pri-group timeslots

To configure Non-Facility Associated Signaling (NFAS) and specify the channels to be controlled by the primary NFAS D channel, use the **pri-group timeslots** command in controller configuration mode.

pri-group timeslots *range* **nfas_d** [**primary** | **backup** | **none**] **nfas_int** *number* **nfas_group** *group-id-number*

pri-group timeslots *range*

Syntax Description

range	Channels in the range from 1 to 24. A range of channels is shown with a hyphen (-).
primary	(Optional) Function of channel 24: the primary NFAS D channel.
backup	(Optional) Function of channel 24: the backup NFAS D channel.
none	(Optional) Function of channel 24: B channel.
nfas_int *number*	Value assigned by the service provider to ensure unique identification of a PRI interface.
nfas_group *group-id-number*	Group identifier unique on the router, in the range from 1 to 24. Multiple NFAS groups can exist on the router.

Defaults

Disabled

Command Modes

Controller configuration

Command History

Release	Modification
11.3	This command was introduced.

Usage Guidelines

NFAS allows a single D channel to control multiple PRI interfaces. Use of a single D channel to control multiple PRI interfaces frees one B channel on each interface to carry other traffic. A backup D channel can also be configured for use when the primary NFAS D channel fails. When a backup D channel is configured, any hard system failure causes a switch over to the backup D channel and currently connected calls remain connected.

NFAS is supported only with a channelized T1 controller and, as a result, must be ISDN PRI capable. Once the channelized T1 controllers are configured for ISDN PRI, only the NFAS primary D channel must be configured; its configuration is distributed to all members of the associated NFAS group. Any configuration changes made to the primary D channel will be propagated to all NFAS group members. The primary D channel interface is the only interface shown after the configuration is written to memory.

The channelized T1 controllers on the router must also be configured for ISDN. The router must connect to either an AT&T 4ESS, Northern Telecom DMS-100 or DMS-250, or National ISDN switch type.

The ISDN switch must be provisioned for NFAS. The primary and backup D channels should be configured on separate T1 controllers. The primary, backup, and B-channel members on the respective controllers should be the same configuration as that configured on the router and ISDN switch. The interface ID assigned to the controllers must match that of the ISDN switch.

You can disable a specified channel or an entire PRI interface, thereby taking it out of service or placing it into one of the other states that is passed in to the switch using the **isdn service** interface configuration command.

In the event that a controller belonging to an NFAS group is shut down, all active B-channel calls on the controller that is shut down will be cleared (regardless of whether the controller is set to primary, backup, or none), and one of the following events will occur:

- If the controller that is shut down is configured as the primary and no backup is configured, all active calls on the group are cleared.
- If the controller that is shut down is configured as the primary, and the active (In service) D channel is the primary and a backup is configured, then the active D channel changes to the backup controller.
- If the controller that is shut down is configured as the primary, and the active D channel is the backup, then the active D channel remains as backup controller.
- If the controller that is shut down is configured as the backup, and the active D channel is the backup, then the active D channel changes to the primary controller.

Note The active D channel changeover between primary and backup controllers happens only when one of the link fails and not when the link comes up. The T309 timer is triggered when the changeover takes place.

Examples

The following example configures T1 controller 1/0 for PRI and for the NFAS primary D channel. This primary D channel controls all the B channels in NFAS group 1.

```
controller t1 1/0
 framing esf
 linecode b8zs
 pri-group timeslots 1-24 nfas_d primary nfas_int 0 nfas_group 1
```

Related Commands

Command	Description
isdn timer t309	Changes the value of the T309 timer to clear network connections and release the B channels when there is no signaling channel active, that is, when the D channel has failed and cannot recover by switching to an alternate D channel. Calls remain active and able to transfer data when the D channel fails until the T309 timer expires. The T309 timer is canceled when D-channel failover succeeds.
show isdn nfas group	Displays all the members of a specified NFAS group or all NFAS groups.

profile incoming

To define a template formed by directives guiding the Call Service Module (CSM) to process the digit sequence for a signaling class, use the **profile incoming** signaling-class submode command.

Note This command can only be entered when service internal is configured.

profile incoming *template*

Syntax Description

template	String of special characters that are arranged in a certain order to process the digit sequence for the signaling class. Choose from the following list: • **S** – Starts the state machine. • **<*** – Waits for the digit * to be detected. The digit to be detected is the next character in the template. If any other digit is detected, then that is a failure. If the digit is detected, then go to the next directive. • **a** – Digits are collected as the ANI until the first nondigit or a timeout occurs. • **d** – Digits are collected as the DNIS until the first nondigit or a timeout occurs. • **n** – Notifies the CSM of the collected ANI and DNIS.

Defaults

No default behavior or values

Command Modes

Signaling-class submode

Command History

Release	Modification
12.1(1)T	This command was introduced.

Usage Guidelines

Arrange the directive special characters in the order necessary to process the digit sequence for your signaling class.

Examples

The following example enables the **profile incoming** command:

```
service internal
signaling-class cas test
 profile incoming S<*a<*d<*n
```

Related Commands

Command	Description
class	Activates the **signaling-class cas** command.
signaling-class cas	Defines a signalling class with a template formed by directives guiding the CSM to process the digit sequence.

protocol rlm port

To configure the RLM port number, use the **protocol rlm port** command in RLM configuration mode. To disable this function, use the **no** form of this command.

protocol rlm port *port-number*

no protocol rlm port *port-number*

Syntax Description

port-number	RLM port number. See Table 20 for the port number choices.

Defaults

3000

Command Modes

RLM configuration

Command History

Release	Modification
11.3(7)	This command was introduced.

Usage Guidelines

The port number for the basic RLM connection can be reconfigured for the entire RLM group. Table 20 lists the default RLM port numbers.

Table 20 Default RLM Port Number

Protocol	Port Number
RLM	3000
ISDN	Port[RLM]+1

Related Commands

Command	Description
clear interface	Resets the hardware logic on an interface.
clear rlm group	Clears all RLM group time stamps to zero.
interface	Defines the IP addresses of the server, configures an interface type, and enters interface configuration mode.
link (RLM)	Specifies the link preference.
retry keepalive	Allows consecutive keepalive failures a certain amount of time before the link is declared down.
server (RLM)	Defines the IP addresses of the server.
show rlm group statistics	Displays the network latency of the RLM group.
show rlm group status	Displays the status of the RLM group.
show rlm group timer	Displays the current RLM group timer values.
shutdown (RLM)	Shuts down all of the links under the RLM group.
timer	Overwrites the default setting of timeout values.

protocol (VPDN)

To specify the tunneling protocol that a virtual private dialup network (VPDN) subgroup will use, use the **protocol** command in VPDN subgroup configuration mode. To remove the protocol-specific configurations from a VPDN subgroup, use the **no** form of this command.

protocol {**any** | **l2f** | **l2tp** | **pppoe** | **pptp**}

no protocol

Syntax Description

any	Specifies either the Layer 2 Forwarding (L2F) protocol or the Layer 2 Tunneling Protocol (L2TP).
l2f	Specifies the L2F protocol.
l2tp	Specifies L2TP.
pppoe	Specifies the PPP over Ethernet (PPPoE) protocol.
pptp	Specifies the Point-to-Point Tunneling Protocol (PPTP).

Defaults

No protocol is specified.

Command Modes

VPDN subgroup

Command History

Release	Modification
12.0(5)T	This command was introduced.
12.1(1)T	The **pppoe** keyword was added.

Usage Guidelines

This command is required for any VPDN subgroup configuration.

L2TP is the only protocol that can be used for dialout subgroup configurations.

Changing the protocol will remove all the commands from the VPDN subgroup configuration, and any protocol-specific commands from the VPDN group configuration.

Note Users must first enter the **vpdn enable** command to set up the PPP over Ethernet discovery daemon.

Examples

The following example configures VPDN group 1 to accept dial-in calls using L2F and to request dial-out calls using L2TP:

```
vpdn-group 1
 accept-dialin
  protocol l2f
  virtual-template 1
 request-dialout
  protocol l2tp
```

```
 pool-member 1
local name router1
terminate-from hostname router2
initiate-to ip 10.3.2.1
l2f ignore-mid-sequence
l2tp ip udp checksum
```

If you then use the **no protocol** command in request-dialout mode, the configuration will be changed to this:

```
vpdn-group 1
 accept-dialin
  protocol l2f
  virtual-template 1
 request-dialout
 local name router1
 terminate-from hostname router2
 l2f ignore-mid-sequence
```

Related Commands

Command	Description
accept-dialin	Creates an accept dial-in VPDN subgroup that configures a tunnel server to accept requests from a NAS to tunnel dial-in calls, and enters accept dial-in VPDN subgroup configuration mode.
accept-dialout	Creates an accept dial-out VPDN subgroup that configures a NAS to accept requests from a tunnel server to tunnel L2TP dial-out calls, and enters accept dial-out VPDN subgroup configuration mode.
request-dialin	Creates a request dial-in VPDN subgroup that configures a NAS to request the establishment of a dial-in tunnel to a tunnel server, and enters request dial-in VPDN subgroup configuration mode.
request-dialout	Creates a request dial-out VPDN subgroup that configures a tunnel server to request the establishment of dial-out L2TP tunnels to a NAS, and enters request dial-out VPDN subgroup configuration mode.

range

To associate a range of modems or other physical resources with a resource group, use the **range** command in resource group configuration mode. To remove a range of modems or other physical resources, use the **no** form of this command.

range {**limit** *number* | **limit** *slot*/*port* | **port** *slot* [*slot*]}

no range {**limit** *number* | **limit** *slot*/*port* | **port** *slot* [*slot*]}

Cisco AS5200 and AS5300 Series Routers

range {**limit** *number* | **limit** *slot*/*port* | **port** *slot*/*port* [*slot*/*port*]}

no range {**limit** *number* | **limit** *slot*/*port* | **port** *slot*/*port* [*slot*/*port*]}

Syntax Description

limit *number*	Maximum number of simultaneous connections supported by the resource group. Replace the *number* argument with the session limit you want to assign. Your access server hardware configuration determines the maximum value of this limit. Applicable to ISDN B-channels or HDLC controllers.
limit *slot*/*port*	Replace the *slot* argument with the slot number of the card and the *port* argument with the port range. Applicable to ISDN B-channels or HDLC controllers
port *range*	Range of resource ports to use in the resource group.
port *slot*/*port*	Specific ports to use in the resource group.

Defaults

No range is configured.

Command Modes

Resource group configuration

Command History

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

Usage Guidelines

Use the **range** resource group configuration command to associate a range of modems or other physical resources with a resource group.

Specify the range for port-based resources by using the resource's physical location. Do not identify non-port-based resource ranges by using a location. Rather, specify the size of the resource group with a single integer limit.

Specify noncontiguous ranges by using multiple **range port** commands within the same resource group. Do not configure the same ports in more than one resource group and do not overlap multiple port ranges.

For resources that are not pooled and have a one-to-one correspondence between DS0s, B channels, and HDLC framers, use the **range limit** *number* command. Circuit-switched data calls and V.120 calls use these kinds of resources.

Note Do not put heterogeneous resources in the same group. Do not put MICA modems in the same group as Microcom modems. Do not put modems and HDLC controllers in the same resource group.

Do not configure “port” and “limit” parameters in the same resource group.

Examples

The following example shows the range limit set for 48 simultaneous connections being supported by the resource group:

Cisco AS5300

```
resource-pool group resource hdlc1
 range limit 48
```

Cisco AS5400

```
resource-pool group resource hdlc
         range limit 2:255 (where 2 is slot#)
```

Cisco AS5800

```
resource-pool group resource hdlc
         range limit 2/0:255 (where 2 is slot# & 0 is subslot#
                             for the trunk card)
```

The following example shows the ports set for modem 1 ranging from port 0 to port 47:

```
resource-pool group modem1
 range port 1/0 1/47
```

rcapi number

To enable the Cisco 800 series router to distinguish between incoming CAPI calls and incoming non-CAPI calls such as POTS, PPP, and X.25, use the **rcapi number** command in global configuration mode. To release the specified directory number from the RCAPI interface, use the **no** form of this command.

rcapi number *directory-number*[**:***subaddress*]

no rcapi number

Syntax Description

directory-number	ISDN directory number. Default is *none.*
:*subaddress*	(Optional) Subaddress of the router preceded by a colon (:).

Defaults

The default is no directory number set for the RCAPI interface.

Command Modes

Global configuration

Command History

Release	Modification
12.0(7)XV	The commands **rcapi number** and **no rcapi number** were introduced on the Cisco 800 series router.

Usage Guidelines

The **rcapi number** command allows the Cisco 800 series router to reserve directory numbers exclusively for incoming calls.

The *directory-number* argument is the number assigned by the ISDN provider for the PC on which RCAPI is configured. The directory number should not be set to any other interfaces such as POTS and DOV. This command works only with the Net3 switch type.

Examples

The following example sets the router to recognize an ISDN number rather than a subaddress:

```
rcapi number 12345
```

Related Commands

Command	Description
debug rcapi events	Displays diagnostic DCP and driver messages.
rcapi server	Enables the RCAPI server on the 800 series router and, optionally, sets the TCP port number.
show rcapi status	Display statistics and details about RCAPI server operation.

rcapi server

To enable the RCAPI server on the 800 series router or to set the TCP port number, use the **rcapi server** command in global configuration mode. To disable the RCAPI server on the 800 series router, use the **no** form of this command.

rcapi server [**port** *number*]

no rcapi server

Syntax Description

port *number*	(Optional) TCP port number. Default is 2578.

Defaults

If the router is configured for basic Net3 IDSN switch type, by default RCAPI is enabled, and the port number is set to 2578.

Command Modes

Global configuration

Command History

Release	Modification
12.0(7)XV	This command was introduced on the Cisco 800 series router.

Usage Guidelines

This command works only with the Net3 switch type. The same port number must be configured on both the router and client PC.

Examples

The following example set the TCP port number to 2000:

```
rcapi server port 2000
```

Related Commands

Command	Description
debug rcapi events	Displays diagnostic DCP and driver messages.
rcapi number	Enables the Cisco 800 series router to distinguish between incoming CAPI calls and incoming non-CAPI calls such as POTS, PPP, and X.25.
show rcapi status	Display statistics and details about RCAPI server operation.

reload components

To request that the DSC (or DSCs in a redundant configuration) be reloaded at the same time as a reload on the Router Shelf on the Cisco AS5800, use the **reload components** command in EXEC mode. To cancel a reload, use the **reload components cancel** command.

reload components {**all** | *description-line* | **at** *hh*:*mm* | **in** [*hhh*:]*mmm*}

reload components cancel

Syntax Description

all	Reloads all attached components.
description-line	Displays reason for the reload, 1 to 255 characters in length.
at *hh*:*mm*	Schedules when the software reload takes place using a 24-hour clock. If you specify the month and day, the reload is scheduled to take place at the specified time and date. If you do not specify the month and day, the reload takes place at the specified time on the current day (if the specified time is later than the current time), or on the next day (if the specified time is earlier than the current time). Specifying 00:00 schedules the reload for midnight. The reload must take place within approximately 24 days.
in [*hhh*:]*mmm*	Schedule a reload of the software to take effect in the specified minutes or (optionally) hours and minutes. The reload must take place within approximately 24 days.
cancel	Cancels a scheduled reload.

Defaults

No default behavior or values.

Command Modes

EXEC

Command History

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

Usage Guidelines

On the Cisco AS5800 only, to request that the DSC (or DSCs in a redundant configuration) be reloaded at the same time as a reload on the Router Shelf, use the **reload components all** command.

You cannot reload from a virtual terminal if the system is not set up for automatic booting. This prevents the system from dropping to the ROM monitor and thereby taking the system out of remote user control.

If you modify your configuration file, the system prompts you to save the configuration. During a save operation, the system asks you if you want to proceed with the save if the CONFIG_FILE environment variable points to a startup configuration file that no longer exists. If you say “yes” in this situation, the system goes to setup mode upon reload.

When you schedule a reload to occur at a later time, it must take place within approximately 24 days.

The **at** keyword can only be used if the system clock has be set on the router (either through NTP, the hardware calendar, or manually). The time is relative to the configured time zone on the router. To schedule reloads across several routers to occur simultaneously, the time on each router must be synchronized with NTP.

To display information about a scheduled reload, use the **show reload** command.

Examples

The following example reloads all components on a Cisco AS5800:

```
Router# reload components all
```

Related Commands

Command	Description
show reload	Displays the reload status on the router.

request-dialin

To create a request dial-in VPDN subgroup that configures a network access server (NAS) to request the establishment of a dial-in tunnel to a tunnel server, and to enter request dial-in VPDN subgroup configuration mode, use the **request-dialin** command in VPDN group configuration mode. To remove the request dial-in VPDN subgroup configuration from a virtual private dialup network (VPDN) group, use the **no** form of this command.

request-dialin

no request-dialin

Syntax Description

This command has no arguments or keywords.

Defaults

No request dial-in VPDN subgroups are configured.

Command Modes

VPDN group configuration

Command History

Release	Modification
11.3(5)AA	This command was introduced.
12.0(5)T	This command was introduced.
12.0(5)T	The original keywords and arguments were removed and made into separate **request-dialin** subgroup commands.

Usage Guidelines

Use the **request-dialin** command on a NAS to configure a VPDN group to request the establishment of dial-in VPDN tunnels to a tunnel server.

For a VPDN group to request dial-in calls, you must also configure the following commands:

- The **initiate-to** command in VPDN group configuration mode
- The **protocol** command in request dial-in VPDN subgroup configuration mode
- At least one **dnis** or **domain** command in request dial-in VPDN subgroup configuration mode

The NAS can also be configured to accept requests for Layer 2 Tunnel Protocol (L2TP) dial-out VPDN tunnels from the tunnel server using the **accept-dialout** command. Dial-in and dial-out calls can use the same L2TP tunnel.

Examples

The following example requests an L2TP dial-in tunnel to a remote peer at IP address 172.17.33.125 for a user in the domain named cisco.com:

```
Router(config)# vpdn-group 1
Router(config-vpdn)# request-dialin
Router(config-vpdn-req-in)# protocol l2tp
Router(config-vpdn-req-in)# domain cisco.com
```

```
!
Router(config-vpdn)# initiate-to ip 172.17.33.125
```

Related Commands

Command	Description
accept-dialin	Creates an accept dial-in VPDN subgroup that configures a tunnel server to accept requests from a NAS to tunnel dial-in calls, and enters accept dial-in VPDN subgroup configuration mode.
accept-dialout	Creates an accept dial-out VPDN subgroup that configures a NAS to accept requests from a tunnel server to tunnel L2TP dial-out calls, and enters accept dial-out VPDN subgroup configuration mode.
authen before-forward	Specifies that VPDN send the entire structured username to the AAA server the first time the router contacts the AAA server.
dnis	Specifies the DNIS group name or DNIS number of users that are to be forwarded to a tunnel server using VPDN.
domain	Specifies the domain name of users that are to be forwarded to a tunnel server using VPDN.
initiate-to	Specifies the IP address that calls are tunneled to.
protocol (VPDN)	Specifies the tunneling protocol that a VPDN subgroup will use.

request-dialout

To create a request dial-out VPDN subgroup that configures a tunnel server to request the establishment of dial-out Layer 2 Tunnel Protocol (L2TP) tunnels to a network access server (NAS), and to enter request dial-out VPDN subgroup configuration mode, use the **request-dialout** command in VPDN group configuration mode. To remove the request dial-out VPDN subgroup configuration from a virtual private dialup network (VPDN) group, use the **no** form of this command.

request-dialout

no request-dialout

Syntax Description

This command has no arguments or keywords.

Defaults

No request dial-out VPDN subgroups are configured.

Command Modes

VPDN group configuration

Command History

Release	Modification
12.0(5)T	This command was introduced.

Usage Guidelines

Use the **request-dialout** command on a tunnel server to configure a VPDN group to request the establishment of dial-out VPDN tunnels to a NAS. L2TP is the only tunneling protocol that can be used for dial-out VPDN tunnels.

For a VPDN group to request dial-out calls, you must also configure the following commands:

- The **initiate-to** command in VPDN group configuration mode
- The **protocol l2tp** command in request dial-out VPDN subgroup configuration mode
- Either the **pool-member** or **rotary-group** command in request dial-out VPDN subgroup configuration mode, depending on the type of dialer resource to be used by the VPDN subgroup
- The **dialer vpdn** command in dialer interface configuration mode

If the dialer pool or dialer rotary group that the VPDN group is in contains physical interfaces, the physical interfaces will be used before the VPDN group configuration.

The tunnel server can also be configured to accept requests to establish dial-in VPDN tunnels from a NAS using the **accept-dialin** command. Dial-in and dial-out calls can use the same L2TP tunnel.

Examples

The following example configures VPDN group 1 to request an L2TP tunnel to the peer at IP address 10.3.2.1 for tunneling dial-out calls from dialer pool 1:

```
Router(config)# vpdn-group 1
Router(config-vpdn)# request-dialout
Router(config-vpdn-req-ou)# protocol l2tp
Router(config-vpdn-req-ou)# pool-member 1
```

```
!
Router(config-vpdn)# initiate-to ip 10.3.2.1
!
Router(config)# interface Dialer2
Router(config-if)# ip address 172.16.2.3 255.255.255.128
Router(config-if)# encapsulation ppp
Router(config-if)# dialer remote-name reuben
Router(config-if)# dialer string 5551234
Router(config-if)# dialer vpdn
Router(config-if)# dialer pool 1
Router(config-if)# dialer-group 1
Router(config-if)# ppp authentication chap
```

Related Commands

Command	Description
accept-dialin	Creates an accept dial-in VPDN subgroup that configures a tunnel server to accept requests from a NAS to tunnel dial-in calls, and enters accept dial-in VPDN subgroup configuration mode.
accept-dialout	Creates an accept dial-out VPDN subgroup that configures a NAS to accept requests from a tunnel server to tunnel L2TP dial-out calls, and enters accept dial-out VPDN subgroup configuration mode.
dialer vpdn	Enables a dialer profile or DDR dialer to use L2TP dial-out.
initiate-to	Specifies the IP address that will be tunneled to.
pool-member	Assigns a request-dialout VPDN subgroup to a dialer pool.
protocol (VPDN)	Specifies the tunneling protocol that a VPDN subgroup will use.
rotary-group	Assigns a request-dialout VPDN subgroup to a dialer rotary group.

resource

To assign resources and supported call-types to a customer profile, use the **resource** command in customer profile configuration mode. To disable this function, use the **no** form of this command.

resource *name* {**digital | speech | v110 | v120**} [**service** *name*]

no resource *name* {**digital | speech | v110 | v120**} [**service** *name*]

Syntax Description

name	Name for a group of physical resources inside the access server. This name can have up to 23 characters.
digital	Accepts digital calls. Specifies circuit-switched data calls that terminate on a HDLC framers (unlike asynchronous analog modem call that use start and stop bits).
speech	Accepts speech calls. Specifies normal voice calls, such as calls started by analog modems and standard telephones.
v110	Accepts V.110 calls.
v120	Accepts V.120 calls. By specifying this keyword, the access server begins counting the number of v120 software encapsulations occurring in the system.
service *name*	(Optional) Name for a service profile. This option is not supported for digital or V.120 calls.

Defaults

No resources are assigned to the customer profile by default.

Command Modes

Customer profile configuration

Command History

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

Usage Guidelines

Use the **resource** customer profile configuration command to assign resources and supported call-types to a customer profile. This command specifies a group of physical resources to be used in answering an incoming call of a particular type for a particular customer profile. For example, calls started by analog modems are reciprocated with the **speech** keyword.

Examples

The following example shows a physical resource group called “modem1”. Forty-eight integrated modems are then assigned to modem1, which is linked to the customer profile called “customer1_isp”:

```
resource group resource modem1
 range port 1/0 1/47
 exit

resource-pool profile customer customer1_isp

resource modem1 speech
```

Related Commands

Command	Description
resource-pool profile customer	Creates a customer profile.

resource-pool

To enable or disable resource pool management, use the **resource-pool** command in global configuration mode.

resource-pool {**enable** | **disable**}

Syntax Description

enable	Enables resource pool management.
disable	Disables resource pool management.

Defaults

Resource management is disabled.

Command Modes

Global configuration

Command History

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

Usage Guidelines

Use the **resource-pool** global configuration command to enable and disable the resource pool management feature.

Examples

The following example shows how to enable RPM:

```
resource-pool enable
```

resource-pool aaa accounting ppp

To include enhanced start/stop resource manager records to authorization, authentication, and accounting (AAA) accounting, use the **resource-pool aaa accounting ppp** command in global configuration mode. To disable this feature, use the **no** form of this command.

resource-pool aaa accounting ppp

no resource-pool aaa accounting ppp

Syntax Description

This command has no arguments or keywords.

Defaults

Disabled. The default of the **resource-pool enable** command is to *not* enable these new accounting records.

Command Modes

Global configuration

Command History

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

Usage Guidelines

Use the **resource-pool aaa accounting ppp** global configuration command to include enhanced start/stop resource manager records to AAA accounting. The **resource-pool aaa accounting ppp** command adds new resource pool management fields to the AAA accounting start/stop records. The new attributes in the start records are also in the stop records—in addition to those new attributes added exclusively for the stop records.

If you have configured your regular AAA accounting, this command directs additional information from the resource manager into your accounting records.

Note If you configure only this command and do not configure AAA accounting, nothing happens. The default functionality for the resource-pool enable command does not include this functionality.

Table 21 shows the new fields that have been added to the start and stop records:

Table 21 Start and Stop Resource Manager Records

New Start Record Fields	New Stop Record Fields
Call-type	ModemSpeed-receive
Customer-profile-name	ModemSpeed-transmit
Customer-profile-active-sessions	MLP-session-ID (multilink users)
MLP-session-ID (multilink users)	
Resource-group-name	
Overflow-flag	
VPDN-tunnel-ID (VPDN users)	
VPDN-homegateway (VPDN users)	
VPDN-domain-name (VPDN users)	
VPDN-group-active-session (VPDN users)	

Caution This list of newly supported start and stop fields is not exhaustive. Cisco reserves the right to enhance this list of records at any time. Use the **show accounting** command to see the contents of each active session.

Note Cisco recommends that you *thoroughly* understand how these new start/stop records affect your current accounting structure *before* you enter this command.

Examples

The following example shows the new AAA accounting start/stop records inserted into an existing AAA accounting infrastructure:

```
resource-pool aaa accounting ppp
```

Related Commands

Command	Description
show accounting	Allows display of the active accountable events on the network and helps collect information in the event of a data loss on the accounting server.

resource-pool aaa protocol

To specify which protocol to use for resource management, use the **resource-pool aaa protocol** command in global configuration mode. To disable this feature and go to local, use the **no** form of this command.

resource-pool aaa protocol {**local** | **group** *name*}

no resource-pool aaa protocol

Syntax Description

local	Local authorization.
group *name*	Use an external authorization, authentication, and accounting (AAA) server group. The Resource Pool Management Server (RPMS) is defined in a AAA server group.

Defaults

Default is set to local authorization.

Command Modes

Global configuration

Command History

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

Usage Guidelines

Use the **resource-pool aaa protocol** global configuration command to specify which protocol to use for resource management. The AAA server group is most useful when you want to have multiple RPMSs configured as a fall-back mechanism.

Examples

The following example shows how to specify local authorization protocol:

```
resource-pool aaa protocol local
```

resource-pool call treatment

To set up the signal sent back to the telco switch in response to incoming calls, use the **resource-pool call treatment** command in global configuration mode. To disable this function, use the **no** form of this command.

resource-pool call treatment {**profile** {**busy** | **no-answer**} | **resource** {**busy** | **channel-not-available**}}

no resource-pool call treatment {**profile** {**busy** | **no-answer**} | **resource** {**busy** | **channel-not-available**}}

Syntax Description

profile	Call treatment when profile authorization fails.
busy	Answers the call, then sends a busy signal when profile authorization or resource allocation fails.
no-answer	Does not answer the call when profile authorization fails.
resource	Call treatment when resource allocation fails.
channel-not-available	Sends channel not available (CNA) code when resource allocation fails.

Defaults

No answer for a customer profile; CNA for a resource.

Command Modes

Global configuration

Command History

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

Usage Guidelines

Use the **resource-pool call treatment** global configuration command to set up the signal sent back to the telco switch in response to incoming calls.

Examples

```
Router(config)# resource-pool call treatment profile ?
busy       Send busy code when profile authorization fails
no-answer  Don't answer when profile authorization fails
```

resource-pool call treatment discriminator

To modify the signal (ISDN cause code) sent to the switch when a discriminator rejects a call, enter the **resource-pool call treatment discriminator** command in global configuration mode. To disable this function, use the **no** form of this command.

resource-pool call treatment discriminator {**busy** | **no-answer** | **channel-not-available**}

no resource-pool call treatment discriminator {**busy** | **no-answer** | **channel-not-available**}

Syntax Description

busy	Answers the call, then sends a busy signal when profile authorization or resource allocation fails.
no-answer	Does not answer the call when profile authorization fails.
channel-not-available	Sends channel not available (CNA) code when resource allocation fails.

Defaults

No answer for a customer profile; CNA for a resource.

Command Modes

Global configuration

Command History

Release	Modification
12.1(5)T	This command was introduced.

Usage Guidelines

Use the **resource-pool call treatment discriminator** global configuration command to set up the signal sent back to the telco switch in response to incoming calls.

Examples

Use the following command to answer the call, but send a busy signal to the switch when profile authorization or resource allocation fails:

```
resource-pool call treatment discriminator busy
```

Use the following command to prevent the call from being answered when profile authorization fails and the discriminator rejects a call:

```
resource-pool call treatment discriminator no-answer
```

resource-pool group resource

To create a resource group for resource management, use the **resource-pool group resource** command in global configuration mode. To remove a resource group from the running configuration, use the **no** form of this command.

resource-pool group resource *name*

no resource-pool group resource *name*

Syntax Description

name	Name for the group of physical resources inside the access server. This name can have up to 23 characters.

Defaults

No resource groups are set up.

Command Modes

Global configuration

Command History

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

Usage Guidelines

Use the **resource-pool group resource** global configuration command to create a resource group for resource management. When calls come into the access server, they are allocated physical resources as specified within resource groups and customer profiles.

See the **range** command for more information.

If some physical resources are not included in any resource groups, then these remaining resources are not used and are considered to be part of the default resource group. These resources can be used in certain cases to answer calls before profile allocation occurs, but the resources are not used other than in the connection phase.

Note For standalone network access server environments, configure resource groups before using them in customer profiles. For external RPMS environments, configure resource groups on the network access server before defining them on external RPMS servers.

When enabling RPM for SS7 signalling, like resources in the network access server (NAS) must be in a single group:

- All modems must be in one group.
- All HDLC controllers must be in a different group.
- All V.110 ASICs must be put into another group.
- All V.120 resources must be in a separate group.

All resource group types must have the same number of resources and that number must equal the number of interface channels available from the public network switch. This grouping scheme prevents the CNA signal from being sent to the signalling point. For SS7 signalling, Microcom and MICA technologies modems must be in the *same* group. If SS7 signalling is not used, Cisco recommends assigning Microcom and MICA modems to separate groups to avoid introducing errors in RPM statistics.

Examples

The following example shows the configuration options within a resource group:

```
Router(config)# resource-pool group resource modem1
?
Resource Group Configuration Commands:
  default  Set a command to its defaults
  exit     Exit from resource-manager configuration mode
  help     Description of the interactive help system
  no       Negate a command or set its defaults
  range    Configure range for resource

Router(config-resource)# range ?
  limit  Configure the maximum limit
  port   Configure the resource ports

Router(config-resource)# range limit ?
  <1-192>  Maximum number of connections allowed

Router(config-resource)# range port ?
  <0-246>  First Modem TTY Number
  x/y      Slot/Port for Internal Modems
```

Related Commands

Command	Description
range	Associates a range of modems or other physical resources with a resource group.

resource-pool profile customer

To create a customer profile and to enter customer profile configuration mode, use the **resource-pool profile customer** command in global configuration mode. To delete a customer profile from the running configuration, use the **no** form of this command.

resource-pool profile customer *name*

no resource-pool profile customer *name*

Syntax Description

name	Customer profile name. This name can have up to 23 characters.

Defaults

No customer profiles are set up.

Command Modes

Global configuration

Command History

Release	Modification
12.0(4)XI	This command was introduced.
12.0(5)T	Support for this command was integerated into Cisco IOS Release 12.0(5)T.

Usage Guidelines

Use the **resource-pool profile customer** command to create a customer profile and enter customer profile configuration mode.

VPDN groups can be associated with a customer profile by issuing the **vpdn group** command in customer profile configuration mode.

A VPDN profile can be associated with a customer profile by issuing the **vpdn profile** command in customer profile configuration mode.

VPDN session limits for the VPDN groups associated with a customer profile can be configured in customer profile configuration mode using the **limit base-size** command.

Examples

The following example shows how to create two VPDN groups, configure the VPDN groups under a VPDN profile named profile1, then associate the VPDN profile with a customer profile named customer12:

```
Router(config)# vpdn-group 1
Router(config-vpdn)#
!
Router(config)# vpdn-group 2
Router(config-vpdn)#
!
Router(config)# resource-pool profile vpdn profile1
Router(config-vpdn-profile)# vpdn group 1
Router(config-vpdn-profile)# vpdn group 2
!
```

```
Router(config)# resource-pool profile customer customer12
Router(config-vpdn-customer)# vpdn profile profile1
```

Related Commands

Command	Description
dnis group	Includes a group of DNIS numbers in a customer profile.
limit base-size	Defines the base number of simultaneous connections that can be done in a single customer or VPDN profile.
limit overflow-size	Defines the number of overflow calls granted to one customer or VPDN profile.
resource	Assigns resources and supported call types to a customer profile.
resource-pool group resource	Creates a resource group for resource management.
vpdn group	Associates a VPDN group with a customer or VPDN profile.
vpdn-group	Creates a VPDN group and enters VPDN group configuration mode.
vpdn profile	Associates a VPDN profile with a customer profile.

resource-pool profile discriminator

To create a call discrimination profile and assign it a name, use the **resource-pool profile discriminator** command in global configuration mode. To remove a call discrimination profile from the running configuration, use the **no** form of this command.

resource-pool profile discriminator *name*

no resource-pool profile discriminator *name*

Syntax Description

name	Name of the call discrimination profile created. This name can have up to 23 characters. You can add a CLID or DNIS group to the discriminator profile created.

Defaults

No default behavior or values.

Command Modes

Global configuration

Command History

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

Usage Guidelines

Discriminator profiles enable you to process calls differently based on the call type and DNIS or CLID combination. Use the **resource-pool profile discriminator** command to create a call discrimination profile, and then use the **clid group** command to add a CLID group to a discriminator.

To create a call discrimination profile, you must specify both the call type and CLID group. Once a CLID group is associated with a call type in a discriminator, it cannot be used in any other discriminator.

Examples

The following example shows a call discriminator named **clidKiller** created and configured to block digital calls from the CLID group named **zot**:

```
resource-pool profile discriminator clidKiller
 call-type digital
 clid group zot
```

Related Commands

Command	Description
clid group	Configures a CLID group in a discriminator.
dnis group	Configures a DNIS group in a discriminator.

resource-pool profile service

To set up the service profile configuration, use the **resource-pool profile service** command in global configuration mode. To disable this function, use the **no** form of this command.

resource-pool profile service *name*

no resource-pool profile service *name*

Syntax Description

name	Service profile name. This name can have up to 23 characters.

Defaults

No service profiles are set up.

Command Modes

Global configuration

Command History

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

Usage Guidelines

Use the **resource-pool profile service** global configuration command to set up the service profile configuration.

Examples

The following example shows the creation of a service profile called user1:

```
resource-pool profile service user1
```

resource-pool profile vpdn

To create a virtual private dialup network (VPDN) profile and to enter VPDN profile configuration mode, use the **resource-pool profile vpdn** command in global configuration mode. To disable this function, use the **no** form of this command.

resource-pool profile vpdn *name*

no resource-pool profile vpdn *name*

Syntax Description

name	VPDN profile name.

Defaults

No VPDN profiles are set up.

Command Modes

Global configuration

Command History

Release	Modification
12.0(4)XI	This command was introduced.
12.0(5)T	Support for this command was integerated into Cisco IOS Release 12.0(5)T.

Usage Guidelines

Use the **resource-pool profile vpdn** command to create a VPDN profile and enter VPDN profile configuration mode, or to enter VPDN profile configuration mode for a VPDN profile that already exists.

VPDN groups can be associated with a VPDN profile using the **vpdn group** command in VPDN profile configuration mode. A VPDN profile will count VPDN sessions across all associated VPDN groups.

VPDN session limits for the VPDN groups associated with a VPDN profile can be configured in VPDN profile configuration mode using the **limit base-size** command.

Examples

The following example createss the VPDN groups named l2tp and l2f, and associates both VPDN groups with the VPDN profile named profile32:

```
Router(config)# vpdn-group l2tp
Router(config-vpdn)#
!
Router(config)# vpdn-group l2f
Router(config-vpdn)#
!
Router(config)# resource-pool profile vpdn profile32
Router(config-vpdn-profile)# vpdn group l2tp
Router(config-vpdn-profile)# vpdn group l2f
```

Related Commands

Command	Description
limit base-size	Defines the base number of simultaneous connections that can be done in a single customer or VPDN profile.
limit overflow-size	Defines the number of overflow calls granted to one customer or VPDN profile.
vpdn group	Associates a VPDN group with a customer or VPDN profile.
vpdn-group	Creates a VPDN group and enters VPDN group configuration mode.
vpdn profile	Associates a VPDN profile with a customer profile.

retry keepalive

To enable Redundant Link Manager (RLM) keepalive retries, use the **retry keepalive** command in RLM configuration mode. To disable this function, use the **no** form of this command.

retry keepalive *number-of-times*

no retry keepalive *number-of-times*

Syntax Description

number-of-times	Number of keepalive failures allowed before the link is declared down, from 1 to 100.

Defaults

3

Command Modes

RLM configuration

Command History

Release	Modification
11.3(7)	This command was introduced.

Usage Guidelines

RLM allows keepalive failures in consecutive certain amounts of time configured using the command line interface (CLI) before it declares the link is down.

Examples

The following example sets RLM keepalive retries to 88:

```
retry keepalive 88
```

Related Commands

Command	Description
clear interface	Resets the hardware logic on an interface.
clear rlm group	Clears all RLM group time stamps to zero.
interface	Defines the IP addresses of the server, configures an interface type, and enters interface configuration mode.
link (RLM)	Specifies the link preference.
protocol rlm port	Reconfigures the port number for the basic RLM connection for the whole rlm-group.
server (RLM)	Defines the IP addresses of the server.
show rlm group statistics	Displays the network latency of the RLM group.
show rlm group status	Displays the status of the RLM group.
show rlm group timer	Displays the current RLM group timer values.
shutdown (RLM)	Shuts down all of the links under the RLM group.
timer	Overwrites the default setting of timeout values.

rotary

To define a group of lines consisting of one or more virtual terminal lines or one auxiliary port line, use the **rotary** command in line configuration mode. To remove a group of lines from a rotary group, use the **no** form of this command.

rotary *group* [**queued**] [**round-robin**]

no rotary *group* [**queued**] [**round-robin**]

Syntax Description

group	Rotary group number, ranging from 1 to 99.
queued	(Optional) Queues a connection request to a rotary group.
round-robin	(Optional) Selects a round-robin port selection algorithm instead of the default linear port selection algorithm.

Defaults

No group of lines is defined.

Command Modes

Line configuration

Command History

Release	Modification
10.0	This command was introduced.
12.1(1)T	The **queued** keyword was added.
12.1(2)T	The **round-robin** keyword was added.

Usage Guidelines

Connections to a rotary group can take advantage of the following features:

- Clear To Send (CTS)—If a line in a rotary group is configured to require CTS, the Cisco IOS software ignores that line if CTS from the attached device is low. This feature enables the software to avoid inactive host ports automatically. To enable this feature, use the **modem bad** line configuration command.
- EIA/TIA-232 handshaking—Rotary groups are often associated with large terminal switches that require an EIA/TIA-232 handshake before forming a connection. In this case, use the **modem callout** line configuration command to configure the lines in the group. If the EIA/TIA-232 handshake fails on a line, the Cisco IOS software steps to the next free line in the rotary group and restarts the negotiation.
- Access control—You can use access lists for groups of virtual terminal lines.
- Session timeout—Use the **session-timeout** line configuration command to set an interval for a line so that if no activity occurs on a remotely initiated connection for that interval the Cisco IOS software closes the connection. The software assumes that the host has crashed or is otherwise inaccessible.

Typically, rotary groups are used on devices with multiple modem connections to allow connection to the next free line in a hunt group. In the event that there are no free asynchronous ports, the **queued** keyword enables outgoing connection requests to be queued until a free port becomes available. Periodic messages are sent to users to update them on the status of their connection request.

For a nonqueued connection request, the remote host must specify a particular TCP port on the router to connect to a rotary group with connections to an individual line. The available services are the same, but the TCP port numbers are different. Table 22 lists the services and port numbers for both rotary groups and individual lines.

Table 22 Services and Port Numbers for Rotary Groups and Lines

Services Provided	Base TCP Port for Rotaries	Base TCP Port for Individual Lines
Telnet protocol	3000	2000
Raw TCP protocol (no Telnet protocol)	5000	4000
Telnet protocol, binary mode	7000	6000
XRemote protocol	10000	9000

For example, if Telnet protocols are required, the remote host connects to the TCP port numbered 3000 (decimal) plus the rotary group number. If the rotary group identifier is 13, the corresponding TCP port is 3013.

If a raw TCP stream is required, the port is 5000 (decimal) plus the rotary group number. If rotary group 5 includes a raw TCP (printer) line, the user connects to port 5005 and is connected to one of the raw printers in the group.

If Telnet binary mode is required, the port is 7000 (decimal) plus the rotary group number.

The round-robin selection algorithm enabled by the **round-robin** keyword improves the utilization of tty ports. When looking for the next available port, the default linear hunting algorithm will not roll over to the next port if the first port it finds is bad. This failure to roll over to the next port results in an unequitable utilization of the tty ports on a router. The round-robin hunting algorithm will roll over bad ports instead of retrying them.

Note The **round-robin** option must be configured for all the lines in a rotary group.

Examples

The following example establishes a rotary group consisting of virtual terminal lines 2 through 4 and defines a password on those lines. By using Telnet to connect to TCP port 3001, the user gets the next free line in the rotary group. The user needs not remember the range of line numbers associated with the password.

```
line vty 2 4
 rotary 1
 password letmein
login
```

The following example enables asynchronous rotary line queueing using the round-robin algorithm:

```
line 1 2
 rotary 1 queued round-robin
```

Related Commands

Command	Description
login (line)	Enables password checking at login and defines the method (local or TACACS+).
modem bad	Removes an integrated modem from service and indicates it as suspect or proven to be inoperable.
modem callout	Configures a line for reverse connections.
modem dialin	Configures a line to enable a modem attached to the router to accept incoming calls only.
session-timeout	Sets the interval for closing the connection when there is no input or output traffic.

rotary-group

To assign a request-dialout virtual private dialup network (VPDN) subgroup to a dialer rotary group, use the **rotary-group** command in request-dialout configuration mode. To remove the request-dialout VPDN subgroup from the dialer rotary group, use the **no** form of this command.

rotary-group *group-number*

no rotary-group [*group-number*]

Syntax Description

group-number	The dialer rotary group that this VPDN group belongs to.

Defaults

Disabled

Command Modes

Request-dialout configuration

Command History

Release	Modification
12.0(5)T	This command was introduced.

Usage Guidelines

If the dialer pool or dialer rotary group that the VPDN group is in contains physical interfaces, the physical interfaces will be used before the VPDN group.

You must first enable the **protocol l2tp** command on the request-dialout VPDN subgroup before you can enable the **rotary-group** command. Removing the **protocol l2tp** command will remove the **rotary-group** command from the request-dialout subgroup.

You can only configure one dialer profile pool (using the **pool-member** command) or dialer rotary group (using the **rotary-group** command). If you attempt to configure a second dialer resource, you will replace the first dialer resource in the configuration.

Examples

The following example configures VPDN group 1 to request L2TP dialout to IP address 172.16.4.6 using dialer profile pool 1 and identifying itself using the local name harold.

```
vpdn-group 1
 request-dialout
  protocol l2tp
  rotary-group 1
 initiate-to ip 172.16.4.6
 local name harold
```

Related Commands

Command	Description
initiate-to	Specifies the IP address that will be tunneled to.
pool-member	Assigns a request-dialout VPDN subgroup to a dialer pool.
protocol (VPDN)	Specifies the L2TP that the VPDN subgroup will use.
request-dialout	Enables an LNS to request VPDN dial-out calls by using L2TP.

script activation

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

script activation *regular-expression*

no script activation

Syntax Description

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

Defaults

Not assigned to terminal lines

Command Modes

Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

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

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

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

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

Examples

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

```
line 4
 script activation telebit
```

Related Commands

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

script arap-callback

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

script arap-callback *regular-expression*

no script arap-callback

Syntax Description

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

Defaults

Not assigned to terminal lines

Command Modes

Line configuration

Command History

Release	Modification
11.1	This command was introduced.

Usage Guidelines

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

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

Examples

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

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

Related Commands

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

script callback

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

script callback *regular-expression*

no script callback

Syntax Description

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

Defaults

Not assigned to terminal lines

Command Modes

Line configuration

Command History

Release	Modification
11.1	This command was introduced.

Usage Guidelines

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

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

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

Examples

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

```
line 4
 script callback supra4
```

Related Commands

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

script connection

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

script connection *regular-expression*

no script connection

Syntax Description

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

Defaults

Not assigned to terminal lines

Command Modes

Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

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

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

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

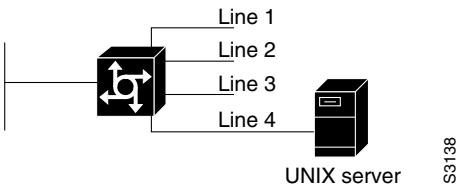
Examples

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

```
line 4
 script connection inband
```

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

Figure 4 Network Tunneling Connection on an Asynchronous Line



Related Commands

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

script dialer

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

script dialer *regular-expression*

no script dialer

Syntax Description

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

Defaults

No chat script is defined.

Command Modes

Line configuration

Command History

Release	Modification
10.3	This command was introduced.

Usage Guidelines

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

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

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

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

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

Examples

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

```
! Some lines have telebit modems
line 1 6
script dialer telebit.*
!
! Some lines have US robotics modems
line 7 12
script dialer usr.*
```

Related Commands

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

script reset

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

script reset *regular-expression*

no script reset

Syntax Description

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

Defaults

Not assigned to terminal lines.

Command Modes

Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

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

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

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

Examples

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

```
line 7
 script reset linebackup
```

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

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

Related Commands

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

script startup

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

script startup *regular-expression*

no script startup

Syntax Description

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

Defaults

Not assigned to terminal lines

Command Modes

Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

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

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

Examples

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

```
line 5
 script startup linestart
```

Related Commands

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

sgbp dial-bids

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

sgbp dial-bids

no sgbp dial-bids

Syntax Description

This command has no arguments or keywords.

Defaults

The stack group bid function is disabled by default.

Command Modes

Global configuration

Command History

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

Examples

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

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

Related Commands

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

sgbp group

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

sgbp group *name*

no sgbp group

Syntax Description

name	Name of the stack group the system belongs to.

Defaults

Disabled. No stack group name is provided.

Command Modes

Global configuration

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

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

Examples

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

```
sgbp group stackq
```

Related Commands

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

sgbp member

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

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

no sgbp member *peer-name*

Syntax Description

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

Defaults

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

Command Modes

Global configuration

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

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

Examples

The following example configures the current router to recognize the three routers (jimi, janis, and jerry) as peer members of the rockstar stack group:

```
sgbp group rockstar
sgbp member jimi 10.69.5.2
sgbp member janis 172.16.6.3
sgbp member jerry 192.168.15.4
```

Related Commands

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

sgbp ppp-forward

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

sgbp ppp-forward

no sgbp ppp-forward

Syntax Description

This command has no arguments or keywords.

Defaults

Disabled

Command Modes

Global configuration

Command History

Release	Modification
11.3	This command was introduced.

Usage Guidelines

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

Examples

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

```
sgbp ppp-forward
```

Related Commands

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

sgbp seed-bid

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

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

no sgbp ppp-forward

Syntax Description

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

Defaults

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

Command Modes

Global configuration

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

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

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

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

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

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

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

Examples

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

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

Related Commands

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

shelf-id

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

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

no shelf-id *number*

Syntax Description

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

Defaults

The default shelf number for the router shelf is 0.

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

Command Modes

Global configuration

Command History

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

Usage Guidelines

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

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

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

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

Examples

The following example shows how to assign 456 as the dial shelf number:

```
shelf-id 456 dial-shelf
```

Related Commands

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