modem cts-alarm

To enable the router to react to a Clear to Send (CTS) drop from a remote device, and to clear an existing EXEC session, use the **modem cts-alarm** command in line configuration mode. To disable the system from reacting to CTS drops from remote devices, and to have the router ignore to CTS drops, use the **no** form of this command.

modem cts-alarm

no modem cts-alarm

Syntax Description

This command does not have any keywords or arguments.

Command Default

The system does not react to CTS drops.

Command Modes

Line configuration (config-line)

Command History

Release	Modification
12.0T	This command was introduced.
12.2(4)T	This command was integrated into the Cisco IOS Release 12.2(4)T.

Usage Guidelines

This command allows a router to react to asynchronous devices that signal state changes via CTS. When an asynchronous line is used to connect to remote devices, the **modem cts-alarm** command allows the router to react to a CTS drop from the remote device and clear any existing EXEC session that it might have.

By default, the recovery and EXEC restart sessions are not triggered by CTS changes if the **modem-cts-alarm** command is not configured.

Examples

The following example shows how to configure a line for a modem:

```
Router# configure terminal
Router(config)# line 8 9
Router(config-line)# modem cts-alarm
Router(config)# end
Router#
```

modem firmware slot

To enable modem management configuration and specify the firmware used for the modem, the modem slot, and the name of the firmware file, use the **modem firmware slot** command in global configuration mode. To disable the modem management configuration, use the **no** form of this command.

modem firmware slot *slot-number* **location** *firmware-filename*

no modem firmware slot *slot-number* **location** *firmware-filename*

Syntax Description

slot-number	The modem slot number. The range is from 0 to 6.
location	Specifies the location of the firmware file.
firmware-filename	The name of the firmware file.

Command Default

The modem management configuration is not enabled.

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

Use the **modem firmware slot** command to load a specified version of portware into specified modems, or to load any portware that is resident in flash memory and is older than the portware that is bundled with the Cisco IOS software image. The *slot-number* argument specifies the modem slot that contains the network module with the modem. The *firmware-filename* argument specifies the Cisco IOS file system (IFS) filename of the portware to be loaded into the modem.

Examples

The following example shows how to specify the firmware used for the modem, the modem slot number 3, and the firmware file named abcd:

```
Router(config)# modem firmware slot 1 location flash:pw2730.ios

This command will disconnect any active calls.
Modem Slot 1 :Started firmware download.
Modem Slot 1: Completed firmware download
```

Related Commands

Command	Description
show modem version	Displays version information about the modem firmware, controller and DSP ATM address field code (for 56K modems only), and boot code.

modem link-info poll time

To set the polling interval at which link statistics are retrieved from the MICA technologies modem, use the **modem link-info poll time** command in global configuration mode. To return to the default condition, use the **no** form of this command.

modem link-info poll time *seconds*

no modem link-info poll time *seconds*

Syntax Description

seconds	Number of seconds between polling intervals. The valid range is from 10 to 65535.

Command Default

Link statistics are not polled.

Command Modes

Global configuration

Command History

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

Usage Guidelines

The **modem link-info poll time** command periodically polls active modem sessions to collect information such as attempted transmit and receive rates, maximum and minimum transmit and receive rates, and locally and remotely issued retrains and speedshift counters. This data is polled from MICA portware and passed unsolicited to Cisco IOS software.

Enabling the **modem link-info poll time** command disables the **modem poll time** command. Any **modem poll time** configuration is ignored because all modem events are sent to the access server unsolicited and no longer require polling by Cisco IOS software.

Note The **modem link-info poll time** command consumes a substantial amount of memory, approximately 500 bytes for each MICA modem call. You should use this command only if you require the specific data that it collects; for instance, if you have enabled Call Tracker on your access server using the **calltracker call-record** command.

Examples

The following example polls link statistics at 90 second intervals:

```
modem link-info poll time 300
```

Related Commands

Command	Description
calltracker call-record	Enables Call Tracker on the access server.
show call calltracker active	Displays the detailed data stored within Call Tracker for active calls.
show call calltracker handle	Displays the detailed data stored within Call Tracker for a specific call specified unique call handle identifier.
show call calltracker history	Displays the detailed data stored within Call Tracker for terminated calls.
show modem calltracker	Displays the detailed data stored within Call Tracker for the last call on the specified modem.

modem log

To configure the types of EIA/TIA events that are stored in the modem log, use the **modem log** command in line configuration mode. To prevent a type of EIA/TIA event from being stored in the modem log, use the **no** form of this command.

modem log {**cts** | **dcd** | **dsr** | **dtr** | **ri** | **rs232** | **rts** | **tst**}

no modem log {**cts** | **dcd** | **dsr** | **dtr** | **ri** | **rs232** | **rts** | **tst**}

Syntax Description

cts	Specifies that EIA/TIA clear to send (CTS) events are stored in the modem log.
dcd	Specifies that EIA/TIA data carrier detect (DCD) events are stored in the modem log.
dsr	Specifies that EIA/TIA data set ready (DSR) events are stored in the modem log.
dtr	Specifies that EIA/TIA data terminal ready (DTR) events are stored in the modem log.
ri	Specifies that EIA/TIA ring indication (RI) events are stored in the modem log.
rs232	Specifies that all EIA/TIA events are stored in the modem log.
rts	Specifies that EIA/TIA request to send (RTS) events are stored in the modem log.
tst	Specifies that EIA/TIA transmit signal timing (TST) events are stored in the modem log.

Command Default

No EIA/TIA events are logged.

Command Modes

Line configuration

Command History

Release	Modification
11.3AA	This command was introduced for the Cisco AS5300 access server.
12.0(5)T	This command was implemented on the Cisco AS5800 access server.

Usage Guidelines

Use the **modem log** command to suppress the storage of undesired EIA/TIA history events in the modem log.

Examples

The following example configures the storage of EIA/TIA CTS and DSR events on lines 1 through 120:

```
line 1 120
 modem log cts
 modem log dsr
```

Related Commands

Command	Description
show modem log	Displays the modem history event status performed on a manageable modem or group of modems.

modem min-speed max-speed

To configure various modem-service parameters, use the **modem min-speed max-speed** command in service profile configuration mode. To remove modem parameters, use the **no** form of this command.

modem min-speed {*bps* | **any**} **max-speed** {*bps* | **any** [**modulation** *value*][**error-correction** *value*][**compression** *value*]}

no modem min-speed {*bps* | **any**} **max-speed** {*bps* | **any** [**modulation** *value*][**error-correction** *value*][**compression** *value*]}

Syntax Description

bps	Minimum and maximum bit rate for the modems, which can be from 300 to 56,000 bits per second (bps). The bit rate must be in V.90 increments.
any	Any minimum or maximum speed.
modulation *value*	(Optional) Sets a maximum negotiated speed. Replace the *value* argument with one of the following choices: **any**, **k56flex**, **v22bis**, **v34**, or **v90**.
error-correction *value*	Replace the value argument with one of the following choices: **any**, **1apm**, **mnp4**, **none**.
compression *value*	Replace the value argument with one of the following choices: **any**, **mnp5**, **none**, **v42bis**.

Command Default

No modem service parameters are defined by default. Any default services provided by the modems will be available.

Command Modes

Service profile configuration

Command History

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

Examples

The following example shows the modem service parameters for the service profile named user1sample configured for any minimum or maximum and sets a maximum negotiated speed to **k56flex**.

```
resource-pool profile service user1sample
 modem min-speed any max-speed any modulation k56flex
```

modem poll retry

To set the maximum number of polling attempts used to retrieve performance statistics from a modem installed in an access server or router, use the **modem poll retry** command in global configuration mode. To change or remove the polling attempts, use the **no** form of the command.

modem poll retry *polling-attempts*

no modem poll retry *polling-attempts*

Syntax Description

polling-attempts	Maximum number of polling attempts. The configuration range is from 0 to 10 attempts, and the default is 3.

Command Default

Three polling attempts

Command Modes

Global configuration

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

Higher settings cause the software to keep polling one modem for status and to avoid polling other modems, which decreases the amount of statistics that are gathered.

Note This command does not apply to basic modems that have out-of-band ports.

Examples

The following example configures the server to attempt to retrieve statistics from a local modem up to five times before discontinuing the polling effort:

```
modem poll retry 5
```

Related Commands

Command	Description
clear modem	Resets the hardware for one or more manageable modems on access servers and routers.
modem poll time	Sets the time interval between modem polls, which are used to periodically retrieve and report modem statistics.
modem status-poll	Polls for modem statistics through the out-of-band feature of a modem.

modem poll time

To set the time interval between modem polls, which are used to periodically retrieve and report modem statistics, use the **modem poll time** command in global configuration mode. To restore the 12-second default setting, use the **no** form of this command.

modem poll time *interval*

no modem poll time *interval*

Syntax Description

interval	Interval, in seconds, between polls. The configuration range is from 2 to 120 seconds, and the default is 12 seconds.

Command Default

12 seconds

Command Modes

Global configuration

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

This command does not apply to basic modems, which do not have out-of-band ports.

Examples

The following example sets the time interval between polls to 10 seconds:

```
modem poll time 10
```

Related Commands

Command	Description
modem min-speed max-speed	Sets the maximum number of polling attempts used to retrieve performance statistics from a modem installed in an access server or router.
modem status-poll	Polls for modem statistics through the out-of-band feature of a modem.

modem printer

To configure a line to require receipt of a data set ready (DSR) modem control signal, use the **modem printer** command in line configuration mode. To require the clear to send (CTS) modem control signal instead, use the **no** form of this command.

modem printer [**always-on**] [**delay**]

no modem printer [**always-on**] [**delay**]

Syntax Description

always-on	(Optional) Enables the line to interpret characters received from network elements after receiving a DSR signal. The line need not wait for a CTS signal.
delay	(Optional) Causes router to delay assertion of the data terminal ready (DTR) signal until a network connection has been established.

Command Default

The modem requires the CTS signal. Hardware flow control cannot be configured concurrently.

Command Modes

Line configuration mode.

Command History

Release	Modification
11.1	This command was introduced.
12.2(15)T	Support was added for the **delay** keyword.
12.4(4)T	Support was added for the **always-on** keyword.

Usage Guidelines

Use the **modem printer** command to set DSR as the modem control signal, leaving the CTS signal free for use with hardware flow control. This allows hardware flow control to be configured concurrently.

Although the **modem dialin** command supports modems concurrently with hardware flow control, the other auxiliary modem control options for printers, such as **modem cts-required**, use CTS instead of DSR/carrier detect (CD), as the CD signal.

To make the line available to receive calls coming from the network via the router with the **always- on** keyword, you must also configure that line with the **autocommand x28** command.

Examples

The following example configures a line to send a DSR signal to the modem:

```
Router(config)# line 5
Router(config-line)# modem printer
```

The following example configures a line to become ready to interpret characters from network elements when it receives a DSR signal:

```
Router(config)# line 5
Router(config-line)# modem printer always-on
```

Related Commands

Command	Description
autocommand	Automatically executes a command when a user connects to a particular line.
flowcontrol	Sets the method of data flow control between the router and a terminal or other serial device.
modem always-on	Sets a tty line to always be ready to interpret characters from network elements.
modem dialin	Configures a line to enable a modem attached to the router to accept incoming calls only.
x28	Enters X.28 mode and accesses an X.25 network or sets X.3 PAD parameters.

modem recovery action

To specify a modem recovery action, use the **modem recovery action** command in global configuration mode. To turn the modem recovery action off, use the **no** form of this command.

modem recovery action {**disable** | **download** | **none**}

no modem recovery action

Syntax Description

disable	Marks the modem bad.
download	Recovers by firmware download (default). Sets the modem into a recovery pending state, thus stopping the modem from accepting new calls.
none	Does not try to recover. Ignores the recovery threshold and just keeps running.

Command Default

The default setting is **download**.

Command Modes

Global configuration

Command History

Release	Modification
12.0	This command was introduced.
12.1(2.3)T	This command was no longer supported on Cisco AS5800 platforms.

Usage Guidelines

MICA technologies portware is downloaded on a modular basis and not on a modem basis. Thus, reloading MICA portware requires all 6 or 12 modems in a module to be reloaded.

Note Beginning with Cisco IOS Release 12.1(2.3)T1, the **modem recovery action** command is no longer supported for MICA technologies modems on the Cisco AS5800 platforms. To specify a modem recovery action for MICA technologies modems on the Cisco AS5800 platforms, use the **spe recovery** command.

After a modem has been deemed faulty, the configured action will take place on the modem. The following choices are possible: **disable**, **download**, and **none**.

Examples

The following example sets the recovery action to mark the modem as bad:

```
modem recovery action disable
```

Related Commands

Command	Description
modem recovery maintenance	Specifies the scheduled modem maintenance recovery behavior.
modem recovery threshold	Specifies the threshold, which starts the modem recovery process.
modem recovery-time	Sets the maximum amount of time the call-switching module waits for a local modem to respond to a request before it is considered locked in a suspended state.

modem recovery maintenance

To specify the modem maintenance recovery behavior, use the **modem recovery maintenance** command in global configuration mode. To change or turn off this behavior, use the **no** form of this command.

modem recovery maintenance {**action** {**disable** | **drop-call** | **reschedule**} | **max-download** *recovery-downloads* | **schedule** {**immediate** | **pending**} | **time** *hh*:*mm* | **window** *minutes*}

no modem recovery maintenance

Syntax Description

action	Mode of recovery. The default is set to **reschedule**.
disable	Marks the modem bad. Marks the originally faulty modem as bad and returns all other modems back into service.
drop-call	Forces firmware download by dropping holding calls. This action forces the recovery by dropping any active calls remaining on modems within the module.
reschedule	Reschedules firmware download to next maintenance time. Leaves the originally faulty modem as needing recovery and returns all other modems into service. Recovery will be attempted again on the following day. The default is set to **reschedule**.
max-download *recovery-downloads*	Maximum simultaneous recovery downloads. You must choose one number from 1 to 30. A range of values is not supported.
schedule	Scheduling method for modem recovery. Determines if the system should attempt module recovery as soon as a problem is found or wait for the maintenance window.
immediate	Immediately attempts modem recovery.
pending	Delays recovery until maintenance time (default).
time *hh*:*mm*	Time of day for scheduled modem recovery, in hours and minutes. This is the actual time of day when the modem recovery maintenance process wakes up and starts recovering MICA technologies modems. The default time is 3:00 a.m.
window *minutes*	Amount of time for normal recovery to take place. This is the delay timer in minutes, which is from 0 to 360.

Command Default

The default mode of recovery (**action**) is set to **reschedule**.
The default schedule is set to **pending**.
The default **time** for scheduled modem recovery is 3:00 a.m.

Command Modes

Global configuration

Command History

Release	Modification
12.0	This command was introduced.
12.1(2.3)T1	This command was no longer supported on Cisco AS5800 platforms.

Usage Guidelines

MICA portware is downloaded on a modular basis and not on a modem basis. Thus, reloading MICA portware requires all 6 or 12 modems in a module to be reloaded.

Note Beginning with Cisco IOS Release 12.1(2.3)T1, the **modem recovery maintenance** command is no longer supported for MICA technologies modems on the Cisco AS5800 platforms. To specify a modem recovery action for MICA technologies modems on the Cisco AS5800 platforms, use the **spe recovery** command.

Every 24 hours, the modem recovery maintenance process will wake up and attempt to recover any modems that are in the pending recovery state.

When a MICA module attempts to reload its portware, it must avoid taking down any modem connections that may exist. As such, the recovery process sets all modems currently not in use to recovery pending state. If any modems on the module are active, the recovery process waits for the calls to terminate normally. To avoid capacity problems from attempting recovery for an excessively long time period, a maintenance window is configured to require the modem recovery to take place within a specific timeframe. Otherwise, a given action is performed on that module when the window expires. The default window is 60 minutes. This behavior is set using the **modem recovery maintenance window** *minutes* command.

When the modem recovery maintenance window expires, one of the following actions is performed on the modem module awaiting recovery: **disable**, **reschedule**, or **drop-call**. The **disable** option is associated with the **modem recovery action** command.

When the modem recovery maintenance process starts, it attempts to recover all modems in the recovery pending state. This attempt can be on all modules on a given system. Thus, to avoid taking down all modems on a given system, only a maximum of simultaneous module recoveries can take place. The default is dynamically calculated to be 20 percent of the modules on a given system. This configuration allows that value to be overridden. These options are associated with the **modem recovery maintenance max-download** command.

Examples

The following examples show the available options for this command:

```
Router(config)# modem recovery maintenance ?

  action        Mode of recovery
  max-download  Maximum simultaneous recovery downloads
  schedule      Scheduling method for modem recovery
  time          Time of day for scheduled modem recovery
  window        Amount of time for normal recovery to take place

Router(config)# modem recovery maintenance action ?

  disable     Mark the modem bad
  drop-call   Force firmware download by dropping holding calls
  reschedule  Reschedule firmware download to next maintenance time

Router(config)# modem recovery maintenance max-download ?

  <1-30>  Number of MICA modules which can be simultaneously recovered

Router(config)# modem recovery maintenance schedule ?
  immediate  Attempt recovery immediately
  pending    Delay recovery until maintenance time
```

The following example shows how to set modem recovery maintenance to start immediately:

```
modem recovery maintenance schedule immediate
```

Related Commands

Command	Description
modem recovery action	Specifies the modem recovery mode when a modem has been identified as faulty.
modem recovery threshold	Specifies the threshold, which starts the modem recovery process.
modem recovery-time	Sets the maximum amount of time the call-switching module waits for a local modem to respond to a request before it is considered locked in a suspended state.

modem recovery threshold

To specify a failed call threshold that starts the modem recovery process, use the **modem recovery threshold** command in global configuration mode. To disable the threshold value, use the **no** form of this command.

modem recovery threshold *failed-calls*

no modem recovery threshold

Syntax Description

failed-calls	Number of consecutive call attempts that fail to queue up before the modem is deemed faulty, in the range from 1 to 1000.

Command Default

30 call attempts are enabled by default.

Command Modes

Global configuration

Command History

Release	Modification
12.0	This command was introduced.
12.1(2.3)T1	This command was no longer supported on Cisco AS5800 platforms.

Usage Guidelines

MICA technologies portware is downloaded on a modular basis and not on a modem basis. Thus, reloading MICA portware requires all 6 or 12 modems in a module to be reloaded.

Note Beginning with Cisco IOS Release 12.1(2.3)T1, the **modem recovery threshold** command is no longer supported for MICA technologies modems on the Cisco AS5800 platforms. To specify a modem recovery action for MICA technologies modems on the Cisco AS5800 platforms, use the **spe recovery** command.

Examples

The following example shows how to set the modem recovery threshold to 12 failed calls:

```
modem recovery threshold 12
```

Related Commands

Command	Description
modem recovery action	Specifies the modem recovery mode when a modem has been identified as faulty.
modem recovery maintenance	Specifies the scheduled modem maintenance recovery behavior.
modem recovery-time	Sets the maximum amount of time the call-switching module waits for a local modem to respond to a request before it is considered locked in a suspended state.

modem recovery-time

To set the maximum amount of time the call-switching module waits for a local modem to respond to a request before it is considered locked in a suspended state, use the **modem recovery-time** command in global configuration mode. To set a 5-minute response time, which is the default setting, use the **no** form of this command.

modem recovery-time *response-time*

no modem recovery-time

Syntax Description

response-time	Maximum amount of time, in minutes, for which local modems wait for a response; default is 5 minutes.

Command Default

5 minutes

Command Modes

Global configuration

Command History

Release	Modification
11.2	This command was introduced.
12.1(2.3)T	This command was no longer supported on Cisco AS5800 platforms.

Usage Guidelines

This command does not apply to basic modems that do not have out-of-band ports.

After the call-switching module resets a suspended modem, it recovers to a default call switching module state.

Note Beginning with Cisco IOS Release 12.1(2.3)T, the **modem recovery-time command** is no longer supported for MICA technologies modems on the Cisco AS5800 platforms. To specify a modem recovery action for MICA technologies modems on the Cisco AS5800 platforms, use the **spe recovery** command.

Examples

The following example configures the call-switching module to wait for 8 minutes:

```
modem recovery-time 8
```

Related Commands

Command	Description
modem recovery action	Specifies the modem recovery mode when a modem has been identified as faulty.
modem recovery maintenance	Specifies the scheduled modem maintenance recovery behavior.
modem recovery threshold	Specifies the threshold, which starts the modem recovery process.

modem ri-is-cd

The **modem ri-is-cd** command is replaced by the **modem dialin** command. See the description of the **modem dialin** command for more information.

modem shutdown

To abruptly shut down an active or idle modem installed in an access server or router, use the **modem shutdown** command in line configuration mode. To take the modem out of a shutdown state and place it back in service, use the **no** form of this command.

modem shutdown

no modem shutdown

Syntax Description

This command has no arguments or keywords.

Command Default

Command is disabled.

Command Modes

Line configuration

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

Enable the **no modem shutdown** command to restore to service a modem that has been shut down.

Examples

The following example abruptly shuts down the modem associated with line 1/0/6. All active calls on the modem are dropped immediately.

```
line 1/0/6
 modem shutdown
```

The following example abruptly shuts down a range of modems:

```
line 1/0/5 1/0/72
 modem shutdown
```

The following example abruptly shuts down the modem associated with line 2 on a Cisco AS5300. All active calls on the modem are dropped immediately.

```
 line 2
  modem shutdown
```

Related Commands

Command	Description
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 startup-test

Support for the **modem startup-test** command was removed in Cisco IOS Release 12.2(11)T. The use of this command is not recommended. In most cases, nonfunctional integrated modems will automatically be removed from service by the system. See the **modem recovery action** command and the **spe recovery** command for more configuration options for nonfunctional modems. For further information about MICA modem recovery, refer to the *Configuring MICA Modem Recovery* technical note. For further information about NextPort service processing element (SPE) recovery, refer to the *Configuring NextPort SPE Recovery* technical note.

modem status-poll

To poll for modem statistics through a modem's out-of-band feature, use the **modem status-poll** command in line configuration mode. To disable status polling through the out-of-band feature for a specified modem, use the **no** form of this command.

modem status-poll

no modem status-poll

Syntax Description

This command has no arguments or keywords.

Command Default

Command is enabled.

Command Modes

Line configuration

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

This command applies only to manageable modems that have out-of-band ports.

Note This command does not apply to basic modems that have out-of-band ports.

Examples

The following example enables modem status polling through TTY line 1:

```
line 1
 modem status-poll
```

Related Commands

Command	Description
modem min-speed max-speed	Sets the maximum number of polling attempts used to retrieve performance statistics from a modem installed in an access server or router.
modem poll time	Sets the time interval between modem polls, which are used to periodically retrieve and report modem statistics.

modemcap edit

To change a modem value that was returned from the **show modemcap** command, use the **modemcap edit** command in global configuration mode.

modemcap edit *modem-name attribute at-command*

Syntax Description

modem-name	Name of the modem whose values are being edited.
attribute	Modem capability, or attribute, as defined by the **show modemcap** command.
at-command	The AT command equivalent (such as **&F**).

Command Default

No default behavior or values.

Command Modes

Global configuration

Command History

Release	Modification
11.1	This command was introduced.

Usage Guidelines

Modemcaps are printed within the configuration file. You can edit them using this command.

Configure one attribute of one modem at a time. See the modem-capability values defined by the **show modemcap** command.

Examples

The following example adds the factory default entry, **&F**, to the configuration file. This entry and others like it are stored in a database that is referenced by the configuration file.

```
modemcap edit codex_3250 factory-default &F
```

Related Commands

Command	Description
modemcap entry	Stores and compresses information about the capability of a specified modem.
show modemcap	Displays the values set for the current modem and lists the modems for which the router has entries.

modemcap entry

To store and compress information about the capability of a specified modem, use the **modemcap entry** command in global configuration mode. To disable this feature, use the **no** form of this command.

modemcap entry *modem-type*

no modemcap entry *modem-type*

Syntax Description

modem-type	Type of supported modem as specified in Table 16.

Command Default

The capability values that exist in the specified modem at the time that the command is issued

Command Modes

Global configuration

Command History

Release	Modification
11.1	This command was introduced.
12.1(5)T	This command was implemented on the Cisco 2600 series and the Cisco 3600 series.

Usage Guidelines

This command displays the capability of the specified modem. Modemcaps are printed within the configuration file and are intended to be edited using the **modemcap edit** command. The **modemcap entry** command does not display values that are not set in the modem.

Use the **modemcap entry** command with the **show modemcap** command to interpret the capability of the specified modem. Table 16 lists the modemcap entries for supported modems.

Table 16 Modemcap Entries for Supported Modems

Modemcap Name	Modem Type
External Modems	
codex_3260	Motorola Codex 3260
default	Generic “Hayes” interface
global_village	Global Village Teleport
hayes_optima	Hayes Optima[1]
nec_piafs	NEC PIAFS TA
nec_v34	NEC V.34
nec_v110	NEC V.110 TA
telebit_t3000	Telebit T3000
usr_courier	U.S. Robotics Courier
usr_sportster	U.S. Robotics Sportster

Table 16 Modemcap Entries for Supported Modems (continued)

Modemcap Name	Modem Type
viva	Viva (Rockwell ACF with MNP)
Internal Modems	
cisco_v110	Cisco (NEC) internal V.110 TA (AS5200)
mica	Cisco MICA HMM/DMM digital
microcom_hdms	Microcom HDMS chassis
microcom_mimic	Cisco (Microcom) analog (NM-AM-2600/3600)
microcom_server	Cisco (Microcom) V.34/56K digital (AS5300)
nextport	Cisco NextPort CSMV/6 digital

1. This built-in modemcap is not recommended for use on an Optima because it sets the modem to automatic speed buffering. This modemcap disables error control and may result in poor performance. Instead, use modemcap **default.**

Examples

The following example shows how to select a U.S. Robotics Sportster modem type:

```
modemcap entry usr_sportster
```

Related Commands

Command	Description
modem hold-reset	Resets and isolates integrated modems for extensive troubleshooting.
show modemcap	Displays the values set for the current modem and lists the modems for which the router has entries.

modem-pool

To create a new modem pool or to specify an existing modem pool, use the **modem-pool** command in global configuration mode. To delete a modem pool from the access server configuration, use the **no** form of this command.

modem-pool *name*

no modem-pool *name*

Syntax Description

name	Name of a modem pool.

Command Default

All modems are configured to be part of one system default modem pool (displayed as System-def-Mpool by the **show modem-pool** command.). For example, if you have 120 MICA technologies modems loaded in your access server, 120 modems are in the default modem pool.

Command Modes

Global configuration

Command History

Release	Modification
11.2P	This command was introduced.

Usage Guidelines

Modem pools enable you to physically partition or virtually partition your access server for dial-in and dial-out access.

Physical partitioning makes one access server appear as if it is multiple access servers loaded with different types of modem services (for example, v.34 modems, fax capable modems, and point-of-sale (POS) modems). Each service is part of one modem pool and assigned a unique Dialed Number Information Service (DNIS) number.

Virtual partitioning creates one large modem pool on the access server, but enables different customers to dial in and share the modem resources. Each customer is assigned its own DNIS number. Each customer is given overflow protection, which guarantees a certain number of simultaneous connections.

Note MICA and Microcom modems support incoming analog calls over ISDN PRI. However, only MICA technologies modems support modem pooling for CT1 and CE1 configurations with channel-associated signaling.

Examples

The following example creates a modem pool called v90service. After the **modem-pool v90service** command is issued, modem pool configuration mode is accessed and the router prompt changes.

```
modem-pool v90service
```

Related Commands

Command	Description
called-number (modem pool)	Assigns a called party number to a pool of modems.
clear modempool-counters	Clears active or running counters associated with one or more modem pools.
pool-member	Assigns a range of modems to a modem pool.
show modem-pool	Displays the configuration and connection status for one or more modem pools.

modemui

To enter Cisco modem user interface mode and enter Hayes-compatible modem commands, use the **modemui** command in EXEC mode.

modemui [*modem-commands*]

Syntax Description

modem-commands	(Optional) Hayes-compatible modem commands. Table 17 lists the modem commands supported on Cisco routers. Multiple commands may be entered.

Command Default

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
12.2(4)T	This command was introduced.

Usage Guidelines

Use the **modemui** command to enter interactive Cisco modem user interface mode, which allows the Hayes-compatible modem command subset listed in Table 17 to be entered.

The **modemui** EXEC command can also be entered with the **autocommand** line configuration command to configure the Cisco modem user interface feature as part of line configuration.

Note Before entering the modem command that dials the modem telephone number, you must map the telephone number to an appropriate IP host using the Cisco IOS **ip host** global configuration command.

Table 17 Cisco-Supported Hayes Modem Commands

Hayes Modem Commands	Description
AT	Attention command. Enters modem command execution mode. You can add any of the command settings listed in this table to the **AT** command.
DT*string* **DP***string*	Dials outbound tone (**T**) or pulse (**P**) call. The string following the **T** or **P** character is used as an argument to the Cisco IOS **connect** EXEC command. Before dialing, you must set up an appropriate IP host using the Cisco IOS **ip host** global configuration command. For example: `ip host t555-0112 4023 10.0.0.51` Valid characters for *string* are the same as the characters that are used in a host name for the Cisco IOS **connect** command, as follows: • The numbers 0 through 9 • Uppercase letters A through Z • Lowercase letters a through z • The . (period), - (hyphen), and _ (underscore) characters No other characters (such as # or *) are accepted in the dial string, and unsupported characters are stripped before dialing occurs.
E*n*	Echo mode. Values for *n* are as follows: • 0 turns off command echo. • 1 turns on command echo (default).
H*n*	Hangup mode. A value of 0 or 1 closes the connection.
I*n*	Information mode. The information displayed is set in a banner configured with the Cisco IOS **MODEMUI-VERSION** global configuration command. Acceptable values for *n* are the numbers 0 through 6.
O*n*	Online mode. A value of 0 or 1 resumes the connection.
Q*n*	Quiet mode. Values for *n* are as follows: • 0 displays modem result codes (default). • 1 inhibits modem result codes display (quiet mode).
S*n*=*v*	Set selected register (S-register). **Note** The standard Hayes modem S-register settings S0 through S53 are accepted by Cisco IOS software, but do not have any effect. Choose one of the following S-registers for *n*: • S201—Command mode parity sniffing. If the value (*v*) for S201 is 0 (default), parity for both the command and data portions of a call are controlled by the Cisco IOS **parity** and **databits** line configuration commands. If the value (*v*) for S201 is 1, mark or space parity for the command session will be taken from the Hayes **AT** part of the command, and the data portion will be 8-bit transparent.

Table 17 Cisco-Supported Hayes Modem Commands (continued)

Hayes Modem Commands	Description
	• S202—Output mask. This setting allows mark parity to be unconditionally implemented for the command characters. The default value for S202 is 0 (no parity). The value 128 causes command characters to be sent with mark parity. • S203—Connect delay. Allows a delay in seconds to be added to the time between when the **ATD** command is executed and when the call success or failure code is displayed. This delay is sometimes required because a Telnet connection is established more quickly than placing a telephone call. The value for S203 can be a number from 0 to 255. The actual value applied to the connect delay is 10 percent of the number entered for *v*. For example, a value of 300 sets a connect delay of 30 seconds. The default value is 0. • S204—Connect code. Allows the result code for a successful connection to be specified. The default is code 1 for the unextended mode, but you can configure one of the following numbers to display a selected line speed. For example, connection code 10 selects CONNECT 2400. By allowing the code to be expressed explicitly, you can allow for a "CONNECT 2400" response message to be displayed, regardless of the actual line speed. The default for *v* is 0, or choose one of the following connection codes: – 9—CONNECT 1200 – 10—CONNECT 2400 – 11—CONNECT 4800 – 12—CONNECT 9600 – 13—CONNECT 14400 – 14—CONNECT 19200 – 15—CONNECT 38400 – 16—CONNECT 57600
S*n*?	S-register query. The value for *n* is the number of the S-register to query (S201 through S204; see the preceding list).
V*n*	Result code format. Values for *n* are as follows: • 0 displays a short result report. • 1 displays a long result report (default).
X*n*	Extended result codes. The value for *n* is any nonzero number, which appends /NONE to the connect message. Also see the preceding description for S-register S204, for changing the reported connection speed.
Z **Z99**	Reset to default configuration. Choose one of the following reset options: • **ATZ** returns the Cisco modem user interface to its default state and re-executes the initialization string provided in the **modemui** command. • **ATZ99** returns to the standard Cisco IOS software user interface (EXEC) mode.

Examples

The following example shows how to configure a line for the Cisco modem user interface feature and set the modem in no-echo, short-response mode:

```
line aux 0
 login authentication modem
 modem dialin delay
 autocommand modemui ATE0V0
 transport input all
 stopbits 1
 speed 38400
 flowcontrol hardware
```

The following example shows how to enter Cisco modem user interface mode from the Cisco IOS EXEC mode and enter Hayes-compatible **AT** commands to dial and test the modem:

```
Router# modemui
AT
OK
ATDT4155551234
CONNECT
User Access Verification
Username:
```

Related Commands

Command	Description
autocommand	Configures the Cisco IOS software to automatically execute a command when a user connects to a particular line.
connect	Logs in to a host that supports Telnet, rlogin, or LAT.
ip host	Defines a static host name-to-address mapping in the host cache.
modemui-version	Displays a banner in response to the Hayes information mode command.

modemui-version

To display a banner as a response to the Hayes modem information command, use the **modemui-version** command in global configuration mode. To remove or change the banner display, use the **no** form of this command.

modemui-version *delimiter banner-text delimiter*

no modemui-version *delimiter banner-text delimiter*

Syntax Description

delimiter	Character that you choose, such as # or /, to signal the beginning and end of the banner message.
banner-text	Banner message text.

Command Default

No default behavior or values.

Command Modes

Global configuration

Command History

Release	Modification
12.2(4)T	This command was introduced.

Usage Guidelines

Use the **modemui-version** command to configure banners for the Hayes information mode command *(***ATI***n)*.

Examples

The following example configures the modem user interface banner to display the modem model and code revision in response to the **ATI6** Cisco modem user interface command:

```
modemui-version / Telebit T3000, Version 1.5 /
```

Related Commands

Command	Description
modemui	Enters Cisco modem user interface mode.

multilink

To limit the total number multilink PPP (MLP) sessions for all virtual private dialup network (VPDN) multilink users, enter the **multilink** command in VPDN group configuration mode. To remove the MLP session limit, enter the **no** form of this command.

multilink {**bundle** *bundles* | **link** *links*}

no multilink {**bundle** *bundles* | **link** *links*}

Syntax Description

bundle *bundles*	Configures the number of MLP bundles supported for a VPDN group. In general, each user requires one bundle. Valid values for the *bundles* argument range from 0 to 32,767.
link *links*	Configures the number of sessions supported for each bundle. Valid values for the links argument range from 0 to 32,767.

Command Default

No MLP session limit is set.

Command Modes

VPDN group configuration

Command History

Release	Modification
12.0(4)XI	This command was introduced.
12.0(5)T	This command was integrated into Cisco IOS Release 12.0(5)T.

Usage Guidelines

Use the **multilink** VPDN group configuration command to limit the total number of sessions for all MLP users. Each user requires one bundle, regardless if the user is a remote modem client or an ISDN client.

One modem client using one B channel requires one link. One ISDN BRI node may require up to two links for one BRI line connection. The second B channel of an ISDN BRI node comes up when the maximum threshold is exceeded.

Examples

The following example configures a VPDN group called group1 to initiate Layer 2 Tunnel Protocol (L2TP) tunnels to the tunnel server at IP address 10.2.2.2. Ten MLP bundles are configured for users that dial in to the domain cisco.com. Each bundle is configured to support a maximum of 5 links, limiting the total number of MLP sessions to 50.

```
Router(config)# vpdn-group group1
Router(config-vpdn)# request-dialin
Router(config-vpdn-req-in)# protocol l2tp
Router(config-vpdn-req-in)# domain cisco.com
Router(config-vpdn-req-in)# exit
Router(config-vpdn)# initiate-to ip 10.2.2.2
Router(config-vpdn)# multilink bundle 10
Router(config-vpdn)# multilink link 5
```

Related Commands

Command	Description
request-dialin	Creates a request dial-in VPDN subgroup that configures a NAS to request the establishment of a dial-in tunnel to a tunnel server, and enters request dial-in VPDN subgroup configuration mode.
vpdn-group	Creates a VPDN group and enters VPDN group configuration mode.

multilink bundle-name

To select a method for naming multilink bundles, use the **multilink bundle-name** command in global configuration mode. To remove the selection method, use the **no** form of this command.

multilink bundle-name {**authenticated** | **endpoint** | **both**}

no multilink bundle-name {**authenticated** | **endpoint** | **both**}

Syntax Description

authenticated	Authenticated name of the peer. This is the default.
endpoint	Endpoint discriminator of the peer.
both	Authenticated name and endpoint discriminator of the peer.

Command Default

Authenticated name of the peer.

Command Modes

Global configuration

Command History

Release	Modification
11.3	This command was introduced.

Usage Guidelines

The **authenticated** keyword defines the selection criteria for the bundle name as the authenticated name, the endpoint discriminator if the link is not authenticated, or the caller ID if neither an authenticated name nor an endpoint is supplied.

The **endpoint** keyword defines the selection criteria for the bundle name as the endpoint discriminator, the authenticated name if no endpoint is supplied, or the caller ID if neither an authenticated name nor an endpoint is supplied.

The **both** keyword defines the selection criteria for the bundle name as an authenticated name-endpoint discriminator pair, the authenticated name if no endpoint is supplied, the endpoint discriminator if the link is not authenticated, or the caller ID if neither an authenticated name nor an endpoint is supplied.

Examples

The following example sets the selection criteria for the multilink bundle name as the endpoint discriminator:

```
multilink bundle-name endpoint
```

multilink max-fragments

The **multilink max-fragments** command is replaced by the **ppp multilink fragment maximum** command. See the description of the **ppp multilink fragment maximum** command for more information.

multilink virtual-template

To specify a virtual template from which the specified Multilink PPP (MLP) bundle interface can clone its interface parameters, use the **multilink virtual-template** command in global configuration mode. To remove the defined virtual template, use the **no** form of the command.

multilink virtual-template *number*

no multilink virtual-template *number*

Syntax Description

number	Number of the virtual template to be used to clone the MLP bundle interface. An integer in the range from 1 to the largest number of virtual templates the software image supports (typically 25).

Command Default

No template is specified.

Command Modes

Global configuration

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

Configuring a specific IP address in a virtual template can result in the establishment of erroneous routes and the loss of IP packets.

Examples

The following example specifies that virtual template 1 is to be used for MLP ,and then defines virtual template 1:

```
multilink virtual-template 1
interface virtual-template 1
 ip unnumbered ethernet 0
 encapsulation ppp
 ppp multilink
 ppp authentication chap
```

Related Commands

Command	Description
interface virtual-template	Creates a virtual template interface that can be configured and applied dynamically in creating virtual access interfaces.

multilink-group

The **multilink-group** command is replaced by the **ppp multilink group** command. See the description of the **ppp multilink group** command for more information.

name (dial peer cor custom)

To specify the name for a custom class of restrictions (COR), use the **name** command in dial peer COR custom configuration mode. To remove a specified COR, use the **no** form of this command.

name *class-name*

no name *class-name*

Syntax Description

class-name	Name that describes the specific COR.

Command Default

No default behavior or values.

Command Modes

Dial peer COR custom configuration

Command History

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

Usage Guidelines

The **dial-peer cor custom** and **name** commands define the names of capabilities on which to apply COR operation. Examples of names might include any of the following: call1900, call527, call9, or call 911. You must define the capabilities before you specify the COR rules.

You can define a maximum of 64 COR names.

Examples

The following example defines three COR names:

```
dial-peer cor custom
 name 900_call
 name 800_call
 name catchall
```

Related Commands

Command	Description
dial-peer cor custom	Specifies that named CORs apply to dial peers.
name	Assigns a name to the internal adapter.

netbios nbf

To enable the NetBIOS Frames Protocol (NBF) on an interface, use the **netbios nbf** command in interface configuration mode. To disable NetBIOS Frames Protocol support on an interface, use the **no** form of this command.

netbios nbf

no netbios nbf

Syntax Description

This command has no arguments or keywords.

Command Default

Command is disabled.

Command Modes

Interface configuration

Command History

Release	Modification
11.1	This command was introduced.

Examples

The following example enables NBF on asynchronous interface 1 (connected to remote access client using a NetBEUI application) and Ethernet interface 0 (connected to the remote router):

```
interface async 1
 netbios nbf
interface ethernet 0
 netbios nbf
```

Related Commands

Command	Description
netbios name-cache	Defines a static NetBIOS name cache entry, tying the server with the name netbios-name to the mac-address, and specifying that the server is accessible either locally through the interface-name specified, or remotely through the ring-group group-number specified.
show nbf sessions	Displays NetBEUI connection information.
show netbios cache	Displays a list of NetBIOS cache entries.

network-clock-priority

To specify the clock-recovery priority for the BRI voice ports in a BRI voice module (BVM), use the **network-clock-priority** command in interface configuration mode. To restore the default (low) clock-recovery priority, use the **no** form of this command.

network-clock-priority {**low** | **high**}

no network-clock-priority {**low** | **high**}

Syntax Description

low	The BRI port is second priority to recover clock.
high	The BRI port is first priority to recover clock.

Command Default

Each BRI voice port has low clock-recovery priority. The BRI VIC port provides clocking (high).

Command Modes

Interface configuration

Command History

Release	Modification
12.0(3)XG	This command was introduced on the Cisco MC3810 concentrator.
12.1(3)XI	This command was implemented on the Cisco 2600 series and Cisco 3600 series.

Usage Guidelines

Because the BRI voice interface card can support both ISDN NT and TE ports, this command allows a "local loop" to be configured for testing. By default the TE port on the BRI VIC receives the clock source to drive the whole BRI (**network-clock-priority high**). Setting the clock priority to **low** allows the connected port to provide clocking.

This command becomes effective only when the BVM is the clock source for the Cisco MC3810, which can happen in one of three ways:

- When the BVM is specified as the first-priority network clock source through the **network-clock-select** command.
- When the BVM is specified as a lower-priority network clock source, and a higher-priority network clock source is lost.
- When the BVM is the only network clock source.

The BRI voice port supplying clock operates as a line source; if there are other BRI voice ports configured as TE, they operate in loop-timed mode.

Regardless of the **network-clock-priority** setting, the first TE-configured BRI voice port that becomes active is automatically chosen to supply clock. The clock source does not change if another BRI voice port configured for **network-clock-priority high** becomes active.

If the chosen clocking port becomes inactive, the system searches for clock on the active TE-configured ports in the following order:

1. Ports configured as **network-clock-priority high** in order from lowest (1) to highest (4).
2. Ports configured as **network-clock-priority low** in order from lowest (1) to highest (4).

If the originally chosen port then reactivates, it resumes its role as clock source regardless of its **network-clock-priority** setting.

If you enter either the **no network-clock-priority low** or the **no network-clock-priority high** command, the network clock priority defaults to low.

Examples

The following example configures BRI voice port 1 as a first priority clock source:

```
interface bri 0/1
 network-clock-priority high
```

Related Commands

Command	Description
number	Specifies selection priority for the clock sources.

number

To add a Calling Line Identification (CLID) or Dialed Number Identification Service (DNIS) number to a dialer group, use the **number** command in CLID group configuration or DNIS group configuration mode followed by the specifying number. To remove a number from a group, use the **no** form of this command.

number *id-number*

no number *id-number*

Syntax Description

id-number	CLID or DNIS number, which can have up to 65 digits.

Note The CLID screening feature rejects this number if it matches the CLID of an incoming call. Valid CLID numbers are all numeric, or numbers that contain the wildcard *x*. You can use *x* (signifying a single number don't care state), *X* or **.** as wildcards within each CLID number. The asterisk (*) wildcard is not accepted.

Command Default

No default behavior or values.

Command Modes

CLID group configuration
DNIS group configuration

Command History

Release	Modification
12.0(4)XI	This command was introduced.
12.1(5)T	This command was enhanced to add CLID numbers to a CLID group and DNIS numbers to a DNIS group.

Usage Guidelines

You can organize CLID numbers for a customer or service type into a CLID group. You can add multiple CLID groups to a customer profile. Add all CLID numbers into one CLID group, or subdivide the CLID numbers using criteria such as call type, geographical location, or division.

The Cisco IOS software also includes a feature that streamlines the DNIS configuration process. By replacing any digit with an *X* (for example, issuing the **number 555222121*x*** command), clients dialing different numbers, such as 5552221214 or 5552221215, are automatically mapped to the same customer profile. The *X* variable is a placeholder for the digits 1 through 9.

Examples

The following example shows the command to use to assign a number to a CLID group named group1:

```
dialer clid group group1
 number 2121212121
```

The following example shows a DNIS group called dnis_isp_1 and DNIS numbers 1234 and 5678 assigned to the DNIS group:

```
dialer dnis group dnis_isp_1
 number 1234
 number 5678
```

Related Commands

Command	Description
clid group	Adds a CLID group to a discriminator.
dnis group	Includes a group of DNIS numbers in a customer profile.
resource-pool call treatment discriminator	Creates a call discrimination profile.