting Option

An optional wall-mounting assembly is available for mounting the OmniAccess 601, OmniAccess 602, and OmniAccess 604 router on a vertical surface. The wall-mount components are shipped in the same box with the OmniAccess 601, OmniAccess 602, and OmniAccess 604 router, and are shown in the following figure:

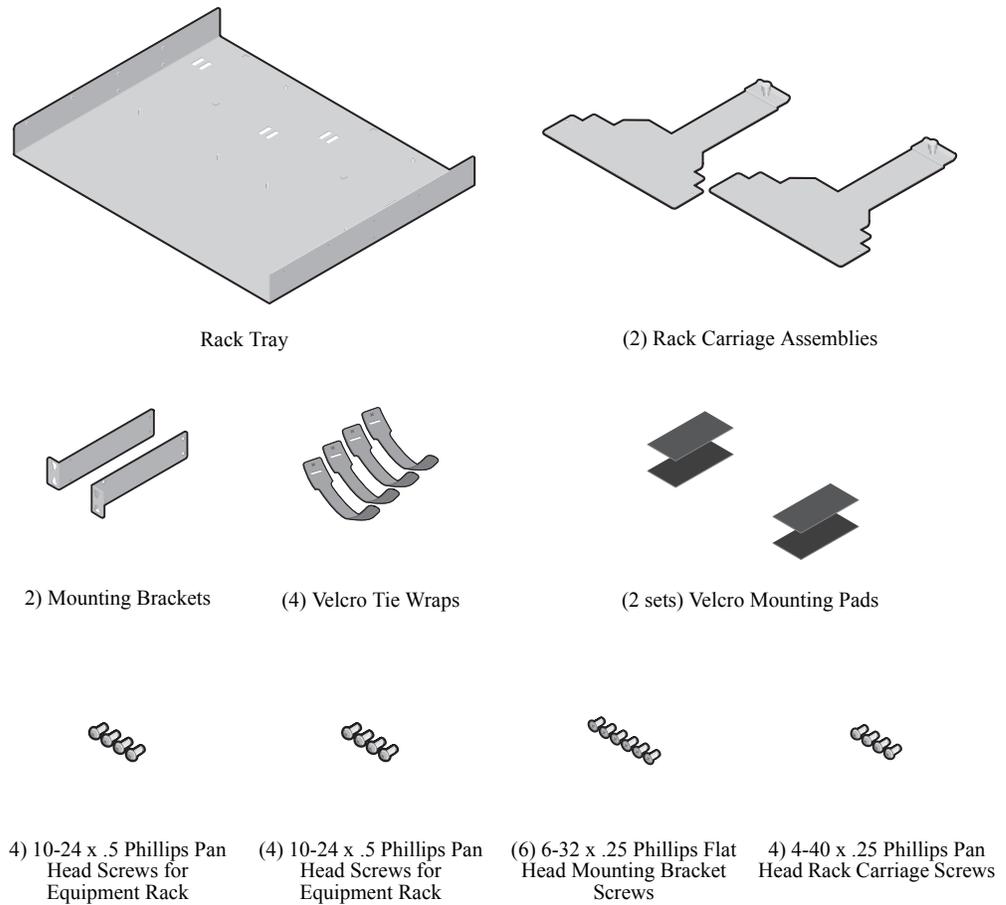
Figure 12 Wall-Mount Components



Rack-Mounting Option

An optional rack-mounting tray is available for installing two Model OmniAccess 602 or Model OmniAccess 604 routers in an equipment rack. The following items are shipped in a separate carton:

Figure 13 Rack-Mount Components



Installing the OmniAccess 601, OmniAccess 602, and OmniAccess 604 Router

The OmniAccess 601, OmniAccess 602, and OmniAccess 604 router can be installed on a table top, in a Telco equipment rack (using the optional rack-mounting tray), or on a vertical surface (using the optional wall-mounting assembly). The router ships with a Console cable. You will need to obtain additional cables for your specific application. Refer to Figure 8 and Figure 9.

The illustrations in this section use a Model OmniAccess 602 to show how the router is connected. The backplanes for the Model OmniAccess 601 and Model OmniAccess 604 are slightly different but use the same port labeling conventions. If you don't see the port identified in an illustration below, refer to the backplane illustration for your router model in Product Introduction.

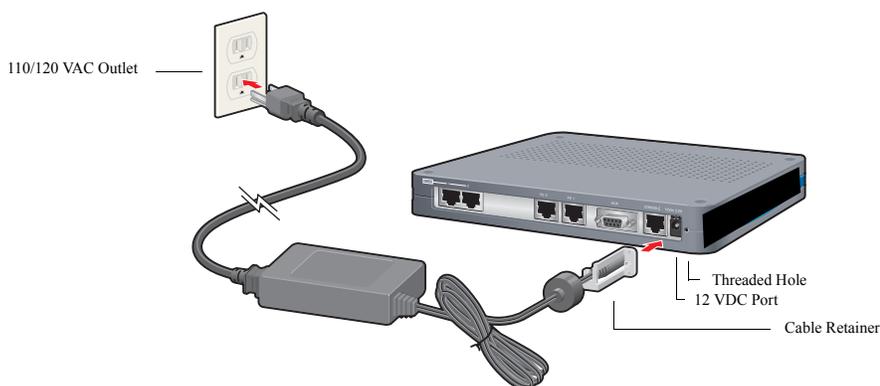
CAUTION: Do not block the cooling vents on the top of the unit.

NOTE: For problem-free operation, the router should be located in an area with adequate ventilation.

Table Top Installation

To install the OmniAccess 601, OmniAccess 602, and OmniAccess 604 for operation on a table top, follow this procedure. Refer to Figure 14 (which shows a Model OmniAccess 602).

Figure 14 Table Top Installation



- 1 Place the unit on the table surface.
- 2 Insert the DC power cable into the DC input jack on the front of the unit.
- 3 Attach the cable retainer bracket behind the molded strain relief on the power supply cable near the DC input jack.
- 4 Engage and secure the captive screw on the retainer in the threaded hole adjacent to the input jack on the router.
- 5 Connect the appropriate ends of the AC power cord to the power supply and a 110/120 VAC outlet.

NOTE: Ensure that the cables are routed out of the way of foot traffic.

Wall-Mount Installation

Follow this procedure to attach the Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router to a vertical surface.

Figure 15 Wall Mounting the Model OmniAccess 601 Router

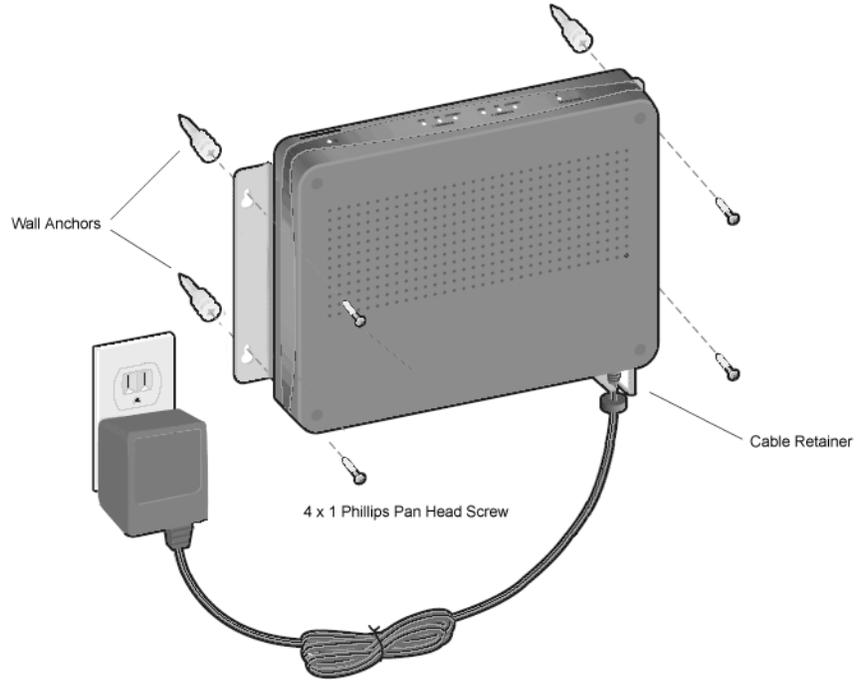
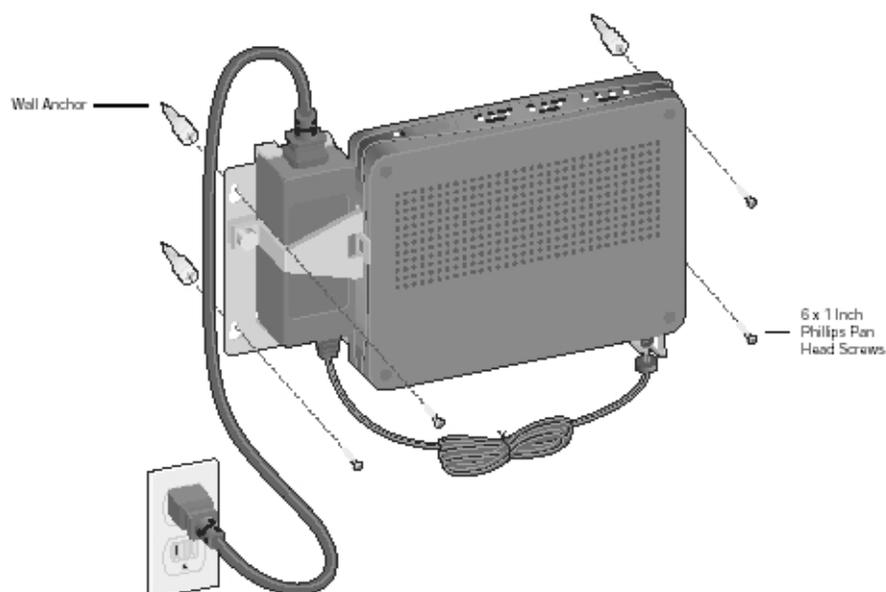


Figure 16 Wall Mounting the OmniAccess 602 and OmniAccess 604 Router



- 1 Attach the router to the wall mount assembly using four (provided) Phillips pan head 4-40 x .250 inch screws.

Ensure that the router is oriented in a manner that allows the LEDs to be visible.

- 2 Attach the assembly with the mounted router to the wall surface with four (provided) 6 x 1 inch (for OmniAccess 602 and OmniAccess 604) or 4 x 1 (for OmniAccess 601) Phillips pan head screws and hollow wall plastic anchors.

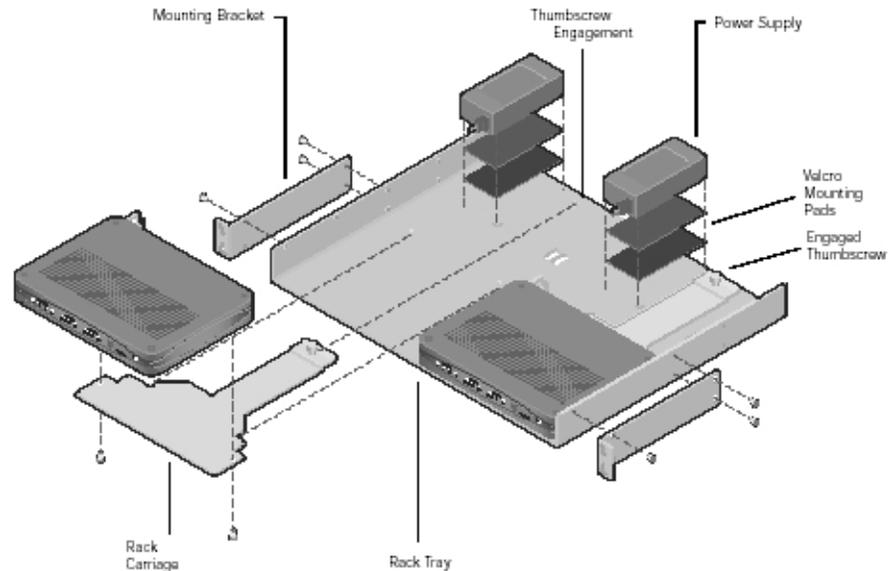
i **NOTE:** The provided hollow wall anchors are not designed for installation in hard walls. These anchors should only be installed in a sheet rock (gypsum wall board) wall.

- 3 Fit the AC strap over the power supply and then place the power supply on the wall mount bracket within the four locating tabs.
- 4 Engage and tighten the AC strap captive screw to secure the power supply to the wall mount assembly.
- 5 Attach the cable retainer to the DC power cord behind the molded strain relief on the cable.
- 6 Insert the DC power cable jack into the 12 VDC port on the back of the router.
- 7 Engage and tighten the captive screw on the cable retainer in the threaded hole adjacent to the DC input jack on the router.
- 8 Connect the appropriate ends of the AC cord to the secured power supply and a 110/120 VAC outlet.

Rack-Mount Installation

To mount the OmniAccess 602, and OmniAccess 604 in an equipment rack, follow this procedure. (This procedure does not apply to the Model OmniAccess 601.) Refer to Figure 17.

Figure 17 Rack Mounting the OmniAccess 602 and OmniAccess 604 Router



- 1 Determine the mounting position for the rack tray in the equipment rack (front or mid mount) and attach the mounting brackets using the four (provided) 6-32 x .250 inch flat head Phillips screws.
- 2 Attach the router to the carriage assembly using four (provided) Phillips pan head 4-40 x .250 inch screws.
- 3 Engage the carriage assembly in the rack tray rails and slide the assembly all the way in.
- 4 Fit the AC strap over the power supply and then place the power supply on the rack tray between the raised tab and the back edge of the tray.
- 5 Engage and tighten the AC strap captive screw to secure the power supply to the rack tray.
- 6 Attach the cable retainer bracket to the DC power cord behind the molded strain relief on the cable.
- 7 Insert the power cable jack into the 12 VDC port on the back of the router.
- 8 Engage and tighten the captive screw on the cable retainer bracket in the threaded hole adjacent to the DC input jack on the router.
- 9 Coil the excess cable and secure it on the tray behind the router.
- 10 Mount the tray in the equipment rack using either four (provided) Phillips pan head 10-24 x .5 inch screws or four (provided) Phillips pan head 12-32 x .5 inch screws, whichever fits the equipment rack.
- 11 Connect the network cables to the router. Secure the cables in the clips located on the bottom of the carriage assembly. Refer to Network Connections on page 25.
- 12 Connect the appropriate ends of the AC cord to the secured power supply and a 110/120 VAC outlet.
- 13 Using a small flat blade screwdriver, engage and tighten the captive screw to secure the carriage assembly to the rack tray.

Network Connections

The following sections describe how to connect various network cables to the Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router.

Connecting the Ethernet Cable

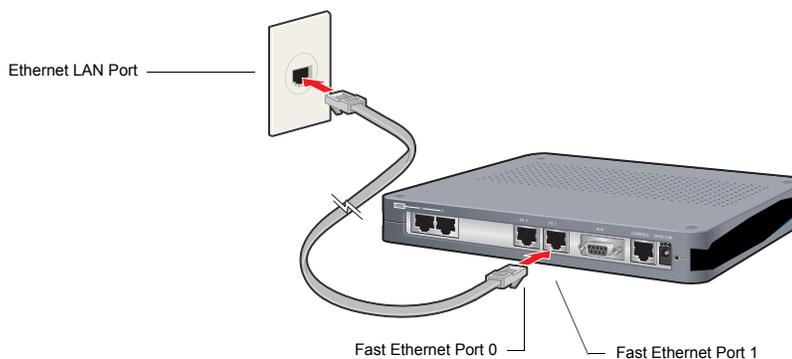
The front panel on the router accommodates one LAN connections. Use a category 5, twisted-pair Ethernet cable with RJ-45 connectors to connect to the LAN. Refer to Figure 8 on page 16 to identify this cable.

Follow this procedure to connect the OmniAccess 601, OmniAccess 602, and OmniAccess 604 to an Ethernet LAN network.

- 1 Connect the RJ-45 connector of a category 5 rated Ethernet cable to either the Ethernet 0 or Ethernet 1 port on the back panel.
- 2 Connect the RJ-45 connector on the other end of the cable to the LAN port.

Make sure that the cable connectors are locked and secure in the ports. See Table 25 on page 63 for pinout information about this cable.

Figure 18 Connecting the Ethernet Cable



Connecting the WAN Cable

The back panel accommodates up to two WAN (model specific) cables. Use 26 AWG (minimum) category 5, twisted-pair cable with RJ-48C connectors for this interface. Refer to Figure 9 on page 17 to identify this cable.



CAUTION: To reduce the risk of fire, use only number 26 AWG or larger UL Listed or CSA Certified Telecommunication Line Cord for all network connections.

Follow this procedure to connect a WAN port to the network:

- 1 Insert the RJ-48C connectors on one end of one cable in the appropriate port on the Service Provider's demarcation point.
- 2 Insert the RJ-48C connectors on the other ends of the cables in the WAN ports on the front panel of the Alcatel router.

Make sure that the cable connectors are locked and secure in the ports. See Table 26 on page 63 for pinout information about this cable.

Figure 19 Connecting the WAN Cable

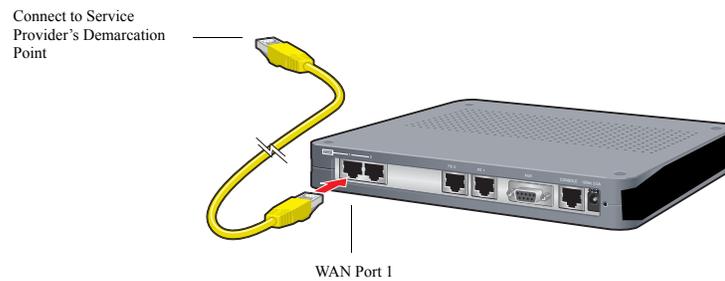
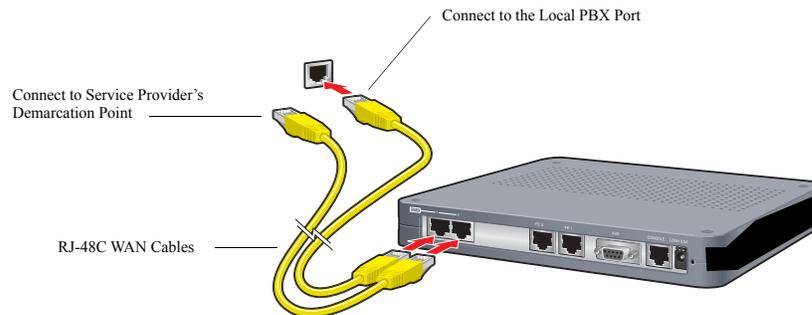


Figure 19 shows the WAN cabling for a Model OmniAccess 602. A Model OmniAccess 601 only has one WAN port. A Model OmniAccess 604 has four WAN ports.

Connecting Drop and Insert Cables

WAN ports 1 and 2 can alternatively be used for drop and insert traffic. Port 1 is designated for voice; port 2 is used for data traffic. Use two 26 AWG (minimum) category 5, twisted-pair cables with RJ-48C connectors to establish this connectivity.

Figure 20 Connecting Drop and Insert Cables



To connect drop and insert cables, follow this procedure. Refer to Figure 20.

- 1 Insert the RJ-48C connector of one end of one WAN cable in WAN port 1 on the router.
- 2 Connect the other end of this cable to the local PBX port.
- 3 Insert the connector on one end of the second cable to WAN port 2 on the router.
- 4 Connect the other end of this cable to the Service Provider's demarcation point.

For information about configuring drop and insert, refer to the *Command Reference Guide*.

Operator Interface

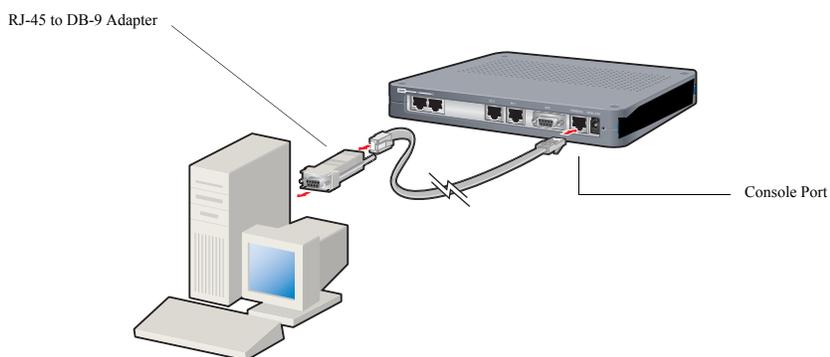
Local Management

The OmniAccess 601, OmniAccess 602, and OmniAccess 604 can be locally configured, operated, and managed using an operator console connected to the Console port. A terminal (VT-100 or equivalent) or workstation with terminal emulation software can be used for the operator console. Connect the console to the OmniAccess 601, OmniAccess 602, and OmniAccess 604 router Console port using an RJ-45 cable with switched ends. If your terminal equipment requires a special cable, see Table 24 on page 63 for connector pinout information.

To connect the Console cable:

- 1 Connect the RJ-45 Console cable to the Console port on the router.
- 2 Connect the other end of the RJ-45 Console cable to the RJ-45 end of the adapter.
- 3 Connect the DB-9 end on the adapter to the management terminal or workstation.

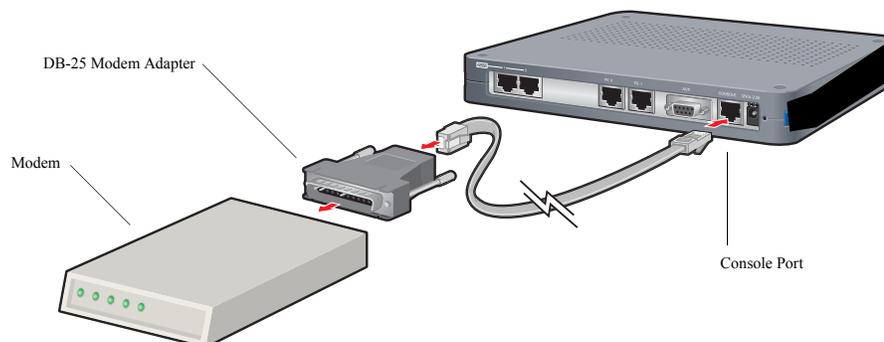
Figure 21 Connecting the Console Cable (Local Management)



Remote Management

A modem can be connected to the Console port and used to configure, operate, and manage the OmniAccess 601, OmniAccess 602, and OmniAccess 604 remotely.

Figure 22 Connecting a Modem for Remote Management



Follow this procedure to connect the OmniAccess 601, OmniAccess 602, and OmniAccess 604 to a modem. Refer to Figure 22.

- 1 Connect the male end of the DB-25 adapter to the female DB-25 port on the modem.
- 2 Connect one end of a supplied RJ-45 cable to the RJ-45 port in the DB-25 adapter.
- 3 Connect the other end of the RJ-45 cable to the Console port on the OmniAccess 601, OmniAccess 602, and OmniAccess 604.
- 4 Refer to the Alcatel Support website for modem configuration information.

If a workstation is used for the remote management console, use VT-100 terminal emulation software or equivalent, and configure the software as specified for modems.

Console Messages

Alarm messages are displayed at the console when system logging is configured. Refer to the **configure system logging console** command and related system logging commands in the Command Reference Guide for more information about how to configure specific alarm events.

For more information about command usage for T1 products, refer to the *Command Reference Guide*. These guides are available on the Alcatel website:<http://eservice.ind.alcatel.com>.

4

CONFIGURATION

This chapter describes how to login; change the default password, configure the router and users, and change the factory default configuration. The boot process and software upgrade process is also discussed in detail.

Logging In

If you have not established a local console connection, see Operator Interface on page 27 for more information.

The following figure shows the login sequence and the initial prompt after login is complete.

Figure 23 Initial CLI Prompt

```
login: username
password:

username logged in on Fri August 6 05:28:01 2004
from console

Alcatel CLI
Alcatel-model>
```

Initial CLI Prompt ———

i NOTE: The default host name is Alcatel.

Command Tips

Use the following command tips and shortcuts with command line interface commands.

- To display all commands, type **tree**.
- To access help associated with a command, type **help <command name>**. You may also use the ? key after any command.
- To exit back one level in the command hierarchy, type **exit** and press Return.
- To exit the command mode and/or return to the base CLI prompt, press the key combination **Ctrl-Z**.
- Type the first two letters of a command, and then press the **Tab** key to automatically spell out the command.
- Scroll through the available commands using the **Tab** key.

Ethernet Configuration Tip

To avoid Ethernet mismatch problems, the OmniAccess 601, OmniAccess 602, and OmniAccess 604 router and the network device to which it is attached should both be configured identically for speed and duplex. For example, if the router is configured for auto-negotiation

and the far end is configured manually, the router detects the speed, but defaults to half-duplex mode. To ensure correct operation, either manually configure each device for speed and duplex settings, or configure both devices to auto-negotiate.

Changing Login Parameters

The System Administrator login consists of two components: the user name and the password. The initial login name is always **alcatel**, but you can change this to suit your needs after logging in for the first time. The default password for user **alcatel**, **switch**, should be changed as soon as possible to ensure only authorized access to the router.

For more information about command usage for T1 products, refer to the *Command Reference Guide: Domestic Products*. For information about command usage for E1 products, refer to the *Command Reference Guide: International Products*. These guides are available on the Alcatel website: http://eservice.ind.alcatel.com_

Password

This procedure enables the system administrator to change any or all user passwords, or any user to change their password on the OmniAccess 601, OmniAccess 602, and OmniAccess 604. The password must be 3-10 characters.

To change the password:

- 1 Access the password configuration mode.

example:

```
Alcatel> password
```

The system prompts for the current user name.

- 2 Type **alcatel**, and then press **Return**.

The system prompts for the old password.

- 3 Type **switch**, and then press **Return**.

The system prompts for the new password.

- 4 Type your new password, and then press **Return**.

The system prompts you to verify the new password.

- 5 Type the new password again and then press **Return**.

A message is appears confirming that the password has been changed.

Administrator Account

This procedure changes the administrator login name (Level 1 access) to a user-specified name. The default is **alcatel**.

To change the account name:

- 1 Access the configure mode.

example:

```
Alcatel> configure term
```

- 2 Change the account name.

example:

```
Alcatel/configure> admin_name Greg
```

This example above changes the Level 1 user name to Greg.

The system displays a confirming message: "Administrator account name changed to Greg."



NOTE: Changing the administrator login name does not change the administrator's password. Use the password procedure to change the password.

System Host Name

Use the **configure hostname** command to assign a host name to the Alcatel router. Once assigned, the host name becomes the command line interface (CLI) prompt name.

To configure the host name:

- 1 Access the terminal configuration mode: Alcatel> **configure term**
- 2 Type **hostname**, and then type a new host name.
- 3 Press **Return**.

example:

```
Alcatel/configure> hostname Fremont
```

In the above example, the new host name for the system is Fremont. The CLI prompt changes to Fremont, accordingly.

example:

```
Fremont/configure>
```

Date and Time

Date and time are set using the **configure date** and the **configure utc** commands.

To configure the date, enter the month, day, and year. For example, to set the date to April 30, 2005, enter:

```
Router/configure> date 04 30 2005
```

To set the current time for the router in Universal Time Coordinated time, specify the time zone offset ahead (+) or behind (-) the time in Greenwich England), the number of hours ahead or behind Greenwich time, and the number of minutes ahead or behind the time in Greenwich.

For example, to set the local Pacific Standard Time to UTC time, enter:

```
Router_LA/configure> utc - UTCHours 8
```

Adding Users

The **configure user** command allows the system administrator to add up to 15 users (login ID) and assign each user an access privilege (levels 2-4). Only the system administrator (level 1) can add, modify, or remove this information.

To add a new user:

- 1 Enter the terminal configuration mode: Alcatel> **configure term**
- 2 Type **user name**, enter the name that you want to add, and then enter the access level to be assigned to that name (optional). The user name may be up to 30 characters. The password must be 3-10 characters.

example:

```
Alcatel/configure> user John level 2
```

The system prompts you to enter a new password.

- 3 Enter the new password.

The system prompts you to re-enter the new password.

- 4 Re-enter the new password.

The system confirms that the password is set and confirms the name of the added user.

You can use the **show user_accounts** command to view user information.

Removing Users

The **no user name** command allows the system administrator to remove configured user names from the Alcatel system.

To remove a user name:

- 1 Type **no user name**, followed by the user's name.

example:

```
Alcatel/configure> no user John
```

- 2 Press **Return**.

The user name is removed from the system.

Default Configuration

For more information about command usage, refer to the appropriate Alcatel Command Reference Guide (either the domestic or international version).

There are four ways to restore factory default configuration settings. Remember to reboot the router after performing any of the following procedures.

- Clear the contents of the system.cfg file
clear cfg_file system.cfg
- Delete the system.cfg file
rm system.cfg
- Rename and remove the system.cfg file
copy system.cfg system.bk
- Restore factory defaults
system reset-to-factory

After performing any of the above options, the system.cfg file no longer exists. Subsequently, a “file not found” error message is displayed upon rebooting the system. This message will not impact operation, and it should be ignored.

 **NOTE:** If you change any of the factory default settings, issue the **save local** command to retain the changed configuration before rebooting.

The following tables show the factory default configuration for the Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router.

Table 10 Ethernet Interface Default Configuration

Parameter	Default
speed	auto (negotiates 10 Mbps or 100 Mbps)
address	uses the current address stored in the system.cfg file (if one exists), otherwise an IP address must be configured from the command line interface
duplex	auto (negotiates half-duplex or full-duplex)

Table 11 IP Default Configuration

Parameter	Default
IP routing ¹	enabled
IP multiplexing ²	disabled

1, 2 IP routing and IP multiplexing are mutually exclusive of each other. Only one can be enabled at a time.

Table 12 T1 Interface Default Configuration

Parameter	Default Value	Optional Values
framing	esf	d4
linecode	b8zs	ami
clock_source	internal	line
linemode	csu	dsx
lbo	0 dB	7.5 db 15 db 22.5 db
cable length	1 (0 - 110 ft.)	2 (110 - 220 ft.) 3 (220 - 330 ft.) 4 (330 - 440 ft.) 5 (440 - 550 ft.) 6 (550 - 660 ft.)
fdl	ANSI and ATT unit protocol enabled	ANSI (only) ATT (only)
yellow_alarm	disabled	generate detect generate and detect

Table 13 E1 Interface Default Configuration

Parameter	Default Value	Optional Values
framing	crc	non-crc disabled
linecode	HDB3	no optional value
clock_source	internal	line
linemode	short_haul	long_haul
jitter	enabled	disabled
lbo	43 db	12 db
yellow_alarm	generate and detect	no optional value

Table 14: Default Console Port Settings

Setting
9600 bps
8 data bits
1 stop bit
no parity
XON/XOFF flow control

Configuring Drop and Insert Multiplexing

Use the Drop and Insert feature to terminate IP traffic on the Alcatel OmniAccess 602 and OmniAccess 604 routers¹ while passing through the DS0s that carry voice traffic.

i **NOTE:** The pass through Channel Associated Signaling (CAS) on the E1 interfaces is not supported in this release. CAS is fully supported on the T1 interfaces. Common Channel Signaling (CCS) is supported when configured for ISDN.

i **NOTE:** ISDN uses the last DS0 available to the link for the signaling channel. When carrying ISDN PRI traffic DS0 number 24 must be passed through on the T1, and DS0 number 31 must be passed through for the E1.

Rules

- Port 1 should always be connected to the network (not the local PBX).
- Port 2 should always be connected to the local PBX (not the network).
- Configure the Link settings first.
- Configure the clock on Port 1 second, and always set it to LINE.
- Configure the clock on Port 2 third, and always set it to BTCLK.
- Configure the mode last.

Recommendations

- Configure IP (terminating) bundle starting at the lowest numbered DS0, and the Voice (Pass Through) bundle starting at the highest numbered DS0.

Examples

Below are two typical configuration examples for T1 and E1 interfaces.

E1 Configuration

```
host/configure> interface bundle data
host/configure/interface/bundle data> link e1 1:1-15
host/configure/interface/bundle data> encapsulation ...
host/configure/interface/bundle data> exit
host/configure> interface drop_insert voice
host/configure/interface/drop_insert voice> link e1 1 2
timeslots 17-31
host/configure/interface/drop_insert voice> clock_source 1 line
host/configure/interface/drop_insert voice> clock_source 2
btclk
host/configure/interface/drop_insert voice> mode 2 1
```

¹. Note that this feature is not supported on the Alcatel OmniAccess 601.

In this example, the data bundle name is `data`, and the DS0s are configured starting from DS0 number one. The DS0s are called timeslots in the configuration screen. The configuration of the bundle is the same as the non-drop and insert configurations. This data bundle is pointed toward the network, and the corresponding DS0s on E1 number 2 are not configured.

i **NOTE:** Alcatel starts counting DS0s from 1 for both T1 and E1. Be careful when connecting to other equipment as some vendors start counting from 0.

The voice bundle name is `voice`, and the DS0s are configured counting back from DS0 number 31.

The `link` command always pertains to port 1, so the command will always be `link e1 1 2 timeslots X signaling Y` where `X` is one or more DS0s and `Y` is 1 for CAS, or 2 for CCS or ISDN signaling. Signaling type defaults to CAS and is optional.

Notice that DS0 number 16 is not configured. This DS0 is automatically configured to pass through when the mode is set to CAS.

The clock references are set pursuant the rules above.

The mode always pertains to port 2, so the command will always be `mode 2 X` where `X = 0` for data only, 1 for voice and data, or 2 for voice only (typically, mode will be 1.)

T1 Configuration

```
host/configure> interface bundle data
host/configure/interface/bundle data> link t1 1:1-12
host/configure/interface/bundle data> encapsulation ...
host/configure/interface/bundle data> exit
host/configure> interface drop_insert voice
host/configure/interface/drop_insert voice> link t1 1 2
timeslots 13-24
host/configure/interface/drop_insert voice> clock_source 1 line
host/configure/interface/drop_insert voice> clock_source 2
btclk
host/configure/interface/drop_insert voice> mode 2 1
```

In this example, the data bundle name is `data`, and the DS0s are configured starting from DS0 number one. The DS0s are called timeslots in the configuration screen. The configuration of the bundle is the same as the non-drop and insert configurations. This data bundle is pointed toward the network, and the corresponding DS0s on T1 number 2 are not configured.

i **NOTE:** Alcatel starts counting DS0s from 1 for both T1 and E1. Be careful when connecting to other equipment as some vendors start counting from 0.

The voice bundle name is `voice`, and the DS0s are configured counting back from DS0 number 24.

The link command always pertains to port 1, so the command will always be `link t1 1 2 timeslots X signaling Y` where `X` is one or more DS0s and `Y` is 1 for CAS, or 2 for CCS or ISDN signaling. Signaling type defaults to CAS and is optional.

Note that there is no signaling DS0 on a T1. The signaling on the T1 will be a Robbed Bit from within each individual voice DS0, or will be carried within the Facility Data Link (FDL) of an Extended Super Frame (ESF) mode T1.

The clock references are set pursuant the rules above.

The mode always pertains to port 2, so the command will always be `mode 2 x` where `x` = 0 for data only, 1 for voice and data, or 2 for voice only (typically, mode will be 1.)

Port Upgrade/Activation

The Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router base system ships with one active WAN port. Activating additional ports requires only a simple change to the router configuration with a software key that may be purchased to activate up to three additional WAN ports. This key is different than the software upgrade key.

To obtain a port upgrade key, contact your reseller or Alcatel. You will be asked to provide the serial number, model number, and the number of ports that are currently active on your router.

The following procedure describes how to activate additional WAN ports in the OmniAccess 601, OmniAccess 602, and OmniAccess 604 router.

- 1 From the command line interface, issue the following command:

```
Alcatel> configure terminal
```

- 2 Issue the following command:

```
Alcatel> system licenses < option >
```

The option parameters are:

- enable_1_port
- enable_2_ports

You will be prompted for the port upgrade license key.

- 3 Enter the license key provided.

The license key is case sensitive.

- 4 Reboot the router.

Installing the Software License Key

A software key is required to enable the OmniAccess 601, OmniAccess 602, and OmniAccess 604 router for advanced features (such as IPsec VPN). To obtain a software license upgrade key, contact your reseller or Alcatel. You will be asked to provide the serial number and model number. This key is different than the port activation key.

To install the software licence key to enable advanced VPN on the Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router, issue the following command:

```
Alcatel> system licenses advance_vpn
```

You will be prompted to enter the advance_vpn licence key that you received from Alcatel.

Switching Routing/IPMUX Modes

The Model OmniAccess 602 and OmniAccess 604 are able to switch between IPMux and dynamic routing modes. The Model OmniAccess 601 supports only dynamic routing mode.

Switching to IPMux Mode

To switch from dynamic routing to IPMux mode, issue the following command:

```
Alcatel/configure> no system routing
```

A message is displayed warning you to issue the save local command before the router reboots and you must confirm that you want to change to IPMux mode. Enter **Y** and press the **Return** key. The OmniAccess 602 and OmniAccess 604 reboot into IPMux mode.

Switching to Routing Mode

To switch from IPMux to dynamic routing mode, issue the following command:

```
Alcatel/configure> system routing
```

A message is displayed warning you to issue the save local command before the router reboots and you must confirm that you want to change to routing mode. Enter **Y** and press the **Return** key. The OmniAccess 601, OmniAccess 602, and OmniAccess 604 reboots into dynamic routing mode.

Boot Process

When power is applied to the Alcatel system, the Flash is checked for a downloadable boot image. If a boot image file is found in the Flash, the file is executed. Otherwise, the boot image is executed from the factory image stored in the boot ROM. Next, the Alcatel operating system is loaded from the T1000.Z file residing in the Flash. Power-up diagnostics such as flash test, memory test, etc. are run and then the Ethernet and WAN interfaces are installed. The router is then configured using settings previously saved in the system.cfg file. Once these settings are configured, the router is ready for operation and user login.

Upgrading System Software

The Alcatel command line interface (CLI) provides commands that allow you to upgrade the OmniAccess 601, OmniAccess 602, and OmniAccess 604 router with new software. Every system is furnished with a software image file (T1000.Z) and a boot image file (T1000.bin). Using the TFTP protocol, the latest versions of these files can be loaded onto a Alcatel router from any accessible TFTP server.

A software upgrade consists of two files: T1000.Z and T1000.bin. The .Z file is the operating system for the Alcatel system; the .bin file contains the downloadable boot images.



NOTE: Alcatel systems do not support two simultaneous downloads.



NOTE: Refer to the appropriate Command Reference Guide (domestic or international products) for specific command parameters, options, and context.

Before Downloading the T1000.Z File

If you must issue the file/**download** command, do so only when the source of the download file is currently answering a ping command and there is no immediate concern about unscheduled power outages. This situation is a cause for concern because a problem can arise when there is insufficient Flash space to hold a backup copy of the downloaded T1000.Z file. When this occurs, the system prompts for approval to continue. However, if power fails or there are network problems during the file download, the system may not be able to boot from flash because the file may be incomplete or corrupt. If this occurs, you can boot using FTP. Refer to Booting From a Network TFTP Server on page 44 for this procedure.

Upgrading Software

To upgrade the T1000.Z and T1000.bin files:

- 1 Download T1000.Z and T1000.bin from the Alcatel Support page on the website and place it on a server that is running a TFTP daemon.
- 2 Ensure that network connectivity exists between the Alcatel system being upgraded and the TFTP server holding the new file. Pinging the server from the Alcatel system is a good method to use to prove connectivity.
- 3 Download files to the Flash. The general format for the download commands is:

```
file/download server_ip source_file local_file
```

server_ip The IP address of the server holding the upgrade files.

source_file Path and file name of the file to be downloaded.

local_file File name to be used in local flash memory.

For example, a typical sequence might consist of:

- downloading all files to the main board:

```
file/download 10.10.1.1 software/T1000.Z T1000.Z
```

```
file/download 10.10.1.1 software/T1000.bin T1000.bin
```

- 4 Move the .bin images to the downloadable boot area:

```
file/copy_boot T1000.bin
```

```
file/validate_boot T1000.bin (This should validate the copy_boot procedure.)
```

- 5 Make sure you are booting the images from the Flash and then reboot the system:

```
configure> boot T1000.Z
```

Then type "Y" to reboot the router.

- 6 After reboot, log in and verify the proper software version with the following command:

```
show version
```

Booting From a Network TFTP Server

In the rare and unlikely situation where a software version upgrade fails, a network boot may be performed as described in the following procedure.

- 1 Assume that the new T1000.Z download failed when the following command was issued:

```
Router> file/download 192.168.10.1 software/router/T1000.Z
```

This command line is appropriate when the new upgrade T1000.Z file resides on a tftp server host with IP address 192.168.10.1, in a directory named **software/router**.

Upon a download failure (and corruption or deletion of the T1000.Z file in Flash), the OmniAccess 601, OmniAccess 602, and OmniAccess 604 router may not be able to boot.

- 2 Make note of which Ethernet interface (0 or 1) connects the system to the tftp server host.
- 3 Connect a terminal or terminal emulator to the console port of the Alcatel system using the cable supplied. Configure the terminal for 9600 bps, 8 data bits, 1 stop bit, no parity, and XON/XOFF flow control.
- 4 Power cycle the OmniAccess 601, OmniAccess 602, and OmniAccess 604.
- 5 Press and hold the **Enter** (Return) key while the system boots (usually 10-15 seconds).
- 6 The following (or similar) text is output to the terminal:

```
Copyright (c) ...
Copyright (c) ...
CPU: Alcatel
Variation: 8.3.2
RSP Version 1.1/2
Creation date Sep 8, 2000, 19:14:24

Press any key to stop auto-boot....
1
[Alcatel Boot. reboot in 1 minute if CR not pressed]:
[Alcatel Boot]:
[Alcatel Boot]:
.
.
.
[Alcatel Boot]:
```

- 7 Type **c**, and press the **Enter** key.

 **NOTE:** At any point in this procedure, online help can be accessed by typing **?** and pressing the **Enter** key.

- 8 If Ethernet 0 is connected to the tftp server host, change **f10** (flash boot) to **lnPci0**. The following text is output to the terminal:

```
[Alcatel Boot]: c

\_'= clear field; \=' = go to previous field; ^D = quit

boot device      : f10 lnPci0
processor number  ) 0
```

9 Press the **Enter** key.

The following text is output to the terminal:

```
host name          : host
```

10 To keep this parameter, press the **Enter** key.

The following text is output to the terminal:

```
file name          : /flash1/T1000.Z
```

11 Enter the path-qualified file name: type **/software/router/T1000.Z** (or whatever is consistent with the download command in the above example) and press the **Enter** key.

The following text is output to the terminal:

```
inet on ethernet [e] : 10.1.0.1:fff0000
```

12 Input the address for the Alcatel system to use as an tftp client to the tftp host. Type **111.2.3.3:ffffff00** (or whatever is appropriate for your network configuration) and press the **Enter** key.

Note that the netmask is specified in hexadecimal after a colon (here a 24-bit netmask). You must be in the same subnet as the tftp host or the same subnet as the default router through which you will access the tftp host.

The following text is output to the terminal:

```
inet on backplane [b] :
```

13 Press the **Enter** key. The following text is output to the terminal:

```
host inet [h]       : 10.11.12.13
```

14 At this point, the tftp host address must be entered. Type **192.168.10.1** (or whatever is consistent with the downloadNCM command in the above example) and press the **Enter** key.

The following text is output to the terminal:

```
gateway inet [g]    : 10.11.12.13
```

15 If a gateway does not exist between the Alcatel router and the tftp server, then this can be left blank. However, it is required if the router and the tftp server reside in different subnets. For this example you would enter 111.2.3.254.

The following text is output to the terminal:

```
user [u]            : wind
```

- 16 Make sure to type **wind**. Then set the password also to **wind**. Press the **Enter** key.
The following text is output to the terminal:

```
ftp password [pw] [blank = use rsh] : wind
```

- 17 Set the flags. Type **0x8a**. Press the **Enter** key.
The following text is output to the terminal:

```
flags [f] : 0x8a
```

Set the target name. Press the **Enter** key.

The following text is output to the terminal:

```
target name [tn] :T1000
```

The name that you use to configure the Alcatel router will become the system prompt.

Ensure that the startup script parameter is blank. The “other” parameter may be blank or left as “lnPci.”

After entering all the parameters described above, the Alcatel boot prompt, “[Alcatel Boot]” is displayed.

- 18 Verify that the settings are correct. Press the **Enter** key to display the following text:

```
[Alcatel Boot]: P
boot device      : lnPci
unit number     : 0
processor number : 0
host name       : host
file name       : tftpdire/8.0/T1000.Z
inet on ethernet [e] : 10.1.0.1:fff0000
host inet [h]    : 10.11.12.13
gateway inet [g] : 111.2.3.254
user [u]        : wind
ftp password [pw] : ****0
flags [f]       : 0x8a
target name [tn] : T1000
ether [e]       : lnPci

[Alcatel Boot]:
```

- 19 Type **@** and press the **Enter** key to boot from the network.
20 Download the new images. Refer to Upgrading Software on page 43.

Interface Configuration

The following are examples of T1, CT3, and DS3 interface configurations. To scroll through the options available at any command prompt, press the Tab key. For descriptions of the options available at any command prompt, type **help** and press Enter.

E1 Interface

```
Router> configure term
Router/configure> module e1 4
Router/configure/module/e1 4> clock_source line
Router/configure/module/e1 4> framing crc
Router/configure/module/e1 4> exit 2
Router/configure> cabletype monitor_port 1 twisted_pair
Router/configure> module e1 4
Router/configure/module/e1 4> linecode hdb3
Router/configure/module/e1 4> yellow_alarm gen_det
Router/configure/module/e1 4> exit 3
```

T1 Interface

```
Router> configure term
Router/configure> module t1 4
Router/configure/module/t1 4> clock_source line
Router/configure/module/t1 4> framing esf
Router/configure/module/t1 4> linecode b8zs
Router/configure/module/t1 4> yellow_alarm gen_det
Router/configure/module/t1 4> exit 3
```

Bundle Configuration

Alcatel systems support PPP, MLPPP, FR, MFR, and Cisco-compatible HDLC for WAN data transmission.

NOTE: Bundle names cannot exceed eight characters.

E1/PPP Bundle

```
Router> configure term
Router/configure> interface bundle HongKong
Router/configure/interface/bundle HongKong> link e1 4
Router/configure/interface/bundle HongKong> encapsulation ppp
Router/configure/interface/bundle HongKong> ip address 199.1.1.1 255.255.255.0
Router/configure/interface/bundle HongKong> exit 3
```

NxE1/MLPPP Bundle

```
Router> configure term
Router/configure> interface bundle Paris
Router/configure/interface/bundle Paris> link e1 5-8
Router/configure/interface/bundle Paris> encapsulation ppp
Router/configure/interface/bundle Paris> ip address 200.1.1.1 255.255.255.0
Router/configure/interface/bundle Paris> exit 3
```

NxE1/MFR Bundle

```
Router> configure term
Router/configure> interface bundle Madrid
Router/configure/interface/bundle Madrid> link e1 3-4
Router/configure/interface/bundle Madrid> encapsulation fr
Router/configure/interface/bundle Madrid> fr
Router/configure/interface/bundle Madrid/fr> intf_type dce
Router/configure/interface/bundle Madrid/fr> lmi
Router/configure/interface/bundle Madrid/fr/lmi> keepalive 12
Router/configure/interface/bundle Madrid/fr/lmi> exit
Router/configure/interface/bundle Madrid/fr> pvc 16
Router/configure/interface/bundle Madrid/fr/pvc 16> shaping cir 1920000
Router/configure/interface/bundle Madrid/fr/pvc 16> exit
Router/configure/interface/bundle Madrid/fr> enable interface
Router/configure/interface/bundle Madrid/fr> exit 4
```

Fractional E1/Cisco-compatible HDLC Bundle

```
Router> configure term
Router/configure> interface bundle London
Router/configure/interface/bundle London> link e1 3:1-6
Router/configure/interface/bundle London> encapsulation hdlc
Router/configure/interface/bundle London> hdlc keepalive 20
Router/configure/interface/bundle London> ip address 192.168.2.1 255.255.255.0
Router/configure/interface/bundle London> exit 3
```

Fractional T1/Cisco-compatible HDLC Bundle

```
Router> configure term
Router/configure> interface bundle Denver
Router/configure/interface/bundle Denver> link t1 3:1-6
Router/configure/interface/bundle Denver> encapsulation hdlc
Router/configure/interface/bundle Denver> hdlc keepalive 20
Router/configure/interface/bundle Denver> ip address 192.168.2.1 255.255.255.0
Router/configure/interface/bundle Denver> exit 3
```

T1/PPP Bundle

```
Router> configure term
Router/configure> interface bundle Boston
Router/configure/interface/bundle Boston> link t1 4
Router/configure/interface/bundle Boston> encapsulation ppp
Router/configure/interface/bundle Boston> ip address 199.1.1.1 255.255.255.0
Router/configure/interface/bundle Boston> exit 3
```

NxT1/MLPPP Bundle

```
Router> configure term
Router/configure> interface bundle Houston
Router/configure/interface/bundle Houston> link ct3 1 5-8
Router/configure/interface/bundle Houston> encapsulation ppp
Router/configure/interface/bundle Houston> ip address 200.1.1.1 255.255.255.0
Router/configure/interface/bundle Houston> exit 3
```

The following are examples of frame relay and PPP bundles configured for DS3 WAN transmission

The following is an example of a bundle configured for NxT1 transmission. Bundles can also be configured for fractional T1 and single T1 connections.

NxT1/MFR Bundle

```
Router> configure term
Router/configure> interface bundle Seattle
Router/configure/interface/bundle Seattle> link t1 3-4
Router/configure/interface/bundle Seattle> encapsulation fr
Router/configure/interface/bundle Seattle> fr
Router/configure/interface/bundle Seattle/fr> intf_type dce
Router/configure/interface/bundle Seattle/fr> lmi
Router/configure/interface/bundle Seattle/fr/lmi> keepalive 12
Router/configure/interface/bundle Seattle/fr/lmi> exit
Router/configure/interface/bundle Seattle/fr> pvc 16
Router/configure/interface/bundle Seattle/fr/pvc 16> shaping cir 3072000 bccmax 30720000 bcmin 1536000
Router/configure/interface/bundle Seattle/fr/pvc 16> exit
Router/configure/interface/bundle Seattle/fr> enable interface
Router/configure/interface/bundle Seattle/fr> exit 4
```

Frame Relay Bundle

```
Router> configure term
Router/configure> interface bundle Rome
Router/configure/ interface/bundle Rome> link e1 3
```

```
Router/configure/ interface/bundle Rome> encapsulation fr
Router/configure/ interface/bundle Rome> fr
Router/configure/ interface/bundle Rome/fr> intf_type dce
Router/configure/ interface/bundle Rome/fr> lmi
Router/configure/ interface/bundle Rome/fr/lmi> keepalive 12
Router/configure/ interface/bundle Rome/fr/lmi> exit
Router/configure/ interface/bundle Rome/fr> pvc 16
Router/configure/ interface/bundle Rome/fr/pvc 16> shaping cir 2048000
Router/configure/ interface/bundle Rome/fr/pvc 16> exit
Router/configure/ interface/bundle Rome/fr> enable interface
Router/configure/ interface/bundle Rome/fr> exit 4
```

Routing Configuration

Alcatel products support RIP, OSPF, and BGP4 routing protocols.

RIP

Configuring RIP for Ethernet 0 and WAN 1 interfaces.

```
Router> configure terminal
Router/configure> router rip
Router/configure/router rip> interface ethernet0
Router/configure/router rip/interface ethernet0> exit
Router/configure/router rip> interface wan1
Router/configure/router rip/interface wan1> exit 3
```

OSPF

Configuring OSPF between a LAN and a WAN over multiple CT3 links running MLPPP.

```
Router> configure terminal
Router/configure> interface ethernet 0
Router/configure/interface/ethernet 0> ip address 10.10.10.1 24
Router/configure/interface/ethernet 0> exit 2
Router/configure> interface bundle Dallas
Router/configure/interface/bundle Dallas> link ct3 1 1-10
Router/configure/interface/bundle Dallas> encapsulation ppp
Router/configure/interface/bundle Dallas> ip address 20.20.20.1 24
Router/configure/interface/bundle Dallas> exit 2
Router/configure> router routerid 10.10.10.1
Router/configure> router ospf
Router/configure/router/ospf> area 760
Router/configure/router/ospf/area 760> exit
Router/configure/router/ospf> interface Dallas area_id 760
Router/configure/router/ospf/interface Dallas> cost 10
Router/configure/router/ospf/interface Dallas> exit
Router/configure/router/ospf> interface ethernet0 area_id 760
Router/configure/router/ospf/interface ethernet0> cost 10
Router/configure/router/ospf/interface ethernet0> priority 0
Router/configure/router/ospf/interface ethernet0> exit 3
```

BGP4

Configuring EBGP between two different autonomous systems.

```
Router/configure> interface bundle Chicago  
Router/configure/interface/bundle Chicago> link ct3 1 1-10  
Router/configure/interface/bundle Chicago> encapsulation ppp  
Router/configure/interface/bundle Chicago> ip address 20.20.20.1 24  
Router/configure/interface/bundle Chicago> exit  
Router/configure> router bgp 10  
Router/configure/router/bgp 10> neighbor 20.20.20.2 20  
Router/configure/router/bgp 10/neighbor 20.20.20.2 20> exit 3
```

Configuring IBGP between two neighbors in the same autonomous system.

```
Router/configure> interface ethernet 0  
Router/configure/interface/ethernet 0> ip address 10.10.10.1 24  
Router/configure/interface/ethernet 0> exit  
Router/configure> router bgp 10  
Router/configure/router/bgp 10> neighbor 10.10.10.2 10  
Router/configure/router/bgp 10/neighbor 10.10.10.2 10> exit 3
```

Redistributing static and connected routes.

```
Router/configure> ip route 9.9.0.0 255.255.0.0 10.10.10.10  
Router/configure> router bgp 10  
Router/configure/router/bgp 10> redistribute static  
Router/configure/router/bgp 10> redistribute connected  
Router/configure/router/bgp 10> exit 2
```

Compact Flash Configuration

The Model OmniAccess 601 supports compact flash memory. For a list of supported flash sizes and vendors supported, refer to the release notes that shipped with the Model OmniAccess 601 router.

To configure and use compact flash memory, the following file commands are supported in TiOS 8.1 or later:

Table 15: Compact Flash File Commands

Command Name	Description
compare_boot	Compare bootrom files between flash and bootrom images
copy	Copy the file from flash to flash
copy_boot	Copy the bootrom image to flash bootrom image area
download	Download a file from the network to main flash
format	Format the flash
invalidate_boot	Invalidate the Flash Bootrom Image
ls	List the file names on the flash
rename	Rename a file on the flash
rm	Remove a file from the flash
show_boot	Display Flash Bootrom Data
upload	Upload a file to host
version	List versions of the image files from the flash

Saving Configurations

Use the following command to save new configurations to system memory.

 **NOTE:** Before powering down the router, execute a **write memory** command to save the router configuration.

```
Router> write memory
```

Use the following command to save new configurations to a network host for archiving and back-up purposes. Identify the host name or IP address, the host directory the file is being transferred to, and the new name as follows.

```
Router> write network 10.1.100.149 /maindir/config01.txt
```

 **NOTE:** When saving to a network host, the host directory and file name must already exist.

5

TROUBLESHOOTING

This chapter provides general troubleshooting tips in addition to network tests and diagnostics information for the Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router.

Alarms and System Status

The OmniAccess 601, OmniAccess 602, and OmniAccess 604 router reports various alarms upon detecting certain irregular conditions in the incoming WAN signals. For more information about the command line interface and system commands, refer to the appropriate Alcatel Command Reference Guide (either the domestic or international version).

i **NOTE:** The slot and/or interface number is required for commands displaying information on specific interfaces. If this information is not included when the command is issued, the system prompts for it. For more information about a command, access command help by typing **help <command name>** and pressing **Return**.

To view alarms, use the appropriate derivative (T1/E1) of the following command:

- **show module alarms t1**
Use this command to view the current alarms for any T1 WAN link of the system.

You can display the current configuration and operating status of each WAN link using the appropriate derivative (T1/E1) of the following command:

- **show module configuration t1**
Use this command to view the current configuration of the selected WAN link, along with its line status.

WAN Statistics

In addition to WAN status and alarms, the router collects and stores various types of performance statistics. This data helps you analyze the quality of a WAN link between the OmniAccess 601, OmniAccess 602, and OmniAccess 604 router and the far-end WAN equipment.

To display WAN statistics, use a derivative of the following command:

- **show module userstats t1**
Use this command to view user statistics gathered for the WAN interface.

Network Tests

If the system is not working correctly after verifying that the cabling is correct between the Alcatel router and the external network equipment, run these basic tests to isolate the problem to the LAN port, WAN link, or serial interface ports.

Ping Test

The Ping test checks connectivity between the Alcatel system and another host system on the LAN. If an “unknown host” error occurs after initiating this test, the destination host is either unreachable or unstable, or it does not exist. If a 100 percent packet loss error occurs, the LAN is either down or unstable.

- ping
Use this command to check connectivity with another system.

Other Tests

To isolate problems with a faulty WAN link, perform line or payload loopbacks at either end of the link and perform a BERT test. These functions isolate a problem to either the OmniAccess 601, OmniAccess 602, and OmniAccess 604, far-end equipment, interconnect cabling at either end, or the link between the two systems.

Loopback Test

To perform line and payload loopbacks at either end, use the appropriate derivative (T1/E1) of the following commands.

The following loopback command is available.

- test t1 loopback

BERT Test

This command is used to initiate a bit error rate test. The following BERT test command is available to test specific links.

- test t1 bert

The pattern parameter may have any of the following values:

Table 16 BERT Test Patterns

Pattern	Description
2^11	Pseudorandom pattern with no more than 10 consecutive zeros and no more than 11 consecutive ones.
2^15	Pseudorandom pattern with no more than 14 consecutive zeros and no more than 15 consecutive ones. Use this pattern for testing at data rates above 19.2 kbps (G.703-standard test).
2^23	Pseudorandom signal with no more than 22 consecutive zeros and no more than 23 consecutive ones. This pattern provides the highest stress of all BERT patterns.
QRW	Quasi-random waveform pattern (default). This pattern simulates live data.

Diagnostics Tips

The information in the following tables may help to isolate or resolve certain system problems.

General Symptoms

The following table provides general diagnostics information that applies the OmniAccess 601, OmniAccess 602, and OmniAccess 604 router.

Table 17 Common Symptoms and Actions

Symptom	Cause	Action
Power LED does not illuminate with power applied.	No power is applied.	<ol style="list-style-type: none"> 1 Verify that the AC power cord is functional. 2 Make sure the power supply is working properly. 3 Verify that the DC power cord is functional.
Power LED is illuminated green, but the terminal or workstation connected to the system Console port does not display a CLI command prompt or other text.	The connecting terminal is faulty or not configured properly, the interface cable is faulty, or the system Console port is faulty.	<ol style="list-style-type: none"> 1 Verify that the interface cable is connected to the console port and that the cable is properly assembled. See Table 24 on page 63 for information about the console cable. 2 Make sure the terminal is powered up.
Ethernet LINK/ACT LED is not illuminated or flashing.	The Ethernet LAN is not active or the LAN cable is faulty.	<ol style="list-style-type: none"> 1 Make sure the Ethernet LAN cable is properly connected between the hub or switch and the Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router. 2 If you are using a non-Alcatel LAN cable, refer to Table 25 on page 63 to check the cable pinouts. 3 Make sure both the router and the adjacent LAN nodes are powered on.
Ping test fails.	The Ethernet LAN is not working, the destination host is not responding, or the LAN cable(s) are faulty.	<ol style="list-style-type: none"> 1 Make sure the Ethernet LAN cable is properly connected between the hub or switch and the Alcatel router. 2 Make sure cables are properly connected between the service provider's switch, hub, or LAN and the Alcatel router. 3 If you are using a non-Alcatel LAN cable, refer to Table 25 on page 63 to check the cable pinouts. 4 Verify that the LAN is properly configured at the command line. Also, check IP addresses, subnetting, and routing configurations. 5 Use the show arp command for target addresses. 6 If excessive collisions exist on the LAN, switch to a less congested LAN segment.
WAN Status LED is not illuminated.	The link is not in service	Enable the link using the appropriate derivative of the configure module t1 enable command.
WAN Status LED is red.	The link is faulty. (The system has detected an abnormal incoming signal.)	<p>If a LOS (loss of signal) alarm is present:</p> <ol style="list-style-type: none"> 1 Check the WAN cable connections to the system. If you are using non-Alcatel cable(s), see Cable Pinouts on page 63 for more information. 2 If the cable is good, perform a BERT test on the link. 3 If the BERT test passes, check the WAN link between the two ends with external test equipment. If the link is good, the Alcatel router is faulty.

Table 17 Common Symptoms and Actions (continued)

Symptom	Cause	Action
WAN Status LED is yellow.	The link is faulty (far-end system has detected an abnormal incoming T1 signal).	Perform the BERT test (and other steps above from the far end) in conjunction with a T1 line loopback at the Alcatel router.
WAN Status LED blinks green or yellow.	The link is not properly configured at one or both ends or it is operating marginally.	<ol style="list-style-type: none"> 1 If frame errors are present, look for a configuration mismatch between the Alcatel system and the far-end system. 2 If CRC-6 errors or BPVs are present, check the Line Build Out (LBO) configuration settings at both ends.
System cannot lock onto a BERT pattern from the far end.	The BERT test has failed.	Try using another BERT pattern. If the problem continues, call your WAN service provider.
BERT error rate exceeds 1% of transmitted bits.	The link is faulty or deteriorating.	<ol style="list-style-type: none"> 1 If an all-ones or all-zeros test is in progress, check the Line Build Out (LBO) configuration. 2 If a QRW test is in progress, check for the same link configuration at the far end.

Table 17 Common Symptoms and Actions (continued)

Symptom	Cause	Action
System fails to boot, and stops at [Alcatel Boot].	<ol style="list-style-type: none"> 1 T1000.Z file is non-existent or has become corrupt 2 Flash is corrupt. 	<ol style="list-style-type: none"> 1 Connect your terminal to the Console port on the Alcatel router. 2 Configure the modem for 9600/8/None, and no flow control. 3 Power cycle the Alcatel router continuously by pressing the Enter key until you see the following prompt: [Alcatel Boot] 4 Type c, and press Enter. 5 The following prompts will be displayed. Type the bolded entries and press Enter. boot device: InPci (Lower case “L”, not “1”.) processor number: 0 host name: host file name: “The path and file name on your tftp server (e.g., tftpboot/NCM.Z)” inet on ethernet (e): x.x.x.x:fffff00 (This is the system’s Ethernet address:netmask.) inet on backplane (b): Not needed. host inet (h): x.x.x.x (The ip address of the tftp server.) gateway inet (g): x.x.x.x (Your router’s address- not necessary in the same subnet.) user (u): wind (This is a required field.) ftp password (pw) (blank = use rsh): wind (This is a required field.) flags (f): 0x8a target (tn): Alcatel startup script (s): Not needed. other (o): InPci (This is a lowercase “L”, not a “1”.) 6 At this point, you will be at the Alcatel prompt [Alcatel Boot]. Type @ and press Enter. This will boot the system from the network. 7 Once the system is booted and you have logged in, you must format the Flash by issuing the following command: file format NCM 8 When the format is complete, follow the upgrade procedures to finish the process. (See Upgrading System Software on page 42.) <p>NOTE: Remember to connect to the TFTP server that contains the T1000.Z file.</p>

A***SPECIFICATIONS***

This appendix includes technical information about the operating environment, power application, interfaces, cable pinouts, MIBs, and physical cables and adapters used to connect the Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router to a network.

System Specifications

The following tables provide various technical specifications for the Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router.

Table 18 Environment, Hardware, Memory, and Power

Environment	
Operating temperature	32° F to 104° F (0° C to 40° C)
Storage temperature	– 32° F to 158° F (0° C to 70° C)
Relative humidity	5 to 90%, non-condensing @ 104° F (40° C)
Altitude	0 to 13,123 ft. (0 to 4,018 meters)
Dimensions	
Height	1.32 inches (3.35 cm)
Width	8.65 inches (21.97 cm)
Depth	6.61 inches (16.79 cm)
Weight	1.5 lbs (.675 kg)
Memory	
Default	128 MB DRAM (OmniAccess 601) 256 MB DRAM (OmniAccess 602 and OmniAccess 604)
Default	16 MB Flash (OmniAccess 601 and OmniAccess 602) 32 MB Flash (OmniAccess 604)
Storage for multiple configurations	
AC Power	
Frequency range	50 to 60 Hz
Nominal voltage range	100 to 240 V RMS
Average power consumption	15 watts
DC Power	
Voltage range	+12 VDC
Average power consumption	11.52 watts

Table 19 Performance Monitoring

Statistics Storage	
Statistics for the last 24 hours in 15-minute increments	
Statistics for 24-hour increments	
Reporting	
G.821 performance reports	
Alarm history	
Interface statistics	
Alarms	
RRAI	receive yellow
TAIS	transmit alarm indication signal
TRAI	transmit yellow
RAIS	receive alarm indication signal
RLOF	receive loss of frame
LORC	loss of receive clock
RLOS	receive loss of signal
Threshold alarms	

WAN Interfaces

The following tables provide specifications for T1 WAN and E1 WAN interfaces.

Table 20 T1 WAN Interface

Receive line rate	1.544 Mbps \pm 32 ppm
Line code	b8zs or ami
Framing	d4 or esf
Interface ESF FDL	AT&T TR-54016-1986 AT&T TR-54016-1989 ANSI T1.403-1989
Input signal	DSX-1 0 to -24 db
Output signal	0 -7.5 db -15 db
Equalization	0 to 655 ft. (DSX-1)
Impedance	100 ohm
Connectors	RJ-48C
Timing	internal network
Pulse density	AT&T TR-62411; HDLC Inversion, forced

Table 21: E1 WAN Interface

Receive line rate	2.048 Mbps ± 50 ppm (payload = 1.984 Mbps)
Line code	HDB3
Framing	crc non-crc (ITU G.704) unframed
Input signal	0 to -32 db
Output signal	ITUG.703
Impedance	75 ohm 120 ohm
Connectors	RJ-48C
Timing	internal network

LAN Interfaces

The following table provides information about Ethernet interface.

Table 22 Specifications: Ethernet LAN Interface

Two 10/100 Base-T, 802.3 auto-negotiating, full or half-duplex
--

The following table provides information about service levels, protocols supported, and management interface connectors.

Table 23: Miscellaneous

Service Levels and Connectivity
DS0
NxDS0
T1
E1
NxT1
NxE1
10/100 Base-T
Protocol Support
WAN
PPP
MLPPP
HDLC
Frame Relay
Multilink Frame Relay (MFR)
FRF.15 (End-to-End)
FRF.16 (UNNI/NNI)
Management Interfaces
Console: RJ-45
AUX: DB-9

Cable Pinouts

The following tables provide cable pinout information for the console (RJ-45), Ethernet (RJ-45), T1 (RJ-48C), and modem (DB-9 to DB-9) or (DB-25 to DB-9) cables.

Table 24 Pinouts: Alcatel-to-Terminal Console Cable (DB-9)

Alcatel DCE Pin	Signal	Direction	Workstation DTE Pin
1	data carrier detect	←	1
2	transmit data	→	2
3	receive data	←	3
4	data terminal ready	→	4
5	signal ground	↔	5
6	data set ready	←	6
7	request to send	→	7
8	clear to send	←	8
9	not used		9

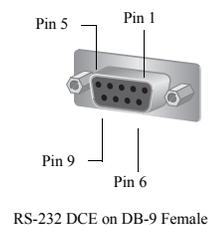


Table 25 Pinouts: Ethernet Cable (RJ-45)

Alcatel Pin	Signal	Direction	LAN Signal
1	TxD+	→	TxD+
2	TxD-	→	TxD-
3	RxD+	←	RxD+
4	not used		not used
5	not used		not used
6	RxD-	←	RxD-
7	not used		not used
8	not used		not used

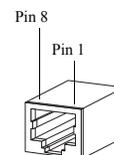


Table 26 Pinouts: WAN Cable (RJ-48C)

Pin	Signal
1	receive from network ring (R)
2	receive from network tip (T)
3	no connection
4	send toward network ring (R)
5	send toward network TIP (T)
6	not used
7	not used
8	not used

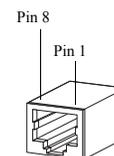


Table 27: DB-25 to RJ-45 Modem Adapter Pinouts

RJ-45 Pin	Signal	DB-25 Pin
1	no connection	-
2	no connection	-
3	RxD	3
4	Ground	7
5	Ground	7
6	TxD	2
7	no connection	-
8	no connection	-

MIBs

Alcatel systems support standard and enterprise MIBs. The following tables provide information about supported MIBs.

Table 28 Standard MIBS

Standard MIB	Description
RFC 1213	Standard MIB-II objects. The following groups or variables are not supported for this MIB: <ul style="list-style-type: none"> ▪ egp ▪ at
RFC 1315	MIB objects for frame relay DTE interface. The following SNMP SET operation variables on frDlcmiTable are not supported for this MIB: <ul style="list-style-type: none"> ▪ frDlcmiAddress ▪ frDlcmiAddrsssLen ▪ frDlcmiMaxSupportedVCs ▪ frDlcmiMulticast
RFC 1403	Defines the interoperability of using BGP as the border gateway routing protocol and OSPF as the interior gateway routing protocol.
RFC 1406	MIB objects for DS1 interface. The following Far End tables are not supported for this MIB: <ul style="list-style-type: none"> ▪ dsx1FarEndCurrentTable ▪ dsx1FarEndIntervalTable ▪ dsx1FarEndTotalTable
RFC 1643	MIB objects for Ethernet-like interface. The following variables are supported for this MIB: <ul style="list-style-type: none"> ▪ dot3StatsFCSErrors ▪ dot3StatsDeferredTransmissions ▪ dot3StatsFrameTooLongs The remainder are not supported.
RFC 1657	Describes MIB objects used for BGP4 routing protocol.
RFC 1724	Describes MIB objects used for RIP routing protocol.
RFC 1850	Describes MIB objects used for OSPF routing protocol.
RFC 1997	Facilitates and simplifies the control of routing information. This rfc suggests a grouping of destinations so that the routing decision can also be based on the identity of a group.
RFC 2096	Describes objects used for the display of CIDR multipath IP routes.
RFC 2233	MIB objects for interface table extensions including StackTable and ifXTable. IfStackTable shows the sub-layer relationships of interfaces. The following groups or variables are not supported for this MIB3: <ul style="list-style-type: none"> ▪ ifTestTable ▪ ifRcvAddressTable ▪ In the ifXTable, all High Counters (HC)(ifHC***) variables requiring 64-bit counters are not supported.
RFC 2787	Describes MIB objects used for managing Virtual Redundancy Protocol (VRRP) routers.

Table 29 Alcatel Enterprise MIBs

Alcatel MIB	Description
bundle.mib	Defines objects related to bundle and link configuration.
chassis.mib	Defines objects related to chassis serial number and model number.
config.mib	Defines objects related to saving configurations for network and flash.
dsx-tc.mib	Defines textual conventions for DSX MIBs. This MIB should be compiled before any other DSX MIBs. This MIB does not contain any objects that can be used for management operations.
dsx-te1.mib	Defines objects for interface cards that support TE1. These include configuration and statistics for ANSI/ATT/IETF and USER. These objects only pertain to Layer 1.
environment.mib	Defines environment-related objects, e.g., temperature, fans, etc.
ethernet.mib	Defines objects related to configuration and statistics for Ethernet interfaces.
fr.mib	Defines objects related to configuration and statistics for frame relay and MFR bundles.
ghdlc.mib	Defines objects related to configuration and statistics for generic HDLC bundles.
ip.mib	Defines objects related to IP addressable interfaces and static routes.
ppp.mib	Defines objects related to PPP/MLPPP bundles for configuration and statistics.
products.mib	Defines registration objects (sysObjectID) for various Alcatel products.
qos.mib	Defines objects related to QOS monitoring and configuration. This release contains only Random Early Detect (RED) objects and class-based queuing.
smi.mib	Defines the top-level object assignments for the Alcatel MIB tree. This MIB should be compiled before any other Alcatel MIBs are compiled. This MIB does not contain any objects that can be used for management operations.
snmp.mib	Defines objects related to SNMP community and trap_host configurations.
system.mib	Defines objects related to system information, e.g., IP address, host name, and DNS.

B**COMPLIANCE AND STANDARDS**

This appendix includes information about regulatory compliance and FCC conformance rules that apply to the Alcatel OmniAccess 600-series router.

Compliance

The following table provides compliance information about the Alcatel OmniAccess 601, OmniAccess 602, and OmniAccess 604 router.

Table 30 Regulatory and Compliance Standards

Safety
IEC60950 (1999) and EN60950 (2000)
UL and cUL
EMC
FCC part 15
FCC Class A digital device
IC ES003
EN300 386-2
EN61000-3-2
EN61000-3-3
VCCI
Telecom
TIA/EIA/IS-968
CS-03
TBR 12 & 13
JATE
SDT 225-100-706

FCC Conformance

This section provides information about Alcatel product conformance with FCC rules.

FCC Part 15

Alcatel products comply with FCC Part 15 (also known as CFR42, Chapter 2, Part 15) of the Federal Communications Commission (FCC) rules concerning radio frequency emissions for Class A computing devices. The following section is required by the FCC.



CAUTION: In accordance with FCC Part 15, Section 15.21, changes or modifications made by the buyer that are not expressly approved by Alcatel, could void the buyer's authority to operate this equipment.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy 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 his own expense.

You can determine whether your equipment is causing interference by turning it off. If the interference stops, it was probably caused by the Alcatel equipment. If the equipment causes interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops
- Move the equipment to one side or the other of the television or radio
- Move the equipment farther away from the television or radio

FCC Part 68

This equipment complies with Part 68 of the FCC rules. The FCC Part 68 label is located on the bottom chassis panel. This label contains the FCC Registration Number and Ringer Equivalence Number (REN) for this equipment. If requested, this information must be provided to your telephone company.

Connection to the telephone network should be made by using standard modular telephone jacks, type RJ-48C. The RJ-48C plug and/or jacks used must comply with the FCC Part 68 rules.

MFRs Port Identifier	Facilities Interface Code	Service Order Code	Network Connectors
WAN Ports 1-2	04DU9-1SN 04DU9-1ZN	6.0N	RJ-48C

Incidence of Harm

If your telephone equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify you as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

Rights of the Telephone Company

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper functioning of your equipment. If they do, you will be notified in advance in order for you to make necessary modification to maintain uninterrupted service.

Proper Disposal of Alcatel Equipment



The OmniAccess 601, 602, and 604 routers at end of life are subject to separate collection and treatment in the EU Member States, Norway, and Switzerland and therefore are marked with the symbol shown at the left. Treatment applied at end of life of these products in these countries shall comply with the applicable national laws implementing Directive 2002/96/EC on Waste of Electrical and Electronic Equipment (WEEE).

The WEEE Directive 2002/96/EC and RoHS (Restriction of Hazardous Substances) Directive 2002/95/EC sets collection, recycling and recovery targets for various categories of electrical products and their waste.

The Restriction on Hazardous Substances Directive (RoHS) (2002/95/EC), which accompanies the WEEE Directive, bans the use of heavy metals and brominated flame-retardants in the manufacture of electrical and electronic equipment. Specifically, restricted materials under the RoHS Directive are Lead (Including Solder used in PCB's), Cadmium, Mercury, Hexavalent Chromium, and Bromine.

Alcatel declares compliance with the European Union (EU) WEEE Directive (2002/96/EC). For more information on WEEE, refer to:

<http://www.dti.gov.uk/sustainability/weee/>



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CORPORATE POLICY

Standard Warranty

Hardware

Alcatel warrants that the Hardware sold hereunder shall be free of defects in workmanship for a period of one (1) year from the Date of Shipment. In the event that Alcatel receives notice from the Customer during the warranty period that any Hardware does not conform to this warranty, Alcatel, shall, at its sole option, either repair or replace the non-conforming Hardware. If said notice is received within ninety (90) days of shipment from the Alcatel factory in 26801 West Agoura Road Calabasas, CA 91301, such replacement shall be "Next Business Day." If said notice is received after ninety (90) days from shipping from Alcatel, the Customer must ship the defective Hardware to Alcatel for repair. Such repair shall take no more than ten (10) business days. Cost of shipping to Alcatel shall be at the Customer's expense. Cost of shipping the repaired unit to the Customer shall be at Alcatel's expense. Under the terms of any such warranty, Hardware may be replaced with refurbished or new Hardware at Alcatel's option.

For instructions on obtaining Return Material Authorization (RMA), which is required before Hardware under warranty can be returned to Alcatel, refer to [Procedures](#) below.

Software

Alcatel warrants that the media on which the Software is recorded shall be free from defects in material and workmanship under normal use for a period of ninety (90) days from the Date of Shipment. The Customer's sole and exclusive remedy, and Alcatel sole and exclusive liability, shall be replacement of the media in accordance with this limited warranty. The Customer shall be entitled to free Software upgrades (bug fixes and feature enhancements not listed as separate cost options of the Alcatel price list) from the Alcatel website for the first ninety (90) days after shipment from Alcatel.

Technical Support

Online, phone, and email Technical Support is provided free of charge for a period of ninety (90) days from the Date of Shipment. Technical Support is available online at the Alcatel website: www.alcatel.com, by phone at: 800 995 2696 (within the United States) or 800 995 4507 (outside the United States), or by email at: support@ind.alcatel.com. Technical Support provides the following services:

- Technical Support will assist the Customer in determining if problems encountered with Alcatel products are due to errors or limitations in the current Alcatel operating system and advise the Customer on the availability of Software updates or workarounds.
- Technical Support will provide assistance to the Customer regarding questions concerning the installation of Software updates and configuration questions arising from Software updates.
- Technical Support will work with the Customer to develop and implement appropriate network configurations.

Procedures

A product may only be returned with the prior written approval of Alcatel. Such approval shall reference a Return Material Authorization (RMA) number issued by authorized Alcatel Technical Support personnel. To contact Alcatel Technical Support, call 800 995 2696 (within the United States) or 800 995 4507 (outside the United States), or email at support@ind.alcatel.com. Transportation costs, if any, incurred in connection with the return of a defective item to Alcatel shall be borne by the Customer. Transportation costs incurred in connection with the re-delivery of a repaired or replaced item to the Customer shall be borne by Alcatel. However, such costs shall be borne by the Customer if Alcatel reasonably determines that the product is not defective. If Alcatel determines, in its sole discretion, that the allegedly defective product is not covered by the terms of the warranty provided hereunder, or that a warranty claim is made after the warranty period, the cost of repair by Alcatel, including all shipping expenses, shall be reimbursed by the Customer. Alcatel, shall have no liability with respect to data contained in any system returned to Alcatel.

For complete contact information for Alcatel, see [Contacting Alcatel](#) below.

Exclusions

The foregoing warranties and remedies are for the Customer's exclusive benefit and are non-transferable. Any and all warranties shall be void regarding System components that are damaged or rendered unserviceable by: (1) acts or omissions of non-Alcatel personnel; (2) misuse, theft, vandalism, fire, water, or other peril; (3) alterations of or additions to the System or any element thereof performed by personnel not certified by Alcatel to perform such alterations and additions or (4) the Customer's failure to meet environmental specifications.

Non-Alcatel Products

In circumstances where a product not manufactured or created by Alcatel is sold by Alcatel hereunder to complete an order, the Customer's sole remedy shall be pursuant to the original manufacturer's/licensor's warranty to the Customer, to the extent permitted by the original manufacturer/licensor.

Disclaimer of Warranty

The limited warranties referred to in paragraphs above shall be in lieu of all other warranties whether expressed, implied, statutory, or otherwise. Alcatel specifically disclaims any implied warranties of merchantability or fitness for a particular purpose.

Limitation of Liability

Alcatel and its suppliers exclude themselves from any liability for any lost revenue or profit, loss of business, loss of information or data, or for special, indirect, consequential, incidental, or punitive damages of any kind caused out of or in connection with the sale, installation, maintenance, use, performance, failure, or interruption of its products, even if Alcatel and its authorized resellers have been advised of the possibility of such damages. In no event shall Alcatel or its supplier's total liability to the Customer, whether in contract negligence, strict liability, tort or otherwise, exceed the price paid by the Customer. The foregoing limitations shall apply even if any remedy provided herein shall fail its essential purpose.

Equipment Malfunction

In the event this equipment should fail to operate properly, disconnect the unit from the telephone line and contact Alcatel Technical Support at the address and phone number listed in below. **DO NOT DISASSEMBLE THIS EQUIPMENT.** This equipment does not contain any user-serviceable components. If the equipment is causing harm to the network, the telephone company may request that you disconnect this equipment from the telephone network until the problem is resolved.



Contacting Alcatel

Telephone	818 880 3500
Fax	818 880 3505
Mail	26801 West Agoura Road Calabasas, CA 91301
Sales	818 880 3500
Support	800 995 2696 (US) 800 995 4507 (International)
Email	support@ind.alcatel.com
Internet	http://eservice.ind.alcatel.com
