

Configuring Intercom Lines

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This chapter describes the intercom features in Cisco Unified Communications Manager Express (Cisco Unified CME).

Finding Feature Information in This Module

Your Cisco Unified CME version may not support all of the features documented in this module. For a list of the versions in which each feature is supported, see the "Feature Information for Intercom Lines" section on page 1191.

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Information About Intercom Lines

To enable intercom lines, you should understand the following concept:

- Intercom Auto-Answer Lines, page 1178
- Whisper Intercom, page 1179
- SIP Intercom, page 1180

Intercom Auto-Answer Lines

An intercom line is a dedicated two-way audio path between two phones. Cisco Unified CME supports intercom functionality for one-way and press-to-answer voice connections using a dedicated pair of intercom directory numbers on two phones that speed-dial each other.

When an intercom speed dial button is pressed, a call is speed-dialed to the directory that is the other half of the dedicated pair. The called phone automatically answers the call in speakerphone mode with mute activated, providing a one-way voice path from the initiator to the recipient. A beep is sounded when the call is auto-answered to alert the recipient to the incoming call. To respond to the intercom call and open a two-way voice path, the recipient deactivates the mute function by pressing the Mute button or, on phones such as the Cisco Unified IP Phone 7910, lifting the handset.

In Cisco CME 3.2.1 and later versions, you can deactivate the speaker-mute function on intercom calls. For example, if phone user 1 makes an intercom call to phone user 2, both users hear each other on connection when no-mute is configured. The benefit is that people who receive intercom calls can be heard without them having to disable the mute function. The disadvantage is that nearby background sounds and conversations can be heard the moment a person receives an intercom call, regardless of whether they are ready to take a call or not.

Intercom lines cannot be used in shared-line configurations. If a directory number is configured for intercom operation, it must be associated with one IP phone only. The intercom attribute causes an IP phone line to operate as an autodial line for outbound calls and as an autoanswer-with-mute line for inbound calls. Figure 42 shows an intercom between a receptionist and a manager.

To prevent an unauthorized phone from dialing an intercom line (and creating a situation in which a phone automatically answers a nonintercom call), you can assign the intercom a directory number that includes an alphabetic character. No one can dial the alphabetic character from a normal phone, but the phone at the other end of the intercom can be configured to dial the number that contains the alphabetic character through the Cisco Unified CME router. For example, the intercom ephone-dns in Figure 42 are assigned numbers with alphabetic characters so that only the receptionist can call the manager on his or her intercom line, and no one except the manager can call the receptionist on his or her intercom line.



An intercom requires the configuration of two ephone-dns, one each on a separate phone.



Whisper Intercom

When a phone user dials a whisper intercom line, the called phone automatically answers using speakerphone mode, providing a one-way voice path from the caller to the called party, regardless of whether the called party is busy or idle.

Unlike the standard intercom feature, this feature allows an intercom call to a busy extension. The calling party can only be heard by the recipient. The original caller on the receiving phone does not hear the whisper page. The phone receiving a whisper page displays the extension and name of the party initiating the whisper page and Cisco Unified CME plays a zipzip tone before the called party hears the caller's voice. If the called party wants to speak to the caller, the called party selects the intercom line button on their phone. The lamp for intercom buttons are colored amber to indicate one-way audio for whisper intercom and green to indicate two-way audio for standard intercom.

You must configure a whisper intercom directory number for each phone that requires the Whisper Intercom feature. A whisper intercom directory number can place calls only to another whisper intercom directory number. Calls between a whisper intercom directory number and a standard directory number or intercom directory number are rejected with a busy tone.

This feature is supported in Cisco Unified CME 7.1 and later versions. For configuration information, see the "SCCP: Configuring Whisper Intercom" section on page 1183.

SIP Intercom

In Cisco Unified CME 8.8, the SIP Intercom feature is released as part of the 8.3(1) IP Phone firmware.

The SIP intercom line provides a one-way voice path from the caller to the called phone. When a phone user dials the intercom line, the called phone automatically answers the call in speakerphone mode with Mute activated. If the called SIP phone is busy with a connected call or with an outgoing call that has not been connected, the call is whispered into the called phone.

As soon as the called phone auto-answers, the intercom call recipient has three options:

- Listen to the one-way audio of the intercom caller without answering.
- End the call by pressing the speakerphone button or the EndCall soft key.
- Press the intercom button to create a two-way voice path and respond to the intercom caller.

If the called phone is busy when the intercom call arrives and a response is requested, the active call is put on hold and the outgoing call that is not connected yet is cancelled before the intercom call is connected for a two-way voice path.



The lamp for the intercom line button displays an amber light for one-way intercom and green for a two-way voice path.

You should configure an intercom directory number to begin and end an intercom call for each phone that requires the Intercom feature. For configuration information, see the "SIP: Configuring Intercom Support" section on page 1187.

However, a standard directory number without the intercom option configured can also place an intercom call. The called phone also has the option of responding to the call by pressing the intercom line button to establish a two-way voice path with the originator without the intercom option configured.

Table 62 shows the supported SIP-SCCP interactions for the SIP Intercom feature.

Originator	Terminator	Intercom
SIP normal line	SIP intercom line	Supported
SIP intercom line	SIP intercom line	Supported
SIP normal line	SCCP whisper intercom line	Not Supported
SIP intercom line	SCCP whisper intercom line	Not Supported
SCCP normal line	SIP intercom line	Supported
SCCP normal line	SCCP whisper intercom line	Not Supported
SCCP whisper intercom line	SIP intercom line	Not Supported
SCCP whisper intercom line	SCCP whisper intercom line	Supported
SIP normal line	SIP normal line	Not Supported
SIP intercom line	SIP normal line	Not Supported
SCCP normal line	SIP normal line	Not Supported
SCCP intercom line	SIP normal line	Not Supported
SIP normal line	SCCP normal line	Not Supported

Table 62 SIP-SCCP Interactions for the SIP Intercom Feature

Originator	Terminator	Intercom
SIP intercom line	SCCP normal line	Not Supported
SCCP normal line	SCCP normal line	Not Supported
SCCP intercom line	SCCP normal line	Not Supported

Table 62	SIP-SCCP Interactions for the SIP Intercom Feature (continued)
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Extension Number

The extension number of an intercom line can be included in an extension mobility user-profile or extension mobility logout-profile.

The BLF feature can define the extension number of an intercom line as a speed dial on a Cisco Unified CME phone, allowing the line status of the intercom line to be monitored.

For configuration information, see the "Configuring Extension Mobility for SIP Phones" section on page 1125.

How to Configure Intercom Lines

This section contains the following tasks:

- SCCP: Configuring an Intercom Auto-Answer Line, page 1181 (required)
- SCCP: Configuring Whisper Intercom, page 1183 (optional)
- SIP: Configuring an Intercom Auto-Answer Line, page 1185 (required)
- SIP: Configuring Intercom Support, page 1187 (required)

SCCP: Configuring an Intercom Auto-Answer Line

To enable a two-way audio path between two phones, perform the following steps for each Cisco Unified SCCP IP phone at both ends of the two-way voice path.

Restrictions

- Intercom lines cannot be dual-line.
- If a directory number is configured for intercom operation, it can be associated with only one Cisco Unified IP phone.
- Each phone, at both ends of the two-way voice path, requires a separate configuration.

SUMMARY STEPS

- 1. enable
- 2. configure terminal
- 3. ephone-dn *dn-tag*
- 4. number number
- 5. name name

- 6. intercom *extension-number* [[barge-in [no-mute] | no-auto-answer | no-mute] [label label]] | label label]
- 7. exit
- 8. ephone phone-tag
- **9**. **button** *button-number***:***dn*-*tag* [[*button-number***:***dn*-*tag*] ...]
- 10. end

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable	Enables privileged EXEC mode.
	Example: Router> enable	• Enter your password if prompted.
Step 2	configure terminal	Enters global configuration mode.
	Example: Router# configure terminal	
Step 3	ephone-dn dn-tag	Enters ephone-dn configuration mode.
	Example: Router(config)# ephone-dn 11	• Do not use the dual-line keyword with this command. Intercom ephone-dns cannot be dual-line.
Step 4	number number	Assigns a valid intercom number.
	Example: Router(config-ephone-dn)# number A2345	• Using one or more alphabetic characters in an intercom number ensures that the number can only be dialed from the one other intercom number that is programmed to dial this number. The number cannot be dialed from a normal phone if it contains an alphabetic character.
Step 5	name name	Sets a name to be associated with the ephone-dn.
	Example: Router(config-ephone-dn)# name intercom	• This name is used for caller-ID displays and also shows up in the local directory associated with the ephone-dn.
Step 6	<pre>intercom extension-number [[barge-in [no-mute] no-auto-answer no-mute] [label label]] label label]</pre>	Defines the directory number that is speed-dialed for the intercom feature when this line is used.
	Example: Router(config-ephone-dn)# intercom A2346 label Security	
Step 7	exit	Exits ephone-dn configuration mode.
	Example: Router(config-ephone-dn)# exit	

	Command or Action	Purpose
Step 8	ephone phone-tag	Enters ephone configuration mode.
	Example: Router(config)# ephone 24	
Step 9	button button-number:dn-tag [[button-number:dn-tag]]	Assigns a button number to the intercom ephone-dn being configured.
	Example: Router(config-ephone)# button 1:1 2:4 3:14	• Use the colon separator (:) between the button number and the intercom ephone-dn tag to indicate a normal ring for the intercom line.
Step 10	end	Exits ephone configuration mode and enters privileged EXEC mode.
	Example: Router(config)# exit	

SCCP: Configuring Whisper Intercom

To enable the Whisper Intercom feature on a directory number, perform the following steps.

Prerequisites

- Cisco Unified CME 7.1 or a later version.
- IP phones require SCCP 12.0 or a later version.

Restrictions

- Single-line phone models, such as the Cisco Unified IP Phone 7906 or 7911, are not supported.
- Whisper intercom directory numbers can place calls only to other whisper intercom numbers.
- A directory number can be configured as either a regular intercom or a whisper intercom, not both.
- Dual-line and octo-line directory numbers are not supported as intercom lines.
- Only one intercom call, either incoming or outgoing, is allowed on the phone at one time.
- Call features are not supported on intercom calls.

SUMMARY STEPS

- 1. enable
- 2. configure terminal
- 3. ephone-dn dn-tag
- 4. whisper-intercom [label string | speed-dial number [label string]]
- 5. end
- 6. show ephone-dn whisper

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable	Enables privileged EXEC mode.
		• Enter your password if prompted.
	Example: Router> enable	
Step 2	configure terminal	Enters global configuration mode.
	Example: Router# configure terminal	
Step 3	ephone-dn dn-tag	Enters ephone configuration mode to create a directory number for a SCCP phone.
	Example: Router(config)# ephone-dn 1	
Step 4	<pre>whisper-intercom [label string speed-dial number [label string]]</pre>	 Enables whisper intercom on a directory number. label <i>string</i>—(Optional) Alphanumeric label that
	Example:	identifies the whisper intercom button. String can contain a maximum of 30 characters.
	Router(config-ephone-dn)# whisper intercom	• speed-dial <i>number</i> —(Optional) Telephone number to speed dial.
Step 5	end	Exits to privileged EXEC mode.
	Example: Router(config-ephone-dn)# end	
Step 6	show ephone-dn whisper	Displays information about whisper intercom ephone-dns that have been created.
	Example: Router# show ephone-dn whisper	

Examples

The following example shows Whisper Intercom configured on extension 2004:

```
ephone-dn 24
number 2004
whisper-intercom label "sales"!
!
ephone 24
mac-address 02EA.EAEA.0001
button 1:24
```

SIP: Configuring an Intercom Auto-Answer Line

To enable the Intercom Auto-Answer feature for Cisco Unified SIP IP phones, perform the following steps for each IP phone at both ends of the two-way voice path.

Prerequisites

Cisco CME 3.4 or a later version.

Restrictions

- If a directory number is configured for intercom operation, it can be associated with only one Cisco Unified IP phone.
- Each phone, at each end of the two-way voice path, requires a separate configuration.

SUMMARY STEPS

- 1. enable
- 2. configure terminal
- **3**. **voice register dn** *dn*-*tag*
- 4. number number
- 5. auto-answer
- 6. exit
- 7. voice register pool pool-tag
- 8. id mac address
- 9. type phone-type
- **10.** number tag dn dn-tag
- 11. end

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable	Enables privileged EXEC mode.
		• Enter your password if prompted.
	Example: Router> enable	
Step 2	configure terminal	Enters global configuration mode.
	Example: Router# configure terminal	
Step 3	voice register dn <i>dn-tag</i>	Enters voice register dn configuration mode to define a directory number for a Cisco Unified SIP IP phone,
	Example:	intercom line, voice port, or an MWI.
	Router(config-register-global)# voice register dn 1	

	Command or Action	Purpose
Step 4	number number	Defines a valid number for the directory number being configured.
	Example: Router(config-register-dn)# number A5001	• To prevent non-intercom originators from manually dialing an intercom destination, the number string can contain alphabetic characters enabling the number to be dialed only by the Cisco Unified CME router and not from telephone keypads.
Step 5	auto-answer	Enables the Intercom Auto-Answer feature on the directory number being configured.
	Example: Router(config-register-dn)# auto-answer	
Step 6	exit	Exits voice register dn configuration mode.
	Example: Router(config-register-dn)# exit	
Step 7	voice register pool pool-tag	Enters voice register pool configuration mode to set phone-specific parameters for a Cisco Unified SIP IP phone in Cisco Unified CME.
	Router(config)# voice register pool 3	
Step 8	<pre>id {mac address}</pre>	Explicitly identifies a locally available individual Cisco Unified SIP IP phone to support a degree of authentication.
	Example: Router(config-register-pool)# id mac 0009.A3D4.1234	
Step 9	type phone-type	Defines a phone type for the Cisco Unified SIP IP phone being configured.
	Example: Router(config-register-pool)# type 7960-7940	
Step 10	number tag dn dn-tag	Associates a directory number with the Cisco Unified SIP IP phone being configured.
	Example: Router(config-register-pool)# number 1 dn 17	
Step 11	end	Exits voice register pool configuration mode and enters privileged EXEC mode.
	Example: Router(config-register-pool)# end	

SIP: Configuring Intercom Support

To configure the intercom call option on a Cisco Unified SIP phone, perform the following steps.

Prerequisites

- Cisco Unified CME 8.8 or a later version.
- 8.3(1) phone firmware or a later version is installed on the Cisco Unified SIP IP phone.

Restrictions

- The Intercom feature is not supported on single-line phones because the intercom line cannot be the primary line of a Cisco Unified CME SIP IP phone.
- The intercom line cannot be shared among SIP phones.
- FAC is not supported on a SIP intercom call because the keys are disabled.

SUMMARY STEPS

- 1. enable
- 2. configure terminal
- 3. voice register dn dn-tag
- 4. **number** *number*
- 5. intercom [speed-dial digit-string] [label label-text]
- 6. exit
- 7. voice register pool pool-tag
- 8. id {network address mask mask | ip address mask mask | mac address}
- 9. type phone-type
- 10. number tag dn dn-tag
- 11. end

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable	Enables privileged EXEC mode.
		• Enter your password if prompted.
	Example:	
	Router> enable	
Step 2	configure terminal	Enters global configuration mode.
	Example:	
	Router# configure terminal	

	Command or Action	Purpose
tep 3	voice register dn <i>dn-tag</i>	Enters voice register dn configuration mode to define an extension for a SIP intercom line.
	Example: Router(config)# voice register dn 4	
tep 4	number number	Associates a telephone or extension number with a Cisco Unified SIP phone in a Cisco Unified CME system.
	Example: Router(config-register-dn)# number 4001	
tep 5	<pre>intercom [speed-dial digit-string] [label label-text]</pre>	Enables the intercom call option on a Cisco Unified SIP IP phone.
	Example: Router(config-register-dn)# intercom [speed-dial 4002] [label intercom4001]	• (Optional) speed-dial —Enables the intercom line user to place a call to a pre-configured destination. If the speed dial is not configured, it simply initiates a new call on the intercom line and waits for the user to dial the destination number.
		• (Optional) label <i>label-text</i> —String that contains identifying text to be displayed next to the speed dial button. Enclose the string in quotation marks if the string contains a space.
tep 6	exit	Exits configuration mode to the next highest mode in the configuration mode hierarchy.
	Example: Router(config-register-dn)# exit	
tep 7	voice register pool pool-tag Example:	Enters voice register pool configuration mode to set phone-specific parameters for a Cisco Unified SIP phone in Cisco Unified CME.
tep 8	Router(config) # voice register pool 3 id {network address mask mask ip address mask	Explicitly identifies a locally available individual Cisco
reh o	mask mac address mask mask ip address mask	Unified SIP phone to support a degree of authentication.
	Example: Router(config-register-pool)# id mac 0009.A3D4.1234	
tep 9	type phone-type	Defines a phone type for the Cisco Unified SIP phone being configured.
	Example: Router(config-register-pool)# type 7940	
tep 10	number tag dn dn-tag	Associates a directory number tag with the Cisco Unified SIP IP phone being configured.
	Example: Router(config-register-pool)# number 1 dn 17	
tep 11	end	Exits to privileged EXEC mode.
	Example: Router(config-register-dn)# end	

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Configuration Examples for Intercom Lines

This section contains the following examples:

- Intercom Lines: Example, page 1189
- Configuring SIP Intercom Support: Example, page 1189

Intercom Lines: Example

The following example shows an intercom between two Cisco Unified IP phones. In this example, ephone-dn 2 and ephone-dn 4 are normal extensions, while ephone-dn 18 and ephone-dn 19 are set as an intercom pair. Ephone-dn 18 is associated with line button 2 on Cisco Unified IP phone 4. Ephone-dn 19 is associated with line button 2 on Cisco Unified IP phone 5. The two ephone-dns provide a two-way intercom between the two Cisco Unified IP phones.

```
ephone-dn 2
number 5333
ephone-dn 4
number 5222
ephone-dn 18
number 5001
name "intercom"
intercom 5002 barge-in
ephone-dn 19
name "intercom"
number 5002
intercom 5001 barge-in
ephone 4
button 1:2 2:18
ephone 5
button 1:4 2:19
```

Configuring SIP Intercom Support: Example

The following example shows SIP Intercom configured on extension 1001:

```
voice register dn 1
number 1001
intercom [speed-dial 1002] [label intercom1001]
voice register pool 1
id mac 001D.452D.580C
type 7962
number 1 dn 2
number 2 dn 1
```

Where to Go Next

If you are done modifying parameters for phones in Cisco Unified CME, generate a new configuration file and restart the phones. See the "Generating Configuration Files for Phones" section on page 359.

Paging

The paging feature sets up a one-way audio path to deliver information to a group of phones at one time. For more information, see the "Configuring Paging" section on page 1255.

Additional References

The following sections provide references related to Cisco Unified CME features.

Related Documents

Related Topic	Document Title
Cisco Unified CME configuration	Cisco Unified CME Command Reference
	Cisco Unified CME Documentation Roadmap
Cisco IOS commands	Cisco IOS Voice Command Reference
	Cisco IOS Software Releases 12.4T Command References
Cisco IOS configuration	Cisco IOS Voice Configuration Library
	Cisco IOS Software Releases 12.4T Configuration Guides
Phone documentation for Cisco Unified CME	User Documentation for Cisco Unified IP Phones

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.	http://www.cisco.com/techsupport
To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.	
Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	

Feature Information for Intercom Lines

Table 63 lists the features in this module and enhancements to the features by version.

To determine the correct Cisco IOS release to support a specific Cisco Unified CME version, see the *Cisco Unified CME and Cisco IOS Software Version Compatibility Matrix* at http://www.cisco.com/en/US/docs/voice_ip_comm/cucme/requirements/guide/33matrix.htm.

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which Cisco IOS software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn. An account on Cisco.com is not required.

Q, Note

Table 63 lists the Cisco Unified CME version that introduced support for a given feature. Unless noted otherwise, subsequent versions of Cisco Unified CME software also support that feature.

Feature Name	Cisco Unified CME Version	Feature Information
SIP Intercom	8.8	Adds intercom support to Cisco Unified SIP IP phones connected to a Cisco Unified CME system.
Whisper Intercom	7.1	Introduces whisper intercom feature.
Intercom Lines	3.4	Adds intercom feature, with no-mute function, for supported Cisco Unified IP phones that are connected to a Cisco Unified CME router and running SIP.
	3.2.1	Introduces the no-mute function.
	2.0	Introduces the Intercom feature.

