CHAPTER 25

Intercom

Intercom, a new type of phone line, combines the functionality of a traditional line and a speed dial. With an intercom line, a user can call the intercom line of another user, which auto-answers to one-way audio Whisper. The recipient can then acknowledge the Whispered call and initiate a two-way intercom call.

Users can use an intercom line to dial any other intercom line in the intercom partition, or the administrator can preconfigure the line to target an intercom line outside the intercom partition.

Note Users can use an intercom line only to dial other intercom lines.

Introducing Intercom

Intercom allows a user to place a call to a predefined target. The called destination auto-answers the call in speakerphone mode with mute activated. This sets up a one-way voice path between the initiator and the destination, so the initiator can deliver a short message, regardless of whether the called party is busy or idle.

To ensure that the voice of the called party does not get sent back to the caller when the intercom call is automatically answered, Cisco Unified Communications Manager implements whisper intercom. Whisper intercom means that only one-way audio exists from the caller to the called party. The called party must manually press a key to talk to the caller.

Note An auto-answer tone will mark the beginning of the whisper state for both the sender and the recipient.

For more information about intercom, see the following sections:

- System Requirements, page 25-2
- Call and Line States, page 25-2
- Interactions and Restrictions, page 25-3
- Installing and Activating Intercom, page 25-5
- Configuring Intercom, page 25-5
- How to Use Intercom, page 25-6
- BAT Considerations, page 25-20
- Troubleshooting Intercom, page 25-21
- Where to Find More Information, page 25-22

System Requirements

The system requirements for the intercom feature follow:

- Cisco Unified Communications Manager Release 6.0
- Microsoft Internet Explorer (IE) 6.0 or Netscape 7.1
- Cisco Unified IP Phones 8.3(1) or later

Intercom Support for Cisco Unified IP Phones

Intercom gets supported on Cisco Unified IP Phones as shown in Table 25-1

Table 25-1 Intercom Support for Cisco Unified IP Phones

Cisco Unified IP Phone Model	SIP	SCCP
7931	No	Yes
7941, 7961, 7970, 7971	Yes	Yes
7911, 7906, 7940, 7960	No	No

Call and Line States

Intercom introduces a new call state for the intercom line, Whisper. Intercom also uses the existing Idle, Connected, Offhook, and Digits After First line states.

Because only one intercom call can occur at a time, the intercom call state maps directly to the line state, and call sort rules will remain unaffected.

Table 25-2 lists the intercom call and line states.

Table 25-2 Intercom Call and Lines States

	Idle	Whisper	Offhook	Digits After First	Connect
Description	Idle intercom state	During whisper, the recipient can hear the initiator voice, but the initiator cannot hear the recipient voice. Callers on any other active calls with the recipient cannot hear the initiator voice.	Only present when a target has not been preconfigured and an intercom target must be dialed.	Only present when a target has not been preconfigured and an intercom target must be dialed.	Connected specifies the connected state for the Intercom feature.
LED Behavior	LED not illuminated	Feature Key: Solid Amber	Feature Key: Solid Amber.	Feature Key: Solid Amber.	Feature Key: Solid Green
Icon	Idle	Whisper	Whisper	Whisper	Connect

Table 25-2 Intercom Call and Lines States (continued)

	Idle	Whisper	Offhook	Digits After First	Connect
Softkey Template	Default Cisco Unified Communications Manager Template	Connected No Feature	Intercom Offhook	Default Unified CM Digits After First template, Connected No Feature.	Connected No Feature
Other		An auto-answer tone precedes whisper.	"Inside" dial tone	No dial tone	

Interactions and Restrictions

The following sections describe the interactions and restrictions that are associated with intercom:

- Interactions, page 25-3
- Restrictions, page 25-4

Interactions

The following sections describe how intercom interacts with Cisco Unified Communications Manager applications and call processing:

- Interactions with Barge, page 25-3
- Interactions with Do Not Disturb (DND), page 25-3
- Call Preservation, page 25-4
- Cisco Unified Survivable Remote Site Telephony (SRST), page 25-4
- Cisco Unified Communications Manager Assistant, page 25-4
- Interactions with CTI, page 25-4

Interactions with Barge

When the intercom destination is a barge target, the Cisco Unified IP phone can still support whisper intercom.

When the destination caller opts to talk to the intercom caller by pressing the intercom button, the original call has been put on hold, and the barge initiator will get released.

Interactions with Do Not Disturb (DND)

The intercom call will override DND on the destination phone.

Call Preservation

When a call is preserved, the end user needs to hang up before the phone can reregister with Cisco Unified Communications Manager. When the intercom call is in whisper mode, it represents s a one-way media and the terminating side might have no user at all; therefore, only the intercom call in talkback mode will be preserved (Whisper intercom will not be preserved.).

Cisco Unified Survivable Remote Site Telephony (SRST)

When Cisco Unified IP Phones register with SRST, the phones do not register intercom lines; therefore, the intercom feature will not be available when the phones are registered with SRST.

Cisco Unified Communications Manager Assistant

See the Cisco Unified Communications Manager Assistant Configuration Wizard chapter in the *Cisco Unified Communications Manager Administration Guide*.

Interactions with CTI

You can use CTI/JTAPI/TSP to set or modify the preconfigured target directory number for an intercom line. You will receive notification if the target directory number is updated or reconfigured through Cisco Unified Communications Manager Administration.

CTI/JTAPI/TSP is backward compatible if the intercom line is not configured to be controlled by the application. If the intercom line is configured in the application user's list, you may have to make changes and test the compatibility.

Restrictions

The following restrictions apply to the Intercom feature:

- Intercom calls do not follow a coverage path.
- Hold - As long as the intercom call is in Whisper mode, it cannot be placed on hold. After it becomes a two-way call, user can place it on hold.
- Call Forwarding- Intercom calls cannot be forwarded.
- Transfer- An intercom call cannot be transferred.
- iDivert – An intercom call cannot be diverted.
- Call Pickup/Directed Call Pickup –The call pickup groups do not include intercom calls.
- Intercom overrides Do Not Disturb (DND).
- If sufficient bandwidth does not exist, the intercom call fails.
- If two intercom calls are directed to a target, the first one goes through; the second fails with a busy tone.
- Intercom does not work with Barge and cBarge features.
- Intercom cannot be conferenced.

Installing and Activating Intercom

Because intercom comes standard with Cisco Unified Communications Manager Release 6.0, it automatically gets installed and activated.

Configuring Intercom

To use the intercom feature, both the caller and called phones require a dedicated intercom line button. This line will have its own Directory Number (DN), which is its intercom code, and partition (intercom group). The Calling Search Space for this intercom line gets used to restrict the access of intercom destination from this phone.

Note To guarantee that no accidental use of the intercom feature occurs by an unauthorized phone, users cannot access intercom partition and Calling Search Space from other administrative pages, except under the intercom feature.

Note An intercom line cannot be shared on multiple devices. It should not have any other feature-related configuration, such as forward, pickup, voice mail profile, and so on.

Tip A phone can have more than one intercom button assigned.

Configuration Checklist for Intercom

Table 25-3 shows the logical steps for configuring the Cisco Unified Communications Manager Intercom feature in Cisco Unified Communications Manager.

Table 25-3 Cisco Unified Communications Manager Intercom Configuration Checklist

Configuration Steps		Related Procedures and Topics
Step 1	Create intercom partition. **Note** When you create an intercom partition, the administration user interface will automatically generate a corresponding intercom calling search space with the same name and includes this new intercom partition initially.	See the Intercom Partition Configuration chapter in the *Cisco Unified Communications Manager Administration Guide.*
Step 2	Create intercom calling search space. **Note** Do this if you need to create a intercom calling search space other than the one that is generated automatically when you create the intercom partition.	See the Intercom Calling Search Space Configuration chapter in the *Cisco Unified Communications Manager Administration Guide.*

Table 25-3 Cisco Unified Communications Manager Intercom Configuration Checklist (continued)

Configuration Steps		Related Procedures and Topics
Step 3	Create intercom translation pattern. **Note** Consider this step to be optional.	See the Intercom Translation Pattern Configuration chapter in the *Cisco Unified Communications Manager Administration Guide.*
Step 4	Create intercom directory number.	See the Intercom Directory Configuration chapter in the *Cisco Unified Communications Manager Administration Guide.*
Step 5	Assign intercom directory number to a phone.	See the Directory Number Configuration chapter in the *Cisco Unified Communications Manager Administration Guide.*

How to Use Intercom

The following sections explain, through written word and the use of illustrations, how to use intercom.

- Case Studies, page 25-6
- Illustrated Explanation of Intercom, page 25-6

Case Studies

The following information explains how intercom works when initiated to an idle phone and to a busy phone.

Intercom to an Idle Phone

When Alice intercoms Bob, Bob will receive an intercom tone first, followed by the voice of Alice. Alice, however, will not hear Bob.

If the headset on Bob's phone is on, it will be used to hear to Alice; otherwise, the speaker will be used.

Intercom to an Busy Phone

Bob and Carol are speaking when Alice places an intercom call to Bob. Alice's voice will get mixed with Carol's voice to be played to Bob. However, Alice cannot hear Bob, while Carol will continue to hear Bob.

For most cases, Carol will only hear Bob, but not Alice. However, if Bob is using speakerphone when conversing with Carol, Alice's voice might be mixed with Bob's voice to be sent to Carol.

The busy phone means that Bob's phone has an active call or an outgoing call that has not connected yet.

For intercom terminating caller to end the intercom call without talking to the originator, the caller needs to press I-help button followed by intercom button to bring the softkey set for intercom into focus. User then can presses 'EndCall' softkey to end the call.

Illustrated Explanation of Intercom

The following information shows how intercom works in several different scenarios.

- Scenario 1, page 25-7
- Scenario 2, page 25-9
- Scenario 3, page 25-11
- Scenario 4, page 25-13
- Scenario 5, page 25-15

Scenario 1

The phone that belongs to Anna, while idle, receives an intercom call from Gerald who is the preconfigured intercom target.

Figure 25-1 Idle

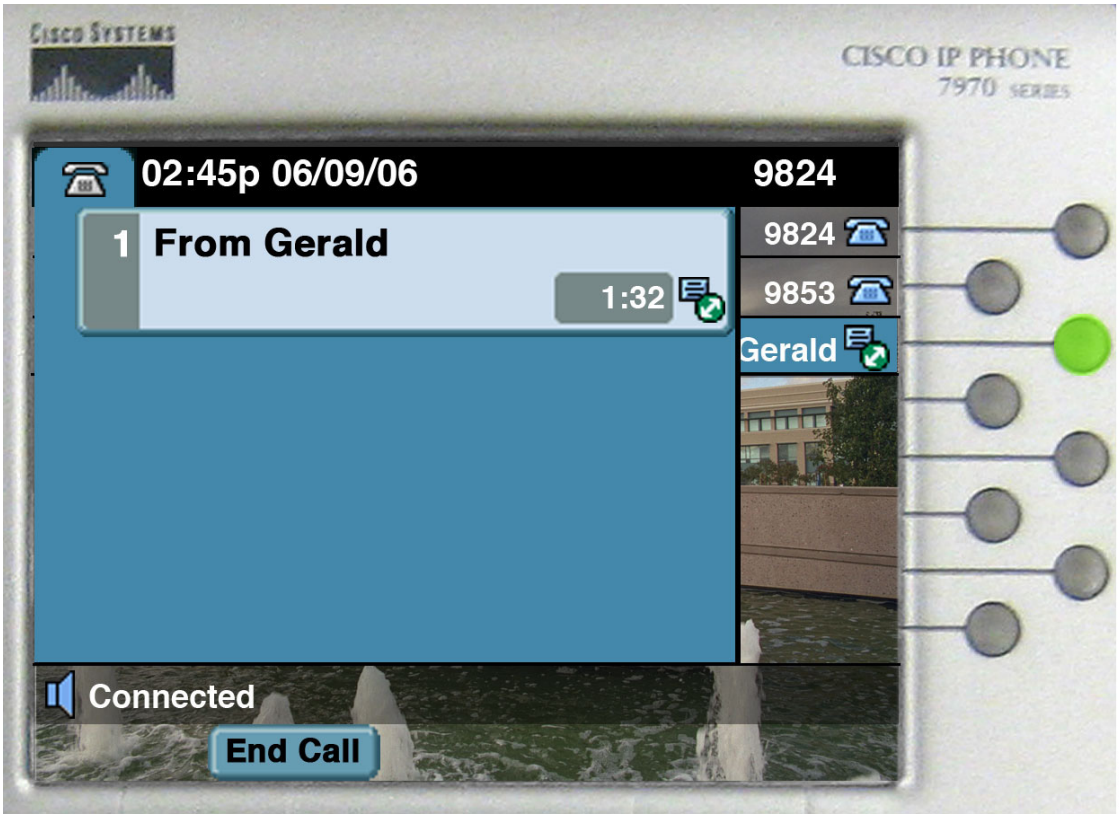
- Before Gerald places the intercom call to Anna, her phone is idle.
  - The line key and the intercom key appear dark.

Figure 25-2 Whisper

- The intercom line becomes active and a call from Gerald appears.
  - The intercom key displays solid amber.
- Both phones receive auto-answer alert tones.
- Anna hears Gerald speaking, but Gerald cannot hear Anna until she addresses the intercom call.

Note Pressing the Mute key will not address the intercom call; it will only cause the status line to display "That key is not active here".

Figure 25-3 Connected



- Anna addresses the intercom call by pressing the intercom line key.
  - The intercom key displays solid green.

Note The call timer does not reset, but continues from the whisper state.

Scenario 2

Anna, while her phone is idle, places an intercom call to Gerald's phone, the preconfigured intercom target.

Figure 25-4 Whisper

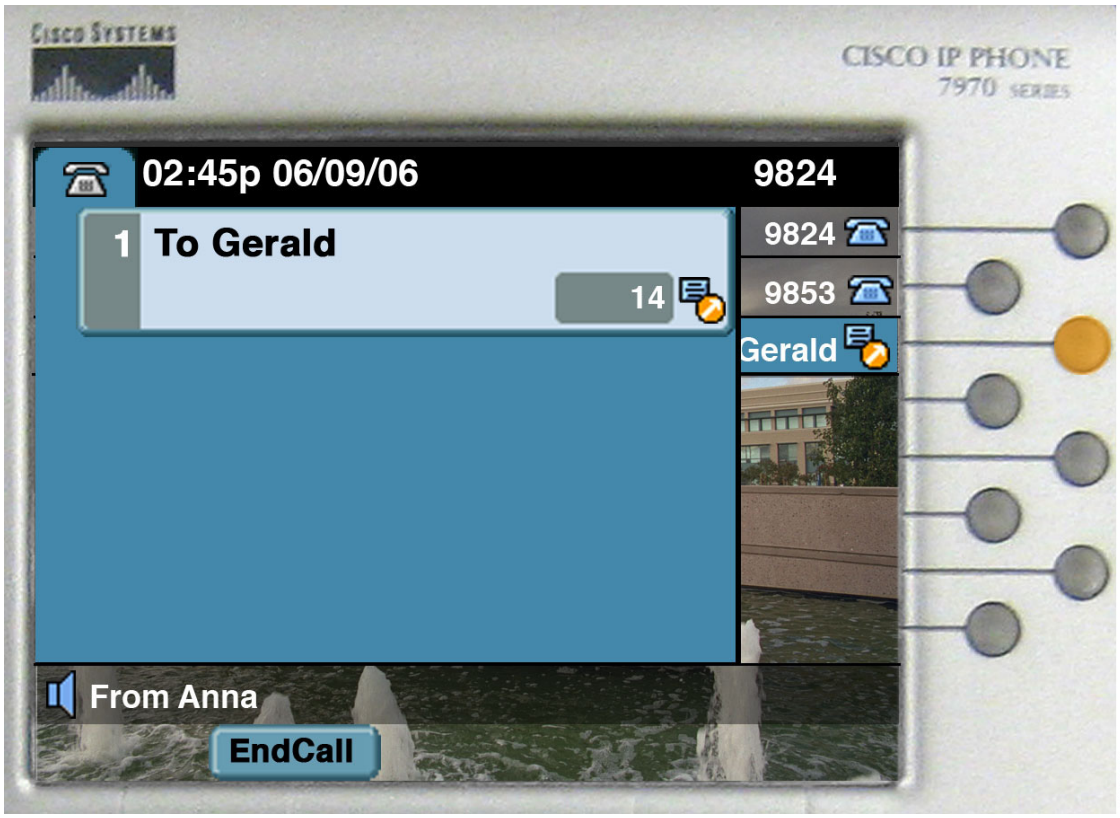
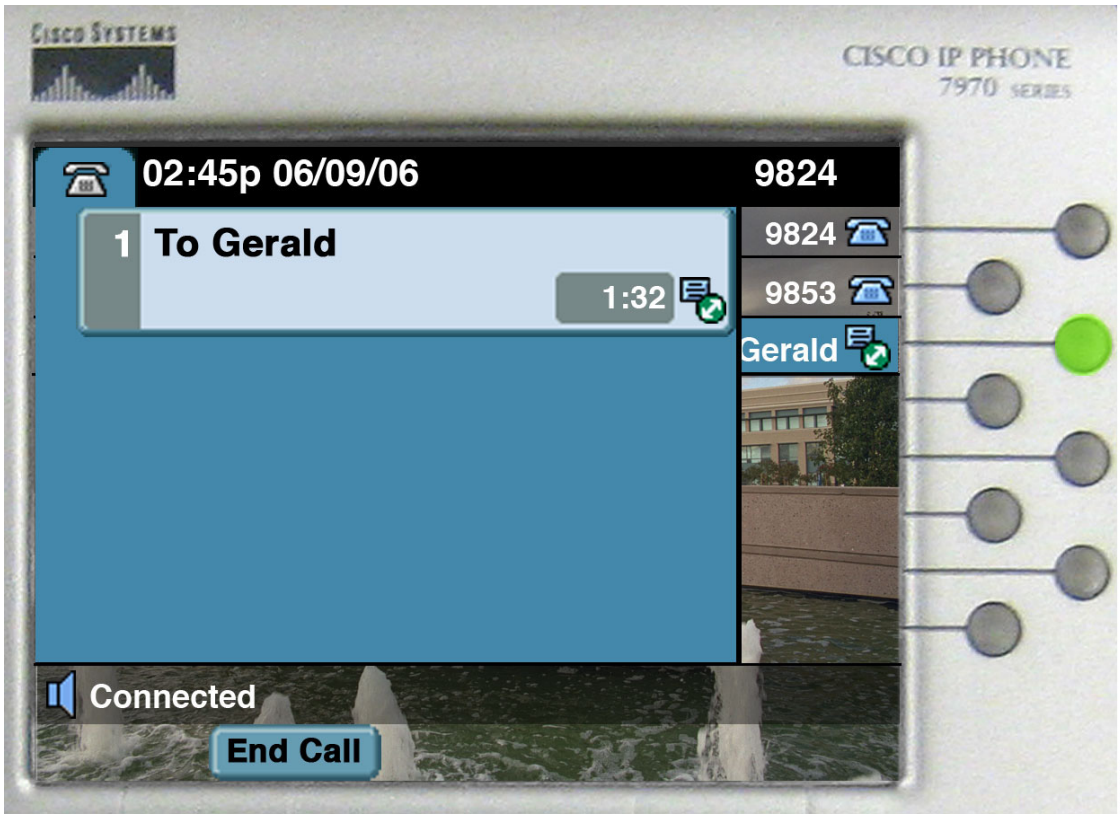


Figure 25-5 Connected



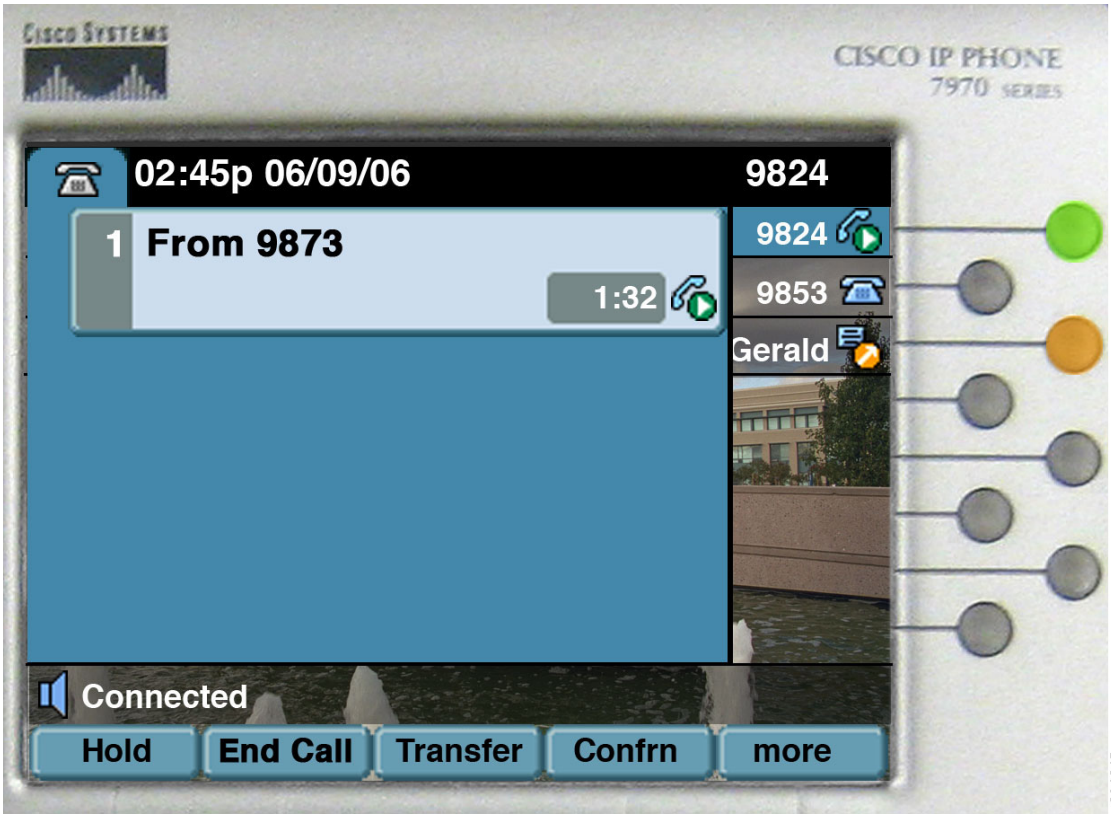
- Gerald addresses the intercom call by pressing the intercom line key.
  - The intercom key displays solid green.

Note The call timer does not reset.

Scenario 3

Anna, while on a connected or held call, receives an intercom call from Gerald, the preconfigured intercom target

Figure 25-6 Whisper

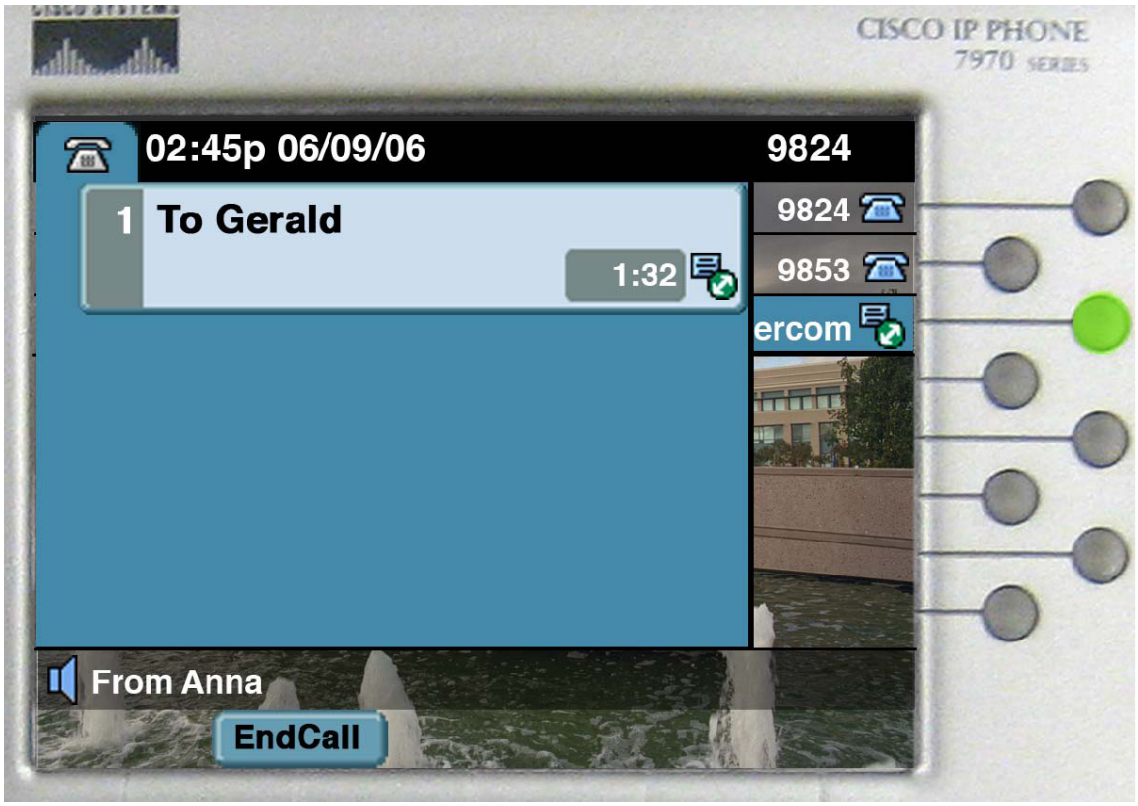


- While Anna is speaking on the phone, the preconfigured intercom line indicator flashes amber which indicates that Gerald is calling Anna on the intercom line.
  - The line key displays solid green.
  - The intercom key displays solid amber.

Note When Auto Line Select is disabled, which represents the default, the current call retains focus.

- The phone Anna is using phone plays an auto-answer alert tone, followed by the voice of Gerald.
- Anna can hear Gerald, but Gerald cannot hear Anna until she addresses the intercom call.
- The current caller, who is at 9873 and is on the line with Anna, can hear Anna, but cannot hear Gerald.

Figure 25-7 Connected



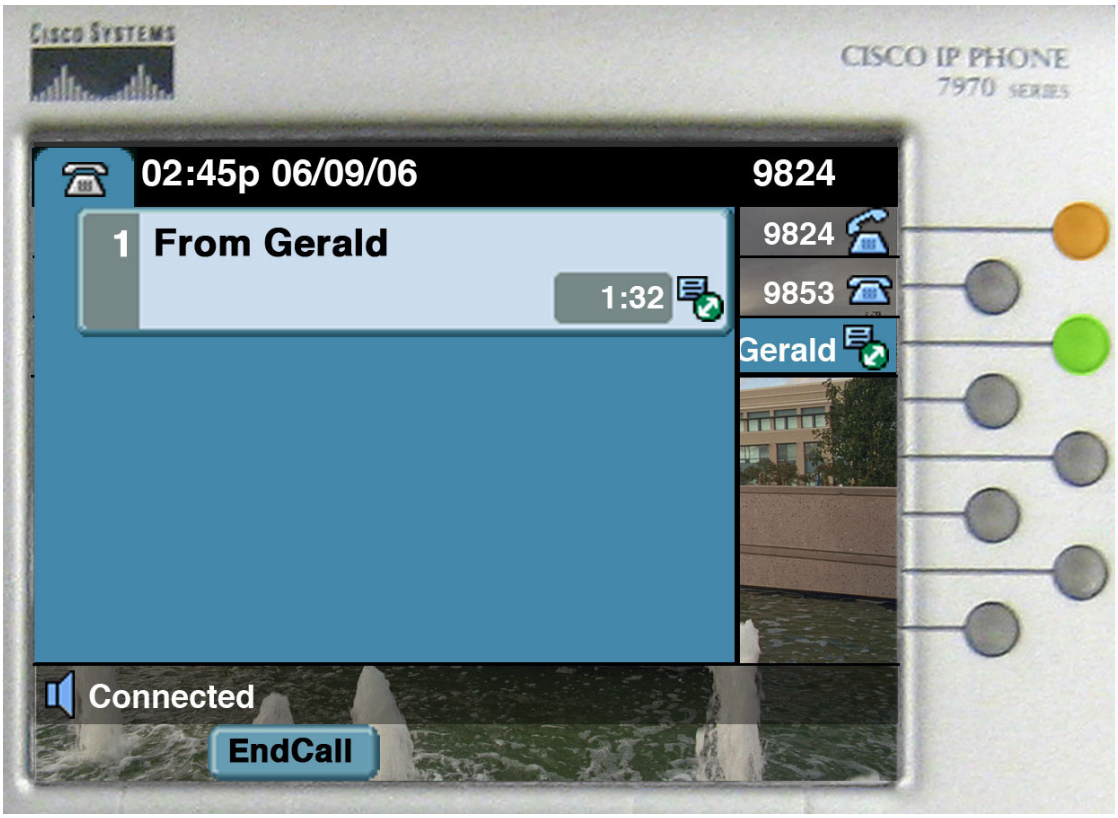
- Anna addresses the intercom call by pressing the intercom line key.
  - The line key flashes green.
- The intercom call gains focus and the previous call gets put on hold.
  - The intercom line key displays solid green.

Note The call timer represents the cumulative call time from the whisper state and the current connected state.

Scenario 4

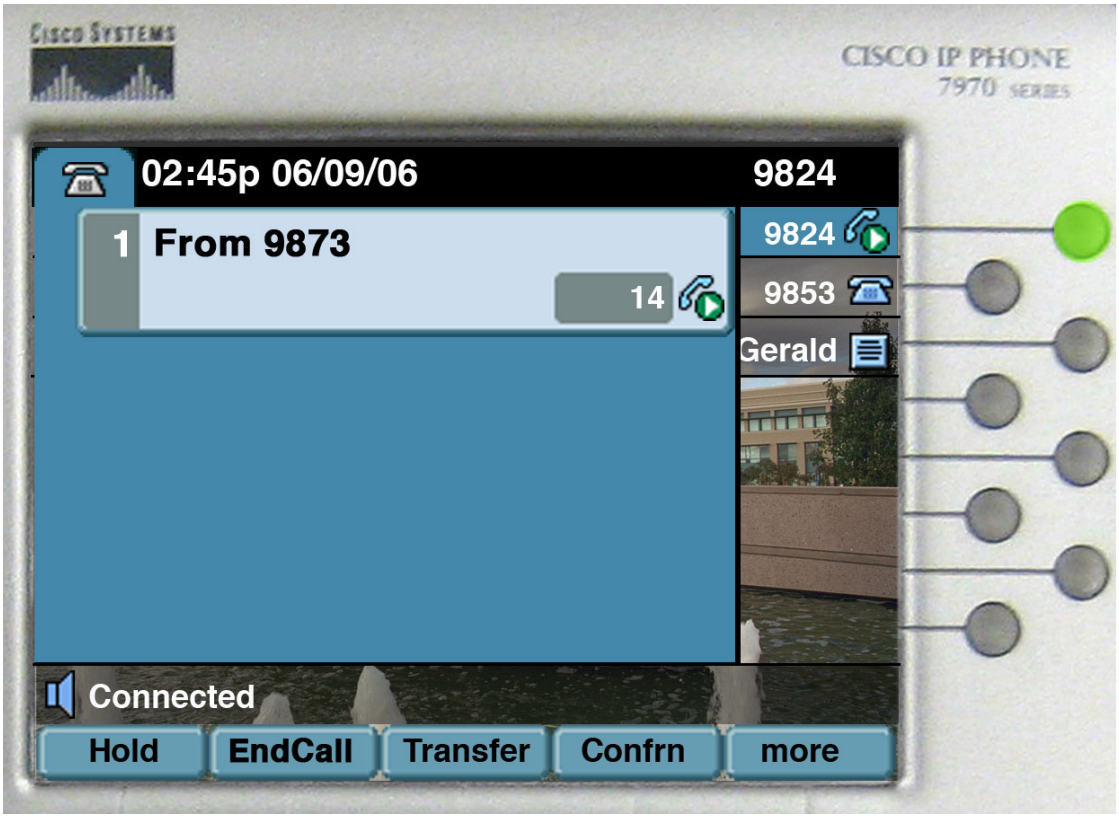
Anna, while on a whispered or connected intercom call, receives a new call on the primary line.

Figure 25-8 Connected



- Anna is talking to Gerald on an intercom line when a call displays for 9824 which is her extension. The intercom call retains focus.
  - The line key flashes amber.
  - The intercom key displays solid green.

Figure 25-9 Idle



- Anna accepts the incoming call by pressing the 9824 line key.
  - The line key displays solid green.
- The incoming call receives focus and gets connected.
- The system clears the intercom call.
  - The intercom key displays dark.

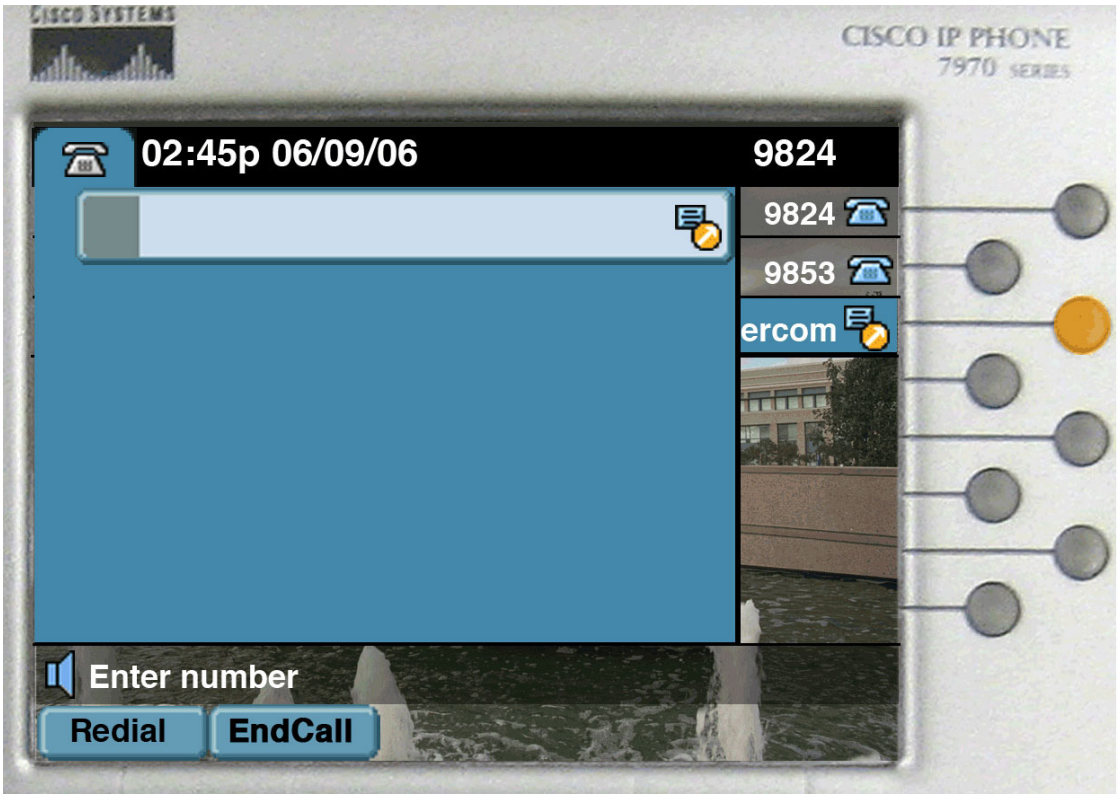
Scenario 5

Anna, while idle, places an intercom call to Gerald. The intercom line has no preconfigured target

Figure 25-10 Idle

- All the line keys display dark.

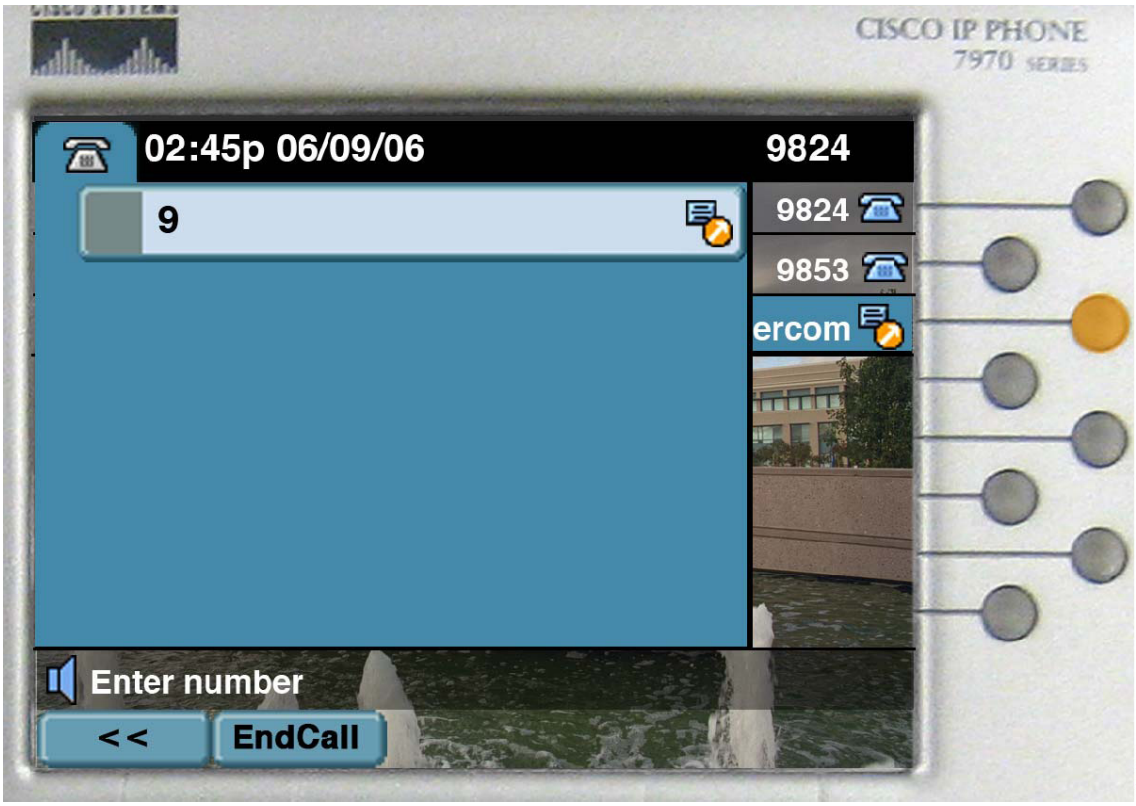
Figure 25-11 Dial Out



- Anna presses the intercom line key which invokes the dial-out state.
  - The intercom key displays solid amber.
- The phone receives an “inside” dial tone.

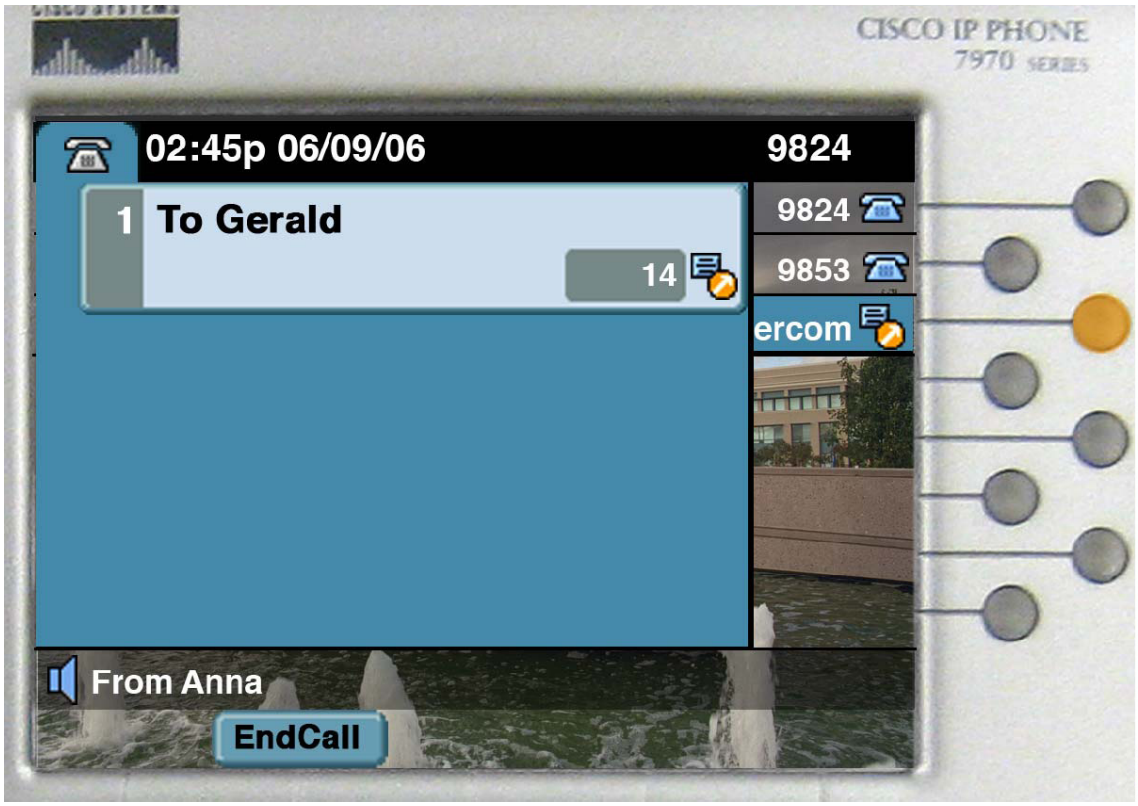
Note At this time, if Anna dials any number other than an intercom number, the phone receives a fast busy tone.

Figure 25-12 Digits After First



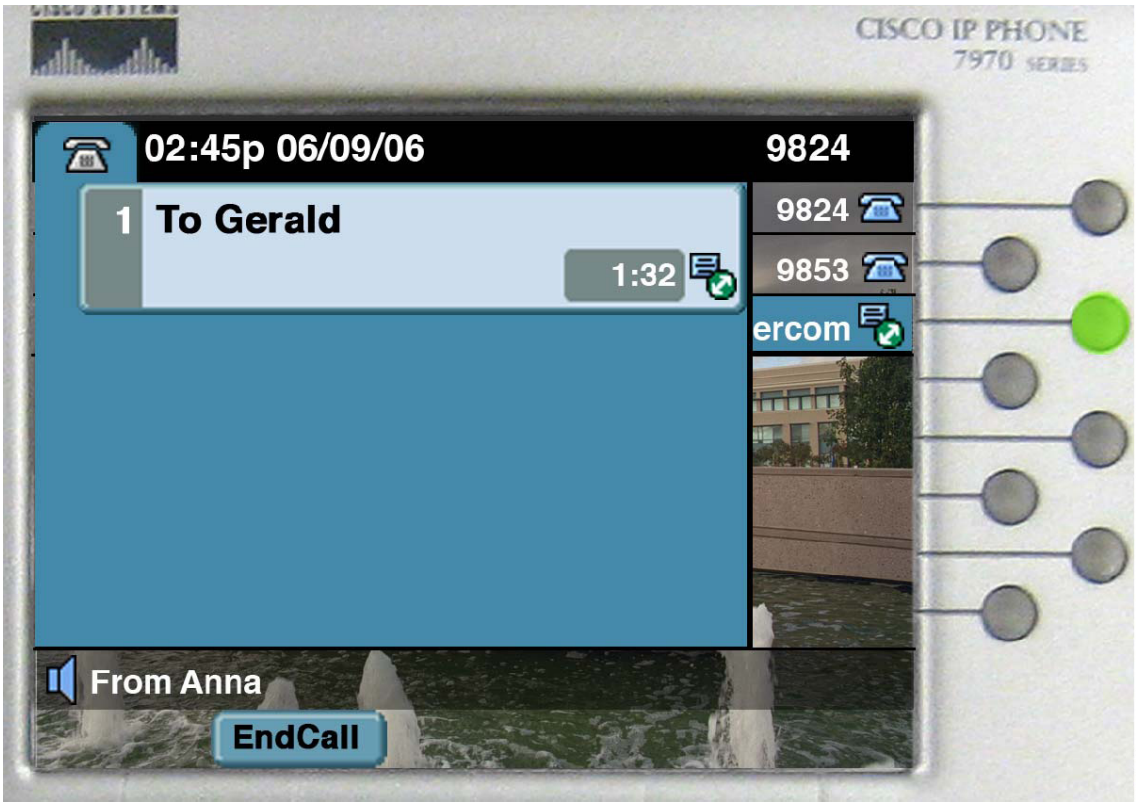
- Anna begins to dial, which invokes the digits after first state.
  - The intercom kay displays solid amber.

Figure 25-13 Whisper



- After Anna dials the intercom number, the whisper state exists.
  - The intercom key displays solid amber.
- The phone plays an auto-answer alert.
- Gerald can hear Anna, but Anna cannot hear Gerald until he addresses the intercom call.

Figure 25-14 Connected



- Gerald addresses the intercom call by pressing the intercom line key
  - Anna can see that the intercom key displays solid green.
- The call timer does not reset, but instead continues from the whisper state.

BAT Considerations

The Cisco Unified Communications Manager administrator can use the Bulk Administration Tool (BAT) to add many intercom users at once instead of adding users individually. Refer to the *Cisco Unified Communications Manager Bulk Administration Guide* for more information.

Troubleshooting Intercom

Getting Busy Tone When Dialing Out of Intercom Line

Symptoms: Phone plays busy tone when user is dialing out of intercom line.

Step 1 Ensure that the DN is in the same intercom partition as the calling number.

Step 2 If it is, ensure that the dialed out DN is configured on another phone and that phone is registered with same Cisco Unified Communications Manager cluster.

Intercom Calls Do Not Go to Connected State When Going Off Hook using Speaker, Handset, or Headset.

Symptoms: User cannot go into talkback mode for intercom calls by using headset, handset, or speaker

Step 1 This situation exists by design. The only way to go into the connected state for intercom calls is by pressing the corresponding line button.

Step 2 User can end call by using speaker, handset, or headset.

Troubleshooting – SCCP

Intercom Lines Not Showing Up on Phone When Button Template Has Them

Symptoms: Intercom lines do not display on the phone.

Step 1 Check the phone version.Ensure that it is 8.3(1) or above.

Step 2 Determine whether the button template is assigned to the phone.

Step 3 Capture the sniffer trace between Cisco Unified Communications Manager and the phone. In the button template response, see if intercom lines get sent to the phone (button definition = Ox17).

Intercom Lines Not Showing Up When Phone Falls Back to SRST

Symptoms: The phone, which was configured with Cisco Unified Communications Manager Release 6.0,. includes two intercom lines. Cisco Unified Communications Manager stops and falls backs to SRST. The Intercom lines do not display.

Step 1 Check the SCCP version of SRST. If SRST supports SCCP version 12, it will support intercom lines.

Step 2 If SRST supports SCCP version 12, capture a sniffer trace and ensure that the button template, that the phone sent includes intercom lines.

Troubleshooting – SIP

For SIP phones use the following debug commands.

Debug sip-messages sip-task gsmfsmIsm sip-adapter

SIP Phone Configuration

Show config - The command on the phone displays if intercom lines are configured as regular lines with featureid-->23

Where to Find More Information

Related Topics

- Installing and Activating Intercom, page 25-5
- Configuring Intercom, page 25-5
- How to Use Intercom, page 25-6
- BAT Considerations, page 25-20
- Troubleshooting Intercom, page 25-21
- Finding an Intercom Calling Search Space, *Cisco Unified Communications Manager Administration Guide*
- Finding an Intercom Partition, *Cisco Unified Communications Manager Administration Guide*
- Intercom Directory Number Configuration Overview, *Cisco Unified Communications Manager Administration Guide*
- Finding an Intercom Translation Pattern, *Cisco Unified Communications Manager Administration Guide*

Additional Cisco Documentation

- *Cisco Unified Communications Manager Administration Guide*
- *Cisco Unified Communications Manager System Guide*
- *Cisco Unified Communications Manager Features and Services Guide*