

pri-group timeslots nfas_d

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

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

Syntax Description		
<i>range</i>		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 <i>number</i>		Value in the range 0 to 9 assigned by the service provider to ensure unique identification of a PRI interface. The 0 interface number should be assigned to the primary NFAS D channel.
nfas_group <i>group-id-number</i>		Group identifier in the range from 1 to 24, unique on the router. 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.

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.

protocol rlm port

To configure the RLM port number, use the **protocol rlm port** command in RLM configuration mode. The port number for the basic RLM connection can be reconfigured for the entire RLM group. Use the **no** form of this command to disable this function.

protocol rlm port *port-number*

no protocol rlm port *port-number*

Syntax Description	<i>port-number</i> RLM port number. See Table 23 for the default port numbers.
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Defaults	3000
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Command Modes	RLM configuration
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Command History	Release	Modification
	11.3(7)	This command was introduced.

Usage Guidelines Table 23 lists the default RLM port numbers.

Table 23 Default RLM Port Number

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

Related Commands	Command	Description
	clear rlm group	Clears all RLM group time stamps to zero.
	clear interface	Resets the hardware logic on an interface.
	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.

Command	Description
shutdown (RLM)	Shuts down all of the links under the RLM group.
timer	Overwrites the default setting of timeout values.

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* | **port** *range* }

no range { **limit** *number* | **port** *range* }

Syntax Description

limit <i>number</i>	Specifies the maximum number of simultaneous connections supported by the resource group. Replace the <i>number</i> argument with the session limit you want to assign. Your access server's hardware configuration determines the maximum value of this limit. Applicable to ISDN B-channels or HDLC controllers.
port <i>range</i>	Specifies the range of resource ports to use in the resource group. For the Cisco AS5200 and AS5300, replace the <i>range</i> variable with <i>slot/port slot/port</i> .

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 non-contiguous 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 1-to-1 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:

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

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
```

request dialout

To enable an L2TP network server (LNS) to request Virtual Private Dialup Network (VPDN) dialout calls by using Layer 2 Tunnel Protocol (L2TP), use the **request dialout** command in VPDN group configuration mode. To disable L2TP dialout, use the **no** form of this command.

request dialout

no request dialout

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes VPDN group configuration

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.

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

- The **initiate-to** VPDN group command
- Either the **pool-member** or **rotary-group** VPDN subgroup command
- The **dialer vpdn** dialer interface command

Once an L2TP tunnel is established, both dial-in and dialout calls can use the same 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 dialout calls from dialer pool 1:

```

vpdn-group 1
  request dialout
  protocol l2tp
  pool-member 1
  imitate-to ip 10.3.2.1
!
interface Dialer2
  ip address 172.1.2.3 255.255.128
  encapsulation ppp
  dialer remote-name reuben
  dialer string 5551234
  dialer vpdn
  dialer pool 1
  dialer-group 1
  ppp authentication chap

```

Related Commands

Command	Description
accept dialout	Accepts requests to tunnel L2TP dial-out calls and creates an accept-dialout VPDN subgroup.
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.
protocol (VPDN)	Specifies the Layer 2 tunneling protocol that the VPDN subgroup will use.
pool-member	Assigns a request-dialout VPDN subgroup to a dialer pool.
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. Use the **no** form of this command to disable this function.

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

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

Syntax Description

<i>name</i>	Assigns a name to 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) Configures 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 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	Disables resource pool management.
	disable	Enables 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. Use the **no** form of this command to disable this feature.

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.

The following new fields are added to the start and stop records:

Table 24 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. Use the **no** form of this command to disable this feature and go to local.

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

no resource-pool aaa protocol

Syntax Description	local	Specifies local authorization.
	group <i>name</i>	Specifies an authorization method that is not local; for example, using an external authorization, authentication, and accounting (AAA) server group. The Resource Pool Management Server(s) (RPMS) is defined in a AAA server group.

Defaults Defaults to local.

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. Use the **no** form of this command to disable this function.

```
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	Send "channel not available" 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

```
resource-pool call treatment profile ?
  busy      Send busy code when profile authorization fails
  no-answer Don't answer when profile authorization fails
```

resource-pool group resource

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

resource-pool group resource *name*

no resource-pool group resource *name*

Syntax Description

resource *name* Assigns a name to a 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 signal “Channel Not Available” (CNA) from being sent to the signaling point. For SS7 signaling, Microcom and MICA technologies modems must be in the *same* group. If SS7 signaling 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:

```
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

range ?
  limit    Configure the maximum limit
  port     Configure the resource ports

range limit ?
  <1-192>  Maximum number of connections allowed

range port ?
  <0-246>  First Modem TTY Number
  x/y     Slot/Port for Internal Modems
```

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 integrated 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, use the **resource-pool profile discriminator** command in global configuration mode. Use the **no** form of this command to remove a profile from the running configuration.

resource-pool profile discriminator *name*

no resource-pool profile discriminator *name*

Syntax Description	<i>name</i>	Name of the call discriminator profile. This name can have up to 23 characters.
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Defaults	No discrimination of calls.
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Command Modes	Global configuration
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Command History	Release	Modification
	12.0(4)XI	This command was introduced.

Usage Guidelines	Use the resource-pool profile discriminator global configuration command to create a call discrimination profile.
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Examples	The following example shows how to create a discrimination profile called user1:
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```
resource-pool profile discriminator user1
```

Related Commands	Command	Description
	dnis group	Includes a group of DNIS numbers in a customer profile.
	call-type	Rejects particular types of calls.

resource-pool profile service

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

resource-pool profile service *name*

no resource-pool profile service *name*

Syntax Description	<i>name</i> Name of the service profile. This name can have up to 23 characters.				
Defaults	No service profiles are set up.				
Command Modes	Global 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>	Release	Modification	12.0(4)XI	This command was introduced.
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: <pre>resource-pool profile service user1</pre>				

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	<i>name</i>	VPDN profile name.
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Defaults	No VPDN profiles are set up.
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Command Modes	Global configuration
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Command History	Release	Modification
	12.0(4)XI	This command was introduced.
	12.0(5)T	Support for this command was integrated 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 creates 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.

resume (setting X.3 PAD parameters)

To set X.3 parameters, use the **resume** command in EXEC mode.

```
resume [connection] [/set parameter:value]
```

Syntax Description

<i>connection</i>	(Optional) The name or number of the connection; the default is the most recent connection.
<i>/set parameter:value</i>	(Optional) Sets the X.3 connection options and PAD parameters for the Cisco IOS software. Refer to Table 25 for PAD parameters. Refer to the chapter “Configuring the Cisco PAD Facility to Make X.25 Connections” of the <i>Cisco IOS Dial Services Configuration Guide: Terminal Services</i> for a list of these connection options.

Defaults

For outgoing connections, the X.3 parameters default to the following:

```
2:1, 3:2, 4:1, 7:4, 16:127, 17:21, 18:19
```

All other parameters default to zero, but can be changed using the **/set** switch option with either the **resume** command or the **x3** command.

For incoming PAD connections, the software sends an X.29 SET PARAMETER packet to set only the following parameters:

```
2:0, 4:1, 7:21, 15:0
```

Command Modes

EXEC

Command History

Release	Modification
9.1	This command was introduced.

Usage Guidelines

Table 25 lists accepted PAD parameters:

Table 25 PAD Parameters

Parameter	Action	Value	Description
1	Escape from data transfer		Not supported.
2	Local echo mode	0	No local echo (incoming PAD connection default).
		1	Local echo on (outgoing connection default).

Table 25 PAD Parameters (continued)

Parameter	Action	Value	Description
3	Data forward character	0	None—full packet.
		1	Forward packet on receipt of an alphanumeric character.
		2	Forward packet on receipt of a RETURN (outgoing connection default).
		4	Forward packet on receipt of ESCAPE, BEL, ENQ, or ACK.
		8	Forward packet on receipt of DEL, CAN, or DC2.
		16	Forward packet on receipt of HT, LT, VT, or FF.
		32 64	All other characters in the ASCII chart.
4	Idle timer	0	No timer.
		1-255	Delay value in twentieths of a second (default for both connection types is 1).
5	Device control		Sends flow control characters during data transfer to the terminal, which controls the terminal and data flow.
6	PAD service signals		Not supported.
7	Receipt of break	0	Ignore the Break signal.
		1	Send an INTERRUPT packet to notify the remote host or another PAD that the Break signal was generated.
		2	Send a RESET packet to reset the virtual circuit.
		4	Send an X.29 break indication to the remote host, or to a PAD (outgoing connection default).
		8	Escape from data transfer mode.
8	Discard output	0	Normal data delivery to the terminal (outgoing connection default).
		1	Discard all output to the terminal; set by parameter 7.
9	Return padding		Determines if PAD can provide padding (insert filler characters) upon receipt of a Return character from the terminal.
10	Line folding		Not supported.

Table 25 PAD Parameters (continued)

Parameter	Action	Value	Description
11	Baud rate	10	50 baud.
		5	75 baud.
		9	100 baud.
		0	110 baud.
		1	134.5 baud.
		6	150 baud.
		8	200 baud.
		2	300 baud.
		4	600 ¹ baud.
		3	1200 baud.
		7	1800 baud.
		11	75/1200 ² baud.
		12	2400 baud.
		13	4800 baud.
		14	9600 baud.
		15	19200 baud.
16	48000 baud.		
17	56000 baud.		
18	64000 baud.		
12	Input flow control		Determines whether the terminal can Send ASCII XON/XOFF (transmission on and off) characters to PAD during the data transfer mode.
13	Line feed insertion	0	Do not insert (outgoing connection default).
		1	Insert after sending RETURN to the terminal.
		2	Insert after echoing RETURN to the terminal.
		4	Insert after echoing RETURN to the remote host.
14	Line feed padding		Determines if PAD can provide padding (insert filler characters) upon receipt of a LINE FEED character from the terminal.
15	Local editing	0	Disables editing capabilities.
		1	Enables editing capabilities.
16	Character delete	0-127	Select one ASCII character. Default is ASCII 127 (Del).
17	Line delete	0-127	Select one ASCII character. Default is ASCII 21 (Ctrl-U).
18	Line display	0-127	Select one ASCII character. Default is ASCII 18 (Ctrl-R).
19	Editing PAD service signals		Not supported.
20	Echo mask		Not supported.

Table 25 PAD Parameters (continued)

Parameter	Action	Value	Description
21	Parity treatment		Not supported.
22	Page wait		Not supported.

1. 600 is the beginning of values that are PAD-type dependent.
2. 75 is from PAD; 1200 is to PAD.

The **/set** switch sets the X.3 parameters defined by parameter number and value, separated by a colon. You set one or more X.3 PAD parameters, as follows:

-
- Step 1** Escape out of the current session by pressing the escape sequence (**Ctrl-Shift-6** then **x** [**Ctrl^x**] by default) and return to the EXEC prompt.
- Step 2** Issue the **where** command, to list the open sessions. All open sessions associated with the current terminal line are displayed.
- Step 3** Enter the **resume** command, followed by the parameter, a colon, and then the value to be set.
-

Examples

The following example specifies that local echo mode be turned on for a connection to the device Swift (which is session number 3). As shown in Table 25, “local echo on” uses the parameter 2 and the value 1 (represented as 2:1 in this example):

```
Swift% ^^X
router> resume 3 /set 2:1
Swift%
```

resume (switching sessions)

To switch to another open Telnet, rlogin, local-area transport (LAT), or packet assembler/disassembler (PAD) session, use the **resume** command in EXEC mode.

```
resume [connection] [keyword] [/set parameter:value]
```

Syntax Description		
	<i>connection</i>	(Optional) The name or number of the connection; the default is the most recent connection.
	<i>keyword</i>	(Optional) One of the options listed in Table 26.
	/set <i>parameter:value</i>	(Optional) Sets PAD parameters for the Cisco IOS software (see Table 25).

Command Modes EXEC

Command History	Release	Modification
	9.1	This command was introduced.

Usage Guidelines Table 26 lists Telnet and rlogin resume options.

Table 26 Telnet and Rlogin resume Command Options

Option	Description
/debug	Displays parameter changes and messages. In the Cisco IOS software, this option displays informational messages whenever the remote host changes an X.3 parameter, or sends an X.29 control packet.
/echo	Performs local echo.
/line	Enables line-mode editing.
/nodebug	Cancels printing of parameter changes and messages.
/noecho	Disables local echo.
/noline ¹	Disables line mode and enables character-at-a-time mode, which is the default.
/nostream	Disables stream processing.
/set <i>parameter:value</i>	Sets X.3 connection options. Refer to the chapter “Configuring the Cisco PAD Facility to Make X.25 Connections” of the <i>Cisco IOS Dial Services Configuration Guide: Terminal Services</i> for a list of these connection options.
/stream	Enables stream processing.

1. /noline is the default keyword.

You can have several concurrent sessions open and switch back and forth between them. The number of sessions that can be open is defined by the **session-limit** command.

You can switch between sessions by escaping one session and resuming a previously opened session, as follows:

-
- Step 1** Escape out of the current session by pressing the escape sequence (**Ctrl-Shift-6** then **x** [**Ctrl^x**] by default) and return to the EXEC prompt.
 - Step 2** Enter the **where** command, to list the open sessions. All open sessions associated with the current terminal line are displayed.
 - Step 3** Enter the **resume** command and the session number to make the connection.

You also can resume the previous session by pressing the **Return** key.

The **Ctrl^x**, **where**, and **resume** commands are available with all supported connection protocols.

Examples

The following example shows how to escape out of a connection and to resume connection 2:

```
Swift% ^^x
router> resume 2
```

You can omit the command name and simply enter the connection number to resume that connection. The following example illustrates how to resume connection 3:

```
router> 3
```

Related Commands

Command	Description
show tn3270 ascii-hexval	Displays ASCII-hexadecimal character mappings.
where	Lists open sessions associated with the current terminal line.

retry keepalive

Redundant Link Manager (RLM) allows keepalive failures in consecutive certain amounts of time configured using the command line interface (CLI) before it declares the link is down. Use the **no** form of this command to disable this function.

retry keepalive *number-of-times*

no retry keepalive *number-of-times*

Syntax Description	<i>number-of-times</i>	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.
Related Commands	Command	Description
	clear rlm group	Clears all RLM group time stamps to zero.
	clear interface	Resets the hardware logic on an interface.
	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.

rlogin

To log in to a UNIX host using rlogin, use the **rlogin** command in EXEC mode.

```
rlogin host [-l username] [/user username] [/quiet] [debug]
```

Syntax Description		
	<i>host</i>	Specifies the host name or IP address.
	-l <i>username</i>	(Optional) The Berkeley Standard Distribution (BSD) UNIX syntax that specifies a user name for the remote login. If you do not use this option, the remote user name is your local user name.
	/user <i>username</i>	(Optional) The EXEC command syntax that specifies a remote user name in the initial exchange with the remote host. The rlogin protocol will not present you with the <code>login</code> prompt.
	/quiet	(Optional) Prevents onscreen display of all messages from the Cisco IOS software.
	debug	(Optional) Enables debugging output from the rlogin protocol.

Command Modes	
	EXEC

Command History	Release	Modification
	10.0	This command was introduced.
	12.1	The /quiet keyword was added.

Usage Guidelines

You can have several concurrent rlogin connections open and switch back and forth between them. To open a new connection, first suspend the current connection by pressing the escape sequence (**Ctrl-Shift-6** then **x** [**Ctrl^x**] by default) to return to the EXEC prompt. Then open a new connection. A user cannot automatically log in to a UNIX system from the router, but must provide a user ID and a password for each connection.

If your preferred transport is set to **rlogin**, you can use the **connect** command in place of the **rlogin** command. Refer to the chapter "Configuring Terminal Operating Characteristics for Dial-In Sessions" in the *Cisco IOS Dial Services Configuration Guide: Terminal Services* for more information about configuring a preferred transport type. When your preferred transport is set to **none** or to another protocol, you must use the **rlogin** command to connect to a host.

To terminate an active rlogin session, enter one of the following commands at the UNIX prompt of the device to which you are connecting:

- **close**
- **disconnect**
- **exit**
- **logout**
- **quit**

Examples

The following example illustrates how the user Joe Smith (“jsmith”) can use the **rlogin ?** help command and the **debug** command mode to establish and troubleshoot a remote connection to the host Alviso:

```
4500> rlogin ?
WORD IP address or hostname of a remote system
4500> rlogin Alviso ?
-l Specify remote username
/quiet Suppress login/logout messages
/user Specify remote username
debug Enable rlogin debugging output
<cr>
4500> rlogin Alviso -l ?
WORD Remote user name
4500> rlogin Alviso -l jsmith?
debug Enable rlogin debugging output
<cr>
4500> rlogin Alviso -l jsmith debug
```

The following example illustrates debug return on the host named zipper by the user named staff:

```
yak# rlogin zipper.cisco.com -l staff debug
Trying zipper.cisco.com (171.69.63.31)... Open
RLOGIN: local username is: ciscoTS
RLOGIN: remote username is: staff
Password:
Last login: Wed Jun 24 06:15:36 from itech-view3.cisc
1 zipper> uptime
 1:40pm up 42 day(s), 20:53, 80 users, load average: 1.44, 2.67, 3.39
2 zipper> logout
[Connection to zipper.cisco.com closed by foreign host]
yak#
```

The following example makes an rlogin connection to a host at address 108.33.21.2 for a user named supervisor and enables the message mode for debugging:

```
router> rlogin 108.33.21.2 -l supervisor debug
```

The following example makes an rlogin connection to a host named headquarters for the user named admin:

```
router> rlogin headquarters -l admin
```

The following example suppresses all onscreen messages from the Cisco IOS software during login and logout:

```
router> rlogin host2 /quiet
```

Related Commands

Command	Description
connect	Logs in to a host that supports Telnet, rlogin, or LAT.
telnet	Logs in to a host that supports Telnet.

rlogin trusted-localuser-source

To choose an authentication method for determining the local username to send to the remote rlogin server, use the **rlogin trusted-localuser-source** command in global configuration mode. Use the **no** form of this command to restore the default rlogin behavior.

rlogin trusted-localuser-source [**local** | **radius** | **tacacs**]

no rlogin trusted-localuser-source [**local** | **radius** | **tacacs**]

Syntax Description	
local	(Optional) Use local username from any authentication method.
radius	(Optional) Use local username from RADIUS authentication.
tacacs	(Optional) Use local username from TACACS authentication.

Defaults The user must enter their rlogin username and password when connecting to the rlogin server.

Command Modes Global configuration

Command History	Release	Modification
	11.1	This command was introduced.

Usage Guidelines Use this command to define which of the sources for local usernames are valid.

The rlogin protocol passes three types of information: the remote username, the local username, and the local hostname of the router. The **rlogin trusted-localuser-source** command allows you to configure one of three behaviors for making connections to the rlogin server, as follows:

- The user must enter their login username and password to connect (default).
- The user's IOS-authenticated username can be passed to the rlogin server so the user need only enter their password to connect.
- The user can be automatically connected to the rlogin server without having to provide a username or password. This configuration is made by using both the **rlogin trusted-localuser-source** and **rlogin trusted-remoteuser-source local** commands where both the IOS-authenticated username and the rlogin server username are the same.

Examples The following example uses the local username from RADIUS authentication:

```
router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
router(config)# rlogin trusted-localuser-source ?
  local  Use local username from any authentication method
  radius Use local username from radius authentication
  tacacs Use local username from tacacs authentication
router(config)# rlogin trusted-localuser-source radius
```

■ rlogin trusted-localuser-source

Related Commands	Command	Description
	rlogin trusted-remoteuser-source local	Determines the remote username to send to the remote rlogin server.

rlogin trusted-remoteuser-source local

To determine the remote username to send to the remote rlogin server, use the **rlogin trusted-remoteuser-source local** command in global configuration mode. Use the **no** form of this command to restore the default rlogin behavior, which is to prompt the user for the remote username.

rlogin trusted-remoteuser-source local

no rlogin trusted-remoteuser-source local

Syntax Description This command has no arguments or keywords.

Defaults The user must enter their rlogin username and password when connecting to the rlogin server.

Command Modes Global configuration

Command History	Release	Modification
	11.1	This command was introduced.

Usage Guidelines The current username is used only if the **rlogin host /user username** command is not enabled. If the current username is not known, rlogin falls back to providing the “login:” prompt to discover a remote username.



Caution

Configuring the remote host to consider the Cisco router a “trusted” host should be considered a security hole.

Examples After you issue the **rlogin trusted-remoteuser-source local** command, you will not be prompted for a username. The first response you see is the password prompt from the remote system. For example, when this command is not enabled, you must enter your username twice (once at initial system login and once for the **rlogin** command).

User Access Verification

Username: **gmczilla**
Password: **xxxxxx**

```
router> rlogin puli
Trying puli.cisco.com (170.69.3.154) ... Open
login: gmczilla
Password: xxxxxx
```

After you issue the **rlogin trusted-remoteuser-source local** command, you no longer have to specify the username after the **rlogin** command. The username is automatically copied from the router's user ID.

```
enable
Password: xxxxxx
router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
router(config)# rlogin ?
    trusted-localuser-source    Allowed authentication types for local username
    trusted-remoteuser-source   Method used to get remote username
router(config)# rlogin trusted-remoteuser-source local
router(config)# ^Z
router# rlogin puli
Trying puli.cisco.com (170.69.3.154)... Open
Password: xxxxxx
```

The following example uses the **/user root** option as an override.

```
router# rlogin puli /user root
Trying puli.cisco.com (170.69.3.154)... Open
Password: xxxxxx
login:
```

Related Commands

Command	Description
rlogin	Chooses an authentication method for determining the local
trusted-localuser-source	username to send to the remote rlogin server.

rotary

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

rotary *group*

no rotary

Syntax Description	<i>group</i> Integer from 1 to 100 that you choose to identify the rotary group.				
Defaults	No group of lines is defined.				
Command Modes	Line configuration				
Command History	<table border="1"> <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>	Release	Modification	10.0	This command was introduced.
Release	Modification				
10.0	This command was introduced.				

Usage Guidelines Typically, rotary groups are used on devices with multiple modem connections to allow connections to the next free line in a hunt group.

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 skips 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.

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 27 lists the services and port numbers for both rotary groups and individual lines.

Table 27 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.

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 does not have to remember the range of line numbers associated with the password.

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

Related Commands

Command	Description
modem bad	Removes an integrated modem from service and indicates it as suspected or proven to be inoperable.
modem callout	Configures a line for reverse connections.
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	<i>group-number</i> The dialer rotary group that this VPDN group belongs to.						
Defaults	Disabled						
Command Modes	Request-dialout configuration						
Command History	<table border="1"> <thead> <tr> <th style="border-top: 1px solid black; border-bottom: 1px solid black;">Release</th> <th style="border-top: 1px solid black; border-bottom: 1px solid black;">Modification</th> </tr> </thead> <tbody> <tr> <td style="border-bottom: 1px solid black;">12.0(5)T</td> <td style="border-bottom: 1px solid black;">This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	12.0(5)T	This command was introduced.		
Release	Modification						
12.0(5)T	This command was introduced.						
Usage Guidelines	<p>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.</p> <p>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.</p> <p>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.</p>						
Examples	<p>The following example configures VPDN group 1 to request L2TP dialout to IP address 172.5.4.6 using dialer profile pool 1 and identifying itself using the local name harold.</p> <pre> vpdn-group 1 request-dialout protocol l2tp rotary-group 1 initiate-to ip 172.5.4.6 local name harold </pre>						
Related Commands	<table border="1"> <thead> <tr> <th style="border-top: 1px solid black; border-bottom: 1px solid black;">Command</th> <th style="border-top: 1px solid black; border-bottom: 1px solid black;">Description</th> </tr> </thead> <tbody> <tr> <td style="border-bottom: 1px solid black;">initiate-to</td> <td style="border-bottom: 1px solid black;">Specifies the IP address that will be tunneled to.</td> </tr> <tr> <td style="border-bottom: 1px solid black;">pool-member</td> <td style="border-bottom: 1px solid black;">Assigns a request-dialout VPDN subgroup to a dialer pool.</td> </tr> </tbody> </table>	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.
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.						

Command	Description
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.

rxspeed

To set the terminal receive speed (how fast the terminal receives information from the modem), use the **rxspeed** command in line configuration mode.

rxspeed *bps*

Syntax Description	<i>bps</i> Baud rate in bits per second (bps).
---------------------------	--

Defaults	9600 bps
-----------------	----------

Command Modes	Line configuration
----------------------	--------------------

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines Set the speed to match the baud rate of whatever device you have connected to the port. Some baud rates available on devices connected to the port might not be supported on the system. The system will indicate if the speed you select is not supported.



Note

If the line was previously configured for automatic baud rate detection (autobaud), disable autobaud by entering the **no autobaud** command before entering the **rxspeed** command to fix the speed of the port.

Examples The following example sets the line 5 receive rate to 2400 bps:

```
line 5
rxspeed 2400
```

Related Commands	Command	Description
	source template	Sets the flow control start character.
	terminal rxspeed	Sets the terminal receive speed (how fast information is sent to the terminal) for the current line and session.
	txspeed	Sets the terminal transmit speed (how fast the terminal sends information to the modem).

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. Use the **no** form of this command to disable this feature.

script activation *regex*

no script activation

Syntax Description	<i>regex</i>	Regular expression that specifies the set of modem scripts that might be executed. The first script name that matches the <i>regex</i> 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 *regex* argument (a regular expression) matches an existing chat script name, the matched script is run on the line. For more information about regular expressions, see the “Regular Expressions” appendix in this document.

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. Use the **no** form of this command to disable this feature.

script arap-callback *regexp*

no script arap-callback

Syntax Description	<i>regexp</i>	Regular expression that specifies the set of modem scripts that might be executed. The first script name that matches the <i>regexp</i> 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 *regexp* argument will be executed to call back the client. The first available line specified for callback, and for which a chat script has been applied, will be used for the callback.

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

Examples

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

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

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

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

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. Use the **no** form of this command to disable this feature.

script callback *regex*

no script callback

Syntax Description	<i>regex</i>	Regular expression that specifies the set of modem scripts that might be executed. The first script name that matches the <i>regex</i> 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 *regex* 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 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.

Command	Description
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. Use the **no** form of this command to disable this feature.

script connection *regex*

no script connection

Syntax Description	<i>regex</i>	Specifies the set of modem scripts that might be executed. The first script name that matches the <i>regex</i> 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 “Regular Expressions” appendix in this publication.

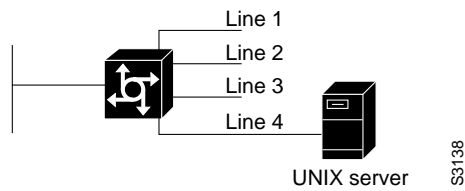
Examples

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 3, 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 3 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. Use the **no** form of this command to disable this feature.

script dialer *regexp*

no script dialer

Syntax Description	<i>regexp</i>	Specifies the set of modem scripts that might be executed. The first script that matches the <i>regexp</i> 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 *regexp* 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 more information about regular expressions, See the “Regular Expressions” appendix in this manual.

If you adhere to the naming convention recommended for chat scripts (see the **chat-script** command), the modem lines (the *regexp* 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. Use the **no** form of this command to disable this feature.

script reset *regex*

no script reset

Syntax Description	<i>regex</i>	Specifies the set of modem scripts that might be executed. The first script name that matches the <i>regex</i> 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	<p>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.</p> <p>The script reset command functions only on physical terminal (TTY) lines. It does not function on virtual terminal lines.</p> <p>For information about regular expressions, see the “Regular Expressions” appendix in this publication.</p>
-------------------------	---

Examples	<p>The following example specifies that any chat script name with the word <i>linebackup</i> in it will be activated any time line 7 is reset:</p>
-----------------	--

```
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.

Command	Description
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. Use the **no** form of this command to disable this feature.

script startup *regexp*

no script startup

Syntax Description	<i>regexp</i>	Specifies the set of modem scripts that might be executed. The first script that matches the <i>regexp</i> 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, refer to the “Regular Expressions” appendix in this publication.

Examples

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

```
line 5
  script startup linestart
```

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

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

server (RLM)

To define IP addresses of the server, use the **server** command in RLM configuration mode. Each server can have multiple entries of IP addresses or aliases. Use the **no** form of this command to disable this function.

server *name-tag*

no server *name-tag*

Syntax Description	<i>name-tag</i>	The logic name to identify the server configuration so that multiple entries of server configuration can be entered.
---------------------------	-----------------	--

Defaults	Disabled
-----------------	----------

Command Modes	RLM configuration
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Command History	Release	Modification
	11.3(7)	This command was introduced.

Related Commands	Command	Description
	clear rlm group	Clears all RLM group time stamps to zero.
	clear interface	Resets the hardware logic on an interface.
	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.
	retry keepalive	Allows consecutive keepalive failures a certain amount of time before the link is declared down.
	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.

service exec-callback

To enable the Cisco IOS software to call back clients who request a callback from the EXEC level, use the **service exec-callback** command in global configuration mode.

service exec-callback

Syntax Description This command has no arguments or keywords.

Defaults Callback is not enabled.

Command Modes Global configuration

Command History	Release	Modification
	11.1	This command was introduced.

Usage Guidelines This command enables the Cisco IOS software to return a call to a device that dials in, connects to the EXEC, and requests callback.

Examples The following example enables EXEC level callback:

```
service exec-callback
```

Related Commands	Command	Description
	arap callback	Enables an ARA client to request a callback from an ARA client.
	script arap-callback	Specifies that a chat script start on a line when an ARA client requests a callback.
	debug callback	Displays callback events when the router is using a modem and a chat script to call back on a terminal line.
	debug confmodem	Displays information associated with the discovery and configuration of the modem attached to the router.
	ppp callback (PPP client)	Enables a dialer interface that is not a DTR interface to function either as a callback client that requests callback or as a callback server that accepts callback requests.
	username	Establishes a username-based authentication system, such as PPP CHAP and PAP.

service old-slip-prompts

To provide backward compatibility for client software scripts expecting Serial Line Internet Protocol (SLIP) and PPP dialogs to be formatted with Cisco IOS software Release 9.1 or earlier, use the **service old-slip-prompts** command in global configuration mode. Use the **no** form of this command to disable this function.

service old-slip-prompts

no service old-slip-prompts

Syntax Description This command has no arguments or keywords.

Defaults The prompts and information transmitted by SLIP and PPP are formatted with the current release of Cisco IOS software.

Command Modes Global configuration

Command History	Release	Modification
	11.1	This command was introduced to provide backward compatibility for client software scripts expecting SLIP and PPP dialogs to be formatted with Cisco IOS software Release 9.1 or earlier.

Examples The following example shows the output of a SLIP command after the **service old-slip-prompts** command is enabled:

```
configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
service old-slip-prompts
exit
slip
IP address or hostname: 2.2.2.2
Entering SLIP mode.
Your IP address is 2.2.2.2. MTU is 1500 bytes
```

service pt-vty-logging

To log the X.121 calling address, Call User Data (CUD), and the IP address assigned to a vty asynchronous connection, use the **service pt-vty-logging** command in global configuration mode. Use the **no** form of this command to disable this function.

service pt-vty-logging

no service pt-vty-logging

Syntax Description This command has no arguments or keywords.

Defaults This feature is disabled.

Command Modes Global configuration

Command History	Release	Modification
	11.2	This command was introduced.

Usage Guidelines This command permits you to log the X.121 calling address, Call User Data (CUD), and the IP address assigned to a vty asynchronous connection and direct this information to the console, an internal buffer, or a UNIX syslog server, depending on the logging configuration command you use. This authentication information can be used to associate an incoming PAD vty-asynchronous connection with an IP address.



Note

By default, the Cisco IOS software displays all messages to the console terminal.

Examples The following example enables you to log the X.121 calling address, Call User Data (CUD), and the IP address assigned to a vty asynchronous connection and save this information to a syslog server:

```
service pt-vty-logging
```

The following is sample output resulting from the **service pt-vty-logging** command:

```
01:24:31: PAD18: call from 00011890 on LCI 10 PID 1 0 0 0 CUD "xyz"
```

Table 28 describes the fields shown in the output.

Table 28 *service pt-vty-logging* Field Descriptions

Field	Description
01:24:31:	Time stamp.
PAD18:	Active VTY line number using the PAD connection.
00011890	The source/calling address.

Table 28 *service pt-vty-logging Field Descriptions (continued)*

Field	Description
on LCI 10	Incoming call is initiated on Logical Channel 10.
PID 1 0 0 0	The PAD Protocol Identifier is "01000000."
CUD "xyz"	Call User Data "xyz." If no CUD is available, this field will appear as follows: CUD " "

Related Commands

Command	Description
logging	Logs messages to a syslog server host.
logging buffered	Logs messages to an internal buffer.

session-limit

To set the maximum number of terminal sessions per line, use the **session-limit** command in line configuration mode. Use the **no** form of this command to remove any specified session limit.

session-limit *session-number*

no session-limit

Syntax Description	<i>session-number</i>	Specifies the maximum number of sessions.
---------------------------	-----------------------	---

Defaults The default and set session limits are displayed with the **start-character EXEC** command.

Command Modes Line configuration

Command History	Release	Modification
	10.0	This command was introduced.

Examples The following example limits the number of sessions to eight on a ten-line range:

```
line 2 12
 session-limit 8
```

Related Commands	Command	Description
	line vty	Specifies a virtual terminal for remote console access.

session-timeout

To set the interval for closing the connection when there is no input or output traffic, use the **session-timeout** command in line configuration mode. To remove the timeout definition, use the **no** form of this command.

session-timeout *minutes* [**output**]

no session-timeout

Syntax Description

<i>minutes</i>	Specifies the timeout interval in minutes.
output	(Optional) Specifies that when traffic is sent to an asynchronous line from the router (within the specified interval), the connection is retained.

Defaults

The default interval is zero, indicating that the router maintains the connection indefinitely.

Command Modes

Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

This command sets the interval that the Cisco IOS software waits for traffic before closing the connection to a remote computer and returning the terminal to an idle state.

If only the **session timeout** command is specified, the session timeout interval is based solely on detected input from the user.

If the **session timeout** command is specified with the **output** keyword, the interval is based on both input and output traffic. You can specify a session timeout on each port.

The **session-timeout** command behaves slightly differently on virtual (vty) terminals than on physical console, auxiliary (aux), and terminal (tty) lines. When a timeout occurs on a vty, the user session returns to the EXEC prompt. When a timeout occurs on physical lines, the user session is logged out and the line returned to the idle state.

You can use a combination of the **exec-timeout** and **session-timeout** line configuration commands, set to approximately the same values, to get the same behavior from virtual lines that the **session-timeout** command causes on physical lines.

Examples

The following example sets an interval of 20 minutes and specifies that the timeout is subject to traffic detected from the user (input only):

```
line 5
 session-timeout 20
```

The following example sets an interval of 10 minutes, subject to traffic on the line in either direction:

```
line 5
 session-timeout 10 output
```

Related Commands

Command	Description
absolute-timeout	Sets the interval for closing the connection on a virtual terminal line.
exec-timeout	Sets the interval that the EXEC command interpreter waits until user input is detected.

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.

sgbp group *name*

Syntax Description	<i>name</i>	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.

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

Syntax Description	
<i>peer-name</i>	Host name of the peer member.
<i>peer-ip-address</i>	(Optional) IP address of the peer member. If the domain name system (DNS) can perform a lookup on the <i>peer-name</i> 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 192.165.15.4
```

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.

sgbp ppp-forward

Syntax Description This command has no arguments or keywords.

Defaults This command is disabled by default.

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.

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

Syntax Description	default	offload	forward-only	bid
	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 <i>project</i> to this stackgroup member. This is the default.	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.	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 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** *across all stack members* command. 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.

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.

■ sgbp seed-bid