script activation

To specify that a chat script start on a physical terminal line any time the line is activated, use the **script activation** command in line configuration mode. To disable this feature, use the **no** form of this command.

script activation *regular-expression*

no script activation

Syntax Description

regular-expression	Regular expression that specifies the set of modem scripts that might be executed. The first script name that matches the *regular-expression* argument will be used.

Command Default Not assigned to terminal lines

Command Modes Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

This command provides an asynchronous handshake to a user or device that activates the line. It can be activated by several events, such as a user issuing a carriage return on a vacant line, by a modem on the line sensing an incoming carrier, or an asynchronous device (such as another router) sending data. Each time an EXEC session is started on a line, the system checks to see if a **script activation** command is configured on the line. If so, and the *regular-expression* argument (a regular expression) matches an existing chat script name, the matched script is run on the line. For information about regular expressions, see the appendix "Regular Expressions" in the *Cisco IOS Dial Technologies Configuration Guide*.

The **script activation** command can mimic a login handshake of another system. For example, a system that dials into a line on a router and expects an IBM mainframe login handshake can be satisfied with an appropriate activation script.

This command also can send strings to asynchronous devices that are connecting or dialing into a router.

The **script activation** command functions only on physical terminal (tty) lines. It does not function on virtual terminal lines.

Examples

The following example specifies that the chat script with a name that includes "telebit" will be activated whenever line 4 is activated:

```
line 4
 script activation telebit
```

Related Commands

Command	Description
chat-script	Places calls over a modem and logs in to remote systems.
dialer map	Configures a serial interface or ISDN interface to call one or multiple sites or to receive calls from multiple sites.
script connection	Specifies that a chat script start on a physical terminal line when a remote network connection is made to a line.
script dialer	Specifies a default modem chat script.
script reset	Specifies that a chat script start on a physical terminal line when the specified line is reset.
script startup	Specifies that a chat script start on a physical terminal line when the router is powered up.
start-chat	Specifies that a chat script start on a specified line at any point.

script arap-callback

To specify that a chat script start on a line any time an AppleTalk Remote Access (ARA) client requests a callback, use the **script arap-callback** command in line configuration mode. To disable this feature, use the **no** form of this command.

script arap-callback *regular-expression*

no script arap-callback

Syntax Description

regular-expression	Regular expression that specifies the set of modem scripts that might be executed. The first script name that matches the *regular-expression* argument is used.

Command Default

Not assigned to terminal lines

Command Modes

Line configuration

Command History

Release	Modification
11.1	This command was introduced.

Usage Guidelines

This command specifies that if an originating ARA client requests callback, the device will be disconnected and the chat script defined by the *regular-expression* argument will be executed to call back the client. The first available line specified for callback, and for which a chat script has been applied, will be used for the callback.

Create a chat script using the **chat script** command. The **script arap-callback** command functions only on physical terminal (tty) lines. It does not function on virtual terminal lines.

Examples

The following example specifies that a chat script with a name that includes *usr4* will be activated whenever a client requests a callback on line 4:

```
line 4
 script arap-callback usr4
```

Related Commands

Command	Description
chat-script	Places calls over a modem and logs in to remote systems.
script activation	Specifies that a chat script start on a physical terminal line when the line is activated.
script callback	Specifies that a chat script start on a line when a client requests a callback.
script connection	Specifies that a chat script start on a physical terminal line when a remote network connection is made to a line.

Command	Description
script dialer	Specifies a default modem chat script.
script reset	Specifies that a chat script start on a physical terminal line when the specified line is reset.
script startup	Specifies that a chat script start on a physical terminal line when the router is powered up.
chat-script	Places calls over a modem and logs in to remote systems.

script callback

To specify that a chat script start on a line any time a client requests a callback, use the **script callback** command in line configuration mode. To disable this feature, use the **no** form of this command.

script callback *regular-expression*

no script callback

Syntax Description

regular-expression	Regular expression that specifies the set of modem scripts that might be executed. The first script name that matches the *regular-expression* argument is used.

Command Default

Not assigned to terminal lines

Command Modes

Line configuration

Command History

Release	Modification
11.1	This command was introduced.

Usage Guidelines

This command specifies that if an originating client requests callback, the device will be disconnected and the chat script defined by the *regular-expression* argument will be executed to call back the client. The first available line specified for callback, and for which a chat script has been applied, will be used for the callback. Regular expression characters and strings are described in the appendix "Regular Expressions" at the end of the *Cisco IOS Dial Technologies Configuration Guide*.

Create a chat script using the **chat script** command.

The **script callback** command functions only on physical terminal (tty) lines. It does not function on virtual terminal lines.

Examples

The following example specifies that the chat script with a name that includes supra4 will be activated whenever a client requests a callback on line 4:

```
line 4
 script callback supra4
```

Related Commands

Command	Description
chat-script	Places calls over a modem and logs in to remote systems.
script activation	Specifies that a chat script start on a physical terminal line when the line is activated.
script connection	Specifies that a chat script start on a physical terminal line when a remote network connection is made to a line.

Command	Description
script dialer	Specifies a default modem chat script.
script reset	Specifies that a chat script start on a physical terminal line when the specified line is reset.
script startup	Specifies that a chat script start on a physical terminal line when the router is powered up.
start-chat	Specifies that a chat script start on a specified line at any point.

service alignment

To configure service alignment issue detection and logging functionality, use the **service alignment** command in global configuration mode. To disable the service alignment configuration, use the **no** form of this command.

service alignment {**detection** | **logging**}

no service alignment {**detection** | **logging**}

Syntax Description

detection	Enables detection of the alignment issues.
logging	Enables logging of the alignment issues.

Command Default

The service alignment issue detection and logging functionality is not configured.

Command Modes

Global configuration (config)

Command History

Release	Modification
15.0(1)M	This command was introduced in a release earlier than Cisco IOS Release 15.0(1)M.

Usage Guidelines

Alignment Errors

Alignment errors are caused by misaligned reads and writes. For example, a two-byte read where the memory address is not an even multiple of two bytes is an alignment error. Alignment errors are caused by a software defect.

Alignment errors are reported in the system log and recorded by the router. Output from the **show alignment** command provides a record of these errors along with potentially useful traceback information. The traceback information for alignment errors can generally be decoded to reveal the function causing the alignment problems.

Spurious Memory Access Errors

Spurious memory access errors occur when a software process attempts to access memory in a restricted location. A read operation to this region of memory is usually caused when a nonexisting value is returned to a function in the software, or in other words, when a null pointer is passed to a function.

Spurious memory access errors are counted and recorded by the software. This information is displayed with the **show alignment** command.

Examples

The following example shows how to enable service alignment detection and logging:

```
Router# configure terminal
Router(config)# service alignment detection
Router(config)# service alignment logging
```

Related Commands

Command	Description
show alignment	Displays alignment errors and spurious memory access errors.

show cellular gps

To display a summary of GPS data, use the **show cellular gps** command in privileged EXEC mode.

show cellular *unit* **gps**

Syntax Description

unit	EHWIC Router slot, WIC slot, and port separated by slashes (for example, 0/1/0. For a fixed platform, the number is 0.

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS Release 15.3(3)M	This command was introduced.

Usage Guidelines

Displays a summary of the following GPS data:

- GPS state and mode information (enabled/disabled)
- GPS tracking state (fix available / searching / failed)
- NMEA stream state (enabled/disabled)
- GPS location and timestamp information
- GPS satellite information (up to 12 satellites)

Examples

The following example shows summary GPS information for the device:

```
Device# show cellular 0 gps
GPS Info
-------------
GPS State: GPS enabled
GPS Mode Configured: standalone
Latitude: 37 Deg 24 Min 59 Sec North
Longitude: 121 Deg 55 Min 8 Sec West
Timestamp (GMT): Thu Jul 29 11:08:39 2010
Fix type: 3D, Height: -6 m
Heading: 408, Velocity Horiz: 3, Velocity Vert: 0
Satellite Info
----------------
```

Related Commands

Command	Description
debug cellular messages nmea	Debug GPS and NMEA management messages.
lte gps mode standalone	Enables standalone GPS mode.
lte gps nmea	Enables NMEA streaming.

show cellular sms

To display all information from SMS text messages that are sent and received on the modem, use the **show cellular sms** command in privileged EXEC mode.

show cellular *unit* **sms**

Syntax Description

unit	EHWIC Router slot, WIC slot, and port separated by slashes (for example, 0/1/0. For a fixed platform, the number is 0.

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS Release 15.3(3)M	This command was introduced.

Usage Guidelines

Message information includes text messages sent successfully, received, archived, and messages still pending to be sent. LTE specific information on errors in case of a FAILED attempt can also be displayed.

Examples

The following example shows incoming and outgoing SMS messaging data and statistics:

```
Device# show cellular 0/0/0 sms
Incoming Message Information
----------------------------
SMS stored in modem = 20
SMS archived since booting up = 0
Total SMS deleted since booting up = 0
Storage records allocated = 25
Storage records used = 20
Number of callbacks triggered by SMS = 0
Number of successful archive since booting up = 0
Number of failed archive since booting up = 0

Outgoing Message Information
----------------------------
Total SMS sent successfully = 0
Total SMS send failure = 0
Number of outgoing SMS pending = 0
Number of successful archive since booting up = 0
Number of failed archive since booting up = 0
Last Outgoing SMS Status = SUCCESS
Copy-to-SIM Status =     0x0
Send-to-Network Status = 0x0
Report-Outgoing-Message-Number:
  Reference Number =     0
  Result Code =          0x0
  Diag Code =            0x0 0x0 0x0 0x0 0x0

SMS Archive URL = ftp://lab:lab@10.3.150.1/outbox
```

Related Commands

Command	Description
cellular lte sms delete	Deletes one or all message IDs from memory.
cellular lte sms send	Enables a user to send a 4G LTE band SMS message to other valid recipients.
cellular lte sms view summary	Displays the message contents of incoming texts received by a modem.
debug cellular messages sms	Debug SMS data path errors received on the modem.
lte sms archive path	Specifies an FTP server folder path to send all incoming and outgoing SMS messages.

show caller

To display caller information, use the **show caller** command in user EXEC or privileged EXEC mode.

show caller [[[**interface** *interface-type interface-number* | **line** {[*line-modem-options*] *number* [*end-number*]}] [**full** | **timeouts**]] | [**summary** | **user** *name* [**detailed**]]]

Syntax Description

interface	(Optional) Displays a summary of caller information for the specified interface. • *interface-type*—Interface type for which to display caller information. • *interface-number*—Number of the interface for which caller information will be displayed. Valid values for the *interface-number* argument vary depending on the interface type and platform.
line	(Optional) Displays a summary of caller information for the specified line(s) or by line or modem options. • *number* [*end-number*]—Line number for which caller information will be displayed. Specifying a value for the optional *end-number* argument results in caller information being displayed for a range of line numbers. Valid values for the *number* [*end-number*] arguments vary depending on the platform. • *line-modem-options*—Type of line or modem option for which caller information will be displayed. Valid values for the *line-modem-options* argument are as follows: – **aux** *line-number*—Auxiliary line. – **console** *line-number*—Primary terminal line. – **tty** *line-number*—Terminal controller. – **v110**—V.110 modem. – **vty** *line-number*—Virtual terminal line. – *x*/*y*—Internal modem slot/port number.
full	(Optional) Provides expanded caller information and displays the total number of input and output packets on the virtual-access interface associated with a particular session.
timeouts	(Optional) Displays session and idle limits and disconnect time.
summary	(Optional) Displays total users logged, total ISDN users, total analog users, and total external signaling analog and digital calls since the last **reload** command was entered.
user *name*	(Optional) Displays a summary of caller information for the specified username. **detailed**—(Optional) Provides expanded information about the username.

Command Modes

User EXEC (>)
Privileged EXEC (#))

Command History

Release	Modification
11.3(5)AA	This command was introduced.
12.1(3)T	This command was modified. The **summary** keyword was added.
12.3(6)	This command was enhanced to display information about external signaling calls.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
Cisco IOS XE Release 2.4	This command was integrated into Cisco IOS XE Release 2.4.
15.0(1)M	This command was modified. The **full** keyword was modified to display the details of the virtual-access interface and virtual call details of users associated with the virtual-access interface.

Usage Guidelines

The **show caller** command is used to:

- Display individual users and consumed resources on the network access server (NAS).
- Inspect active call statistics for large pools of connections. (Debugging commands produce too much output and tax the CPU too heavily.)
- Display the absolute and idle times for each user. The current values for both of these settings are displayed on the TTY line and the asynchronous interface. Users that have been idle for unacceptably long periods of time can be easily identified. By using this information, you can define timeout policies and multiple grades of services for different users.

In Multilink PPP (MLP) calls, if the MLP bundle is created on the remote home gateway, the total of unique users displayed by the **show caller summary** command is the same as the number of active B-channel calls. This is because the gateway does not know about the MLP bundle created on the other side. You can configure output modifiers for each option type of the **show caller** command.

Examples

The following example shows the caller information:

```
Router# show caller

Line      User                  Service       Active
  con 0     -                     TTY           00:08:21
  BR0:1     hatteras              PPP           00:00:14
  Vi1       hatteras              PPP   Bundle  00:00:13
```

The following example displays expanded information about the username. The output is self-explanatory.

```
Router# show caller user user_01@domain_3 detailed

User: user_01@domain_3, line Vi2.1, service PPPoE
        Connected for 01:24:59
  Timeouts:    Limit     Remaining Timer Type
               -         -         -
  PPP: LCP Open, CHAP (<-), IPCP
  NCP: Open IPCP
Vi2.1 LCP: [Open]
Our Negotiated Options
Vi2.1 LCP:    MRU 1492 (0x010405D4)
Vi2.1 LCP:    AuthProto CHAP (0x0305C22305)
Vi2.1 LCP:    MagicNumber 0x21F4CD31 (0x050621F4CD31)
Peer's Negotiated Options
```

```
Vi2.1 LCP:    MRU 1492 (0x010405D4)
Vi2.1 LCP:    MagicNumber 0x4A51A20E (0x05064A51A20E)
Vi2.1 IPCP: [Open]
Our Negotiated Options
Vi2.1 IPCP:    Address 10.0.0.1 (0x03060A000001)
Peer's Negotiated Options
Vi2.1 IPCP:    Address 12.0.0.1 (0x03060C000001)
  IP: Local 10.0.0.1, remote 12.0.0.1
  Counts: 1006 packets input, 72112 bytes
          2007 packets output, 168115 bytes
```

The following examples display details of the virtual-access interface and virtual call details of users associated with the virtual-access interface. The example also displays the total number of input and output packets on the virtual-access interface associated with a particular session. The output is self-explanatory.

```
Router# show caller user user_01@domain_3 full

User: user_01@domain_3, line Vi2.1, service PPPoE
        Connected for 01:25:05
  Timeouts:    Limit     Remaining Timer Type
               -         -         -
PPPoE Bound to ATM2/0/0.1 VCD: 4942, VPI: 42, VCI: 117
     121 packets input, 7173 bytes
     129 packets output, 12076 bytes
VCD: 4942 VBR-NRT, PeakRate: 1184, Average Rate: 1184, Burst Cells: 1
VCD: 4942 AAL5-LLC/SNAP, etype:0x0, Flags: 0x10000020, VCmode: 0x0
VCD: 4942 OAM frequency: 0 second(s)
VCD: 4942 InARP frequency: 15 minutes(s)
VCD: 4942 High Watermark: 512, Low Watermark: 256
VCD: 4942 InPkts: 116, OutPkts: 124, InBytes: 10887, OutBytes: 16004
VCD: 4942 InPRoc: 23, OutPRoc: 2, Broadcasts: 0
VCD: 4942 InFast: 0, OutFast: 0
VCD: 4942 InPktDrops: 0, OutPktDrops: 0
VCD: 4942 Out CLP=1 Pkts: 0
VCD: 4942 OAM cells received: 0
VCD: 4942 OAM cells sent: 0
VCD: 4942 Status: UPs

Router# show caller user user_01@domain_3

User: user_01@domain_3, line Vi2.1, service PPPoE
        Connected for 01:25:08
  Timeouts:    Limit     Remaining Timer Type
               -         -         -
  PPP: LCP Open, CHAP (<-), IPCP
  IP: Local 10.0.0.1, remote 12.0.0.1
  Counts: 1006 packets input, 72112 bytes
          2007 packets output, 168115 bytes
```

Each display from the **show caller** command is self-explanatory. See the “Usage Guidelines” section for more information.

script connection

To specify that a chat script will start on a physical terminal line any time a remote network connection is made to a line, use the **script connection** command in line configuration mode. To disable this feature, use the **no** form of this command.

script connection *regular-expression*

no script connection

Syntax Description

regular-expression	Set of modem scripts that can be executed. The first script name that matches the *regular-expression* argument will be used.

Command Default

Not assigned to terminal lines

Command Modes

Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

This command provides modem dialing commands and commands for logging onto remote systems. The **script connection** command functions only on physical terminal (tty) lines. It does not function on virtual terminal lines.

This command can be used to initialize an asynchronous device sitting on a line to which a reverse network connection is made.

For information about regular expressions, see the appendix “Regular Expressions” in the *Cisco IOS Dial Technologies Configuration Guide*.

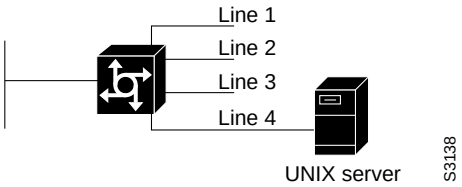
Examples

The following example specifies that the chat script with a name that includes “inband” will be activated whenever a remote connection to line 4 is established. The router can send a login string and password to the UNIX server when a network tunneling connection comes into line 4:

```
line 4
 script connection inband
```

Using this example and the topology in Figure 1, the access server or router can send a login string and password to the UNIX server when a network tunneling connection comes into line 4.

Figure 1 Network Tunneling Connection on an Asynchronous Line



Related Commands

Command	Description
chat-script	Places calls over a modem and logs in to remote systems.
dialer map	Configures a serial interface or ISDN interface to call one or multiple sites or to receive calls from multiple sites.
script activation	Specifies that a chat script start on a physical terminal line when the line is activated.
script dialer	Specifies a default modem chat script.
script reset	Specifies that a chat script start on a physical terminal line when the specified line is reset.
script startup	Specifies that a chat script start on a physical terminal line when the router is powered up.
start-chat	Specifies that a chat script start on a specified line at any point.

script dialer

To specify a default modem chat script, use the **script dialer** command in line configuration mode. To disable this feature, use the **no** form of this command.

script dialer *regular-expression*

no script dialer

Syntax Description

regular-expression	Set of modem scripts that can be executed. The first script that matches the *regular-expression* argument will be used.

Command Default No chat script is defined.

Command Modes Line configuration

Command History

Release	Modification
10.3	This command was introduced.

Usage Guidelines This command is used by DDR modules to provide modem dialing commands and commands to log in to remote systems.

The *regular-expression* argument is used to specify the name of the modem script that is to be executed. The first script that matches the argument in this command and the **dialer map** command will be used. For information about regular expressions, see the appendix "Regular Expressions" in the *Cisco IOS Dial Technologies Configuration Guide*.

If you adhere to the naming convention recommended for chat scripts (see the **chat-script** command), the modem lines (the *regular-expression* argument in the **script dialer** command) will be set to one of the following regular expressions to match patterns, depending on the kind of modem you have:

- **codex-.***
- **telebit-.***
- **usr-.***
- **xyz-.***

In the **dialer map** command, you can specify the modulation but leave the type of modem unspecified, as in *.*-v32bis*.

Examples The following example shows line chat scripts being specified for lines connected to Telebit and US Robotics modems:

```
! Some lines have telebit modems
line 1 6
script dialer telebit.*
```

```
!
! Some lines have US robotics modems
line 7 12
script dialer usr.*
```

Related Commands

Command	Description
chat-script	Places calls over a modem and logs in to remote systems.
dialer map	Configures a serial interface or ISDN interface to call one or multiple sites or to receive calls from multiple sites.
script activation	Specifies that a chat script start on a physical terminal line when the line is activated.
script connection	Specifies that a chat script start on a physical terminal line when a remote network connection is made to a line.
script reset	Specifies that a chat script start on a physical terminal line when the specified line is reset.
script startup	Specifies that a chat script start on a physical terminal line when the router is powered up.
start-chat	Specifies that a chat script start on a specified line at any point.

script reset

To specify that a chat script will start on a physical terminal line any time the specified line is reset, use the **script reset** command in line configuration mode. To disable this feature, use the **no** form of this command.

script reset *regular-expression*

no script reset

Syntax Description

regular-expression	Set of modem scripts that might be executed. The first script name that matches the *regular-expression* argument will be used.

Command Default Not assigned to terminal lines.

Command Modes Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines Chat scripts provide modem dialing commands and commands for logging onto remote systems. Use this command to reset a modem attached to a line every time a call is dropped.

The **script reset** command functions only on physical terminal (tty) lines. It does not function on virtual terminal lines.

For information about regular expressions, see the appendix “Regular Expressions” in the *Cisco IOS Dial Technologies Configuration Guide*.

Examples The following example specifies that any chat script name with the word “linebackup” in it will be activated any time line 7 is reset:

```
line 7
 script reset linebackup
```

The following example resets a modem sitting on a line each time a call is dropped:

```
chat-script drop-line ""+++"" " " ATH OK "ATS0=1" OK "ATS9=21"
line 4
 script reset drop-line
```

Related Commands

Command	Description
chat-script	Places calls over a modem and logs in to remote systems.
dialer map	Configures a serial interface or ISDN interface to call one or multiple sites or to receive calls from multiple sites.
script activation	Specifies that a chat script start on a physical terminal line when the line is activated.
script connection	Specifies that a chat script start on a physical terminal line when a remote network connection is made to a line.
script dialer	Specifies a default modem chat script.
script startup	Specifies that a chat script start on a physical terminal line when the router is powered up.
start-chat	Specifies that a chat script start on a specified line at any point.

script startup

To specify that a chat script will start on a physical terminal line any time the router is powered up, use the **script startup** command in line configuration mode. To disable this feature, use the **no** form of this command.

script startup *regular-expression*

no script startup

Syntax Description

regular-expression	Set of modem scripts that might be executed. The first script that matches the *regular-expression* argument will be used.

Command Default

Not assigned to terminal lines

Command Modes

Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

Use this command to initialize asynchronous devices connected to a line when the router is started up or reloaded. You can also use it to start up a banner other than the default banner on lines. The **script startup** command functions only on physical terminal (tty) lines. It does not function on virtual terminal lines.

For information about regular expressions, see the appendix "Regular Expressions" in the *Cisco IOS Dial Technologies Configuration Guide*.

Examples

The following example specifies that a chat script with the word "linestart" in its name will be activated whenever line 5 is started up:

```
line 5
 script startup linestart
```

Related Commands

Command	Description
chat-script	Places calls over a modem and logs in to remote systems.
dialer map	Configures a serial interface or ISDN interface to call one or multiple sites or to receive calls from multiple sites.
script activation	Specifies that a chat script start on a physical terminal line when the line is activated.
script connection	Specifies that a chat script start on a physical terminal line when a remote network connection is made to a line.

Command	Description
script dialer	Specifies a default modem chat script.
script reset	Specifies that a chat script start on a physical terminal line when the specified line is reset.
start-chat	Specifies that a chat script start on a specified line at any point.

set ip next-hop dynamic dhcp

To set the next hop to the gateway that was most recently learned by the Dynamic Host Configuration Protocol (DHCP) client, use the **set ip next-hop dynamic dhcp** command in route-map configuration mode. To restore the default setting, use the **no** form of this command.

set ip next-hop dynamic dhcp

no set ip next-hop dynamic dhcp

Syntax Description

This command has no arguments or keywords.

Command Default

This command is disabled by default.

Command Modes

Route-map configuration (config-router)

Command History

Release	Modification
12.3(2)XE	This command was introduced.
12.3(8)T	This command was integrated into Cisco IOS Release 12.3(8)T.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE.
15.0(1)M	This command was integrated into Cisco IOS Release 15.0(1)M.

Usage Guidelines

The **set ip next-hop dynamic dhcp** command supports only a single DHCP interface. If multiple interfaces have DHCP configured, the gateway that was most recently learned among all interfaces running DHCP will be used by the route map.

Examples

The following example shows how to configure a local routing policy that sets the next hop to the gateway that was most recently learned by the DHCP client:

```
access list 101 permit icmp any host 172.16.23.7 echo
route map MY-LOCAL-POLICY permit 10
 match ip address 101
 set ip next-hop dynamic dhcp
!
ip local policy route-map MY-LOCAL-POLICY
```

Related Commands

Command	Description
access list (IP extended)	Defines an extended IP access list.

sgbp dial-bids

To allow the stack group to bid for dialout connection, use the **sgbp dial-bids** command in global configuration mode. To disable this function, use the **no** form of this command.

sgbp dial-bids

no sgbp dial-bids

Syntax Description

This command has no arguments or keywords.

Command Default

The stack group bid function is disabled by default.

Command Modes

Global configuration

Command History

Release	Modification
12.0(3)T	This command was introduced.

Examples

The following example shows how to configure a stack group for large-scale dialout:

```
sgbp group forever
sgbp member NAS2 172.21.17.17
sgbp dial-bids
```

Related Commands

Command	Description
dialer congestion-threshold	Specifies congestion threshold in connected links.
dialer reserved-links	Reserves links for dialin and dialout.
sgbp group	Defines a named stack group and makes this router a member of that stack group.
sgbp member	Specifies the hostname and IP address of a router or access server that is a peer member of a stack group.

sgbp group

To define a named stack group and make this router a member of that stack group, use the **sgbp group** command in global configuration mode. To remove the definition, use the **no** form of this command.

sgbp group *name*

no sgbp group

Syntax Description

name	Name of the stack group the system belongs to.

Command Default Disabled. No stack group name is provided.

Command Modes Global configuration

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines Define the same stack group name across all the stack members.

Examples The following example makes this system a member of the stack group named “stackq”:

```
sgbp group stackq
```

Related Commands

Command	Description
sgbp member	Specifies the host name and IP address of a router or access server that is a peer member of a stack group.
sgbp seed-bid	Sets the bidding level that a stack group member can be used to bid for a bundle.

sgbp member

To specify the hostname and IP address of a router or access server that is a peer member of a stack group, use the **sgbp member** command in global configuration mode. To remove the member association, use the **no** form of this command.

sgbp member *peer-name* [*peer-ip-address*]

no sgbp member *peer-name*

Syntax Description

peer-name	Hostname of the peer member.
peer-ip-address	(Optional) IP address of the peer member. If the domain name system (DNS) can perform a lookup on the *peer-name* value, the IP address is not required. Otherwise, it must be specified.

Defaults

Disabled. When enabled, names and IP addresses of peer routers or access servers in the stack group are not provided.

Command Modes

Global configuration (config)

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

Use this command to specify the names of peer hosts (other hosts, not the one being configured) in the specified stack group after you have entered the **sgbp dial-bids** command.

Note In Cisco IOS Release 15.1T and later releases, you cannot configure the peer hosts with invalid IP host addresses such as 0.0.0.0, 255.255.255.255, and so on..

Examples

The following example shows how to configure the current router to recognize the three routers (west, east, and south) as peer members of the stack group named mystackgroup:

```
sgbp group mystackgroup
sgbp member west 10.69.5.2
sgbp member east 172.16.6.3
sgbp member south 192.168.15.4
```

Related Commands

Command	Description
sgbp dial-bids	Defines a named stack group and makes this router a member of that stack group.
sgbp seed-bid	Sets the bidding level that a stack group member can be used to bid for a bundle.

sgbp ppp-forward

To enable forwarding of PPP calls—in addition to Multilink PPP (MLP) calls—to the winner of the Stack Group Bidding Protocol (SGBP) bid, use the **sgbp ppp-forward** command in global configuration mode. To return to the default state, use the **no** form of this command.

sgbp ppp-forward

no sgbp ppp-forward

Syntax Description

This command has no arguments or keywords.

Defaults

Only Multilink PPP calls are forwarded.

Command Modes

Global configuration

Command History

Release	Modification
11.3	This command was introduced.

Usage Guidelines

When this command is enabled, both PPP and Multilink PPP calls are projected to the winner of the SGBP bid.

Examples

The following partial example enables forwarding of PPP calls, as well as MLP calls, to the winner of the SGBP bidding:

```
sgbp ppp-forward
```

Related Commands

Command	Description
sgbp member	Specifies the host name and IP address of a router or access server that is a peer member of a stack group.
sgbp seed-bid	Sets the bidding level that a stack group member can be used to bid for a bundle.

sgbp protocol

To set a specific tunneling protocol to use for Stack Group Bidding Protocol (SGBP), use the **sgbp protocol** command in global configuration mode. To change this command back to its default, use the **no** form of this command.

sgbp protocol {**any** | **l2f** | **l2tp**}

no sgbp protocol

Syntax Description

any	Negotiates which tunneling protocol to use. There is a preference for L2TP if both devices support it. This is the default.
l2f	Uses Layer 2 Forwarding (L2F) as the tunneling protocol.
l2tp	Uses Layer 2 Tunneling Protocol (L2TP) as the tunneling protocol.

Command Default

The **any** keyword is the default, which allows L2TP and L2F to be offered by a stack group member when bidding on a call, and allows bids with either L2TP or L2F to be accepted by the stack group member on which the call arrived.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(4)T	This command was introduced.
12.4(11)T	The **l2f** keyword was removed.

Usage Guidelines

This command is needed when both routers support both L2F and L2TP, but there is a preference that L2F be used between the stack group members instead of L2TP.

Note When two routers are trying to create a protocol-specific tunnel and each is explicitly set with different protocols—for example, one router is explicitly set for L2TP and the other is explicitly set for L2F—they will not be able to create the tunnel, and communication will fail.

Examples

The following example shows how to configure a stack group for large-scale dialout and set L2F as the tunneling protocol:

```
sgbp group forever
sgbp member NAS2 172.21.17.17
sgbp dial-bids
sgbp protocol l2f
```

Related Commands

Command	Description
sgbp group	Defines a named stack group and makes this router a member of that stack group.
sgbp member	Specifies the host name and IP address of a router or access server that is a peer member of a stack group.
sgbp seed-bid	Sets the bidding level that a stack group member can be bid with for a bundle.

sgbp seed-bid

To set the bidding level that a stack group member can bid with for a bundle, use the **sgbp seed-bid** command in global configuration mode. To return to the default state, use the **no** form of this command.

sgbp seed-bid {**default** | **offload** | **forward-only** | *bid*}

no sgbp ppp-forward

Syntax Description

default	If set across all members of a stack group, indicates that the member which receives the first call for a certain user always wins the bid and hosts the master bundle interface. All subsequent calls to the same user received by another stack group member will *project* to this stackgroup member. This is the default.
offload	Indicates that this router is a relatively higher powered stack group member, is to function as an offload server, and host the master bundle interface.
forward-only	Indicates that this router or access server is to forward calls to another system and never wins the bid to host a master interface. This router or access server should hang up—instead of answering a call—if all the offload servers are down.
bid	Bid level, an integer in the range 0 through 9999.

Command Default

The **default** keyword; no bid-level integer value is set.

Command Modes

Global configuration

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

In the case of equivalent stack group members stacked to receive calls in a rotary group across multiple PRIs, use the **sgbp seed-bid default** command across all stack members. The stack member that receives the first call for a certain user always wins the bid and hosts the master bundle interface. All subsequent calls to the same user received by another stack member will project to this stack member. If the multiple calls come in concurrently over multiple stack members, the SGBP tie-breaking mechanism will break the tie.

To leverage the relative higher power of one stack member over another, you can set the designated stack member (of higher CPU power) as offload server with the **sgbp seed-bid offload command**. The bid that is sent is the precalibrated per-platform bid approximating the CPU power, minus the *bundle load.* In this case, the offload server hosts the master bundle. All calls from other stack members get projected to this stack member. One or more offload servers can be defined—if the bids are equal, the SGBP tie-breaking mechanism will break the tie.

The interfaces that received the calls are projected to the master bundle interface and are considered children of the master bundle interface for the call. See the output of the **show ppp multilink** command for an example of master bundle interface (shown as “Master link”) and the children of it.

You can also manually designate bid values with the **sgbp seed-bid** command. This value overrides the **default** or **offload** setting. The bid sent out is the user-configured value minus the *bundle load.* The *bundle load* is defined as the number of active bundles on the stack member. In effect, the more current active bundles on a router, the lower its bid for an additional bundle.

If you have assorted or exactly the same platforms and for some reason want to designate one or more as offload servers, you can *manually* set the bid value to be significantly higher than the rest. For example, you might use the **sgbp seed-bid 9999 command**. To determine the initial bid value associated with your particular platform**,** use the **show sgbp** command. This method allows you to manually designate the bid values when you have assorted platforms and want to designate one or more platforms as offload servers; for example, one Cisco 4700 (given the highest seed-bid), two Cisco 4000s and one Cisco 7000.

To check the bid value currently assigned on the system, use the **show sgbp queries** command.

Examples

The following example sets the SGBP bidding level to forward-only:

```
sgbp seed-bid forward-only
```

Related Commands

Command	Description
sgbp dial-bids	Defines a named stack group and makes this router a member of that stack group.
sgbp member	Specifies the host name and IP address of a router or access server that is a peer member of a stack group.
show ppp multilink	Displays bundle information for MLP bundles.
show sgbp	Displays the status of the stack group members.
show sgbp queries	Displays the current SGBP seed bid value.

sgbp source-ip

To specify the source IP address for a stack member that matches the locally defined IP address for the same stack member in the specified group, use the **sgbp source-ip** command in global configuration mode. To disable the configuration, use the **no** form of this command.

sgbp source-ip *source-ip-address*

no sgbp source-ip

Syntax for 12.4M and 12.2S Releases

sgbp source-ip *source-ip-address*

no sgbp source-ip *source-ip-address*

Syntax Description

source-ip-address	Source IP address of the stack member.

Defaults

The command is disabled by default.

Command Modes

Global configuration (config)

Command History

Release	Modification
11.2	This command was introduced.
12.2S	This command was modified. The *source-ip-address* argument was added to the **no** form of the command.
12.4M	This command was integrated into Cisco IOS Release 12.4M.
15.1T	This command was modified. The *source-ip-address* argument was removed from the **no** form of the command.

Usage Guidelines

Use this command to specify the source IP address for a stack member in the specified stack group after you have entered the **sgbp dial-bids** and the **sgbp group** commands. This source IP address must match the source IP address of the other stack members. This source IP address will be used in outgoing messages.

This command is used to override the IP address of the physical interface when sending Stack Group Bidding Protocol (SGBP) packets. Configuring the **no** form of the command removes the command, and the IP address of the physical interface is used when sending the traffic.

Note In Cisco IOS Release 15.1T and later releases, you cannot configure invalid IP host addresses such as 0.0.0.0, 255.255.255.255, and so on.

Examples

The following example shows how to specify the source IP address for a stack member:

```
sgbp group mystackgroup
sgbp source-ip 192.168.2.1
```

Related Commands

Command	Description
sgbp dial-bids	Allows the stack group to bid for dialout connection.
sgbp group	Defines a named stack group and makes this router a member of that stack group.

shelf-id

To change the shelf number assigned to the router shelf or dial shelf on the Cisco AS5800, use the **shelf-id** command in global configuration mode. To return the shelf numbers to the default value, use the **no** form of this command.

shelf-id *number* {**router-shelf** | **dial-shelf**}

no shelf-id *number*

Syntax Description

number	Number to assign to the shelf. Range is from 0 to 9999.
router-shelf	Specified number to the router shelf.
dial-shelf	Specified number to the dial shelf.

Command Default

The default shelf number for the router shelf is 0.

The default shelf number for the dial shelf is 1, or one number higher than the specified router shelf number.

Command Modes

Global configuration

Command History

Release	Modification
11.3(2)AA	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines

The shelf number is used to distinguish between cards on the router shelf and cards on the dial shelf.

Caution You must reload the Cisco AS5800 for the shelf number to take effect. The shelf numbers are part of the interface names. When you reload the Cisco AS5800, all NVRAM interface configuration information is lost.

You can specify the shelf number through the setup facility during initial configuration of the Cisco AS5800. This is the recommended method to specify shelf numbers.

To display the shelf numbers, use the **show running-config** command. If a shelf number has been changed, the pending change is shown in the output of the **show version** command (for example, the dial-shelf ID is 87; will change to 2 on reload).

Examples

In the following example, the dial shelf is assigned the number 456:

```
Router(config)# shelf-id 456 dial-shelf
Router(config)# exit
```

Related Commands

Command	Description
show version	Displays the configuration of the system hardware, the software version, the names and sources of configuration files, and the boot images.

show async status

To display the status of activity on all lines configured for asynchronous support, use the **show async status** command in privileged EXEC mode.

show async status

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

The display resulting from this command shows all asynchronous sessions, whether they are using Serial Line Internet Protocol (SLIP) or PPP encapsulation.

Examples

The following is sample output from the **show async status** command:

```
Router# show async status

Async protocol statistics:
  Rcvd: 5448 packets, 7682760 bytes
        1 format errors, 0 checksum errors, 0 overrun, 0 no buffer
  Sent: 5455 packets, 7682676 bytes, 0 dropped


 Tty           Local           Remote Qd InPack OutPac Inerr  Drops  MTU Qsz
   1     192.168.7.84         Dynamic  0      0      0     0      0 1500  10
*  3     192.168.7.98            None  0   5448   5455     1      0 1500  10
```

Table 1 describes the significant fields shown in the display.

Table 1 show async status Field Descriptions

Field	Description
Rcvd	Statistics on packets received.
5448 packets	Packets received.
7682760 bytes	Total number of bytes.
1 format errors	Spurious characters received when a packet start delimiter is expected.
0 checksum errors	Count of checksum errors.
0 overrun	Number of giants received.
0 no buffer	Number of packets received when no buffer was available.
Sent	Statistics on packets sent.

Table 1 show async status Field Descriptions (continued)

Field	Description
5455 packets	Packets sent.
7682676 bytes	Total number of bytes.
0 dropped	Number of packets dropped.
Tty	Line number.
*	Line currently in use.
Local	Local IP address on the link.
Remote	Remote IP address on the link; “Dynamic” indicates that a remote address is allowed but has not been specified; “None” indicates that no remote address is assigned or being used.
Qd	Number of packets on hold queue (Qsz is the maximum).
InPack	Number of packets received.
OutPac	Number of packets sent.
Inerr	Number of total input errors; sum of format errors, checksum errors, overruns and no buffers.
Drops	Number of packets received that would not fit on the hold queue.
MTU	Current maximum transmission unit size.
Qsz	Current output hold queue size.

show backup

To display interface backup status, use the **show backup** command in user EXEC or privileged EXEC mode.

show backup

Syntax Description

This command has no arguments or keywords.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.0	This command was introduced.
12.2(13)T	This command was enhanced to show primary and secondary interfaces configured as backup interfaces.
12.2(33)SRB1	This command was integrated into Cisco IOS Release 12.2(33)SRB1.

Usage Guidelines

Use the **show backup** command to display the status of backup interfaces. This command is especially useful when dual serial X.25 interfaces are configured as primary and backup in a telco data communication network (DCN).

In Cisco IOS Release 12.2(33)SRB1 and later releases, you can use the command to display the status of a backup Gigabit Ethernet interface on the Cisco 7600 series router.

Examples

The following example shows a typical display from the **show backup** command. The output is self-explanatory.

```
Router# show backup

Primary Interface   Secondary Interface   Status
-----------------   -------------------   ------
Serial0/0           Serial0/1             active backup
```

The following example shows a single backup interface on the Cisco 7600 router:

```
Router# show backup

Primary Interface     Secondary Interface    Status
-----------------     -------------------    ------
GigabitEthernet3/0/0  GigabitEthernet3/0/11  normal operation
```

Related Commands

Command	Description
backup active interface	Activates primary and backup lines on specific X.25 interfaces.
debug backup	Monitors the transitions of an interface going down then back up.

show busyout

To display the busyout status for a card on the dial shelf, use the **show busyout** command in privileged EXEC mode.

show busyout *shelf*[**/***slot*[**/***port*]]

Syntax Description		
	shelf[**/***slot*[**/***port*]]	Shelf number and, optionally for a specific report about a card, a slot and a port number; for example, 1/0/5. Commands entered without the slot or port number provide reports about all cards on the dial shelf. The forward slash (**/**) is required.

Command Modes Privileged EXEC

Command History	Release	Modification
	11.3(2)AA	This command was introduced.

Usage Guidelines Use the **busyout** EXEC command or the **ds0 busyout** controller command to configure modem busyout.

Examples The following is sample output from the **show busyout** command for a trunk card in slot 4 located in dial shelf 1, with busyout pending:

```
Router# show busyout 1/4

Controller t1 busyout status:
(s - static d - dynamic p - pending)
1/4/0  :ppppppppppppppppppppppp.
1/4/1  :sssssssssssssssssssss.
1/4/2  :ppppppppppppppppppppppp.
1/4/3  :ddddddddddddddddddddddd.
1/4/4  :ppppppppppppppppppppppp.
1/4/5  :ppppppppppppppppppppppp.
1/4/6  :ppppppppppppppppppppppp.
1/4/7  :sssssssssssssssssssss.
1/4/8  :ppppppppppppppppppppppp.
1/4/9  :ppppppppppppppppppppppp.
1/4/10 :ddddddddddddddddddddddd.
1/4/11 :ppppppppppppppppppppppp.
Router#
```

See Table 2 to further interpret the display.

The following is sample output from the **show busyout** command for a modem card in shelf 1, slot 9, and indicates the busyout is complete:

```
Router# show busyout 1/9

Slot 1/9: Busyout (no calls remaining)
```

The following is sample output from the **show busyout** command, the **busyout** command, the **ds0 busyout** command, and another **show busyout** command:

```
Router# show busyout 1/0

Controller t1 busyout status:
(s - static d - dynamic p - pending)
1/0/0  :ppppppppppppppppppppppp.
1/0/1  :ppppppppppppppppppppppp.
1/0/2  :ppppppppppppppppppppppp.
1/0/3  :ddddddddddddddddddddddd.
1/0/4  :ppppppppppppppppppppppp.
1/0/5  :ppppppppppppppppppppppp.
1/0/6  :ppppppppppppppppppppppp.
1/0/7  :sssssssssssssssssssss.
1/0/8  :ppppppppppppppppppppppp.
1/0/9  :ppppppppppppppppppppppp.
1/0/10 :ddddddddddddddddddddddd.
1/0/11 :ppppppppppppppppppppppp.


Router# configure terminal

Enter configuration commands, one per line. End with CNTL/Z.
Router (config)# controller t1 1/0/1
Router (config-controller)# busyout
Router (config-controller)# ds0 busyout 15-24
Router (config-controller)# end


Router# show busyout 1/0

Controller t1 busyout status:
(s - static d - dynamic p - pending)
1/0/0  :ppppppppppppppppppppppp.
1/0/1  :sssssssssssssssssssss.
1/0/2  :ppppppppppppppppppppppp.
1/0/3  :ddddddddddddddddddddddd.
1/0/4  :ppppppppppppppppppppppp.
1/0/5  :ppppppppppppppppppppppp.
1/0/6  :ppppppppppppppppppppppp.
1/0/7  :sssssssssssssssssssss.
1/0/8  :ppppppppppppppppppppppp.
1/0/9  :ppppppppppppppppppppppp.
1/0/10 :ddddddddddddddddddddddd.
1/0/11 :ppppppppppppppppppppppp.
```

Table 2 describes the significant fields shown in the **show busyout** displays.

Table 2 show busyout Field Descriptions

Field	Description
s - static	The channel is in an out-of-service state because of a **busyout** command.
d - dynamic	The channel is automatically put in an out-of-service state because of a preset and defined threshold. By default, this feature is disabled. This autobusyout function of the **modem busyout-threshold** global configuration command is used to define a threshold when you want to maintain a balance between the number of DS0s and modems.
p - pending	After you hang up, the established call is terminated because of a **busyout** command. After the call terminates, the DS0 is busied out.

Related Commands

Command	Description
busyout	Informs the central-office switch that a channel is out of service.
ds0 busyout (channel)	Forces a DS0 time slot on a controller into the busyout state.
modem busyout	Disables a modem from dialing or answering calls whereby the disabling action is not executed until the active modem returns to an idle state.
modem busyout-threshold	Maintains a balance between the number of DS0s and modems.
modem shutdown	Abruptly shuts down an active or idle modem installed in an access server or router.

show call calltracker active

To display all information stored within the Call Tracker active database for all active calls, use the **show call calltracker active** command in user EXEC or privileged EXEC mode.

show call calltracker active [**category** *call-type* | **service** *session-type*] [**reverse**]

Syntax Description

category	(Optional) Displays Call Tracker data for a specific type of call. The default is to display all calls, regardless of type. When the **category** keyword is specified with one of the values for the *call-type* argument, Call Tracker displays only calls whose records indicate that category.
call-type	(Optional) Call type for the calls stored within the Call Tracker active database table. Enter one of the following values: • **isdn**—Displays Call Tracker data for ISDN sync data calls. • **lapb-ta**—Displays Call Tracker data for Link Access Procedure, Balanced (LAPB) calls. • **modem**—Displays Call Tracker data for analog modem calls. • **other**—Displays Call Tracker data for other call categories. • **syncData**—Displays Call Tracker data for sync data calls for call control other than ISDN. • **v110**—Displays Call Tracker data for V.110 calls. • **v120**—Displays Call Tracker data for V.120 calls.
service	(Optional) Displays Call Tracker data with a filter restricting output based on the session type. When the **service** keyword is specified with one of the values for the *session-type* argument, Call Tracker displays only calls whose records indicate that session type.
session-type	(Optional) Session type for the calls stored within the Call Tracker active database table. Enter one of the following values: • **exec**—Displays Call Tracker data for EXEC sessions. • **l2f**—Displays Call Tracker data for Layer 2 Forwarding (L2F) sessions. • **l2tp**—Displays Call Tracker data for Layer 2 Tunnel Protocol (L2TP) sessions. • **mp**—Displays Call Tracker data for Multilink PPP (MLP) sessions. • **other**—Displays Call Tracker data for other sessions. • **ppp**—Displays Call Tracker data for PPP sessions. • **slip**—Displays Call Tracker data for Serial Line Internet Protocol (SLIP) sessions. • **tcpclear**—Displays Call Tracker data for TCP/Clear sessions. • **telnet**—Displays Call Tracker data for Telnet sessions.
reverse	(Optional) Displays Call Tracker data in inverted sorting order, from most recent to least recent.

Command Modes

User EXEC (>)
Privileged EXEC (#)

Command History

Release	Modification
12.1(2)XH	This command was introduced.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T.
12.2(2)XA	This command was implemented on the Cisco AS5350.
12.2(2)XB1	This command was integrated into Cisco IOS Release 12.2(2)XB1.
12.2(11)T	This command was modified. The **reverse** and **service** keywords were added.
12.3(7)YB	This command was modified. The signaling type field was added to the command output and the category field was modified to display V120, lapb, or syncData for autodetected calls.
12.4(6)T	This command was modified. Support for the signaling type field and the modified category field was added.

Usage Guidelines

Call Tracker is enabled by entering the **calltracker enable** command. If there is no call on the specified port, the information for the most recent call is displayed.

Issuing the **show call calltracker active** command displays all calls, regardless of type. The call history display can be filtered by call type or session type by issuing one of the optional keyword and argument pairs.

For all tabular forms of the **show call calltracker active** command, the sorting order may be inverted by using the **reverse** keyword to give most-recent to least-recent collation.

Examples

The following example shows all Call Tracker activity in reverse order, from most recent to least recent. The entries are sorted by call handle, from highest to lowest. The example is for an autodetected LAPB call.

```
Router# show call calltracker active reverse

------------------------- call handle=        16 --------------------------
status=Active, service=PPP, origin=Answer, category=lapb,
DS0 slot/port/ds1/chan=1/0/0/22, called=5555, calling=(n/a)
userid=user1, ip=10.1.1.50, mask=0.0.0.0
setup=11/12/2000 20:30:50, conn=0.02, phys=0.12, service=0.78, authen=0.75
init rx/tx b-rate=64000/64000, rx/tx chars=2746/2719
resource slot/port=(n/a)/(n/a), mp bundle=0, charged units=0, account id=37
idb handle=0x656CA08C, tty handle=0x65AFD05C, tcb handle=0x00000000,
signaling=Auto
.
.
.
```

Table 3 describes the significant fields shown in the display.

Table 3 show call calltracker active reverse Field Descriptions

Field	Description
status	Status of the calls in the active database.
service	Session type for the call.
origin	Indicates how the call was created: • Originate—Dialout. The call was initiated locally, and the system sends the setup request. • Answer—Dialin. The call was initiated remotely, and the system receives the setup request.
category	Call type category. For autodetected calls, the values are V120, lapb, or syncData.
DS0 slot/port/ds1/chan	Number of the slot in the chassis, the applique that is being used (in the case of a card that supports multiple DS3 controllers), the DS1 trunk within the controller, and the channel, or time slot, within the DS1 trunk on which the call resides.
called	The called telephone number for this call.
calling	The calling telephone number for this call.
userid	The user login ID or zero-length string if unavailable.
ip	IP address assigned for the call, or 0.0.0.0 if not applicable or unavailable.
mask	The IP subnet mask assigned for this call. No IP subnet mask displays if the IP subnet mask is NULL.
setup	The time when the call was indicated to the NAS, for instance by the telecommunications network.
conn	The time, relative to the setup time, when the connection was established between the time slot of the incoming call and the appropriate local resources in the NAS such as the digital signal processor (DSP).
phys	The time, relative to the setup time, when the physical link became ready. For a modem, this time would be when the carrier came up and error control and compression were completely negotiated.
service	The time, relative to the setup time, when the service was determined for the call type.
authen	The time, relative to the setup time, when the user credentials were authenticated. Authentication may involve a Challenge Handshake Authentication Protocol (CHAP) challenge or response authentication for a PPP call, and the associated delay, through RADIUS or TACACS, in the external lookup.
signaling	Signaling type. Valid values are: • Auto—Autodetected calls. • LLC—ISDN signaled calls. • Xtrnl—External signaling protocols, such as Media Gateway Control Protocol (MGCP). • Unknwn—Unknown signaling types.

Related Commands

Command	Description
calltracker enable	Enables Call Tracker on the access server.
show call calltracker handle	Displays all information stored within the Call Tracker active or history database table for a specified unique call handle identifier.
show call calltracker history	Displays all information stored within the Call Tracker history database table for the most recent historical calls.
show call calltracker summary	Displays Call Tracker activity and configuration information such as the number of active calls and the history table attributes.

show call calltracker handle

To display all information stored within the Call Tracker active or history database table for a specified unique call handle identifier, use the **show call calltracker handle** command in privileged EXEC mode.

show call calltracker handle *call-identifier*

Syntax Description

call-identifier	Unique call identifier (*handle*) assigned by Call Tracker from the moment a DS0 B channel is requested. This identifier is a sequential number starting with handle 1.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.1(3)T	This command was introduced.

Usage Guidelines

Each call managed by Call Tracker is assigned a unique call handle that is provided to users using the Simple Network Management Protocol (SNMP), the command line interface, or SYSLOG for all forms of data transfers. Knowing this call handle makes it easier to display the information desired for a given call than to manually search through all Call Tracker database tables for latest updates.

Examples

The following is sample output from the **show call calltracker handle** command:

```
Router# show call calltracker handle 30

------------------------- call handle=0000000030 -------------------------
status=History, service=None, origin=Answer, category=Other
DS0 slot/cntr/chan=0/0/22, called=71071, calling=6669999
userid=(n/a), ip=0.0.0.0, mask=0.0.0.0
setup=10/16/1999 18:29:20, conn=0.00, phys=0.00, service=0.00, authen=0.00
init rx/tx b-rate=0/0, rx/tx chars=0/0
resource slot/port=(n/a)/(n/a), mp bundle=0, charged units=0, account id=0
duration(sec)=0.00, disc subsys=CSM, disc code=0x1A
disc text=Failed to find DSP resource
---------------------------------------------------------------------------
```

See Table 3 on page 763 for a description of significant fields displayed by this command.

Related Commands

Command	Description
show call calltracker active	Displays all information stored within the Call Tracker active database for all active calls.
show call calltracker history	Displays all the information stored within the Call Tracker history database table for the most recent disconnected calls.
show call calltracker summary	Displays Call Tracker activity and configuration information such as the number of active calls and the history table attributes.

show call calltracker history

To display all information stored within the Call Tracker history database table for the most recent historical calls, use the **show call calltracker history** command in user EXEC or privileged EXEC mode.

show call calltracker history [**category** *call-type* | **service** *session-type* | **subsystem** *subsystem-type*] [**reverse**]

Syntax Description

category	(Optional) Displays Call Tracker data for a specific type of call. The default is to display all calls, regardless of type. When the **category** keyword is issued with one of the values for the *call-type* argument, Call Tracker displays only calls whose records indicate that category.
call-type	(Optional) Call type for the calls stored within the Call Tracker history database table. Enter one of the following values: • **isdn**—Displays Call Tracker data for ISDN calls. • **lapb-ta**—Displays Call Tracker data for Link Access Procedure, Balanced (LAPB) calls. • **modem**—Displays all of the information calls. • **other**—Displays Call Tracker data for other call categories. • **syncData**—Displays Call Tracker data for sync data calls for call control other than ISDN. • **v110**—Displays Call Tracker data for V.110 calls. • **v120**—Displays Call Tracker data for V.120 calls.
service	(Optional) Displays Call Tracker data with a filter restricting output based on the session type. When the **service** keyword is specified with one of the values for the *session-type* argument, Call Tracker displays only calls whose records indicate that session type.
session-type	(Optional) Session type for the calls stored within the Call Tracker history database table. Enter one of the following values: • **exec**—Displays Call Tracker data for EXEC sessions. • **l2f**—Displays Call Tracker data for Layer 2 Forwarding (L2F) sessions. • **l2tp**—Displays Call Tracker data for Layer 2 Tunnel Protocol (L2TP) sessions. • **mp**—Displays Call Tracker data for Multilink PPP (MLP) sessions. • **other**—Displays Call Tracker data for other sessions. • **ppp**—Displays Call Tracker data for PPP sessions. • **slip**—Displays Call Tracker data for Serial Line Internet Protocol (SLIP) sessions. • **tcpclear**—Displays Call Tracker data for TCP/Clear sessions.

subsystem	(Optional) Displays Call Tracker historical data with a filter restricting output based on the Cisco IOS subsystem that was responsible for terminating the call. When the **subsystem** keyword is specified with one of the values for the *subsystem-type* argument, Call Tracker displays only those historical calls whose records indicate that they were terminated by that type of subsystem.
subsystem-type	(Optional) Subsystem type responsible for terminating calls stored within the Call Tracker history database table. Enter one of the following values: • **admin**—Displays Call Tracker data for calls terminated by the Admin subsystem. • **csm**—Displays Call Tracker data for calls terminated by the Cisco Service Management subsystem. • **exec**—Displays Call Tracker data for calls terminated by the Exec subsystem. • **isdn**—Displays Call Tracker data for calls terminated by the ISDN subsystem. • **mica**—Displays Call Tracker data for calls terminated by the Mica Drivers subsystem. • **modem**—Displays Call Tracker data for calls terminated by the Modem Management subsystem. • **none**—Displays Call Tracker data for calls not terminated by a subsystem. • **ppp**—Displays Call Tracker data for calls terminated by the PPP subsystem. • **rpm**—Displays Call Tracker data for calls terminated by the Resource Pool Management (RPM) subsystem. • **vpn**—Displays Call Tracker data for calls terminated by the Virtual Private Network (VPN) subsystem. • **vtsp**—Displays Call Tracker data for calls terminated by the Voice Telephony Service Provider (VTSP) subsystem. **Note** Although this information requires a more detailed understanding of Cisco IOS software than the average user possesses, it is useful to Cisco Technical Support personnel for troubleshooting connection issues.
reverse	(Optional) Displays Call Tracker data in inverted sorting order, from most recent to least recent.

Command Modes

User EXEC (>)
Privileged EXEC (#)

Command History

Release	Modification
12.1(3)T	This command was introduced.
12.2(11)T	This command was modified. The **reverse**, **service**, and **subsystem** keywords were added.
12.3(7)YB	This command was modified. The sig type field was added to the command output and the category field was modified to display V120, LAPB, or syncData for autodetected calls.
12.4(6)T	This command was modified. Support for the signaling type field and the modified category field was added.

Usage Guidelines

Call Tracker is enabled by entering the **calltracker enable** command.

Issuing the **show call calltracker history** command displays the call history for all calls, regardless of type. The call history display can be filtered by call type, session type, or by the Cisco IOS subsystem responsible for terminating the call by issuing one of the optional keyword and argument pairs.

For all tabular forms of the **show call calltracker history** command, the sorting order may be inverted by using the **reverse** keyword to give most-recent to least-recent collation.

Examples

The following sample shows Call Tracker historical data for an outgoing modem-to-Layer 2 Transport (L2TP) Virtual Private Network (VPN) tunneled call that was disconnected by the ISDN subsystem:

```
Router# show call calltracker history subsystem isdn

-------------------------- call handle=0000000002 ----------------------
status=History, service=L2TP, origin=Answer, category=Modem
DS0 slot/port/ds1/chan=7/0/2/0, called=70911, calling=(n/a)
userid=modem1_1@bmw.com, ip=172.16.0.0, mask=172.16.0.0
setup=08/01/2001 13:36:44, conn=0.02, phys=17.96, service=23.30, authen=22.26,
init rx/tx b-rate=33600/33600, rx/tx chars=201/247
resource slot/port=1/1, mp bundle=0, charged units=0, account id=6
duration(sec)=132.50, disc subsys=ISDN, disc code=0x10
disc text=Normal call clearing

------------------------------------------------------------------------
protocol: last=LAP-M, attempted=LAP-M
compression: last=V.42bis-Both, attempted= V.42bis-RX V.42bis-TX
standard: last=V.34+, attempted=V.90, initial=V.34+

snr=40 dB, sq=5, rx/tx level=-15/-13 dBm
phase jitter: freq=12 Hz, level=2 degrees
far end echo level=-90 dBm, freq offset=0 Hz
phase roll=0 degrees, round-trip delay=0 msecs
digital pad=None dB, digital pad comp=0
rbs pattern=0, constellation=16 point
rx/tx: symbol rate=3429/3429, carrier freq=1959/1959
rx/tx: trellis code=16/16 preemphasis index=0/0
rx/tx: constellation shape=Off/Off, nonlinear encode=Off/Off
rx/tx: precode=Off/Off, xmit level reduct=0/0 dBm

rx/tx: chars=201/247, general info=0x0
rx/tx: link layer chars=172/214, NAKs=0/0
error corrected: rx/tx=9/5, rx bad=0
ec retransmissions=0, retransmitted frames=0
rx/tx ppp slip=4/4, bad ppp slip=0
```

```
rx/tx b-rate: last=33600/33600, lowest=33600/300, highest=33600/33600
phase 2 projected max rx b-rate: client=33600, host=33600
phase 4 desired rx/tx b-rate: client=33600/33600, host=33600/33600
retrains: local=0, remote=0, failed=0
speedshift: local up/down=0/0, remote up/down=0/0, failed=0

v110: rx good=0, rx bad=0, tx=0, sync lost=0
SS7/COT status=0x00
v90: status=No Attempt, client=(n/a), failure=None

rx/tx: max neg I frame=128/128, neg window=15/15
v42bis size: dictionary=4096, string=32
T401 timeouts=0, tx window closures=0, rx overruns=0
test err=0, reset=0, v0 synch loss=0
mail lost: host=0, sp=0
duration(sec)=116, disc reason=0x220
disc text= <unknown>/EC condition - locally detected/received DISC frame -- normal LAPM
termination

               --------5---------10--------15--------20--------25--------30
line shape  : 0x00000000000000000000000000000000000000000000000000000000
v8bis capab : 0x12C9808081C609B502009481834347CB000000000000000000000000000000000
v8bis mod sl: 0x00000000000000000000000000000000000000000000000000000000000000000
v8 call menu: 0xC16513942A8D000000000000
v90 training: 0x00000000
v90 sgn ptrn: 0x00000000
state trnsn : 0x0102030410151920FF000000000000000000000000000000000000000000000
               0000
portwre diag: 0x00000000000000000000000000000000
phase 2 info: 0x02EFF41F120000003CEFF41F0200E0EF01040040860D1B083470600000EF
               1E041400E22D00003C07A707A70D650D658340834000000000000
phase 4 info: 0x02834083408340834000
total speedshifts: 0
qc exchange: No QC Requested
moh status: Modem is Not on Hold
moh count: 0, moh request count: 0
total moh time: 0, cur moh time: 0
call waiting retrains: 0
rx/tx codewords: 0/0, rx/tx string: 0/0
rx/tx history size: 0/0
encoder/decoder state: 0/0
rx/tx compression ratio: 0/0, rx/tx dictionary reset count: 0/0
diagnostic code: 0x0000000000000000
------------------------------------------------------------------------------
```

The following sample shows Call Tracker historical data for an incoming autodetected Media Gateway Control Protocol (MGCP) network access server (NAS) V.120 call with a normal disconnect by the MGCP NAS subsystem:

```
Router# show call calltracker history category v120

-------------------------- call handle=         1 --------------------------
status=History, service=PPP, origin=Answer, category=V120,
DS0 slot/port/ds1/chan=1/7/7/23, called=5555, calling=1000
userid=user1, ip=10.1.1.52, mask=0.0.0.0
setup=11/18/2004 09:34:04, conn=0.11, phys=0.11, service=0.80, authen=0.76
init rx/tx b-rate=56000/56000, rx/tx chars=36646/36533
resource slot/port=(n/a)/(n/a), mp bundle=0, charged units=0, account
id=(n/a)
duration(sec)=133.70, disc subsys=MGCP, disc code=0x66
disc text=User request, sig type=Auto
------------------------------------------------------------------------------
.
.
```

.

Table 4 describes the significant fields shown in the previous two displays.

Table 4 show call calltracker history subsystem isdn Field Descriptions

Field	Description
status	Status of the calls in the active database.
service	Session type for the call.
origin	Indicates how the call was created: • Originate—Dialout. The call was initiated locally, and the system sends the setup request. • Answer—Dialin. The call was initiated remotely, and the system receives the setup request.
category	Call type category. For autodetected calls, the values are V120, lapb, or syncData.
DS0 slot/port/ds1/chan	Number of the slot in the chassis, the applique that is being used (in the case of a card that supports multiple DS3 controllers), the DS1 trunk within the controller, and the channel, or time slot, within the DS1 trunk on which the call resides.
called	The called telephone number for this call.
calling	The calling telephone number for this call.
userid	The user login ID or zero-length string if unavailable.
ip	IP address assigned for the call, or 0.0.0.0 if not applicable or unavailable.
mask	The IP subnet mask assigned for this call. No IP subnet mask displays if the IP subnet mask is NULL.
setup	The time when the call was indicated to the NAS, for instance by the telecommunications network.
conn	The time, relative to the setup time, when the connection was established between the time slot of the incoming call and the appropriate local resources in the NAS such as the digital signal processor (DSP).
phys	The time, relative to the setup time, at which the physical link became ready. For a modem, this time would be when the carrier came up and error control and compression were completely negotiated.
service	The time, relative to the setup time, when the service was determined for the call type.
authen	The time, relative to the setup time, at which the user credentials were authenticated. Authentication may involve a Challenge Handshake Authentication Protocol (CHAP) challenge or response authentication for a PPP call, and the associated delay, through RADIUS or TACACS, in the external lookup.
disc subsys	The subsystem that disconnected the call.
disc code	Disconnecting code—a numeric code unique within the disconnecting subsystem that is of local significance (internal and proprietary).

Table 4 show call calltracker history subsystem isdn Field Descriptions (continued)

Field	Description
disc text	Message that gives a textual explanation for why the disconnection occurred. This message is of local significance (internal and proprietary).
sig type	Signaling type. Valid values are: • Auto—Autodetected calls. • LLC—ISDN signaled calls. • Xtrnl—External signaling protocols, such as MGCP. • Unknwn—Unknown signaling types.

Related Commands

Command	Description
calltracker enable	Enables Call Tracker on the access server.
show call calltracker active	Displays all information stored within the Call Tracker active database for all active calls.
show call calltracker handle	Displays all information stored within the Call Tracker active or history database table for a specified unique call handle identifier.
show call calltracker summary	Displays Call Tracker activity and configuration information such as the number of active calls and the history table attributes.

show call calltracker summary

To display Call Tracker activity and configuration information such as the number of active calls and the history table attributes, use the **show call calltracker summary** command in privileged EXEC mode.

show call calltracker summary

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.1(3)T	This command was introduced.

Examples

The following is sample output from the **show call calltracker summary** command:

```
Router# show call calltracker summary

Call Tracker Status:
  Active Table:
    - 7 call(s)
    - 4473 bytes used (639 average, 639 maximum)
  History Table:
    - 50 of a maximum of 240 call(s) (20% full)
    - 45157 bytes used (903 average, 921 maximum)
    - 260000 minute(s) call retain time
  API Front-end:
    - event elements:512 total, 512 free, 0 in-use
    - free event elements' low watermark:467
    - events dropped due to unavailability of free elts:0
```

Table 5 describes the significant fields shown in the display.

Table 5 show call calltracker summary Field Descriptions

Field	Description
Active Table:	
call(s)	Number of active calls.
n bytes used (*m* average, *o* maximum)	*n* = total memory used for all active calls *m* = average memory usage per call (*n*/calls) *o* = highest single memory usage for a call

Table 5 show call calltracker summary Field Descriptions (continued)

Field	Description
History Table:	
x of a maximum of *n* calls (*o*% full)	Number of calls in the history table, the maximum allowed (as defined by the **calltracker history max-size** command), and the percentage of the history table that these calls consume.
n bytes used (*m* average, *o* maximum)	*n* = total memory used for all active calls *m* = average memory usage per call (*n*/calls) *o* = highest single memory usage for a call
minute(s) call retain time	Number of minutes, for which calls are retained in the history table. This parameter is configured using the **calltracker history retain-mins** command.
API Front-end:	
event elements	For Cisco internal use only.
free event elements' low watermark	For Cisco internal use only.
events dropped due to unavailability of free elts	For Cisco internal use only.

Related Commands

Command	Description
show call calltracker active	Displays all of the information stored within the Call Tracker active database for all active calls.
show call calltracker handle	Displays all information stored within the Call Tracker active or history database table for a specified unique call handle identifier.
show call calltracker history	Displays all the information stored within the Call Tracker history database table for the most recent disconnected calls.

show call progress tone

To display the contents of the internal call progress (CP) tone database for a specific country, use the **show call progress tone** command in EXEC mode.

show call progress tone *country* [*tone-type*]

Syntax Description

country	Enters the country code for the country's call progress tone database you want to display. For the supported country codes, see the **modem country mica** command and the **modem country microcom_hdms** command.
tone-type	(Optional) Enters the tone type parameters you want to see from Table 6.

Command Modes

EXEC

Command History

Release	Modification
12.0(4)XI	This command was introduced.

Usage Guidelines

Table 6 lists the supported tone type parameters.

Table 6 Supported Tone Type Parameters

busy—Busy tone
congestion—Congestion tone
dialtone—Dial tone
disconnect—Disconnect tone
error—Error tone
off-hook-alert—Off-hook alert tone
off-hook-notice—Off-hook notice tone
pbx-dialtone—PBX dialtone
ringback—Ringback tone
routing—Routing tone

Using this command enables you to display the exact settings as they are programmed in the call-progress-tone database.

Examples

When you enter the **show call progress tone** command, the contents of the internal CP tone database for a specific country appears as in the following example:

```
Router# show call progress tone japan

Call progress tone: Japan

Dial tone:
0     Forever       425Hz -15.0/-15.0/-15.0 dBm0

PBX Dial tone:
0     Forever       425Hz -15.0/-15.0/-15.0 dBm0

Busy tone:
0       250ms       425Hz -20.0/-20.0/-20.0 dBm0
1       250ms     Silence

Congestion tone:
0       250ms       425Hz -20.0/-20.0/-20.0 dBm0
1       250ms     Silence

Error tone:
0       330ms       950Hz -15.0/-15.0/-15.0 dBm0
1       330ms      1400Hz -15.0/-15.0/-15.0 dBm0
2       330ms      1800Hz -15.0/-15.0/-15.0 dBm0
3      5000ms     Silence

Routing tone:
0       125ms       600Hz -24.0/-24.0/-24.0 dBm0
1       125ms     Silence
2       125ms       600Hz -24.0/-24.0/-24.0 dBm0
3     Forever     Silence

Disconnect tone:
0       330ms       600Hz -15.0/-15.0/-15.0 dBm0
1       330ms     Silence
2       330ms       600Hz -15.0/-15.0/-15.0 dBm0
3     Forever     Silence

Ringback tone:
0      1000ms       425Hz -19.0/-19.0/-19.0 dBm0
1      4000ms     Silence

Off-hook Notice tone:
0       100ms 1400x2040Hz -24.0/-24.0/-24.0 dBm0 -24.0/-24.0/-24.0 dBm0
1       100ms     Silence

Off-hook Alert tone:
0       100ms 1400x2040Hz -15.0/-15.0/-15.0 dBm0 -15.0/-15.0/-15.0 dBm0
1       100ms     Silence
```

The following example shows a specific CP tone (Japan, busy):

```
Router# show call progress tone japan busy

Busy tone for Japan:
0      2000ms  440x480 Hz -17.0/-17.0/-19.0 dBm0 -17.0/-17.0/-19.0 dBm0
1      4000ms     Silence
```

Table 7 describes the significant fields shown in the display.

Table 7 show show call progress tone Field Descriptions

Field	Description
Cadence number	Call progress tones consist of cadences—periods of sound or silence with certain parameters that do not change during the call. The cadence number shows the number of a particular cadence within the CP tone definitions. Cadence numbers start at 0.
Cadence duration	Cadence duration. “Forever” means that the sound can be heard forever, as in a dialtone.
Cadence type	Silence—No tone is generated. 440Hz—A single frequency is generated. 440x530Hz—Two frequencies are added (mixed).
Amplitudes for corresponding frequency components	Amplitudes for the corresponding frequency components. Different amplitudes are used on different trunk types.

Related Commands

Command	Description
call progress tone country	Specifies the country code for retrieving the call progress tone parameters from the CP tone database.

show caller

To display caller information, use the **show caller** command in user or privileged EXEC mode.

show caller [[[**interface** *interface-type interface-number* | **line** {*number* [*end-number*]| *line-modem-options*}] [**full** | **timeouts**]] | [**summary** | **user** *name* [**detailed**]]]

Syntax Description

interface	(Optional) Displays a summary of caller information for the specified interface. • *interface-type*—Interface type for which to display caller information. Valid values for the *interface-type* argument are as follows: – **Async**—Async interface. – **Dialer**—Dialer interface. – **Serial**—Serial interface. • *interface-number*—Number of the interface for which caller information will be displayed. Valid values for the *interface-number* argument vary depending on the interface type and platform.
line	(Optional) Displays a summary of caller information for the specified line(s) or by line or modem options. • *number* [*end-number*]—Line number for which caller information will be displayed. Specifying a value for the optional *end-number* argument results in caller information being displayed for a range of line numbers. Valid values for the *number* [*end-number*] arguments vary depending on the platform. • *line-modem-options*—Type of line or modem option for which caller information will be displayed. Valid values for the *line-modem-options* argument are as follows: – **aux** *line-number*—Auxiliary line. – **console** *line-number*—Primary terminal line. – **tty** *line-number*—Terminal controller. – **v110**—V.110 modem. – **vty** *line-number*—Virtual terminal line. – *x*/*y*—Internal modem slot/port number.
full	(Optional) Provides expanded caller information.
timeouts	(Optional) Displays session and idle limits and disconnect time.
summary	(Optional) Displays total users logged, total ISDN users, total analog users, and total external signaling analog and digital calls since the last **reload** command was entered.
user *name*	(Optional) Displays a summary of caller information for the specified username. • **detailed**—(Optional) Provides expanded information about the username.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
11.3(5)AA	This command was introduced.
12.1(3)T	The **summary** keyword was added.
12.3(6)	This command was enhanced to display information about external signaling calls.

Usage Guidelines

The **show caller** command is used to:

- Display individual users and consumed resources on the network access server (NAS).
- Inspect active call statistics for large pools of connections. (Debugging commands produce too much output and tax the CPU too heavily.)
- Display the absolute and idle times for each user. The current values for both of these settings are displayed on the TTY line and the asynchronous interface. Users that have been idle for unacceptably long periods of time can be easily identified. By using this information, you can define timeout policies and multiple grades of services for different users.
- In Multilink PPP (MLP) calls, if the MLP bundle is created on the remote home gateway, the total of unique users displayed by the **show caller summary** command is the same as the number of active B-channel calls. This is because the gateway does not know about the MLP bundle created on the other side.

You can configure output modifiers for each option type of the **show caller** command.

Examples

The following is sample output from the **show caller** command:

```
Router# show caller

  Line      User                 Service       Active
  con 0     -                    TTY           00:08:21
  BR0:1     user 1               PPP           00:00:14
  Vi1       user 2               PPP   Bundle  00:00:13
```

The following is sample output from the **show caller** command with the **summary** keyword:

```
Router# show caller summary

      933   Analog calls (0 VPDN Calls)
           47   Ext-Sig Analog calls
        0   ISDN calls (0 VPDN Calls)
        0   Ext-Sig Digital calls
        0   VPDN calls
        0   PPPoA calls
        0   PPPoE calls
      980 Total unique users logged in
```

Each display from the **show caller** command is self-explanatory; see the "Usage Guidelines" section for more information.

show cca

To display various internal configuration relationships, use the **show cca** command in user EXEC or privileged EXEC mode.

show cca [**detail** [**ccb** *ccb-index* | **interface** *type number*] | [**interface** *type number*]]

Syntax Description

detail	(Optional) Displays detailed common configuration architecture (CCA) information.
ccb	(Optional) Displays detailed CCA configuration control block (CCB) information.
ccb-index	(Optional) CCA CCB index list.
interface *type number*	(Optional) Displays the specific bindings or sources of configuration for an interface.

Command Modes

User EXEC (>)
Privileged EXEC (#)

Command History

Release	Modification
12.0(4)T	This command was introduced in a release earlier than Cisco IOS Release 12.0(4)T.
12.2(10)S	This command was integrated into Cisco IOS Release 12.2(10)S.
12.2(31)SB	This command was integrated into Cisco IOS Release 12.2(31)SB.
Cisco IOS XE Release 2.1	This command was integrated into Cisco IOS XE Release 2.1.

Usage Guidelines

The **show cca** command shows information such as the software components (PPP, IP, and peer) that are registered with CCA.

Examples

The following is sample output from the **show cca** command with the optional **interface** keyword specified:

```
Router# show cca interface se1:23

Type        Name                    Component(s)
parent      Di1                     peer ppp
interface   Se1:23                  peer ppp
```

Table 8 describes the fields shown in the display.

Table 8 show cca interface Field Descriptions

Field	Description
Type	Type of interface.
Name	Template name.
Component(s)	Software components registered with CCA.

show controllers bri

To display information about the ISDN BRI, use the **show controllers bri** command in privileged EXEC mode.

Cisco MC3810 Routers

show controllers bri [*interface-number*]

Cisco 7200 Series Routers

show controllers bri *slot/port*

All Other Routers

show controllers bri *interface-number*

Syntax Description

interface-number	Interface number. The value is from 0 to 7 if the router has one 8-port BRI network interface module (NIM), or from 0 to 15 if the router has two 8-port BRI NIMs. Interface number values will vary, depending on the hardware platform used. The Cisco 3600 series router, for example, can have up to 48 interfaces. The *interface-number* argument is optional for the Cisco MC3810 router. Valid BRI controller numbers for the Cisco MC3810 router are from 1 to 4.
slot/port	Backplane slot number and port number on the interface. See your hardware installation manual for the specific slot and port numbers. The slash mark is required.

Command Modes

Privileged EXEC

Command History

Release	Modification
10.3	This command was introduced.
11.2P	This command was enhanced to support slot and port syntax for the PA-8B-ST and PA-4B-U port adapters on the Cisco 7200 series.
12.0(3)XG	This command was implemented on the Cisco MC3810 universal access concentrator.

Usage Guidelines

If you use the **show controllers bri** command in the Cisco MC3810 without the slot-number keywords, information for all of the configured ISDN BRI controllers will be displayed. The BRI controller numbers match the physical ports numbers on the BRI voice module (BVM).

Examples

The following example shows controller statistics for interface BRI 1 on a Cisco MC3810 router:

```
Router# show controllers bri 1

BRI unit 1:
Layer 1 is DEACTIVATED. (ISDN L1 State F3)
S2084 registers:
Configuration register=0x1
QMC GLOBAL MULTICHANNEL PARAMETERS (at 0x30003C00)
[MCBASE]=0x1C4AE38, [QMCSTATE]=0x0, [MRBLR]=0x5F4
[TXSPTR]=0x1C20, [RXPTR]=0x1C24, [GRFTHR]=0x1
[GRFCNT]=0x1, [INTBASE]=0x1B04124, [INTPTR]=0x1B0413C
[RXSPTR]=0x1C20, [TXPTR]=0x1C3E, [CMASK32]=0xDEBB20E3
[TSATRX]=0x30003C20, [TSATTX]=0x30003C60, [CMASK16]=0xF0B8

QMC Timeslot Assignment Entries (Rx == Tx):
[ 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0
0x0 0x0 0x0 0x0 0x540 0x8503 0x84C3 0x8483 0x0 0x400 0x400 0xC400 0xC000 ]

D Channel Information:

BVM unit 1,
qmc_channel: 18 timeslot: 26
idb at 0x1199FC8, driver data structure at 0x11D06D8
SCC Registers:
General [GSMR]=0x780:0x0000003A, Protocol-specific [PSMR]=0x80
Events [SCCE]=0x0000, Mask [SCCM]=0x000F, Status [SCCS]=0x0002
Transmit on Demand [TODR]=0x0, Data Sync [DSR]=0x7E7E
Interrupt Registers:
Config [CICR]=0x001B9981, Pending [CIPR]=0x00000240
Mask   [CIMR]=0x7A000400, In-srv  [CISR]=0x00000000
Command register [CR]=0x640
Port A [PADIR]=0x00F0, [PAPAR]=0xFFFF
    [PAODR]=0x00E0, [PADAT]=0x1AEF
Port B [PBDIR]=0x01333F, [PBPAR]=0x01033E
    [PBODR]=0x000030, [PBDAT]=0x00DFFC
Port C [PCDIR]=0x0C0C, [PCPAR]=0x0000
    [PCSO]=0x03F3,  [PCDAT]=0x00FF, [PCINT]=0x0000
Port D [PDDIR]=0x000760, [PDPAR]=0x00013F
    [PDDAT]=0x000CB0
SI      [SIMODE]=0x00480048,  [SIGMR]=0x0E, [SISTR]=0x00
    [SICR]=0x6D372E49
BRGC    [BRGC1]=0x00000000,  [BRGC2]=0x00000000

    [BRGC3]=0x00000000,  [BRGC4]=0x00000000

QMC CHANNEL PARAMETERS (at 0x30002480)
[TBASE]=0xBC0, [CHAMR]=0xB000, [TSTATE]=0x300C0FDE
[TBPTR]=0xBD0, [ZISTATE]=0xE1FF0FFF, [INTMSK]=0x3F
[RBASE]=0xB40, [MFLR]=0x5F4, [RSTATE]=0x31021C00
[RBPTR]=0xB70, [ZDSTATE]=0x25FFFFAE

buffer size 1524
RX ring with 16 entries at 0x1C4B978, Buffer size 1524
Rxhead = 0x1C4B9A8 (6), Rxp = 0x11D070C (6)
00 pak=0x145FDD0 buf=0x1CCE138 status=9000 pak_size=0
01 pak=0x145FBBC buf=0x1CCDA78 status=9000 pak_size=0
02 pak=0x145F9A8 buf=0x1CCD3B8 status=9000 pak_size=0
03 pak=0x145F794 buf=0x1CCCCF8 status=9000 pak_size=0
04 pak=0x14618D4 buf=0x1CD38F8 status=9000 pak_size=0
05 pak=0x14616C0 buf=0x1CD3238 status=9000 pak_size=0
06 pak=0x1461298 buf=0x1CD24B8 status=9000 pak_size=0
07 pak=0x1461084 buf=0x1CD1DF8 status=9000 pak_size=0
08 pak=0x1460E70 buf=0x1CD1738 status=9000 pak_size=0
```

```
09 pak=0x1460C5C buf=0x1CD1078 status=9000 pak_size=0
10 pak=0x1460A48 buf=0x1CD09B8 status=9000 pak_size=0
11 pak=0x1460834 buf=0x1CD02F8 status=9000 pak_size=0
12 pak=0x1460620 buf=0x1CCFC38 status=9000 pak_size=0
13 pak=0x146040C buf=0x1CCF578 status=9000 pak_size=0
14 pak=0x14601F8 buf=0x1CCEEB8 status=9000 pak_size=0
15 pak=0x145FFE4 buf=0x1CCE7F8 status=B000 pak_size=0

TX ring with 4 entries at 0x1C4B9F8, tx_count = 0
tx_head = 0x1C4BA08 (2), head_txp = 0x11D0818 (2)
tx_tail = 0x1C4BA08 (2), tail_txp = 0x11D0818 (2)
00 pak=0x0000000 buf=0x0000000 status=0000 pak_size=0
01 pak=0x0000000 buf=0x0000000 status=0000 pak_size=0
02 pak=0x0000000 buf=0x0000000 status=0000 pak_size=0
03 pak=0x0000000 buf=0x0000000 status=2000 pak_size=0
0 throttles, 0 enables
0 input aborts on receiving flag sequence
    0 missed datagrams, 0 overruns
    0 bad datagram encapsulations, 0 memory errors
    0 transmitter underruns

B1 Channel Information:

BVM unit 1,
qmc_channel: 0 timeslot: 0
idb at 0x119FEB0, driver data structure at 0x11D0B54
SCC Registers:
General [GSMR]=0x0:0x00000000, Protocol-specific [PSMR]=0x0
Events [SCCE]=0x0000, Mask [SCCM]=0x0000, Status [SCCS]=0x0000
Transmit on Demand [TODR]=0x9080, Data Sync [DSR]=0xA4
QMC CHANNEL PARAMETERS (at 0x0)
[TBASE]=0x0, [CHAMR]=0x0, [TSTATE]=0x7C6802A6
[TBPTR]=0x9080, [ZISTATE]=0x906000AC, [INTMSK]=0x9060
[RBASE]=0x4800, [MFLR]=0x5, [RSTATE]=0x7C8000A6
[RBPTR]=0x7C9B, [ZDSTATE]=0x3864FFDC

buffer size 1524
RX ring with 0 entries at 0x0, Buffer size 1524
Rxhead = 0x0 (0), Rxp = 0x0 (-4670172)

TX ring with 0 entries at 0x0, tx_count = 0
tx_head = 0x0 (0), head_txp = 0x0 (-4670243)
tx_tail = 0x0 (0), tail_txp = 0x0 (-4670243)
0 throttles, 0 enables
0 input aborts on receiving flag sequence
    0 missed datagrams, 0 overruns
    0 bad datagram encapsulations, 0 memory errors
    0 transmitter underruns

B2 Channel Information:

BVM unit 1,
qmc_channel: 0 timeslot: 0
idb at 0x11A5D98, driver data structure at 0x11D0F8C
SCC Registers:
General [GSMR]=0x0:0x00000000, Protocol-specific [PSMR]=0x0
Events [SCCE]=0x0000, Mask [SCCM]=0x0000, Status [SCCS]=0x0000
Transmit on Demand [TODR]=0x9080, Data Sync [DSR]=0xA4

QMC CHANNEL PARAMETERS (at 0x0)
[TBASE]=0x0, [CHAMR]=0x0, [TSTATE]=0x7C6802A6
[TBPTR]=0x9080, [ZISTATE]=0x906000AC, [INTMSK]=0x9060
[RBASE]=0x4800, [MFLR]=0x5, [RSTATE]=0x7C8000A6
[RBPTR]=0x7C9B, [ZDSTATE]=0x3864FFDC
```

```
buffer size 1524
RX ring with 0 entries at 0x0, Buffer size 1524
Rxhead = 0x0 (0), Rxp = 0x0 (-4670442)

TX ring with 0 entries at 0x0, tx_count = 0
tx_head = 0x0 (0), head_txp = 0x0 (-4670513)
tx_tail = 0x0 (0), tail_txp = 0x0 (-4670513)
0 throttles, 0 enables
0 input aborts on receiving flag sequence
    0 missed datagrams, 0 overruns
--More--           0 bad datagram encapsulations, 0 memory
>errors
    0 transmitter underruns
```

The following is sample output from the **show controllers bri** command:

```
Router# show controllers bri 0

BRI unit 0
D Chan Info:
Layer 1 is ACTIVATED
idb 0x32089C, ds 0x3267D8, reset_mask 0x2
buffer size 1524
RX ring with 2 entries at 0x2101600 : Rxhead 0
00 pak=0x4122E8 ds=0x412444 status=D000 pak_size=0
01 pak=0x410C20 ds=0x410D7C status=F000 pak_size=0
TX ring with 1 entries at 0x2101640: tx_count = 0, tx_head = 0, tx_tail = 0
00 pak=0x000000 ds=0x000000 status=7C00 pak_size=0
0 missed datagrams, 0 overruns, 0 bad frame addresses
0 bad datagram encapsulations, 0 memory errors
0 transmitter underruns
B1 Chan Info:
Layer 1 is ACTIVATED
idb 0x3224E8, ds 0x3268C8, reset_mask 0x0
buffer size 1524
RX ring with 8 entries at 0x2101400 : Rxhead 0
00 pak=0x421FC0 ds=0x42211C status=D000 pak_size=0
01 pak=0x4085E8 ds=0x408744 status=D000 pak_size=0
02 pak=0x422EF0 ds=0x42304C status=D000 pak_size=0
03 pak=0x4148E0 ds=0x414A3C status=D000 pak_size=0
04 pak=0x424D50 ds=0x424EAC status=D000 pak_size=0
05 pak=0x423688 ds=0x4237E4 status=D000 pak_size=0
06 pak=0x41AB98 ds=0x41ACF4 status=D000 pak_size=0
07 pak=0x41A400 ds=0x41A55C status=F000 pak_size=0
TX ring with 4 entries at 0x2101440: tx_count = 0, tx_head = 0, tx_tail = 0
00 pak=0x000000 ds=0x000000 status=5C00 pak_size=0
01 pak=0x000000 ds=0x000000 status=5C00 pak_size=0
02 pak=0x000000 ds=0x000000 status=5C00 pak_size=0
03 pak=0x000000 ds=0x000000 status=7C00 pak_size=0
0 missed datagrams, 0 overruns, 0 bad frame addresses
0 bad datagram encapsulations, 0 memory errors
0 transmitter underruns
B2 Chan Info:
Layer 1 is ACTIVATED
idb 0x324520, ds 0x3269B8, reset_mask 0x2
buffer size 1524
RX ring with 8 entries at 0x2101500 : Rxhead 0
00 pak=0x40FCF0 ds=0x40FE4C status=D000 pak_size=0
01 pak=0x40E628 ds=0x40E784 status=D000 pak_size=0
02 pak=0x40F558 ds=0x40F6B4 status=D000 pak_size=0
03 pak=0x413218 ds=0x413374 status=D000 pak_size=0
04 pak=0x40EDC0 ds=0x40EF1C status=D000 pak_size=0
05 pak=0x4113B8 ds=0x411514 status=D000 pak_size=0
```

```
06 pak=0x416ED8 ds=0x417034 status=D000 pak_size=0
07 pak=0x416740 ds=0x41689C status=F000 pak_size=0
TX ring with 4 entries at 0x2101540: tx_count = 0, tx_head = 0, tx_tail = 0
00 pak=0x000000 ds=0x000000 status=5C00 pak_size=0
01 pak=0x000000 ds=0x000000 status=5C00 pak_size=0
02 pak=0x000000 ds=0x000000 status=5C00 pak_size=0
03 pak=0x000000 ds=0x000000 status=7C00 pak_size=0
0 missed datagrams, 0 overruns, 0 bad frame addresses
0 bad datagram encapsulations, 0 memory errors
0 transmitter underruns
```

Table 9 describes the significant fields shown in the display.

Table 9 show controllers bri Field Descriptions

Field	Description
BRI unit 0	Interface type and unit number.
Chan Info	D and B channel numbers.
Layer 1 is ACTIVATED	Layer 1 status can be DEACTIVATED, PENDING ACTIVATION, or ACTIVATED.
idb ds reset_mask	Information about internal data structures and parameters (for use by Cisco technical personnel).
buffer size	Number of bytes allocated for buffers.
RX ring with - entries at -	Information about the Receiver Queue.
Rxhead	Start of the Receiver Queue.
pak ds status pak_size	Information about internal data structures and parameters.
TX ring with - entries at -	Information about the Transmitter Queue.
tx_count	Number of packets to transmit.
tx_head	Start of the transmit list.
tx_tail	End of the transmit list.
missed datagrams	Incoming packets missed due to internal errors.
overruns	Number of times the receiver hardware was unable to hand received data to a hardware buffer because the input rate exceeded the receiver's ability to handle the data.
bad frame addresses	Frames received with a cyclic redundancy check (CRC) error and noninteger number of octets.
bad datagram encapsulations	Packets received with bad encapsulation.
memory errors	Internal direct memory access (DMA) memory errors.
transmitter underruns	Number of times that the transmitter has been running faster than the router can handle.

The following is a partial output example from the **show controllers bri** command on a Cisco 7200 series router:

```
Router# show controllers bri 2/0

BRI slot 2 interface 0 with integrated NT1
Layer 1 is ACTIVATED. (ISDN L1 State F7)
Master clock for slot 2 is bri interface 0.
Total chip configuration successes: 193, failures: 0, timeouts: 0
D Channel Information:
  Channel state: UP  Channel IDB: 6092AC64
  RX ring entries: 5, buffer size 512
  RX descriptor ring: head = 165F4D8, tail = 165F508
  RX buffer ring: head = 6093A260, tail = 6093A290
  00 params=0x2000000 status=0x0 data ptr=0x1650F84 next ptr=0x165F4D8
  01 params=0x2000000 status=0xC0080000 data ptr=0x1651884 next ptr=0x165F4E8
  02 params=0x2000000 status=0xC0080000 data ptr=0x1651644 next ptr=0x165F4F8
  03 params=0x2000000 status=0x0 data ptr=0x1651404 next ptr=0x165F508
  04 params=0x42000000 status=0x0 data ptr=0x16511C4 next ptr=0x165F4C8
  TX ring entries: 5, in use: 0, buffer size 512
  TX descriptor ring: head = 3C2049C0, tail = 3C2049C0
  TX buffer ring: head = 608EC0C4, tail = 608EC0C4
  00 params=0x80000000 data ptr=0x0000000 next ptr=0x4D0049A8
  01 params=0x80000000 data ptr=0x0000000 next ptr=0x4D0049B4
  02 params=0x80000000 data ptr=0x0000000 next ptr=0x4D0049C0
  03 params=0xC0000000 data ptr=0x0000000 next ptr=0x4D0049CC
  04 params=0x0 data ptr=0x0000000 next ptr=0x4D00499C
  List of timeslots (sw): 2
```

Table 10 describes the significant fields shown in the display.

Table 10 show controllers bri Field Descriptions (for Cisco 7200 Series Routers)

Field	Description
BRI slot 2 interface 0 with integrated NTI	Interface type and slot and port number.
Layer 1 is ACTIVATED	Layer 1 status can be DEACTIVATED, PENDING ACTIVATION, or ACTIVATED.
Master clock	The first interface that comes up on an MBRI port adapter holds the master clock. This clock is used for all interfaces on that port adapter. If the master clock interface goes down, the second interface that came up becomes the master clock interface.
Total chip configuration successes	Counters of successful chip configuration.
failures	Counters of bad chip configuration.
timeouts	Counters of failing to initialize chip.
D Channel Information	Information related to D-channel status.
Channel state	Channel state can be UNUSED, IDLE, DOWN, STANDBY, UP, THROTTLED, ILLEGAL.
Channel IDB	Internal interface channel description.
RX (or TX) ring entries	Internal receive queue.
RX (or TX) descriptor ring	Internal receive queue to manage hardware chip.
RX (or TX) buffer ring	Internal receive queue to hold inbound packets.
Rxhead	Start of the receiver queue.

Table 10 show controllers bri Field Descriptions (for Cisco 7200 Series Routers) (continued)

Field	Description
params, status, data ptr, next ptr	Information about internal data structures and parameters (for use by Cisco technical personnel.
List of timeslots (sw)	Time slots assigned to this channel.

show controllers e1 call-counters

To display the total number of calls and call durations on an E1 controller, use the **show controllers e1 call-counters** command in privileged EXEC mode.

show controllers e1 *controller-number* **call-counters**

Syntax Description

controller-number	Controller number (for example, 0, 1, 2, or 3).

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3T	This command was introduced.

Usage Guidelines

This command displays the E1 controller status as calls, such as switched 56K digital calls. It shows the total duration of all the previous calls on the specified timeslot in(hrs: mins:sec).

Examples

The following is sample output of the **show controllers e1 call-counters** command:

```
Router# show controllers e1 1 call-counters

E1 1:
  DS0's Active: 0
  DS0's Active High Water Mark: 0
  TimeSlot   Type   TotalCalls   TotalDuration
      1       cas           0       00:00:00
      2       cas           0       00:00:00
      3       cas           0       00:00:00
      4       cas           0       00:00:00
      5       cas           0       00:00:00
      6       cas           0       00:00:00
      7       cas           0       00:00:00
      8       cas           0       00:00:00
      9       cas           0       00:00:00
     10       cas           0       00:00:00
     11       cas           0       00:00:00
     12       cas           0       00:00:00
     13       cas           0       00:00:00
     14       cas           0       00:00:00
     15       cas           0       00:00:00
     16       cas           0       00:00:00
     17       cas           0       00:00:00
     18       cas           0       00:00:00
     19       cas           0       00:00:00
     20       cas           0       00:00:00
     21       cas           0       00:00:00
     22       cas           0       00:00:00
     23       cas           0       00:00:00
     24       cas           0       00:00:00
Total DS0's Active High Water Mark: 7
```

Table 11 describes the significant fields shown in the display.

Table 11 show controllers e1 call-counters Field Descriptions

Field	Description
E1 1:	Number of the E1 controller.
DS0's Active:	Displays the number of DS0s channels that are currently active.
DS0's Active High Water Mark:	Number of active DS0s that are approaching the threshold ceiling of the system.
TimeSlot	Time slot number used on the controller for the specified DS0.
Type	Type of call occupying the timeslot. This entry is usually channel-associated signaling (CAS) or ISDN PRI.
TotalCalls	How many calls came in on this time slot or DS0.
TotalDuration	Total duration of all the previous calls on the specified timeslot in(hrs: mins:sec).
Total DS0's Active High Water Mark:	Total number of active DS0s that are approaching the threshold ceiling of the system.

Related Commands

Command	Description
cas-group (E1 controller)	Configures CAS on an E1 controller.
show controllers e1 cas-data	Displays internal call switching module information about the switched 56K data channels.

show controllers e1 cas-data

To display internal call switching module information about the switched 56K data channels, use the **show controllers e1 cas-data** command in privileged EXEC mode.

show controllers e1 *controller-number* **cas-data**

Syntax Description

controller-number	Controller number (for example, 0, 1, 2, or 3).

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3T	This command was introduced.

Examples

The following is sample output from the **show controllers e1 cas-data** command:

```
router# show controllers e1 1 cas-data

Device Pool: Dev-SW56-pool
Number of SW56 vdev in pool: 48
Number of active connections: 0
No free SW56 device in pool: 0
SW56 max allocated messages: 96

E1 1:
 SW56(slot/subcont/bchan)=0/1/0, hwidb=0x00867348
  csm_state(0x00000100)=CSM_IDLE_STATE, csm_event_proc=0x0006CCC2
  total_call_duration=00:00:00
  invalid_event_count=0, wdt_timeout_count=0
  ic_failure=0, ic_complete=0, remote_link_disc=0
  csm_status(0): VDEV_STATUS_UNLOCKED
  wdt_timestamp_started is not activated
 SW56(slot/subcont/bchan)=0/1/1, hwidb=0x0086EC58
  csm_state(0x00000100)=CSM_IDLE_STATE, csm_event_proc=0x0006CCC2
  total_call_duration=00:00:00
  invalid_event_count=0, wdt_timeout_count=0
  ic_failure=0, ic_complete=0, remote_link_disc=0
  csm_status(0): VDEV_STATUS_UNLOCKED
  wdt_timestamp_started is not activated
 SW56(slot/subcont/bchan)=0/1/2, hwidb=0x00876568
  csm_state(0x00000100)=CSM_IDLE_STATE, csm_event_proc=0x0006CCC2
  total_call_duration=00:00:00
  invalid_event_count=0, wdt_timeout_count=0
  ic_failure=0, ic_complete=0, remote_link_disc=0
  csm_status(0): VDEV_STATUS_UNLOCKED
  wdt_timestamp_started is not activated
 SW56(slot/subcont/bchan)=0/1/3, hwidb=0x0087DE78
  csm_state(0x00000100)=CSM_IDLE_STATE, csm_event_proc=0x0006CCC2
  total_call_duration=00:00:00
  invalid_event_count=0, wdt_timeout_count=0
  ic_failure=0, ic_complete=0, remote_link_disc=0
  csm_status(0): VDEV_STATUS_UNLOCKED
  wdt_timestamp_started is not activated
```

```
SW56(slot/subcont/bchan)=0/1/4, hwidb=0x00885788
 csm_state(0x00000100)=CSM_IDLE_STATE, csm_event_proc=0x0006CCC2
 total_call_duration=00:00:00
 invalid_event_count=0, wdt_timeout_count=0
 ic_failure=0, ic_complete=0, remote_link_disc=0
 csm_status(0): VDEV_STATUS_UNLOCKED
 wdt_timestamp_started is not activated
```

Table 12 describes the significant fields shown in the display.

Table 12 show controllers e1 cas-data Field Descriptions

Field	Description
Device Pool:	Type of pool in service, which is a logical grouping used to achieve a specific service.
Number of SW56 vdev in pool:	Number of serial devices used in the pool.
Number of active connections:	Number of active switched 56K active connections.
No free SW56 device in pool:	Number of switched 56K channels available to accept calls.
SW56 max allocated messages:	Number of messages that are allocated to switched 56K services.
E1 1:	Number of the controller E1.
SW56(slot/subcont/bchan)=	Specified DS0 or time slot used for the switched 56K service.
csm_state(0x00000100)=	Call state machine register.
total_call_duration=	How long the call lasted (in hours: minutes: seconds).
invalid_event_count=	Number of invalid event counters for the specified channel.
ic_failure=	Number of incoming call failures.
csm_status(0):	Call state machine register.
wdt_timestamp_started is not activated	Watchdog timer.

Related Commands

Command	Description
cas-group (E1 controller)	Configures CAS on an E1 controller.
show controllers e1 call-counters	Displays the total number of calls and call durations on an E1 controller.

show controllers t1 call-counters

To display the total number of calls and call durations on a T1 controller, use the **show controllers t1 call-counters** command in privileged EXEC mode.

Cisco 4000 Series Routers

show controllers t1 *controller-number* **call-counters**

Cisco AS 53000 and AS5400 Access Servers

show controllers t1 *slot*/*port* **call-counters**

Syntax Description

controller-number	For Cisco 4000 series routers, enter just the controller number (for example, 0, 1, 2, or 3).
slot/*port*	For Cisco AS5300 and AS5400 series access servers, enter the controller number as *slot*/*port*. The slash marks are required.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3T	This command was introduced.
12.1(3)T	This command was introduced on the Cisco AS5300 and AS5400 series access servers.

Usage Guidelines

This command displays the T1 controller status as calls, such as switched 56K digital calls.

Examples

The following is partial sample output from the **show controllers t1 call-counters** command:

```
router# show controllers t1 1 call-counters

T1 1:
  DS0's Active: 0
  DS0's Active High Water Mark: 0
  TimeSlot   Type   TotalCalls   TotalDuration
      1       cas           0       00:00:00
      2       cas           0       00:00:00
      3       cas           0       00:00:00
      4       cas           0       00:00:00
      5       cas           0       00:00:00
      6       cas           0       00:00:00
      7       cas           0       00:00:00
      8       cas           0       00:00:00
      9       cas           0       00:00:00
     10       cas           0       00:00:00
     11       cas           0       00:00:00
     12       cas           0       00:00:00
     13       cas           0       00:00:00
```

```
      14        cas             0         00:00:00
      15        cas             0         00:00:00
      16        cas             0         00:00:00
      17        cas             0         00:00:00
      18        cas             0         00:00:00
      19        cas             0         00:00:00
      20        cas             0         00:00:00
      21        cas             0         00:00:00
      22        cas             0         00:00:00
.
.
.
Total DS0's Active High Water Mark: 7
```

Table 13 describes the significant fields shown in the display.

Table 13 show controllers t1 call-counters Field Descriptions

Field	Description
T1 1:	Number of the T1 controller.
DS0's Active:	Displays the number of DS0s channels that are currently active.
DS0's Active High Water Mark:	Number of active DS0s that are approaching the threshold ceiling of the system.
TimeSlot	Time slot number used on the controller for the specified DS0.
Type	Type of call occupying the time slot. This entry is usually channel-associated signaling (CAS) or ISDN PRI.
TotalCalls	How many calls came in on this time slot or DS0.
TotalDuration	Total active time for all previous successful calls on the specified time slot (in hours: minutes: seconds).
Total DS0's Active High Water Mark:	Total number of active DS0s that are approaching the threshold ceiling of the system.

Related Commands

Command	Description
cas-group (T1 controller)	Configures channel associated signaling on a T1 controller.
show controllers t1 cas-data	Displays internal call switching module information about the switched 56-kbps data channels.

show controllers t1 cas-data

To display internal call switching module information about the switched 56K data channels, use the **show controllers t1 cas-data** command in privileged EXEC mode.

Cisco 4000 Series Routers

show controllers t1 *controller-number* **cas-data**

Cisco AS 53000 and AS5400 Access Servers

show controllers t1 *slot*/*port* **cas-data**

Syntax Description

controller-number	For Cisco 4000 series routers, enter just the controller number (for example, 0, 1, 2, or 3).
slot/*port*	For Cisco AS5300 and AS5400 series access servers, enter the controller number as *slot*/*port*. The slash mark is required.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3T	This command was introduced.
12.1(3)T	This command was introduced on the Cisco AS5300 and AS5400 series access servers.

Examples

The following is sample output from the **show controllers t1 cas-data** command:

```
Router# show controllers t1 1 cas-data

Device Pool: Dev-SW56-pool
Number of SW56 vdev in pool: 48
Number of active connections: 0
No free SW56 device in pool: 0
SW56 max allocated messages: 96

T1 1:
 SW56(slot/subcont/bchan)=0/1/0, hwidb=0x00867348
  csm_state(0x00000100)=CSM_IDLE_STATE, csm_event_proc=0x0006CCC2
  total_call_duration=00:00:00
  invalid_event_count=0, wdt_timeout_count=0
  ic_failure=0, ic_complete=0, remote_link_disc=0
  csm_status(0): VDEV_STATUS_UNLOCKED
  wdt_timestamp_started is not activated
 SW56(slot/subcont/bchan)=0/1/1, hwidb=0x0086EC58
  csm_state(0x00000100)=CSM_IDLE_STATE, csm_event_proc=0x0006CCC2
  total_call_duration=00:00:00
  invalid_event_count=0, wdt_timeout_count=0
  ic_failure=0, ic_complete=0, remote_link_disc=0
  csm_status(0): VDEV_STATUS_UNLOCKED
  wdt_timestamp_started is not activated
```

```
SW56(slot/subcont/bchan)=0/1/2, hwidb=0x00876568
 csm_state(0x00000100)=CSM_IDLE_STATE, csm_event_proc=0x0006CCC2
 total_call_duration=00:00:00
 invalid_event_count=0, wdt_timeout_count=0
 ic_failure=0, ic_complete=0, remote_link_disc=0
 csm_status(0): VDEV_STATUS_UNLOCKED
 wdt_timestamp_started is not activated
SW56(slot/subcont/bchan)=0/1/3, hwidb=0x0087DE78
 csm_state(0x00000100)=CSM_IDLE_STATE, csm_event_proc=0x0006CCC2
 total_call_duration=00:00:00
 invalid_event_count=0, wdt_timeout_count=0
 ic_failure=0, ic_complete=0, remote_link_disc=0
 csm_status(0): VDEV_STATUS_UNLOCKED
 wdt_timestamp_started is not activated
SW56(slot/subcont/bchan)=0/1/4, hwidb=0x00885788
 csm_state(0x00000100)=CSM_IDLE_STATE, csm_event_proc=0x0006CCC2
 total_call_duration=00:00:00
 invalid_event_count=0, wdt_timeout_count=0
 ic_failure=0, ic_complete=0, remote_link_disc=0
 csm_status(0): VDEV_STATUS_UNLOCKED
 wdt_timestamp_started is not activated
```

Table 14 describes the significant fields in the display.

Table 14 show controllers t1 cas-data Field Descriptions

Field	Description
Device Pool:	Type of pool in service, which is a logical grouping used to achieve a specific service.
Number of SW56 vdev in pool:	Number of serial devices used in the pool.
Number of active connections:	Number of active switched 56K active connections.
No free SW56 device in pool:	Number of switched 56K channels available to accept calls.
SW56 max allocated messages:	Number of messages that are allocated to switched 56K services.
T1 1:	Number of the controller T1.
SW56(slot/subcont/bchan)=	Specified DS0 or time slot used for the switched 56K service.
csm_state(0x00000100)=	Call state machine register.
total_call_duration=	How long the call lasted (in hours: minutes: seconds).
invalid_event_count=	Number of invalid event counters for the specified channel.
ic_failure=	Number of incoming call failures.
csm_status(0):	Call state machine register.
wdt_timestamp_started is not activated	Watchdog timer.

Related Commands

Command	Description
cas-group (T1 controller)	Configures channel-associated signaling on a T1 controller.
show controllers t1 call-counters	Displays the total number of calls and call durations on a T1 controller.

show controllers t1 clock

To display the primary clock change history, use the **show controller t1 clock** command in privileged EXEC mode.

show controllers t1 *slot*/*port* **clock**

Syntax Description

slot/*port*	Controller number entered as *slot*/*port*. The slash mark is required.

Command Default

No default behavior or values.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.1(3)T	This command was introduced on the Cisco AS5300 and AS5400 series access servers.

Examples

The following example is a self-explanatory report for a Cisco AS5350 T1 controller clock:

```
Router# show controller t1 1/1 clock

Clock selected: Freerun clock


CLOCK CHANGE HISTORY
-------------------------

CLOCK        Event                                Time
-----        -----                                ----
Freerun   Firmware Initialization                 00:00:28 UTC Tue Nov 30 1999
```

Related Commands

Command	Description
clear controller	Resets the specified T1 or E1 controller.
clear controller t1 firmware-status	Clears the T1 controller crash history.

show controllers t1 firmware-status

To display the crash history of the New E1 And T1 (NEAT) controller, use the **show controller t1 firmware-status** command in privileged EXEC mode.

show controllers t1 *slot/port* **firmware-status**

Syntax Description

slot/port	Controller number entered as *slot/port*.

Command Default No default behavior or values.

Command Modes Privileged EXEC

Command History

Release	Modification
12.1(3)T	This command was introduced on the Cisco AS5300 and AS5400 series access servers.

Examples The following example is self-explanatory report crash history output from a Cisco AS5350 T1 controller:

```
Router# show controller t1 1/1 firmware-status

Trunk-1 hasn't restarted since last system reload
```

Related Commands

Command	Description
clear controller	Resets the specified T1 or E1 controller.
clear controller t1 firmware-status	Clears the T1 controller crash history.

show controllers t1 timeslots

To show the channel-associated signaling (CAS) and ISDN PRI state on the T1 controller in detail, use the **show controllers t1 timeslots** command in EXEC mode.

Cisco 4000 Series Routers

show controllers t1 *controller-number* **timeslots** *timeslot-range*

Cisco AS5300 and AS5400 Series Access Servers

show controllers t1 *slot*/*port* **timeslots** *timeslot-range*

Syntax Description

controller-number	For Cisco 4000 series: the controller number (for example, 0, 1, 2, or 3).
slot/*port*	For Cisco AS5300 series and Cisco AS5400 series: the controller number, as *slot*/*port*. The slash mark is required.
timeslot-range	Displays DS0 information. Time slot range for the T1 controller is from 1 to 24. Enter the range as a logical sequence of numbers separated by a dash.

Command Modes

EXEC

Command History

Release	Modification
10.0	This command was introduced.
12.1(3)T	This command was introduced on the Cisco AS5300 series and Cisco AS5400 series.

Usage Guidelines

Use this command to display the CAS and ISDN PRI channel state in detail. On the Cisco access servers, the command shows whether the DS0 channels of a controller are in idle, in-service, maintenance, or busyout states. Use the command to display statistics about the T1 links.

Examples

The following example shows that the CAS state is enabled on the Cisco AS5300 universal access server with a T1 PRI card. The display is self-explanatory.

```
Router# show controllers t1 1 timeslots 1-24

SERVICE STATES                CAS CHANNEL STATES
insvc    = In Service         down       = Down
outofsvc = Out of Service     idle       = Idle
maint    = Maintenance        connected  = Call Connected
                              signaling  = Signaling
                              static-bo  = Static Busyout
                              dynamic-bo = Dynamic Busyout

                              ISDN CHANNEL STATES
                              idle       = Available
                              proposed   = Negotiating
                              busy       = Unavailable
```

```
                                reserved   = Reserved
                                restart    = Restart Pending
                                maint_pend = Maintenance Pending
                                reassigned = Reassigned
                                prop'd_1tr6= Net may change channel #

T1 1 is up:
Loopback: NONE
DS0  Type       Modem    <->     Service       Channel       Rx          Tx
                                 State         State        A B C D     A B C D
-------------------------------------------------------------------------------------
  1    cas-modem   1       in     insvc       connected    1  1  1  1    1  1  1  1
  2    cas         -       -      insvc       idle         0  0  0  0    0  0  0  0
  3    cas         -       -      insvc       idle         0  0  0  0    0  0  0  0
  4    cas         -       -      insvc       idle         0  0  0  0    0  0  0  0
  5    cas         -       -      insvc       idle         0  0  0  0    0  0  0  0
  6    cas         -       -      insvc       idle         0  0  0  0    0  0  0  0
  7    cas         -       -      insvc       idle         0  0  0  0    0  0  0  0
  8    cas         -       -      insvc       idle         0  0  0  0    0  0  0  0
  9    cas         -       -      insvc       idle         0  0  0  0    0  0  0  0
  10   cas         -       -      maint      static-bo     0  0  0  0    1  1  1  1
  11   cas         -       -      maint      static-bo     0  0  0  0    1  1  1  1
  12   cas         -       -      maint      static-bo     0  0  0  0    1  1  1  1
  13   cas         -       -      maint      static-bo     0  0  0  0    1  1  1  1
  14   cas         -       -      maint      static-bo     0  0  0  0    1  1  1  1
  15   cas         -       -      maint      static-bo     0  0  0  0    1  1  1  1
  16   cas         -       -      maint      static-bo     0  0  0  0    1  1  1  1
  17   cas         -       -      maint      static-bo     0  0  0  0    1  1  1  1
  18   cas         -       -      maint      static-bo     0  0  0  0    1  1  1  1
  19   cas         -       -      maint      dynamic-bo    0  0  0  0    1  1  1  1
  20   cas         -       -      maint      dynamic-bo    0  0  0  0    1  1  1  1
  21   cas         -       -      maint      dynamic-bo    0  0  0  0    1  1  1  1
  22   unused
  23   unused
  24   unused
```

The following example shows that the ISDN PRI state is enabled on the Cisco AS5300 universal access server with a T1 PRI card:

```
Router# show controllers t1 2 timeslots 1-24

T1 2 is up:
Loopback:NONE
DS0 Type          Modem    <->  Service   Channel     Rx        Tx
                                State     State       A B C D   A B C D
-------------------------------------------------------------------------
 1  pri           -        -    insvc     idle
 2  pri           -        -    insvc     idle
 3  pri           -        -    insvc     idle
 4  pri           -        -    insvc     idle
 5  pri           -        -    insvc     idle
 6  pri           -        -    insvc     idle
 7  pri           -        -    insvc     idle
. . .
20  pri           -        -    insvc     idle
21  pri-modem     2        in   insvc     busy
22  pri-modem     1        out  insvc     busy
23  pri-digi      -        in   insvc     busy
24  pri-sig       -        -    outofsvc  reserved
```

show cot dsp

To display configuration and current status information about the Continuity Test (COT) Digital Signal Processor (DSP), use the **show cot dsp** command in privileged EXEC mode.

Cisco AS5300 Series

show cot dsp {**config** | **status**} *hardware-unit/ds0*

Cisco AS5800 Series

show cot dsp {**config** | **status**} *shelf/slot/hardware-unit/ds0*

Syntax Description

config	Displays the COT DSP configuration.
status	Displays the COT DSP status.
hardware-unit/ds0	Hardware unit number that provides the external interface connections from a router to the network, followed by a slash mark and the number of the COT operation request. Refer to the hardware installation guide for the signal processor to determine argument numbers.
shelf/slot/hardware-unit/ds0	Shelf number of COT operation request, the slot number, hardware unit number that provides the external interface connections from a router to the network, and the number of the COT operation request, each separated by a slash mark. Refer to the hardware installation guide for the signal processor to determine argument numbers.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3(7)	This command was introduced.

Examples

The following is sample output from the **show cot dsp** command that shows the COT DSP configuration:

```
Router# show cot dsp status 1/1

Rx Freq 2010 Hx
Tx Freq 1780 Hx
Tx then Rx mode
in WaitRxOn state

Router# show cot dsp config 1/1

Rx Freq 2010 Hx
Tx Freq 1780 Hx
Tx then Rx mode
Timeout value:0
```

Table 15 describes the significant fields shown in the displays.

Table 15 show cot dsp Field Descriptions

Field	Description
Rx Freq	The COT receive tone frequency.
Tx Freq	The COT transmit tone frequency.
Tx then Rx	Type of COT operation.
WaitRxOn	The state of the COT DSP.

Related Commands

Command	Description
clear cot summary	Resets the COT counters displayed by the **show cot summary** command.
debug cot	Troubleshoots COT operation.
show cot request	Displays COT request information.
show cot summary	Displays information about the COT activity.

show cot request

To display information about Continuity Test (COT) operation requests, use the **show cot request** command in privileged EXEC mode.

Cisco AS5300 Series

show cot request *hardware-unit/ds0*

Cisco AS5800 Series

show cot request *shelf/slot/hardware-unit/ds0*

Syntax Description

hardware-unit/ds0	Hardware unit number that provides the external interface connections from a router to the network, followed by a slash mark and the number of the COT operation request. Refer to the hardware installation guide for the signal processor to determine argument numbers.
shelf/slot/hardware-unit/ds0	Shelf number of COT operation request, the slot number, hardware unit number that provides the external interface connections from a router to the network, and the number of the COT operation request, each separated by a slash mark. Refer to the hardware installation guide for the signal processor to determine argument numbers.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3(7)	This command was introduced.

Examples

The following is sample output from the **show cot request** command:

```
Router# show cot request 1/1

00:19:29:COT Request@ 0x61064A20, CDB@ 0x60EBB48C, Params@0x61123DBC
00:19:29:  request type = COT_CHECK_TONE_ON
00:19:29:  shelf 0 slot 0 appl_no 1 ds0 1
00:19:29:  duration 100000 key FFF1 freqTx 1780 freqRx 2010
00:19:29:  state COT_WAIT_TD_ON_CT
00:19:29:  event_proc(0x6093B55C)
```

Table 16 describes the significant fields shown in the display.

Table 16 show cot request Field Descriptions

Field	Description
COT Request	Internal COT operation request.
CDB	Internal controller information.
Params	Internal COT operation request parameters.
request type	Type of COT operation.
duration	Timeout duration of COT operation.
key	COT operation identifier.
freqTx	Transmit tone frequency.
freqRx	Receive tone frequency.
state	COT subsystem machine state.
event_proc	COT subsystem state machine function.

Related Commands

Command	Description
clear cot summary	Resets the COT counters displayed by the show cot summary command.
debug cot	Troubleshoots COT operation.
show cot dsp	Displays information about the COT DSP configuration or current status.
show cot summary	Displays information about the COT activity.

show cot summary

To display information about Continuity Test (COT) activity, use the **show cot summary** command in privileged EXEC mode.

show cot summary

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3(7)	This command was introduced.

Examples

The following is sample output from the **show cot summary** command that shows the COT Digital Signal Processor (DSP) configuration:

```
Router# show cot summary

08:23:24:  COT Subsystem - Request Statistics

08:23:24: COT Request Type = COT_DS0_LOOPBACK_ON
08:23:24: # of request(s)           : 4         # of restart requests(s)  : 0
08:23:24: # of successful request(s): 4         # of invalid request(s)   : 0
08:23:24: # of cot timeout(s)       : 0         # of dsp error(s)         : 0
08:23:24: # of no dsp(s)            : 0

08:23:24: COT Request Type = COT_DS0_LOOPBACK_OFF
08:23:24: # of request(s)           : 4         # of restart requests(s)  : 0
08:23:24: # of successful request(s): 4         # of invalid request(s)   : 0
08:23:24: # of cot timeout(s)       : 0         # of dsp error(s)         : 0
08:23:24: # of no dsp(s)            : 0

08:23:24: COT Request Type = COT_CHECK_TONE_ON
08:23:24: # of request(s)           : 7         # of restart requests(s)  : 0
08:23:24: # of successful request(s): 3         # of invalid request(s)   : 2
08:23:24: # of cot timeout(s)       : 1         # of dsp error(s)         : 0
08:23:24: # of no dsp(s)            : 0

08:23:24: COT Request Type = COT_CHECK_TONE_OFF
08:23:24: # of request(s)           : 0         # of restart requests(s)  : 0
08:23:24: # of successful request(s): 0         # of invalid request(s)   : 0
08:23:24: # of cot timeout(s)       : 0         # of dsp error(s)         : 0
08:23:24: # of no dsp(s)            : 0


08:23:24: COT Request Type = COT_CUT_IN_TRANSPONDER
08:23:24: # of request(s)           : 0         # of restart requests(s)  : 0
08:23:24: # of successful request(s): 0         # of invalid request(s)   : 0
08:23:24: # of cot timeout(s)       : 0         # of dsp error(s)         : 0
08:23:24: # of no dsp(s)            : 0
```

```
08:23:24: COT Request Type = COT_CUT_OUT_TRANSPONDER
08:23:24: # of request(s)           : 0         # of restart requests(s)   : 0
08:23:24: # of successful request(s): 0         # of invalid request(s)    : 0
08:23:24: # of cot timeout(s)       : 0         # of dsp error(s)          : 0
08:23:24: # of no dsp(s)            : 0
```

Table 17 describes the significant fields shown in the display.

Table 17 show cot summary Field Descriptions

Field	Description
# of request(s)	Number of COT operation requests.
# of successful request(s)	Number of successful COT operation requests.
# of cot timeout(s)	Number of COT subsystem timeouts.
# of no dsp(s)	Number of COT operation requests rejected because of unavailable DSP.
# of restart request(s)	Number of COT operation requests restarted.
# of invalid request(s)	Number of invalid COT operation requests.
# of dsp error(s)	Number of DSP errors.

Related Commands

Command	Description
clear cot summary	Resets the COT counters displayed by the show cot summary command.
debug cot	Troubleshoots COT operation.
show cot dsp	Displays information about the COT DSP configuration or current status.
show cot request	Displays COT request information.

show dhcp

To display the current Dynamic Host Configuration Protocol (DHCP) settings on point-to-point interfaces, use the **show dhcp** command in privileged EXEC mode.

show dhcp {**server** | **lease** [**interface async** [*number*]]}

Syntax Description

server	Displays known DHCP servers.
lease	Displays DHCP addresses leased from a server.
interface async [*number*]	(Optional) Specifies asynchronous interfaces and, optionally, a specific interface number.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.1	This command was introduced.

Usage Guidelines

If you omit the optional argument, the **show dhcp** command displays information about all interfaces.

You can use this command on any point-to-point type of interface (for example, serial, ISDN, and asynchronous) that uses DHCP for temporary IP address allocation.

Examples

The following is sample output from the **show dhcp server** command:

```
Router# show dhcp server

IP address pooling for Point to Point clients is: DHCP Proxy Client
DHCP Proxy Client Status:
   DHCP server: ANY (255.255.255.255)
    Leases:   0
    Offers:   0      Requests: 0     Acks: 0     Naks: 0
    Declines: 0      Releases: 0     Bad:  0
```

Table 18 describes the significant fields shown in the display.

Table 18 show dhcp Field Descriptions

Field	Description
Leases	Number of current leased IP addresses.
Offers	Number of offers for an IP address sent to a proxy-client from the server.
Requests	Number of requests for an IP address to the server.
Acks	Number of “acknowledge” messages sent by the server to the proxy-client.

Table 18 show dhcp Field Descriptions (continued)

Field	Description
Naks	Number of “not acknowledge” messages sent by the server to the proxy-client.
Declines	Number of offers from the server that are declined by the proxy-client.
Releases	Number of times IP addresses have been relinquished gracefully by the client.
Bad	Number of bad packets received from wrong length, wrong field type, and so on.

Related Commands

Command	Description
ip address-pool	Enables an address pooling mechanism used to supply IP addresses to dial-in asynchronous, synchronous, or ISDN point-to-point interfaces.
ip dhcp-server	Specifies which DHCP servers to use on a network, and specifies the IP address of one or more DHCP servers available on the network.
peer default ip address	Specifies an IP address, an address from a specific IP address pool, or an address from the DHCP mechanism to be returned to a remote peer connecting to this interface.

show dialer

To display general diagnostic information for interfaces configured for dial-on-demand routing (DDR), use th**e show dialer** command in EXEC mode.

show dialer [**interface** *type number*]

Syntax Description

interface	(Optional) Displays information for the interface specified by the *type* and *number* arguments. Refer to your hardware installation guide to determine the arguments for interface type and number.
type	(Optional) Interface type.
number	(Optional) Interface number.

Command Modes

EXEC

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

If you enter the **show dialer interface** command for the D channel of an ISDN BRI or PRI, the command output also displays the B channels. That is, the **show dialer interface bri 0** command displays information of interfaces bri 0, bri 0:1, and bri 0:2. The **show dialer interface serial 0:23** command (for a channelized T1 line configured for ISDN PRI) displays information for serial interfaces 0:23, 0:0, 0:1, and so forth to 0:22.

If you have defined a dialer group that consists of the interfaces serial 0, serial 1, and bri 2, the **show dialer interface dialer 1** command displays information for interfaces bri 0, bri 0:1, bri 0:2, serial 1, and serial 0.

Examples

The following is sample output from the **show dialer** command for a BRI interface when dialer profiles are configured:

```
Router# show dialer interface bri 0

BRI0 - dialer type = ISDN

Dial String      Successes   Failures    Last called   Last status

0 incoming call(s) have been screened.

BRI0: B-Channel 1
Idle timer (120 secs), Fast idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)

Dialer state is data link layer up

Dial reason: ip (s=10.1.1.8, d=10.1.1.1)

Interface bound to profile Dialer0
```

```
Time until disconnect 102 secs
Current call connected 00:00:19
Connected to 5551212 (Device1)

BRI0: B-Channel 2
Idle timer (120 secs), Fast idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)
Dialer state is idle
```

Table 19 describes the significant fields shown in the display.

Table 19 show dialer interface bri Field Descriptions

Field	Description
BRI0 - dialer type = ISDN	ISDN dialer.
Dial String	Dial strings of logged calls (telephone numbers). On ISDN BRI interfaces, if you have specified a subaddress number in the **dialer string,** this number is included in the dial string after a colon.
Successes	Successful connections (even if no data is passed).
Failures	Failed connections; call not successfully completed.
Last called	Time that last call occurred to specific dial string.
Last status	Status of last call to specific dial string (successful or failed).
0 incoming call(s) have been screened.	Number of calls subjected to Dialer Profiles screening to determine how the call is to be treated.
BRI0: B-Channel 1	Header indicating the following data is for B channel 1.
Idle timer (120 secs), Fast idle timer (20 secs)	Settings (in seconds) for the idle timer and the fast idle timer.
Wait for carrier (30 secs), Re-enable (15 secs)	Settings (in seconds) for the wait for carrier timer and the reenable timer.
Dialer state is data link layer up	The message “data link layer up” suggests that the dialer came up properly; if it says anything else then dialer did not come up properly. The message “physical layer up” means the Line Control Protocol (LCP) came up, but the Network control Protocol (NCP) did not come up. The **show interfaces** command also provides similar information.
Dial reason: ip (s=10.1.1.8, d=10.1.1.1)	What initiated the dial, namely an IP packet, plus source and destination address in the packet.
Interface bound to profile Dialer0	Dialer profile that is bound to this interface or B channel.
Time until disconnect	Time, in seconds, until line is configured to disconnect.
Current call connected	Time, in hours: minutes: seconds, at which the current call was connected.
Connected to	Dial string to which the line is currently connected.

The following is sample output from the **show dialer** command for an asynchronous interface:

```
Router# show dialer interface async 1

Async1 - dialer type = IN-BAND NO-PARITY
Idle timer (900 secs), Fast idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)
Time until disconnect 838 secs
Current call connected 0:02:16
Connected to 8986

 Dial String      Successes   Failures    Last called   Last status
 8986                    0          0     never                     Defaults
 8986                    8          3     0:02:16       Success     Defaults
```

Table 20 describes the significant fields shown in the display.

Table 20 show dialer interface async Field Descriptions for In-Band Dialers

Field	Description
Async 1	Name of an asynchronous interface.
dialer type = IN-BAND	Indicates that DDR is enabled.
Idle timer (900 secs)	Idle timeout specification (in seconds).
Fast idle timer (20 secs)	Fast idle timer specification (in seconds).
Wait for carrier (30 secs)	Wait for carrier timer specification (in seconds).
Re-enable (15 secs)	Enable timeout specification (in seconds).
Time until disconnect	Time, in seconds, until line is configured to disconnect.
Current call connected	Time, in hours: minutes: seconds, at which the current call was connected.
Connected to	Dial string to which the line is currently connected.
Dial String	Dial strings of logged calls (telephone numbers). On ISDN BRI interfaces, if you have specified a subaddress number in the **dialer string** or **dialer map** command, this number is included in the dial string after a colon.
Successes	Successful connections (even if no data is passed).
Failures	Failed connections; call not successfully completed.
Last called	Time, in hours: minutes: seconds, that last call occurred to specific dial string, or never if call has never been made.
Last status	Status of last call to specific dial string (Success or Failed).
Defaults	If the DDR facility is using the dial string specified with the **dialer string** command, the word *Defaults* is appended to the Last status entry.

When the **show dialer** EXEC command is issued for a synchronous serial interface configured for data terminal ready (DTR) dialing, output similar to the following is displayed:

```
Router# show dialer interface serial 0

Serial 0 - dialer type = DTR SYNC
Idle timer (120 secs), Fst idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)
```

```
Dial String    Successes   Failures    Last called   Last status
----                1         0         1:04:47      Success     DTR dialer
8986                0         0         never                    Defaults
```

Table 21 describes additional fields shown in the display; see Table 20 for information about the other fields in the report.

Table 21 show dialer Field Descriptions for DTR Dialers

Field	Description
DTR SYNC	Indicates that DDR is enabled and that DTR dialing is enabled on this synchronous interface.
Last status: Success	Indicates that the last call was successful and that DTR dialing was used.
DTR dialer	Phrase appended to the Last status entry to indicate that this is a DTR dialer.

If an interface is connected to a destination, a display is provided that indicates the idle time before the line is disconnected. (The value decrements each second.) Then the duration of the current connection is displayed. The following is an example of this display:

```
Time until disconnect 596 secs
Current call connected 0:00:25
```

After a call disconnects, the system displays the time remaining before it can be dialed again. The following is an example of this display:

```
Time until interface enabled 8 secs
```

If the **show dialer** command is issued for an interface on which DDR is not enabled, the system displays an error message. The following is a sample error message:

```
Async 1 - Dialing not enabled on this interface.
```

If an interface is configured for DDR, the **show interfaces** command displays the following message:

```
Async1 is up, line protocol is up (spoofing)
Hardware is Async Serial
```

The word *spoofing* indicates that the line really is not up, but the dialer is forcing the line to masquerade as “up” so that upper level protocols will continue to operate as expected. Spoofing is a state added to allow DDR to work. The interface “dials on demand” in response to packets being routed to it. But because no packets are routed to down interfaces, the interface must pretend to be up (spoof) so packets will be routed to it when it is not connected. Spoofing is the normal idle state on a dial-on-demand interface.

If caller ID screening is configured on an ISDN BRI, the **show dialer** command display includes a line similar to the following:

```
1 incoming call(s) have been screened.
```

This line reports the number of calls that have been screened.

show dialer dnis

To see how many calls Dialed Number Information Service (DNIS) groups have had, use the **show dialer dnis** command in user EXEC mode or privileged EXEC mode.

show dialer dnis {**group** [*name*] | **number** [*number*] | **range** [*start-range end-range*]}

Syntax Description

group	Displays DNIS group statistics.
name	(Optional) DNIS group name.
number	Displays DNIS group number statistics.
number	(Optional) DNIS group number.
range	Displays DNIS range statistics.
start-range	(Optional) DNIS start range.
end-range	(Optional) DNIS end range.

Command Modes

User EXEC (>)
Privileged EXEC (#)

Command History

Release	Modification
12.0(4)XI	This command was introduced.
12.2(10)S	This command was integrated into Cisco IOS Release 12.2(10)S.
12.2(31)SB	This command was integrated into Cisco IOS Release 12.2(31)SB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
Cisco IOS XE Release 2.1	This command was integrated into Cisco IOS XE Release 2.1.

Usage Guidelines

If no DNIS groups are configured and resource pooling is enabled, then no calls are accepted. All calls are identified by call type/DNIS combinations.

Use the **show dialer dnis** command to display how many calls DNIS groups have had or how many calls a specific DNIS group has had. You can configure each DNIS group with multiple numbers. Using this command displays tables of statistics for each DNIS number received at the network access server.

Examples

The following example shows the **show dialer dnis** command being used to display DNIS group and DNIS number statistics:

```
Router# show dialer dnis ?

  group   DNIS group statistics
  number  DNIS number statistics
  range   DNIS range statistics
```

```
Router# show dialer dnis group

List of DNIS Groups:
  default
  mdm_grp1

Router# show dialer dnis group mdm_grp1

DNIS Number:2001
  0 total connections
  0 peak connections
  0 calltype mismatches
DNIS Number:2002
  0 total connections
  0 peak connections
  0 calltype mismatches
DNIS Number:2003
  0 total connections
  0 peak connections
  0 calltype mismatches
DNIS Number:2004
  0 total connections
  0 peak connections
  0 calltype mismatches

Router# show dialer dnis number

List of Numbers:
  default
  2001
  2002
  2003
  2004

Router# show dialer dnis number 2001

DNIS Number:2001
  0 connections total
  0 peak connections
  0 call-type mismatches
```

Table 22 describes the significant fields shown in the display.

Table 22 show dialer dnis Field Descriptions

Field	Description
List of DNIS Groups	List of DNIS groups assigned.
List of Numbers	List of DNIS numbers currently assigned.
DNIS Number	DNIS number assigned to specific customers.
total connections	Cumulative number of connections since the last **clear** command was used.
peak connections	Cumulative number of peak connections since the last **clear** command was used.
call-type mismatches	Cumulative number of call-type mismatches since the last **clear** command was used.

Related Commands

Command	Description
clear dialer dnis	Resets the counter statistics associated with a specific DNIS group or number.

show dialer interface bri

To display general diagnostic information for ISDN BRI interfaces configured for dial-on-demand routing (DDR), use the **show dialer interface bri** command in EXEC mode.

show dialer interface bri *number*

Syntax Description

number	BRI interface number.

Command Modes

EXEC

Command History

Release	Modification
9.21	This command was introduced.

Usage Guidelines

If you enter the **show dialer interface bri** command for the D channel of an ISDN BRI, the command output also displays the B channels. That is, the **show dialer interface bri 0** command displays information of interfaces bri 0, bri 0:1, and bri 0:2. Similarly, use of the related **show dialer interface serial 0:23** command (for a channelized T1 line configured for ISDN PRI) displays information for serial interfaces 0:23, 0:0, 0:1, and so forth to 0:22.

If you have defined a dialer group that consists of the interfaces serial 0, serial 1, and bri 2, the **show dialer interface dialer 1** command displays information for interfaces bri 0, bri 0:1, bri 0:2, serial 1, and serial 0.

Examples

The following example shows the **show dialer interface bri** command report for a BRI interface when dialer profiles are configured:

```
Router# show dialer interface bri 0

BRI0 - dialer type = ISDN

Dial String      Successes   Failures    Last called   Last status

0 incoming call(s) have been screened.

BRI0: B-Channel 1
Idle timer (120 secs), Fast idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)

Dialer state is data link layer up

Dial reason: ip (s=10.1.1.8, d=10.1.1.1)

Interface bound to profile Dialer0

Time until disconnect 102 secs
Current call connected 00:00:19
Connected to 5551212 (Device1)
```

```
BRI0: B-Channel 2
Idle timer (120 secs), Fast idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)
Dialer state is idle
```

Table 23 describes the significant fields shown in the display.

Table 23 show dialer interface bri Field Descriptions

Field	Description
BRI0 - dialer type = ISDN	ISDN dialer.
Dial string	Dial strings of logged calls (telephone numbers). On ISDN BRI interfaces, if you have specified a subaddress number in the **dialer string**, this number is included in the dial string after a colon.
Successes	Successful connections (even if no data is passed).
Failures	Failed connections; call not successfully completed.
Last called	Time that last call occurred to specific dial string.
Last status	Status of last call to specific dial string (successful or failed).
0 incoming call(s) have been screened.	Number of calls subjected to Dialer Profiles screening to determine how the call is to be treated.
BRI0: B-Channel 1	Header indicating the following data is for B channel 1.
Idle timer (120 secs), Fast idle timer (20 secs)	Settings (in seconds) for the idle timer and the fast idle timer.
Wait for carrier (30 secs), Reenable (15 secs)	Settings (in seconds) for the wait for carrier timer and the reenable timer.
Dialer state is data link layer up	The message “data link layer up” suggests that the dialer came up properly; if it says anything else then dialer did not come up properly. The message “physical layer up” means the line protocol (LCP) came up, but the NCP did not come up. The **show interfaces** command also provides the similar information.
Dial reason: ip (s=6.1.1.8, d=6.1.1.1)	What initiated the dial, namely an IP packet, plus source and destination address in the packet.
Interface bound to profile Dialer0	Dialer profile that is bound to this interface or B channel.
Time until disconnect	Time until line is configured to disconnect. This field is displayed if the interface is currently connected to a destination.
Current call connected	Time at which the current call was connected.
Connected to	Dial string to which line is currently connected.

If an interface is connected to a destination, a display is provided that indicates the idle time before the line is disconnected. (The value decrements each second.) Then the duration of the current connection is shown. The following shows an example of this display:

```
Time until disconnect 596 secs
Current call connected 0:00:25
```

After a call disconnects, the system displays the time remaining before being it can dial again. The following is an example of this display:

```
Time until interface enabled 8 secs
```

If caller ID screening is configured on an ISDN BRI, the **show dialer interface bri** command display includes a line similar to the following:

```
1 incoming call(s) have been screened.
```

This line reports the number of calls that have been screened.

Related Commands

Command	Description
show dialer	Displays general diagnostic information for interfaces configured for DDR.

show dialer maps

To display configured dynamic and static dialer maps and dynamically created PPP Bandwidth Allocation Control Protocol (BACP) temporary static dialer maps, use the **show dialer maps** command in user EXEC or privileged EXEC mode.

show dialer maps

Syntax Description

This command has no arguments or keywords.

Command Modes

User EXEC (>)
Privileged EXEC (#)

Command History

Release	Modification
11.2	This command was introduced.
12.2(10)S	This command was integrated into Cisco IOS Release 12.2(10)S.
12.2SX	This command is supported in Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.
12.2(31)SB	This command was integrated into Cisco IOS Release 12.2(31)SB.
Cisco IOS XE Release 2.1	This command was implemented on the Cisco ASR 1000 series routers.
12.2(33)SRE	This command was integrated into a release earlier than Cisco IOS Release 12.2(33)SRE.

Examples

The following is sample output from the **show dialer maps** command. The dialer maps are grouped by network address. When multiple dialer maps exist for the same network address, the dialer maps differ only by phone number. In this output, the dialer maps marked “BAP” are temporary dialer maps the PPP BACP creates when a peer calls from a different phone number than is configured or when a peer calls from a number that does not appear in an existing map. The temporary dialer maps allows PPP BACP to make outgoing calls to the peers.

```
Router# show dialer maps

Static dialer map ip 10.1.1.1 name peer_1 on Dialer1
Static dialer map ip 10.1.1.2 name peer_2 on Dialer1
BAP dialer map ip 10.1.1.2 name peer_2 on Dialer1
Dynamic dialer map ip 10.1.1.3 name peer_3 on Dialer1
BAP dialer map ip 10.1.1.3 name peer_3 on Dialer1
```

Table 24 describes the significant fields shown in the display.

Table 24 show dialer map Field Descriptions

Field	Description
Static dialer map ip 10.1.1.1	A configured static dialer map to call the specified protocol address.
name peer_1	Name of the remote peer.
on Dialer1	The physical or logical dialer interface on which the static map is configured.
BAP dialer map ip 10.1.1.2	A temporary dialer map that was created by PPP BACP for the particular destination with a different phone number from that of any existing maps. It will be removed when the BACP group is removed or the last remaining map to that destination is removed.
Dynamic dialer map ip 10.1.1.3	Dialer map dynamically created when a peer called.
BAP dialer map ip 10.1.1.3 name peer_3	Temporary static dialer map created by PPP BACP when required. It will be removed when the BACP group is removed or when the dynamic dialer map disappears.

Related Commands

Command	Description
dialer map	Configures a serial interface or ISDN interface to call one or multiple sites or to receive calls from multiple sites.

show dialer sessions

To display all dialer sessions, use the **show dialer sessions** command in EXEC mode.

show dialer sessions

Syntax Description

This command has no arguments or keywords.

Command Modes

EXEC

Command History

Release	Modification
12.0(3)T	This command was introduced.

Examples

In the following example, a Cisco 5350 router is dialing out to a Cisco 5300 router. All dialer sessions are displayed.

```
Router# show dialer sessions

DSES 0xAF0: index = 0x0, state = 3, ip addr = 10.2.2.22, dialed number = 81067, name = p5
200_pri.cisco.com, connected interface = Serial0:22
```

Table 25 describes the significant fields shown in the display.

Table 25 show dialer sessions Field Descriptions

Field	Description
ip addr	IP address of the remote interface that has been dialed into.
dialed number	Number that was used to dial out.
name	Name of the interface dialed into. This can be different from the router name, because names can be changed on per-interface basis.
connected interface	The channel on which the call is connected.

Related Commands

Command	Description
clear dialer sessions	Removes all dialer sessions and disconnects links when connected.

show dial-shelf

To display information about the dial shelf, including clocking information, use the **show dial-shelf** command in privileged EXEC mode.

show dial-shelf [**clocks** | **slot** *slot-number* [**clocks**]]

Syntax Description

clocks	(Optional) Displays the current primary and backup clocks along with their priorities.
slot *slot-number*	(Optional) Displays information for a specific slot; refer to your hardware installation guide to determine the *slot-number*.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3(2)AA	This command was introduced.

Usage Guidelines

To configure the clock source and priority of the clock source used by the time-division multiplexing (TDM) bus on the dial shelf, use the **dial-tdm-clock** global configuration command.

Examples

The following is sample output from the **show dial-shelf** command:

```
Router# show dial-shelf

Slot  Board     CPU         DRAM          I/O Memory   State         Elapsed
       Type     Util     Total (free)    Total (free)               Time
 1      CT1    0%/0%  22034060 ( 88%)  8388608 ( 49%)  Up            00:37:31
 5    Modem    0%/0%   7353996 ( 57%)  6291456 ( 35%)  Up            00:37:29
 6    Modem    0%/0%   7353996 ( 58%)  6291456 ( 35%)  Up            00:37:34
 7    Modem    5%/5%   7353996 ( 57%)  6291456 ( 35%)  Up            00:37:29
 8    Modem  19%/19%   7353996 ( 57%)  6291456 ( 35%)  Up            00:37:33
 9    Modem    8%/8%   7353996 ( 57%)  6291456 ( 35%)  Up            00:37:33
11    Modem    0%/0%   7353996 ( 57%)  6291456 ( 35%)  Up            00:37:30
12      DSC    0%/0%  20830044 ( 91%)  8388608 ( 66%)  Up            00:37:35
```

When the router is in dial shelf split mode, the **show dial-shelf** command indicates that the router shelf is running in split mode and which slots the router shelf owns. The status of any cards in any owned slots will be displayed just as they are in the present command. Thus when in normal mode, this command is unchanged from the original version.

When in split mode, the output will be extended, as in the following example:

```
Router# show dial-shelf

System is in split dial shelf mode.
Slots owned: 0 2 3 4 5 6 (connected to DSC in slot 13)
Slot    Board     CPU       DRAM          I/O Memory   State   Elapsed
         Type     Util    Total (free)   Total (free)          Time
 0        CE1    0%/0%  21341728( 87%)  8388608( 45%)  Up      00:11:37
```

```
 2        CE1    0%/0%  21341728( 87%)  8388608( 45%)  Up      00:11:37
 4 Modem(HMM)   20%/20%   6661664( 47%)  6291456( 33%)  Up      00:11:37
 5 Modem(DMM)    0%/0%   6661664( 31%)  6291456( 32%)  Up      00:11:37
 6 Modem(DMM)    0%/0%   6661664( 31%)  6291456( 32%)  Up      00:11:37
13        DSC    0%/0%  20451808( 91%)  8388608( 66%)  Up      00:16:31
Dial shelf set for auto boot
```

Note that only the first two lines of output are new; the remaining information is the same that you would obtain from the system if there were no cards in the slots, which in the above example, are not owned.

Table 26 describes the significant fields shown in the display.

Table 26 show dial-shelf Field Descriptions

Field	Description
Slot	Slot number of the card.
Board Type	Type of card in the slot. Types include channelized T1/E1 trunk cards, modem cards, or Dial Shelf Controller (DSC) card.
CPU Util	Utilization ratio of the CPU.
DRAM Total (free)	Percent of free space.
I/O Memory Total (free)	Percent of free disk space.
State	Current state of the card. Can be Up or Down.
Elapsed Time	The elapsed time, in hours: minutes: seconds, for which the shelf has been up.

The following examples show output from the **show dial-shelf clocks** command, for comparison.

Display 1

```
Router# show dial-shelf clocks

Primary Clock:
--------------
Slot 12:
System primary is 1/3/1 of priority 3
TDM Bus Master Clock Generator State = NORMAL

Backup clocks:
Source  Slot    Port    Priority      Status      State
-------------------------------------------------------
Trunk   1       2       10             Good        Configured

Status of trunk clocks:
-----------------------
Slot    Type    11 10  9  8  7  6  5  4  3  2  1  0
1       T1       B  B  B  B  B  B  B  B  B  G  B  B
3       T1       B  B  B  B  B  B  B  B  B  B  G  B
```

Display 2

```
Router# show dial-shelf clocks

Slot 12:
System primary is 6/76/0 of priority 76
TDM Bus Master Clock Generator State = HOLDOVER
```

```
Backup clocks:
Source  Slot    Port    Priority      Status      State
-------------------------------------------------------

Slot    Type    11 10  9  8  7  6  5  4  3  2  1  0
0       E1       B  B  B  B  B  B  B  B  B  B  B  B
```

Related Commands

Command	Description
show diag	Displays advanced troubleshooting information about line cards.
show dial-shelf split	Displays information about the types of cards in nonowned dial shelf slots.