lcp renegotiation

To allow the L2TP network server (LNS) to renegotiate the PPP Link Control Protocol (LCP) on dial-in calls, using Layer 2 Tunneling Protocol (L2TP) or Layer 2 Forwarding (L2F), use the lcp renegotiation command in virtual private dialup network (VPDN) group configuration mode. To remove LCP renegotiation, use the no form of this command.

```
lcp renegotiation {always | on-mismatch}
```

```
no lcp renegotiation
```

**Syntax Description**

<table>
<thead>
<tr>
<th>Syntax</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>always</td>
<td>Always renegotiate LCP at the LNS.</td>
</tr>
<tr>
<td>on-mismatch</td>
<td>Renegotiate LCP at the LNS only in the event of an LCP mismatch between the LAC and LNS.</td>
</tr>
</tbody>
</table>

**Defaults**

LCP renegotiation is disabled on the LNS.

**Command Modes**

VPDN group configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.3(5)AA</td>
<td>This command was introduced.</td>
</tr>
<tr>
<td>12.0(1)T</td>
<td>This command was integrated into Cisco IOS Release 12.0(1)T.</td>
</tr>
<tr>
<td>12.0(5)T</td>
<td>This command was modified to be available only if the accept-dialin VPDN subgroup is enabled.</td>
</tr>
</tbody>
</table>

**Usage Guidelines**

You must enable the accept-dialin command on the VPDN group before you can use the lcp renegotiation command. Removing the accept-dialin command will remove the lcp renegotiation command from the VPDN group.

This command is valid only at the LNS. This command is useful for an LNS that tunnels to a non-Cisco L2TP access concentrator (LAC), where the LAC may negotiate a different set of LCP options than what the LNS expects.

When a PPP session is started at the LAC, LCP parameters are negotiated, and a tunnel is initiated, the LNS can either accept the LAC LCP negotiations or can request LCP renegotiation. Using the lcp renegotiation always command forces renegotiation to occur at the LNS. If the lcp renegotiation on-mismatch command is configured, then renegotiation will only occur if there is an LCP mismatch between the LNS and LAC.

**Note**

Older PC PPP clients may experience a “lock up” during PPP LCP renegotiation.
**Examples**

The following example configures the LNS to renegotiate PPP LCP with a non-Cisco LAC:

```
vpdn-group 1
accept dialin
  protocol l2tp
  virtual-template 1
  terminate-from pat
lcp renegotiation on-mismatch
```

**Related Commands**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>accept-dialin</td>
<td>Specifies the LNS to use for authenticating—and the virtual template to use for cloning—new virtual access interfaces when an incoming L2TP tunnel connection is requested from a specific peer.</td>
</tr>
<tr>
<td>force-local-chap</td>
<td>Forces the LNS to reauthenticate the client.</td>
</tr>
</tbody>
</table>
limit base-size

To define the base number of simultaneous connections that can be done in a single customer or virtual private dialup network (VPDN) profile, use the `limit base-size` command in customer profile configuration or VPDN profile configuration mode. To remove the limitation, use the `no` form of this command.

```
limit base-size {base-number | all}
no limit base-size {base-number | all}
```

**Syntax Description**

- **base-number**: Maximum number of simultaneous connections or sessions that can be used in a specified customer or VPDN profile, in the range from 0 to 1000.
- **all**: Accept all calls (default). Use this keyword if you do not want to limit or apply overflow session counting to a customer or VPDN profile.

**Defaults**
The base size is set to `all`.

**Command Modes**
Customer profile configuration
VPDN profile configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.0(4)XI</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**Usage Guidelines**
Use the `limit base-size` command to define the base number of simultaneous connections in a single customer or VPDN profile. The session limit applies to all the physical resource groups and pools configured in a single customer profile. If you want to define the number of overflow calls granted to a customer profile by using the `limit overflow-size` command, do *not* use the `all` keyword in the `limit base-size` command; instead, specify a base number.

**Examples**
The following example shows the total number of simultaneous connections limited to a base size of 48:

```
resource-pool profile customer customer1_isp
limit base-size 48
```

**Related Commands**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>limit overflow-size</td>
<td>Defines the number of overflow calls granted to one customer or VPDN profile.</td>
</tr>
<tr>
<td>resource-pool profile customer</td>
<td>Creates a customer profile.</td>
</tr>
</tbody>
</table>
limit overflow-size

To define the number of overflow calls granted to one customer or virtual private dialup network (VPDN) profile, use the `limit overflow-size` command in customer profile configuration or VPDN profile configuration mode. To remove the overflow configuration, use the `no` form of this command.

```
limit overflow-size {overflow-calls | all}

no limit overflow-size {overflow-calls | all}
```

**Syntax Description**

- `overflow-calls`  Number of overflow calls to grant, in the range from 0 to 1000. Default is 0.
- `all`  Accept all overflow calls.

**Defaults**
The overflow size is set to 0.

**Command Modes**
Customer profile configuration
VPDN profile configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.0(4)XI</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**Usage Guidelines**
Use the `limit overflow-size` customer or VPDN profile configuration command to define the number of overflow calls granted to one customer or VPDN profile. The overflow is not applied if the `limit base-size` command is set using the `all` keyword.

**Examples**
The following example shows 20 overflow calls granted to the customer profile called customer1_isp:

```
resource-pool profile customer customer1_isp
limit overflow-size 20
```

**Related Commands**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>limit base-size</code></td>
<td>Defines the base number of simultaneous connections that can be done in a single customer or VPDN profile.</td>
</tr>
<tr>
<td><code>resource-pool profile customer</code></td>
<td>Creates a customer profile.</td>
</tr>
</tbody>
</table>
line-power

To configure an ISDN BRI port to supply line power to the terminal equipment (TE), use the `line-power` command in interface configuration mode. To disable the line power supply, use the `no` form of this command.

```
line-power

no line-power
```

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

**Defaults**
The BRI port does not supply line power.

**Command Modes**
Interface configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.0(3)XG</td>
<td>This command was introduced on the Cisco MC3810 access concentrator.</td>
</tr>
<tr>
<td>12.0(4)T</td>
<td>This command was integrated into Cisco IOS Release 12.0(4)T.</td>
</tr>
<tr>
<td>12.1(3)XI</td>
<td>This command was implemented on the Cisco 2600 and Cisco 3600 series.</td>
</tr>
</tbody>
</table>

**Usage Guidelines**
This command is supported only if an installed BRI voice module (BVM) or BRI VIC is equipped to supply line power (phantom power).

This command is used only on a BRI port operating in NT mode. A BRI port operating in TE mode is automatically disabled as a source of line power, and the `line-power` command is rejected.

When you use the `line-power` command, the line power provision is activated on a BRI port if the port is equipped with the hardware to supply line power. When you enter the `no line-power` command, the line power provision is deactivated on a BRI port.

**Note**
If the BRI port is operating in NT mode, the `line-power` command will be accepted, but will have no effect if a BVM is not equipped to supply line power.

**Examples**
The following example configures a BRI port to supply power to an attached TE device (only if the BVM is equipped to supply line power):

```
interface bri 1
line-power
```
loadsharing

To configure endpoints for load sharing, use the `loadsharing` command in virtual private dialup network (VPDN) group configuration mode. To remove this function, use the `no` form of this command.

```
loadsharing ip ip-address [limit session-limit]

no loadsharing ip ip-address [limit session-limit]
```

**Syntax Description**

- `ip ip-address` IP address of the home gateway/L2TP network server (HGW/LNS) at the other end of the tunnel. This is the IP endpoint at the end of the tunnel, which is a HGW/LNS router.
- `limit session-limit` (Optional) Limits sessions per load share. The limit has a range from 0 to 32,767 sessions. By default, no limit is set.

**Defaults**

No default is set, and this function is not used when not configured.

**Command Modes**

VPDN group configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.0(4)XI</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**Usage Guidelines**

Use the `loadsharing` VPDN group configuration command to configure endpoints for loadsharing.

**Examples**

In the following example, VPDN group `customer1-vpndng` is created. L2TP IP traffic load is shared between two HGW/LNS. The IP addresses for the HGW/LNS WAN ports are 172.21.9.67 and 172.21.9.68 (the home gateway is a Cisco IOS router terminating L2TP sessions). The characteristics for link 172.21.9.67 are defined by using the `request dialin` command. The characteristics for link 172.21.9.68 are defined by using the `loadsharing` command.

A backup home-gateway router is specified at 172.21.9.69 by using the `backup` command. This router serves as a backup device for two load-sharing HGW/LNS:

```
vpdn-group customer1-vpndng
request dialin l2tp ip 172.21.9.67 domain cisco.com
loadsharing ip 172.21.9.68 limit 100
backup ip 172.21.9.69 priority 5
domain cisco2.com
```

**Related Commands**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>request-dialin</code></td>
<td>Configures an L2TP access concentrator to request L2F or L2TP tunnels to an LNS and create a request-dialin VPDN subgroup, and specifies a dial-in L2F or L2TP tunnel to a remote peer if a dial-in request is received for a specified domain or DNIS.</td>
</tr>
</tbody>
</table>
To specify a local host name that the tunnel will use to identify itself, use the `local name` command in global configuration mode. To remove a local name, use the `no` form of this command.

```
local name host-name

no local name host-name
```

**Syntax Description**

- `host-name`: Local host name of the tunnel.

**Defaults**

A local host name must be explicitly configured.

**Command Modes**

Global configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.3(5)AA</td>
<td>This command was introduced.</td>
</tr>
<tr>
<td>12.0(1)T</td>
<td>This command was integrated into Cisco IOS Release 12.0(1)T.</td>
</tr>
</tbody>
</table>

**Usage Guidelines**

This command allows each virtual private dialup network (VPDN) group to use a unique and local host name. The password hierarchy sequence that is used for tunnel identification and, subsequently, tunnel authentication, is as follows:

- A Layer 2 Tunnel Protocol (L2TP) tunnel password is used first (defined by the `l2tp tunnel password` command).
- If no L2TP tunnel password exists, the password associated with the local name is used.
- If no local name password exists, the password associated with the host name is used.

The `username` command defines the passwords associated with the local name and the host name.

**Examples**

The following example configures the local host name of the tunnel as Tunnel1:

```
local name Tunnel1
```

**Related Commands**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>l2tp tunnel password</code></td>
<td>Sets the password the router uses to authenticate the tunnel.</td>
</tr>
<tr>
<td><code>terminate-from</code></td>
<td>Specifies the host name of the remote LAC or LNS that will be required when accepting a VPDN tunnel.</td>
</tr>
<tr>
<td><code>username</code></td>
<td>Establishes a username-based authentication system, such as PPP CHAP and PAP.</td>
</tr>
</tbody>
</table>
loopback (controller e1)

To loop an entire E1 line (including all channel groups defined on the controller) toward the line and back toward the router or access server, use the `loopback` command in controller configuration mode. To remove the loop, use the `no` form of this command.

```
loopback
no loopback
```

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

### Defaults
Loopback function is disabled.

### Command Modes
Controller configuration

### Command History
<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

### Usage Guidelines
This command is useful for testing the DCE channel service unit/data service unit (CSU/DSU) itself. To display interfaces currently in loopback operation, use the `show interfaces loopback` EXEC command.

### Examples
The following example configures the loopback test on the E1 line:

```
controller e1 0
loopback
```

### Related Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>show interfaces loopback</code></td>
<td>Displays information about the loopback interface.</td>
</tr>
</tbody>
</table>
loopback local (controller)

To loop an entire T1 line (including all channel groups defined on the controller) toward the line and the router or access server, use the `loopback local` command in controller configuration mode. To remove the loop, use the `no` form of this command.

```
loopback local
no loopback local
```

**Syntax Description**

This command has no arguments or keywords.

**Defaults**

Loopback function is disabled.

**Command Modes**

Controller configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**Usage Guidelines**

This command is useful for testing the DCE channel service unit/data service unit (CSU/DSU) itself.

To display interfaces currently in loopback operation, use the `show interfaces loopback` EXEC command.

**Examples**

The following example configures the loopback test on the T1 line:

```
controller t1 0
loopback local
```

**Related Commands**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>show interfaces loopback</code></td>
<td>Displays information about the loopback interface.</td>
</tr>
</tbody>
</table>
loopback local (interface)

To loop a channelized T1 or channelized E1 channel group, use the loopback local command in interface configuration mode. To remove the loop, use the no form of this command.

```
loopback local
no loopback local
```

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

**Defaults**
Loopback function is disabled.

**Command Modes**
Interface configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**Usage Guidelines**
This command is useful for looping a single channel group in a channelized environment without disrupting the other channel groups.
To display interfaces currently in loopback operation, use the show interfaces loopback EXEC command.

**Examples**
The following example configures the loopback test on the T1 line:
```
interface serial 1/0:22
loopback local
```

**Related Commands**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>show interfaces loopback</td>
<td>Displays information about the loopback interface.</td>
</tr>
</tbody>
</table>
loopback remote (controller)

To loop packets from a MultiChannel Interface Processor (MIP) through the channel service unit/data service unit (CSU/DSU), over a dedicated T1 link, to the remote CSU at the single destination for this T1 link and back, use the `loopback remote` command in controller configuration mode. To remove the loop, use the `no` form of this command.

```
loopback remote
no loopback remote
```

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

**Defaults**
Command is disabled.

**Command Modes**
Controller configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**Usage Guidelines**
This command applies only when the device supports the remote function. It is used for testing the data communication channels.

For MIP cards, this controller configuration command applies if *only one* destination exists at the remote end of the cloud, the entire T1 line is dedicated to it, and the device at the remote end is a CSU (not a CSU/DSU). This is an uncommon case; MIPs are not usually used in this way.

To display interfaces currently in loopback operation, use the `show interfaces loopback` EXEC command.

**Examples**
The following example configures a remote loopback test:

```
interface serial 0
loopback remote
```

**Related Commands**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>show interfaces loopback</code></td>
<td>Displays information about the loopback interface.</td>
</tr>
</tbody>
</table>
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. |

**Defaults**

Command is disabled; no class name is provided.

**Command Modes**

Global configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.0</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**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 15.

**Table 15 NSF Keywords and Supported Services**

<table>
<thead>
<tr>
<th>Keyword</th>
<th>NSF Dialing Plan</th>
<th>Data</th>
<th>Voice</th>
<th>International</th>
</tr>
</thead>
<tbody>
<tr>
<td>sdnplan</td>
<td>SDN</td>
<td>Yes</td>
<td>Yes</td>
<td>GSDN (Global SDN)</td>
</tr>
<tr>
<td>megaplan</td>
<td>MEGACOMM</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>accuplan</td>
<td>ACCUNET</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Examples**

The following example configures the PPP callback server on an ISDN BRI interface on a router in Atlanta. 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
```
map-class dialer

dialer map ip 10.1.1.8 name atlanta 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 detroit class sdnplan 14155770715
  dialer map ip 10.1.1.2 name oakland class megaplan 14155773775
  dialer map ip 10.1.1.4 name oakland 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
  enable-timeout 2
  dialer map ip 10.2.1.8 name atlanta 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 “hawaii” and sets an ISDN speed of 56 kbps for the class.

```plaintext
map-class dialer hawaii
isdn speed 56
```

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>dialer map</strong></td>
<td>Configures a serial interface or ISDN interface to call one or multiple sites or to receive calls from multiple sites.</td>
</tr>
<tr>
<td><strong>dialer string</strong></td>
<td>Specifies the destination string (telephone number) to be called for interfaces calling a single site.</td>
</tr>
<tr>
<td><strong>show controllers e1</strong></td>
<td>Displays information about the E1 links supported by the NPM (Cisco 4000) or MIP (Cisco 7500 series).</td>
</tr>
</tbody>
</table>
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
```

<table>
<thead>
<tr>
<th>Syntax Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>asynchronous-interface-number</code></td>
<td>Number of the asynchronous interface to be altered.</td>
</tr>
<tr>
<td><code>command</code></td>
<td>One or both of the following commands entered for this specific interface:</td>
</tr>
<tr>
<td></td>
<td>- peer default ip address</td>
</tr>
<tr>
<td></td>
<td>- description</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Defaults</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>No individual configurations are set for member interfaces.</td>
<td></td>
</tr>
</tbody>
</table>

| Command Modes | | Details |
|---------------|----------|
| Interface configuration |

<table>
<thead>
<tr>
<th>Command History</th>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1</td>
<td></td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Usage Guidelines</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>You can customize a member interface by using the <code>member</code> command. Interfaces are designated as members of a group by using the <code>interface group-async</code> and <code>group-range</code> commands.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Examples</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The following example defines interface 3 with a description of line 3, which is attached to a Hayes Optima modem:</td>
<td></td>
</tr>
</tbody>
</table>
| `interface group-async 0
  member 3 description line #3 Hayes Optima` |

<table>
<thead>
<tr>
<th>Related Commands</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>group-range</code></td>
<td>Creates a list of member asynchronous interfaces (associated with a group interface).</td>
</tr>
<tr>
<td><code>interface group-async</code></td>
<td>Creates a group interface that will serve as master, to which asynchronous interfaces can be associated as members.</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Syntax Description</th>
<th>class-name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Class name previously defined in dial peer COR custom configuration mode by using of the <code>name</code> command.</td>
</tr>
</tbody>
</table>

### Defaults

No default behavior or values.

### Command Modes

Dial peer COR list configuration

### Command History

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.1(3)T</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

### 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

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>dial-peer cor list</code></td>
<td>Defines a COR list name.</td>
</tr>
</tbody>
</table>
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. |

**Defaults**

15 seconds

**Command Modes**

Line configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.0</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**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*, Release 12.2.

**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**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>modem callin</code></td>
<td>Supports dial-in modems that use the DTR signal to control the off-hook status of the modem.</td>
</tr>
<tr>
<td><code>modem inout</code></td>
<td>Configures a line for both incoming and outgoing calls.</td>
</tr>
</tbody>
</table>
**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
```

<table>
<thead>
<tr>
<th>Syntax Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>slot/port</td>
<td>Slot number and modem port number. (Include the forward slash (/) when entering this variable.)</td>
</tr>
</tbody>
</table>

**Defaults**

Command is disabled.

**Command Modes**

EXEC

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.2</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**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\\

IDLE 000:00:00
LAST DIAL

NET ADDR: FFFFFFFF
MODEM HW: SA 2W United States
4 RTS 5 CTS 6 DSR - CD 20 DTR - RI
```
<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>clear modem</td>
<td>Resets the hardware for one or more manageable modems on access servers and routers.</td>
</tr>
</tbody>
</table>
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.

**Defaults**

Command is enabled.

**Command Modes**

Line configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.2</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**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 that 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**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>clear modem</td>
<td>Resets the hardware for one or more manageable modems on access servers and routers.</td>
</tr>
<tr>
<td>modem at-mode</td>
<td>Opens a directly connected session and enters AT command mode, which is used for sending AT commands to Microcom manageable modems.</td>
</tr>
</tbody>
</table>
**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.

```plaintext
modem autoconfigure discovery

no modem autoconfigure discovery
```

**Syntax Description**

This command has no arguments or keywords.

**Defaults**

No default behavior or values.

**Command Modes**

Line configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**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:

```plaintext
modem autoconfigure discovery
```

**Related Commands**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>modem autoconfigure type</strong></td>
<td>Directs a line to attempt to configure the attached modem using a predefined modemcap.</td>
</tr>
</tbody>
</table>
modem autoconfigure type

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

\begin{verbatim}
modem autoconfigure type \textit{modem-type}
\end{verbatim}

\begin{verbatim}
no modem autoconfigure type
\end{verbatim}

### Syntax Description

\begin{verbatim}
modem-type \hspace{2cm} Modem type, such as a Codex 3260.
\end{verbatim}

### Defaults

No default behavior or values.

### Command Modes

Line configuration

### Command History

\begin{tabular}{ll}
\textbf{Release} & \textbf{Modification} \\
11.1 & This command was introduced.
\end{tabular}

### 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:

\begin{verbatim}
modem autoconfigure type codex_3260
\end{verbatim}

### Related Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\texttt{modem autoconfigure discovery}</td>
<td>Configures a line to discover which kind of modem is connected to the router and to configure that modem automatically.</td>
</tr>
</tbody>
</table>
modem autotest

To automatically and periodically perform a modem diagnostics test for modems inside the access server or router, use the `modem autotest` command in global configuration mode. To disable or turn off the modem autotest service, use the `no` form of this command.

```
modem autotest {error threshold | minimum modems | time hh:mm [interval]}
```

```
o modem autotest
```

### Syntax Description

<table>
<thead>
<tr>
<th>Syntax Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>error threshold</code></td>
<td>Maximum modem error threshold. When the system detects this many errors with the modems, the modem diagnostics test is automatically triggered. Specify a threshold count from 3 to 50.</td>
</tr>
<tr>
<td><code>minimum modems</code></td>
<td>Minimum number of modems that will remain untested and available to accept calls during each test cycle. You can specify from 5 to 48 modems. The default is 6 modems.</td>
</tr>
<tr>
<td><code>time hh:mm</code></td>
<td>Time when you want the modem autotest to begin. You must use the military time convention and a required colon (:) between the hours and minutes variables for this feature. For example, 1:30 p.m. is issued as 13:30.</td>
</tr>
<tr>
<td><code>interval</code></td>
<td>(Optional) Long-range time variable used to set the modem autotest more than one day in advance. The range of hours is from 1 hour to 168 hours. For example if you want to run the test once per week, issue 168. There are 168 hours in one week.</td>
</tr>
</tbody>
</table>

### Defaults

Command is disabled.

### Command Modes

Global configuration

### Command History

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.3</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

### Examples

The following example shows how to set the modem autotest to run once per week at 3:00 a.m. Additionally, the autotest will activate if the system detects a modem error count higher than 40 errors.

**Step 1**

Determine the current time set on the access server with the `show clock` EXEC command. In this example, the time and date set is 3:00 p.m, Monday, August 25, 1997:

```
Router# show clock
*15:00:01.031 EST Aug 25 1997
```
Step 2  Enter global configuration mode and set the time you want the modem autotest to activate. In this example, the access server is configured to run the modem autotest at 3:00 a.m. and every 168 hours (week) thereafter.

Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# modem autotest time 03:00 168

Step 3  Configure the autotest to activate if the system detects a high modem error count. In this example, the autotest activates if the system detects a modem error count higher than 40 errors. For the list of modem errors that are monitored by the modem autotest command, see the show modem call-stats command.

Router(config)# modem autotest error 40
Router(config)# exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Step 4  Display the results of the modem autotest once the test has run through a test cycle by issuing the show modem test EXEC command:

Router# show modem test

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Modem</th>
<th>Test</th>
<th>Reason</th>
<th>State</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/15</td>
<td>07:25:17 AM</td>
<td>1/0</td>
<td>Back-To-Back</td>
<td>TIME INTERVAL</td>
<td>Idle</td>
<td>FAIL</td>
</tr>
<tr>
<td>5/15</td>
<td>07:25:17 AM</td>
<td>1/1</td>
<td>Back-To-Back</td>
<td>TIME INTERVAL</td>
<td>Idle</td>
<td>PASS</td>
</tr>
<tr>
<td>5/15</td>
<td>07:25:17 AM</td>
<td>1/2</td>
<td>Back-To-Back</td>
<td>TIME INTERVAL</td>
<td>Idle</td>
<td>PASS</td>
</tr>
<tr>
<td>5/15</td>
<td>07:25:17 AM</td>
<td>1/3</td>
<td>Back-To-Back</td>
<td>TIME INTERVAL</td>
<td>Idle</td>
<td>FAIL</td>
</tr>
<tr>
<td>5/15</td>
<td>07:25:17 AM</td>
<td>1/4</td>
<td>Back-To-Back</td>
<td>TIME INTERVAL</td>
<td>Idle</td>
<td>PASS</td>
</tr>
<tr>
<td>5/15</td>
<td>07:25:17 AM</td>
<td>1/5</td>
<td>Back-To-Back</td>
<td>TIME INTERVAL</td>
<td>Idle</td>
<td>PASS</td>
</tr>
<tr>
<td>5/15</td>
<td>07:25:17 AM</td>
<td>1/6</td>
<td>Back-To-Back</td>
<td>TIME INTERVAL</td>
<td>Idle</td>
<td>PASS</td>
</tr>
<tr>
<td>5/15</td>
<td>07:25:17 AM</td>
<td>1/7</td>
<td>Back-To-Back</td>
<td>TIME INTERVAL</td>
<td>Idle</td>
<td>PASS</td>
</tr>
<tr>
<td>5/15</td>
<td>07:25:17 AM</td>
<td>1/8</td>
<td>Back-To-Back</td>
<td>TIME INTERVAL</td>
<td>Idle</td>
<td>PASS</td>
</tr>
<tr>
<td>5/15</td>
<td>07:25:17 AM</td>
<td>1/9</td>
<td>Back-To-Back</td>
<td>TIME INTERVAL</td>
<td>Idle</td>
<td>PASS</td>
</tr>
<tr>
<td>...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Alternatively, you can display which modems were marked bad by the modem autotest by issuing the show modem EXEC command. Bad modems are marked by the letter B. In this example, modems 1/0 and 1/3 are marked bad (identified with a B), which takes them out of commission and makes them unable to participate in dial services:

Router# show modem

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td></td>
<td>0%</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>1/0</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>1/1</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>1/3</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>1/4</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>1/5</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>1/6</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>1/7</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>1/8</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>1/9</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/20</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>1/21</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>1/22</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>
**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.

```plaintext
modem bad

no modem bad
```

**Syntax Description**

This command has no arguments or keywords.

**Defaults**

Command is disabled.

**Command Modes**

Line configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.2</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**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

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

<table>
<thead>
<tr>
<th>Syntax</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>events</code></td>
<td>Defined number of modem events that each manageable modem is able to store.</td>
</tr>
<tr>
<td></td>
<td>Default is 100 events.</td>
</tr>
</tbody>
</table>

### Defaults

100 modem events

### Command Modes

Global configuration

### Command History

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.2</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

### 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

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>show modem log</code></td>
<td>Displays the modem history event status performed on a manageable modem or group of modems.</td>
</tr>
</tbody>
</table>
**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.

**Defaults**

Command is disabled.

**Command Modes**

Line configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.2</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>busyout</code></td>
<td>Informs the central-office switch that a channel is out-of-service.</td>
</tr>
<tr>
<td><code>ds0 busyout (channel)</code></td>
<td>Forces a DS0 time slot on a controller into the busyout state.</td>
</tr>
<tr>
<td><code>modem shutdown</code></td>
<td>Abruptly shuts down an active or idle modem installed in an access server or router.</td>
</tr>
</tbody>
</table>
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
```

**Note**
This command is the same as the `ds0 busyout-threshold` command for the Cisco AS5300 and AS5800 access servers.

**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.

**Defaults**
No default behavior or values.

**Command Modes**
Global configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.3(2)AA</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**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.

Examples

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

```
modem busyout-threshold 30
```

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>busyout</code></td>
<td>Informs the central-office switch that a channel is out-of-service.</td>
</tr>
<tr>
<td><code>ds0 busyout (channel)</code></td>
<td>Forces a DS0 timeslot on a controller into the busyout state.</td>
</tr>
<tr>
<td><code>modem busyout</code></td>
<td>Disables a modem from dialing or answering calls whereby the disabling action is not executed until the active modem returns to an idle state.</td>
</tr>
<tr>
<td><code>modem shutdown</code></td>
<td>Abruptly shuts down an active or idle modem installed in an access server or router.</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Syntax Description</th>
<th>Terse Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>terse</td>
<td>Specifies that only significant data is logged to the Modem Call Record (MCR).</td>
</tr>
<tr>
<td>quiet</td>
<td>(Optional) Specifies that the MCR is sent only to the syslog server and not to the console.</td>
</tr>
<tr>
<td>max userid</td>
<td>(Optional) Sets the maximum number of characters of the user ID that will be entered into the MCR. The default length is 30 characters.</td>
</tr>
<tr>
<td>character-max</td>
<td></td>
</tr>
</tbody>
</table>

### Defaults

Logging of modem events is off.

### Command Modes

Global configuration

### Command History

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.3(6)AA</td>
<td>This command was introduced.</td>
</tr>
<tr>
<td>11.3(9)AA</td>
<td>The <code>max-userid</code> keyword was added.</td>
</tr>
<tr>
<td>12.0(4)T</td>
<td>The <code>max-userid</code> keyword was added.</td>
</tr>
<tr>
<td>12.1(1)</td>
<td>Support was added for NM-AM and NM-DM modem boards on the Cisco 2600 and Cisco 3600 series routers.</td>
</tr>
<tr>
<td>12.1(2)T</td>
<td>The <code>quiet</code> keyword was added.</td>
</tr>
</tbody>
</table>

### Usage Guidelines

The modem management subsystem 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 16 describes the significant fields in the display for MICA technologies and Microcom modems.

**Table 16  modem call-record Field Descriptions**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface slot</td>
<td>Interface slot of device assigned for call.</td>
</tr>
<tr>
<td>Interface controller unit</td>
<td>Interface controller unit of device assigned for call.</td>
</tr>
<tr>
<td>Interface channel</td>
<td>Interface channel of device assigned for call.</td>
</tr>
<tr>
<td>Modem type</td>
<td>Modem type used for call.</td>
</tr>
<tr>
<td>Modem slot/port</td>
<td>Physical location for modem handling the call.</td>
</tr>
<tr>
<td>Call id</td>
<td>Unique Call Identifier assigned to the modem call by the call switching module.</td>
</tr>
<tr>
<td>Userid</td>
<td>User ID of caller.</td>
</tr>
<tr>
<td>IP address</td>
<td>IP address assigned for caller.</td>
</tr>
<tr>
<td>Calling number</td>
<td>Modem calling number.</td>
</tr>
<tr>
<td>Called number</td>
<td>Modem called number.</td>
</tr>
<tr>
<td>Connected standard</td>
<td>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.</td>
</tr>
<tr>
<td>Connect protocol</td>
<td>Protocol user for connection. Possible values are ARA1.0, ARA2.0, ASYNC Mode, FAX Mode, LAP-M, MNP, SS7/COT, and SYNC Mode.</td>
</tr>
<tr>
<td>Compression</td>
<td>Compression method used for connection. Possible values are MNP5 data, none, V.42bis both, V.42bis RX, and V.42bis TX.</td>
</tr>
<tr>
<td>Initial RX bit rate</td>
<td>Actual bit rate from the remote Digital Signal Processor (DSP) to the local DSP at connect.</td>
</tr>
<tr>
<td>Initial TX bit rate</td>
<td>Actual bit rate from the local DSP to the remote DSP at connect.</td>
</tr>
<tr>
<td>Final RX bit rate</td>
<td>Actual bit rate from the remote DSP to the local DSP at disconnect.</td>
</tr>
<tr>
<td>Final TX bit rate</td>
<td>Actual bit rate from the local DSP to the remote DSP at disconnect.</td>
</tr>
<tr>
<td>RBS pattern(^1)</td>
<td>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).</td>
</tr>
<tr>
<td>Digital pad(^1)</td>
<td>Amount of digital padding (attenuation) in downlink, in decibels (dB). (Only reported for V.90 and K56Flex.)</td>
</tr>
<tr>
<td>Total retrains(^1)</td>
<td>Count of total retrains and speed shifts.</td>
</tr>
<tr>
<td>Signal quality value(^1)</td>
<td>Signal quality values in a range from 0 to 7, where 0 is the worst. The units are arbitrary, approximating abs((\log_{10}(\text{SNR}))).</td>
</tr>
<tr>
<td>SNR</td>
<td>Signal-to-noise ratio, ranging from 0 to 70 in dB steps.</td>
</tr>
<tr>
<td>Characters received</td>
<td>Count of total characters received for SYNC/ASYNC connection.</td>
</tr>
</tbody>
</table>
**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=#4085551212 called=#4085552222
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=4085551212 called=4085552222
call timer=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=#4085551111 called=#4085552222
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=4085551111# called=#4085552222
time=0 finl-state=Dialing/Answering
disc(local)=0x9 DTR Drop disc(remote)=0x0 Unknown

### Related Commands

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

**Syntax Description**

This command has no arguments or keywords.

**Defaults**

No modem control

**Command Modes**

Line configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.0</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>modem answer-timeout</strong></td>
<td>Sets the amount of time that the Cisco IOS software waits for the CTS signal after raising the DTR signal in response to RING.</td>
</tr>
<tr>
<td><strong>modem inout</strong></td>
<td>Configures a line for both incoming and outgoing calls.</td>
</tr>
</tbody>
</table>
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.

Defaults

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

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>modem inout</code></td>
<td>Configures a line for both incoming and outgoing calls.</td>
</tr>
<tr>
<td><code>show async-bootp</code></td>
<td>Displays the extended BOOTP request parameters that have been configured for asynchronous interfaces.</td>
</tr>
</tbody>
</table>
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
```

<table>
<thead>
<tr>
<th>Syntax Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>country</code></td>
<td>Country name. See Table 17 for a list of the supported country name keywords.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Defaults</th>
<th>Command is disabled.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Command Modes</th>
<th>Global configuration</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Command History</th>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11.2 P</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Usage Guidelines</th>
<th>Table 17 lists the supported codes for the <code>country</code> argument.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Table 17 MICA Country Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>australia</td>
</tr>
<tr>
<td>austria</td>
</tr>
<tr>
<td>belgium</td>
</tr>
<tr>
<td>china</td>
</tr>
<tr>
<td>cyprus</td>
</tr>
<tr>
<td>czech-republic (Czech/Slovak Republic)</td>
</tr>
<tr>
<td>denmark</td>
</tr>
<tr>
<td>e1-default (Default E1, A Law)</td>
</tr>
<tr>
<td>finland</td>
</tr>
<tr>
<td>france</td>
</tr>
<tr>
<td>germany</td>
</tr>
<tr>
<td>hong-kong</td>
</tr>
<tr>
<td>india</td>
</tr>
<tr>
<td>ireland</td>
</tr>
<tr>
<td>israel</td>
</tr>
</tbody>
</table>
Table 17  MICA Country Names (continued)

<table>
<thead>
<tr>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>italy</td>
</tr>
<tr>
<td>japan</td>
</tr>
<tr>
<td>malaysia</td>
</tr>
<tr>
<td>netherlands</td>
</tr>
<tr>
<td>new-zealand</td>
</tr>
<tr>
<td>norway</td>
</tr>
<tr>
<td>poland</td>
</tr>
<tr>
<td>portugal</td>
</tr>
<tr>
<td>russia</td>
</tr>
<tr>
<td>singapore</td>
</tr>
<tr>
<td>south-africa</td>
</tr>
<tr>
<td>spain</td>
</tr>
<tr>
<td>sweden</td>
</tr>
<tr>
<td>switzerland</td>
</tr>
<tr>
<td>t1-default (Defaults T1, u Law)</td>
</tr>
<tr>
<td>taiwan</td>
</tr>
<tr>
<td>thailand</td>
</tr>
<tr>
<td>turkey</td>
</tr>
<tr>
<td>united-kingdom</td>
</tr>
<tr>
<td>usa</td>
</tr>
</tbody>
</table>

Examples

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

```bash
modem country mica sweden
```

Related Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>modem country microcom_hdms</strong></td>
<td>Configures the modem country code for a bank of Microcom modems.</td>
</tr>
</tbody>
</table>
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 18 for a list of the supported country name keywords.

**Defaults**

No country code is enabled.

**Command Modes**

Global configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.2 P</td>
<td>This command was introduced.</td>
</tr>
<tr>
<td>12.0</td>
<td>The <code>europe</code> keyword was added.</td>
</tr>
</tbody>
</table>

**Usage Guidelines**

Table 18 lists the supported codes for the `country` argument.

```
Table 18  Microcom Country Names

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

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

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

<table>
<thead>
<tr>
<th>country</th>
<th>value</th>
</tr>
</thead>
<tbody>
<tr>
<td>argentina</td>
<td>Argentina</td>
</tr>
<tr>
<td>australia</td>
<td>Australia</td>
</tr>
<tr>
<td>austria</td>
<td>Austria</td>
</tr>
<tr>
<td>belgium</td>
<td>Belgium</td>
</tr>
<tr>
<td>chile</td>
<td>Chile</td>
</tr>
<tr>
<td>china</td>
<td>China</td>
</tr>
<tr>
<td>colombia</td>
<td>Columbia</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>modem country microcom</td>
<td>Configures the modem country code for a bank of MICA technologies modems.</td>
</tr>
</tbody>
</table>
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

no modem dialin
```

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

**Defaults**
Incoming calls to the modem are not permitted.

**Command Modes**
Line configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

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

**Examples**
The following example configures a line for a high-speed modem:
```
line 5
modem dialin
```

**Related Commands**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>modem inout</strong></td>
<td>Configures a line for both incoming and outgoing calls.</td>
</tr>
<tr>
<td><strong>parity</strong></td>
<td>Defines generation of a parity bit.</td>
</tr>
</tbody>
</table>
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**

<table>
<thead>
<tr>
<th>Syntax</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>e1</td>
<td>Wide-area digital transmission scheme used predominantly in Europe.</td>
</tr>
<tr>
<td>t1</td>
<td>Wide-area digital carrier facility.</td>
</tr>
<tr>
<td>controller-list</td>
<td>List of controllers through which to dial out. The range is from 0 to 7. List the controllers individually (1, 2, 3, for example).</td>
</tr>
</tbody>
</table>

**Defaults**

All T1 and E1 controllers are used for dial out.

**Command Modes**

Line configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.2</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**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.

**Defaults**

No modem control.

**Command Modes**

Line configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.0</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>modem printer</strong></td>
<td>Configures a line to require a DSR signal instead of CTS.</td>
</tr>
</tbody>
</table>
**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.

**Defaults**

Command is disabled.

**Command Modes**

Line configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.2</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**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 initialization sequence:

```
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**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>modem autotest</strong></td>
<td>Automatically and periodically performs a modem diagnostics test for modems inside the access server or router.</td>
</tr>
</tbody>
</table>
**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.

**Defaults**  
Command is disabled.

**Command Modes**  
Line configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**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 difference 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**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>modem callout</code></td>
<td>Configures a line for reverse connections.</td>
</tr>
<tr>
<td><code>modem printer</code></td>
<td>Configures a line to require a DSR signal instead of CTS.</td>
</tr>
</tbody>
</table>
**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.

**Defaults**

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**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>parity</td>
<td>Defines generation of a parity bit.</td>
</tr>
</tbody>
</table>
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 65,535.

### Defaults

Link statistics are not polled.

### Command Modes

Global configuration

### Command History

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.1(3)T</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

### 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

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>calltracker call-record</code></td>
<td>Enables Call Tracker on the access server.</td>
</tr>
<tr>
<td><code>show call calltracker active</code></td>
<td>Displays the detailed data stored within Call Tracker for active calls.</td>
</tr>
<tr>
<td><code>show call calltracker handle</code></td>
<td>Displays the detailed data stored within Call Tracker for a specific call specified unique call handle identifier.</td>
</tr>
<tr>
<td><code>show call calltracker history</code></td>
<td>Displays the detailed data stored within Call Tracker for terminated calls.</td>
</tr>
<tr>
<td><code>show modem calltracker</code></td>
<td>Displays the detailed data stored within Call Tracker for the last call on the specified modem.</td>
</tr>
</tbody>
</table>
**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

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

### Defaults

No EIA/TIA events are logged.

### Command Modes

Line configuration

### Command History

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.3 AA</td>
<td>This command was introduced for the Cisco AS5300 access server.</td>
</tr>
<tr>
<td>12.0(5)T</td>
<td>This command was implemented on the Cisco AS5800 access server.</td>
</tr>
</tbody>
</table>

### 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
dmodem log dsr
```

### Related Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>show modem log</code></td>
<td>Displays the modem history event status performed on a manageable modem or group of modems.</td>
</tr>
</tbody>
</table>
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 {speed | any} max-speed {speed | any [modulation value]}
no modem min-speed {speed | any} max-speed {speed | any [modulation value]}
```

### Syntax Description

<table>
<thead>
<tr>
<th>Syntax</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>speed</code></td>
<td>Minimum and maximum bit rate for the modems, which can be from 300 to 56,000 bits per second (bps). Must be in V.90 increments.</td>
</tr>
<tr>
<td><code>any</code></td>
<td>Any minimum or maximum speed.</td>
</tr>
<tr>
<td><code>modulation</code></td>
<td>(Optional) Maximum negotiated speed. Replace the <code>value</code> argument with one of the following choices: <code>any</code>, <code>k56flex</code>, <code>v22bis</code>, <code>v34</code>, or <code>v90</code>.</td>
</tr>
</tbody>
</table>

### Defaults

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

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.0(4)XI</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

### Examples

The following example shows the modem service parameters for the service profile named `user1sample` configured for a minimum speed of `any`, a maximum speed of `any`, and a modulation of `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.

**Defaults**

Three polling attempts

**Command Modes**

Global configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.2</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**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**

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

**Defaults**

12 seconds

**Command Modes**

Global configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.2</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**Usage Guidelines**

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

**Examples**

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

```
modem poll time 10
```

**Related Commands**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>modem min-speed max-speed</code></td>
<td>Sets the maximum number of polling attempts used to retrieve performance statistics from a modem installed in an access server or router.</td>
</tr>
<tr>
<td><code>modem status-poll</code></td>
<td>Polls for modem statistics through the out-of-band feature of a modem.</td>
</tr>
</tbody>
</table>
modem printer

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

```
modem printer
no modem printer
```

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

**Defaults**
No modem control

**Command Modes**
Line configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**Usage Guidelines**
This command uses RING/data carrier detect (DCD)/DSR as the modem control signals instead of CTS. This difference leaves CTS free for use in hardware flow control. You can configure hardware flow control concurrently with the `modem printer` command.

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/CD, as the carrier detect (CD) signal.

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

```
line 5
modem printer
```
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**

<table>
<thead>
<tr>
<th>Syntax</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>disable</td>
<td>Marks the modem bad.</td>
</tr>
<tr>
<td>download</td>
<td>Recovers by firmware download (default). Sets the modem into a recovery pending state, thus stopping the modem from accepting new calls.</td>
</tr>
<tr>
<td>none</td>
<td>Does not try to recover. Ignores the recovery threshold and just keeps running.</td>
</tr>
</tbody>
</table>

**Defaults**

The default setting is `download`.

**Command Modes**

Global configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.0</td>
<td>This command was introduced.</td>
</tr>
<tr>
<td>12.1(2.3)T</td>
<td>This command was no longer supported on Cisco AS5800 platforms.</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>modem recovery maintenance</td>
<td>Specifies the scheduled modem maintenance recovery behavior.</td>
</tr>
<tr>
<td>modem recovery threshold</td>
<td>Specifies the threshold, which starts the modem recovery process.</td>
</tr>
<tr>
<td>modem recovery-time</td>
<td>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.</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Syntax</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>action</td>
<td>Mode of recovery. The default is set to <code>reschedule</code>.</td>
</tr>
<tr>
<td>disable</td>
<td>Marks the modem bad. Marks the originally faulty modem as bad and returns all other modems back into service.</td>
</tr>
<tr>
<td>drop-call</td>
<td>Forces firmware download by dropping holding calls. This action forces the recovery by dropping any active calls remaining on modems within the module.</td>
</tr>
<tr>
<td>reschedule</td>
<td>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 <code>reschedule</code>.</td>
</tr>
<tr>
<td>max-download recovery-downloads</td>
<td>Maximum simultaneous recovery downloads. You must choose one number from 1 to 30. A range of values is not supported.</td>
</tr>
<tr>
<td>schedule</td>
<td>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.</td>
</tr>
<tr>
<td>immediate</td>
<td>Immediately attempts modem recovery.</td>
</tr>
<tr>
<td>pending</td>
<td>Delays recovery until maintenance time (default).</td>
</tr>
<tr>
<td>time hh:mm</td>
<td>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.</td>
</tr>
<tr>
<td>window minutes</td>
<td>Amount of time for normal recovery to take place. This is the delay timer in minutes, which is from 0 to 360.</td>
</tr>
</tbody>
</table>

### Defaults

- 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

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.0</td>
<td>This command was introduced.</td>
</tr>
<tr>
<td>12.1(2.3)T1</td>
<td>This command was no longer supported on Cisco AS5800 platforms.</td>
</tr>
</tbody>
</table>
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.

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.

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
```

<table>
<thead>
<tr>
<th>Related Commands</th>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>modem recovery action</strong></td>
<td>Specifies the modem recovery mode when a modem has been identified as faulty.</td>
</tr>
<tr>
<td></td>
<td><strong>modem recovery threshold</strong></td>
<td>Specifies the threshold, which starts the modem recovery process.</td>
</tr>
<tr>
<td></td>
<td><strong>modem recovery-time</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>
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. |

**Defaults**

30 call attempts are enabled by default.

**Command Modes**

Global configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.0</td>
<td>This command was introduced.</td>
</tr>
<tr>
<td>12.1(2.3)T1</td>
<td>This command was no longer supported on Cisco AS5800 platforms.</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>modem recovery action</code></td>
<td>Specifies the modem recovery mode when a modem has been identified as faulty.</td>
</tr>
<tr>
<td><code>modem recovery maintenance</code></td>
<td>Specifies the scheduled modem maintenance recovery behavior.</td>
</tr>
<tr>
<td><code>modem recovery-time</code></td>
<td>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.</td>
</tr>
</tbody>
</table>
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.

**Defaults**

5 minutes

**Command Modes**

Global configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.2</td>
<td>This command was introduced.</td>
</tr>
<tr>
<td>12.1(2.3)T</td>
<td>This command was no longer supported on Cisco AS5800 platforms.</td>
</tr>
</tbody>
</table>

**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
```
<table>
<thead>
<tr>
<th>Related Commands</th>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>modem recovery action</strong></td>
<td>Specifies the modem recovery mode when a modem has been identified as faulty.</td>
</tr>
<tr>
<td></td>
<td><strong>modem recovery maintenance</strong></td>
<td>Specifies the scheduled modem maintenance recovery behavior.</td>
</tr>
<tr>
<td></td>
<td><strong>modem recovery threshold</strong></td>
<td>Specifies the threshold, which starts the modem recovery process.</td>
</tr>
</tbody>
</table>
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.

**Defaults**

Command is disabled.

**Command Modes**

Line configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.2</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>modem busyout</code></td>
<td>Disables a modem from dialing or answering calls whereby the disabling action is not executed until the active modem returns to an idle state.</td>
</tr>
</tbody>
</table>
modem startup-test

To perform diagnostic testing on each integrated modem during the rebooting process, use the `modem startup-test` command in global configuration mode. To disable startup testing, use the `no` form of this command.

```
modem startup-test

no modem startup-test
```

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

**Defaults**
Command is enabled.

**Command Modes**
Global configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.2</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**Usage Guidelines**
The results of the modem startup test output are displayed in the `Status` column of the `show modem` command. Modems that pass the diagnostic test are marked as Idle, Busy, Downloading, and Reset. Modems that fail the diagnostic test are marked as `Bad*`. These modems cannot be used for call connections. Depending on how many modems are installed, this diagnostic test may take from 5 to 15 minutes to complete.

Perform additional testing on an inoperative modem by entering the `test modem back-to-back` command. The `no modem startup-test` command disables startup testing.

**Examples**
The following example performs a startup test on the integrated Cisco AS5200 modems:

```
modem startup-test
```

Display the results of the modem startup test after you restart the system by entering the `show modem` command.
<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>modem autotest</code></td>
<td>Automatically and periodically performs a modem diagnostics test for modems inside the access server or router.</td>
</tr>
<tr>
<td><code>show modem at-mode</code></td>
<td>Displays a list of the manageable Microcom modems that have open AT sessions and a list of users logged in to those sessions.</td>
</tr>
<tr>
<td><code>show modem</code></td>
<td>Displays a high-level performance report for all the modems or a single modem.</td>
</tr>
<tr>
<td><code>test port modem back-to-back</code></td>
<td>Tests two specified ports back-to-back and transfers a specified amount of data between the ports.</td>
</tr>
<tr>
<td><code>test modem back-to-back</code></td>
<td>Diagnoses an integrated modem that may not be functioning properly.</td>
</tr>
</tbody>
</table>
**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.

**Defaults**

Command is enabled.

**Command Modes**

Line configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.2</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>modem min-speed max-speed</strong></td>
<td>Sets the maximum number of polling attempts used to retrieve performance statistics from a modem installed in an access server or router.</td>
</tr>
<tr>
<td><strong>modem poll time</strong></td>
<td>Sets the time interval between modem polls, which are used to periodically retrieve and report modem statistics.</td>
</tr>
</tbody>
</table>
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**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>modem-name</code></td>
<td>Name of the modem whose values are being edited.</td>
</tr>
<tr>
<td><code>attribute</code></td>
<td>Modem capability, or attribute, as defined by the <code>show modemcap</code> command.</td>
</tr>
<tr>
<td><code>at-command</code></td>
<td>The AT command equivalent (such as <code>&amp;F</code>).</td>
</tr>
</tbody>
</table>

**Defaults**

No default behavior or values.

**Command Modes**

Global configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>modemcap entry</code></td>
<td>Stores and compresses information about the capability of a specified modem.</td>
</tr>
<tr>
<td><code>show modemcap</code></td>
<td>Displays the values set for the current modem and lists the modems for which the router has entries.</td>
</tr>
</tbody>
</table>
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 19.

### Defaults

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

### Command Modes

Global configuration

### Command History

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1</td>
<td>This command was introduced.</td>
</tr>
<tr>
<td>12.1(5)T</td>
<td>This command was implemented on the Cisco 2600 series and the Cisco 3600 series.</td>
</tr>
</tbody>
</table>

### 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 19 lists the `modemcap` entries for supported modems.

### Table 19 Modemcap Entries for Supported Modems

<table>
<thead>
<tr>
<th>Modemcap Name</th>
<th>Modem Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>codex_3260</td>
<td>Motorola Codex 3260</td>
</tr>
<tr>
<td>default</td>
<td>Generic (Hayes) interface</td>
</tr>
<tr>
<td>global_village</td>
<td>Global Village Teleport</td>
</tr>
<tr>
<td>hayes_optima</td>
<td>Hayes Optima</td>
</tr>
<tr>
<td>nec_piafs</td>
<td>NEC PIAFS TA</td>
</tr>
<tr>
<td>nec_v34</td>
<td>NEC V.34</td>
</tr>
<tr>
<td>nec_v110</td>
<td>NEC V.110 TA</td>
</tr>
<tr>
<td>telebit_t3000</td>
<td>Telebit T3000</td>
</tr>
<tr>
<td>usr_courier</td>
<td>U.S. Robotics Courier</td>
</tr>
<tr>
<td>usr_sportster</td>
<td>U.S. Robotics Sportster</td>
</tr>
</tbody>
</table>
The following example shows how to select a U.S. Robotics Sportster modem type:

```plaintext
modemcap entry usr_sportster
```

### Table 19  Modemcap Entries for Supported Modems (continued)

<table>
<thead>
<tr>
<th>Modemcap Name</th>
<th>Modem Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>viva</td>
<td>Viva (Rockwell ACF with MNP)</td>
</tr>
</tbody>
</table>

**Internal Modems**

<table>
<thead>
<tr>
<th>Modemcap Name</th>
<th>Modem Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>cisco_v110</td>
<td>Cisco (NEC) internal V.110 TA (AS5200)</td>
</tr>
<tr>
<td>mica</td>
<td>Cisco MICA HMM/DMM digital</td>
</tr>
<tr>
<td>microcom_hdms</td>
<td>Microcom HDMS chassis</td>
</tr>
<tr>
<td>microcom_mimic</td>
<td>Cisco (Microcom) analog (NM-AM-2600/3600)</td>
</tr>
<tr>
<td>microcom_server</td>
<td>Cisco (Microcom) V.34/56K digital (AS5300)</td>
</tr>
<tr>
<td>nextport</td>
<td>Cisco NextPort CSMV/6 digital</td>
</tr>
</tbody>
</table>

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:

```plaintext
modemcap entry usr_sportster
```

### Related Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>modem hold-reset</code></td>
<td>Resets and isolates integrated modems for extensive troubleshooting.</td>
</tr>
<tr>
<td><code>show modemcap</code></td>
<td>Displays the values set for the current modem and lists the modems for which the router has entries.</td>
</tr>
</tbody>
</table>
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. |

**Defaults**

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**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.2 P</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>called-number (modem pool)</code></td>
<td>Assigns a called party number to a pool of modems.</td>
</tr>
<tr>
<td><code>clear modempool-counters</code></td>
<td>Clears active or running counters associated with one or more modem pools.</td>
</tr>
<tr>
<td><code>pool-member</code></td>
<td>Assigns a range of modems to a modem pool.</td>
</tr>
<tr>
<td><code>show modem-pool</code></td>
<td>Displays the configuration and connection status for one or more modem pools.</td>
</tr>
</tbody>
</table>