



# **Avaya Communication Manager Basic Administration Quick Reference**

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## **Contents**

# 1: Getting started

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

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## Overview of Avaya Communication Manager

Avaya Communication Manager organizes and routes voice, data, image, and video transmissions. Your system can be connected to communications paths that transmit voice and data signals between the telephone system and a central office, and to other public and private networks. [Figure 1: Sample system running Avaya Communication Manager](#) on page 8 shows typical system connections, software packages, and additional hardware.

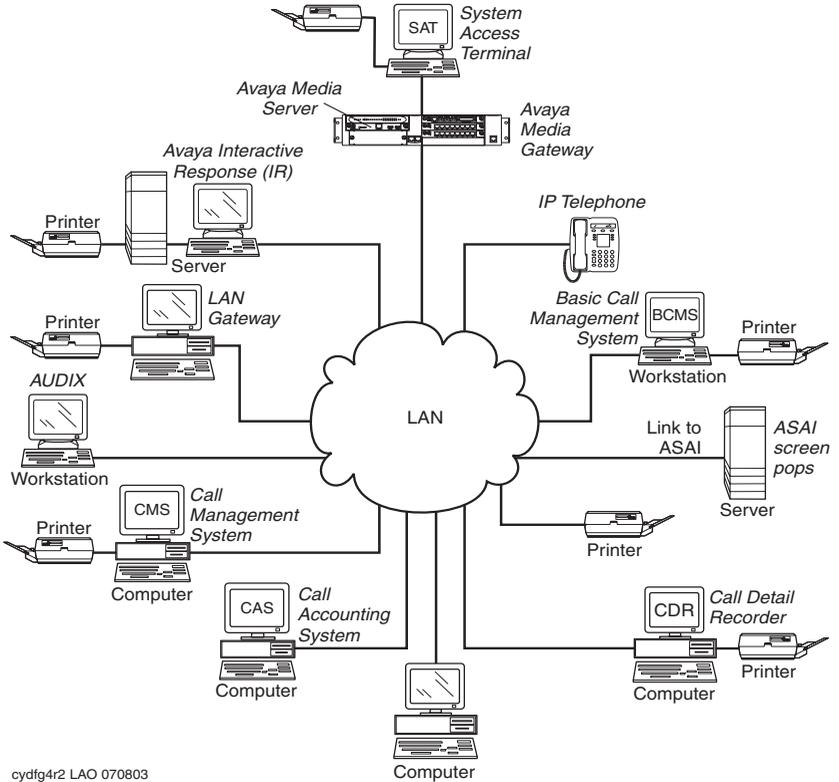
To find more detailed information and a comprehensive overview of Communication Manager, see the *Overview for Avaya Communication Manager*.

**Note:**

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

## Getting started

**Figure 1: Sample system running Avaya Communication Manager**



## System running Avaya Communication Manager

Your system running Communication Manager may include some or all of the following components:

- Avaya Interactive Response (IR)— provides response to spoken information

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

---

## Telephone types

Your system may have a combination of telephone types administered as user telephones. As you make changes to your system, you'll need to know whether each telephone is an analog, digital, hybrid, ISDN, IP, or SIP telephone.

For a list of telephone types and how they should be administered, see the "Station" section in the *Administrator Guide for Avaya Communication Manager*.

**Note:**

Avaya no longer supports some older telephone models.

## Accessing your system

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

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

## Logging into the system

**Note:**

If your system requires Access Security Gateway procedures, see the *Administrator Guide for Avaya Communication Manager*, for more information.

To log in:

1. At the prompt ([Figure 2: Terminal screen for login](#) on page 10), type your login ID. Press **Enter**.

The system prompts you for your password.

2. Type your password. Press **Enter**.

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

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

---

### Figure 2: Terminal screen for login

```
Login:
Password:

System: XXXXXX           Software Version: xxxxxxxxxxxxxx

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

---

3. Press **Enter** if you are using the default terminal. Otherwise, enter the terminal type. Press **Enter**.

Once you log in, the system displays the word **Command**. The system is now ready to accept a new command.

## Setting the system time and date

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

**Note:**

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

To set the system time and date:

1. Type `set time`. Press **Enter**.

The system displays the **Date and Time** screen ([Figure 3: Date and Time screen](#) on page 11).

**Figure 3: Date and Time screen**

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

2. Complete the appropriate fields.

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

## Getting started

3. Press **Enter** to save your changes.
4. Type `display time`. Press **Enter** to double check the new date and time.

### Note:

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

For more information about setting the date and time on your system, see the *Administrator Guide for Avaya Communication Manager*.

---

## Saving changes

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

### Temporary save

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

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

When you press **Enter**, the words “**command successfully completed**” appear, and the cursor returns to the command prompt.

### Permanent backup

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

**Note:**

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

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

To create a backup:

1. Be sure that the backup card or tape is in place.
2. Check the alarms panel and clear any active alarms.
3. Type `save translation`. Press **Enter**.

The system displays the **Save Translation** screen ([Figure 4: Save Translation screen](#) on page 13).

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

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

**Figure 4: Save Translation screen**

SAVE TRANSLATION		
Processor	Command Completion Status	Error Code
SPE_A	Success	0

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

For more information about performing backups of your system, see the *Administrator Guide for Avaya Communication Manager*.

## Getting started

### Saving announcements

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

For information about Voice Announcements over LAN (VAL) and VAL Manager, see the *Avaya Communication Manager Advanced Administration Quick Reference*.

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

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

1. Type **save announcements**. Press **Enter** to save the changes.

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

**Note:**

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

For more information about saving announcements, see the *Administrator Guide for Avaya Communication Manager*.

---

### Logging off the system

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

1. To log off the system, type **logoff**. Press **Enter**.

You may see a security screen that indicates that you have Remote Access, Facility Test, or Busied Out administered. You may want to disable these features before you log off. For more information about these features, see the *Avaya Communication Manager Basic Diagnostics Quick Reference*.

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

2. Type **y**. Press **Enter** to proceed with log off.

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

## **Getting started**

# 2: Planning the system

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

---

## Understanding the dial plan

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

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

**Note:**

The dial plan serves as the basis for almost everything in the system, so we wanted to be sure you have a clear understanding of how to read and update your dial plan. The screens shown here may not exactly match your system.

For a complete discussion of the dial plan, see the “Dial Plan” and “Uniform Dial Plan” feature descriptions in the *Feature Description and Implementation for Avaya Communication Manager*.

---

## Dial plans with Avaya Communication Manager

Communication Manager allows you to create your dial plan using up to thirteen digits.

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

---

### Displaying your dial plan

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

1. Type `display dialplan analysis`. Press **Enter**.

The system displays the **Dial Plan Analysis Table** screen ([Figure 5: Dial Plan Analysis Table screen](#) on page 18).

---

**Figure 5: Dial Plan Analysis Table screen**

```
display dialplan analysis                                     Page 1 of x
                                DIAL PLAN ANALYSIS TABLE
                                Percent Full: 4

Dialed   Total   Call   Dialed   Total   Call
String   Length  Type   String   Length  Type
303538   7         ext    908      5         ext
  23     7         ext
```

A set of three columns indicate how long the dialed string is for each type of call. For example, this dial plan shows that when users dial a 7-digit number that starts with 303538, they are dialing an extension.

The third **Call Type** column may have any of the following call types:

- Attendant (attd) — Defines how users call an attendant. Attd access numbers can be any number from 0 to 9 and only contain one or two digits. In our example figure, the system calls an attendant when users dial 0.

If you use the **Attendant Access Code** field on the **Feature Access Code (FAC)** screen, you cannot make an “attd” entry here. For more information, see [Multi-location dial plans](#) on page 25, and the *Administrator Guide for Avaya Communication Manager*.

- Automatic Alternate Routing (aar) — Used to route calls within your company over your own private network.

### Note:

Before you can use this call type in your dial plan, the **ARS/AAR Dialing without FAC** feature must be enabled. To check if this is enabled, use the `display system-parameters customer-options` command.

When dialing digits of Call Type **aar**, as soon as the dialed digits have reached the administered length, the digits are treated as if an AAR feature access code (FAC) was dialed. Control is transferred and the digits are routed according to the AAR Analysis and Digit Conversion screens.

In our example, extensions of **3xxx** cannot be dialed directly. Whenever a user dials the first digit of **3**, the system immediately interprets the dialed string as an AAR string and transfers control to AAR.

Extensions of **3xxx** can only be accessed using AAR Digit Conversion. That is, you must dial a longer AAR number from which AAR Digit Conversion deletes leading digits to screen a number of the screen **3xxx**.

- Automatic Route Selection (ars) — Used to route calls that go outside your company over public networks. ARS is also used to route calls to remote company locations if you do not have a private network.

## Planning the system

### Note:

Before you can use this call type in your dial plan, the **ARS/AAR Dialing Without FAC** feature must be enabled. To check if this is enabled, use the `display system-parameters customer-options` command.

When dialing digits of Call Type **ars**, as soon as the dialed digits have reached the administered length, the digits are treated as if an ARS feature access code (FAC) was dialed. Control is transferred and the digits are routed according to the ARS Analysis and Digit Conversion screens.

In our example, extensions of **4xxxx** cannot be dialed directly. Whenever a user dials the first digit of **4**, the system immediately interprets the dialed string as an ARS string and transfers control to ARS.

Extensions of **4xxxx** can only be accessed using ARS Digit Conversion. That is, you must dial a longer ARS number from which ARS Digit Conversion deletes leading digits to screen a number of the screen **4xxxx**.

For more information, see [Understanding ARS analysis](#) on page 74.

- Dial Access Codes (dac) — Allows you to use trunk access codes (tac) and feature access codes (fac) in the same range. For example, you could define the group 100–199 for dacs, which would allow both facs and tacs in that range. Dial access codes can start with any number from 1 to 9 and contain up to 4 digits. The first digit can also be \* and #. In our example figure, dial access codes begin with 1 and must be 3 digits long, so this company can have a feature access code set to 133 and a trunk access code assigned to 134.
- Extensions (ext) — Defines extension ranges that can be used on your system. In our example, extensions must be in the ranges: 3000–3999, 40000–49999, 5000000–5999999, 6000000–6999999, and 90000–99999.

## Dial plans with Avaya Communication Manager

- Feature Access Codes (fac) — facs can be any number from 1 to 9 and contain up to 4 digits. You can use \* or #, but only as a first digit. In our example, this company can use \*31 to activate a feature and use #31 to deactivate the same feature. Our example also shows that one fac can be set to 8 (first digit 8, only one digit long).
- Uniform Dial Plan (udp) — The udp call type works identically with the ext call type, with this exception:
  - If dialed digits match the call type of udp, Communication Manager automatically checks the **UDP Table** first to see if there is a match, regardless of the value in the **UDP Extension Search Order** field on the **Dial Plan Parameters** screen. If there is no match, Communication Manager then checks the local server.
  - If dialed digits match the call type of ext, Communication Manager checks the value in the **UDP Extension Search Order** field on the **Dial Plan Parameters** screen.
    - If the value in the **UDP Extension Search Order** field on the **Dial Plan Parameters** screen is **udp-table-first**, Communication Manager checks the **UDP Table** first to see if there is a match. If there is no match, Communication Manager then checks the local server.
    - If the value in the **UDP Extension Search Order** field on the **Dial Plan Parameters** screen is **local-extensions-first**, Communication Manager checks the local server first to see if there is a match. If there is no match, Communication Manager then checks the **UDP Table**.

The udp call type allows Communication Manager to recognize strings of 14 to 18 digits, which are longer than the maximum extension length of 13 digits. However, the udp call type can be used with any length in case this provides a useful new capability to customers.

## Planning the system

### Punctuation

Communication Manager allows customers to specify punctuation formats for 6-digit through 13-digit extensions. This table shows how many punctuation marks are allowed for 6 to 13 digit extensions:

**Note:**

Punctuation is not allowed on extensions of 5 digits or less.

Extension Length	Maximum Punctuation Marks	Maximum Total Length
6	2	8
7	1	8
8	3	11
9	3	12
10	3	13
11	2	13
12	1	13
13	0	13

The **Dial Plan Parameters** screen works with the **Dial Plan Analysis Table** to define your system's dial plan. The default values for 6-, 7-, 8-, 9-, 10-, 11-, 12-, and 13-digit fields are those shown in [Figure 6](#).

**Note:**

The 13-digit entry in the **Inter-Location/SAT** column is read-only.

**Figure 6: Dial Plan Parameters**

```

display dialplan parameters
                                     DIAL PLAN PARAMETERS
                                     Page 1

Local Node Number: 2
ETA Node Number:
ETA Routing Pattern:
UDP Extension Search Order: local-extensions-first

EXTENSION DISPLAY FORMATS

Inter-Location/SAT      Intra-Location
6-Digit Extension:      xx.xx.xx
7-Digit Extension:      xxx-xxxx
8-Digit Extension:      xx.xx.xx.xx
9-Digit Extension:      xxx-xxx-xxx
10-Digit Extension:     xxx-xxx-xxxx
11-Digit Extension:     xxx-xxx-xxxx
12-Digit Extension:     xxx-xxx-xxxx
13-Digit Extension:     xxx-xxx-xxxx

```

planning

## Modifying your dial plan

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

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

### Adding extension ranges to your dial plan

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

To add this set of extensions to the dial plan:

1. Type **change dialplan analysis**. Press **Enter**.  
The system displays the **Dial Plan Analysis Table** screen.
2. Move the cursor to the next available row.
3. Type **8** in the first column.
4. Type **6** in the second column.
5. Type **ext** in the third column.
6. Press **Enter** to save your changes.

---

### Adding feature access codes to your dial plan

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

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

To add a FAC range from 30–39:

1. Type **change dialplan analysis**. Press **Enter**.  
The system displays the **Dial Plan Analysis Table** screen.
2. Move the cursor to the next available row.

3. Type **3** in the first column.
4. Type **2** in the second column.
5. Type **fac** in the third column.
6. Press **Enter** to save your changes.

---

### Multi-location dial plans

When a customer migrates from a multiple independent node network to a single distributed server whose gateways are distributed across a data network, it may initially appear as if some dial plan functions are no longer available.

The Multi-location Dial Plan feature preserves dial plan uniqueness for extensions and attendants that were provided in a multiple independent node network, but appear to be unavailable when customers migrate to a single distributed server.

For example, in a department store with many locations, each location might have had its own system with a multiple independent node network. The same extension could be used to represent a unique department in all stores (extension 4567 might be the luggage department). If the customer migrates to a single distributed server, a user could no longer dial 4567 to get the luggage department in their store. The user would have to dial the complete extension to connect to the proper department.

Instead of having to dial a complete extension, the Multi-location Dial Plan feature allows a user to dial a shorted version of the extension. For example, a customer can continue to dial 4567 instead of having to dial 123-4567.

Communication Manager takes the location prefix and adds those digits to the front of the dialed number. The system then analyzes the entire dialed string and routes the call based on the administration on the **Dial Plan Parameters** screen.

## Planning the system

### Prerequisites

Before you can administer the Multi-location Dial Plan feature, the **Multiple Locations** field on the **Optional Features** screen must be set to **y**.

To check if the **Multiple Locations** field is set to **y**:

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

The system displays the **Optional Features** screen.

2. Click **Next** until you see the **Multiple Locations** field.
  - If the **Multiple Locations** field is set to **y**, your system is set up for the Multi-location Dial Plan feature.
  - If the **Multiple Locations** field is set to **n**, your system is not set up for the Multi-location Dial Plan feature. Contact your Avaya representative.

For a more detailed explanation of this feature, its function, and the necessary screens, see the *Administrator Guide for Avaya Communication Manager*.

---

## Changing feature access codes

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

Many features already have factory-set FACs. You can use these default codes, or you can change them to codes that make more sense to you. However, every FAC must conform to your dial plan and must be unique. For more information about the dial plan, see [Understanding the dial plan](#) on page 17.

If you want to change the feature access code for the Call Park feature to \*72:

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

The system displays the **Feature Access Code (FAC)** screen ([Figure 7: Feature Access Code \(FAC\) screen](#) on page 27).

**Figure 7: Feature Access Code (FAC) screen**

FEATURE ACCESS CODE (FAC)	
Abbreviated Dialing List1	Access Code: #01
Abbreviated Dialing List2	Access Code: #02
Abbreviated Dialing List3	Access Code: #03
Abbreviated Dial - Prgm Group List	Access Code: #04
Announcement	Access Code: #05
Answer Back	Access Code: 179
Auto Alternate Routing (AAR)	Access Code: 8
Auto Route Selection (ARS) - Access Code 1:	*9 Access Code 2: *33
Automatic Callback Activation:	#55 Deactivation: *55
Call Forwarding Activation Busy/DA:	#22 All: #44 Deactivation: *44
Call Park	Access Code: *72
Call Pickup	Access Code: #33
CAS Remote Hold/Answer Hold-Unhold	Access Code: #06
CDR Account Code	Access Code: #33
Change COR	Access Code: *01
Change Coverage	Access Code: #80
Data Origination	Access Code: #09
Data Privacy	Access Code: #10
Directed Call Pickup	Access Code: #11

## Planning the system

2. Move the cursor to the **Call Park Access Code** field.
3. Type **\*72** in the **Call Park Access Code** field over the old code.
4. Press **Enter** to save your changes.

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

**Note:**

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

# 3: Managing telephones

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

**Note:**

This section does not tell you how to administer attendant consoles or IP Softphones. If you need to add or modify an attendant console or an IP Softphone, see the *Administrator Guide for Avaya Communication Manager*.

---

## Adding new telephones

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

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

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

### Gathering necessary information

Gather the following information:

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

You need this information to determine the type of port you need, because the port type and telephone type must match. If you do not know what type of telephone you have, see the “Station” section in the *Administrator Guide for Avaya Communication Manager*, for a list of telephone types and how they should be administered.

**Note:**

Avaya no longer supports some older telephone models.

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

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

3. Display the available boards (circuit packs) and ports — or media modules and ports.

To view a list of available ports on your system, type `list configuration stations`. Press **Enter**.

The system displays the **System Configuration** screen ([Figure 8: System Configuration screen](#) on page 31).

**Note:**

Because information is slightly different for different system configurations, portions of this chapter are divided into two groups: **MCC1, SCC1, CMC1, G600, or G650 Media Gateways**, and **G350 or G700 Media Gateways**.

**Figure 8: System Configuration screen**

SYSTEM CONFIGURATION							
Board Number	Board Type	Code	Vintage	Assigned Ports			
				u=unassigned	t=tti	p=psa	
01A05	DIGITAL LINE	TN754B	000002	01 u	03 u	05 u	07 08
01A06	ANALOG LINE	TN742	000010	01 02	03 04	u u	u u
01B05	ANALOG LINE	TN746B	000008	u u	u u	u u	u u
01C04	ANALOG LINE	TN746B	000008	u u	u u	u u	u u
01C05	DIGITAL LINE	TN2224	000004	01 u	u 04	u u	07 08
01C06	HYBRID LINE	TN762B	000004	01 02	P P	P P	P P
01C09	MET LINE	TN735	000005	01 u	u u	u u	u u
01C10	DIGITAL LINE	TN754	000004	u u	u u	u u	u u
001V2	DCP MM	MM712AP	HW02 FW005	u u	u u	u u	u u
001V3	ANA MM	MM711AP	HW03 FW016	u u	u u	u u	u u

telephones

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

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

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

Every telephone must have a valid port assignment, also called a port address. The combined board number and port number is the port address.

**MCC1, SCC1, CMC1, G600, or G650 Media Gateways: -**

If you want to attach a telephone to the 3rd port on the 01C05 board, the port address is 01C0503 (01=cabinet, C=carrier, 05=slot, 03=port).

## Managing telephones

### G350 or G700 Media Gateways: -

If you want to attach a telephone to the 3rd port on the MM711 media module, the port address is 001V303 (001=number of the G700 Media Gateway, V3=slot, 03=port).

#### **Note:**

If you add several telephones at one time, you may want to print a paper copy of the **System Configuration** screen.

- To print the screen to a printer attached to the system terminal, type `list configuration stations print`. Press **Enter**.
- To print to the system printer that you use for scheduled reports, type `list configuration stations schedule immediate`. Press **Enter**.

5. Choose an extension number for the new telephone. Be sure to note your port and extension selections on your system's paper records.

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

---

## Physically connecting the telephone

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

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

If you are responsible for making the connections yourself and if you have any questions about connecting the port to the cross-connect

field, see your system installation guide. Now you are ready to configure the system so that it recognizes the new telephone.

## Completing the Station screens

The information that you enter on the **Station** screen advises the system that the telephone exists and indicates which features you want to enable on the telephone.

To access the **Station** screen for the new telephone:

1. Type `add station n`, where `n` is the extension for the new telephone. Press **Enter**.

The system displays the **Station** screen ([Figure 9: Station screen](#) on page 33). The extension number and some default field values appear on the screen. For example, the following screen is for a new telephone at extension 2345.

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

**Figure 9: Station screen**

```

                                STATION
Extension: 2345                    Lock Messages? _      BCC: ___
Type: 8411D                       Security Code: _____ TN: 1
Port: _____                  Coverage Path 1: _____ COR: 1
Name: _____                  Coverage Path 2: _____ COS: 1
                                Hunt-to Station: _____

STATION OPTIONS
Loss Group: _____            Personalized Ringing Pattern: 1
Data Module? _____          Message Lamp Ext: 2345
Speakerphone: 2-way              Mute Button Enabled? Y
Display Language: english

                                Media Complex Ext: _____
                                IP Softphone? n
    
```

## Managing telephones

2. Type the model number of the telephone into the **Type** field.

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

3. Type the port address in the **Port** field.

4. Type a name to associate with this telephone in the **Name** field.

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

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

To make changes to this new telephone, such as assigning coverage paths or feature buttons, type **change station n**, where **n** is the extension of the new telephone. Press **Enter**.

---

## Using station templates to add telephones

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

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

To duplicate an existing telephone using a template:

1. Type **display station n**, where **n** is the extension of the **Station** screen that you want to duplicate to use as a template. Press **Enter**. Verify that this extension is the one that you want to duplicate.
2. Press **Cancel** to return to the command prompt.

3. Type **duplicate station n**, where *n* is the extension that you want to duplicate. Press **Enter**.

The system displays a blank duplicate **Station** screen ([Figure 10: Station screen \(duplicate\)](#) on page 35).

**Figure 10: Station screen (duplicate)**

STATION						
Ext.	Port	Name	Security Code	Security Room	Jack	Cable
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

4. Type in the extension, port address, and telephone name for each new telephone you want to add.

The rest of the fields are optional. You can complete them at any time.

5. Press **Enter** to save your changes to system memory.

To make changes to these telephones, such as assigning coverage paths or feature buttons, type **change station n**, where *n* is the extension of the telephone that you want to modify. Press **Enter**.

### Using an alias

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

For example, you may need to install a telephone model that is newer than your system. In this case, you can use an available model type that best matches the features of your telephone. You can see the manual for your telephone to determine which alias to use. If your manual does not have this information, contact the Communication Manager helpline for an appropriate alias.

For example, we will create two aliases: one to add a new 6220 telephone, and one to add modems to our system.

1. See your new telephone’s manual to find the correct alias.

In our example, we find that the 6220 should be administered on an older system as a 2500 telephone.

2. Type `change alias station`. Press **Enter**.

The system displays the **Alias Station** screen ([Figure 11: Alias Station screen](#) on page 37).

Figure 11: Alias Station screen

ALIAS STATION	
Alias Set Type	Supported Set Type
6220	2500
modem	2500
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

'#' indicates previously aliased set type is now native

telephones

3. Type **6220** in the **Alias Set Type** field.  
This is the name or model of the unsupported telephone.
4. Type **2500** in the **Supported Set Type** field.  
This is the name or model of the supported telephone.
5. Type **modem** in the second **Alias Set Type** field.  
You can call the alias set anything you like. Once you define the alias, you can use the alias set in the **Type** field on the **Station** screen.
6. Type **2500** in the second **Supported Set Type** field.  
Entering 2500 indicates to the system that these models are basic analog devices.
7. Press **Enter** to save your changes.

Now you can follow the instructions for adding a new telephone (or adding a fax or modem). Communication Manager now recognizes the new type (6220 or modem) that you entered in the **Type** field.

Be sure to see the manual for your telephone for instructions on how to set feature buttons and call appearance buttons.

## Managing telephones

### Note:

If you need to use an alias for a telephone, you may not be able to take advantage of all the features of the new telephone.

---

## Adding or changing feature buttons

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

### Note:

If you have 6400-series telephones, your users can administer some of their own feature buttons. For more information, see “Setting up Terminal Self Administration” in the *Administrator Guide for Avaya Communication Manager*.

To assign feature buttons:

1. Type **change station n**, where **n** is the extension for the telephone you want to modify. Press **Enter**.

The system displays the **Station** screen.

2. Click **Next** until you see the **Feature Button Assignment** fields.

Some telephones have several feature button groups. Make sure that you are changing the correct button. If you do not know which button on the telephone maps to which button-assignment field, see the manual for your telephone, or see the *Administrator Guide for Avaya Communication Manager*.

3. Move the cursor to the field that you want to change.

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

To determine feature button names, press **Help** or see the *Administrator Guide for Avaya Communication Manager*.

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

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

**Figure 12: Default softkey assignments for an 8411D telephone**

```
STATION
SOFTKEY BUTTON ASSIGNMENTS

1: lwc-store
2: lwc-cancel
3: auto-cback
4: timer
5: call-fwd   Ext: _____
6: call-park
7: date-time
8: priority
9: abr-prog
10: abr-spchar Char: ~p
11: abr-spchar Char: ~m
12: abr-spchar Char: ~w
```

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

If you use an alias, you must leave the default softkey button assignments. The system allows you to change the button assignments on the screen, and the features work on the alias telephone. However, the labels on the display do not change.

# Customizing your telephone

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

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

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

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

You may also find it handy to set up multiple telephones for testing applications and features before you provide them to users. You may want to have a telephone that mimics each type of user telephone in your organization. For example, if you have four basic telephone templates, one for executives, one for marketing, one for technicians,

and one for other employees, you may want to have examples of each of these telephones so you can test new features or options. Once you are satisfied that a change works on the test telephone, you can make the change for all the users in that group.

---

## Upgrading telephones

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

### Note:

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

For example, if a user at extension 4556 currently has a 7410+ telephone and you want to replace it with a new 6408D+ telephone:

1. Type **change station 4556**. Press **Enter**.

The system displays the **Station** screen for extension 4556.

2. In the **Type** field, overwrite 7410+ with **6408D+**.
3. Press **Enter** to save your changes.

Now you can access the functions and feature buttons that correspond to an 6408D+ telephone.

---

## Swapping telephones

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

### Swapping non-IP telephones

To swap one non-IP telephone (phone A) with another non-IP telephone (phone B), you change telephone A's port assignment to **x**, change telephone B's port assignment to A's old port, and, finally, change the **x** for telephone A to B's old port.

These swapping instructions work only if the two telephones are the same type (both digital or both analog, etc.).

**Note:**

You can use Terminal Translation Initialization (TTI) to merge an x-ported extension to a valid port. You can also use Automatic Customer Telephone Rearrangement (ACTR) to unplug certain telephones from one location to move them to a new location without additional system administration. For information about TTI and ACTR, see the *Administrator Guide for Avaya Communication Manager*.

---

### Swapping IP telephones

To swap an IP telephone, simply move the telephone and update the site data (see step #7 in the following instructions). For an IP telephone, you should also update the emergency 911 information. See [E911 ELIN for IP wired extensions](#) on page 71 for more information.

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

1. Type `change station 4567`. Press **Enter**.
2. Record the current port address (01C0505) and type **x** in the **Port** field.
3. Press **Enter** to save your changes.
4. Type `change station 4575`. Press **Enter**.

5. Record the current port address (01C0516).
6. Type **01C0505** in the **Port** field.  
This is the port that used to be assigned to extension 4567.
7. Update the **Room** and **Jack** fields.
8. Press **Enter** to save your changes.
9. Type `change station 4575` again. Press **Enter**.
10. Type **01C0516** in the **Port** field.  
This is the port that used to be assigned to extension 4575.
11. Update the **Room** and **Jack** fields.
12. Press **Enter** to save your changes.
13. Physically unplug the telephones and move them to their new locations.

When you swap telephones, the system keeps the old button assignments. If you are swapping to a telephone with softkeys, the telephone could have duplicate button assignments, because softkeys have default assignments. You may want to check your button assignments and modify them as necessary.

---

## Removing telephones

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

For example, to remove a telephone at extension 1234:

1. Type `status station 1234`. Press **Enter**.

The system displays the **General Status** screen.

## Managing telephones

2. Make sure that the telephone:
  - is plugged into the jack
  - is idle (not making or receiving calls)
  - has no messages waiting (message waiting lamp)
  - has no active buttons (such as Send All Calls or Call Forwarding)
3. Type `list groups-of-extension 1234`. Press **Enter**.

The system displays the **Extension Group Membership** screen. The **Extension Group Membership** screen shows whether the extension is a member of any groups on the system.
4. Press **Cancel** when you are finished reviewing the **Extension Group Membership** screen.
5. If the extension belongs to a group, access the group screen and delete the extension from that group.

For example, if extension 1234 belongs to pickup group 2, type `change pickup group 2` and delete the extension from the list.
6. Type `list usage extension 1234`. Press **Enter**.

The system displays the **Usage** screen. The **Usage** screen shows whether the extension is used in any vectors, has any bridged appearances, or used as a controller.
7. Press **Cancel** when you are finished reviewing the **Usage** screen.
8. If the extension appears on the **Usage** screen, access the appropriate feature screen and delete the extension.

For example, if extension 1234 belongs to hunt group 2, type `change hunt group 2` and delete the extension from the list.
9. Type `change station 1234`. Press **Enter**.
10. Delete any bridged appearances or personal abbreviated dialing entries. Press **Enter**.

11. Type `remove station 1234`. Press **Enter**.

The system displays the **Station** screen for this telephone so you can verify that you are removing the correct telephone.

**Note:**

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

12. If this is the correct telephone, press **Enter**.

The system responds with the message: **command successfully completed**.

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

13. Remove the extension from voice mail service if the extension has a voice mailbox.
14. Type `save translation`. Press **Enter** to save your changes.

**Note:**

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

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

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

## **Managing telephones**

# 4: Managing features

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

---

## Changing feature parameters

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

**Note:**

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

Generally, Avaya sets your system parameters when your system is installed. However, you can change these parameters as your organization's needs change.

As an example, say that your company uses the Call Park feature, where a call can be put on hold and picked up from any other telephone within the system. You need to change the time limit for parked calls from 10 to 5 minutes.

## Managing features

To change the time limit for parked calls:

1. Type **change system-parameters features**. Press **Enter**.

The system displays the **Feature-Related System Parameters** screen ([Figure 13: Feature-Related System Parameters screen](#)).

---

**Figure 13: Feature-Related System Parameters screen**

```
FEATURE-RELATED SYSTEM PARAMETERS

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

2. Type **5** in the **Call Park Timeout Interval (minutes)** field.
3. Press **Enter** to save your changes.

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

For details about changing other feature-related system parameters, see the *Administrator Guide for Avaya Communication Manager*.

---

## Setting up Abbreviated Dialing

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

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

**Note:**

Note that this section does not tell you how to administer IP Softphones or screenphones. If you need to set up an IP telephone, see the *Administrator Guide for Avaya Communication Manager*.

As an example, let us define a new group list:

1. Type `add abbreviated-dialing group next`. Press **Enter**.

The system displays the **Abbreviated Dialing List** screen ([Figure 14: Abbreviated Dialing List screen](#) on page 50). In our example, the next available group list is group 3.

**Figure 14: Abbreviated Dialing List screen**

ABBREVIATED DIALING LIST

Group List: 3

Size (multiple of 5): \_\_\_\_ Program Ext: \_\_\_\_\_ Privileged? \_

DIAL CODE

11: \_\_\_\_\_

12: \_\_\_\_\_

13: \_\_\_\_\_

14: \_\_\_\_\_

15: \_\_\_\_\_

2. Type a number, in multiples of 5, in the **Size** field. This number defines the number of entries on your dialing list.

For example, if you have 8 telephone numbers you want to store in the list, type **10** in the **Size** field.

3. If you want another user to be able to add numbers to this list, enter that extension in the **Program Ext** field.

For example, if you want the user at extension 4567 to be able to change group list 3, enter **4567** in this field.

4. Enter the telephone numbers you want to store, one for each dial code.

Each telephone number can be up to 24 digits long.

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

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

Once you define a group list, you need to define which telephones can use the list. For example, let us set up extension 4567 so it has access to the new group list.

To give extension 4567 access to the group 3 list:

1. Type **change station 4567**. Press **Enter**.

The system displays the **Station** screen for extension 4567.

2. Click **Next** until you see the **Abbreviated Dialing List** fields ([Figure 15: Station screen](#) on page 51).

**Figure 15: Station screen**

SITE DATA		STATION	
Room: _____		Headset? <u>n</u>	
Jack: _____		Speaker? <u>n</u>	
Cable: _____		Mounting? <u>d</u>	
Floor: _____		Cord Length: <u>0</u>	
Building: _____		Set Color: _____	
ABBREVIATED DIALING			
List1: <u>group</u> <u>3</u>	List2: _____	List3: _____	
HOT LINE DESTINATION			
Abbreviated Dialing List Number (From above 1, 2 or 3): _____		Dial Code: _____	
Line Appearance: _____			

3. Type **group** in any of the **List** fields. Press **Enter**.

The system displays a blank list number field.

4. Type **3** in the list number field.

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

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

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

# Creating pickup groups

A pickup group is a list of extensions where each member of the group can answer the telephone of another member from their own telephone.

For example, if you want everyone in the payroll department to be able to answer calls to any payroll extension, in case someone is away from their desk, create a pickup group that contains all of the payroll extensions. Members of a pickup group should be located in the same local area so that they can hear when the other extensions in the group ring.

**Note:**

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

To create a pickup group:

1. Type `add pickup-group next`. Press **Enter**.

The system displays the **Pickup Group** screen ([Figure 16: Pickup Group screen](#) on page 53). The system selects the next group number for the new pickup group.

**Figure 16: Pickup Group screen**

PICKUP GROUP

Group Number: \_\_

GROUP MEMBER ASSIGNMENTS

Ext	Name	Ext	Name
1: _____		14: _____	
2: _____		15: _____	
3: _____		16: _____	
4: _____		17: _____	
5: _____		18: _____	
6: _____		19: _____	
7: _____		20: _____	
8: _____		21: _____	
9: _____		22: _____	
10: _____		23: _____	
11: _____		24: _____	
12: _____		25: _____	
13: _____			

2. Enter the extension of each group member.  
Up to 50 extensions can belong to one group.
3. Press **Enter** to save your new group list.

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

Once you define a pickup group, you can assign call-pickup buttons for each telephone in the group or you can give each member the call-pickup FAC. Use the **Station** screen to assign call-pickup buttons.

To allow users to answer calls that are not in their pickup group, you may be able to use the Directed Call Pickup feature. To allow members of one pickup group to answer calls directed to another pickup group, you may be able to add an extended pickup group. For more information, see the *Administrator Guide for Avaya Communication Manager*.

# Setting up call forwarding

This section explains how to administer various types of automatic call forwarding. In general, call coverage refers to what happens to incoming calls. To provide call forwarding to your users, assign each extension a Class of Service (COS) that allows call forwarding. Then assign call-forwarding buttons to the user telephones, or give the users the FAC for call forwarding, so that the users can easily forward calls. You use the **Station** screen to assign the COS and any call-forwarding buttons.

Within each COS, you can determine whether the users in that COS have the following call forwarding features:

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

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

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

call the executive, the call can be made only if Call Forward Override is set to **y**.

To determine what extensions have call forwarding activated:

1. Type **list call-forwarding**. Press **Enter**.

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

**Note:**

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

---

## Creating coverage paths

This section explains how to administer various types of call coverage. You can administer paths to cover all incoming calls, or define paths for certain types of calls, such as calls to busy telephones. You can define where incoming calls go if they are not answered, and in what order the calls reroute to other locations.

For example, you can define coverage to ring the called telephone, then move to an attendant if the call is not answered, and finally access a voice mailbox if the attendant is not available.

With call coverage, the system redirects a call to alternate answering extensions when no one answers at the first extension. An extension can have up to 6 alternate answering points.

**Note:**

If you have a system running an older version of the software, you may have only 3 answering positions.

The system checks each extension in sequence until the call connects. This sequence of alternate extensions is called a coverage path.

## Managing features

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

To create a coverage path:

1. Type **add coverage path next**. Press **Enter**.

The system displays the **Coverage Path** screen ([Figure 17: Coverage Path screen](#) on page 56). The system assigns the next coverage path number in the sequence of coverage paths. Our example shows coverage path number 2.

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

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

**Figure 17: Coverage Path screen**

```

                                COVERAGE PATH
                                Coverage Path Number: 2          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 Appearance? __
Point1: _____   Point2: _____   Point3: _____
Point4: _____   Point5: _____   Point6: _____
```

3. Fill in the **Coverage Criteria** fields.

You can see that the default sets identical criteria for inside and outside calls. The system sets coverage to take place for a busy telephone, if there is no answer after a certain number of rings, or if the DND (Do Not Disturb), SAC (Send All Calls), or Go to Cover buttons are pressed or FACs are dialed.

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

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

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

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

1. Type `change station 2054`. Press **Enter**.

The system displays the **Station** screen for extension 2054.

2. Type **2** in the **Coverage Path 1** field.

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

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

### Note:

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

---

## Defining time-of-day coverage

The **Time Of Day Coverage Table** screen lets you redirect calls to coverage paths according to the time of day and day of the week when the call arrives.



### Important:

You must first define the coverage paths you want to use before you define the time of day coverage plan.

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

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

1. Type **add coverage time-of-day next**. Press **Enter**.

The system displays the **Time Of Day Coverage Table** screen, and selects the next undefined table number in the sequence of time-of-day table numbers. If this is the first time-of-day coverage plan in your system, the table number is 1. Record the table number so that you can assign it to extensions later.

---

**Figure 18: Time of Day Coverage Table screen**

TIME OF DAY COVERAGE TABLE										
	Act	CVG	Act	CVG	Act	CVG	Act	CVG	Act	CVG
	Time	PATH	Time	PATH	Time	PATH	Time	PATH	Time	PATH
Sun	00:00	3	__:	-	__:	-	__:	-	__:	-
Mon	00:00	3	08:00	1	17:30	2	20:00	3	__:	-
Tue	00:00	3	08:00	1	17:30	2	20:00	3	__:	-
Wed	00:00	3	08:00	1	17:30	2	20:00	3	__:	-
Thu	00:00	3	08:00	1	17:30	2	20:00	3	__:	-
Fri	00:00	3	08:00	1	17:30	2	20:00	3	__:	-
Sat	00:00	3	__:	-	__:	-	__:	-	__:	-

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

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

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

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

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

1. Type `change station 2054`. Press **Enter**.

The system displays the **Station** screen for extension 2054.

2. Move your cursor to **Coverage Path 1** and type the letter `t` plus the number of the **Time Of Day Coverage Table**.

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

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

---

## Creating coverage answer groups

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

To add a coverage answer group:

1. Type `add coverage answer-group next`. Press **Enter**.

The system displays the **Coverage Answer Group** screen ([Figure 19: Coverage Answer Group screen](#) on page 60).

---

**Figure 19: Coverage Answer Group screen**

COVERAGE ANSWER GROUP			
Group Number: _____			
Group Name: COVERAGE_GROUP_			
GROUP MEMBER ASSIGNMENTS			
Ext	Name (first 26 characters)	Ext	Name (first 26 characters)
1:	_____	5:	_____
2:	_____	6:	_____
3:	_____	7:	_____
4:	_____	8:	_____

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

The system automatically completes the **Name** field when you press **Enter**.

---

## Setting up advanced call coverage

Advanced incoming call coverage:

- redirects calls based on time-of-day.
- allows coverage of calls that are redirected to sites not on the local server running Communication Manager.
- allows users to change back and forth between two coverage choices (either specific lead coverage paths or time-of-day tables).

---

## Covering calls redirected to an off-site location

You can provide coverage for calls that have been redirected to an off-site location (for example, your home). This capability, called Coverage of Calls Redirected Off-Net (CCRON) allows you to redirect calls onto the public network and bring back unanswered calls for further coverage processing.

### Before you start

- On the **Optional Features** screen, verify that the **Coverage of Calls Redirected Off-Net Enabled** field is set to **y**. If the **Coverage of Calls Redirected Off-Net Enabled** field is not set to **y**, contact your Avaya representative.

To view the **Optional Features** screen, type `system-parameters customer-options`. Press **Enter**.

- You need call classifier ports for all situations except ISDN end-to-end signaling. In ISDN end-to-end signaling, the ISDN protocol does the call classification. For all other cases, use one of the following:
  - Tone Clock with Call Classifier - Tone Detector circuit pack. For more information on the circuit pack, see the *Hardware Guide for Avaya Communication Manager*.
  - Call Classifier - Detector circuit pack.

To provide coverage of calls redirected to an off-site location:

1. Type `change system-parameters coverage-forwarding`. Press **Enter**.

The system displays the **System Parameters - Call Coverage/ call Forwarding** screen.

2. Click **Next** until you see the **Coverage of Calls Redirected Off-Net Enabled** field ([Figure 20: System Parameters - Call Coverage/Call Forwarding screen](#) on page 62).

---

**Figure 20: System Parameters - Call Coverage/Call Forwarding screen**

```
change system-parameters coverage-forwarding                               page 2
                                     SYSTEM PARAMETERS -- CALL COVERAGE / CALL FORWARDING
COVERAGE OF CALLS REDIRECTED OFF-NET (CCRON)
                                     Coverage of Calls Redirected Off-Net Enabled? y
Activate Answer Detection (Preserve SBA) On Final CCRON Cvg Point? y
                                     Ignore Network Answer Supervision? n
                                     Disable call classifier for CCRON over ISDN trunks? n
```

3. In the **Coverage of Calls Redirected Off-Net Enabled** field, type **y**.

This instructs Communication Manager to monitor the progress of an off-net coverage or off-net forwarded call, and provide further coverage treatment for unanswered calls.

4. In the **Activate Answer Detection (Preserves SBA) On Final CCRON Cvg Point** field, leave the default as **y**.
5. In the **Ignore Network Answer Supervision** field, leave the default as **n**.
6. In the **Immediate Redirection On Receipt Of PROGRESS Inband Information** field, leave the default as **n**.
7. Press **Enter** to save your changes.

---

## Defining coverage for calls redirected to external numbers

You can administer the system to allow calls in coverage to redirect to off-net (external) or public-network numbers. Some systems allow you to send a call to an external telephone, but do not monitor the call once it leaves your system. With this remote call coverage, make the external number the last coverage point in a path.

## Setting up advanced call coverage

With newer systems you may have the option to use the Coverage of Calls Redirected Off-Net feature. If this feature is active and you use an external number in a coverage path, the system can monitor the call to determine whether the external number is busy or does not answer. If necessary, the system can redirect a call to coverage points that follow the external number.

With this feature, you can have a call follow a coverage path that starts at the user's extension, redirects to the user's home telephone, and if not answered at home, returns to redirect to their voice mail box.

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

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

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

1. Type `change coverage remote`. Press **Enter**.

The system displays the **Remote Call Coverage Table** screen ([Figure 21: Remote Call Coverage Table screen](#) on page 64).

**Figure 21: Remote Call Coverage Table screen**

REMOTE CALL COVERAGE TABLE		
01: 93035381000_____	16: _____	31: _____
02: _____	17: _____	32: _____
03: _____	18: _____	33: _____
04: _____	19: _____	34: _____
05: _____	20: _____	35: _____
06: _____	21: _____	36: _____
07: _____	22: _____	37: _____
08: _____	23: _____	38: _____
09: _____	24: _____	39: _____
10: _____	25: _____	40: _____
11: _____	26: _____	41: _____
12: _____	27: _____	42: _____
13: _____	28: _____	43: _____
14: _____	29: _____	44: _____
15: _____	30: _____	45: _____

2. Type **93035381000** in one of the remote code fields.

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

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

In this example, the remote code is r01.

4. Press **Enter** to save your changes.
5. Type **change coverage path 2**. Press **Enter**.

The system displays the **Coverage Path** screen ([Figure 22: Coverage Path screen](#) on page 65).

**Note:**

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

Figure 22: Coverage Path screen

```

                                COVERAGE PATH
                                Coverage Path Number: 2
                                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 Appearance? ____
Point1: 4104         Point2: r01         Point3: h77
Point4: ____          Point5: ____         Point6: ____
    
```

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

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

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

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

### Defining telecommuting coverage

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

To see if telecommuting coverage is enabled on your system, make sure the **Feature Access Code (FAC)** screen contains the correct codes.

1. Type `display feature-access codes`. Press **Enter**.

The system displays the **Feature Access Code (FAC)** screen. Make sure that the following fields have codes assigned:

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

Telecommuters use these codes to dial into the system.

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

Make sure that **Coverage Path 1** and **Coverage Path 2** fields are completed on each **Station** screen that is assigned to people using telecommuting access. The **Security Code** field on the **Station** screen must also be completed.

**Note:**

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

## Setting up bridged call appearances

To allow users remote access to the system:

1. Type `change telecommuting-access`. Press **Enter**.
2. Enter the extension that you want remote users to use to access the system.

All remote users dial this same extension.

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

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



### SECURITY ALERT:

Invalid extensions and telephone security codes are logged as security violations. For information about security violations, see the *Administrator Guide for Avaya Communication Manager*.

---

## Setting up bridged call appearances

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

Bridged call appearances have to be assigned to telephones with double-lamp buttons, or lights. The telephone types do not need to match, but as much consistency as possible is recommended for all telephones in a bridged group. When a call comes in on bridged telephones, the buttons assigned to the bridged appearances flash.

You can assign as many bridged appearances as there are line appearances on the primary telephone, and you can assign ringing (alerting) to one or more of the telephones.

## Managing features

To create a bridged call appearance:

1. Note the extension of the primary telephone.  
A call to this telephone lights the button and, if activated, rings at the bridged-to appearance on the secondary telephone.
2. If you want to use a new telephone for the bridged-to extension, duplicate the telephone (see [Using station templates to add telephones](#) on page 34).
3. Type **change station n**, where **n** is the bridged-to extension. Press **Enter**.

The system displays the **Station** screen ([Figure 23: Station screen](#) on page 68).

**Figure 23: Station screen**

```

                                     STATION
FEATURE OPTIONS
  LWC Reception? _____ Auto Select Any Idle Appearance? _
    LWC Activation? _ Coverage Msg Retrieval? _
  LWC Log External Calls? _ Auto Answer? _
    CDR Privacy? _ Data Restriction? _
  Redirect Notification? _ Idle Appearance Preference? _
Per Button Ring Control? _ Restrict Last Appearance? _
  Bridged Call Alerting? _
  Active Station Ringing: _____

  H.320 Conversion? y Per Station CPN - Send Calling Number? y
  Service Link Mode: as-needed
    Multimedia Mode: basic Audible Message Waiting? _
  MWI Served User Type: _____ Display Client Redirection? n
                                     Select Last Used Appearance? n
                                     Coverage After Forwarding? s
                                     Multimedia Early Answer? n
  IP Emergency Calls: _____ Direct IP-IP Audio Connections? _
  Emergency Location Ext: _____ IP Audio Hairpinning? _
```

4. For digital telephones only, click **Next** until you see the **Per Button Ring Control** field.

- If you want to assign ringing separately to each bridged appearance, type **y**.

## Setting up bridged call appearances

- If you want all bridged appearances to either ring or not ring, leave the default **n**.

5. In the **Bridge Call Alerting** field:

- If you want the bridged appearance to ring when a call arrives at the primary telephone, type **y**.
- If you do not want the bridged appearance to ring when a call arrives at the primary telephone, leave the default value **n**.

6. Complete the appropriate field for your telephone type.

If . . .	Then . . .
your primary telephone is analog	move to the <b>Line Appearance</b> field and type <b>abrdg-appr</b>
your primary telephone is digital	move to the <b>Button Assignments</b> field and type <b>brdg-appr</b>

7. Press **Enter**.

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

**Figure 24: Station screen (analog set)**

SITE DATA		STATION	
Room: _____		Headset? <u>n</u>	
Jack: _____		Speaker? <u>n</u>	
Cable: _____		Mounting? <u>d</u>	
Floor: _____		Cord Length: <u>0</u>	
Building: _____		Set Color: _____	
ABBREVIATED DIALING			
List1: _____	List2: _____	List3: _____	
HOT LINE DESTINATION			
Abbreviated Dialing List Number (From above 1, 2 or 3):			
		Dial Code:	
Line Appearance: <b>brdg-appr</b>	Btn:	Ext:	

## Managing features

**Figure 25: Station screen (digital set)**

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

8. Enter the primary telephone's button number that you want to assign as the bridged call appearance.  
This button flashes when a call arrives at the primary telephone.
9. Enter the primary telephone extension.
10. If the **Ring** field appears:
  - If you want the bridged appearance to ring when a call arrives at the primary telephone, type **y**.
  - If you do not want the bridged appearance to ring, leave the default **n**.
11. Press **Enter** to save your changes.

To see if an extension has any bridged call appearances assigned, type **list bridge n**, where **n** is the extension. Press **Enter**.

---

## E911 ELIN for IP wired extensions

This feature automates the process of assigning an emergency location information number (ELIN) through an IP subnetwork during a 911 emergency call. The ELIN is then sent over CAMA or ISDN PRI trunks to the emergency services network.

Users have the ability to move their IP telephones without notifying the administrator. If a user dials 911 after moving their IP telephone without administering this feature, the emergency response personnel might go to the wrong physical location.

This feature properly identifies locations of wired IP telephones that call an emergency number from anywhere on a campus or location. This feature is available with Communication Manager, Release 4.0.

This feature performs three essential functions:

- Emergency response personnel can now go to the correct physical location if an emergency call came from a moved IP wired telephone.
- Emergency response personnel can now go to the correct physical location if an emergency call came from a bridged call appearance.
- Emergency response personnel can return a call to the proper extension if a caller gets disconnected during the emergency call.

**Note:**

This feature depends upon the customer having subnetworks that correspond to geographical areas.

If you have Communication Manager, Release 4.0 or greater, this is an important feature to administer. For a detailed explanation of this feature, its function, and its screens, see the *Administrator Guide for Avaya Communication Manager*.

## **Managing features**

# 5: Routing outgoing calls

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

**Note:**

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

---

## World class routing

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

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

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

## Understanding ARS analysis

With ARS, the system routes outgoing calls based on the dialed digits and the calling privileges of the caller. Your system uses an ARS Digit Analysis Table to determine how to handle the dialed digits and uses Class of Restriction (COR) and Facility Restriction Level (FRL) to determine the calling privileges.

Let us look at a simple **ARS Digit Analysis Table** screen ([Figure 26: ARS Digit Analysis Table screen](#) on page 74). Your system may have more defined dialed strings than our example.

**Figure 26: ARS Digit Analysis Table screen**

ARS DIGIT ANALYSIS TABLE						
Dialed String	Location: all			Percent	Full: 6	
	Total Mn	Route Mx	Call Pattern	Node Type	ANI Rq	
1 _____	1	1	12	svcl	___	n
1 _____	11	11	30	fnpa	___	n
1 _____	12	23	17	intl	___	n
10xxx _____	5	5	deny	op	___	n
1800 _____	11	11	30	fnpa	___	n
2 _____	7	7	2	hnpa	___	n
3 _____	7	7	2	hnpa	___	n
4 _____	7	7	2	hnpa	___	n
5 _____	7	7	2	hnpa	___	n
6 _____	7	7	2	hnpa	___	n
7 _____	7	7	2	hnpa	___	n
8 _____	7	7	2	hnpa	___	n
911 _____	3	3	1	emer	___	n
976 _____	11	11	deny	fnpa	___	n

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

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

**Note:**

For a list of all valid entries for the various fields and what those entries mean, see the *Administrator Guide for Avaya Communication Manager*.

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

---

## Managing calling privileges

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

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

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

### Displaying ARS analysis information

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

1. Type `display ars analysis 1`. Press **Enter**.

The system displays the **ARS Digit Analysis Table** screen for dialed strings that begin with the number 1.

**Note:**

The system displays only as many dialed strings as can fit on one screen at a time.

To see all the dialed strings that are defined for your system, run an **ARS Digit Analysis Report**.

1. Type `list ars analysis`. Press **Enter**.

The system displays the **ARS Digit Analysis Report**. You may want to print this report to keep in your paper records.

---

### Modifying call routing

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

---

## Adding a new area code or prefix

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

**Note:**

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

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

Let us add a new area code. When the California area code 415 split and portions changed to 650, you'll need to add this new area code to your system.

**Note:**

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

To add this area code:

1. Type `list ars route-chosen 14152223333`. Press **Enter**.

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

The system displays the **ARS Route Chosen Report** screen ([Figure 27: ARS Route Chosen Report screen](#) on page 78).

## Routing outgoing calls

**Figure 27: ARS Route Chosen Report screen**

ARS ROUTE CHOSEN REPORT						
Location: 1		Partitioned Group Number: 1				
Dialed String	Total Min	Total Max	Route Pattern	Call Type	Node Number	Location
141	11	11	30	fnpa		all

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

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

3. Type `change ars analysis 1650` (type `1` and the new area code `650`). Press **Enter**.

The system displays the **ARS Digit Analysis Table** screen ([Figure 28: ARS Digit Analysis Table screen](#) on page 78).

**Figure 28: ARS Digit Analysis Table screen**

ARS DIGIT ANALYSIS TABLE						
Location: all		Percent Full: 6				
Dialed String	Total Mn	Total Mx	Route Pattern	Call Type	Node Num	ANI Rq
1	11	11	30	fnpa	___	n
167	11	11	30	fnpa	___	n
1650	11	11	2	fnpa	___	n
1800	11	11	30	fnpa	___	n
2	7	7	2	hnpa	___	n
3	7	7	2	hnpa	___	n
4	7	7	2	hnpa	___	n
5	7	7	2	hnpa	___	n
7	7	7	2	hnpa	___	n
8	7	7	2	hnpa	___	n
911	3	3	1	emer	___	n
976	11	11	deny	hnpa	___	n

4. Use the arrow keys to move to a blank **Dialed String** field.  
If the dialed string is already defined in your system, the cursor appears in the appropriate **Dialed String** field, where you can make changes.
5. Type **1650** in the **Dialed String** field.
6. Type the minimum and maximum values from step 2 in the **Total Mn** and **Total Mx** fields.  
In our example, type **11** in each field.
7. Type the route pattern from step 2 in the **Route Pattern** field.  
In our example, type **30**.
8. Type the call type from step 2 in the **Call Type** field.  
In our example, type **fnpa**.
9. Type the node number from step 2 in the **Node Num** field.  
For our example, you would leave the node number blank.
10. Press **Enter** to save your changes.

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

---

## Using ARS to restrict outgoing calls

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

## Routing outgoing calls



### SECURITY ALERT:

To prevent toll fraud, deny calls to countries where you do not do business. The following countries are examples.

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

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

1. Type **change ars analysis 01157**. Press **Enter**.

You enter **011** (international access) and the country code (**57**). The system displays the **ARS Digit Analysis Table** screen ([Figure 28: ARS Digit Analysis Table screen](#) on page 78).

2. Use the arrow keys to move to a blank **Dialed String** field on the right of the screen.

If the dialed string is already defined in your system, the cursor appears in the appropriate **Dialed String** field. Skip to [Step 5](#) to deny calls to this dialed string.

3. Type **01157** in the **Dialed String** field.
4. Type **10** in the **Total Mn** and **23** in **Total Mx** fields.
5. Type **deny** (denied) in the **Route Pattern** field.
6. Type **intl** in the **Call Type** field.
7. Press **Enter** to save your changes.

---

## Overriding call restrictions

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

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

**Note:**

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

**SECURITY ALERT:**

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

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

1. Type `change authorization-code 4395721`. Press **Enter**.

The system displays the **Authorization Code - COR Mapping** screen ([Figure 29: Authorization Code - COR Mapping screen](#) on page 82).

## Routing outgoing calls

**Figure 29: Authorization Code - COR Mapping screen**

Authorization Code - COR Mapping									
NOTE: 2 codes administered. Use 'list' to display all codes.									
AC	COR	AC	COR	AC	COR	AC	COR	AC	COR
9260839	3	_____	__	_____	__	_____	__	_____	__
2754609	4	_____	__	_____	__	_____	__	_____	__
_____	__	_____	__	_____	__	_____	__	_____	__
_____	__	_____	__	_____	__	_____	__	_____	__

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

## ARS Partitioning

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

ARS partitioning allows you to provide different call routing for a group of users or for specific telephones.

**Note:**

If you used partitioning on a prior release of Communication Manager and you want to continue to use partitioning, please read this section carefully. In this release of Communication Manager, partition groups are defined on the **Partition Route Table** screen. If you want to define routing based on partition groups, use the **Partition Route Table** screen. Partition groups are no longer defined on the **Digit Analysis Table** screen.

## Before you start

1. Type **System Parameters Customer Options**. Press **Enter**.

The system displays the **Optional Features** screen.

- Verify that the **Tenant Partitioning** field is set to **y**.
- Verify that the **Time of Day Routing** field is set to **n**.

If either of these two fields are not set as explained, contact your Avaya representative.

2. Press **Cancel** when you are finished.

---

## Setting up a partition group

As an example, say you allow your employees to make local, long distance, and emergency calls. However, you have a lobby telephone for visitors and you want to allow users to make only local, toll-free, and emergency calls from this telephone.

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

To enable 1 800 calls for partition group 2:

1. Type `list ars route-chosen 18002221000`. Press **Enter**.

You can use any 7-digit number following the `1800` to create an example of the dialed string.

The system displays the **ARS Route Chosen Report** screen for partition group 1 ([Figure 30: ARS Route Chosen Report screen](#) on page 84).

## Routing outgoing calls

**Figure 30: ARS Route Chosen Report screen**

ARS ROUTE CHOSEN REPORT							
Location : 1				Partitioned Group Number: 1			
Dialed String	Total Min	Total Max	Route Pattern	Call Type	Node Number	Location	
1800_____		11	11	p1__	fnpa	_____	all

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

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

**Note:**

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

3. Press **Cancel** to return to the command prompt.
4. Type `change partition-route-table index 1`. Press **Enter**.

The system displays the **Partition Routing Table** screen ([Figure 31: Partition Routing Table screen](#) on page 85).

In our example, partition group 1 can make 1800 calls and these calls use route pattern 30.

**Figure 31: Partition Routing Table screen**

Partition Routing Table								
Routing Patterns								
Route Index	PGN 1	PGN 2	PGN 3	PGN 4	PGN 5	PGN 6	PGN 7	PGN 8
1	__30	__30	deny	_____	_____	_____	_____	_____
2	_____	_____	_____	_____	_____	_____	_____	_____
3	_____	_____	_____	_____	_____	_____	_____	_____
4	_____	_____	_____	_____	_____	_____	_____	_____
5	_____	_____	_____	_____	_____	_____	_____	_____
6	_____	_____	_____	_____	_____	_____	_____	_____
7	_____	_____	_____	_____	_____	_____	_____	_____

5. In the **PGN 2** column that corresponds to **Route Index 1**, type **30**. Press **Enter**.

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

## Assigning a telephone to a partition group

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

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

1. Type **list cor**. Press **Enter**.

The system displays the **Class Of Restriction Information** screen ([Figure 32: Class of Restriction Information screen](#) on page 86).

## Routing outgoing calls

**Figure 32: Class of Restriction Information screen**

CLASS OF RESTRICTION INFORMATION	
COR	COR Description
0	
1	supervisor
2	telecommuting
3	

2. Choose a COR that has not been used. Press **Cancel**.

In our example, select **3**.

3. Type **change cor 3**. Press **Enter**.

The system displays the **Class Of Restriction** screen ([Figure 33: Class of Restriction screen](#) on page 86).

**Figure 33: Class of Restriction screen**

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

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

**Note:**

The Partition Group Number field appears only when **Time of Day Routing** is **n** on the **Optional Features** screen. Otherwise, you specify the partition group number (PGN) on the **Time Of Day Routing Plan** screen. For information on Time of Day Routing, see the *Administrator Guide for Avaya Communication Manager*.

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

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

1. Type **change station 1234**. Press **Enter**.  
The system displays the **Station** screen for extension 1234.
2. In the **COR** field, type **3**.
3. Press **Enter** to save your changes.

## **Routing outgoing calls**

# 6: Enhancing system security

This section briefly describes possible security problems you should be aware of and gives you instructions for detecting these problems.

**Note:**

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

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



**SECURITY ALERT:**

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

### Preventing toll fraud

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

#### Top 15 tips to help prevent toll fraud

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

1. Protect system administration access.

Make sure secure passwords exist for all logins that allow System Administration or Maintenance access to the system. Change the passwords frequently.

Set logoff notification and forced password aging when administering logins. You must assign passwords for these logins at setup time.

Establish well-controlled procedures for resetting passwords.

2. Prevent voice mail system transfer to dial tone.

Activate "secure transfer" features in voice mail systems.

Place appropriate restrictions on voice mail access/egress ports.

Limit the number of invalid attempts to access a voice mail to five or less.

3. Deny unauthorized users direct inward system access (screen).

If you are not using the Remote Access features, deactivate or disable them.

If you are using Remote Access, require the use of barrier codes and/or authorization codes set for maximum length. Change the codes frequently.

It is your responsibility to keep your own records regarding who is allowed to use which authorization code.

4. Place protection on systems that prompt callers to input digits.  
Prevent callers from dialing unintended digit combinations at prompts.  
Restrict auto attendants and call vectors from allowing access to dial tone.
5. Use system software to intelligently control call routing.  
Create Automatic Route Selection or World Class Routing patterns to control how each call is to be handled.  
Use “Time of Day” routing capabilities to limit facilities available on nights and weekends.  
Deny all end-points the ability to directly access outgoing trunks.
6. Block access to international calling capability.  
When international access is required, establish permission groups.  
Limit access to only the specific destinations required for business.
7. Protect access to information stored as voice.  
Password restrict access to voice mail mailboxes.  
Use non-trivial passwords and change passwords regularly.
8. Provide physical security for telecommunications assets.  
Restrict unauthorized access to equipment rooms and wire connection closets.  
Protect system documentation and reports data from being compromised.

## Enhancing system security

9. Monitor traffic and system activity for abnormal patterns.  
Activate features that “turn off” access in response to unauthorized access attempts.  
Use Traffic and Call Detail reports to monitor call activity levels.
10. Educate system users to recognize toll fraud activity and react appropriately.  
From safely using calling cards to securing voice mailbox password, train your users on how to protect themselves from inadvertent compromises to the system’s security.
11. Monitor access to the dial-up maintenance port. Change the access password regularly and issue it only to authorized personnel. Consider activating Access Security Gateway. For more information, see the *Administrator Guide for Avaya Communication Manager*.
12. Create a system-management policy concerning employee turnover and include these actions:
  - Delete any unused voice mailboxes in the voice mail system.
  - Immediately delete any voice mailboxes belonging to a terminated employee.
  - Immediately remove the authorization code if a terminated employee had screen calling privileges and a personal authorization code.
  - Immediately change barrier codes and/or authorization codes shared by a terminated employee. Notify the remaining users of the change.
  - Remove a terminated employee’s login ID if they had access to the system administration interface. Change any associated passwords immediately.
13. Back up system files regularly to ensure a timely recovery. Schedule regular, off-site backups.

14. Callers misrepresenting themselves as the “phone company,” “AT&T,” “RBOCS,” or even known employees within your company may claim to be testing the lines and ask to be transferred to “900,” “90,” or ask the attendant to do “start 9 release.” This transfer reaches an outside operator, allowing the unauthorized caller to place a long distance or international call. Instruct your users to never transfer these calls. Do not assume that if “trunk to trunk transfer” is blocked this cannot happen.
15. Hackers run random generator PC programs to detect dial tone. Then they revisit those lines to break barrier codes and/or authorization codes to make fraudulent calls or resell their services. They do this using your telephone lines to incur the cost of the call.

Frequently these call/sell operations are conducted at public pay telephones located in subways, shopping malls, or airport locations. See the “QSIG to DCS TSC Gateway” section in the *Administrator Guide for Avaya Communication Manager* to prevent this happening to your company.

Vector fraud is one of the most common types of toll fraud because vectors route calls based on the Class of Restriction (COR) assigned to the VDN. For more information, see the *Avaya Toll Fraud and Security Handbook*, or contact your Avaya representative.

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## Using reports to detect problems

---

### Call Detail Recording

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

## Enhancing system security

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

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

If you are unfamiliar with reading CDR printed output, see the description of CDR in the *Administrator Guide for Avaya Communication Manager*.

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

---

## Security Violations Notification

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

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

For example, you can have the system notify you at your extension when someone tries to enter more than 3 invalid authorization codes within a 1-minute time span.

For more details and examples, see the Enhancing System Security section in the *Administrator Guide for Avaya Communication Manager*.

## Enhancing system security

# 7: Keeping records

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

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

---

## Paper records

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

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

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

## Keeping records

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

1. Type `list station print`. Press **Enter**.

### Note:

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

For more information about generating reports, see the *Avaya Communication Manager Advanced Administration Quick Reference*, or the *Reports for Avaya Communication Manager*.

## System information

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

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

- `display dialplan analysis print` — prints your dial plan analysis table
- `display dialplan parameters print` — prints your dial plan parameters
- `display system-parameters customer-options print` — prints the current software version and shows which features have been enabled on your system
- `display system-parameters features print` — prints the parameter settings for features on your system
- `display feature-access-codes print` — prints the current feature access codes by feature
- `list configuration all print` — prints your slot and port assignments

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

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

## Specific extension information

You'll probably want to keep both system and individual extension records. To keep extension records, print a copy of the **Station** screen for each extension. For example, to print a **Station** screen for extension 4567:

1. Type **display station 4567 print**. Press **Enter**.

As another example, to print a **Station** screen for data module 5567:

1. Type **display data 5567 print**. Press **Enter**.

## Keeping records

### Other information

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

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

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

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

---

## Preparing to contact Avaya

Do you need to call Avaya for additional information or help in solving a problem?

If you do, please have the following information handy. This helps the person taking your call find the answer to your question.

- Your installation location ID (also called your IL)

\_\_\_\_\_

(Write your IL number here for easy reference)

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

**Keeping records**

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