

# Intercom Lines


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# Information About Intercom Lines

## 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 speaker-phone 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.

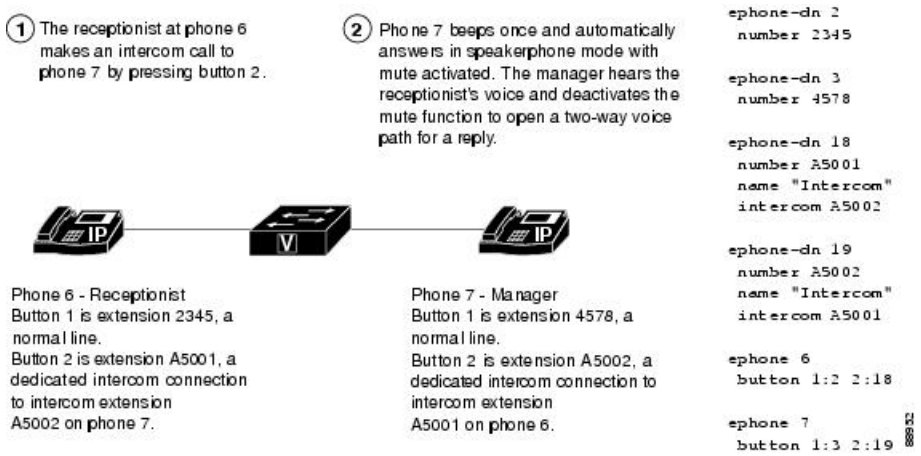
Intercom lines cannot be used in shared-line configurations. If a directory number is configured for intercom operation, it must be associated with one IP phone only. The intercom attribute causes an IP phone line to operate as an autodial line for outbound calls and as an autoanswer-with-mute line for inbound calls. Figure 1: Intercom Lines, on page 2 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 1: Intercom Lines, on page 2 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.

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

***Figure 1: Intercom Lines***




# Whisper Intercom

When a phone user dials a whisper intercom line, the called phone automatically answers using speaker-phone 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 Configure Whisper Intercom on SCCP Phones, on page 6.

# 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 speaker-phone 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 speaker-phone button or the EndCall softkey.
- 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 canceled before the intercom call is connected for a two-way voice path.

**Note** 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 Configure Intercom Call Option on SIP Phones, on page 10.

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 1: SIP-SCCP Interactions for the SIP Intercom Feature, on page 3 shows the supported SIP-SCCP interactions for the SIP Intercom feature.

***Table 1: 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 |

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

### 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 Configure Extension Mobility for SIP Phones.

# Configure Intercom Lines

## Configure an Intercom Auto-Answer Line on SCCP Phones

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.

**Restriction**

- 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

### Procedure

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **enable**<br>**Example:**<br>`Router> enable` | Enables privileged EXEC mode.<br>• Enter your password if prompted. |
| **Step 2** | **configure terminal**<br>**Example:**<br>`Router# configure terminal` | Enters global configuration mode. |
| **Step 3** | **ephone-dn** *dn-tag*<br>**Example:**<br>`Router(config)# ephone-dn 11` | Enters ephone-dn configuration mode.<br>• Do not use the **dual-line** keyword with this command. Intercom ephone-dns cannot be dual-line. |
| **Step 4** | **number** *number*<br>**Example:**<br>`Router(config-ephone-dn)# number A2345` | Assigns a valid intercom number.<br>• 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*<br>**Example:**<br>`Router(config-ephone-dn)# name intercom` | Sets a name to be associated with the ephone-dn.<br>• This name is used for caller-ID displays and also shows up in the local directory associated with the ephone-dn. |

| | Command or Action | Purpose |
|---|---|---|
| **Step 6** | **intercom** *extension-number* [[**barge-in** [**no-mute**] \| **no-auto-answer** \| **no-mute**] [**label** *label*]] \| **label** *label*]<br>**Example:**<br>`Router(config-ephone-dn)# intercom A2346 label Security` | Defines the directory number that is speed-dialed for the intercom feature when this line is used. |
| **Step 7** | **exit**<br>**Example:**<br>`Router(config-ephone-dn)# exit` | Exits ephone-dn configuration mode. |
| **Step 8** | **ephone** *phone-tag*<br>**Example:**<br>`Router(config)# ephone 24` | Enters ephone configuration mode. |
| **Step 9** | **button** *button-number*:*dn-tag* [[*button-number*:*dn-tag*] **...**]<br>**Example:**<br>`Router(config-ephone)# button 1:1 2:4 3:14` | Assigns a button number to the intercom ephone-dn being configured.<br>• 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**<br>**Example:**<br>`Router(config)# exit` | Exits ephone configuration mode and enters privileged EXEC mode. |

# Configure Whisper Intercom on SCCP Phones

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

**Restriction**

- 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.

### Before you begin

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

### 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

#### Procedure

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

#### Example

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
```

# Configure an Intercom Auto-Answer Line on SIP Phones

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.

**Restriction**

- 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.

### Before you begin

Cisco CME 3.4 or a later version.

## 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

### Procedure

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **enable**<br>**Example:**<br>`Router> enable` | Enables privileged EXEC mode.<br>• Enter your password if prompted. |

| | Command or Action | Purpose |
|---|---|---|
| **Step 2** | **configure terminal**<br>**Example:**<br>`Router# configure terminal` | Enters global configuration mode. |
| **Step 3** | **voice register dn** *dn-tag*<br>**Example:**<br>`Router(config-register-global)# voice register dn 1` | Enters voice register dn configuration mode to define a directory number for a Cisco Unified SIP IP phone, intercom line, voice port, or an MWI. |
| **Step 4** | **number** *number*<br>**Example:**<br>`Router(config-register-dn)# number A5001` | Defines a valid number for the directory number being configured.<br>• 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**<br>**Example:**<br>`Router(config-register-dn)# auto-answer` | Enables the Intercom Auto-Answer feature on the directory number being configured. |
| **Step 6** | **exit**<br>**Example:**<br>`Router(config-register-dn)# exit` | Exits voice register dn configuration mode. |
| **Step 7** | **voice register pool** *pool-tag*<br>**Example:**<br>`Router(config)# voice register pool 3` | Enters voice register pool configuration mode to set phone-specific parameters for a Cisco Unified SIP IP phone in Cisco Unified CME. |
| **Step 8** | **id** {**mac** *address*}<br>**Example:**<br>`Router(config-register-pool)# id mac 0009.A3D4.1234` | Explicitly identifies a locally available individual Cisco Unified SIP IP phone to support a degree of authentication. |
| **Step 9** | **type** *phone-type*<br>**Example:**<br>`Router(config-register-pool)# type 7960-7940` | Defines a phone type for the Cisco Unified SIP IP phone being configured. |
| **Step 10** | **number** *tag* **dn** *dn-tag*<br>**Example:**<br>`Router(config-register-pool)# number 1 dn 17` | Associates a directory number with the Cisco Unified SIP IP phone being configured. |

| | Command or Action | Purpose |
|---|---|---|
| **Step 11** | **end**<br>**Example:**<br>`Router(config-register-pool)# end` | Exits voice register pool configuration mode and enters privileged EXEC mode. |

# Configure Intercom Call Option on SIP Phones

**Restriction**

- 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.

### Before you begin

- 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.

## 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

### Procedure

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **enable**<br>**Example:**<br>`Router> enable` | Enables privileged EXEC mode.<br>• Enter your password if prompted. |

| | Command or Action | Purpose |
|---|---|---|
| **Step 2** | **configure terminal**<br>**Example:**<br>`Router# configure terminal` | Enters global configuration mode. |
| **Step 3** | **voice register dn** *dn-tag*<br>**Example:**<br>`Router(config)# voice register dn 4` | Enters voice register dn configuration mode to define an extension for a SIP intercom line. |
| **Step 4** | **number** *number*<br>**Example:**<br>`Router(config-register-dn)# number 4001` | Associates a telephone or extension number with a Cisco Unified SIP phone in a Cisco Unified CME system. |
| **Step 5** | **intercom** [**speed-dial** *digit-string*] [**label** *label-text*]<br>**Example:**<br>`Router(config-register-dn)# intercom [speed-dial 4002] [label intercom4001]` | Enables the intercom call option on a Cisco Unified SIP IP phone.<br>• (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.<br>• (Optional) **label** *label-text*—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. |
| **Step 6** | **exit**<br>**Example:**<br>`Router(config-register-dn)# exit` | Exits configuration mode to the next highest mode in the configuration mode hierarchy. |
| **Step 7** | **voice register pool** *pool-tag*<br>**Example:**<br>`Router(config)# voice register pool 3` | Enters voice register pool configuration mode to set phone-specific parameters for a Cisco Unified SIP phone in Cisco Unified CME. |
| **Step 8** | **id** {**network** *address* **mask** *mask* \| **ip** *address* **mask** *mask* \| **mac** *address*}<br>**Example:**<br>`Router(config-register-pool)# id mac 0009.A3D4.` | Explicitly identifies a locally available individual Cisco Unified SIP phone to support a degree of authentication. |
| **Step 9** | **type** *phone-type*<br>**Example:**<br>`Router(config-register-pool)# type 7940` | Defines a phone type for the Cisco Unified SIP phone being configured. |
| **Step 10** | **number** *tag* **dn** *dn-tag*<br>**Example:** | Associates a directory number tag with the Cisco Unified SIP IP phone being configured. |

| | Command or Action | Purpose |
|---|---|---|
| | `Router(config-register-pool)# number 1 dn 17` | |
| **Step 11** | **end**<br>**Example:**<br>`Router(config-register-dn)# end` | Exits to privileged EXEC mode. |

# Configuration Examples for Intercom Lines

## Example for Configuring Intercom Lines

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
```

## Example for Configuring SIP Intercom Support

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 Generate Configuration Files for Phones.

### 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 Paging.

# Feature Information for Intercom Lines

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to https://cfnng.cisco.com/. An account on Cisco.com is not required.

*Table 2: Feature Information for Intercom Lines*

| 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. |