AVAYA

Avaya Communication Manager

Little Instruction Book

for Basic Diagnostics

Release 2.0
555-233-758
Issue 6
November 2003

Notice

Every effort was made to ensure that the information in this document was complete and accurate at the time of printing. However, information is subject to change.

Warranty

Avaya Inc. provides a limited warranty on this product. Refer to your sales agreement to establish the terms of the limited warranty. In addition, Avaya's standard warranty language as well as information regarding support for this product, while under warranty, is available through the following Web site: http://www.avaya.com/support.

Preventing Toll Fraud

"Toll fraud" is the unauthorized use of your telecommunications system by an unauthorized party (for example, a person who is not a corporate employee, agent, subcontractor, or is not working on your company's behalf). Be aware that there may be a risk of toll fraud associated with your system and that, if toll fraud occurs, it can result in substantial additional charges for your telecommunications services.

Avaya Fraud Intervention

If you suspect that you are being victimized by toll fraud and you need technical assistance or support, in the United States and Canada, call the Technical Service Center's Toll Fraud Intervention Hotline at 1-800-643-2353.

How to Get Help

For additional support telephone numbers, go to the Avaya support Web site: http://www.avaya.com/support.

If you are:

- Within the United States, click the *Escalation Management* link. Then click the appropriate link for the type of support you need.
- Outside the United States, click the *Escalation Management* link. Then click the *International Services* link that includes telephone numbers for the international Centers of Excellence.

Providing Telecommunications Security

Telecommunications security (of voice, data, and/or video communications) is the prevention of any type of intrusion to (that is, either unauthorized or malicious access to or use of) your company's telecommunications equipment by some party.

Your company's "telecommunications equipment" includes both this Avaya product and any other voice/data/video equipment that could be accessed via this Avaya product (that is, "networked equipment").

An "outside party" is anyone who is not a corporate employee, agent, subcontractor, or is not working on your company's behalf. Whereas, a "malicious party" is anyone (including someone who may be otherwise authorized) who accesses your telecommunications equipment with either malicious or mischievous intent.

Such intrusions may be either to/through synchronous (time-multiplexed and/or circuit-based) or asynchronous (character-, message-, or packet-based) equipment or interfaces for reasons of:

- Utilization (of capabilities special to the accessed equipment)
- Theft (such as, of intellectual property, financial assets, or toll facility access)
- Eavesdropping (privacy invasions to humans)
- Mischief (troubling, but apparently innocuous, tampering)
- Harm (such as harmful tampering, data loss or alteration, regardless of motive or intent)

Be aware that there may be a risk of unauthorized intrusions associated with your system and/or its networked equipment. Also realize that, if such an intrusion should occur, it could result in a variety of losses to your company (including but not limited to, human/data privacy, intellectual property, material assets, financial resources, labor costs, and/or legal costs).

Responsibility for Your Company's Telecommunications Security

The final responsibility for securing both this system and its networked equipment rests with you - Avaya's customer system administrator, your telecommunications peers, and your managers. Base the fulfillment of your responsibility on acquired knowledge and resources from a variety of sources including but not limited to:

- Installation documents
- System administration documents
- Security documents
- Hardware-/software-based security tools
- Shared information between you and your peers
- Telecommunications security experts

To prevent intrusions to your telecommunications equipment, you and your peers should carefully program and configure:

- Your Avaya-provided telecommunications systems and their interfaces
- Your Avaya-provided software applications, as well as their underlying hardware/software platforms and interfaces
- Any other equipment networked to your Avaya products

TCP/IP Facilities

Customers may experience differences in product performance, reliability and security depending upon network configurations/design and topologies, even when the product performs as warranted.

Standards Compliance

Avaya Inc. is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Avaya Inc. The correction of interference caused by such unauthorized modifications, substitution or attachment will be the responsibility of the user. Pursuant to Part 15 of the Federal Communications Commission (FCC) Rules, the user is cautioned that changes or modifications not expressly approved by Avaya Inc. could void the user's authority to operate this equipment.

Product Safety Standards

This product complies with and conforms to the following international Product Safety standards as applicable:

Safety of Information Technology Equipment, IEC 60950, 3rd Edition including all relevant national deviations as listed in Compliance with IEC for Electrical Equipment (IECEE) CB-96A.

Safety of Information Technology Equipment, CAN/CSA-C22.2
No. 60950-00 / UL 60950, 3rd Edition

Safety Requirements for Customer Equipment, ACA Technical Standard (TS) 001 - 1997

One or more of the following Mexican national standards, as applicable: NOM 001 SCFI 1993, NOM SCFI 016 1993, NOM 019 SCFI 1998

The equipment described in this document may contain Class 1 LASER Device(s). These devices comply with the following standards:

- EN 60825-1, Edition 1.1, 1998-01
- 21 CFR 1040.10 and CFR 1040.11.

The LASER devices operate within the following parameters:

- Maximum power output: -5 dBm to -8 dBm
- Center Wavelength: 1310 nm to 1360 nm

Luokan 1 Laserlaite
Klass 1 Laser Apparat

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposures. Contact your Avaya representative for more laser product information.

Electromagnetic Compatibility (EMC) Standards

This product complies with and conforms to the following international EMC standards and all relevant national deviations:

Limits and Methods of Measurement of Radio Interference of Information Technology Equipment, CISPR 22:1997 and EN55022:1998.

Information Technology Equipment – Immunity Characteristics – Limits and Methods of Measurement, CISPR 24:1997 and EN55024:1998, including:

- Electrostatic Discharge (ESD) IEC 61000-4-2
- Radiated Immunity IEC 61000-4-3
- Electrical Fast Transient IEC 61000-4-4
- Lightning Effects IEC 61000-4-5
- Conducted Immunity IEC 61000-4-6
- Mains Frequency Magnetic Field IEC 61000-4-8
- Voltage Dips and Variations IEC 61000-4-11
- Powerline Harmonics IEC 61000-3-2
- Voltage Fluctuations and Flicker IEC 61000-3-3

Federal Communications Commission Statement

Part 15:

Note: 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.

Part 68: Answer-Supervision Signaling

Allowing this equipment to be operated in a manner that does not provide proper answer-supervision signaling is in violation of Part 68 rules. This equipment returns answer-supervision signals to the public switched network when:

- answered by the called station,
- answered by the attendant, or
- routed to a recorded announcement that can be administered by the customer premises equipment (CPE) user.

This equipment returns answer-supervision signals on all direct inward dialed (DID) calls forwarded back to the public switched telephone network. Permissible exceptions are:

- A call is unanswered.
- A busy tone is received.
- A reorder tone is received.

Avaya attests that this registered equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

REN Number

For MCC1, SCC1, CMC1, G600, and G650 Media Gateways:

This equipment complies with Part 68 of the FCC rules. On either the rear or inside the front cover of this equipment is a label that contains, among other information, the FCC registration number, and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

For G350 and G700 Media Gateways:

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the rear of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. The digits represented by ## are the ringer equivalence number (REN) without a decimal point (for example, 03 is a REN of 0.3). If requested, this number must be provided to the telephone company.

The REN is used to determine the quantity of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed 5.0. To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company.

REN is not required for some types of analog or digital facilities.

Means of Connection

Connection of this equipment to the telephone network is shown in the following tables.

For MCC1, SCC1, CMC1, G600, and G650 Media Gateways:

Manufacturer's Port Identifier	FIC Code	SOC/REN/ A.S. Code	Network Jacks
Off/On premises station	OL13C	9.0F	RJ2GX, RJ21X, RJ11C
DID trunk	02RV2-T	0.0B	RJ2GX, RJ21X
CO trunk	02GS2	0.3A	RJ21X
	02LS2	0.3A	RJ21X
Tie trunk	TL31M	9.0F	RJ2GX
Basic Rate Interface	02IS5	6.0F, 6.0Y	RJ49C
1.544 digital interface	04DU9-BN	6.0F	RJ48C, RJ48M
	04DU9-IKN	6.0F	RJ48C, RJ48M
	04DU9-ISN	6.0F	RJ48C, RJ48M
120A3 channel service unit	04DU9-DN	6.0Y	RJ48C

For G350 and G700 Media Gateways:

Manufacturer's Port Identifier	FIC Code	SOC/REN/ A.S. Code	Network Jacks
Ground Start CO trunk	02GS2	1.0A	RJ11C
DID trunk	02RV2-T	AS.0	RJ11C
Loop Start CO trunk	02LS2	0.5A	RJ11C
1.544 digital interface	04DU9-BN	6.0Y	RJ48C
	04DU9-DN	6.0Y	RJ48C
	04DU9-IKN	6.0Y	RJ48C
	04DU9-ISN	6.0Y	RJ48C
Basic Rate Interface	02IS5	6.0F	RJ49C

If the terminal equipment (for example, the media server or media gateway) 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 the customer 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.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment, for repair or warranty information, please contact the Technical Service Center at 1-800-242- 2121 or contact your local Avaya representative. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. It is recommended that repairs be performed by Avaya certified technicians.

The equipment cannot be used on public coin phone service provided by the telephone company. Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

This equipment, if it uses a telephone receiver, is hearing aid compatible.

Canadian Department of Communications (DOC) Interference Information

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

DECLARATIONS OF CONFORMITY

United States FCC Part 68 Supplier’s Declaration of Conformity (SDoC)

Avaya Inc. in the United States of America hereby certifies that the equipment described in this document and bearing a TIA TSB-168 label identification number complies with the FCC’s Rules and Regulations 47 CFR Part 68, and the Administrative Council on Terminal Attachments (ACTA) adopted technical criteria.

Avaya further asserts that Avaya handset-equipped terminal equipment described in this document complies with Paragraph 68.316 of the FCC Rules and Regulations defining Hearing Aid Compatibility and is deemed compatible with hearing aids.

Copies of SDoCs signed by the Responsible Party in the U. S. can be obtained by contacting your local sales representative and are available on the following Web site: http://www.avaya.com/support.

All Avaya media servers and media gateways are compliant with FCC Part 68, but many have been registered with the FCC before the SDoC process was available. A list of all Avaya registered products may be found at: http://www.part68.org by conducting a search using “Avaya” as manufacturer.

European Union Declarations of Conformity

Avaya Inc. declares that the equipment specified in this document bearing the “CE” (*Conformité Europeénne*) mark conforms to the European Union Radio and Telecommunications Terminal Equipment Directive (1999/5/EC), including the Electromagnetic Compatibility Directive (89/336/EEC) and Low Voltage Directive (73/23/EEC). This equipment has been certified to meet CTR3 Basic Rate Interface (BRI) and CTR4 Primary Rate Interface (PRI) and subsets thereof in CTR12 and CTR13, as applicable.

Copies of these Declarations of Conformity (DoCs) can be obtained by contacting your local sales representative and are available on the following Web site: http://www.avaya.com/support.

Japan

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

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

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FAX 1.800.457.1764 or 1.207.626.7269

Write: Globalware Solutions
200 Ward Hill Avenue
Haverhill, MA 01835 USA
Attention: Avaya Account Management

E-mail: totalware@gwsmail.com

For the most current versions of documentation, go to the Avaya support Web site: http://www.avaya.com/support.

Contents

Welcome

Why this book?

You've told us that you want more information on how to keep your system up and running. This book contains the basic technical knowledge you need to understand your phone system running Avaya Communication Manager. There are some differences between the different versions of the software, but the information provided will help you with the most basic operations.

We wrote this book for you!

Use this book if you are a system administrator. Use it before you attend training, and take it with you to your class. Mark it up, make notes in it, and use it daily even after you complete training.

This book is for you if:

- You are a new administrator taking over from someone else.
- You are filling in for your company's regular administrator.
- You want to refresh your memory.

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Information contained in this book

The *Little Instruction Book for Basic Diagnostics* is divided into sections to guide you through your day-to-day operations.

Keeping system information explains what kind of baseline information you should keep and how to retrieve the information from your switch. It also shows you how to verify that your backups are successful.

Checking system status explains different problem-solving strategies. It also tells you how to view the status of your system and any changes that have been made.

Solving common problems tells you what questions to ask to solve common problems. It walks you through examples of diagnosing and correcting typical problems, and explains how to solve basic call center problems.

Alarms and errors provides information on maintenance reports, frequently- encountered error types, and how to prevent some alarms and errors.

Using features to troubleshoot explains how to use specific features to determine the status of phones, trunk lines, and facilities.

Solving IP and H.323 problems tells you how to solve basic IP softphone and IP trunk and H.323 trunk problems.

Contacting Avaya explains how to escalate problems to Avaya and lists what information you should gather before you call.

How to use this book

Become familiar with the following terms and conventions. They help you use this book with Communication Manager.

- A “form” is the display of fields and prompts that appear on a terminal monitor screen. See Figure 1, Help form for status command, on page 30 for an example of a form and how it is shown in this book.
- We use the term “phone” in this book. Other Avaya books might refer to phones as telephones, voice terminals, stations, or endpoints.
- Keys and buttons are printed as follows: **KEY**.
- Titles of forms are printed in a bold constant width italic font, as follows: ***FORM DISPLAY***.
- To move to a certain field on a form, you can use the **TAB** key, directional arrows, or the **ENTER** key on your keyboard.
- If you use terminal emulation software, you need to determine what keys correspond to **ENTER**, **RETURN**, **CANCEL**, **HELP**, **NEXT PAGE**, etc.
- Commands are printed in a bold constant width font, as follows: **`command`**.
- Variables are printed in a bold constant width italic font, as follows: ***`variable`***.
- We show complete commands in this book, but you can always use an abbreviated version of the command. For example, **`list configuration station`** can be typed as **`list config sta`**.
- We show commands and forms from the newest release of Communication Manager and refer to the most current books. Substitute the appropriate commands for your system and refer to the manuals you have available.

- If you need help constructing a command or completing a field, remember to use **HELP**.
  - When you press **HELP** at any point on the command line, a list of available commands appears.
  - When you press **HELP** with your cursor in a field on a form, a list of valid entries for that field appears.
- Text (other than commands) you should type in a form are printed in a bold font, as follows: **text**.
- The status line or message line can be found near the bottom of your monitor. This is where the system displays messages for you. Check the message line to see how the system responds to your input. Write down the message if you need to call the helpline.
- When a procedure requires you to press **ENTER** to save your changes, the form you were on clears. The cursor then returns to the command prompt. The message line shows "`command successfully completed`" to indicate that the system accepted your changes.

Systems, circuit packs, and media modules

- The word "system" is a general term encompassing all references to an Avaya media server running Communication Manager.
- Circuit pack codes (for example, TN780 or TN2182B) are shown with the *minimum acceptable* alphabetic suffix (like the "B" in the code TN2182B). Generally, an alphabetic suffix higher than that shown is also acceptable. However, not every *vintage* of either the minimum suffix or a higher suffix code is necessarily acceptable. A suffix of "P" means that firmware can be downloaded to that circuit pack.

- The term “cabinet” refers to the external casing (shell) of an MCC1, SCC1, CMC1, G600, or G650 Media Gateway. Circuit packs are installed in the cabinet in a specific carrier (row), and in a specific slot within that carrier.
- The designation “***UUCSSpp***” refers to the location (address) of a circuit pack in cabinet-carrier-slot-port order. In this address designation, ***UU*** is the cabinet number, ***C*** is the carrier letter, ***SS*** is the slot number of a specific circuit pack, and ***pp*** (if applicable) is a specific port on the circuit pack. A sample address for port 4 on a circuit pack on an MCC1 Media Gateway might look like this: 02A0704.
- A G350 or G700 Media Gateway uses media modules instead of circuit packs. The media module address is designated as ***XXX*****V*****Spp***, where ***XXX*** is the administered number of the media gateway, **V*****S*** is the slot number of a specific media module location on the media gateway, and ***pp*** (if applicable) is a specific port on the media module. The **V** is not a variable and needs to be included in the command exactly where shown. A sample address for port 4 in slot V3 on an MM711 Media Module on a G700 Media Gateway might look like this: 002V304.

  If an S8300 Media Server is installed in a G700 Media Gateway, it must be installed in slot number V1.

Admonishments

We use the following icons in this book:

NOTE:
Draws attention to information.

CAUTION:
Indicates possible harm to software, possible loss of data, or possible service interruptions.

SECURITY ALERT:
Indicates when system administration might leave your system open to toll fraud.

Security concerns

Toll fraud is the theft of long distance service. When toll fraud occurs, your company is responsible for charges. See the *Avaya Toll Fraud and Security Handbook, 555-025-600,* for information on how to prevent toll fraud. You can also call the Avaya Security Hotline at 1 800 643 2353 or contact your Avaya representative.

Trademarks

Related books

There are two companions to this book:

- The *Avaya Communication Manager Little Instruction Book for Basic Administration*, 555-233-756
- The *Avaya Communication Manager Little Instruction Book for Advanced Administration*, 555-233-757

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The *Administrator's Guide for Avaya Communication Manager*, 555-233-506, explains system features and interactions in greater detail. The Administrator's Guide provides a reference how to plan, operate, and administer your system.

NOTE:
Prior to April 1997, this same information was in two separate books: the *DEFINITY Implementation* and the *DEFINITY Feature Description* books.

We also refer to the *Overview for Avaya Communication Manager, 555-233-767, Administration for Network Connectivity for Avaya MultiVantage™ Software*, 555-233-504, and the *Avaya Products Security Handbook, 555-025-600.*

Tell us what you think!

Tell us what you like or do not like about this book. Although we cannot respond personally to all your feedback, we read each response. Your suggestions make this book more useful for everyone.

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How to get this book on the Web

If you have internet access, you can view and download the latest version of *Avaya Communication Manager Little Instruction Book for Basic Diagnostics*. To view this book, you must have a copy of Acrobat Reader.

NOTE:
If you do not have Acrobat Reader, you can get a free copy at http://www.adobe.com.

To get the latest version of this book:

1. Go to the Avaya customer support Web site at http://www.avaya.com/support/.
2. Click the **Product Documentation** link.
3. Type **555-233-758** (the document number) in the **Search Support** text box, then click **Go**.

How to order more copies

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How to get help

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If you are:

- Within the United States, click the *Escalation Management* link. Then click the appropriate link for the type of support you need.
- Outside the United States, click the *Escalation Management* link. Then click the *International Services* link, which includes phone numbers for the international Centers of Excellence.

You can also access the following services in the USA. You might need to purchase an extended service agreement to use some of these services. Contact your Avaya representative for more information.

Avaya Communication Manager Helpline (for help with feature administration and system applications)	1 800 225 7585

Avaya National Customer Care Center Support Line (for help with maintenance and repair)	1 800 242 2121
Avaya Toll Fraud Intervention	1 800 643 2353
Avaya Corporate Security	1 800 822 9009

1 Keeping system information

This section explains what kind of system records to keep and how to collect the data. It also tells you how to make sure your backups are successful.

Keeping baseline information

Baseline information consists of:

- the original switch configuration
- any upgrades and changes
- switch capabilities (for example, if your company uses a call center or telecommuting)

The very best set of records starts with information on the original set up of your switch. Most companies keep at least one paper copy of baseline information, with duplicate paper or electronic copies kept off site. Update this information any time you make changes to your switch.

Use baseline information to help you diagnose problems with your phone system. Also, this information is crucial in the event you need to reconstruct the information on your switch, such as in a disaster recovery.

NOTE:
Avaya Warranty and Service Agreement customers are automatically enrolled in the Emergency Service Plan. The plan provides coverage for disasters such as fire, flood, and storms. Under this plan, Avaya restores basic phone service on a priority basis. We can also lease a system running *Communication Manager* to Warranty and Service Agreement customers or can ship a replacement system, if necessary.

Retrieving baseline information

You can retrieve much of the hardware and configuration information you need right from your System Administration Terminal (SAT).

- Use **`display`** commands to see individual records.
- Use **`list`** commands to view a group of records.

If you are using an SAT with a local printer attached, you can also:

- Add **`print`** to display or list commands to create paper copies of the records from your switch.
- Add **`schedule`** to a **`display`** or **`list`** command to create paper copies of the records at the system printer (if administered).

NOTE:
Be sure your printer is set up to print from the SAT. See the *Avaya Communication Manager Little Instruction Book for Basic Administration, 555-233-756,* for more information.

Keep track of the equipment and settings listed in the following table. Use the commands in the table to access the appropriate screens.

switch component	information	group records	individual records
switch configuration	the features your company purchased	display system parameters customer-options	
switch capacity	capacities enabled on your system	display capacity	
cabinets and carriers	number of cabinets and carriers	list cabinet	
circuit packs	board type and vintage	list configuration all	display circuit-packs
trunks	type of service	list trunk-group	display trunk-group *n*
phones	model number, extension number, name, location, cable, and jack	list station list extension-type	display station *n* display extension *n*

switch component	information	group records	individual records
class of restriction (COR)	calling privileges	list cor	display cor *n*
class of service (COS)		display cos	
feature access codes		display feature-access-codes	
feature parameters		display system-parameters features	
dial plan		display dialplan	
coverage paths		list coverage path	display coverage path *n*
announcements	extension, type, name, port	display announcements	
vectors	Vector Directory Number (VDN), vector number	list vector list VDN	display vector *n* display VDN *n*
hunt groups		list hunt-group	display hunt-group *n*

Securing backups

Backup your system regularly to keep your records up to date.

- Use **`save translations`** to backup changes to your switch.
- Use **`save announcements`** to backup changes to announcements.

To verify that a backup was successful, review the `Command Completion Status` field.

- If the status field says `Success`, then the backup of the translations or the announcements was successful.
- If the status field does not say `Success`, record the Error Code and use the following list to determine what happened:
  - 1 = unable to save to active-spe device
  - 2 = unable to save to standby-spe device

NOTE:

See the *Avaya Communication Manager Little Instruction Book for Basic Administration, 555-233-756,* for more information on performing backups.

2 Checking system status

This section explains how to use switch information to keep track of the general health and status of your system. It tells you how to access system-wide and individual information, and describes how to check when changes are made to your system.

Problem solving strategies

As an administrator, one of your responsibilities is to check the status of your switch to determine whether it is performing properly. This is a proactive approach to system diagnostics.

- Use the **`status`** command to check on the operation of your system. See Viewing the system status on page 30 for more information.
- Use **`display alarms`** and **`display errors`** to closely monitor your switch. See Alarms and errors on page 49 for more information.

Another of your responsibilities is to respond to reports of phone problems from your users. You generally have to use a reactive approach to system diagnostics to perform this important function. See Solving common problems on page 37 for more information.

Viewing the system status

Use system status screens to monitor various parts of your system. To be prepared for problems, you'll want to become familiar with what these reports look like when your system is operating well.

To view a list of the types of status reports you can run:

1. Type **`status`** and press **HELP**.

   The ***HELP*** form appears.

   This form lists all the possible items for which you can request status.

Figure 1: Help form for status command

```
Please enter one of the following object command words:
access-endpoint          hardware-group           psa
administered-connection  health                  processor-channels
attendant                interface                remote-access
bri-port                 journal-link             signaling-group
card-mem                 link                     sp-link
cdr-link                 logins                   station
clan-ip                  mst                      synchronization
clan-port                packet-interface         sys-link
cleared-alarm-notif      periodic-scheduled       system
conference               pms-link                 trunk
data-module              pri-endpoint             tti
esm
```

Let us look at a few example status screens.

Viewing general system operations

Use the ***STATUS HEALTH*** form to determine whether everything is operating smoothly and to see a summary of your system status. You can use this report to look at alarms, see if anything is busied out, or check for any major problems.

To view the ***STATUS HEALTH*** form:

1 Type **status health** and press **ENTER**.

The ***STATUS HEALTH*** form appears.

Figure 2: Status health form

```
_______: status health (page 1) 2/26/2002 2:27:15 PM

SPE: B/auto     A/functional          OCC:St:  2%   Sm:
23%  Cp:  1%  Idl: 74%
PNC: B-PNC/auto A-PNC/functional   ALARMS:Maj: 16  Min:   3 Wrn: 505
Pwr: comm Sync:primary  Logins:5  BUSYOUT:Trk:  0  Stn:   0 Oth:   0

Cab EmTr  Maj Min Wrn PNC              Cab EmTr  Maj Min Wrn PNC
 1  auto-   0   1  57 up                __ _____ ___ ___ ___ ___
 2  auto-   0   0  51 up                __ _____ ___ ___ ___ ___
 3  auto-  16   1  54 up                __ _____ ___ ___ ___ ___
 4  auto-   0   1 103 up                __ _____ ___ ___ ___ ___
 5  auto-   0   0 240 up                __ _____ ___ ___ ___ ___
```

Viewing the status of a station

Use **`status station`** to view the setup of each individual station. This command is often the first place to gather information when a user reports a problem with a phone.

For example, if a user tells you that the phone rings a short ring and the call goes directly to coverage, use **`status station`** to see if send all calls (SAC) is activated on the user's extension.

To view the status of extension 7236:

1. Type **`status station`** ***`7236`*** and press **ENTER**.

   The ***GENERAL STATUS*** form appears. In our example, you can see that this 6408D+ phone is working properly (in-service/on-hook), but send all calls (SAC) is active. This would explain why they cannot answer their calls before they go to coverage.

Figure 3: General Status form

```
                              GENERAL STATUS
                 Type: 6408D+              Service State: in-service/on-hook
            Extension: 7236                Download Status: not-applicable
                 Port: 02A0306               SAC Activated? yes
          Call Parked? no                 User Cntrl Restr: none
      Ring Cut Off Act? no                Group Cntrl Restr: none
Active Coverage Option: 1               CF Destination Ext:
       Message Waiting:
       Connected Ports:

              ACD STATUS                          HOSPITALITY STATUS
Grp/Mod Grp/Mod Grp/Mod Grp/Mod Grp/Mod      Awaken At:
   /       /       /       /       /          User DND: not activated
   /       /       /       /       /         Group DND: not activated
   /       /       /       /       /       Room Status: non-guest room
       On ACD Call? no   Occupancy: 0.0
```

Viewing the status of your cabinets

Use the ***SYSTEM STATUS CABINET*** form to become familiar with the service state of your individual cabinets. This form also reports any alarms against your cabinets.

To view the status of your system cabinets:

1 Type **status system all-cabinets** and press **ENTER**.

The ***SYSTEM STATUS CABINET*** form appears.

Figure 4: System Status Cabinet form

```
                          SYSTEM STATUS CABINET 1
                        SELECT  SPE ALARMS    TONE/  SERVICE SYSTEM  SYSTEM
SPE  MODE                 SWITCH  MAJOR MINOR   CLOCK  STATE   CLOCK   TONE
1A   standby              auto     0    0       1A     in     standby standby
1B   active               spe b    0    0       1B     in     active  active
   SERVICE   CONTROL  DEDICATED        SERVICE  BUS ALARMS    BUS   OPEN BUS
TDM  STATE    CHANNEL    TONES      PKT   STATE  MAJOR MINOR   FAULTS  LEADS
1A   in        n          n
1B   in        y          y        1    in      n     n      0       0

EMERGENCY     SELECT                    SERVICE              CABINET
TRANSFER      SWITCH      EXP-LINK      STATE     MODE       TYPE
1A            on          01A01-02A01    in       active     MCC
1B            auto-off    01B01-02B02    in       standby
```

Using a number of the status commands can go a long way in helping you know if your system is running OK.

Viewing changes to the system (history report)

Use the history report to see what kind of changes have been made to your system. For example, if users report that the coverage on their phones is not working, check the history report to see if any changes have been made to a coverage path.

The history report lists the date, time, login level, action taken, and the form (object) for any change to your system. The history report does not show you exactly what data or field was changed.

To view the history report and review the recent changes to your system:

1. Type **`list history`** and press **ENTER**.

   The ***HISTORY*** form appears.

Figure 5: History form

```
                                  HISTORY
          Date of Loaded Translation: 2:48pm Sat Jul 26, 1997
Date  Time Port      Login   Actn  Object       Qualifier
3/16  2:33 INADS     inads   logn
3/16  1:16 INADS     inads   logf
3/16  1:16 MGR1      craft   logf
3/16  0:39 INADS     inads   logn
3/15  7:17 MGR1      craft   cha   hunt-group   2
3/15  7:05 MGR1      craft   cha   system-param features
3/15  7:04 INADS     inads   logf
3/15  7:04 MGR1      craft   cha   system-param features
3/15  7:04 MGR1      craft   cha   coverage     path 1
3/15  7:03 MGR1      craft   cha   system-param features
3/15  6:09 MGR1      craft   cha   console-para
3/15  6:06 MGR1      craft   add   station      next
3/15  6:06 MGR1      craft   add   station      next
3/15  5:35 MGR1      craft   cha   console-para
```

How can Avaya help?

With an Avaya Service Agreement or warranty coverage, your system running Communication Manager is linked to Avaya Expert Systems for constant remote monitoring, proactive diagnosis and trouble resolution. This electronic monitoring is so effective that 70% of all troubles are remotely identified, diagnosed, and resolved. This round-the-clock coverage is the best in the industry, helping to provide maximum up-time for your voice communication system.

Also, Avaya is the first in the industry to provide Power Surge Protection, completely covering the costs of product damage due to power surges. You are automatically covered if your system is under Warranty or Service Agreement, and power protection has been installed, all local and national electrical codes have been followed, and Avaya site requirements have been met. Service Agreement and warranty customers will receive first priority toward resolution of these problems.

3 Solving common problems

This section tells you the questions to ask and the information to gather to solve some of the most basic phone problems. It also describes how to solve common call-center problems.

Diagnosing a problem

As a system administrator, an important part of your job is to respond to trouble calls from users. You can identify some of the most common of these problems by following a few simple steps, asking the right questions, and trying to recreate the problem.

Use a set of questions to determine if:

- the equipment or process has worked before and is now broken, or if this is a new set-up that you need to correct
- the problem comes from your company's own equipment, or if the problem comes from your vendor
- the problem originates within your switch, or if the source of the problem is outside of your own facility

Ask the following basic questions of yourself, your users, and other switch administrators who work with you:

- Is this a new feature or piece of equipment, or did it work before but does not work now?
- Does the trouble arise when dialing outside the switch, dialing into the switch, or dialing inside the switch?
- Can we duplicate the problem?

Solving common phone problems

This section describes the approach that many administrators take to diagnose and correct common problems. Following is a list of suggested actions you can take if you have a problem.

- ask for the exact symptoms
- try to duplicate the problem or have the user show you the problem
- look at the phone
- find out if the phone was swapped out
- check the physical connections (for example, see if the phone is plugged in)
- check that the phone is where it is supposed to be
- try the phone at another location
- ask if the cord or handset was changed
- check **`status station`**
- use **`display station`** to look at the station screens page-by-page
- check the station screens for SAC, coverage paths
- look at printed switch records for discrepancies
- check the alarms and errors logs

- clear any alarms and errors
- test the circuit packs

Let's take a look at the types of problems users report to their system administrators, and see how to diagnose and correct the problem.

The user cannot dial out

A user calls to report that his phone "does not work." Strangely enough, this seems to be the most commonly reported problem! Ask questions to find out what is really wrong and how to fix it.

To find out why a phone "does not work," ask these questions:

- How does the phone "not work?" Does the problem occur when:
  - they try to answer a ringing incoming call
  - they try to make a call
- If the problem occurs when they try to make a call, is the call
  - internal, station to station
  - external, to an outside phone
- Is the problem with just one number, or are they unable to place any outgoing calls?
- Is this a new phone, or is this a new problem with an existing phone (were they able to call out before)
- Do they hear dial tone before they try to call?
- What do they hear after they dial?
  - a tone of some kind
  - a message
  - static
  - nothing

- If they hear a message after they dial, what is the exact message?

  If the message says that the call cannot be completed as dialed, the problem is likely your ARS programming. See the *Avaya Communication Manager Little Instruction Book for Basic Administration*, 555-233-756, for more information on changing your outbound routing.

Incoming calls ring but do not reach the user

Another user calls to report that his phone "does not work." Ask questions similar to the ones listed above. You determine that the user can call out, and that the phone rings but there is no call on the line when the user picks up.

Type **`status station`** to see if Send All Calls (SAC) is activated.

The message lamp on the phone does not go out

This problem often occurs even when the messages associated with the phone have been cleared.

To clear a message waiting light:

1. At the command prompt, type **`clear amw all`*n***, where ***n*** is the extension, and press **ENTER**.

Diagnosing general trunk problems

The following questions help you determine a problem with a trunk.

- Is the trouble on every call or is the trouble intermittent?
- Are you getting any sort of recordings when you try to dial out on this trunk?
- Can you identify the trunk in question?

  Use a trunk access code (tac) to identify the trunk, especially if the console has a trunk ID button.
- Is there static on the call?

  This is likely a problem with the trunk external to the switch.
- Have you notified your vendor of this problem?

Diagnosing tie trunk problems

The following questions help you determine a problem with a tie trunk.

- Is the problem on incoming calls only?
- Is the problem on outgoing calls only?
- What happens when you try to use this trunk?
- Have you notified the T1 vendor?
- Does this trunk connect to another location?

  If so, try to determine the IL number of that location.
- Do you know the circuit ID of this trunk?

Diagnosing modem problems

The following questions help you determine a problem with a modem.

- What is the extension of the modem?
- Is the modem connected through the switch?
- What is the modem connected to?

  For example, computer, fax, or CMS?
- Have the setup options been changed or checked recently?
- What company manufactures the modem?
- What is the model number?

Diagnosing printer troubles

The following questions help you determine a problem with a printer.

- What is the problem with the printer?
- What is the printer used for?

  For example, is it connected to the switch, CMS, CAS, or maybe AUDIX?
- Who manufactures the printer?
- What is the model number?

Diagnosing password, login, and terminal access problems

If the problem is with remote dial-in access, ask:

- How do you dial in?
- What type of software or dialing program do you use?
- What error messages do you see when you try to dial in?

If your password expired, is not working, or is incorrect, call Avaya for assistance in getting the issue resolved.

Diagnosing SAT problems

If the problem is with the System Access Terminal (SAT), ask:

- What type of terminal is it?
- What type of trouble are you having?

Solving call center problems

This section helps you identify and solve common problems affecting hunt groups, splits, announcements, and caller access.

The tables below describe symptoms and solutions for common problems in call centers not using ACD or call vectoring.

Can’t record an announcement on Integrated Announcement Boards

Possible Causes	Solutions
You do not get port 0 when you start to record an announcement.	If port 0 is in use when you start to record an announcement, you hear a reorder (or fast-busy) tone followed by silence. Redial the announcement access code and extension every 45 seconds until your recording session is successful.
The phone you are using to record the announcement does not have a COS with console permission.	Use the ***STATION*** form to change the COS for that phone to a different COS that has console permissions.
The `Pr` (protected) field on the ***ANNOUNCEMENTS/ AUDIO SOURCES*** form is **y**.	Set this field to **n** to allow changes from a phone with console permissions.
The proper procedure was not used.	Try again. Verify the Feature Access Code (FAC) you’re using.
The extension you want to use is not assigned to an announcement.	Check the number you’re dialing, or assign the extension to an announcement on the ***ANNOUNCEMENTS/AUDIO SOURCES*** form.

Can’t record an announcement on Integrated Announcement Boards

Possible Causes	Solutions
There is insufficient time left on the announcement board.	Use **`list integrated-annc-boards`** to display the ***INTEGRATED ANNOUNCEMENT BOARD*** form to show the time remaining on each board. • Create a shorter announcement. • Shorten existing announcements. • Rerecord existing announcements at a lower compression rate. Be sure the audio quality at the lower compression rate is acceptable. • Delete some announcements. • Add an additional announcement board.

Callers don’t hear announcement

Possible Causes	Solutions
All announcement ports are frequently busy and no queue is administered for the announcement.	Set the `Q` field on the ***ANNOUNCEMENTS/ AUDIO SOURCES*** form to **y**. (Set this field to **y** for every extension assigned to an integrated announcement board.) If the problem continues, add another announcement board.
No announcement is recorded.	Dial the announcement extension. If you hear a fast busy signal, there is no announcement. Record one.
The announcement board malfunctioned.	Re-record the announcement.

A device in an Auto Answer hunt group doesn't respond

Possible Causes	Solutions
The device is off or malfunctioning.	With UCD-MIA, since a malfunctioning unit will be the most idle port all calls to the hunt group may begin to go to the malfunctioning device. 1. Dial each modem's extension until you find the one that isn't answering. 2. Busy out that device, or remove its extension number from the ***HUNT GROUP*** form until the device can be fixed.

Too many abandoned calls

Possible Causes	Solutions
There is no coverage path.	Assign a coverage point in the `Coverage Path` field on the ***HUNT GROUP*** form.
Announcements are not being used or need to be changed.	Create announcements that encourage callers to wait. Tell callers their call is very important and ask them to stay on the line.
Customers aren't willing to wait until the call is answered.	Add agents to reduce average speed of answer.

Customers complain they get a busy signal

Possible Causes	Solutions
Trunk capacity is insufficient.	Check the system Trunk Summary report, including yesterday-peak, today-peak and last hour. Print last-hour once an hour during business hours. Check the `% ATB` (All Trunks Busy) field for both incoming and two-way trunks. If this figure is consistently high for ONE-WAY incoming trunks, calls are probably being blocked. Add trunks. If ARS is being used on a two-way trunk, it may need further investigation. Communication Manager can't tell you if calls are being blocked in the central office. Ask your network provider to do a traffic study on incoming calls.
The administered queue length is too short.	Set the `Queue Length` field on the ***HUNT GROUP*** form to a value equal to or greater than the number of hunt group agents. Add more agents.
There's no coverage path.	Assign a coverage point in the `Coverage Path` field on the ***HUNT GROUP*** form.

4 Alarms and errors

This section is for adventurous administrators who are curious about how to diagnose and fix common problems. The information here will help you understand how to read and interpret:

- error logs
- alarm logs

Maintenance reports

Avaya Communication Manager monitors many switch components. When a component fails or performs unacceptably, the subsystem generates two kinds of reports:

- **detailed** reports in the error log
- **general** reports in the alarm log

The system detects error conditions in its components through Maintenance Objects (MO). MOs are the software modules that monitor, test, and report possible fault conditions.

Viewing error logs

It is a good idea to run and inspect error logs on a regular basis. You can view all active system errors on the error log. You can also specify a particular component of your system or a certain time period to be reported on the error log.

To view the error log:

1. Type **`display errors`** and press **ENTER**.

   The ***ERROR REPORT*** form appears.

Figure 6: Error Report form

```
                              ERROR REPORT
The following options control which errors will be displayed.
   ERROR TYPES
      Error Type:                Error List: active-alarms
   REPORT PERIOD
      Interval: a      From:   /  /  :   To:   /  /  :
   EQUIPMENT TYPE ( Choose only one, if any, of the following )
                         Cabinet:
                    Port Network:
                    Board Number:
                            Port:
                        Category:
                       Extension:
         Trunk ( group/member ):   /
```

2. To see all current errors, press **ENTER** OR

   Indicate the errors that you want to see by entering the information requested in each field. See the field descriptions listed in the following section.

3. Press **ENTER** to view the report.

Error report field descriptions

Field	What to enter
Error Type	error type
Error List	active-alarms, errors, or cleared-errors
Interval	h(our), d(ay), w(eek), m(onth), a(ll)
From/To	time interval by date and time
Cabinet	cabinet number (1 - 44)
Port Network	port network number (1 - 44)
Board Number	5-character board number in **UUCSS** format: UU = cabinet (1-44), C = carrier (A-E), SS = slot (0-20)
Port	7-character port address in **UUCSSss** format: UU = cabinet (1-44), C = carrier (A-E), SS = slot (0-20), ss = circuit
Category	category name (choose from the list below):

adm-conn	announce	bri/asai	cdr	data-mod
detector	dup-spe	environ	exp-intf	ext-dev
generatr	inads-link	infc	maint	mass-st
mbus	memory	misc	mmi	mnt-test
modem	mssnet	pkt	pms/jrnl	pnc
pncmaint	pnc-peer	procr	quick-st	s-syn
spe	stabd	stacrk	stations	sys-link
sys-prnt	tape	tdm	tone	trkbd
trkcrk	trunks	vc	vsp	wideband
wireless				

Extension	assigned extension, or blank

`Trunk Group`	group number between 1-666
`Trunk Member`	group member between 1-255, or blank

Figure 7: Hardware Error Report

```
                    HARDWARE ERROR REPORT - ACTIVE ALARMS

Port    Mtce     Alt   Err   Aux     First       Last      Err Err Rt/ Al Ac
        Name     Name  Type  Data    Occur       Occur     Cnt Rt  Hr  St
01AXX1  PI-LINK        257   25    05/02/08:07  05/04/08:38 255 5  13  a  n
01AXX1  PI-LINK        2049  1     05/02/12:03  05/02/12:03 1   0  0   a  n
01AXX1  PI-LINK        1     25    05/02/18:48  05/03/13:57 2   0  0   a  n
01A0101 DIG-LINE Attd1 1537  40968 05/02/12:29  05/02/12:29 1   0  0   a  n
01A0101 DIG-LINE Attd1 513   0     05/02/12:29  05/02/12:29 3   0  0   a  n
```

Make special note of the information in these fields:

- The `Port` field contains information in several formats:
  - circuit pack address (**UUCSS**)
  - port address (**UUCSSss**)
  - 2-digit signaling number
  - administered port network number
- `Mtce Name` (the name of the Maintenance Object)
- `Alt Name` (the extension with the error)
  In this example, `Attd1` is the digital port with the errors.
- `Err Type` (represents the error condition category)
- `Aux Data` (represents a detail of the Error Type)
- `First Occur` (indicates the date/time of the first occurrence)
- `Last Occur` (indicates the date/time of the last occurrence)
- `Err Cnt` (lists how many occurrences since the first one)

Interpreting the error log

The ***HARDWARE ERROR REPORT*** in our example shows five error entries. The switch detected an unplugged digital phone. Here is how to interpret the report:

- `PI-LINK` is the MO monitoring the processor interface links to digital equipment, including adjuncts. You can see that over 2 days (May 2 to May 4) it incurred 255 type-257 errors, 1 type-2049 error, and 2 type-1 errors.
- The `DIG-LINE` errors indicate that the system can't find the phone administered to port 01A0101. According to the switch, that is supposed to be attendant 1 (`Alt Name`).

Notice that the `Err Type` and `Aux Data` fields for both MOs contain many different numbers. The numbers are software codes that represent a specific error condition.

Clearing the error

If an important component in your system fails, the software records that "event" with code numbers in the error or alarm log.

To interpret the error codes and clear the error:

1. Look up the MO (for example, `DIG-LINE` or `PI-LINK`) in the Communication Manager maintenance books for your switch.
2. Find the error type in the Hardware Error Type table for that MO.
3. Find the note associated with that error type for an explanation of the conditions that generated the error.
4. Perform the recommended procedure to clear the error.

   The recommended procedure may require you to test alarmed components. Be sure to have test permissions enabled.

   If any tests fail or abort, you will get an error code for the test.

5. Look up the test error code by MO in your Communication Manager maintenance books.
6. Find the numbered test listed in the test results.
7. Look for the correct *combination* of error code and test result in the numbered-test tables.

Alarm logs

Alarms are classified as major, minor, or warning, depending the degree of severity and the effect on the system.

warning level and description	reported to INADS?	reported to console?	take this action
major Critical service degradation	Y	Y (occurs after 4 attempts to call INADS)	Immediate attention
minor Some service degradation, but system is operable, usually limited to a few trunks or stations or a single feature.	Y	Y (occurs after 4 attempts to call INADS)	Check to see what service is affected

warning level and description	reported to INADS?	reported to console?	take this action
warning Failure that causes no significant service degradation Note: DS1 off board faults (error type 138) generate warning alarms only, indicating a customer network problem. In this case, warning alarms can cause critical service degradation.	N (INADS can receive some downgraded warning alarms)	N	Monitor the situation; check for service or equipment interruption or failure outside the switch.

Alarms are further classified as:

- *on-board* problems originate within the circuitry of the alarmed circuit pack
- *off-board* problems originate in a process or component that is external to the circuit pack

Reading the alarm log

Let's look at an alarm log that results from an unplugged digital phone.

To the view the alarm log:

1 Type **`display alarms`** and press **ENTER**.

The ***ALARM REPORT*** form appears.

Figure 8: Alarm Report form

```
                              ALARM REPORT
The following options control which alarms will be displayed.
  ALARM TYPES
             Active? y    Resolved? n
              Major? y       Minor? y      Warning? y
  REPORT PERIOD
           Interval: m      From:   /  /  :      To:   /  /  :
  EQUIPMENT TYPE ( Choose only one, if any, of the following )
                         Cabinet:
                    Port Network:
                    Board Number:
                            Port:
                        Category:
                       Extension:
        Trunk ( group/member ):   /
```

2 Indicate which alarms you want to view by entering **y** and **ENTER** after each alarm type.

NOTE:

Unless you can restrict the trouble to a particular time period, press **ENTER** to see all active alarms.

If you choose **n** for major alarms and **y** for minor and warning alarms, you will not see the high-level information that you may need to determine what is wrong with your system.

3 Press **ENTER** to view the alarm report.

4 The ***ALARM REPORT*** detail form appears.

Figure 9: Alarm Report detail form

```
                          ALARM REPORT

Port     Maintenance On  Alt    Alarm   Svc    Ack? Date         Date
         Name        Brd? Name   Type    State  1 2  Alarmed      Resolved
01AXX1   PI-LINK      n          WARNING                05/02/09:48 00/00/00:00
01AXX1   PI-LINK      n          WARNING                05/02/09:48 00/00/00:00
01A0101  DIG-LINE     n   Attd1  WARNING RDY            05/02/12:29 00/00/00:00
01A0101  DIG-LINE     n   Attd1  WARNING RDY            05/02/12:29 00/00/00:00
01AXX1   PI-LINK      n          WARNING                05/02/18:49 00/00/00:00
```

Interpreting alarm logs

The ***ALARM REPORT*** lists the major alarms first, followed by the minor and warning alarms.

The alarm log in the example above shows:

- a processor interface link (`PI-LINK`) at address `01AXX1` has alarmed three times on May 2 with *off-board* (`On Brd?` = `n`) warnings.
- the same port (`01A0101`) on a digital line (`DIG-LINE`) circuit pack has alarmed twice on May 2 in response to two different error counters (refer to the error log example).

Clearing alarm logs

To clear an alarm log:

1. Investigate or fix the first major alarm in the log.
2. See if other alarms are retired by fixing the most severe problem first.

Assigning alarm buttons

You can administer feature button lamps on any phone to act as alarm indicators, similar to the alarm lamp on the attendant console. The following table describes the meaning of the green light associated with an alarm button.

status of light	meaning
flashing green	an alarm occurs
steady green	INADS notified and acknowledges alarm
light goes off	an alarm is resolved

Press the alarm button to turn off the light. The light flashes again if the alarm is still active when the next maintenance routine runs.

Understanding common error types

This section discusses frequently-encountered error types, and explains why they occur.

Error type 18 – busied out

Error type 18 is a reminder from the switch that a component has been busied out. The busyout command is used to temporarily disable a component and is usually used before you test or replace a component.

Use the **`release`** command (permissions enabled) to restore a component to its normal operating mode.

For example, you receive a complaint that a phone does not work. As part of your diagnosis, you:

- use **status station**

  OR

- view the hardware error report for error 18

To view a hardware error report for error 18:

1. Type **display errors** and press **ENTER**.

   The ***HARDWARE ERROR REPORT*** form appears.

2. Fill in the Err Type field and press **ENTER**.

   In our example, type **18**.

   The ***HARDWARE ERROR REPORT*** for error 18 appears.

Figure 10: Hardware Error Report (error type 18)

```
                    HARDWARE ERROR REPORT - ACTIVE ALARMS
Port     Mtce      Alt   Err   Aux  First       Last        Err Err Rt/ Al Ac
         Name      Name  Type  Data Occur       Occur       Cnt Rt  Hr  St

01A0901 DIG-LINE 1234   18        03/09/00:30 03/09/00:30 1   0   0   a  n
```

The log entry indicates that extension 1234, a digital line, is busied out (ERR TYPE 18).

Use the **release** command (permissions enabled) to remove the busyout status from the station. In our example:

1. Type **release *port 01A0901*** (permissions enabled) and press **ENTER**.

   The station is no longer busied-out.

Error type 513 – equipment “missing”

Error type 513 notifies you that equipment such as phones, data modules, or circuit packs, are administered but not physically connected to the switch.

For example, view a hardware error report for error 513:

1. Type **`display errors`** and press **ENTER**.

   The ***HARDWARE ERROR REPORT*** form appears.

2. Fill in the `Err Type` field and press **ENTER**.

   In our example, type **513**.

   The ***HARDWARE ERROR REPORT*** for error 513 appears.

Figure 11: Hardware Error Report (error type 513)

```
                    HARDWARE ERROR REPORT - ACTIVE ALARMS
Port    Mtce     Alt   Err   Aux  First      Last        Err Err Rt/ Al Ac
        Name     Name  Type  Data Occur      Occur       Cnt Rt  Hr  St

01C0507 DIG-LINE 7157  513   0    03/09/00:30 03/09/00:30 1   0   0   a  n
```

In this example, a digital phone is missing. A port on the digital line circuit pack (`DIG-LINE`) at cabinet 1, carrier C, slot 05, port 07 does not have its administered equipment physically present (`Err Type 513`).

To fix error 513 in our example:

1. Plug the phone into the jack assigned to port 01C0507.
2. Type **`test station`** ***7157*** (permissions enabled) and press **ENTER** to test the phone.

   The system will clear the error only after the system runs its administered checks and diagnostics.

Error type 1 — circuit pack removed

Error type 1 often indicates that an administered circuit pack has been removed.

To correct the problem and clear Error type 1:

1. Replace and latch the circuit pack in its administered slot.

   The next time the system runs its routine maintenance program, it should be able to "see" the circuit pack and the error will not appear.

Preventing alarms and errors

This section lists a few common causes of unnecessary alarms.

Turn off maintenance

The Remote Loop-Around Test sends a burst of current to activate a phone's ringer. If the ringer responds, the test detects the return. Data modules, fax machines and modems do not have ringers and do not respond to this test. This generates an error on that port.

You should turn off this test for data modules, fax machines and modems. Turning off the test does *not* affect the performance of any of these devices.

To turn off the maintenance test:

1. Type **`change data-module`** ***n***, where ***n*** is the extension number, and press **ENTER**.

   The ***DATA MODULE*** form appears.

Figure 12: Data Module form

```
                                DATA MODULE
  Data Extension: 3151            Name: joes r2cms pdm              BCC: 2
           Type: pdm               COS: 1          Remote Loop-Around Test? n
           Port: 01C0501           COR: 1            Secondary data module? n
            ITC: restricted        TN: 1                    Connected to: dte
ABBREVIATED DIALING
  List1:
SPECIAL DIALING OPTION:
ASSIGNED MEMBER ( Station with a data extension button for this data module
)
         Ext     Name
      1:
```

2 Change the `Remote Loop-Around Test` field to **n**.

3 Press **ENTER** to save your changes.

Remove unused circuit packs

Occasionally, a company upgrades phones from analog models to digital phones. The upgrade process is to:

1 Remove the analog line and trunk administration

2 Remove the old analog equipment

3 Rewire the workplace for the new digital phones and jacks

4 Administer the new digital phones and circuit packs

If the analog circuit packs remain physically plugged into the system and are *still administered as circuit packs (*even though the administration is removed in Step 1 above), the system generates errors. This stops when you remove the administration (**change circuit-pack *UUCSS***) for this unused circuit pack.

DS1 administration

Depending on whether a DS1 circuit pack is present and whether its ports are assigned or not, the system reports faults according to the following table:

circuit pack present?	circuit pack administered?	ports administered?	alarm level	action
N	Y	N	warning	1. Replace and latch the board in its assigned slot. 2. Remove the trunk and DS1 administration (**`change circuit-pack`** ***`UUCSS`***), *leaving the circuit pack in its assigned slot*.
N	Y	Y	minor	1. Replace and latch the board in its assigned slot. 2. Administer one or more ports (**`change circuit-pack`** ***`UUCSS`***), *leaving the circuit pack in its assigned slot*.
Y	N	N	varies	1. Remove the circuit pack from the carrier.

5 Using features to troubleshoot

Troubleshooting

You can use some Avaya Communication Manager features to help you identify if your system is having problems or to help you diagnose problems you know are occurring. The table below shows you which features to use for various kinds of system problems.

	problem area			
feature	**trunks**	**phones**	**hunt groups**	**paging groups**
Automatic Circuit Assurance	X			
Busy Verify	X	X	X	
Facility Busy Indication	X	X		X
Facility Test Calls	X	X		
Trunk Identification	X			

Automatic Circuit Assurance

You can use Automatic Circuit Assurance (ACA) to help identify faulty trunks. If activated (**`change system-parameters features`**), your system notifies you with a referral call when it detects unusual trunk usage like very short or very long calls. It needs to be turned on for each individual trunk group.

The referral call arrives on an idle call appearance. If you answer the call, your display shows:

- that the call is an ACA call
- the trunk-group access code
- the trunk-group member number
- the reason for the call (short or long holding time)

To use ACA on a G3V2 or older switch

1. Assign an ACA button to your phone.
2. Press the ACA button to activate your phone for referrals.
3. When you receive an ACA referral call, answer the call.
4. Record the information listed on your display to use for further troubleshooting.

To use ACA on a G3V3 or newer switch

1. Assign an ACA-Halt button to your phone.
2. Leave the ACA-Halt button OFF to keep your phone active for referrals.
3. When you receive an ACA referral call, answer the call.
4. Record the information listed on your display to use for further troubleshooting.

Busy Verify

You can use Busy Verify to place test calls to check the busy condition of trunks, phones, or hunt groups. This test helps you determine if the trunk, phone, or hunt group is busy because of heavy use or appears busy because of a problem.

To use Busy Verify, you should administer a Busy Verify button on your phone.

To busy-verify a phone

1. Press the **Busy Verify** button on your phone.

   The busy verify light turns green.

2. Dial the extension of the phone you want to test.

   You hear a tone and see a display. The following table describes what the tone and display indicate and how to respond.

display	tone	frequency	pattern (seconds)	status of extension	next step
Invalid	intercept	440 Hz alternating 620 Hz	.25 on .25 on repeated	invalid number	cancel and try again
Terminated	ringback	combined 440 Hz + 480 Hz	1 on 3 off repeated	idle and ringing (working properly)	release the call
Bridged	none			bridged onto active call (working properly)	release the call

display	tone	frequency	pattern (seconds)	status of extension	next step
Out of service	reorder	combined 480 Hz + 620 Hz	.25 on .25 off repeated	trouble condition or station administered without hardware and no coverage path	cancel; use **status station *extension*** command for more information

To busy-verify a hunt group

1. Press the **Busy Verify** button on your phone.

   The busy verify light turns green.

2. Dial the extension for the hunt group you want to test.

You hear a tone and see a display. The following table describes what the tone and display indicate and how to respond.

display	tone	frequency	pattern (seconds)	status of extension	next step
Invalid	intercept	440 Hz alternating 620 Hz	.25 on .25 on repeated	invalid number	cancel and try again
Terminated	ringback	combined 440 Hz + 480 Hz	1 on 3 off repeated	idle and ringing	release the call

display	tone	frequency	pattern (seconds)	status of extension	next step
All made busy	reorder	combined 480 Hz + 620 Hz	.25 on .25 off repeated	made busy is active	release the call and try again later
Denied	reorder	same as above	same as above	active on a call	release the call and try again later
Out of service	reorder	same as above	same as above	trouble condition or station administered without hardware	cancel; report an out-of-service condition

To busy-verify a trunk

1. Press the **Busy Verify** button on your phone.

   The busy verify light turns green.

2. Dial the trunk access code for the trunk you want to test.

   Your display should be blank and you should hear dial tone. If your display shows “DENIED” and you hear intercept tone, repeat steps 1 and 2.

   If you have trunk group select buttons on your phone, you can also press the **Busy Verify** button and then press the **Trunk Group Select** button for the appropriate trunk.

3. Dial the trunk-group member number you want to verify.

   You hear a tone and see a display. The following table describes what the tone and display indicate and how to respond.

display	tone	frequency	pattern (seconds)	status of extension	next step
Invalid	intercept	440 Hz alternating 620 Hz	.25 on .25 on repeated	invalid	cancel and try again
Verified	confir-mation			idle and ringing (working properly)	release the call
none	ringback	combined 440 Hz + 480 Hz	1 s on 3 s off repeated	idle automatic or release link (working properly)	release the call
none	dial tone	combined 350 Hz + 440 Hz	continuou s	idle (working properly)	release the call
Bridged	none			bridged onto active call (working properly)	release the call
Out of Service	reorder	combined 480 Hz + 620 Hz	.25 on .25 off repeated	trouble condition	cancel; report an out-of-service condition

Facility Busy Indication

You can use Facility Busy Indication to display the idle or busy condition of phones, trunks, or paging zones.

To use this feature you need to add facility busy indication buttons to your phone. Label the facility busy buttons as “Busy” followed by the number or name of the facility being monitored.

If the green light associated with the Facility Busy Indication button stays lit for a long time, the facility may have a problem.

Facility Test Calls

You can use Facility Test Calls to place test calls to specific trunks or phones. Because this feature bypasses the regular system traffic, it is very helpful in finding noisy lines and other problems. However, this feature can be easily misused by outside parties. Disable this feature when you are not using it.

SECURITY ALERT:

Whenever you use this feature, enable the feature access code only for the tests you want to make. Be sure to immediately remove the access code when you are through testing because leaving this feature enabled can leave you open to security breaches.

To place a test call to a trunk or touch-tone phone

1. At the system terminal, enable a feature access code for Facility Test Call.
2. At your phone, dial the feature access code for Facility Test Call. Listen for dial tone.
3. Dial the 6- or 7-digit port address in **UUCSSss** format, where:

   UU = cabinet number (01, 02, etc.)
   C = carrier number (A=1, B=2, C=3, D=4, E=5)
   SS = slot number (depends on system)
   ss = port number (depends on circuit pack)

NOTE:
If you have problems with this step, try dialing the port address without the first zero in the cabinet number.

You hear a tone and see a display. The following table describes what the tone and display indicate and how to respond.

tone	frequency	pattern (seconds)	status	next step
dial	combined 350 Hz + 440 Hz	continuous	connected	go to step 4
reorder	combined 480 Hz + 620 Hz	.25 on .25 off repeated	busy	release the call
intercept	440 Hz alternating 620 Hz	.25 on .25 on repeated	no access	release the call

4 If you are testing a trunk, place the call.
or
If you are testing a touch-tone receiver, dial the number.

5 If you receive a dial tone, the test passed.
or
If you receive an intercept tone, the test failed.

SECURITY ALERT:
At the system terminal, BE SURE to disable the Facility Test Call feature access code.

Trunk Identification

You can identify a faulty or noisy trunk with Trunk Identification. You can use Trunk Identification:

- on an active call
- while accessing a trunk

To identify the specific trunk used on a call:

1 Press the **Trunk ID** button.

Trunk access code and trunk group member number appears on the display.

If 2 trunks are used on the call, the identification of the last trunk added to the call displays. If more than 2 trunks are on a call, Trunk Identification is denied.

2 See if there are any *on-board* alarms against a trunk circuit pack.

If no, report the trunk problem to the appropriate vendor.

If yes, report the trunk problem and the identification information to Avaya.

6 Solving IP and H.323 problems

This section describes some basic troubleshooting tips and tools that may help you solve problems with IP (internet protocol) phones, Softphones, and IP and H.323 trunk issues.

In addition to using this section, you may want to refer to *Administration for Network Connectivity for Avaya MultiVantage™ Software*, 555-233-504, for basic IP administration.

Solving Softphone problems

This section discusses some common problems you or your users may encounter while using IP Softphones (telecommuter or RoadWarrior types).

NOTE:
R1 and R2 IP Softphone and IP Agent, which use a dual connect (two extensions) architecture, are no longer supported. R3 and R4 IP Softphone and IP Agent, which use a single connect (one extension) architecture, continue to be supported. This applies to the RoadWarrior configuration and the Native H.323 configuration for the IP Softphone.

Users cannot login (register) with IP Softphone

The user's password needs to be the same as the administered station security code. So, the first thing to verify is whether or not the user is using the correct password. If they are using the correct password, then you should determine if the problem is with their PC.

To determine if the problem is related to the user's PC, try to register (login) this extension from another PC. If you can successfully register, then the problem is within the user's PC. If you cannot register, then the extension may not be administered correctly or you may have a network problem.

User is logged in, but cannot use Softphone for calls

If you see the message "Telephony is not available" in the call status area, then you may have COR to COR restrictions between the IP Softphone and the actual hard phone used to make calls.

If you do not have restrictions, then try logging off and back in again. If that fails, reboot the PC that the Softphone is running on.

WARNING:

Some system platforms also run on a PC. If you reboot a system PC that is running a D1, all calls will be lost. In that case, you might want to wait until after normal business hours to reboot the PC.

Cannot listen to messages with INTUITY Message Manager

When a user is logged in to IP Softphone in the roadwarrior application, the Softphone has control of the PC sound card. Since only one application can control the PC sound card at a time, the sound card will not be available to Message Manager.

Users get message “Action cannot be completed”

The user may have a button on the IP Softphone that is not actually administered on the ***STATION*** form for the extension. Or the user is trying to dial a feature access code that is not administered in the system.

User cannot conference or transfer

Both the conference and the transfer operations require at least two lines. Make sure the user has more than one line available to place calls. To determine if the user has more than one line appearance, complete the following steps:

1. At the IP Softphone, select Number of Calls from the Options menu.
2. Verify that the Minimum or Default number of lines to be displayed is more than one.

Users cannot use Directory

In order to use the directory, users must have a Directory, Normal, and Next button available.

Other tips

If your users get the message “Communication to the server has been lost. You will be logged off by the server,” the only option is to click **OK**. However, if the user is active on a call, they can finish the call before they click **OK**.

Sound quality problems

Because of the myriad of networks and equipment involved in an IP call, there are a lot of factors that may contribute to sound quality problems. This section contains tips for how to determine the source of the problem, and some things you can do that may help.

Isolating problems in the LAN or the Communication Manager setup

There are a few easy things you can do to determine if a voice quality problem is in the Communication Manager setup or in your LAN or PC.

To check the PC sound quality, create and play back a sound file using the PC sound recorder. If the sound quality is unacceptable, the problem is somewhere in your headset or sound card.

To check sound quality over the LAN, shut down IP Softphone. Now start up NetMeeting and initiate a call. This completely bypasses the Communication Manager. Therefore, if you are still experiencing sound quality problems, the source must be somewhere within the LAN. If this resolves the sound quality problem, the issue is with the Communication Manager setup.

NOTE:
For more information on NetMeeting, see Microsoft's Web site at www.microsoft.com.

Running a mute test

The mute test can also help determine the source of a sound quality problem. To run this test, set up an IP softphone test call between two users who are experiencing voice quality problems. Have one user mute their phone and have the other user count aloud to 10. If the sound quality improves, then the problem is in the sound card, microphone, or headset of the muted phone. If the sound quality does not improve, try the test again, but this time mute the other phone.

Checking the PC volume control

Softphone has its own volume controls, but sometimes the volume controls on the PC need to be adjusted. If the PC volume controls are set too loud, it can cause sound quality to be distorted. If the PC volume controls are set too low, it may be difficult to hear clearly. Try adjusting the volume control on the PC to resolve the problem.

Checking for packet loss and jitter

Packet loss and jitter can cause a noisy connection that eventually breaks up, creating gaps in the conversation and making speech unintelligible. Use **`status station`** to check for station-side IP problems, including problems with an IP phone, and use **`status trunk`** to check for trunk-side IP problems.

Each command generates snapshot jitter buffer size (ms) and packet loss report for a particular station or trunk group member that shows:

- the number of packets that are lost or corrupted
- amount of jitter on the connection

In this instance, jitter is the variability in the amount of time (in milliseconds) that packets are received over the network. When jitter increases, the user experiences a noisy connection, delays, and a general loss of quality, making speech unintelligible.

NOTE:
If you issue a **`status station`** or **`status trunk`** command for a non-IP station, or the connection is hairpinned or shuffled, then the packet loss and jitter size information does not appear. See the *Administration for Network Connectivity for Avaya MultiVantage™ Software*, 555-233-504, for more information.

Other possible causes

If a user is browsing the web while using softphone and they are accessing web sites with large graphics, they may experience an interruption in voice transmission.

Basic troubleshooting tools

This section describes some basic tools that you can use to understand better what is going on in your network and with the IP hardware and software.

Using ping

The **ping** command helps you to determine if endpoints on the network are available to place or receive calls and if nodes in the network are active. You can specify which circuit pack you want to use to ping.

For example, to ping from a C-LAN circuit pack at 01A011 to an endpoint at 111.122.133.144, complete the following steps:

1. At the command line, type **ping ip-address *111.122.133.144 board 01A011***.

   Use the IP address of the endpoint you want to ping and the board location for the specific pack you want to test.

   You can also use the **ping node-name** to ping a node defined on the ***NODE NAMES*** form.

2. Press **ENTER**.

   The ***PING RESULTS*** report appears.

Figure 13: Ping Results report

```
                              PING RESULTS

End-pt  Node-name  Port     Port Type  Result  Time (ms)  Error code
111.122.133.144    01A011   ETH-PT     PASS    60
```

3 Review the report to see if pinging the endpoints failed or if the round-trip time was too long.

Using trace-route

The trace-route command helps you test the path that a call takes from the PC endpoint, through the various nodes in a network. Trace-route can help you see where in the network a problem may be occurring.

For example, to determine the path from a C-LAN circuit pack at 01A011 to an endpoint at 111.122.133.144, complete the following steps:

1 At the command line, type **`trace-route ip-address`** ***`111.122.133.144 board 01A011`***.

Use the IP address of the endpoint you want to reach and the board location for the specific pack you want to test.

You can also use the **`trace-route node-name`** to test the path to a node defined on the Node Names form.

2 Press **ENTER**.

The ***`TRACE ROUTE RESULTS`*** report appears.

Figure 14: Trace Route Results report

```
                          TRACE ROUTE RESULTS

Hop                 Time (ms)             IP Address
0                   Start Addr:           111.44.33.122
1                     5,  6,  6           111.44.33.144
2                    35, 36, 37           111.44.33.111
3                    49, 51, 51           111.122.133.111
4                    58, 58, 59           111.122.133.144
```

3 Verify that the last IP address on the report is the same as the IP endpoint you specified in Step 1.

If the system was unable to follow the full path, it lists the last address that it could successfully reach. This information may help you narrow which part of the network is experiencing problems.

Finding the IP address

In some cases, you will want to know the IP address of a PC so that you can ping it or trace the route of a call to it. To determine the IP address, complete the following steps:

1 At the PC, open a Command Prompt (DOS) window.

Typically you can access the command prompt by selecting Start > Programs > Command Prompt.

2 At the Command prompt, type **winnt\system32\ipconfig** (Windows NT/2000) or **winipcfg** (Windows 95/98).

3 Record the IP address for the PC.

Verifying the IP Softphone registration

Sometimes you will need to know whether or not an IP Softphone is registered. For example, to determine whether the Softphone at extension 4455 is registered, complete the following steps:

1 Type **`status station`** ***`4455`*** and press **ENTER**.

The ***`GENERAL STATUS`*** form appears.

2 Look at the `Registration Status` field on the second page. If the word “authenticated” appears, the Softphone is registered.

Verifying the trunk type

Sometimes you will need to know whether or not a trunk group is an IP type endpoint. For example, to determine whether the trunk member 01 of trunk group 40 is an IP endpoint, complete the following steps:

1. Type **`status trunk`** ***`40/01`*** and press **ENTER**.

   The ***`TRUNK STATUS`*** form appears.

2. Verify that the `Port` field is `T000nn`.

   If this field displays a standard port address (for example, 01A0210), then the trunk is not an IP endpoint.

When all else fails

Reboot the PC. When you are experiencing unexpected behavior that you cannot easily fix, you may want to close all your applications and reboot the machine.

WARNING:
Some system platforms also run on a PC. If you reboot a system PC that is running a D1, all calls will be lost. In that case, you might want to wait until after normal business hours to reboot the PC.

7 Contacting Avaya

This section describes what information you should have handy when you need to contact the Avaya Technical Service Center (TSC). This section also provides a list of phone numbers you can call when you have a problem with your system.

Preparing to contact Avaya

Do you need to call Avaya for additional information or help in solving a problem? If you do, please have the following information handy. This helps the person taking your call.

- your name and number (in case we need to call you back)
- your installation location number (also called your IL)

  _____

  (Write your IL number here for easy reference)
- your company's main phone number
- the type of your switch
- the number of trunks on your system
- the number of stations on your system

Also, use the information in this book to determine the possible source of your problem. It always helps to keep a log of the steps you took and the information you gathered while performing your diagnosis. This information is extremely helpful when you partner with an Avaya representative in solving your switch problems.

Remember, if the problem is with equipment or service outside of your own equipment, you need to call your vendor or service provider. If you determine that the problem is with your own equipment, such as on your own stations, switch, or trunks, give Avaya a call.

If you are not sure where the problem is located, double-check your system information. Refer to Problem solving strategies on page 29 for more information.

Be ready to talk about:

- the problem you want to solve
- if the problem is with a new component or feature
- if something that used to work now does not work
- any numbers involved with the problem (for example, extensions or phone numbers, trunk group numbers, phone types, or report types)
- the contents of any recorded messages received
- error messages from the switch
- type of ringback tones received on phones
- the names and numbers of your vendors
- any other pertinent information

Contacting Avaya

The following table lists additional services available to you. If you are outside of the 1 800 calling area, contact your local Avaya representative.

Technical Service Center for Large-Systems Customers and Toll Fraud Crisis Intervention (for help with repairs)	1 800 242 2121
Communication Manager Helpline (for administration and software problems, including vectors, how features work, administration, and interactions)	1 800 225 7585

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