

Avaya™ MultiVantage™ Solution's

Little Instruction Book

for basic administration

Easy reference

P	Pencil in your information below. (shows example only)
Cabinets	(cabinet #3 is a remote cabinet in the downtown office)
Boards	(TN754 = 4 wire digital, can be used with any digital)
Extension ra	nge (8000-8999 = DID)
Coverage pat	ths (Coverage path #1 = 3 rings, covers to AUDIX)
Hunt groups	(h4 = audix 84)
irunk groups	(group 1 = CO trunks for outside calls)
Feature acce	ss codes (*21 = Abbrev dialing list 2)

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NOTE:

Please note: Many of these individuals are no longer in the positions listed here. However, we continue to credit them because they were instrumental in the creation and success of this book.

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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.

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 Web site:

http://www.avaya.com/support/

If you are:

- Within the United States, click Escalation Lists, which includes escalation phone numbers within the USA.
- Outside the United States, click Escalation Lists then click Global Escalation List, which includes
 phone numbers for the regional 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.

Voice over Internet Protocol (VoIP)

If the equipment supports Voice over Internet Protocol (VoIP) facilities, you may experience certain compromises in performance, reliability and security, even when the equipment performs as warranted. These compromises may become more acute if you fail to follow Avaya's recommendations for configuration, operation and use of the equipment. YOU ACKNOWLEDGE THAT YOU ARE AWARE OF THESE RISKS AND THAT YOU HAVE DETERMINED THEY ARE ACCEPTABLE FOR YOUR APPLICATION OF THE EQUIPMENT. YOU ALSO ACKNOWLEDGE THAT, UNLESS EXPRESSLY PROVIDED IN ANOTHER AGREEMENT, YOU ARE SOLELY RESPONSIBLE FOR (1) ENSURING THAT YOUR NETWORKS AND SYSTEMS ARE ADEQUATELY SECURED AGAINST UNAUTHORIZED INTRUSION AND (2) BACKING UP YOUR DATA AND FILES.

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.

The equipment described in this manual complies with standards of the following organizations and laws, as applicable:

- Australian Communications Agency (ACA)
- · American National Standards Institute (ANSI)
- · Canadian Standards Association (CSA)
- Committee for European Electrotechnical Standardization (CENELEC) European Norms (EN's)
- Digital Private Network Signaling System (DPNSS)
- European Computer Manufacturers Association (ECMA)

- European Telecommunications Standards Institute (ETSI)
- · FCC Rules Parts 15 and 68
- International Electrotechnical Commission (IEC)
- International Special Committee on Radio Interference (CISPR)
- International Telecommunications Union Telephony (ITU-T)
- ISDN PBX Network Specification (IPNS)
- National ISDN-1
- · National ISDN-2
- Underwriters Laboratories (UL)

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 Laser products, equipment classification and requirements:

- IEC 60825-1, 1.1 Edition
- · 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

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.

This equipment complies with Part 68 of the FCC Rules. On the rear 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.

The REN is used to determine the quantity of devices which 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 table.

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
CO trunk	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,
	1KN, 1SN		RJ48M
120A2 channel service unit	04DU9-DN	6.0Y	RJ48C

If the terminal equipment (for example, the MultiVantage TM Solution 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 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.

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 digital apparatus does not exceed Class A limits for radio noise emission set out in the radio interference regulation of the Canadian Department of Communications.

Le Présent Appareil Nomérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils manicures de la class A préscrites dans le reglement sur le brouillage radioélectrique édicté par le ministére des Communications 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://support.avaya.com/elmodocs2/DoC/SDoC/index.jhtml/

All MultiVantage TM system products 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) signed by the Vice President of MultiVantageTM Solutions research and development, Avaya Inc., can be obtained by contacting your local sales representative and are available on the following Web site:

http://support.avaya.com/elmodocs2/DoC/IDoC/index.jhtml/

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。

Network Connections

Digital Connections - The equipment described in this document can be connected to the network digital interfaces throughout the European Union.

Analogue Connections - The equipment described in this document can be connected to the network analogue interfaces throughout the following member states:

Belgium	Germany	Luxembourg
Netherlands	Spain	United Kingdom

LASER Product

The equipment described in this document may contain Class 1 LASER Device(s) if single-mode fiber-optic cable is connected to a remote expansion port network (EPN). The LASER devices operate within the following parameters:

- Maximum power output -5 dBm to -8 dBm
- · Center Wavelength 1310 nm to 1360 nm
- CLASS 1 LASER PRODUCT IEC 60825-1: 1998

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

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Attention: Avaya Account Management

E-mail: totalware@gwsmail.com

Welcome

■ Why this book?	xvii
We wrote this book for you!	xvii
■ What information is in this book?	xviii
How to use this book	xix
Security concerns	xxi
■ Trademarks and service marks	xxi
Related books	xxii
■ Tell us what you think!	xxii
 How to get this book on the web 	xxiii
■ How to order more copies	xxiii
■ How to get help	xxiv
Getting started	
■ Overview of Avaya MultiVantage [™]	1
Example MultiVantage™ system	3
Phone types	4
 Accessing your system 	5
Logging into the system	5
Setting the system time and date	6
Saving changes	7

Logging off the system

10

■ Understanding the dial plan 11
■ MultiVantage [™] dial plans 12
Displaying your MultiVantage™ dial plan 14
Modifying your MultiVantage™ dial plan 14
Adding extension ranges to your MultiVantage™ dial plan 14
Adding feature access codes to your
MultiVantage™ dial plan 15
■ R10 or earlier dial plans 16
Displaying your R10 or earlier dial plan 18
Modifying your R10 or earlier dial plan 18
Adding extension ranges to your R10 or earlier dial plan 18
Adding feature access codes to your R10 or earlier dial plan 19
■ Changing feature access codes 20
- Managing phones
■ Adding new phones 21
Gathering necessary information 22
Physically connecting the phone 24
Completing the station screens 24
Using station templates to add phones 26
Using an alias 27
Adding or changing feature buttons 29
■ Customizing your phone 31
■ Upgrading phones 32

Swapping phones	33
Removing phones	34
Managing features	
Changing feature parameters	37
 Setting up abbreviated dialing 	39
■ Creating pickup groups	42
Setting up call forwarding	44
■ Creating coverage paths	45
Defining time-of-day coverage	48
Creating coverage answer groups	50
Defining coverage for calls redirected to external numbers	5 1
Defining telecommuting coverage	55
 Setting up bridged call appearances 	57
Routing outgoing calls	
 World class routing 	61
Understanding ARS analysis	62
Managing calling privileges	63
Displaying ARS analysis information	64
 Modifying call routing 	64
Adding a new area code or prefix	64
Using ARS to restrict outgoing calls	67
 Overriding call restrictions 	68

	RS Partitioning	
	Setting up a partition group	
	Assigning a phone to a partition group	
- Enha	ancing system security	
	ssigning and changing users	
	Assigning new logins and passwords	
	Setting login permissions	
	Changing passwords	
	Changing logins	
■ P	reventing toll fraud	
■ U	sing reports to detect problems	
	Call Detail Recording	
	Security Violations Notification	
Keel	oing records	
■ P	aper records	
■ P	reparing to contact Avaya	
Glos	sary	

Index 103

Helpful Avaya web sites

Inside back cover

Welcome

Why this book?

You've told us that you want step-by-step instructions on everyday administration tasks for your Avaya MultiVantageTM system, and we've been listening. This book contains the information you need for basic telephone system administration. Some steps may vary a bit between the different versions of the MultiVantageTM system, but the instructions provided will help you through the most basic operations.

If you are familiar with earlier versions of this book, you will notice some changes. The fields on some screens have changed, we've moved the area code instructions to a section on routing, and have given troubleshooting its very own book, the *Avaya* MultiVantageTM *Solution's Little Instruction Book for basic diagnostics*.

We wrote this book for you!

Use this book if you are a MultiVantage™ 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. If you are a new administrator taking over the position from someone else, or you are filling in for your company's regular administrator, or if you simply want to refresh your memory, this book is for you.

What information is in this book?

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

Getting started provides an overview of the phone system and types of phones. It provides instructions for logging in, saving changes, and logging off.

Planning the MultiVantageTM system explains how to read and update your dial plan. It also explains how to change feature access codes.

Managing phones explains how to add, change, and remove phones from your system. It also explains how to alias phones and how to customize a phone for your system administrator.

Managing features explains how to administer useful features including abbreviated dialing, pickup groups, call forwarding, call coverage, and bridged appearances.

Routing outgoing calls explains how to add area codes and prefixes. It also includes instructions for setting up ARS partitioning and authorization codes.

Enhancing system security explains how to add and change user logins and passwords. It also provides an overview of security issues related to MultiVantageTM systems.

Keeping records provides guidelines for keeping records and explains how to print certain system reports. It also explains how to contact the MultiVantageTM helpline 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 your MultiVantageTM system.

- To "move" to a certain field, you can use the TAB key, arrows, or the RETURN key.
- A "screen" is a screen form displayed on the terminal monitor.
- In this book we always use the term phone; other Avaya books may refer to phones as voice terminals.
- If you use terminal emulation software, you need to determine which keys correspond to ENTER, RETURN, CANCEL, HELP, NEXT PAGE, etc.
- Commands are printed in bold face as follows: command.
- Keys and buttons are printed as follows: KEY.
- Screen displays are printed in constant width as follows: screen display.
- Variables are printed in italics 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 entered as list config sta.
- We show commands and screens from the newest MultiVantageTM system and refer to the most current books. Please substitute the appropriate commands for your system and refer to the manuals you have available.

xix

- If you need help constructing a command or completing a field entry, 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 screen, a list of valid entries for that field appears.
- The status line or message line can be found near the bottom of your monitor display. 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 our helpline.
- When a procedure requires you to press ENTER to save your changes, the screen you were working on clears and the cursor returns to the command prompt. The message line shows "command successfully completed" to indicate that the system accepted your changes.

You may see the following icons in this book:



Draws attention to information that you may find helpful.



Draws attention to information.



A CAUTION:

Denotes possible harm to software, possible loss of data, or possible service interruptions.



A SECURITY ALERT:

Indicates when system administration may 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. Refer to the Avaya Security Handbook 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.

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- DEFINITY®
- Callmaster[®]
- IntuityTM
- CONVERSANT[®]
- MultiVantageTM

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Related books

The Avaya MultiVantageTM Solution's Little Instruction Book for advanced administration and the Avaya MultiVantageTM Solution's Little Instruction Book for basic diagnostics are companions to this book. We suggest you use them often.

The Administrator's Guide for Avaya MultiVantageTM Software explains system features and interactions in detail. It provides a reference for planning, operating, and administering your system, and we refer to it often. Please note that 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 MultiVantage*TM *Software* and the *Avaya Security Handbook*.

Tell us what you think!

Let us know what you like or don't like about this book. Although we can't respond personally to all your feedback, we promise we will read each response we receive.

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To access the latest version:

- Access the Avaya Customer Support web site at http://www.avaya.com/support/
- Click on Online Services, then Documentation, then Recent Documents, then look for the latest MultiVantageTM release.
- 3. Search for **555-233-756** (the document number) to view the latest version of the book.

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If you need additional help, first access the Avaya Customer Support web site at http://www.avaya.com/support/. Click the **Escalation Lists** link in the lower right side of the page for the most recent information. If you are outside the USA, also click the Global Escalation List link for the phone numbers for the regional Centers of Excellence.

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

MultiVantage TM 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
Avaya Centers of Excellence	
— Asia/Pacific	65 872 8686
— Western Europe/Middle East/South Africa	44 1252 77 4800
— Central/Eastern Europe	361 645 4334
— Central/Latin America Caribbean	1 303 804 3778
— Australia	61 2 9352 9090
— North America	1 800 248 1111

Getting started

This section contains a brief overview of a MultiVantageTM system. It also explains how to log in to your communication system, change the date and time, save changes to the system, and log off.

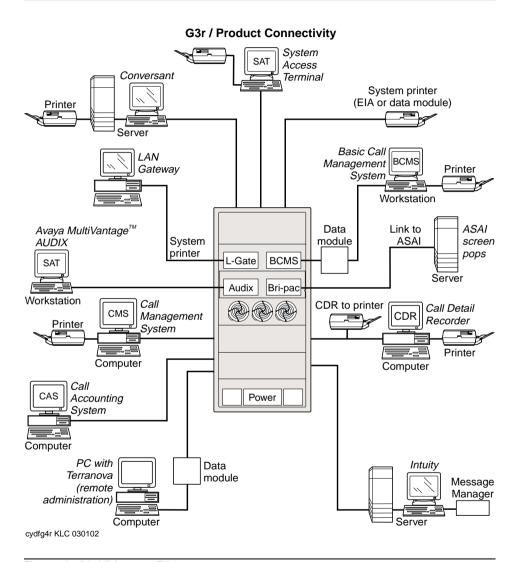
Overview of Avaya MultiVantage™

Your Avaya MultiVantageTM communication system organizes and routes voice, data, image, and video transmissions. Your system can be connected to communications paths that transmit voice and data signals between the phone system and a central office, and to other public and private networks. The following figure shows typical MultiVantageTM system connections, software packages, and additional hardware.

To find more detailed information and a comprehensive overview of your MultiVantageTM system, refer to your *Overview for Avaya MultiVantage*TM *Software*.

NOTE:

Your equipment may be different from the equipment shown in the figure.



Example MultiVantage™ system

Example MultiVantage™ system

Your MultiVantageTM system may include some or all of the following components:

- Conversant—provides response to spoken information
- System access terminal (SAT) allows direct connection for administration and reports
- Basic Call Management System (BCMS) collects information and prints reports on call-center performance
- Data module provides digital information to the system
- ASAI allows integration between adjunct computers and MultiVantageTM systems
- Call Detail Recorder (CDR) collects, stores, filters, and prints records on calls handled by your system
- Intuity Message Manager access to INTUITY AUDIX and MultiVantageTM AUDIX voice processing on a personal computer connected to a local area network
- PC with terminal emulation software— allows remote system administration from a personal computer
- Call Accounting System (CAS) uses call records to create billing reports for the hospitality industry
- Call Management System (CMS) collects information and generates reports on telemarketing centers
- MultiVantageTM AUDIX workstation allows you to administer voice mail
- System printer/LAN Gateway connects to the system printer and local area network server

Phone types

Your MultiVantageTM system may have any of the following phone types administered as user phones. As you make changes to your system, you'll need to know whether each phone is an analog, digital, hybrid, ISDN, or IP phone.

Analog	Digital	Hybrid	ISDN	IP
500	2402	7303S	7505D	4602
2500	2420	7305S	7506D	4606
6210	6402	7309H	7507D	4612
6218	6408, 6408+, 6408D	7313H	8503D	4620
6220	6416D+	7314H	8510T	4624
7101A	6424D+	7315H	8520T	4630
7102A	7401D, 7401+	7316H	ASAI	
7103A	7403D	7317H		
7104A	7404D			
7302H	7405D, 7405ND			
7303H	7406D, 7406+			
8110	7407D, 7407+			
DS1FD	7410D, 7410+			
K2500	7434D, 7434ND			
	7444D			
	8403B			
	8405B, 8405B+			
	8405D, 8405D+			
	8410B, 8410D			
	8411B, 8411D			
	8434D			
	602A1			
	603A1, 603D1, 603E1			
	606A1			

Accessing your system

You need to log in before you can administer your communication system. To log in, you need to know:

- your login and password
- the type of terminal or terminal emulation program that you are using

Change your password frequently, at least once a month, to help keep hackers out of your system. For instructions on how to change your password or add new logins, refer to "Assigning and changing users" on page 75.

Logging into the system

If your system requires Access Security Gateway procedures, refer to the *Administrator's Guide for Avaya MultiVantage*TM *Software* for more information.

- 1. At the prompt, type your login and press RETURN.
 - The system prompts you for your password.
- 2. Type your password and press RETURN.

Your password does not display on the screen. Be sure to keep your password private.

The system prompts you for your terminal type. The type in square brackets is the default.

```
Login:
Password:

System: XXXXXX Software Version: xxxxxxxxxxx

Terminal Type: (513, 715, 4410, 4425, VT220): [513]
```

Terminal screen for login

Press RETURN if you are using the default terminal. Otherwise, enter the terminal type and press RETURN.

Once you log in, "Command" appears. The system is ready to accept a new command.

Setting the system time and date

Update the system time and date for events such as leap year or daylight savings time. The correct time and date ensure that records are correct.



Changing the date and time may modify Call Detail Recording (CDR) data by 9 hours and 59 minutes. Therefore, you should change the date and time after normal business hours.

To set the system time and date:

1. Type **set time** and press RETURN.

The Date and Time screen appears.

2. Complete the appropriate fields.

Use a 24-hour clock to set the hour. For example, for 2:00 p.m. (14:00) type 14. Do not try to update the Seconds field because it automatically resets to 0 when you press ENTER.

3. Press ENTER to save your changes.

D	DATE AND TIME
DATE	
	Day of the Week: Month: Day of the Month: Year:
TIME	Hour: Minute: Second: XX Type:
	Daylight Savings Rule:

Date and Time screen

4. Type **display time** and press RETURN to double check the new date and time.



When you change the date or time, some display phones may not automatically refresh the display. If this happens, have each user press the date/time button on their phone and the display should update.

See the *Administrator's Guide for Avaya MultiVantage*TM *Software* for more information about setting the date and time on your system.

Saving changes

There are two methods for saving changes to your system: temporary saves and permanent backups.

Temporary save

As you are working with the system, your changes to the system memory are considered temporary. These changes are lost if your system loses power before the next permanent save (or backup).

1. Press ENTER to save any changes you make on a screen.

When you press ENTER, "command successfully completed" appears and the cursor returns to the command prompt.

Permanent backup

A permanent backup copies your changes from the system memory to a card (also called a flash ROM), disk, or tape. You can perform manual backups or your system may be administered to automatically backup every 24 hours.



To determine if your system backs up automatically, type **display system-parameters maintenance** and see if you have scheduled maintenance.

When you make large changes, perform a manual backup in case your system loses power before the next backup. To create a backup:

- 1. Be sure that the backup card or tape is in place.
- 2. Check the alarms panel and clear any active alarms.
- 3. Type save translation and press RETURN.

The save process may take up to 10 minutes. You cannot administer your system while the save process takes place.

Issue 4 May 2002

If an error message appears in the Command Completion Status field, clear the error and repeat the save process.

SAVE TRANSLATION

Processor Command Completion Status Error Code
SPE_A Success 0

Save Translation screen

It is a good idea to have at least two backups. You can run the backup again to a second card, or you can copy an automatic backup with the backup command (if your system allows). You may want to keep this second (or a third) backup off premises to ensure you could recover from a disaster or system failure.

See the *Administrator's Guide for Avaya MultiVantage*TM *Software* for more information about performing backups of your system.

Saving announcements

You can save announcements only if your system has an integrated announcement board and you have administered announcements.

See the *Avaya MultiVantage*TM *Solution's Little Instruction Book for advanced administration* for information about Voice Announcements over LAN (VAL) and VAL Manager.

If you change your recorded announcements and you have a TN750C board, the system automatically saves your changes to the on-board FLASH memory.

If you have a TN750 or TN750B board, you need to manually save the recorded announcements on your system.

 Type save announcements and press RETURN to save the changes.

This process can take up to 40 minutes. You cannot administer your system while the system is saving announcements.



If you have both TN750B and TN750C boards, save announcements to the TN750B slot.

See the *Administrator's Guide for Avaya MultiVantage*TM *Software* for more information about saving announcements.

Logging off the system

For security reasons, you should log off every time you leave your terminal.

1. To log off the system, type **logoff** and press RETURN.

You may see a security screen that indicates that you have Remote Access, Facility Test, or Busied Out administered. You may want to disable these features before you log off. For more information about these features, refer to the *Little Instruction Book for basic diagnostics*.

This screen also indicates whether or not you have any active minor or major alarms that you should address before you end your session.

2. Type **y** and press RETURN to proceed with log off.

If you use terminal emulation software to administer the switch, you should log off the system and exit the emulation application before alternating or switching to another software package.

10

Planning the MultiVantage™ system

This section provides you with background on system-wide functions. It explains how to read and use your dial plan, and shows you how to make simple changes such as adding extension ranges. This section also explains how to assign feature access codes.

Understanding the dial plan

Your dial plan tells your system how to interpret dialed digits. For example, if you dial 9 on your system to access an outside line, it is actually the dial plan that tells the system to find an external trunk when a dialed string begins with a 9.

The dial plan also tells the system how many digits to expect for certain calls. For example, the dial plan may indicate that all internal extensions are 4-digit numbers that start with 1 or 2.



In this book, we do not usually explain each screen as thoroughly as we do the dial plan. However, this screen serves as the basis for almost everything in the system, so we wanted to be sure you have a clear understanding of how to read and update your dial plan. The screens shown may not exactly match your system. If you have a MultiVantageTM system, see MultiVantageTM dial plans. If you have an R10 or earlier system, see R10 or earlier dial plans. If you need more information, refer to the Administrator's Guide for Avaya MultiVantageTM Software.

MultiVantage™ dial plans

The MultiVantage™ system allows you to create your dial plan using from three to seven digits.



If you have an R10 or earlier system, see R10 or earlier dial plans.

Let's take a look at an example dial plan so you'll know how to read your system's dial plan. The following figure shows an example of a simple dial plan.

			DIAL PLAN	ANALYSIS	TABLE	Percen	t Full:	9	
Dialed	Total	Call	Dialed	Total	Call	Dialed	Total	Call	
String	Length	Type	String	Length	Type	String	Length	Type	
0	1	attd	_	_			_		
1	3	dac	_	_			_		
20	5	ext	_	_			_		
21	2	fac	_	_			_		
3	5	ext	_	_			_		
4	4	ext	_	_			_		
4	7	ext	_	_			-		
5	7	ext	_	_			-		
6	7	ext	_	_			_		
8	1	fac	_	_			_		
9	5	ext	_	_			_		
*	3	fac	_	_			_		
#	3	fac	_	_			_		
	_		_	_			_		
	_		_	_			_		_

Dial Plan Analysis Table screen

The set of three columns indicate how long the dialed string will be for each type of call. For example, this dial plan shows that when users dial a 7-digit number that starts with 4, they are dialing an extension.

The third column may have any of the following codes:

- Attendant (attd) Defines how users call an attendant. Attd access numbers can be any number from 0 to 9 and contain 1 or more digits. In our example figure, the system calls an attendant when users dial 0.
- Dial access codes (dac) Allows you to use trunk access codes (tac) and feature access codes (fac) in the same range. For example, you could define the group 100–199 for dacs, which would allow both facs and tacs in that range. Dial access codes can start with any number from 1 to 9 and contain up to 4 digits. In recent releases, * and # also can be the first digit. In our example figure, dial access codes begin with 1 and must be 3 digits long, so this company can have a feature access code set to 133 and a trunk access code assigned to 134.
- Extensions (ext) Defines extension ranges that can be used on your system. In our example, extensions must be in the ranges: 20000–20999, 30000–39999, 4000–4999, 4000000–499999, 5000000–5999999, 6000000–6999999, and 90000–99999.
- Feature access codes (fac) only facs can be any number from 1 to 9 and contain up to 4 digits. You can use * or #, but only as a first digit. In our example, this company can use *21 to activate a feature and use #21 to deactivate the same feature. Our example also shows that one fac can be set to 8 (first digit 8, only one digit long).

Displaying your MultiVantage™ dial plan

You might want to take this opportunity to look at and interpret your own dial plan. To display your system's dial plan:

1. Type display dialplan analysis and press RETURN.

Modifying your MultiVantage™ dial plan

It is easy to make changes to your dial plan. For example, let's add a new range of dial access codes to the dial plan. We want to be able to assign both facs and tacs in the 700–799 range.

- 1. Type change dialplan analysis and press RETURN. The Dial Plan Analysis Table screen appears.
- 2. Move the cursor to the next available row.
- 3. Type **7** in the first column.
- 4. Type **3** in the second column.
- 5. Type **dac** in the third column.
- 6. Press ENTER to save your changes.

Adding extension ranges to your MultiVantage™ dial plan

You may find that as your needs grow you want a new set of extensions. Before you can assign a station to an extension, the extension must belong to a range that is defined in the dial plan. Let's add a new set of extensions that start with 8 and are 6 digits long (800000–899999).

To add this set of extensions to the dial plan:

- Type change dialplan analysis and press RETURN.
 The Dial Plan Analysis Table screen appears.
- 2. Move the cursor to the next available row.
- 3. Type **8** in the first column.
- 4. Type **6** in the second column.
- 5. Type **ext** in the third column.
- 6. Press ENTER to save your changes.

Adding feature access codes to your MultiVantage™ dial plan

As your needs change, you may want to add a new set of feature access codes for your system. Before you can assign a fac on the Feature Access Code screen, it must conform to your dial plan.

In our example, if you want to assign a feature access code of 33 to Last Number Dialed, first you need to add a new fac range to the dial plan. To add a fac range from 30–39:

- Type change dialplan analysis and press RETURN.
 The Dial Plan Analysis Table screen appears.
- 2. Move the cursor to the next available row.
- 3. Type **3** in the first column.
- 4. Type **2** in the second column.
- 5. Type **fac** in the third column.
- 6. Press ENTER to save your changes.

R10 or earlier dial plans

Let's take a look at an example dial plan so you'll know how to read your system's dial plan. The following figure shows an example of a simple dial plan.

		DIAL PLAN	N RECORD		Page 1 of 1
				Local Node Number	
Uniform I	Dialing Plan:	4-digit	ETA	Routing Patter	n:
UDP Extension S	Search Order:	local-exte	ensions-fi	rst	
IRST DIGIT TABLE	2				
'irst		Leng	gth		
igit -1-	-2-	-3-	-4-	-5-	-6-
1:			ext		
2:			ext		
3:					
4 :					
5:			_ ext		
6:		dac			
7:					
8:					
9: fac					
0: attd					
*:		fac			

Dial Plan Record screen

Issue 4 May 2002

If you look at the lower half of the Dial Plan Record screen, you see the First Digit Table. This table defines the dialing plan for your system.

The rows in the First Digit Table indicate what the system does when the row's first digit is dialed. The columns indicate how long the dialed string will be for each type of call. For example, this dial plan shows that when users dial a 4-digit number that starts with 2, they are dialing an extension.

The first digit table may have any of the following codes:

- Attendant (attd) Defines how users call an attendant. Attd access numbers can be any number from 0 to 9 and contain 1 or more digits. In our example figure, the system calls an attendant when users dial 0.
- Dial access codes (dac) Allows you to use trunk access codes (tac) and feature access codes (fac) in the same range. For example, you could define the group 300–399 for dacs, which would allow both facs and tacs in that range. Dial access codes can start with any number from 1 to 9 and contain up to 4 digits. In recent releases, * and # also can be the first digit. In our example figure, dial access codes begin with 6 and must be 3 digits long, so this company can have a feature access code set to 633 and a trunk access code assigned to 634.
- Extensions (ext) Defines extension ranges that can be used on your system. In our figure, extensions must be in the ranges: 1000–1999, 2000–2999, and 5000–5999.
- Feature access codes (fac) only facs can be any number from 1 to 9 and contain up to 4 digits. You can use * or #, but only as a first digit. In our example, this company can use *21 to activate a feature and use #21 to deactivate the same feature. Our example also shows that one fac can be set to 9 (first digit 9, only one digit long).
- Miscellaneous code (misc) (for R10 or earlier only) these codes are used if you want to have more than one kind of code start with the same digit and be the same length. Using a misc code requires that you also define a second digit table. Refer to the *Administrator's Guide for Avaya*MultiVantageTM *Software* for information about the second digit table. Our example does not show this code.

Displaying your R10 or earlier dial plan

You might want to take this opportunity to look at and interpret your own dial plan. To display your system's dial plan:

1. Type **display dialplan** and press RETURN.

Modifying your R10 or earlier dial plan

It is easy to make changes to your dial plan. For example, let's add a new range of dial access codes to the dial plan. We want to be able to assign both facs and tacs in the 700–799 range.

1. Type **change dialplan** and press RETURN.

The Dial Plan Record screen appears.

2. Move the cursor to the 7th row in the 3rd column.

This field defines what the system does when users dial any number from 700 to 799.

- 3. Type **dac** in the selected field.
- 4. Press ENTER to save your changes.

Adding extension ranges to your R10 or earlier dial plan

You may find that as your needs grow you want a new set of extensions. Before you can assign a station to an extension, the extension must belong to a range that is defined in the dial plan. Let's add a new set of extensions that start with 3 and are 4 digits long (3000–3999).

To add this set of extensions to the dial plan:

- Type change dialplan and press RETURN.
 The Dial Plan Record screen appears.
- 2. Move the cursor to the 3rd row in the 4th column.
- 3. Type **ext** in the selected field.
- 4. Press ENTER to save your changes.

Adding feature access codes to your R10 or earlier dial plan

As your needs change, you may want to add a new set of feature access codes for your system. Before you can assign a fac on the Feature Access Code screen, it must conform to your dial plan.

In our example, if you want to assign a feature access code of 33 to Last Number Dialed, first you need to add a new fac range to the dial plan.

To add a fac range from 30–39:

- Type change dialplan and press RETURN.
 The Dial Plan Record screen appears.
- 2. Move the cursor to the 3rd row and the 2nd column.
- 3. Type **fac** in the selected field.
- 4. Press ENTER to save your changes.

Changing feature access codes

Feature access codes (FAC) allow users to activate and deactivate features from their phones. A user who knows the fac for a feature does not need a programmed button to use the feature. For example, if you tell your users that the fac for the Last Number Dialed is *33, then users can redial a phone number by entering the fac, rather than requiring a Last Number Dialed button.

Many features already have factory-set feature access codes. You can use these default codes or you can change them to codes that make more sense to you. However, every fac must conform to your dial plan and must be unique. For more information about the dial plan, refer to "Understanding the dial plan" on page 11.

Let's try an example. If you want to change the feature access code for Call Park to *72:

- Type change feature-access-codes and press RETURN.
 The feature access code (fac) screen appears.
- 2. Move the cursor to the Call Park Access Code field.
- 3. Type *72 in the access code field over the old code.
- 4. Press ENTER to save your changes.

If you try to enter a code that is assigned to a feature, the system warns you of the duplicate code and does not allow you to proceed until you change one of them.



To remove any feature access code, delete the existing fac and leave the field blank.

Managing phones

This section explains how to add, swap, or remove the phones on your system. This section also gives you tips for customizing your own phone so it has the feature buttons you need for many administration and troubleshooting tasks.

NOTE:

Note that this section does not tell you how to administer attendant consoles or IP phones. If you need to add or modify an attendant console or IP phone, refer to the *Administrator's Guide for Avaya* MultiVantageTM *Software*.

Adding new phones

When you are asked to add a new phone to the phone system, what do you do first? To connect a new phone you need to do three things:

- find an available port
- wire the port to the cross-connect field or termination closet
- tell the telephone system what you're doing

Before you can determine which port to use for the new phone, you need to determine what type of phone you are installing, what ports are available, and where you want to install the phone.

Gathering necessary information

1. Determine whether the phone is an analog, digital, ISDN, or hybrid set.

You need this information to determine the type of port you need, because the port type and phone type must match. If you do not know what type of phone you have, refer to "Phone types" on page 4 for a list of phones by model number.

2. Record the room location, jack number, and wire number.

You may find this information on the jack where you want to install the phone, recorded in your system records, or from the technician responsible for the physical installation.

3. Display the available boards (circuit packs) and ports.

To view a list of boards on your system, type list configuration stations and press RETURN.

		SYSTEM CON	FIGURATION								
Board						As	sig	ned	Po	rts	
Number	Board Type	Code	Vintage	u	=una	ass	ign	ed	t=t	ti :	p=psa
01A05	DIGITAL LINE	TN754B	000002	01	u	03	u	05	u	07	08
01A06	ANALOG LINE	TN742	000010	01	02	03	04	u	u	u	u
01B05	ANALOG LINE	TN746B	800000	u	u	u	u	u	u	u	u
				u	u	u	u	u	u	u	u
01C04	ANALOG LINE	TN746B	800000	u	u	u	u	u	u	u	u
				u	u	u	u	u	u	u	u
01C05	DIGITAL LINE	TN2224	000004	01	u	u	04	u	u	07	08
				u	u	u	u	u	u	u	u
				u	u	u	u	u	u	u	u
01C06	HYBRID LINE	TN762B	000004	01	02	u	u	u	u	u	u
01C09	MET LINE	TN735	000005	01	u	u	u				
\ 01C10	DIGITAL LINE	TN754	000004	u	u	u	u	u	u	u	u
											/

System Configuration screen

22

The System Configuration screen shows all the boards (circuit packs) on your system that are available for connecting phones. You can see the board number, board type, and status of each board's ports.

4. Choose an available port and record its port address.

Each port that is available or unassigned is indicated by a 'u.' Choose an available port from a board type that matches your phone type (such as a port on an analog board for an analog phone).

Every phone must have a valid port assignment, also called a port address. The combined board number and port number is the port address. So, if you want to attach a phone to the 3rd port on the 01C05 board, the port address is 01C0503 (01=cabinet, C=carrier, 05=slot, 03=port).



If you add several phones at one time, you may want to print a paper copy of the System Configuration screen. To print the screen to a printer attached to the system terminal, type list configuration stations print and press RETURN. To print to the system printer that you use for scheduled reports, type list configuration stations schedule immediate and press RETURN.

5. Choose an extension number for the new phone.

The extension you choose must not be assigned and must conform to your dial plan. You should also determine whether this user needs an extension that can be directly dialed (DID) or reached via a central phone number.

Be sure to note your port and extension selections on your system's paper records.

Physically connecting the phone

Once you have collected all the information, you are ready to physically wire the port to the cross-connect field.

If you have an Avaya representative or on-site technician who completes the physical connections, you need to notify them that you are ready to add the phone to the system. To request that Avaya install the new connections, call your Avaya representative to place an order.

If you are responsible for making the connections yourself and if you have any questions about connecting the port to the cross-connect field, refer to your system installation guide.

Now you are ready to configure the system so that it recognizes the new phone.

Completing the station screens

The information that you enter on the station screen advises the system that the phone exists and indicates which features you want to enable on the phone.

To access the station screen for the new phone:

1. Type **add station** *nnnn* and press RETURN, where *nnnn* is the extension for the new phone.

Make sure the extension conforms to your dial plan. You can also use the **add station next** command to add a phone to the next available extension.

When the station screen appears, you see the extension number and some default field values. For example, the following screen is for a new phone at extension 2345.

		STATION
Extension: Type: Port: Name:	8411D	Lock Messages? _ BCC: _ Security Code: _ TN: 1 Coverage Path 1: _ COR: 1 Coverage Path 2: _ COS: 1 Hunt-to Station: _
STATION OP	TIONS Loss Group: Data Module? Speakerphone: 2-way splay Language: english	Personalized Ringing Pattern: <u>1</u> Message Lamp Ext: <u>2345</u> Mute Button Enabled? y
<u> </u>		Media Complex Ext: IP Softphone? n

Station screen

2. Type the model number of the phone into the Type field.

For example, to install a 8411D phone, type **8411D** in the Type field. Note that the displayed fields may change depending on the model you add.

- 3. Type the port address in the Port field.
- 4. Type a name to associate with this phone in the Name field.

The name you enter appears on called phones that have display capabilities. Also, some messaging applications, such as INTUITY, recommend that you enter the user's name (last name first) and their extension to identify the phone.

5. Press ENTER to save your changes.

To make changes to this new phone, such as assigning coverage paths or feature buttons, type **change station** *nnnn* and press RETURN, where *nnnn* is the extension of the new phone.

Using station templates to add phones

A quick way to add phones is to copy the information from an existing phone and modify it for each new phone. For example, you can configure one phone as a template for an entire work group. Then, you merely duplicate the template station screen to add all the other extensions in the group.

Note that only phones of the same model can be duplicated. The duplicate command copies all the feature settings from the template phone to the new phones.

To duplicate an existing phone:

- 1. Type **display station** *nnnn* and press RETURN.
 - *nnnn* is the extension of the station screen you want to duplicate to use as a template. Verify that this extension is the one you want to duplicate.
- 2. Press CANCEL to return to the command prompt.
- 3. Type **duplicate station** *nnnn* and press RETURN, where *nnnn* is the extension you want to duplicate.

The system displays a blank Duplicate Station screen.

			STATION	Security			
Ext.	Port	Name		Code	Room	Jack	Cable
		_					

Duplicate Station screen

- 4. Type in the extension, port address, and phone name for each new phone you want to add.
 - The rest of the fields are optional. You can complete them at any time.
- 5. Press ENTER to save your changes to system memory.

To make changes to these phones, such as assigning coverage paths or feature buttons, type **change station** *nnnn* and press ENTER, where *nnnn* is the extension of the phone that you want to modify.

Using an alias

Not every phone model has a unique station screen in the system. You might have to use an available model number as an "alias" for another. If you need to enter a phone type that the system does not recognize or support, use an alias.

For example, you may purchase a phone model that is newer than your system. In this case, you can use an available model type that best matches the features of your new phone. You can refer to your phone's manual to determine which alias to use. If your manual does not have this information, you can contact the MultiVantageTM helpline for an appropriate alias.

For example, let's use an alias to add a new 8403B phone to a DEFINITY G3V2 or earlier system.

- 1. Refer to your new phone's manual to find the correct alias. In our example, we find that the 8403B is administered on a G3V2 or earlier system as a 7405D phone.
- 2. Type **change alias station** and press RETURN. The Alias Station screen appears.
- Enter 8403B in the Alias Set Type field.
 Enter the model of the unsupported phone in this field.
- 4. Enter **7405D** in the Supported Set Type field. Enter the alias (supported model) in this field.
- 5. Press ENTER to save your changes.

	ALIAS ST	TATION					
Alias Set Ty 8403B	rpe	Supp	orted 7405D	Set Ty	уре		
'#' indicates p	reviously	aliased	set ty	pe is	now	native	

Alias Station screen

Now follow the instructions for adding a new phone. Your switch now recognizes the new type you enter in the Type field.

Be sure to refer to your phone's manual for instructions on how to set feature buttons and call appearance buttons. Note that if you need to use an alias for a phone, you may not be able to take advantage of all the features of the new phone.

Adding or changing feature buttons

Once you add a phone to the system, you can use the station screen to change the settings for the phone, such as adding or changing feature button assignments. The system allows you to assign features or functionality to each programmable button. It is up to you to decide which features you want for each phone and which feature you want to assign to each button.

To assign feature buttons:

- 1. Type **change station** *nnnn* and press ENTER, where *nnnn* is the extension for the phone you want to modify.
 - The station screen appears.
- 2. Press NEXT PAGE until you locate the Feature Button Assignment fields.
 - Some phones have several feature button groups. Make sure that you are changing the correct button. If you do not know which button on the phone maps to which button-assignment field, refer to your phone's manual, or refer to the *Administrator's Guide for Avaya* MultiVantageTM *Software*.
- 3. Move the cursor to the field you want to change.

4. Type the button name that corresponds to the feature you want to add.

To determine feature button names, press HELP or refer to the *Administrator's Guide for Avaya* MultiVantageTM *Software*.

5. Press ENTER to save your changes.

Some phones have default assignments for buttons. For example, the following figure shows that the 8411D includes defaults for 12 softkey buttons. It already has assignments for features like Leave Word Calling and Call Forwarding.

If you do not use an alias, you can easily assign different features to these buttons if you have different needs.

If you use an alias, you must leave the default softkey button assignments. The system will allow you to change the button assignments on the screen, but the features will not work on the alias phone.

_					
SOF	TKEY BUTTON	ASSIGNMENTS	STATION		
2: 3:	lwc-store lwc-cancel auto-cback timer				
6: 7: 8:	call-fwd call-park date-time priority	Ext:			
10: 11:	abr-prog abr-spchar abr-spchar abr-spchar	Char: ~m			<i>)</i>

Default softkey assignments for an 8411D phone

Customizing your phone

This section provides recommendations for setting up or enhancing your personal phone. You need a phone that is powerful enough to allow you to use all the features you may give to other employees. You may want to add feature buttons that allow you to monitor or test the system, so that you can troubleshoot the system from your phone.

It will be much easier to monitor and test your system if you have a phone with:

- a large multi-button display (such as 8434D or 8410D)
- a class of service (cos) that has console permissions
- the following feature buttons
 - ACA and Security Violations (assign to lamp buttons)
 - Busy verify
 - Cover message retrieval button
 - Major/minor alarm buttons
 - Trunk ID buttons
 - Verify button

Once you select a phone, you'll want to determine if you want to place this phone at your desk or in the switch room. If the phone is in the switch room (near the system administration terminal), you can quickly add or remove feature buttons to test features and facilities. You may decide that you want a phone at both your desk and in the switch room — it's up to you.

You may also find it handy to set up multiple phones for testing applications and features before you provide them to users. You may want to have a phone that mimics each type of user phone in your organization. For example, if you have four basic phone templates, one for executives, one for marketing, one for technicians, and one for other employees, you may want to have examples of each of these phones so you can test new features or options. Once you are satisfied that a change works on the test phone, you can make the change for all the users in that group.

Upgrading phones

If you want to change phone types for a user and do not need to change locations, you can just access the station screen for that extension and enter the new model number.



This method can be used only if the new phone type matches the existing port type (such as digital phone with a digital port).

For example, if a user at extension 4556 currently has a 7410+ phone and you want to replace it with a new 8411D phone:

- 1. Type **change station 4556** and press RETURN.
 - The station screen for 4556 appears.
- 2. Overwrite 7410+ with **8411D** in the Type field.

Now you can access the functions and feature buttons that correspond to an 8411D phone.

Swapping phones

You will often find that you need to move or swap phones. For example, employees moving from one office to another may want to bring their phones.

In general, to swap one phone (phone A) with another phone (B), you change phone A's port assignment to \mathbf{x} , change phone B's port assignment to A's old port, and, finally, change the \mathbf{x} for phone A to B's old port. Note that these swapping instructions work only if the two phones are the same type (both digital or both analog, etc.).

NOTE:

You can use Terminal Translation Initialization (TTI) to merge an x-ported extension to a valid port. You can also use Automatic Customer Telephone Rearrangement (ACTR) to unplug certain phones from one location to move them to a new location without additional switch administration. Refer to the *Administrator's Guide for Avaya* MultiVantageTM *Software* for information about TTI and ACTR.

For example, to swap phones for extension 4567 (port 01C0505) and extension 4575 (port 01C0516), complete the following steps:

- 1. Type **change station 4567** and press RETURN.
- 2. Record the current port address (01C0505) and type **x** in the Port field.
- 3. Press ENTER to save your changes.
- 4. Type change station 4575 and press RETURN.
- 5. Record the current port address (01C0516).

- 6. Type **01C0505** in the Port field.
- 7. Update the Room and Jack fields.
- 8. Press ENTER to save your changes.
- 9. Type **change station 4567** again and press RETURN.
- 10. Type **01C0516** in the Port field.

This is the port that used to be assigned to extension 4575.

- 11. Update the Room and Jack fields.
- 12. Press ENTER to save your changes.
- Physically unplug the phones and move them to their new locations.

Removing phones

Before you physically remove a phone from your system, check the phone's status, remove it from any group or usage lists, and then delete it from the system's memory.

For example, to remove a phone at extension 1234:

1. Type **status station 1234** and press RETURN.

The General Status screen appears.

- 2. Make sure that the phone:
 - is plugged into the jack
 - is idle (not making or receiving calls)
 - has no messages waiting
 - has no active buttons (such as Send All Calls or Call Forwarding)

3. Type list groups-of-extension 1234 and press RETURN.

The Extension Group Membership screen shows whether the extension is a member of any groups on the system.

- 4. Press CANCEL.
- 5. If the extension belongs to a group, access the group screen and delete the extension from that group.

For example, if extension 1234 belongs to pickup group 2, type **change pickup group 2** and delete the extension from the list.

6. Type list usage extension 1234 and press RETURN.

The Usage screen shows whether the extension is used in any vectors, has any bridged appearances, or used as a controller.

- 7. Press CANCEL.
- 8. If the extension appears on the Usage screen, access the appropriate feature screen and delete the extension.

For example, if extension 1234 belongs to hunt group 2, type **change hunt group 2** and delete the extension from the list.

- 9. Type change station 1234 and press RETURN.
- 10. Delete any bridged appearances or personal abbreviated dialing entries and press ENTER.

11. Type **remove station 1234** and press RETURN.

The system displays the station screen for this phone so you can verify that you are removing the correct phone.



Be sure to record the port assignment for this jack in case you want to use it again later.

12. If this is the correct phone, press ENTER.

The system responds with command successfully completed.

If the system responds with an error message, the phone is busy or still belongs to a group. Press CANCEL to stop the request, correct the problem, and enter **remove station 1234** again.

- 13. Remove the extension from voice mail service if the extension has a voice mailbox.
- 14. Type **save translations** and press RETURN to save your changes.

Note that you do not need to delete the extension from coverage paths. The system automatically adjusts coverage paths to eliminate the extension.

Now you can unplug the set from the jack and store it for future use. You do not need to disconnect the wiring at the cross-connect field. The extension and port address remain available for assignment at a later date.

Once you successfully remove a set, that set is permanently erased from system memory. If you want to reactivate the set, you have to add it again as though it were a new phone.

Managing features

This section explains how to administer some of the major MultiVantage™ features. It provides instructions for changing feature parameters, using abbreviated dialing, creating pickup groups, setting up call forwarding, defining coverage paths, and administering bridged call appearances.

Changing feature parameters

You can modify the system parameters that are associated with some of the system features. For example, you can use the system parameters to allow music to play if callers are on hold or to allow trunk-to-trunk transfers on the system.

NOTE:

You can find most of the system-wide parameters on the Feature-Related System Parameters screen. However, if you have DEFINITY ECS R6.3.1 or later, some parameters have moved to new screens, such as the System Parameters Call Coverage/Call Forwarding screen.

Generally, Avaya sets your system parameters when your system is installed. However, you can change these parameters as your organization's needs change. For example, let's say that your company uses call park, where a call can be put on hold and picked up from any other telephone within the system. You need to change the time limit for parked calls from 10 to 5 minutes.

To change the time limit for parked calls:

1. Type change system-parameters features and press RETURN

The Feature-Related System Parameters screen appears.

```
FEATURE-RELATED SYSTEM PARAMETERS
                            Self Station Display Enabled? n
                                Trunk-to-Trunk Transfer? none
Automatic Callback - No Answer Timeout Interval (rings): 3
                   Call Park Timeout Interval (minutes): 5
    Off-Premises Tone Detect Timeout Interval (seconds): 20
                             AAR/ARS Dial Tone Required? v
          Music (or Silence) On Transferred Trunk Calls: no
                       DID/Tie/ISDN Intercept Treatment: attd
              Messaging Service Adjunct (MSA) Connected? n
Internal Auto-Answer for Attd-Extended/Transferred Calls? transferred
              Automatic Circuit Assurance (ACA) Enabled? n
         Abbreviated Dial Programming by Assigned Lists? n
   Auto Abbreviated/Delayed Transition Interval (rings): 2
                Protocol for Caller ID Analog Terminals: Bellcore
Display Calling Number for Room to Room Caller ID Calls? n
```

Feature-Related System Parameters screen

2. Type **5** in the Call Park Timeout Interval field and press ENTER to save the change.

If a parked call is not answered within 5 minutes, the call returns to an attendant or to the user who put the call in park.

Refer to the *Administrator's Guide for Avaya MultiVantage*TM Software for details about changing other feature-related system parameters.

Setting up abbreviated dialing

Abbreviated dialing is sometimes called speed dialing. It allows you to dial a short code in place of an extension or phone number.

When you dial abbreviated-dialing codes or press abbreviated-dialing buttons, you access stored numbers from special lists. These lists can be personal (your list of numbers), group (a department-wide list), system (a system-wide list), or enhanced numbers (allows for a longer list of numbers). The version and type of your system determine which lists are available and how many entries you can have on each list.

NOTE:

Note that this section does not tell you how to administer IP softphones or screenphones. If you need to set up an IP phone, refer to the *Administrator's Guide for Avaya* MultiVantageTM *Software*.

As an example, let's define a new group list:

 Type add abbreviated-dialing group next and press RETURN.

The abbreviated-dialing list screen appears. In our example, the next available group list is group 3.

/	ABBREVIATED DIALING LIST	
	Group List: 3	
	Size (multiple of 5): Program Ext: Privileged? _	
	DIAL CODE	
	11:	
	12:	
	13:	
	14:	
	15:	,
/		/

Abbreviated Dialing List screen

- 2. Enter a number (in multiples of 5) in the Size field. This number defines the number of entries on your dialing list.
 - For example, if you have 8 phone numbers you want to store in the list, type **10** in the Size field.
- 3. Enter the phone numbers you want to store, one for each dial code.
 - Each phone number can be up to 24 digits long.
- 4. Press ENTER to save your changes.

You can display your new abbreviated-dialing list to verify that the information is correct or print a copy of the list for your paper records.

Once you define a group list, you need to define which stations can use the list. For example, let's set up station 4567 so it has access to the new group list.

To give station 4567 access to the group list:

1. Type change station 4567 and press RETURN.

The station screen for extension 4567 appears.

2. Press NEXT PAGE to get to the Abbreviated Dialing List fields.

~			STA	TION		
SITE	DATA					
	Room:				Headset?	_
	Jack:				Speaker?	_
(Cable:				Mounting?	<u>d</u>
I	Floor:				Cord Length:	0
Bui:	lding:				Set Color:	
ABBI		D DIALING : group	List2:		List3:	

Station screen (page 3)

- Type **group** in any of the List fields and press RETURN.A blank list number field appears.
- 4. Type **3** in the list number field.

When you assign a group or personal list, you must also specify the personal list number or group list number.

5. Press ENTER to save your changes.

The user at extension 4567 can now use this list by dialing the feature access code for the list and the dial code for the number they want to dial.

Creating pickup groups

A pickup group is a list of phones where each member of the group can answer another member's calls. For example, if you want everyone in the payroll department to be able to answer calls to any payroll extension (in case someone is away from their desk), create a pickup group that contains all of the payroll extensions. Members of a pickup group should be located in the same area so that they can hear when the other extensions in the group ring.

Note that each extension may belong to only one pickup group. Also, the maximum number of pickup groups may be limited by your system configuration.

To create a pickup group:

1. Type add pickup-group next and press RETURN.

The Pickup Group screen appears. The system selects the next Group Number for the new pickup group.

2. Enter the extension of each group member.

Up to 50 extensions can belong to one group.

3. Press ENTER to save your new group list.

The system automatically completes the name field when you press ENTER to save your changes.

	PICKUP	GROUP	
Group Number:			
GROUP MEMBER ASSIGNMENTS			
Ext Name 1: 2: 3: 4: 5: 6: 7: 8: 9: 10:		Ext 14:	Name
11: 12: 13:		24: 25:	

Pickup Group screen

Once you define a pickup group, you can assign call-pickup buttons for each phone in the group or you can give each member the call-pickup feature-access code. Use the Station screen to assign call-pickup buttons.

To allow users to answer calls that are not in their pickup group, you may be able to use Directed Call Pickup. To allow members of one pickup group to answer calls directed to another pickup group, you may be able to add an extended pickup group. For information, refer to the *Administrator's Guide for Avaya* MultiVantageTM *Software*.

Setting up call forwarding

This section explains how to administer various types of automatic call forwarding. To provide call forwarding to your users, assign each extension a class of service (cos) that allows call forwarding. Then assign call-forwarding buttons to the user phones (or give them the feature access code for call forwarding) so that they can easily forward calls. You use the station screen to assign the cos and any call-forwarding buttons.

Within each class of service, you can determine whether the users in that cos have the following call forwarding features:

- Call Forwarding All Calls allows users to redirect all incoming calls to an extension, attendant, or external phone number.
- Call Forwarding Busy/Don't Answer allows users to redirect calls only if their extensions are busy or they do not answer.
- Call Fwd-Off Net prevents users from forwarding calls to numbers that are outside your system network.

As the administrator, you can administer system-wide call-forwarding parameters to control when calls are forwarded. Use the System Parameters Call Coverage/Call Forwarding screen to set the number of times an extension rings before the system redirects the call because the user did not answer (CFWD No Answer Interval). For example, if you want calls to ring 4 times at an extension and then, if the call is not answered, redirect to the forwarding number, set this parameter to 4. Note that this parameter also affects call coverage, so a call rings 4 times at each coverage point.

You also can use the System Parameters Call Coverage/Call Forwarding screen to determine whether the forwarded-to phone can override call forwarding to allow calls to the forwarded-from phone (Call Forward Override). For example, if an executive forwards incoming calls to an attendant and the attendant needs to call the executive, the call can be made only if Call Forward Override is set to yes.

To determine which extensions have call forwarding activated:

1. Type **list call-forwarding** and press RETURN.

This command lists all the extensions that are forwarded along with each forwarding number.



If you have a V1, V2, or V3 system, you can see if a specific extension is forwarded only by typing **status station nnnn**, where nnnn is the specific extension.

Creating coverage paths

This section explains how to administer various types of call coverage. In general, call coverage refers to what happens to incoming calls. You can administer paths to cover all incoming calls, or define paths for certain types of calls, such as calls to busy phones. You can define where incoming calls go if they are not answered and in what order they reroute to other locations. For example, you can define coverage to ring the called phone, then move to a receptionist if the call is not answered, and finally access a voice mailbox if the receptionist is not available.

With call coverage, the system redirects a call to alternate answering extensions when no one answers at the first extension. An extension can have up to 6 alternate answering points. (If you have an older system, you may have only 3 answering positions.) The system checks each extension in sequence until the call connects. This sequence of alternate extensions is called a coverage path.

The system redirects calls based on certain criteria. For example, you can have a call redirect to coverage without ever ringing on the principal set, or after a certain number of rings, or when one or all call appearances (lines) are busy. You can set coverage differently for internal (inside) and external (outside) calls, and you can define coverage individually for different criteria. For example, you can decide that external calls to busy phones can use the same coverage as internal calls to phones with Do Not Disturb active.

To create a coverage path:

1. Type add coverage path next and press RETURN.

The system displays the next undefined coverage path in the sequence of coverage paths. Our example shows coverage path number 2.

2. Type a coverage path number in the Next Path field.

The next path is optional. It is the coverage path to which calls are redirected if the current path's coverage criteria does not match the call status. If the next path's criteria matches the call status, it is used to redirect the call; no other path is searched.

	COVERAGE PATH		
2	n Number: 2 n Number:		Coverage? <u>n</u>
Station/Group Status	Inside Call	Outside Ca	11
Active?	<u>n</u>	<u>n</u>	
Busy?	¥	Y	
Don't Answer?	¥	Y	Number of Rings: 2
All?	<u>n</u>	<u>n</u>	
OND/SAC/Goto Cover?	¥	Υ	
OVERAGE POINTS			
Terminate to Coverage I	ets. with Bridge	d Appearance	?
Point1:	Point2:		Point3:
Point4:	Point5:		Point6:

Coverage Path screen

3. Fill in the Coverage Criteria fields.

You can see that the default sets identical criteria for inside and outside calls. The system sets coverage to take place for a busy phone, if there is no answer after a certain number of rings, or if the DND (do not disturb), SAC (send all calls), or Go to Cover buttons are pressed or feature-access codes are dialed.

4. Fill in the Point fields with the extensions you want for coverage points.

Each coverage point can be an extension, hunt group, coverage answer group, remote number, vdn, or attendant.

5. Press ENTER to save your changes.

Now assign the new coverage path to a user. For example, let's assign this new coverage path to extension 2054:

1. Type **change station 2054** and press RETURN.

The station screen for extension 2054 appears.

2. Type 2 in the Coverage Path 1 field.

To give extension 2054 another coverage path, you can type a coverage path number in the Coverage Path 2 field.

3. Press ENTER to save your changes.



If you want to see which extensions or groups use a specific coverage path, type display coverage sender group n, where n is the coverage path number. For example, you should determine which extensions use a coverage path before you make any changes to it.

Defining time-of-day coverage

The Time of Day Coverage Table on your system lets you redirect calls to coverage paths according to the time of day and day of the week when the call arrives. You need to define the coverage paths you want to use before you define the time of day coverage plan.

For example, let's say you want to administer the system so that incoming calls to extension 2054 redirect to a coworker in the office from 8:00 a.m. to 5:30 p.m., and to a home office from 5:30 p.m. to 8:00 p.m. on weekdays. You want to redirect the calls to voice mail after 8:00 p.m. weekdays and on weekends.

To set up a time-of-day coverage plan that redirects calls for our example above:

1. Type add coverage time-of-day next and press RETURN.

The system displays the Time of Day Coverage Table and selects the next undefined table number in the sequence of time-of-day table numbers. If this is the first time-of-day coverage plan in your system, the table number is 1.

Record the table number so that you can assign it to extensions later.

2. To define your coverage plan, enter the time of day and path number for each day of the week and period of time.

	Act	CVG	Act	CVG	Act	CVG	Act	CVG	Act	CVG
	Time	PATH	Time	PATH	Time	PATH	Time	PATH	Time	PATH
Sun	00:00	3	_:_	_	:_	_	:	_	_:_	_
Mon	00:00	3	08:00	1	17:30	2	20:00	3	_:_	_
Tue	00:00	3	08:00	1	17:30	2	20:00	3	_:_	_
Wed	00:00	3	08:00	1	17:30	2	20:00	3	_:_	_
Thu	00:00	3	08:00	1	17:30	2	20:00	3	_:_	_
Fri	00:00	3	08:00	1	17:30	2	20:00	3	:	_
Sat	00:00	3	:		:		:		:	

Time of Day Coverage Table screen

Enter time in a 24-hour format from the earliest to the latest. For this example, assume that coverage path 1 goes to the coworker, path 2 to the home, and path 3 to voice mail.

Define your path for the full 24 hours in a day. If you do not list a coverage path for a period of time, the system does not provide coverage for that time.

3. Press ENTER to save your changes.

Now assign the time-of-day coverage to a user. For example, we use extension 2054:

1. Type **change station 2054** and press RETURN.

The station screen for extension 2054 appears.

- 2. Move your cursor to Coverage Path 1 and type **t** plus the number of the Time of Day Coverage Table.
- 3. Press ENTER to save your changes.

Now calls to extension 2054 redirect to coverage depending on the day and time that each call arrives.

Creating coverage answer groups

You can create a coverage answer group so that up to eight phones simultaneously ring when calls cover to the group. Anyone in the answer group can answer the incoming call.

To add a coverage answer group:

1. Type add coverage answer-group next and press RETURN.

The Coverage Answer Group screen appears.

```
COVERAGE ANSWER GROUP

Group Number: ____
Group Name: COVERAGE_GROUP_

GROUP MEMBER ASSIGNMENTS
Ext Name (first 26 characters) Ext Name (first 26 characters)

1: ____
2: ___
3: ___
4: ___
8: ___
```

Coverage Answer Group screen

- 2. In the Group Name field, enter a name to identify the coverage group.
- 3. In the Ext field, type the extensions of each group member.
- 4. Press ENTER to save you new group list.

The system automatically completes the Name field when you press ENTER.

Defining coverage for calls redirected to external numbers

You can administer the system to allow calls in coverage to redirect to off-net (external) or public-network numbers.

Some systems allow you to send a call to an external phone, but do not monitor the call once it leaves your system. With this remote call coverage, make the external number the last coverage point in a path. With newer systems you may have the option to use the Coverage of Calls Redirected Off-Net feature. If this feature is active and you use an external number in a coverage path, the system can monitor the call to determine whether the external number is busy or does not answer. If necessary, the system can redirect a call to coverage points that follow the external number. With this feature, you can have a call follow a coverage path that starts at the user's extension, redirects to the user's home phone, and if not answered at home, returns to redirect to their voice mail box.

The call will not return to the system if the external number is the last point in the coverage path.

To use a remote phone number as a coverage point, you need to define the number in the Remote Call Coverage Table and then use the remote code in the coverage path.

For example, to add an external number (303-538-1000) to coverage path 2, complete the following steps:

- Type change coverage remote and press RETURN.
 The Remote Call Coverage Table appears.
- 2. Type 93035381000 in one of the remote code fields.

If you use a digit to get outside of your network, you need to add the digit before the external number. In this example, the system requires a '9' to place outside calls.

	REMOTE CALL COVERA	GE TABLE	
)1: 93035381000	16:	31:	
)2:	17:	32:	
)3:	_ 18:	33:	
04:	19:	34:	
05:	20:	35:	
06:			
07:	22:	37:	
08:			
09:	24:	39:	
10:			
11:			
12:			
13:	28:		
14:			
15:			

Remote Call Coverage Table screen

3. Be sure to record the remote code number you use for the external number.

In this example, the remote code is r01.

- 4. Press ENTER to save your changes.
- 5. Type **change coverage path 2** and press RETURN.

The Coverage Path screen appears.



Before making changes, you can use **display coverage sender group 2** to determine which extensions or groups use path 2.

	COVERAGE PATH	
Coverage	Path Number: 2	
		Hunt after Coverage? <u>n</u>
Next	Path Number: _	Linkage:
COVERAGE CRITERIA		
Station/Group Status	Inside Call	Outside Call
Active?	<u>n</u>	<u>n</u>
Busy?	¥	¥
Don't Answer?	Ϋ́	y Number of Rings: 2
All?	<u>n</u>	<u>n</u>
DND/SAC/Goto Cover?	¥	¥
COVERAGE POINTS		
Terminate to Coverage Pts.	with Bridged Ar	ppearance?
Point1: 4104	Point2: <u>r01</u>	Point3: <u>h77</u>
Point4:	Point5:	Point6:

Coverage Path screen

6. Type **r01** in a coverage Point field.

In this example, the coverage rings at extension 4101, then redirects to the external number. If you administer Coverage of Calls Redirected Off-Net and the external number is not answered or is busy, the call redirects to the next coverage point. In this example, the next point is Point3 (h77 or hunt group 77).

If you do not have the Coverage of Calls Redirected Off-Net feature, the system cannot monitor the call once it leaves the network. The call ends at the remote coverage point.

7. Press ENTER to save your changes.

Defining telecommuting coverage

Telecommuting access allows users to change their lead-coverage path or call-forwarding destination no matter where they are. You need to set up coverage paths and assign security codes before telecommuting coverage will work.

To see if telecommuting coverage is enabled on your system, make sure the Feature Access Codes screen contains the correct codes.

1. Type display feature-access codes and press RETURN.

The Feature Access Codes screen appears. Make sure codes are in these fields:

- Change Coverage Access Code
- Extended Call Fwd Activate Busy D/A, All, and Deactivation

Telecommuters use these codes to dial into the system.

Your users can make remote changes to coverage when the Class of Restriction (cor) screen assigned to their phones has a **y** in the Can Change Coverage field. Users can make remote changes to call forwarding when the Class of Service (cos) assigned to their phones has a **y** in the Extended Forwarding All and Extended Forwarding B/DA fields. Display the cor and cos screens with the **display** command.

Make sure that Coverage Path 1 and Coverage Path 2 fields are completed on each station screen assigned to people using telecommuting access. The security code field on the station screen must also be completed.



If the security code has been assigned, a * appears in the Security Code field on the station screen.

To allow users remote access to the system:

- 1. Type change telecommuting-access and press RETURN.
- 2. Enter the extension that you want remote users to use to access the system.

All remote users dial this same extension.

3. Press ENTER to save your changes.

If the Telecommuting Access Extension is left blank, you disable the feature for all users.



A SECURITY ALERT:

Invalid extensions and station security codes are logged as security violations. See the Administrator's Guide for Avaya MultiVantage™ Software for information on security violations.

Setting up bridged call appearances

Think of a bridged call appearance as a phone (the primary set) with an extension (the bridged-to appearance). Both phones can be used to call in and out and both show when a line is in use. A call to the primary phone is bridged to a specific appearance, or button, on the secondary phone. The secondary phone retains all its functions, and a specific button is dedicated as the bridged-to appearance from the primary phone.

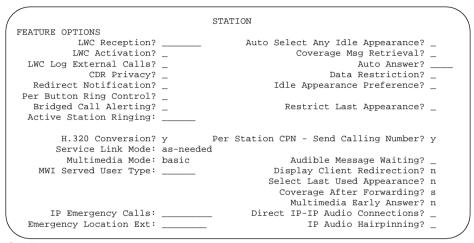
Bridged call appearances have to be assigned to phones with double-lamp buttons, or lights. The phone types do not need to match, but as much consistency as possible is recommended for all phones in a bridged group. When a call comes in on bridged phones, the buttons assigned to the bridged appearances flash. You can assign as many bridged appearances as there are line appearances on the primary phone, and you can assign ringing (alerting) to one or more of the phones.

To create a bridged call appearance:

- 1. Note the extension of the primary phone.
 - A call to this phone lights the button and, if activated, rings at the bridged-to appearance on the secondary phone.
- 2. If you want to use a new phone for the bridged-to extension, duplicate a station (see "Managing phones" on page 21).

3. Type **change station** and the bridged-to extension and press RETURN.

The station screen appears.



Station screen

- 4. Press NEXT PAGE until Per Button Ring Control appears (digital sets only).
 - If you want to assign ringing separately to each bridged appearance, type y.
 - If you want all bridged appearances to either ring or not ring, leave the default **n**.
- 5. Move to Bridge Call Alerting.

If you want the bridged appearance to ring when a call arrives at the primary phone, type y. Otherwise, leave the default n.

6. Complete the appropriate field for your phone type.

If	Then
your primary phone is analog	move to the Line Appearance field and enter abrdg-appr
your primary phone is digital	move to the Button Assignments field and enter brdg-appr

7. Press RETURN.

Btn and Ext fields appear. If Per Button Ring Control is set to **y** on the digital screen, Btn, Ext, and Ring fields appear.

		STATION		\
SITE DATA		DIAITON		
Room:			Headset? n	
Jack:			Speaker? n	
Cable:			Mounting? d	
Floor:			Cord Length: 0	
Building:			Set Color:	_
ABBREVIATED DIAL List1:		<u> </u>	List3:	
HOT LINE DESTINA	TION			
Abbrevi	ated Dialing List	Number (From al	oove 1, 2 or 3): Dial Code:	
Line Appea:	rance: brdg-appr	Btn: Ext:		

Station screen (analog set)

	STATION	
SITE DATA		
Room:		Headset? <u>n</u>
Jack:		Speaker? <u>n</u>
Cable:		Mounting: <u>d</u>
Floor:		Cord Length: <u>0</u>
Building:		Set Color:
ABBREVIATED DIALING		
List1:	List2:	List3:
BUTTON ASSIGNMENTS		
1: brdg-appr Btn: E	xt: Ring:	
1: brdg-appr Btn: E	xt: Ring:	

Station screen (digital set)

8. Enter the primary phone's button number that you want to assign as the bridged call appearance.

This button flashes when a call arrives at the primary phone.

- 9. Enter the primary phone extension.
- 10. If the Ring field appears:
 - If you want the bridged appearance to ring when a call arrives at the primary phone, type y.
 - If you do not want the bridged appearance to ring, leave the default **n**.
- 11. Press ENTER to save your changes.

To see if an extension has any bridged call appearances assigned, type list bridge and the extension, and press RETURN.

Routing outgoing calls

This section describes how the MultiVantageTM routes outbound calls and how you can modify call routing. It also provides instructions for creating partitions and setting authorization codes.



This information represents digit analysis information for DEFINITY ECS R7 or later. If you have an earlier version, you will notice somewhat different fields on your screens.

World class routing

Your system uses world class routing to direct an outgoing call. There are two types of routing:

- Automatic Alternate Routing (AAR) is used for calls within your company over your own private network.
- Automatic Route Selection (ARS) is used for calls that go outside your company over public networks. ARS is also used to route calls to remote company locations if you do not have a private network.

This section describes only ARS call routing. If you do not use ARS routing, this information does not apply to your system.

Understanding ARS analysis

With ARS, the switch routes outgoing calls based on the dialed digits and the calling privileges of the caller. Your system uses an ARS Digit Analysis Table to determine how to handle the dialed digits and uses class of restriction (COR) and facility restriction level (FRL) to determine the calling privileges.

Let's look at a very simple ARS Digit Analysis Table. (Your system likely has more defined dialed strings than our example.)

	Loca	atior	n: all		Perc	ent Full:	
Dialed	Tot	al	Route	Call	Node	ANI	
String	Mn	Mx	Pattern	Type	Num	Rq	
1	1	1	1.2	svcl		n	
1	11	11	30	fnpa		n	
1	12	23	17	intl		n	
10xxx	5	5	deny	op		n	
1800	11	11	30	fnpa		n	
2	7	7	2	hnpa		n	
3	7	7	2	hnpa		n	
4	7	7	2	hnpa		n	
5	7	7	2	hnpa		n	
6	7	7	2	hnpa		n	
7	7	7	2	hnpa		n	
88	7	7	2	hnpa		n	
911	3	3	1	emer		n	
976	11	11	deny	fnpa		n	

ARS Digit Analysis Table screen

This Digit Analysis Table is used for all locations in this system. The far-left column of the ARS Digit Analysis Table lists the first digits in the dialed string. When a user makes an outgoing call, the system analyzes the digits, looks for a match in the table, and uses the information in the matching row to determine how to route the call.

Let's say a caller places a call to 1 303 233 1000. The switch matches the dialed digits with those in the first column of the table. In this example, the dialed string matches the '1'. Then the systems matches the length of the entire dialed string (11 digits) to the minimum and maximum length columns. In our example, the 11-digit call that started with 1 follows route pattern 30 as an fnpa (long distance) call.



The first dialed digit for an external call is often an access code. If '9' is defined as the ARS access code, the switch drops this digit and analyzes the remaining digits with the ARS Analysis Table.

Managing calling privileges

Each time you set up a phone, you use the station screen to assign a COR. You can create different CORs for different groups of users. For example, you may want executives in your company to have different calling privileges than receptionists.

When you set up a COR, you specify a facility restriction level (FRL) on the class of restriction screen. The FRL determines the calling privileges of the user. Facility restriction levels are ranked from 0–7, where 7 has the highest level of privileges.

You also assign an FRL to each route pattern preference in the route pattern screen. When a user makes a call, the system checks the user's COR. The call is allowed if the caller's FRL is higher than or equal to the route pattern preference's FRL.

Displaying ARS analysis information

You'll want to become familiar with how your system currently routes outgoing calls. To display the ARS Digit Analysis Table that controls how the system routes calls that begin with 1:

1. Type **display ars analysis 1** and press RETURN.

The ARS Digit Analysis Table for dialed strings that begin with 1 appears. Note that the switch displays only as many dialed strings as can fit on one screen at a time.

To see all the dialed strings that are defined for your system, run an ARS Digit Analysis report:

1. Type **list ars analysis** and press RETURN.

The ARS Digit Analysis Report appears. You may want to print this report to keep in your paper records.

Modifying call routing

If your system uses ARS Digit Analysis to analyze dialed strings and select the best route for a call, you must change the digit analysis table to modify call routing. For example, you'll need to update this table to add new area codes or to restrict users from calling specific areas or countries.

Adding a new area code or prefix

A common task for system administrators is to configure their system to recognize new area codes or prefixes.



If your local area code is changing or splitting, call the MultiVantageTM helpline and have them walk you through all the changes needed to have your system recognize the new area code.

When you want to add a new area code or prefix, you look up the settings for the old area code or prefix and enter the same information for the new one.

Let's add a new area code. When the California area code, 415, splits and portions change to 650, you'll need to add this new area code to your system.



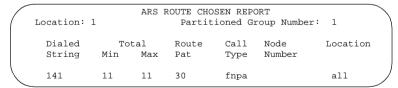
If you do not need to use 1 for area code calls, omit the **1** in steps 1, 3, and 5 in our example. Also, enter **10** in the Total Min and Total Max fields (instead of 11) in step 6.

To add this non-local area code:

 Type list ars route-chosen 14152223333 and press RETURN.

You can use any 7-digit number after 1 and the old area code (415). We used 222-3333.

The ARS Route Chosen Report screen appears.



ARS Route Chosen Report screen

2. Write down the Total Min, Total Max, Route Pat, and Call Type values from this screen.

In this example, the Total Min is 11, Total Max is 11, Route pattern is 30, and the Call Type is fnpa.

3. Type change ars analysis 1650 and press RETURN.

Enter 1 and the new area code (650). The ARS Digit Analysis Table screen appears.

	Location: all						
Dialed	Tot	al	Route	Call	Node	ANI	
String	Mn	Mx	Pattern	Type	Num	Rq	
1	11	11	30	fnpa		n	
167	11	11	30	fnpa		n	
1650	11	11	2	fnpa		n	
1800	11	11	30	fnpa		n	
2	7	7	2	hnpa		n	
3	7	7	2	hnpa		n	
4	7	7	2	hnpa		n	
5	7	7	2	hnpa		n	
7	7	7	2	hnpa		n	
8	7	7	2	hnpa		n	
911	3	3	1	emer		n	
976	11	11	deny	hnpa		n	

ARS Digit Analysis Table

4. Use the arrow keys to move to a blank Dialed String field.

If the dialed string is already defined in your system, the cursor appears in the appropriate Dialed String field, where you can make changes.

- 5. Enter **1650** in the Dialed String field.
- 6. Enter the minimum and maximum values from step 2 in the Total Mn and Total Mx fields.

In our example, enter 11 in each field.

- 7. Enter the route pattern from step 2 in the Rte Pat field. In our example, enter **30**.
- 8. Enter **fnpa** in the Call Type field.

- 9. Enter the node number from step 2 in the Nd Num field. For our example, you would leave the node number blank.
- 10. Press ENTER to save your changes.

To add a new prefix, follow the same directions, except use a shorter dial string (such as **list ars route-chosen 2223333**, where **222** is the old prefix) and a dial type of **hnpa**.

Using ARS to restrict outgoing calls

ARS allows you to block outgoing calls to specific dialed strings. For example, administrators in the United States may want to restrict users from making calls to 900 and 976 pay-per-call numbers or calls to countries where they do not do business.



A SECURITY ALERT:

To prevent toll fraud, deny calls to countries where you do not do business. The following countries are currently concerns for fraudulent calling.

country	code	country	code
Colombia	57	Pakistan	92
Ivory Coast	225	Peru	51
Mali	23	Senegal	221
Nigeria	234	Yemen	967

To prevent callers from placing calls to Colombia (57):

- 1. Type change ars analysis 01157 and press RETURN.
 - You enter 011 (international access) and the country code (57). The ARS Digit Analysis Table screen appears.
- 2. Use the arrow keys to move to a blank Dialed String field on the right of the screen.
 - If the dialed string is already defined in your system, the cursor appears in the appropriate Dialed String field. Skip to step 5 to deny calls to this dialed string.
- 3. Enter **01157** in the Dialed String field.
- 4. Enter **10** in the Total Mn and **23** in Total Mx fields.
- 5. Enter **den** (denied) in the Rte Pat field.
- 6. Enter **intl** in the Call Type field.
- 7. Press ENTER to save your changes.

Overriding call restrictions

You can use authorization codes to enable callers to override a station's calling privileges. For example, you can give a supervisor an authorization code so they can makes calls from a phone that is usually restricted for these calls. Since each authorization code has its own COR, the system uses the COR assigned to the authorization code (and FRL assigned to the COR) to override the privileges associated with the employee's phone.

Note that authorization codes do not override route patterns that are denied. For example, if your ARS tables restrict users from placing calls to Colombia, a caller cannot override the restriction with an authorization code



Authorization codes are optional. To see if authorization codes are enabled on your system, use display system-parameters customer-options.



A SECURITY ALERT:

You should make authorization codes as long as possible to increase the level of security. Set the length of authorization codes on the Feature-Related System Parameters screen.

Let's create an authorization code 4395721 with a COR of 2.

1. Type change authorization-code 4395721 and press RETURN.

The Authorization Code - COR Mapping screen appears.

- 2. In the AC field, type **4395721**.
- 3. In the COR field, enter 2.
- 4. Press ENTER to save your changes.

	NO	TE:					le - COR M 'list' to		_	codes	S.
		AC	COR	AC	COR	AC	COR	AC	COR	AC	COR

Authorization Code - COR Mapping screen

ARS Partitioning

Most companies want all their users to be able to make the same calls and follow the same route patterns. However, you may find it helpful to provide special calling permissions or restrictions to a group of users or to particular phones.

NOTE:

If you used partitioning on a release prior to R7 and you want to continue to use partitioning, please read this section carefully. The process for setting up partitioning has changed significantly.



Partitioning is an optional feature. Use display system-parameters customer-options to see if Partitioning is set to y and Time of Day Routing is set to n. If Time of Day Routing is **v** on System Parameters Customer Options, you specify the partition group number (PGN) on the Time of Day Routing Plan screen. Refer to the Administrator's Guide for Avaya MultiVantageTM Software for more information.

You can use ARS partitioning to change the call routing plan for up to 8 different user groups within a single MultiVantageTM system. You assign a partition group number (pgn) to each user group and identify different call routing treatments for each pgn.

Setting up a partition group

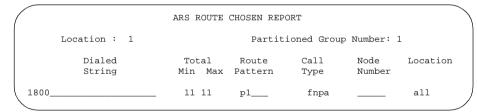
Let's say you allow your employees to make local, long distance, and emergency calls. However, you have a lobby phone for visitors and you want to allow users to make only local, toll-free, and emergency calls from this phone.

To restrict the lobby phone, you modify the routing for a partition group to enable only specific calls, such as U.S.-based toll-free 1 800 calls, and then assign this partition group to the lobby phone.

To enable 1 800 calls for partition group 2:

 Type list ars route-chosen 18002221000 and press RETURN.

You can use any 7-digit number following the 1800 to create an example of the dialed string. The ARS Route Chosen Report for partition group 1 appears.



2. Record the route pattern for the selected dialed string.

In our example, the route pattern for 1800 is p1. This indicates that the system uses the Partition Routing Table to determine which route pattern to use for each partition.

NOTE:

If there is a number (with no p) under Route Pattern on the Route Chosen Report, then all partitions use the same route pattern. You need to use the Partition Routing Table only if you want to use different route patterns for different partition groups.

3. Press CANCEL to return to the command prompt.

4. Type change partition-route-table index 1 and press RETURN.

The Partition Route Table screen appears. In our example, partition group 1 can make 1800 calls and these calls use route pattern 30.

			B. attat	5. 14.									
Partition Routing Table													
Routing Patterns													
Index	PGN 1	PGN 2	PGN 3	PGN 4	PGN 5	PGN 6	PGN 7	PGN 8					
1	30	30	deny										
2													
3													
4													
5													
6													
7													
									,				

5. In the PGN2 column that corresponds to Route Index 1, type **30** and press ENTER.

This tells the system to use route pattern 30 for partition group 2 and allow partition group 2 members to make calls to 1800 numbers.

Assigning a phone to a partition group

To assign an extension to a partition group, you have to first assign the partition group to a class of restriction (COR) and then assign that COR to the extension.

To assign a class of restriction (COR) to partition group 2.

1. Type **list cor** and press RETURN.

The Class of Restriction Information screen appears.

```
CLASS OF RESTRICTION INFORMATION

COR COR Description
0
1 supervisor
2 telecommuting
3
```

Class of Restriction Information screen

- Choose a COR that has not been used and press CANCEL.In our example, select 3.
- Type change cor 3 and press RETURN.The Class of Restriction screen appears.

```
CLASS OF RESTRICTION
               COR Number: 3
          COR Description: lobby
                      FRI: 0
                                                            APLT? y
 Can Be Service Observed? n
                                     Calling Party Restriction: none
Can Be A Service Observer? n
                                       Called Party Restriction: none
        Time of Day Chart: _
                                 Forced Entry of Account Codes? n
        Priority Queuing? n
                                            Direct Agent Calling? n
     Restriction Override: none
                                     Facility Access Trunk Test? n
     Restricted Call List? n
                                             Can Change Coverage? n
           Access to MCT? y
                                       Fully Restricted Service? n
     Category For MFC ANI: 7
         Send ANI for MFE? n_
                                        Add/Remove Agent Skills? n
           MF ANI Prefix:
                                       Automatic Charge Display? n
Hear System Music on Hold? y PASTE (Display PBX Data on Phone)? n
                        Can Be Picked Up By Directed Call Pickup? n
                                    Can Use Directed Call Pickup? n
                                    Group Controlled Restriction: inactive
```

Class of Restriction screen

- Type a name for this COR in the COR Description field.
 In our example, type lobby.
- 5. Enter 2 in the Partition Group Number field.



The Partition Group Number field appears only when Time of Day Routing is \mathbf{n} on the System Parameters Customer Options screen. Otherwise, you specify the partition group number (PGN) on the Time of Day Routing Plan screen. For information on Time of Day Routing, refer to the Administrator's Guide for Avaya MultiVantageTM Software.

6. Press ENTER to save your changes.

Now assign COR 3 to the lobby phone at extension 1234:

- Type change station 1234 and press RETURN.
 The station screen for 1234 appears.
- 2. In the COR field, enter 3.
- 3. Press ENTER to save your changes.

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Enhancing system security

This section explains how to add and modify user logins. It also provides an introduction to phone system security issues. It describes possible security problems you should be aware of and gives you instructions for detecting these problems.



If your organization has not yet completed the Service Agreement Indemnity Enhancement Certification, we highly recommend that you call the Security Hotline at the World-class Customer Service Center (1 800 643 2353) and ask how to become certified. When you complete this certification and administer your MultiVantageTM system according to Avaya's fraud prevention requirements, Avaya will indemnify your organization for charges associated with toll fraud.

Assigning and changing users

The system allows you to add or change user logins as needed. When you want to add or change a login, remember the following MultiVantageTM system security requirements:

- a login must be 3 to 6 alphanumeric characters in length
- a password must be from 4 to 11 alphanumeric characters in length and contain at least one non-alphabetic character

Note that to create or change logins for G3V3 and later releases, you must login as a superuser with administrative permissions.

Assigning new logins and passwords

As you work as an administrator, you may be fortunate enough to have help administering your switch or you may want to have an assistant make changes to the switch while you are out of the office. In these cases, you should set up a new user in the system and limit what this individual can do. As you'll see, adding logins is very easy.



You increase system security when you choose the longest possible password with a mix of lowercase and uppercase numbers and letters.

The following example shows you how to add a new login called angi3 with a password of b3stm0m.

To add this user and password, log in with a superuser ID and complete the following steps:

1. Type add login angi3 and press RETURN.

Use the new login name as part of the add command.

The Login Administration screen appears. The Login's Name field shows the name you typed in the add command: other fields contain defaults.

```
LOGIN ADMINISTRATION
      Password of Login Making Change:
      LOGIN BEING ADMINISTERED
                         Login's Name: angi3
                           Login Type: customer
                        Service Level: non-super-user
Disable Following a Security Violation? y
                                                Access to INADS Port? n
       LOGIN'S PASSWORD INFORMATION
                    Login's Password:
             Reenter Login's Password:
   Password Aging Cycle Length (Days):
   LOGOFF NOTIFICATION
   Facility Test Call Notification? y
                                        Acknowledgment Required? y
        Remote Access Notification? y
                                        Acknowledgment Required? y
```

Login Administration screen

- 2. Complete the following fields:
 - Password of Login Making Change
 This is your password.
 - Login's Password

Assign an initial password for the new login. We'll type in **b3stm0m** as part of our example. The password does not appear on the screen as you type.

- Re-enter Login's Password
- 3. Press ENTER to save your changes.

Setting login permissions

Once you add the new user, you should review the user's command permissions and modify them, if necessary.

To review command permissions for our new example login:

1. Type change permissions angi3 and press RETURN.

Use the new login name as part of the add command. The Command Permission Categories screen appears.

```
COMMAND PERMISSION CATEGORIES
                             Login Name: angi3
COMMON COMMANDS
               Display Admin. and Maint. Data? n
                           System Measurements? n
               System Mgmt Data Transfer Only? n
ADMINISTRATION COMMANDS
          Administer Stations? n
                                                     Administer Features? n
                                                Administer Permissions? n
           Administer Trunks? n
     Additional Restrictions? n
MAINTENANCE COMMANDS
           Maintain Stations? n Maintain Switch Circuit Packs? n Maintain Trunks? n Maintain Process Circuit Packs? n
              Maintain System? n
```

Command Permission Categories screen

- 2. If you want the default permissions, press CANCEL.
- 3. If you want to change any permissions, enter **y** to give the user access or **n** to restrict access for each permission type.
- 4. Press ENTER to save your changes.

Changing passwords

You should change your passwords often.



To force users to change passwords, set password aging in the Login Administration screen.

To change the password (b3stm0m) for angi3:

1. Type ${\it change password angi3}$ and press RETURN.

The Password Administration screen appears.

- 2. Complete the following fields:
 - Password of Login Making Change
 This is *your password* that you used to login to the session.
 - Login Name
 - Login's Password
 - Reenter Login's Password
- 3. Press ENTER to save your changes.

Changing logins

Occasionally you'll need to change permissions for a user's login. For example, you may want to change a login so that the user must change their password every 30 days (a good rule of thumb).

To change the password aging for our new login, angi3:

- 1. Type change login angi3 and press RETURN.
 - The Login Administration screen appears with the current information for angi3.
- 2. Type **30** in the Password Aging Cycle Length (Days) field.
- 3. Press ENTER to save your changes.

Preventing toll fraud

An important role for every administrator is to manage the security of their phone system. You need to make every effort to ensure that your phone system is not open to toll fraud. Toll fraud is the unauthorized use of telephone features and services and the theft of long distance service. When toll fraud occurs, your company is responsible for charges.

For more information on system security and preventing toll fraud, we recommend you obtain the BCS Products Security *Handbook* and use it often, or call your Center of Excellence.



A SECURITY ALERT:

When you suspect toll fraud, call the Security Hotline immediately (1 800 643 2353) or contact your Avaya representative.

Top 11 tips to help prevent toll fraud

You can reduce your company's risk of toll fraud by following a few important guidelines.

1. Protect system administration from unauthorized access.

Make sure all system administration and maintenance logins are secure. Change your passwords frequently.

2. Deny unauthorized remote access.

If you do not use remote access, disable all its related features. If you use remote access, require barrier codes and set your authorization codes, if applicable, at the maximum length. Also, change these codes frequently.

3. Restrict individual ability to make international calls.

Set up class of restriction groups to allow only certain people to call international numbers required for your business.

4. Protect access to information stored in voice mail.

Require passwords for access to voice mailboxes. Use complicated passwords and change the passwords regularly.

5. Deny any transfer from a voice mail system to a dial tone.

Place restrictions on the ports that allow access to and from your voice mail system. Activate "secure transfer" features in voice mail systems.

6. Use system software to intelligently control call routing.

Set up your system to control how each call is handled or routed. If possible, use time-of-day routing to limit the use of your system during off hours.

7. Place protection on systems that ask callers to dial digits.

Restrict certain users' access to dial tone. Restrict the digit combinations dialed at prompts.

8. Monitor traffic and system activity for suspicious call patterns.

Use your traffic reports and call detail records to monitor call activity. Activate features that deny access to your system when unauthorized attempts are detected.

9. Provide physical security for telecommunications assets.

Restrict unauthorized access to equipment rooms and wire connection closets. Keep translation backups, system manuals, and reports in a safe place.

10. Educate system users to recognize toll fraud activity and react appropriately.

Train your users how to protect themselves from inadvertent compromises to system security.

11. Monitor call traffic over vectors.

Vector fraud is one of the most common types of toll fraud because vectors route calls based on the class of restriction (COR) assigned to the VDN. Refer to *Avaya Products Security Handbook* or your Avaya representative for more information.

Using reports to detect problems

Call Detail Recording

Call Detail Recording (CDR) collects detailed information about calls handled by your system. This CDR information can be sent directly to a printer or into call accounting software. You can use the printed CDR output or call accounting reports to monitor calls on your system and look for possible toll fraud problems.

Review your call accounting reports or CDR output each day to help detect possible toll fraud. When reviewing these records, look for:

- unusual calling patterns
 - numerous calls to the same number
 - calls outside of normal business hours
 - long calls
- calls to suspicious destinations, including international calls not typical for your business
- patterns of authorization code usage (same code used simultaneously or high activity)
- high numbers of "ineffective call attempts" indicating attempts at entering invalid codes
- undefined account codes
- attempts to change the access code or to use an invalid access code when using conferencing features.

If you are unfamiliar with reading CDR printed output, you'll want to refer to the description of CDR in the *Administrator's Guide for Avaya* MultiVantageTM *Software*.

If your organization uses call accounting software to analyze your CDR output, you probably receive formatted reports that list the information you need to detect possible toll fraud. If you have questions about reading your call accounting reports, refer to your call accounting software manuals.

Security Violations Notification

You can administer Security Violations Notification so that the system notifies you and provides reports when users enter invalid information. You want to know about the following types of violations, which may indicate an attempt to breach your security:

- login violations
- remote access barrier code violations
- authorization code violations
- station security code violations

For example, let's have the system notify us at extension 8000 when someone tries to enter more than 3 invalid authorization codes within a 1-minute time span.

To set up Security Violations Notification for our example:

 Type change system-parameters security and press RETURN.

The Security-Related System Parameters screen appears.

```
SECURITY-RELATED SYSTEM PARAMETERS

SECURITY VIOLATION NOTIFICATION PARAMETERS

SVN Login Violation Notification Enabled? n

SVN Remote Access Violation Notification Enabled? n

SVN Authorization Code Violation Notification Enabled? y
Originating Extension: _____ Referral Destination: 8000
Authorization Code Threshold: 3____ Time Interval: 0:01
Announcement Extension: _____
```

Security-Related System Parameters screen

2. In the SVN Authorization Code Violation Notification Enabled field, type **y** and press RETURN.

Additional fields now display on the screen.

3. In the Originating Extension field, type the extension you want the system to use to originate the call.

Use the extension of an unused non-dial station.

- Enter 8000 in the Referral Destination field.
 Use the extension you want the system to notify.
- 5. If the referral destination is on a different system or is a non-display phone, fill in the Announcement Extension field.

6. Enter **3** in the Authorization Code Threshold field.

Enter the maximum number of invalid entry attempts you want to allow.

7. Enter **0:01** (1 minute) in the Time Interval field.

Use an hour:minute format for the amount of time you want the system to use for the monitor interval.

8. Press ENTER to save your changes.

Viewing security reports

Your system generates two types of Security Violations reports:

- Security Violations Detail report displays the number of successful and failed login attempts by login ID.
- Security Violations Summary report displays valid and failed access attempts, as well as security violations for logins, authorization codes, barrier codes, and station security codes.

To display a Security Violations Detail report and see a list of login data:

 Type list measurements security-violations detail and press RETURN.

To display a Security Violations Summary report:

1. Type list measurements security-violations summary and press RETURN.

Printing security reports

You may want to keep a paper copy of a Security Violations report to monitor security trends for a specific time period.

To print a Security Violations Summary report to the slave printer associated with the administration terminal:

1. Type list measurements security-violations summary print and press RETURN.

To print a Security Violations Summary report to the system printer:

1. Type list measurements security-violations summary schedule and press RETURN.

The system prompts whether you want to print the report immediately or schedule to print it later.

2. Enter the appropriate Print Interval and press ENTER to send the report.

Clearing security reports

Once you review the security measurement reports, you may want to clear the current measurements and reset the Counted Since field.

To clear measurements for security violations and reset the counter:

 Type clear measurements security-violations and press RETURN.

Keeping records

Record keeping plays a vital role in system administration. Your records should provide a current status of what hardware and features are installed on your system. Your records also help you determine which phone features are available for your users.

Whether you are the administrator of a new or existing switch, follow your own company policy concerning keeping records. We have included the information below only as a guide. Our list contains different types of information for you to consider, but you need to determine which method of record keeping works best for you and your organization.

Paper records

Your MultiVantageTM switch keeps an electronic record of your system configuration and any changes you make.

A common method for keeping paper records is to print copies of screens and reports so you have backup copies of the information stored on your system. If you use this method, be sure to keep the copies in a safe and easy-to-access location.

If you end a list or display command with the command **print**, the system prints a paper copy of the selected list or display screen to the slave printer associated with the administration terminal.

For example, to print a list of stations that are currently administered on your system, complete the following steps at the command prompt:

1. Type **list station print** and press RETURN.



To print a screen or report to the system printer, end a list or display command with the word **schedule**. The system then prompts you to select to print immediately or schedule printing.

For more information about generating reports, refer to the *Little Instruction Book for advanced administration* or to the *Reports for Avaya* MultiVantageTM *Software*.

System information

You should keep current copies of each of the following system lists in your records. If you ever need to replace information because of a system failure, these lists help Avaya rebuild your system.

Use the following commands to print general system lists, and save these lists as your paper records:

- **display dialplan print** prints your dialing parameters
- display system-parameters customer-options print —
 prints the current software version and shows which
 features have been enabled on your system
- display system-parameters features print prints the parameter settings for features on your system
- **display feature-access-codes print** prints the current feature access codes by feature

- list configuration all print prints your slot and port assignments
- **list extension-type print** prints information for each extension on your system
- list station print prints information for each station on your system
- list data print prints information for each data module on your system
- **list type group print** where *type* can be replaced with hunt, trunk, pickup, and so on. Prints parameters for the specified group.
- **list coverage path print** prints each defined coverage path and each of the coverage points

In addition to the above reports, you may want to periodically print other lists, traffic reports, or security reports to monitor the use of your system.

Specific extension information

You'll probably want to keep both system and individual extension records. To keep extension records, print a copy of the station form for each extension.

For example, to print a station form for extension 4567:

1. Type display station 4567 print and press RETURN.

As another example, to print a station form for data module 5567:

1. Type display data 5567 print and press RETURN.

Other information

You may find that you want to keep track of information that is not stored on the system and is specific to your company, such as:

- switch locations and handles (names)
- groups of extensions you've reserved for certain departments or types of lines
- login names and privileges
- customized soft-key assignments

Basically, you can track whatever information is appropriate for your company. And you can decide whether you want to keep just paper copies or perhaps design a computer database to track all your system information. It is up to you.

Remember that the better records you keep, the better able you'll be to solve problems, reconstruct information, and make the best use of the features on your MultiVantageTM 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 find the answer to your question.

■ Your installation location ID (also called your IL)

(Write your IL number here for easy reference)

- Your name
- Your phone number (in case we need to call you back)
- Your company's main listed phone number
- The task you want to accomplish, complete with all the numbers involved in the task (for example, extensions or phone numbers, trunk group numbers, phone types, or report types)

Once you gather the information you need, refer to "How to get help" on page xxiv for a list of Avaya support organizations and their phone numbers.

Notes

Glossary

Α

Abbreviated Dialing

A feature that allows callers to place calls by dialing just one or two digits.

access code

A dial code used to activate or cancel a feature or access an outgoing trunk.

analog phone

A phone that receives acoustic voice signals and sends analog electrical signals along the phone line.

ARS partitioning

A feature that allows you to route calls differently for different groups of users.

attendant

A person at a console who provides personalized service for incoming callers and voice-services users by performing switching and signaling operations.

attendant console

The workstation used by an attendant. The attendant console allows the attendant to originate a call, answer an incoming call, transfer a call to another extension or trunk, put a call on hold, and remove a call from hold. Attendants using the console can also manage and monitor some system operations.

Audio Information Exchange (AUDIX)

A fully-integrated voice-mail system. Can be used with a variety of communications systems to provide call-history data, such as subscriber identification and reason for redirection.

Automatic Alternate Routing (AAR)

A feature that routes calls to alternate routes when facilities are unavailable.

Automatic Call Distribution (ACD)

A feature that gives users more flexibility in routing calls to hunt group agents. ACD also allows external measurement systems such as BCMS and CentreVu® CMS to be used.

Automatic Circuit Assurance (ACA)

A feature that tracks calls of unusual duration to facilitate troubleshooting.

Automatic Route Selection (ARS)

A feature that allows the system to automatically choose the least-cost route for toll calls.

B

barrier code

A security code used with Remote Access to prevent unauthorized access.

bridge (bridging)

The appearance of a phone's extension at one or more other phones.

bridged appearance

A call appearance on a phone that matches a call appearance on another phone for the duration of a call.

C

call appearance

For the phone or attendant console, a button labeled with an extension and used to place outgoing calls, receive incoming calls, or hold calls. Lights next to the button show the status of the call appearance.

Call Detail Recording (CDR)

A feature that records call data.

Call Vectoring

A feature that allows users to provide flexible, customized call handling by writing a series of instructions in a simple programming language.

carrier

An enclosed shelf containing vertical slots that hold circuit packs.

centum call seconds (CCS)

A CCS is a unit for measuring call traffic. One CCS equals 100 seconds. Call traffic for a facility, such as a hunt group or phone, is scanned every 100 seconds. If the facility is busy, it is assumed to have been busy for the entire scan interval. There are 3600 seconds per hour, so a facility that is busy for an entire hour will be measured as being busy for 36 CCS.

central office (CO)

The location of phone switching equipment that provides local phone service and access to toll facilities for long-distance calling.

circuit

A channel or transmission path between two or more points.

Class of Restriction (COR)

A feature that defines call-origination and call-termination restrictions.

Class of Service (COS)

A feature that determines whether users can activate certain features.

coverage answer group

A group of phones that ring simultaneously when a call is redirected to it.

coverage path

The order in which calls are redirected to alternate phones.

coverage point

An extension designated as an alternate phone in a coverage path.

D

data module

A digital interface device between the switch and data equipment.

Direct Department Calling (DDC)

A method for distributing hunt group calls to agents. The switch searches through all the hunt group extensions in order, starting with the first extension. As soon as the switch finds an available extension, it connects the call. Compare to Uniform Call Distribution (UCD).

Ε

Expert Agent Selection (EAS)

A feature allowing incoming calls to be routed to specialized groups of agents within a larger pool of agents.

extension

A number by which calls are routed through a communications system.

external call

A connection between a communications system user and a party on the public network or on another communications system in a private network.

F

facility

A telecommunications transmission pathway and associated equipment.

feature access code (FAC)

A code users dial to access a system feature.

feature button

A button on a phone or attendant console used to access a specific feature.

Н

hunt group

A group of extensions that can simultaneously answer multiple calls to a single phone number. When a call arrives at the group number, the switch searches ("hunts") for an available extension in the group and connects the call to that extension.

internal call

A connection between two users on the same phone system.

M

major alarm

An indication of a component failure that requires immediate attention.

minor alarm

An indication of a component failure that could affect customer service.

multiappearance phone

A phone equipped with several call-appearance buttons allowing the user to handle more than one call on that same extension at the same time.

P

pickup group

A group of individuals authorized to answer any call directed to an extension within the group.

port carrier

A carrier in a cabinet containing port circuit packs, power units, and service circuits. Also called a port cabinet.

primary extension

The main extension associated with the physical phone or data terminal.

principal

A phone that has its primary extension bridged on one or more other phones.

public network

The network that can be openly accessed by all customers for local and long-distance calling.

R

redirection criteria

Information administered for each phone's coverage path that determines when an incoming call is redirected to coverage.

S

skill

An attribute assigned to an agent in a system using Expert Agent Selection. An agent's skill indicates a specialty in which the agent is proficient.

split

An ACD hunt group.

system administrator

The person who maintains overall customer responsibility for system administration.

system printer

An optional printer that may be used to print scheduled reports via the report scheduler.

system report

A report that provides historical traffic information for internally measured splits.

T

trunk

A dedicated telecommunications channel between 2 phone systems or COs.

trunk group

Telecommunications channels assigned as a group for certain functions that can be used interchangeably between two communications systems or COs.

U

Uniform Call Distribution (UCD)

A method for distributing hunt group calls to agents by comparing agents' workloads. MultiVantageTM can deliver each new call to the most idle agent (the available agent who has been idle the longest since their last hunt group call) or to the least occupied agent (the agent who has spent the least amount of time on hunt group calls in their current shift). Compare to Direct Department Calling (DDC).

Uniform Dial Plan (UDP)

A feature that allows a unique 4- or 5-digit number assignment for each point in a multiswitch system.

V

Vector

A set of call handling instructions for MultiVantage TM written in Avaya's call vectoring programming language.

Index

Α

```
abbreviated dialing, 39
access, remote, 56
accessing the system, 5
adding
   area codes, 64
   extension ranges
      MultiVangage™, 14
      R10 or earlier. 18
   feature access codes
      MultiVantage™, 15
      R10 or earlier, 19
   phones, 21
   prefixes, 64
alias. 27
announcement board circuit packs, 10
announcements, saving, 9
answering
   backup, see call coverage
   shared, see pickup groups
area codes, adding, 64
ARS partitioning, 70
assigning
   coverage paths, 48
   logins, 76
   ringing, 58
attd code, 13, 17
Automatic Customer Telephone
 Rearrangement (ACTR), 33
Automatic Route Selection (ARS), 61
Avaya support Web site, xxiii, xxiv
```

В

backup answering see call coverage backups, translations, 9 books how to order more copies, xxiii bridged call appearance, 57 buttons call appearance, 57 feature, 26 help, xx programmed, 20

C

```
call appearance. 57
call coverage, 45
Call Detail Recording (CDR), 83
call forwarding, 44
calling Avaya, 93
CE marks. ix
changing
   feature access codes (fac), 20
   feature buttons, 29
   logins, 80
   paths, see call coverage
   phones, 33
   routing, 64
class of restriction (cor), 55
class of service (cos), 44, 55
commands
   add abbreviated-dialing group, 39
   add coverage path, 46
   add coverage time-of-day, 49
   add login, 76
   add pickup-group, 42
   add station, 24
   change ars analysis, 66, 68
```

commands, (continued)	cos, see class of service
change authorization-code, 69	coverage answer group, 50
change coverage path, 53	coverage paths
change coverage remote, 52	assigning, 48
change dialplan, 18, 19	creating, 46
change dialplan analysis, 14, 15	remote, 51
change feature-access-codes, 20	time-of-day, 49
change login, 80	customizing phones, 31
change password, 79	
change permissions, 78	
change station, 26, 40, 48, 50, 58	
change system feature, 38	D
change system-parameters	dac, see dial access codes
security, 85	data modules, 3
change telecommuting-access, 56	dates, system, 6
display coverage sender group, 48	detecting problems, 83
display dialplan, 18	dial access codes (dac), 13, 17
display dialplan analysis, 14	dial plans
display feature-access codes, 55	adding extension ranges
display station, 26	MultiVangage™, 14
display system-parameters	R10 or earlier, 18
maintenance, 8	adding feature codes
display time, 7	MultiVantage™, 15
duplicate station, 26	R10 or earlier, 19
list ars route-chosen, 65	displaying
list bridge, 60	MultiVantage™, 14
list call-forwarding, 45	R10 or earlier, 18
list configuration station print, 23	First Digit Table, 16
list configuration stations, 22	modifying
list cor, 72	MultiVantage™, 14
list measurements	R10 or earlier, 18
security-violations, 86	MultiVantage™, 12
logoff, 10	R10 or earlier, 16
save announcements, 10	understanding, 11
save translation, 8	Directed Call Pickup, 43
set time, 6	displaying dial plans
status station, 45	MultiVantage™, 14
connecting phones, 24	R10 or earlier, 18
cor, see class of restriction	

Ε

electromagnetic compatibility standards, vi ext, see extensions extensions, 13, 17, 23

F

fac, see feature access codes facility restriction level (FRL), 63 feature access codes (fac), 13, 17 feature buttons, 26, 29

G

group answering, see pickup groups

Н

hardware, 1
help
buttons, xx
numbers to call, xxiv

ı

information, system, 90

K

keeping records, 89

L

```
Last Number Dialed, 15, 19
logging in, 5
logging off, 10
logins
assigning, 76
changing, 80
permissions, 78
requirements, 75
```

M

```
message line, xx
miscellaneous code, 17
modifying dial plans
MultiVantage™, 14
R10 or earlier, 18
MultiVantage™ dial plans, 12
MultiVantage™ system example, 2
```

0

off-net, see coverage path, remote

P

```
parameters, system, 37
partition group number (pgn), 70
partitioning, ARS, 70
passwords, 5, 75, 79
permanent saving, 8
permissions, login, 78
```

nhanaa	
phones adding, 21	S
alias, 27	3
analog, 4, 23, 59	saving
changing, 33	announcements, 9
connecting, 24	permanent, 8
customizing, 31	temporary, 8
digital, 4, 59	translations, 8
duplicate, 26	screens, xix
hybrid, 4	Abbreviated Dialing List, 40
IP, 4	ARS Digit Analysis Table, 62, 66
IP screenphone, 39	ARS Route Chosen Report, 65
IP softphone, 21, 39	Authorization Code - COR
ISDN, 4	Mapping, 69
removing, 34	Command Permission
swapping, 33	Categories, 78
upgrading, 32	Coverage Path, 47, 51, 54
pickup groups, 42	Date and Time, 7
	Dial Plan Analysis Table, 12
port address, 23 prefixes, adding, 64	Dial Plan Record, 16
problems, detecting, 83	Duplicate Station, 27
	Feature Access Codes, 55
programmed buttons, 20	Feature-Related System
	Parameters, 38
	Login Administration, 77
R	Pickup Group, 43
	Remote Call Coverage Table, 53
R10 or earlier dial plans, 16	Save Translation, 9
records, keeping, 89	Security-Related System
redirecting calls, see call coverage	Parameters, 85
remote access, 56	Station, 25, 41, 58 to 60
remote coverage paths, 51	System Configuration, 22
removing phones, 34	System Parameters Call
reports, security, 86	Coverage/Call Forwarding, 44
ringing, assigning, 58	Terminal screen for login, 6
routing, changing, 64	Time of Day Coverage Table, 49

Т

tac, see trunk access codes
telecommuting, 55
temporary saving, 8
Terminal Translation Initialization
(TTI), 33
terminal type, 5
time, system, 6
time-of-day coverage path, 49
toll fraud, xxi, 80
translations
backups, 9
saving, 8
trunk access codes (tac), 13, 17



upgrading phones, 32



violations, security, 56 voice terminals, see phones



Web site
Avaya support, xxiii, xxiv

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Helpful Avaya web sites

Do you need more information or assistance? Try these web sites!

Avaya main site

Check here often to see what's new at Avaya!

http://www.avaya.com/

Avaya Customer Support

Use this site to find answers to questions, review maintenance tickets, or to get the latest version of this book.

http://www.avaya.com/support/

MultiVantage™ site

Go here to offer suggestions for what you would change if you were in charge of updating MultiVantageTM.

http://www1.avaya.com/enterprise/sig/develop/

International Alliance of Avaya Users site

This organization was formerly known as the International MultiVantageTM Users group. Use this site to find more users, just like you!

http://www.indug.org/

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Avayath MultiVantageth Solution's

Little Instruction Book

for basic administration



Why this new book?

You've told us that you want step-by-step instructions on everyday administration tasks for your MultiVantageTM system, and we've been listening. This book contains the information you need for basic telephone system administration.



Avaya™ MultiVantage™ Solution's

Little Instruction Book

for advanced administration

Checklist for adding a new phone user

Use this checklist to ensure each user's information is complete and accurate for all of your company's applications.

Add new us	ser informati	ion to your:
------------	---------------	--------------

switch (specify location, if you have more than one)
voice messaging system
special groups:
coverage path groups
— hunt groups
— pick-up groups
— other groups:
call management system (CMS, BCMS)
other company databases:

Checklist for removing a user

You may need to delete a user's messages from your messaging system before you remove the user from your switch. To keep the mailbox, set the station port to 'X' when the user leaves.

De	elete user information from your:
	switch (specify location, if you have more than one)
	voice messaging system
	special groups: (use list usage ext to find all references to this user)
	coverage path groups
	— hunt groups
	— pick-up groups
	— other groups:
	call management system (CMS, BCMS)
	other company databases:

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NOTE:

Please note: Many of these individuals are no longer in the positions listed here. However, we continue to credit them because they were instrumental in the creation and success of this book.

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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.

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 Web site:

http://www.avaya.com/support/

If you are:

- Within the United States, click Escalation Lists, which includes escalation phone numbers within the USA.
- Outside the United States, click *Escalation Lists* then click *Global Escalation List*, which includes phone numbers for the regional 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.

Voice over Internet Protocol (VoIP)

If the equipment supports Voice over Internet Protocol (VoIP) facilities, you may experience certain compromises in performance, reliability and security, even when the equipment performs as warranted. These compromises may become more acute if you fail to follow Avaya's recommendations for configuration, operation and use of the equipment. YOU ACKNOWLEDGE THAT YOU ARE AWARE OF THESE RISKS AND THAT YOU HAVE DETERMINED THEY ARE ACCEPTABLE FOR YOUR APPLICATION OF THE EQUIPMENT. YOU ALSO ACKNOWLEDGE THAT, UNLESS EXPRESSLY PROVIDED IN ANOTHER AGREEMENT, YOU ARE SOLELY RESPONSIBLE FOR (1) ENSURING THAT YOUR NETWORKS AND SYSTEMS ARE ADEQUATELY SECURED AGAINST UNAUTHORIZED INTRUSION AND (2) BACKING UP YOUR DATA AND FILES.

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.

The equipment described in this manual complies with standards of the following organizations and laws, as applicable:

- Australian Communications Agency (ACA)
- · American National Standards Institute (ANSI)
- · Canadian Standards Association (CSA)
- Committee for European Electrotechnical Standardization (CENELEC) European Norms (EN's)
- Digital Private Network Signaling System (DPNSS)
- European Computer Manufacturers Association (ECMA)

- European Telecommunications Standards Institute (ETSI)
- FCC Rules Parts 15 and 68
- International Electrotechnical Commission (IEC)
- International Special Committee on Radio Interference (CISPR)
- International Telecommunications Union Telephony (ITU-T)
- ISDN PBX Network Specification (IPNS)
- National ISDN-1
- · National ISDN-2
- Underwriters Laboratories (UL)

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 Laser products, equipment classification and requirements:

- IEC 60825-1, 1.1 Edition
- · 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

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.

This equipment complies with Part 68 of the FCC Rules. On the rear 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.

The REN is used to determine the quantity of devices which 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 table.

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
CO trunk	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,
	1KN, 1SN		RJ48M
120A2 channel service unit	04DU9-DN	6.0Y	RJ48C

If the terminal equipment (for example, the MultiVantage TM Solution 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 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.

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 digital apparatus does not exceed Class A limits for radio noise emission set out in the radio interference regulation of the Canadian Department of Communications.

Le Présent Appareil Nomérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils manicures de la class A préscrites dans le reglement sur le brouillage radioélectrique édicté par le ministére des Communications 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://support.avaya.com/elmodocs2/DoC/SDoC/index.jhtml/

All MultiVantage TM system products 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) signed by the Vice President of MultiVantageTM Solutions research and development, Avaya Inc., can be obtained by contacting your local sales representative and are available on the following Web site:

http://support.avaya.com/elmodocs2/DoC/IDoC/index.jhtml/

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。

Network Connections

Digital Connections - The equipment described in this document can be connected to the network digital interfaces throughout the European Union.

Analogue Connections - The equipment described in this document can be connected to the network analogue interfaces throughout the following member states:

Belgium	Germany	Luxembourg
Netherlands	Spain	United Kingdom

LASER Product

The equipment described in this document may contain Class 1 LASER Device(s) if single-mode fiber-optic cable is connected to a remote expansion port network (EPN). The LASER devices operate within the following parameters:

- Maximum power output -5 dBm to -8 dBm
- · Center Wavelength 1310 nm to 1360 nm
- CLASS 1 LASER PRODUCT IEC 60825-1: 1998

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

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Welcome	
Why another instruction book?	χ\
We wrote this book for you!	Χ\
What information is in this book?	xv
 How to use this book 	xvi
Security concerns	xix
 Trademarks and service marks 	XX
Related books	XX
■ Tell us what you think!	XX
 How to get this book on the web 	XX
 How to order more copies 	xxi
 How to get help 	xxii
Managing trunks	
 Understanding trunks 	1
 Adding trunk groups 	4
Setting up night service	
Setting up night service Setting up night service for hunt groups	10
	10 11

 Setting trunk answer from any station How do night service types interact? 	
Managing announcements	
What is an announcement?	
 Adding announcements 	
Voice Announcement over LAN (VAL)	
Recording announcements	
 Deleting announcements 	
Backing up your announcements	
■ VAL Manager	
Managing hunt groups	
■ What are hunt groups?	
Setting up hunt groups	
Setting up a queue	
Adding hunt group announcements	
 Call distribution methods 	

Managing vectors and VDNs	
■ What are vectors?	40
Writing vectors	40
Allowing callers to leave a message	45
Inserting a step	49
Deleting a step	50
Diagnosing a vector problem	51
 Vector Directory Numbers 	52
 Meet-me Conference 	55
Verifying the customer options	55
Setting up a Meet-me Conference VDN	56
Creating a Meet-me Conference vector	57
Options for vector steps	60
Disabling Meet-me Conference	62
Using reports	
 Using report scheduler 	63
Setting printer parameters	63
Scheduling and printing reports	65
Listing scheduled reports	66
Changing scheduled reports	67
Removing scheduled reports	68
 Analyzing report data 	69

Using attendant reports	69
Measuring attendant group traffic	70
Measuring individual attendant performance	71
Measuring attendant group performance	71
■ Trunk group reports	72
Summary of trunk group activity	72
Hourly trunk group activity	73
Out-of-service trunks	74
Current trunk group status	75
Least used trunks	75
 Measuring call center performance 	76
What should I measure?	76
How many people can use switch reports?	77
Viewing hunt group reports	78
 Using security reports 	79
Hadayatan din was Haantaya	
Understanding call centers	
■ What is a call center?	81
Planning a call center	82
Setting up the call flow	83
Testing the system	85

86

87

87

88

89

Monitoring your call center

Enhancing an ACD system

Understanding Automatic Call Distribution

Selecting a call management system

Viewing system capacity

Glossary	93
Index	101
Helpful Avaya Customer Catalogs	Inside back cover

Welcome

Why another instruction book?

You've told us that you want more step-by-step instructions on administration tasks for your MultiVantageTM system. Here they are! This book contains instructions for completing tasks that were not covered in the *Avaya MultiVantage*TM *System's Little Instruction Book for basic administration*. Some steps may vary a bit between the different versions of MultiVantageTM, but the instructions provided will help you through the more advanced operations.

We wrote this book for you!

Use this book if you are a MultiVantageTM system administrator. Mark it up, make notes in it, and use it daily. If you are a new administrator taking over the position from someone else or if you simply want to refresh your memory, this book is for you.

What information is in this book?

The *Little Instruction Book for advanced administration* is divided into sections to help you find information about advanced topics.

Managing trunks describes the different types of trunks and how to add a trunk group.

Setting up night service explains how to set up night service and explains how different types of night service work together.

Managing announcements explains how to add, record, change, delete, and back up announcements.

Managing hunt groups describes how to set up hunt groups. It explains how calls to a hunt group are handled and shows you different call distribution methods.

Managing vectors and VDNs provides an overview of vectors and Vector Directory Numbers (VDN). It gives you basic instructions for writing simple vectors.

Using reports describes how to generate, list, print, and schedule some of the basic reports on your MultiVantageTM system. It also explains when to use some common reports and how to interpret the report information.

Understanding call centers gives an overview of call centers. It shows how to set up a simple inbound call center and lists things to consider as you plan and design your center.

How to use this book

Become familiar with the following terms, procedures, and conventions. They help you use this book with your telephone system and its software.

- To "move" to a certain field, you can use the TAB key, arrows, or the RETURN key.
- A "screen" is a screen form displayed on the terminal monitor.
- In this book we always use the term phone; other Avaya books may refer to phones as voice terminals.
- If you use terminal emulation software, you need to determine which keys correspond to ENTER, RETURN, CANCEL, HELP, NEXT PAGE, etc.
- Commands are printed in bold face as follows: **command**.
- Keys and buttons are printed as follows: KEY.
- Screen displays are printed in constant width as follows: screen display.
- Variables are printed in bold face italics 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 entered as list config sta.

- We show commands and screens from the newest MultiVantageTM telephone system and refer to the most recently released books. Please substitute the appropriate commands for your system (if necessary) and refer to the manuals you have on hand.
- If you need help constructing a command or completing a field entry, 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 screen, a list of valid entries for that field appears.
- The status line or message line is near the bottom of your monitor display. 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 our helpline.
- When a procedure requires you to press ENTER to save your changes, the screen you were working on clears and the cursor returns to the command prompt. The message line shows "command successfully completed" to indicate that the system accepted your changes.

You may see the following icons in this book:



Draws attention to information that you may find helpful.



Draws attention to information.



A CAUTION:

Denotes possible harm to software, possible loss of data, or possible service interruptions.



A SECURITY ALERT:

Indicates when system administration may 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. However, Avaya will indemnify your organization for toll fraud charges when you complete the Service Agreement Indemnity Enhancement Certification.

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Related books

The Avaya MultiVantageTM Little Instruction Book for basic administration and the Avaya MultiVantageTM Little Instruction Book for basic diagnostics are companions of this book. We suggest you use them often.

The Administrator's Guide for Avaya MultiVantageTM Software explains system features and interactions in detail. Please note that 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 MultiVantage*TM *Software, Reports for Avaya MultiVantage*TM *Software,* and the *Avaya Security Handbook.*

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If you have internet access, you can view and download the latest version of *Little Instruction Book for advanced administration*. To view the book, you must have a copy of Acrobat Reader.

To access the latest version:

- Access the Avaya Customer Support web site at http://www.avaya.com/support/
- Click on Online Services, then Documentation, then Recent Documents, then look for the latest MultiVantageTM release.
- 3. Search for **555-233-757** (the document number) to view the latest version of the book.

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How to get help

If you need additional help, first access the Avaya Customer Support web site at http://www.avaya.com/support/. Click the Escalation Lists link in the lower right side of the page for the most recent information. If you are outside the USA, also click the Global Escalation List link for the phone numbers for the regional Centers of Excellence.

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

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Managing trunks

This section provides an overview of trunks and tells you how to add trunk groups to your system

Understanding trunks

Trunks carry phone signals from one place to another. For example, one type of trunk carries phone signals from your switch to the central office (CO).

Groups of trunks perform specific functions. Use the following table to help determine which types of trunk groups your company uses.

trunk group	description
Access	Use access trunks to connect satellite switches to the main switch in Electronic Tandem Networks (ETN). Access trunks do not carry traveling class marks (TCM) and thus allow satellite callers unrestricted access to out-dial trunks on the main switch.
APLT	Advanced Private Line Termination (APLT) trunks are used in private networks. APLT trunks allow inband ANI.

trunk group	description
CAMA	Centralized Automatic Message Accounting (CAMA) trunks route emergency calls to the local community's Enhanced 911 systems.
СО	Central Office (CO) trunks typically connect your switch to the local central office, but they can also connect adjuncts such as external paging systems and data modules.
CPE	Customer Premise Equipment (CPE) trunks connect adjuncts, such as pagers and announcement or music sources, to the switch.
DID	Direct inward dialing (DID) trunks connect incoming calls directly to internal extensions without going through an attendant or some other central point.
DIOD	Direct inward and outward dialing (DIOD) trunks connect incoming and outgoing calls directly to your switch.
DMI-BOS	Digital multiplexed interface bit-oriented signaling (DMI-BOS) trunks connect a switch to a host computer, or one switch to another switch.
FX	Foreign exchange (FX) trunks connect calls to a non-local central office as if it were a local central office. Use FX trunks to reduce long distance charges if your organization averages a high volume of long-distance calls to a specific area code.

trunk group	description
ISDN	Integrated Services Digital Network (ISDN) trunks allow voice, data, video, and signaling information to be sent with calls.
	There are two types of ISDN trunks:
	ISDN-Basic Rate Interface (ISDN-BRI) connect telephones, personal computers, and other desktop devices to the switch.
	ISDN-Primary Rate Interface (ISDN-PRI) connect equipment such as switches to the network, and acts as an interface between equipment such as switches and computers.
RLT	Release-link trunks (RLT) use Centralized Attendant Service (CAS) to connect remote switches to attendants who are at a central location.
Tandem	Tandem trunks are a type of tie trunk used for large networks.
Tie	Tie trunks connect a switch to a CO, or two switches together in a private network.
WATS	Wide Area Telecommunications Service (WATS) trunks allow calls to certain areas for a flat-rate charge. Use WATS trunks to reduce long-distance bills when your company places many calls to a specific geographical area in North America.

Adding trunk groups

Occasionally, your company's phone requirements change and you need to add new trunk groups to your system. For example, maybe your company is expanding and you must have additional two-way access between your switch and your local phone company or CO. After doing some research, you decide that you need to add another CO trunk.

Once you decide that you want to add a new trunk, contact your vendor. Depending on the type of trunk you want to add, the vendor may be your local phone company, a long distance provider, or some other service provider.

When you talk to your vendor, they'll want to know what kind of service you want to add. In our example, request CO service.

The vendor should confirm the type of signal you want and provide you with a circuit identification number for the new trunk. Be sure to record any vendor-specific ID numbers or specifications in case you ever have any problems with this trunk.



Remember to keep records of any changes you make to the system for future reference.

Once you've ordered your new service and have gathered all the information associated with the new trunk, you need to configure the system to recognize the new trunk group.

To add a new trunk-group:

1. Type add trunk-group next and press RETURN.

The Trunk Group screen appears.

The system assigns the next available trunk group number to this group. In our example, we are adding trunk group 5.

```
TRUNK GROUP
                            Group Type: co CDR Reports: y
COR: 1 TN: 1 TAC:647
Group Number: 5
 Group Name: outside calls
Night Service: 1234
                                Auth Code? n Digit Absorbtion List:
Trunk Flash? n Toll Restricted?
  Comm Type: voice
  Prefix-1?: y
                                                      Toll Restricted? y
TRUNK PARAMETERS
        Trunk Type: <u>loop start</u>
Outgoing Dial type: tone
                                                       Cut Through? n
 Trunk Termination: rc Disconnect Image Auto Guard?: n Call Still Held? n Sig Bit Inversion: none Digital Loss Group:
                               Trunk Gain: high
Disconnect Supervision - In? y Out? n
Answer Supervision Timeout: 10
                                        Receive Answer Supervision? n
```

Trunk Group screen

2. In the Group Type field, enter the type of trunk you want to add.

In our example, enter **co**, which is also the default.

If you select a different trunk type, such as DID, the system changes the screen to show only those fields that apply to the type of trunk-group you are adding.

3. Type a name to identify this trunk group in the Group Name field.

In our example, we used outside calls.

4. In the TAC field, type the code you want to use to access the new trunk group.

In our example, we used **647**.

5. In the Direction field, indicate the call-flow direction.

For our example, leave the default of **two-way**.

6. If you want to direct calls to a night extension, type the extension number in the Night Service field.

In our example, direct night calls to extension 1234.

7. In the Comm Type field, enter the type of communication that you want the new trunk to use.

In our example, enter voice.

8. In the Trunk Type field, type **loop start**.

This field tells the system how the calls on this trunk will be sent or received. Your vendor should know what trunk type you can use to complete this field.

9. Use NEXT PAGE to go to the Group Member Assignments page.

Different fields appear on this screen depending on the configuration of your switch.

	TRUNK GROUP Administered Members (min/max): xxx/yyy Total Administered Members: xxx							
GROUP MEMBER		-	271 - 3-1	M . 1 .		7 D. 1		
Port	Code Sfx	Name	Night	Mode	Type	Ans Delay		
1: 1B1501	-	5211						
2: 1B1523	-	5212						
3: 1B1601	-	5213						
4: 1B1623	-	5214						
5: 1B1701	-	5215						
7:	-							
8:	-							
9:	-							
10:	-							
11:	-							
12:	-							
13:	-							
14:	-							
15:	-							
/ ₊₂	-							

Trunk Group screen (group member assignments page)

- 10. In the Port field, type the port number of the physical connection for each member you are adding to the trunk group.
- 11. In the Name field, type the circuit ID or telephone number for each member.
 - This information is very helpful for tracking your system or troubleshooting problems, but the fields need to be updated whenever the information changes.
- 12. Press ENTER to save your changes.

Setting up night service

You can use night service to direct calls to an alternate location when the primary answering group is not available. For example, you can administer night service so that anyone in your marketing department can answer incoming calls when the attendant is at lunch or has left for the day.

Once you administer night service to route calls, your end-users merely press a button on the console or a feature button on their phones to toggle between normal coverage and night service.

There are five types of night service:

- Hunt group night service directs hunt group calls to a night service destination
- Night station night service directs all incoming trunk calls to a night service destination
- Night console night service directs all attendant calls to a Night or Day/Night console
- Trunk group night service directs incoming calls to individual trunk groups to a night service destination
- Trunk answer from any station (TAAS) directs incoming attendant calls and signals a bell or buzzer to alert other employees that they can answer the calls

Setting up night service for hunt groups

You can administer hunt group night service if you want to direct hunt group calls to a night service destination.

Let's say your helpline on hunt group 3 does not answer calls after 6:00 p.m. (18:00). When customers call after hours, you would like them to hear an announcement that asks them to try their call again in the morning.

To set up night service for your helpline, you need to record the announcement (in our example, the announcement is on extension 1234) and then modify the hunt group to send calls to this extension.

To administer hunt group night service:

1. Type change hunt-group 3 and press RETURN.

The Hunt Group screen appears for hunt group 3.

```
HUNT GROUP
           Group Number: 3
                                                               ACD: n
            Group Name: Accounting
                                                            Queue: y
        Group Extension: 2011
                                                            Vector: n
            Group Type: ucd-mia
                                                   Coverage Path: 1
                                      Coverage Path: I
Night Service Destination: 1234
                     TN: 1
                    COR: 1
                                                 MM Early Answer: n
          Security Code: __
    ISDN Caller Display:
          Oueue Length: 4
Calls Warning Threshold:
                                               Port:
 Time Warning Threshold:
                                               Port:
```

Hunt Group screen

Issue 4 May 2002

2. Enter **1234** in the Night Service Destination field.

The destination can be an extension, a recorded announcement extension, a vector directory number, a hunt group extension, or **attd** if you want to direct calls to the attendant.

3. Press ENTER to save your changes.

Once you modify the hunt group, you also need to assign a hunt-ns feature button to a hunt group phone, so that the users in the hunt group can activate and deactivate night service.

Setting up night station service

You can use night station service if you want to direct incoming trunk calls, DID-LDN (direct inward dialing-listed directory number) calls, or internal calls to the attendant (dialed '0' calls) to a night service destination.

Let's say your attendant, who answers extension (List Directory Number or LDN) 8100, usually goes home at 6:00 p.m. When customers call extension 8100 after hours, you would like them to hear an announcement that asks them to try their call again in the morning.

To set up night station service, you need to record the announcement (in our example, it is recorded at announcement extension 1234).



All trunk groups that are routed through the attendant direct to this night service destination unless you assign trunk group night service to the individual trunk group. See "Setting up trunk group night service" on page 13.

To set up night station service:

 Type change listed-directory-numbers and press RETURN.

The Listed Directory Number screen appears.

D	NT	LISTED	DIRECTORY NU	MBERS	TDAT		
Ext	Name				TN		
1: 8100	attendant	8100		_			
2:				_			
3:							
4:							
5:				_			
6:							
7:				_			
· —				_			
8:				_			
9:				_			
10:				_			
			Niah	t Dest	ination:	1234	

Listed Directory Numbers screen

2. Enter **1234** in the Night Destination field.

The destination can be an extension, a recorded announcement extension, a vector directory number, or a hunt group extension.

- 3. Press ENTER to save your changes.
- 4. Type **change console-parameters** and press RETURN.

The Console Parameters screen appears.

- 5. In the DID-LDN Only to LDN Night Extension field, type **n**.
- 6. Press ENTER to save your changes.

Issue 4 May 2002

After you set up night station service, have the attendant use the night console button to activate and deactivate night service.

```
CONSOLE PARAMETERS

Attendant Group Name: OPERATOR
COS: 1
Calls in Queue Warning: 5
CAS: none

Night Service Act. Ext.:1234
IAS (Branch)? n
IAS Tie Trunk Group No.:
Attendant Lockout? y
CAS: none
Night Service Act. Ext.:1234
IAS Att. Access Code: Alternate FRL Station:
Backup Alerting? n
DID-LDN Only to LDN Night Ext? n
```

Console Parameters screen

Setting up trunk group night service

You can use trunk group night service if you want to direct individual trunk groups to night service. The system redirects calls to the trunk group to the group's night service destination.

Trunk group night service overrides night station service. For example, let's say you administer trunk group night service, and then your attendant activates night station service. In this case, calls to the trunk group use the trunk night service destination, rather than the station night service destination.

Let's direct night calls for trunk group 2 to extension 1245.

To set trunk group night service:

1. Type change trunk-group 2 and press RETURN.

The Trunk Group screen appears.

```
TRUNK GROUP
                                                  CDR Reports: y
                              Group Type: co
Group Number: 2
                                 COR: 1
 Group Name: outside calls
                                                  TN: 1 TAC:647
  Direction: two-way Outgoing Display? n
Dial Access: n Busy T
Queue Length: 0 Country: 1
Comm Type: voice
                        Busy Threshold: 99
                                                     Night Service: 1245
                                               Incoming Destination: _
                                Auth Code? n Digit Absorbtion List:
  Prefix-1?: y
                               Trunk Flash? n
                                                    Toll Restricted? y
TRUNK PARAMETERS
        Trunk Type: loop start
 Outgoing Dial type: tone
                                                      Cut Through? n
 Trunk Termination: rc
                                         Disconnect Timing(msec): 500
      Auto Guard: n Call Still Held? n Sig Bit Inversion: none
 Analog Loss Group:
                                               Digital Loss Group:
                              Trunk Gain: high
Disconnect Supervision - In? y Out? n
Answer Supervision Timeout: 10
                                        Receive Answer Supervision? n
```

Trunk Group screen

2. Enter **1245** in the Night Service field.

The destination can be a night service extension, a recorded announcement extension, a vector directory number, a hunt group extension, a terminating extension group, or **attd** if you want to direct the call to the attendant.

3. Press ENTER to save your changes.

Setting trunk answer from any station

There may be situations where you want everyone to be able to answer calls when the attendant is away. Use trunk answer any station (TAAS) to configure the system so that it notifies everyone when calls are ringing. Then, you can give users the TAAS feature access code so they can answer these calls.

When the system is in night service mode, attendant calls redirect to an alerting device such as a bell or a buzzer. This lets other people in the office know when they should answer the phone.



If no one answers the call, the call will not redirect to night service.

Let's define a feature access code (we'll use 71) and configure the alerting device for trunk answer any station.

To set the feature access code for TAAS:

- Type change feature-access-codes and press RETURN.
 The Feature Access Code screen appears.
- 2. In the Trunk Answer Any Station Access Code field, enter **71**.
- 3. Press ENTER to save your changes.

Once you set the feature access code, determine where the external alerting device is connected to the switch (we'll use port 01A0702).

To set up external alerting:

- Type change console-parameters and press RETURN.
 The Console Parameters screen appears.
- In the EXT Alert Port (TAAS) field, enter 01A0702.
 Use the port address assigned to the external alerting device.
- 3. Press ENTER to save your changes.

```
CONSOLE PARAMETERS

Attendant Group Name: Operator
COS: 0 COR: 0

Calls in Queue Warning: 5 Attendant Lockout? y

EXT Alert Port (TAAS): 01A0702
CAS: none
Night Service Act. Ext.:
IAS (Branch)? n IAS Tie Trunk Group No.:
IAS Att. Access Code: Alternate FRL Station:
Backup Alerting? n DID-LDN Only to LDN Night Ext? n
```

Console Parameters screen

How do night service types interact?

Let's look at an example of how several types of night service might be used in one company.

Assume that you already administered the following night service settings:

- night station night service redirects to extension 3000 and DID-LDN only to LDN Night Ext is set to n
- EXT Alert Port (TAAS) field is not defined
- Trunk group 4 redirects to extension 2000

Let's look at how calls for this company are directed after hours:

call type	directs to
An LDN call on a DID trunk	extension 3000
A call on trunk group 4	extension 2000
An internal call to '0'	extension 3000
A call that redirects to the attendant through a coverage path.	the attendant queue

Managing announcements

This section explains how to use announcements effectively, and how to add, change, delete, and back up your announcements.

What is an announcement?

An announcement is the recorded message a caller hears while the call is in a queue. An announcement is often used in conjunction with music. Announcements are recorded on special circuit packs (TN750, TN750B, TN750C, or TN2501AP) on your MultiVantageTM system.

Three types of announcements are:

- delay announcement explains the reason for the delay and encourages the caller to wait
- forced announcement explains an emergency or service problem. Use when you anticipate a large number of calls about a specific issue.
- information announcement gives the caller instructions on how to proceed, information about the number called, or information that the caller wants

Announcements are most effective when they are:

- short, courteous, and to-the-point
- spaced close together when a caller on hold hears silence
- spaced farther apart when music or ringing is played on hold
- played for calls waiting in queue

Magic on Hold is a package of professionally-recorded music available from Avaya. Contact your Avaya representative for more information.

Adding announcements

You need to tell the switch you want an announcement before you can record it on a special announcement circuit pack. You assign an extension for the announcement so the switch can identify the announcement. This extension cannot be in use and must conform to your dial plan.



Use **change announcement** to administer an announcement extension. See the Administrator's Guide for Avaya MultiVantageTM Software for more information.

Voice Announcement over LAN (VAL)

You can record announcements on a downloadable Voice Announcement over LAN (VAL) circuit pack (TN2501AP), which allows you to share, backup, and restore announcement files over your local area network.

You can also use TN750, TN750B, and TN750C announcement circuit packs to record announcements on your switch. You can have only one TN750 or TN750B per system, but you can use one TN750B with many TN750C and/or TN2501AP (VAL) circuit packs.

Let's say we have calls coming into unassigned DID extensions. Let's record a general message to tell these callers to dial the company's main number.

We'll assign the announcement to extension 1234, and use the integrated announcement circuit pack located on 01B18.



Use display integrated-annc-boards to find the cabinet, carrier, and slot addresses of your announcement circuit packs. The Integrated Announcement Board screen lists the location and the type, as well as showing the number of recordings and number of seconds (at the administered rate) left on each circuit pack.

Our example explains how to add an integrated announcement, but other types of announcements are available. See the *Administrator's Guide for Avaya MultiVantage*TM *Software* for more information about other announcement types.

To add an announcement extension 1234:

- Type change announcements and press RETURN.
 The Announcements/Audio Sources screen appears.
- 2. In the Ext field, type **1234**.
- 3. In the Type field, type **integrated**.

			ANNO	JNCEN	MENTS/AUDIO	SOUR	CES					
1	Ext.	Type	COR	TN	Name		Q	QLen	Pro	Rate	Port	
1: :	1234_	integrated	1 1_	1_	unassigned	DID	n	N/A	n	32	01B18	
2: .			1_	1_			n					
3:			1_	1_			n					
4:			1_	1_			n					
5: .			1_	1_			n					
6: _			1_	1_			n					
7:			1_	1_			n					
8: _			1_	1_			n					
9:			1_	1_			n					
10:			1_	1_			n					
11:			1_	1_			n					

Announcements/Audio Sources screen

- 4. In the Name field, type unassigned DID.
- 5. In the Pro (protected) field, type **n**.

If you enter **n**, users with console permissions can change the announcement. If you enter **y**, the announcement cannot be changed.

- 6. In the Rate field, type **32** for TN750 circuit packs, or **64** for TN2501AP circuit packs.
- 7. In the Port field, type **01B18**.
- 8. Press enter to save your work.

Recording announcements

You can record announcements using any phone or console whose COS (class of service) provides console permissions. You can use **display cos** to review COS permissions.

You also need the announcement feature access code for your system. Use **display feature-access-codes** to find the announcement access code.

The announcement extension must be set up before you record. Use **list station data-module** to determine the announcement extension.

In our example, use your 8410D phone to record the announcement for the unassigned DIDs to extension 1234. Our announcement access code is *56.

To record the announcement:

- Dial the announcement access code.
 In our example, we'll dial *56. You hear dial tone.
- Dial the announcement extension.
 In our example, we'll dial 1234. You hear dial tone.
- 3. Dial 1 to begin recording.
- 4. Record the message.
- 5. Hang up the phone to end recording.



The announcement records the sound of the receiver returning to the phone. Hang up gently, press the drop button, or press the switch hook with your finger.

You have to wait 15 seconds before you can dial the extension **1234** to listen to your announcement.

If you record an announcement and later you want to re-record your announcement, you have to first delete the original message.

Professional or computer recordings

If you are using the VAL (TN2501AP) announcement circuit pack, you can record announcements at a computer, rather than at a system phone. You can also record announcements at an off-site location and transfer them to the board using VAL Manager or File Transfer Protocol (FTP).

To be compatible with the TN2501AP circuit pack and the MultiVantageTM system, announcement recordings must have the following parameters:

- CCITT A-Law or CCITT μ-Law companding format (do not use PCM)
- 8KHz sample rate
- 8-bit resolution (bits per sample)
- \blacksquare Mono (channels = 1)

Recording new announcements at a computer

To record an announcement at a computer:

- 1. At the computer, open the application that you use to record way files.
- 2. Set the recording parameters.
- 3. Record the announcement by speaking into a microphone connected to the computer.
- 4. Play the announcement back at the computer before transferring the file to the VAL (TN2501AP) circuit pack.

Deleting announcements

Let's delete the unassigned DID announcement assigned to extension 1234.

We know that the announcement access code is *56. Use any console or phone with console permissions to delete the announcement from the announcement circuit pack.

To delete the announcement, use a phone with console permissions to complete the following steps:

- Dial the announcement access code.
 In our example, we'll dial *56. You hear dial tone.
- Dial the announcement extension.
 In our example, we'll dial 1234. You hear dial tone.
- 3. Dial **3** to delete the announcement from the circuit pack.
- 4. Hang up the phone.

You also need to remove the information from the system. To remove the information, use your system administration terminal to complete the following steps:

- Type change announcements and press RETURN.
 The Announcements/Audio Sources form appears.
- 2. Delete the information in the Ext and Type fields.
- 3. Press enter to save your work.

Backing up your announcements



To back up announcements from a TN2501AP circuit pack, you need to use either FTP or VAL Manager. See the Administrator's Guide for Avaya MultiVantageTM Software or your Avaya representative for more information about these tools.

Make sure you back up your announcements recorded on TN750 and TN750B circuit packs. The system loses announcements stored on these circuit packs if power is shut down or the circuit pack is removed.

The TN750C circuit pack has on-board FLASH memory so you do not have to back it up. However, you may want to back up your TN750C to another TN750C circuit pack or tape for extra security. You need to administer the data module that is built into the TN750 circuit pack before you save your announcements. See the Administrator's Guide for Avaya MultiVantageTM Software for more information.



A CAUTION:

Do not copy, save, or restore announcements from a TN750C to a TN750 or TN750B. It may corrupt the announcement.

To backup announcements on TN750 or TN750B circuit packs:

1. Type **save announcements** and press RETURN to save the changes.



If you have both TN750B and TN750C circuit packs, save the announcements from the TN750B slot.

The save announcement process can take up to 40 minutes. You cannot administer your system while it is saving announcements.

VAL Manager

VAL Manager is a standalone application that allows you to copy announcement files and announcement information to and from a TN2501AP announcement circuit pack over a LAN connection.

VAL Manager offers the following basic features:

- Simplified administration to add, change, and remove announcement information
- The ability to back up and restore announcement files and information
- The ability to view the status of announcements on the TN2501AP circuit pack

Contact your Avaya representative to obtain VAL Manager.

Managing hunt groups

This section shows you how to set up hunt groups. It explains how calls to a hunt group are handled and shows you different call distribution methods.

What are hunt groups?

A hunt group is a group of extensions that receive calls according to the call distribution method you choose. When a call is made to a certain phone number, the system connects the call to an extension in the group.

Use hunt groups when you want more than one person to be able to answer calls to the same number. For example, set up a hunt group for:

- a benefits department within your company
- a travel reservations service

Setting up hunt groups

Let's set up a hunt group for an internal helpline. Before making changes to the switch, we'll decide:

- the phone number for the hunt group
- the number of people answering calls
- the way calls are answered

Our dial plan allows 4-digit internal numbers that begin with 1. The number 1200 is not in use. So, we'll set up a helpline hunt group so anyone within the company can call extension 1200 for help with a phone.

We will assign 3 people (agents) and their extensions to our helpline. We want calls to go to the first available person.

To set up our helpline hunt group:

- 1. Type add hunt-group next and press RETURN.
 - The Hunt Group screen appears. The Group Number field is automatically filled in with the next hunt group number.
- In the Group Name field, type the name of the group.In our example, type internal helpline.
- In the Group Extension field, type the phone number.We'll type 1200.

```
HUNT GROUP

Group Number: 5
Group Name: internal helpline Queue? n
Group Extension: 1200 Vector? n
Group Type: ucd-loa Coverage Path:
TN: 1 Night Service Destination:
COR: 1 MM Early Answer? n
Security Code: ________
ISDN Caller Display: _______
```

Hunt Group screen

4. In the Group Type field, type the code for the call distribution method you choose.

We'll type **ucd-loa** so a call goes to the agent with the lowest percentage of work time since login.



The COS for all hunt groups defaults to 1. Therefore, any changes to COS 1 on the Class of Service screen changes the COS for all your hunt groups. A COS field does not appear on the Hunt Group screen.

5. Press NEXT PAGE to find the Group Member Assignments page.

```
HUNT GROUP
          Group Number: 5 Group Extension: 1200 Group Type: ucd-loa
  Member Range Allowed: 1 - 999 Administered Members (min/max): 1 /9
                                               Total Administered Members: 3
GROUP MEMBER ASSIGNMENTS
    Ext.
             Name
                                              Ext.
                                                      Name
  1: 1011
                                          14:
  2: 1012
                                          15:
  3: 1013
                                          16:
  4:
                                          17:
  5:
                                          18:
  6:
                                          19:
  7:
                                          20:
  8:
                                          21:
  9:
                                          22:
 10:
                                          23:
 11:
 12:
                                          25:
 13:
                                          26:
At End of Member List
```

Hunt Group screen

6. In the Ext field, type the extensions of the agents you want in the hunt group.

We'll type **1011**, **1012**, and **1013**.



For a ddc group type (also known as "hot seat" selection), the call is sent to the extension listed in the first Ext field. The system uses this form to determine the hunting sequence. See "Call distribution methods" on page 37 for more information.

7. Press ENTER to save your work.

The Name fields are display-only and do not appear until the next time you access this hunt group. To make changes to a hunt group:

- 1. Type **change hunt-group** n and press RETURN, where n is the number of the hunt group.
- 2. Change the necessary fields.
- 3. Press ENTER to save your changes.



Type **list member hunt group** to see a list of logged-in members of a hunt group by group number. For splits and skills, the login ID, name, and different fields for EAS and Advocate appear on the list.

Setting up a queue

You can tell your switch how to handle a hunt-group call when it cannot be answered right away. The call waits in a "queue."

Let's tell the switch that up to 10 calls can wait in the queue, but that you want to be notified if a call waits for more than 30 seconds.

You also want the switch to send a warning when 5 or more calls are waiting in the queue. This warning flashes queue-status buttons on phones that have a status button for this hunt group. When the buttons flash, everyone answering these calls can see that the helpline calls need more attention.

To set up our helpline queue:

1. Type **change hunt-group** n and press RETURN, where n is the number of the hunt group to change.

In our example, type change hunt-group 5.

The Hunt Group form appears.

```
HUNT GROUP
          Group Number: 5
                                                         ACD? n
            Group Name: internal helpline
                                                       Queue? y
       Group Extension: 1200
                                                      Vector? n
                                              Coverage Path:
            Group Type: ucd-loa
                             TN: 1
                   COR: 1
                                            MM Early Answer? n
         Security Code:
    ISDN Caller Display:
          Oueue Length: 10
Calls Warning Threshold: 5
Time Warning Threshold: 30
                                         Calls Warning Port:
                                           Time Warning Port:
```

Hunt Group screen

- 2. In the Queue field, type **y**.
- 3. In the Queue Length field, type the maximum number of calls that you want to wait in the queue.

In our example, type **10**.

4. In the Calls Warning Threshold field, type the maximum number of calls that can be in the queue before the system flashes the queue status buttons.

In our example, type **5**.

5. In the Time Warning Threshold fields, type the maximum number of seconds you want a call to wait in the queue before the system flashes the queue status buttons.

In our example, type **30**.

6. Press ENTER to save your changes.

Adding hunt group announcements

You can add recorded announcements to your hunt group queue. Use announcements to encourage callers to stay on the line or to provide callers with information. You can define how long a call remains in the queue before the caller hears an announcement.

See "Recording announcements" on page 22 for information on how to record an announcement.

Let's add an announcement to our internal helpline. We want the caller to hear an announcement after 20 seconds in the queue, after approximately 4 or 5 rings. Our announcement is already recorded and assigned to extension 1234.



You can use **display announcements** to find the extensions of your recorded announcements.

To add an announcement to our helpline queue:

1. Type **change hunt-group** n and press RETURN, where n is the number of the hunt group to change.

In our example, type change hunt-group 5.

The Hunt Group form appears.

2. Press NEXT PAGE to find the First Announcement Extension field

	HUNT GROUP	
	Message Center: AUDIX Extension: Message Center AUDIX Name: Primary? _ Calling Party Number to INTUITY AUDIX? _ LWC Reception: AUDIX Name: Messaging Server Name:	
\	First Announcement Extension: 1234 Delay (sec): 20 Second Announcement Extension: Delay (sec): Recurring? _	

Hunt Group screen

- 3. In the First Announcement Extension field, type the extension of the announcement you want callers to hear. In our example, type **1234**.
- 4. In the First Announcement Delay (sec) field, type the number of seconds you want the caller to wait before hearing the first announcement.

In our example, type 20.



If you set the delay announcement interval to 0, calls automatically connect to the announcement before they are queued, follow coverage, or connect to an available agent. This is called a "forced first announcement."

5. Press enter to save your work.

You can use the same announcement for more than one hunt group. See the *Administrator's Guide for Avaya MultiVantage*TM *Software* for more information on announcements and hunt groups.

Call distribution methods

You have more call distribution choices if your company acquires ACD (Automatic Call Distribution) or EAS (Expert Agent Selection).

ACD and EAS allow you to distribute calls according to the work loads and skill levels of your agents in each hunt group. You can track call handling and monitor the efficiency of your agents. When you assign ACD to a hunt group, the group is called a "split." When you assign EAS, the group is called a "skill."

The following table shows 6 types of call distribution methods and the software required for each method.

Method	The system hunts for	I need		
Direct Department Calling- (DDC)	the first agent administered in the hunt group. If the first agent is busy, it goes to the second agent, and so forth. This "hot seat" method puts a heavy call load on the first few agents.	no extra software (you cannot use this method if you have EAS enabled)		
Circular (circ)	the next available agent in a chain.	no extra software		
Uniform Call Distribution- Most Idle Agent (UCD-MIA)	the available agent who has been idle the longest since their last call.	no extra software		
Uniform Call Distribution- Least Occupied Agent (UCD-LOA)	the available agent with the lowest percentage of work time since login.	ACD, EAS, and CentreVu Advocate		
Expert Agent Distribution- Most Idle Agent (EAD-MIA)	the available agent with the highest skill level who has been idle the longest since their last call.	EAS		
Expert Agent Distribution- Least Occupied Agent (EAD-LOA)	the available agent with the highest skill level and the lowest percentage of work time since login.	EAS and CentreVu Advocate		

Managing vectors and VDNs

This section provides an introduction to vectors and Vector Directory Numbers (VDN). It gives you basic instructions for writing simple vectors.

This section also outlines the enhancements made to the conferencing feature of the MultiVantageTM system.



SECURITY ALERT:

Vector fraud is one of the most common types of toll fraud because vectors route calls based on the class of restriction (COR) assigned to the VDN. Refer to Avaya Security Handbook or your Avaya representative for more information.

This section references announcements, hunt groups, queues, splits, and skills, which are covered in detail in other sections of this book. You can also find information about these topics in the *Administrator's Guide for Avaya* MultiVantageTM *Software* and the *Avaya* MultiVantageTM *Call Center Software Release 11 Call Vectoring and Expert Agent Selection (EAS) Guide*.

What are vectors?

A vector is a series of commands that you design to tell the system how to handle incoming calls. A vector can contain up to 32 steps and allows customized and personalized call routing and treatment. Use call vectoring to:

- play multiple announcements
- route calls to internal and external destinations
- collect and respond to dialed information



The vector follows the commands in each step in order. The vector "reads" the step and follows the command if the conditions are correct. If the command cannot be followed, the vector skips the step and reads the next step.

Your system can handle calls based on a number of conditions, including the number of calls in a queue, how long a call has been waiting, the time of day, day of the week, and changes in call traffic or staffing conditions.

Writing vectors

Writing vectors is easy, but we recommend that you set up and test your vectors before you use them across the system.

We'll write a vector to handle calls to our main number. It is the first vector so we'll use number 1.



Type list vector to see a list of existing vectors. Type list usage vector to see where each vector is used throughout the switch. Type list usage digit string to see all the vectors, vector tables, and Best Service Routing (BSR) plans that use a specific dial string.

To write a vector:

1. Type **change vector 1** and press RETURN.

The Call Vector screen appears.

The vector number field on the left side of the screen is filled in automatically.

```
CALL VECTOR

Number: 1 Name: main number calls

Multimedia? n Lock? n

Basic? y EAS? n G3V4 Enhanced? n ANI/II-Digits? n ASAI Routing? n

Prompting? y LAI? n G3V4 Adv Route? n CINFO? n BSR? n

01

02

03

04

05
```

Call Vector screen

2. Type a description for the vector in the Name field.

In our example, type main number calls.



The information in the heading of the Call Vector screen is display only. Use display system-parameters customer-options to see the features that are turned on in your switch.

3. Type your vector steps in the numbered column on the left of the screen.



When you type in your vector steps, the switch automatically completes some of the vector step information for you. For example, if you type "q" in a vector step field, the switch fills in "queue-to." Also, additional fields appear when you complete a field and press TAB. This makes it very easy to type in your vector steps.

Now that vector 1 is set up, let's add a vector step to it to tell the switch how to handle the calls to our main number.

Putting a call in a queue

Write a vector so that calls that come into the main business number redirect to a queue.

We'll use a vector-controlled hunt group for the main number queue. This hunt group was set up as main split 47. When calls first arrive, all calls to our main number should be queued as "pri l" for low priority.

To queue calls, write the following vector (step 2). (Please note, we started our example on step 2 because step 1 is used later in this chapter.)

```
CALL VECTOR
      Number: 1
                       Name: main number calls
  Multimedia? n
                                                 Lock? n
      Basic? y EAS? n G3V4 Enhanced? n ANI/II-Digits? n ASAI Routing? n
   Prompting? y LAI? n G3V4 Adv Route? n CINFO? n
                                                              BSR? n
01
02 queue-to main split 47 pri l
03
04
```

Call Vector screen



Remember, the switch automatically fills in some of the information when you type your vector step and press TAB.

Playing an announcement

Write a vector to play an announcement for callers in a queue. Use the announcement to ask callers to wait. You need to record the announcement before the vector can use it. For more information see "Adding announcements" on page 20.

Let's play our announcement 4001, asking the caller to wait, then play music for 60 seconds, then repeat the announcement and music until the call is answered. The **goto** command creates the loop to repeat the announcement and the music. **Unconditionally** means under all conditions.



Rather than loop your vectors directly back to the announcement step, go to the previous queue-to step. This way, if for some reason the call does not queue the first time, the switch can attempt to queue the call again. If the call successfully queued the first time through, it merely skips the queue-to step and plays the announcement. The system cannot queue a call more than once in the exact same priority level.

To play and repeat an announcement, write this vector (steps 3-5):

```
CALL VECTOR
      Number: 1
                        Name: main number calls
  Multimedia? n
                                                    Lock? n
      Basic? y EAS? n G3V4 Enhanced? n ANI/II-Digits? n ASAI Routing? n
   Prompting? v LAI? n G3V4 Adv Route? n
                                               CINFO? n
                                                                  BSR? n
2. queue-to main split 47 pri 1
3. announcement 4001 ("All agents are busy, please wait...")
4. wait-time 60 secs hearing music
5. goto step 2 if unconditionally
```

Call Vector screen

Routing based on time of day

Write a vector for calls that come in after your office closes.

Assume that your business is open 7 days a week, from 8:00 a.m. to 5:00 p.m. When calls come in after business hours, you want to play your announcement 4002, which states that the office is closed and asks callers to call back during normal hours. The call is disconnected after the announcement is played.

For after-hours treatment, write this vector (steps 1, 6, 7):

```
1. goto step 7 if time-of-day is all 17:00 to all 8:00
```

```
2. queue-to main split 47 pri 1
3. announcement 4001 (All agents are busy, please wait...)
4. wait-time 60 secs hearing music
```

- 5. goto step 2 if unconditionally
- 6. stop
- 7. disconnect after announcement 4002 ("We're sorry, our office is closed...)

Call Vector screen

8.

If the **qoto** command in step 5 fails, the switch will go to the next step. The **stop** in step 6 prevents callers from incorrectly hearing the "office is closed" announcement in step 7. **Stop** keeps the call in the state it was in before the command failed. In this case, if step 5 fails, the call remains in step 4 and the caller continues to hear music.



A CAUTION:

Add a stop vector step only after calls are routed to a queue. If a stop vector is executed for a call NOT in queue, the call is dropped.

Allowing callers to leave a message

Write a vector that allows callers to leave messages. This type of vector uses a hunt group called a messaging split. For our example, we send after-hours calls to the voice mailbox at extension 2000 and use messaging split 99.

Once the vector routes a call to the mailbox, the caller hears a greeting (that was recorded with the voice mail for mailbox 2000) that tells then they can leave a message.

To let callers leave messages, write this vector (step 7).

```
1. goto step 7 if time-of-day is all 17:00 to all 8:00
2. queue-to main split 47 pri 1
3. announcement 4001 (All agents are busy, please wait...)
4. wait-time 60 secs hearing music
5. goto step 2 if unconditionally
6. stop
7. messaging split 99 for extension 2000
8.
```

Call Vector screen

Redirecting calls during an emergency or holiday

You can provide a quick way for a supervisor or agent to redirect calls during an emergency or holiday. Use a special mailbox where you can easily change announcements. This vector is also an alternative to making sure all agents log out before leaving their phones.



You can also use Holiday Vectoring, which simplifies vector writing for holidays and other times when you need to provide special handling for date-related calls. This feature allows you to administer up to ten different Holiday Tables, then use those tables to make vectoring decisions. For information, see the Avaya MultiVantageTM Call Center Software Release 11 Call Vectoring and Expert Agent Selection (EAS) Guide.

In our example, no agents are normally logged in to split 10. We'll use split 10 for an emergency. We preset buttons on our agents' phones so people with these phones can log in at the touch of a button.

To quickly redirect calls:

 Create a special mailbox with the appropriate announcement such as "We are unable to answer your call at this time" or "Today is a holiday, please call back tomorrow."

In our example, we recorded the mailbox greeting for extension 2001.

2. Insert the following bold vector steps (steps 1, 10, 11):

```
01. goto step 10 if staffed agents split 10 > 0
02. goto step 8 if time-of-day is all 17:00 to all 8:00
03. queue-to main split 47 pri 1
04. announcement 4001 ("All agents are busy, please wait...")
05. wait-time 60 secs hearing music
06. goto step 3 if unconditionally
07. stop
08. messaging split 99 for extension 2000
09. stop
10. messaging split 99 for extension 2001
11. stop
```

When there is an emergency, fire drill, or holiday, the supervisor or agent logs into this split.

When an agent logs into split 10, the system looks at vector step 1, sees that more than 0 people are logged into split 10, and sends calls to step 10 (which sends to messaging split 99).

When your business returns to normal and the agent logs out of split 10, call handling returns to normal.

Giving callers additional choices

You can give your callers a list of options when they call. Your vector tells the switch to play an announcement that contains the choices. The switch collects the digits the caller dials in response to the announcement and routes the call accordingly.

We'll create a vector that plays an announcement, then lets callers dial an extension or wait in the queue for an attendant.

Please note, the following example of this "auto attendant" vector is a new vector and is not built on the vector we used in the previous examples.

To let callers connect to an extension, write this kind of vector:

```
CALL VECTOR
                      Name: extension or attendant
   Number: 20
Multimedia? n
                                                 Lock? n
   Basic? y EAS? n G3V4 Enhanced? n ANI/II-Digits? n ASAI Routing? n
Prompting? y LAI? n G3V4 Adv Route? n
                                              CINFO? n
                                                                 BSR? n
```

- 1. wait-time 0 seconds hearing music
- 2. collect 4 digits after announcement 4004 (You have reached our company. Please dial a 4-digit extension or wait for the attendant.)
- 3. route-to digits with coverage y
- 4. route-to number 0 with cov n if unconditionally
- 5. stop

Call Vector screen

Inserting a step

It is easy to change a vector step and not have to retype the entire vector. Let's add announcement 4005 between step 3 and step 4 in vector 20.

To insert a new vector step in vector 20:

- 1. Type **change vector 20** and press RETURN.
 - The call vector screen appears.
- 2. Press EDIT.
- 3. Type i followed by a space and the number of the step you want to add.
 - In our example, type i 4.
- 4. Type the new vector step.
 - We'll type announcement 4005 (Please wait...).
- 5. Press ENTER to save your changes.



When you insert a new vector step, the system automatically renumbers the rest of the vector steps and all references to the vector steps. The switch inserts a "*" when the numbering needs more attention.

Deleting a step

To delete vector step 5 from vector 20:

1. Type change vector 20 and press RETURN.

The call vector screen appears.

- 2. Press EDIT.
- 3. Type **d** followed by a space and the number of the step you want to delete.

In our example, type **d** 5.



You can delete a range of vector steps. For example, to delete steps 2 through 5, type **d 2-5** and press ENTER.

4. Press ENTER to save your changes.



When you delete a vector step, the system automatically renumbers the rest of the vector steps and all references to the vector steps. The switch inserts a * when the numbering needs more attention.

Diagnosing a vector problem

If there is a problem with a vector, the switch records the error as a vector event. Vector events occur for a number of reasons including problems with a trunk, full queue slots, or the vector reaching the maximum 1000 steps allowed.

Use **display events** to access the Event Report screen and see the event record. Use the event record to see why the vector failed.

To view the Event Report:

1. Type **display events** and press RETURN.

The Event Report screen appears.

```
EVENT REPORT

The following option control which events will be displayed.

EVENT CATEGORY

Category: Vector

REPORT PERIOD

Interval: _a_ From: _/_/_:_ To: _/_/_:_

SEARCH OPTIONS

Vector Number:

Event Type:
Extension: _____
```

Event Report screen

2. To see all current vector events, press RETURN

OR

Indicate the events that you want to see by completing the Report Period and Search Option fields. See the *Avaya MultiVantage*TM *Call Center Software Release 11 Call Vectoring and Expert Agent Selection (EAS) Guide* for more information.

3. Press ENTER to view the report.

The Event Report (detail) screen appears.

/	EV	ENTS REPOR	T			/
Event	Event	Event	Event	First	Last	Event
Type	Description	Data 1	Data 2	Occur	Occur	Cnt
20	Call not queued	12/5	В	09/28/13:43	09/28/13:43	21
541	Not a messaging split	Split 89	4C	09/28/13:43	09/28/13:43	136
(1
						/

Event Report screen (detail)

Look at the information in the Event Data field to diagnose the vector event. In this example, there was a problem with:

- Vector 12, step 5
- Split 89

Vector Directory Numbers

A Vector Directory Number (VDN) is an extension that directs an incoming call to a specific vector. This number is a "soft" extension number not assigned to an equipment location. VDNs must follow your dial plan.

Let's create VDN 5011 for our sales department. A call into 5011 routes to vector 11. This vector plays an announcement and queues calls to the sales department.



SECURITY ALERT:

Vector fraud is one of the most common types of toll fraud because vectors route calls based on the class of restriction (COR) assigned to the VDN. Refer to the Avaya Security Handbook or your Avaya representative for more information

To add a VDN:

1. Type add VDN 5011 and press RETURN.

You enter the VDN extension you want to add. The Vector Directory Number screen appears.

```
VECTOR DIRECTORY NUMBER

Extension: 5011
Name: Sales Department
Vector Number: 11

Allow VDN Override? n
COR: 1
TN: 1
Measured: both
```

Vector Directory Number screen

2. Type a description for this VDN in the Name field.

In our example, type Sales Department.

The information in the VDN Name field appears on a display phone. This allows the agent to recognize the nature of the call and respond accordingly.

3. Enter the vector number.

In our example, type 11.

4. In the Measured field, indicate how you want to measure calls to this VDN.

In our example, type **both** (for CMS and BCMS).



BCMS must be enabled to use "both." Use display system-parameters customer-options to see if BCMS is enabled. See the Administrator's Guide for Avaya MultiVantageTM Software for more information.

5. Press ENTER to save your changes.

To see the VDNs already associated with your vectors:

1. Type **list VDN** and press RETURN.

The Vector Directory Numbers screen appears.

	VECTOR DIRECTORY NUMBERS						P		
Name Tech Support Customer Serv. New Orders	Ext 5000 5001 5002	VDN Ovrd Y n Y	1	TN 1 1 1	Vec Num 234 1 5	Meas none none none	Orig Annc 301 302 303	Event Notif Adj 1st	Skills 2nd 3rd

Vector Directory Numbers screen

Each VDN maps to one vector. Several VDNs can map to the same vector.

Meet-me Conference

Use the Meet-me Conference to set up a dial-in conference of up to six parties. Meet-me Conference uses Call Vectoring to process the setup of the conference call.

Meet-me Conference can require an access code. If an access code is assigned, and if the vector is programmed to expect an access code, each user dialing into the conference call must enter the correct access code to be added to the call. Any user can dial the Meet-me Conference extension if the extension number is part of the customer's DID block.

Administering Meet-me Conference takes three basic steps:

- 1. Make sure the customer options are set up to accept Meet-me Conferencing.
- 2. Create a Meet-me Conference VDN.
- 3. Create a vector for the Meet-me Conference.

Verifying the customer options

Let's first make sure the customer options are correctly set up.

- 1. Type display system-parameters customer-options and press RETURN.
- On the first screen, make sure the G3 Version field is set to V11 (the default setting for MultiVantageTM). On the second screen, make sure the Enhanced Conferencing field is set to y.

Setting up a Meet-me Conference VDN

Now let's set up a Meet-me Conference VDN. For this example, we'll set it up at extension 36090:

1. Type add vdn 36090 and press RETURN.

The Add VDN screen appears for extension 36090. Let's assign vector **90** to this VDN.

VECTOR DIRECTORY NUMBER Extension: 36090 Name: Meet-me Conference VDN Vector Number: 90 Meet-me Conferencing? v TN: 1

First Add VDN screen



If the VDN extension is part of the customer's DID block, external users will be able to access the conference VDN. If the VDN extension is not part of the customer's DID block, only internal callers on the customer's network (including DCS or QSIG) or remote access callers can access the conference VDN.

The second Add VDN screen allows you to assign a six digit access code for the Meet-me conference, and to indicate the person responsible (the extension number) for controlling the access code.

Let's assign access code 937821 and extension number 80214 as the responsible party.



A SECURITY ALERT:

It is recommended that you always assign an access code. However, if you do not want to assign an access code, leave the Conference Access Code field blank.

VECTOR DIRECTORY NUMBER

MEET-ME CONFERENCE PARAMETERS:

Conference Access Code: 937821 Conference Controller: 80214

Second Add VDN screen

Creating a Meet-me Conference vector

Finally, let's create a vector for the Meet-me Conference.



Before you can set up a vector that references announcements, first you must set up the announcements in the system. See the chapter on Announcements in this book for more information.

1. Type change vector 90 and press RETURN.

The change VDN screen appears for VDN 90. Let's write a call vector for this Meet-me Conference.

```
change vector 90
                                                              Page 1 of 3
                                                                             SPE A
                                   CALL VECTOR
    Number: 90
                              Name: Enh Conf Vec
                                             Meet-me Conf? y
                                                                         Lock? y
                    Attendant Vectoring? n
    Basic? y
               EAS? n G3V4 Enhanced? n
                                             ANI/II-Digits? n ASAI Routing? n
                                            CINFO? n BSR? n Holidays? n
 Prompting? y
                LAI? n G3V4 Adv Routs? n
01 collect
                6 digits after announcement 12340
                 step 6 if digits = meet-me-access
02 goto
03 collect
                 6 digits after announcement 12341
04 goto
                step 6 if digits = meet-me-access
04 goto
05 disconnect after announcement step 11 if meet-me-idle
                after announcement 12342
                step 14 if meet-me-full
07 goto
08 announcement 12343
09 route-to
                 meetme
10 stop
11 announcement 12344
```

First Change Vector screen

```
change vector 90
                                                             Page 2 of 3
                                                                           SPE A
                                  CALL VECTOR
    Number: 90
                             Name: Enh Conf Vec
                   Attendant Vectoring? n
                                             Meet-me Conf? y
                                                                       Lock? y
                EAS? n G3V4 Enhanced? n
    Basic? y
                                            ANI/II-Digits? n
                                                               ASAI Routing? n
 Prompting? y
                        G3V4 Adv Routs? n
                                           CINFO? n
                                                      BSR? n
                LAI? n
                                                               Holidays? n
12 route-to
                meetme
13 stop
14 disconnect
                after announcement 12345
15 stop
16
17
18
19
20
21
2.2
```

Second Change Vector screen

This is what happens when a person calls the Meet-me Conference telephone number:

Each caller hears announcement 12340, which says something like: "Welcome to the Meet-me Conferencing service. Enter your conference access code." Each caller enters the access code 937821. The **collect** vector step 1 collects the access code digits. If the access code is valid, the vector processing continues with vector step 6.

If the access code is invalid, the vector processing continues with vector step 3, which plays announcement 12341. Announcement 12341 says something like: "The access code you entered is invalid. Please enter the access code again."

If the caller enters the wrong access code again, the vector processing continues with vector step 5, which plays announcement 12342. Announcement 12342 says something like: "This access code is invalid. Please contact the conference call coordinator to make sure you have the correct conference telephone number and access code. Good bye." The caller is disconnected.

Vector step 6 is only valid for the first caller into the Meet-me Conference. The **meet-me-idle** condition routes the first caller to announcement 12344 (vector step 11). The recorded announcement says something like: "You are the first party to join the call." The caller is then routed to the Meet-me Conference call by vector step 12 and vector processing stops.

Vector step 7 is used when the Meet-me Conference already has the maximum of six parties on the call. The **meet-me-full** condition disconnects the caller after playing announcement 12345 (vector step 14). The recorded announcement 12345 says something like: "This Meet-me Conference is filled to capacity. Please contact the conference call coordinator for assistance. Good bye."

If a caller enters the correct access code, is not the first caller, and the conference call is not full, vector processing continues with vector step 8, which plays announcement 12343. The announcement says something like: "Your conference call is already in progress." The caller is then routed to the Meet-me Conference call by vector step 9 and vector processing stops.

As each caller enters the conference call, all parties on the call will hear an "entry" tone. When the conference call is over and callers drop out of the conference call, any remaining parties on the call will hear an "exit" tone.

Options for vector steps

collect — When the Meet-me Conf field is enabled, the **collect** vector step collects the next six digits and uses those digits as the access code for a Meet-me Conference call. See vector steps 1 and 3 in the example.

goto — The **goto** vector step has two conditions:

- meet-me-idle
- meet-me-full

The **meet-me-idle** condition routes the first caller accessing a Meet-me Conference to the conference call. An announcement step, saying they are the first party to access the call, can be given to the caller. See vector steps 6 and 11 in the example.

The **meet-me-full** condition is used when the Meet-me Conference already has the maximum of six parties on the call. See vector steps 7 and 14 in the example.

The **goto** step vector also has an option, **meet-me access**, for the digits condition to verify that the access code is valid. If the access code entered by the caller equals the access code administered for the VDN, vector processing continues. See vector steps 2 and 4 in the example.

route-to — The **route-to** vector step has one condition: **meetme**. When successful, this condition adds the caller to the Meet-me Conference call, and all parties on the call hear an "entry" tone to signify that another caller has joined the conference. This condition is valid when the caller has entered the correct access code and there are not already six parties on the call. See vector steps 9 and 12 in the example.

If the **route-to meetme** step ever fails, vector processing stops and the caller hears busy tone.

Disabling Meet-me Conference

If you want to disable Meet-me Conference, you must first remove all Meet-me Conference VDNs and vectors. If you do not, the change is not allowed, and a message appears telling you that you must first remove all Meet-me Conference VDNs and vectors before you can disable this option.

Using reports

This section explains how to generate, display, list, and print some of the basic reports on your MultiVantageTM system, and provides instructions for scheduling reports.

This section also contains information on how and when to use the system monitoring reports. It explains how to interpret some of the information displayed in the reports.

Using report scheduler

Use report scheduler to print reports automatically. Because printing reports requires significant switch processor resources, it is a good idea to print reports during off-peak hours.

Setting printer parameters

Report scheduler prints to the system printer connected to your switch.

There are two ways to connect the system printer:

- Use a data module extension to connect to a printer outside of the switch room.
- Use the EIA port to connect directly to the printer.

Some of the defaults for the system printer are set when the system is installed. If you make any changes to your system configuration, you may need to change the system parameters for the reports to print accurately.

Let's set the parameters for the EIA port. (Note that G3R cabinets do not have EIA ports.)

To set system parameters:

1. Type change system-parameters features and press RETURN.

The Feature-Related System Parameters screen appears.

2. In the System Printer Extension field, type eia.

NOTE:

If you're connecting to a data module instead of EIA, type the extension for the data module.

3. In the Lines Per Page field, type the number of lines per page.

For our example, leave the default of **60** in this field.

4. In the EIA Device Bit Rate field, type **9600**.



If you are connecting to a data module instead of EIA, the data module controls the speed.

5. Press ENTER to save your changes.



Check frequently to ensure that the system printer has enough paper. Reports lost to printer failure cannot be recovered.

For more information, refer to *Reports for Avaya MultiVantage*TM *Software*.

Scheduling and printing reports

You can schedule up to 50 reports at a time. If you need to schedule more reports, you can purchase CMS or BCMS VU. For more information on CMS and BCMS VU refer to "Selecting a call management system" on page 89.

To schedule or print a report:

1. Type a list or display command followed by the report name and schedule and press RETURN.

For example:

list measurement attendant group schedule

The Report Scheduler screen appears.

```
REPORT SCHEDULER

Job Id: 2 Job Status: none

Command: list measurements attendant group

Print Interval: scheduled

Print Time: 23:00

Sun: n Mon: y Tue: n Wed: y Thu: n Fri: y Sat: n
```

Report Scheduler screen

- 2. In the Print Interval field, specify one of the following print options:
 - immediate prints the report immediately
 - scheduled enables you to specify the day and time you want the report to print on a daily or weekly basis
 - deferred enables you to print the report once for the date and time you specify

3. For scheduled and deferred reports, complete the Print Time field to indicate the time you want the report to print.



You can schedule reports in 15-minute intervals. If a deferred report does not print within 4 hours of the scheduled time, it is canceled and you must reschedule it. If scheduled reports do not print within 4 hours, they print at the next scheduled time.

- 4. In the Days of the Week field, type **y** for each day of the week the report should print.
- 5. Press ENTER to save your changes.

Listing scheduled reports

You can list all of the scheduled reports and the time and day they are scheduled to print.

To list scheduled reports:

1. Type list report-scheduler and press RETURN.

The Report Scheduler screen appears.

```
REPORT SCHEDULER
Job Id
         Days(smtwtfs) Time
                                User
                                          Status
                                                   Type
    Command
                         23:00 johnston waiting
                                                    scheduled
1
         nynynyn
    list measurements attendant positions
                        23:45 johnston waiting
                                                    scheduled
        nnnnynn
    list measurements attendant-group
```

Report Scheduler screen

Changing scheduled reports

It is easy to reschedule the time and day a report prints. As an example, let's change the time on job ID 12 so that it prints at 10:00 p.m. (22:00).

To change the report scheduler for job ID 12:

- Type list report-scheduler and press RETURN.
 The Report Scheduler screen appears.
- Locate the job ID for the report you want to change.In our example the job ID is 12.
- 3. Type **change report-scheduler 12** and press RETURN.

 The Report Scheduler screen appears.
- 4. In the Print Time field, type **22:00**.
- 5. Press ENTER to save your changes.

Removing scheduled reports

As your needs change, you may want to remove certain reports from the report scheduler. The following example removes Job 12 from the report scheduler.



You can use **list report-scheduler** to determine which reports you want to remove.

To remove job 12 from the report scheduler:

- 1. Type **remove report-scheduler 12** and press RETURN.
- The Report Scheduler screen appears.

2. Press ENTER to remove the report.



If you want to print a different report, you must remove the old report from the report scheduler, and then add the new report.

68

Analyzing report data

Most of the information displayed in these reports is measured in CCS (centum call seconds). CCS equals the amount of call traffic it takes to keep one piece of traffic-sensitive equipment busy for 0.6 minutes. To convert CCS to minutes, use the following equation:

minutes = the number of CCS/0.6

For more information, refer to *Reports for Avaya MultiVantage*TM *Software*.

Using attendant reports

Attendant group reports enable you to assess the quality of service provided to anyone who calls your attendant. Monitor these reports to ensure that attendant groups are adequately staffed. There are three attendant reports:

- Attendant Group Measurements report measures attendant group traffic
- Attendant Positions Report measures individual attendant performance
- Attendant Group Performance report measures attendant group performance

The system automatically gathers the information for these reports, so you can use them to view attendant information at any time.

Measuring attendant group traffic

The Attendant Group Measurements report provides peak hour traffic measurements for any attendant group. It displays a summary of attendant group activity for yesterday's peak, today's peak, and the last hour.

To display the Attendant Group Measurements report:

 Type list measurements attendant group and press RETURN.

The Attendant Group Measurements screen appears.

1	Switch Name: Cust_Switch_Name Date:						Date:	4:40 pm	n MON A	PR 15	, 1998			
	ATTENDANT GROUP MEASUREMENTS													
	Grp	Meas			Calls	3		5	Γime -		Time	Speed		
	Siz	Hour	Ans	Abnd	Qued	H-Abd	Held	Avail	Talk	Held	Abnd	Ans(:	sec)	
	2	1000	1000	0	0	0	0	200	80	0	0	0	YEST	PEAK
	2	1100	1006	0	0	0	0	212	76	0	0	0	TODAY	PEAK
	2	1500	1007	0	0	0	0	224	64	0	0	1	LAST	HOUR
/														

Attendant Group Measurements screen

There are several ways to determine if traffic flow is optimal. For example:

- If the Time Abandon field approximately equals the average delay, the attendant group is staffed appropriately.
- If the number of calls in the Abandon (Abdn) field is high, according to your company standards, you may need to schedule additional attendants during peak hours.

For information on how to calculate the average answering delay, and what the data in the fields represent, refer to *Reports for Avaya MultiVantage*TM *Software*.

Issue 4 May 2002

Measuring individual attendant performance

The Attendant Positions Report provides peak individual attendant position measurements. It displays a summary of each attendant's activity for yesterday's peak, today's peak, and the last hour. This report enables you to assess personnel performance and to identify when additional attendant training is necessary.

To display the Attendant Positions report:

 Type list measurements attendant positions and press RETURN.

The Attendant Positions Measurements screen appears.

Measuring attendant group performance

The Attendant Group Performance report displays the average speed of calls answered for each hour of a 24-hour period, for either yesterday or today.

To display today's Attendant Group Performance report:

1. Type **list performance attendant-group today** and press RETURN.

The Attendant Speed of Answer screen appears.

Trunk group reports

Trunk Group Reports can help you detect traffic flow problems such as out-of-service trunks, load balance, or peak-hour blocking.



If a trunk appears to have intermittent service, use **list testcalls summary** to determine whether a specific trunk member is not functioning.

If you suspect a trunk is having problems, use Automatic Circuit Assurance (ACA) to monitor the trunk group. Refer to the *Avaya MultiVantage*TM *Little Instruction Book for basic diagnostics* for more information about ACA.

Summary of trunk group activity

The Trunk Group Summary report displays traffic measurements for all trunk groups except for personal central office line groups. The Trunk Group Summary report displays traffic measurements for yesterday's peak, today's peak, or the last hour.

To display the Trunk Group Summary report for the last hour:

1. Type list measurements trunk-group summary last-hour and press RETURN.

The Trunk Group Summary Report screen appears.

Use this report to determine general traffic flow. For more detailed information about a particular trunk group, see "Hourly trunk group activity" on page 73.

The Trunk Group Summary report allows you to determine measurement data such as the trunk group's total usage, the total number of calls, and trunk blockage.

If a trunk is out of service, see "Out-of-service trunks" on page 74. It is best to make adjustments to a trunk group only when all of the trunks are functioning.

For more information on interpreting the reports, refer to *Reports* for Avaya MultiVantageTM Software.

Hourly trunk group activity

Trunk Group Hourly reports are used in conjunction with the Trunk Group Summary report to locate trunk problems. For example, if the Traffic Group Summary report indicates a traffic flow problem, run the hourly report to help you locate the problem.

When you run this report, you first specify the trunk group you want to monitor on the Trunk Group Measurement screen. Once you select the trunk group you want to gather data on, the system starts collecting information on the trunk group activity. The Trunk Group Hourly report can display up to 24 hours of information. For example, if you started data collection on Thursday at noon (12:00) you would have 24-hours of data by noon (12:00) on Friday.

To monitor trunk group 12 for the next hour:

1. Type change meas-selection trunk-group and press RETURN.

The Trunk Group Measurement Selection screen appears.

- 2. Move to a measurement field and type 12.
- 3. Press ENTER to save your changes.

The system records the activity of trunk group 12 for the next hour.

4. Type list measurements trunk-group hourly 12 and press RETURN.

The Trunk Group Hourly report displays data from the previous hour.

Out-of-service trunks

The Trunk Outage Measurements report lists the trunks that were out-of-service during a selected period of time. This report may include up to five out-of-service trunks and lists how many times each trunk was out during the specified time. The system records trunk-outage data for the last hour, current day, and previous day.

To display the Trunk Outage Measurements report for yesterday:

1. Type list measurements outage-trunk yesterday and press RETURN.

If there are no outages, the form is blank.

The Trunk Outage Measurements report samples trunk activity once per hour. Therefore, if the report covers several hours, but indicates only a small number of outages, a trunk member may be providing intermittent service.

Current trunk group status

The Trunk Group Status report displays a current view of the load on various trunk groups by showing the number of calls waiting for service. This report shows data for 60 trunk groups at a time, but you can start the display at any number you want. For example, let's display trunk groups 5 and up.

To display the Trunk Group Status report:

1. Type monitor traffic trunk-groups 5 and press RETURN.

The Trunk Group Status report displays trunk groups 5 through 64.

This report shows only administered trunk groups.

2. Press CANCEL to return to the prompt.

Least used trunks

The Trunks Lightly Used Measurements report lists the five trunk members with the lowest number of calls carried for each trunk group. The system shows trunk lightly-used data for the last hour, current day, or previous day. Let's display this report for today.

To display the Trunks Lightly Used Measurements report for today:

 Type list measurements lightly-used-trunk today and press RETURN.

If the trunk member in the Calls Carried field has an unusually low number of calls compared to other trunk members, use Facility Test Calls to determine how a specific trunk member is functioning. To monitor a particular trunk group, use Automatic Circuit Assurance (ACA). Refer to *Avaya MultiVantage*TM *Little Instruction Book for basic diagnostics* for more information.

Measuring call center performance

Standard switch reports on MultiVantageTM provide valuable data about your center's operation.

What should I measure?

Focus on three things:

- How many calls are answered?
- How fast are calls answered?
- How cost-effective is the system?

MultiVantageTM has three hunt group reports that give you information about agents, hunt groups, trunks, and trunk groups to help you answer these questions. The reports are:

- Hunt Group Measurements
- Hunt Group Performance
- Hunt Group Status

The table below shows you how to monitor the performance of your call center by using these reports. To use the table, pick what you want to measure from the column headings. As you read down the column, each row shows the fields on a particular hunt group report — if any — that measure that aspect of call center performance.

Reports	How many calls are answered?	How fast?	Cost- effective?
Hunt Group Measurements	Calls Ans/Aban.	Speed Ans (sec)	Total Usage Time Available
Hunt Group Performance		Speed Ans (sec)	
Hunt Group Status		LCIQ	

For detailed information on these reports, see *Reports for Avaya MultiVantage*TM *Software*.

How many people can use switch reports?

The number of switch administrators and super-users who can log in simultaneously to view switch reports varies with the type of switch you have:

csi	si	r		
1	3	7		

A scheduled report counts as a login. Therefore, you should schedule reports to print during off-hours.

Viewing hunt group reports

These procedures tell you how to display or print switch hunt group reports.

Viewing Hunt Group Measurements reports

The Hunt Group Measurements report displays call data for each hunt group in your system. You can print this report for yesterday's peak, today's peak, or the last hour.

A peak hour is the hour during which the greatest usage of agent time occurred. Use this report to determine the time of day with the most traffic or to measure traffic during the previous hour.

Let's print the Hunt Group Measurements report for today's peak:

 Type list measurements hunt-group today-peak print and press RETURN.

Viewing Hunt Group Performance reports

The Hunt Group Performance report gives both the slowest hourly average speed of answer for each hunt group and the daily average. You can run the report for today or yesterday. This report can help you quickly find times during the day when your staffing is too low.

To display a Hunt Group Performance report for yesterday:

1. Type list performance hunt-group yesterday and press RETURN.

Viewing Hunt Group Status reports

The Hunt Group Status report displays a current view of your hunt groups. This report shows 32 hunt groups at a time. To display higher-numbered hunt groups, type the number of the first hunt group to be displayed. For example, let's display hunt groups 2 and higher.

To display the Hunt Group Status report:

- Type monitor traffic hunt-groups 2 and press RETURN.
 The Hunt Group Status report displays hunt groups 2 through 33.
- 2. Press CANCEL to return to the prompt.

This report shows all hunt groups in the range, even if you have not administered them.

For more information on interpreting any of these reports, refer to Reports for Avaya $MultiVantage^{TM}$ Software.

Using security reports

Security Violation Notification lets you know when someone may be trying to break into the system. Refer to the *Avaya MultiVantage*TM *Little Instruction Book for basic administration* for information on how to set Security Violation Notification.

Understanding call centers

This section introduces you to inbound call centers. It shows how to set up a simple inbound call center and lists things to consider as you plan and design your center.

What is a call center?

A call center is a way of organizing people and equipment to achieve particular business goals. For example, you can use a call center to make several people accessible through one number or to handle multiple calls simultaneously. Call centers work by organizing staff (called agents) with specific functions or expertise into hunt groups.

Call centers use some of the features covered in other chapters of this book: hunt groups, announcements, vectors, and VDNs. In this section, we'll show you how these features work together in a call center.

Planning a call center

Good planning is crucial to setting up an effective call center. Before you administer any part of your call center on MultiVantageTM, you should have a plan that is thorough and specific. Your call center plan should identify:

- the purpose of the call center what the call center has to do to be successful
- expected call volume the number of calls you expect per day, per week, and per month
- type of calls whether the call center should answer internal or external calls or both
- agent functions the major agent functions
- necessary resources the resources you must add to the system, such as trunk groups and phones

Once you develop a plan for the call center, organize agents according to their functions. These agent groups will be your hunt groups.

Setting up the call flow

Decide how you want your system to handle calls and what you want callers to experience. You may find it helpful to list the possible situations a call may encounter. Set up the call flow by adding hunt groups, setting up queues, adding announcements, and writing vectors. Refer to earlier sections of this book for details on completing these tasks.

Let's set up an example call flow. We'll set up a hunt group so that the work load is evenly distributed and up to 2 calls wait in a queue.

1. Type add hunt-group next and press RETURN.

The Hunt Group screen appears. In our example, the next available hunt group is number 2.

2. In the Group Type field, type ucd-mia.

This directs the call to the most idle agent — the agent who has waited the longest since handling a call to the hunt group.

- 3. In the Queue field, type **y**.
- 4. In the Queue Length field, type **2**.
- 5. In the Vector field, type **y**.
- 6. Complete the rest of the Hunt Group screen.
- 7. Press ENTER to save your changes.

Now that we've created a hunt group, let's write a simple vector that plays announcement 2340. This announcement asks callers to stay on the line. If a call isn't answered in 1 minute, the vector sends the call to voice mail (extension 2000).

Write this vector:

```
CALL VECTOR
       Number: 1
                                Name: sales hunt group
   Multimedia? n
                                                                  Lock? n
   Basic? y EAS? n G3V4 Enhanced? n ANI/II-Digits? n ASAI Routing? n Prompting? y LAI? n G3V4 Adv Route? n CINFO? n BSR? n
01 queue-to split 2 pri m
02 announcement 2340 ("You have reached...")
03 wait-time 60 sec hearing music
06 messaging split 99 for extension 2000
```



Vectors are an optional feature. To see if your company has vectoring, use display system-parameters customer-options.

To make this vector work correctly, you need to create the announcement at extension 2340 and assign a voice mailbox to extension 2000.

Testing the system

Before your new call center goes live, test the system to make sure it works the way you expect it to work.

- With agents available, call each outside number you've created for the call center. Does an agent in the appropriate hunt group answer?
- With only one agent available in a hunt group, make several calls at once to that hunt group. Now that several calls are in queue, call again and listen to the treatment your call receives in queue. If you've administered an announcement, do you hear it? Does it play when it's supposed to? If there's a music source, does it play when it's supposed to? Do queue warning lamps flash when they're supposed do?
- With all agents in Aux Work, call the hunt group. Does the call follow the intended path?

Monitoring your call center

This step never ends. Monitor your call center's performance regularly so you can solve problems quickly and adjust to changing conditions.

It's critical that you monitor a new call center closely for the first month. Use the hunt group and trunk reports described in "Using reports" on page 63 to track your system. If you underestimated call volume and trunk capacity, or overestimated agent productivity, you need to change your system immediately.

In addition, perform a traffic analysis when your call center begins operation. Work with your Avaya representative and your local network provider. A traffic analysis gives you a comprehensive picture of the demands on your system and how well the system is performing.

For example, trunk reports tell you how often your trunks reach 100% occupancy. Your network provider may be able to tell you how many callers are getting a busy signal from the CO when all of your incoming trunks are in use. You need both pieces of information to determine the total demand that your system needs to meet.

If your business is growing, regular traffic analysis is crucial. Use traffic analysis to project future demands on your system and plan expansions accordingly.

Viewing system capacity

The capacities of your system depend on the type of switch you have, the software you're using, and your contract with Avaya. Use the System Capacity screen to view the maximum capacities of your system and your current level of usage. Remember, however, that the capacities you've purchased from Avaya may be lower than the maximums shown on the switch.

For example, to find out how many hunt groups your MultiVantageTM system can support:

- 1. Type display capacity and press RETURN.
 - The System Capacity screen appears.
- 2. Go to the page that shows capacities for Hunt Groups, Splits, or Skills.

This screen shows the system limits for hunt groups and how much of this capacity is currently used.

Understanding Automatic Call Distribution

Automatic Call Distribution (ACD) is a MultiVantage[™] feature used in many call centers. ACD gives you greater flexibility to control call flow and to measure the performance of agents.

ACD systems operate differently from non-ACD systems, and they can be much more complex. ACD systems can also be more powerful because they allow you to use features and products that are not available in non-ACD systems.

Enhancing an ACD system

All call center management systems (such as Avaya's Basic Call Management System (BCMS), BCMSVu, and the sophisticated CentreVu[®] Call Management System) require ACD. These management systems give you the ability to measure more aspects of your center's operation, and in more detail, than is possible with standard MultiVantageTM reports. For a comparison of these systems, see "Selecting a call management system" on page 89.

Call vectoring greatly enhances the flexibility of a call center, and most vectoring functions require ACD. Vectoring is a simple programming language that allows you to custom design every aspect of call processing. For more information on call vectoring, see "What are vectors?" on page 40.

Together, ACD and vectoring allow you to use Expert Agent Selection (EAS). For a variety of reasons, you may want certain agents to handle specific types of calls. For example, you may want only your most experienced agents to handle your most important customers. You may have multilingual agents who can serve callers in a variety of languages.

EAS allows you to classify agents according to their specific skills and then to rank them by ability or experience within each skill. MultiVantageTM uses these classifications to match each call with the best available agent. For more information on call vectoring and EAS, see the *Administrator's Guide for Avaya MultiVantage*TM *Software* and the *Avaya MultiVantage*TM *Call Center Software Release 11 Call Vectoring and Expert Agent Selection (EAS) Guide*.

Selecting a call management system

Avaya provides management systems for the call centers that need more detailed and flexible reporting. These applications are optional. Contact your Avaya representative for more information.

Basic Call	BCMS runs on the switch. With BCMS, you can print
Management System	reports to a printer connected to your terminal, or schedule

(BCMS) reports to print on the system printer.

BCMS Vu BCMS Vu software runs on a PC with Windows 95 or

Windows NT. BCMS Vu takes BCMS data and stores it on a PC. Users can run real-time and historical reports and export data to other applications such as spreadsheets.

VuStats vus on the switch. An administrator, split

supervisor, or agent uses VuStats to view BCMS data on a

display telephone.

CentreVu CMS CentreVu CMS is a large, multi-faceted reporting system

that runs on a Sun SPARC server or Sun Enterprise workstation. CentreVu CMS can measure more aspects of switch performance and produce a greater variety of reports than any of the other 3 products. CMS also allows

streamlined ACD administration.

Use the following criteria to help you choose a call management system.

How many people need to monitor splits	more than 3	use CentreVu CMS, VuStats, or BCMS Vu		
simultaneously?	3 or fewer	use standard switch reports or BCMS		
How long do you need to store report	more than 7 days	use CentreVu CMS or BCMS Vu		
data?	7 days	use BCMS (summary report)		
	1 day	use standard switch reports (up to 24 hours), VuStats, or BCMS (24-hour detail)		
What ACD elements do you need to monitor?	work code or stroke count data, individual trunks, vectors	use CentreVu CMS		
	agents, trunk groups, splits/skills, VDNs	use CentreVu CMS, BCMS Vu, BCMS, or VuStats		
	trunk group or hunt group data only	use standard switch reports		

Use the following criteria to help you choose a reporting system. If the following scenarios do not describe your needs, standard switch reports or BCMS are probably adequate.

Do small inefficiencies or lapses in service cause big loss of profits?	Use CentreVu CMS or BCMS Vu. Both systems have exception alerting to notify you of problems immediately.
Do you frequently generate special reports for clients or senior management?	Use CentreVu CMS or BCMS Vu. Both systems allow custom report development, though CentreVu CMS allows maximum flexibility in those reports. In addition, CentreVu CMS allows you to create forecasts of call volume and needed staffing.
Do you need an electronic wallboard to display status for your center?	Use CentreVu CMS or BCMS Vu. Both systems allow wallboard display of report data.

Where to get more information

The Administrator's Guide for Avaya MultiVantage™ Software has more details about BCMS, BCMS Vu, VuStats, and CentreVu CMS. For more complete information, see:

- Basic Call Management System Operations for Avaya MultiVantageTM
- BCMS Vu Software User Guide
- CentreVu Call Management System Administration

Glossary

Α

Abbreviated Dialing

A feature that allows callers to place calls by dialing just one or two digits.

access code

A dial code used to activate or cancel a feature or access an outgoing trunk.

analog phone

A phone that receives acoustic voice signals and sends analog electrical signals along the phone line.

ARS partitioning

A feature that allows you to route calls differently for different groups of users.

attendant

A person at a console who provides personalized service for incoming callers and voice-services users by performing switching and signaling operations.

attendant console

The workstation used by an attendant. The attendant console allows the attendant to originate a call, answer an incoming call, transfer a call to another extension or trunk, put a call on hold, and remove a call from hold. Attendants using the console can also manage and monitor some system operations.

Audio Information Exchange (AUDIX)

A fully-integrated voice-mail system. Can be used with a variety of communications systems to provide call-history data, such as subscriber identification and reason for redirection.

Automatic Alternate Routing (AAR)

A feature that routes calls to alternate routes when facilities are unavailable.

Automatic Call Distribution (ACD)

A feature that gives users more flexibility in routing calls to hunt group agents. ACD also allows external measurement systems such as BCMS and CentreVu® CMS to be used.

Automatic Circuit Assurance (ACA)

A feature that tracks calls of unusual duration to facilitate troubleshooting.

Automatic Route Selection (ARS)

A feature that allows the system to automatically choose the least-cost route for toll calls.

R

barrier code

A security code used with Remote Access to prevent unauthorized access.

bridge (bridging)

The appearance of a phone's extension at one or more other phones.

bridged appearance

A call appearance on a phone that matches a call appearance on another phone for the duration of a call.

C

call appearance

For the phone or attendant console, a button labeled with an extension and used to place outgoing calls, receive incoming calls, or hold calls. Lights next to the button show the status of the call appearance.

Call Detail Recording (CDR)

A feature that records call data.

Call Vectoring

A feature that allows users to provide flexible, customized call handling by writing a series of instructions in a simple programming language.

carrier

An enclosed shelf containing vertical slots that hold circuit packs.

centum call seconds (CCS)

CCS is a unit for measuring call traffic. One CCS equals 100 seconds. Call traffic for a facility, such as a hunt group or phone, is scanned every 100 seconds. If the facility is busy, it is assumed to have been busy for the entire scan interval. There are 3600 seconds per hour, so a facility that is busy for an entire hour will be measured as being busy for 36 CCS.

central office (CO)

The location of phone switching equipment that provides local phone service and access to toll facilities for long-distance calling.

circuit

A channel or transmission path between two or more points.

Class of Restriction (COR)

A feature that defines call-origination and call-termination restrictions.

Class of Service (COS)

A feature that determines whether users can activate certain features.

coverage answer group

A group of phones that ring simultaneously when a call is redirected to it.

coverage path

The order in which calls are redirected to alternate phones.

coverage point

An extension designated as an alternate phone in a coverage path.

D

data module

A digital interface device between the switch and data equipment.

Direct Department Calling (DDC)

A method for distributing hunt group calls to agents. The switch searches through all the hunt group extensions in order, starting with the first extension. As soon as the switch finds an available extension, it connects the call. Compare to Uniform Call Distribution (UCD).

E

Expert Agent Selection (EAS)

A feature allowing incoming calls to be routed to specialized groups of agents within a larger pool of agents.

extension

A number by which calls are routed through a communications system.

external call

A connection between a communications system user and a party on the public network or on another communications system in a private network.

F

facility

A telecommunications transmission pathway and associated equipment.

feature access code (FAC)

A code users dial to access a system feature.

feature button

A button on a phone or attendant console used to access a specific feature.

Н

hunt group

A group of extensions that all can receive calls directed to a single phone number. When a call arrives at the group number, the switch searches ("hunts") for an available extension in the group and connects the call to that extension.

I

internal call

A connection between two users on the same phone system.

M

major alarm

An indication of a component failure that requires immediate attention.

minor alarm

An indication of a component failure that could affect customer service.

multiappearance phone

A phone equipped with several call-appearance buttons allowing the user to handle more than one call on that same extension at the same time.

P

pickup group

A group of individuals authorized to answer any call directed to an extension within the group.

port carrier

A carrier in a cabinet containing port circuit packs, power units, and service circuits. Also called a port cabinet.

primary extension

The main extension associated with the physical phone or data terminal.

principal

A phone that has its primary extension bridged on one or more other phones.

public network

The network that can be openly accessed by all customers for local and long-distance calling.

R

redirection criteria

Information administered for each phone's coverage path that determines when an incoming call is redirected to coverage.

S

skill

An attribute assigned to an agent in a system using Expert Agent Selection. An agent's skill indicates a specialty in which the agent is proficient.

split

An ACD hunt group.

system administrator

The person who maintains overall customer responsibility for system administration.

system printer

An optional printer that may be used to print scheduled reports via the report scheduler.

system report

A report that provides historical traffic information for internally measured splits.

T

trunk

A dedicated telecommunications channel between 2 phone systems or COs.

trunk group

Telecommunications channels assigned as a group for certain functions that can be used interchangeably between two communications systems or COs.

U

Uniform Call Distribution (UCD)

A method for distributing hunt group calls to agents by comparing agents' workloads. MultiVantageTM can deliver each new call to the most idle agent (the available agent who has been idle the longest since their last hunt group call) or to the least occupied agent (the agent who has spent the least amount of time on hunt group calls in their current shift). Compare to Direct Department Calling (DDC).

Uniform Dial Plan (UDP)

A feature that allows a unique 4- or 5-digit number assignment for each point in a multiswitch system.

V

Vector

A set of call handling instructions for MultiVantageTM that can direct the switch to queue calls, play announcements, play music, route calls to voice messaging, as well as many other things.

Index

Α

ACD, enhancing, 88
adding
announcements, 20
hunt group announcements, 35
hunt groups, 30
trunk groups, 4
vector directory numbers, 52
announcements
adding, 20
backing up, 26
definition, 19
deleting, 25
hunt group, 35
list of options, 48
recording, 22
types, 19
vector, 43
assigning hunt group agents, 32
attendant group measurements
report, 70
attendant group performance, 71
attendant positions measurement
report, 71
attendant reports, overview, 69
automatic call distribution (ACD), 37, 87
Avaya support Web site, xxiii, xxv

В

backing up, announcements, 26 Basic Call Management System (BCMS), 89 BCMS Vu, 89 books
how to order more copies, xxiv
buttons
help, xx

C

```
call center
   automatic call distribution (ACD), 87
   call flow, 83
   creating, 83
   definition, 81
   management systems, 89
   measuring agent performance, 87
   measuring performance, 86
   planning, 82
   system capacity, 87
   testing, 85
call center management system, 88
   selecting, 90
call distribution, 37
CAMA trunks, 2
CE marks. ix
CentreVu CMS, 89
centum call seconds, 69
CO trunks. 2
commands
   add hunt-group next, 30
   add trunk-group, 5
   add VDN, 53
   change announcements, 21, 25
   change console-parameters, 12, 16
   change hunt-group, 10, 33, 35
   change listed-directory-numbers, 12
   change meas-selection
    trunk-group, 74
   change system-parameters
    features, 64
   change trunk-group, 14
```

commands, (continued) change vector, 41, 49, 50 display announcements, 35 display capacity, 87 display integrated-anno-boards, 21 display system-parameters customer-options, 41 list measurements attendant group, 70 list measurements attendant positions, 71	deleting a step, vectors, 50 deleting announcements, 25 DID trunks, 2 DIOD trunks, 2 directory numbers, vectors, 52 display events, 51 DMI-BOS trunks, 2
list measurements lightly-used-trunk, 75 list measurements outage-trunk yesterday, 74 list measurements trunk-group hourly, 74 list measurements trunk-group summary, 72 list member hunt group, 33	electromagnetic compatibility standards, vi expert agent selection (EAS), 37 extended service agreement, xxv
list performance attendant-group today, 71 list report-scheduler, 66, 68 list testcalls summary, 72 list usage digit string, 40 list usage vector, 40 list VDN, 54 list vector, 40	F FX trunks, 2
monitor traffic trunk-group, 75 remove report-scheduler, 68 save announcements, 26 CPE trunks, 2 creating, call center, 83	handling calls system conditions, 40 help buttons, xx numbers to call, xxv hunt group night service, 10 hunt groups adding, 30 announcements, 35 assigning agents, 32 definition, 29

inserting a step, vectors, 49

ISDN-BRI trunks, 3 ISDN-PRI trunks, 3

	Р
L list of options, vectors, 48 listing scheduled reports, 66	performance, attendant group, 71 planning, call center, 82 printer parameters, setting, 63 printing reports, 65
M	Q
management systems, call center, 89 measuring agent performance, call center, 87	queue, setting up, 33 queueing calls, 42
Meet-me Conference, 55 Creating a vector, 57 Disabling, 62 Setting up a VDN, 56 Vector step options, 60 Verifying customer options, 55 message line, xx message, vector, 45	R recording announcements, 22 redirecting calls, vectors, 46 removing scheduled reports, 68 report attendant group measurements, 70 attendant positions measurement, 71
N	attendant speed of answer, 71 least used trunks, 75
night service hunt group, 10 interactions, 17 night station, 11 trunk group, 13	out-of-service trunks, 74 trunk group status, 75 trunk group summary, 72 reports listing scheduled, 66
irurik group, 13	namy someduled, 00

types, 9

night station service, 11

printing, 65

scheduling, 65 RLT trunks, 3

out-of-service trunks, report, 74

	trunk group
scheduled reports, removing, 68 scheduling reports, 65 screens, xx Announcements/Audio Sources, 22 Attendant Group Measurements, 70 Call Vector, 42, 44, 45, 46 Console Parameters, 16 Event Report, 51, 52 first Add VDN, 56 first Change Vector, 58 Hunt Group, 10, 32, 34, 36 Listed Directory Numbers, 12 Report Scheduler, 65, 66 second Add VDN, 57 second Change Vector, 58 Trunk Group, 5, 14 Vector Directory Numbers, 54 security concerns, xxi service agreement, extended, xxv setting up a queue, 33	trunk group adding, 4 least used report, 75 night service, 13 reports, 72 status report, 75 summary report, 72 trunks CAMA, 2 CO, 2 CPE, 2 DID, 2 DIOD, 2 DMI-BOS, 2 FX, 2 ISDN-BRI, 3 ISDN-PRI, 3 RLT, 3 tandem, 3 tie, 3 WATS, 3 trunks, out-of-service report, 74
setting, printer parameters, 63 standards electromagnetic compatibility, vi status line, xx system capacity, call center, 87	V VAL Manager, 27 vector directory numbers (VDN), 52 vectors announcements, 43
tandem trunks, 3 testing, call center, 85 tie trunks, 3 time of day, vector, 44 TN2501AP, 20 TN750C, 19 toll fraud, vvi	definition, 40 deleting a step, 50 inserting a step, 49 list of options, 48 message, 45 queueing calls, 42 redirecting calls, 46 time of day routing, 44 writing, 40

Voice Announcement over LAN (VAL), 20 voice terminals, see phones VuStats, 89

W

WATS trunks, 3 Web site Avaya support, xxiii, xxv writing vectors, 40

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Why this new book?

You've told us that you want more step-by-step instructions on everyday administration tasks for your MultiVantageTM system, and we've been listening. This book contains information on trunks, night service, announcements, hunt groups, vectors, reports, and call centers.



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 - On-line technical information, support, and status at: http://www.avaya.com/support/
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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.

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 Web site:

http://www.avaya.com/support/

If you are:

- Within the United States, click Escalation Lists, which includes escalation phone numbers within the USA.
- Outside the United States, click Escalation Lists then click Global Escalation List, which includes
 phone numbers for the regional 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.

Voice over Internet Protocol (VoIP)

If the equipment supports Voice over Internet Protocol (VoIP) facilities, you may experience certain compromises in performance, reliability and security, even when the equipment performs as warranted. These compromises may become more acute if you fail to follow Avaya's recommendations for configuration, operation and use of the equipment. YOU ACKNOWLEDGE THAT YOU ARE AWARE OF THESE RISKS AND THAT YOU HAVE DETERMINED THEY ARE ACCEPTABLE FOR YOUR APPLICATION OF THE EQUIPMENT. YOU ALSO ACKNOWLEDGE THAT, UNLESS EXPRESSLY PROVIDED IN ANOTHER AGREEMENT, YOU ARE SOLELY RESPONSIBLE FOR (1) ENSURING THAT YOUR NETWORKS AND SYSTEMS ARE ADEQUATELY SECURED AGAINST UNAUTHORIZED INTRUSION AND (2) BACKING UP YOUR DATA AND FILES.

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.

The equipment described in this manual complies with standards of the following organizations and laws, as applicable:

- Australian Communications Agency (ACA)
- · American National Standards Institute (ANSI)
- · Canadian Standards Association (CSA)
- Committee for European Electrotechnical Standardization (CENELEC) European Norms (EN's)
- Digital Private Network Signaling System (DPNSS)
- European Computer Manufacturers Association (ECMA)

- European Telecommunications Standards Institute (ETSI)
- · FCC Rules Parts 15 and 68
- International Electrotechnical Commission (IEC)
- International Special Committee on Radio Interference (CISPR)
- International Telecommunications Union Telephony (ITU-T)
- ISDN PBX Network Specification (IPNS)
- National ISDN-1
- · National ISDN-2
- Underwriters Laboratories (UL)

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 Laser products, equipment classification and requirements:

- IEC 60825-1, 1.1 Edition
- · 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

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.

This equipment complies with Part 68 of the FCC Rules. On the rear 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.

The REN is used to determine the quantity of devices which 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 table.

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
CO trunk	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,
	1KN, 1SN		RJ48M
120A2 channel service unit	04DU9-DN	6.0Y	RJ48C

If the terminal equipment (for example, the MultiVantage TM Solution 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 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.

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 digital apparatus does not exceed Class A limits for radio noise emission set out in the radio interference regulation of the Canadian Department of Communications.

Le Présent Appareil Nomérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils manicures de la class A préscrites dans le reglement sur le brouillage radioélectrique édicté par le ministére des Communications 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://support.avaya.com/elmodocs2/DoC/SDoC/index.jhtml/

All MultiVantage TM system products 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) signed by the Vice President of MultiVantageTM Solutions research and development, Avaya Inc., can be obtained by contacting your local sales representative and are available on the following Web site:

http://support.avaya.com/elmodocs2/DoC/IDoC/index.jhtml/

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。

Network Connections

Digital Connections - The equipment described in this document can be connected to the network digital interfaces throughout the European Union.

Analogue Connections - The equipment described in this document can be connected to the network analogue interfaces throughout the following member states:

Belgium	Germany	Luxembourg
Netherlands	Spain	United Kingdom

LASER Product

The equipment described in this document may contain Class 1 LASER Device(s) if single-mode fiber-optic cable is connected to a remote expansion port network (EPN). The LASER devices operate within the following parameters:

- Maximum power output -5 dBm to -8 dBm
- · Center Wavelength 1310 nm to 1360 nm
- CLASS 1 LASER PRODUCT IEC 60825-1: 1998

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

To order copies of this and other documents:

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Welcome	
■ Why this book?	X\
We wrote this book for you!	χV
What information is in this book?	xv
How to use this book	X
Security concerns	xxi xxi
 Trademarks and service marks 	
Related books	XX
■ Tell us what you think!	XX
 How to get this book on the web 	xx
 How to order more copies 	XX
How to get help	XX
Keening system information	
 Keeping baseline information Retrieving baseline information 	
Retrieving baseline informationSecuring backups	
Keeping baseline informationRetrieving baseline information	
 Keeping baseline information Retrieving baseline information Securing backups 	
 Keeping baseline information Retrieving baseline information Securing backups Checking system status	

Viewing the status of your cabinets	9
Viewing changes to the system (history report)	10
■ How can Avaya help?	11
Solving common problems	
■ Diagnosing a problem	13
 Solving common phone problems 	14
The user cannot dial out	15
Incoming calls ring but do not reach the user	16
The message lamp on the phone does not go out	17
Diagnosing general trunk problems	17
Diagnosing tie trunk problems	18
Diagnosing modem problems	18
Diagnosing printer troubles	19
Diagnosing password, login, and terminal access problems	19
Diagnosing SAT problems	19
 Solving call center problems 	20
Can't record an announcement on	
Integrated Announcement Boards	20
Callers don't hear announcement	21
A device in an Auto Answer hunt group doesn't respond	22
Too many abandoned calls	22
Customers complain they get a busy signal	23

Viewing the status of a station

8

Alarms and errors	
 Maintenance reports 	25
Alarm logs	31
Clearing alarm logs	34
Assigning alarm buttons	34
 Understanding common error types 	34
Error type 18 — busied out	35
Error type 513 — equipment "missing"	36
Error type 1 — circuit pack removed	37
Preventing alarms and errors	38
Turn off maintenance	38
Remove unused circuit packs	39
DS1 administration	40
Using features to troubleshoot	
 Using features to troubleshoot 	41
Automatic Circuit Assurance	41
Busy Verify	43
Facility Busy Indication	46
Facility Test Calls	47
Trunk Identification	49

Solving IP and H.323 problems

•	Solving softphone problems	51
	Users cannot login (register) with IP softphone	5 1
	User is logged in, but cannot use softphone for calls	52
	Cannot listen to messages with INTUITY Message Manager	52
	Users get message "Action cannot be completed"	53
	User cannot conference or transfer	53
	Users cannot use Directory	53
	Other tips	53
•	Sound quality problems	54
	Isolating problems in the LAN or MultiVantage™	54
	Running a mute test	55
	Checking the PC volume control	55
	Checking for packet loss and jitter	55
	Other possible causes	56
•	Basic troubleshooting tools	56
	Using ping	56
	Using trace-route	57
	Finding the IP address	59
	Verifying the IP softphone registration	59
	Verifying the trunk type	60
	When all else fails	60

Preparing to contact AvayaContacting Avaya	
Glossary	
- Index	

Welcome

Why this book?

You've told us that you want more information on how to keep your Avaya MultiVantageTM system up and running, and we've been listening. This book contains the basic technical knowledge you need to understand your telephone system. There are some differences between the different versions of MultiVantageTM, 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 MultiVantageTM system administrator. Mark it up, make notes in it. If you are a new administrator taking over the position from someone else or if you simply want to refresh your memory, this book is for you.

What information is 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, procedures, and conventions. They help you use this book with your telephone system and its software.

- To "move" to a certain field, you can use the TAB key, arrows, or the RETURN key.
- A "screen" is a screen form displayed on the terminal monitor.
- In this book we always use the term phone; other Avaya books may refer to phones as voice terminals.
- If you use terminal emulation software, you need to determine which keys correspond to ENTER, RETURN, CANCEL, HELP, NEXT PAGE, etc.
- Commands are printed in bold face as follows: **command**.
- Keys and buttons are printed as follows: KEY.
- Screen displays are printed in constant width as follows: screen display.
- Variables are printed in italics 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 entered as list config sta.
- We show commands and screens from the newest MultiVantageTM system and refer to the most recently released books. Please substitute the appropriate commands for your system (if necessary) and refer to the manuals you have on hand.

xix

- If you need help constructing a command or completing a field entry, 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 screen, a list of valid entries for that field appears.
- The status line or message line can be found near the bottom of your monitor display. 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 our helpline.
- When a procedure requires you to press ENTER to save your changes, the screen you were working on clears and the cursor returns to the command prompt. The message line shows "command successfully completed" to indicate that the system accepted your changes.

You may see the following icons in this book:



Draws attention to information that you may find helpful.



Draws attention to information.



A CAUTION:

Denotes possible harm to software, possible loss of data, or possible service interruptions.



A SECURITY ALERT:

Indicates when system administration may 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.

Call the Avaya Security Hotline at 1 800 643 2353 or contact your Avaya representative for more information. Refer to the Avaya Security Handbook for tips on how to prevent toll fraud.

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Related books

The Avaya MultiVantageTM Little Instruction Book for basic administration and Avaya MultiVantageTM Little Instruction Book for advanced administration are companions of this book. We suggest you use them often.

The Administrator's Guide for Avaya MultiVantageTM Software explains system features and interactions in detail. It provides a reference for planning, operating, and administering your system, and we refer to it often. Please note that 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 MultiVantage*TM *Software* and the *Avaya Security Handbook*.

Tell us what you think!

Let us know what you like or don't like about this book. Although we can't respond personally to all your feedback, we promise we will read each response we receive.

Write to us at: Avaya

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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 the *Avaya MultiVantage*TM *Little Instruction Book for basic diagnostics*. To view the book, you must have a copy of Acrobat Reader.

To access the latest version:

- Access the Avaya Customer Support web site at http://www.avaya.com/support/
- Click on Online Services, then Documentation, then Recent Documents, then look for the latest MultiVantageTM release.
- Search for 555-233-758 (the document number) to view the latest version of the book.

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We can place you on a standing order list so that you will automatically receive updated versions of this book. For more information on standing orders, or to be put on a list to receive future issues of this book, please contact the Avaya Publications Center.

How to get help

If you need additional help, first access the Avaya Customer Support web site at http://www.avaya.com/support/. Click the Escalation Lists link in the lower right side of the page for the most recent information. If you are outside the USA, also click the Global Escalation List link for the phone numbers for the regional Centers of Excellence.

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

MultiVantage TM Helpline (for help with feature administration and system applications)	1 800 225 7585
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
Avaya Centers of Excellence	
— Asia/Pacific	65 872 8686
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— Central/Eastern Europe	361 645 4334
— Central/Latin America Caribbean	1 303 804 3778
— Australia	61 2 9352 9090
— North America	1 800 248 1111

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.



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 telephone service on a priority basis. We can also lease a MultiVantageTM system to Warranty and Service Agreement customers or can ship a replacement MultiVantageTM 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.
- Add print to display or list commands to create paper copies of the records from your switch.



Be sure your printer is set up to print from the SAT. See the Avaya MultiVantageTM Little Instruction Book for basic administration for more information.

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

switch component	information	group records	individual records
switch configuration	the features your company purchased	display system parameters customer	
switch capacity	capacities enabled on your switch	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 <i>n</i> display extension <i>n</i>
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 dial plan	
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 <i>n</i> display VDN <i>n</i>
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



See the Avaya MultiVantageTM Little Instruction Book for basic administration for more information on performing backups.

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 6 for more information.
- Use display alarms and display errors to closely monitor your switch. See "Alarms and errors" on page 25 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 13 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 screen appears.

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

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

Help screen for status command

Let's look at a few example status screens.

Viewing general system operations

Use the status health screen 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 screen:

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

The Status Health screen appears.

Status health screen

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 SAC is activated on the user's extension

To view the status of extension 7236:

1. Type **status station 7236** and press RETURN.

The General Status screen appears. In our example, you can see that this 7406+ 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.

```
GENERAL STATUS
           Type: 7406+ Service State: in-service/on-hook
Extension: 7236 Download Status: not-applicable
Port: 02A0306 SAC Activated? yes
Call Parked? no User Cntrl Restr: none
                                        Group Cntrl Restr: none
     Ring Cut Off Act? no
                                      Group Cherry ....
CF Destination Ext:
Active Coverage Option: 1
       Message Waiting:
       Connected Ports:
              ACD STATUS
                                                 HOSPITALITY STATUS
   Grp/Mod Grp/Mod Grp/Mod Grp/Mod
          /
                   /
                                            Room Status: non-guest room
       On ACD Call? no Occupancy: 0.0
```

General Status screen

Viewing the status of your cabinets

Use the system status cabinet screen to become familiar with the service state of your individual cabinets. This screen also reports any alarms against your cabinets.

To view the status of your system cabinets:

1. Type status system all-cabinets and press RETURN.

The System Status Cabinet screen appears.

	5	SYSTEM STATU	S CAB	INET 1				
1		SELECT	SPE A	LARMS	TONE/	SERVIC	E SYSTEM	SYSTEM
SPE MODE		SWITCH	MAJOR	MINOR	CLOCK	STATE	CLOCK	TONE
1A standby		auto	0	0	1A	in	standb	y standby
1B active		spe b	0	0	1B	in	active	active
SERVICE (CONTROL I	DEDICATED		SERVICE	BUS A	ALARMS	BUS	OPEN BUS
TDM STATE (CHANNEL	TONES	PKT	STATE	MAJOR	MINOR	FAULTS	LEADS
1B in	n	n						
1A in	У	У	1	in	n	n	0	0
EMERGENCY	SELECT			SERVICE		C	ABINET	
TRANSFER	SWITCH	EXP-LINK		STATE	MODE	T	YPE	
1A (on	01A01-02A	.01	in	activ	ve M	ICC	
1B a	auto-off	01B01-02B	02	in	stand	dby		
\								

System Status Cabinet screen

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 screen 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 RETURN.

The History screen appears.

```
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 nunc-group
3/15 7:05 MGR1 craft cha system-param features
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
                  craft add station next craft add station next
3/15 6:06 MGR1
3/15 6:06 MGR1
3/15 5:35 MGR1
                  craft cha console-para
```

History screen

Issue 4 May 2002

How can Avaya help?

With an Avaya Service Agreement or warranty coverage, your MultiVantageTM system 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.

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 MultiVantage*TM *Little Instruction Book for basic administration* 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 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** *nnnn* where *nnnn* is the extension, and press RETURN.

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

- 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

- 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

- 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

- 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 screen to change the COS for that phone to a different COS that has console permissions.
The Pro (protected) field on the Recorded Announcements screen 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 Recorded Announcements screen.

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 screen 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 Recorded Announcements screen 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.
	 Dial each modem's extension until you find the one that isn't answering.
	Busy out that device, or remove its extension number from the Hunt Group screen 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 screen.
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.
	MultiVantage TM 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 screen 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 screen.

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

Your MultiVantageTM system 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 RETURN.

The Error Report screen appears.

```
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 ):
```

Error Report screen

2. To see all current errors, press RETURN

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 en	nter							
Error Type	error type	error type							
Error List	active-alarm	s, errors, or cl	eared-errors						
Interval	h(our), d(ay)), w(eek), m(o	nth), a(ll)						
From/To	time interva	l by date and t	ime						
Cabinet	cabinet num	abinet number (1 - 44)							
Port Network	port network	x number (1 - 4	44)						
Board Number		character board number in UUCSS format: J = cabinet (1-44), C = carrier (A-E), SS = slot (0-20)							
Port		port address in et (1-44), C = c			-20), ss = circuit				
Category	category nar	U = cabinet (1-44), C = carrier (A-E), SS = slot (0-20), ss = circutegory 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 ext	ension, or blan	nk						
Trunk Group	group numb	er between 1-6	566						
Trunk Member	group memb	er between 1-	255, or blan	k					

	HARDI	WARE EI	RROR RI	EPORT - ACTIV	Æ ALARMS					`
Mtce	Alt	Err	Aux	First	Last	Err	Err	Rt/	Al	Ac
Name	Name	Type	Data	Occur	0ccur	Cnt	Rt	Hr	St	:
PI-LINK		257	25	05/02/08:07	05/04/08:38	255	5	13	a	n
PI-LINK		2049	1	05/02/12:03	05/02/12:03	1	0	0	a	n
PI-LINK		1	25	05/02/18:48	05/03/13:57	2	0	0	a	n
DIG-LINE	Attd1	1537	40968	05/02/12:29	05/02/12:29	1	0	0	а	n
DIG-LINE	Attd1	513	0	05/02/12:29	05/02/12:29	3	0	0	a	n
	Name PI-LINK PI-LINK PI-LINK DIG-LINE	Mtce Alt Name Name PI-LINK PI-LINK	Mtce Alt Err Name Name Type PI-LINK 257 PI-LINK 2049 PI-LINK 1 DIG-LINE Attdl 1537	Mtce Alt Err Aux Name Type Data PI-LINK 257 25 PI-LINK 2049 1 PI-LINK 1 25 DIG-LINE Attdl 1537 40968	Mtce Alt Err Aux First Name Type Data Occur PI-LINK 257 25 05/02/08:07 PI-LINK 2049 1 05/02/12:03 PI-LINK 1 25 05/02/18:48 DIG-LINE Attdl 1537 40968 05/02/12:29	Name Name Type Data Occur Occur PI-LINK 257 25 05/02/08:07 05/04/08:38 PI-LINK 2049 1 05/02/12:03 05/02/12:03 PI-LINK 1 25 05/02/18:48 05/03/13:57 DIG-LINE Attdl 1537 40968 05/02/12:29 05/02/12:29	Mtce Alt Err Aux First Last Err Name Name Type Data Occur Ocour Cnt PI-LINK 257 25 05/02/08:07 05/04/08:38 255 PI-LINK 2049 1 05/02/12:03 05/02/12:03 1 PI-LINK 1 25 05/02/18:48 05/03/13:57 2 DIG-LINE Attdl 1537 40968 05/02/12:29 05/02/12:29 1	Mtce Alt Err Aux First Last Err Err Inch Inch Err Inch Inch	Mtce Alt Err Aux First Last Err Err Rt/ Name Name Type Data Occur Occur Cnt Rt Hr PI-LINK 257 25 05/02/02/08:07 05/04/08:38 25 5 13 PI-LINK 2049 1 05/02/12:03 05/02/12:03 1 0 0 PI-LINK 1 25 05/02/18:48 05/03/13:57 2 0 0 DIG-LINE Attdl 1537 40968 05/02/12:29 05/02/12:29 1 0 0	Mtce Alt Err Aux First Last Err Err Rt Al Name Name Type Data Occur Occur Cnt Rt Hr St PI-LINK 257 25 05/02/08:07 05/04/08:38 255 5 13 a PI-LINK 2049 1 05/02/12:03 05/02/12:03 1 0 0 a PI-LINK 1 25 05/02/18:48 05/03/13:57 2 0 0 a DIG-LINE Attdl 1537 40968 05/02/12:29 05/02/12:29 1 0 0 a

Hardware Error Report

Use the **print** command to print the report. 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.
- Error 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)
- Err Cnt (lists how many occurrences since the first one)

Interpreting the error log

The Hardware Error Report above 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 error 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 Avaya MultiVantageTM 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 Avaya MultiVantageTM 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 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 RETURN.

The Alarm Report screen appears.

```
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 ):
```

Alarm Report screen

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



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 **v** 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 screen appears.

(ALARM REP	ORT			
Port	Maintenan	.ce On	Alt	Alarm	Svc	Ack? Da	ate	Date
	Name	Bro	d? Name	Type	State	1 2 Ala	rmed	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 I	RDY	05/02/	12:29	00/00/00:00
01A0101	DIG-LINE	n	Attd1	WARNING I	RDY	05/02/	12:29	00/00/00:00
01AXX1	PI-LINK	n		WARNING		05/02/	18:49	00/00/00:00
\						,,		

Alarm Report screen

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:

- Type display errors and press RETURN.
 The Hardware Error Report screen appears.
- 2. Fill in the Error Type field and press RETURN.

In our example, type **18**.

The Hardware Error Report for error 18 appears.

Port	Mtce Name	Alt Name		Aux	REPORT - ACT	FIVE ALARM Last Occur	Err		Rt/ Hr		Ac	
01A0901	DIG-LINE	1234	18		03/09/00:30	03/09/00:	30 1	. 0	0	а	ın	\int

Hardware Error Report (error type 18)

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:

 Type release port 01A0901 (permissions enabled) and press RETURN.

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:

- Type display errors and press RETURN.
 The Hardware Error Report screen appears.
- 2. Fill in the Error Type field and press RETURN.

In our example, type **513**.

The Hardware Error Report for error 513 appears.

```
HARDWARE ERROR REPORT - ACTIVE ALARMS
                                        Last
Port
        Mtce
               Alt
                      Err Aux
                                  First
                                                     Err Err Rt/ Al Ac
                                            Occur Cnt Rt Hr St
               Name
                      Type
                           Data
                                  Occur
01C0507
        DIG-LINE 7157
                       513
                            0
                                 03/09/00:30 03/09/00:30 1
```

Hardware Error Report (error type 513)

Issue 4 May 2002

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 (Error 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 RETURN 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 extension** and press RETURN.

The following screen appears:

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

Data module screen

- 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 the 7000-series analog model to the 8400-series 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	 Replace and latch the board in its assigned slot.
				2. Remove the trunk and DS1 administration (change circuit-pack <i>UUCSS</i>), leaving the circuit pack in its assigned slot.
N	Y	Y	minor	 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	Remove the circuit pack from the carrier.

Using features to troubleshoot

Using features to troubleshoot

You can use some MultiVantage™ 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

- 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
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	invalid number	cancel and try again
		020 112	repeated		
Terminated	ringback	combined 440 Hz + 480 Hz	1 on 3 off repeated	idle and ringing	release the call
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	.25 on	invalid	cancel and try again
		620 Hz	.25 on		
			repeated		
Verified	confirmation			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	continuous	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.



A 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)



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.

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.



A 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.

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) 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*TM *Software* 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 road warrior types).

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.



MARNING:

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 screen 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 MultiVantage™

There are a few easy things you can do to determine if a voice quality problem is in the MultiVantageTM 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 MultiVantageTM. 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 MultiVantageTM.

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.



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 Software MultiVantage*TM *Software 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 MultiVantageTM IP hardware and software.

Using ping

The MultiVantageTM 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:

 At the MultiVantageTM 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 screen.

2. Press RETURN.

The Ping Results report appears.

```
PING RESULTS

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

Ping Results report

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

Using trace-route

The MultiVantageTM 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 MultiVantageTM command line, type **trace-route** 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 screen.

2. Press RETURN.

The Trace Route Results report appears.

TRACE ROUTE RESULTS						
Нор	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				

Trace Route Results report

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 RETURN.
 - The General Status screen 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 RETURN.

The Trunk Status screen 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.

60

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 5 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

Issue 4 May 2002

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
MultiVantage TM Helpline (for administration and software problems, including vectors, how features work,	1 800 225 7585

administration, and interactions)

Glossary

Α

Abbreviated Dialing

A feature that allows callers to place calls by dialing just one or two digits.

access code

A dial code used to activate or cancel a feature or access an outgoing trunk.

analog phone

A phone that receives acoustic voice signals and sends analog electrical signals along the phone line.

ARS partitioning

A feature that allows you to route calls differently for different groups of users.

attendant

A person at a console who provides personalized service for incoming callers and voice-services users by performing switching and signaling operations.

attendant console

The workstation used by an attendant. The attendant console allows the attendant to originate a call, answer an incoming call, transfer a call to another extension or trunk, put a call on hold, and remove a call from hold. Attendants using the console can also manage and monitor some system operations.

Audio Information Exchange (AUDIX)

A fully-integrated voice-mail system. Can be used with a variety of communications systems to provide call-history data, such as subscriber identification and reason for redirection.

Automatic Alternate Routing (AAR)

A feature that routes calls to alternate routes when facilities are unavailable.

Automatic Call Distribution (ACD)

A feature that gives users more flexibility in routing calls to hunt group agents. ACD also allows external measurement systems such as BCMS and CentreVu® CMS to be used.

Automatic Circuit Assurance (ACA)

A feature that tracks calls of unusual duration to facilitate troubleshooting.

Automatic Route Selection (ARS)

A feature that allows the system to automatically choose the least-cost route for toll calls.

В

barrier code

A security code used with Remote Access to prevent unauthorized access.

bridge (bridging)

The appearance of a phone's extension at one or more other phones.

bridged appearance

A call appearance on a phone that matches a call appearance on another phone for the duration of a call.

C

call appearance

For the phone or attendant console, a button labeled with an extension and used to place outgoing calls, receive incoming calls, or hold calls. Lights next to the button show the status of the call appearance.

Call Detail Recording (CDR)

A feature that records call data.

Call Vectoring

A feature that allows users to provide flexible, customized call handling by writing a series of instructions in a simple programming language.

carrier

An enclosed shelf containing vertical slots that hold circuit packs.

centum call seconds (CCS)

CCS is a unit for measuring call traffic. One CCS equals 100 seconds. Call traffic for a facility, such as a hunt group or phone, is scanned every 100 seconds. If the facility is busy, it is assumed to have been busy for the entire scan interval. There are 3600 seconds per hour, so a facility that is busy for an entire hour will be measured as being busy for 36 CCS.

central office (CO)

The location of phone switching equipment that provides local phone service and access to toll facilities for long-distance calling.

circuit

A channel or transmission path between two or more points.

Class of Restriction (COR)

A feature that defines call-origination and call-termination restrictions.

Class of Service (COS)

A feature that determines whether users can activate certain features.

coverage answer group

A group of phones that ring simultaneously when a call is redirected to it.

coverage path

The order in which calls are redirected to alternate phones.

coverage point

An extension designated as an alternate phone in a coverage path.

ח

data module

A digital interface device between the switch and data equipment.

Direct Department Calling (DDC)

A method for distributing hunt group calls to agents. The switch searches through all the hunt group extensions in order, starting with the first extension. As soon as the switch finds an available extension, it connects the call. Compare to Uniform Call Distribution (UCD).

F

Expert Agent Selection (EAS)

A feature allowing incoming calls to be routed to specialized groups of agents within a larger pool of agents.

extension

A number by which calls are routed through a communications system.

external call

A connection between a communications system user and a party on the public network or on another communications system in a private network.

F

facility

A telecommunications transmission pathway and associated equipment.

feature access code (FAC)

A code users dial to access a system feature.

feature button

A button on a phone or attendant console used to access a specific feature.

Н

hunt group

A group of extensions that all can receive calls directed to a single phone number. When a call arrives at the group number, the switch searches ("hunts") for an available extension in the group and connects the call to that extension.

I

internal call

A connection between two users on the same phone system.

М

major alarm

An indication of a component failure that requires immediate attention.

minor alarm

An indication of a component failure that could affect customer service.

multiappearance phone

A phone equipped with several call-appearance buttons allowing the user to handle more than one call on that same extension at the same time.

P

pickup group

A group of individuals authorized to answer any call directed to an extension within the group.

port carrier

A carrier in a cabinet containing port circuit packs, power units, and service circuits. Also called a port cabinet.

primary extension

The main extension associated with the physical phone or data terminal.

principal

A phone that has its primary extension bridged on one or more other phones.

public network

The network that can be openly accessed by all customers for local and long-distance calling.

R

redirection criteria

Information administered for each phone's coverage path that determines when an incoming call is redirected to coverage.

S

skill

An attribute assigned to an agent in a system using Expert Agent Selection. An agent's skill indicates a specialty in which the agent is proficient.

split

An ACD hunt group.

system administrator

The person who maintains overall customer responsibility for system administration.

system printer

An optional printer that may be used to print scheduled reports via the report scheduler.

system report

A report that provides historical traffic information for internally measured splits.

T

trunk

A dedicated telecommunications channel between 2 phone systems or COs.

trunk group

Telecommunications channels assigned as a group for certain functions that can be used interchangeably between two communications systems or COs.

U

Uniform Call Distribution (UCD)

A method for distributing hunt group calls to agents by comparing agents' workloads. MultiVantageTM can deliver each new call to the most idle agent (the available agent who has been idle the longest since their last hunt group call) or to the least occupied agent (the agent who has spent the least amount of time on hunt group calls in their current shift). Compare to Direct Department Calling (DDC).

Uniform Dial Plan (UDP)

A feature that allows a unique 4- or 5-digit number assignment for each point in a multiswitch system.

V

Vector

A set of call handling instructions for MultiVantageTM that can direct the switch to queue calls, play announcements, play music, route calls to voice messaging, as well as many other things.

Index

A	calling A
alarm buttons, 34 alarm logs, 31 alarms clearing, 34 DS1, 40 levels, 31 off-board, 31 on-board, 31 preventing, 38 Automatic Circuit Assurance (ACA), 41 Avaya support Web site, xxiii, xxiv	CE mark circuit pa clearing clearing commar chan displ displ list h ping save save
В	statu
	0+4

```
backups, 4
baselining
    definition, 1
    retrieving information, 2
books
    how to order more copies, xxiii
busy-verify
    hunt groups, 44
    trunks, 45
buttons
    Alarm, 34
    Busy Verify, 43
    help, xx
    Trunk ID, 49
```

C

```
cabinet status, viewing, 9
call center, problems, 20
       Avaya, 61
       ks, ix
       acks, removing, 39
        alarms, 34
        errors, 29
       nds
       nge circuit-pack, 40
       nge data-module extension, 38
        ay alarms, 5, 32
       lay errors, 5, 26
       istory, 10
        ip-address, 56
       e announcements. 4
       e translations, 4
       us, 5
       us health, 7
   status station, 8, 55
   status station extension, 8
   status system all-cabinets, 9
   status trunk, 55
   test station extension, 37
   trace-route, 57
```

D

```
diagnosing problems, 13 dialing out, problems, 15 DS1, alarms, 40
```

E			
electromagnetic compatibility standards, vi error logs interpreting, 29 viewing, 26 error types, common, 34	incoming calls, problems, 16 internet protocol (IP), 51 IP address, 59 IP softphone, 51		
errors 18-busied out, 35 1-circuit pack removed, 37 513-equipment missing, 36 clearing, 29 frequently-encountered, 34 preventing, 38 extended service agreement, xxiv	L login, problems, 19 logs alarms, 31 clearing alarms, 34 error, 26		
 F	M		
Facility Busy Indication, 46 Facility Test Calls, 47	maintaining records, 2 Maintenance Objects (MOs), 25 message lamp problems, 17 message line, xx modem problems, 18		
H	modern problems, To		
H.323 trunk, 51 help buttons, xx numbers to call, xxiv history, viewing, 10 hunt groups, busy-verify, 44	password, problems, 19 phone problems, solving, 14 phones, busy-verify, 43 printer problems, 19 problems call center, 20 diagnosing, 13 dialing out, 15 incoming calls, 16 login, 19		

problems, (continued)	service agreement, extended, xxiv
message lamp, 17	softphone, 51
modem, 18	standards
password, 19	electromagnetic compatibility, vi
phone, 14	status
printer, 19	cabinet, 9
SAT, 19	station, 8
softphone, 51	system health, 7
sound quality, 54	status line, xx
terminal access, 19	strategies, problem-solving, 5
tie trunks, 18	system backups, 4
trunks, 17	system changes, viewing, 10
problem-solving, strategies, 5	system health, viewing, 7
problem conving, strategies, c	system logs
	alarms, 25
	errors, 25
R	system status, viewing, 6
••	System status, viewing, o
records, maintaining, 2	
removing circuit packs, 39	
reports	T
error, 26	
history, 10	terminal access, problems, 19
	Terminal Alarm Notification, 34
	testing
<u> </u>	phones, 47
S	trunks, 47
SAT problems, 19	testing, busy phones, 43
screens, xix	tests, 38
Alarm Report, 32, 33	tie trunk problems, 18
Data Module, 38	toll fraud, xxi
Error Report, 26	troubleshooting
General Status, 8	phone problems, 14
Hardware Error Report, 28, 36	trunks, 49
	using features, 41
Help, 6	Trunk Identification, 49
History, 10	trunks
Status Health, 7	busy-verify, 45
System Status Cabinet, 9	identifying problems, 17, 55
security 47	troubleshooting, 49
access codes, 47	-
concerns, xxi	

```
turning off tests, 38
turning-off, 38
```



```
viewing
   error logs, 26
   station status, 8
   system changes, 10
   system status, 6
voice terminals, see phones
```

W

Web site Avaya support, xxiii, xxiv

We'd like your opinion.

Thank you.

We welcome your feedback! Please let us know what you think about this book.

Avaya MultiVantage™ Solution's Little Instruction Book for basic diagnostics 555-233-758, Issue 4, May 2002

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	Improve the table of contents		Add more detail		
	Improve the overview		Add more examples		

Avaya Customer Support web site

This web site allows you to find answers to questions, review maintenance tickets, or get the latest version of this book.

http://www.avaya.com/support/

Online Expert

Access this interactive site to find out how to administer your MultiVantageTM system or to get help with solving basic problems.

Create Service Request

Create and submit a service request for specific location. We will provide you with both a case number and a commitment time.

Case status

Review the status of your maintenance requests by entering your case (ticket) number. You can get the status for any open case or for a case closed within the last 60 days.

Replacement equipment

Order replacements for defective equipment. Replacement equipment is shipped overnight.

Documentation

Search and view over 1,600 documents including system and feature descriptions, administration guides, maintenance manuals, and the latest Little Instruction Books.

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Why this new book?

You've told us that you want step-by-step instructions on diagnosing your MultiVantageTM system, and we've been listening. This book contains information on checking system status, solving common problems, alarms and errors, and using features to troubleshoot problems.