map-class dialer

To define a class of shared configuration parameters associated with the **dialer map** command for outgoing calls from an ISDN interface and for PPP callback, use the **map-class dialer** command in global configuration mode.

map-class dialer *class-name*

no map-class dialer *class-name*

Syntax Description

class-name	Unique class identifier.

Command Default

Command is disabled; no class name is provided.

Command Modes

Global configuration

Command History

Release	Modification
11.0	This command was introduced.

Usage Guidelines

The *class-name* argument in the **map-class dialer** command used to specify the class must be the same as a *class-name* argument used in a **dialer map** command.

This command is used on the PPP callback server, not on the callback client.

This command is used to define classes of calls for PPP callback for dial-on-demand routing (DDR), for ISDN Advice of Charge, and for Network Specific Facilities (NSF) call-by-call dialing plans.

For NSF call-by-call support on ISDN Primary-4ESS switches only, use one of the dialing-plan keywords listed in Table 1.

Table 1 NSF Keywords and Supported Services

Keyword	NSF Dialing Plan	Data	Voice	International
sdnplan	SDN	Yes	Yes	GSDN (Global SDN)
megaplan	MEGACOMM	No	Yes	Yes
accuplan	ACCUNET	Yes	Yes	Yes

Examples

The following example configures the PPP callback server on an ISDN BRI interface on a router. The callback server requires an enable timeout and a map class to be defined.

```
interface BRI0
 ip address 10.1.1.7 255.255.255.0
 encapsulation ppp
 dialer callback-secure
 dialer enable-timeout 2
```

```
 dialer map ip 10.1.1.8 name mymap class dial1 81012345678901
 dialer-group 1
 ppp callback accept
 ppp authentication chap
!
map-class dialer dial1
 dialer callback-server username
```

The following example configures the ISDN switch type to Primary-4ESS and configures ISDN PRI on T1 controller 1/0, and sets the D channel for dialer map classes that reference the NSF dialing plans. Finally, the **map-class dialer** command uses a dialing plan keyword and the **dialer outgoing** command refers to the same plan.

```
isdn switch-type primary-4ess
!
!
controller T1 1/0
 framing esf
 linecode b8zs
 pri-group timeslots 1-24
!
interface Serial1/0:23
 description This is the DMS D-channel 415-886-9503
 ip address 10.1.1.3 255.255.255.0
 encapsulation ppp
 no keepalive
 dialer map ip 10.1.1.1 name mymap class sdnplan 14155770715
 dialer map ip 10.1.1.2 name hermap class megaplan 14155773775
 dialer map ip 10.1.1.4 name hismap class accuplan 14155773778
 dialer-group 1
 ppp authentication chap
!
map-class dialer sdnplan
 dialer outgoing sdn
!
map-class dialer megaplan
 dialer voice-call
 dialer outgoing mega
!
map-class dialer accuplan
 dialer outgoing accu
```

The following partial example configures BRI interface 0 to function as the callback server on the shared network. The callback server requires an enable timeout and a map class to be defined.

```
interface BRI0
 ip address 10.2.1.7 255.255.255.0
 encapsulation ppp
 dialer callback-secure
 dialer enable-timeout 2
 dialer map ip 10.2.1.8 name mymap class dial1 81012345678901
 dialer-group 1
 ppp callback accept
 ppp authentication chap
!
map-class dialer dial1
 dialer callback-server username
```

The following example configures a map class named “mymap” and sets an ISDN speed of 56 kbps for the class.

```
map-class dialer mymap
 isdn speed 56
```

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.
dialer string (legacy DDR)	Specifies the destination string (telephone number) to be called for interfaces calling a single site.
show controllers e1	Displays information about the E1 links supported by the NPM (Cisco 4000) or MIP (Cisco 7500 series).

member

To alter the configuration of an asynchronous interface that is a member of a group, use the **member** command in interface configuration mode. To restore defaults set at the group master interface, use the **no** form of this command.

member *asynchronous-interface-number command*

no member *asynchronous-interface-number command*

Syntax Description

asynchronous-interface-number	Number of the asynchronous interface to be altered.
command	One or both of the following commands entered for this specific interface: • **peer default ip address** • **description**

Command Default

No individual configurations are set for member interfaces.

Command Modes

Interface configuration

Command History

Release	Modification
11.1	This command was introduced.

Usage Guidelines

You can customize a member interface by using the **member** command. Interfaces are designated as members of a group by using the **interface group-async** and **group-range** commands.

Examples

The following example defines interface 3 with a description of line 3, which is attached to a Hayes Optima modem:

```
interface group-async 0
  member 3 description line #3 Hayes Optima
```

Related Commands

Command	Description
group-range	Creates a list of member asynchronous interfaces (associated with a group interface).
interface group-async	Creates a group interface that will serve as master, to which asynchronous interfaces can be associated as members.

member (dial peer cor list)

To add a member to a dial peer class of restrictions (COR) list, use the **member** command in dial peer COR list configuration mode. To remove a member from a list, use the **no** form of this command.

member *class-name*

no member *class-name*

Syntax Description

class-name	Class name previously defined in dial peer COR custom configuration mode by using of the **name** command.

Command Default No default behavior or values.

Command Modes Dial peer COR list configuration

Command History

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

Examples The following example adds three members to the COR list named list3:

```
dial-peer cor list list3
 member 900_call
 member 800_call
 member catchall
```

Related Commands

Command	Description
dial-peer cor list	Defines a COR list name.

modem always-on

To set a tty line to always be ready to interpret characters from network elements, use the **modem always-on** command in line configuration mode. To disable this function, use the **no** form of this command.

modem always-on

no modem always-on

Syntax Description

This command has no arguments or keywords.

Command Default

The tty line waits to recieve a data set ready (DSR), RING, or clear to send (CTS) signal before interpreting characters from network elements.

Command Modes

Line configuration

Command History

Release	Modification
12.4(4)T	This command was introduced.

Usage Guidelines

To set the line as available to receive calls coming from the network via the router, you must also configure the line with the **autocommand x28** command.

Examples

The following example configures tty line 97 to interpret characters received from network elements without having to wait for other incoming signals:

```
Router(config)# line 97
Router(config-line)# modem always-on
```

Related Commands

Command	Description
autocommand	Automatically executes a command when a user connects to a particular line.
modem printer	Configures a line to receive a DSR signal before it will interpret incoming characters from a network element.
x28	Enters X.28 mode and accesses an X.25 network or sets X.3 PAD parameters.

modem answer-timeout

To set the amount of time that the Cisco IOS software waits for the Clear to Send (CTS) signal after raising the data terminal ready (DTR) signal in response to RING, use the **modem answer-timeout** command in line configuration mode. To revert to the default value, use the **no** form of this command.

modem answer-timeout *seconds*

no modem answer-timeout

Syntax Description

seconds	Timeout interval in seconds, in the range from 0 to 65535.

Command Default 15 seconds

Command Modes Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines This command is useful for modems that take a long time to synchronize to the appropriate line speed.

For more information, see the chapter "Creating and Using Modem Chat Scripts" in the *Cisco IOS Dial Technologies Configuration Guide*.

Examples The following example sets the timeout interval to 20 seconds for the modem connected to lines 3 through 13:

```
line 3 13
 modem answer-timeout 20
```

Related Commands

Command	Description
modem callin	Supports dial-in modems that use the DTR signal to control the off-hook status of the modem.
modem inout	Configures a line for both incoming and outgoing calls.

modem at-mode

To open a directly connected session and enter AT command mode, which is used for sending AT (modem attention) commands to Microcom manageable modems, use the **modem at-mode** command in EXEC mode.

modem at-mode *slot*/*port*

no modem at-mode *slot*/*port*

Syntax Description

slot/*port*	Slot number and modem port number. Include the slash mark when entering this variable.

Command Default

Command is disabled.

Command Modes

EXEC

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

Manageable modems return "OK" if the AT command you send is successfully enabled. Press Ctrl-C after sending an AT command to close the directly connected session.

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

Examples

The following example opens a directly connected session on modem 1/1, enters AT command mode on modem 1/1, and transmits the AT commands through the out-of-band feature of modem 1/1:

```
Router# modem at-mode 1/1

You are now entering AT command mode on modem (slot 1 / port 1).
Please type CTRL-C to exit AT command mode.
at%v

MNP Class 10 V.34/V.FC Modem Rev 1.0/85

OK
at\s

IDLE           000:00:00
LAST DIAL

NET ADDR:      FFFFFFFFFFFF
MODEM HW: SA 2W United States
4 RTS 5 CTS 6 DSR - CD 20 DTR - RI
```

```
MODULATION      IDLE
MODEM BPS       28800  AT%G0
MODEM FLOW      OFF    AT\G0
MODEM MODE      AUT    AT\N3
V.23 OPR.       OFF    AT%F0
AUTO ANS.       ON     ATS0=1
SERIAL BPS      115200 AT%U0
BPS ADJUST      OFF    AT\J0
SPT BPS ADJ.    0      AT\W0
ANSWER MESSGS   ON     ATQ0
SERIAL FLOW     BHW    AT\Q3
PASS XON/XOFF   OFF    AT\X0
PARITY          8N     AT
```

Related Commands

Command	Description
clear modem	Resets the hardware for one or more manageable modems on access servers and routers.

modem at-mode-permit

To permit a Microcom modem to accept a directly connected session, use the **modem at-mode-permit** command in line configuration mode. To disable permission for modems to accept a direct connection, use the **no** form of this command.

modem at-mode-permit

no modem at-mode-permit

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 After you enter this command, enter the **modem at-mode** command to enable a directly connected session on the modem. From AT command mode, you can enter AT (modem attention) commands directly from your terminal session.

For a complete list of supported AT commands, refer to the AT command documentation that came with your access server or router.

The **no modem at-mode-permit** command disables a modem from accepting a direct connection, which is useful for ensuring modem security.

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

Examples The following example permits the modem connected to TTY line 1 to accept a directly connected session:

```
line 1
 modem at-mode-permit
```

Related Commands

Command	Description
clear modem	Resets the hardware for one or more manageable modems on access servers and routers.
modem at-mode	Opens a directly connected session and enters AT command mode, which is used for sending AT commands to Microcom manageable modems.

modem autoconfigure discovery

To configure a line to discover which kind of modem is connected to the router and to configure that modem automatically, use the **modem autoconfigure discovery** command in line configuration mode. To disable this feature, use the **no** form of this command.

modem autoconfigure discovery

no modem autoconfigure discovery

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

Line configuration

Command History

Release	Modification
11.1	This command was introduced.

Usage Guidelines

The modem is identified each time the line is reset. If a modem cannot be detected, the line continues retrying for 10 seconds. When the modem type is determined, this information remains stored until the modem is recycled or disconnected. Using Discovery mode is much slower than configuring a line directly.

Each time the modem is reset (every time a chat reset script is executed), a string of commands is sent to the modem, the first one being "return to factory-defaults."

Examples

The following example automatically discovers which kind of modem is attached to the router or access server:

```
modem autoconfigure discovery
```

Related Commands

Command	Description
modem autoconfigure type	Directs a line to attempt to configure the attached modem using a predefined modemcap.

modem autoconfigure type

To direct a line to attempt to configure the attached modem using the entry for the *modem-type argument*, use the **modem autoconfigure type** command in line configuration mode. To disable this feature, use the **no** form of this command.

modem autoconfigure type *modem-type*

no modem autoconfigure type

Syntax Description

modem-type	Modem type, such as a Codex 3260.

Command Default

No default behavior or values.

Command Modes

Line configuration

Command History

Release	Modification
11.1	This command was introduced.

Usage Guidelines

The modem is reconfigured each time the line goes down.

Examples

The following example automatically configures the attached modem using the codex_3260 modemcap entry:

```
modem autoconfigure type codex_3260
```

Related Commands

Command	Description
modem autoconfigure discovery	Configures a line to discover which kind of modem is connected to the router and to configure that modem automatically.

modem autotest

Support for the **modem autotest** 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 bad

To remove an integrated modem from service and indicate it as suspected or proven to be inoperable, use the **modem bad** command in line configuration mode. To restore a modem to service, use the **no** form of this command.

modem bad

no modem bad

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

If you mark a modem as inoperable, it appears as Bad—without the asterisk (*)—in the Status column of the **show modem** command output. A modem marked inoperable by the **modem startup-test** command appears as Bad* in the **show modem** command output. Use the **no modem bad** command to unmark a modem as Bad* or Bad and restore it for dialup connection services.

Note Only idle modems can be marked bad by the **modem bad** command. If you want to mark a modem bad that is actively supporting a call, first issue the **modem shutdown** command then issue the **modem bad** command.

Examples

The first part of the following example shows a successful connection between modem 2/1 and modem 2/0, which verifies normal operating conditions between these two modems. However, when modem 2/1 is tested against modem 2/3, the back-to-back modem test fails. Therefore, modem 2/3 is suspected or proven to be inoperable. Modem 2/3 is removed from dialup services through the use of the **modem bad** command on line 28.

```
Router# test modem back-to-back 2/1 2/0

Repetitions (of 10-byte packets) [1]: 10

Router#

%MODEM-5-B2BCONNECT: Modems (2/1) and (2/0) connected in back-to-back test: CONN
ECT9600/REL-MNP
%MODEM-5-B2BMODEMS: Modems (2/0) and (2/1) completed back-to-back test: success/
packets = 20/20
```

```
Router# test modem back-to-back 2/1 2/3

Repetitions (of 10-byte packets) [1]: 10
Router#
%MODEM-5-BADMODEMS: Modems (2/3) and (2/1) failed back-to-back test: NOCARRIER

Router# configure terminal

Router(config)# line 28
Router(config-line)# modem bad
Router(config-line)# end
```

Related Commands

Command	Description
modem startup-test	Performs diagnostic testing on each integrated modem during the rebooting process.
show modem at-mode	Displays a high-level performance report for all the modems or a single modem.
test modem back-to-back	Diagnoses an integrated modem that may not be functioning properly.

modem buffer-size

To configure the size of the history event queue buffer for integrated modems installed in an access server or router, use the **modem buffer-size** command in global configuration mode.

modem buffer-size *events*

no modem buffer-size *events*

Syntax Description

events	Defined number of modem events that each manageable modem is able to store. Default is 100 events.

Command Default 100 modem events

Command Modes Global configuration

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines A large buffer size uses substantial amounts of processing memory. If the processing memory is running low, reduce the modem buffer size.

To display modem events, use the **show modem log** command.

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

Examples The following example enables each modem in the access server to store 150 modem events:

```
modem buffer-size 150
```

Related Commands

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

modem busyout

To gracefully disable a modem from dialing or answering calls, use the **modem busyout** command in line configuration mode. To reenable a modem, use the **no** form of this command.

modem busyout

no modem busyout

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 The disabling action is not executed until the active modem returns to an idle state. No active connections are interrupted when you enter this command. If the **modem busyout-threshold** command is set, this command will be delayed until the DS0 lines to the exchange are taken out of service. For T3 cards the message "No Controller configured" might appear for unconfigured T1 links in the T3.

Examples The following example disables the modem associated with line 1/0/5 from dialing and answering calls. You do not specify a slot or port number with this command.

```
line 1/0/5
 modem busyout
```

The following example busyouts a range of modems:

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

The following example disables the modem associated with line 1 from dialing and answering calls. You do not specify a slot or port number with this command.

```
line 1
 modem busyout
```

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 shutdown	Abruptly shuts down an active or idle modem installed in an access server or router.

modem busyout-threshold

To define a threshold to maintain a balance between the number of DS0s and modems, use the **modem busyout-threshold** command in global configuration mode. To remove the threshold, use the **no** form of this command.

modem busyout-threshold *threshold-number*

no modem busyout-threshold *threshold-number*

Syntax Description

threshold-number	Number of modems that are free when the router should enforce the stipulation that the number of free DS0 lines is less than or equal to the number of modems.

Command Default No default behavior or values.

Command Modes Global configuration

Command History

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

Usage Guidelines The **modem busyout-threshold** command functionality is also often termed *autobusyout*. This command applies to all DS0 lines coming into the router and counts all free modems in all pools.

The **modem busyout-threshold** command periodically checks to determine if the number of free modems is less than the user specified threshold and if it is it ensures that the number of free DS0 channels is less than or equal to the number of modems.

This command should be used only where excess calls to one router are forwarded by the exchange to an additional router on the same exchange group number.

Because the **modem busyout-threshold** command checks only periodically, the threshold should be greater than the number of calls the user expects to receive in 1 minute plus a safety margin. For example, if the user receives an average of 10 calls per minute, then a threshold of 20 would be advised. Very small thresholds should be avoided because they do not allow sufficient time for the exchange to respond to out-of-service notifications from the router, and callers may receive busy signals when free modems are all used.

Caution The number of DS0 lines in normal operating conditions should be approximately equal to the number of modems (for example, within 30). If this is not the case, it will cause a lot of messaging traffic to the exchange and may cause active calls to be dropped. This caution is not a concern for short periods, that is, when modem cards are replaced.

On T3 controllers, any contained T1 controllers that are not in use should be undeclared to remove them from the autobusyout list.

Note On T3 controllers, any contained T1 controllers that are not in use should be undeclared to remove them from the autobusyout list.This command is the same as the **ds0 busyout-threshold** command for the Cisco AS5300 and AS5800 access servers.

Examples

The following example shows how you might configure the **modem busyout-threshold** command:

```
modem busyout-threshold 30
```

Related Commands

Command	Description
busyout	Informs the central-office switch that a channel is out-of-service.
ds0 busyout (channel)	Forces a DS0 timeslot 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 shutdown	Abruptly shuts down an active or idle modem installed in an access server or router.

modem callin

To support dial-in modems that use the data terminal ready (DTR) signal to control the off-hook status of the modem, use the **modem callin** command in line configuration mode. To disable this feature, use the **no** form of this command.

modem callin

no modem callin

Syntax Description This command has no arguments or keywords.

Command Default No modem control

Command Modes Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines In response to the RING signal, the router raises the DTR signal, which indicates to the modem that it should answer the call. At the end of the session, the Cisco IOS software lowers the DTR signal, which disconnects the modem. This command is useful for older modems that do not support autoanswer.

This command uses clear to send (CTS), whereas other modem commands in the Cisco IOS software use data set ready (DSR).

Only use the **modem callin** command on the ASM terminal server, where hardware flow control is not possible. If you have a Cisco 2500 or 3600 series router, use the **modem dialin** command instead.

Examples The following example configures lines 10 through 16 for dial-in modems that can run at speeds from 300 to 19,200 bits per second:

```
line 10 16
 modem callin
 autobaud
```

Related Commands

Command	Description
modem answer-timeout	Sets the amount of time that the Cisco IOS software waits for the CTS signal after raising the DTR signal in response to RING.
modem inout	Configures a line for both incoming and outgoing calls.

modem callout

To configure a line for reverse connections, use the **modem callout** command in line configuration mode. To disable this feature, use the **no** form of this command.

modem callout

no modem callout

Syntax Description This command has no arguments or keywords.

Command Default No modem control

Command Modes Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines This command supports ports connected to computers that would normally be connected to modems. It causes the access server to act somewhat like a modem.

This command uses the clear to send (CTS) signal and should be used only on access servers that do not support hardware flow control. If you have an access server that is newer than the ASM terminal server (such as a Cisco 2500 or Cisco 3600 series routers, or a Cisco AS5100 or Cisco AS5200 access servers), use the **modem host** command instead. The **modem callout** command uses CTS, whereas the **modem host** command uses data set ready/ data carrier detect (DSR/DCD.) If CTS is used for modem control instead of DSR/DCD, it prevents CTS from being used by hardware flow control.

Examples The following example configures lines 17 through 32 in reverse connection mode to a large terminal switch. By using Telnet to connect to a TCP port on this host, the user gets the next free line in the rotary group.

```
line 17 32
 rotary 1
 modem callout
```

Related Commands

Command	Description
modem inout	Configures a line for both incoming and outgoing calls.
show async-bootp	Displays the extended BOOTP request parameters that have been configured for asynchronous interfaces.

modem call-record

To activate the logging of a summary of modem events upon the termination of a call, use the **modem call-record** command in global configuration mode. To deactivate modem event logging of calls, use the **no** form of this command.

modem call-record terse [**quiet**] [**max userid** *character-max*]

no modem call-record

Syntax Description

terse	Specifies that only significant data is logged to the Modem Call Record (MCR).
quiet	(Optional) Specifies that the MCR is sent only to the syslog server and not to the console.
max userid *character-max*	(Optional) Sets the maximum number of characters of the user ID that will be entered into the MCR. The default length is 30 characters.

Command Default

Logging of modem events is off.

Command Modes

Global configuration

Command History

Release	Modification
11.3(6)AA	This command was introduced.
11.3(9)AA	The **max-userid** keyword was added.
12.0(4)T	The **max-userid** keyword was added.
12.1(1)	Support was added for NM-AM and NM-DM modem boards on the Cisco 2600 and Cisco 3600 series routers.
12.1(2)T	The **quiet** keyword was added.

Usage Guidelines

The modem management subsytem provides event logs for each modem at each major event during usage of the modems. The volume of event logs being generated makes the monitoring of modem calls for debugging purposes difficult. The MCR log, activated using the **modem call-record** command, will log a summary of a modem call to syslog upon termination of the call. If a call fails to establish a connection, the call will be summarized in a Modem Call Failed Record.

The MCR is written to the syslog and can be displayed using the **terminal monitor** or **show logging** command, or by examining files on a syslog server.

The **modem call-record** command is supported on Cisco AS5200, AS5300, AS5800, 2600, and 3600 routers with integrated MICA technologies and Microcom modems. For systems with NextPort modems, use the **spe call-record modem** command.

The information provided in the MCR log and the Modem Call Failed Record log varies depending on the type of modem being used. Table 2 describes the significant fields in the display for MICA technologies and Microcom modems.

Table 2 modem call-record Field Descriptions

Field	Description
Interface slot	Interface slot of device assigned for call.
Interface controller unit	Interface controller unit of device assigned for call.
Interface channel	Interface channel of device assigned for call.
Modem type	Modem type used for call.
Modem slot/port	Physical location for modem handling the call.
Call id	Unique Call Identifier assigned to the modem call by the call switching module.
Userid	User ID of caller.
IP address	IP address assigned for caller.
Calling number	Modem calling number.
Called number	Modem called number.
Connected standard	Standard used for connection. Possible values are Bell103, Bell212, K56Flex 1.1, V.17, V.21, V.22, V.22bis, V.23, V.27, V.29, V.32, V.32bis, V.32terbo. V.34, V.34+, and V.90.
Connect protocol	Protocol user for connection. Possible values are ARA1.0, ARA2.0, ASYNC Mode, FAX Mode, LAP-M, MNP, SS7/COT, and SYNC Mode.
Compression	Compression method used for connection. Possible values are MNP5 data, none, V.42bis both, V.42bis RX, and V.42bis TX.
Initial RX bit rate	Actual bit rate from the remote Digital Signal Processor (DSP) to the local DSP at connect.
Initial TX bit rate	Actual bit rate from the local DSP to the remote DSP at connect.
Final RX bit rate	Actual bit rate from the remote DSP to the local DSP at disconnect.
Final TX bit rate	Actual bit rate from the local DSP to the remote DSP at disconnect.
RBS pattern[1]	Actual robbed bit signaling (RBS) pattern observed by the modem. The six LSBs of the returned value indicate the periodic RBS pattern where a one denotes a pulse code modulation sample with a robbed bit. (Only reported for K56Flex).
Digital pad[1]	Amount of digital padding (attenuation) in downlink, in decibels (dB). (Only reported for V.90 and K56Flex.)
Total retrains[1]	Count of total retrains and speed shifts.
Signal quality value[1]	Signal quality values in a range from 0 to 7, where 0 is the worst. The units are arbitrary, approximating abs(log10(SNR)).
SNR	Signal-to-noise ratio, ranging from 0 to 70 in dB steps.
Characters received	Count of total characters received for SYNC/ASYNC connection.
Characters transmitted	Count of total characters sent for SYNC/ASYNC connection.
Characters received BAD[1]	Total number of parity errored characters received (for ASYNC connections).

Table 2 modem call-record Field Descriptions (continued)

Field	Description
Error correction frames received OK	Count of error-free Error Correction frames received. Incorrect or duplicate frames are not included.
Error correction frames transmitted	Count of unique Error Correction frames sent. Re-sent frames are not included.
Error correction frames received BAD/ABORTED[1]	Total error correction retransmissions requested by this modem during the course of the link.
Call timer	Duration of call, in seconds.
Final state	State of modem call before it terminated.
Disconnect reason	Reason for call being disconnected. Each modem type handles parameter differently.

1. These fields are displayed only for MICA technologies modems.

Examples

The following example shows the activation of MCR logging:

```
modem call-record terse
```

The following is the MCR of a successful call on a MICA technologies modem:

```
*Aug 15 01:34:08.775: %CALLRECORD-3-MICA_TERSE_CALL_REC:
DS0 slot/contr/channel=1/0/22 modem=mica slot/port=1/2 call_id=0x3
userid=user1 ip=124.34.45.120
calling=#4085550112 called=#4085550122
std=V.34+ prot=LAP-M comp=None
init-rx/tx b-rate=31200/33600 finl-rx/tx b-rate=33600/33600
rbs=0 d-pad=None retr=2 sq=2 snr=28
rx/tx chars=1067/0 bad=0 rx/tx ec=0/0 bad=0
time=139 finl-state=Steady
disc=0xA220
       Type (=5 ):  Rx (line to host) data flushing, not OK
      Class (=2 ):  EC condition, locally detected
     Reason (=32):  received DISC frame -- normal LAPM termination
```

The following is the MCR of a failed call on a MICA technologies modem:

```
*Aug 15 16:47:54.527: %CALLRECORD-3-MICA_TERSE_CALL_FAILED_REC:
DS0 slot/contr/channel=1/0/22 modem=mica slot/port=1/2 call_id=0x9
calling=4085550112# called=#4085550122
time=2 finl-state=Link
disc=0x7F06
       Type (=3 ):  Condition occurred during call setup
      Class (=31):  Requested by host
     Reason (=6 ):  network indicated disconnect
```

The following is the MCR of a successful call on a Microcom modem:

```
01:17:30: %CALLRECORD-3-MCOM_TERSE_CALL_REC:
DS0 slot/contr/channel=0/0/22 modem=microcom_server slot/port=0/2 call_id=0x3
userid=sque ip=124.34.46.111
calling=#4085550111 called=#4085550122
std=V34 prot=Normal comp=None
Init-RX/TX b-rate=33600/31200 Finl-RX/TX b-rate=33600/33600
SNR=47
RX/TX chars=0/0 RX/TX EC=0/0
time=73 Disc(local)=0x9 DTR Drop Disc(remote)=0x0 Unknown
```

The following is the MCR of a failed call on a Microcom modem:

```
Microcom Terse Modem Call Failed Record Log:
19:28:55: %CALLRECORD-3-MCOM_TERSE_CALL_FAILED_REC:
DS0 slot/contr/channel=0/0/0 modem=microcom_server slot/port=0/2 call_id=0xA003
calling=4085550111# called=#4085550122
time=0 finl-state=Dialing/Answering
disc(local)=0x9 DTR Drop disc(remote)=0x0 Unknown
```

Related Commands

Command	Description
calltracker call-record	Enables call record syslog generation for the purpose of debugging, monitoring, or externally saving detailed call record information.
show logging	Displays the state of logging (syslog).
spe call-record modem	Generates a modem call record at the end of each call.
terminal monitor	Displays **debug** command output and system error messages for the current terminal and session.

modem country mica

To configure the modem country code for a bank of MICA technologies modems, use the **modem country mica** command in global configuration mode. To remove a country code from service, use the **no** form of this command.

modem country mica *country*

no modem country mica *country*

Syntax Description

country	Country name. See Table 3 for a list of the supported country name keywords.

Command Default

Command is disabled.

Command Modes

Global configuration

Command History

Release	Modification
11.2 P	This command was introduced.

Usage Guidelines

Table 3 lists the supported codes for the *country* argument.

Table 3 MICA Country Names

australia
austria
belgium
china
cyprus
czech-republic (Czech/Slovak Republic)
denmark
e1-default (Default E1, a-law)
finland
france
germany
hong-kong
india
ireland
israel
italy

Table 3 MICA Country Names (continued)

japan
malaysia
netherlands
new-zealand
norway
poland
portugal
russia
singapore
south-africa
spain
sweden
switzerland
t1-default (Defaults T1, u-law)
taiwan
thailand
turkey
united-kingdom
usa

Examples

The following example sets the MICA technologies modems for operation in Sweden:

```
modem country mica sweden
```

Related Commands

Command	Description
modem country microcom_hdms	Configures the modem country code for a bank of Microcom modems.

modem country microcom_hdms

To configure the modem country code for a bank of Microcom High Density Management System (HDMS) modems, use the **modem country microcom_hdms** command in global configuration mode. To remove a country code from service, use the **no** form of this command.

modem country microcom_hdms *country*

no modem country microcom_hdms *country*

Syntax Description

country	Country name. See Table 4 for a list of the supported country name keywords.

Command Default

No country code is enabled.

Command Modes

Global configuration

Command History

Release	Modification
11.2 P	This command was introduced.
12.0	The **europe** keyword was added.

Usage Guidelines

Table 4 lists the supported codes for the *country* argument.

Table 4 Microcom Country Names

argentina
australia
austria
belgium
brazil
canada
chile
china
columbia
czech-republic (Czech/Slovak Republic)
denmark
europe
finland
france
germany

Table 4 Microcom Country Names (continued)

greece
hong-kong
hungary
india
indonesia
finland
israel
italy
japan
korea
malaysia
mexico
netherlands
norway
peru
philippines
poland
portugal
saudi-arabia
singapore
south-africa
spain
sweden
switzerland
taiwan
thailand
united-kingdom
usa

Examples

The following example shows the different duplex configuration options you can configure on a Cisco AS5300:

```
Router(config)# modem country microcom_hdms ?

  argentina       Argentina
  australia       Australia
  austria         Austria
  belgium         Belgium
  chile           Chile
  china           China
  columbia        Columbia
```

```
czech-republic  Czech/Slovak Republic
denmark         Denmark
europe          Europe
finland         Finland
france          France
germany         Germany
greece          Greece
hong-kong       Hong Kong
india           India
indonesia       Indonesia
ireland         Ireland
israel          Israel
italy           Italy
japan           Japan
korea           Korea
malaysia        Malaysia
mexico          Mexico
netherlands     Netherlands
new-zealand     New Zealand
norway          Norway
peru            Peru
philippines     Philippines
poland          Poland
portugal        Portugal
saudi-arabia    Saudi Arabia
singapore       Singapore
south-africa    South Africa
spain           Spain
sweden          Sweden
switzerland     Switzerland
taiwan          Taiwan
thailand        Thailand
united-kingdom  United Kingdom
usa             USA
```

Related Commands

Command	Description
modem country mica	Configures the modem country code for a bank of MICA technologies modems.

modem country smart_acf

To customize the modem firmware behavior according to the country of deployment, use the **modem country smart_acf** command in global configuration mode. To restore the default value, use the **no** form of this command.

modem country smart_acf *country-name*

no modem country smart_acf *country-name*

Syntax Description

country-name	Name of the country. For valid argument values, see the table in the "Usage Guidelines" section.

Command Default United States and Canada

Command Modes Global configuration

Command History

Release	Modification
12.3(4)XD	This command was introduced.
12.3(7)T	This command was integrated into Cisco IOS Release 12.3(7)T on Cisco 2600 series and Cisco 3700 series routers.

Usage Guidelines Use this command to set the modem for use in a specific country. When a country name is specified, the firmware customizes the modem for use in the country where it is deployed. The following table includes valid values for the *country-name* argument and the country or countries associated with each argument value.

Valid Values for the *country-name* Argument	Country or Countries Where Located
argentina	Argentina
australia	Australia
austria	Austria
belgium	Belgium and Luxemburg
brazil	Brazil
bulgaria	Bulgaria
china	China
croatia	Croatia
czech	Czechoslovakia
denmark	Denmark and Iceland
finland	Finland
france	France

Valid Values for the *country-name* Argument	Country or Countries Where Located
germany	Germany
greece	Greece
hongkong	Hong Kong
hungary	Hungary
india	India
ireland	Ireland
israel	Israel
italy	Italy
japan	Japan
jordan	Jordan
korea	Korea
malaysia	Malaysia
mexico	Mexico
morocco	Morocco
netherlands	Netherlands
newzealand	New Zealand
norway	Norway
poland	Poland
portugal	Portugal
romania	Romania
russia	Russia
safrica	South Africa
singapore	Singapore
slovenia	Slovenia
spain	Spain
sweden	Sweden
switzerland	Switzerland
taiwan	Taiwan and Peru
thailand	Thailand
turkey	Turkey
uae	United Arab Emirates
uk	United Kingdom
usa	United States and Canada

Examples

The following example sets the modem for use in Turkey:

```
Router# config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# modem country smart_acf turkey
```

Related Commands

Command	Description
show modem version	Displays the software version and the crash log of the modem.

modem country v12

To configure the modem country code for a bank of V12 modems, use the **modem country v12** command in global configuration mode. To remove a country code from service, use the **no** form of this command.

modem country v12 *country*

no modem country v12 *country*

Syntax Description

country	Country name. See Usage Guidelines for a list of the supported country names.

Command Default Command is disabled.

Command Modes Global configuration

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines The supported codes for the *country* argument are as follows:

- **australia**
- **austria**
- **belgium**
- **china**
- **cyprus**
- **czech-republic** (Czech/Slovak Republic)
- **denmark**
- **e1-default** (Default E1, a-law)
- **finland**
- **france**
- **germany**
- **hong-kong**
- **india**
- **ireland**
- **israel**
- **italy**
- **japan**

- **malaysia**
- **netherlands**
- **new-zealand**
- **norway**
- **poland**
- **portugal**
- **russia**
- **singapore**
- **south-africa**
- **spain**
- **sweden**
- **switzerland**
- **t1-default** (Defaults T1, u-law)
- **taiwan**
- **thailand**
- **turkey**
- **united-kingdom**
- **usa**

Examples

The following example sets the V12 modems for operation in Sweden:

```
modem country v12 sweden
```

modem cts-required

The **modem cts-required** command is replaced by the **modem printer** command. See the description of the **modem printer** command for more information.

modem dialin

To configure a line to enable a modem attached to the router to accept incoming calls only, use the **modem dialin** command in line configuration mode. To disable this feature, use the **no** form of this command.

modem dialin [**delay**]

no modem dialin

Syntax Description

delay	(Optional) Causes the operating system to delay assertion of the data terminal ready (DTR) signal until a network connection is established.

Command Default

Incoming calls to the modem are not permitted.

Command Modes

Line configuration

Command History

Release	Modification
11.1	This command was introduced.
12.2(4)T	The **delay** keyword was added to support the Cisco modem user interface.

Usage Guidelines

This command supports modems that can automatically handle telephone line activity, such as answering the telephone after a certain number of rings.

The **delay** keyword is useful when using the **modemui** EXEC command with software that requires a signal assertion to recognize that a connection has been established. It may be necessary to reroute the router DTR signal to an alternate EIA-232 pin such as Carrier Detect (CD) for the delay to work properly.

Examples

The following example configures a line for a high-speed modem:

```
line 5
 modem dialin
```

The following example shows how to set up a delay in a line configured for the Cisco modem user interface feature:

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

Related Commands

Command	Description
modem inout	Configures a line for both incoming and outgoing calls.
modemui	Enters the Cisco modem user interface mode.
parity	Defines generation of a parity bit.

modem dialout controller

To specify a particular T1 or E1 controller through which to dial out, use the **modem dialout controller** command in line configuration mode. To disable the command, use the **no** form of this command.

modem dialout controller {**e1** | **t1**} *controller-list*

no modem dialout controller

Syntax Description

e1	Wide-area digital transmission scheme used predominantly in Europe.
t1	Wide-area digital carrier facility.
controller-list	List of controllers through which to dial out. The range is from 0 to 7. List the controllers individually (1, 2, 3, for example).

Command Default

All T1 and E1 controllers are used for dial out.

Command Modes

Line configuration

Command History

Release	Modification
12.2	This command was introduced.

Usage Guidelines

This command is only supported on the Cisco AS5300, Cisco AS5350, Cisco AS5400, and Cisco AS5800.

Examples

In the following example, the router is configured to use the controller t1 0, t1 1, t1 3 (and no others) when dialing out from lines 1 through 60:

```
line 1 60
 modem dialout controller t1 0,1,3
```

modem dtr-active

To configure a line to leave data terminal ready (DTR) signals low, unless the line has an active incoming connection or an EXEC process, use the **modem dtr-active** command in line configuration mode. To disable this feature, use the **no** form of this command.

modem dtr-active

no modem dtr-active

Syntax Description

This command has no arguments or keywords.

Command Default

No modem control.

Command Modes

Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

This command does not use the Carrier Detect (CD) signal.

This command can be useful if the line is connected to an external device (for example, a time-sharing system) that must know whether a line is in active use. The **modem dtr-active** command is similar to the **no modem** line configuration command.

Examples

The following example configures a line for low DTR:

```
line 5
 modem dtr-active
```

Related Commands

Command	Description
modem printer	Configures a line to require a DSR signal instead of CTS.

modem enable

To enable backup dial capability through the console port (change the console port into an auxiliary port), use the **modem enable** command in line configuration mode. To return the auxiliary port to a console port, use the **no** form of this command.

modem enable [**autodetect**]

no modem enable

Syntax Description

autodetect	(Optional) Automatically senses the type of device connected on the console line.

Command Default

This command is not configured by default, and is applicable only on the console line.

Command Modes

Line configuration

Command History

Release	Modification
12.2(8)YN	This command was introduced.
12.2(13)ZG	The optional **autodetect** keyword was added to this command for Cisco 831, 836, and 837, and Cisco SOHO 91 and 97 routers.
12.3(2)T	This command was integrated into Cisco IOS Release 12.3(2)T.

Usage Guidelines

On the Cisco 831, 836, and 837, and SOHO 91 and 97 routers, the console port and the auxiliary port share the same physical RJ-45 port. The console port must be changed to act as a virtual auxiliary port using the **modem enable** [**autodetect**] command before the dial backup and remote management capabilities can be enabled.

Use the **show line autodetect** EXEC command to determine when a modem or a console has been detected. This command displays the following messages to indicate the type or state of connection on the console line:

- Detection State: Console Attached—A DTE console or terminal device is attached.
- Detection State: Modem Attached—A DCE asynchronous modem device is attached.
- Detection State: Nothing Attached—No cable is attached to the EIA/TIA--232 port on the router.
- Detection State: Init State—Autodetection has been enabled, but no changes have been detected.
- Detection State: Feature not enabled—No device connection is detected.

Note The auto detection capability on the Cisco 831, 836, and 837 routers that detects whether a modem or console is attached to its RJ-45 console port will not work when the router is booting up. The routers use the data set ready (DSR) and clear to send (CTS) pin statuses to detect whether a modem or console is attached.

Examples

The following example enables the line autodetect option:

```
Router(config-line)# modem enable autodetect
```

Use the **show line autodetect** command to determine when a modem or a console has been detected:

```
Router# show line autodetect
Detection State: Nothing Attached

Router# show line autodetect
Detection State: Console Attached
```

Related Commands

Command	Description
show line autodetect	Displays type or state of connection on the console line.

modem hold-reset

To reset and isolate integrated modems for extensive troubleshooting, use the **modem hold-reset** command in line configuration mode. To restart a modem, use the **no** form of this command.

modem hold-reset

no modem hold-reset

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

The **modem hold-reset** command for the V.110 port module resets the processor on board the module only if the command is executed on all 12 ports. If the **modem hold-reset** command is issued on only a portion of the V.110 ports, the processor will not reset.

This command is also used to reset a modem that is frozen in a suspended state. Disable the suspended modem with the **modem hold-reset** command, and then restart initialization with the **no modem hold-reset** command.

Examples

The following example disables the suspended modem using tty line 4 and resets the modem's initialization:

```
line 4
 modem hold-reset
 no modem hold-reset
```

The following examples resets a 12-port V.110 port module. You must specify the entire tty line range for the entire bank of ports.

```
line 1 12
 modem hold-reset
 no modem hold-reset
```

Related Commands

Command	Description
modem autotest	Automatically and periodically performs a modem diagnostics test for modems inside the access server or router.

modem host

To configure a line for reverse connections where hardware flow control is also required, use the **modem host** command in line configuration mode. To disable the line modem control for reverse connections, use the **no** form of this command.

modem host

no modem host

Syntax Description

This command has no arguments or keywords.

Command Default

No modem control

Command Modes

Line configuration

Command History

Release	Modification
11.1	This command was introduced.

Usage Guidelines

This command supports ports connected to computers that would normally be connected to modems. This command causes the access server to act like a modem.

The **modem host** command is identical in operation to the **modem callout** command except that data set ready/data carrier detect (DSR/DCD) is used for modem control instead of clear to send (CTS). This frees CTS for use by hardware flow control.

Examples

The following example configures a line to send a DSR/DCD active signal to the modem for data switches and hosts:

```
line 5
 modem host
```

Related Commands

Command	Description
modem callout	Configures a line for reverse connections.
modem printer	Configures a line to require a DSR signal instead of CTS.

modem inout

To configure a line for both incoming and outgoing calls, use the **modem inout** command in line configuration mode. To disable the configuration, use the **no** form of this command.

modem inout

no modem inout

Syntax Description This command has no arguments or keywords.

Command Default No modem control.

Command Modes Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines This command uses DSR and RING signals for carrier detection.

The Cisco IOS software does not support any dialing protocols; therefore, the host system software or the user must provide any special dialing commands when using the modem for outgoing calls.

Examples The following example configures a line for both incoming and outgoing calls:

```
line 5
 modem inout
```

Related Commands

Command	Description
parity	Defines generation of a parity bit.