Avaya Extension to Cellular and Off-PBX Station (OPS)

Installation and Administration Guide
Release 3.0

210-100-500
Version 6.0
Issue 9
June 2005

Notice

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

Warranty

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

Preventing Toll Fraud

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

Avaya Fraud Intervention

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

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

Providing Telecommunications Security

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

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

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

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

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

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

Responsibility for Your Company's Telecommunications Security

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

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

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

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

TCP/IP Facilities

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

Standards Compliance

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

Product Safety Standards

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

Safety of Information Technology Equipment, IEC 60950, 3rd Edition, or IEC 60950-1, 1st Edition, including all relevant national deviations as listed in Compliance with IEC for Electrical Equipment (IECEE) CB-96A.

Safety of Information Technology Equipment, CAN/CSA-C22.2 No. 60950-00 / UL 60950, 3rd Edition, or CAN/CSA-C22.2 No. 60950-1-03 / UL 60950-1.

Safety Requirements for Information Technology Equipment, AS/NZS 60950:2000.

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

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

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

The LASER devices used in Avaya equipment typically operate within the following parameters:

Typical Center Wavelength	Maximum Output Power
830 nm - 860 nm	-1.5 dBm
1270 nm - 1360 nm	-3.0 dBm
1540 nm - 1570 nm	5.0 dBm

Luokan 1 Laserlaite

Klass 1 Laser Apparat

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

Electromagnetic Compatibility (EMC) Standards

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

Limits and Methods of Measurement of Radio Interference of Information Technology Equipment, CISPR 22:1997, EN55022:1998, and AS/NZS 3548.

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

Power Line Emissions, IEC 61000-3-2: Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions.

Power Line Emissions, IEC 61000-3-3: Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.

Federal Communications Commission Statement

Part 15:

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

Part 68: Answer-Supervision Signaling

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

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

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

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

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

REN Number

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

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

For G350 and G700 Media Gateways:

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

For all media gateways:

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

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

Means of Connection

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

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

Manufacturer's Port Identifier	FIC Code	SOC/ REN/ A.S. Code	Network Jacks
Off premises station	OL13C	9.0F	RJ2GX, RJ21X, RJ11C
DID trunk	02RV2-T	0.0B	RJ2GX, RJ21X
CO trunk	02GS2	0.3A	RJ21X
	02LS2	0.3A	RJ21X
Tie trunk	TL31M	9.0F	RJ2GX
Basic Rate Interface	02IS5	6.0F, 6.0Y	RJ49C
1.544 digital interface	04DU9-BN	6.0F	RJ48C, RJ48M
	04DU9-IKN	6.0F	RJ48C, RJ48M
	04DU9-ISN	6.0F	RJ48C, RJ48M
120A4 channel service unit	04DU9-DN	6.0Y	RJ48C

For G350 and G700 Media Gateways:

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

For all media gateways:

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

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

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

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

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

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

Canadian Department of Communications (DOC) Interference Information

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

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

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

Installation and Repairs

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Declarations of Conformity

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

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

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

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

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

European Union Declarations of Conformity

CE

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).

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

Japan

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

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Contents

About this document

Purpose

This guide describes the installation, administration, maintenance, and troubleshooting tasks necessary to install and set up Avaya Extension to Cellular.

Intended audiences

This guide is intended for a company's system administrators. In addition, software specialists and Avaya technical personnel may find the information helpful.

Reason for reissue

This guide has been reissued to provide information supporting Extension to Cellular Version 6 based on Avaya Communication Manager, Release 3.0.

How to use this document

The document is organized as follows:

Chapter 1: Overview of Avaya Extension to Cellular and Off-PBX Stations provides an overview of features, capacity considerations, hardware/software requirements and security.

Chapter 2: Installation and planning provides information on installation of Extension to Cellular, as well as planning tasks to be performed before Extension to Cellular extensions are administered.

Chapter 3: Administration provides detailed instructions on administering stations for Extension to Cellular implementation.

Chapter 4: Installation and administration test provides basic test procedures for Extension to Cellular.

Chapter 5: Maintenance provides details on Extension to Cellular maintenance considerations.

Chapter 6: Troubleshooting provides errors conditions, causes, and resolutions that may occur with Extension to Cellular operation.

Appendix A: Upgrades from prior versions provides an overview of how to upgrade from previous Extension to Cellular releases 5, 4, 3, 2, or 1.

Conventions used

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

- Names of screens are printed in bold as follows: **screen name**.

  A “screen” is the display of fields and prompts that appear on a computer or terminal monitor. See Figure 1: Optional Features screen, page 1 on page 36 for an example of a screen and how it is shown in this book.

- Keys on a keyboard, buttons that appear on a screen, and text that you need to type are printed in bold as follows: **Key**.

- Commands are printed in bold as follows: **`command`**.

  We show complete commands in this book, but you can usually type an abbreviated version of the command. For example, **`list configuration station`** can be typed as **`list config sta`**.

- Command variables are printed in bold italic as follows: ***`command variable`***.

- Anything that displays on a screen in response to a command or other input is shown in a constant width font as follows: **Command successfully completed**.

- To move to a certain field, you can use the **Tab** key, **arrow** keys, or the **Enter** key (the **Enter** key may appear as the **Return** key or the **Submit** key on your keyboard).

- We show commands and screens from the most recent release of Communication Manager and refer to the most current books. Please substitute the appropriate commands for your system and refer to the manuals you have available.

- 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.

- 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.

Admonishments

Admonishments in this book have the following meanings:

Note:

Draws attention to information that you must heed.

CAUTION:

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

WARNING:

Denotes possible harm to hardware or equipment.

DANGER:

Denotes possible harm or injury to your body.

SECURITY ALERT:

Indicates when system administration may leave your system open to toll fraud.

Trademarks

Related documentation

Avaya Extension to Cellular User's Guide, Issue 8, April 2005 (document number 210-100-700)

Administrator Guide for Avaya Communication Manager, Issue 1, April 2005 (document number 03-300509)

Avaya Unified Messenger® Telephone User Interface Online Guide, accessed through the Avaya support Web site: http://www.avaya.com/support.

Avaya SCCAN Total Solution Guide, Issue 2.0, April 2005 (document number 21-300041)

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Note:

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3. Type the document number 210-100-500 in the **Search** text box, and then click the arrow button.
4. In the resulting list, locate the latest version of the document, and then click the document title to view the latest version of the book.

How to order documentation

In addition to this book, other description, installation and test, maintenance, and administration books are available.

This document and any other Avaya documentation can be ordered directly from the Avaya Publications Center toll free at 1-800-457-1235 (voice) and 1-800-457-1764 (fax). Customers outside the United States should use +1-410-568-3680 (voice) and +1-410-891-0207 (fax).

How to comment on this book

Avaya welcomes your feedback. Contact us through:

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- fax: 1-303-538-1741
- Contact your Avaya representative

Mention this document's name and number, *Avaya Extension to Cellular Installation and Administration Guide*, 210-100-500.

Your comments are of great value and help improve our documentation.

How to get help

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.

If you need additional help, the following resources are available. You may need to purchase an extended service agreement to use some of these resources. See your Avaya representative for more information.

Go to the Avaya Web site at http://www.avaya.com/support:

- If you are within the United States, click the **Escalation Contacts** link. Then click the appropriate link for the type of support you need.
- If you are outside the United States, click the **Escalation Contacts** link. Then click **International Services**, which includes phone numbers for the international Centers of Excellence. Or contact your local Avaya authorized dealer for any additional help and questions.

Chapter 1: Overview of Avaya Extension to Cellular and Off-PBX Stations

Introduction

Avaya Extension to Cellular provides users with the capability to have one administered phone that supports Avaya Communication Manager features for both an office phone and one outside phone. Extension to Cellular allows users to receive and place office calls anywhere, any time. People calling into an office phone can reach users even if they are not in the office. Users could receive the call on their cell phone, for example. This added flexibility also allows them to use certain Communication Manager features from a phone that is outside the phone network.

This administration guide describes the high-level functions of Extension to Cellular, hardware and software requirements for implementation, and the installation, administration, and maintenance tasks necessary to set up and maintain Extension to Cellular.

Its companion document, *Avaya Extension to Cellular User's Guide*, 210-100-700, provides basic information for Extension to Cellular users.

Terms

For ease of reference, the remainder of this document refers to the following terms:

- The term "Extension to Cellular" refers to the set of features offered with Release 2.0 and higher of Avaya Communication Manager. It is the combination of features for both Extension to Cellular (cell phone) use, and features for Session Initiation Protocol (SIP) phones.
- The term "Extension to Cellular" by itself refers to the set of features offered for cell phone use only. (For more information, see Extension to Cellular on page 16.)
- The terms "host phone" and "office phone" mean the same thing, and refer to a phone that is directly under the control of Communication Manager – like the desk phone in an office.
- The term "SIP phone" refers to an IP phone that uses the Session Initiation Protocol (SIP) to handle calls, and is not directly under the control of Communication Manager.
- The term "cell phone" refers specifically to a cell or wireless phone.

  Note:

  Extension to Cellular works with any type of wireless or cellular service.

Extension to Cellular

Previous versions of Extension to Cellular allowed for office calls to be extended to a user's cell phone. Also, calls from the cell phone would appear as if the call originated from the user's office phone when calling another phone on the same call server. Certain features within Communication Manager are available from the cell phone. These features are still available.

In prior releases of Extension to Cellular, cell phones had to be administered as XMOBILE stations. This is no longer necessary after Communication Manager Release 2.0.

If you had administered Extension to Cellular in earlier releases of Communication Manager, you do not have to change the administration to continue using Extension to Cellular features. It still works. However, users would not have the full range of features that are now possible with Extension to Cellular.

If you want to take full advantage of the Extension to Cellular features, you must change the administration from a previous version of Extension to Cellular. See Appendix A: Upgrades from prior versions.

Outboard Proxy SIP (OPS)

Outboard Proxy SIP (OPS) application type is used to administer a SIP phone. OPS cannot be disabled using the Extension to Cellular enable/disable feature button.

Note:

A 4602 SIP phone must register with the SIP proxy regardless of whether OPS is administered.

The Extension to Cellular application allows for many of the parameters used for the original Extension to Cellular application to be ported onto one of several DCP and IP station types. From a call processing perspective, Extension to Cellular is in fact dealing with a multi-function phone, whereas the previous Extension to Cellular implementation utilized one or two XMOBILE stations that behaved like analog station types. For more information about configuring and using SIP, see the *SIP Personal Information Manager*, 03-300441.

Seamless Converged Communications Across Network (SCCAN)

The Seamless Converged Communications Across Network (SCCAN) application type offers voice and data access from a single SCCAN handset integrated with a desktop phone across the corporate Wireless Local Area Network (WLAN) and public Global System for Mobile communication (GSM) and cellular networks. The SCCAN solution allows a wireless user to access the features of Avaya Communication Manager and extends those features outside to the wide area cellular network. For more information about seamless converged communications, see the *Seamless Communication Total Solution Guide,* 21-300041.

Cellular Service Provider (CSP)

Cellular service providers who resell the Extension to Cellular service use the Cellular Service Provider (CSP) application type. CSP supports ISDN, H323, and SIP trunks. CSP is essentially the same as the Extension to Cellular application. CSP is already enabled when a user receives this service. Unlike Extension to Cellular, CSP is always enabled and cannot be disabled by a user. The CSP application type uses the Extension to Cellular license fees.

What's new in Extension to Cellular

In addition to features in previous releases of Communication Manager and Extension to Cellular, Extension to Cellular enhancements for Release 3.0 include the following:

- The Self Administration Feature (SAFE) Access Code allows users to self-administer their cell phone number. Users can add or change their cell phone number through this feature access code. An administrator can still enter or change cell phone numbers.
- A barge-in tone increases security for Extension to Cellular calls. The tone alerts parties on an active Extension to Cellular call when another person joins the call on the Extension to Cellular associated office phone. The barge-in tone works only when the exclusion feature is not activated.
- Calls are redirected by ROOF (Redirect on OPTIM Failure) procedures if a call terminates to an Extension to Cellular user cell phone (of any application type) that does not have an associated office phone (or other method of terminating to a physical phone) or the office phone is out of order and Communication Manager receives a disconnect prior to the call being answered. The procedure redirects the call so that the caller does not hear ringback forever. In general, the ROOF procedures apply to busy treatment.
- Three new Feature Name Extensions have been added:
  - Automatic Call Back allows a user to choose whether they want an extension to automatically call them back. Users are called back when they place a call to a busy or unanswered telephone and after the called telephone becomes available to receive a call.
  - Call Pickup Extended Group allows a user to answer calls that were directed to another call pickup group.
  - Whisper Page Activation allows a user to make whisper pages. A whisper page is a low volume message. Users can send a whisper page when they want only one person on a conference call to hear a message.

Customer configurations

Extension to Cellular is dependent upon ISDN PRI/BRI facilities to the PSTN. The customer must have ISDN PRI/BRI enabled and have the appropriate circuit packs and service from the PSTN. This application is supported on any call processing server platform.

Extension to Cellular provides the ability to operate a cell phone as a standard, caller ID-enabled phone connected directly to the Avaya server running Communication Manager. SIP phones are connected to a Converged Communications Server, and through the server, to Communication Manager.

This configuration allows for administration that causes an office caller ID to be sent to calls on the switch from the Extension to Cellular cell phone. A variation on this implementation would be to map only one call appearance on the cell phone to the office number.

In cases where a user does not require a physical office number, the cell phone can be mapped to an administration without hardware (AWOH) extension on the Avaya server running Communication Manager. This configuration gives the user an enterprise presence for incoming business calls through the cell phone. An Extension to Cellular cell phone can be administered to allow office caller ID to be sent when the user calls into the switch from that Extension to Cellular cell phone.

Platforms

Extension to Cellular is available on any Avaya server running Communication Manager. Any capacity differences are due to differences in the numbers of stations, trunks, circuit packs or media modules supported on the different platforms.

Phones supported

The following phone types may be administered as the “host phone” using Extension to Cellular:

2402	4606	4630	6408D
2410	4610	6402	6408D+
2420	4612	6402D	6416D+
4601	4620	6408	6424D+
4602	4624	6408+	

Extension to Cellular versions and Communication Manager

Following are the versions of Extension to Cellular that correspond to releases of Avaya Communication Manager (formerly known as MultiVantage™ Software):

Table 1: Communication Manager-to-Extension to Cellular mapping

Communication Manager / MultiVantage™ release	Extension to Cellular version
Communication Manager Release 3.0	Self Administration Feature Access Code, barge-in tone, call redirection by Redirect on OPTIM Failure procedures, and three new feature name extensions, automatic call back, call pickup extension group, and whisper page, introduced. Extension to Cellular Version 6.0.
Communication Manager Release 2.2	Cellular Service Provider application type, Special Digit Conversion and increased trunk capacity through Wireless Service Manager introduced. Extension to Cellular Version 5.2
Communication Manager Release 2.1	Cellular Voice Mail Avoidance and feature name extensions for Off-PBX Enable and Off-PBX Disable introduced. Extension to Cellular Version 5.1
Communication Manager Release 2.0	OPS feature introduced. Extend call button and feature name extensions (FNE) introduced. Extension to Cellular Version 5.0.
Communication Manager Release 1.3	Extension to Cellular Version 4.1
MultiVantage™ Software Release 1.2 (load 110.x)	Extension to Cellular Version 4
MultiVantage™ Software Release 1.1.2 (load 65.x)	Extension to Cellular Version 4
MultiVantage™ Software Release 1.1.1 (load 60.x)	Extension to Cellular Version 3

System access terminal (SAT) screens

The screens in this guide may not exactly match the version that exists on the system access terminal (SAT) for your Avaya server running Communication Manager. However, all fields described here as essential for Extension to Cellular setup and administration can be found on all versions of the terminals, regardless of any variation in field layouts.

Feature description

Extension to Cellular allows a cell phone to be treated as if it were an extension on the Avaya server running Communication Manager. This is accomplished by mapping the phone to the user's main office phone. All other types of calls, such as direct calls to and from the published cell phone number, are unaffected by Extension to Cellular. The user's cell phone performs exactly as it did prior to enabling it for Extension to Cellular.

When Extension to Cellular is administered and active, a call towards the office phone's extension alerts both the office phone and the outside phone simultaneously. This allows users to receive work-related calls wherever they are and whenever they need to.

Additionally, the outside phone can be administered so that when a user calls into the office, the user's name and office phone number appear in the caller ID display of the phone being called. The user also has the option of picking up an ongoing Extension to Cellular cell phone call on the office phone upon entering the office.

The cell phone user receives the same features and capabilities for incoming calls as a caller ID-enabled analog phone connected directly to the Avaya server running Communication Manager. Extension to Cellular provides this capability regardless of the cell phone's cellular service provider or the cellular standard in use.

Feature Name Extensions (FNE)

Once connected, a cell phone or SIP phone user has the ability to activate certain Communication Manager features by dialing a feature name extension (FNE). You, as the administrator, create these phone extensions on a new screen (see Figure 6: Extensions to Call which Activate Features By Name screen, page 1 on page 48). On the screen, you map these phone extensions to specific features in Communication Manager. The phone extensions must comply with your dial plan and are administered system-wide.

This capability adds to the current capability to invoke certain features through feature access codes (FAC).

Extension to Cellular, security codes, and console permissions

While security codes are available to protect activation of this feature, you do not need to set security codes if you have console permissions as set on the **Class of Service (COS)** screen.

- If you have console permissions, you do not need a security code to activate Extension to Cellular.
- If you do not have console permissions, you need a security code to activate Extension to Cellular.

Extension to Cellular makes use of station security codes to ensure that users have control over who is enabling and disabling their extensions.

Note:

The exception is the ability to enable and disable Extension to Cellular and to, if so configured, enable an Extension to Cellular timer from an administered feature button on the office phone. Security codes are not required to use an administered feature button on a office phone.

While using an Extension to Cellular cell phone on a business call, the user may hear a beep tone (if Conference Tone and Barge-In Tone are administered) indicating someone has picked up the office number and is listening in on the call. Avaya provides that beep tone for security purposes. If a user suspects unauthorized use of the office number or an enabled Extension to Cellular cell phone, the call should be ended immediately and the user's station security codes should be changed immediately. See Chapter 5: Maintenance, and Chapter 6: Troubleshooting, for more information on handling this situation.

If additional security is required, administer one of Avaya's exclusion features.

Call waiting, call identification, and voice mail

Extension to Cellular allows use of standard cellular features such as incoming call waiting and caller ID.

- If the cell phone (and network) supports calling number identification, the Avaya server running Communication Manager delivers the calling number to the cell phone. For internally-originated calls, the calling number may be presented in either the national numbering plan format (ten digits), or as an extension fewer than ten digits depending upon how calling number identification is administered. Some cellular phone networks only pass calling number information in the national format, while others are more flexible.
- If the cell phone (and network) supports call waiting, Extension to Cellular can be administered to deliver a second call to the cell phone while it is busy on another call. The cell phone features (for example, swapping calls or conferencing calls) may be used to answer the second call and manipulate the two calls through the cell phone.

Since the cell phone is treated as a local extension on the Avaya server running Communication Manager, it can be completely integrated with the corporate voice messaging system while retaining its own cellular service provider voice mail.

- The office number retains the primary extension on the Avaya server running Communication Manager.
- Calls to the office number simultaneously ring the office number and the cell phone. If neither answer then standard coverage arrangements take effect.
- As needed, Extension to Cellular can be disabled when not in use in order to ensure the use of the corporate voice messaging system.

The system administrator can control in-service and out-of-service status of the mapped extensions through a busy-out and release maintenance capability.

ARS/AAR routing

Extension to Cellular builds on a Communication Manager feature that allows extensions to be remotely connected over an ISDN trunk. Unlike traditional off-premises extensions, the stations are not tied to fixed channels on the T1/E1 interface. Instead, channels are allocated dynamically with each new call, allowing significantly more efficient usage of the T1/E1 interfaces through traffic engineering.

Routing of Extension to Cellular extended calls takes the following path:

1. ARS (or AAR) digit conversion is applied to the administered dial prefix and cell phone number.
2. ARS (or AAR) analysis is applied to the result of Step 1.
3. The ARS (or AAR) analysis chooses a routing pattern.

   Each entry in the routing pattern is tried in order. However, if the trunk group for a particular entry is non-ISDN or non-IP (which includes SIP), it is skipped.
4. A trunk group is chosen for the Extension to Cellular call and the call is sent.

If no trunk is available, the Extension to Cellular call is not extended. However, the original call is not affected. The caller continues to receive ringback until the call covers or the caller abandons it.

Call filtering

Call filtering allows you to manage cell phone costs by limiting the type of calls extended to the cell phone. Call filtering is based on the type of incoming call received at the cell phone. You can choose to deliver (on a per-user basis) external calls, internal calls, all calls, or no calls.

Internal call filtering allows the switch to extend Extension to Cellular calls for all internal originated calls. External call filtering does the same for all public-network incoming calls.

Extension to Cellular calls are not extended when the **Calls Allowed** field is set to **none** (see Figure 5: Stations with Off-PBX Telephone Integration screen, page 2 on page 43). When call filtering does not allow a call, the Extension to Cellular call is not delivered. The call may be forwarded, go to coverage, or apply busy treatment for the calling party.

Call filtering provides the system administrator with control over the type of incoming calls that Extension to Cellular users receive on their cell phones. With Extension to Cellular call filtering, the system administrator can restrict cell phone calls based on the incoming call type received by the office phone.

Call filtering and mapped stations

Communication Manager calls the cell phone when the office phone receives an incoming call. Calls are delivered to the cell phone based on the screening of internal and external calls. Screening applies after the called party restriction of the Extension to Cellular station's assigned Class of Restriction (COR), the station's Extension to Cellular state, and the Extension to Cellular station mapping are evaluated.

Capacity limitations

Extension to Cellular applications are allocated on a per station basis. Additional constraints are placed on the number of station records if customers encounter situations where a single user would be utilizing more than one Extension to Cellular application.

Note:

See System Capacity screen on page 81 for how to access station usage information for your system. Traffic engineering is needed to ensure that there are enough trunks available to handle the traffic sent to the cell phones.

There would be large impact to trunk utilization if a large percentage of the switch users were Extension to Cellular users. In many cases, the outbound trunk calls may not actually complete since the user may answer at the Extension to Cellular station. In Communication Manager 2.2, the station capacity for Extension to Cellular matches the maximum station capacity for the platform.

The number of simultaneous call terminations towards the off-PBX station is limited to the maximum number of call appearances for each extension on the switch. That maximum number is 10. This number may be administratively limited to less than 10 on a application-user basis. For example, Extension to Cellular users would normally want the call limit at 2, since most cell phones can handle only two calls at a time.

Feature operation

When Extension to Cellular is administered, the cell phone is initially in a disabled state. Users need to enable their cell phones before they can begin to use the Extension to Cellular solution.

Receiving calls

Extension to Cellular is a solution for delivering office calls to a cell phone or SIP phone through the Avaya server running Communication Manager.

With Extension to Cellular, when a call is made to an office number with a mapped phone, the call is extended out of the Avaya server running Communication Manager to alert the outside phone. When the Extension to Cellular user has the Extension to Cellular **Calls Allowed** field set to **none** (see Figure 5: Stations with Off-PBX Telephone Integration screen, page 2 on page 43**)**, Extension to Cellular calls are not delivered.

If the Avaya server running Communication Manager is administered to send calling number information, that information is presented to the outside phone. When the outside phone answers the call, Communication Manager treats it like a local answer of a physically-connected station, and the following is true:

- Status of the station shows both the Extension to Cellular status and the regular station status. It shows both the port used on the outbound trunk group and the other connected port.
- Any office number busy indicators tracking the station light up to show that it is busy.
- Any other station linked to the call as part of a bridge or temporary bridge is able to bridge on to that call.

Making calls

Calls can be made to any number from the Extension to Cellular cell phone. Depending on how the Extension to Cellular station is administered, the Extension to Cellular cell phone can function both as a standard cell phone and as an office extension when the calls are made into the user's office switch. Administering an Extension to Cellular cell phone to send office caller ID allows the Extension to Cellular cell phone call to the switch to appear as a local extension on the switch.

The **Mapping Mode** field on the **Stations with Off-PBX Telephone Integration** screen (see Figure 5: Stations with Off-PBX Telephone Integration screen, page 2 on page 43) for administration controls whether an Extension to Cellular cell phone is administered to gain the identity of the office phone (sends the office caller ID).

If the **Mapping Mode** field entry is set to **both** or **origination**, the Extension to Cellular call into the switch acts as if it originated from the station with the following results:

- The **General Status** screen (see Figure 25: General Status screen on page 83) shows both the port used on the inbound group and the other connected port.
  - The **Service State** of the host station is **in-service/on-hook**.
  - When there is no active call, the **Service State** of the Extension to Cellular station is **in-service/idle**.
  - When there is an active call, the **Service State** of the Extension to Cellular station is **in-service/active**.
- Any office number busy indicators tracking the station light up to show that it is busy.
- Any other station linked to the call as part of a bridge or temporary bridge is able to bridge on to that call.
- The office name and number associated with the station appears as the caller ID.

User scenarios

Extension to Cellular allows a user the ability to invoke non-display Communication Manager endpoint features on any cell phone that is mapped as an EC500 endpoint. Features are invoked by dialing feature name extensions (FNE). Each FNE must be a direct inward dialed (DID) extension that matches your dial plan. All feature name extensions are used system-wide.

A user, while active on a call, would place the call on hold and dial the FNE for the desired feature.

- For a feature that makes a call such as Last Number Dialed, the user would hear call progress tones. The user would then connect to the last party that was called from either the office phone, or the last party to have the identity of the office phone (meaning

Extension to Cellular calls made at the cell phone). If a call is originated from the office phone and another call is originated at the cell phone, the last number dialed is the call that is truly the last number dialed.

- For a feature that gives you dial tone, like Call Forwarding, or where the user selects an idle call appearance, the user would hear dial tone, dial the destination, and then hear confirmation tone.

To move an active call on a user's office phone to a cell phone, the user may do either:

- From the office phone, the user must press a dedicated feature button that is assigned to a new Extension to Cellular feature called "Extend Call".
- From the cell phone, the user must dial the Select Active Call FNE.

To move an active call on a user's cell phone to the office phone:

- When the user selects the active call appearance on the office phone, the user may pick up the active call. The user can then disconnect from the cell phone, saving cell phone minutes.

  Note:

  This is possible as long as the **Exclusion** feature is not active.

Feature interactions

Attendant

If the **Calls Allowed** field on the **Stations with Off-PBX Telephone Integration** screen (see Figure 5: Stations with Off-PBX Telephone Integration screen, page 2 on page 43) is **internal**, attendant-originated and attendant-extended calls are not delivered.

Call coverage

If you want to ensure that unanswered calls go to office voice mail (rather than the cell phone's voice mail) make sure the value in the **Number of Rings** field on the **Coverage Path** screen for the office phone is set to a lower number than the voice mail coverage setting on the corresponding cell phone. See Voice mail administration on page 55.

Cellular service provider voice mail

While stations may have standard Avaya server running Communication Manager voice mail coverage (for example, AUDIX®), cell phones usually have voice mail coverage from the cellular service provider. There are now two ways to coordinate the two systems.

First, you can administer Avaya Communication Manager Extended Access Cellular Voice Mail Avoidance. The Cellular Voice Mail Avoidance feature is designed to reduce the uncertainty as to where unanswered Extension to Cellular calls are sent. An unanswered call terminates either at your system voice mail (for example, at your office telephone), or at your cellular service provider (CSP) voice mail system.

Avaya Communication Manager will detect when the cell phone is not the entity answering the call and bring the call back to the server. The call will then be treated as a normal call on the phone with Extension to Cellular enabled. The call will then be processed with the normal number of rings set on your call coverage.

Second, you can set up the number of “don’t answer” rings so that one or the other always answer first. However, there are coverage options in both the Avaya server running Communication Manager (busy, active, send-all-calls) and the network (cell phone unavailable, network congested) that causes a call to immediately go to the respective voice mail. Users should realize that an unanswered call might result in a voice mail message in either mailbox.

Class of Restriction (COR)

For calls toward an Extension to Cellular station, COR restrictions are applied normally for a call terminating to a station. In particular, if the station is mapped, then the office phone’s COR applies. Any restrictions imposed by call filtering are applied after those imposed by the COR. Calling party restrictions pertaining to trunks (outward, tac-toll, and all-toll) have no affect on the launching of Extension to Cellular calls.

Distributed Communication System (DCS)

Inter-switch calls on distributed communications system (DCS) trunks are treated as internal calls.

- When an Extension to Cellular user has the **Calls Allowed** field on the **Stations with Off-PBX Telephone Integration** screen (see Figure 5: Stations with Off-PBX Telephone Integration screen, page 2 on page 43) set to **internal** or **all**, DCS calls are delivered to the cell phone.
- When an Extension to Cellular user has the **Calls Allowed** field set to **external** or **none**, DCS calls are not delivered.

Distinctive alerting

Cell phones may or may not receive distinct rings for different types of calls. Check with your cellular service provider.

Extension to Cellular enable and disable

Extension to Cellular calls (calls extended to a cell phone) can be enabled or disabled. Users can enable or disable Extension to Cellular calls using either Extension to Cellular enable and disable Feature Access Codes, or using the enable and disable feature status button.

Users who receive their Extension to Cellular service through their cellular service provider (CSP) cannot enable or disable their Extension to Cellular calls. Through CSP, Extension to Cellular is always enabled.

Extension to Cellular with office caller ID calling another Extension to Cellular user

Incoming calls from other Extension to Cellular users are internal calls if office caller ID is enabled for the station associated with the cell phone.

- When an Extension to Cellular user has the **Calls Allowed** field set to **internal** or **all**, the Extension to Cellular calls are delivered.
- When an Extension to Cellular user has the **Calls Allowed** field set to **external** or **none**, then calls from other Extension to Cellular users are not delivered.

Feature access codes (FAC)

A user can activate Communication Manager features through feature access codes (FAC). A user can access a FAC by one of these three methods:

- dialing the telecommuter number
- dialing the remote access number
- dialing the “Select Idle” FNE

After hearing dial tone, the user enters the FAC.

Feature name extensions (FNE)

When Extension to Cellular is enabled, a user can activate a Communication Manager feature through dialing a feature name extension (FNE) from their cell phone or SIP phone. Feature name extensions correspond to a direct inward dialing (DID) number for each feature. Each FNE must match your dial plan, and are administered system-wide.

For a list of supported features that can be accessed using an FNE, see Figure 6: Extensions to Call which Activate Features By Name screen, page 1 on page 48.

Message waiting indication

The cell phones cannot receive any screen of message waiting indication directly from the Avaya server running Communication Manager.

“Notify me” under Unified Messenger for MS Exchange

Users with access to the “notify me” feature of Unified Messenger® for Microsoft Exchange® (Version 4.0 or later), are notified of messages in the corporate voice mailbox through the cell phone’s display. For more information on using this feature, see “Setting Notify Me” in the *Unified Messenger Telephone User Interface Online Guide*, accessed through http://www.avaya.com/support.

Note:

The user’s cell phone must support text messaging to use this feature.

Originating CDR on calls

If a cell phone originates a call through its mapped extension – for example, through a SIP telephone or a cell phone call – a Call Detail Recording (CDR) record is generated for that call. For this feature to work, incoming trunk CDR must be turned on. The system does not generate a CDR if the user dials a feature name extension (FNE) that does not result in a call.

QSIG

Inter-PBX calls on QSIG trunks are treated as internal calls.

- When an Extension to Cellular user has the **Calls Allowed** field set to **internal** or **all**, QSIG calls are delivered.
- When an Extension to Cellular user has the **Calls Allowed** field set to **external** or **none**, QSIG calls are not delivered.

Chapter 2: Installation and planning

Installation

This section describes installation and settings that must be in place before you can administer the Extension to Cellular.

Configuration/environment requirements

Avaya Extension to Cellular is available on Avaya servers running Avaya Communication Manager, Release 2.0 or later. Any capacity differences are due to differences in the numbers of stations, trunks, and circuit packs supported on the different Avaya servers running Communication Manager.

Customer options

A customer's license file with Extension to Cellular has the following options set on the **Optional Features** screen. To review these options, use the **`system-parameters customer-options`** command. See Displaying the customer options for Extension to Cellular on page 35 for more information on these settings. Page number references refer to the screen page number.

Note:

If any of these options are not set as described, you need a new license file. Contact your Avaya representative.

- **G3 Version** must be set to **V12** or later (page 1).
- Either the **Maximum Off-PBX Telephones - EC500** field, the **Maximum Off-PBX Telephones - OPS** field, or the **Maximum Off-PBX Telephones - SCCAN** field must be greater than zero (page 1). These fields should be set to the number of stations that are to be used for Extension to Cellular.

  Note:

  For legacy systems, the **Maximum Off-PBX Telephones - SCCAN** field does not appear.
- **ARS** must be set to **y** (page 3).
- **Enhanced EC500** must be set to **y** (page 4).

Note:

The **G3 Version** field, plus either the **Maximum Off-PBX Telephones - EC500** field, the **Maximum Off-PBX Telephones - OPS** field, or the **Maximum Off-PBX Telephones - SCCAN** field must be set as described above before the **Enhanced EC500** field can be set to **y**.

- **Extended Cvg/Fwd Admin** must be set to **y** (page 4). This allows access to the **Telecommuting Access** screen where you set the Extension to Cellular access code.
- **ISDN-PRI** must be set to **y** (page 4).

Administration planning

In a typical Extension to Cellular configuration, the station that is mapped to the cell phone is the principal published number, which is usually a user's office number.

Planning requirements

Extension to Cellular users expect to receive the following information from you, the system administrator:

- The station security code associated with the office number.
- The "change station security code" feature access code (FAC).
- The self administration feature access code (SAFE FAC).
- Extension to Cellular "enable" and "disable" feature access codes (Extension to Cellular Activation/Deactivation on the system administration terminal).
- The Avaya Extension to Cellular access number (as set in the **Telecommuting Access Extension** field on the **Telecommuting Access** screen).

In support of these requirements, also specify the following:

- An extension number for the Avaya Extension to Cellular access number.
- Extension to Cellular activation and deactivation codes to enable and disable Extension to Cellular (only).
- A feature access code for changing the station security code.
- A list of all the feature name extensions (FNE) that you set up, and the features that they are mapped to.

Security codes

Select an Avaya Extension to Cellular access number that is accessible externally as well as internally. This is set in the **Telecommuting Access Extension** field on the **Telecommuting Access** screen. See Chapter 3: Administration.

Select station security codes for the office phone.

Also, select a “station security code change” feature access code. When a new station is added, it needs to be given a default security code. Users should ultimately set their own office number security code using the “station security code change” feature access code.

Enabling and disabling feature access codes

Select the Extension to Cellular “enable” and “disable” feature access codes. These are set in the **Feature Access Codes (FAC)** screen in the system administration terminal.

Chapter 3: Administration

Introduction

This chapter provides instructions for setting up and administering:

- Station administration
  - Extension to Cellular cell phones to send office caller ID (see Sending 10-digit caller identification for locally-originated calls on page 50)
  - Call filtering (see Call filtering administration on page 51)
- Call detail recording enhancements (see CDR for Calls to EC500 Destination on page 62)
- A “change station security code” feature access code for the user to change the phone number station security code (see Creating a feature access code to change station security codes on page 68)
- The Extension to Cellular access number for external access to Communication Manager features (see Setting up the Extension to Cellular access number on page 52)
- The Extension to Cellular “enable” and “disable” feature access codes (see Setting up the Extension to Cellular enable/disable feature access codes on page 53)
- Voice mail coordination between the office and the cell phones (see Voice mail administration on page 55)

Most Extension to Cellular administration tasks are accomplished through the System Administration Terminal (SAT). The SAT screens in this guide are meant to be examples and may not match exactly with the version that exists on the system administration terminal for your Avaya server running Communication Manager.

However, all fields described here as essential for Extension to Cellular set-up and administration can be found on all versions of the terminals, regardless of the variations in field layouts. In the screens shown here, the essential fields are indicated in bold-face type.

Displaying the customer options for Extension to Cellular

Before you can administer the Extension to Cellular extensions, the following settings must be enabled for your system, as determined by your installed license file. You can review these settings on the **Optional Features** screen.

Note:

If any of these options are not set as described, you need a new license file. Contact your Avaya representative.

To make sure the system is set up to administer Extension to Cellular extensions:

1. Type **`display system-parameters customer-options.`**
2. Press **Enter**.

   The **Optional Features** screen appears (Figure 1).

Figure 1: Optional Features screen, page 1

```
display system-parameters customer-options                      Page   1 of  10
                                OPTIONAL FEATURES

G3 Version: V12                                      RFA System ID (SID)

  Location: 2                                        RFA Module ID (MID)
  Platform: 2
                                                                  USED
                                         Maximum Ports: 300      174
                              Maximum XMOBILE Stations: 30       28
                    Maximum Off-PBX Telephones - EC500: 1200     0
                    Maximum Off-PBX Telephones -   OPS: 1200     0
                    Maximum Off-PBX Telephones - SCCAN: 1200     0



        (NOTE: You must logoff & login to effect the permission changes.)
```

On page 1 of the **Optional Features** screen:

- The **G3 Version** field must be set to **V12** or later.
- The **Maximum Off-PBX Telephones - EC500** field, the **Maximum Off-PBX Telephones - OPS** field, or the **Maximum Off-PBX Telephones - SCCAN** field must be greater than zero. These fields should be set to the number of stations that are to be used for Extension to Cellular.

Field descriptions

Maximum Off-PBX Telephones - EC500 - This field has the following parameters ("EC500" refers to the Extension to Cellular feature):

Valid entries	Usage
0 to license max	Default = 0. A number greater than zero should appear in either this field or the **Maximum Off-PBX Telephones - OPS** field. The "license max" value is defined as follows: • On legacy systems, the upper limit is 1/2 of the maximum number of administrable stations. • On S8300, S8500, and S8700 systems, the upper limit is the maximum number of administrable stations. Stations that are administered for any Extension to Cellular application count against this limit.

To be usable, the system must also have the **IP Trunks**, **ISDN-BRI Trunks**, or **ISDN-PRI** field enabled. See page 4 of the **Optional Features** screen (Figure 3).

Maximum Off-PBX Telephones - OPS - This field has the following parameters:

Valid entries	Usage
0 to license max	Default = 0. A number greater than zero should appear in either this field or the **Maximum Off-PBX Telephones - EC500** field. The "license max" value is defined as follows: • On legacy systems, the upper limit is 1/2 of the maximum number of administrable stations. **Note:** Legacy platforms do not support SIP trunks. • On S8300, S8500, and S8700 systems, the upper limit is the maximum number of administrable stations. Stations that are administered for any Extension to Cellular application count against this limit.

To be usable, the system must also have the **IP Trunks**, **ISDN-BRI Trunks**, or **ISDN-PRI** field enabled. See page 4 of the **Optional Features** screen (Figure 3).

On page 3 of the **Optional Features** screen (Figure 2), the **ARS** field must be set to **y**.

Maximum Off-PBX Telephones - SCCAN - This field has the following parameters:

Valid entries	Usage
0 to license max	Default = 0. The “license max” value is defined as follows: ● SCCAN is only available on S8300, S8500, and S8700 systems. The upper limit is the maximum number of administrable stations. Stations that are administered for any Extension to Cellular application count against this limit.

To be usable, the system must also have the **IP Trunks** field enabled. See page 4 of the **Optional Features** screen (Figure 3).

Figure 2: Optional Features screen, page 3

```
display system-parameters customer-options                    Page   3 of  10
                              OPTIONAL FEATURES

    Abbreviated Dialing Enhanced List? n          Audible Message Waiting? y
        Access Security Gateway (ASG)? n              Authorization Codes? y
        Analog Trunk Incoming Call ID? y                      CAS Branch? y
 A/D Grp/Sys List Dialing Start at 01? y                        CAS Main? y
Answer Supervision by Call Classifier? y                Change COR by FAC? n
                                  ARS? y Computer Telephony Adjunct Links? y
                ARS/AAR Partitioning? y      Co-Res DEFINITY LAN Gateway? n
          ARS/AAR Dialing without FAC? n  Cvg Of Calls Redirected Off-net? y
          ASAI Link Core Capabilities? y                      DCS (Basic)? y
          ASAI Link Plus Capabilities? y                DCS Call Coverage? y
       Async. Transfer Mode (ATM) PNC? y               DCS with Rerouting? n
  Async. Transfer Mode (ATM) Trunking? n
             ATM WAN Spare Processor? n   Digital Loss Plan Modification? y
                                 ATMS? y                          DS1 MSP? n
                  Attendant Vectoring? n            DS1 Echo Cancellation? y


        (NOTE: You must logoff & login to effect the permission changes.)
```

On page 4 of the **Optional Features** screen (Figure 3):

- The **Enhanced EC500** field must be set to **y**. “EC500” refers to the Extension to Cellular feature.

Note:

The **G3 Version** field, plus either the **Maximum Off-PBX Telephones - EC500** field, the **Maximum Off-PBX Telephones - OPS** field, or the **Maximum Off-PBX Telephones - SCCAN** field (page 1 of the **Optional Features** screen), must be set as previously described before the **Enhanced EC500** field can be set to **y**.

Having the **Enhanced EC500** field set to **y** is important. When the **Enhanced EC500** field is set to **y**, all remaining screens that are tied to the **`off-pbx-telephone`** commands become available.

- The **Extended Cvg/Fwd Admin** field must be set to **y** (to gain access to the **Telecommuting Access Number** screen where you set the EC500 access code).
- The **ISDN-PRI** field must be set to **y**.

Figure 3: Optional Features screen, page 4

```
display system-parameters customer-options                      Page   4 of  10
                                OPTIONAL FEATURES

   Emergency Access to Attendant? y                               IP Stations? y
            Enable 'dadmin' Login? y                Internet Protocol (IP) PNC? n
            Enhanced Conferencing? y                          ISDN Feature Plus? n
                  Enhanced EC500? y             ISDN Network Call Redirection? n
    Enterprise Survivable Server? n                            ISDN-BRI Trunks? y
       Enterprise Wide Licensing? n                                   ISDN-PRI? y
              ESS Administration? n                Local Survivable Processor? n
         Extended Cvg/Fwd Admin? y                       Malicious Call Trace? n
     External Device Alarm Admin? n                   Media Encryption Over IP? y
  Five Port Networks Max Per MCC? n      Mode Code for Centralized Voice Mail? n
               Flexible Billing? n
   Forced Entry of Account Codes? y                   Multifrequency Signaling? y
      Global Call Classification? n Multimedia Appl. Server Interface (MASI)? n
             Hospitality (Basic)? y          Multimedia Call Handling (Basic)? y
 Hospitality (G3V3 Enhancements)? y       Multimedia Call Handling (Enhanced)? y
                       IP Trunks? y

           IP Attendant Consoles? n

       (NOTE: You must logoff & login to effect the permission changes.)
```

Station administration

A person's outside phone number, like a cell phone, is mapped to an office phone in Communication Manager. The station may be a standard office number (presumably the user's primary extension), or may be an AWOH (administration without hardware) station.

Note:

When the Extension to Cellular is administered, the initial state of the cell phone is disabled. You must enable the Extension to Cellular in order to receive calls from the Avaya server running Communication Manager.

Mapping a host phone with an Extension to Cellular phone

The **Stations with Off-PBX Telephone Integration** screen is where you map a user's office (host) phone to an Extension to Cellular phone (for example, a user's cell phone).

To map a user's office phone to an Extension to Cellular phone:

1. Type **`add off-pbx-telephone station-mapping.`**
2. Press **Enter**.

   The **Stations with Off-PBX Telephone Integration** screen appears (Figure 4).

Figure 4: Stations with Off-PBX Telephone Integration screen, page 1

```
add off-pbx-telephone station-mapping                              Page 1 of 2
                  STATIONS WITH OFF-PBX TELEPHONE INTEGRATION

Station     Application   Dial   Phone Number          Trunk       Configuration
Extension                 Prefix                       Selection   Set
43001         EC500       ____ - 9736831204          ars         1
43005         EC500       ____ - 6093451298          ars         1
43007         OPS         ____ - 12345               ars         1
43009         OPS         ____ - 67890               aar         2
43011         CSP         ____ - 6095343211          ars         3
43013         SCCAN       ____ - 9738765432          ars         4/1
_______       _______     ____ - ________________    ____        __
_______       _______     ____ - ________________    ____        __
_______       _______     ____ - ________________    ____        __
_______       _______     ____ - ________________    ____        __
_______       _______     ____ - ________________    ____        __
_______       _______     ____ - ________________    ____        __
_______       _______     ____ - ________________    ____        __
_______       _______     ____ - ________________    ____        __
_______       _______     ____ - ________________    ____        __
_______       _______     ____ - ________________    ____        __
```

Valid parameters

Action	Object	Qualifier
add	**off-pbx-telephone station-mapping**	
change	**off-pbx-telephone station-mapping**	***<station extension>***
display	**off-pbx-telephone station-mapping**	***<station extension>***
list	**off-pbx-telephone station-mapping**	***<variable>***

- The **add off-pbx-telephone station-mapping** command displays a blank screen of two pages. It allows for the addition of sixteen station-extension-to-external-phone-number associations. For each **Station Extension**, the remaining fields on the first page (except for the **Dial Prefix** field) must be filled in. The **Station Extension** fields on the second page are read only and are based upon the values entered for the first page.
- The **change off-pbx-telephone station-mapping *<station extension>*** command displays a screen of two pages. It allows you to change one station-extension-to-external-phone-number association. The first line contains the information for the station extension you entered as the command variable. Additional entries may be added after the changed one. The table is filled in and validated as described for the **add** command.

  If the specified station is a valid type, but has not been previously administered for Extension to Cellular, then the screen is blank except for the first **Station Extension** field.
- The **display off-pbx-telephone station-mapping *<station extension>*** command displays a screen of two pages. It lists up to sixteen entries, starting with the station extension you entered as the command variable. If this extension is not administered for Extension to Cellular, the display starts with the first administered Extension to Cellular extension following it.

  The extension may be omitted, in which case the display starts with the first extension administered for Extension to Cellular.
- The **list off-pbx-telephone station-mapping *<variable>*** command shows, on a single line, information about the association between a station and an external phone number. The command variable specifies the phone number or numbers of interest. The command variable may be:
  - a complete phone number
  - a partial phone number followed by an asterisk (acting as a “wildcard” character)
  - blank

Field descriptions

Station Extension - The **Station Extension** field is an administered extension in your dial plan for one of the supported phones (see Phones supported on page 18). This is the extension of the “host phone.”

Valid entries	Usage
a valid number in your dial plan	Default = blank. Type an extension number of the “host” office phone up to eight digits.

Application - The **Application** field is where you indicate what type of application is associated with this station.

Valid entries	Usage
blank	Default = blank
EC500	**EC500** = cell phone
OPS	**OPS** = other outside phone type (for example, the 4602 SIP-enabled phone)
CSP	**CSP** = cell phone with Extension to Cellular provided by the cellular service provider
SCCAN	**SCCAN** = wireless SIP phone and cell phone

Dial Prefix - The **Dial Prefix** field are any digits that will be prepended to the **Phone Number** field before dialing the outside phone. The dial prefix is deleted when a user enters their cell phone number using the Self Administration Feature (SAFE) access code. The routing tables must be set properly so that the dial prefix "1" is not needed for correct routing.

Valid entries	Usage
blank **0**–**9**, *****, #	Default = blank. Type up to four digits, including “*****” or “#”. If included, “*****” or “#” must be in the first digit position. Enter a "1" if the phone number is long-distance. Enter "011" if the phone number is international.

Phone Number - The **Phone Number** field is the phone number of the cell phone or SIP phone.

Valid entries	Usage
0–**9**	Default = blank. Type up to fifteen digits. The complete 10-digit number must be entered here.

Trunk Selection - The **Trunk Selection** field is where you define which outgoing trunk group you choose to use for outgoing calls.

Valid entries	Usage
ars **aar** **trunk group number**	Default = blank.

Configuration Set - The **Configuration Set** field is used to administer the Configuration Set number that contains the desired call treatment options for this Extension to Cellular station. There are ninety-nine Configuration Sets.

The SCCAN application requires two different configuration sets selected for each station. The first is the value for the WLAN followed by a slash. The second is the value for the cellular network.

Valid entries	Usage
1–**99**	Default = blank. Type the number of the Configuration Set(s).

The second page of the **Stations with Off-PBX Telephone Integration** screen (Figure 5) continues the administration of the phone mapping. The information you entered in the **Station Extension** field on the first page appears as read only information on the second page.

Figure 5: Stations with Off-PBX Telephone Integration screen, page 2

```
add off-pbx-telephone station-mapping                          Page 2 of 2
                  STATIONS WITH OFF-PBX TELEPHONE INTEGRATION

Station          Call       Mapping        Calls       Bridged
Extension        Limit      Mode           Allowed     Calls
43001            2          both           all         both
43005            2          both           all         both
43007            2          both           all         both
43009            2          both           all         both
43011            2          both           all         both
43013            2/2        both           all         both
                 __         ____________   _________   ____________
                 __         ____________   _________   ____________
                 __         ____________   _________   ____________
                 __         ____________   _________   ____________
                 __         ____________   _________   ____________
                 __         ____________   _________   ____________
                 __         ____________   _________   ____________
```

Call Limit - The **Call Limit** field sets the maximum number of Extension to Cellular calls that may be simultaneously active at the station.

Valid entries	Usage
blank **1**–**10**	Default = **2**.

Mapping Mode - The **Mapping Mode** field contains the mode of operation in which the off-PBX phone operates. See Mapping modes on page 45 for information on the possible entries.

Valid entries	Usage
termination origination both none	Default = **both** (if the **Phone Number** field has not been previously administered for another extension with a **Mapping Mode** of **both** or **origination**. Otherwise, the default = **termination**).

Calls Allowed - The **Calls Allowed** field is used to identify the call filter type for an Extension to Cellular station. See Calls allowed on page 46 for information on the possible entries.

Valid entries	Usage
internal external all none	Default = **all**.

Bridged Calls - The **Bridged Calls** field is used to determine if bridged call appearances, that may be administered on this **Stations with Off-PBX Telephone Integration** screen, should also be extended to the Extension to Cellular phone. See Mapping modes on page 45 for information on the possible entries.

Valid entries	Usage
termination origination both none	Default = **both**.

Mapping modes

There are four modes in which an Extension to Cellular phone can be mapped to the user's main office phone.

- termination
- origination
- both
- none

These modes are used to control the degree of integration between a user's cell phone or SIP phone, and the main office number. The modes are valid for Extension to Cellular calls only.

- calls to the user's main office number when Extension to Cellular is enabled
- calls from the user's cell phone or SIP phone into the user's switch when Extension to Cellular is enabled

Mapping modes are administered on the second page of the **Stations with Off-PBX Telephone Integration** screen (Figure 5).

Calls terminating to a cell phone or SIP phone

The termination mode is enabled by setting the **Mapping Mode** field on the second page of the **Stations with Off-PBX Telephone Integration** screen to **termination**. In termination mode, the Extension to Cellular phone may only be used to terminate (receive) calls from its associated host phone. The Extension to Cellular phone may not be used to originate calls from its associated host phone.

Calls originating from the same cell phone are completely independent of Extension to Cellular, and behave exactly as before enabling Extension to Cellular.

Calls originating from a cell phone or SIP phone

The origination mode is enabled by setting the **Mapping Mode** field on the second page of the **Stations with Off-PBX Telephone Integration** screen to **origination**. In origination mode, the Extension to Cellular phone may only be used to originate calls from its associated host phone. The Extension to Cellular phone may not be used to terminate (receive) calls from its associated host phone.

Calls both to and from a cell phone or SIP phone

This mode is enabled by setting the **Mapping Mode** field on the second page of the **Stations with Off-PBX Telephone Integration** screen to **both**. In this mode, the Extension to Cellular phone may be used to originate calls and to terminate (receive) calls from its associated host phone.

No calls to or from a cell phone or SIP phone

This mode is enabled by setting the **Mapping Mode** field on the second page of the **Stations with Off-PBX Telephone Integration** screen to **none**. In this mode, the Extension to Cellular phone may not be used to originate calls or to terminate (receive) calls from its associated host phone.

Calls allowed

There are four values to define what kind of calls can be associated with the Extension to Cellular phone.

- internal
- external
- all
- none

These entries are used to filter the calls to the Extension to Cellular phone.

The **Calls Allowed** field is administered on the second page of the **Stations with Off-PBX Telephone Integration** screen (Figure 5).

Internal

When **internal** is chosen as the call filter type, the Extension to Cellular phone receives only internal calls. External calls are not delivered to the Extension to Cellular phone.

External

When **external** is chosen as the call filter type, the Extension to Cellular phone receives only external calls. Internal calls are not delivered to the Extension to Cellular phone.

All

When **all** is chosen as the call filter type, the Extension to Cellular phone receives both internal and external calls.

None

When **none** is chosen as the call filter type, the Extension to Cellular phone does not receive Extension to Cellular calls.

Setting up the Self Administration Feature (SAFE) Access Code

You must set up a user's office phone extension to accept an Extension to Cellular phone number before the user can self administer their phone number using SAFE.

To prepare an extension for a user to administer their cell phone number using SAFE:

1. Map the user's office phone extension to a blank Extension to Cellular phone (see Mapping a host phone with an Extension to Cellular phone).
2. On the **Stations with Off-PBX Telephone Integration** screen (Figure 4), leave the phone number field blank.

The user calls the SAFE access code and enters their cell phone number. The administration sequence differs based on what phone is used to access SAFE. The cell phone number may then be displayed in the **Stations with Off-PBX Telephone Integration** screen (Figure 4). The dial prefix remains blank in this screen. Therefore, the administrative routes must be able to route a call correctly without a dial prefix. A user can also change an existing cell phone number using SAFE.

To administer the SAFE access code:

1. Type **`change feature-access codes`**.
2. Press **Enter**.

   The **Features Access Code (FAC)** screen appears.
3. Press **Next Page** to advance to page 2 (Figure 10).
4. Set the access code in accordance with your dial plan for the **EC500 Self Administration Access Code** field.
5. Press **Enter**.

Setting up Feature Name Extensions (FNE)

The **Extensions to Call which Activate Features By Name** screen is where you map a dialed extension to a feature within Communication Manager. These are called feature name extensions (FNE). You, as the administrator, must set up all the FNE mapping. All extensions must fit your dial plan, and are implemented system-wide.

These extensions are paired with feature access codes (FAC). When the extension is called, the feature access code is activated.

Note:

The feature access codes are administered on the **Feature Access Code (FAC)** screen (Figure 10: Feature Access Code (FAC) screen, page 2 on page 53).

To map a dialed extension to a feature within Communication Manager:

1. Type **change off-pbx-telephone feature-name-extensions.**
2. Press **Enter**.

   The **Extensions to Call which Activate Features By Name** screen appears (Figure 6).

Figure 6: Extensions to Call which Activate Features By Name screen, page 1

```
change off-pbx-telephone feature-name-extensions                        Page 1 of 1
               EXTENSIONS TO CALL WHICH ACTIVATE FEATURES BY NAME

    Active Appearance Select: 31001              Idle Appearance Select: 31020
         Automatic Call-Back: _______                Last Number Dialed: _________
  Automatic Call-Back Cancel: _______              Malicious Call Trace: _________
            Call Forward All: 31002         Malicious Call Trace Cancel: _________
 Call Forward Busy/No Answer: 31003                Off-PBX Call Enable: _________
         Call Forward Cancel: 31004               Off-PBX Call Disable: _________
                   Call Park: 31005                      Priority Call: _________
       Call Park Answer Back: _________                Send All Calls: _________
                Call Pick-Up: _________             Send All Calls Cancel: _________
        Conference on Answer: _________               Transfer On Hang-Up: _________
        Calling Number Block: _________             Transfer to Voice Mail: _________
      Calling Number Unblock: _________           Whisper Page Activation: _________
       Directed Call Pick-Up: _________
       Drop Last Added Party: _________
   Exclusion (Toggle On/Off): _________
 Extended Group Call Pick-up: _________
      Held Appearance Select: _________
```

Valid parameters

Action	Object	Qualifier
change	**off-pbx-telephone feature-name-extensions**	

Field descriptions

Extension - Each **Extension** field is an extension that matches your dial plan. A user would dial the extension from their Extension to Cellular phone, thereby activating a Feature Access Code administered for that feature.

Valid entries	Usage
blank **0**–**9**	Default = blank. Type an extension number, up to seven digits, of the Communication Manager feature you want to be able to access from the Extension to Cellular phone.

Office caller ID

Depending on how the station is administered, the Extension to Cellular phone gains the identity of the user's office extension when calling into the office switch. For example, when an Extension to Cellular user is administered to send the office caller ID and calls into the office, the person receiving the call sees the office name and number of the caller, not the cell phone caller ID. This type of administration provides in-house caller identification at the destination phone, and allows the user to map onto the office phone.

When the Extension to Cellular cell phone is administered to send office caller ID, it doesn't matter if the Extension to Cellular cell phone is enabled or disabled.

An Extension to Cellular phone that is administered to gain the identity of the office phone has the following functionality:

- When calling a number on the office switch, the user's name and office phone extension appear as caller ID on the destination phone.
- Because of the mapping administration that causes the Extension to Cellular cell phone to gain the identity of the office phone, the user can initiate a call to the office on the Extension to Cellular cell phone, and pick up that same call in progress on the office phone.
- When calling into the same office switch on which Extension to Cellular is administered, the Extension to Cellular cell phone keypad functions as if it were an office phone extension. For example:
  - When a user calls into corporate voice messaging system, Extension to Cellular behaves as an extension on the switch. The extension is recognized by the voice messaging system as such.
  - When a user calls into the Extension to Cellular access number from an Extension to Cellular cell phone that sends office caller ID, then invokes the feature access code to enable or disable Extension to Cellular, the cell phone behaves as if it were an extension on the switch.

Sending 10-digit caller identification for locally-originated calls

Most cell phones require a 10-digit number as the calling number. The Avaya server running Communication Manager must be administered to provide this for locally-originated calls. This procedure is for cell phone use only.

To administer this for stations associated with either ISDN or IP trunks:

1. Type **`change public-unknown-numbering.`**
2. Press **Enter**.

   The **Numbering – Public/Unknown Format** screen appears (Figure 7).

Figure 7: Numbering – Public/Unknown Format screen

```
change public-unknown-numbering                                Page   1 of   8
                         NUMBERING - PUBLIC/UNKNOWN FORMAT
                                    Total                                Total
Ext Ext    Trk       CPN            CPN Ext Ext    Trk       CPN           CPN
Len Code   Grp(s)    Prefix         Len Len Code   Grp(s)    Prefix        Len

 4  1                732817         10
```

3. Create an entry (as above) to add a prefix to extensions to create a 10-digit calling number.
   - **Ext Len** – extension length between 0 and 7.
   - **Ext Code** – the starting digit(s) of the extension.
   - **Trk Grp(s)** – leaving this blank means that it applies to all trunks in the system.
4. Press **Enter**.

Setting up Special Digit Conversion (SDC)

This feature is applicable only to SCCAN. The Special Digit Conversion (SDC) should be enabled to ensure that all calls to an Extension to Cellular cell phone are mapped to the correct office extension. A caller can call a cell phone and dial fewer than the 10-digit number or not dial a prefix and still get routed correctly through the Special Digit Conversion (SDC).

Note:

If SDC is not administered, calls may not be routed correctly. For example, if a call is made to the cell phone number of an Extension to Cellular cell phone, the call cannot be handed in to the WLAN because the call is not treated as if it is anchored to Communication Manager. The call will not be presented to the office phone and cannot be picked up at the office phone because the call is not considered an Extension to Cellular associated call.

To administer the Special Digit Conversion:

1. Type **`change system-parameters sccan.`**
2. Press **Enter**.

   The **System-Parameters SCCAN** screen appears (Figure 8).

Figure 8: SCCAN-Related System Parameters screen

```
change system-paramters sccan                                  Page   1 of   1

                          SCCAN-RELATED SYSTEM PARAMETERS

                 MM (WSM) Route Pattern: ____
                            H1 Handover: ____
                            H2 Handover: ____
                   Announcement Extension: ____
                Special Digit Conversion: y
```

3. Set the **Special Digit Conversion** field to **y**.

   The default value is no (**n**).

Call filtering administration

Call filtering provides the system administrator with control over the type of incoming calls that users receive on their Extension to Cellular phone. With Extension to Cellular call filtering, the system administrator can restrict Extension to Cellular phone calls.

Call filtering is handled on the second page of the **Stations with Off-PBX Telephone Integration** screen through the **Calls Allowed** field. See Figure 5: Stations with Off-PBX Telephone Integration screen, page 2 on page 43 for more information.

Setting up the Extension to Cellular access number

Extension to Cellular users use the telecommuting access number (as set on the **Telecommuting Access** screen) to enable or disable Extension to Cellular, or change their office number's station security code.

Note:

Skip this procedure if a telecommuting access number already exists on your system.

To configure the Avaya server running Communication Manager for Extension to Cellular access:

1. Type **`change telecommuting-access.`**
2. Press **Enter**.

   The **Telecommuting Access** screen appears (Figure 9).

Figure 9: Telecommuting Access screen

```
change telecommuting-access                                  Page   1 of   1
                              TELECOMMUTING ACCESS

                      Telecommuting Access Extension: 5437
```

3. In the **Telecommuting Access Extension** field, type an extension in accordance with your dial plan.

   This number is the Avaya Extension to Cellular access number you provide for users to enable or disable Extension to Cellular, or to change their station security code. The telecommuting number must be a direct inward dialing (DID) or a central office (CO) trunk destination for off-premises features to work.

4. Press **Enter**.

Setting up the Extension to Cellular enable/disable feature access codes

To administer the Extension to Cellular “enable” and “disable” feature access codes:

1. Type **change feature-access-codes.**
2. Press **Enter**.

   The **Feature Access Code (FAC)** screen appears.
3. Press **Next Page** to advance to page 2 (Figure 10).

Figure 10: Feature Access Code (FAC) screen, page 2

```
change feature-access-codes                                    Page   2 of   8
                              FEATURE ACCESS CODE (FAC)
                  Data Origination Access Code:
                      Data Privacy Access Code:
              Directed Call Pickup Access Code:
    Emergency Access to Attendant Access Code: *11
        EC500 Self Administration Access Code:
                     Enhanced EC500 Activation: *81     Deactivation:#81
  Extended Call Fwd Activate Busy D/A: *23 All: *24     Deactivation:#23
       Extended Group Call Pickup Access Code:
              Facility Test Calls Access Code:
                           Flash Access Code: *88
            Group Control Restrict Activation: *15     Deactivation: #15
                  Hunt Group Busy Activation: *81     Deactivation: #81
                           ISDN Access Code:
               Last Number Dialed Access Code: *54
    Leave Word Calling Message Retrieval Lock: *48
   Leave Word Calling Message Retrieval Unlock: #45
             Leave Word Calling Send A Message: *60
          Leave Word Calling Cancel A Message: #60
              Malicious Call Trace Activation:         Deactivation:
         Meet-me Conference Access Code Change:
```

4. Set an access code in accordance with your dial plan for the following fields.
   - In the **Enhanced EC500 Activation** field, type a feature access code number **(*81** in this example) to be used for remote activation of Extension to Cellular.
   - In the **Enhanced EC500 Deactivation** field, type a feature access code number (**#81** in this example) to be used for remote deactivation of Extension to Cellular.
5. Press **Enter**.

Note:

If so administered, users also have the option to activate and deactivate Extension to Cellular through a feature button on their office phone.

Setting up multiple applications on one phone

Multiple applications on one phone (square bridging) is used when more than one Avaya Communication Manager Extended Access application (OPS, EC500, CSP, SCCAN) should be applied to a desk phone or AWOH. Currently only one application can be supported on an Extended Access station, but square bridging provides a way around this restriction. Square bridging requires an extra license. A user cannot extend a call to a cell phone if their phone is square bridges.

Two scenarios for setting up square bridging.

Scenario 1: A customer wants two different cell phones to ring when a desk phone is called. The following administration is required.

1. Station 1 is the principal desktop phone. Administer Station 1 on the Station Form and on the off-PBX-telephone station-mapping form.
2. On the off-PBX-telephone station-mapping form, map Cell phone 1 to Station 1.
3. On the Station Form, administer Station 2 as an AWOH.
4. On the off-PBX-telephone station-mapping form, map Cell phone 2 to Station 2.
5. On the Station Form, administer all of the call appearances for Station 2 as bridged appearances for Station 1.

   When Station 1 receives a call both Cell 1 and Cell 2 ring. No calls can be made to Station 2 since all its call appearances are bridged to Station 1.

Scenario 2: A customer wants Extension to Cellular on an OPS SIP desk phone. The following administration is required.

1. On the Station Form, administer Station 1 as an unregistered IP phone.
2. On the off-PBX-telephone station-mapping form, map OPS phone 1 to Station 1 and select the OPS application type.
3. On the Station form, administer Station 2 as an AWOH.
4. On the off-PBX-telephone station-mapping form, map Cell phone 1 to Station 2 as EC500.
5. On the Station Form, administer all of the call appearances for Station 2 as bridged appearances for Station 1.

6. You should administer a button, e.g., enable EC500 on/off on the OPS station. The FNU is Off-PBX Call FNU. Download this button information to the OPS phone from the PPM. Send notification to the OPS phone when the status changes.

   The OPS phone user can enable Extension to Cellular by dialing the FNE.

   When the EC500 status is checked for the OPS phone, the status will match whether Extension to Cellular is enabled or not.

Voice mail administration

Cellular Voice Mail Avoidance

Avaya Communication Manager Extended Access Cellular Voice Mail Avoidance is designed to reduce the uncertainty as to where unanswered Avaya Communication Manager Extended Access calls may be sent. An unanswered call either terminates at the corporate voice mail system or at the cellular service provider's (CSP) voice mail system. The amount of control over the terminating voice mail system is limited. Administrating the number of ring cycles before a call goes to the corporate voice mail system is used to select the destination voice mailbox. Cellular Voice Mail Avoidance will be available for Extension to Cellular applications.

How calls are routed to voice mail

If the user does not quickly answer a ringing call or if the cell phone is in a bad coverage area, the cellular network will route the call to cellular voice mail. The speed of this may depend on network utilization. Also, if the cell phone has been turned off while in contact with the network, the call will go almost immediately to the cellular voice mail. This leaves customers with a number of problems. Calls may end up on either the corporate voice mail or the CSP's voice mail. A quick response from the cellular voice mail may prevent a customer from answering a call on their principal desk set. The call is seized by the cellular voice mail before the customer can respond to the ringing.

The Avoidance feature prevents calls from being routed to cellular voice mail

The customer can prevent this by requesting their CSP to turn off their cellular voice mail, but that then affects all calls to the cell phone, many of which may not be routed through the call server. The Avoidance feature is designed to improve this problem. The call server will detect when the cell phone is not the entity answering the call (when, presumably, the Cellular Voice Mail is answering the call) and bring the call back into the call server. It can then be treated as a normal call to the desk set, ringing it the appropriate number of times before going to coverage.

How the Avoidance feature works

There are two strategies that will be followed to accomplish this. Both require ISDN or H.323 trunks. SIP trunks are not supported. First, some cellular services, e.g., GSM, return an indication within the CONNECT message telling the switch that the call is not an end-to-end ISDN call (a person did not answer the call). This enables the switch to determine that a non-ISDN point has answered the call. It can then bring the call back to the switch. This method is not foolproof as a cellular voice mail system could conceivably be an ISDN endpoint, or a cell phone might not be one. It is believed that this method will work with GSM systems.

Many Cellular Service Providers do not return this message. The second method, which should be reasonably effective when the cell phone is not in contact with the cellular system, is by timing. If the cell phone cannot be contacted, the CSP immediately sends the call to voice mail. This saves using network capacity on a call that cannot be completed. If the call is routed out on the network and the cell phone rings, there must be a several second delay before it is answered. Therefore, calls answered in less than the pre-determined time (e.g., 4 seconds) are assumed to be going to Cellular Voice Mail. Consequently by starting a customer selectable timer when the call is launched, and pulling back calls answered prior to its expiration, this should result in most unanswerable calls going to the switch's coverage. If the cell phone rings and the call is unanswered, then the call will probably go to the switch's coverage.

This feature will work with the AAR/ARS Avaya Communication Manager Extended Access call routing feature developed for MultiVantage Release 1.1.2. It will also work with the older loop back trunk configuration.

To administer Cellular Voice Mail Avoidance:

1. Type **`change xmobile configuration-set`** ***n*** (where ***n*** is the number assigned with a coverage path).

   or

   Type **`change off-pbx telephone configuration-set`** ***n*** (where ***n*** is the number assigned with a coverage path).

2. Press **Enter**.

   The **Configuration Set** screen appears (Figure 11).

Figure 11: Off-PBX-Telephone configuration form

```
change off-PBX-telephone configuration-set 1

                            CONFIGURATION SET: 1

     Configuration Set Description: Standard
              Calling Number Style: network
               CDR for Origination: phone-number
CDR for Calls to EC500 Destination? y
       Fast Connect on Origination? n
      Post Connect Dialing Options: dtmf
     Cellular Voice Mail Detection: none
                    Barge-in Tone? n
            Identity When Bridging? station
```

3. Change the **Cellular Voice Mail Detection** field as appropriate.

   Cellular Voice Mail Detection: The **Cellular Voice Mail Detection** field allows you to enable or disable this feature or set a timer for detection.

Valid fields	Usage
none **timed** **message**	Default = **none**. Timed = amount of time from 1-9 seconds. (Default = 4 sec). Message = detect carrier voice mail

   Field Validation: Entry of something other than none, timed, or message will result in the following error message: “<entered value>” is an invalid entry; please press HELP

   If timed (sec) is set to a value, and then the value is changed to none and back again to timed, the original value set by the administrator will appear. For example, if timed (sec) is set to 9, and then Voice Mail Detection is set to none, followed by Voice Mail Detection set to timed, the value 9 will appear.

4. Press **Enter**.

Using timing to route calls

Unanswered office number calls are usually routed to a user’s corporate voice messaging system after a predetermined number of rings. Most cellular service providers also offer voice mail options which can also be customized to route unanswered calls after a specified number of rings. As an administrator, you may be called upon to troubleshoot individual situations to help the user understand the options and the potential conflicts resulting from a voice mail preference.

As administrator, you'll need to coordinate a default to a specific voice mail system by setting the number of rings on the office number before the corporate voice messaging system answers so that the preferred system picks up unanswered calls first. This section provides procedures for you to use when working with users.

Note that there are coverage options in both the Avaya server running Communication Manager (busy, active, send all calls) and the cellular network (cell phone unavailable, network congested) that can cause a call to immediately go to the respective voice mail. Users should recognize that an unanswered call could result in a message in *either* system's voice mailbox.

Using corporate voice mail to receive messages

To receive voice messages through the corporate voice messaging system, the cellular service provider's voice mail feature must be set to a higher "unanswered rings" number than the corporate system. For example, if the corporate voice messaging system automatically picks up an unanswered call on the third ring, the user should set the cell phone's voice mail system to pick up unanswered calls on the fourth or fifth ring.

A user who cannot adjust the number of rings on his or her cell phone should contact the cellular service provider for assistance.

Note:

If the user is using the cell phone exclusively for business purposes, he or she can request that the cellular service provider disable voice mail.

To change the number of rings on the office number as part of the solution:

1. Type **`change coverage path`** ***n*** (where ***n*** is the number assigned with a coverage path).
2. Press **Enter**.

   The **Coverage Path** screen appears (Figure 12).

Figure 12: Coverage Path screen

```
change coverage path 1                                        Page   1 of   1
                               COVERAGE PATH

                  Coverage Path Number: 1
                                                 Hunt after Coverage? n
                      Next Path Number:          Linkage

COVERAGE CRITERIA

    Station/Group Status    Inside Call     Outside Call
              Active?             n              n
                Busy?             y              y
       Don't Answer?              y              y         Number of Rings: 2
                 All?             n              n
 DND/SAC/Goto Cover?              y              y

COVERAGE POINTS

    Terminate to Coverage Pts. with Bridged Appearances? n

  Point1: 694000    Rng:    Point2: h99       Rng:    Point3:
  Point4:                   Point5:                   Point6:
```

3. Change the value in the **Number of Rings** field as appropriate.
4. Press **Enter**.

Preventing messages from automatically going to cellular voice mail

Most cellular service providers route calls automatically to their own voice mail systems when a cell phone is turned off or in an out-of-coverage area. To prevent work-related calls from being automatically routed to a users' cellular voice mail system, tell users that they must disable Extension to Cellular before shutting down their cell phone.

Incoming calls to their office number are then routed to the corporate voice messaging system, while personal calls continue to be picked up by their cellular voice mail system.

Note:

Users can also ask their cellular provider to turn off voice mail. This assures that coverage is provided by the corporate voice mail.

“Notify me” under Unified Messenger for MS Exchange

If users have access to the “Notify Me” feature of Unified Messenger for Microsoft (MS) Exchange Version 4.0 or later, they are notified of messages in their corporate voice mailbox through their cell phone’s display. For more information on using this feature see “Setting Notify Me” in the *Unified Messenger Telephone User Interface Online Guide*, accessed through http://www.avaya.com/support.

Note:

The cell phone must support text messaging to use this feature.

Administering the barge-in tone

The barge-in tone adds security to Extension to Cellular. If a user is on an active Extension to Cellular call and another person joins the call from the Extension to Cellular enabled office phone, all parties on the call will hear the barge-in tone. This feature works only when the exclusion feature is not enabled.

All parties on a call hear a conference tone if all of the following are true:

- the barge-in tone is enabled on the **Configuration Set** screen,
- the conference tone is administered in the country form,
- Extension to Cellular is enabled,
- the exclusion feature is not enabled,
- a user is active on their cell phone, and
- another user tries to join this call on the Extension to Cellular-associated desk phone.

To administer the barge-in tone:

1. Type **`change off-pbx-telephone configuration-set`** ***`n`*** (where ***n*** is the number assigned with a coverage path).
2. Press **Enter**.

   The **Configuration Set** screen appears (Figure 13).

Figure 13: Off-PBX-Telephone configuration form

```
change off-PBX-telephone configuration-set 1

                              CONFIGURATION SET: 1

     Configuration Set Description: Standard
              Calling Number Style: network
               CDR for Origination: phone-number
CDR for Calls to EC500 Destination? y
       Fast Connect on Origination? n
      Post Connect Dialing Options: dtmf
     Cellular Voice Mail Detection: none
                    Barge-in Tone? n
            Identity When Bridging? station
```

3. Select **y** to enable or **n** to disable.

Call Detail Recording (CDR)

Extension to Cellular provides Call Detail Recording (CDR) options for calls to cellular/external phones. Use the CDR feature to record information on incoming, outgoing, and tandem calls for each trunk group that you administer for CDR, including auxiliary trunks. The system records information on each trunk-group call and each station-to-station call. Call records may be desirable if you want to track calls to cellular phones for reporting or billing purposes.

For a detailed description of CDR, see *Feature Description and Implementation for Avaya Communication Manager*, 555-245-205.

You can administer such calls to be treated as:

- Trunk calls

  or

- Calls to an internal station extension.

A CDR record is generated for trunk calls but not calls to internal station extensions.

The **CDR for Calls to EC500 Destination** field on the **Configuration Set** screen (Figure 14) determines whether a CDR report is generated when a call is made to a cellular phone.

Calls to the primary handover number (H1) or the secondary handover number (H2) are recorded. Post-processing of CDR records is necessary to record hand-in/hand-outs. However, a CDR will not be generated for feature name extension (FNE's) or feature name URI's (FNU's).

To administer CDR reports:

1. Type **change off-pbx telephone configuration-set *n*** (where ***n*** is the number assigned with a coverage path).
2. Press **Enter**.

   The **Configuration Set** screen appears (Figure 14).

Figure 14: Configuration Set screen

```
change off-PBX-telephone configuration-set 55

                          CONFIGURATION SET: 55

     Configuration Set Description: Standard
              Calling Number Style: network
               CDR for Origination: phone-number
CDR for Calls to EC500 Destination? y
       Fast Connect on Origination? n
      Post Connect Dialing Options: dtmf
     Cellular Voice Mail Detection: none
                   Barge-in Tone: n
            Identity When Bridging? station
```

This screen allows you flexibility in billing or tracking calls to phones that are mapped to extensions.

3. Change the **CDR for Calls to EC500 Destination** field as appropriate.

   CDR for Calls to EC500 Destination field:

Valid entries	Usage
y or **n**	Default = y

4. Press **Enter**.

   CDR for Calls to EC500 Destination

   When the option is **y**, an outgoing trunk CDR report is created for each Extension to Cellular call, but only if the selected trunk has the CDR option enabled. The originating extension of the call is either the principal office phone to which the Extension to Cellular station is mapped, or the station itself, if stand-alone.

   Extension to Cellular phones are tagged on an intra-call CDR report when the call originates from an Extension to Cellular phone. The tag reads" EC500".

All Extension to Cellular CDR reports have an account code consisting of all 8s (for example, 8888) up to the maximum administered length of the CDR Account Code.

For additional information on Call Detail Recording, see the *Avaya Administrator's Guide for Avaya Communication Manager*, 555-233-506.

- Type **y** to track calls to cell phones for reporting or billing purposes.

  If you type **y**, the configuration set administered on the **Station** screen determines whether a CDR record is generated.

- Type **n** if you want to treat the Extension to Cellular cell phones as totally internal stations and don't require CDR reporting.

  If you type **n**, and the extension is stand-alone, you must type it on the **Intra-Switch CDR** screen in order to get CDR reports. These do not show any trunk information.

If the principal station is being tracked in the Intra-Switch CDR report, a CDR record is generated for the station-side of the call. The CDR record contains the calling and called parties. This is in addition to the CDR report for the Extension to Cellular call if the **CDR for Calls to the EC500 Destination** field on the **Configuration Set** screen is **y**.

Thus, two CDR reports may be generated for each Extension to Cellular call:

- The trunk CDR record containing the cell phone number
- The principal and the intra-switch CDR record containing the principal and the original calling party

When an intra-switch call and a trunk call originate at an Extension to Cellular phone, only the trunk call gets reported in the CDR.

Note:

In the case of a stand-alone Extension to Cellular cell phone, its station number is the principal. If it is mapped to another station, then that station's number is the principal. See Table 2 for additional information.

CDR reporting for Extension to Cellular calls relies on the **CDR Reports** field on the **Trunk Group** screen.

To access the **Trunk Group** screen:

1. Type **`add trunk-group next`**.
2. Press **Enter**.

   The **Trunk Group** screen appears (Figure 15).

Figure 15: Trunk Group screen, page 1

```
add trunk-group next                                          Page   1 of  21
                              TRUNK GROUP

Group Number: 3                    Group Type: isdn          CDR Reports: y
  Group Name: OUTSIDE CALL               COR: 1        TN: 1        TAC: 103
   Direction: two-way        Outgoing Display? n                 PRI/BRI:
 Dial Access? n                Busy Threshold: 255         Night Service:
Queue Length: 0           Country: 1                Incoming Destination:
   Comm Type: voice                 Auth Code? n   Digit Absorption List:
    Prefix-1? y                  Trunk Flash? n         Toll Restricted? y

TRUNK PARAMETERS
            Trunk Type:
    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: 6                          Digital Loss Group: 11
                                  Trunk Gain: high

 Disconnect Supervision - In? y  Out? n
 Answer Supervision Timeout: 10            Receive Answer Supervision? n
```

3. Change the **CDR Reports** field as appropriate.

   CDR Reports: The **CDR Reports** field is where you can enable or disable CDR reporting.

Valid entries	Usage
y or **n**	Default = n. If this field is set to n, CDR reports will not be generated even if the **CDR for Calls to EC500 Destination** field on the **Configuration Set** screen is **y**.

4. Press **Enter**.

Changing configuration sets

A configuration set defines a number of call treatment options for Extension to Cellular cell phone calls. Extension to Cellular administration allows for the use of up to 10 configuration sets that are already defined in the system using default values. Each set is administered on a different screen.

Since there are 10 configuration sets available, multiple combinations of the options can be administered, thus accommodating requirements for a variety of cellular service providers.

To customize a configuration set:

1. Type **change off-pbx-telephone configuration-set *n*** (where ***n*** is the number assigned to a configuration set).
2. Press **Enter**.

   The **Configuration Set** screen appears (Figure 16).

Figure 16: Configuration Set screen

```
change off-pbx-telephone configuration-set 1                  Page   1 of   1

                           CONFIGURATION SET: 1

      Configuration Set Description:
                Calling Number Style: network
                 CDR for Origination: phone-number
 CDR for Calls to EC500 Destination? y
        Fast Connect on Origination? n
       Post Connect Dialing Options: dtmf
      Cellular Voice Mail Detection: none
                     Barge-in Tone: n
             Identity When Bridging? station
```

3. Change or type values in the following fields as appropriate:
   - **Configuration Set:** The **Configuration Set** field is where you describe the purposes of the configuration set. For example, you can type "Extension to Cellular handsets."

Valid entries	Usage
free text	Type up to 20 characters, free-screen text

   - **Calling Number Style:** The **Calling Number Style** field determines the format of the caller ID for calls from a local switch extension to an Extension to Cellular cell phone. Using the default value **network** causes the system to use the 10-digit calling identification information established on the ISDN public-unknown numbering screen. See Sending 10-digit caller identification for locally-originated calls on page 50. The **pbx** value allows a cell phone caller ID display of fewer than 10-digits such as an extension.

Valid entries	Usage
network **pbx**	Default = **network**

- **CDR for Origination**

  If a cell phone is allowed to originate calls through its mapped Extended Access Calls extension (i.e., a SIP phone or a cell phone call), a CDR record will be generated for the call. Incoming trunk cdr must be turned on.

  CDR will disregard Feature Name Extensions (FNEs).

  The Options on incoming CDR are as follows:

Valid entries	Usage
phone-number **extension** **none**	Default = phone-number

  - Either provides the calling number that came in over the trunk (e.g., cell phone number) or the station extension or none
  - Record destination phone number

  If a configuration-set is administered on the **change off-pbx telephone station** form, a CDR record will be generated for call origination from mapped phones e.g., cell phones through the ACM, based on the option chosen on the “CDR for origination” field on the “configuration-set” form. Since there are various CDR report formats, and some of them allow for 10-digit calling party field while others allow for only the internal extension format (currently 5 digits maximum), the option on the “CDR for origination” field must chosen to suit the CDR output device.

  The calling party on the record is based on the option chosen on the “CDR for origination” field on the configuration-set administered on the **change off-pbx telephone station** form. If the “extension” option is chosen, the internal Extended Access extension is reported as the calling party. If the “phone number” option is chosen, the 10-digit cell phone is reported on the CDR report; if “none” there will be no originating CDR record.

- **Fast Connect on Origination:** The **Fast Connect on Origination** field determines whether some additional processing will occur on the switch prior to connecting a call. This option may be used in the future for capabilities provided by the cell phone provider. Currently the default value of **n** is recommended.

Valid entries	Usage
y or **n**	Default = n

- **Post Connect Dialing Options:** The **Post Connect Dialing Options** field determines whether additional capabilities, beyond standard ISDN dialing, are available for those incoming ISDN trunk calls that are mapped into Extension to Cellular stations. Use the default value, **dtmf** (dual tone multiple frequencies).

Valid entries	Usage
dtmf **band** **both** **none**	Default = dtmf

4. Press **Enter**.
5. As needed, use the **`change off-pbx-telephone configuration-set`** ***n*** command to change additional configuration sets.

Table 2: CDR output for Extension to Cellular calls

"CDR Report" field on the Trunk Group screen	"CDR for Calls to EC500 Destination" field on the Configuration Set screen	Principal in mapping set-up in the Intra-Switch CDR screen	Type of CDR records (Trunk or Intra-switch)	Contents of Interest
Yes	Yes	No	Trunk CDR record	Cell phone number + principal + Extension to Cellular ID
Yes	Yes	Yes	2 CDR records (Trunk and Intra)	Cell phone number + principal + Extension to Cellular ID Principal + calling party
Yes	No	No	No CDR	N/A
Yes	No	Yes	Intra CDR record	Principal + calling party
No	Yes	No	No CDR	N/A
No	Yes	Yes	Intra CDR record	Principal + calling party
No	No	No	No CDR	N/A
No	No	Yes	Intra CDR record	Principal + calling party

Generating two CDR records

To generate two CDR records:

1. Type **change system-parameters cdr** and press **Enter**.

   The **CDR System Parameters** screen appears (not shown).

2. Set the **Intra-Switch CDR** field to **y**.
3. Press **Enter** to save your changes.
4. Log off and log back into the switch.
5. Type **change intra-switch-cdr** and press **Enter**.

   The **Intra-Switch CDR** screen appears (not shown).

6. Type any extension you want to track with this screen.
7. Press **Enter** to save your changes.

Creating a feature access code to change station security codes

When users are enabling and disabling Extension to Cellular, they need to know the Station Security Code (SSC) associated with their office number. You must be sure to administer these station security codes for the principal Extension to Cellular office numbers.

Extension to Cellular allows users to enable or disable all mapped extensions at once, using the station security code for their principal phone (an office number or an AWOH extension set up on the Avaya server running Communication Manager).

Station security codes provide security to station users by preventing other users from accessing functions associated with the user's station. Each station user can change his or her own SSC if the user knows the station's current settings. You must create a system-wide SSC change feature access code (FAC) that users can invoke to change their SSC. You must also administer and provide their individual SSCs to users. A user cannot change a blank SSC.

To create a system-wide SSC change feature access code:

1. Type **change feature-access-codes** and press **Enter**.

   The **Feature Access Code (FAC)** screen appears.

2. Continue to press **Next Page** until the page with the **Station Security Code Change Access Code** field appears (Figure 17).

Figure 17: Feature Access Code (FAC) screen

```
change feature-access-codes                                    Page   3 of 8
                              FEATURE ACCESS CODE (FAC)

 PASTE (Display PBX data on Phone) Access Code: 410
  Personal Station Access (PSA) Associate Code:          Dissociate Code:
        Per Call CPN Blocking Code Access Code:
    Per Call CPN Unblocking Code Access Code:

                 Priority Calling Access Code: 0142
                          Program Access Code: 0143

      Refresh Terminal Parameters Access Code: 0144
             Remote Send All Calls Activation:        Deactivation:
              Self Station Display Activation: #1
                    Send All Calls Activation: *4     Deactivation: *5
        Station Firmware Download Access Code:
                      Station Lock Activation:        Deactivation:
    Station Security Code Change Access Code: #5
             Station User Admin of FBI Assign:                  Remove:
 Station User Button Ring Control Access Code:
            Terminal Dial-Up Test Access Code: 0151
```

3. Type a code valid for your dial plan (for example, **#5**) in the **Station Security Code Change Access Code** field. This sets the access codes for this feature.
4. Press **Enter**.

   The Command prompt appears.
5. Type **`change system-parameters security`** and press **Enter**.

   The **Security-Related System Parameters** screen appears.

   Press **Next Page** to advance to page 2 of the **Security-Related System Parameters** screen (Figure 18).

Figure 18: Security-Related System Parameters screen, page 2

```
change system-parameters security                                Page   2 of   2
                      SECURITY-RELATED SYSTEM PARAMETERS

 SECURITY VIOLATION NOTIFICATION PARAMETERS

   SVN Station Security Code Violation Notification Enabled? n




 STATION SECURITY CODE VERIFICATION PARAMETERS

                             Minimum Station Security Code Length: 4
 Station Security Code for Terminal Self-Administration Required? y
```

6. Type a number in the **Minimum Station Security Code Length** field that is based on your dial plan. This determines the minimum required length of the SSC.

   Note:

   Longer codes are more secure.

7. Press **Enter**.

Administering Extension to Cellular feature access buttons on the office phone

Enable/Disable with timer

Extension to Cellular provides the capability to administer an Extension to Cellular feature access button on the user's office phone to enable and disable the feature. You can also configure an optional timer. You administer this feature button on page 3 of the **Station** screen for the "host" office extension to which Extension to Cellular is linked. You cannot administer a feature button to enable or disable Extension to Cellular when this application is provided by a cellular service provider (CSP).

Note:

The feature access button is not available on all desk set types (4630 for example).

The process described below explains how to administer an Extension to Cellular feature button and include the optional Extension to Cellular timer. The Extension to Cellular feature button is available on phones which support administrable feature buttons.

To set up an Extension to Cellular feature button with optional timer:

1. Type **change station *n*** (where ***n*** is the extension of an Extension to Cellular-enabled station – in this example, ***1034***) and press **Enter**.

   The **Station** screen appears.

2. Press the **Next Page** button twice to display page 3 of the **Station** screen (Figure 19).

Figure 19: Station screen, page 3

```
change station 1034                                          Page   3 of   4
                                    STATION
 SITE DATA
       Room:                                          Headset? n
       Jack:                                          Speaker? n
      Cable:                                         Mounting: d
      Floor:                                      Cord Length: 0
   Building:                                        Set Color:




ABBREVIATED DIALING
     List1:                    List2:                    List3:

BUTTON ASSIGNMENTS
 1: call-appr                            5:
 2: call-appr                            6:
 3: call-appr                            7:
 4: ec500    Timer? y                    8:
```

3. Select an available feature button under the **Button Assignments** header (button **4** was used in this example) and type **ec500** (lower case) to administer an Extension to Cellular feature button on the office phone.

4. Press **Enter**.

   Note:

   The **Timer** subfield displays, and defaults to **n**. Leaving the default setting of **n** excludes the timer state.

5. Set the optional **Timer** subfield to **y** to include an Extension to Cellular timer state for the administered feature button.

   When the timer state is included, the Extension to Cellular user can activate a one-hour timer to temporarily disable Extension to Cellular through this administered feature button.

6. Press **Enter**.

   The corresponding feature button on the office phone is now administered for Extension to Cellular.

   Note:

   The feature status button on the office phone indicates the current state of Extension to Cellular regardless of whether the feature was enabled remotely or directly from the office phone.

Enabling and disabling Extension to Cellular

A user can only enable and disable Extension to Cellular. You can enable and disable Extension to Cellular from:

- An administered feature button on the office phone
- Feature Access Codes (FAC) administered for the office phone
- Feature name extensions (FNE) administered for the cell phone
- Any other touch-tone station on the switch
- Any remote touch-tone phone (cell or otherwise) in the external network, through the trunk interface to the switch through an Extension to Cellular access number (as set in the **Telecommuting Access Extension** field on the **Telecommuting Access** screen).

Security codes are available for this feature to protect the phone from unwanted tampering.

Note:

Security codes do not protect enabling/disabling through an administered feature access button on the office phone.

You can display the enabled/disabled status for an Extension to Cellular cell phone using the **`status station`** command. See Off-PBX Telephone Status for Station screen on page 84 for more information. If the Extension to Cellular feature status button has been administered, you can also tell the current Extension to Cellular status by viewing the corresponding feature status button lamp on the linked office phone.

The administration of Extension to Cellular to send the office caller ID remains in effect whether Extension to Cellular is enabled or disabled.

Note:

The initial state of an Extension to Cellular-administered extension is always disabled.

A typical user disables and enables all cell phone-mapped Extension to Cellular stations at once using his or her office number and the station security code associated with that office number. In order to enable and disable individual extensions, the user needs to have the extension number and station security code for each cell phone-mapped station.

Individual extensions can be enabled and disabled in the following ways:

- A user wants to enable or disable the cell phone-mapped Extension to Cellular station at an internal extension. The user enters the following in sequence:

  1. The Extension to Cellular “enable” or “disable” feature access code.
  2. The extension number of the cell phone mapped-station, followed by #.
  3. The station security code assigned to the mapped station.
  4. A final #.

  The user receives either a confirmation or an intercept tone depending upon the success or failure of the procedure.

- A user wants to enable or disable cell phone-mapped Extension to Cellular stations from any phone in the external network. Whether it’s the user’s cell phone or another phone does not matter. The user enters the following in sequence:

  1. The Avaya Extension to Cellular access number (as set in the **Telecommuting Access Extension** field on the **Telecommuting Access** screen).

     The user should receive a dial tone.
  2. The Extension to Cellular “enable” or “disable” feature access code.
  3. The extension number of the cell phone-mapped station, followed by #.
  4. The station security code assigned to the mapped station.
  5. A final #.

  The user receives either a confirmation or an intercept tone depending upon the success or failure of the procedure.

These procedures must be repeated for each cell phone-mapped station that the user wishes to enable or disable.

Extend Call feature button

Users can take an Extension to Cellular call on their office phone, and then move it to their cell phone. This is done through an administrable feature button on the office phone called Extend Call.

To set up an Extend Calls feature button:

1. Type **`change station n`** (where ***n*** is the extension of an Extension to Cellular-enabled station – in this example, ***1034***) and press **Enter**.

   The **Station** screen appears.

2. Press the **Next Page** button twice to display page 3 of the **Station** screen (Figure 20).

Figure 20: Station screen, page 3

```
change station 1034                                          Page   3 of   4
                                    STATION
 SITE DATA
      Room:                                            Headset? n
      Jack:                                            Speaker? n
     Cable:                                           Mounting: d
     Floor:                                       Cord Length: 0
   Building:                                        Set Color:




ABBREVIATED DIALING
     List1:                    List2:                    List3:

BUTTON ASSIGNMENTS
 1: call-appr                            5:extnd-call
 2: call-appr                            6:
 3: call-appr                            7:
 4: ec500    Timer? y                    8:
```

3. Select an available feature button under the **Button Assignments** header (button **5** was used in this example) and type **extnd-call** (all lower case) to administer an Extension to Cellular feature button on the office phone.
4. Press **Enter**.

   The corresponding feature button on the office phone is now administered for Extension to Cellular.

View feature buttons and button labels

To view the feature buttons:

1. Type **change display-messages view-buttons** and press **Enter**.

   The **Language Translations** screen appears (Figure 21).

Figure 21: Language Translation screen

```
change display-messages view-buttons                          Page 9 of 9
                            LANGUAGE TRANSLATIONS

English                                Translation

 1. Station Lock                        1. ************************
 2. License Error                       2. ************************
 3. Conference Display                  3. ************************
 4. Conf/Trans Toggle-Swap              4. ************************
 5. Far End Mute                        5. ************************
 6. Paging 1st Link Alarm               6. ************************
 7. Paging 2nd Link Alarm               7. ************************
 8. EC500                               8. ************************
 9. No Hold Conference                  9. ************************
10. Posted Messages                    10. ************************
11. Audix Recording                    11. ************************
12. Extend Call                        12. ************************
```

Note:

The EC500 button refers to the Extension to Cellular status button (enabling and disabling).

To view the button labels for the feature buttons:

1. Type **change display-messages button-labels** and press **Enter**.

   The **Language Translations** screen appears (Figure 22).

Figure 22: Language Translation screen

```
change display-messages button-labels                          Page 5 of 10
                              LANGUAGE TRANSLATIONS

English                                  Translation

 1. Directory                             1. *************
 2. Dir Pickup                            2. *************
 3. Disp Charges                          3. *************
 4. DoNotDisturb                          4. *************
 5. EC500                                 5. *************
 6. Exclusion                             6. *************
 7. ExtDoNotDstrb                         7. *************
 8. Extend Call                           8. *************
 9. Far End Mute                          9. *************
10. Flash                                10 . *************
11. FTC Alarm                            11. *************
12. Goto Cover                           12. *************
13. GrpPg                                13. *****
14. GrpDoNotDstrb                        14. *************
15. Hunt NS                              15. **********
16. InCaalID                             16. ********
```

Creating a Wireless Service Manager (WSM) route pattern

Creating a Wireless Service Manager (WSM) route pattern increases the trunk capacity for the SCCAN application type of Extension to Cellular. SCCAN must be enabled.

To administer the WSM route pattern:

1. Administer the trunk groups for SCCAN.
2. Administer the route pattern for SCCAN.
3. Type **`change system-parameters sccan`** and press **Enter**.

   The **SCCAN-Related System Parameters** page appears (Figure 23).

Figure 23: SCCAN-Related System Parameters screen

```
change system-paramters sccan                                  Page   1 of   1

                          SCCAN-RELATED SYSTEM PARAMETERS

                  MM (WSM) Route Pattern: 231
                              H1 Handover: ____
                              H2 Handover: ____
                    Announcement Extension: ____
                 Special Digit Conversion: ____
```

4. Enter a route pattern number that is SCCAN enabled.

Valid entries	Usage
blank **1–999**	Default = blank. Type a route pattern that is SCCAN enabled. Partition route patterns are not allowed. ● For an S3800, the number can be between 1 and 254. ● For an S8500 or S8700, the number can be between 1 and 999.

- Only regular routing patterns are allowed. Do not enter partition-route-table indexes, RHNPA indexes, deny or nodes. If you enter any of these values, the following error message appears:

  "<entered value>" is an invalid entry; please press HELP.

- Only SCCAN enabled routing patterns are allowed. Do not enter a route pattern that is not SCCAN enabled. If you enter this invalid route pattern, the following error message appears:

  "<entered value> Route pattern must be SCCAN enabled

Redirect on OPTIM Failure (ROOF) procedures

Redirect on OPTIM Failure (ROOF) procedures apply busy treatment in general. No additional administration is necessary for ROOF.

ROOF procedures only apply when:

- a looped call is detected, or
- a call disconnects before it is answered.

Effects on the user

Some customers who do not have an in service desk set companion may notice a change in behavior. The following list summarizes noticeable changes due to ROOF procedures.

- The caller now hears delayed ringback. But under normal circumstances, the delay is too short to notice.
- The caller does not hear ringback forever and no tones or feedback are applied. On an ISDN or H.323 trunk, ringback is delayed until the CALL PROCEEDING message is received. On a SIP trunk, ringback delays until 180 Ringing is received.
- When a call disconnects due to loop detection for an Extension to Cellular phone without a companion desk set, the call is treated as busy.
- When a call is prematurely disconnected, the call is treated as busy.
  - If the user's calls go to coverage when the phone is busy, the call goes immediately to coverage (without waiting for the do not answer interval).
  - If the user's calls to do not go to coverage when the phone is busy, the caller hears a busy tone or reorder tone instead of ringback. The type of tone depends on the disconnect cause such as congestion on the trunk if all of the trunk channels are being used.
- The caller might hear a short period of ringback prior to a busy tone if the user's call does not go to coverage.

Parallel Answering Groups

ROOF procedures apply to parallel answering groups only if a member of a group does not have a physical local station. Softphones act as regular in service stations. ROOF procedures attempt to deliver a call to each sequential member of a hunt group or station hunting chain if a member:

- experiences a ROOF timer expiry,

  or

- receives a final response over a SIP trunk,

  or

- receives a RELEASE, RELEASE COMPLETE, or DISCONNECT message.

Each individual member of a parallel answering group is subject to ROOF procedures. However, ROOF procedures do not affect the group as a whole unless there are no longer any alerting members. Note that the group receives coverage treatment, not individual members.

Chapter 4: Installation and administration test

Introduction

Once Extension to Cellular has been administered, use the installation test procedures in this chapter to ensure that the Extension to Cellular solution performs as expected. These tests are for Extension to Cellular cell phone use only.

The Extension to Cellular installation test and customer acceptance procedures follow the same guidelines used for testing a new station added to the switch. However, a review of the basic test procedures is provided in this chapter.

Test procedures

When performing these tests, it may be necessary to place several calls to the Extension to Cellular cell phone.

1. Using any other touch-tone phone, dial the user's office phone number.

   Ensure simultaneous ringing of the user's office number and the Extension to Cellular cell phone.

2. Once the cell phone begins to ring, check the following:

   a. Check the cell phone's display panel to ensure 10 digit ANI is passed.

   b. Do not answer the call, but do verify that the call covers to the user's primary voice mail account (usually the corporate office voice mail box).

      - If the call doesn't cover properly, the Avaya installation team, or technician, needs to review the coverage path number of rings and setup for corporate voice mail coverage.
      - It also may be necessary to experiment with the number of rings set at the cellular service provider and in the office number coverage path to get the desired voice mail coverage. See Chapter 3: Administration, for information about sending office caller ID, voice mail administration, and call forwarding.

3. Test whether the cell phone's second call appearance is in service.

   a. Using a touch-tone phone, dial the user's office phone number.

   b. Begin your "test" conversation by answering the call ringing on the cell phone.

c. With the test conversation in place and active, place another call to the user's primary extension.

   The call should ring at the second call appearance on the private extension, as well as at the cell phone. Also, the cell phone's display screen should show the second incoming call.

d. Using the cellular service provider's call waiting feature, answer the second call.

If any of the test procedures fail, the installation team needs to verify that all administration entries were input correctly. If they are administered correctly, see Chapter 6: Troubleshooting, for further problem resolution procedures.

Chapter 5: Maintenance

Introduction

This chapter provides procedures for using a variety of maintenance tools to manage and support your Extension to Cellular implementation. Information is also provided on display error/alarms and system restarts.

Key maintenance tools are:

- Display capacities – the ability to display the number of used and unused stations, as well as the number of stations assigned to any particular type.
- List commands – the ability to list Extension to Cellular stations by complete or partial cell phone number(s).
- Status commands – fields that shows Extension to Cellular enabled or disabled status.

No maintenance testing is performed when Extension to Cellular stations are active on a call.

About maintenance commands

Unless explicitly stated otherwise, command sequences described in this chapter refer to commands entered through a System Administration Terminal (SAT). Referenced screens are system administration screens. The screens shown reflect the terminal emulation interface, rather than the GEDI interface.

System Capacity screen

You perform the administration to display system capacities for stations on page 8 of the **System Capacity** screen. You can view the following Extension to Cellular-related information:

- The number of administered stations (**Used**)
- The number of unadministered stations (**Available**)
- The number of stations assigned to Extension to Cellular types (**Off-PBX Telephones**)
- The number of stations

The number of Extension to Cellular types equals the number of stations used.

To display station usage information:

1. Type **`display capacity ['print' or 'schedule']`** and press **Enter**.

   The **System Capacity** screen, page 1, appears.

2. Press **Next Page** until you reach page 8 of the **System Capacity** screen.

   The **System Capacity** screen, page 8, displays the station usage (Figure 24).

Figure 24: System Capacity screen, page 9

```
display capacity                                              Page   9 of  12
                                SYSTEM CAPACITY

                 TOTAL SUBSCRIBED PORTS
                                                                        System
                                                       Used Available  Limit
                                                      -----------------------
                             Station and Trunk Ports:    212     2588     2800
                                   Radio Controllers:      0        0        0
                                  Wireless Terminals:      0        0        0
                                    XMOBILE Stations:      4      196      200
                                               EC500:      4

                         Off-PBX Telephone - EC500:       20       40       60
                         Off-PBX Telephone -   OPS:       20       40       60
                         Off-PBX Telephone - SCCAN:        0        0        0
                  Off-PBX Telephone Memory (units):        6%      94%   16200
```

Note:

For legacy systems, the **Off-PBX Telephone - SCCAN** field does not appear.

Status screens

General Status screen

Use the **`status station`** ***n*** maintenance command to view the service state of the station. The Extension to Cellular state is shown on the **General Status** screen.

To check on the service state of a particular station:

1. Type **status station *n*** (where ***n*** is the extension number you want to check) and press **Enter**. For this example, we use the extension **22004**.

   The **General Status** screen appears (Figure 25).

Figure 25: General Status screen

```
status station 22004                                          Page   1 of   4
                              GENERAL STATUS
     Administered Type: 4630               Service State: in-service/on-hook
        Connected Type: 4630             Download Status: complete
             Extension: 22004              SAC Activated? no
                  Port: S01985          User Cntrl Restr: none
           Call Parked? no              Group Cntrl Restr: none
      Ring Cut Off Act? no            CF Destination Ext:
Active Coverage Option: 1

          EC500 Status: enabled    Off-PBX Service State: in-service/idle
       Message Waiting:
   Connected Ports:




                                            HOSPITALITY STATUS
                                         Awaken at:
                                          User DND: not activated
                                         Group DND: not activated
                                       Room Status: non-guest room
```

- When Extension to Cellular is disabled, two asterisks (**) are displayed in the **CF Destination Ext** field, and the **EC500 Status** field displays the value **disabled**.

Note:

The ** are shown only for mapped extensions. If using the Extension to Cellular with the UCC Scheduler to disable the Extension to Cellular station, then the primary extension number appears.

- When Extension to Cellular is enabled, the **CF Destination Ext** field is blank, and the **EC500 status** field displays the value **enabled**.
- When a new Extension to Cellular station is added, the station comes up in the disabled state.

2. Press **Enter** when finished.

Off-PBX Telephone Status for Station screen

Use the **status off-pbx-telephone station *n*** maintenance command to view the service state of the off-PBX station. The **General Status** screen (Figure 25) shows only those ports that are connected to the physical station. The connected ports of Extension to Cellular stations are shown on the **Off-PBX Telephone Status for Station** screen.

To check on the service state of a particular Extension to Cellular station:

1. Type **status off-pbx-telephone station *n*** (where ***n*** is the extension number you want to check). For this example, we use the extension **43005.**
2. Press **Enter.**

   The **Off-PBX Telephone Status for Station** screen appears (Figure 26).

Figure 26: Off-PBX Telephone Status for Station screen

```
status off-pbx-telephone station 43005                          Page 1 of 2
                    OFF-PBX TELEPHONE STATUS FOR STATION 43005

Trunk/Member   Port           Connected Ports
Group

0001/001       01C1601        05C0509
```

Note:

If there is no active outside call, the message: **No trunks associated with this off-pbx telephone station** appears.

3. Press **Enter** when finished.

List screens

Extension to Cellular allows for administering multiple stations to the same phone number. These mappings are administered on the **Stations with Off-PBX Telephone Integration** screens (see Mapping a host phone with an Extension to Cellular phone on page 40).

Extension Type screen

The **Extension Type** screen displays a list of stations associated with the feature name extensions (see Setting up Feature Name Extensions (FNE) on page 47).

To display a list of extension types:

1. Type **list extension-type *n***, where ***n*** can be entered with one of the following options:
   - ***<extension number>*** – up to 15 digits for one cell phone number. This provides a list of all stations associated with this particular cell phone number. Do not include the dial prefix.
   - ***<partial string*>*** – Type a partial string of a cell phone number followed by an asterisk (as a wildcard). This provides a list of all cell phone numbers that begin with the partial string, along with their associated stations. This function is useful when searching for all numbers in a particular area code.
   - **<all>** – This provides a list of all Extension to Cellular administered cell phone numbers, along with their associated stations.
2. Press **Enter**.

   The **Extension Type** screen appears (Figure 27).

Figure 27: Extension Type screen

```
list extension-type 90000 Count 1

                                EXTENSION TYPE
                                                                  COR/      Cv1
Ext.     Type                        Name                         COS  TN   Cv2
---      ----                        ----                         ---  --   ---
90001    feature-name-extension      Exclusion (Toggle On/Off)          1
```

3. Press **Enter** when finished.

List Usage Report screen

The **List Usage Report** screen lists stations that are administered with an off-PBX telephone application.

To display a list of stations that are administered with an off-PBX telephone application:

1. Type **`list usage extension`** ***n*** (where ***n*** is the extension number you want to check). For this example, we use the extension **43001**.
2. Press **Enter.**
3. The **List Usage Report** screen appears (Figure 28).

Figure 28: List Usage Report screen

```
list usage extension 43001

                                LIST USAGE REPORT

    Used By
    Off-pbx-tel Station  Station Extension    43001
```

4. Press **Enter** when finished.

Display errors/alarms

LEDs are not used to indicate the service state of stations because no circuit pack is associated with an station. No visual change is observed on the mapped cell phone when the station for that set is busied out.

The **`display errors`** **and** **`display alarms`** maintenance commands show the errors and alarms logged against busied out stations.

Chapter 6: Troubleshooting

Introduction

This chapter describes problems that may occur during operation of the Extension to Cellular solution and possible ways of resolving these problems.

Most problems reported by users of Extension to Cellular are likely not to be problems with Extension to Cellular itself. In most cases, they are caused by unexpected interaction between the cellular service provider and Extension to Cellular features.

Below is a recommended troubleshooting procedure to follow when users cannot receive Extension to Cellular calls on their cell phones. In addition, Table 3: Error conditions in the operation of Extension to Cellular on page 88 identifies other possible problems that might be encountered during operation of Extension to Cellular. See Chapter 4: Installation and administration test, for test procedures to verify the connection to the cell phone.

Users cannot receive Extension to Cellular calls on their cell phones

If an Extension to Cellular user is not able to receive calls on the cell phones, follow these procedures in the suggested order to isolate and fix the problem. After each step, you may want to verify that the problem has been fixed by making an Extension to Cellular call to the mapped cell phone.

1. Verify that you can call the cell phone from the switch. This also verifies that the user's service contract with the cellular service provider (CSP) is active, and that the user gets good coverage in that area.

   Check this by making a direct call to the cell phone's published number. When making this test call, wait until the call rings the cell phone (which verifies that there is coverage), or until the call goes to the CSP's voice mail (which verifies that the service is provided but there may not be good coverage).

2. Use the **`status station`** command for the principal number that the Extension to Cellular phone is mapped to, and verify that SAC or Call Forwarding has not been activated on the principal extension.

3. For the Extension to Cellular extension, use the **`status station <extension>`** command to check the following:

   - The service state is "in service/idle." If not, use the **`release <extension>`** command to put it back in the active state.

- The Extension to Cellular state is enabled on the **Status Station** screen. If Extension to Cellular is disabled, ask the user to enable Extension to Cellular for the principal office number.

4. On the **Stations with Off-PBX Telephone Integration** screen, verify that the entries in the **Mobility Trunk Group**, **Dial Prefix**, **Calls Allowed**, and **Cell Phone Number** fields are correct as specified in Chapter 3: Administration.
5. Check the **ARS Analysis** table and make sure that there is an entry to route the cell phone number over an ISDN trunk on the switch.
6. If the Mobility Trunk Group is **ars** or **aar**, then verify that no feature access code (for example, 9) is included in the cell phone number field.
7. A **`list ars route-chosen 1234567890`** maintenance command can be used to see what routing is used to route the call (where 1234567890 is a 10-digit cell phone number).
8. Check ARS digit conversion to assure no unwanted characters are added to the dial string.

If the problem cannot be corrected by following the above procedure, escalate the issue to an Avaya technician. In addition to the checks listed above, verify with the technician that the Extension to Cellular station is not restricted from receiving incoming calls.

Error conditions table

Table 3: Error conditions in the operation of Extension to Cellular

Situation	Possible Cause(s)	Suggested Action or Resolution
Users cannot receive Extension to Cellular calls on their cell phones.	See Users cannot receive Extension to Cellular calls on their cell phones on page 87 for detailed information on possible sources of the problem.	See Users cannot receive Extension to Cellular calls on their cell phones on page 87 for detailed instructions on troubleshooting this problem.
No CDR for Extension to Cellular calls	The Configuration Set for the user's Extension to Cellular station has the **CDR for Calls to EC500 Destination** field set to **n**. The Extension to Cellular station is still using loopback trunks. The CDR Reports option on the trunk being used is **n**.	Check administration of **Configuration Set** screen, the **Stations with Off-PBX Telephone Integration** screen, or the **Trunk Group** screen, and change if necessary.

Table 3: Error conditions in the operation of Extension to Cellular *continued*

Situation	Possible Cause(s)	Suggested Action or Resolution
No CDR for Extension to Cellular calls (continued).	Neither the principal station or other station extension is administered in the intra-switch-cdr form.	Add one or both extensions in the intra-switch-cdr form.
Call drops when user answers a cell phone.	Cellular Voice Mail Avoidance timeout is too long.	Shorten timeout. Train user to wait before answering cell phone. Remove user from Cellular Voice Mail Avoidance.
FNEs not working.	Misadministration.	Check that the phone number on off-pbx station-mapping form is 10-digits.
Cellular Voice Mail Avoidance works poorly, many call are going to cellular voice mail.	Cellular Avoidance message option is not appropriate for cellular service provider.	Change user's option to timeout.
	If using message option, cellular voice mail may be ISDN.	Change user's option to timeout.
	If using timeout option, timeout may be set too short.	Lengthen timeout.

Table 3: Error conditions in the operation of Extension to Cellular *continued*

Situation	Possible Cause(s)	Suggested Action or Resolution
The user reports that voice mail messages are not going to the mailbox of choice.	Incoming calls to an office number are usually routed to the resident AUDIX voice mail after a pre-determined number of rings. For cell phone calls, the same functionality exists from the Service Provider. At this time there is no way to coordinate the two different voice mail systems using Extension to Cellular.	It is possible to set up the number of rings before coverage answers so that one or the other voice mail systems always answers first. (The user may need to contact the cellular service provider to change the number of rings at the cell phone.) However, there are coverage options in both the Avaya server running Communication Manager (busy, active, send-all-calls) and the network (cell phone unavailable, network congested) that cause a call to immediately go to the respective voice mail. Users should realize that an unanswered call could result in a voice mail message in either mailbox.
The user reports that he or she is missing calls at the office number because the cell phone voice mail is picking up the call instead.	The user has turned off the cell phone or the phone is in an out-of-coverage state. When this is the case, Service Providers usually have the calls routed to voice mail automatically. There is no way to control this with Extension to Cellular.	It is recommended that Extension to Cellular be disabled prior to entering an out-of-coverage area or turning off the cell phone so that the user can pick up the call on the office number or the corporate voice messaging system is allowed to answer the calls.

Table 3: Error conditions in the operation of Extension to Cellular *continued*

Situation	Possible Cause(s)	Suggested Action or Resolution
The user reports that the cell phone is not receiving caller identification numbers for calls from the Avaya server running Communication Manager, while the office number that the cell phone is mapped to does.	The Avaya server running Communication Manager has not been administered properly for sending 10-digit caller identification numbers. Most cellular service providers require a 10-digit number.	Recheck the outbound trunk screen to make sure the **Send Calling** field is set to **y**.
	External trunks serving the cell phone are using a non-ISDN trunk.	Change the routing administration to route over an ISDN trunk.
The user reports that the person being calling is receiving the incorrect caller ID.	The **Configuration Set** screen has the **Calling Number Style** field set to **PBX**.	Change the **Calling Number Style** field on the **Configuration Set** screen to **network**.
	There is an incorrect entry on the ISDN public-unknown numbering screen.	Verify that the entries on the ISDN public-unknown numbering screen are correct.
The user reports that the cell phone is receiving a switch default caller identification number for calls from the Avaya server running Communication Manager.	The ISDN Service Provider (SP) is replacing the caller identification with a fixed caller ID.	Escalate the issue to your Telecom Manager who may contact your ISDN SP to request that this be fixed or find an alternate ISDN SP that allows the caller identification to pass.
	The switch is blocking the outgoing caller identification and is passing a default caller ID.	Change your switch administration to allow caller identification to go outside the switch.

Table 3: Error conditions in the operation of Extension to Cellular *continued*

Situation	Possible Cause(s)	Suggested Action or Resolution
The user hears a beep while on a call originating from the Avaya server running Communication Manager, but is not able to use the call waiting feature on the cell phone to switch to the other call.	Most likely the user is hearing the tone provided by the Avaya server running Communication Manager when call waiting is enabled at the switch.	You have two possibilities: 1) Communicate to the user that when a call waiting indication is heard, but the user can't switch the call, he or she needs to hang up on the first call in order to receive the second call, OR 2) Disable call waiting at the switch level and the regular call waiting capability provided by the cellular service provider then handles the call waiting feature.
The user can't access feature name extensions by dialing the corresponding FNE.	There is no corresponding number administered on the off-pbx-telephone feature-name-extension form or the mapping mode is not origination or both.	Administer an extension on the off-pbx-telephone feature-name-extension form and/or change the mapping mode to origination or both.
The Extension to Cellular cell phone call into the office switch fails to provide the office caller ID.	The **Cell Phone Number** field administered for the **Extension to Cellular** station does not have the required entry.	Type the full caller ID number in the **Cell Phone Number** field.
	The **Mapping Mode** field administered for the **Extension to Cellular** station does not contain **origination** or **both**.	Type **origination** or **both** in the **Mapping Mode** field.
	The external inbound call is not entering into the switch over an ISDN trunk.	Contact the ISDN Service Provider to ensure that inbound calls come into the switch through an ISDN trunk.

Table 3: Error conditions in the operation of Extension to Cellular *continued*

Situation	Possible Cause(s)	Suggested Action or Resolution
The Extension to Cellular cell phone call into the office switch fails to provide the office caller ID (continued).	The external inbound call does not come into the switch on which the Extension to Cellular cell phone's station is administered.	Create a station for the Extension to Cellular cell phone with the proper mapping on the switch that the call enters.
	The calling number is manipulated on the **Inbound Trunk** screen.	Administer the Extension to Cellular station's **Cell Phone Number** field to match the modified calling number.
	The cellular service provider does not send the calling number.	Call the cellular service provider to allow the caller ID to be sent.
	Someone else happened to be on a call at the same time on the user's desk phone and on the same line appearance as the originating Extension to Cellular cell phone call.	Move the mapped line appearance to a button unlikely to be used by another phone call.
The Avaya server running Communication Manager does not allow a default entry of extensions, that is, instead of entering the extension followed by the # key, just entering # alone.	The cell phone number is not properly mapped.	See The Extension to Cellular cell phone call into the office switch fails to provide the office caller ID. in this table.
An intercept tone is received when attempting to enable/ disable Extension to Cellular (that is, when you type the feature access code, #, station security code, and #).	The user has used the station security code of the Extension to Cellular extension and it is different from that of the principal.	The user must type the code of the principal extension.
	The station security code is blank for the principal.	The station security code for the principal must be administered.

Table 3: Error conditions in the operation of Extension to Cellular *continued*

Situation	Possible Cause(s)	Suggested Action or Resolution
When attempting to enable/disable Extension to Cellular, an intercept tone is received.	The **Status Extension** field administered on the **Stations with Off-PBX Telephone Integration** screen for the Extension to Cellular station is not **EC500**.	Change the **Status Extension** field on the **Stations with Off-PBX Telephone Integration** screen for the Extension to Cellular station to **EC500**.
	The **Status Extension** field administered on the **Stations with Off-PBX Telephone Integration** screen for the Extension to Cellular station is **EC500**, but the **Configuration Set** is not administered for **DTMF**.	Access the associated **Configuration Set** screen and ensure that the entry in the **Post Connect Dialing Option** field is **DTMF**.
The office caller ID is that of the origination mapped Extension to Cellular station and not of the host extension.	The Extension to Cellular station is not mapped to the host phone.	Map the Extension to Cellular station to the host extension.
The administered Extension to Cellular feature button on the office phone flashed for two seconds at the broken flutter rate.	The Extension to Cellular administration somehow got corrupted.	Disable, then re-enable, Extension to Cellular.
User cannot “engage” the Extension to Cellular timer through the administered feature button on the office phone.	The optional Extension to Cellular timer was not configured.	Configure the optional Extension to Cellular timer on the **Station** screen. See Figure 19: Station screen, page 3 on page 71, and the related steps identifying how to set the timer.

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Table 3: Error conditions in the operation of Extension to Cellular *continued*

Situation	Possible Cause(s)	Suggested Action or Resolution
The user receives the error **Contact System Administrator** when trying to enable/disable Extension to Cellular through the administered feature button on the office phone.	The **Station** screen was not correctly administered.	Verify that all required information, in the correct format, is included on the **Station** screen.
An Extension to Cellular station is mapped to a principal station, and the principal station subsequently adds a configured Extension to Cellular feature access button. • The **`status station`** command for the principal station shows that Extension to Cellular is disabled. • The **`status station`** command for the mapped Extension to Cellular station shows that Extension to Cellular is enabled.	A previously-administered and enabled Extension to Cellular station has been mapped to a principal station that does not have an Extension to Cellular feature access button configured.	• Configure an Extension to Cellular feature access button on the principal station. (The principal station must support configurable feature buttons.) See Administering Extension to Cellular feature access buttons on the office phone on page 70. • Once configured, press the Extension to Cellular feature access button to enable Extension to Cellular.This synchronizes the enable/disable state between the principal station and its mapped Extension to Cellular station.

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Appendix A: Upgrades from prior versions

Extension to Cellular is available only with Communication Manager Release 1.3 or later. All of the Extension to Cellular releases can be administered and operated concurrently on the same Avaya server running Communication Manager. You can continue to support users with Extension to Cellular releases 1 through 4.1, or you may choose to upgrade all users to the latest version as part of Avaya Communication Manager, Release 3.0.

No matter what previous version you are converting from, if you want to update to the latest version as part of Communication Manager Version 6.0:

1. Set the **XMOBILE Mapping Mode** to **none**. This is done on page 1 of the **Station** screen (use the **`change station`** ***n*** command, where ***n*** is the station you want to change).

   This assures that all previous mapping of XMOBILE stations – the way Extension to Cellular used to be administered – will not interfere with Extension to Cellular.

2. Set up the new office-phone-to-outside-phone mapping as described in this book.
3. Test the system.
4. If it works, remove the XMOBILE station records.

   This last step frees up stations that go toward the maximum number of stations allowed.

Upgrade from Extension to Cellular Version 5

The following administration tasks are new in Extension to Cellular Version 6.

- Set up the Self Administration Feature (SAFE) Access Code so users can enter and change their own cell phone number. See Setting up the Self Administration Feature (SAFE) Access Code on page 47.
- Administer the barge-in tone for added security. See Administering the barge-in tone on page 60.
- Map dialed extensions to the new feature name extensions (Automatic Call Back, Call Pickup Extended Group, and Whisper Page Activation). See Setting up Feature Name Extensions (FNE) on page 47.

Upgrade from Extension to Cellular Version 4

The process described below explains how to administer an Extension to Cellular feature button and include the optional Extension to Cellular timer.

1. Type **`change station`** ***n*** (where ***n*** is the extension of an Extension to Cellular-enabled station) and press **Enter**.

   The **Station** screen appears.

2. Press the **Next Page** button twice to display page 3 of the **Station** screen (Figure 29).

Figure 29: Station screen, page 3

```
change station 1034                                          Page   3 of   4
                                    STATION
 SITE DATA
       Room:                                          Headset? n
       Jack:                                          Speaker? n
      Cable:                                         Mounting: d
      Floor:                                       Cord Length: 0
   Building:                                         Set Color:

ABBREVIATED DIALING
     List1:                     List2:                     List3:

BUTTON ASSIGNMENTS
 1: call-appr                            5:
 2: call-appr                            6:
 3: call-appr                            7:
 4: EC500    Timer? y                    8:
```

3. Select an available feature button under **BUTTON ASSIGNMENTS** (**4** in the example above) and type **EC500**.

4. Press **Enter**.

   The **Timer** subfield displays and defaults to **n**. Leaving the default setting of **n** excludes the timer state.

5. Set the optional **Timer** subfield to **y** to include an Extension to Cellular timer state for the administered feature button.

   When the timer state is included, the Extension to Cellular user can activate a one-hour timer to temporarily disable Extension to Cellular.

6. Press **Enter**.

   The corresponding feature button on the office phone is now administered for Extension to Cellular, and configured with the optional Extension to Cellular timer.

Note:

The feature status button on the office phone indicates the current state of Extension to Cellular regardless of whether the feature was enabled remotely or directly from the office phone.

Upgrade from Extension to Cellular Version 3

The following process is to change the Extension to Cellular configuration to work without the loopback trunks. Let's eliminate the loopback connections for station 5462.

Eliminating the loopback trunks is optional and should be accompanied by changing the **Mobility Trunk Group** field on the **Station** screen to **ars**.

1. Eliminate the DS1 or IP loopback trunks associated with Extension to Cellular Version 2.0 or 3.0.

   This includes removing the loopback trunks and signaling groups through switch administration as well as physically from the switch.

   Loopback trunk configuration can coexist with the Extension to Cellular R4 if you choose to do so. If you decide to eliminate the loopback trunks, the removed equipment can be reused for other trunking solutions. You can change gradually over to a total loopback elimination. If you decide to have the loopback and non-loopback configurations coexist, you must remember there are capacity restrictions when using the DS1.

2. Type **change station 5462** and press **Enter**.

   The **Station** screen for extension 5462 displays (Figure 30).

Figure 30: Station screen, page 3

```
change station 5462                                          Page 1 of 4

                                    STATION
 Extension: 5462                  Lock Messages? n                  BCC: 0
      Type: XMOBILE                    Security: *                   TN: 1
                                  Coverage Path 1:                   COR: 1
      Name: John Doe              Coverage Path 2:                   COS: 1
                                  Hunt-to Station:

 STATION OPTIONS
              XMOBILE Type: EC500                    Message Lamp Ext: 5462
                            Display Module? n      Message Waiting Type: none
       Mobility Trunk Group: ars
          Configuration Set: 1                          Calls Allowed: all

   CELL PHONE NUMBER MAPPING
               Dial Prefix:
          Cell Phone Number: 732-123-4567
               Mapping Mode: termination
```

3. In the **Mobility Trunk Group** field, type **ars**.

   It should be changed to **ars** for loopback elimination.

4. Press **Enter to** save your changes.

   Things to watch out for:

   If the **Dial Prefix** field contains the ars feature access code, then remove it (for example, 9).

See the *Administrator Guide for Avaya Communication Manager* for more information.

Upgrade from Extension to Cellular Version 2

Implement changes as described for upgrade from Extension to Cellular Version 3.

Starting with Version 3, there is a field on the **Station** screen called **Mapping Mode**. See Station administration on page 40 for more information. There is a command, **`list xmobile mapping`**, that makes it easy to find out the XMOBILE extensions and primary extension associated with a cell phone number. See List screens on page 84 for more information. The **`status station`** command now explicitly shows the Extension to Cellular state: enabled or disabled.

To implement office caller ID for an existing Extension to Cellular user:

1. Identify the station bridged to the second call appearance of the user's primary extension.

   The **list bridged-extensions <*primary ext*>** command provides this information.

2. Change the **Station** screen (**change station <*xmobile ext*>**) and press **Enter**.
3. Change the **Mapping Mode** field to **both**.
4. Press **Enter** to save your changes.

Note:

If the **Cell Phone Number** field contains a dial prefix (such as 1 for long distance), re-administer the cell phone number and place the prefix (for instance, 1) in the **Dial Prefix** field. Also make sure that the full number, including area code, is in the **Cell Phone Number** field. This is necessary for office caller ID to function.

For information on installation and administration of Version 2 of Extension to Cellular, see *Avaya EC500 Extension to Cellular Installation and Administration Guide*, Issue 2, July, 2001.

Upgrade from Extension to Cellular Version 1

Starting with Version 2, cell phone numbers can be administered on the **Station** screen. There are three fields related to administration of the cell phone number:

- **Dial Prefix**
- **Cell Phone Number**
- **Mapping Mode**

See Station administration on page 40 for more information. Pre-existing stations may continue to use ARS digit conversion to convert the extension to a cell number or they may be changed to use the new fields on the **Station** screen.

To add the cell phone number to an station:

1. Change the **Station** screen (**change station <*xmobile ext*>**) and press **Enter**.
2. Type each dial prefix, if any (for example, 1 for long distance, but not 9 for external access) in the **Dial Prefix** field.
3. Type the full cell phone number (including area code) in the **Cell Phone Number** field.
4. Type **termination** in the **Mapping Mode** field (see above for when **both** may be entered).
5. Press **Enter** to save your changes.

Implement changes are described for upgrade from Extension to Cellular Version 2.

For information on installation and administration of Version 1 of Extension to Cellular, see *Avaya EC500 Extension to Cellular Installation/Administration Guide*, Issue 1, February 8, 2001.

Glossary

A

AAR See Automatic Alternate Routing.

ACS See Avaya Communications Server.

administration without hardware (AWOH) A station that is administered without a dedicated, physical set.

ARS See Automatic Route Selection.

ATM-CES Asynchronous Transfer Mode - Circuit Emulation Service. This is a trunk capability that supports the equivalent of 8 ISDN interfaces over a single facility. Each interface may have as many as 30 channels.

Automatic Alternate Routing A table-based routing feature used to select a trunk for private network routing. An administered FAC is used to activate the feature.

Automatic Route Selection A table-based routing feature used to select a trunk for public network routing. An administered FAC is used to activate the feature.

Avaya Communications Server (ACS) Avaya server running Communication Manager (formerly called MultiVantage™ software) includes the DEFINITY® ECS and the S8100 Media Server with Avaya G600 Media Gateway.

Avaya Extension to Cellular access number The telecommuting access number used to dial into the Avaya server running Communication Manager to allow enabling/disabling Extension to Cellular and changing the station security code. This number is set in the `Telecommuting Access Extension` field on the Telecommuting Access screen.

Avaya Extension to Cellular call Call to an extension on the Avaya server running Communication Manager (either the host extension or the Extension to Cellular station that maps to a cell phone or SIP phone) that results in alerting the associated phone.

Avaya Extension to Cellular The feature that allows integration of cell phones under the control of a public cell phone service provider, or SIP-enabled phones, with the Avaya server running Communication Manager.

AWOH See administration without hardware.

B

Basic Rate Interface (BRI) A digital message-based protocol intended primarily for the control of advanced phone sets although it is also used in some countries for trunking.

C

calling number style The way a caller’s identity is displayed to the called party by either a 10-digit number or a pbx extension.

Class of Restrictions (COR) A group of attributes that affect the calling capabilities of stations and trunks.

configuration set A set of call treatment options used to customize an XMOBILE station session when placing Extension to Cellular calls.

corporate voice mail The voice mail system provided by the user's employer. Typically this will be AUDIX. There is no current way to coordinate this voice mail with the service provider's voice mail.

D

DEFINITY An Avaya phone system, commonly referred to as a switch or PBX.

dial prefix Any number that might be required for dialing besides the cell phone number itself. For example, **1** for U.S. domestic long distance, or **011** for international cell phone numbers.

direct inward dialing (DID) A feature whereby extensions are associated with numbers in the national numbering plan so that they may be directly dialed from outside of the Avaya ECS.

disable Deactivate Avaya Extension to Cellular using the Extension to Cellular "disable" feature access code, or, if so administered, by using a feature button on the office phone.

dtmf Dual Tone Multiple Frequency. This is another name for touch-tones which are commonly used for transmitting digits (including * and #) over voice lines.

E

Extension to Cellular See Avaya Extension to Cellular.

enable Activate Avaya Extension to Cellular using the Extension to Cellular "enable" feature access code, or, if so administered, by using a feature button on the office phone.

F

fast-connect on origination Used to determine whether additional processing will occur prior to sending the CONNECT message. This option may be utilized in the future for capabilities provided by the cell phone provider.

feature access code (FAC) A pre-administered dial sequence that performs a feature operation.

feature name extension (FNE) An extension that fits your dial plan that you can dial from an outside Extension to Cellular phone in order to active a Communication Manager feature. The FNEs must be set up by the administrator, and communicated to the user so the user knows what extension activates what feature in Communication Manager.

I

in-service A station has been administered and is in normal operation mode.

Internet Protocol (IP) A suite of information exchanged message sets widely used for data transmission and increasingly used for transmission of voice.

ISDN trunk This is a trunk (group) that uses a screen of message-based signaling (Q.931) over a dedicated control channel. There are different types of ISDN trunks that are distinguished by the type of carrier medium used: PRI/BRI, IP, or ATM-CES.

M

MultiVantage™ Former product name of the DEFINITY® switching software application. Now called Avaya Communication Manager.

O

out-of-service The station is out of service due to a busy-out action issued by a system technician/system administrator. No calls can be placed or received while in this state.

P

Personal Handy-phone Service This is a widely-used standard for mobile telephony in Japan used in public and business offers. It is supported as an X-Mobility special application on the Avaya ECS.

PHS See Personal Handy-phone Service.

PRI See Primary Rate Interface.

Primary Rate Interface A digital message-based protocol intended primarily for the control of advanced digital trunks although it is also used for end points requiring high bandwidth.

principal extension In a bridging arrangement, the station whose extension is primary and identifies the entire bridge.

S

SAFE See self administration feature access code

SAT See system access terminal

SCCAN The Seamless Converged Communications Across Networks (SCCAN) solution offers voice and data access from a single SCCAN handset integrated with a deskset phone across the corporate Wireless Local Area Network (WLAN) and public Global System for Mobile communication (GSM) and cellular networks.

SDC See special digit conversion.

self administration feature access code This feature access code allows you to self-administer your cell phone to Extension to Cellular. You can add or change your Extension to Cellular cell phone number.

service provider A company that supplies cell phone service to a particular area. Extension to Cellular is Service Provider independent.

SIP Session Initiation Protocol. SIP is an IP protocol for setting up, maintaining, and tearing down phone calls carried over the internet.

Special Digit Conversion Special digit conversion (SDC) is used to ensure that a call to an Extension to Cellular cell phone is routed properly even if the caller dials fewer than 10-digits or does not use a dial prefix.

station security code The security code assigned to each station for enabling and disabling Extension to Cellular. The system administrator supplies this number.

system access terminal Sometimes “system administration terminal.” At one time this referred to a physical terminal from which system administration occurred. Now, it usually refers to the screens (accessed through a terminal emulator or Avaya Site Administration) through which system administration is accomplished.

T

telecommuting access number The access number used to dial into the Avaya server running Communication Manager to allow enabling/disabling Extension to Cellular and changing the station security code. This number is set in the `Telecommuting Access Extension` field on the Telecommuting Access screen.

text messaging A facility provided in many cell phones which allows the user to receive short text messages on the phone’s display. The receipt of the message is often accompanied by an audible alert; the user can then display, delete, or save the message. This facility is sometimes referred to as Short Message Services (SMS).

U

UCC Unified Communications Center

Unified Messenger® for MS Exchange A software application that consolidates voice, e-mail and fax messages into one mailbox. When combined with Extension to Cellular, provides a text message through the cell (or other remote) phone’s display screen to notify users of messages in their Corporate voice messaging system. Applies only to Extension to Cellular users with Unified Messenger’s “Notify Me” feature installed on their office phone system.

user Any person who uses a cell or other remote phone as an Extension to Cellular bridge to the Avaya server running Communication Manager.

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U

V

W

X