CHAPTER 2

CBOS Commands

New Commands for Release 2.4

The following commands and command arguments are introduced in CBOS Release 2.4:

```
set dhcp server detected logging [enable|disable}
set nat entry add inside-ip-address port-range1 {outside-ip-address|*}
port-range2|detectedprotocol
show chksum {image|monitor|configuration|all}
show parameters
```

CBOS Commands

This section documents the Cisco Broadband Operating System (CBOS) commands and command arguments that manage the CPE device. CBOS runs in two modes: **exec** and **enable**.

Exec Mode

The following list shows the commands for Exec mode

- help/?
- ping
- quit/exit
- reboot
- show
- traceroute
- enable
- stats

Enable Mode

The following list shows the commands for Enable mode

- help/?
- ping
- quit/exit
- reboot
- show
- traceroute
- stats
- set
- write
- exec

Settings Not Available Through Auto-Provisioning

Some settings are not available through auto-provisioning. They are the following:

- SNMP
- Telnet
- TFTP
- Web services
- Passwords
- DSL settings; for example, int wan0 settings
- Bridging management
- Management IP addresses
- VIPs

help

To get help information on a particular command.

help command-name

or

help command-name

You can also do:

? command-name

or

command-name ?

Syntax Description

command-name	Specifies the command.

Command Modes

Exec and Enable

Examples

```
help stats
```
or
```
? stats
```
or
```
stats ?
```

ping

To send one or more echo ICMP (Internet Control Message Protocol) request message(s) to another host for a reply.

ping *ip-address* [**-t** | **-n** *number] [***-w** *seconds*] [**-i** *number*]

Syntax Description

interface	Specifies wan0-x interfaces (for OAM F5 ping).
ip-address	Specifies the destination IP address to be pinged.
-t	Specifies to ping host IP continuously until the user interrupts. On a PC, press the Enter key to stop the **ping** command.
-n *number*	Specifies the number of pings to send to host.
-w *number*	Specifies the amount of time (in seconds) to wait for response.
-i *number*	Specifies the Time to Live, where *number* is between 1 and 30000.
-s	ATM segment ping

Command Modes

Exec and Enable

Example

The following example pings IP address 208.203.234.26 three times.

```
ping 208.203.234.26 -n 3
```

The following example pings IP address 208.203.234.26 indefinitely allowing for a 3 second wait response until the command string times itself out.

```
ping 208.203.234.26 -t -w 3
```

The following example performs an OAM F5 end-to-end ping.

```
ping wan0-0
```

The following example performs a segment ping.

```
ping wan 0-0 -s
```

quit/exit

To quit or exit CBOS.

quit | exit

Syntax Description

This command has no keywords or arguments.

Command Modes

Exec and Enable

Example

The following examples quit CBOS.

```
quit
exit
```

reboot

To reboot CBOS.

reboot

Syntax Description

This command has no keywords or arguments.

Command Modes

Exec and Enable

Example

The following example reboots CBOS.

```
reboot
```

set bridging

To enable and disable bridging options.

set bridging {rcf1483 | management | ppp | pvc} enabled | disabled

Syntax Description

enabled	Enables bridging.
disabled	Disables bridging.
rfc1483	Specifies the protocol to be used is RFC1483 bridging mode.
management	Enables or disables bridging management.
ppp	Specifies the protocol to be used is PPP bridging mode.
pvc	Enables or disables separate bridging management PVC.

Command Mode

Enable

Usage Guidelines

The rules that govern the **set bridging** command are:

- Bridging and routing do not operate simultaneously.
- The commands listed below do not work in non-managed bridge mode.
  - **ping**
  - **route** (and setting static routes)
  - **rip** related commands (**set** and **show**)
  - **filter** related commands (**set** and **show**)
  - **traceroute** command
  - **Telnet** server
  - **TFTP** server
  - **Web** interface

Note You must reboot to enable bridging options.

Examples

The following examples contain a sequence of commands for setting up bridging.

```
set bridging rfc1483 enabled
set bridging ppp enabled
```

set broadcast forwarding

To enable or disable broadcast forwarding.

set broadcast forwarding {**enabled** | **disabled**}

Syntax Description

enabled	Enables broadcast forwarding.
disabled	Disables broadcast packet forwarding.

Command Mode

Enable

Example

The following example enables broadcast forwarding:

```
set broadcast forwarding enabled
```

set dhcp

To activate, deactivate, or configure Dynamic Host Configuration Protocol (DHCP) functionality.

set dhcp

{client {enabled | **disabled** | **interface** *interface-name***}** |

{server {enabled|**disabled}**|**logging{enabled**|**disabled}**||**delete {***ip-address* | *all***}** | **learn {enable** | **disable} tick number}** |

pool *pool-number* **{enabled** | **disabled** | **size** *pool-size* | **lease** *seconds* |*logging*| **netmask** *mask* | **gateway** | **dns** | **sdns** | **ip** | **irc** | **nntp** | **pop3** | **web** | **wins** | **swins }**

relay {enabled | **disabled** | **interface** *interfacename***}**

Syntax Description

enabled	Activates a specific DHCP functionality, either client, server, or relay.
disabled	Deactivates a specifies DHCP functionality, either client, server, or relay.
client	Specifies to configure client settings.
interface *interface-name*	Specifies the interface from which to send out DHCP client requests.
server	Specifies to configure server settings.
pool *pool-number*	Manually modifies a DHCP server pool entry and specifies the number of the pool to modify. *Pool-number* is a number between 0 and 19.
delete *ip-address*	Deletes a specific DHCP server leased address.
tick number	Sets the timer tick number for address leases.
learn	Learns the first DHCP server pool address.
dns *ip-address*	Sets the DNS address for all requests sent out of this pool. If *ip-address* is set to 0.0.0.0, no DNS information is sent out. If you add a pool after setting DNS, you must reset DNS for the new pool.
sdns *ip-address*	Sets the secondary DNS address. If *ip-address* is set to 0.0.0.0, no SDNS information is sent out. If you add a pool after setting SDNS, you must reset SDNS for the new pool.
gateway	Sets the gateway address for all requests sent out of this pool. If *gw-address* is set to 0.0.0.0, no gateway information is sent out. If you add a pool after setting the gateway, you must reset the gateway for the new pool.

ip *ip-address*	Sets the initial IP address for the pool specified.
irc *ip-address*	Sets the IP address of the Internet Relay Chat (IRC) Server.
nntp *ip-address*	Sets the IP address of the News Server.
pop3 *ip-address*	Sets the IP address of the POP Mail Server.
smtp *ip-address*	Sets the IP address of the Mail Server.
web *ip-address*	Sets the IP address of the Web Server.
wins *ip-address*	Sets the primary wins server address.
swins *ip-address*	Sets the secondary wins server address.
lease *seconds*	Sets the lease time of clients in seconds.
netmask *ip-address*	Sets the subnet mask for all requests sent out of this pool.
size *pool-size*	Sets the size of the allocation pool. Note: Your pool size can never be set to higher then your local subnet mask that you are handing out for the pool.
relay	Sets the DHCP host server up as a relay agent to pass DHCP IP address assignments to the client system.

Command Mode

Enable

Example

The following example enables the DHCP client:

```
set dhcp client enabled
```

The following example enables additional CHCP lease information to be logged in the error log:

```
set dhcp server logging {enable|disable}
```

The following example enables the DHCP server functionality:

```
set dhcp server enabled
```

The following command adds pool 0 with a specific IP address.

```
set dhcp server pool 0 ip 192.168.0.100
```

The following example enables the DHCP relay agent:

```
set dhcp relay enabled
```

set download

To download a new router image or new router configuration image.

set download {**code** | **config**}

Syntax Description

code	Begins an XMODEM download of a new CBOS software image.
config	Begins an XMODEM download of a new CPE configuration file.

Command Mode

Enable

Example

The following example begins an XMODEM download of a new CPE configuration file.

```
set download config
```

set errors

To enable IP packet dumping.

set errors [**client** {**enabled** | **disabled**} | **combo** {**enabled** | **disabled**} | **module** {**all | atm | dhcp | ip | nat | none | ppp | rfc1483 | snmp | telnet | web**} | **debug** {**enabled** | **disabled**}] | **clear**

Syntax Description

client {enabled | disabled}	Enables IP packet dumping for the client from which the command was invoked. enabled - Enables packet dumping. disabled - Disables packet dumping.
combo {enabled | disabled}	Enables both the **debug** and the **client** modes simultaneously. enabled - Enables packet dumping. disabled - Disables packet dumping.
module {all | atm | dhcp | ip | nat | none | ppp | rfc1483 | snmp | telnet | web}	Specifies the module used to track debug messages.
debug {enabled | disabled}	Sets IP packet dumping utility to display errors to the system display. enabled - Enables debug error display. disabled -Disables debug error display.
clear	Clears any errors from NVRAM.

Command Mode

Enable

Example

The following example enables IP packet dumping for the RFC1483 module.

```
set errors module rfc1483
```

The following example clears errors.

```
set errors clear
```

set filter

To specify and modify IP filtering conventions for the Cisco 67x.

set filter {*code* **on | off | reset}** [**deny | allow {incoming | outgoing}** {*interface* | **all** *src-ip src-mask dest-ip dest-mask}* **protocol [tcp | udp | icmp] | srcport** *lo-hi* **| destport** *lo-hi*

Syntax Description

code	Enter the filter number to be modified. Valid filter code values are 0 through 19.
**on	off	reset**	Enables or disables the filter. Reset changes all filters back to default settings.
**deny	allow**	Specifies whether the filter is to allow or deny packets that match the filter's address and mask.
incoming	outgoing	Specifies filtering direction.
interface	**all**	Displays the Interface on which to apply the filter. This can be a particular interface such as eth0 or wan0-x or all interfaces.
src-ip	Enter the source IP address for packets.
src-mask	Enter the mask to be applied to source IP address. This allows the filter to match a group of incoming IP addresses.
dest-ip	Enter the destination IP address of outgoing packets.
dest-mask	Enter the mask to be applied to destination IP address. This allows the filter to match a group of outgoing IP addresses.

protocol [tcp | udp | icmp]	Specifies one of the three protocols. The autoconfiguration equivalents are as follows: ICMP = 1 TCP = 6 UDP = 17
srcport *lo-hi*	Specifies the source port range.
destport *lo-hi*	Specifies the destination port range.

Command Mode

Enable

Usage Guidelines

The **set filter** command is used to specify IP filtering conventions. The Cisco 67x has 20 filters that can be applied to TCP, UDP, and ICMP packets passing through the router's interfaces. Enabled filters are applied to packets in sequential order according to filter number.

The rules that govern the **filter** command are:

- The minimum parameters required for the **set filter** command are the filter code and the on/off flag.
- Source and destination IP address and masks must both be present on the command line when the **deny | allow** flag is present.
- A *source-address and source-mask* of 0.0.0.0 and 0.0.0.0 are used to match any packet for the filter. The mask bit 0 is "don't care" and the bit 1 is "must match."
- Filters are applied to the Ethernet interface (eth0) by default. Include the *interface variable* on the command line to specify another interface, or **all** to specify all interfaces in the router.
- Changes made to the filters will become effective immediately.
- All filter related commands (**set** and **show**) are disabled when in bridge mode.
- There is an implicit "deny all" at the end of all filters if no match is found.

Examples

The following example allows all TCP access.

```
set filter 0 on allow incoming all 0.0.0.0 0.0.0.0  0.0.0.0 0.0.0.0
protocol tcp

set filter 1 on allow outgoing all 0.0.0.0 0.0.0.0  0.0.0.0 0.0.0.0
protocol tcp
```

The following example blocks all telnet access from the 192.168.0.25 network.

```
set filter 1 on deny incoming all 192.168.1.25 255.255.255.255 0.0.0.0
0.0.0.0 protocol tcp srcport 1024-65535
```

The following example accepts incoming telnet access from the host 192.168.1.25.

```
set filter 2 on allow incoming all 192.168.1.25 255.255.255.255
0.0.0.0 0.0.0.0 protocol tcp srcport 1024-65535 destport 23-23
```

The following example blocks all incoming FTP access on a wan port.

```
set filter 3 on deny incoming wan0-1 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0
protocol tcp srcport 1024-65535 destport 21-21
```

The following example turns off the first filter.

```
set filter 0 off
```

The following example activates all enabled filters.

```
set filter on
```

Note Press enter only after entering all command parameters. A command may appear on two lines here for readability.

set interface

To configure settings for physical and virtual interfaces.

set interface

{eth0 {address *ip-address* **| mask** *netmask* **| down | up | speed {10 | 100 }|**

vip {0 | 1 | 2 } {[address *ip-address* **] | [mask** *netmask*] **| inside|outside} |**

wan0 {baud *rate* **| count {1 | 2 | 4 | 8 |} | doh {enabled | disabled} | maxvcs {1 | 2 | 3 | 4 | 5 |6 |7 |8} | rate {up | down | down:baud}** *rate-number* **| auto} | [remote] | retrain | scramble {enabled | disabled} | stay} |**

wan0-*x* **{close | destination** *ip-address* **| disabled | enabled | mask** *netmask* **| open | rate** *rate-value* **| VCI** *vci-number* **| VPI** *vpi-number***} | outside-ip** *ip-address***}**

Syntax Description

enabled	Enables a command or functionality.
disabled	Disables a command or functionality.
eth0	Specifies to set or check values for the Ethernet interface.
address *ip-address*	Specifies the destination IP address for the Ethernet interface.
mask *netmask*	Specifies the netmask address for the Ethernet interface.
down	Disables the interface.
up	Enables the interface.
speed	Specifies the link speed given as [**10 | 100 | auto**].
vip*x*	Specifies to set or check values for a virtual Ethernet interface.
address *ip address*	Specifies the destination IP address for the virtual interface.
mask *netmask*	Specifies the netmask address for the virtual interface.
wan0	Specifies to set or check values for the wan0 interface.
baud *rate*	Sets the ADSL baud rate.
count	Sets the VPI count.
doh	Specifies to turn the Digital Off-Hook functionality off or on; applies only to the Cisco 675 CPE device.

maxvcs	Sets the maximum number of virtual connections (VCs), up to 8.
rate	Sets line rates for WAN0 or scala rates for WAN0-x
up *rate-number*	Sets upstream ADSL line rate.
down *rate-number*	Sets downstream ADSL line rate.
down:baud *rate-number*	Sets downstream line rate and baud rate.
auto	Sets auto-negotiation mode for this device.
retrain	Retrains the ADSL line.
scramble	Enables or disables ATM cell scrambling.
stay	Sets stay-trained mode; ADSL line will not retrain.
wan0-*x*	Specifies to set or check values for the wan0-*x* interface.
close	Closes the virtual connection.
destination *ip-address*	Sets the IP address.
mask *netmask*	Sets the netmask.
open	Opens the virtual connection.
rate *rate-value*	Sets the scalarate - the transmitted data rate in 64Kbps increments up to a maximum of the current line rate.
VCI *vci-number*	Sets the number of the virtual channel identifier.
VPI *vpi-number*	Sets the number of the virtual path identifier..

{ inside | outside }	Assigns an interface as NAT inside or outside; not used for eth0.
outside-ip	Sets an outside IP address for an interface.

Command Mode

Enable

Usage Guidelines

Since the Cisco 67x only has one physical port for the Ethernet port, the default value is always 0 as in *eth0*.

Use this command only when you have a serial connection with Cisco 67x. If you use this command when you are communicating over an Ethernet LAN, you will lose the connection to Cisco 67x. If you forget and issue this command over the LAN, you can reset Cisco 67x by switching the Cisco 67x OFF and then turning the power back ON.

Example

The following example assigns the Ethernet interface an IP address.

```
set interface eth0 address 198.162.55.5
```

The following example sets the maximum number of VCs to two.

```
set interface wan0 maxvcs 2
```

The following examples open or close the wan0-0 port.

```
set interface wan0-0 open
set interface wan0-0 close
```

The following example sets the ScalaRate of the wan0-0 port.

```
set interface wan0-0 rate 1088
```

Note The ScalaRate only affects the transmitted data rate. On the Cisco 67x only the upstream rate is affected.

The following example sets a VPI address for the wan0-0 port to equal 1, which is in the valid range for VPI addresses.

```
set interface wan0-0 vpi 1
```

The following example sets the VCI address for the wan0-0 port to equal 1, which is in the valid range for VCI addresses.

```
set interface wan0-0 vci 1
```

The following example allows all wan0-x interfaces to have their own NAT outside IP addresses:

```
set int wan0-0 outside ip 123.1.2.3
```

Usage Guidelines

The Cisco 67x can have a total number of eight VCs (wan0-1 through wan 0-7). Configure only the total number of actual VCs terminated to optimize the performance of the Cisco 67x. Close the wan*x-x* port before making any changes to the port.

The Cisco 67x supports user configuration of VPI/VCI address mapping. The Cisco 67x ships with one VC enabled. Its VPI/VCI address is 1/1.

The valid range for VPI is 0..3; the valid range for VCI addresses is 0...63

set mmi

To enable support for auto-provisioning.

set mmi {**enabled** | **disabled**}

Syntax Description

enabled	Enables auto-provisioning support.
disabled	Disables auto-provisioning support.

Command Mode

Enable

Usage Guidelines

When the MMI channel is established between the CPE and the DSLAM, the CPE will first try the primary VPI/VCI pair of VPI=0 VCI=16. IF that fails, it will try the secondary VPI/VCI pair of VPI=1 VCI=4.

Example

The following example enables auto-provisioning support.

```
set mmi enabled
```

set multicast

To enable multicast proxy support.

set multicast forwarding {**enabled** | **disabled**}

Syntax Description

enabled	Enables multicast proxy support.
disabled	Disables multicast proxy support.

Command Mode

Enable

Example

The following example enables multicast proxy support.

```
set multicast forwarding enabled
```

set nat

To enable or disable Network Address Translation (NAT) functionality.

set nat {enabled | disabled | timeout {icmp | upd | tcp idle | tcp negotiation | other} *value* **| outside-ip** *ip-address***}**

set nat entry add *inside-ip*

set nat entry add *inside-ip port*

set nat entry add *inside-ip port protocol*

set nat entry add *inside-ip outside-ip port protocol*

set nat entry add *inside-ip port-range1 outside-ip port-range2 protocol*

set nat entry delete all

set nat entry delete inside *inside-ip*

set nat entry delete outside *outside-ip*

set nat entry delete *inside-ip port protocol*

set nat entry delete *inside-ip port outside-ip port protocol*

Note A maximum of 100 entries are supported; however, you can use port ranges to increase the number of NATs. See “Understanding NAT” in Chapter 1, “Introduction to the Cisco Broadband Operating System,” for more information.

Syntax Description

enabled	Activates NAT functionality globally.
disabled	Deactivates NAT functionality globally. The default setting for this command is **disabled**.
timeout	Sets the timeout value for the protocols listed below.
icmp	Specifies the ICMP protocol. Default = 60 seconds
udp	Specifies the UDP protocol. Default = 120 seconds
tcp	Specifies the TCP protocol.
idle	Specifies the timeout value to set for the data transfer portion after connection setup. Used for the TCP protocol only. Default = 24 hours
negotiation	Specifies the timeout value to set during TCP setup and tear down. Used for the TCP protocol only. Default = 60 seconds
fragmentation	Specifies how long to maintain 'out-of-order' fragments before the **set nat timeout** command terminates. Default = 60 seconds
value	Specifies the timeout value. Expressed in seconds less than or equal to 65000.
outside-ip *ip-address*	To set the global outside network address to be used for translation.
entry add	To add a static entry to a NAT table. Follow the sequence exactly as shown in the example below when entering your command string.
inside-ip	Specifies the IP address of the inside, private or SOHO network.
inside-port	Specifies the port number of the inside network port.
outside-ip	Specifies the IP address of the outside, public or Service Provider's network.
outside-port	Specifies the port number of the inside network port.

protocol	Specifies the protocols to use. Select between: **udp**, **tcp**, **icmp**.
entry delete	To delete NAT table entries.
all	Deletes all entries from the NAT table.
inside *ip-inside*	Deletes all matching entries with the specified inside IP address (shown as *ip*) from the NAT table.
inside-ip-address port-range1	Specifies the range of port numbers of the inside IP or LAN address
outside outside-ip	Deletes all matching entries with the specified outside IP address (shown as *ip*) from the NAT table.
outside-ip-address port-range2	Specifies the range of port numbers of the IP address of the outside, public, or service provider's network.
port	Defines the port associated with the IP address to delete from NAT.
protocol	Specifies the protocols to use. Select between: **udp**, **tcp**, **icmp**.

Command Mode

Enable

Usage Guidelines

To ensure that NetMeeting works properly, use the following command:

```
set nat entry add inside-ip 1720 tcp
```

Examples

The following example sets an outside IP address.

```
set interface wan0-0 outside ip 192.168.10.5
```

The following example disables NAT.

```
set nat disabled
```

The following examples show various timeout values that you can set:

```
set nat timeout icmp 60
set nat timeout tcp idle 84
set nat timeout tcp negotiation 60
set nat timeout udp 60
set nat timeout fragmentation 60
```

The following example adds an entry to the NAT table that routes external requests destined for IP address 192.168.0.100 on port 322 to the internal station at IP address 10.10.10.100 on port 211.

```
set nat entry add 10.10.10.100 211 192.168.0.100 322 tcp
```

Note You must use the precise sequence defined in the Syntax Description section when you enter your command string.

The following command deletes all of the NAT table entries.

```
set nat entry delete all
```

The following command deletes a specific NAT entry. You must enter the port number when deleting a specific NAT entry.

```
set nat entry delete 10.10.10.100 111 192.168.0.100 10000 udp
```

The following command deletes all entries that match a specific inside address.

```
set nat entry delete inside 1.1.1.1
```

The following command deletes all entries that match a specific outside address.

```
set nat entry delete outside 2.2.2.2
```

Note In normal setup, IPCP acquires the global outside network address for the 67x.

The following example sets the outside IP address for WAN0-0 to `192.168.0.100`.

```
set nat outside ip 192.168.0.100
```

This is normally used only when you want to assign an address rather than letting IPCP assign it.

Note If you are using RFC1483 routing, you must use this command.

set nvram

To change running configuration settings.

set nvram {**erase | add** *parameter* **| del** *parameter***}**

Syntax Description

erase	Erases running configuration.
add *parameter*	Adds parameter manually to running configuration.
del *parameter*	Removes parameter manually from running configuration.

Command Mode

Enable

Example

The following example erases running configuration.

```
set nvram erase
```

set ppp

To configure PPP parameters and statistics.

set ppp {restart {on|enabled|off|disabled}} | wan0-*x* {llc {enabled | disabled} | radius {enabled | disabled} | pap {enabled | disabled} | mru *units* | retry *number* **| magicnum** *hexnumber* **| ipcp {***ip-adr* **| clear} | dns** *ip-address* **| login** *login* **| password** *password* **| debug {enabled | disabled | syslog} | subnet** *ip-address* **| wins** *ip-address*| **authentication {enabled | disabled} }**

Syntax Description

restart	Reinitiates the PPP session
on | enabled	Allows auto restart of ADSL link after idle
off | disabled	Disallows auto restart of ADSL link after idle
wan0-*x*	Specifies the wan0-x port. Wan ports are numbered consecutively 0-3.
pap {**enabled** | **disabled**}	Enables or disables PPP PAP authentication.
llc {**enabled** | **disabled**}	Enables or disables LLC encapsulation.
mru *mru-units*	Enter the Maximum Receive Units.
radius	Sets RADIUS for authentication.
enabled | disabled	Enables or disables RADIUS.
retry *retry-number*	Enter a maximum retry count on authentication.
magicnum *hex-magic*	Enter a valid hexadecimal number.
ipcp *ip-address*	Enter the IP address of the CPE.
dns *ip-address*	Enables automatic negotiation of the primary or secondary DNS IP address
login *login*	Enter authentication login name.
password *pass*	Enter authentication password.
debug	Sets PPP trace output debug facility.
on | off | syslog	Enables or disables the PPP debug facility or enables the **syslog** daemon.

Command Mode

Enable

Examples

To ensure that PPP assigns an address for translation, you must issue the following command:

```
set ppp wan0-0 ipcp 0.0.0.0
```

The following example sets the Maximum Receive Units.

```
set ppp wan0-0 mru 10
```

The following example sets the Maximum Retry Counts on PPP authentication.

```
set ppp wan0-0 retry 5
```

The following example sets the PPP Magic Number.

```
set ppp wan0-0 magicnum 16
```

The following example sets the authentication name.

```
set ppp wan0-0 login bjones
```

The following example sets the authentication password.

```
set ppp wan0-0 password 78A55Q
```

set prompt

To set a different prompt for the CBOS command line.

set prompt *new-prompt-name*

Syntax Description

new-prompt-name	Specifies the new name of the CBOS prompt.

Command Mode

Enable

Example

The following example resets the CBOS prompt.

```
set prompt cisco67x
```

The maximum length is 8 characters.

set radius

To configure RADIUS security and accounting settings.

set radius {enabled | disabled | remote *ip-address* **| port** *port-number* **| acctport** *udp-port-number* **| secret** *password* **| test [acct]** *login password***}**

Syntax Description

**enabled	disabled**	Activates or deactivates the application.
remote *ip-address*	Enter IP address for the remote RADIUS server.
port *port-number*	View the Cisco default port setting as defined by the variable *port-number.*
acctport *udp-port-number*	View the Cisco accounting port setting as defined by the variable *udp port number.*
secret *password*	Enter Shared Secret password as defined by the variable *password*.
test	Enables you to send a test for the RADIUS server security and account settings. See **Examples.**
login	Specifies the login name to use when logging into the RADIUS server.
password	Specifies the password to use when logging into the RADIUS server.
acct	Tests RADIUS accounting.

Command Mode

Enable

Examples

The following example enables RADIUS.:

```
set radius enabled
```

The following example sets the IP address of the remote RADIUS server to 1.1.1.1.

```
set radius remote 1.1.1.1
```

The following example tests for login user id on the RADIUS server; where `username` is the name of the user who has login permissions and `password` is the user's password to the RADIUS server.

```
set radius test acct username password
```

The following example tests security on the RADIUS server; where `username` is the name of the user who has login permissions and `password` is the user's password to the RADIUS server.

```
set radius test username password
```

set rfc1483 enable

The **set rfc1483 enable** command enables or disables rfc1483 bridging.

set rfc1483 {**enabled | disabled**}

Syntax Description

enabled | disabled	Activates or deactivates rfc1483 bridging.

Example

The following example enables rfc1483 bridging.

```
set rfc1483 enabled
```

set rip

The **set rip** command automatically adds routes. It can also provide MD5 authentication when the **v2** argument is selected. The **v1** argument provides non-authenticated transmissions.

The usage example below has been separated into three parts for ease of readability. The keywords **eth0 and wan***x-x* **use identical keywords and argument variables.**

To configure RIP settings.

set rip {enabled | disabled | aging *aging-value* **| deltimedout {enabled | disabled} | garbage** *garbage-value* **| update** *update-value***} | {eth0 | wanx-x} {announce {default | host | self | static} | delexpired | holdown | splithorizon | poisonreverse | summarize | learn {default | host | sender} {enabled | disabled}} | {authentication {disabled | text | md5} | keyid** *keyid-name* **| receive {disabled | v1compatible | v1 | v2} | rollover** *value* **| send {requests {disabled | v1 | both | v2} | responses {enabled | disabled}}}**

Syntax Description

enabled	Enables the **set rip** command.
disabled	Disables the **set rip** command.
deltimedout *timeout-value*	Delete RIPv2 timed-out entries. Expressed in seconds.
enabled	Enables the **deltimedout keyword.**
disabled	Disables the **deltimedout keyword.**
aging	Route aging timeout value (default is 180 seconds).
garbage	Route garbage collection timeout value (default is 120 seconds).
update	Update time interval (default is 30 seconds).
eth0 *ip-address*	Enter IP address for a LAN interface. The address is defined by the variable *eth-address.*
wan*x-x ip-address*	Enter IP address for a WAN interface. The address is defined by the variable *wan-address.*

Keywords and Keyword Arguments Common to eth0 and wanx-x Commands

announce	Announces routes.
default {enabled | disabled}	Announces default route.
host {enabled | disabled}	Announces host routes.
self {enabled | disabled}	Announces self as default router.
static {enabled | disabled}	Announces static routes.
authentication	Sets RIP authentication.
disabled | text | md5	**disabled** - Disables authentication. **text** - Clears text authentication mode. **md5** - Enables encrypted authentication.

delexpired {enabled | disabled}	Auto deletes expired key.
keyid *keyname*	Authentication active key id.
holddown {enabled | disabled}	Sets Route holddown on or off.
splithorizon {enabled | disabled}	Turns the split horizon mode on or off.
learn	Learns routes.
default {enabled | disabled}	Sets default route.
host {enabled | disabled}	Sets host routes.
password *password*	Sets a plain text password. The maximum length is 16 characters.
poisonreverse enabled | disabled	Turns **poisonreverse** on or off.
receive	Sets the **receive** command.
disabled | v1compatible | v1 | v2	**disabled** - Disables the **receive** keyword. **v1 compatibl**e - Specifies v1 compatibility (non-authentication mode) with other systems. **v1** - v1 only. **v2** - v2 only.
rollover *time-period*	Period in advance to start rollover.
send requests disabled | v1 | both | v2	**disabled** - Disables the **send** keyword. **v1** - Specifies non-authentication mode. **both** - Specifies both **v1**and **v2** modes. **v2** - Specifies authentication mode.
responses enabled | disabled	Turns RIP responses on or off.
summarize enabled | disabled	Enables or disables route summary.

Command Mode

Enable

Usage Guideline

Multicast forwarding must be enabled when using RIPv2.

Example

The following example disables all requests.

```
set rip eth0 send requests disabled
```

The following example disables all responses from **rip**.

```
set rip eth0 send responses disabled
```

The following examples sets **rip** to receive only V1-compatible messages.

```
set rip eth0 receive v1compatible
```

The following example enables **rip** to learn the default IP address path.

```
set rip eth0 learn default enabled
```

set route

To build a routing table by manually adding or deleting entries in a routing table.

set route {default *target* **| add {ip** *address* **gw** *interface* **[mask** *netmask***]**
[metric *hops***]} | delete** *address*| **} [prec** *precedence* **]**

Syntax Description

default *target*	Sets a default route to an IP address or a WAN interface.
delete *ip-address*	Deletes an existing route.
add	Adds a new route.
ip *address*	Specifies the IP address of the host you are trying to reach.
gw *interface*	Specifies the wan 0-x interface of an external gateway. Data is sent through the external gateway to the destination address. Therefore, this must be the gateway physically linked to your network.
mask *netmask*	Specifies the netmask of the network or host you are trying to reach.
metric *hops*	Specifies the distance in hops between the destination address and the gateway. The default value is 1.This value is required when you add a route.
prec *precedence*	Adds precedence to a route. Set precedence from 0 to 7.

Command Mode

Enable

Examples

The following example shows how to add a route without specifying a netmask or metric.

```
set route add ip 192.9.9.1 gw wan0-x
```

The following example shows how to delete a route.

```
set route delete 192.168.10.0
```

The following example shows how to add a route specifying a netmask and a gateway.

```
set route add ip 192.10.10.0 mask 255.255.255.0
gw 208.203.245.228
```

The following example shows how to add a default route.

```
set route default 208.203.245.228
```

The following example shows how to add a route add a route specifying a netmask, gateway and a metric.

```
set route add ip 192.10.10.0 mask 255.255.255.0
gw 208.203.245.228 metric 1
```

The following adds a route with a precedence of 5.

```
set route add ip 192.10.10.0 gw wan0-0 prec 5
```

The following adds a default route with a precedence of 5.

```
set route default wan0-0 prec 5
```

Note Press **Enter** only after entering all command parameters. Command examples appear on two lines for readability.

set serial

To configure serial port settings.

set serial timeout {*timeout-value* **more** *lines-number}*

Syntax Description

timeout *timeout-value*	Sets the value in seconds to disconnect the serial connection. The value must be less than or equal to 65334.
more *lines-number*	Sets the number of lines for the **more** output. Enter a numeric value of '**0**' to disable this command.

Command Mode

Enable

Example

The following example set the timeout value for the serial port.

```
set serial timeout 50000
```

set snmp

To configure SNMP settings.

set snmp enabled | disabled | manager {*host-address* | *community-string***} {write | read | both} {enable | disable | on} {all | critical} | delete** *host-address*

remote *remote-address* **| traps** *host-address*

Syntax Description

disabled	Disabled SNMP settings
enabled	Enables SNMP settings.
delete *host-address*	Removes the host of the IP address as SNMP manager.
manager *host-address*	Sets the IP address of the host on which to trap SNMP messages.

Command Mode

Enable

Example

The following command sets IP host 198.162.2.50 as SNMP manager with settings to use the community string public and has permission to read and also send all types, both critical and informational, SNMP traps.

```
set snmp manager 198.162.2.50 public read on all
```

set syslog

To invoke the Syslog application and its options. Use this command to see more than 40 error messages at a time.

set syslog {disabled | enabled | port *port-number* **| remote** *remote-address* **| test** *test-string***}**

Syntax Description

disabled	Disables the Syslog application.
enabled	Enables the Syslog application.
port *port-number*	Specifies the Syslog port number.
remote *remote-address*	Specifies the remote IP address of the Syslog server.
test *test-string*	Sends a test message to the Syslog server

Command Mode

Enable

Example

The following command lets you see more than 40 error messages.

```
set syslog
```

The following command disables the Syslog application.

```
set syslog disabled
```

The following example sets the port number for the remote Syslog server.

```
set syslog port 232
```

The following example sets the IP address for the remote Syslog server.

```
set syslog remote 198.162.5.3
```

The following example sends the message “Testing syslog” to the Syslog server.

```
set syslog test Testing syslog
```

set telnet

To configure the **telnet** daemon settings.

set telnet {enabled | disabled | remote ***ip-address*** **| timeout** *#* **| port** *udp-port-number}*

Syntax Description

enabled	Enables Telnet from other hosts.
disabled	Disables Telnet from other hosts.
remote *ip-address*	Specifies the IP address for the remote location running the Telnet server.
timeout *#*	Specifies the timeout value, in seconds, for a Telnet connection.
port *udp-port-number*	Specifies the Telnet port number.

Command Mode

Enable

Example

The following example sets the remote address for the Telnet application.

```
set telnet remote 1.1.1.1
```

The following example sets the number of seconds for the Telnet connection to timeout.

```
set telnet timeout 300
```

Note Users cannot telnet into the CPE unless the enable password is set.

set tftp

To configure the TFTP settings.

set tftp {enabled | disabled | remote *ip-address* **| port** *udp-port-number}*

Syntax Description

enabled	Enables TFTP functionality
disabled	Disables TFTP functionality.
remote *ip-address*	Specifies the IP address for the remote location running the TFTP server.
port *udp-port-number*	Specifies the TFTP port number.

Command Mode

Enable

Usage Guidelines

When you tftp the configuration file to a CPE device, the file name must start with `nscfg`. It can have any extension, but it must have an extension.

When you tftp from a CPE device, the configuration file can have any name. For example:

tftp {mode {*config*|*image*|*combo***}**|**host {***ip address of TFTP server***}**|**file {***filename to retrieve***}}**

Example

The following example sets the remote address for the TFTP application.

```
set tftp remote 198.162.58.23
```

set timeout

To configure timeout settings.

set timeout {idle *seconds* **| session** *seconds* **| reset** *seconds}*

Syntax Description

idle *seconds*	Enter number of seconds to disconnect after idle.
session *seconds*	Enter number of seconds to disconnect after session uptime.
reset *seconds*	Enter number of seconds to wait to reopen connection.

Command Mode

Enable

Example

The following example sets the timeout values for the idle timeout.

```
set timeout idle 60
```

set web

To configure web server settings, enter:

set web [remote *ip-address***] [port** *tcp-port-number***] [enabled | disabled]**

Note Each command must be entered on a separate line.

Syntax Description

remote *ip-address*	Specifies the client IP address allowed to access the web server.
port *tcp-port-number*	Specifies the web server port number.
enabled	Turns on the web server.
disabled	Turns off the web server.

Command Mode

Enable

Example

The following example sets the IP address of the remote client that is allowed to access the web server to 192.168.0.100.

```
set web remote 192.168.0.100
```

show

To display statistics and/or settings on a particular application or interface.

show {arp | broadcast | checksum | dhcp {client | relay | server {pool {*number* **| all} | leased} | errors | filter | interface** *interface-name* **| multicast | nat [timeout [all | icmp | ipd | tcp | fragmentation]] | nvram | nvram# | parameters | ppp | process | radius | rarp | rates | rfc1483 | rip {status | eth0 | wan0-***x***} | route | running | running# | serial | snmp | syslog | telnet | tftp | timeout | uptime | version | web}**

Syntax Description

arp	Displays ARP Table.
broadcast	Displays whether broadcast forwarding is enabled.
checksum	Displays the checksum values for validation.
dhcp {**client | server [pool 0 | leased]| relay**}	Displays whether the dhcp client, server, or server pool 0 is enabled.
errors	Displays error logs.
filter	Displays IP Filters.
interface wan0	Displays transmit power and remote transmit power statistics.
multicast	Displays whether multicast proxy support is enabled.
nat	Displays whether NAT is enabled and NAT entries (if any).
nat timeout {**all | icmp | udp | tcp | fragmentation**}	Displays timeout values for specified protocols or all protocols in NAT. The keyword **fragmentation** specifies the duration of time to maintain 'out-of-order' fragments.
nvram	Displays the configuration file located in NVRAM.
nvram#	Displays written configuration file in NVRAM without any comments you may have entered in the configuration file.
parameters	Displays parameters of the CPE device, including defaults. Does not show any parameters received through auto-provisioning.
ppp	Displays PPP Parameters and Statistics.

process	Displays process status reports.
radius	Displays RADIUS security and accounting settings.
rarp	Displays RARP Table.
rates	Displays list of possible scalar ATM line rate settings.
rfc1483	Displays RFC1483 Bridging Parameters and Statistics.
rip {**status | eth0 | wan0**-*x*}	Displays RIP settings and status on specified interfaces.
route	Displays a route summary.
running	Displays configuration settings that are currently running, but not saved to NVRAM through the **write** command.
running#	Displays configuration settings that are currently running without comments, but not saved to NVRAM through the **write** command.
serial	Displays serial port setting.
snmp	Displays SNMP configuration settings.
syslog	Displays syslog settings.
telnet	Displays telnet daemon settings.
tftp	Displays tftp settings.
timeout	Displays Idle and Session timeout settings.
uptime	Displays uptime.

version	Displays the CBOS version number.
web	Displays Web Server settings.

Command Mode

Exec and Enable

Examples

The following example displays an application's configuration settings.

```
show tftp
show syslog
show radius
```

The following example displays the status of IP filters.

```
show filter
```

The following example displays web browser status.

```
show web
```

The following example displays possible ATM line rates at prescribed baud rates.

```
show rates
```

The following example displays error reports.

```
show errors
```

The following example displays parameters of the CPE device.

```
show parameters
```

stats

To show operating statistics.

stats {bridging {eth0 | wan0-*x*} | dhcp | eth0 | ip {eth0 | general | rip | vip*x* | wan0-*x*} | nat | ppp | radius | serial | snmp | syslog | telnet | tftp | wan0 | wan0-*x* | web}

Syntax Description

ip	Displays IP statistics.
general	Displays general statistics on the WAN interface.
rip	Displays RIP statistics on the WAN interface.
eth0	Displays eth0 statistics on the WAN interface.
wan0-*x*	Displays wan0-x statistics on a VC.
vip *x*	Displays virtual interface statistics.
bridging	Displays statistics on bridging.
eth0	Displays statistics on the Ethernet interface.
wan0	Displays statistics on the Wan interface.
wan0-*x*	Displays statistics on a VC.
telnet	Displays statistics on telnet.
syslog	Displays statistics on syslog.
tftp	Displays statistics on tftp.
web	Displays statistics on web.
ppp	Displays ppp statistics.
serial	Displays statistics on the serial port.
radius	Displays statistics on RADIUS.
snmp	Displays statistics on SNMP.
nat	Displays NAT statistics.

dhcp Displays DHCP statistics.

wan0 Displays wan0 statistics.

wan0-*x* Displays wan0-*x* statistics.

Command Mode

Exec and Enable

Example

The following command displays the statistics for the Ethernet interface:

```
stats ip eth0
```

The following command enables MAC address dumping in bridging mode:

```
stats bridging eth0
```

The following command enables MAC address dumping on the wan0-o port:

```
stats bridging wan0-0
```

traceroute

To trace the routes that a data packet takes until it reaches its destination IP address. The **traceroute** command traces routes along the network, listing all hops and gateways, until it reaches the specified IP address.

traceroute *ip-address* [**-m** *number-of-hops*] [**-w** *wait-time* [**-p** *udp-port-number*]

Syntax Description

ip-address	Specifies the final destination IP address. This is required.
-m *number-of-hops*	Sets the Max Time to Live by specifying the number of hops to the trace.Most systems use a default of 64 TTL. Please refer to the appropriate system documentation for your system's default.
-w *wait-time*	Specifies the amount of time, in seconds, to wait for response.
-p *udp-port-number*	Specifies the UDP port number on which to use the trace facility.

Command Mode

Exec and Enable

Example

The following command traces the route for IP address 198.162.2.1.

```
traceroute 208.192.56.1 -m 1 -p 57 -w 1
```

write

To change running configuration settings.

write

Syntax Description

This command has no arguments or keywords.

Command Mode

Enable

Example

The following command writes all configuration changes you make to NVRAM.

```
write
```