



Cisco IP Phones

Cisco IP Phones as full-featured telephones can plug directly into your IP network. H.323 clients and CTI ports comprise software-based devices that you configure similarly to the Cisco IP Phones. Cisco CallManager Administration allows you to configure phone features such as call forwarding and call waiting for your phone devices. You can also create phone button templates to assign a common button configuration to a large number of phones.

After you have added the phones, you can associate users with them. By associating a user with a phone, you give that user control over that device.

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Supported Cisco IP Phones

[Table 35-1](#) provides an overview of the features that are available on the following Cisco IP Phones that are supported by Cisco CallManager:

- Cisco IP Phone 7900 family (models 7960, 7940, 7910, and 7905)
- Cisco IP Phone 7914 expansion module
- Cisco IP Conference Station 7935
- Cisco IP Phone model 30 VIP
- Cisco IP Phone model 12 series

Table 35-1 Supported Cisco IP Phones and Features

Cisco IP Phone Model	Description
Cisco IP Phone 7960	<p>The Cisco IP Phone model 7960, a full-featured, six-line business set, supports the following features:</p> <ul style="list-style-type: none"> • A help (?) button • Six programmable line or speed-dial buttons • Four fixed buttons for accessing voice-mail messages, adjusting phone settings, accessing services, and accessing directories • Four soft keys for accessing additional call details and functionality (soft keys change depending on the call state for a total of 16 soft keys) • A large LCD display that shows call details and softkey functions • An internal, two-way, full-duplex speakerphone and microphone mute

Table 35-1 Supported Cisco IP Phones and Features (continued)

Cisco IP Phone Model	Description
Cisco IP Phone 7940	<p>The Cisco IP Phone model 7940, a two-line business set with features similar to the Cisco IP Phone model 7960, includes the following features:</p> <ul style="list-style-type: none"> • A help (?) button • Two programmable buttons (You can configure these buttons as two lines or one line and one speed dial.) • Four fixed buttons for accessing voice-mail messages, services, and directories, and adjusting phone settings • Four soft keys for accessing additional call details and functionality (soft keys change depending upon the call state for a total of 16 soft keys) • A large LCD display that shows call details and softkey functions • An internal, two-way, full-duplex speakerphone and microphone mute
Cisco IP Phone 7914 Expansion Module	<p>Cisco IP Phone 7914 Expansion Module extends the functionality of the Cisco IP Phone 7960 by providing 14 additional line appearance buttons. You can configure these buttons as lines or speed dials.</p> <p>The Cisco IP Phone 7914 Expansion Module includes an LCD to identify the function of the button and the line status.</p> <p>You can daisy chain two Cisco IP Phone 7914 Expansion Modules to provide 28 additional lines or speed dials.</p>

Table 35-1 Supported Cisco IP Phones and Features (continued)

Cisco IP Phone Model	Description
Cisco IP Phone 7910	<p>The Cisco IP Phone 7910, a single-line, basic-feature phone that is designed primarily for common-use areas with medium telephone traffic such as lobbies or breakrooms, includes the following features:</p> <ul style="list-style-type: none"> • Four dedicated feature buttons for Line, Hold, Transfer, and Settings • Six programmable feature buttons that you can configure through phone button templates in Cisco CallManager <p>Available features include Call Park, Redial, Speed Dial, Call Pickup, Conference, Forward All, Group Call Pickup, Message Waiting, and Meet-Me Conference.</p> <ul style="list-style-type: none"> • A two-line LCD display (24 characters per line) that indicates the directory number, call status, date, and time • An internal speaker that is designed for hands-free dialing.

Table 35-1 Supported Cisco IP Phones and Features (continued)

Cisco IP Phone Model	Description
Cisco IP Phone 7905	<p>The Cisco IP Phone 7905, a low-cost, single-line, basic-feature phone that is designed primarily for common-use areas such as cafeterias, break rooms, lobbies, and manufacturing floors, includes the following features:</p> <ul style="list-style-type: none"> • LCD that displays features such as time, date, phone number, caller ID, call status, and softkey tabs • Four softkeys that engage any of the functions that display on the corresponding LCD screen tabs. Softkey functions change depending on the status of the phone • Three dedicated buttons for Hold, Menu, and Navigation • An internal speaker that is designed for hands-free dialing
Cisco IP Conference Station 7935	<p>The Cisco IP Conference Station 7935, a full-featured, IP-based, full-duplex, hands-free conference station for use on desktops and offices and in small-to medium-sized conference rooms, includes the following features:</p> <ul style="list-style-type: none"> • Three soft keys and menu navigation keys that guide a user through call features and functions Available features include Call Park, Call Pick Up, Group Call Pick Up, Transfer, and Conference (Ad Hoc and Meet-Me). • An LCD display that indicates the date and time, calling party name, calling party number, digits dialed, feature, and line status • A digitally tuned speaker and three microphones that allow conference participants to move around while speaking • Microphone mute

Table 35-1 Supported Cisco IP Phones and Features (continued)

Cisco IP Phone Model	Description
Cisco IP Phone 12 SP+	<p>The Cisco IP Phone model 12 SP+ offers many of the same features as PBX or POTS telephones. This IP phone includes the following features:</p> <ul style="list-style-type: none"> • 12 programmable line and feature buttons • An LED that is associated with each of the 12 feature and line buttons to indicate feature and line status • A two-line LCD display (20 characters per line) for call status and identification • An internal, two-way speakerphone and microphone mute
Cisco IP Phone 30 VIP	<p>The Cisco IP Phone model 30 VIP offers many of the same features as PBX or POTS telephones. This IP phone includes the following features:</p> <ul style="list-style-type: none"> • 26 programmable line and feature buttons • An LED that is associated with each of the 26 feature and line buttons to indicate feature and line status • A two-line LCD for displaying date and time, calling party name, calling party number, and digits dialed • An internal, two-way speakerphone with microphone mute • Dedicated feature buttons for Transfer, Hold, and Redial

H.323 Clients and CTI Ports

Cisco CallManager Administration enables you to configure software-based devices such as H.323 clients and CTI ports. Software-based Cisco CallManager applications such as Cisco SoftPhone, Cisco AutoAttendant, and Cisco IP Interactive Voice Response (IVR) use CTI ports that are virtual devices.

H.323 clients include Microsoft NetMeeting devices and NetVision Symbol phones.

You configure H.323 clients and CTI ports through the Phone Configuration window in the Cisco CallManager Administration like you do phones, but they often require fewer configuration settings.

For instructions on how to configure H.323 clients and CTI ports, refer to [“Cisco IP Phone Configuration”](#) in the *Cisco CallManager Administration Guide*.

Phone Button Templates

Cisco CallManager includes several default phone button templates. When adding phones, you can assign one of these templates to the phones or create a new template.

Creating and using templates provides a fast way to assign a common button configuration to a large number of phones. For example, if users in your company do not use the conference feature, you can create a template that reassigns this button to a different feature, such as speed dial.

To create a template, you must make a copy of an existing template and assign the template a unique name. You can make changes to the custom templates that you created, and you can change the labels of the default phone button templates. You cannot change the function of the buttons in the default templates. You can rename existing templates and modify them to create new ones, update custom templates to add or remove features, lines, or speed dials, and delete custom templates that are no longer being used. When you update a template, the change affects all phones that use the template.

Renaming a template does not affect the phones that use that template. All Cisco IP Phones that use this template continue to use this template after it is renamed.

Make sure that all phones have at least one line that is assigned to each phone. Normally, this assignment specifies button 1. Phones can have additional lines that are assigned, depending on the Cisco IP Phone model. Phones also generally have several features, such as speed dial and call forward, that are assigned to the remaining buttons.

You can delete phone templates that are not currently assigned to any phone in your system if they are not the only template for a given phone model. You cannot delete a template that is assigned to one or more devices or the default template for a model (specified in the Device Defaults Configuration window). You must reassign all Cisco IP Phones that are using the template that you want to delete to a different phone button template before you can delete the template.

Cisco CallManager does not directly control all features on Cisco IP Phones through phone button templates. Refer to the *Cisco IP Phone Administration Guide for Cisco CallManager* and other phone documentation for detailed information about individual Cisco IP Phone 7900 family models.

Default Phone Button Templates

Although all Cisco IP Phones support similar features, you implement these features differently on various models. For example, some models configure features such as Hold or Transfer by using phone button templates; other models have fixed buttons or onscreen program keys for these features that are not configurable. Also, the maximum number of lines or speed dials that are supported differs for some phone models. These differences require different phone button templates for specific models.

Each Cisco IP Phone model comes with a default phone button template. You can use the default templates as is to quickly configure phones. You can also copy and modify the templates to create custom templates.

Custom templates enable you to make features available on some or all phones, restrict the use of certain features to certain phones, configure a different number of lines or speed dials for some or all phones, and so on, depending on how the phone will be used. For example, you may want to create a custom template that can be applied to phones that will be used in conference rooms. [Table 35-2](#) provides descriptions of the default phone button template for each Cisco IP Phone model.

Table 35-2 Default Phone Button Templates Listed by Model

Cisco IP Phone Model	Default Phone Button Template Description
Cisco IP Phone 7960	The default Cisco IP Phone 7960 template uses buttons 1 and 2 for lines and assigns buttons 3 through 6 as speed dials. Access other phone features, such as call park, call forward, redial, hold, resume, call back, conferencing, and so on by using soft keys on the Cisco IP Phone 7960.
Cisco IP Phone 7940	The Cisco IP Phone 7940 comes with a preconfigured 1-line phone button template (button 1 for line 1 and button 2 for speed dial). Access phone features, such as call park, call forward, redial, hold, resume, call back, conferencing, and so on, by using soft keys on the Cisco IP Phone 7940.
Cisco IP Phone 7914 Expansion Module	The default Cisco IP Phone 7914 Expansion Module template uses buttons 1 through 11 for speed dial and leaves buttons 12 through 14 undefined. Access phone features, such as call park, call forward, redial, hold, resume, conferencing, and so on, by using soft keys on the Cisco IP Phone 7960. Each Cisco IP Phone 7914 Expansion Module can use a different template.
Cisco IP Phone 7910	The default phone button template for the Cisco IP Phone 7910 (named Default 7910) uses button 1 for message waiting, button 2 for conference, button 3 for forwarding, buttons 4 and 5 for speed dial, and button 6 for redial. The Cisco IP Phone 7910 has fixed buttons for Line, Hold, Transfer, and Settings.
Cisco IP Phone 7905	The default phone button template for the Cisco IP Phone 7905 (named Default 7905) uses button 1 for line 1, buttons 2, 3, 4, and 5 for speed dial, button 6 for Hold, and button 7 for Settings.
Cisco IP Conference Station 7935	Because this phone only has a single line, Cisco does not provide a default phone button template.

Table 35-2 Default Phone Button Templates Listed by Model (continued)

Cisco IP Phone Model	Default Phone Button Template Description
Cisco IP Phone 30 SP+	<p>The default Cisco IP Phone model 30 SP+ template uses buttons 1 through 4 for lines, button 5 for call park, button 6 for redial, buttons 8 through 13 and 22 through 25 for speed dial, button 14 for message waiting indicator, button 15 for forward, and button 16 for conference.</p> <p>Note For only the Cisco IP Phone model 30 SP+, assign button 26 for automatic echo cancellation (AEC).</p>
Cisco IP Phone 30 VIP	<p>The default Cisco IP Phone model 30 VIP template uses buttons 1 through 4 for lines, button 5 for call park, button 6 for redial, buttons 8 through 13 and 22 through 25 for speed dial, button 14 for message waiting indicator, button 15 for call forward, and button 16 for conference.</p>
Cisco IP Phone 12 Series	<p>All Cisco IP Phone model 12 Series phones (12 S, 12 SP, 12 SP+) use the default Cisco IP Phone model 12 SP+ template.</p> <p>The default Cisco IP Phone model 12 SP+ template uses buttons 1 and 2 for lines, button 3 for redial, buttons 4 through 6 for speed dial, button 7 for hold, button 8 for transfer, button 9 for forwarding, button 10 for call park, button 11 for message waiting, and button 12 for conference.</p>

Guidelines for Customizing Phone Button Templates

Use the following guidelines when you are creating custom phone button templates:

- Make sure that phone users receive a quick reference card or getting started guide that describes the most basic features of the custom template. If you create a custom template to be used by employees in your company, make sure that it includes the following features and that you describe them on the quick reference card that you create for your users.
 - Cisco IP Phone 7960, 7940—Line (one or more)
 - Cisco IP Phone 7910—Forward all
 - Cisco IP Phone model 12 SP+—Line (one or more), hold, call park, and forward all
 - Cisco IP Phone model 30 VIP—Line (one or more), call park, and forward all
- Consider the nature of each feature to determine how to configure your phone button template. You might want to assign multiple buttons to speed dial and line; however, you usually require only one of the other features that are described in [Table 35-3](#).

Table 35-3 Phone Feature Description

Feature	Description
AEC	If you are configuring a template for the Cisco IP Phone model 30 VIP, you must include one occurrence of this feature and assign it to button 26. Auto echo cancellation (AEC) reduces the amount of feedback that the called party receives when the calling party is using a speakerphone. Users should press the AEC button on a Cisco IP Phone model 30 SP+ when they are using speakerphone. Users do not need to press this button when speakerphone is not in use. This feature requires no configuration for it to work.
Answer/release	In conjunction with a headset apparatus, the user can press a button on the headset apparatus to answer and release (disconnect) calls.

Table 35-3 Phone Feature Description (continued)

Feature	Description
Auto answer	If this feature is programmed on the template, activating this button causes the speakerphone to go off hook automatically when an incoming call is received. The Cisco IP Phone 7905 does not support auto answer.
Call park	In conjunction with a call park number or range, when the user presses this button, call park places the call at a directory number for later retrieval. You must have a call park number or range that is configured in the system for this button to work, and you should provide that number or range to your users, so they can dial in to the number(s) to retrieve calls.
Call pickup	Call pickup allows users to pick up incoming calls within their own group. When a user activates this feature, the phone automatically dials the appropriate call pickup group number.
Conference	When users press this button, they initiate an ad hoc conference and then add in other conference participants one at a time. Only the person who initiates an ad hoc conference needs a conference button. You must make sure that an ad hoc conference device is configured in Cisco CallManager Administration for this button to work.
Forward all	Users press this button to forward all calls to the designated directory number. Users can designate the forward all in the Cisco IP Phone Configuration windows, or you can designate a forward all number for each user in Cisco CallManager Administration.
Group call pickup	Group call pickup allows users to pick up incoming calls within their own group or in other groups. Users must dial the appropriate call pickup group number when using this feature.

Table 35-3 Phone Feature Description (continued)

Feature	Description
Hold	Users press this button to place an active call on hold. To retrieve a call on hold, users press the flashing line button or lift the handset and press the flashing line button for the call on hold. The caller on hold receives a tone every 10 seconds to indicate the hold status or music (if the Music On Hold feature is configured). The hold tone feature requires no configuration to work.
Line	Users press this button to dial a number or to answer an incoming call. You must have added directory numbers on the user phone for this button to work.
Meet-Me conference	When users press this button, they initiate a meet-me conference, and they expect other invited users to dial in to the conference. Only the person who initiates a meet-me conference needs a meet-me button. You must make sure that a meet-me conference device is configured in Cisco CallManager Administration for this button to work.
Message waiting	Users press this button to connect to the voice-messaging system.
None	Use None to leave a button unassigned.
Redial	Users press this button to redial the last number that was dialed on the Cisco IP Phone. This feature requires no configuration to work.
Speed-dial	Users press this button to speed dial a specified number. System administrators can designate speed-dial numbers in Cisco CallManager Administration. Users can designate speed-dial numbers in the Cisco IP Phone Configuration windows.
Transfer	Users press this button to transfer an active call to another directory number. This feature requires no configuration to work.

Softkey Templates

Use softkey templates to manage softkeys that are associated with applications such as Cisco IPMA or call-processing features such as Cisco Call Back on the Cisco IP Phone Models 7905, 7940, and 7960. The administrator uses the Softkey Template Configuration windows in Cisco CallManager Administration to create and update softkey templates.

Cisco CallManager supports two types of softkey templates: standard and nonstandard. Standard softkey templates in the Cisco CallManager database contain the recommended selection and positioning of the softkeys for an application. Standard User, Standard IPMA Assistant, and Standard IPMA Manager represent examples of standard softkey templates.

**Note**

The default process assigns the Cisco CallManager call-processing softkeys (called Standard User) to the Cisco IP Phone. The administrator must assign other standard or nonstandard softkey templates to the Cisco IP Phone.

The administrator creates a nonstandard softkey template by using the Softkey Template Configuration windows in Cisco CallManager Administration. To create a nonstandard softkey template, the administrator copies a standard softkey template and makes changes. The administrator can add and remove applications that are associated with any nonstandard softkey template. Additionally, the administrator can configure softkey sets for each call state for a nonstandard softkey template.

The Softkey Template Configuration window lists the standard and nonstandard softkey templates and uses different icons to differentiate between standard and nonstandard templates.

The administrator assigns softkey templates in the following Cisco CallManager Administration configuration windows:

- Device Pool Configuration
- Phone Configuration (Cisco IP Phones 7905, 7940, and 7960)
- Device Profile Configuration
- User Device Profile Configuration

Add Application Button

The administrator can add a standard softkey template that is associated with a Cisco application to a nonstandard softkey template. When the administrator clicks the Add Application button from the Softkey Template Configuration window, a separate window displays and allows the administrator to choose the standard softkey template that is to be added to the end of the nonstandard softkey template. Duplicate softkeys get deleted from the end of the set that is moving to the front of the set.



Tip

To refresh the softkeys for an application in the nonstandard softkey template, choose the standard softkey template that is already associated with the nonstandard softkey template. For example, if the administrator originally copied the Standard User template and deleted some buttons, choose the Standard User softkey template by clicking on the Add Application button. This adds the buttons that are included in the chosen softkey template.

The number of softkeys in any given call state cannot exceed 16. An error message displays, and the add application procedure stops when the maximum number of softkeys is reached. The administrator must manually remove some softkeys from the call state before trying to add another application to the template.

The Delete Application button allows the administrator to delete application softkey templates that are associated with a nonstandard softkey template. Only the softkeys that are associated with the application get deleted. When softkeys are commonly shared between applications, they remain in the softkey template until the last application that shares the softkeys is removed from the softkey template.

Configure Softkey Layout

The administrator can configure softkey sets for each call state for a nonstandard softkey template. When the administrator clicks the Configure Softkey Layout link from the Softkey Template Configuration window, the Softkey Layout Configuration window displays.

The Softkey Layout Configuration window contains the following fields:

- Call states—Lists the different call states of a Cisco IP Phone. You cannot add, update, or delete call states. The highlighted call state indicates the chosen call state and the softkeys that are available for that call state. [Table 35-4](#) lists the call states.

Table 35-4 Call States

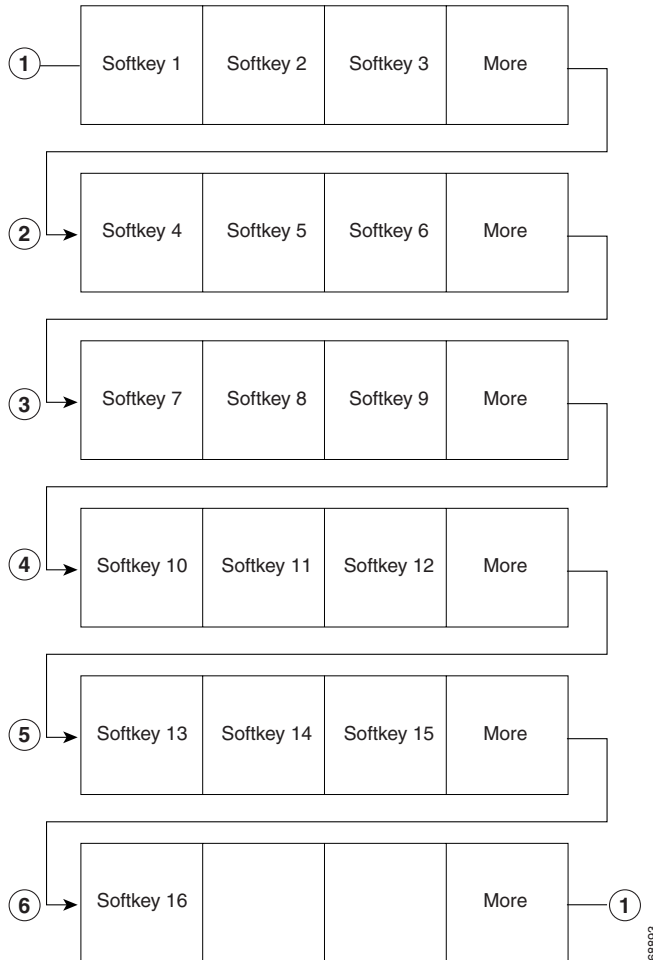
Call State	Description
Connected	Displays when call is connected
Connected Conference	Consultation call for conference in connected call state
Connected Transfer	Consultation call for transfer in connected call state
Digits After First	Off-hook call state after user enters the first digit
Off Hook	Dial tone presented to phone
Off Hook With Feature	Off-hook call state for transfer or conference consultation call
On Hold	Call on hold
On Hook	Displays when no call for that phone
Remote In Use	Another device that shares the same line uses call.
Ring In	Call received and ringing
Ring Out	Call initiated and the destination ringing

- Unselected softkeys—Lists softkeys that are associated with a call state. This field lists the unselected, optional softkeys when the call state is highlighted. The softkeys that are listed in this field get added to the chosen softkeys field by using the right arrows. You can add the Undefined softkey more than once in the chosen softkey list. Choosing Undefined results in a blank softkey on the Cisco IP Phone.
- Selected softkeys—Lists softkeys that are associated with the chosen call state. This field lists the chosen softkeys when the call state is highlighted. The maximum number of softkeys in this field cannot exceed 16. See [Figure 35-1](#) for the softkey layout.

**Note**

Cisco recommends that a softkey remain in the same position for each call state. This provides the user with consistency and ease of use; for example, the More softkey always appears in the fourth softkey position from the left for each call state.

Figure 35-1 Softkey Layout



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Softkey Template Operation

For applications such as Cisco IPMA to support softkeys, ensure softkeys and softkey sets are configured in the database for each device that uses the application.

You can mix application and call-processing softkeys in any softkey template. A static softkey template associates with a device in the database. When a device registers with Cisco CallManager, the static softkey template gets read from the database into call processing and then gets passed to the device to be used throughout the session (until the device is no longer registered or is reset). When a device resets, it may get a different softkey template or softkey layout because of updates that are made by the administrator.

Softkeys support a field called application ID. An application, such as Cisco IPMA, activates/deactivates application softkeys by sending a request to the device through the Cisco CTIManager and call processing with a specific application ID.

When a user logs into the Cisco IPMA service and chooses an assistant for the service, the application sends a request to the device, through Cisco CTIManager and call processing, to activate all its softkeys with its application ID.

At any time, several softkey sets may display on a Cisco IP Phone (one set of softkeys for each call).

The softkey template that is associated with a device (such as a Cisco IP Phone) in the database designates the one that is used when the device registers with call processing. Perform the association of softkey templates and devices by using Softkey Template configuration in Cisco CallManager Administration. See [Softkey Template Configuration](#) in the *Cisco CallManager Administration Guide*.

Methods for Adding Phones

You can automatically add phones to the Cisco CallManager database by using auto-registration, manually by using the phone configuration windows, or in groups with the Bulk Administration Tool (BAT).

By enabling auto-registration before you begin installing phones, you can automatically add a Cisco IP Phone to the Cisco CallManager database when you connect the phone to your IP telephony network. For information on enabling

auto-registration, refer to “[Enabling Auto-Registration](#)” in the *Cisco CallManager Administration Guide*. During auto-registration, Cisco CallManager assigns the next available sequential directory number to the phone. In many cases, you might not want to use auto-registration; for example, if you want to assign a specific directory number to a phone.

If you do not use auto-registration, you must manually add phones to the Cisco CallManager database or use the Bulk Administration Tool (BAT). BAT, a plug-in application, enables system administrators to perform batch add, modify, and delete operations on large numbers of Cisco IP Phones. Refer to the *Bulk Administration Tool Guide for Cisco CallManager* for detailed instructions on using BAT.

Directory Numbers

Using Cisco CallManager, you can configure and modify directory numbers (lines) that are assigned to specific phones.

You can set up one or more lines with a shared line appearance. A Cisco CallManager system considers a directory number to be a shared line if it appears on more than one device in the same partition.

In a shared line appearance, for example, you can set up a shared line, so a directory number appears on line 1 of a manager phone and also on line 2 of an assistant phone. Another example of a shared line would be a single incoming 800 number that is set up to appear as line 2 on every sales representative phone in an office.

The following notes and tips apply to using shared line appearances with Cisco CallManager:

- You create a shared line appearance by assigning the same directory number and partition to different lines on different devices.
- If other devices share a line, the words Shared Line display in red next to the directory number in the Configure a Line Number window in Cisco CallManager Administration.
- If you change the Calling Search Space, Call Waiting, or Call Forward and Pickup settings on any device that uses the shared line, the changes apply to all devices that use that shared line.

- To stop sharing a line appearance on a device, change the directory number or partition number for the line and update the device.
- In the case of a shared line appearance, Delete removes the directory number only on the current device. The deletion does not affect other devices.
- Do not use shared line appearances on any phone that will be used with attendant console.
- Do not use shared line appearances on any Cisco IP Phone 7960 that requires auto-answer capability.
- Do not turn on auto-answer, a capability that is available on any Cisco IP Phone 7960 for a shared line appearance.
- Do not configure shared line appearances on the primary lines of the phones; for example, if two phones have a shared line appearance, only one of the phones should have the primary line configured as shared (the other phone should have the secondary line configured as shared).

Phone Features

Cisco CallManager enables you to configure the following phone features on Cisco IP Phones: barge, call back, call waiting, call forward, call park, and call pickup.

Barge

Barge adds a user to a call that is in progress. The barge feature supports shared lines only. Pressing the barge soft key automatically adds the user (initiator) to the shared line call (target), and the users currently on the call receive a tone.

When the barge initiator hangs up, the remaining users receive a disconnect tone, leaving the original call in progress. When the user to whom the barge was initiated releases the call, the barge initiator and the other users disconnect. Additionally, when a user other than the barge initiator or barge target releases the call, all parties disconnect.

If the barge target puts the call on hold, puts it in a conference, or transfers it, the barge initiator gets disconnected from the call; the other users remain connected. If any other user puts the call on hold, puts it in a conference, or transfers it, the barge initiator and the barge target remain connected to the call.

Enable or disable barge, a system-wide feature, in Cisco CallManager Administration by using the service parameter `BargeEnabled`. Disabled designates the default setting for the barge service parameter. To make the barge feature available on the Cisco CallManager cluster, the administrator must set the `BargeEnabled` service parameter to enabled.

To set the `BargeEnabled` service parameter, choose **Service > Service Parameters** from the Cisco CallManager Administration window. When the service parameters configuration window displays, the administrator chooses a Cisco CallManager server and the Cisco CallManager service. Cluster Wide Parameters, General Feature lists the Barge Enabled Flag service parameter. Change the parameter value to True to enable barge and click the **Update** button. When the change takes affect, all Cisco CallManager servers in the cluster support barge. Refer to [Chapter 30, “Service Parameters Configuration”](#) of the *Cisco CallManager Administration Guide*.

The barge feature has the following restrictions:

- Supports only Cisco IP Phone models 7940 and 7960
- Supports only G.711 voice coding

Call Back

The Cisco Call Back feature allows you to receive call back notification on your Cisco IP Phone when a called party line becomes available. To receive call back notification, a user presses the CallBack softkey while receiving a busy or ringback tone. You can activate call back notification on a line on a Cisco IP Phone Model 7940 or 7960 within the same Cisco CallManager cluster as your phone. You cannot activate call back notification if the called party has forwarded all calls to another extension.

For more information about the Call Back feature, refer to the *Cisco CallManager Features and Services Guide* and the *Cisco IP Phone Models 7960 and 7940 User Guide*.

Call Waiting

Call waiting lets users receive a second incoming call on the same line without disconnecting the first call. When the second call arrives, the user receives a brief call waiting indicator tone.

Configure call waiting in the Directory Number Configuration window in Cisco CallManager Administration.

Call Forward

Call forward allows a user to configure a Cisco IP Phone, so all calls that are destined for it ring another phone. Three types of call forward exist:

- Call forward all—Forwards all calls.
- Call forward busy—Forwards calls only when the line is in use.
- Call forward no answer—Forwards calls when the phone is not answered after the configured number of rings.

Configure call forward in the Directory Number Configuration window in Cisco CallManager Administration.

Call Park

Call park allows a user to place a call on hold, so anyone who is configured to use call park on the Cisco CallManager system can retrieve it.

For example, if a user is on an active call at extension 1000, the user can park the call to a call park extension such as 1234 and another user can dial 1234 to retrieve the call.

To use call park, you must add the call park extension (in this case, 1234) in Cisco CallManager Administration when you are configuring phone features. For more information about call park, see the [“Call Park” section on page 27-1](#).

Call Pickup

Call pickup allows you to use your phone to answer another ringing phone in your designated call pickup group.

You configure call pickup when you are configuring phone features in Cisco CallManager.

When adding a directory line, you can indicate the call pickup group. The call pickup group indicates a number that can be dialed to answer calls to this directory number (in the specified partition). For more information about call pickup, see the [“Call Pickup and Group Call Pickup” section on page 28-1](#).

Phone Association

Users can control some devices, such as phones. Applications that are identified as users control other devices, such as CTI ports. When users have control of a phone, they can control certain settings for that phone, such as speed dial and call forwarding. For more information on associating phones with users, refer to [“Associating Devices to a User”](#) in the *Cisco CallManager Administration Guide*.

Phone Administration Tips

The following sections contain information that might help you configure phones in the Cisco CallManager Administration.

Phone Search

The following sections describe how to modify your search to locate a phone. If you have thousands of Cisco IP Phones in your network, you might need to limit your search to find the phone that you want. If you are unable to locate a phone, you may need to expand your search to include more phones.

**Note**

The phone search is not case sensitive.

Searching by MAC Address

To search for a phone by its MAC address, choose Device Name and ends with, and enter the last 4 or 5 characters in the MAC address.

Searching by Description

If you enter a user name and/or extension in the Description field when you are adding the phone, you can search by using that value in the Find and List Phones window.

Searching by Calling Search Space or Device Pool

If you choose calling search space or device pool, the options that are available in the database display, you can choose one of these options from the drop-down list box below the Find button.

Searching by Device Type

To search for a phone by its device type, choose Device Type and either enter a device type or choose a device type from the drop-down list box below the Find button.

Searching by Call Pickup Group

To search for a phone by its call pickup group, choose Call Pickup Group and either enter a call pickup group name or click the Find button.

Searching by Directory Number

To search for a phone by its directory number (DN), choose Directory Number and either enter a search criteria (such as begins with or ends with) or click the Find button.

Finding All Phones in the Database

To find all phones that are registered in the database, choose Device Name from the list of fields; choose “is not empty” from the list of patterns; then, click the Find button.



Note

The list in the Find and List Phones window does not include analog phones and fax machines that are connected to gateways (such as a Cisco VG200). This list shows only phones that are configured in Cisco CallManager Administration.

Messages Button

By performing the following actions, you can configure a voice-mail access number for the messages button on Cisco IP Phone 7960/7940, so users can access voice mail by simply pressing the messages button:

1. Configure the voice-mail pilot number by choosing **Feature > Voice Mail > Voice Mail Pilot**.
2. Configure the voice-mail profile by choosing **Feature > Voice Mail > Voice Mail Profile**.

3. Choose the appropriate profile from the Voice Mail Profile field on the Directory Number Configuration window. By default, this field uses the default voice mail profile that uses the default voice-mail pilot number configuration.

**Note**

Typically, you can edit the default voice-mail pilot and default voice-mail profiles to configure voice mail for your site.

For more information on configuring voice mail, see [Voice Mail Connectivity to Cisco CallManager, page 22-1](#).

**Note**

For the Cisco IP Phone models 12 SP+ and 30 VIP, you can use phone button templates to configure a button with the message-waiting feature for access to voice mail.

**Note**

For the Cisco IP Phone 7905, use the Menu button to access your messages.

Directories Button

The Cisco IP Phone 7960/7940 can display a directory of employee names and phone numbers. Although you access this directory from the directories button on the IP phone, you must configure it before users can access it. To use the corporate directory, you must enter users into a Lightweight Directory Access Protocol (LDAP) directory that is configured with Cisco CallManager.

The Directories URL enterprise parameter defines the URL that points to the global directory for display on Cisco IP Phone 7960/7940 phones. The XML device configuration file for the phone stores this URL.

**Tip**

If you are using IP addresses rather than DNS for name resolution, make sure that the URL Directories enterprise parameter value uses the IP address of the server for the hostname.

To verify that the phone is accessing the correct URL after you change the Directories URL enterprise parameter, perform the following steps on the

Cisco IP Phone: press **settings**, **3** (Network Configuration); then, press **27** (Directories URL).

If the phone URL was not updated correctly after the Directories URL parameter was changed, try stopping and restarting the Cisco TFTP service; then, reset the phone.

**Note**

For the Cisco IP Phone 7905, use the Menu button to access the directory.

Maximum Phones Register Per Second Service Parameter

The Cisco CallManager service uses the Maximum Phones Register Per Second service parameter to control the number of phones that are registered per second. Cisco CallManager queues the registration messages up front and processes them at the rate that you specify. The default specifies 10 phones per second. In the Service Parameters Configuration window, you can modify the Maximum Phones Register Per Second service parameter. If the performance value is set too high (the maximum is 500), phone registrations could slow the Cisco CallManager real-time response. If the value is set too low (the minimum is 1), the total time for a large group of phones to register will be slow.

Dependency Records

If you need to find out what directory numbers a specific phone is using, click the Dependency Records link that is provided on the Cisco CallManager Administration Phone Configuration window. The Dependency Records Summary window displays information about directory numbers that are using the phone. To find out more information about the directory number, click the directory number and the Dependency Records Details window displays.

For more information about Dependency Records, refer to [Accessing Dependency Records](#) and [Deleting a Directory Number](#) in the *Cisco CallManager Administration Guide*.

Phone Failover and Failback

This section describes how phones failover and failback if the Cisco CallManager to which they are registered becomes unreachable. This section also covers conditions that can affect calls that are associated with a phone, such as reset or restart.

Cisco CallManager Fails or Becomes Unreachable

The active Cisco CallManager designation applies to the Cisco CallManager from which the phone receives call-processing services. The active Cisco CallManager usually serves as the primary Cisco CallManager for that phone (unless the primary is not available).

If the active Cisco CallManager fails or becomes unreachable, the phone attempts to register with the next available Cisco CallManager in the Cisco CallManager Group that is specified for the device pool to which the phone belongs.

The phone device reregisters with the primary Cisco CallManager as soon as it becomes available after a failure.

Phone is Reset

If a call is in progress, the phone does not reset until the call finishes.

Phone Configuration Checklist

Table 35-5 provides steps to manually configure a phone in Cisco CallManager Administration. If you are using auto-registration, Cisco CallManager adds the phone and automatically assigns the directory number.

Table 35-5 Phone Configuration Checklist

Configuration Steps	Procedures and Related Topics
<p>Step 1 Gather the following information about the phone:</p> <ul style="list-style-type: none"> • Model • MAC address • Physical location of the phone • Cisco CallManager user to associate with the phone • Partition, calling search space, and location information, if used • Number of lines and associated DNs to assign to the phone 	<p>Phone Search, page 35-23</p>
<p>Step 2 Add and configure the phone.</p>	<p>Adding a Phone, Cisco CallManager Administration Guide</p>
<p>Step 3 Add and configure lines (DNs) on the phone. You can also configure phone features such as call waiting, call forward, call park, and call pickup.</p>	<p>Adding a Directory Number, Cisco CallManager Administration Guide</p>
<p>Step 4 Configure speed-dial buttons.</p> <p>You can configure speed-dial buttons for phones if you want to provide speed-dial buttons for users or if you are configuring phones that do not have a specific user who is assigned to them. Users can change the speed-dial buttons on their phones by using the Cisco IP Phone Configuration windows.</p>	<p>Configuring Speed-Dial Buttons, Cisco CallManager Administration Guide</p>

Table 35-5 Phone Configuration Checklist (continued)

Configuration Steps		Procedures and Related Topics
Step 5	Configure Cisco IP Phone services. You can configure services for Cisco IP Phone 7960/7940 models if you want to provide services for users or if you are configuring phones that do not have a specific user who is assigned to them. Users can change the services on their phones by using the Cisco IP Phone User Options windows.	Configuring Cisco IP Phone Services , <i>Cisco CallManager Administration Guide</i>
Step 6	Provide power, install, verify network connectivity, and configure network settings for the Cisco IP Phone.	<i>Cisco IP Phone Administration Guide for Cisco CallManager</i>
Step 7	Associate user with the phone (if required).	Associating Devices to a User , <i>Cisco CallManager Administration Guide</i>
Step 8	Make calls with the Cisco IP Phone.	Refer to the user guide for your Cisco IP Phone.

Where to Find More Information

Related Topics

- [Voice Mail Connectivity to Cisco CallManager](#), page 22-1
- [Call Park](#), page 27-1
- [Call Pickup and Group Call Pickup](#), page 28-1
- [Enabling Auto-Registration](#), *Cisco CallManager Administration Guide*
- [Configuring Cisco IP Phones](#), *Cisco CallManager Administration Guide*
- [Associating Devices to a User](#), *Cisco CallManager Administration Guide*
- [Service Parameters Configuration](#), *Cisco CallManager Administration Guide*

Additional Cisco CallManager Documentation

- *Cisco IP Phone Administration Guide for Cisco CallManager*
- *Cisco IP Phone Models 7960 and 7940 User Guide*

- *Getting Started with the Cisco IP Phone 7910*
- *Cisco IP Conference Station 7935 Administration Guide*
- *Bulk Administration Tool Guide for Cisco CallManager*
- *Cisco IP Manager Assistant User Guide*