



Cisco Unified CME Commands: B

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b2bua

To configure a dial peer associated with an individual Session Initiation Protocol (SIP) phone in Cisco Unified CME or a group of phones in a Cisco Unified SIP Survivable Remote Site Telephony (SRST) environment to point to Cisco Unity Express, use the **b2bua** command in dial-peer configuration mode. To disable B2BUA call flow on the dial peer, use the **no** form of this command.

b2bua
no b2bua

Syntax Description This command has no arguments or keywords.

Command Default B2BUA callflow is disabled.

Command Modes Dial-peer configuration (config-dial-peer)

Command History	Cisco IOS Release	Cisco Product	Modification
	12.4(4)T	Cisco CME 3.4 Cisco SIP SRST 3.4	This command was introduced.

Usage Guidelines Use the **b2bua** command to set the Cisco Unified CME source address as the 302 redirect contact address for all calls forwarded to Cisco Unity Express.



Note Use the **b2bua** command to configure Cisco SIP SRST 3.4 only after using the **allow-connections** command to enable B2BUA call flow on the SRST gateway.

Examples

The following example shows b2bua included in the configuration for voice dial peer 1:

```
dial-peer voice 1 voip
 destination-pattern 4...
 session target ipv4:10.5.49.80
 session protocol sipv2
 dtmf-relay sip-notify
 b2bua
```

Related Commands

Command	Description
allow-connections	Enables calls between SIP endpoints in a VoIP network.
dial-peer voice	Defines a dial peer and enters dial-peer configuration mode.
mode (voice register global)	Enables the mode for provisioning SIP phones in a Cisco Unified CME system.
show dial-peer voice	Displays information for dial peers.

Command	Description
source-address (voice register global)	Identifies the IP address and port through which SIP phones communicate with a Cisco Unified CME router.
voice register global	Enters voice register global configuration mode in order to set global parameters for all supported Cisco SIP phones in a Cisco Unified CME or Cisco Unified SIP SRST environment.

background save interval

To set the interval of the background save process, use the background save interval command in telephony-service configuration mode.

background save interval interval minutes

Syntax Description

<i>interval minutes</i>	Interval value in minutes. Range:1 to 1440. Must be in increments of 10.
-----------------------------	--

Command Default

The default interval is 10 minutes.

Command Modes

Telephony-service configuration mode

Command History

Cisco IOS Release	Cisco Product	Modification
15.1(4)M	Cisco Unified CME 8.6	This command was introduced.

Usage Guidelines

Use this command to define the background saving interval. The configured interval value should be in increments of 10 minutes. If 0 is configured as the interval, no backup will be created. The default interval is 10 minutes.

Examples

The following example shows background save interval command configured under telephony-service configuration:

```
(config-telephony)#background
(config-telephony)#background save
(config-telephony)#background save interval
(config-telephony)#background save interval 20
(config-telephony)#background save interval 20 minutes
```

bandwidth video tias-modifier

To set the maximum video bandwidth bytes per second (bps) for SIP IP phones, use the `bandwidth video tias-modifier` command in voice register global configuration mode. To reset the maximum video bandwidth for SIP phones, use the **no** form of this command.

bandwidth video tias-modifier bandwidth value [negotiate end-to-end]
no bandwidth video tias-modifier

Syntax Description		
<i>bandwidth value</i>	Bandwidth value in bps. Range:1 to 99999999.	
<i>negotiate end-to-end</i>	Negotiate the minimum SIP-line video bandwidth in SDP end-to-end.	

Command Default No default bandwidth is set.

Command Modes Voice register global

Command History	Cisco IOS Release	Cisco Product	Modification
	15.1(4)M	Cisco Unified CME 8.6	This command was introduced.

Usage Guidelines Use this command to set the maximum video bandwidth for SIP IP phones. Video calls require much higher bandwidth usage than audio only calls. When there is a limitation of resources, video call bandwidth control becomes very crucial for the system. Using the `bandwidth video tias-modifier` command, video calls on Cisco Unified IP Phones 9951 and 9971 can use up to 1Mbps for VGA quality video.

Examples

The following example shows `bandwidth video tias modifier` command configured under voice register global:

```
Router#show run
!
!
!
voice service voip
  allow-connections sip to sip
  !
  !
voice register global
  mode cme
  source-address 10.100.109.10 port 5060
  bandwidth video tias-modifier 256 negotiate end-to-end
  max-dn 200
  max-pool 42
  create profile sync 0004625832149157
  !
voice register pool 1
  id mac 1111.1111.1111
  camera
```

Related Commands

Command	Description
video	Enables video capability on Cisco Unified SIP IP Phones 9951 and 9971.

bind

To bind the source address for signaling and media packets to the IPv4 or IPv6 address of a specific interface, use the **bind** command in SIP configuration mode. To disable binding, use the **no** form of this command.

```
bind {control | media | all} source-interface interface-id [{ipv4-address ipv4-address | ipv6-address ipv6-address}]
no bind
```

Syntax Description

control	Binds Session Initiation Protocol (SIP) signaling packets.
media	Binds only media packets.
all	Binds SIP signaling and media packets. The source address (the address that shows where the SIP request came from) of the signaling and media packets is set to the IPv4 or IPv6 address of the specified interface.
source-interface	Specifies an interface as the source address of SIP packets.
<i>interface-id</i>	Specifies one of the following interfaces: <ul style="list-style-type: none"> • Async : ATM interface • BVI : Bridge-Group Virtual Interface • CTunnel : CTunnel interface • Dialer : Dialer interface • Ethernet : IEEE 802.3 • FastEthernet : Fast Ethernet • Lex : Lex interface • Loopback : Loopback interface • Multilink : Multilink-group interface • Null : Null interface • Serial : Serial interface (Frame Relay) • Tunnel : Tunnel interface • Vif : PGM Multicast Host interface • Virtual-Template : Virtual template interface • Virtual-TokenRing : Virtual token ring
ipv4-address <i>ipv4-address</i>	(Optional) Configures the IPv4 address. Several IPv4 addresses can be configured under one interface.
ipv6-address <i>ipv6-address</i>	(Optional) Configures the IPv6 address under an IPv4 interface. Several IPv6 addresses can be configured under one IPv4 interface.

Command Default Binding is disabled.

Command Modes SIP configuration (conf-serv-sip)
Voice class tenant.

Release	Modification
12.2(2)XB	This command was introduced on the Cisco 2600 series, Cisco 3600 series, Cisco 7200 series, Cisco AS5300, Cisco AS5350, and Cisco AS5400.
12.2(2)XB2	This command was implemented on the Cisco AS5850.
12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T. This command does not support the Cisco AS5300, Cisco AS5350, Cisco AS5850, and Cisco AS5400 in this release.
12.3(4)T	The media keyword was added.
12.4(22)T	Support for IPv6 was added.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5
Cisco IOS XE Amsterdam 17.2.1r	Introduced support for YANG models.

Usage Guidelines Async, Ethernet, FastEthernet, Loopback, and Serial (including Frame Relay) are interfaces within the SIP application.

If the **bind** command is not enabled, the IPv4 layer still provides the best local address.

Examples The following example sets up binding on a SIP network:

```
Router(config)# voice serv voip
Router(config-voi-serv)# sip
Router(config-serv-sip)# bind control source-interface FastEthernet 0
```

Command	Description
sip	Enters SIP configuration mode from voice service VoIP configuration mode.

blf-speed-dial

To enable Busy Lamp Field (BLF) monitoring for a speed-dial number on a phone registered to Cisco Unified CME, use the **blf-speed-dial** command in ephone or voice register pool configuration mode. To disable BLF monitoring for speed-dial, use the **no** form of this command.

```
blf-speed-dial tag number label string [device]
no blf-speed-dial tag
```

Syntax Description

<i>tag</i>	Number that identifies the speed-dial index. Range is 1 to 75 (Skinny Client Control Protocol, SCCP); 1 to 113 (Session Initiation Protocol, SIP).
<i>number</i>	Telephone number to speed dial.
label <i>string</i>	Alphanumeric label that identifies the speed-dial button. The string can contain up to 30 characters.
device	(Optional) Enables phone-based monitoring.

Command Default

BLF monitoring is disabled.

Command Modes

Ephone configuration (config-ephone)
Voice register pool configuration (config-register-pool)

Command History

Cisco IOS Release	Cisco Product	Modification
12.4(11)XJ	Cisco Unified CME 4.1	This command was introduced.
12.4(15)T	Cisco Unified CME 4.1	This command was integrated into Cisco IOS Release 12.4(15)T.
12.4(22)YB	Cisco Unified CME 7.1	This command was modified to add the device keyword.
12.4(24)T	Cisco Unified CME 7.1	This command was integrated into Cisco IOS Release 12.4(24)T.
15.2(4)M	Cisco Unified CME 9.1	This command was modified to increase the BLF speed-dial index for Cisco Unified SIP phones to 113.

Usage Guidelines

This command enables a phone to monitor the status of a line associated with a speed-dial button. The **device** keyword enables BLF monitoring of the phone for which the watched directory number is the primary line. This allows watchers to monitor whether a user is on the phone, not just on an individual line on the phone.

The directory number associated with the speed-dial number must have presence enabled with the **allow watch** command. For device-level monitoring, all directory numbers associated with the monitored phone require the **allow watch** command. If any of the directory numbers is missing this configuration, the device status reported to the watcher could be inconsistent.

After using the **blf-speed-dial** command for Cisco Unified SIP IP phones, you must generate a new configuration profile using the **create profile** command and then restart the phones with the **restart** command.

For information on the BLF status indicators that display on specific types of phones in Cisco Unified CME, see the [Cisco Unified IP Phone documentation](#) for your phone model.

Examples

The following example shows BLF speed-dial monitoring enabled on phone 1 for individual directory numbers. The line status of extensions 51212 and 51214 displays on phone 1 show that presence is enabled for those directory numbers.

```
Router(config)# ephone 1
Router(config-ephone)# blf-speed-dial 1 51212 label sales
Router(config-ephone)# blf-speed-dial 2 51214 label payroll

Router(config)# voice register pool 1
Router(config-register-pool)# blf-speed-dial 1 51212 label sales
Router(config-register-pool)# blf-speed-dial 2 51214 label payroll
```

The following example shows phone-based BLF speed-dial monitoring enabled on phone 2. The line status of all extensions on the phone for which 51212 is the primary number display shows that presence is enabled for those directory numbers.

```
Router(config)# ephone 2
Router(config-ephone)# blf-speed-dial 1 51212 label sales device

Router(config)# voice register pool 2
Router(config-register-pool)# blf-speed-dial 1 51212 label sales device
```

The following example shows BLF speed-dial monitoring enabled on key 13 of phone 3:

```
Router(config)# voice register pool 3
Router(config-register-pool)# blf-speed-dial 13 51212 label sales device
```

Related Commands

Command	Description
allow watch	Allows a directory number on a phone registered to Cisco Unified CME to be watched in a presence service.
create profile	Generates the configuration profile files required for Cisco Unified SIP IP phones.
presence	Enables presence service and enters presence configuration mode.
presence call-list	Enables BLF monitoring for call lists and directories on phones registered to a Cisco Unified CME router.
restart (voice register)	Performs a fast restart of one or all Cisco Unified SIP IP phones associated with a Cisco Unified CME router.

bnea

To specify the audio file used for the busy station not equipped for preemption announcement, use the **bnea** command in voice MLPP configuration mode. To disable use of this audio file, use the **no** form of this command.

bnea *audio-url*
no bnea

Syntax Description

<i>audio-url</i>	Location of the announcement audio file in URL format. Valid storage locations are TFTP, FTP, HTTP, and flash memory.
------------------	---

Command Default

No announcement is played.

Command Modes

Voice MLPP configuration (config-voice-mlpp)

Command History

Release	Cisco Products	Modification
12.4(22)YB	Cisco Unified CME 7.1	This command was introduced.
12.4(24)T	Cisco Unified CME 7.1	This command was integrated into Cisco IOS Release 12.4(24)T.

Usage Guidelines

This command specifies the G.711 a-law or u-law 8-KHz encoded audio file (.wav or .au format) for the announcement that is played to the caller when the dialed number is not preemptable.

The **mlpp indication** command must be enabled (default) for a phone to play preemption announcements.

This command is not supported by Cisco IOS help. If you type **?**, Cisco IOS help does not display a list of valid entries.

Examples

The following example shows the busy station not equipped for preemption announcement is set to the file named **bnea.au** located in flash:

```
Router(config)# voice mlpp
Router(config-voice-mlpp)# bnea flash:bnea.au
```

Related Commands

Command	Description
access-digit	Defines the access digit that phone users dial to request a precedence call.
bpa	Specifies the audio file used for the blocked precedence announcement.
mlpp indication	Enables MLPP indication on an SCCP phone or analog FXS port.
mlpp preemption	Enables preemption capability on an SCCP phone or analog FXS port.

bpa

To specify the audio file used for the blocked precedence announcement, use the **bpa** command in voice MLPP configuration mode. To disable use of this audio file, use the **no** form of this command.

bpa *audio-url*
no bpa

Syntax Description

<i>audio-url</i>	Location of the announcement audio file in URL format. Valid storage locations are TFTP, FTP, HTTP, and flash memory.
------------------	---

Command Default

No announcement is played.

Command Modes

Voice MLPP configuration (config-voice-mlpp)

Command History

Release	Cisco Products	Modification
12.4(22)YB	Cisco Unified CME 7.1	This command was introduced.
12.4(24)T	Cisco Unified CME 7.1	This command was integrated into Cisco IOS Release 12.4(24)T.

Usage Guidelines

This command specifies the G.711 a-law or u-law 8-KHz encoded audio file (.wav or .au format) for the announcement that is played to the caller in the following situations:

- Destination party for the precedence call is off hook.
- Destination party is busy with a precedence call of an equal or higher precedence and the destination party does not have Call Waiting or Call Forward configured, and does not have an attendant-console service configured.

The **mlpp indication** command must be enabled (default) for a phone to play precedence announcements.

This command is not supported by Cisco IOS help. If you type **?**, Cisco IOS help does not display a list of valid entries.

Examples

The following example shows the blocked precedence announcement is set to the file named bpa.au located in flash:

```
Router(config)# voice mlpp
Router(config-voice-mlpp)# bpa flash:bpa.au
```

Related Commands

Command	Description
attendant-console	Specifies the phone number of the MLPP attendant-console service.
bnea	Specifies the audio file used for the busy station not equipped for preemption announcement.
mlpp indication	Enables MLPP indication on an SCCP phone or analog FXS port.

Command	Description
mlpp preemption	Enables preemption capability on an SCCP phone or analog FXS port.

bulk

To set bulk registration for E.164 numbers that will register with SIP proxy server, use the **bulk** command in voice register global configuration mode. To disable bulk registration, use the **no** form of this command.

bulk *number-pattern*

no bulk

Syntax Description

<i>number-pattern</i>	A sequence of digits including wild card character.
-----------------------	---

Command Default

Bulk registration is disabled.

Command Modes

Voice register global configuration (config-register-global)

Command History

Cisco IOS Release	Cisco Product	Modification
12.4(4)T	Cisco CME 3.4	This command was introduced.

Usage Guidelines

This command allows you to configure bulk registration for registering a block of phone numbers with an external registrar so that calls can be routed to Cisco CME from the SIP network.

Numbers that match the number pattern defined by using the **bulk** command register with the external registrar. The block of numbers that is registered can include any phone that is attached to Cisco CME using SIP or SCCP, or any analog phone that is directly attached to a Cisco router FXS port.

A number can contain one or more periods (.) as wildcard characters that will match any dialed number in that position. For example, 51.. rings when 5100 is dialed, when 5101 is dialed, and so forth.

The external registrar is configured by using the **registrar server** command under the SIP user-agent configuration mode.

Examples

The following example shows how to specify that numbers matching 1235 and any other dialed number in the next four positions, be routed to the Cisco CME from the SIP network.

```
Router(config)# voice register global
Router(conf-register-global)# mode cme
Router(conf-register-global)# bulk 1235...
```

Related Commands

Command	Description
mode (voice register global)	Enables the mode for provisioning SIP phones in a Cisco CallManager Express (Cisco CME) system.
no reg (voice register dn)	Specifies that a directory number in a SIP Cisco CallManager Express (Cisco CME) system not register with an external proxy server
no reg (voice hunt-group)	Specifies that a pilot number for a voice hunt group not register with an external proxy server

Command	Description
registrar	Enables SIP registrar functionality.

bulk-speed-dial prefix

To set the prefix code that phone users dial to access speed-dial numbers from a global bulk speed-dial list, use the **bulk-speed-dial prefix** command in telephony-service configuration mode. To return the prefix code to the default, use the **no** form of this command.

bulk-speed-dial prefix *prefix-code*
no bulk-speed-dial-prefix

Syntax Description

<i>prefix-code</i>	One to four-character access code for speed dial. Default is #.
--------------------	---

Command Default

The default prefix code (number sign [#]) is used.

Command Modes

Telephony-service configuration (config-telephony)

Command History

Cisco IOS Release	Cisco Product	Modification
12.4(4)XC	Cisco Unified CME 4.0	This command was introduced.
12.4(9)T	Cisco Unified CME 4.0	This command was integrated into Cisco IOS 12.4(9)T.

Usage Guidelines

This command changes the prefix code that a phone user must dial to access speed-dial numbers from a speed-dial list that is enabled using the **bulk-speed-dial list** command in telephony-service configuration mode. The default prefix is # (number sign).

If a bulk speed-dial list is enabled using this command in telephony-service configuration mode and is also enable using this command in ephone configuration mode, the list enabled in ephone configuration mode takes precedence over the list at the global level for a given prefix. However, if the prefix used at the global level is different than the prefix used at the phone level, the lists are treated as separate lists - each list being associated with a different prefix, and at the phone level, you can access both lists.

Use the **show telephony-service bulk-speed-dial** to display information about bulk speed-dial lists that are configured in Cisco Unified CME.

Examples

The following example changes the default bulk speed-dial prefix to #7 and enables global bulk speed-dial list number 6 for all phones. It also enables a personal bulk speed-dial list for ephone 2. In this example, ephone 2 can access all of the numbers in both lists because each list is assigned a different prefix (# and #7).

```
telephony-service
 bulk-speed-dial list 6 flash:sd_dept_01_1_87.txt
 bulk-speed-dial prefix #7
 ephone-dn 3
  number 2555
 ephone-dn 4
  number 2557
 ephone 2
  button 1:3 2:4
  bulk-speed-dial list 7 flash:lmi_sd_list_08_24_95.csv
```

Related Commands

Command	Description
bulk-speed-dial list	Enables a bulk speed-dial list.
show telephony-service bulk-speed-dial	Displays information about bulk speed-dial lists that are configured in Cisco Unified CME.

busy-trigger-per-button

To set the maximum number of calls allowed on an octo-line directory number before activating Call Forward Busy or a busy tone, use the **busy-trigger-per-button** command in ephone or ephone-template configuration mode. To reset to the default, use the **no** form of this command.

busy-trigger-per-button *number-of-calls*
no busy-trigger-per-button

Syntax Description	<i>number-of-calls</i> Maximum number of calls. Range: 1 to 8. Default: 0 (disabled).
---------------------------	---

Command Default Disabled (busy trigger is 0).

Command Modes Ephone configuration (config-ephone)
 Ephone-template configuration (config-ephone-template)

Command History	Cisco IOS Release	Cisco Product	Modification
	12.4(15)XZ	Cisco Unified CME 4.3	This command was introduced.
	12.4(20)T	Cisco Unified CME 7.0	This command was integrated into Cisco IOS Release 12.4(20)T.

Usage Guidelines This command limits the calls to an octo-line on the specified phone by triggering Call Forward Busy or a busy tone. After the number of active calls, incoming and outgoing, on an octo-line directory number reaches the limit set with this command, the next incoming call to the directory number is forwarded to the Call Forward Busy destination. If Call Forward Busy is not configured, Cisco Unified CME rejects the call and plays a busy tone.

This command applies to each octo-line directory number on the phone.

If a directory number is shared among different phones, the busy trigger is initiated after the number of existing calls exceeds the limit set on any of the phones that share the directory number.

This command must be set to a value that is less than or equal to the value set with the **max-calls-per-button** command.

If you use an ephone template to apply a command to an ephone and you also use the same command in ephone configuration mode for the same ephone, the value that you set in ephone configuration mode has priority.

Examples

The following example shows that after an octo-line on ephone 1 receives four calls, the fifth incoming call triggers Call Forward Busy or a busy tone.

```
Router(config)#
ephone 1
Router(config-ephone)# busy-trigger-per-button 4
```

Related Commands

Command	Description
call-forward busy	Enables call forwarding so that incoming calls to a busy extension are forwarded to another extension.
ephone-dn	Configures a directory number for SCCP phones.
max-calls-per-button	Sets the maximum number of calls allowed on an octo-line directory number on an SCCP phone.

busy-trigger-per-button (voice register pool)

To set the maximum number of calls allowed on a SIP directory number before activating Call Forward Busy or a busy tone, use the **busy-trigger-per-button** command in voice register pool configuration mode. To reset to the default, use the **no** form of this command.

busy-trigger-per-button *number*
no busy-trigger-per-button

Syntax Description	<i>number</i> Maximum number of calls. Range: 1 to 50.
---------------------------	--

Command Default no busy-trigger-per-button

Command Modes Voice register pool configuration (config-register-pool)

Command History	Cisco IOS Release	Cisco Product	Modification
	12.4(22)YB	Cisco Unified CME 7.1	This command was introduced.
	12.4(24)T	Cisco Unified CME 7.1	This command was integrated into Cisco IOS Release 12.4(24)T.

Usage Guidelines

This command limits the number of calls to each directory number on the specified phone by triggering Call Forward Busy or a busy tone. After the number of active calls, both incoming and outgoing, reaches the number of calls set with this command, Cisco Unified CME forwards the next incoming call to the Call Forward Busy destination. Cisco Unified CME rejects the call and plays a busy tone if Call Forward Busy is not configured.

If a directory number is shared among different phones, the busy trigger is initiated after the number of existing calls exceeds the limit set on all of the phones that share the directory number.

This command must be set to a value that is less than or equal to the value set with the **max-calls-per-button** command.

Examples

The following example shows that after a shared-line on phone 1 receives four calls, the fifth incoming call triggers Call Forward Busy or a busy tone.

```
Router(config)#
voice register pool 1
Router(config-register-pool)# busy-trigger-per-button 4
```

Related Commands

Command	Description
huntstop (voice register dn)	Disables call hunting behavior for a directory number on a SIP phone.
max-calls-per-button	Sets the maximum number of calls allowed on an octo-line directory number on an SCCP phone.
shared-line	Creates a directory number to be shared by multiple SIP phones.

button

To associate ephone-dns with individual buttons on a Cisco Unified IP phone and to specify line type or ring behavior, use the **button** command in ephone configuration mode. To remove an ephone-dn association from a button, use the **no** form of this command.

button *button-number* {*separator*} *dn-tag* [,*dn-tag*...] [*button-number*{*x*}*overlay-button-number*] [*button-number*...]

no button *button-number* {*separator*} *dn-tag* [,*dn-tag*...] [*button-number*{*x*}*overlay-button-number*] [*button-number*...]

Syntax Description	
<i>button-number</i>	<p>Number of a line button on a Cisco Unified IP phone that is to be associated with an extension (ephone-dn).</p> <p>The maximum number of button–ephone-dn pairs is determined by the phone type.</p> <p>Note The Cisco Unified IP Phone 7910G has only one physical line button, but you can assign it two button–ephone-dn pairs.</p>
<i>separator</i>	<p>Single character that denotes the characteristics to be associated with this phone button. Valid entries are as follows:</p> <ul style="list-style-type: none"> • : (colon)—Normal ring. For incoming calls on this extension, the phone produces audible ringing, a flashing icon in the phone display, and a flashing red light on the handset. On the Cisco IP Phone 7914 Expansion Module, a flashing yellow light also accompanies incoming calls. • b—Beep but no ring. Audible ring is suppressed for incoming calls, but call-waiting beeps are allowed. Visible cues are the same as those described for a normal ring. • c—Call waiting. Provides call waiting for secondary calls to an overlaid ephone-dn. See also the o keyword. • f—Feature ring. Differentiates incoming calls on a special line from incoming calls on other lines on the phone. The feature-ring cadence is a triple pulse, as opposed to a single pulse for normal internal calls and a double pulse for normal external calls.
	<ul style="list-style-type: none"> • m—Monitor mode for a shared line. Visible line status indicates whether the line is in-use or not. Monitored lines cannot be used on this phone for incoming or outgoing calls. • o—Overlay line. Multiple ephone-dns share a single button, up to a maximum of 25 on a button. See also the c keyword. • s—Silent ring. Audible ring and call-waiting beep are suppressed for incoming calls. The only visible cue is a flashing (< icon in the phone display. <p>Note In Cisco IOS Release 12.4(4)XC and later releases, the silent ringing behavior is overridden during active night-service periods. Silent ringing does not apply during designated night-service periods when the s keyword is used.</p> <ul style="list-style-type: none"> • w—Watch mode for all lines on the phone for which this directory number is the primary line. Visible line status indicates whether watched phone is idle or not.

<i>dn-tag</i>	Ephone-dn tag that was previously defined using the ephone-dn command. When used with the c and o keywords, the <i>dn-tag</i> argument can contain up to 25 individual dn-tags, separated by commas.
x	Separator that creates an overlay rollover button. When the overlay button specified in this command is occupied by an active call, a second call to one of its ephone-dns will appear on this button. This button is also known as an overlay expansion button.
<i>overlay-button-number</i>	Number of the overlay button that should overflow to this button.

Command Default No buttons are defined for an ephone.

Command Modes Ephone configuration (config-ephone)

Command History

Cisco IOS Release	Cisco Product	Modification
12.1(5)YD	Cisco ITS 1.0	This command was introduced
12.2(8)T	Cisco ITS 2.0	This command was integrated into Cisco IOS Release 12.2(8)T.
12.2(11)YT	Cisco ITS 2.1	The b and s keywords were added.
12.2(15)ZJ	Cisco CME 3.0	The f , m , and o keywords were added.
12.3(4)T	Cisco CME 3.0	This command was integrated into Cisco IOS Release 12.3(4)T.
12.3(11)XL	Cisco CME 3.2.1	The c keyword was added and the ability to use the m keyword to monitor call-park slots was added.
12.3(14)T	Cisco CME 3.3	This command was integrated into Cisco IOS Release 12.3(14)T.
12.4(4)XC	Cisco Unified CME 4.0	The x keyword was added and the number of ephone-dns that can be overlaid on a single button with the o or c keyword was increased from 10 to 25. The interaction between the keyword and night service was modified; silent ringing is overridden when night service is active.
12.4(9)T	Cisco Unified CME 4.0	The modifications made to this command were integrated into Cisco IOS Release 12.4(9)T.
12.4(11)XJ3	Cisco Unified CME 4.1	The w keyword was added.
12.4(15)T	Cisco Unified CME 4.1	This command with the w keyword was integrated into Cisco IOS Release 12.4(15)T.

Usage Guidelines The **button** command assigns telephone extensions to Cisco Unified IP phones by associating a button number with one or more directory numbers (ephone-dns).



Note After adding or changing a phone button configuration using this command, you must perform a quick reboot of the phone using the **restart** command.

Telephone services such as call waiting and three-party conferences require a minimum of two phone lines (ephone-dns defined with the **ephone-dn** command) to be available and configured on a Cisco IP phone.

The Cisco Unified IP Phone 7910G has only one physical line button. To support call waiting and three-party conferences on a Cisco Unified IP Phone 7910G, a second (hidden) line is required. This line cannot be selected directly using a line button. You can access the second line when you press the Conference button. You can also support multiple-call services using the **ephone-dn dual-line** configuration option.

Feature Ring (f)

A feature ring is a third type of ring cadence, in addition to the internal call and external call ring cadences. For example, an internal call in the United States rings for 2 seconds on and 4 seconds off (single-pulse ring), and an external call rings for 0.4 seconds on, 0.2 seconds off, 0.4 seconds on, and 0.2 seconds off (double-pulse ring). A feature ring is a triple-pulse ring. The purpose of associating a feature ring with a line button is to be able to identify from a distance a special line that is ringing on a multiline phone.

Monitor Mode (m)

A line button set in monitor mode on one phone displays visual line status for a line that also appears on another phone. When monitor mode is set for a button with a shared line, the line status indicates that the shared line is either idle or in use. The line and line button are available in monitor mode for visual status only. Calls cannot be made or received using a line button that has been set in monitor mode. Incoming calls on a line button that is in monitor mode do not ring and do not display caller ID or call-waiting caller ID.

Monitor mode is intended for use only in the context of shared lines so that a receptionist can visually monitor the in-use status of several users' phone extensions (for example, as a busy-lamp field). To monitor all lines on an individual phone so that a receptionist can visually monitor the in-use status of that phone, see the Watch Mode (w) section.

The line button for a monitored line can also be used as a direct-station-select for a call transfer when the monitored line is in an idle state. In this case, the receptionist who transfers a call from a normal line can press the Transfer button and then press the line button of the monitored line, causing the call to be transferred to the phone number of the monitored line.

Overlay (o)

Overlay lines are ephone-dns that share a single button on a multibutton phone. When more than one incoming call arrives on lines that are set on a single button, the line (ephone-dn) that is the leftmost in the **button** command list is the primary line and is given the highest priority. If this call is answered by another phone or if the caller hangs up, the phone selects the next line in its overlay set to present as the ringing call. The caller ID display updates to show the caller ID for the currently presented call.

Ephone-dns that are part of an overlay set can be single-line ephone-dns or dual-line ephone-dns, but the set must contain either all single-line ephone-dns or all dual-line ephone-dns, and not a mixture of the two.

The primary ephone-dn on each phone in a shared-line overlay set should be unique to the phone being configured to guarantee that there is a line available for outgoing calls, and to ensure that the phone user can obtain dial-tone even when there are no idle lines available in the rest of the shared-line overlay set. Use a unique ephone-dn in this manner to provide for a unique calling party identity on outbound calls made by the phone so that the called user can see which specific phone is calling.

The name of the first ephone-dn in the overlay set is not displayed because it is the default ephone-dn for calls to the phone, and the name or number is permanently displayed next to the phone's button. For example, if there are ten ephone-dns in an overlay set, only the last nine ephone-dns are displayed when calls are made to them.

Overlay Ephone-dns with Call Waiting (c)

The configuration for the overlaid ephone-dns with call waiting (keyword **c**) and without call waiting (keyword **o**) is the same.

Ephone-dns accept call interruptions, such as call waiting, by default. For call waiting to work, the default must be active. To ensure that the default is active, remove the **no call-waiting beep accept** command from the configurations of ephone-dns for which you want to use call waiting.

In Cisco Unified CME 4.0(3), the Cisco Unified IP Phone 7931G cannot support overlays that contain ephone-dn configured for dual-line mode.



Note In general, all the ephone-dns within an overlay must be of the same type (dual-line or single line mode).

Silent Ring (s)

You can configure silent ring on any type of phone. However, you typically set silent ring only on buttons of a phone with multiple lines, such as a Cisco Unified IP Phone 7940, Cisco Unified IP Phones 7960 and 7960G, or a Cisco Unified IP Phone 7914 Expansion Module. The only visible cue is a flashing (< icon in the phone display.

If you configure a button to have a silent ring, you will not hear a call-waiting beep or call-waiting ring regardless of whether the ephone-dn associated with the button is configured to generate a call-waiting beep or call-waiting ring.

In Cisco IOS Release 12.4(4)XC and later releases, the silent ringing behavior is overridden during active night-service periods. Silent ringing does not apply during designated night-service periods when the **s** keyword is used.

Watch Mode (w)

A line button that is configured for watch mode on one phone provides visual line status for all lines on another phone (watched phone) for which the watched directory number is the primary line. Watched mode allows a phone user, such as a receptionist, to visually monitor the in-use status of an individual phone. The line and line button on the watching phone are available in watch mode for visual status only. Calls cannot be made or received using a line button that has been set in watch mode. Incoming calls on a line button that is in watch mode do not ring and do not display caller ID or call-waiting caller ID.

If any of the following conditions are true, the status of the line button in watch mode is that the watched phone is in-use:

- Watched phone is off-hook
- Watched phone is not registered
- Watched phone is in the do-not-disturb (DND) mode
- Watched directory number is not idle

If the watched directory number is a shared line and the shared line is not idle on any phone with which it is associated, then in the context of watch mode, the status of the line button indicates that the *watched phone* is in use.

For best results in terms of monitoring the status of an individual phone based on a watched directory number, the directory number to be configured for watch mode should not be a shared line. To monitor a shared line so that a receptionist can visually monitor the in-use status of several users' phone extensions, see the Monitor Mode (m) section.

If the watched directory number is associated with several phones, then the watched phone is the one on which the watched directory number is on button 1 or the one on which the watched directory number is on the button that is configured by using the **auto-line** command, with auto-line having priority.

If more than one phone meets the criteria for primary line as described above, then the watched phone is the first phone that that meets the criteria. Typically, that is the phone with the lowest ephone tag value. However, if the watched directory number is configured on button 1 of ephone 1 and the same directory number is also configured on button 3 with "auto-line 3" of ephone 24, then ephone 24 is the watched phone because the auto-line configuration has priority.

The line button for a watched phone can also be used as a direct-station-select for a call transfer when the watched phone is idle. In this case, the phone user who transfers a call from a normal line can press the Transfer button and then press the line button of the watched directory number, causing the call to be transferred to the phone number associated with the watched directory number.

Expansion Buttons for Overlay Ephone-dns (x)

This feature works to expand coverage for an overlay button that has been configured using the **o** separator in the **button** command. Overlay buttons with call waiting that use the **c** separator in the **button** command are not eligible for overlay rollover.

Examples

The following example assigns four button numbers on the phone to ephone-dn tags. Button 4 is configured for a silent ring:

```
ephone-dn 1
  number 233
ephone-dn 4
  number 234
ephone-dn 16
  number 235
ephone-dn 19
  number 236
ephone 1
  button 1:1 2:4 3:16 4:s19
```

The following example shows three phones that each have three instances of extension number 1001 overlaid onto a single button, which allows three simultaneous calls to extension 1001. The first call arrives on ephone-dn 1 and rings button 1 on all three phones. The call is answered on ephone 10. A second call for 1001 hunts onto ephone-dn 2 and rings on the remaining two ephones, ephones 11 and 12, and is answered by ephone 12. A third call to 1001 hunts onto ephone-dn 3 and rings on ephone 12, where it is answered. This configuration creates a three-way shared line across three IP phones and can handle three simultaneous calls to the same telephone number. Note that if ephone 12 is busy, the third call will go to voice mail (7000). Note also that if you want to configure call waiting, you can use the same configuration, except use the **c** keyword instead of the **o** keyword. Ephone 10 uses call waiting.

```
ephone-dn 1
  number 1001
  no huntstop
!
ephone-dn 2
```

```

number 1001
no huntstop
preference 1
!
ephone-dn 3
number 1001
preference 2
call-forward busy 7000
!
! The next ephone configuration includes the first instance of shared line 1001.
ephone 10
mac-address 1111.2222.3333
button 101,2,3
!
! The next ephone configuration includes the second instance of shared line 1001.
ephone 11
mac-address 1111.2222.4444
button 101,2,3
!
! The next ephone configuration includes the third instance of shared line 1001.
ephone 12
mac-address 1111.2222.555
button 101,2,3

```

The following is an example of a unique ephone-dn as the primary dn in a simple shared-line overlay configuration. The no huntstop command is configured for all the ephone-dns except ephone-dn 12, the last one in the overlay set. Because the ephone-dns are dual-line dns, the huntstop-channel command is also configured to ensure that the second channel remains free for outgoing calls and for conferencing.

```

ephone-dn 1 dual-line
number 101
huntstop-channel
!
ephone-dn 2 dual-line
number 102
huntstop-channel
!
ephone-dn 10 dual-line
number 201
no huntstop
huntstop-channel
!
ephone-dn 11 dual-line
number 201
no huntstop
huntstop-channel
!
ephone-dn 12 dual-line
number 201
huntstop-channel
!
!The next ephone configuration includes (unique) ephone-dn 1 as the primary line in a
shared-line overlay
ephone 1
mac-address 1111.1111.1111
button 101,10,11,12
!
!The next ephone configuration includes (unique) ephone-dn 2 as the primary line in another
shared-line overlay
ephone 2
mac-address 2222.2222.2222
button 102,10,11,12

```

Shared-line overlays can be constructed using the “button o” or “button c” formats, depending on whether call-waiting is desired. The following example shows an ephone configuration that enables call waiting (c) in a shared-line overlay:

```
ephone 1
 mac-address 1111.1111.1111
 button 1c1,10,11,12
!
ephone 2
 mac-address 2222.2222.2222
 button 1c2,10,11,12
```

The following example configures a “3x3” shared-line setup for three ephones and nine shared lines (ephone-dns 20 through 28). Each ephone has a unique ephone-dn for each of its three buttons (ephone-dns 1 to 3, ephone-dns 4 to 6, and ephone-dns 7 to 9). The remaining ephone-dns are shared among the three phones. Three phones with three buttons each can take nine calls. The overflow buttons provide the ability for an incoming call to ring on the first available button on each phone.

```
ephone 1
 button 1o1,2,3,20,21,22,23,24,25,26,27,28 2x1 3x1
ephone 2
 button 1o4,5,6,20,21,22,23,24,25,26,27,28 2x1 3x1
ephone 3
 button 1o7,8,9,20,21,22,23,24,25,26,27,28 2x1 3x1
```

Related Commands

Command	Description
call-waiting beep	Allows phone buttons to accept or generate call-waiting beeps.
restart (ephone)	Performs a fast reboot of a single phone associated with a Cisco Unified CME router.
restart (telephony-service)	Performs a fast reboot of one or all phones associated with a Cisco Unified CME router.
show ephone	Displays information about ephones and the corresponding Cisco Unified IP phones.
show ephone overlay	Displays the configuration and current status of registered overlay ephone-dns.

button-layout (voice register template)

To organize the order of the display of all buttons including line, speed dial, blf speed dial, feature buttons, and url buttons on a Cisco Unified SIP IP phone, use the **button-layout** command in voice register template configuration mode. To disable the feature button set and change the action of the buttons on IP phones, use the **no** form of this command.

button-layout [*button-string*] [*button-type*]
no button-layout

Syntax Description

button-string	(Optional) Specifies a comma-separated list of physical button number or ranges of button numbers.
button-type	(Optional) Specifies one of the following button types: Line, Speed-Dial, BLF-Speed-Dial, Feature, URL.

Command Default

No fixed set of line or feature buttons are defined.

Command Modes

Voice register template configuration (config-register-temp)

Command History

Cisco IOS Release	Cisco Product	Modification
15.1(3)T	Cisco Unified CME 8.5	This command was introduced.

Usage Guidelines

Use the button-layout command to assign physical button numbers or ranges of numbers with button types such as line, feature, url, speed-dial, and blf-speed-dial. After creating a voice register template and applying the template to the voice register pool you can assign the button-layout configuration to a Cisco Unified IP Phone.



Note

The first button needs to be the line button so that the phone can complete provisioning.

Examples

The following example shows button-layout configured on voice register template 2 and voice register template 5.

```
Router# show voice register template all
!
voice register dn 65
 number 3065
 name SIP-7965
 label SIP3065
!
voice register template 5
 button-layout 1 line
 button-layout 2,5 speed-dial
 button-layout 3,6 blf-speed-dial
 button-layout 4,7,9 feature-button
 button-layout 8,11 url-button
!
```

```
voice register template 2
  button-layout 1,5 line
  button-layout 4 speed-dial
  button-layout 3,6 blf-speed-dial
  button-layout 7,9 feature-button
  button-layout 8,10-11 url-button
!
```

Related Commands

Command	Description
ephone-template (ephone)	Applies template to an ephone.
show voice register template	Displays all configuration information associated with a SIP phone template.

button-layout

To configure a fixed set of line or feature buttons in an ephone-template which can then be applied to a supported IP phone in Cisco Unified CME, use the **button-layout set** command in ephone-template configuration mode. To disable the feature buttons set and change the action of the buttons on IP phones, use the **no** form of this command.

button-layout [*phone-type* {**1** | **2**} | **button-string** | **button-type**]
no button-layout

Syntax Description

<i>phone-type</i>	Type of IP phone. The following choices are valid: <ul style="list-style-type: none"> • 7931—Cisco Unified IP Phone 7931.
1	Number of fixed line or feature set containing the following buttons: <ul style="list-style-type: none"> • Button 24—Menu. • Button 23—Headset.
2	Number of fixed line or feature set containing the following buttons: <ul style="list-style-type: none"> • Button 24—Menu. • Button 23—Headset. • Button 22—Directories. • Button 21—Messages.
button-string	(Optional) Specifies a coma separated list of physical button number or ranges of button numbers.
button-type	(Optional) Specifies one of the following button types: Line, Speed-Dial, BLF-Speed-Dial, Feature, URL

Command Default

No fixed set of line or feature buttons are defined.

Command Modes

Ephone-template configuration (config-ephone-template)

Command History

Cisco IOS Release	Cisco Product	Modification
12.4(6)XE	Cisco Unified CME 4.0(2)	This command was introduced.
12.4(4)XC4	Cisco Unified CME 4.0(3)	This command was introduced.
12.4(11)T	Cisco Unified CME 4.0(3)	This command was integrated into Cisco IOS Release 12.4(11)T.
15.1(3)T	Cisco Unified CME 8.5	This command was modified. Button String and Button Type arguments were added.

Usage Guidelines

Use this command to configure either Set 1 or Set 2 in an ephone-template which can then be applied to an individual Cisco Unified IP Phone 7931G in Cisco Unified CME.

After a template has been created, you can apply it to an ephone using the **ephone-template** command in ephone configuration mode. You cannot apply more than one ephone template to an ephone.

To view your ephone-template configurations, use the **show telephony-service ephone-template** command.

In Cisco Unified CME 8.5 and later versions, the **button-layout** command allows you to assign physical button numbers or ranges of numbers with button types such as Line, Feature, URL, Speed-Dial, BLF-Speed-Dial. After creating an ephone-template you can apply the **button-layout** configuration to a Cisco Unified IP Phone.

Examples

1. The following example shows how to create ephone-template 12, containing set 2 feature buttons, and apply the template to ephone 36.

```
Router(config)# ephone-template 12
Router(config-ephone-template)# button-layout set 2
Router(config-ephone-template)# exit
Router(config)# ephone 36
Router(config-ephone)# ephone-template 12
Router(config-ephone)# exit
Router(config)# telephony-service
Router(config-telephony)# create cnf-files
```

1. The following example shows ephone-template 10, containing line button, speed-dial button, blf-speed-dial button, feature button, and url button.

```
Router# show telephony-service ephone-template
ephone-template 10
  button-layout 1 line
  button-layout 2,5 speed-dial
  button-layout 3,6 blf-speed-dial
  button-layout 4,7,9 feature
  button-layout 8,11 url
```

Related Commands

Command	Description
ephone-template (ephone)	Applies template to an ephone.
show telephony-service ephone-template	Displays ephone-template configurations.

