



Cisco IOS Voice Commands: B

This chapter contains commands to configure and maintain Cisco IOS voice applications. The commands are presented in alphabetical order. Some commands required for configuring voice may be found in other Cisco IOS command references. Use the command reference master index or search online to find these commands.

For detailed information on how to configure these applications and features, refer to the *Cisco IOS Voice Configuration Guide*.

backhaul-session-manager

To enter backhaul session manager configuration mode, use the **backhaul-session-manager** command in global configuration mode.

backhaul-session-manager

Syntax Description This command has no arguments or keywords.

Defaults No default behavior or values

Command Modes Global configuration

Command History	Release	Modification
	12.1(1)T	This command was introduced.
	12.2(2)T	This command was implemented on the Cisco 7200.
	12.2(4)T	This command was implemented on the following platforms: Cisco 2600 series, Cisco 3600 series, and Cisco MC3810.
	12.2(2)XB	This command was implemented on the Cisco AS5350 and Cisco AS5400.
	12.2(2)XB1	This command was implemented on the Cisco AS5850 platform.
	12.2(8)T	This command was implemented on Cisco IAD2420. Support for the Cisco AS5350, Cisco AS5400, and Cisco AS5850 is not included in this release.
	12.2(11)T	This command is supported on the Cisco AS5350, Cisco AS5400, and Cisco AS5850 in this release.

Usage Guidelines Use the **backhaul-session-manager** command to switch to backhaul session manager configuration mode from global configuration mode. Use the **exit** command to exit backhaul session manager configuration mode and return to global configuration mode. [Table 3](#) lists the backhaul session manager configuration mode commands.

Table 3 Backhaul Session Manager Configuration Mode Commands

Command	Description
exit	Exits any configuration mode to the next highest mode in the CLI mode hierarchy.
group	Creates a session group and associates it with a specified session set.
group auto-reset	Configures the maximum auto-reset value.
group cumulative-ack	Configures maximum cumulative acknowledgments.
group out-of-sequence	Configures maximum out-of-sequence segments that are received before an EACK is sent.

Table 3 Backhaul Session Manager Configuration Mode Commands (continued)

Command	Description
group receive	Configures maximum receive segments.
group retransmit	Configures maximum retransmits.
group timer cumulative-ack	Configures cumulative acknowledgment timeout.
group timer keepalive	Configures keepalive (or null segment) timeout.
group timer retransmit	Configures retransmission timeout.
group timer transfer	Configures state transfer timeout.
session group	Associates a transport session with a specified session group.
set	Creates a fault-tolerant or non-fault-tolerant session set with the client or server option.

Examples

The following example enters backhaul session manager configuration mode:

```
Router(config)# backhaul-session-manager
Router(config-bsm)#
```

Related Commands

Command	Description
clear backhaul-session-manager group	Resets the statistics or traffic counters for a specified session group.
clear rudpv1 statistics	Clears the RUDP statistics and failure counters.
group	Creates a session group and associates it with a specified session set.
group auto-reset	Configures the maximum auto-reset value.
group cumulative-ack	Configures maximum cumulative acknowledgments.
group out-of-sequence	Configures maximum out-of-sequence segments that are received before an EACK is sent.
group receive	Configures maximum receive segments.
group retransmit	Configures maximum retransmits.
group timer cumulative-ack	Configures cumulative acknowledgment timeout.
group timer keepalive	Configures keepalive (or null segment) timeout.
group timer retransmit	Configures retransmission timeout.
group timer transfer	Configures state transfer timeout.
isdn bind-13	Configures the ISDN serial interface for backhaul.
session group	Associates a transport session with a specified session group.
set	Creates a fault-tolerant or non-fault-tolerant session set with the client or server option.
show backhaul-session-manager group	Displays status, statistics, or configuration of a specified or all session groups.
show backhaul-session-manager session	Displays status, statistics, or configuration of sessions.

Command	Description
show backhaul-session-manager set	Displays session groups associated with a specific or all session sets.
show rudpv1	Displays RUDP statistics.

bandwidth

To specify the maximum aggregate bandwidth for H.323 traffic and verify the available bandwidth of the destination gatekeeper, use the **bandwidth** command in gatekeeper configuration mode. To disable maximum aggregate bandwidth, use the **no** form of this command.

bandwidth {**interzone** | **total** | **session**} {**default** | **zone** *zone-name*} *bandwidth-size*

no bandwidth {**interzone** | **total** | **session**} {**default** | **zone** *zone-name*}

Syntax Description

interzone	Total amount of bandwidth for H.323 traffic from the zone to any other zone.
total	Total amount of bandwidth for H.323 traffic allowed in the zone.
session	Maximum bandwidth allowed for a session in the zone.
default	Default value for all zones.
zone	A particular zone.
<i>zone-name</i>	Name of the particular zone.
<i>bandwidth-size</i>	Maximum bandwidth, in kbps. For interzone and total , the range is from 1 to 10000000. For session , the range is from 1 to 5000.

Defaults

Maximum aggregate bandwidth is unlimited by default

Command Modes

Gatekeeper configuration

Command History

Release	Modification
11.3(2)NA	This command was introduced on the Cisco 2500, Cisco 3600 series and the Cisco AS5300.
12.1(5)T	This command was integrated into Cisco IOS Release 12.1(5)T. The bandwidth command replaced the zone bw command.
12.1(5)XM	The bandwidth command was recognized without using the zone gatekeeper command.
12.2(2)T	The changes in Cisco IOS Release 12.1(5)XM were integrated into Cisco IOS Release 12.2(2)T.
12.2(2)XB1	This command was implemented on the Cisco AS5850.

Usage Guidelines

This command, in conjunction with the **bandwidth remote** command, replaces the **zone gatekeeper** command.

To specify maximum bandwidth for traffic between one zone and any other zone, use the **default** keyword with the **interzone** keyword.

To specify maximum bandwidth for traffic within one zone or for traffic between that zone and another zone (interzone or intrazone), use the **default** keyword with the **total** keyword.

To specify maximum bandwidth for a single session within a specific zone, use the **zone** keyword with the **session** keyword.

To specify maximum bandwidth for a single session within any zone, use the **default** keyword with the **session** keyword.

Examples

The following example configures the default maximum bandwidth for traffic between one zone and another zone to 5000 kbps:

```
gatekeeper
 bandwidth interzone default 5000
```

The following example configures the default maximum bandwidth for all zones to 5000 kbps:

```
gatekeeper
 bandwidth total default 5000
```

The following example configures the default maximum bandwidth for a single session within any zone to 2000 kbps:

```
gatekeeper
 bandwidth session default 2000
```

The following example configures the default maximum bandwidth for a single session with a specific zone to 1000 kbps:

```
gatekeeper
 bandwidth session zone denver 1000
```

The following example enables the checking of the available bandwidth of the destination zone:

```
gatekeeper
 bandwidth check-destination
```

Related Commands

Command	Description
bandwidth check-destination	Enables the gatekeeper to verify available bandwidth resources at the destination endpoint.
bandwidth remote	Specifies the total bandwidth for H.323 traffic between this gatekeeper and any other gatekeeper.
h323 interface	Defines on which port the proxy listens.
h323 t120	Enables the T.120 capabilities on your router and specifies bypass or proxy mode.

bandwidth check-destination

To enable the gatekeeper to verify available bandwidth resources at the destination endpoint, use the **bandwidth check-destination** command in gatekeeper configuration mode. To disable resource verification, use the **no** form of this command.

bandwidth check-destination

no bandwidth check-destination

Syntax Description This command has no arguments or keywords.

Defaults Resource verification is disabled by default

Command Modes Gatekeeper configuration

Command History	Release	Modification
	12.3(1)	This command was introduced.

Examples The following example activates bandwidth resource verification at the destination:

```
gatekeeper
 bandwidth check-destination
```

Related Commands	Command	Description
	bandwidth	Specifies the maximum aggregate bandwidth for H.323 traffic from a zone to another zone, within a zone, or for a session in a zone.
	bandwidth remote	Specifies the total bandwidth for H.323 traffic between this gatekeeper and any other gatekeeper.
	h323 interface	Defines the port on which port the proxy will listen.
	h323 t120	Enables the T.120 capabilities on your router and specifies bypass or proxy mode.

bandwidth remote

To specify the total bandwidth for H.323 traffic between this gatekeeper and any other gatekeeper, use the **bandwidth remote** command in gatekeeper configuration mode. To disable total bandwidth specified, use the **no** form of this command.

bandwidth remote *bandwidth-size*

no bandwidth remote

Syntax Description	<i>bandwidth-size</i>	Maximum bandwidth, in kbps. Range is from 1 to 10000000.
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Defaults	Total bandwidth is unlimited by default
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Command Modes	Gatekeeper configuration
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Command History	Release	Modification
	12.1(3)XI	This command was introduced on the Cisco 2600 series, Cisco 3600 series, and Cisco 7200 series.
12.2(2)T	This command was integrated into Cisco IOS Release 12.2(2)T.	
12.2(2)XB1	This command was implemented on the Cisco AS5850.	

Usage Guidelines	This command, in conjunction with the bandwidth command, replaces the zone gatekeeper command.
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Examples	The following example configures the remote maximum bandwidth to 100,000 kbps:
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```
gatekeeper
 bandwidth remote 100000
```

Related Commands	Command	Description
	bandwidth	Specifies the maximum aggregate bandwidth for H.323 traffic from a zone to another zone, within a zone, or for a session in a zone.
	bandwidth check-destination	Enables the gatekeeper to verify available bandwidth resources at the destination endpoint.
	h323 interface	Defines which port the proxy listens on.
	h323 t120	Enables the T.120 capabilities on your router and specifies bypass or proxy mode.

battery-reversal

To specify battery polarity reversal on a Foreign Exchange Office (FXO) or Foreign Exchange Station (FXS) port, use the **battery-reversal** command in voice-port configuration mode. To disable battery reversal, use the **no** form of this command.

battery-reversal [**answer**]

no battery-reversal [**answer**]

Syntax Description	answer	(Optional) Configures an FXO port to support answer supervision by detection of battery reversal.
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Defaults	Battery reversal is enabled
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Command Modes	Voice-port configuration
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Command History	Release	Modification
	12.0(7)XK	This command was introduced on the Cisco 2600 series and Cisco 3600 series and on the Cisco MC3810.
	12.1(2)T	This command was integrated into Cisco IOS Release 12.1(2)T.
	12.2(2)T	The answer keyword was added.

Usage Guidelines The **battery-reversal** command applies to FXO and FXS voice ports. On Cisco 2600 and 3600 series routers, only analog voice ports in VIC-2FXO-M1 and VIC-2FXO-M2 voice interface cards are able to detect battery reversal; analog voice ports in VIC-2FXO and VIC-2FXO-EU voice interface cards do not detect battery reversal. On digital voice ports, battery reversal is supported only on E1 Mercury Exchange Limited Channel Associated Signaling (MEL CAS); it is not supported in T1 channel associated signaling (CAS) or E1 CAS.

FXS ports normally reverse battery upon call connection. If an FXS port is connected to an FXO port that does not support battery reversal detection, you can use the **no battery-reversal** command on the FXS port to prevent unexpected behavior.

FXO ports in loopstart mode normally disconnect calls when they detect a second battery reversal (back to normal). You can use the **no battery-reversal** command on FXO ports to disable this action.

The **battery-reversal** command restores voice ports to their default battery-reversal operation.

If an FXO voice port is connected to the PSTN and supports battery reversal, use the **battery-reversal** command with the **answer** keyword to configure answer supervision. This configures the FXO voice port to detect when a call is answered in order to provide correct billing information.

If the voice port, PSTN, or PBX does not support battery reversal, do not use the **battery-reversal** command because it prevents outgoing calls from being connected. Use the **supervisory answer dualtone** command instead.

If an FXO port or its peer FXS port does not support battery reversal, avoid configuring **battery-reversal** or **battery-reversal answer** on the FXO port. On FXO ports that do not support battery reversal, the **battery-reversal** command can cause unpredictable behavior, and the **battery-reversal answer** command prevents calls from being answered. To ensure that battery reversal answer is disabled on FXO ports that do not support battery reversal, use the **no battery-reversal** command.

The following example disables battery reversal on voice port 1/1 on a Cisco MC3810 multiservice access concentrator:

```
voice-port 1/1
 no battery-reversal
```

The following example disables battery reversal on voice port 1/0/0 on a Cisco 2600 or 3600 series router:

```
voice-port 1/0/0
 no battery-reversal
```

The following example enables battery reversal to provide answer supervision on voice port 1/0/0 on a Cisco 2600 or 3600 series router:

```
voice-port 1/0/0
 battery-reversal answer
```

Related Commands

Command	Description
show voice port	Displays voice port configuration information.
supervisory answer dualtone	Enables answer supervision on an FXO voice port on which battery reversal is not supported.

bind

To bind the source address for signaling and media packets to the IP 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** | **all** } **source-interface** *interface-id*

no bind

Syntax Description	
control	Binds Session Initiation Protocol (SIP) signaling 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 IP 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



Note

Async, **Ethernet**, **Fast Ethernet**, **Loopback**, and **Serial** (including **Frame Relay**) are tested interfaces within the SIP application.

Defaults

Binding is disabled (**no bind**)

Command Modes

SIP configuration

Command History	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.

Usage Guidelines

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

Enter SIP configuration mode from voice-service configuration mode, as shown in the example:

Examples

The following example sets up binding on a SIP network:

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

Related Commands

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

block-caller

To configure call blocking on caller ID, use the **block-caller** command in dial peer voice configuration mode. To disable call blocking on caller ID, use the **no** form of this command.

block-caller *number*

no block-caller *number*

Syntax Description

<i>number</i>	Specifies the telephone number to block. You can use a period (.) as a digit wildcard. For example, the command block-caller 5.51234 blocks all numbers beginning with the digit 5, followed by any digit, and then sequentially followed by the digits 5, 1, 2, 3, and 4.
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Defaults

Call blocking is disabled; the router does not block any calls for any listed directory numbers (LDNs) based on caller ID numbers

Command Modes

Dial peer voice configuration

Command History

Release	Modification
12.1(2)XF	This command was introduced on the Cisco 800 series routers.
12.1(5)T	This command was integrated into Cisco IOS Release 12.1(5)T.

This command is available on Cisco 800 series routers that have plain old telephone service (POTS) ports. For each dial peer, you can enter up to ten caller ID numbers to block. The routers do not accept additional caller ID numbers if ten numbers are already present. In that case, a number must be removed before another caller ID number can be added for blocking.

If you do not specify the **block-caller** command for a local directory, all voice calls to that local directory are accepted. If you specify the **block-caller** command for a local directory, the router verifies that the incoming calling-party number does not match any caller ID numbers in that local directory before processing or accepting the voice call. Each specified caller ID number and incoming calling-party number is compared from right to left, up to the number of digits in the specified caller ID number or incoming calling-party number, whichever has fewer digits.

This command is effective only if you subscribe to caller ID service. If you enable call blocking on caller ID without subscribing to the caller ID service, the routers do not perform the verification process on calling-party numbers and do not block any calls.

Examples

The following example configures a router to block calls from a caller whose caller ID number is 408-555-1234.

```
dial-peer voice 1 pots
  block-caller 4085551234
```

Related Commands	Command	Description
	caller-id	Identifies incoming calls with caller ID.
	debug pots csm csm	Activates events from which an application can determine and display the status and progress of calls to and from POTS ports.
	isdn i-number	Configures several terminal devices to use one subscriber line.
	pots call-waiting	Enables local call waiting on a router.
	registered-caller ring	Configures the Nariwake service registered caller ring cadence.

busyout action graceful

To place a voice port into the graceful busyout state when triggered by the busyout monitor, use the **busyout action graceful** command in voice-port configuration mode. To remove the voice port from the graceful busyout state, use the **no** form of this command.

busyout action graceful

no busyout action graceful

Syntax Description This command has no arguments or keywords.

Defaults Forced busyout

Command Modes Voice-port configuration

Command History	Release	Modification
	12.2(13)T	This command was introduced on the following platforms: Cisco 2600 series, Cisco 2600XM, Cisco 2691, Cisco 3640, Cisco 3660, Cisco 3725, and the Cisco VG200.

Usage Guidelines Use this command to control the busyout behavior that is triggered by the **busyout monitor** command. The **busyout action graceful** command busies out the voice port immediately if the busyout behavior is triggered, but if there is an active call on this voice port, it will wait until the call is over.

Examples The following example shows the analog voice-port busyout state set to graceful:

```
voice-port 1/1/1
  busyout action graceful
```

Related Commands	Command	Description
	busyout forced	Forces a voice port into the busyout state.
	busyout monitor	Configures a voice port to monitor an interface for events that would trigger a voice-port busyout.
	busyout monitor gatekeeper	Configures a voice port to enter the busyout state if connectivity to the gatekeeper is lost.
	busyout monitor probe	Configures a voice port to enter the busyout state if an SAA probe signal returned from a remote, IP-addressable interface crosses a specified delay or loss threshold.
	busyout seize	Changes the busyout seize procedure for a voice port.

Command	Description
show voice busyout	Displays information about the voice busyout state.
voice-port	Enters voice-port configuration mode and identifies the voice port to be configured.

busyout action shutdown

To specify that the D channel is to be brought down when the busyout condition is triggered on a PRI voice port, use the **busyout action shutdown** command in voice-port configuration mode. To cancel this action, use the **no** form of this command.

busyout action shutdown

no busyout action shutdown

Syntax Description

This command has no arguments or keywords.

Defaults

Default voice busyout behavior for PRI is to transmit B-channel out-of-service (OOS) messages for ISDN switch types that support such service messages, and to keep the D channel active. For ISDN switch types that do not support service messages, the default voice busyout behavior is to bring down the D channel.

ISDN switch types that support service messages are NI, 4ESS (user side only), 5ESS (user side only), and DMS100.

Command Modes

Voice-port configuration

Command History

Release	Modification
12.3(6)	This command was introduced on the following platforms: Cisco 1700 series, Cisco IAD2420 series, Cisco 2600 series, Cisco 2600XM series, Cisco 2691, Cisco 3600 series, Cisco 3700 series, Cisco 4224, Cisco 7200 series, Cisco 7301, Cisco 7400 series, Cisco 7500 series, Cisco MC3810, Cisco WS-X4604-GWY, and Cisco VG200.

Usage Guidelines

Prior to Cisco IOS Release 12.2(8)T, when the voice busyout condition is triggered on a PRI voice port, the D channel is deactivated until the busyout trigger is cleared. Some ISDN switch types however, support in-service and OOS Q.931 messages that permit the B channels to be taken out of service while still keeping the D channel active. Starting in Release 12.3(8)T for these ISDNswitch types, OOS messages are sent and the D channel is kept active when the voice busyout condition is triggered.

To specify that the D channel is to be brought down whenever the busyout condition is triggered, regardless of the ISDN switch type, the **busyout action shutdown** command was introduced in Cisco IOS Release 12.3(6).

This command is available only under PRI voice ports.

Examples

The following example shows an E1 PRI voice-port busyout state set to shutdown:

```
voice-port 1/1:15 (E1 PRI)
busyout monitor gatekeeper
busyout action shutdown
```

The following example shows a T1 PRI voice-port busyout state set to shutdown:

```
voice-port 0/1:23 (T1 PRI)
busyout monitor gatekeeper
busyout action shutdown
```

Related Commands

Command	Description
busyout forced	Forces a voice port into the busyout state.
busyout monitor	Configures a voice port to monitor an interface for events that would trigger a voice-port busyout.
busyout monitor gatekeeper	Configures a voice port to enter the busyout state if connectivity to the gatekeeper is lost.
busyout monitor probe	Configures a voice port to enter the busyout state if an SAA probe signal returned from a remote, IP-addressable interface crosses a specified delay or loss threshold.

busyout forced

To force a voice port into the busyout state, use the **busyout forced** command in voice-port configuration mode. To remove the voice port from the busyout state, use the **no** form of this command.

busyout forced

no busyout forced

Syntax Description This command has no arguments or keywords.

Defaults The voice-port is not in the busyout state

Command Modes Voice-port configuration

Command History	Release	Modification
	12.0(3)T	This command was introduced on the Cisco MC3810.
	12.0(7)XK	This command was implemented on the Cisco 2600s series and Cisco 3600 series. On the Cisco MC3810, the voice-port busyout command was eliminated in favor of this command.
	12.1(2)T	The command was integrated into Cisco IOS Release 12.1(2)T.

Usage Guidelines If a voice port is in the forced busyout state, only the **no busyout forced** command can restore the voice port to service.

To avoid conflicting command-line interface (CLI) commands, do not use the **busyout forced** command and the **ds0 busyout** command on the same controller.

Examples The following example forces analog voice port 1/1 on a Cisco MC3810 multiservice concentrator into the busyout state:

```
voice-port 1/1
  busyout forced
```

The following example forces digital voice port 0:8 on a Cisco MC3810 multiservice concentrator into the busyout state:

```
voice-port 0:8
  busyout forced
```

■ busyout forced

The following example forces analog voice port 3/1/1 on a Cisco 3600 router into the busyout state:

```
voice-port 3/1/1
  busyout forced
```

The following example forces digital voice port 0/0:12 on a Cisco 3600 router into the busyout state:

```
voice-port 0/0:12
  busyout forced
```

Related Commands

Command	Description
busyout-monitor interface	Configures a voice port to monitor a serial interface for events that would trigger a voice-port busyout.
busyout seize	Changes the busyout seize procedure for a voice port.
show voice busyout	Displays information about the voice busyout state.

busyout monitor

To place a voice port into the busyout monitor state, enter the **busyout monitor** command in voice-port configuration mode. To remove the busyout monitor state from the voice port, use the **no** form of this command.

busyout monitor {*serial interface-number* | **ethernet** *interface-number*} [**in-service**]

no busyout monitor {*serial interface-number* | **ethernet** *interface-number*}

Syntax Description		
	serial	Specifies monitoring of a serial interface. More than one interface can be entered for a voice port.
	ethernet	Specifies monitoring of an Ethernet interface. More than one interface can be entered for a voice port.
	<i>interface-number</i>	Identifies an interface to be monitored for the voice port busyout function. Interface choices include serial port, serial port subinterface, Ethernet port, and ATM interface.
	in-service	(Optional) Configures the voice port to be busied out when any monitored interface comes into service (its state changes to up). If the keyword is not entered, the voice port is busied out when all monitored interfaces go out of service (their state changes to down).

Defaults The voice port does not monitor any interfaces

Command Modes Voice-port configuration

Command History	Release	Modification
	12.0(3)T	This command was introduced on the Cisco MC3810.
	12.0(5)XE	This command was implemented on the Cisco 7200 series.
	12.0(5)XK	This command was implemented on the Cisco 2600 series and Cisco 3600 series.
	12.0(7)T	This command was implemented on the Cisco 2600 series and Cisco 3600 series and integrated into Cisco IOS Release 12.0(7)T.
	12.0(7)XK	The ability to monitor an Ethernet port was introduced and the in-service keyword was added. The serial keyword was first supported on the Cisco 2600 series and Cisco 3600 series.
	12.1(1)T	The implementation of this command on the Cisco 7200 series was integrated into Cisco IOS Release 12.1(1)T.
	12.1(2)T	The serial and ethernet keywords were added, the in-service keyword was integrated into Cisco IOS Release 12.1(2)T, and the <i>interface number</i> argument was changed to go with the serial and Ethernet keywords.
	12.1(3)T	The interface keyword was removed.

Usage Guidelines

When you place a voice port in the busyout monitor state, the voice port monitors the specified interface and enters the busyout state when the interface is down. This down state forces the rerouting of calls.

The command monitors only the up or down status of an interface—not end-to-end TCP/IP connectivity.

When an interface is operational, a busied-out voice port returns to its normal state.

This feature can monitor LAN, WAN, and virtual interfaces as well as subinterfaces.

The Cisco 2600 and Cisco 3600 series and the MC3810 support ATM interfaces. To monitor an ATM interface, enter **ATM** and the interface number.

A voice port can monitor multiple interfaces at the same time. To configure a voice port to monitor multiple interfaces, reenter the **busyout monitor** command for each additional interface to be monitored.

If you specify more than one monitored interface for a voice port, all the monitored interfaces must be down to trigger busyout on the voice port.

You can combine in-service and out-of-service monitoring on a voice port. The following rule describes the actions if monitored interfaces change state.

A voice port is busied out if either of the following occurs:

- Any interface monitored for coming into service comes up.
- All interfaces monitored for going out of service go down.

Examples

The following example shows configuration of analog voice port 1/1 on a Cisco MC3810 to busyout if serial ports 1 and 0:0 both go out of service:

```
voice-port 1/1
  busyout monitor serial 0:0
  busyout monitor serial 1
```

The following example shows configuration of analog voice port 1/2 on a Cisco MC3810 to busy out if serial port 0 or 1 comes into service:

```
voice-port 1/2
  busyout monitor serial 0 in-service
  busyout monitor serial 1 in-service
```

The following example shows configuration of digital voice port 1/2/2 on a Cisco 3600 series router to busy out if serial port 0 goes out of service:

```
voice-port 1/2/2
  busyout monitor serial 0
```

The following example shows configuration of digital voice port 0:6 on a Cisco MC3810 to busy out if both Ethernet port 0 and serial port 0 go out of service:

```
voice-port 0:6
  busyout monitor ethernet 0
  busyout monitor serial 0
```

The following example shows configuration of the voice port to monitor two serial interfaces and an Ethernet interface. When all these interfaces are down, the voice port is busied out. When at least one interface is operating, the voice port is put back into a normal state.

```
voice-port 3/0:0
  busyout monitor ethernet 0/0
  busyout monitor serial 1/0
  busyout monitor serial 2/0
```

Related Commands

Command	Description
busyout forced	Forces a voice port into the busyout state.
busyout monitor probe	Configures a voice port to enter the busyout state if a Service Assurance Agent (SAA) probe signal returned from a remote, IP-addressable interface crosses a specified delay or loss threshold.
busyout seize	Changes the busyout seize procedure for a voice port.
show voice busyout	Displays information about the voice busyout state.
voice-port busyout	Places all voice ports associated with a serial or ATM interface into a busyout state.

busyout monitor gatekeeper

To configure a voice port to enter the busyout state if connectivity to the gatekeeper is lost, use the **busyout monitor gatekeeper** command in voice-port configuration mode. To disable the busyout monitoring state for the gatekeeper, use the **no** form of this command.

busyout monitor gatekeeper

no busyout monitor gatekeeper

Syntax Description This command has no arguments or keywords.

Defaults No default behavior or values

Command Modes Voice-port configuration

Command History	Release	Modification
	12.2(13)T	This command was introduced on the following platforms: Cisco 2600 series, Cisco 2600XM, Cisco 2691, Cisco 3640, Cisco 3660, Cisco 3725 and Cisco VG200.

Usage Guidelines Use this command to monitor the connection between the gateway and gatekeeper.

Examples The following example shows the busyout monitor state set to busyout the part according to the state of the gatekeeper:

```
voice-port 1/1/1
  busyout monitor gatekeeper
```

Related Commands	Command	Description
	busyout action graceful	Places a voice port into the graceful busyout state when triggered by the busyout monitor.
	busyout graceful	Shuts down the voice port immediately, but if there is an active call it will wait until the call is over.
	busyout forced	Forces a voice port into the busyout state.
	busyout monitor	Configures a voice port to monitor an interface for events that would trigger a voice-port busyout.
	busyout monitor probe	Configures a voice port to enter the busyout state if an SAA probe signal returned from a remote, IP-addressable interface crosses a specified delay or loss threshold.
	busyout seize	Changes the busyout seize procedure for a voice port.

Command	Description
show voice busyout	Displays information about the voice busyout state.
voice-port	Enters voice-port configuration mode and identifies the voice port to be configured.

busyout monitor probe

To configure a voice port to enter the busyout state if a Service Assurance Agent (SAA) probe signal returned from a remote, IP-addressable interface crosses a specified delay or loss threshold, use the **busyout monitor probe** command in voice-port configuration mode. To configure a voice port not to monitor SAA probe signals, use the **no** form of this command.

busyout monitor probe *ip-address* [**codec** *codec-type*] [**icpif** *number* | **loss percent** *delay* *milliseconds*]

no busyout monitor probe *ip-address*

Syntax Description	
<i>ip-address</i>	The IP address of a target interface for the SAA probe signal.
codec	(Optional) Configures the profile of the SAA probe signal to mimic the packet size and interval of a specific codec type.
<i>codec-type</i>	(Optional) The codec type for the SAA probe signal. Available options are as follows: <ul style="list-style-type: none"> • g711a—G.711 A-law • g711u—G.711 U-law (the default) • g729—G.729 • g729a—G.729
icpif	(Optional) Configures the busyout monitor probe to use an Impairment/Calculated Planning Impairment Factor (ICPIF) loss/delay busyout threshold, in accordance with ITU-T G.113. The ICPIF numbers represent predefined combinations of loss and delay.
<i>number</i>	(Optional) The ICPIF threshold for initiating a busyout. The range is from 0 to 30. Lower numbers are equivalent to lower loss and delay thresholds.
loss	(Optional) Configures the percentage-of-packets-lost threshold for initiating a busyout.
<i>percent</i>	(Optional) The loss value (expressed as a percentage) for initiating a busyout. The range is from 1 to 100.
delay	(Optional) Configures the average packet delay threshold for initiating a busyout.
<i>milliseconds</i>	(Optional) The delay threshold, in milliseconds, for initiating a busyout. The range is from 1 to 2147483647.

Defaults

If the **busyout monitor probe** command is not entered, the voice port does not monitor SAA probe signals.

If the **busyout monitor probe** command is entered with no optional keywords or arguments, the default codec type is G.711 alaw, and the default loss and delay thresholds are the threshold values configured with the **pstn fallback** command.

Command Modes

Voice-port configuration

Command History

Release	Modification
12.1(3)T	This command was introduced on the Cisco 2600 and Cisco 3600 series and on the Cisco MC3810.

Usage Guidelines

A voice port can monitor multiple interfaces at the same time. To configure a voice port to monitor multiple interfaces, enter the **busyout monitor probe** command for each additional interface to be monitored.

The **busyout monitor probe** command is effective only if the call fallback function is enabled on this router and the SAA responder is enabled on the target router.

The SAA probe is transmitted periodically with a period determined by the call fallback function.

Refer to the *PSTN Fallback* feature module for Cisco IOS Release 12.1(3)T for details of the call fallback function and ICPIF values.

Lower thresholds of ICPIF, loss, and delay result in earlier busyout when the link deteriorates, thereby raising the voice minimum quality level. Higher thresholds prevent busyout until loss and delay are greater, allowing transmission of lower-quality voice.

**Caution**

If thresholds are set too low, the link can alternate between in-service and out-of-service states, causing repeated interruptions of traffic.

Examples

The following example configures analog voice port 1/1 on a Cisco MC3810 multiservice concentrator to use an SAA probe with a G.711alaw profile to probe the link to two remote interfaces that have IP addresses and to busy out the voice port. Both links have a loss exceeding 25 percent or a packet delay of more than 1.5 seconds.

```
voice-port 1/1
  busyout monitor probe 209.165.202.128 codec g711a loss 25 delay 1500
  busyout monitor probe 209.165.202.129 codec g711a loss 25 delay 1500
```

Related Commands

Command	Description
busyout monitor	Places a voice port into the busyout monitor state.
pstn fallback	Forces a voice port into the busyout state.
show voice busyout	Displays information about the voice busyout state.
voice class busyout	Creates a voice class for local voice busyout functions.

busyout seize

To change the busyout action for a Foreign Exchange Office (FXO) or Foreign Exchange Station (FXS) voice port, use the **busyout seize** command in voice-port configuration mode. To restore the default busyout action, use the **no** form of this command.

busyout seize {ignore | repeat}

no busyout seize

Syntax Description

ignore	Specifies the type of ignore procedure, depending on the type of voice port signaling. See Table 4 for more information.
repeat	Specifies the type of repeat procedure, depending on the type of voice port signaling. See Table 4 for more information.

Defaults

See [Table 4](#) for the default actions for different voice ports and signaling types

Command Modes

Voice-port configuration

Command History

Release	Modification
12.0(3)T	This command was introduced on the Cisco MC3810.
12.0(7)XK	This command was implemented on the Cisco 2600 and Cisco 3600 series.
12.1(2)T	This command was integrated into Cisco IOS Release 12.1(2)T.

Usage Guidelines

The **busyout seize** command is valid for both analog and digital voice ports. On digital voice ports, the busyout actions are valid whether the busyout results from a voice-port busyout event or from the **ds0-busyout** command.

The voice port returns to an idle state when the event that triggered the busyout disappears.

[Table 4](#) describes the busyout actions for the **busyout seize** settings on each voice port type.

The busyout action for E and M voice ports is to seize the far end by setting lead busy.

Table 4 *Busyout Seize Actions for Voice Ports*

Voice Port Signaling Type	Procedure Setting (busyout-option command)	Busyout Actions
FXS loop start	Default	Removes the power from the loop. For analog voice ports, this is equivalent to removing the ground from the tip lead. For digital voice ports, the port generates the bit pattern equivalent to removing the ground from the tip lead, or it busies out if the bit pattern exists.
FXS loop start	Ignore	Ignores the ground on the ring lead.
FXS ground start	Default	Grounds the tip lead and stays at this state.
FXS ground start	Ignore	<ol style="list-style-type: none"> 1. Leaves the tip lead open. 2. Ignores the ground on the ring lead.
FXS ground start	Repeat	<ol style="list-style-type: none"> 1. Grounds the tip lead. 2. Waits for the far end to close the loop. 3. The far end closes the loop. 4. If the far end then opens the loop, FXS removes the ground from the tip lead. 5. FXS waits for several seconds before returning to Step 1.
FXO loop start	Default	Closes the loop and stays at this state.
FXO loop start	Ignore	<ol style="list-style-type: none"> 1. Leaves the loop open. 2. Ignores the ringing current on the ring level.
FXO loop start	Repeat	<ol style="list-style-type: none"> 1. Closes the loop. 2. After the detected far end starts the power denial procedure, FXO opens the loop. 3. After the detected far end has completed the power denial procedure, FXO waits for several seconds before returning to Step 1.
FXO ground start	Default	Grounds the tip lead.
FXO ground start	Ignore	<ol style="list-style-type: none"> 1. Leaves the loop open. 2. Ignores the running current on the ring lead, or the ground current on the tip lead.
FXO ground start	Repeat	<ol style="list-style-type: none"> 1. Grounds the ring lead. 2. Removes the ground from the ring lead and closes the loop after the detected far end grounds the tip lead. 3. When the detected far end removes the ground from tip lead, FXO opens the loop. 4. FXO waits for several seconds before returning to Step 1.

Examples

The following example shows configuration of analog voice port 1/1 to perform the ignore actions when busied out:

```
voice-port 1/1
  busyout seize ignore
```

The following example shows configuration of digital voice port 0:2 to perform the repeat actions when busied out:

```
voice-port 0:2
  busyout seize repeat
```

Related Commands

Command	Description
busyout forced	Forces a voice port into the busyout state.
busyout-monitor interface	Configures a voice port to monitor an interface for events that would trigger a voice port busyout.
ds0 busyout	Forces a DS0 time slot on a controller into the busyout state.
show voice busyout	Displays information about the voice busyout state.
voice-port busyout	Places all voice ports associated with a serial or ATM interface into a busyout state.

button (ephone)

To associate directory numbers (ephone-dns) with individual buttons on a Cisco IP phone and specify ring behavior, use the **button** command in ephone configuration mode. To delete DN tags from buttons on a Cisco IP phone, use the **no** form of this command.

button *button-number*{: | **b** | **s**}*dn-tag* [[*button-number*{: | **b** | **s**}*dn-tag*] ...]

no button *button-number*{: | **b** | **s**}*dn-tag* [[*button-number*{: | **b** | **s**}*dn-tag*] ...]

Syntax Description

<i>button-number</i>	Number of a line button on a Cisco IP phone. The maximum number of button-DN pairs is determined by phone type, as follows: <ul style="list-style-type: none"> – Cisco IP Phone 7960—up to 6 button-DN pairs. – Cisco IP Phone 7940, Cisco IP Phone 7910, and Cisco IP Conference Station 7935—up to 2 button-DN pairs. <p>Note The Cisco IP Phone 7910 has only one physical line button, but you can assign it up to two DNs.</p>
:	(colon) Normal ring. For incoming calls, 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 Expansion Module 7914, a flashing yellow light also accompanies incoming calls.
b	Beep is allowed. Audible ring is suppressed for incoming calls, but call-waiting beeps are allowed. Visible cues are the same as described for normal ring.
s	Silent ring. The audible ring and call-waiting beep are suppressed for incoming calls. Visible cues are the same as described for normal ring.
<i>dn-tag</i>	DN tag previously defined using the ephone-dn command.

Defaults

No default behavior or values

Command Modes

Ephone configuration

Command History

Release	Modification
12.1(5)YD	This command was introduced on the Cisco 2600 series, Cisco 3600 series, and Cisco IAD2420 series.
12.2(2)XT	This command was implemented on the Cisco 1750 and Cisco 1751.
12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T and implemented on the Cisco 3725 and Cisco 3745.
12.2(8)T1	This command was implemented on the Cisco 2600-XM and Cisco 2691.
12.2(11)T	This command was implemented on the Cisco 1760.

■ **button** (ephone)

Release	Modification
12.2(11)YT	The s and b keywords were added.
12.2(15)T	This command was integrated into Cisco IOS Release 12.2(15)T.

Usage Guidelines

The **button** command assigns telephone lines to the Cisco IP phones by assigning a button number to a Cisco IP phone directory number.

Telephone services such as call waiting and three-party conferences require a minimum of two phone lines (directory numbers defined with the **ephone-dn** command) to be available and configured on a Cisco IP phone. The Cisco IP Phone 7910 has only one physical line button. To support call waiting and three-party conferences on a Cisco IP Phone 7910, 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.

Silent ring can be configured with the **s** or **b** keyword in Cisco IOS Telephony Service (ITS) V2.1 or a later version. Silent ring can be configured on any type of phone, but typically you would only configure silent ring on a phone with multiple lines, such as a Cisco IP Phone 7940, a Cisco IP Phone 7960, or a Cisco IP Phone Expansion Module 7914.

Examples

The following example assigns four button numbers on the phone to directory number tags, and button 4 has a silent ring:

```
Router(config)# ephone 1
Router(config-ephone)# button 1:1 2:4 3:16 4s19
```

Related Commands

Command	Description
ephone	Enters ephone configuration mode to register Cisco IP phones.
ephone-dn	Enters ephone-dn configuration mode to set directory numbers and parameters for individual Cisco IP phone lines.
show ephone	Displays Cisco IP phone output.