

# ces initial-delay

To configure the size of the receive buffer of a circuit emulation service (CES) circuit, use the **ces initial-delay** command in interface configuration mode. To remove the initial-delay value, use the **no** form of this command.

**ces initial-delay** *bytes*

**no ces initial-delay** *bytes*

<b>Syntax Description</b>	<i>bytes</i>	The size of the receive buffer of the CES circuit, in bytes. Range is from 1 to 16000. The default is 4000. This command is used to accommodate cell jitter on the network. Bytes received from the ATM network are buffered by this amount before being sent to the CES port.
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<b>Defaults</b>	4000 bytes
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<b>Command Modes</b>	Interface configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	11.3(1)MA	This command was introduced on the Cisco MC3810.

<b>Usage Guidelines</b>	This command applies to ATM configuration on the Cisco MC3810 multiservice concentrator.
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<b>Examples</b>	The following example shows configuration of the transmit buffer of the CES circuit to 8,000 bytes: <pre>ces initial-delay 8000</pre>
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<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>ces cell-loss-integration-period</b>	Sets the CES cell-loss integration period.
	<b>ces clockmode synchronous</b>	Configures the ATM CES synchronous clock mode.
	<b>ces connect</b>	Maps the CES service to an ATM PVC.
	<b>ces max-buf-size</b>	Configures the send buffer of a CES circuit.
	<b>ces partial-fill</b>	Configures the number of user octets per cell for the ATM CES.
	<b>ces service</b>	Configures the ATM CES type.

## ces max-buf-size

To configure the transmit buffer of a circuit emulation service (CES) circuit, use the **ces max-buf-size** command in interface configuration mode. To delete the CES transmit buffer size, use the **no** form of this command.

**ces max-buf-size** *size*

**no ces max-buf-size** *size*

### Syntax Description

<i>size</i>	Maximum size of the transmit buffer for the CES. Range is from 80 to 1520. The default is 256.
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### Defaults

256

### Command Modes

Interface configuration

### Command History

Release	Modification
11.3(1)MA	This command was introduced on the Cisco MC3810.

### Usage Guidelines

This command applies to ATM configuration on the Cisco MC3810.

This command causes incoming bytes received on a CES port to be buffered by the amount configured and sent to the ATM Adaptation Layer 1 (AAL1) process as a block of data.

This command is supported on serial ports 0 and 1 when the **encapsulation atm-ces** command is enabled.

### Examples

The following example shows configuration of the maximum CES reassembly buffer size to 1520:

```
ces max-buf-size 1520
```

### Related Commands

Command	Description
<b>ces cell-loss-integration-period</b>	Sets the CES cell-loss integration period.
<b>ces clockmode synchronous</b>	Configures the ATM CES synchronous clock mode.
<b>ces connect</b>	Maps the CES service to an ATM PVC.
<b>ces initial-delay</b>	Configures the size of the receive buffer of a CES circuit.
<b>ces partial-fill</b>	Configures the number of user octets per cell for the ATM CES.
<b>ces service</b>	Configures the ATM CES type.

## ces service

To configure the ATM circuit emulation service (CES) type, use the **ces service** command in interface configuration mode. To disable the ATM CES service type, use the **no** form of this command.

**ces service structured**

**no ces service structured**

<b>Syntax Description</b>	<b>structured</b>	Specifies that the ATM CES type is structured. Structured is the only option supported in this release.
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<b>Defaults</b>	Structured
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<b>Command Modes</b>	Interface configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	11.3(1)MA	This command was introduced on the Cisco MC3810.

<b>Usage Guidelines</b>	<p>This command applies to ATM configuration on the Cisco MC3810.</p> <p>This command is supported on serial ports 0 and 1 when the <b>encapsulation atm-ces</b> command is enabled.</p>
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<b>Examples</b>	The following example sets the CES service to structured for serial port 0:
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```
interface serial 0
  ces service structured
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>ces</b>	Sets the CES cell-loss integration period.
	<b>cell-loss-integration-period</b>	
	<b>ces clockmode synchronous</b>	Configures the ATM CES synchronous clock mode.
	<b>ces connect</b>	Maps the CES service to an ATM PVC.
	<b>ces initial-delay</b>	Configures the size of the receive buffer of a CES circuit.
	<b>ces max-buf-size</b>	Configures the send buffer of a CES circuit.
	<b>ces partial-fill</b>	Configures the number of user octets per cell.

# ces-clock

To configure the clock for the CES interface, use the **ces-clock** command in controller configuration mode. To disable the ces clock, use the **no** form of this command.

**ces-clock** { **adaptive** | **srts** | **synchronous** }

**no ces-clock** { **adaptive** | **srts** | **synchronous** }

## Syntax Description

<b>adaptive</b>	Adjusts output clock on a received ATM Adaptation Layer 1 (AAL1) on first-in, first-out basis. Use in unstructured mode.
<b>srts</b>	Sets the clocking mode to synchronous residual time stamp.
<b>synchronous</b>	Configures the timing recovery to synchronous for structured mode.

## Defaults

The default setting is synchronous

## Command Modes

Controller configuration

## Command History

Release	Modification
12.1(2)T	This command was introduced.

## Usage Guidelines

This command is used on Cisco 3600 series routers that have OC-3/STM-1 ATM CES network modules.

## Examples

The following example configures the CES clock mode for synchronous residual time stamp:

```
ces-clock srts
```

## Related Commands

Command	Description
<b>controller</b>	Configures the T1 or E1 controller.

# cgma-agent

To enable the Cisco Gateway Management Agent (CGMA) on the Cisco IOS gateway, use the **cgma-agent** command in global configuration mode. To disable the CGMA, use the **no** form of this command.

**cgma-agent** [**tcp-port** *number*] | [**time-period** *seconds*]

**no cgma-agent**

Syntax Description	
<b>tcp-port</b> <i>number</i>	(Optional) Specifies the TCP port number for the CGMA to use in communication with a third-party management system. Range is from 5000 to 65535. The default is 5000.
<b>time-period</b> <i>seconds</i>	(Optional) Specifies the maximum time period, in seconds for maintaining the link between the CGMA and the third-party management system during a period of inactivity. If twice the timeout value is met or exceeded with no message received from the client, the TCP connection is closed. Additionally, a 60-second timer is maintained in the CGMA, which closes the connection if no handshake query message is received from the third-party management system for 60 seconds. Range is from 45 to 300. The default is 45.

## Defaults

Default *number* value is 5000

Default *seconds* value is 45

Using this command with no keywords or arguments configures the default values for *number* and *seconds*

## Command Modes

Global configuration

## Command History

Release	Modification
12.2(2)XB	This command was introduced on the Cisco 2600 series, Cisco 3600 series, Cisco AS5300, Cisco AS5350, and Cisco AS5400.
12.2(2)XB1	This command was implemented on the Cisco AS5800 for this Cisco IOS release only.
12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T and implemented on the Cisco 2600 series, Cisco 3600 series, and Cisco 7200 series. Support for the Cisco AS5300, Cisco AS5350, Cisco AS5400, and Cisco AS5800 is not included in this release.

**Usage Guidelines**

Use this command to enable the CGMA on the Cisco IOS gateway. The CGMA communicates with the third-party management system to provide real-time information for gateway management, including the following:

- Handshake query, status query, and response messages between the CGMA and the third-party management system
- Call information such as start and end of call from call detail records (CDRs) sent using extensible markup language (XML) over TCP/IP
- Shows if T1 or E1 controllers and analog ports are up or down, and are also generated at the removal or addition of a “pri-group” or “ds0-group” under the T1 or E1 controller.

**Examples**

The following example shows that the CGMA is enabled on TCP port 5300 and that the CGMA times out after 300 seconds and closes its connection to the third-party management system because of inactivity in the link:

```
Router(config)# cgma-agent tcp-port 5300 time-period 300
```

```
Router# show running-config
```

```
Building configuration...
```

```
Current configuration : 1797 bytes
```

```
!
version 12.2
service config
no service single-slot-reload-enable
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname gw1
!
.
.
.
resource-pool disable
!
ip subnet-zero
no ip domain-lookup
!
no ip dhcp-client network-discovery
isdn switch-type primary-ni
!
!
!
!
!
cgma-agent tcp-port 5300 time-period 300
fax interface-type modem
mta receive maximum-recipients 2
!
!
controller T1 0
framing esf
linecode b8zs
pri-group timeslots 1-24
!
!
```

```
interface Ethernet0
  ip address 209.165.200.225 255.255.255.0
!
interface Serial0:23
  no ip address
  isdn switch-type primary-ni
  isdn protocol-emulate network
  isdn incoming-voice modem
  isdn T310 10000
  no cdp enable
!

voice-port 0:D
!
dial-peer voice 1213 voip
  destination-pattern 12135551000
  session target ipv4:209.165.200.229
!
dial-peer voice 1415 pots
  destination-pattern 14155551000
  direct-inward-dial
  port 0:D
!
dial-peer voice 12136 voip
  destination-pattern 12136661000
  session target ipv4:209.165.200.229
!
dial-peer voice 14156 pots
  incoming called-number .
  direct-inward-dial
!
gateway
!
end
```

# channel-group

To define the time slots that belong to each T1 or E1 circuit, use the **channel-group** command in controller configuration mode. To clear the time slots for the T1 or E1 circuit, use the **no** form of this command.

**channel-group** *channel-number* {**timeslots** *range* [**speed** {**56** | **64**}] | **unframed**}

**no channel-group** [*channel-number* **timeslots** *range*]

## Syntax Description

<i>channel-number</i>	Channel-group number. When a T1 data line is configured, channel-group numbers can be values from 0 to 23. When an E1 data line is configured, channel-group numbers can be values from 0 to 30.
<b>timeslots</b> <i>range</i>	Specifies one or more time slots or ranges of time slots belonging to the channel group. The first time slot is numbered 1. For a T1 controller, the time slot range is from 1 to 24. For an E1 controller, the time slot range is from 1 to 31. You can specify a time slot range (for example, 1-29), individual time slots separated by commas (for example 1, 3, 5), or a combination of the two (for example 1-14, 15, 17-31). See the “Examples” section for samples of different timeslot ranges.
<b>speed</b> { <b>56</b>   <b>64</b> }	(Optional) Speed of the underlying DS0s. See the “Usage Guidelines” section for additional information.
<b>unframed</b>	Specifies the use of all 32 time slots for data. None of the 32 time slots are used for framing signals. This is applicable to E1 only.

## Defaults

The default line speed when configuring a T1 controller is 56 kbps.  
The default line speed when configuring an E1 controller is 64 kbps.

## Command Modes

Controller configuration

## Command History

Release	Modification
11.3 MA	This command was introduced.
12.3(1)	This command was integrated into Cisco IOS Release 12.3(1) and support was added for the <b>unframed</b> keyword.

## Usage Guidelines

Use this command in configurations where the router or access server must communicate with a T1 or E1 fractional data line. The channel-group number may be arbitrarily assigned and must be unique for the controller. The time slot range must match the time slots assigned to the channel group. The service provider defines the time slots that comprise a channel group.

**Note**

Channel groups, CAS voice groups, DS0 groups, and TDM groups all use group numbers. All group numbers configured for channel groups, CAS voice groups, DS0 groups, and TDM groups must be unique on the local router. For example, you cannot use the same group number for a channel group and for a TDM group.

**Examples**

The following example defines three channel groups. Channel-group 0 consists of a single time slot, channel-group 8 consists of 7 time slots and runs at a speed of 64 kbps per time slot, and channel-group 12 consists of a single time slot.

```
channel-group 0 timeslots 1
channel-group 8 timeslots 5,7,12-15,20 speed 64
channel-group 12 timeslots 2
```

The following example configures a channel group on controller E1 1 and specifies that all time slots are used for data:

```
controller e1 1
channel-group 1 unframed
```

**Related Commands**

Command	Description
<b>framing</b>	Selects the frame type for the T1 or E1 data line
<b>linecode</b>	Selects the linecode type for T1 or E1 line

# channel-id

To assign a session channel ID to an SS7 serial link or assign an SS7 link to an SS7 session set on a Cisco AS5350 or Cisco AS5400, use the **channel-id** command in interface configuration mode. To disable a session channel ID link, use the **no** form of this command.

**channel-id** *channel-id* [**session-set** *session-set-id*]

**no channel-id**

## Syntax Description

<i>channel-id</i>	Selects a unique session channel ID. This session channel ID is needed when the link with a Reliable User Datagram Protocol (RUDP) session to the media gateway controller (MGC) is associated.
<b>session-set</b> <i>session-set-id</i>	(Optional) Creates an SS7-link-to-SS7-session-set association on the Cisco AS5350- and Cisco AS5400-based Cisco Signaling Link Terminals SLTs. The <i>session-set-id</i> argument represents the SS7 session ID. Valid values are 0 or 1. Default is 0.

## Defaults

No default behavior or values

## Command Modes

Interface configuration

## Command History

Release	Modification
12.2(11)T	This command was introduced on the Cisco AS5350 and Cisco AS5400.
12.2(15)T	The <b>session-set</b> <i>session-set-id</i> keyword and argument were added.

## Usage Guidelines

The **channel-id** command is visible only if the object's encapsulation type is changed to SS7.

Before an SS7 serial link can be enabled using the **no shutdown** command, you must enter the **channel-id** command in interface configuration mode to assign a session channel ID to the SS7 serial link. This ID is unique to the Cisco AS5350 and Cisco AS5400, and the command is visible only for provisioned objects whose encapsulation type is the new SS7 value.

The channel identifier is reserved when you explicitly assign an ID using the **channel-id** command for the associated serial interface object. This fails if the selected channel identifier is currently assigned to another link or if all channel identifiers are already assigned.

A channel identifier is released when the **no channel-id** command is entered. The link must first be shut down to do this. If the **no channel-id** command is used with the Multiple OPC Support for the Cisco Signaling Link Terminal feature, the associated SS7 link has no channel ID. In this state the link is not fully configured and is incapable of supporting signaling traffic.

If the **session-set** keyword is omitted, the command is applied to SS7 session set 0, which is the default. Reissuing the **session-set** keyword with a different SS7 session ID is sufficient to remove the associated SS7 link from its existing SS7 session set and add it to the new one.

**Examples**

The following example shows a unique session channel ID zero being assigned to the Cisco AS5350 or Cisco AS5400:

```
Router(config-if)# channel-id 0
```

The following example assigns an SS7 link to an SS7 session set on a Cisco AS5350 or Cisco AS5400:

```
Router(config-if)# channel-id 0 session-set 1
```

**Related Commands**

Command	Description
<b>channel-group</b>	Assigns a channel group and selects the DS0 timeslot(s) desired for SS7 links.
<b>encapsulation ss7</b>	Sets the encapsulation type to SS7.
<b>no shutdown</b>	Changes the administrative state of a port from out-of-service to in-service.
<b>session-set</b>	Creates a Signaling System 7 (SS7)-link-to-SS7-session-set association or to associate an SS7 link with an SS7 session set on the Cisco 2600-based Signaling Link Terminal (SLT).
<b>ss7 mtp2 variant bellcore</b>	Configures the device for Telcordia (formerly Bellcore) standards. This command is hidden in the running configuration with this feature.

# clear backhaul-session-manager group stats

To reset the statistics or traffic counters for a specified session group, use the **clear backhaul-session-manager group stats** command in privileged EXEC mode.

```
clear backhaul-session-manager group stats {all | name group-name}
```

Syntax Description	all	All available session groups.
	<b>name</b> <i>group-name</i>	A specified session group.

**Defaults** The statistical information accumulates

**Command Modes** Privileged EXEC

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 Cisco 2600 series, Cisco 3600 series, and Cisco MC3810.
	12.2(2)XB1	This command was implemented on the Cisco AS5850.
	12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T and implemented on Cisco IAD2420 series.
	12.2(11)T	This command was implemented on the Cisco AS5350, Cisco AS5400, and Cisco AS5850.

**Usage Guidelines** A session is the connection between a client and a server, and a session group is a collection of sessions in a group to implement switchover in case of a session failure. This command clears all statistics that pertain to the backhaul session manager group.

**Examples** The following example clears all statistics for all available session groups:

```
Router(config)# clear backhaul-session-manager group stats all
```

Related Commands	Command	Description
	<b>show backhaul-session-manager group</b>	Displays status, statistics, or configuration of a specified group or all session groups.

# clear call fallback cache

To clear the cache of the current Calculated Planning Impairment Factor (ICPIF) estimates for all IP addresses or a specific IP address, use the **clear call fallback cache** command in EXEC mode.

**clear call fallback cache** [*ip-address*]

<b>Syntax Description</b>	<i>ip-address</i>	(Optional) Specifies the target IP address. If no IP address is specified, all IP addresses are cleared.
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**Defaults** By default, if no IP address is specified, all IP addresses are cleared.

**Command Modes** EXEC

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	12.1(3)T	This command was introduced on Cisco 2600 series, Cisco 3600 series, and Cisco MC3810.
	12.2(2)XA	The <b>call fallback</b> and <b>call fallback reject-cause-code</b> commands were introduced.
	12.2(2)XB1	This command was implemented on the Cisco AS5850.
	12.2(4)T	The PSTN Fallback feature and enhancements were implemented on Cisco 7200 series routers and integrated into Cisco IOS Release 12.2(4)T.
	12.2(4)T2	This command was implemented on the Cisco 7500 series.
	12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T.

**Usage Guidelines** If no IP address is specified, this command clears the cache of all ICPIF estimates for all IP addresses.

**Examples** The following example clears the cache of the ICPIF estimate for IP address 10.0.0.0:

```
Router# clear call fallback cache 10.0.0.0
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>show call fallback cache</b>	Displays the current ICPIF estimates for all IP addresses in the call fallback cache.

# clear call fallback stats

To clear the call fallback statistics, use the **clear call fallback stats** command in EXEC mode.

**clear call fallback stats**

**Syntax Description** This command has no arguments or keywords.

**Command Modes** EXEC

Command History	Release	Modification
	12.1(3)T	This command was introduced on Cisco 2600 series, Cisco 3600 series, and Cisco MC3810.
	12.2(2)XA	The <b>call fallback</b> and <b>call fallback reject-cause-code</b> commands were introduced.
	12.2(2)XB1	This command was implemented on the Cisco AS5850 platform.
	12.2(4)T	The PSTN Fallback feature and enhancements were implemented on Cisco 7200 series and integrated into Cisco IOS Release 12.2(4)T.
	12.2(4)T2	This command was implemented on the Cisco 7500 series.
	12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T.

**Examples** The following example clears the call fallback statistics:

```
Router# clear call fallback stats
```

Related Commands	Command	Description
	<b>show call fallback stats</b>	Displays the call fallback statistics.

# clear call threshold

To clear enabled triggers and their associated parameters, use the **clear call threshold** command in privileged EXEC mode.

```
clear call threshold {stats | total-calls [value] | interface int-name int-calls [value]}
```

Syntax Description		
<b>stats</b>		Resets all call threshold statistics.
<b>total-calls</b>		Resets the counter for the call volume in the gateway. The default is 0.
<i>value</i>		Represents call volume. Range is from 0 to 10000 calls. The default is 0.
<b>interface</b> <i>int-name</i>		Specifies the interface. Types of interfaces and their numbers depends upon the configured interfaces.
<b>int-calls</b>		Number of calls transmitted through the interface.
<i>value</i>		Represents call volume. Range is from 0 to 10000 calls. The default is 0.

**Defaults** See “Syntax Description” table for command defaults

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.2(2)XA	This command was introduced.
	12.2(4)T	The command was integrated into Cisco IOS Release 12.2(4)T. Support for the Cisco AS5300, Cisco AS5350, and Cisco AS5400, is not included in this release.
	12.2(2)XB1	This command was implemented on the Cisco AS5850.
	12.2(4)XM	This command was implemented on Cisco 1750 and Cisco 1751 routers. Support for other Cisco platforms is not included in this release.
	12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T and implemented on Cisco 7200 series routers. Support for Cisco AS5300, Cisco AS5350, Cisco AS5400, and Cisco AS5850 is not included in this release.
	12.2(11)T	This command is supported on the Cisco AS5300, Cisco AS5350, Cisco AS5400, Cisco AS5800, and Cisco AS5850 in this release.

**Examples** The following example resets all call threshold statistics:

```
clear call threshold stats
```

The following example resets the counter for the call volume in the gateway:

```
clear call threshold total-calls
```

The following example resets the counter for the call volume on Ethernet interface 0/1:

```
clear call threshold interface ethernet 0/1 int-calls
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>call threshold</b>	Enables the global resources of a gateway.
<b>call threshold poll-interval</b>	Enables a polling interval threshold for CPU or memory.
<b>show call treatment</b>	Displays the call treatment configuration and statistics for handling the calls on the basis of resource availability.

# clear call treatment stats

To clear the call treatment statistics, use the **clear call treatment stats** command in privileged EXEC mode.

## clear call treatment stats

**Syntax Description** This command has no arguments or keywords.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.2(2)XA	This command was introduced.
	12.2(4)T	The command was integrated into Cisco IOS Release 12.2(4)T. Support for the Cisco AS5300, Cisco AS5350, and Cisco AS5400 series is not included in this release.
	12.2(2)XB1	This command was implemented on the Cisco AS5850.
	12.2(4)XM	This command was implemented on Cisco 1750 and Cisco 1751 routers. Support for other Cisco platforms is not included in this release.
	12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T and implemented on Cisco 7200 series routers. Support for the Cisco AS5300, Cisco AS5350, Cisco AS5400, and Cisco AS5850 is not included in this release.
	12.2(11)T	This feature was integrated into Cisco IOS Release 12.2(11)T and support was added for Cisco AS5300, Cisco AS5350, Cisco AS5400, and Cisco AS5800.

**Examples** The following example clears the call treatment statistics:

```
clear call treatment stats
```

Related Commands	Command	Description
	<b>call treatment</b>	Configures how calls should be processed when local resources are unavailable.
	<b>show call treatment</b>	Displays the call treatment configuration and statistics for handling calls on the basis of resource availability.

# clear call-router routes

To remove the dynamic routes cached in the border element (BE), enter the **clear call-router routes** command in privileged EXEC mode.

**clear call-router routes**

**Syntax Description** This command has no arguments or keywords.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.2(2)XA	This command was introduced.
	12.2(4)T	This command was integrated into Cisco IOS Release 12.2(4)T. Support for the Cisco AS5300, Cisco AS5350, and Cisco AS5400 is not included in this release.
	12.2(2)XB1	This command was implemented on the Cisco AS5850.
	12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T. This command is supported on the Cisco AS5300, Cisco AS5350, Cisco AS5400, and Cisco AS5850 in this release.

**Examples** The following example shows how to remove dynamic routes cached in the BE:

```
Router# clear call-router routes
```

Related Commands	Command	Description
	<b>call-router</b>	Enables the Annex G BE configuration commands.
	<b>show call history</b>	Displays the fax history table for a fax transmission.

# clear controller t1

To clear the system DS0 High Water Marks (HWM) and all individual controller statistics, use the **clear controller t1** command in privileged EXEC mode.

```
clear controller t1 [slot call-counters timeslots | firmware-status] | call-counters [system-hwm | all]
```

<b>Syntax Description</b>	<p><i>slot</i> (Optional) Clears an individual T1 controller.</p> <p>The keywords and arguments are as follows:</p> <ul style="list-style-type: none"> <li>• <b>call-counters</b> <i>timeslots</i>—Clears the call counters in the T1 time slots.</li> <li>• <b>firmware-status</b>—Clears the Neat crash history.</li> </ul>
	<p><b>call-counters</b> Clears system call counters.</p> <p>The keywords are as follows:</p> <ul style="list-style-type: none"> <li>• <b>system-hwm</b>—(Optional) Clears the system HWMs only.</li> <li>• <b>all</b>—(Optional) Clears all controller call counters including the individual controller time slots in use and the number of calls on those time slots since the last reset was done.</li> </ul>

**Defaults** No default behavior or values

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.0(1)T	This command was introduced.
	12.1(1)T	This command was implemented on the voice and WAN interface cards (VWICs) for Cisco 2600 series and Cisco 3600 series.
	12.1(2)T	This command was implemented on the Cisco AS5300, Cisco AS5400, and Cisco AS5800.

**Usage Guidelines** The **clear controller t1 call-counters all** command clears the system DS0 HWMs and all individual controller statistics, including Total Calls and Total Duration. The **clear controller t1 call-counters system-hwm** command clears the system DS0 HWMs and leaves all other call-counter statistics untouched.

Refer to the comments below for the meaning of call counters displayed before and after executing **clear controller t1 call-counters** related commands.

- The numbers displayed under TotalCalls for each time slot represent *total* calls that were connected successfully. If a call comes into time slot 10, then the **show controllers t1 call-counters** command displays 1 under the TotalCalls column for time slot 10. A value of 20 displayed under TotalCalls for time slot 10 indicates a total of 20 calls connected on time slot 10 since the last time call counters were cleared.

TotalCalls for time slots are set to zero when the **clear controller t1 1/0/0 call-counters timeslot 10** command is executed or the **clear controller t1 1/0/0 call-counters** command is executed at a controller level. The TotalCalls field shows the time slots that have calls connected since the last clear was done and does not show the number of active calls in the controller. The TotalDuration field shows the same information as the TotalCalls field.

- The DS0s Active field indicates the number of active calls on the specified controller. This number indicates the current number of calls on the controller at any given time.
- The DS0s Active High Water Mark field indicates the peak number of calls on the controller since the last **clear controller t1 1/0/0 call-counters** command was entered. If the number of active calls “DS0s Active” is less than DS0s HWM, then HWM remains untouched. If new calls come in and the active DS0s are more than the HWM, then the HWM is incremented to reflect the new peak number of calls on that controller.

This value is reset to the current and active DS0s when the **clear controller t1 1/3/0 call-counters** command is entered. For example, initially the HWM is 0. When a new call comes in, the HWM is 1. When the next call comes in, the HWM is 2.

If 20 calls come in, the HWM is 20 and the active DS0s are 20. If 5 calls get disconnected, the DS0 active is 15, but the HWM is 20. When a **clear controller** command is input for the specified controller, the HWM is reset to 15, which is the current and active DS0s also. If 10 calls get disconnected, the Active DS0s is set to 5 and the HWM remains at 15 until another **clear controller** command is input. If Active DS0s exceed 15, then the HWM is updated.

- The System DS0s High Water Mark field reflects the HWM at a system level including all DS0s controllers.

## Examples

The following is sample output that shows two controllers numbered 1/3/0:3 and 1/3/0:8. Note the differences in the output shown by the **show controllers t1 call-counters** command and how the **clear controller t1 call-counters** command affects the output:

```
Router# show controllers t1 call-counters
T1 1/3/0:3:
  DS0's Active: 0
  DS0's Active High Water Mark: 0
  TimeSlot  Type  TotalCalls  TotalDuration
    1       pri      0           00:00:00
    2       pri      0           00:00:00
    3       pri      0           00:00:00
    4       pri      0           00:00:00
    5       pri      0           00:00:00
    6       pri      0           00:00:00
    7       pri      0           00:00:00
    8       pri      0           00:00:00
    9       pri      0           00:00:00
   10       pri      0           00:00:00
   11       pri      0           00:00:00
   12       pri      0           00:00:00
   13       pri      0           00:00:00
   14       pri      0           00:00:00
   15       pri      0           00:00:00
   16       pri      0           00:00:00
```

```

17      pri      0      00:00:00
18      pri      0      00:00:00
19      pri      0      00:00:00
20      pri      0      00:00:00
21      pri      0      00:00:00
22      pri      0      00:00:00
23      pri      0      00:00:00
Tl 1/3/0:8:
DS0's Active: 0
DS0's Active High Water Mark: 0
TimeSlot  Type  TotalCalls  TotalDuration
1          pri      0           00:00:00
2          pri      0           00:00:00
3          pri      0           00:00:00
4          pri      0           00:00:00
5          pri      0           00:00:00
6          pri      0           00:00:00
7          pri      0           00:00:00
8          pri      0           00:00:00
9          pri      0           00:00:00
10         pri      0           00:00:00
11         pri      0           00:00:00
12         pri      0           00:00:00
13         pri      0           00:00:00
14         pri      0           00:00:00
15         pri      0           00:00:00
16         pri      0           00:00:00
17         pri      0           00:00:00
18         pri      0           00:00:00
19         pri      0           00:00:00
20         pri      0           00:00:00
21         pri      0           00:00:00
22         pri      0           00:00:00
23         pri      0           00:00:00

```

System's DS0's Active High Water Mark: 0



**Note**

All the fields are zero indicating that no calls have come in since system startup or since the last clear was made by the **clear controller** command.

The following is sample output that shows that four calls have been initiated on the 1/5/12, 1/5/13, 1/5/14, and 1/5/15 controllers:

Router# **show users**

```

Line      User      Host(s)      Idle      Location
* 0 con 0      idle        00:00:00
tty 1/5/12  Router Async interface  00:01:05  PPP: 55.61.1.1
tty 1/5/13  Router Async interface  00:00:48  PPP: 55.62.1.1
tty 1/5/14  Router Async interface  00:00:33  PPP: 55.54.1.1
tty 1/5/15  Router Async interface  00:00:19  PPP: 55.52.1.1

```

```

Interface  User      Mode      Idle Peer Address

```

Router# **show controllers t1 call-counters**

T1 1/3/0:3:  
 DS0's Active: 2  
 DS0's Active High Water Mark: 2

TimeSlot	Type	TotalCalls	TotalDuration
1	pri	0	00:00:00
2	pri	0	00:00:00
3	pri	0	00:00:00
4	pri	0	00:00:00
5	pri	0	00:00:00
6	pri	0	00:00:00
7	pri	0	00:00:00
8	pri	0	00:00:00
9	pri	0	00:00:00
10	pri	0	00:00:00
11	pri	0	00:00:00
12	pri	0	00:00:00
13	pri	0	00:00:00
14	pri	0	00:00:00
15	pri	0	00:00:00
16	pri	0	00:00:00
17	pri	0	00:00:00
18	pri	0	00:00:00
19	pri	0	00:00:00
20	pri	0	00:00:00
21	pri	0	00:00:00
22	pri	1	00:01:58
23	pri	1	00:02:27

T1 1/3/0:8:  
 DS0's Active: 2  
 DS0's Active High Water Mark: 2

TimeSlot	Type	TotalCalls	TotalDuration
1	pri	0	00:00:00
2	pri	0	00:00:00
3	pri	0	00:00:00
4	pri	0	00:00:00
5	pri	0	00:00:00
6	pri	0	00:00:00
7	pri	0	00:00:00
8	pri	0	00:00:00
9	pri	0	00:00:00
10	pri	0	00:00:00
11	pri	0	00:00:00
12	pri	0	00:00:00
13	pri	0	00:00:00
14	pri	0	00:00:00
15	pri	0	00:00:00
16	pri	0	00:00:00
17	pri	0	00:00:00
18	pri	0	00:00:00
19	pri	0	00:00:00
20	pri	0	00:00:00
21	pri	0	00:00:00
22	pri	1	00:02:14
23	pri	1	00:02:46

System's DS0's Active High Water Mark: 4



**Note**

If a **clear controller** command is entered for a controller that has active calls, which have been connected during the last 30 minutes, the TotalCalls and TotalDuration fields are reset to zero.

The following is sample output that shows controller 1/3/0:3, with time slots 22 and 23 connected and active. When the **clear controller t1 1/3/0:3 call-counters** command is entered, the corresponding fields are set to zero.

```
Router# clear controller t1 1/3/0:3 call-counters
!
```

```
Router# show controllers t1 call-counters
```

```
T1 1/3/0:3:
DS0's Active: 2
DS0's Active High Water Mark: 2
TimeSlot  Type  TotalCalls  TotalDuration
   1      pri         0      00:00:00
   2      pri         0      00:00:00
   3      pri         0      00:00:00
   4      pri         0      00:00:00
   5      pri         0      00:00:00
   6      pri         0      00:00:00
   7      pri         0      00:00:00
   8      pri         0      00:00:00
   9      pri         0      00:00:00
  10      pri         0      00:00:00
  11      pri         0      00:00:00
  12      pri         0      00:00:00
  13      pri         0      00:00:00
  14      pri         0      00:00:00
  15      pri         0      00:00:00
  16      pri         0      00:00:00
  17      pri         0      00:00:00
  18      pri         0      00:00:00
  19      pri         0      00:00:00
  20      pri         0      00:00:00
  21      pri         0      00:00:00
  22      pri         1      00:29:14
  23      pri         1      00:29:47
```

```
Router# clear controller t1 1/3/0:3 call-counters
```

```
Router# show controllers t1 call-counters
```

```
T1 1/3/0:3:
DS0's Active: 2
DS0's Active High Water Mark: 2
TimeSlot  Type  TotalCalls  TotalDuration
   1      pri         0      00:00:00
   2      pri         0      00:00:00
   3      pri         0      00:00:00
   4      pri         0      00:00:00
   5      pri         0      00:00:00
   6      pri         0      00:00:00
   7      pri         0      00:00:00
   8      pri         0      00:00:00
   9      pri         0      00:00:00
  10      pri         0      00:00:00
  11      pri         0      00:00:00
  12      pri         0      00:00:00
  13      pri         0      00:00:00
  14      pri         0      00:00:00
  15      pri         0      00:00:00
  16      pri         0      00:00:00
  17      pri         0      00:00:00
  18      pri         0      00:00:00
  19      pri         0      00:00:00
  20      pri         0      00:00:00
```

```

21      pri          0      00:00:00
22      pri          0      00:00:10  <<<<<<
23      pri          0      00:00:10  <<<<<<

```

The following is sample output when a call is cleared on 1/5/12:

```
Router# clear line 1/5/12
```

```
[confirm]
[OK]
!
```

```
Router# show users
```

```

      Line      User      Host(s)      Idle      Location
*  0 con 0      idle      idle      00:00:00
  tty 1/5/13    Router Async interface  00:03:04  PPP: 55.62.1.1
  tty 1/5/14    Router Async interface  00:02:49  PPP: 55.54.1.1
  tty 1/5/15    Router Async interface  00:02:35  PPP: 55.52.1.1

```

```
Interface User      Mode      Idle Peer Address
```

```
Router# show controllers t1 call-counters
```

```
T1 1/3/0:3:
```

```
DS0's Active: 2
```

```
DS0's Active High Water Mark: 2
```

TimeSlot	Type	TotalCalls	TotalDuration
1	pri	0	00:00:00
2	pri	0	00:00:00
3	pri	0	00:00:00
4	pri	0	00:00:00
5	pri	0	00:00:00
6	pri	0	00:00:00
7	pri	0	00:00:00
8	pri	0	00:00:00
9	pri	0	00:00:00
10	pri	0	00:00:00
11	pri	0	00:00:00
12	pri	0	00:00:00
13	pri	0	00:00:00
14	pri	0	00:00:00
15	pri	0	00:00:00
16	pri	0	00:00:00
17	pri	0	00:00:00
18	pri	0	00:00:00
19	pri	0	00:00:00
20	pri	0	00:00:00
21	pri	0	00:00:00
22	pri	1	00:03:44
23	pri	1	00:04:14

```
T1 1/3/0:8:
```

```
DS0's Active: 1
```

```
DS0's Active High Water Mark: 2
```

TimeSlot	Type	TotalCalls	TotalDuration
1	pri	0	00:00:00
2	pri	0	00:00:00
3	pri	0	00:00:00
4	pri	0	00:00:00
5	pri	0	00:00:00
6	pri	0	00:00:00
7	pri	0	00:00:00
8	pri	0	00:00:00
9	pri	0	00:00:00
10	pri	0	00:00:00
11	pri	0	00:00:00

```

12     pri           0           00:00:00
13     pri           0           00:00:00
14     pri           0           00:00:00
15     pri           0           00:00:00
16     pri           0           00:00:00
17     pri           0           00:00:00
18     pri           0           00:00:00
19     pri           0           00:00:00
20     pri           0           00:00:00
21     pri           0           00:00:00
22     pri           1           00:04:00
23     pri           1           00:03:34

```

System's DS0's Active High Water Mark: 4



#### Note

After a call gets disconnected, only the DS0 Active field changes to reflect the current active call on the controller. In the above example, 1/3/0:8 Active DS0 is changed to 1.

The following is sample output that shows call counters are cleared for an individual controller on 1/3/0:8:

```

Router# clear controller t1 1/3/0:8 call-counters
!
Router# show controllers t1 call-counters

```

```

T1 1/3/0:3:
DS0's Active: 2
DS0's Active High Water Mark: 2
TimeSlot  Type  TotalCalls  TotalDuration
   1       pri           0           00:00:00
   2       pri           0           00:00:00
   3       pri           0           00:00:00
   4       pri           0           00:00:00
   5       pri           0           00:00:00
   6       pri           0           00:00:00
   7       pri           0           00:00:00
   8       pri           0           00:00:00
   9       pri           0           00:00:00
  10       pri           0           00:00:00
  11       pri           0           00:00:00
  12       pri           0           00:00:00
  13       pri           0           00:00:00
  14       pri           0           00:00:00
  15       pri           0           00:00:00
  16       pri           0           00:00:00
  17       pri           0           00:00:00
  18       pri           0           00:00:00
  19       pri           0           00:00:00
  20       pri           0           00:00:00
  21       pri           0           00:00:00
  22       pri           1           00:07:46
  23       pri           1           00:08:15

```

```

T1 1/3/0:8:
DS0's Active: 1
DS0's Active High Water Mark: 1
TimeSlot  Type  TotalCalls  TotalDuration
   1       pri           0           00:00:00
   2       pri           0           00:00:00
   3       pri           0           00:00:00
   4       pri           0           00:00:00
   5       pri           0           00:00:00

```

```

6      pri      0      00:00:00
7      pri      0      00:00:00
8      pri      0      00:00:00
9      pri      0      00:00:00
10     pri      0      00:00:00
11     pri      0      00:00:00
12     pri      0      00:00:00
13     pri      0      00:00:00
14     pri      0      00:00:00
15     pri      0      00:00:00
16     pri      0      00:00:00
17     pri      0      00:00:00
18     pri      0      00:00:00
19     pri      0      00:00:00
20     pri      0      00:00:00
21     pri      0      00:00:00
22     pri      0      00:00:35
23     pri      0      00:00:00

```

System's DS0's Active High Water Mark: 4



#### Note

In the previous example, after clearing call counters for controller 1/3/0:8, TotalCalls and TotalDuration reset. In addition the DS0 HWM is also cleared to the number of active DS0s. Whenever the DS0 HWM is cleared, it does not reset to zero, but rather it is set to Active DS0s. For 1/3/0:8, the HWM is 1 after clearing because DS0 Active is 1 (1 active call). TotalDuration is 35 seconds for time slot 22, and TotalCall is 0 because they got reset when the **clear controller call-counters** command was entered. Total calls on this time slot is incremented when a new call comes in on this time slot.

The following is sample output showing the **system-hwm** keyword:

```

Router# clear controller call-counters system-hwm
!
Router# show controllers t1 call-counters

T1 1/3/0:3:
DS0's Active: 2
DS0's Active High Water Mark: 2
TimeSlot  Type  TotalCalls  TotalDuration
1         pri      0          00:00:00
2         pri      0          00:00:00
3         pri      0          00:00:00
4         pri      0          00:00:00
5         pri      0          00:00:00
6         pri      0          00:00:00
7         pri      0          00:00:00
8         pri      0          00:00:00
9         pri      0          00:00:00
10        pri      0          00:00:00
11        pri      0          00:00:00
12        pri      0          00:00:00
13        pri      0          00:00:00
14        pri      0          00:00:00
15        pri      0          00:00:00
16        pri      0          00:00:00
17        pri      0          00:00:00
18        pri      0          00:00:00
19        pri      0          00:00:00
20        pri      0          00:00:00
21        pri      0          00:00:00
22        pri      1          00:08:51
23        pri      1          00:09:21

```

```

T1 1/3/0:8:
DS0's Active: 1
DS0's Active High Water Mark: 1
TimeSlot  Type  TotalCalls  TotalDuration
   1      pri         0      00:00:00
   2      pri         0      00:00:00
   3      pri         0      00:00:00
   4      pri         0      00:00:00
   5      pri         0      00:00:00
   6      pri         0      00:00:00
   7      pri         0      00:00:00
   8      pri         0      00:00:00
   9      pri         0      00:00:00
  10      pri         0      00:00:00
  11      pri         0      00:00:00
  12      pri         0      00:00:00
  13      pri         0      00:00:00
  14      pri         0      00:00:00
  15      pri         0      00:00:00
  16      pri         0      00:00:00
  17      pri         0      00:00:00
  18      pri         0      00:00:00
  19      pri         0      00:00:00
  20      pri         0      00:00:00
  21      pri         0      00:00:00
  22      pri         0      00:01:39
  23      pri         0      00:00:00

```

System's DS0's Active High Water Mark: 3

**Note**

The system HWM is reset to the total number of active calls in the system, which is 3. The number was 4.

The following is sample output when two calls are cleared on controllers 1/5/13 and 1/5/14:

```

Router# clear line 1/5/13
[confirm]
[OK]
Router# clear line 1/5/14
[confirm]
[OK]
Router# show users

Line      User      Host(s)      Idle      Location
*  0 con 0      idle        00:00:00
   tty 1/5/15  Router Async interface  00:09:46  PPP: 55.52.1.1

Interface  User      Mode      Idle Peer Address

Router# show controllers t1 call-counters

```

```

T1 1/3/0:3:
DS0's Active: 1
DS0's Active High Water Mark: 2
TimeSlot  Type  TotalCalls  TotalDuration
   1      pri         0      00:00:00
   2      pri         0      00:00:00
   3      pri         0      00:00:00
   4      pri         0      00:00:00
   5      pri         0      00:00:00
   6      pri         0      00:00:00
   7      pri         0      00:00:00
   8      pri         0      00:00:00

```

```

    9      pri      0      00:00:00
   10     pri      0      00:00:00
   11     pri      0      00:00:00
   12     pri      0      00:00:00
   13     pri      0      00:00:00
   14     pri      0      00:00:00
   15     pri      0      00:00:00
   16     pri      0      00:00:00
   17     pri      0      00:00:00
   18     pri      0      00:00:00
   19     pri      0      00:00:00
   20     pri      0      00:00:00
   21     pri      0      00:00:00
   22     pri      1      00:11:04
   23     pri      1      00:10:20
Tl 1/3/0:8:
DS0's Active: 0
DS0's Active High Water Mark: 1
TimeSlot  Type  TotalCalls  TotalDuration
    1      pri      0      00:00:00
    2      pri      0      00:00:00
    3      pri      0      00:00:00
    4      pri      0      00:00:00
    5      pri      0      00:00:00
    6      pri      0      00:00:00
    7      pri      0      00:00:00
    8      pri      0      00:00:00
    9      pri      0      00:00:00
   10     pri      0      00:00:00
   11     pri      0      00:00:00
   12     pri      0      00:00:00
   13     pri      0      00:00:00
   14     pri      0      00:00:00
   15     pri      0      00:00:00
   16     pri      0      00:00:00
   17     pri      0      00:00:00
   18     pri      0      00:00:00
   19     pri      0      00:00:00
   20     pri      0      00:00:00
   21     pri      0      00:00:00
   22     pri      0      00:02:50
   23     pri      0      00:00:00

```

System's DS0's Active High Water Mark: 3



#### Note

Whenever a call goes down, HWM values are untouched. Only the DS0 Active changes. Now there is only one call on 1/3/0:3. Observe the HWM for individual controllers. Total number of active calls is 1.

The following is sample output when the **clear controller call-counters system-hwm** command is used:

```

Router# clear controller call-counters system-hwm
!
Router# show controllers t1 call-counters
Tl 1/3/0:3:
DS0's Active: 1
DS0's Active High Water Mark: 2
TimeSlot  Type  TotalCalls  TotalDuration
    1      pri      0      00:00:00
    2      pri      0      00:00:00
    3      pri      0      00:00:00
    4      pri      0      00:00:00

```

```

5      pri      0      00:00:00
6      pri      0      00:00:00
7      pri      0      00:00:00
8      pri      0      00:00:00
9      pri      0      00:00:00
10     pri      0      00:00:00
11     pri      0      00:00:00
12     pri      0      00:00:00
13     pri      0      00:00:00
14     pri      0      00:00:00
15     pri      0      00:00:00
16     pri      0      00:00:00
17     pri      0      00:00:00
18     pri      0      00:00:00
19     pri      0      00:00:00
20     pri      0      00:00:00
21     pri      0      00:00:00
22     pri      1      00:12:16
23     pri      1      00:10:20

```

Tl 1/3/0:8:

DS0's Active: 0

DS0's Active High Water Mark: 1

TimeSlot	Type	TotalCalls	TotalDuration
1	pri	0	00:00:00
2	pri	0	00:00:00
3	pri	0	00:00:00
4	pri	0	00:00:00
5	pri	0	00:00:00
6	pri	0	00:00:00
7	pri	0	00:00:00
8	pri	0	00:00:00
9	pri	0	00:00:00
10	pri	0	00:00:00
11	pri	0	00:00:00
12	pri	0	00:00:00
13	pri	0	00:00:00
14	pri	0	00:00:00
15	pri	0	00:00:00
16	pri	0	00:00:00
17	pri	0	00:00:00
18	pri	0	00:00:00
19	pri	0	00:00:00
20	pri	0	00:00:00
21	pri	0	00:00:00
22	pri	0	00:02:50
23	pri	0	00:00:00

System's DS0's Active High Water Mark: 1



**Note**

In the previous example, only the system HWM is reset to active. For controllers 1/3/0:3 and 1/3/0:8, the HWMs are untouched.

The following is sample output when controller 1/5/15 is cleared:

```
Router# clear line 1/5/15
[confirm]
[OK]
Router# show controllers t1 call-counters

Tl 1/3/0:3:
DS0's Active: 0
DS0's Active High Water Mark: 2
TimeSlot  Type  TotalCalls  TotalDuration
   1      pri         0      00:00:00
   2      pri         0      00:00:00
   3      pri         0      00:00:00
   4      pri         0      00:00:00
   5      pri         0      00:00:00
   6      pri         0      00:00:00
   7      pri         0      00:00:00
   8      pri         0      00:00:00
   9      pri         0      00:00:00
  10      pri         0      00:00:00
  11      pri         0      00:00:00
  12      pri         0      00:00:00
  13      pri         0      00:00:00
  14      pri         0      00:00:00
  15      pri         0      00:00:00
  16      pri         0      00:00:00
  17      pri         0      00:00:00
  18      pri         0      00:00:00
  19      pri         0      00:00:00
  20      pri         0      00:00:00
  21      pri         0      00:00:00
  22      pri         1      00:12:40
  23      pri         1      00:10:20

Tl 1/3/0:8:
DS0's Active: 0
DS0's Active High Water Mark: 1
TimeSlot  Type  TotalCalls  TotalDuration
   1      pri         0      00:00:00
   2      pri         0      00:00:00
   3      pri         0      00:00:00
   4      pri         0      00:00:00
   5      pri         0      00:00:00
   6      pri         0      00:00:00
   7      pri         0      00:00:00
   8      pri         0      00:00:00
   9      pri         0      00:00:00
  10      pri         0      00:00:00
  11      pri         0      00:00:00
  12      pri         0      00:00:00
  13      pri         0      00:00:00
  14      pri         0      00:00:00
  15      pri         0      00:00:00
  16      pri         0      00:00:00
  17      pri         0      00:00:00
  18      pri         0      00:00:00
  19      pri         0      00:00:00
  20      pri         0      00:00:00
  21      pri         0      00:00:00
  22      pri         0      00:02:50
  23      pri         0      00:00:00

System's DS0's Active High Water Mark: 1
```

The following is sample output when the **all** keyword is used, clearing at the system level:

```

Router# clear controller call-counters all
!
Router# show controllers t1 call-counters

T1 1/3/0:3:
DS0's Active: 0
DS0's Active High Water Mark: 0
TimeSlot  Type  TotalCalls  TotalDuration
   1      pri         0      00:00:00
   2      pri         0      00:00:00
   3      pri         0      00:00:00
   4      pri         0      00:00:00
   5      pri         0      00:00:00
   6      pri         0      00:00:00
   7      pri         0      00:00:00
   8      pri         0      00:00:00
   9      pri         0      00:00:00
  10      pri         0      00:00:00
  11      pri         0      00:00:00
  12      pri         0      00:00:00
  13      pri         0      00:00:00
  14      pri         0      00:00:00
  15      pri         0      00:00:00
  16      pri         0      00:00:00
  17      pri         0      00:00:00
  18      pri         0      00:00:00
  19      pri         0      00:00:00
  20      pri         0      00:00:00
  21      pri         0      00:00:00
  22      pri         0      00:00:00
  23      pri         0      00:00:00

T1 1/3/0:8:
DS0's Active: 0
DS0's Active High Water Mark: 0
TimeSlot  Type  TotalCalls  TotalDuration
   1      pri         0      00:00:00
   2      pri         0      00:00:00
   3      pri         0      00:00:00
   4      pri         0      00:00:00
   5      pri         0      00:00:00
   6      pri         0      00:00:00
   7      pri         0      00:00:00
   8      pri         0      00:00:00
   9      pri         0      00:00:00
  10      pri         0      00:00:00
  11      pri         0      00:00:00
  12      pri         0      00:00:00
  13      pri         0      00:00:00
  14      pri         0      00:00:00
  15      pri         0      00:00:00
  16      pri         0      00:00:00
  17      pri         0      00:00:00
  18      pri         0      00:00:00
  19      pri         0      00:00:00
  20      pri         0      00:00:00
  21      pri         0      00:00:00
  22      pri         0      00:00:00
  23      pri         0      00:00:00

System's DS0's Active High Water Mark: 0

```

**Note**

In the previous example, clearing at the system level using the **clear controller call-counters** command clears all DS0 controllers in the system and also clears the system HWMs.

The following is sample output showing four active calls:

Router# **show users**

Line	User	Host(s)	Idle	Location
* 0 con 0		idle	00:00:00	
tty 1/5/16	Router Async interface		00:01:01	PPP: 55.1.1.1
tty 1/5/17	Router Async interface		00:00:47	PPP: 55.2.1.1
tty 1/5/18	Router Async interface		00:00:28	PPP: 55.3.1.1
tty 1/5/19	Router Async interface		00:00:14	PPP: 55.4.1.1

Interface	User	Mode	Idle	Peer	Address
-----------	------	------	------	------	---------

Router# **show controllers t1 call-counters**

T1 1/3/0:3:

DS0's Active: 2

DS0's Active High Water Mark: 2

TimeSlot	Type	TotalCalls	TotalDuration
1	pri	0	00:00:00
2	pri	0	00:00:00
3	pri	0	00:00:00
4	pri	0	00:00:00
5	pri	0	00:00:00
6	pri	0	00:00:00
7	pri	0	00:00:00
8	pri	0	00:00:00
9	pri	0	00:00:00
10	pri	0	00:00:00
11	pri	0	00:00:00
12	pri	0	00:00:00
13	pri	0	00:00:00
14	pri	0	00:00:00
15	pri	0	00:00:00
16	pri	0	00:00:00
17	pri	0	00:00:00
18	pri	0	00:00:00
19	pri	0	00:00:00
20	pri	0	00:00:00
21	pri	0	00:00:00
22	pri	1	00:00:57
23	pri	1	00:01:30

T1 1/3/0:8:

DS0's Active: 2

DS0's Active High Water Mark: 2

TimeSlot	Type	TotalCalls	TotalDuration
1	pri	0	00:00:00
2	pri	0	00:00:00
3	pri	0	00:00:00
4	pri	0	00:00:00
5	pri	0	00:00:00
6	pri	0	00:00:00
7	pri	0	00:00:00
8	pri	0	00:00:00
9	pri	0	00:00:00
10	pri	0	00:00:00
11	pri	0	00:00:00
12	pri	0	00:00:00

```

13      pri      0      00:00:00
14      pri      0      00:00:00
15      pri      0      00:00:00
16      pri      0      00:00:00
17      pri      0      00:00:00
18      pri      0      00:00:00
19      pri      0      00:00:00
20      pri      0      00:00:00
21      pri      0      00:00:00
22      pri      1      00:01:12
23      pri      1      00:01:45

```

System's DS0's Active High Water Mark: 4

### Related Commands

Command	Description
<b>controller</b>	Enters controller configuration mode.
<b>show controllers t1 call-counters</b>	Displays the total number of calls and call durations on a T1 controller.

# clear csm-statistics modem

To clear the call switching module (CSM) statistics for a modem or group of modems, use the **clear csm-statistics modem** command in privileged EXEC mode.

**clear csm-statistics modem** [*slot/port* | *modem-group-number*]

Syntax Description	
<i>slot/port</i>	(Optional) Identifies the location (and thereby the identity) of a specific modem.
<i>modem-group-number</i>	(Optional) Designates a defined modem group.

**Defaults** No default behaviors or values

**Command Modes** Privileged EXEC

Command History	Release	Modification
	11.3 NA	This command was introduced.

**Usage Guidelines** Use the **clear csm-statistics modem** command to clear CSM statistics for a particular modem or group of modems. If the *slot/port* argument is specified, the CSM call statistics for calls using the identified modem is cleared. If a modem group number is specified, then the CSM call statistics for calls using the modems associated with that group are cleared. If no argument is specified, all CSM call statistics for all modems are cleared.

**Examples** The following example clears CSM call statistics for calls coming in on modems associated with modem group 2:

```
Router# clear csm-statistics modem 2
```

Related Commands	Command	Description
	<b>clear csm-statistics voice</b>	Clears the CSM statistics for a particular or for all DSP channels.

# clear csm-statistics voice

To clear the call switching module (CSM) statistics for a particular or for all digital signal processor (DSP) channels, use the **clear csm-statistics voice** command in privileged EXEC mode.

**clear csm-statistics voice** [*slot/dspm/dsp/dsp-channel*]

<b>Syntax Description</b>	<i>slot/dspm/dsp/dsp-channel</i> (Optional) Identifies the location of a particular DSP channel.
---------------------------	--

<b>Defaults</b>	No default behaviors or values
-----------------	--------------------------------

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	11.3 NA	This command was introduced.

<b>Usage Guidelines</b>	Use the <b>clear csm-statistics voice</b> command to clear CSM statistics for a particular DSP channel. If the <i>slot/dspm/dsp/dsp-channel</i> argument is specified, the CSM call statistics for calls using the identified DSP channel are cleared. If no argument is specified, all CSM call statistics for all DSP channels are cleared.
-------------------------	---

<b>Examples</b>	The following example clears CSM call statistics for calls coming in on all DSP channels: <pre>Router# clear csm-statistics voice</pre>
-----------------	--

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>clear csm-statistics modem</b>	Clears the CSM statistics for a modem or group of modems.

# clear h323 gatekeeper call

To force the disconnection of a specific call or of all calls active on a particular gatekeeper, use the **clear h323 gatekeeper call** command in privileged EXEC mode.

```
clear h323 gatekeeper call {all | local-callID local-callID}
```

Syntax Description		
<b>all</b>		Forces all active calls currently associated with this gatekeeper to be disconnected.
<b>local-callID</b>		Forces a single active call associated with this gatekeeper to be disconnected.
<i>local-callID</i>		Specifies the local call identification number (CallID) that identifies the call to be disconnected.

**Defaults** No default behaviors or values

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.0(5)T	This command was introduced on the Cisco 2600 series, Cisco 3600 series, and on the Cisco MC3810.
	12.1(5)XM2	The command was introduced for the Cisco AS5350 and Cisco AS5400.
	12.2(4)T	This command was integrated into Cisco IOS Release 12.2(4)T and implemented on the Cisco AS5300. Support for the Cisco AS5350, and Cisco AS5400 is not included in this release.
	12.2(2)XB1	This command was implemented on the Cisco AS5850.

**Usage Guidelines** If you want to force a particular call to be disconnected (as opposed to all active calls on the gatekeeper), use the CallID number to identify that specific call. You can find the local CallID number for a specific call by using the **show gatekeeper calls** command; the ID number is displayed in the LocalCallID column.

**Examples** The following example shows that an active call on the gatekeeper is being forced to disconnect. The local ID number of the active call is 12-3339.

```
Router# clear h323 gatekeeper call local-callID 12-3339
```

The following example shows that all active calls on the gatekeeper are being forced to disconnect:

```
Router# clear h323 gatekeeper call all
```

The following sample output from the **show gatekeeper calls** command displays information about a specific active call having a call ID of 12-3339:

Router# **show gatekeeper calls**

Total number of active calls =1

```

Gatekeeper Call Info
=====
LocalCallID          Age (secs)      BW
12-3339              94              768 (Kbps)
Endpt(s): Alias      E.164Addr      CallSignalAddr  Port  RASignalAddr  Port
src EP: epA          10.0.0.11      1720            10.0.0.11  1700
dst EP: epB2zoneB.com
src PX: pxA          10.0.0.1       1720            10.0.0.11  24999
dst PX: pxB          172.21.139.90  1720            172.21.139.90  24999

```

#### Related Commands

Command	Description
<b>show gatekeeper calls</b>	Displays the status of each ongoing call of which a gatekeeper is aware.

# clear h323 gatekeeper endpoint

To unregister endpoints, use the **clear h323 gatekeeper endpoint** command in privileged EXEC mode.

```
clear h323 gatekeeper endpoint {alias e164 digits | alias h323id name | all | id number | ipaddr
address [port]}
```

## Syntax Description

<b>alias e164 digits</b>	E.164 alphanumeric address that is specified in the local alias table.
<b>alias h323id name</b>	H.323 ID name that is specified in the local alias table and is an alternate way to reach an endpoint.
<b>all</b>	All endpoints.
<b>id number</b>	ID of the endpoint.
<b>ipaddr address [port]</b>	Call signaling address and port (optional) of the endpoint. If a value for the <i>port</i> argument is not specified, the default is 1720.

## Defaults

For **ipaddr address [port]**, If a value for the *port* argument is not specified, the default is 1720.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and implemented on the Cisco 3660 and Cisco MC3810.

## Usage Guidelines

Using this command forces the gatekeeper to send an unregistration request (URQ) message to the specified endpoint or all endpoints and removes the endpoint from the gatekeeper registration database.

For gatekeeper cluster configurations, this command must be entered on the gatekeeper where the endpoint is registered. Use the **show gatekeeper endpoints** command to locate the endpoint in a gatekeeper cluster.



### Note

The endpoint that was unregistered using this command can come back if it sends the registration request (RRQ) back to the gatekeeper after the unregistration.

## Examples

The following example shows how to unregister all endpoints:

```
GK# clear h323 gatekeeper endpoint all
GK# show gatekeeper endpoints
```

```

GATEKEEPER ENDPOINT REGISTRATION
=====
CallSignalAddr  Port  RASignalAddr  Port  Zone Name          Type  Flags
-----
Total number of active registrations = 0
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show gatekeeper endpoints</b>	Locates the endpoint in a gatekeeper cluster.

# clear h323 gatekeeper statistics

To clear statistics about gatekeeper performance, use the **clear h323 gatekeeper statistics** command in privileged EXEC mode.

**clear h323 gatekeeper statistics**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(5)XM	This command was introduced.
	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 resets the gatekeeper performance counters to zero and records the time at which the last clear was performed.

**Examples** The following example shows output for the **show gatekeeper performance statistics** command. See the **show gatekeeper performance statistics** command for more information.

```
clear h323 gatekeeper statistics
show gatekeeper performance statistics

RAS inbound message counters:
Originating ARQ: 0 Terminating ARQ: 0 LRQ: 0
RAS outbound message counters:
ACF: 2 ARJ: 0 LCF: 2 LRJ: 0
ARJ due to overload: 0
LRJ due to overload: 0
Load balancing events: 0
Real endpoints: 2
```

Related Commands	Command	Description
	<b>show gatekeeper performance statistics</b>	Displays information about the number of calls accepted and rejected by the gatekeeper.

# clear h323 gateway

To clear the H.323 gateway counters, use the **clear h323 gateway** command in privileged EXEC mode.

```
clear h323 gateway [cause-code stats | h225 | ras]
```

Syntax Description		
	<b>cause-code stats</b>	(Optional) Clears only the disconnect cause-code statistics counters.
	<b>h225</b>	(Optional) Clears only the H.225 counters.
	<b>ras</b>	(Optional) Clears only the Registration, Admission, and Status (RAS) counters.

Command Modes	
	Privileged EXEC

Command History	Release	Modification
	12.2(4)T	This command was introduced on all Cisco H.323 platforms except for the Cisco AS5300, Cisco AS5350, and Cisco AS5400.

Usage Guidelines	
	To clear all H.323 counters, use the <b>clear h323 gateway</b> command without any of the optional keywords. After you have used the <b>clear h323 gateway</b> command, the respective counters are set to zero.

Examples	
	In the following example from a Cisco 3640 router, the <b>clear h323 gateway</b> command is used without keywords to clear all H.323 counters:

```
Router# clear h323 gateway
```

```
All H.323 stats cleared at 01:54:38
```

In the following example from a Cisco 3640 router, the **clear h323 gateway** command is used with the **cause-code stats** keyword to clear the disconnect cause-code stats counters:

```
Router# clear h323 gateway cause-code stats
```

```
Cause code stats cleared at 01:54:08
```

In the following example from a Cisco 3640 router, the **clear h323 gateway** command is used with the **h225** keyword to clear the H.225 counters:

```
Router# show h323 gateway h225
```

```
H.225 stats cleared at 01:53:18
```

In the following example from a Cisco 3640 router, the **clear h323 gateway** command is used with the **ras** keyword to clear the RAS counters:

```
Router# clear h323 gateway ras
```

```
RAS stats cleared at 01:53:25
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>debug cch323</b>	Provides debug output for various components within the H.323 subsystem.
<b>show h323 gateway</b>	Displays the statistics for H.323 gateway messages that have been sent and received and displays the reasons for which H.323 calls have been disconnected.

# clear ip sctp statistics

To clear statistics counts for Stream Control Transmission Protocol (SCTP) activity, use the **clear ip sctp statistics** command in privileged EXEC mode.

## clear ip sctp statistics

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.2(2)T	This command was introduced.
	12.2(4)T	This command was integrated into Cisco IOS Release 12.2(4)T.
	12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T and implemented on the following platforms: Cisco 2600 series, Cisco 3600 series, and Cisco 7200 series. Support for the Cisco AS5300, Cisco AS5350, Cisco AS5400, and Cisco AS5850 is not included in this release.
	12.2(11)T	This command was applicable to Cisco AS5300, Cisco AS5350, Cisco AS5400, Cisco AS5800, and Cisco AS5850 in this release.

**Usage Guidelines** This command clears both individual and overall statistics.

**Examples** The following command shows how to empty the buffer that holds SCTP statistics. No output is generated from this command.

```
Router# clear ip sctp statistics
```

Related Commands	Command	Description
	<b>debug ip sctp api</b>	Reports SCTP diagnostic information and messages.
	<b>show ip sctp association list</b>	Shows a list of all current SCTP associations.
	<b>show ip sctp association parameters</b>	Shows the parameters configured for the association defined by the association identifier.
	<b>show ip sctp association statistics</b>	Shows the current statistics for the association defined by the association identifier.
	<b>show ip sctp errors</b>	Shows error counts logged by SCTP.
	<b>show ip sctp instances</b>	Shows all currently defined SCTP instances.

<b>Command</b>	<b>Description</b>
<b>show ip sctp statistics</b>	Shows overall statistics counts for SCTP.
<b>show iua as</b>	Shows information about the current condition of an application server.
<b>show iua asp</b>	Shows information about the current condition of an application server process.

# clear mgcp src-stats

To clear the statistics gathered for Media Gateway Control Protocol (MGCP) System Resource Check (SRC) Call Admission Control (CAC) on an MGCP gateway that supports VoIP, use the **clear mgcp src-stats** command in privileged EXEC mode.

**clear mgcp src-stats**

**Syntax Description** This command has no arguments or keywords.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.2(2)XB	This command was introduced.
	12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T.
	12.2(11)T	This command was implemented on the Cisco AS5350, Cisco AS5400, and Cisco AS5850.

**Usage Guidelines** Use the **clear mgcp src-stats** command to clear the MGCP gateway buffer that holds SRC CAC statistics gathered during the most recent inspection interval.

**Examples** The following example clears MGCP VoIP SRC CAC statistics:

```
Router# clear mgcp src-stats
```

Related Commands	Command	Description
	<b>show mgcp statistics</b>	Displays MGCP statistics regarding received and transmitted network messages.

# clear mgcp statistics

To reset the Media Gateway Control Protocol (MGCP) statistical counters, use the **clear mgcp statistics** command in privileged EXEC mode.

## clear mgcp statistics

**Syntax Description** This command has no arguments or keywords.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(1)T	This command was introduced for the Cisco AS5300.
	12.1(3)T	This command was implemented on the Cisco 3660, Cisco UBR924, and Cisco 2600 series.
	12.2(11)T	This command was implemented on the Cisco AS5850.

**Usage Guidelines** None

**Examples** The following is an example of how to enter the command:

```
Router# clear mgcp statistics
```

Related Commands	Command	Description
	<b>mgcp</b>	Starts the MGCP daemon.
	<b>show mgcp statistics</b>	Displays statistics for received and transmitted packets.

# clear mrcp client statistics

To clear all Media Resource Control Protocol (MRCP) statistics, use the **clear mrcp client statistics** command in privileged EXEC mode.

```
clear mrcp client statistics {all | hostname {hostname | ip-address}}
```

Syntax Description	all	Clears the accumulated MRCP session statistics for all hosts.
	<b>hostname</b>	Clears the accumulated MRCP session statistics for the specified host.
	<i>hostname</i>	Host name of the MRCP server. Format uses host name only or <i>hostname:port</i> .
	<i>ip-address</i>	IP address of the MRCP server.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.2(11)T	This command was introduced on the Cisco 3640, Cisco 3660, Cisco AS5300, Cisco AS5350, and Cisco AS5400.

**Usage Guidelines** This command resets all MRCP session statistics to 0. Use the **show mrcp client statistics hostname** command to display the current statistics.

**Examples** The following example resets the statistics for the host `asr_server`:

```
Router# clear mrcp client statistics hostname asr_server
```

Related Commands	Command	Description
	<b>show mrcp client statistics hostname</b>	Displays cumulative information about MRCP sessions.

# clear rlm group

To clear all time stamps to zero, use the **clear rlm group link** command in privileged EXEC mode.

**clear rlm group** *group-number* **link**

Syntax Description	<i>group-number</i>	RLM group number. Range is from 0 to 255. There is no default value.
--------------------	---------------------	--

Command Modes	Privileged EXEC
---------------	-----------------

Command History	Release	Modification
	11.3(7)	This command was introduced.

## Examples

The following example clears the time stamps on RLM group 1:

```
Router# clear rlm group 1 link
!
02:48:17: rlm 1: [State_Up, rx ACTIVE_LINK_BROKEN] over link [10.1.1.1(Loopback1),
10.1.4.1]
02:48:17: rlm 1: link [10.1.1.2(Loopback2), 10.1.4.2] requests activation
02:48:17: rlm 1: link [10.1.1.1(Loopback1), 10.1.4.1] is deactivated
02:48:17: rlm 1: [State_Recover, rx LINK_BROKEN] over link [10.1.1.2(Loopback2), 10.1.4.2]
02:48:17: rlm 1: link [10.1.1.1(Loopback1), 10.1.4.1] = socket[10.1.1.1, 10.1.4.1]
02:48:17: rlm 1: [State_Recover, rx USER_SOCKET_OPENED] over link [10.1.1.1(Loopback1),
10.1.4.1] for user RLM_MGR
02:48:17: rlm 1: link [10.1.1.1(Loopback1), 10.1.4.1] is opened
02:48:17: rlm 1: link [10.1.1.2(Loopback2), 10.1.4.2] = socket[10.1.1.2, 10.1.4.2]
02:48:17: rlm 1: [State_Recover, rx USER_SOCKET_OPENED] over link [10.1.1.2(Loopback2),
10.1.4.2] for user RLM_MGR
02:48:17: rlm 1: link [10.1.1.2(Loopback2), 10.1.4.2] is opened
02:48:17: rlm 1: link [10.1.1.1(Loopback1), 10.1.5.1] = socket[10.1.1.1, 10.1.5.1]
02:48:17: rlm 1: [State_Recover, rx USER_SOCKET_OPENED] over link [10.1.1.1(Loopback1),
10.1.5.1] for user RLM_MGR
02:48:17: rlm 1: link [10.1.1.1(Loopback1), 10.1.5.1] is opened
02:48:17: rlm 1: link [10.1.1.2(Loopback2), 10.1.5.2] = socket[10.1.1.2, 10.1.5.2]
02:48:17: rlm 1: [State_Recover, rx USER_SOCKET_OPENED] over link [10.1.1.2(Loopback2),
10.1.5.2] for user RLM_MGR
02:48:17: rlm 1: link [10.1.1.2(Loopback2), 10.1.5.2] is opened
02:48:17: rlm 1: [State_Recover, rx LINK_OPENED] over link [10.1.1.1(Loopback1), 10.1.4.1]
02:48:17: rlm 1: link [10.1.1.1(Loopback1), 10.1.4.1] requests activation
02:48:17: rlm 1: [State_Recover, rx LINK_OPENED] over link [10.1.1.2(Loopback2), 10.1.4.2]
02:48:17: rlm 1: [State_Recover, rx START_ACK] over link [10.1.1.1(Loopback1), 10.1.4.1]
02:48:17: rlm 1: link [10.1.1.1(Loopback1), 10.1.4.1] is activated
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>clear interface</b>	Resets the hardware logic on an interface.
	<b>interface</b>	Defines the IP addresses of the server, configures an interface type, and enters interface configuration mode.
	<b>link (RLM)</b>	Specifies the link preference.
	<b>protocol rlm port</b>	Reconfigures the port number for the basic RLM connection for the whole rlm-group.
	<b>retry keepalive</b>	Allows consecutive keepalive failures a certain amount of time before the link is declared down.
	<b>server (RLM)</b>	Defines the IP addresses of the server.
	<b>show rlm group statistics</b>	Displays the network latency of the RLM group.
	<b>show rlm group status</b>	Displays the status of the RLM group.
	<b>show rlm group timer</b>	Displays the current RLM group timer values.
	<b>timer</b>	Overwrites the default setting of timeout values.

# clear rpms-proc counters

To clear statistics counters for the number of leg 3 authentication, authorization, and accounting (AAA) preauthentication requests, successes, and rejects, use the **clear rpms-proc counters** command in privileged EXEC mode.

**clear rpms-proc counters**

**Syntax Description** This command has no arguments or keywords.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.2(11)T	This command was introduced.

**Examples** The following example clears statistics counters for leg 3 AAA preauthentication requests, successes, and rejects:

```
Router# clear rpms-proc counters
```

Related Commands	Command	Description
	<b>show rpms-proc counters</b>	Displays statistics for the number of leg 3 AAA preauthentication requests, successes, and rejects.

# clear rudpv0 statistics

To clear the counters that track RUDP statistics, enter the **clear rudpv0 statistics** command in privileged EXEC mode.

**clear rudpv0 statistics**

**Syntax Description** This command has no arguments or keywords.

**Defaults** The statistical information accumulates.

**Command Modes** Privileged EXEC

## Command History

Release	Modification
12.0(7)XR	This command was introduced.
12.1(1)T	This command was integrated into Cisco IOS Release 12.1(1)T.

## Examples

The following example shows how to clear RUDP statistics on a Cisco 2611 (Cisco SLT):

```
clear rudpv0 statistics
```

## Related Commands

Command	Description
<b>show rudpv0 failures</b>	Displays RUDP information about failed connections and the reasons for them.
<b>show rudpv0 statistics</b>	Displays RUDP information about number of packets sent, received, and so forth.

# clear rudpv1 statistics

To clear the counters that track Reliable User Datagram Protocol (RUDP) statistics, use the **clear rudpv1 statistics** command in privileged EXEC mode.

## clear rudpv1 statistics

**Syntax Description** This command has no arguments or keywords.

**Defaults** The statistical information accumulates.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(1)T	This command was introduced.
	12.2(2)T	This command was implemented on Cisco 7200.
	12.2(4)T	This command was implemented on the Cisco 2600 series, Cisco 3600 series, and Cisco MC3810.
	12.2(2)XB1	This command was implemented on the Cisco AS5850.
	12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T and implemented on Cisco IAD2420 series.
	12.2(11)T	This command is supported on the Cisco AS5300, Cisco AS5350, Cisco AS5400, Cisco AS5800, and Cisco AS5850 in this release.

**Examples** The following example clears all RUDP statistics for all available session groups:

```
Router# clear rudpv1 statistics
```

Related Commands	Command	Description
	<b>debug rudpv1</b>	Displays debugging information for RUDP.
	<b>show rudpv1</b>	Displays RUDP information.

# clear sgcp statistics

To clear all Simple Gateway Control Protocol (SGCP) statistics, use the **clear sgcp statistics** command in privileged EXEC mode.

**clear sgcp statistics**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.0(5)T	This command was introduced in a private release on the Cisco AS5300 only and was not generally available.
	12.0(7)XK	This command was implemented on the Cisco MC3810 and the Cisco 3600 series (except for the Cisco 3620) in a private release that was not generally available.
	12.1(2)T	This command was integrated into Cisco IOS Release 12.1(2)T.

**Usage Guidelines** None

**Examples** The following example shows all SGCP statistics being cleared:

```
Router# clear sgcp statistics
```

Related Commands	Command	Description
	<b>show sgcp statistics</b>	Displays global statistics for SGCP packet counts.

# clear sip-ua statistics

To reset the Session Initiation Protocol (SIP) user-agent (UA) statistical counters, use the **clear sip-ua statistics** command in privileged EXEC mode.

**clear sip-ua statistics**

**Syntax Description** This command has no arguments or keywords.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.2(13)T	This command was introduced.

**Usage Guidelines** Use this command to clear all SIP statistics counters that are displayed by the **show sip-ua statistics** command.

**Examples** The following example shows all SIP-UA statistics being cleared:

```
Router# clear sip-ua statistics
```

Related Commands	Command	Description
	<b>show sip-ua statistics</b>	Displays response, traffic, and retry SIP statistics.

# clear ss7 sm stats

To clear the counters that track Session Manager statistics, use the **clear ss7 sm stats** command in privileged EXEC mode.

```
clear ss7 sm stats
```

**Syntax Description** This command has no arguments or keywords.

**Defaults** The statistical information accumulates

**Command Modes** Privileged EXEC

## Command History

Release	Modification
12.0(7)XR	This command was introduced.
12.1(1)T	This command was integrated into Cisco IOS Release 12.1(1)T.

## Examples

The following example shows how to clear Session Manager statistics on a Cisco 2611:

```
clear ss7 sm stats
```

## Related Commands

Command	Description
<b>show ss7 sm stats</b>	Displays Session Manager information about number of packets queued, received, and so forth.

# clear statistics dial-peer voice

To reset the voice call counters and recent call details stored in the dial peer, use the **clear statistics dial-peer voice** command in privileged EXEC configuration mode.

**clear statistics dial-peer voice** [*tag*]

<b>Syntax Description</b>	<i>tag</i>	(Optional) Identification tag number of a specific dial peer. A valid entry is any integer that identifies a specific dial peer. Range is from 1 to 2147483647. There is no default.
---------------------------	------------	--

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	12.2(8)T	This command was introduced on the Cisco AS5300.

**Usage Guidelines** The **clear statistics dial-peer voice** command resets the following statistical information about calls:

- Time elapsed since last clearing of statistics
- Connect time
- Charged units
- Accepted calls
- Refused calls
- Successful calls
- Failed calls
- Incomplete calls
- Last disconnect cause
- Last disconnect text
- Last setup time

If the *tag* argument is used, counters in the specified voice dial peer are cleared. Otherwise, counters in all the configured voice dial peers are cleared.

## Examples

The following example clears voice dial peer statistics using tag 1234:

```
Router# clear statistics dial-peer voice 1234
```

```
Clear voice call statistics stored in this voice dial-peer [confirm]y
Router#
```

The following example clears statistics in all the configured voice dial peers:

```
Router# clear statistics dial-peer voice
```

```
Clear voice call statistics stored in all voice dial-peers [confirm]y
Router#
```

#### Related Commands

Command	Description
<b>dial-peer voice</b>	Enters dial-peer configuration mode and specifies the method of voice encapsulation.
<b>show call history voice record</b>	Displays CDR events in the call history table.
<b>show dial-peer voice</b>	Displays configuration information for dial peers.

# clear voice port

To clear voice port calls in progress, use the **clear voice port** command in privileged EXEC mode. This command does not have a **no** form.

**clear voice port** [*slot/port*]

<b>Syntax Description</b>	<i>slot/port</i>	(Optional) The voice port slot number and port number. If you do not specify a voice port, all calls on all voice ports are cleared.
---------------------------	------------------	--

<b>Defaults</b>	No default behavior or values
-----------------	-------------------------------

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	11.3(1)MA	This command was introduced on the Cisco MC3810.

<b>Usage Guidelines</b>	If you do not specify a voice port, all calls on all voice ports are cleared. A confirmation prompt is displayed.
-------------------------	---

<b>Examples</b>	The following example clears all calls on voice port 1/2 on the Cisco MC3810: <pre>Router# clear voice port 1/2</pre>
-----------------	--

# clear vsp statistics

To clear all Voice Streaming Processing (VSP) statistics that are displayed when using the **show vsp** command is used, use the **clear vsp statistics** command in privileged EXEC mode.

**clear vsp statistics**

**Syntax Description** This command has no arguments or keywords.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.2(11)T	This command was introduced on the Cisco 3640, Cisco 3660, Cisco AS5300, Cisco AS5350, and Cisco AS5400.

**Usage Guidelines** This command resets all cumulative VSP statistics to 0. Use the **show vsp statistics** command to display the current statistics.

**Examples** The following example resets the statistics for VSP sessions:

```
Router# clear vsp statistics
```

Related Commands	Command	Description
	<b>show vsp</b>	Displays cumulative information about VSP sessions.

# clid (dial-peer)

To control the presentation and use of calling-line ID (CLID) information, use the **clid** command in dial-peer configuration mode. To remove CLID controls, use the **no** form of this command.

**clid** {**network-number** *number* [**second-number strip**] | **override rdnis** | **restrict** | **strip** [**name** | **pi-restrict**]}

**no clid** {**network-number** *number* [**second-number strip**] | **override rdnis** | **restrict** | **strip** [**name** | **pi-restrict**]}

## Syntax Description

<b>name</b>	(Optional) Calling-party name. Causes removal of the calling-party name from the CLID.
<b>network-number</b> <i>number</i>	(Optional) Network number. Establishes the calling-party network number in the CLID for this router.
<b>override rdnis</b>	(Optional; supported for POTS dial peers only) Overrides the CLID with the redirected dialed number identification service (RDNIS) if available.
<b>pi-restrict</b>	(Optional) Restricted progress indicator (PI). Causes removal of the calling-party number from the CLID when the PI is restricted.
<b>restrict</b>	(Optional) Restricts presentation of the caller ID in the CLID.
<b>second-number strip</b>	(Optional) Removes a previously configured second network number from the CLID.
<b>strip</b>	(Optional) Strips the calling-party number from the CLID.

## Defaults

No default behavior or values

## Command Modes

Dial-peer configuration

## Command History

Release	Modification
12.2(11)T	This command was introduced.
12.3(13)	The <b>override rdnis</b> keyword was added.

## Usage Guidelines

The **override rdnis** keywords are supported only for POTS dial peers.

CLID is the collection of information about the billing telephone number from which a call originated. The CLID value might be the entire phone number, the area code, or the area code plus the local exchange. It is also known as caller ID. The various keywords to this command manage the presentation, restriction, or stripping of the various CLID elements.

The **clid network-number** command sets the presentation indicator to “y” and the screening indicator to “network-provided.” The **second-number strip** keyword strips from the H.225 source-address field the original calling-party number, and is valid only if a network number has previously been configured.

The **clid override rdnis** command overrides the CLID with the RDNIS if it is available.

The **clid restrict** command causes the calling-party number to be present in the information element, but the presentation indicator is set to “n” to prevent its presentation to the called party.

The **clid strip** command causes the calling-party number to be null in the information element, and the presentation indicator is set to “n” to prevent its presentation to the called party.

## Examples

The following example sets the calling-party network number to 98765 for POTS dial peer 4321:

```
Router(config)# dial-peer voice 4321 pots
Router(config-dial-peer)# clid network-number 98765
```

The following example prevents the second network number from being sent in the CLID information:

```
Router(config-dial-peer)# clid second-number strip
```

An alternative method of accomplishing this result is to enter the **second-number strip** keywords as part of the **clid network-number** command. The following example sets the calling-party network number to 56789 for VoIP dial peer 1234 and also prevents the second network number from being sent:

```
Router(config)# dial-peer voice 1234 voip
Router(config-dial-peer)# clid network-number 56789 second-number strip
```

The following example overrides the calling-party number with RDNIS if available.

```
Router(config-dial-peer)# clid override rdnis
```

The following example prevents the calling-party number from being presented:

```
Router(config-dial-peer)# clid restrict
```

The following example removes the calling-party number from the CLID information and prevents the calling-party number from being presented:

```
Router(config-dial-peer)# clid strip
```

# clock-select

To establish the sources and priorities of the requisite clocking signals for the OC-3/STM-1 ATM Circuit Emulation Service network module, use the **clock-select** command in CES configuration mode.

**clock-select** *priority-number interface slot/port*

Syntax Description	
<i>priority-number</i>	Priority of the clock source. Range is from 1 (high priority) to 4 (low priority). There is no default value.
<i>interface</i>	Specifies the interface to supply the clock source.
<i>slot/port</i>	Backplane slot number and port number on the interface.

**Defaults** No default behavior or values

**Command Modes** CES configuration

Command History	Release	Modification
	12.1(2)T	This command was introduced on the Cisco 3600 series.

**Usage Guidelines** This command is used on Cisco 3600 series routers that have OC-3/STM-1 ATM CES network modules. To support synchronous or synchronous residual time stamp (SRTS) clocking modes, you must specify a primary reference source to synchronize the flow of constant bit rate (CBR) data from its source to its destination.

You can specify up to four clock priorities. The highest priority active interface in the router supplies primary reference source to all other interfaces that require network clock synchronization services. The fifth priority is the local oscillator on the network module.

Use the **show ces clock-select** command to display the currently configured clock priorities on the router.

**Examples** The following example defines two clock priorities on the router:

```
clock-select 1 cbr 2/0
clock-select 2 atm 2/0
```

Related Commands	Command	Description
	<b>channel-group</b>	Configures the timing recovery clock for the CES interface.
	<b>clock source</b>	Configures a transmit clock source for the CES interface.
	<b>show ces clock</b>	Displays which ports are designated as network clock sources.

## codec (dial-peer)

To specify the voice coder rate of speech for a dial peer, use the **codec** command in dial peer configuration mode. To reset the default value, use the **no** form of this command.

**Cisco 1750 and Cisco 1751 Modular Access Routers, Cisco AS5300 and AS5800 Universal Access Servers, and Cisco MC3810 Multiservice Concentrators**

```
codec codec [bytes payload_size]
```

```
no codec codec [bytes payload_size]
```

**Cisco 2600 and 3600 Series Routers and Cisco 7200 and 7500 Series Routers**

```
codec {codec [bytes payload_size] | transparent}
```

```
no codec {codec [bytes payload_size] | transparent}
```

Syntax Description		
<b>codec</b>		Codec options available for the various platforms are described in <a href="#">Table 13</a> , below.
<b>bytes</b>		(Optional) Specifies the number of bytes in the voice payload of each frame.
<i>payload-size</i>		(Optional) Number of bytes in the voice payload of each frame. See <a href="#">Table 14</a> for valid entries and default values.
<b>transparent</b>		Enables codec capabilities to be passed transparently between endpoints in a Cisco Multiservice IP-to-IP Gateway.
	<b>Note</b>	The <b>transparent</b> keyword is only available on the Cisco 2600 and 3600 Series Router and Cisco 7200 and 7500 Series Router platforms.

**Table 13** Codec support by platform

Codec	Cisco 1750 and Cisco 1751 Modular Access Routers	Cisco 2600 and 3600 Series Routers and Cisco 7200 and 7500 Series Routers	Cisco AS5300 and AS5800 Universal Access Servers	Cisco MC3810 Multiservice Concentrators
<b>clear-channel</b> —Clear channel at 64,000 bits per second (bps)	Yes	Yes	—	Yes
<b>g711alaw</b> —G.711 A-Law at 64,000 bps	Yes	Yes	Yes	Yes
<b>g711ulaw</b> —G.711 u-Law at 64,000 bps	Yes	Yes	Yes	Yes
<b>g723ar53</b> —G.723.1 Annex A at 5300 bps	—	Yes	Yes	Yes
<b>g723ar63</b> —G.723.1 Annex A at 6300 bps	—	Yes	Yes	Yes
<b>g723r53</b> —G.723.1 at 5300 bps	—	Yes	Yes	Yes

**Table 13 Codec support by platform**

Codec	Cisco 1750 and Cisco 1751 Modular Access Routers	Cisco 2600 and 3600 Series Routers and Cisco 7200 and 7500 Series Routers	Cisco AS5300 and AS5800 Universal Access Servers	Cisco MC3810 Multiservice Concentrators
<b>g723r63</b> —G.723.1 at 6300 bps	—	Yes	Yes	Yes
<b>g726r16</b> —G.726 at 16,000 bps	Yes	Yes	Yes	Yes
<b>g726r24</b> —G.726 at 24,000 bps	Yes	Yes	Yes	Yes
<b>g726r32</b> —G.726 at 32,000 bps	Yes	Yes	Yes	Yes
<b>g726r53</b> —G.726 at 53,000 bps	Yes	Yes	Yes	—
<b>g726r63</b> —G.726 at 63,000 bps	Yes	Yes	Yes	—
<b>g728</b> —G.728 at 16,000 bps	—	Yes	Yes	Yes
<b>g729abr8</b> —G.729 Annex A and B at 8000 bps	Yes	Yes	Yes	Yes
<b>g729ar8</b> —G.729 Annex A at 8000 bps	Yes	Yes	Yes	Yes
<b>g729br8</b> —G.729 Annex B at 8000 bps	Yes	Yes	Yes	Yes
<b>g729r8</b> —G.729 at 8000 bps. This is the default codec	Yes	Yes	Yes	Yes
<b>gsmeifr</b> —Global System for Mobile Communications Enhanced Rate Codecs (GSMEFR) at 12,200 bps	Yes	Yes	Yes	Yes
<b>gsmfr</b> —Global System for Mobile Communications Full Rate (GSMFR) at 13,200 bps	Yes	Yes	Yes	Yes

**Defaults**

g729r8, 30-byte payload for VoFR and VoATM  
 g729r8, 20-byte payload for VoIP  
 See [Table 14](#) for valid entries and default values.

**Command Modes**

Dial peer configuration

**Command History**

Release	Modification
11.3(1)T	This command was introduced on the Cisco 3600 series.
11.3(3)T	This command was implemented on the Cisco 2600 series.
12.0(3)T	This command was implemented on the Cisco AS5300. This release does not support the <b>clear-channel</b> keyword.
12.0(4)T	This command was implemented on the Cisco 3600 series, Cisco 7200 series and the Cisco MC3810. This release modified the command for VoFR dial peers.
12.0(5)XE	Additional <i>codec</i> choices and other options were implemented.

Release	Modification
12.0(5)XK	The <b>g729br8</b> and <b>pre-ietf</b> <i>codec</i> choices were added for the Cisco 2600 and Cisco 3600 series.
12.0(7)T	This command was integrated into Cisco IOS Release 12.0.(7)T and implemented on the Cisco AS5800. Additional voice coder rates of speech were added. This release does not support the <b>clear-channel</b> keyword on this platform.
12.0(7)XK	The <b>g729abr8</b> and <b>g729ar8</b> <i>codec</i> choices were for the Cisco MC3810, and the keyword <b>pre-ietf</b> was deleted.
12.1(1)T	This command was integrated in Cisco IOS Release 12.1(1)T.
12.1(5)T	The <b>gsmefr</b> and <b>gsmfr</b> <i>codec</i> keywords were added.
12.2(8)T	The command was implemented on Cisco 1750 and Cisco 1751.
12.2(13)T3	The <b>transparent</b> keyword was added. This keyword is available only in js2 images.

**Note**

VoFR and VoATM do not support the **gsmefr** and **gsmfr** codecs.

**Usage Guidelines**

Use this command to define a specific voice coder rate of speech and payload size for a VoIP or VoFR dial peer. This command is also used for VoATM.

A specific codec type can be configured on the dial peer as long as it is supported by the setting used with the **codec complexity** voice-card configuration command. The **codec complexity** command is voice-card specific and platform specific. The **codec complexity** voice-card configuration command is set to either high or medium.

If the **codec complexity** command is set to high, the following keywords are available: **g711alaw**, **g711ulaw**, **g723ar53**, **g723ar63**, **g723r53**, **g723r63**, **g726r16**, **g726r24**, **g726r32**, **g728**, **g729r8**, and **g729br8**.

If the **codec complexity** command is set to medium, the following keywords are available: **g711alaw**, **g711ulaw**, **g726r16**, **g726r24**, **g726r32**, **g729r8**, and **g729br8**.

The **codec** dial peer configuration command is particularly useful when you must change to a small-bandwidth codec. Large-bandwidth codecs, such as G.711, do not fit in a small-bandwidth link. However, the **g711alaw** and **g711ulaw** codecs provide higher quality voice transmission than other codecs. The **g729r8** codec provides near-toll quality with considerable bandwidth savings.

If codec values for the dial peers of a connection do not match, the call fails.

You can change the payload of each VoIP frame by using the **bytes** keyword; you can change the payload of each VoFR frame by using the **bytes** keyword with the *payload-size* argument. However, increasing the payload size can add processing delay for each voice packet.

[Table 14](#) describes the voice payload options and default values for the codecs and packet voice protocols.

**Table 14 Voice Payload-per-Frame Options and Defaults**

Codec	Protocol	Voice Payload Options (in Bytes)	Default Voice Payload (in Bytes)
<b>g711alaw</b>	VoIP	80, 160	160
<b>g711ulaw</b>	VoFR	40 to 240 in multiples of 40	240
	VoATM	40 to 240 in multiples of 40	240
<b>g723ar53</b>	VoIP	20 to 220 in multiples of 20	20
	VoFR	20 to 240 in multiples of 20	20
<b>g723r53</b>	VoATM	20 to 240 in multiples of 20	20
	VoIP	24 to 216 in multiples of 24	24
<b>g723ar63</b>	VoFR	24 to 240 in multiples of 24	24
	VoATM	24 to 240 in multiples of 24	24
<b>g726r16</b>	VoIP	20 to 220 in multiples of 20	40
	VoFR	10 to 240 in multiples of 10	60
	VoATM	10 to 240 in multiples of 10	60
<b>g726r24</b>	VoIP	30 to 210 in multiples of 30	60
	VoFR	15 to 240 in multiples of 15	90
	VoATM	30 to 240 in multiples of 15	90
<b>g726r32</b>	VoIP	40 to 200 in multiples of 40	80
	VoFR	20 to 240 in multiples of 20	120
	VoATM	40 to 240 in multiples of 20	120
<b>g728</b>	VoIP	10 to 230 in multiples of 10	40
	VoFR	10 to 240 in multiples of 10	60
	VoATM	10 to 240 in multiples of 10	60
<b>g729abr8</b>	VoIP	10 to 230 in multiples of 10	20
<b>g729ar8</b>	VoFR	10 to 240 in multiples of 10	30
<b>g729br8</b>	VoATM	10 to 240 in multiples of 10	30
<b>g729r8</b>			

For toll quality, use the **g711alaw** or **g711ulaw** keyword. These values provide high-quality voice transmission but use a significant amount of bandwidth. For nearly toll quality (and a significant savings in bandwidth), use the **g729r8** keyword.

On the Cisco MC3810, this command was first supported as a voice port command. On the Cisco MC3810, you can also assign codec values to the voice port. If configuring calls to a Cisco MC3810 that is running software versions prior to 12.0(4)T, configure the **codec** command on the voice port. If configuring Cisco trunk permanent calls, configure the **codec** command on the dial peer. If you configure the **codec** command on the dial peer for VoFR permanent calls on the Cisco MC3810, the dial peer **codec** command setting overrides the **codec** setting configured on the voice port.



**Note**

For regular switched calls on the Cisco MC3810, the codec value must be configured on the voice port, and the voice payload size is not configurable.



**Note**

The **clear-channel** keyword is not supported on Cisco AS5300 and AS5800.

**Note**

The G.723 and G.728 codecs are not supported on the 1700 platform for Cisco Hoot and Holler applications.

**Note**

The **transparent** keyword affects only H.323 to H.323 connections.

**Examples**

The following example shows how to configure a voice coder rate that provides toll quality voice with a payload of 120 bytes per voice frame on a Cisco 2600 or Cisco 3600 series router that is acting as a terminating node. The sample configuration begins in global configuration mode and is for VoFR dial peer 200.

```
dial-peer voice 200 vofr
  codec g711ulaw bytes 240
```

The following example configures a voice coder rate for VoIP dial peer 10 that provides toll quality but uses a relatively high amount of bandwidth:

```
dial-peer voice 10 voip
  codec g711alaw
```

The following example configures the transparent codec used by the Cisco Multiservice IP-to-IP Gateway:

```
dial-peer voice 1 voip
  incoming called-number .T
  destination-pattern .T
  session target ras
  codec transparent
```

**Related Commands**

Command	Description
<b>codec (DSP interface dsp farm)</b>	Specifies call density and codec complexity.
<b>codec (voice port)</b>	Specifies voice compression on the Cisco MC3810 voice port.
<b>codec complexity</b>	Specifies call density and codec complexity based on the codec used.
<b>show dial peer voice</b>	Displays the codec setting for dial peers.

# codec (dsp)

To specify call density and codec complexity based on a particular codec standard, use the **codec** command in DSP interface dsp farm mode. To reset the card type to the default, use the **no** form of the command.

**codec** { **high** | **med** }

**no codec** { **high** | **med** }

## Syntax Description

<i>high</i>	Specifies high complexity: two channels of any mix of codec.
<i>med</i>	Specifies medium complexity: four channels of g711/g726/g729a/fax.

## Defaults

Medium complexity

## Command Modes

DSP interface dsp farm

## Command History

Release	Modification
12.0(5)XE	This command was introduced on the Cisco 7200 series.
12.1(1)T	This command was integrated into Cisco Release 12.1(1)T.
12.1(3)T	This command was implemented on the Cisco 7500 series.

## Usage Guidelines

This command is supported on only the Cisco 7200 series and Cisco 7500 series routers.

Codec complexity refers to the amount of processing required to perform compression. Codec complexity affects the number of calls, referred to as call density, that can take place on the DSPfarm interfaces. The greater the codec complexity, the fewer the calls that are handled. For example, G.711 requires less DSP processing than G.728, so as long as the bandwidth is available, more calls can be handled simultaneously by using the G.711 standard than by using G.728.

The DSPinterface dspfarm **codec** complexity setting affects the options available for the **codec** dial peer configuration command.

To change codec complexity, you must first remove any configured channel associated signaling (CAS) or DS0 groups and then reinstate them after the change.



### Note

On the Cisco 2600 series routers, 3600 series, and MC3810, codec complexity is configured using the **codec complexity** command in voice-card configuration mode.

## Examples

The following example configures the DSPfarm interface 1/0 on the Cisco 7200 series routers to support high compression:

```
dspint DSPFarm 1/0
  codec high
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	codecs (dial peer)	Specifies the voice codec rate of speech for a dial peer.
	<b>codecs complexity</b>	Specifies call density and codec complexity based on the codec standard you are using.

## codec (voice-port)

The **codec** command in voice-port configuration mode on the Cisco MC3810 that was first supported in Cisco IOS Release 11.3(1)MA is no longer supported, beginning with Cisco IOS Release 12.2. Configure the codec value using the **codec** dial peer configuration command.

# codec aal2-profile

To set the codec profile for a digital signal processor (DSP) on a per-call basis, use the **codec aal2-profile** command in dial-peer configuration mode. To restore the default codec profile, use the **no** form of this command.

**codec aal2-profile** { **itut** | **custom** | **atmf** } *profile-number* *codec*

**no codec aal2-profile**

<b>Syntax Description</b>	<b>itut</b>	The <i>profile-number</i> as an ITU-T type.
	<b>custom</b>	The <i>profile-number</i> as a custom type.
	<b>atmf</b>	The <i>profile-number</i> as an ATMF type.
	<i>profile-number</i>	<p>The available <i>profile-number</i> selections depend on the profile type.</p> <p>For ITU-T:</p> <ul style="list-style-type: none"> <li>• 1 = G.711 u-law</li> <li>• 2 = G.711 u-law with silence insertion descriptor (SID)</li> <li>• 7 = G.711 u-law and G.729ar8</li> </ul> <p>For ATMF:</p> <ul style="list-style-type: none"> <li>• 9 = BLES support for VoAAL2</li> </ul> <p>For custom:</p> <ul style="list-style-type: none"> <li>• 100 = G.711 u-law and G.726r32</li> <li>• 110 = G.711 u-law, G.726r32, and G.729ar8</li> </ul>
	<i>codec</i>	<p>Enter one codec for the DSP. The possible <i>codec</i> entries depend on the <i>profile-number</i>. The valid entries are as follows:</p> <ul style="list-style-type: none"> <li>• For ITU 1—g711 u-law</li> <li>• For ITU 2—g711 u-law</li> <li>• For ITU 7—g711 u-law or g729ar8</li> <li>• For ATMF—g711 u-law</li> <li>• For custom 100—g711 u-law or g726r32</li> <li>• For custom 110—g711 u-law or g726r32 or g729ar8</li> </ul>

**Defaults** ITU-T profile 1 (G.711 u-law)

**Command Modes** Dial-peer configuration

**Command History**

Release	Modification
12.1(1)XA	This command was introduced on the Cisco MC3810.
12.1(2)T	This command was integrated into Cisco IOS Release 12.1(2)T.
12.2(2)T	This command was implemented on the Cisco 7200 series.
12.2(11)T	This command was implemented on the Cisco IAD2420 series.

**Usage Guidelines**

Use this command to configure the DSP to operate with a specified profile type and codecs. You must enter the **session protocol aal2-trunk** command before configuring the codec ATM adaptation layer 2 (AAL2) profile. This command is used instead of the **codec (dial-peer)** command for AAL2 trunk applications.

**Examples**

The following example sets the codec AAL2 profile type to ITU-T and configures a profile number of 7, enabling codec G.729ar8:

```
dial-peer voice 100 voatm
 session protocol aal2-trunk
 codec aal2-profile itut 7 g729ar8
```

The following example sets the codec AAL2 profile type to custom and configures a profile number of 100, enabling codec G.726r32:

```
dial-peer voice 200 voatm
 session protocol aal2-trunk
 codec aal2-profile custom 100 g726r32
```

The following example shows BLES mode being configured on the Cisco IAD2420 series IAD:

```
dial-peer voice 1000 voatm
 session protocol aal2-trunk
 .
 .
 .
codec aal2-profile ATMF 9 g711ulaw
no vad
```

**Related Commands**

Command	Description
<b>session protocol (dial-peer)</b>	Establishes a session protocol for calls between the local and remote routers via the packet network.

# codec complexity

To specify call density and codec complexity according to the codec standard that is being used, use the **codec complexity** command in voice-card configuration mode. To reset the medium complexity default, use the **no** form of this command.

**codec complexity {flex | high | medium} [ecan-extended]**

**no codec complexity**

Syntax Description	
<b>flex</b>	Each DSP can support up to 16 voice channels, depending on voice traffic.
<b>high</b>	<p>In high-complexity, each Digital Signal Processor (DSP) supports six voice channels encoded in any of the following formats:</p> <ul style="list-style-type: none"> <li>• <b>g711alaw</b>—G.711 a-law 64000 bps.</li> <li>• <b>g711ulaw</b>—G.711 u-law 64000 bps.</li> <li>• <b>g723ar53</b>—G.723.1 Annex A 5300 bps.</li> <li>• <b>g723ar63</b>—G.723.1 Annex A 6300 bps.</li> <li>• <b>g723r53</b>—G.723.1 5300 bps.</li> <li>• <b>g723r63</b>—G.723.1 6300 bps.</li> <li>• <b>g726r16</b>—G.726 16000 bps.</li> <li>• <b>g726r24</b>—G.726 24000 bps.</li> <li>• <b>g726r32</b>—G.726 32000 bps.</li> <li>• <b>g728</b>—G.728 16000 bps.</li> <li>• <b>g729r8</b>—G.729 8000 bps. This is the default.</li> <li>• <b>g729br8</b>—G.729 Annex B 8000 bps.</li> <li>• <b>fax relay</b>—2400 bps, 4800 bps, 7200 bps, 9600 bps, 12 kbps, and 14.4 kbps.</li> </ul> <p><b>Note</b> Codecs G.723.1 and G.728 are not supported on Cisco 1750 and Cisco 1751 modular access routers for Cisco Hoot and Holler over IP applications.</p>
<b>medium</b>	<p>In medium-complexity, each DSP supports eight voice channels encoded in any of the following formats:</p> <ul style="list-style-type: none"> <li>• <b>g711alaw</b>—G.711 a-law 64,000 bps.</li> <li>• <b>g711ulaw</b>—G.711 u-law 64,000 bps.</li> <li>• <b>g726r16</b>—G.726 16,000 bps.</li> <li>• <b>g726r24</b>—G.726 24,000 bps.</li> <li>• <b>g726r32</b>—G.726 32,000 bps.</li> <li>• <b>g729r8</b>—G.729 Annex A 8000 bps.</li> <li>• <b>g729br8</b>—G.729 Annex B with Annex A 8000 bps.</li> <li>• <b>fax relay</b>—2400 bps, 4800 bps, 7200 bps, 9600 bps, 12 kbps, and 14.4 kbps. Fax relay is the default.</li> </ul>
<b>ecan-extended</b>	(Optional) Selects the extended echo canceller.

**Defaults** Medium complexity

**Command Modes** Voice-card configuration

Command History	Release	Modification
	12.0(5)XK	This command was introduced on the Cisco 2600 and Cisco 3600 series.
	12.0(7)T	This command was integrated into Cisco IOS Release 12.0(7)T.
	12.0(7)XK	This command was implemented on the Cisco MC3810 for use with the high-performance compression module (HCM).
	12.1(2)T	This command was integrated into Cisco IOS Release 12.1(2)T.
	12.2(8)T	This command was implemented on the Cisco 1750 and Cisco 1751.
	12.2(13)T	The <b>ecan-extended</b> keyword was added.
	12.2(15)T	This command was integrated into Cisco IOS Release 12.2(15)T with support for the Cisco 2600 series, Cisco 2600XM, Cisco 3660, Cisco 3725, and Cisco 3745 routers. High codec complexity is supported for DSP processing on these platforms.
	12.2(15)ZJ	The <b>flex</b> keyword was added.
	12.3(4)T	This command was integrated into Cisco IOS Release 12.3(4)T.

**Usage Guidelines** Codec complexity refers to the amount of processing required to perform voice compression. Codec complexity affects the call density—the number of calls reconcile on the DSPs. With higher codec complexity, fewer calls can be handled. Select a higher codec complexity if that is required to support a particular codec or combination of codecs. Select a lower codec complexity to support the greatest number of voice channels, provided that the lower complexity is compatible with the particular codecs in use.

To change codec complexity, all of the DSP voice channels must be in the idle state.



**Note** In the Cisco MC3810, this command is valid only with installed HCMs, and you must specify voice card 0 in the command-line interface (CLI). If two HCMs are installed, the **codec complexity** command configures both HCMs at once.

The **flex** keyword allows the DSP to process up to 16 channels. In addition to continuing support for configuring a fixed number of channels per DSP, the flex option enables the DSP to handle a flexible number of channels. The total number of supported channels varies from 6 to 16, depending on which codec is used for a call. Therefore, the channel density varies from 6 per DSP (high-complexity codec) to 16 per DSP (g.711 codec).



**Note** In flex mode, you can connect (or configure in the case of DS0 groups and PRI groups) more voice channels to the module than the DSPs can accommodate. This is referred to as oversubscription. If all voice channels should go active simultaneously, the DSPs will be oversubscribed and calls that are unable to allocate a DSP resource will fail to connect.

The **high** keyword selects a higher codec complexity if that is required to support a particular codec or combination of codecs. When you use the **codec complexity high** command to change codec complexity, the system prompts you to remove all existing DS0 or PRI groups using the specified voice-card first, then all DSPs are reset, loaded with the specified firmware image, and released. Refer to the “*Switching Echo Cancellers*” section of the *Enhanced ITU-T G.168 Echo Cancellation* feature documentation on Cisco.com for more information about removing and replacing DS0 or PRI groups.

The **medium** keyword selects a lower codec complexity to support the greatest number of voice channels, provided that the lower complexity is compatible with the particular codecs in use.

The **ecan-extended** keyword is used when either the **codec complexity high** or the **codec complexity medium** options are chosen. The default option is to use the Cisco proprietary G.165-compliant echo canceller (EC). The **ecan-extended** keyword selects the extended echo canceller.

You can also construct two separate configurations, one for the Cisco default EC and one for the extended EC, which you can load manually by creating new configurations for each type of EC and reloading the router.

- Use the **codec complexity high** command for the Cisco default EC.
- Use the **codec complexity high ecan-extended** command for the extended EC.

For the *Integrated Voice and Data WAN on T1/E1 Interfaces Using the AIM-ATM-VOICE-30 Module* feature, each DSP can support up to two voice calls, so the host must ensure that no more than two out of the four enabled channels are active at any time.

The Integrated Voice and Data WAN on T1/E1 Interfaces Using the AIM-ATM-VOICE-30 Module feature can process up to 16 voice channels when running the high-complexity image set. Those 16 time slots need to be within a contiguous range to satisfy the Multi-channel Buffered Serial Port (McBSP) channel selection scheme. See the **ds0-group** and **pri-group** commands for more information.

In the Cisco MC3810 series, this command is valid only with HCM(s) installed, and you must specify voice card 0 in the command mode. If two HCMs are installed, the **codec complexity** command configures both HCMs at once.

SIP gateways do not support a codec preference order with H.323 signaling; all codecs listed are given equal preference. Specifically, they do not prefer g729r8 over g729br8 if both are defined.

## Examples

The following example enters voice-card configuration mode and sets the codec complexity to flex on voice card 1 in a Cisco 2600 or Cisco 3600 series router:

```
voice-card 1
codec complexity flex
```

The following example enters voice-card configuration mode and loads high-complexity DSP firmware on voice-card 0. The **dspfarm** command enters the DSP resources on the AIM specified in the **voice-card** command into the DSP resource pool.

```
voice-card 0
  codec complexity high
  dspfarm
```

If you were to switch to medium complexity on the same voice-card by entering the **codec complexity** command, the following error message occurs:

```
voice-card 0
  codec complexity

codec complexity medium
```

The following example sets the codec complexity to high on a Cisco MC3810 that contains one or two HCMs:

```
voice-card 0
  codec complexity high
```

The following example sets the codec complexity to high on voice card 1 in a Cisco 2600 or Cisco 3600 series router:

```
voice-card 1
  codec complexity high
```

To change the codec complexity configuration, enter the following command (the default is **codec complexity medium**):

```
voice-card
  codec complexity high ecan-extended
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>ds0-group</b>	Defines T1/E1 channels for compressed voice calls and the CAS method by which the router connects to the PBX or PSTN.
<b>show voice dsp</b>	Shows the current status of all DSP voice channels.

# codec preference

To specify a list of preferred codecs to use on a dial peer, use the **codec preference** command in voice-class configuration mode. To disable this functionality, use the **no** form of this command.

**codec preference** *value codec-type [bytes payload-size]*

**no codec preference** *value codec-type*

Syntax Description	
<i>value</i>	Specifies the order of preference, with 1 being the most preferred and 14 being the least preferred.
<i>codec-type</i>	Specifies the codec preferred. <ul style="list-style-type: none"> <li>• <b>clear-channel</b>—Clear Channel 64,000 bps</li> <li>• <b>g711alaw</b>—G.711 A Law 64,000 bps</li> <li>• <b>g711ulaw</b>—G.711 u Law 64,000 bps</li> <li>• <b>g723ar53</b>—G.723.1 ANNEX-A 5,300 bps</li> <li>• <b>g723ar63</b>—G.723.1 ANNEX-A 6,300 bps</li> <li>• <b>g723r53</b>—G.723.1 5,300 bps</li> <li>• <b>g723r63</b>—G.723.1 6,300 bps</li> <li>• <b>g726r16</b>—G.726 16,000 bps</li> <li>• <b>g726r24</b>—G.726 24,000 bps</li> <li>• <b>g726r32</b>—G.726 32,000 bps</li> <li>• <b>g728</b>—G.728 16,000 bps</li> <li>• <b>g729abr8</b>—G.729 ANNEX-A &amp; B 8,000 bps</li> <li>• <b>g729br8</b>—G.729 ANNEX-B 8,000 bps</li> <li>• <b>g729r8</b>—G.729 8000 bps</li> <li>• <b>gsmefr</b>—Global System for Mobile Communications Enhanced Full Rate (GSMEFR) 12,200 bps</li> <li>• <b>gsmfr</b>—Global System for Mobile Communications (GSM) Full Rate (GSMFR) 13,200 bps</li> <li>• <b>transparent</b>—Enables codec capabilities to be passed transparently between endpoints.</li> </ul>
<b>bytes</b>	(Optional) Specifies that the size of the voice frame is in bytes.
<i>payload-size</i>	(Optional) Number of bytes you specify as the voice payload of each frame. Values depend on the codec type and the packet voice protocol.

**Defaults** No default behavior or values

**Command Modes** Voice-class configuration

**Command History**

Release	Modification
12.0(2)XH	This command was introduced on the Cisco AS5300.
12.0(7)T	This command was implemented on the Cisco 2600 series and Cisco 3600 series.
12.0(7)XK	This command was implemented on the Cisco MC3810.
12.1(2)T	This command integrated into Cisco Release IOS 12.1(2)T.
12.1(5)T	The codecs <b>gsmefr</b> and <b>gsmfr</b> were added.
12.2(13)T3	The <b>transparent</b> keyword was added.

**Usage Guidelines**

The routers at opposite ends of the WAN may have to negotiate the codec selection for the network dial peers. The codec preference command specifies the order of preference for selecting a negotiated codec for the connection. [Table 15](#) describes the voice payload options and default values for the codecs and packet voice protocols.

**Table 15 Voice Payload-per-Frame Options and Defaults**

Codec	Protocol	Voice Payload Options (in bytes)	Default Voice Payload (in bytes)
<b>g711alaw</b> <b>g711ulaw</b>	VoIP VoFR VoATM	80, 160 40 to 240 in multiples of 40 40 to 240 in multiples of 40	160 240 240
<b>g723ar53</b> <b>g723r53</b>	VoIP VoFR VoATM	20 to 220 in multiples of 20 20 to 240 in multiples of 20 20 to 240 in multiples of 20	20 20 20
<b>g723ar63</b> <b>g723r63</b>	VoIP VoFR VoATM	24 to 216 in multiples of 24 24 to 240 in multiples of 24 24 to 240 in multiples of 24	24 24 24
<b>g726r16</b>	VoIP VoFR VoATM	20 to 220 in multiples of 20 10 to 240 in multiples of 10 10 to 240 in multiples of 10	40 60 60
<b>g726r24</b>	VoIP VoFR VoATM	30 to 210 in multiples of 30 15 to 240 in multiples of 15 30 to 240 in multiples of 15	60 90 90
<b>g726r32</b>	VoIP VoFR VoATM	40 to 200 in multiples of 40 20 to 240 in multiples of 20 40 to 240 in multiples of 20	80 120 120
<b>g728</b>	VoIP VoFR VoATM	10 to 230 in multiples of 10 10 to 240 in multiples of 10 10 to 240 in multiples of 10	40 60 60
<b>g729abr8</b> <b>g729ar8</b> <b>g729br8</b> <b>g729r8</b>	VoIP VoFR VoATM	10 to 230 in multiples of 10 10 to 240 in multiples of 10 10 to 240 in multiples of 10	20 30 30

SIP gateways do not support a codec preference order with H.323 signaling; all codecs listed are given equal preference. Specifically, they do not prefer g729r8 over g729br8 if both are defined.

**Examples**

The following example creates codec preference list 99 and applies it to dial peer 1919:

```
voice class codec 99
codec preference 1 g711alaw
codec preference 2 g711ulaw bytes 80
codec preference 3 g723ar53
codec preference 4 g723ar63 bytes 144
codec preference 5 g723r53
codec preference 6 g723r63 bytes 120
codec preference 7 g726r16
codec preference 8 g726r24
codec preference 9 g726r32 bytes 80
codec preference 10 g729br8
codec preference 11 g729r8 bytes 50
codec preference 12 gsmefr
end
dial-peer voice 1919 voip
 voice-class codec 99
```

The following example configures the transparent codec used by the Cisco Multiservice IP-to-IP Gateway:

```
voice class codec 99
codec preference 1 transparent

codec preference 1 transparent
```



**Note** You can only assign a preference value of 1 to the transparent codec. Additional codecs assigned to other preference values are ignored if the transparent codec is used.

**Related Commands**

Command	Description
<b>voice class codec</b>	Enters voice-class configuration mode and assigns an identification tag number to a codec voice class.
<b>voice-class codec (dial peer)</b>	Assigns a previously configured codec selection preference list to a dial peer.

