



Voice Port Commands

This chapter documents voice port commands used to configure voice port settings on the Cisco 3600 series and the Cisco MC3810. Commands in this section are listed alphabetically. For information on how to configure voice ports, refer to the *Voice, Video, and Home Applications Configuration Guide*.

Table 1 lists the voice port commands and the platforms that each is supported on.

Table 1 Voice Port Command Platform Support

Voice Port Command	Cisco 3600 Series	Cisco MC3810
auto-cut-through		X
codec (voice-port configuration)		X
comfort-noise	X	
compand-type		X
condition		X
connection	X	X
cptone	X	X
define		X
description	X	X
dial-type	X	X
echo-cancel-coverage	X	X
echo-cancel-enable	X	X
ignore		X
impedance	X	X
input gain	X	X
music-threshold	X	
non-linear	X	X
operation	X	X
output attenuation	X	X
playout-delay		X
ring cadence		X
ring frequency	X	X
ring number	X	
shutdown (voice-port configuration)	X	X
signal	X	X

Table 1 Voice Port Command Platform Support (continued)

Voice Port Command	Cisco 3600 Series	Cisco MC3810
snmp trap link-status	X	X
supervisory disconnect	X	
timeouts initial	X	X
timeouts interdigit	X	X
timeouts wait-release		X
timing	X	X
type	X	X
vad		X
voice confirmation-tone		X
voice-port	X	X

Voice port commands for both the Cisco 3600 series and the Cisco MC3810 define the characteristics associated with a particular voice-port signaling type. Voice ports for both the Cisco 3600 series routers and the Cisco MC3810 provide support for three basic voice signaling formats:

- FXO—Foreign Exchange Office interface. The FXO interface is an RJ-11 connector that allows a connection to be directed at the public switched telephone network's (PSTN's) central office (or to a standard PBX interface, if the local telecommunications authority permits). This interface is of value for off-premise extension applications.
- FXS—The Foreign Exchange Station interface. The FXS interface is an RJ-11 connector that allows connection for basic telephone equipment, keysets, and PBXes; FXS connections supply ring, voltage, and dial tone.
- E&M—The “Ear and Mouth” (or “RecEive and TransMit”) interface. The E&M interface is an RJ-48 connector that allows connection for PBX trunk lines (tie lines). It is a signaling technique for 2-wire and 4-wire telephone and trunk interfaces.

The Cisco MC3810 also supports E&M Mercury Exchange Limited (MEL) CAS signaling, which is primarily used in the United Kingdom.

Table 1 lists the Cisco 3600 series voice port commands and the signaling types supported. Table 2 lists the Cisco MC3810 voice port commands and signaling types supported. Because the Cisco MC3810 includes either analog voice ports (if the Analog Voice Module is installed), or digital voice ports (if the Digital Voice Module is installed), the table also lists whether the command is supported on analog voice ports, digital voice ports, or both.

Table 1 Cisco 3600 Series Commands and Signaling Types

Voice Port Command	FXO	FXS	E&M
comfort-noise			
connection			
cptone	X	X	X
description	X	X	X
dial-type	X		X
echo-cancel coverage			
echo-cancel enable			
impedance	X	X	X
input gain	X	X	X
music-threshold			
non-linear			
operation			X
output attenuation	X	X	X
ring frequency		X	
ring number	X		
shutdown	X	X	X
signal	X	X	X
snmp trap link-status			
timeouts initial			
timeouts interdigit			
timing			
timing suboptions:			
clear-wait			X
delay-duration			X
delay-start			X
delay-with-integrity			X
digit	X	X	X
inter-digit	X	X	X
pulse	X		X
pulse-inter-digit	X		X
wink-duration			X
wink-wait			X
type			X
voice-port	X	X	X

Table 2 Cisco MC3810 Series Commands and Signaling Types

Voice Port Command	Type of Voice Port Supported On	FXO	FXS	E&M
auto-cut-through	Analog and Digital			X
codec	Analog and Digital	X	X	X
comfort-noise	Analog and Digital	X	X	X
compand-type	Digital only	X	X	X
condition	Digital only	X	X	X
connection	Analog and Digital	X	X	X
cptone	Analog only	X	X	X
define	Digital only			X
description	Analog and Digital	X	X	X
dial-type	Analog and Digital	X		X
echo-cancel coverage	Analog and Digital	X	X	X
echo-cancel enable	Analog and Digital	X	X	X
forward-digits	Analog and Digital	X	X	X
ignore	Digital only			X
impedance	Analog only	X		
input gain	Analog and Digital	X	X	X
non-linear	Analog and Digital	X	X	X
operation	Analog only			X
output attenuation	Analog and Digital	X	X	X
playout-delay	Analog and Digital	X	X	X
ring cadence	Analog only		X	
ring frequency	Analog only		X	
ring number	Analog and Digital	X		
shutdown	Analog and Digital	X	X	X
signal	Analog only	X	X	X
snmp trap link-status	Analog and Digital	X	X	X
supervisory disconnect	Analog and Digital	X		
timeouts initial	Analog and Digital	X	X	X
timeouts interdigit	Analog and Digital	X	X	X
timeouts wait-release	Analog and Digital	X	X	X
timing	Analog and Digital			
timing suboptions:				
clear-wait				X
delay-duration				X
delay-start				X
dialout-delay				X
digit		X	X	X

Table 2 Cisco MC3810 Series Commands and Signaling Types (continued)

Voice Port Command	Type of Voice Port Supported On	FXO	FXS	E&M
inter-digit		X	X	X
percentbreak		X		X
pulse		X		X
pulse-inter-digit		X		X
wink-duration				X
wink-wait				X
type	Analog only			X
vad	Analog and Digital	X	X	X
voice confirmation-tone	Analog and Digital	X	X	X
voice-port	Analog and Digital	X	X	X

auto-cut-through

To enable the Cisco MC3810 to complete a call when a PBX does not provide an M-lead response, use the **auto-cut-through** voice-port configuration command. Use the **no** form of this command to disable the auto-cut-through operation.

auto-cut-through

no auto-cut-through

Syntax Description

This command has no arguments or keywords.

Default

Enabled

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 MA.

The **auto-cut-through** command applies to E&M voice ports only on the Cisco MC3810.

Example

The following example enables the Cisco MC3810 to complete a call when a PBX does not provide an M-lead response:

```
voice-port 1/1
 auto-cut-through
```

codec (voice-port)

To configure voice compression on the Cisco MC3810 voice port, use the `codec` voice-port configuration command. Use the `no` form of this command to restore the default value.

```
codec {g729r8 | g729ar8 | g726r32 | g711alaw | g711ulaw}
no codec
```

Syntax Description

<code>g729r8</code>	Specifies G729, 8k CSA-CELP compression. This is the default.
<code>g729ar8</code>	Specifies G729, 8k CSA-CELP Annex A compression.
<code>g726r32</code>	Specifies G.726 32K ADPCM compression.
<code>g711alaw</code>	Specifies G.711 64K PCM A-Law compression.
<code>g711ulaw</code>	Specifies G.711 64K PCM U-Law compression.

Default

The default is `g729ar8` compression mode.

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 MA.

The `g729ar8` compression mode can support a maximum of 24 simultaneously active on-net voice calls on the Cisco MC3810 while the `g729r8` compression mode can only support a maximum of 12. Both compression modes have a nominal data rate of 8 kbps.

This command applies to both analog and digital voice ports on the Cisco MC3810.

**Note**

On the Cisco 3600 series, the codec compression values are assigned to the dial peer using the `codec dial-peer` configuration command.

Example

The following example configures voice port 1/1 on the Cisco MC3810 to support g729r8 compression:

```
voice-port 1/1
  codec g729r8
```

Related Commands

compand-type

comfort-noise

To generate background noise to fill silent gaps during calls if VAD is activated, use the **comfort-noise** voice-port configuration command. Use the **no** form of this command to provide silence when the remote party is not speaking and VAD is enabled at the remote end of the connection.

```
comfort-noise
no comfort-noise
```

Syntax Description

This command has no arguments or keywords.

Default

Enabled

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

Use the **comfort-noise** command to generate background noise to fill silent gaps during calls if VAD is activated. If **comfort-noise** is not enabled, and VAD is enabled at the remote end of the connection, the user will hear dead silence when the remote party is not speaking.

The configuration of **comfort-noise** only affects the silence generated at the local interface; it does not affect the use of VAD on either end of the connection or the silence generated at the remote end of the connection.

This command applies to both the Cisco 3600 series and the Cisco MC3810.

**Note**

On the Cisco MC3810, this command cannot be disabled.

Example

The following example enables background noise on the Cisco 3600 series:

```
voice-port 1/0/0
 comfort-noise
```

Related Commands

vad

compand-type

To specify the companding standard used to convert between analog and digital signals in PCM systems on the Cisco MC3810, use the **compand-type** voice-port configuration command. Use the **no** form of this command to disable the compand type.

```
compand-type {u-law | a-law}
no compand-type {u-law | a-law}
```

Syntax Description

u-law	Specifies the North American mu-law ITU-T PCM encoding standard.
a-law	Specifies the European a-law ITU-T PCM encoding standard.

Default

```
u-law (T1 digital)
a-law (E1 digital)
```

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 MA.

This command applies only to the Cisco MC3810.



On the Cisco 3600 series, the u-law and a-law settings are configured using the **codec dial-peer** configuration command.

Example

The following example configures a-law encoding on voice port 1/1 on the Cisco MC3810:

```
voice-port 1/1
compand-type a-law
```

Related Commands

codec (voice-port)

condition

To manipulate the signaling format bit-pattern for all voice signaling types on the Cisco MC3810, use the **condition** command. Use the **no** form of this command to turn off conditioning on the voice-port.

```
condition {tx-a-bit | tx-b-bit | tx-c-bit | tx-d-bit} {rx-a-bit | rx-b-bit | rx-c-bit | rx-d-bit}
{on | off | invert}
no condition {tx-a-bit | tx-b-bit | tx-c-bit | tx-d-bit} {rx-a-bit | rx-b-bit | rx-c-bit | rx-d-bit}
{on | off | invert}
```

Syntax Description

tx-a-bit	Transmits A bit.
tx-b-bit	Transmits B bit.
tx-c-bit	Transmits C bit.
tx-d-bit	Transmits D bit.
rx-a-bit	Receives A bit.
rx-b-bit	Receives B bit.
rx-c-bit	Receives C bit.
rx-d-bit	Receives D bit.
on	Forces the bit state to be a 1.
off	Forces the bit state to be a 0.
invert	Inverts the state of the bits.

Default

No condition (for all transmit or receive A, B, C, and D bits)

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 MA.

This command applies to the Cisco MC3810 only.

Use the **condition** command to manipulate the bit patterns sent or received by the Cisco MC3810 to match expected patterns on a connected device. Be careful not to destroy the information content of the bit pattern. For example, forcing the A-bit on or off will prevent FXO interfaces from being able to generate both an on-hook and off-hook state.

Example

The following example manipulates the signaling format bit-pattern on voice port 1/1 on the Cisco MC3810:

```
voice-port 1/1
 ccondition tx-a-bit invert
 condition rx-a-bit invert
```

Related Commands

define
ignore

connection

To specify a connection mode for a voice port, use the **connection** voice-port configuration command. Use the **no** form of this command to disable the selected connection mode.

```
connection {plar | tie-line | trunk | plar-opx} string
no connection {plar | tie-line | trunk | plar-opx} string
```

Syntax Description

plar	Specifies a private line auto ring down (PLAR) connection. PLAR is handled by associating a peer directly with an interface; when an interface goes off-hook, the peer is used to set up the second call leg and conference them together without the caller having to dial any digits.
tie-line	(This keyword is specific to the Cisco MC3810.) Specifies a tie-line connection to a private branch exchange (PBX).
trunk	(This keyword is specific to the Cisco 3600.) Specifies a straight tie-line connection to a private branch exchange (PBX).

plar-opx	(This keyword is specific to the Cisco MC3810) Specifies a PLAR Off-Premises eXtension connection. Using this option, the local voice-port provides a local response before the remote voice-port receives an answer. On FXO interfaces, the voice-port will not answer until the remote side answers.
<i>string</i>	Specifies the destination telephone number. Valid entries are any series of digits that specify the E.164 telephone number.

Default

No connection mode is specified.

Command Mode

Voice-port configuration

Usage Guidelines

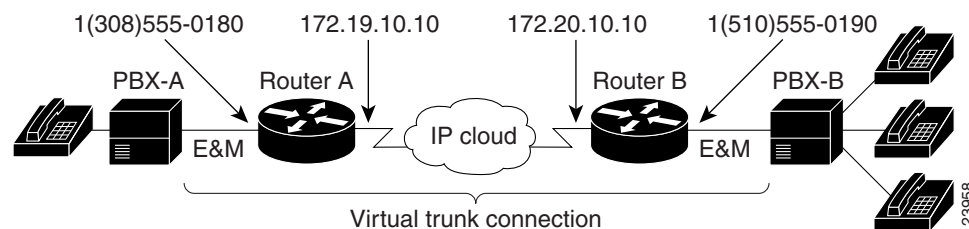
This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco 3600 series and the Cisco MC3810.

Use the **connection** command to specify a connection mode for a specific interface. For example, use the **connection plar** command to specify a PLAR interface. The string you configure for this command is used as the called number for all calls coming in over this connection. The destination peer is determined by called number.

Use the **connection trunk** command on a Cisco 3600 series router to specify a straight tie-line connection (in other words, a virtual trunk connection) to a PBX. Voice over IP simulates a trunk connection by creating virtual trunk tie lines between PBXs connected to Cisco 2600 and 3600 series routers on each side of a VoIP connection. (See Figure 1.) In this example, two PBXs are connected using a virtual trunk. PBX-A is connected to Router A via an E&M voice port; PBX-B is connected to Router B via an E&M voice port. The Cisco routers spoof the connected PBXs into believing that a permanent trunk tie line exists between them.

Figure 1 Virtual Trunk Connection



To configure virtual trunk connections in Voice over IP, use the **connection trunk** command. The following conditions must be met for Voice over IP to support virtual trunk connections:

- Use the following voice port combinations:
 - E&M to E&M (same type)
 - FXS to FXO

- FXS to FXS (with no signaling)
- Do not perform number expansion on the destination pattern telephone numbers configured for trunk connection.
- Configure both end routers for trunk connections.
- The connected Cisco routers must be Cisco 2600 or Cisco 3600 series routers. The Cisco AS5300 does not currently support trunk connections.



Note Because virtual trunk connections do not support number expansion, the destination patterns on each side of the trunk connection must match exactly.

VoIP establishes the trunk connection immediately after it is configured. Both ports on either end of the connection are dedicated until you disable trunking for that connection. If for some reason the link between the two switching systems goes down, the virtual trunk re-establishes itself after the link comes back up.

If the **connection** command is not configured, the standard session application outputs a dial tone when the interface goes off-hook until enough digits are collected to match a dial-peer and complete the call.

The **connection tie-line** command is used on the Cisco MC3810 when a dial plan requires that additional digits are added in front of any digits dialed by the PBX, and that the combined set of digits are used to route the call via the dial-peers and into the network. The operation is similar to the connection **plar** command operation, but in this case the tie-line port also waits to collect digits from the PBX. The tie-line digits are also automatically stripped by a terminating port.

Examples

The following example selects PLAR as the connection mode on the Cisco 3600 series, with a destination telephone number of 555-9262:

```
voice-port 1/0/0
 connection plar 5559262
```

The following example selects tie-line as the connection mode on the Cisco MC3810, with a destination telephone number of 555-9262:

```
voice-port 1/1
 connection tie-line 5559262
```

The following example configures the routers on both sides of a Voice over IP connection (as illustrated in Figure 1) to support trunk connections:

Router A:

```
configure terminal
voice-port 1/0/0
 connection trunk +15105554000
dial-peer voice 10 pots
 destination-pattern +13085551001
 port 1/0/0
dial-peer voice 100 voip
 session-target ipv4:172.20.10.10
 destination-pattern +15105554000
```

Router B:

```
configure terminal
voice-port 1/0/0
 connection trunk +13085551000
dial-peer voice 20 pots
 destination-pattern +15105554001
 port 1/0/0
dial-peer voice 200 voip
 session-target ipv4:172.19.10.10
 destination-pattern +13085551000
```

Related Commands

`session-protocol`

cptone

To specify a regional analog voice interface-related tone, ring, and cadence setting, use the `cptone` voice-port configuration command. Use the `no` form of this command to disable the selected tone.

`cptone locale`

`no cptone locale`

Syntax Description

locale

Keyword specifying an analog voice interface-related, default tone, ring, and cadence settings for a specified country.

Valid entries for the Cisco MC3810 are: `argentina`, `australia`, `austria`, `belgium`, `brazil`, `china`, `colombia`, `czechrepublic`, `denmark`, `finland`, `france`, `germany`, `greece`, `hongkong`, `iceland`, `israel`, `italy`, `japan`, `korea`, `luxembourg`, `malaysia`, `netherlands`, `newzealand`, `northamerica`, `norway`, `peru`, `philippines`, `poland`, `portugal`, `russia`, `singapore`, `slovakia`, `southafrica`, `spain`, `sweden`, `switzerland`, `taiwan`, `thailand`, `turkey`, `unitedkingdom`, and `venezuela`.

The Cisco 3600 series complies with the ISO 3166 country name standards, which use a two-letter code to represent a country. Valid entries for the Cisco 3600 series are listed in Table 3.

Table 3 Cptone Command Entries for the Cisco 3600 Series

Cptone Command Entry	Country
ar	Argentina
au	Australia
at	Austria
be	Belgium
br	Brazil
ca	Canada

Table 3 *Cptune Command Entries for the Cisco 3600 Series (continued)*

Cptune Command Entry	Country
cn	China
co	Colombia
cz	Czech Republic
dk	Denmark
fi	Finland
fr	France
de	Germany
gr	Greece
hk	Hong Kong
hu	Hungary
is	Iceland
in	India
id	Indonesia
ie	Ireland
il	Israel
it	Italy
jp	Japan
kr	Korea Republic
lu	Luxembourg
my	Malaysia
mx	Mexico
nl	Netherlands
nz	New Zealand
no	Norway
pe	Peru
ph	Philippines
pl	Poland
pt	Portugal
ru	Russian Federation
sg	Singapore
sk	Slovakia
si	Slovenia
za	South Africa
es	Spain
se	Sweden
ch	Switzerland
tw	Taiwan
th	Thailand

Table 3 Cptone Command Entries for the Cisco 3600 Series (continued)

Cptone Command Entry	Country
tr	Turkey
gb	Great Britain
us	Unites States
ve	Venezuela

Default

northamerica for the Cisco MC3810
us for the Cisco 3600 series

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

The **cptone** command only affects the tones generated at the local interface. It does not affect any information passed to the remote end of a connection, or any tones generated at the remote end of a connection.

This command applies to both the Cisco 3600 series and the Cisco MC3810.

Examples

The following example configures United States as the call progress tone locale on the Cisco 3600 series:

```
voice-port 1/0/0
cptone us
```

The following example configures Singapore as the call progress tone locale on the Cisco MC3810:

```
voice-port 1/1
cptone singapore
```

define

To define the transmit and receive bits for E&M and E&M Melcas voice signaling on the Cisco MC3810, use the **define voice-port** configuration command. Use the **no** form of this command to restore the default value.

```
define {Tx-bits | Rx-bits} {seize | idle} {0000 | 0001 | 0010 | 0011 | 0100 | 0101 |
0110 | 0111 | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111}
no define {Tx-bits | Rx-bits} {seize | idle} {0000 | 0001 | 0010 | 0011 | 0100 | 0101 |
0110 | 0111 | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111}
```

Syntax Description

Tx-bits	Transmit signaling bits.
Rx-bits	Receive signaling bits.
seize	Define the pattern that represents the seized state.
idle	Define the pattern that represents the idle state.
0000 through 1111	Define the appropriate bit pattern.

Default

The default is to use the preset signaling patterns as defined in ANSI and CEPT standards, as follows:

For E&M:

Tx-bits idle 0000 (0001 if on E1 trunk)

Tx-bits seize 1111

Rx-bits idle 0000

Rx-bits seize 1111

For E&M Melcas:

Tx-bits idle 1101

Tx-bits seize 0101

Rx-bits idle 1101

Rx-bits seize 0101

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 MA.

This command applies to digital voice ports on the Cisco MC3810 only.

Use the **define** command to match the E&M bit patterns with the attached telephony device. Be careful not to define invalid configurations, such as all 0000 on E1, or identical seize and idle states. Use this command with the **ignore** command.

Example

To configure a voice-port sending traffic in North American E&M signaling format to convert the signaling to Mercury Exchange Limited (MEL) CAS format, enter the following commands:

```
voice-port 1/1
  define rx-bits idle 1101
  define rx-bits idle 0101
  define tx-bits seize 1101
  define tx-bits seize 0101
```

Related Command

condition
ignore

description

To include a description of what this voice port is connected to, use the **description** voice-port configuration command. Use the **no** form of this command to disable this feature.

description *string*
no description

Syntax Description

string Character string from 1 to 255 characters.

Default

Enabled with a null string

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco MC3810 and the Cisco 3600 series.

Use the **description** command to include descriptive text about this voice-port connection. This information is displayed when you issue a **show** command and does not affect the operation of the interface in any way.

Examples

The following example identifies voice port 1/0/0 on the Cisco 3600 series as being connected to the Purchasing department:

```
voice-port 1/0/0
 description purchasing_dept
```

The following example identifies voice port 1/1 on the Cisco MC3810 as being connected to the Marketing department:

```
voice-port 1/1
 description marketing_dept
```

dial-type

To specify the type of out-dialing for voice port interfaces, use the **dial-type** voice-port configuration command. Use the **no** form of this command to disable the selected type of dialing.

```
dial-type {dtmf | pulse}
no dial-type
```

Syntax Description

<code>dtmf</code>	Specifies a touch-tone dialer.
<code>pulse</code>	Specifies a pulse dialer.

Default

`dtmf`

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco MC3810 and the Cisco 3600 series.

Use the **dial-type** command to specify an out-dialing type for an FXO or E&M voice port interface; this command is not applicable to FXS voice ports because they do not generate out-dialing. Voice ports can always detect dtmf and pulse signals. This command does not affect voice port dialing detection.

The **dial-type** command affects out-dialing as configured for the dial peer.

Examples

The following example configures a voice port on the Cisco 3600 series to support a touch-tone dialer:

```
voice-port 1/0/0
 dial-type dtmf
```

The following example configures a voice port on the Cisco MC3810 to support a rotary (pulse tone) dialer:

```
voice-port 1/1
 dial-type pulse
```

echo-cancel coverage

To adjust the size of the echo canceller, use the **echo-cancel coverage** voice-port configuration command. Use the **no** form of this command to reset this command to the default value.

echo-cancel coverage *value*
no echo-cancel coverage *value*

Syntax Description

value Number of milliseconds the echo-canceller will cover on a given signal. Valid values are 16, 24, and 32.

Default

16

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco MC3810 and the Cisco 3600 series.

Use the **echo-cancel coverage** command to adjust the coverage size of the echo canceller. This command enables cancellation of voice that is sent out the interface and received back on the same interface within the configured amount of time. If the local loop (the distance from the analog interface to the connected equipment producing the echo) is longer, the configured value of this command should be extended.

If you configure a longer value for this command, it will take the echo canceller longer to converge; in this case, the user might hear slight echo when the connection is initially set up. If the configured value for this command is too short, the user might hear some echo for the duration of the call because the echo canceller is not cancelling the longer delay echoes.

There is no echo or echo cancellation on the network (for example, non-POTS) side of the connection.



Note

This command is valid only if the echo cancel feature has been enabled. For more information, refer to the **echo-cancel enable** command.

Examples

The following example adjusts the size of the echo canceller to 16 milliseconds on the Cisco 3600 series:

```
voice-port 1/0/0
 echo-cancel enable
 echo-cancel coverage 16
```

The following example adjusts the size of the echo canceller to 16 milliseconds on the Cisco MC3810:

```
voice-port 1/1
 echo-cancel enable
 echo-cancel coverage 16
```

Related Commands

echo-cancel enable

echo-cancel enable

To enable the cancellation of voice that is sent out the interface and is received back on the same interface, use the **echo-cancel enable** voice-port configuration command. Use the **no** form of this command to disable echo cancellation.

echo-cancel enable

no echo-cancel enable

Syntax Description

This command has no arguments or keywords.

Default

Enabled for all interface types.

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco 3600 series and the Cisco MC3810.

The **echo-cancel enable** command enables cancellation of voice that is sent out the interface and is received back on the same interface; sound that is received back in this manner is perceived by the listener as an echo. Disabling echo cancellation might cause the remote side of a connection to hear an echo. Because echo cancellation is an invasive process that can minimally degrade voice quality, this command should be disabled if it is not needed.

The **echo-cancel enable** command does not affect the echo heard by the user on the analog side of the connection.

There is no echo path for a 4-wire E&M interface. The echo canceller should be disabled for that interface type.



This command is valid only if the **echo-cancel coverage** command has been configured. For more information, refer to the **echo-cancel coverage** command.

Examples

The following example enables the echo cancellation feature and adjusts the size of the echo canceller to 16 milliseconds on the Cisco 3600 series:

```
voice-port 1/0/0
 echo-cancel enable
 echo-cancel coverage 16
```

The following example enables the echo cancellation feature and adjusts the size of the echo canceller to 16 milliseconds on the Cisco MC3810:

```
voice-port 1/1
 echo-cancel enable
 echo-cancel coverage 16
```

Related Commands

`echo-cancel coverage`
`non-linear`

ignore

To specify the E&M or E&M Melcas voice port on the Cisco MC3810 to ignore specific receive bits, use the `ignore` voice-port configuration command. Use the `no` form of this command to restore the default value.

```
ignore {rx-a-bit | rx-b-bit | rx-c-bit | rx-d-bit}
no ignore {rx-a-bit | rx-b-bit | rx-c-bit | rx-d-bit}
```

Syntax Description

<code>rx-a-bit</code>	Ignores the receive A bit.
<code>rx-b-bit</code>	Ignores the receive B bit.
<code>rx-c-bit</code>	Ignores the receive C bit.
<code>rx-d-bit</code>	Ignores the receive D bit.

Default

The default is mode-dependent:

E&M:

```
no ignore rx-a-bit
ignore rx-b-bit, rx-c-bit, rx-d-bit
```

E&M Melcas:

```
no ignore rx-b-bit, rx-c-bit, rx-d-bit
```

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 MA.

This command applies only to digital voice ports on the Cisco MC3810.

Use this command with the **define** command.

Example

To configure voice-port 1/1 to ignore receive bits b, c, and d, enter the following commands:

```
voice-port 1/1
 ignore rx-b-bit
 ignore rx-c-bit
 ignore rx-d-bit
```

Related Commands

condition
define

impedance

To specify the terminating impedance of a voice port interface, use the **impedance** voice-port configuration command. Use the **no** form of this command to restore the default value.

```
impedance {600c | 600r | 900c | complex1 | complex2}
no impedance
```

Syntax Description

600c	Specifies 600 ohms complex.
600r	Specifies 600 ohms real.
900c	Specifies 900 ohms complex.
complex1	Specifies Complex 1.
complex2	Specifies Complex 2.

Default

600r

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

Use the **impedance** command to specify the terminating impedance of an FXO voice-port interface. The impedance value selected needs to match the specifications from the specific telephony system to which it is connected. Different countries often have different standards for impedance. CO switches in the United States are predominantly 600r. PBXs in the United States are normally either 600r or 900c.

If the impedance is set incorrectly (if there is an impedance mismatch), there will be a significant amount of echo generated (which could be masked if the **echo-cancel** command has been enabled). In addition, gains might not work correctly if there is an impedance mismatch.

Configuring the impedance on a voice port will change the impedance on both voice ports of a VPM card. This voice port must be shut down and then opened for the new value to take effect.

This command is applicable to FXS, FXO, and E&M voice ports on both the Cisco 3600 series and the Cisco MC3810.

Examples

The following example configures an FXO voice port on the Cisco 3600 series for a terminating impedance of 600 ohms (real):

```
voice-port 1/0/0
 impedance 600r
```

The following example configures an E&M voice port on the Cisco MC3810 for a terminating impedance of 900 ohms (complex):

```
voice-port 1/1
 impedance 900c
```

input gain

To configure a specific input gain value, use the **input gain** voice-port configuration command. Use the **no** form of this command to disable the selected amount of inserted gain.

```
input gain value
no input gain value
```

Syntax Description

<i>value</i>	Specifies, in decibels, the amount of gain to be inserted at the receiver side of the interface. Acceptable value is any integer from -6 to 14.
--------------	---

Default

0

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

A system-wide loss plan must be implemented using both **input gain** and **output attenuation** commands. Other equipment (including PBXs) in the system must be taken into account when creating a loss plan. This default value for this command assumes that a standard transmission loss plan is in effect, meaning that normally, there must be -6dB attenuation between phones. Connections are implemented to provide -6dB of attenuation when the **input gain** and **output attenuation** commands are configured with the default value of 0.

You can't increase the gain of a signal going out into the PSTN, but you can decrease it. Therefore, if the voice level is too high, you can decrease the volume by either decreasing the input gain value or by increasing the output attenuation.

You can increase the gain of a signal coming in to the router. If the voice level is too low, you can increase the input gain.

This command applies to both the Cisco 3600 series and the Cisco MC3810.

Examples

The following example configures a 3-decibel gain to be inserted at the receiver side of the interface in the Cisco 3600 series:

```
port 1/0/0
  input gain 3
```

The following example configures a 3-decibel gain to be inserted at the receiver side of the interface in the Cisco MC3810:

```
port 1/1
  input gain 3
```

Related Commands

output attenuation

music-threshold

To specify the threshold for on-hold music for a specified voice port, use the **music-threshold** voice-port configuration command. Use the **no** form of this command to disable this feature.

```
music-threshold number
```

```
no music-threshold number
```

Syntax Description

number The on-hold music threshold in decibels. Valid entries are any integer from -70 to -30.

Default

-38

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to the Cisco 3600 series only.

Use the **music-threshold** command to specify the decibel level of music played when calls are put on hold. This command tells the firmware to pass steady data above the specified level. It only affects the operation of VAD when receiving voice.

If the value for this command is set too high, VAD interprets music-on-hold as silence, and the remote end does not hear the music. If the value for this command is set too low, VAD compresses and passes silence when the background is noisy, creating unnecessary voice traffic.

Example

The following example sets the decibel threshold for the music played when calls are put on hold to -35 on the Cisco 3600 series:

```
voice-port 1/0/0
music-threshold -35
```

non-linear

To enable non-linear processing in the echo canceller, use the **non-linear** voice-port configuration command. Use the **no** form of this command to disable non-linear processing.

```
non-linear
no non-linear
```

Syntax Description

This command has no arguments or keywords.

Default

The default for this command is enabled for all voice-port types.

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco 3600 series and the Cisco MC3810.

The function enabled by the **non-linear** command is also generally known as residual echo suppression. This command is associated with the echo canceller operation. The **echo-cancel enable** command must be enabled for the **non-linear** command to take effect. Use the **non-linear** command to shut off any signal if no near-end speech is detected.

Enabling the **non-linear** command normally improves performance, although some users might perceive truncation of consonants at the end of sentences when this command is enabled.

Examples

The following example enables non-linear call processing on the Cisco 3600 series:

```
voice-port 1/0/0
 non-linear
```

The following example enables non-linear call processing on the Cisco MC3810:

```
voice-port 1/1
 non-linear
```

Related Commands

echo-cancel enable

operation

To select a specific cabling scheme for E&M ports, use the **operation** voice-port configuration command. Use the **no** form of this command to restore the default.

```
operation {2-wire | 4-wire}
no operation {2-wire | 4-wire}
```

Syntax Description

2-wire	Specifies a 2-wire E&M cabling scheme.
4-wire	Specifies a 4-wire E&M cabling scheme.

Default

2-wire operation

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco 3600 series and the Cisco MC3810.

The **operation** command only affects voice traffic. Signaling is independent of 2-wire versus 4-wire settings. If the wrong cable scheme is specified, the user might get voice traffic in only one direction.

Configuring the **operation** command on a voice port changes the operation of both voice ports on a VPM card. The voice port must be shut down and then opened again for the new value to take effect.

This command is not applicable to FXS or FXO interfaces because they are, by definition, 2-wire interfaces.

On the Cisco MC3810, this command only applies to the analog voice module (AVM).

Examples

The following example specifies that an E&M port on the Cisco 3600 series uses a 4-wire cabling scheme:

```
voice-port 1/0/0
 operation 4-wire
```

The following example specifies that an E&M port on the Cisco MC3810 uses a 2-wire cabling scheme:

```
voice-port 1/1
 operation 2-wire
```

output attenuation

To configure a specific output attenuation value, use the **output attenuation** voice-port configuration command. Use the **no** form of this command to disable the selected output attenuation value.

output attenuation *value*

no output attenuation

Syntax Description

value

The amount of attenuation in decibels at the transmit side of the interface. Acceptable value is any integer from 0 to 14. The default value for FXO, FXS, and E&M ports is 0.

Default

0

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco MC3810 and the Cisco 3600 series.

A system-wide loss plan must be implemented using both **input gain** and **output attenuation** commands. Other equipment (including PBXs) in the system must be taken into account when creating a loss plan. This default value for this command assumes that a standard transmission loss plan is in effect, meaning that normally, there must be -6 dB attenuation between phones. Connections are implemented to provide -6 dB of attenuation when the **input gain** and **output attenuation** commands are configured with the default value of 0.

You can't increase the gain of a signal going out into the PSTN, but you can decrease it. Therefore, if the voice level is too high, you can decrease the volume by either decreasing the input gain value or by increasing the output attenuation.

Examples

The following example on the Cisco 3600 series configures a 3-decibel gain to be inserted at the transmit side of the interface:

```
voice-port 1/0/0
 output attenuation 3
```

The following example on the Cisco MC3810 configures a 6-decibel gain to be inserted at the transmit side of the interface:

```
voice-port 1/1
 output attenuation 6
```

Related Command

input gain

playout-delay

To tune the playout buffer on the Cisco MC3810 to accommodate packet jitter caused by switches in the WAN, use the **playout-delay** voice-port configuration command. Use the **no** form of this command to restore the default value.

```
playout-delay {maximum | nominal} value
no playout-delay {maximum | nominal} value
```

Syntax Description

maximum	Specifies the maximum playout delay. The maximum delay is the time the Cisco MC3810 DSP starts to discard voice packets.
----------------	--

nominal	Specifies the nominal playout delay. The nominal delay is the wait time that the Cisco MC3810 DSP starts to play out the voice packets.
<i>value</i>	The playout-delay value in milliseconds. The range for maximum playout delay is from 40 to 320, and the range for nominal playout delay is from 40 to 240.

Default

160 (maximum playout delay)
80 (nominal playout delay)

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 MA.

This command applies only to the Cisco MC3810.

Example

The following example configures a nominal playout delay of 80 milliseconds and a maximum playout delay of 160 milliseconds on voice-port 1/1 on the Cisco MC3810:

```
voice-port 1/1
  playout-delay nominal 80
  playout-delay maximum 160
```

ring cadence

To specify the ring cadence for an FXS voice port on the Cisco MC3810, use the **ring cadence** voice-port configuration command. Use the **no** form of this command to restore the default value.

```
ring cadence [on1 | off1] [on2 | off2] [on3 | off3] [on4 | off4] [on5 | off5] [on6 | off6]
no ring cadence
```

Syntax Description

on1	Pulses on for 100 milliseconds.
off1	Pulses off for 100 milliseconds.
on2	Pulses on for 200 milliseconds.
off2	Pulses off for 200 milliseconds.
on3	Pulses on for 300 milliseconds.

off3	Pulses off for 300 milliseconds.
on4	Pulses on for 400 milliseconds.
off4	Pulses off for 400 milliseconds.
on5	Pulses on for 500 milliseconds.
off5	Pulses off for 500 milliseconds.
on6	Pulses on for 600 milliseconds.
off6	Pulses off for 600 milliseconds.

Default

on2 off4 (default North American ring pattern)

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 MA.

This command applies only to the Cisco MC3810.

Example

The following example configures the ring cadence for 0.4 seconds on and 0.2 seconds off on voice port 1/1 on the Cisco MC3810, enter the following:

```
voice-port 1/1
 ring cadence on4 off2
```

Related Commands

ring frequency
ring number

ring frequency

To specify the ring frequency for a specified FXS voice port, use the **ring frequency** voice-port configuration command. Use the **no** form of this command to restore the default value for this command.

```
ring frequency number
no ring frequency
```

Syntax Description

number Ring frequency (Hertz) used in the FXS interface. Valid entries on the Cisco 3600 series are 25 and 50. Valid entries on the Cisco MC3810 are 20 and 30.

Default

25 Hz on the Cisco 3600 series and 20 Hz on the Cisco MC3810

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command is applicable to both the Cisco 3600 series and the Cisco MC3810.

Use the **ring frequency** command to select a specific ring frequency for an FXS voice port. Use the **no** form of this command to reset the default value for this command. The ring frequency you select must match the connected equipment. If set incorrectly, the attached phone might not ring or might buzz. In addition, the ring frequency is usually country-dependent and you should take into account the appropriate ring frequency for your area before configuring this command.

This command does not affect ringback, which is the ringing a user hears when placing a remote call.

Examples

The following example configures the ring frequency on the Cisco 3600 series for 25 Hz:

```
voice-port 1/0/0
 ring frequency 25
```

The following example configures the ring frequency on the Cisco MC3810 for 20 Hz:

```
voice-port 1/1
 ring frequency 20
```

Related Commands

ring cadence
ring number

ring number

To specify the number of rings for a specified FXO voice port, use the **ring number** voice-port configuration command. Use the **no** form of this command to restore the default value.

```
ring number number
no ring number number
```

Syntax Description

number Number of rings detected before answering the call. Valid entries are numbers from 1 to 10. The default is 1.

Default

One ring

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco 3600 series and the Cisco MC3810.

Use the **ring number** command to set the maximum number of rings to be detected before answering a call over an FXO voice port. Use the **no** form of this command to reset the default value, which is one ring.

Normally, this command should be set to the default so that incoming calls are answered quickly. If you have other equipment available on the line to answer incoming calls, you might want to set the value higher to give the equipment sufficient time to respond. In that case, the FXO interface would answer if the equipment on line did not answer the incoming call in the configured number of rings.

This command is not applicable to FXS or E&M interfaces because they do not receive ringing to receive a call.

Examples

The following example on the Cisco 3600 series sets five rings as the maximum number of rings to be detected before closing a connection over this voice port:

```
voice-port 1/0/0
 ring number 5
```

The following example on the Cisco MC3810 sets five rings as the maximum number of rings to be detected before closing a connection over this voice port:

```
voice-port 1/1
 ring number 5
```

Related Commands

ring frequency

shutdown (voice-port)

To take the voice ports for a specific voice interface card offline, use the **shutdown** voice-port configuration command. Use the **no** form of this command to put the ports back in service.

```
shutdown
no shutdown
```

Syntax Description

This command has no arguments or keywords.

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco 3600 series and the Cisco MC3810.

When you enter the **shutdown** command, all ports on the voice interface card are disabled. When you enter the **no shutdown** command, all ports on the voice interface card are enabled. A telephone connected to an interface will hear dead silence when a port is shut down.

Example

The following example takes voice port 1/1/0 on the Cisco 3600 series offline:

```
configure terminal
voice-port 1/1/0
shutdown
```



Note

The preceding configuration example shuts down both voice ports 1/1/0 and 1/1/1.

signal

To specify the type of signaling for a voice port, use the **signal** voice-port configuration command. Use the **no** form of this command to restore the default value for this command. This command applies to analog voice ports only.

For FX0 and FXS:

```
signal {loop-start | ground-start}
no signal
```

For E&M:

```
signal {wink-start | immediate | delay-dial}
no signal
```

Syntax Description

loop-start	Specifies loop start signaling. Used for FXO and FXS interfaces. With loop start signaling only one side of a connection can hang up. This is the default setting for FXO and FXS voice ports.
ground-start	Specifies ground start signaling. Used for FXO and FXS interfaces. Ground Start allows both sides of a connection to place a call and to hang up.
wink-start	Indicates that the calling side seizes the line by going off-hook on its E-lead then waits for a short off-hook “wink” indication on its M lead from the called side before sending address information as DTMF digits. Used for E&M tie trunk interfaces. This is the default setting for E&M voice ports.
immediate	Indicates that the calling side seizes the line by going off-hook on its E-lead and sends address information as DTMF digits. Used for E&M tie trunk interfaces.
delay-dial	Indicates that the calling side seizes the line by going off-hook on its E-lead. After a timing interval, the calling side looks at the supervision from the called side. If the supervision is on-hook, the calling side starts sending information as DTMF digits; otherwise, the calling side waits until the called side goes on-hook and then starts sending address information. Used for E&M tie trunk interfaces.

Default

loop-start for FXO and FXS interfaces; wink-start for E&M interfaces

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco MC3810 and the Cisco 3600 series.

On Cisco 3600 series routers, configuring the **signal** command for an FXS or FXO voice port changes the signal value for both voice ports on a VPM card.



If you change the signal type for an FXO voice port on Cisco 3600 series routers, you need to move the appropriate jumper in the voice interface card of the voice network module. For more information about the physical characteristics of the voice network module, refer to the installation documentation, *Voice Network Module and Voice Interface Card Configuration Note*, that came with your voice network module.

Configuring this command for an E&M voice port changes only the signal value for the selected voice port. In either case, the voice port must be shut down and then activated before the configured values will take effect.

Some PBXs will miss initial digits if the E&M voice port is configured for Immediate signaling. If this occurs, use Delay-Dial signaling instead. Some non-Cisco devices have a limited number of DTMF receivers. This type of equipment must delay the calling side until a DTMF receiver is available.

Example

The following example configures ground start signaling on the Cisco 3600 series, which means that both sides of a connection can place a call and hang up, as the signaling type for a voice port:

```
configure terminal
voice-port 1/1/1
signal ground-start
```

supervisory disconnect

To enable a supervisory disconnect signal on FXO ports, use the **supervisory disconnect** voice-port configuration command. Use the **no** form of this command to disable the supervisory disconnect signal.

```
supervisory disconnect
no supervisory disconnect
```

Syntax Description

This command has no arguments or keywords.

Default

Enabled

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 MA.

This command applies to both the Cisco MC3810 and the Cisco 3600 series.

This command indicates whether or not supervisory disconnect signaling is available on the FXO port. Supervisory disconnect signaling is a power denial from the switch lasting at least 350 milliseconds. When this condition is detected, the system interprets this as a disconnect indication from the switch and clears the call.

You should configure no supervisory disconnect on the voice port if there is no supervisory disconnect available from the switch.



Note

If there is no disconnect supervision on the voice port, the interface could be left active if the caller abandons the call before the far end answers. After the router collects the dialed digits but before the called party answers, the router starts a tone detector. Within this time window, the tone detector listens for signals (such as a fast busy signal) that occur if the originating caller hangs up. If this occurs, the router will interpret those tones as a disconnect indication and close the window.

Examples

The following example configures supervisory disconnect on a Cisco 3600 series voice port:

```
voice-port 2/1/0
 supervisory disconnect
```

The following example configures supervisory disconnect on a Cisco MC3810 voice-port:

```
voice-port 1/1
 supervisory disconnect
```

timeouts initial

To configure the initial digit timeout value for a specified voice port, use the **timeouts initial** voice-port configuration command. Use the **no** form of this command to restore the default value.

```
timeouts initial seconds
no timeouts initial seconds
```

Syntax Description

<i>seconds</i>	Initial timeout duration in seconds. Valid entries are any integer from 0 to 120.
----------------	---

Default

10 seconds

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco 3600 series and the Cisco MC3810.

Use the **timeouts initial** command to specify the number of seconds the system will wait for the caller to input the first digit of the dialed digits. The timeouts initial timer is activated when the call is accepted and is deactivated when the caller inputs the first digit. If the configured timeout value is exceeded, the caller is notified through the appropriate tone and the call is terminated.

To disable the timeouts initial timer, set the *seconds* value to 0.

Examples

The following example sets the initial digit timeout value on the Cisco 3600 series to 10 seconds:

```
voice-port 1/0/0
 timeouts initial 10
```

The following example sets the initial digit timeout value on the Cisco MC3810 to 10 seconds:

```
voice-port 1/1
  timeouts initial 10
```

Related Commands

timeouts interdigit
timing

timeouts interdigit

To configure the interdigit timeout value for a specified voice port, use the **timeouts interdigit** voice-port configuration command. Use the **no** form of this command to restore the default value.

timeouts interdigit *seconds*
no timeouts interdigit *seconds*

Syntax Description

<i>seconds</i>	Interdigit timeout duration in seconds. Valid entries are any integer from 0 to 120.
----------------	--

Default

10 seconds

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco 3600 series and the Cisco MC3810.

Use the **timeouts interdigit** command to specify the number of seconds the system will wait (after the caller has input the initial digit) for the caller to input a subsequent digit of the dialed digits. The **timeouts interdigit** timer is activated when the caller inputs a digit and restarted each time the caller inputs another digit until the destination address is identified. If the configured timeout value is exceeded before the destination address is identified, the caller is notified through the appropriate tone and the call is terminated.

To disable the **timeouts interdigit** timer, set the *seconds* value to 0.

Examples

The following example sets the interdigit timeout value on the Cisco 3600 series for 10 seconds:

```
voice-port 1/0/0
  timeouts interdigit 10
```

The following example sets the interdigit timeout value on the Cisco MC3810 for 10 seconds:

```
voice-port 1/1
  timeouts interdigit 10
```

Related Commands

`timeouts initial`
`timing`

timeouts wait-release

To configure the timeout value for releasing voice ports on the Cisco MC3810, use the **timeouts wait-release** voice-port configuration command. Use the no form of this command to restore the default value.

```
timeouts wait-release {value | infinity}
no timeouts wait-release {value | infinity}
```

Syntax Description

<i>value</i>	The duration in seconds that a voice port stays in the call-failure state while the Cisco MC3810 sends a busy tone, reorder tone, or an out-of-service tone to the port. The range is from 5 to 3600 seconds. The default is 30 seconds.
infinity	Indicates that the voice port is never released from call-failure state.

Default

30 seconds

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)MA.

This command applies only to the Cisco MC3810.

Example

The following example configures voice port 1/1 on the Cisco MC3810 to stay in the call-failure state for 180 seconds while a busy tone, reorder tone, or out-of-service tone is sent to the voice port.

```
voice-port 1/1
  timeouts wait-release 180
```

timing clear-wait

To indicate the minimum amount of time between the inactive seizure signal and the call being cleared for a specified voice port, use the **timing clear-wait** voice-port configuration command. Use the **no** form of this command to reset the default value.

```
timing clear-wait milliseconds
no timing clear-wait milliseconds
```

Syntax Description

<i>milliseconds</i>	Minimum amount of time, in milliseconds, between the inactive seizure signal and the call being cleared. Valid entries on the Cisco 3600 series are numbers from 200 to 2000. Valid entries on the Cisco MC3810 are numbers from 100 to 2000. Supported on E&M ports only.
---------------------	--

Default

400 milliseconds

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco MC3810 and the Cisco 3600 series.

Examples

The following example configures the clear-wait duration on a Cisco 3600 series voice port to 300 milliseconds:

```
voice-port 1/0/0
  timing clear-wait 300
```

The following example configures the clear-wait duration on a CiscoMC3810 voice port to 300 milliseconds:

```
voice-port 1/1
 timing clear-wait 300
```

Related Commands

- timeouts initial
- timeouts interdigit
- timeouts wait-release
- timing clear-wait
- timing delay-duration
- timing delay-start
- timing delay-with-integrity
- timing dialout-delay
- timing dial-pulse min-delay
- timing digit
- timing interdigit
- timing percentage
- timing pulse
- timing pulse-interdigit
- timing wink-duration
- timing wink-wait

timing delay-duration

To specify the delay signal duration for a specified voice port, use the **timing delay-duration** voice-port configuration command. Use the **no** form of this command to reset the default value.

```
timing delay-duration milliseconds
no timing delay-duration milliseconds
```

Syntax Description

<i>milliseconds</i>	Delay signal duration for delay dial signaling, in milliseconds. Valid entries are numbers from 100 to 5000. Supported on E&M ports only.
---------------------	---

Default

2000 milliseconds

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco MC3810 and the Cisco 3600 series.
The call direction for the **timing delay-duration** command is out.

Examples

The following example configures the delay signal duration on a Cisco 3600 series voice port to 3000 milliseconds:

```
voice-port 1/0/0
 timing delay-duration 3000
```

The following example configures the delay signal duration on a Cisco MC3810 voice port to 3000 milliseconds:

```
voice-port 1/1
 timing delay-duration 3000
```

Related Commands

- timeouts initial
- timeouts interdigit
- timeouts wait-release
- timing clear-wait
- timing delay-start
- timing delay-with-integrity
- timing dialout-delay
- timing dial-pulse min-delay
- timing digit
- timing interdigit
- timing percentage
- timing pulse
- timing pulse-interdigit
- timing wink-duration
- timing wink-wait

timing delay-start

To specify the minimum delay time from outgoing seizure to outdial address for a specified voice port, use the **timing delay-start** voice-port configuration command. Use the **no** form of this command to reset the default value.

```
timing delay-start milliseconds
no timing delay-start milliseconds
```

Syntax Description

<i>milliseconds</i>	Minimum delay time, in milliseconds, from outgoing seizure to outdial address. Valid entries are numbers from 20 to 2000. Supported on E&M ports only.
---------------------	--

Default

On Cisco 3600 series, the default value is 300.
On the Cisco MC3810, the default value is 150.

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco MC3810 and the Cisco 3600 series.

The call direction for the **timing delay-start** command is out.

Examples

The following example configures the delay-start duration on a Cisco 3600 series voice port to 250 milliseconds:

```
voice-port 1/0/0
 timing delay-start 250
```

The following example configures the delay-start duration on a Cisco MC3810 voice port to 250 milliseconds:

```
voice-port 1/1
 timing delay-start 250
```

Related Commands

- timeouts initial
- timeouts interdigit
- timeouts wait-release
- timing clear-wait
- timing delay-duration
- timing delay-with-integrity
- timing dialout-delay
- timing dial-pulse min-delay
- timing digit
- timing interdigit
- timing percentage
- timing pulse
- timing pulse-interdigit
- timing wink-duration
- timing wink-wait

timing delay-with-integrity

To specify the duration of the wink pulse for the delay dial for a specified voice port on the Cisco MC3810, use the **timing delay-with-integrity** voice-port configuration command. Use the **no** form of this command to reset the default value.

timing delay-with-integrity *milliseconds*

no delay-with-integrity *milliseconds*

Syntax Description

milliseconds Duration of the wink pulse for the delay dial, in milliseconds. Valid entries are numbers from 0 to 5000. Supported on E&M ports only.

Default

0

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to only the Cisco MC3810.

Example

The following example configures the duration of the wink pulse for the delay dial on a Cisco MC3810 voice port to 10 milliseconds:

```
voice-port 1/1
 timing delay-with-integrity 10
```

Related Commands

timeouts initial
timeouts interdigit
timeouts wait-release
timing clear-wait
timing delay-duration
timing delay-start
timing dialout-delay
timing dial-pulse min-delay
timing digit
timing interdigit
timing percentage
timing pulse

timing pulse-interdigit
timing wink-duration
timing wink-wait

timing dial-pulse min-delay

To specify the time between wink-like pulses for a specified voice port on the Cisco 3600 series, use the **timing dial-pulse min-delay** voice-port configuration command. Use the **no** form of this command to reset the default value.

```
timing dial-pulse min-delay milliseconds  
no timing dial-pulse min-delay milliseconds
```

Syntax Description

<i>milliseconds</i>	Time, in milliseconds, between the generation of wink-like pulses. Valid entries are numbers from 0 to 5000.
---------------------	--

Default

300 milliseconds

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to only the Cisco 3600 series.

Use the **timing** command with the **dial-pulse min-delay** keyword with PBXs requiring a wink-like pulse, even though they have been configured for delay-dial signaling. If the value for this keyword is set to 0, the router will not generate this wink-like pulse. The call signal direction for this command is in.

Example

The following example configures the time between the generation of wink-like pulses on a Cisco 3600 series voice port to 350 milliseconds:

```
voice-port 1/0/0  
  timing dial-pulse min-delay 350
```

Related Commands

timeouts initial
timeouts interdigit
timeouts wait-release
timing clear-wait
timing delay-duration
timing delay-start
timing delay-with-integrity
timing dialout-delay
timing digit
timing interdigit
timing percentage
timing pulse
timing pulse-interdigit
timing wink-duration
timing wink-wait

timing dialout-delay

To specify the dialout delay for the sending digit on a specified voice port on the Cisco MC3810, use the **timing dialout-delay** voice-port configuration command. Use the **no** form of this command to reset the default value.

timing dialout-delay *milliseconds*
no timing dialout-delay *milliseconds*

Syntax Description

<i>milliseconds</i>	Dialout delay, in milliseconds, for the sending digit or cut-through on an FXO trunk or an E&M immediate trunk. Valid entries are from 100 to 5000 milliseconds.
---------------------	--

Default

300 milliseconds

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.
This command applies to only the Cisco MC3810.

Example

The following example configures the dialout delay on a Cisco MC3810 voice port to 350 milliseconds:

```
voice-port 1/1
 timing dialout-delay 350
```

Related Commands

- timeouts initial
- timeouts interdigit
- timeouts wait-release
- timing clear-wait
- timing delay-duration
- timing delay-start
- timing delay-with-integrity
- timing dialout-delay
- timing dial-pulse min-delay
- timing digit
- timing interdigit
- timing percentage
- timing pulse
- timing pulse-interdigit
- timing wink-duration
- timing wink-wait

timing digit

To specify the DTMF digit signal duration for a specified voice port, use the **timing digit** voice-port configuration command. Use the **no** form of this command to reset the default value.

```
timing digit milliseconds
no timing digit milliseconds
```

Syntax Description

<i>milliseconds</i>	The DTMF digit signal duration, in milliseconds. Valid entries are numbers from 50 to 100. Supported on FXO, FXS and E&M ports.
---------------------	---

Default

100 milliseconds

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco MC3810 and the Cisco 3600 series.

The call signal direction for the **timing digit** command is out.

Examples

The following example configures the DTMF digit signal duration on a Cisco 3600 series voice port to 50 milliseconds:

```
voice-port 1/0/0
 timing digit 50
```

The following example configures the DTMF digit signal duration on a Cisco MC3810 voice port to 50 milliseconds:

```
voice-port 1/1
 timing digit 50
```

Related Commands

- timeouts initial
- timeouts interdigit
- timeouts wait-release
- timing clear-wait
- timing delay-duration
- timing delay-start
- timing delay-with-integrity
- timing dialout-delay
- timing dial-pulse min-delay
- timing interdigit
- timing percentage
- timing pulse
- timing pulse-interdigit
- timing wink-duration
- timing wink-wait

timing interdigit

To specify the DTMF inter-digit duration for a specified voice port, use the **timing interdigit** voice-port configuration command. Use the **no** form of this command to reset the default value.

```
timing interdigit milliseconds
no timing interdigit milliseconds
```

Syntax Description

milliseconds DTMF inter-digit duration, in milliseconds. Valid entries are numbers from 50 to 500. Supported on FXO, FXS and E&M ports.

Default

100 milliseconds

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco MC3810 and the Cisco 3600 series.

The call signal direction for the **timing interdigit** command is out.

Examples

The following example configures the DTMF inter-digit duration on a Cisco 3600 series voice port to 150 milliseconds:

```
voice-port 1/0/0
 timing interdigit 150
```

The following example configures the DTMF inter-digit duration on a Cisco MC3810 voice port to 150 milliseconds:

```
voice-port 1/1
 timing interdigit 150
```

Related Commands

- timeouts initial
- timeouts interdigit
- timeouts wait-release
- timing clear-wait
- timing delay-duration
- timing delay-start
- timing delay-with-integrity
- timing dialout-delay
- timing dial-pulse min-delay
- timing digit
- timing percentage
- timing pulse
- timing pulse-interdigit
- timing wink-duration
- timing wink-wait

timing percentbreak

To specify the percentage of a break period for a dialing pulse for a specified voice port on the Cisco MC3810, use the **timing percentbreak** voice-port configuration command. Use the **no** form of this command to reset the default value.

```
timing percentbreak percent
```

```
no timing percentbreak percent
```

Syntax Description

<i>percent</i>	Percentage of the break period for a dialing pulse. Valid entries are numbers from 20 to 80. Supported on FXO and E&M ports only.
----------------	---

Default

50

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to only the Cisco MC3810.

Example

The following example configures the break period percentage on a Cisco MC3810 voice port to 30 milliseconds:

```
voice-port 1/1
 timing percentbreak 30
```

Related Commands

- timeouts initial
- timeouts interdigit
- timeouts wait-release
- timing clear-wait
- timing delay-duration
- timing delay-start
- timing delay-with-integrity
- timing dialout-delay
- timing dial-pulse min-delay

timing digit
timing interdigit
timing pulse
timing pulse-interdigit
timing wink-duration
timing wink-wait

timing pulse

To specify the pulse dialing rate for a specified voice port, use the **timing pulse** voice-port configuration command. Use the **no** form of this command to reset the default value.

```
timing pulse pulses-per-second  
no timing pulse pulses-per-second
```

Syntax Description

pulses-per-second Pulse dialing rate, in pulses per second. Valid entries are numbers from 10 to 20. Supported on FXO and E&M ports only.

Default

20

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco MC3810 and the Cisco 3600 series.

The call signal direction for the **timing pulse** command is out.

Examples

The following example configures the pulse dialing rate on a Cisco 3600 series voice port to 15 pulses per second:

```
voice-port 1/0/0  
  timing pulse 15
```

The following example configures the pulse dialing rate on a Cisco MC3810 voice port to 15 pulses per second:

```
voice-port 1/1  
  timing pulse 15
```

Related Commands

timeouts initial
timeouts interdigit
timeouts wait-release
timing clear-wait
timing delay-duration
timing delay-start
timing delay-with-integrity
timing dialout-delay
timing dial-pulse min-delay
timing digit
timing interdigit
timing percentage
timing pulse-interdigit
timing wink-duration
timing wink-wait

timing pulse-interdigit

To specify the pulse inter-digit timing for a specified voice port, use the **timing pulse-interdigit** voice-port configuration command. Use the **no** form of this command to reset the default value.

timing pulse-interdigit *milliseconds*

no timing pulse-interdigit *milliseconds*

Syntax Description

<i>milliseconds</i>	Pulse dialing inter-digit timing, in milliseconds. Valid entries are numbers from 100 to 1000. Supported on FXO and E&M ports only.
---------------------	---

Default

500 milliseconds

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco MC3810 and the Cisco 3600 series.

The call signal direction for the **timing pulse-interdigit** command is out.

Examples

The following example configures the pulse-dialing inter-digit timing on a Cisco 3600 series voice port to 300 milliseconds:

```
voice-port 1/0/0
 timing pulse-interdigit 300
```

The following example configures the pulse-dialing inter-digit timing on a Cisco MC3810 voice port to 300 milliseconds:

```
voice-port 1/1
 timing pulse-interdigit 300
```

Related Commands

- timeouts initial
- timeouts interdigit
- timeouts wait-release
- timing clear-wait
- timing delay-duration
- timing delay-start
- timing delay-with-integrity
- timing dialout-delay
- timing dial-pulse min-delay
- timing digit
- timing interdigit
- timing percentage
- timing pulse
- timing wink-duration
- timing wink-wait

timing wink-duration

To specify the maximum wink signal duration for a specified voice port, use the **timing wink-duration** voice-port configuration command. Use the **no** form of this command to restore the default value.

```
timing wink-duration milliseconds
no timing wink-duration milliseconds
```

Syntax Description

<i>milliseconds</i>	Maximum wink signal duration, in milliseconds, for a wink-start signal. Valid entries are numbers from 100 to 400. Supported on E&M ports only.
---------------------	---

Default

200 milliseconds

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco MC3810 and the Cisco 3600 series.

The call signal direction for the **timing wink-duration** command is out.

Examples

The following example configures the wink signal duration on a Cisco 3600 series voice port to 300 milliseconds:

```
voice-port 1/0/0
 timing wink-duration 300
```

The following example configures the wink signal duration on a Cisco MC3810 voice port to 300 milliseconds:

```
voice-port 1/1
 timing wink-duration 300
```

Related Commands

- timeouts initial
- timeouts interdigit
- timeouts wait-release
- timing clear-wait
- timing delay-duration
- timing delay-start
- timing delay-with-integrity
- timing dialout-delay
- timing dial-pulse min-delay
- timing digit
- timing interdigit
- timing percentage
- timing pulse
- timing pulse-interdigit
- timing wink-wait

timing wink-wait

To specify the maximum wink-wait duration for a specified voice port, use the **timing wink-wait** voice-port configuration command. Use the **no** form of this command to reset the default value.

```
timing wink-wait milliseconds
no timing wink-wait milliseconds
```

Syntax Description

milliseconds Maximum wink-wait duration, in milliseconds, for a wink start signal. Valid entries are numbers from 100 to 5000. Supported on E&M ports only

Default

200 milliseconds

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco MC3810 and the Cisco 3600 series.

The call signal direction for the **timing wink-wait** command is out.

Examples

The following example configures the wink-wait duration on a Cisco 3600 series voice port to 300 milliseconds:

```
voice-port 1/0/0
 timing wink-wait 300
```

The following example configures the wink-wait duration on a Cisco MC3810 voice port to 300 milliseconds:

```
voice-port 1/1
 timing wink-wait 300
```

Related Commands

- timeouts initial
- timeouts interdigit
- timeouts wait-release
- timing clear-wait
- timing delay-duration
- timing delay-start
- timing delay-with-integrity
- timing dialout-delay
- timing dial-pulse min-delay
- timing digit
- timing interdigit
- timing percentage
- timing pulse
- timing pulse-interdigit
- timing wink-duration

type (voice)

To specify the E&M interface type, use the **type** voice-port configuration command. Use the **no** form of this command to reset the default value.

```
type {1 | 2 | 3 | 5}
no type
```

Syntax Description

1	Indicates the following lead configuration: E—Output, relay to ground. M—Input, referenced to ground.
2	Indicates the following lead configuration: E—Output, relay to SG. M—Input, referenced to ground. SB—Feed for M, connected to -48V. SG—Return for E, galvanically isolated from ground.
3	Indicates the following lead configuration: E—Output, relay to ground. M—Input, referenced to ground. SB—Connected to -48V. SG—Connected to ground.
5	Indicates the following lead configuration: E—Output, relay to ground. M—Input, referenced to -48V.

Default

1

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco 3600 series and the Cisco MC3810.

Use the **type** command to specify the E&M interface for a particular voice port. With **1**, the tie-line equipment generates the E-signal to the PBX type grounding the E-lead. The tie-line equipment detects the M-signal by detecting current flow to ground. If you select **1**, a common ground must exist between the line equipment and the PBX.

With 2, the interface requires no common ground between the equipment, thereby avoiding ground loop noise problems. The E-signal is generated toward the PBX by connecting it to SG. The M-signal is indicated by the PBX connecting it to SB. While Type 2 interfaces do not require a common ground, they do have the tendency to inject noise into the audio paths because they are asymmetrical with respect to the current flow between devices.



E&M Type 4 is not a supported option. However, Type 4 operates similarly to Type 2 except for the M-lead operation. On Type 4, the M-lead states are open/ground, compared to Type 2, which is open/battery. Type 4 can interface with Type 2. To use Type 4 you can set the E&M voice port to Type 2 and perform the necessary M-lead rewiring.

With 3, the interface operates the same as Type 1 interfaces with respect to the E-signal. The M-signal, however, is indicated by the PBX connecting it to SB on assertion and alternately connecting it to SG during inactivity. If you select 3, a common ground must be shared between equipment.

With 5, the Type 5 line equipment indicates E-signal to the PBX by grounding the E-lead. The PBX indicates M-signal by grounding the M-lead. A Type 5 interface is quasi-symmetrical in that while the line is up, current flow is more or less equal between the PBX and the line equipment, but noise injection is a problem.

Examples

The following example selects Type 3 as the interface type for your voice port on the Cisco 3600 series:

```
voice-port 1/0/0
 type 3
```

The following example selects Type 3 as the interface type for your voice port on the Cisco MC3810:

```
voice-port 1/1
 type 3
```

vad (voice port)

To enable voice activity detection (VAD) for the calls using this voice port, use the `vad` voice-port configuration command. Use the `no` form of this command to disable VAD.

```
vad
no vad
```

Syntax Description

This command has no arguments or keywords.

Default

VAD is not enabled

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to Voice over Frame Relay, Voice over ATM, and Voice over HDLC on the Cisco MC3810.

Use the **vad** command to enable voice activity detection. With VAD, silence is not transmitted over the network, only audible speech. If you enable VAD, the sound quality will be slightly degraded but the connection will monopolize much less bandwidth. If you use the **no** form of this command, VAD is disabled on the voice-port.

**Note**

On the Cisco 3600 series, VAD is assigned to the dial peer using the **vad** dial-peer configuration command.

Example

The following example enables VAD:

```
voice-port 1/1
 vad
```

Related Commands

comfort-noise

voice confirmation-tone

To disable the two-beep confirmation tone for PLAR or PLAR Off Premises eXtension (OPX) connections, use the **voice confirmation-tone** voice-port command. Use the **no** form of this command to enable the two-beep confirmation tone.

voice confirmation-tone

no voice confirmation-tone

Syntax Description

This command has no arguments or keywords.

Default

The two-beep confirmation tone is heard on the PLAR or PLAR OPX connection.

Command Mode

Voice-port configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 MA.

This command applies only to the Cisco MC3810.

Use this command to disable the two-beep confirmation tone that a caller hears when picking up the handset for PLAR and PLAR OPX connections. This command is only valid if the voice port **connection** command is set to PLAR or PLAR OPX.

Example

The following example disables the two-beep confirmation tone on voice port 1/1 on the Cisco MC3810:

```
voice-port 1/1
 connection plar-opx
 voice confirmation-tone
```

Related Commands

`connection`

voice-port

To enter the voice-port configuration mode, use the **voice-port** global configuration command.

For the Cisco 3600 series:

```
voice-port slot-number/subunit-number/port
```

For the Cisco MC3810:

```
voice-port slot/port
```

Syntax Description

For the Cisco 3600 series:

<i>slot-number</i>	Specifies the slot number in the Cisco router where the voice network module is installed. Valid entries are from 0 to 3, depending on the voice interface card you have installed.
<i>subunit-number</i>	Specifies the subunit on the voice network module where the voice port is located. valid entries are 0 or 1.
<i>port</i>	Specifies the voice port. valid entries are 0 or 1.

For the Cisco MC3810:

<i>slot</i>	Specifies the slot number on the Cisco MC3810. If the analog voice module (AVM) or the digital voice module (DVM) is installed, the slot number is 1. If the multiflex trunk (MFT) is installed, the slot number is 0.
<i>port</i>	Specifies the voice port number. The valid entries depend on the hardware configuration, as follows: <ul style="list-style-type: none">• Analog: 1 to 6• Digital T1: 1 to 24• Digital E1: 1 to 15 and 17 to 31

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(1)T.

This command applies to both the Cisco MC3810 and the Cisco 3600 series.

Use the **voice-port** configuration command to switch to the voice-port configuration mode from the global configuration mode. Use the exit command to exit the voice-port configuration mode and return to the global configuration mode.

For more information about the physical characteristics of your voice network module, or how to install it, refer to the installation documentation that came with your voice network module.

Examples

The following example accesses the voice-port configuration mode for port 0, located on subunit 0 on a voice interface card installed in slot 1 for the Cisco 3600 series:

```
configure terminal
voice-port 1/0/0
```

The following example accesses the voice-port configuration mode for digital voice port 24 on a Cisco MC3810 with a DVM installed:

```
configure terminal
voice-port 1/24
```

Related Commands

dial-peer voice

