Appendix B
Command Line Interface Commands

This chapter provides detailed descriptions of all the CLI commands and a table of contents for all the CLI commands, arranged alphabetically by CLI level.

For step-by-step instructions on how to install key features of the system, see Chapters 8 – 18.

Using the CLI

The CLI is a text-based interface for configuring and monitoring the HP ProCurve 9304M, 9308M, and 6308M-SX routing switches and the 6208M-SX switch. You can access the CLI can through either a direct serial connection to the switch or routing switch or through a Telnet session.

To commands in the CLI are organized into the following levels:

- User EXEC – Lets you display information and perform basic tasks such as pings and trace routes.
- Privileged EXEC – Lets you use the same commands as those at the User EXEC level plus configuration commands that do not require saving the changes to the system-config file.
- CONFIG – Lets you make configuration changes to the device. To save the changes across reboots, you need to save them to the system-config file. The CONFIG level contains sub-levels for individual ports, for VLANs, for routing protocols, and other configuration areas.

NOTE: By default, any user who can open a serial or Telnet connection to the device can access all these CLI levels. To secure access, you can configure Enable passwords or local user accounts, or you can configure the device to use a RADIUS or TACACS/TACACS+ server for authentication. See “Securing Access to the Device” on page 2-23.

To display a list of available commands or command options, enter "?" and press Enter, or press Tab. If you have not entered part of a command at the command prompt, all the commands supported at the current CLI level are listed. If you enter part of a command, then enter "?" or press Tab, the CLI lists the options you can enter at the point in the command string.

The CLI supports command completion, so you do not need to enter the entire name of a command or option. As long as you enter enough characters of the command or option name to avoid ambiguity with other commands or options, the CLI understands what you are typing.

The CLI supports the following line editing commands. To enter a line-editing command, use the CTRL-key combination for the command by pressing and holding the CTRL key, then pressing the letter associated with the command.

Table B.1: CLI Line-Editing Commands

Ctrl-Key Combination	Description
Ctrl-A	Moves to the first character on the command line.
Ctrl-B	Moves the cursor back one character.
Ctrl-C	Escapes and terminates command prompts and ongoing tasks (such as lengthy displays), and displays a fresh command prompt.
Ctrl-D	Deletes the character at the cursor.
Ctrl-E	Moves to the end of the current command line.
Ctrl-F	Moves the cursor forward one character.
Ctrl-K	Deletes all characters from the cursor to the end of the command line.
Ctrl-L; Ctrl-R	Repeats the current command line on a new line.
Ctrl-N	Enters the next command line in the history buffer.
Ctrl-P	Enters the previous command line in the history buffer.
Ctrl-U; Ctrl-X	Deletes all characters from the cursor to the beginning of the command line.
Ctrl-W	Deletes the last word you typed.
Ctrl-Z	Exits to the CLI level above.

NOTE: Not all commands shown in this appendix are supported on both switch and routing platforms. For example, the IP Tunnel Level, BGP Level, Route Map Level, DVMRP Level, OSPF Level, RIP Level, PIM Level, and VRRP Level shown in Figure B.2 are not supported on the 6208M-SX switch.

NOTE: This appendix lists all the commands that appear at each command level for users with super-user access. If you are logged on with port-configuration access or read-only access, some of these commands will not be displayed and will not be available.

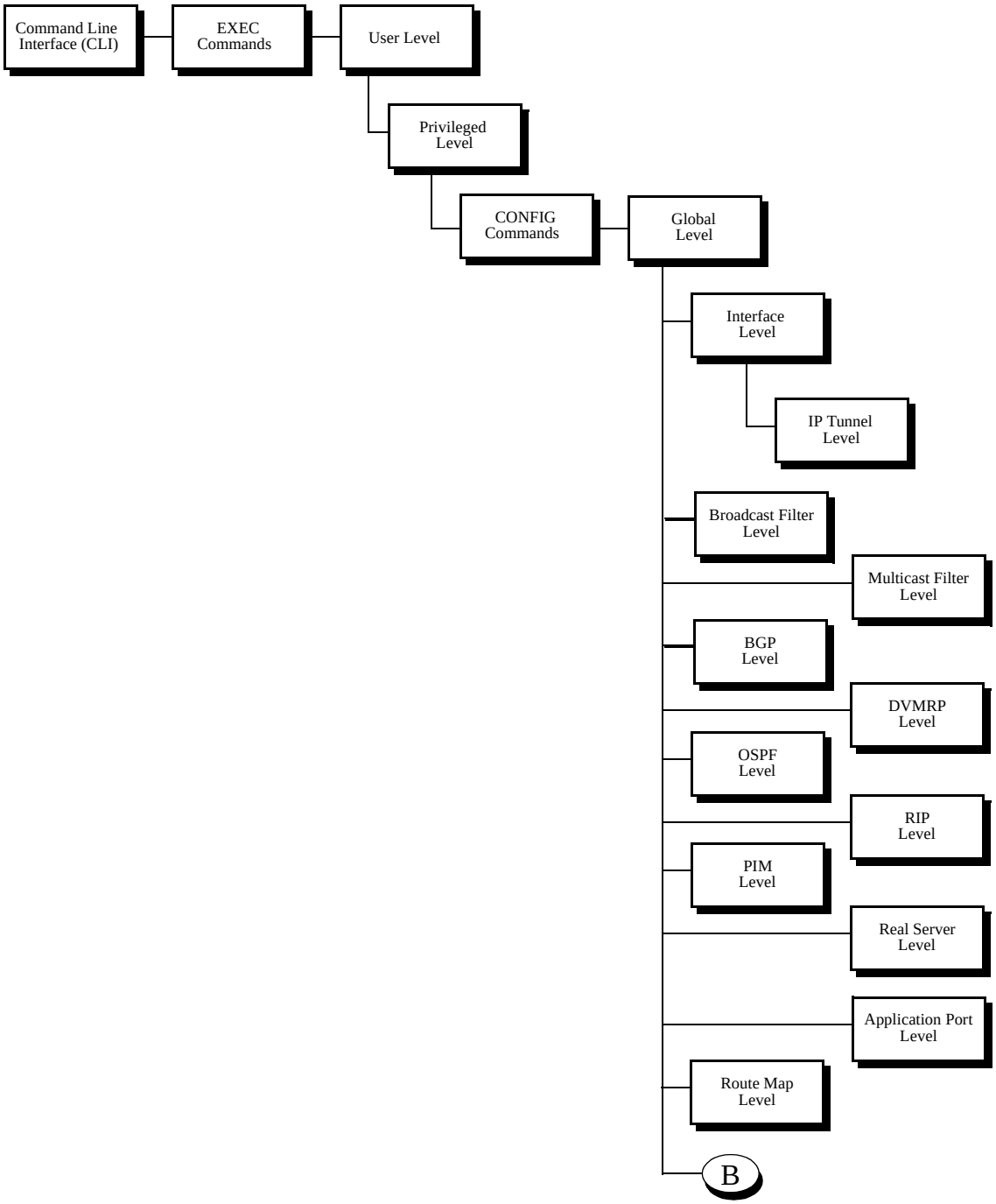

Figure B.1 CLI hierarchy of commands (1 of 2)

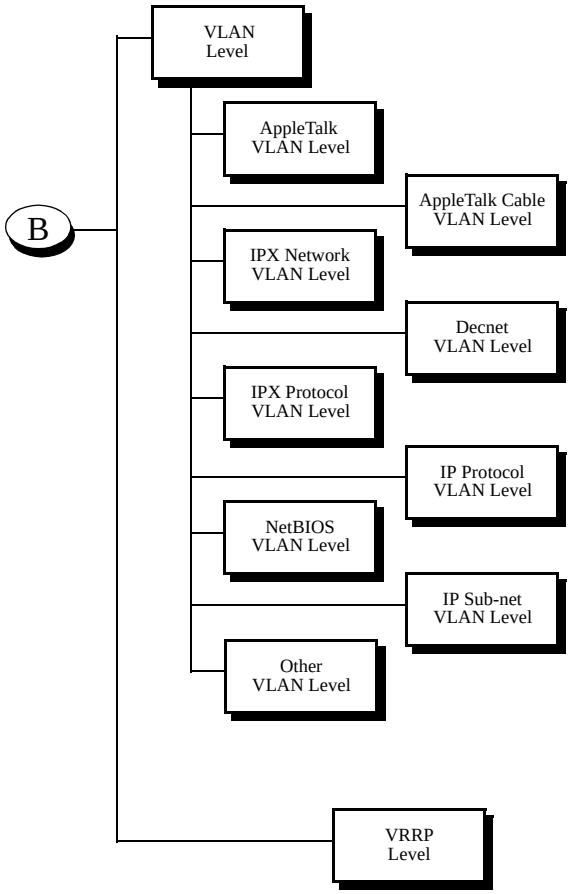

Figure B.2 CLI hierarchy of commands (2 of 2)

EXEC Commands

There are two different levels of EXEC commands, the ***User Level*** and the ***Privileged Level***. The User level commands are at the top of the CLI hierarchy. These are the first commands that you have access to when connected to the switch or routing switch through the CLI. At this level, you can view basic system information and verify connectivity but cannot make any changes to the switch or routing switch configuration. To make changes to the configuration base, you must move to other levels of the CLI hierarchy. This is accomplished by the User EXEC level command **enable** at initial log-on. Once entered correctly, you have access to the Privileged Level.

User Level

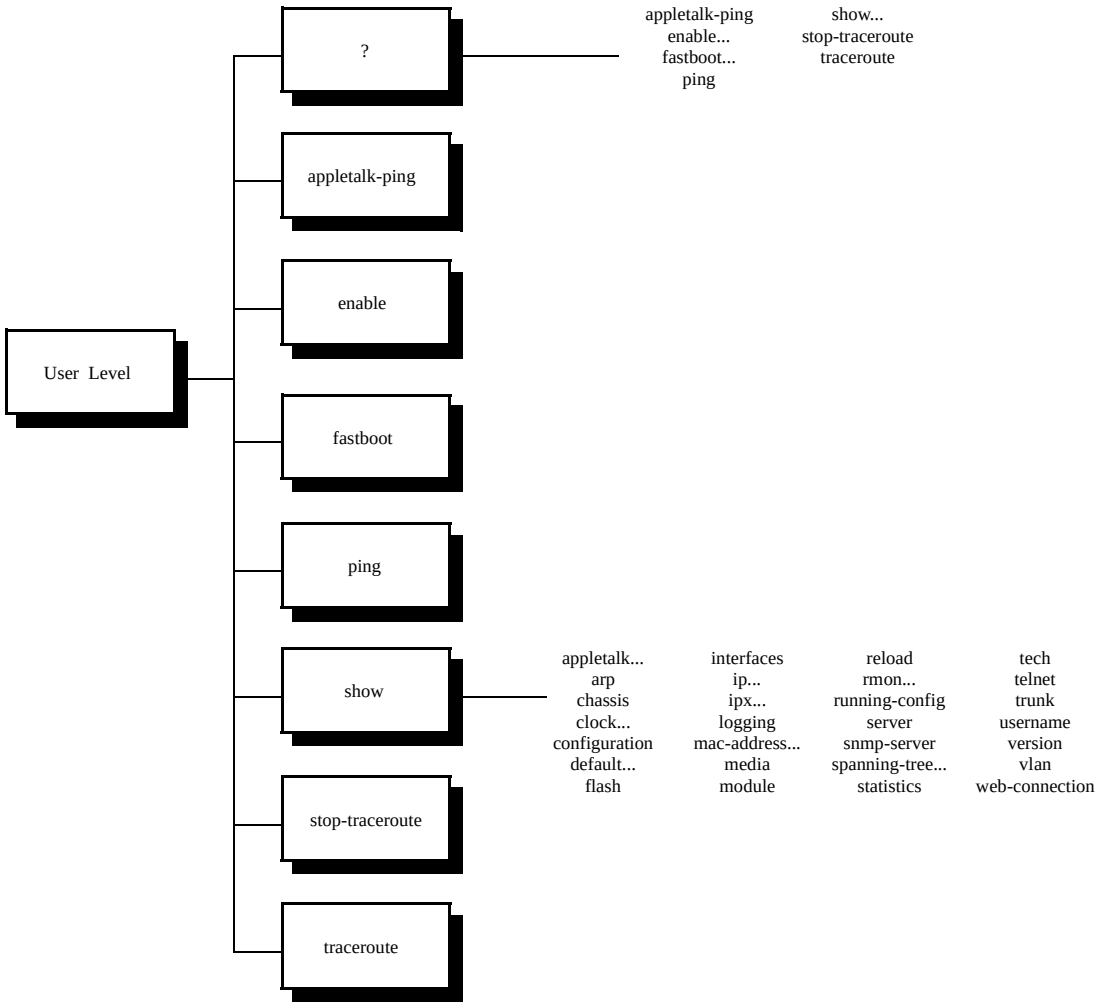

Figure B.3 Command options of the User EXEC level

Privileged Level

The Privileged EXEC level commands, shown in Figure B.4, primarily enable you to transfer and store switch or routing switch software images and configuration files between the network and the device, and review the configuration.

You reach this level by entering **enable [<password>]** or **enable <username> <password>** at the User EXEC level.

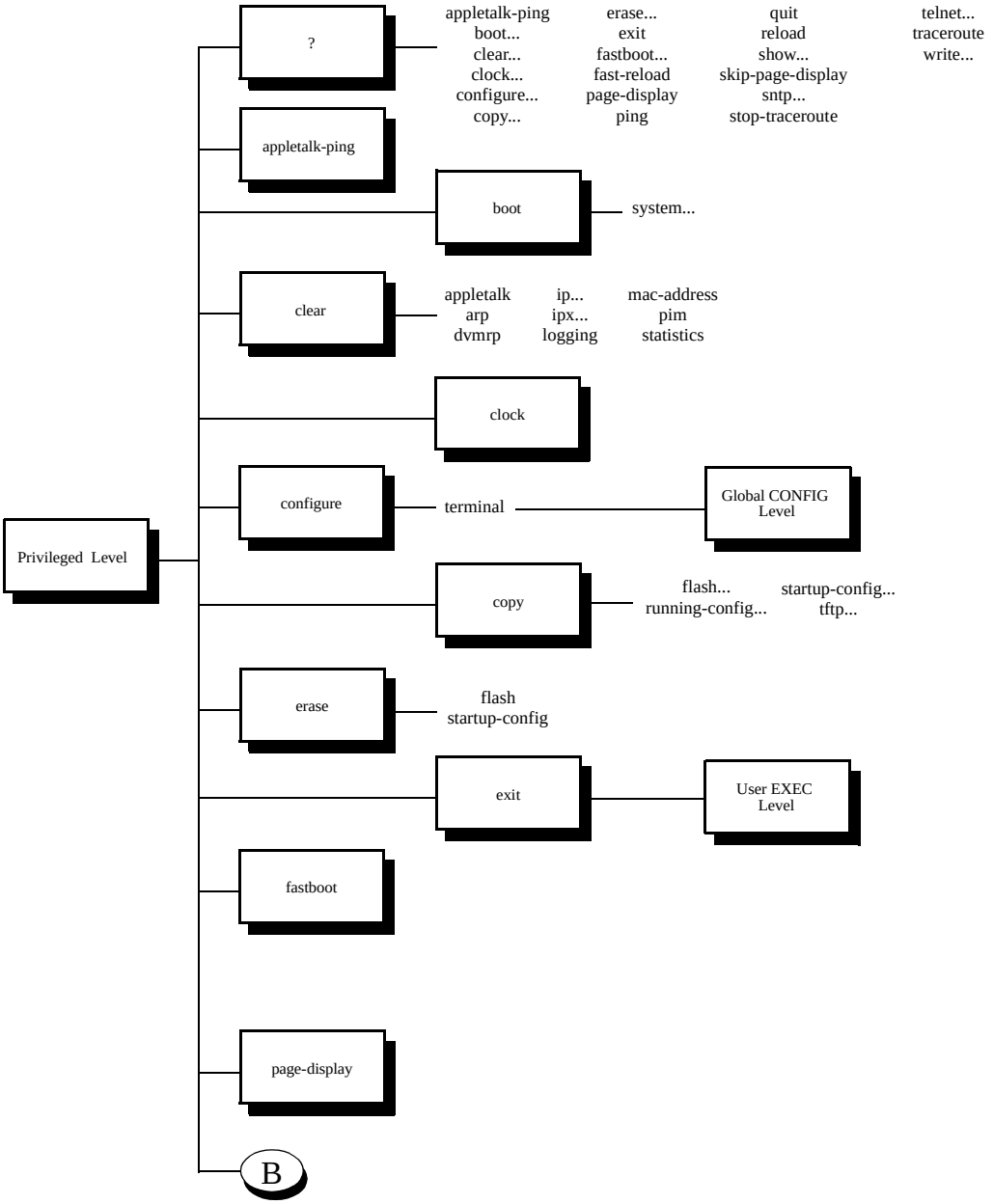

Figure B.4 Command options for the privileged EXEC level (1 of 2)

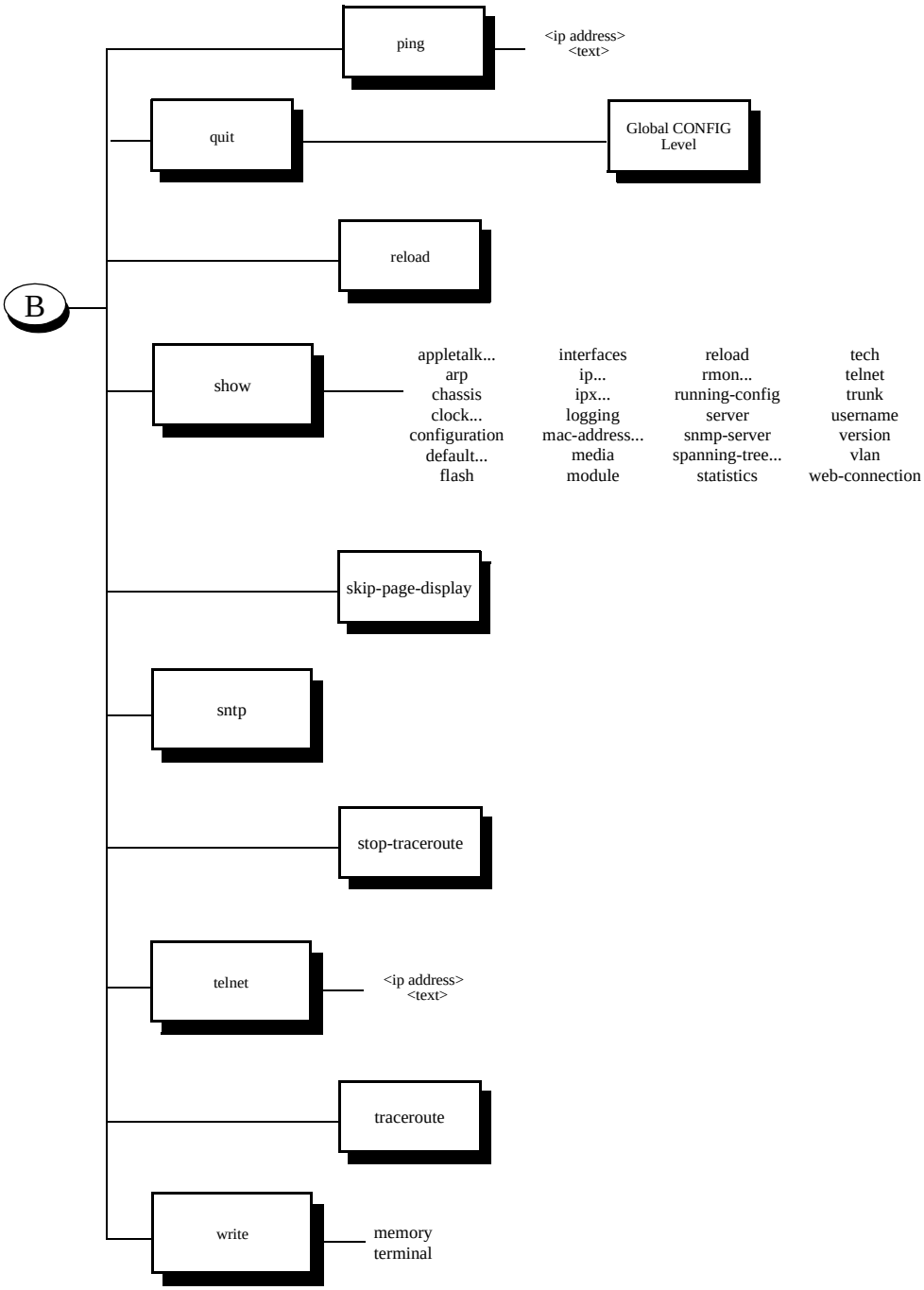

Figure B.5 Command options for the privileged EXEC level (2 of 2)

CONFIG Commands

CONFIG commands modify the configuration of a routing switch ro switch. This appendix describes the following CONFIG CLI levels:

- Global CONFIG level – see “Global Level” on page B-9
- Interface CONFIG level – see “Interface Level” on page B-16
- IP tunnel CONFIG level – see “IP Tunnel Level (routing switches only)” on page B-18
- Broadcast Filter CONFIG level – see “Broadcast Filter Level” on page B-19
- Multicast Filter CONFIG level – see “Multicast Filter Level” on page B-20
- BGP CONFIG level – see “BGP Level (routing switches only)” on page B-21
- DVMRP CONFIG level – see “Router DVMRP Level (routing switches only)” on page B-23
- OSPF CONFIG level – see “Router OSPF Level (routing switches only)” on page B-24
- PIM CONFIG level – see “Router PIM Level (routing switches only)” on page B-26
- RIP CONFIG level – see “Router RIP Level (routing switches only)” on page B-27
- Real Server CONFIG level – see “Real Server Level (routing switches only)” on page B-28
- Application Port CONFIG level – see “Application Port Level (routing switches only)” on page B-29
- Route Map CONFIG level – see “Route Map Level (routing switches only)” on page B-30
- VRRP CONFIG level – see “Router VRRP Level (routing switches only)” on page B-31
- VLAN CONFIG level – see “VLAN Level” on page B-32

Global Level

The global level is the first level of the CONFIG command structure shown in Figure B.6 through Figure B.12. The global CONFIG level allows you to globally apply or modify parameters for ports on the switch or routing switch.

You reach this level by entering **configure terminal** at the privileged EXEC level.

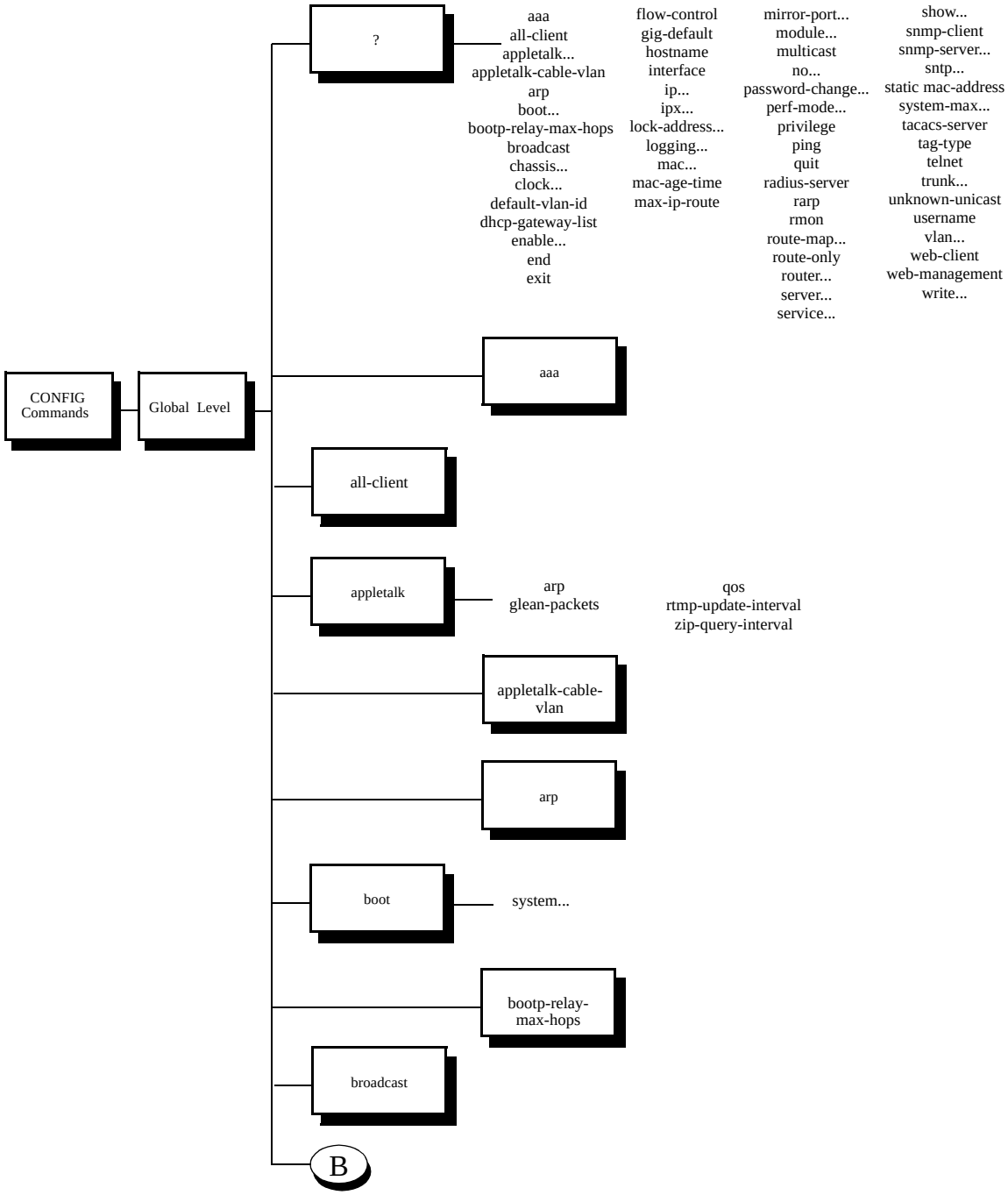

Figure B.6 Command options of the global CONFIG level (1 of 7)

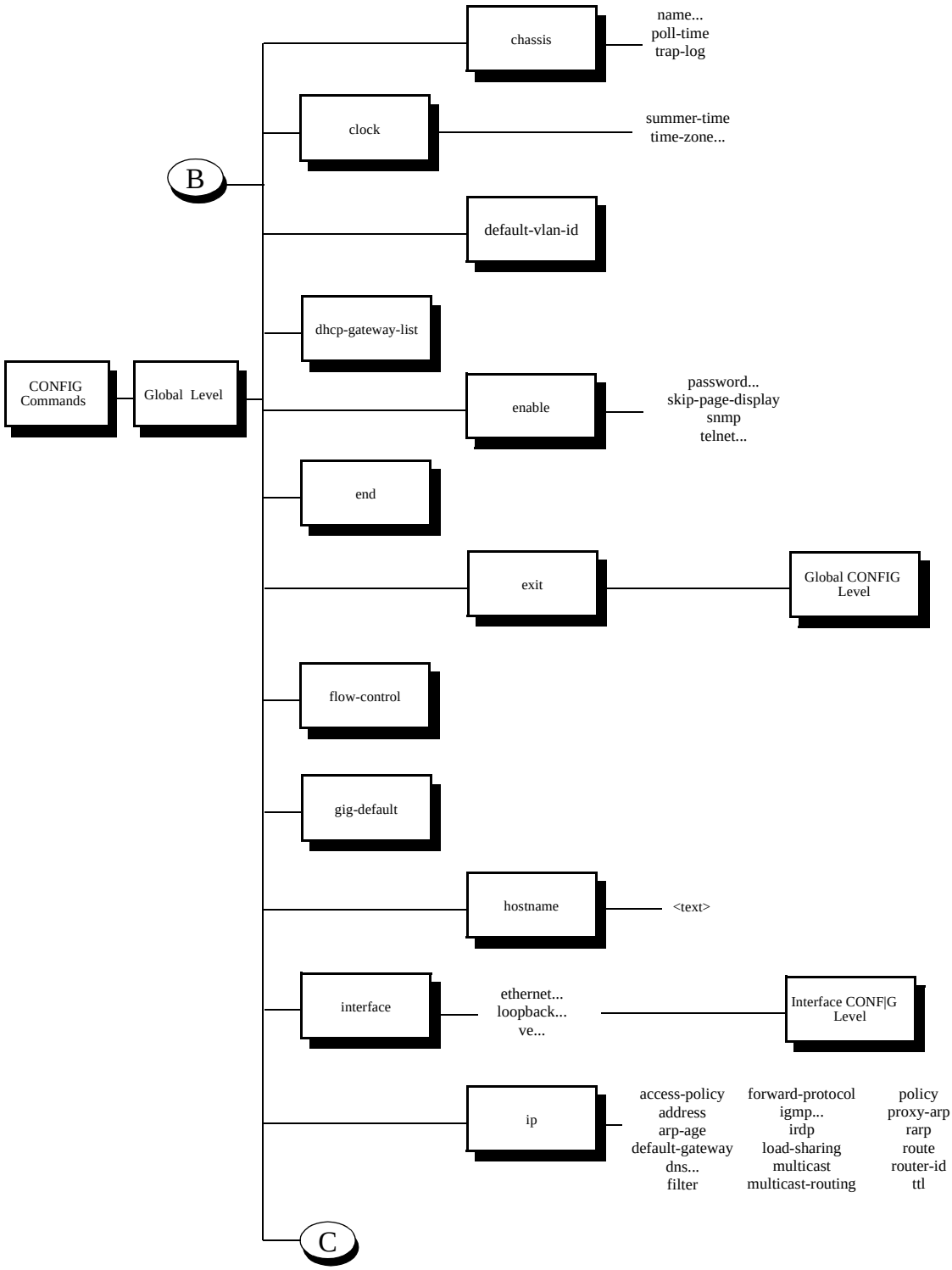

Figure B.7 Command options of the global CONFIG level (2 of 7)

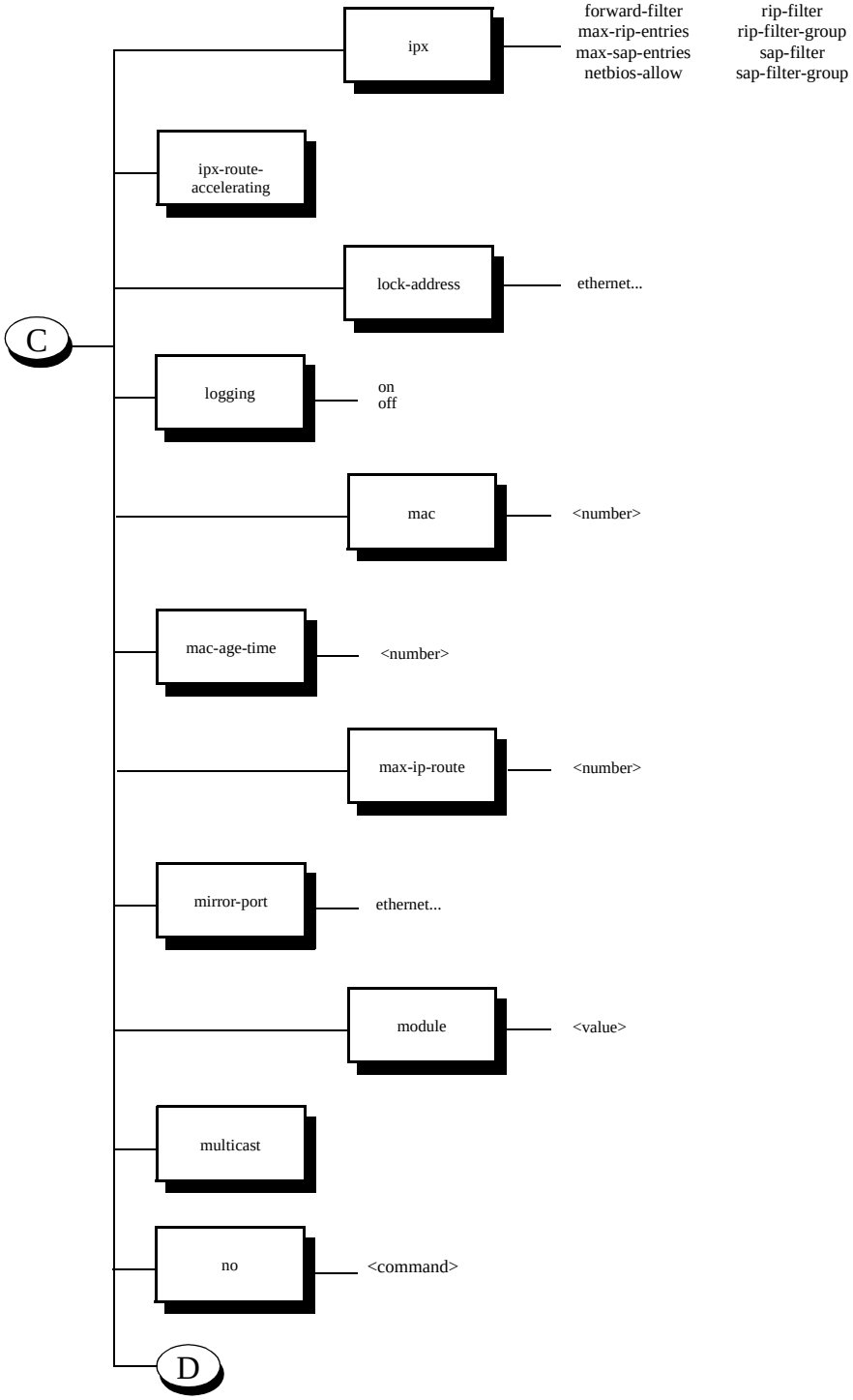

Figure B.8 Command options of the global CONFIG level (3 of 7)

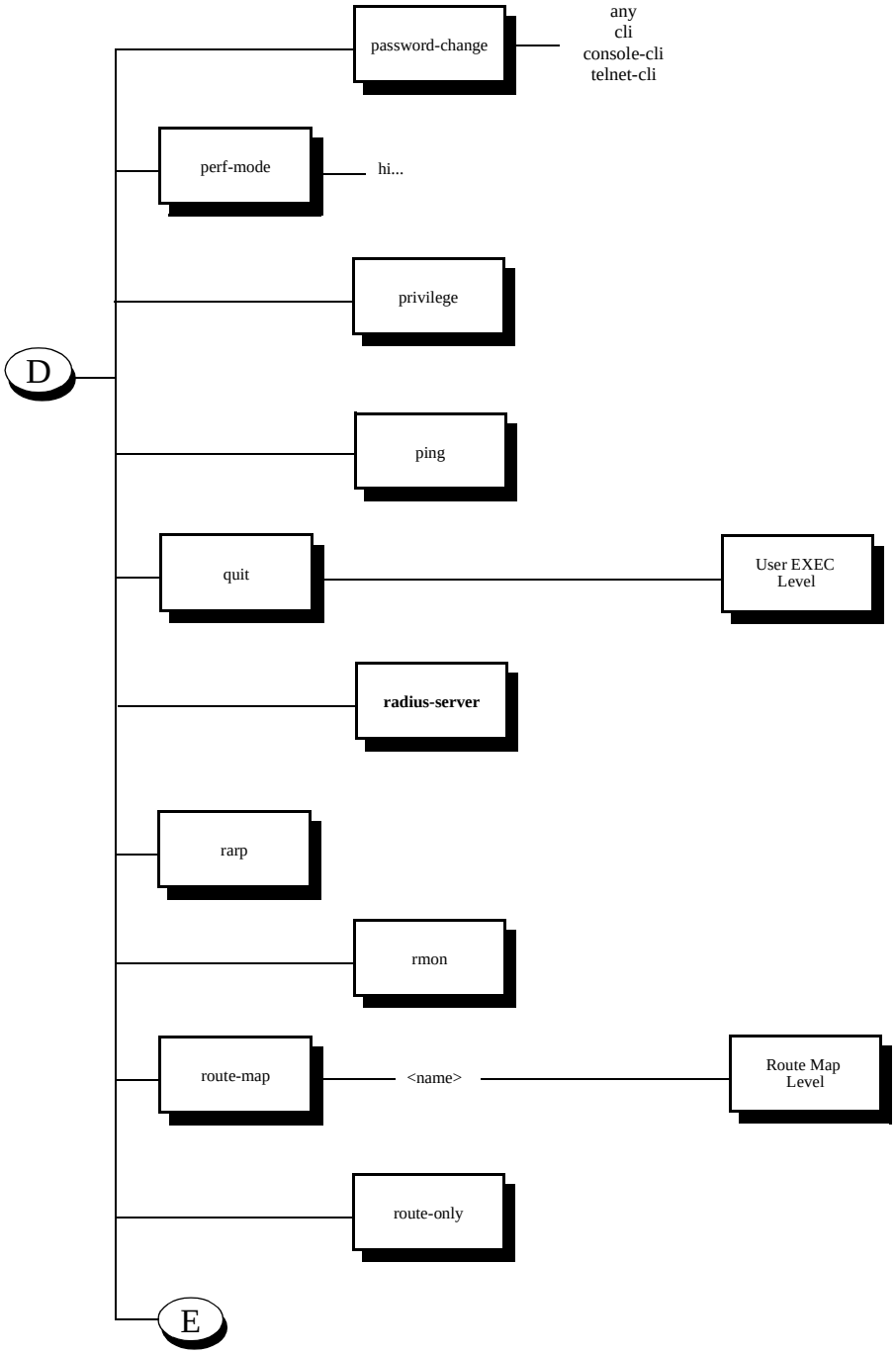

Figure B.9 Command options of the global CONFIG level (4 of 7)

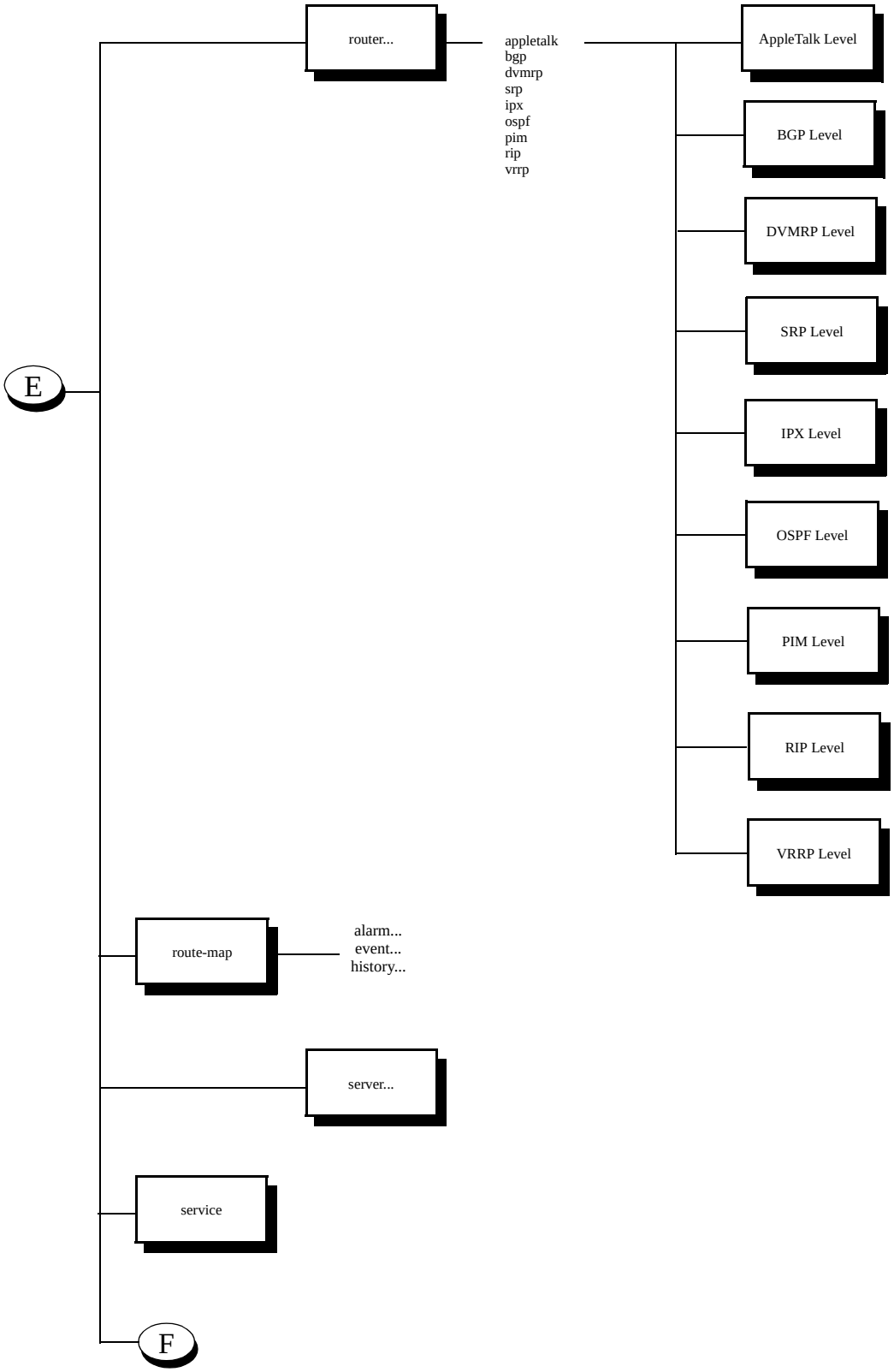

Figure B.10 Command options of the global CONFIG level (5 of 7)

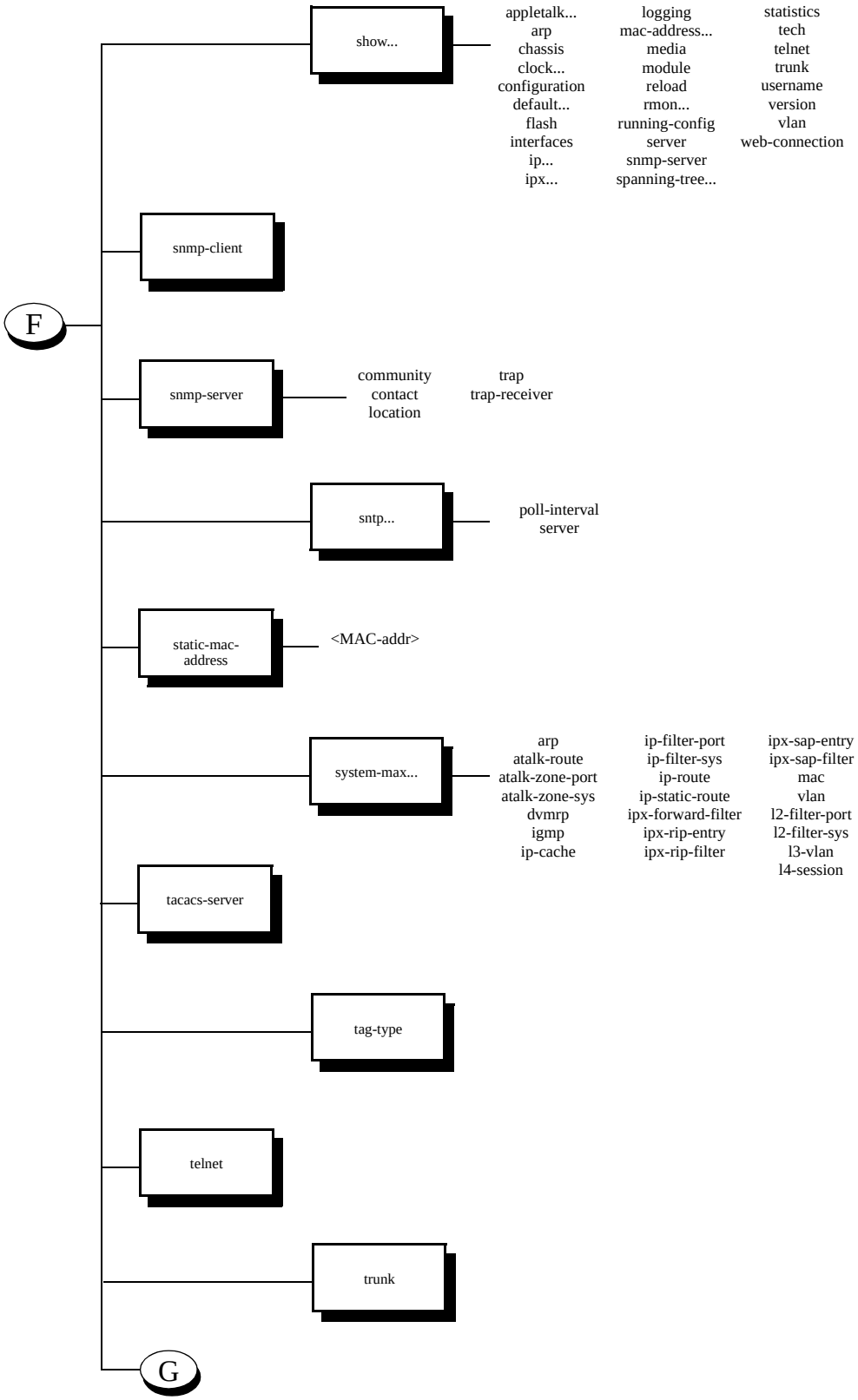

Figure B.11 Command options of the global CONFIG level (6 of 7)

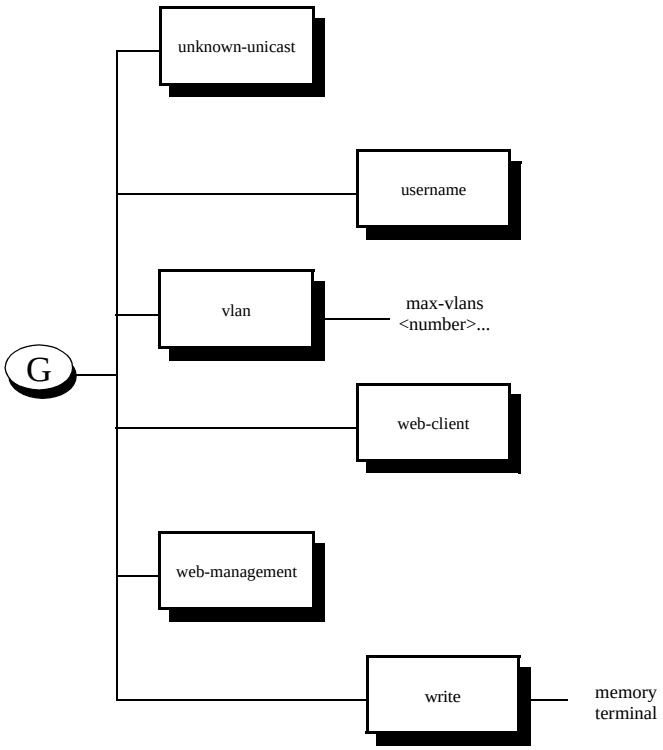

Figure B.12 Command options of the global CONFIG level (7 of 7)

Interface Level

The interface level allows you to assign or modify specific port parameters on a port-by-port basis. A summary of the commands at this level is shown in Figure B.13.

You reach this level by entering **interface ethernet <port | slot/port>**, **interface loopback <num>**, or **interface ve <num>** at the global CONFIG level.

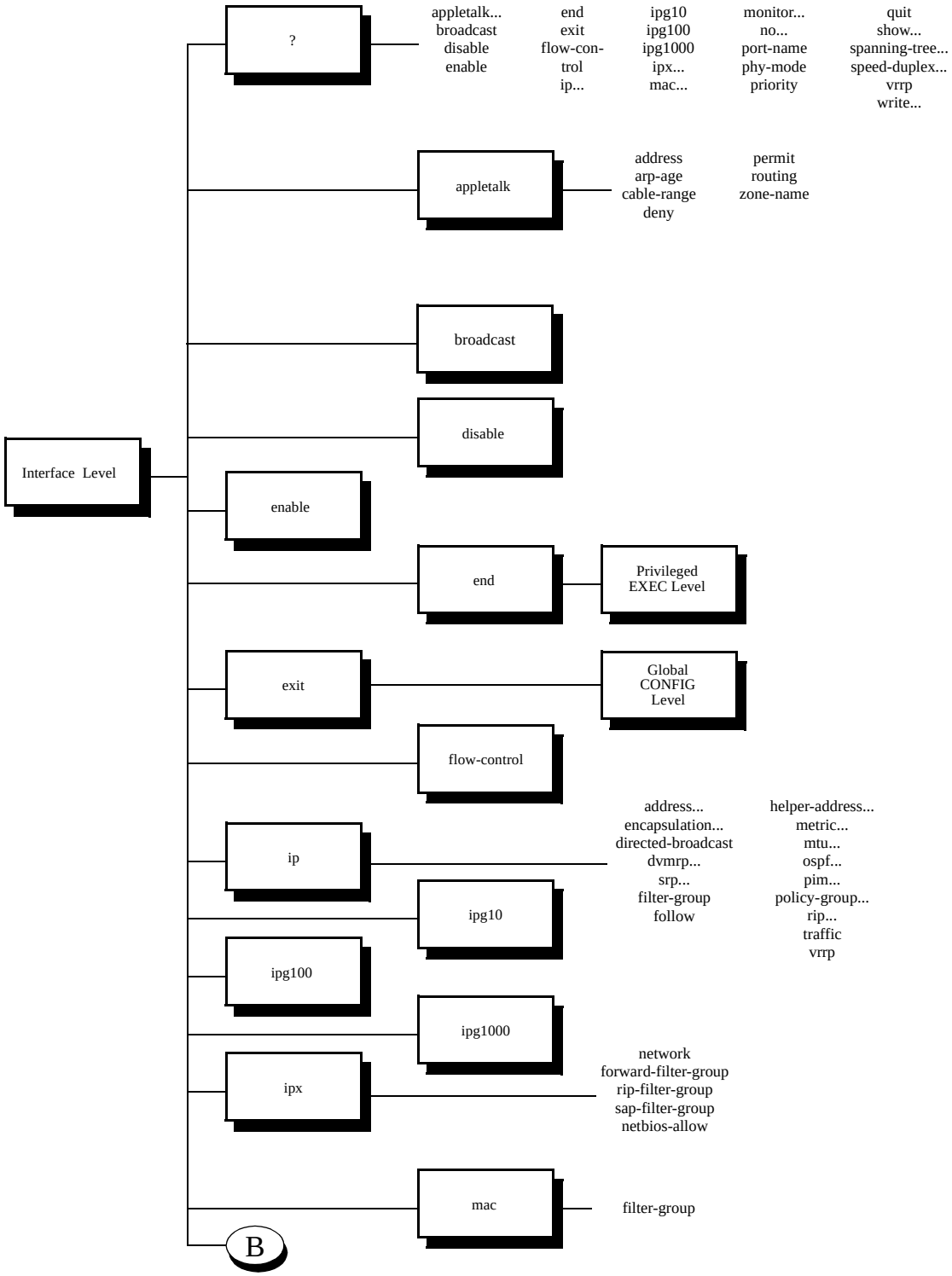

Figure B.13 Command options of the interface CONFIG level (1 of 2)

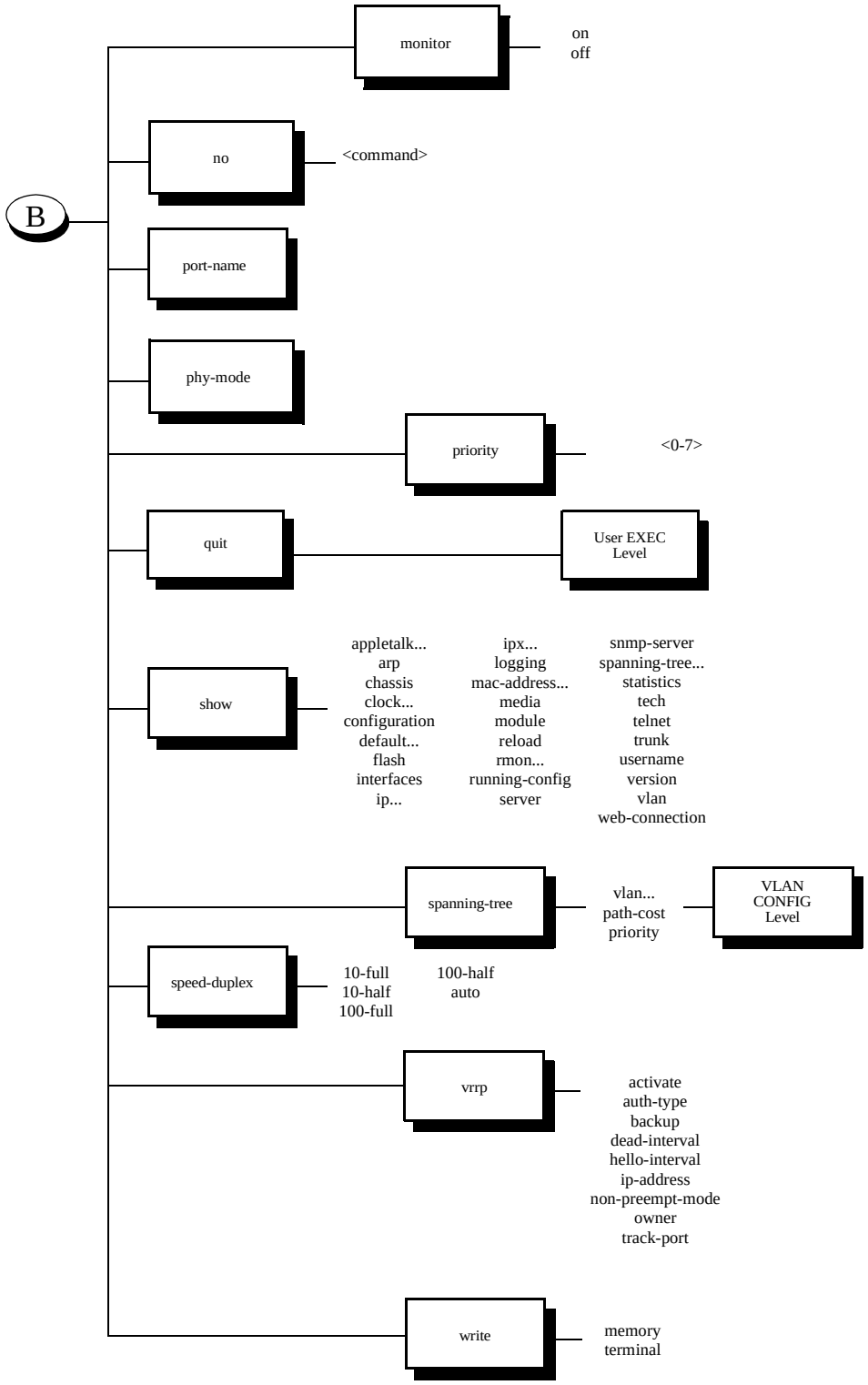

Figure B.14 Command options of the interface CONFIG level (2 of 2)

IP Tunnel Level (routing switches only)

The IP tunnel level allows you to define parameters for IP-in-IP tunnels to pass data through non-DVMRP and non-PIM IP multicast routers.

You reach this level by entering the **ip tunnel…** command at the interface CONFIG level.

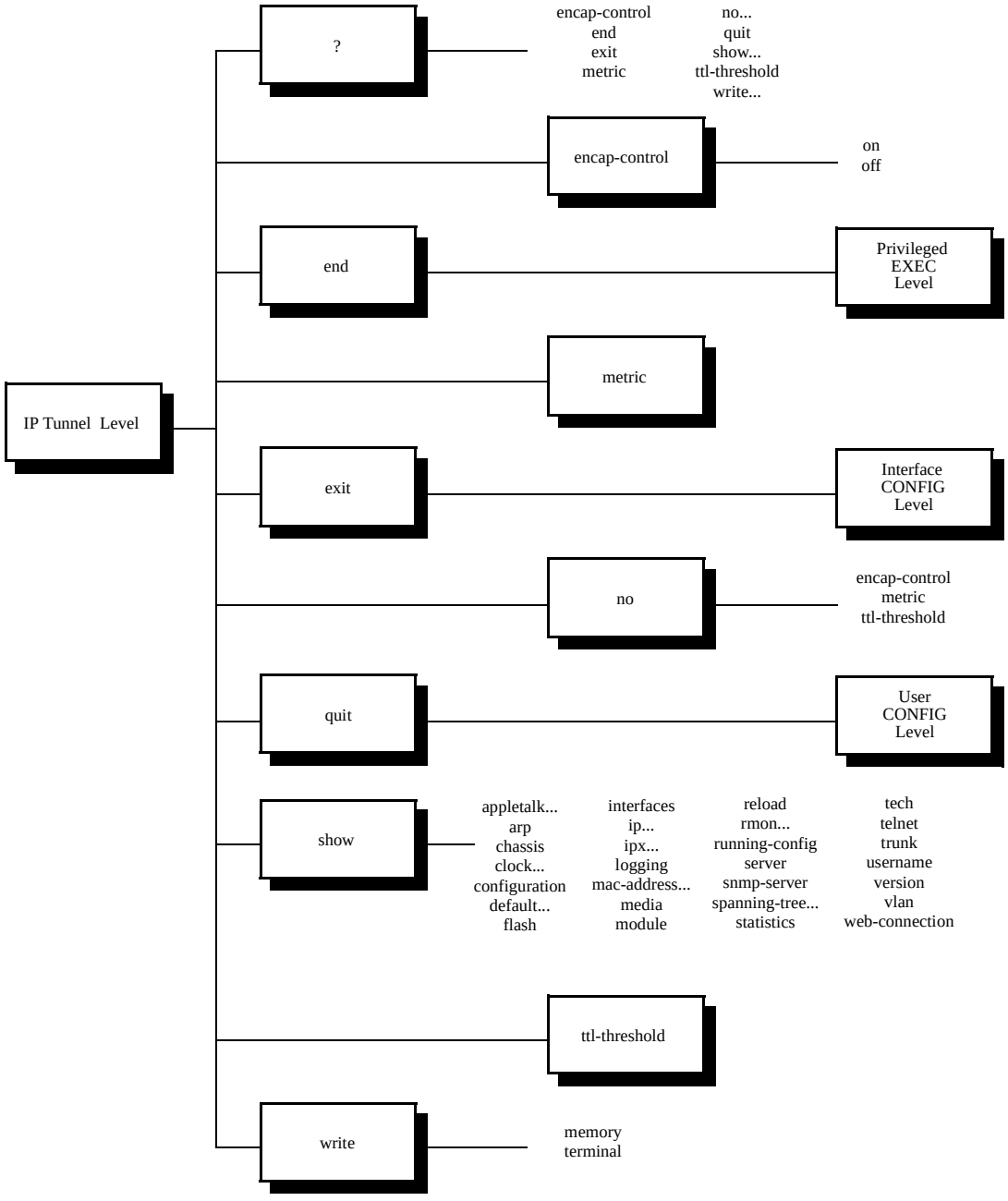

Figure B.15 Command options of the IP tunnel level

Broadcast Filter Level

The broadcast filter level allows you to assign broadcast filters to specific ports. A summary of the commands at this level is shown in Figure B.16.

You reach this level by entering **broadcast filter...** at the global CONFIG level.

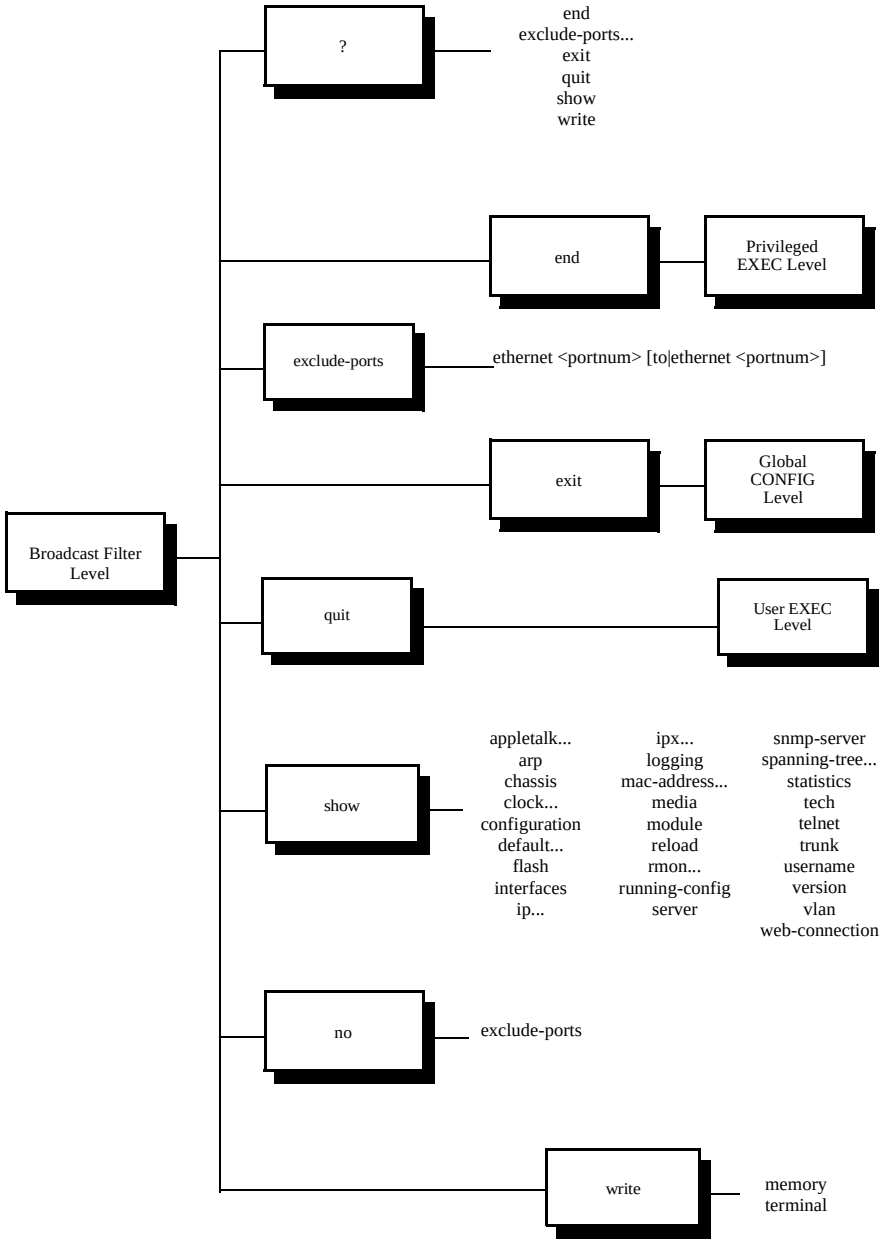

Figure B.16 Command options of the broadcast filter CONFIG level

Multicast Filter Level

The multicast filter level allows you to assign multicast filters to specific ports. A summary of the commands at this level is shown in Figure B.17.

You reach this level by entering **multicast filter...** at the global CONFIG level.

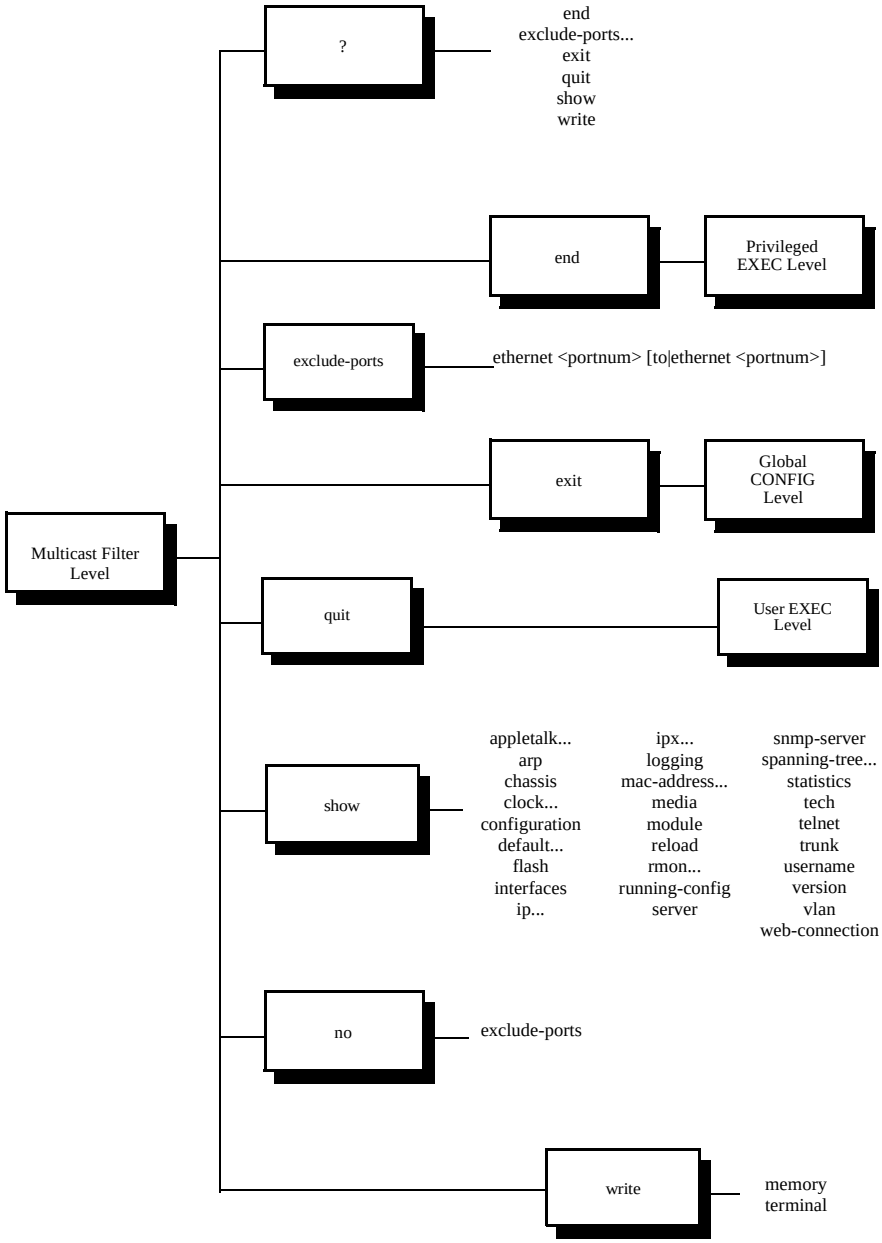

Figure B.17 Command options of the multicast filter CONFIG level

BGP Level (routing switches only)

The BGP level allows you to configure routing switches for Border Gateway Protocol version 4 (BGP4). You reach this level by entering the **router bgp** command at the global CONFIG level.

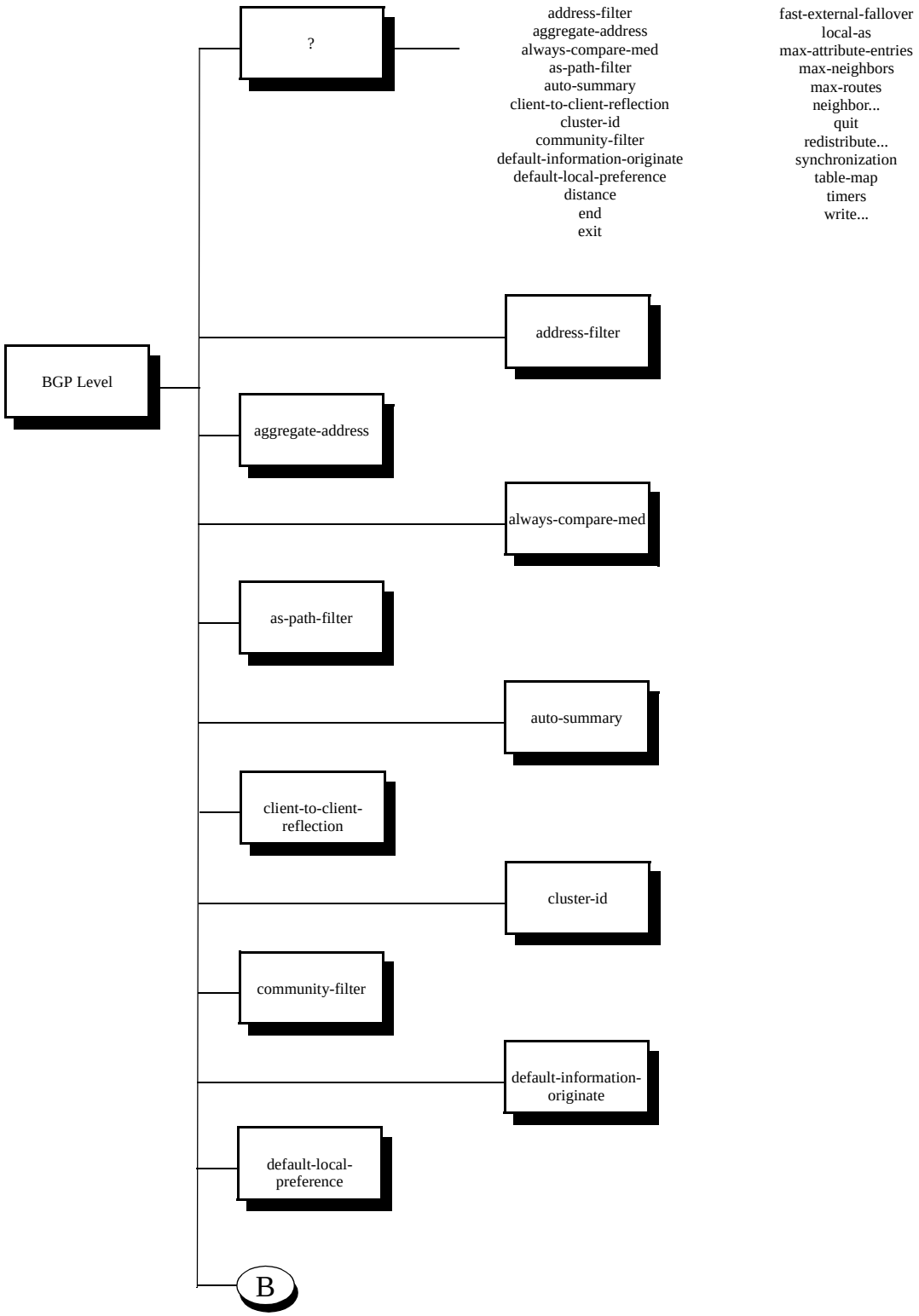

Figure B.18 Command options of the BGP level (1 of 2)

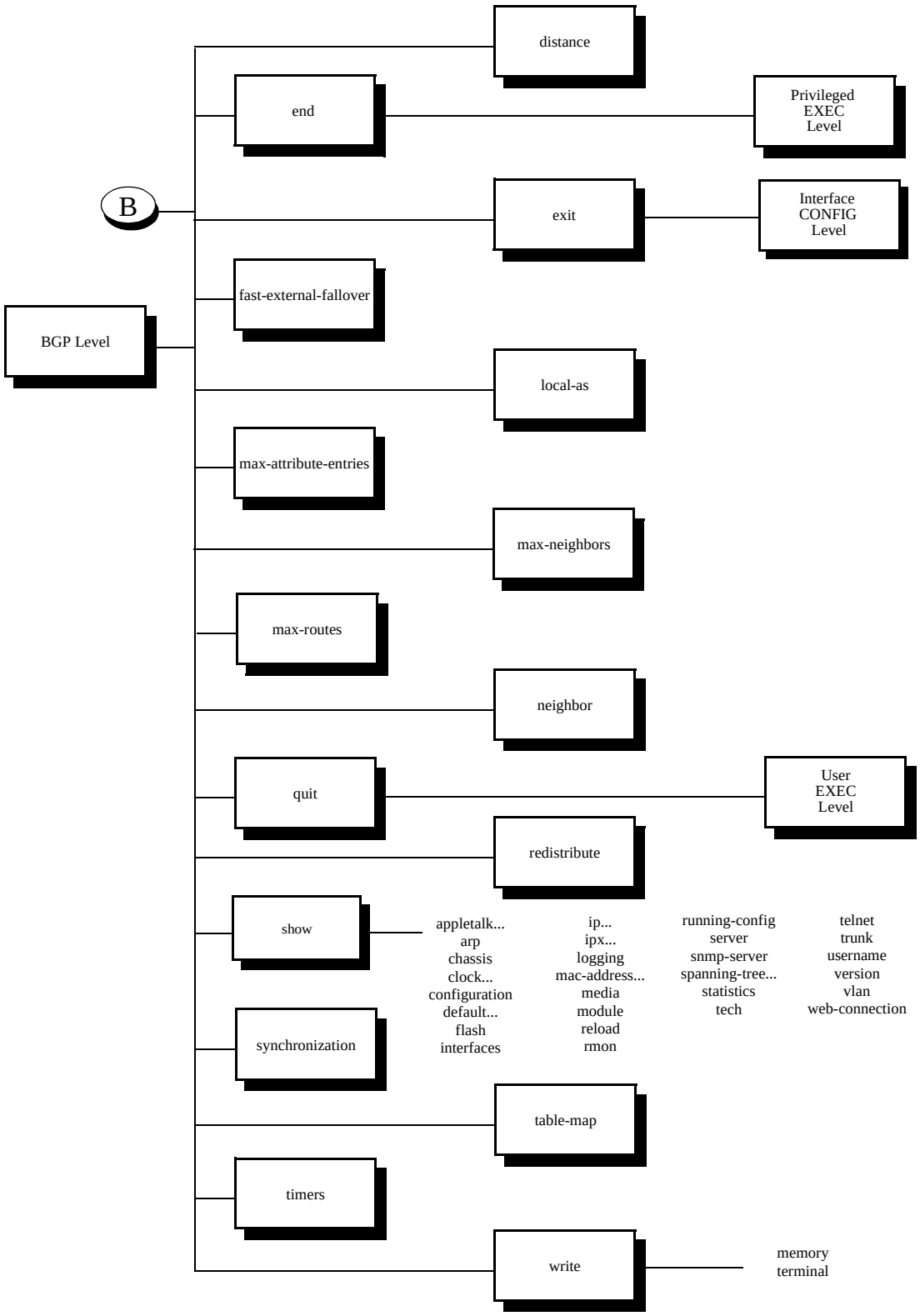

Figure B.19 Command options of the BGP level (2 of 2)

Router DVMRP Level (routing switches only)

The DVMRP level allows you to configure details for the DVMRP multicast protocol. You reach this level by entering the **router dvmrp** command at the global CONFIG level.

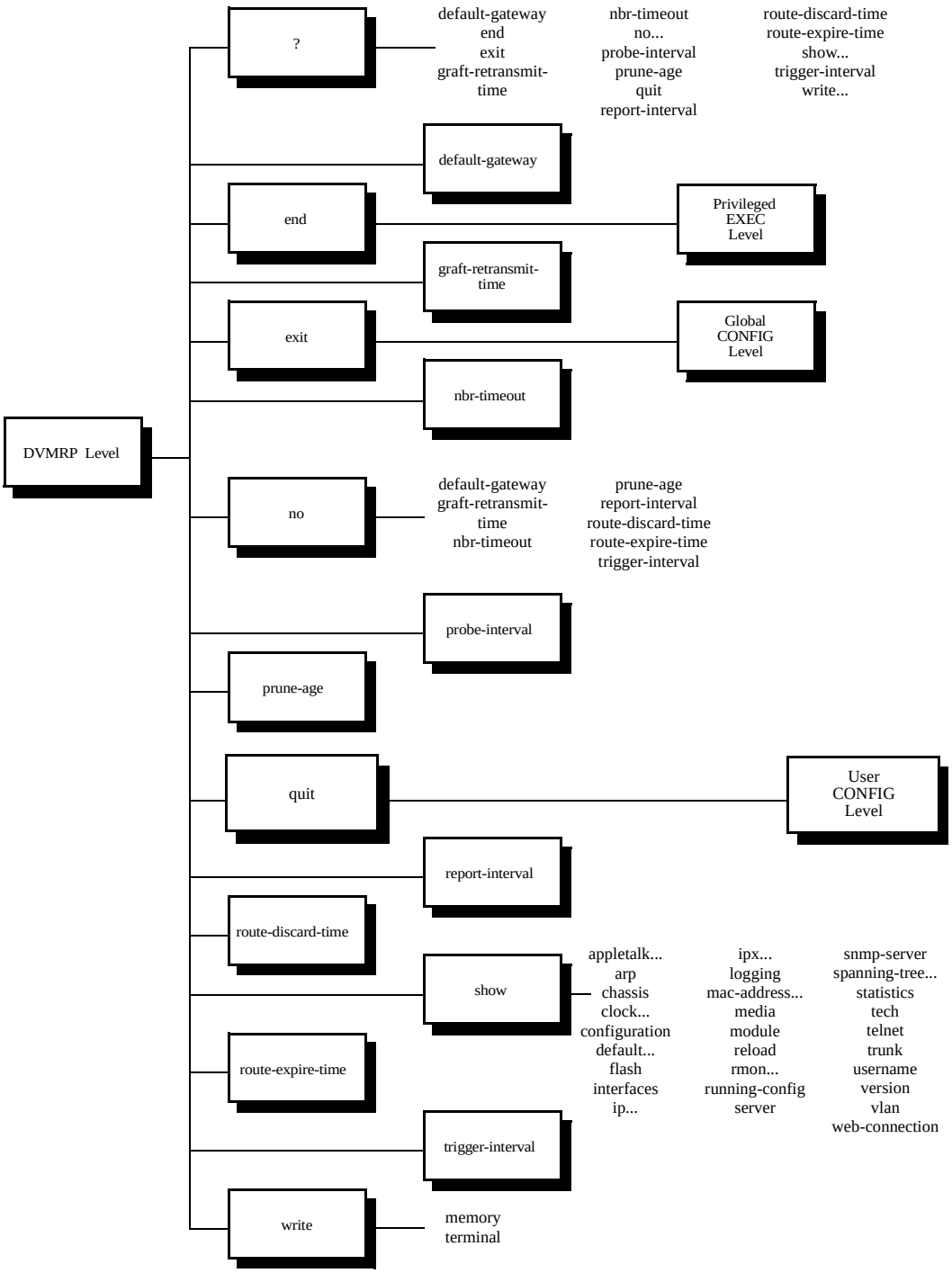

Figure B.20 Command options of the DVMRP router level

Router OSPF Level (routing switches only)

The OSPF level allows you to configure parameters for the OSPF routing protocol. You reach this level by entering the **router ospf** command at the global CONFIG level.

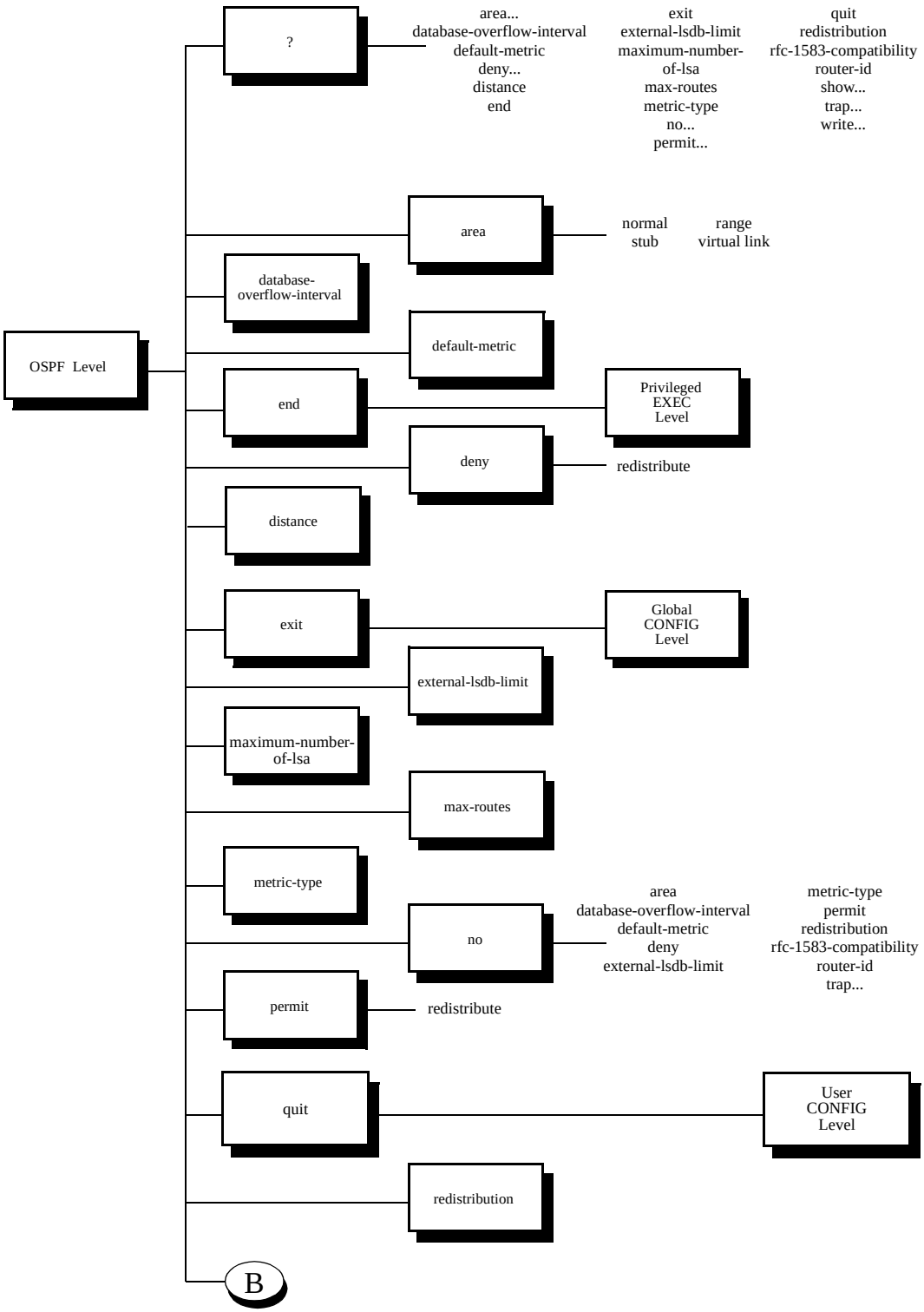

Figure B.21 Command options of the OSPF router level (1 of 2)

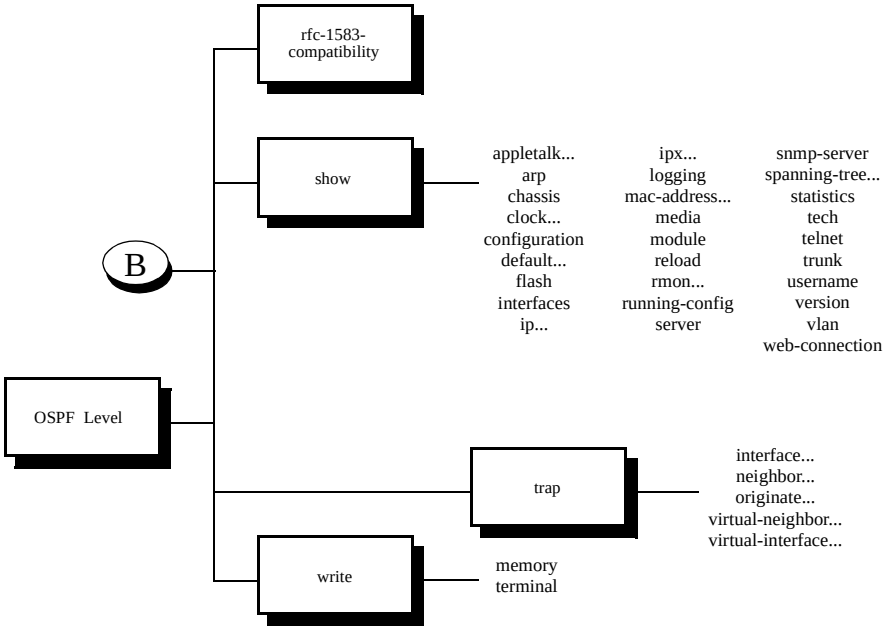

Figure B.22 Command options of the OSPF router level (2 of 2)

Router PIM Level (routing switches only)

The PIM level allows you to configure parameters for the Protocol Independent Multicast (PIM) routing protocol.

You reach this level by entering the **router pim** command at the global CONFIG level.

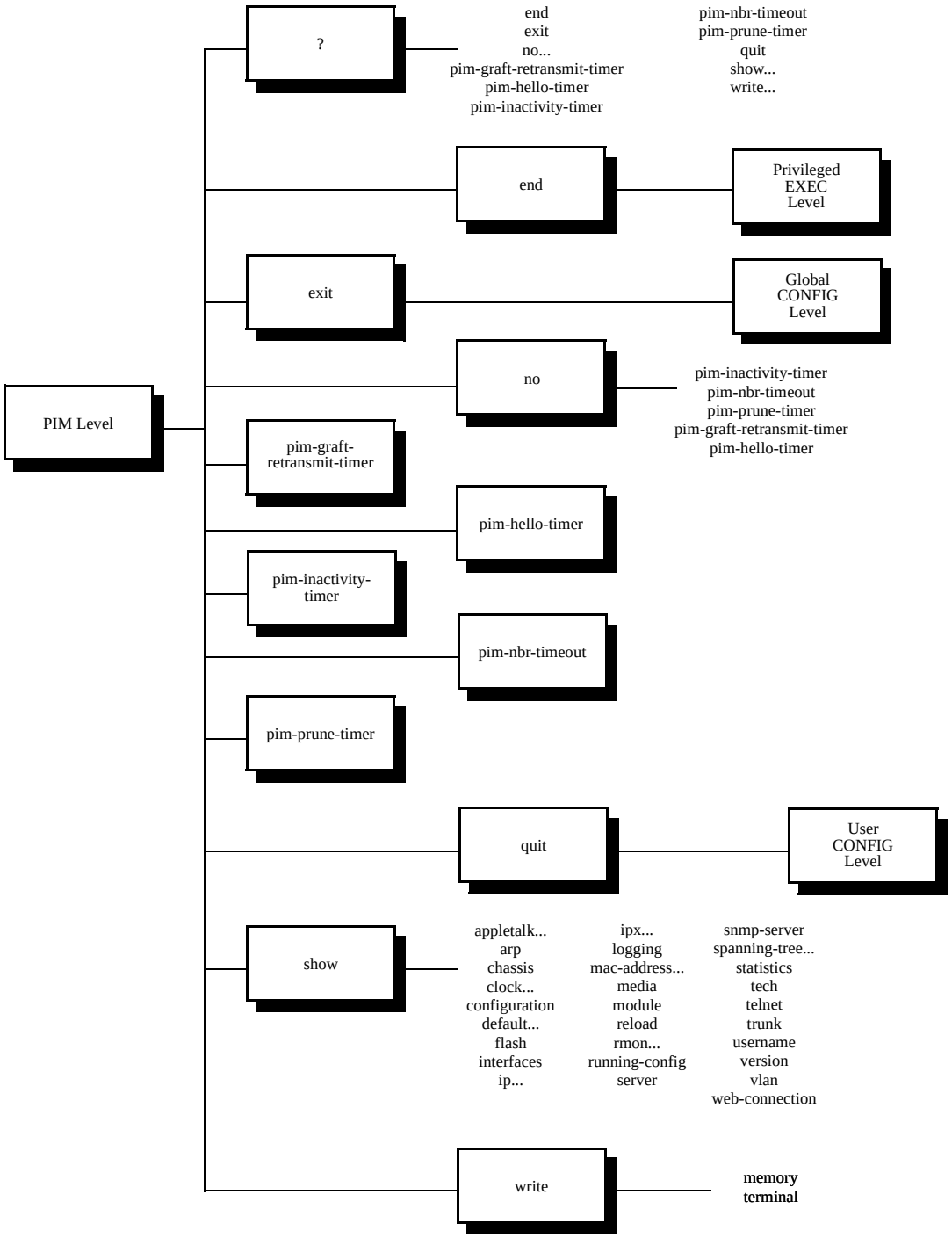

Figure B.23 Command options of the PIM router level

Router RIP Level (routing switches only)

The RIP level allows you to configure parameters for the RIP routing protocol.

You reach this level by entering the **router rip** command at the global CONFIG level.

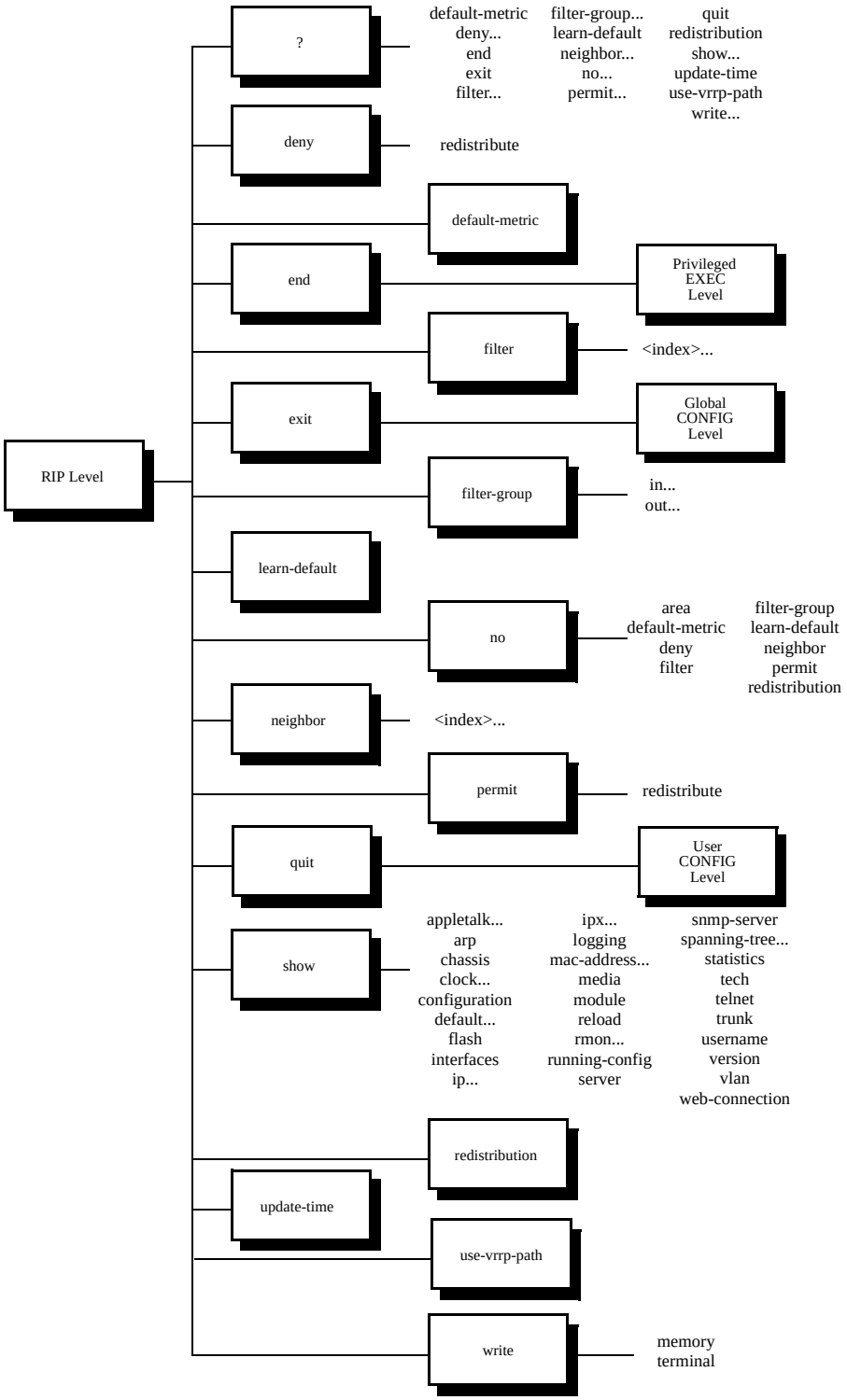

Figure B.24 Command options of the RIP router level

Real Server Level (routing switches only)

The Real Server level allows you to configure router-based health check parameters for a routing switch to assist with Globally-distributed Server Load Balancing (SLB). See “Route Health Injection” on page 18-1.

You reach this level by entering the **server real...** command at the global CONFIG level.

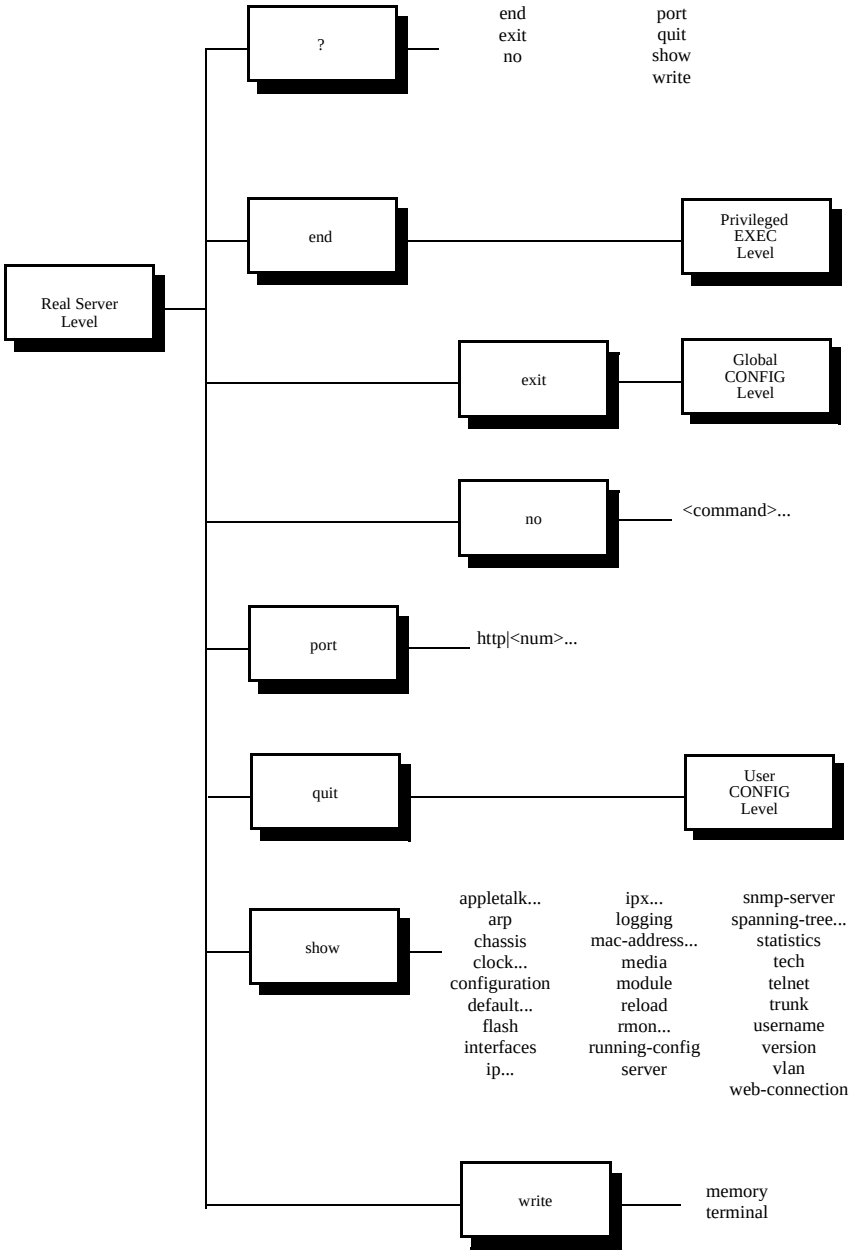

Figure B.25 Command options for the Real Server level

Application Port Level (routing switches only)

The Application Port level allows you to configure health check parameters for a TCP HTTP port. The commands at this level apply only when you are configuring a routing switch to perform HTTP health checks to assist SLBs, or web servers with globally-distributed SLB. See “Using Redundant Management Modules” on page 3-1.

You reach this level by entering the **server port http | <TCP/UDP-portnum>** command at the global CONFIG level.

NOTE: If you enter **server port ?**, numerous well-known port names are listed. The current software release supports only HTTP ports.

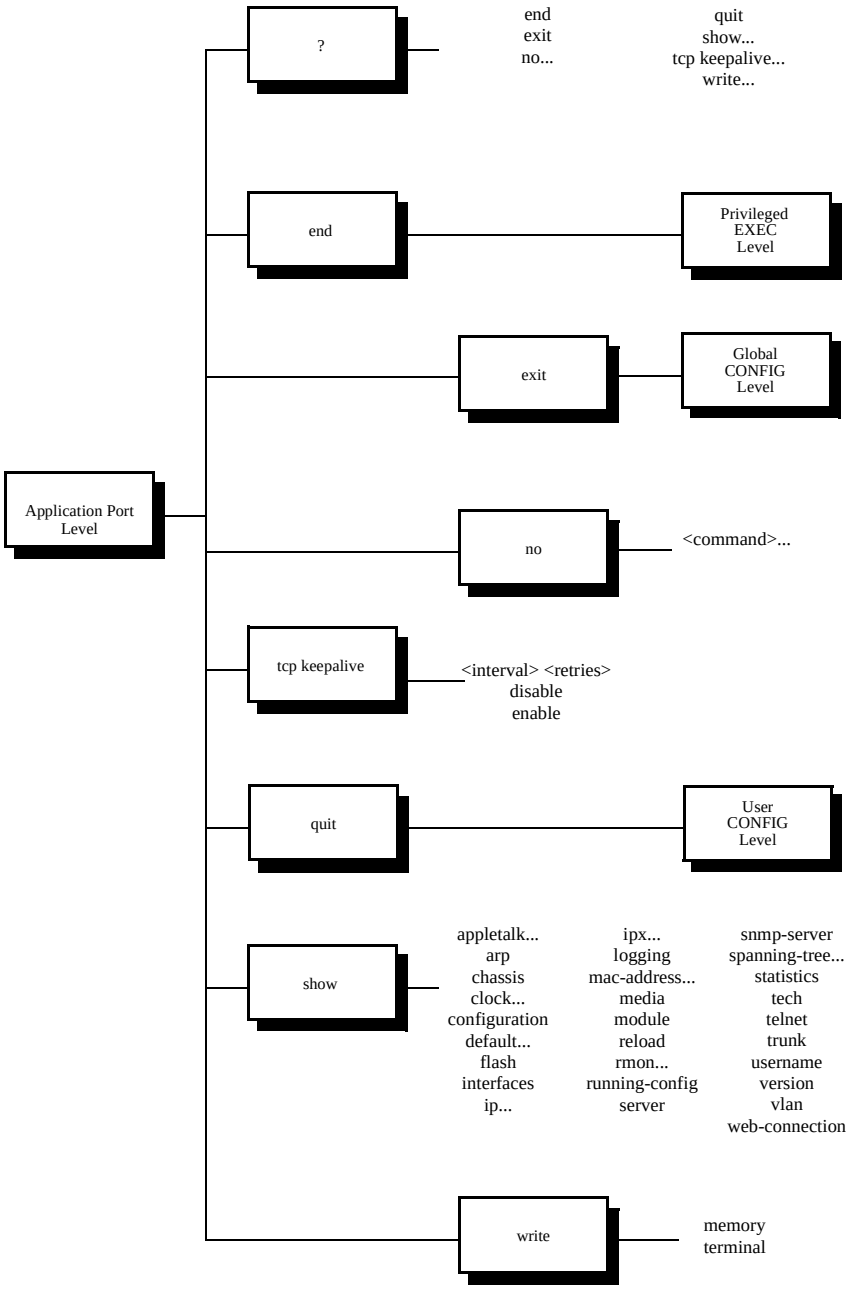

Figure B.26 Command options for the Application Port level

Route Map Level (routing switches only)

The Route Map level allows you to configure parameters for a BGP4 route map.

You reach this level by entering the **route-map <name>** command at the global CONFIG level.

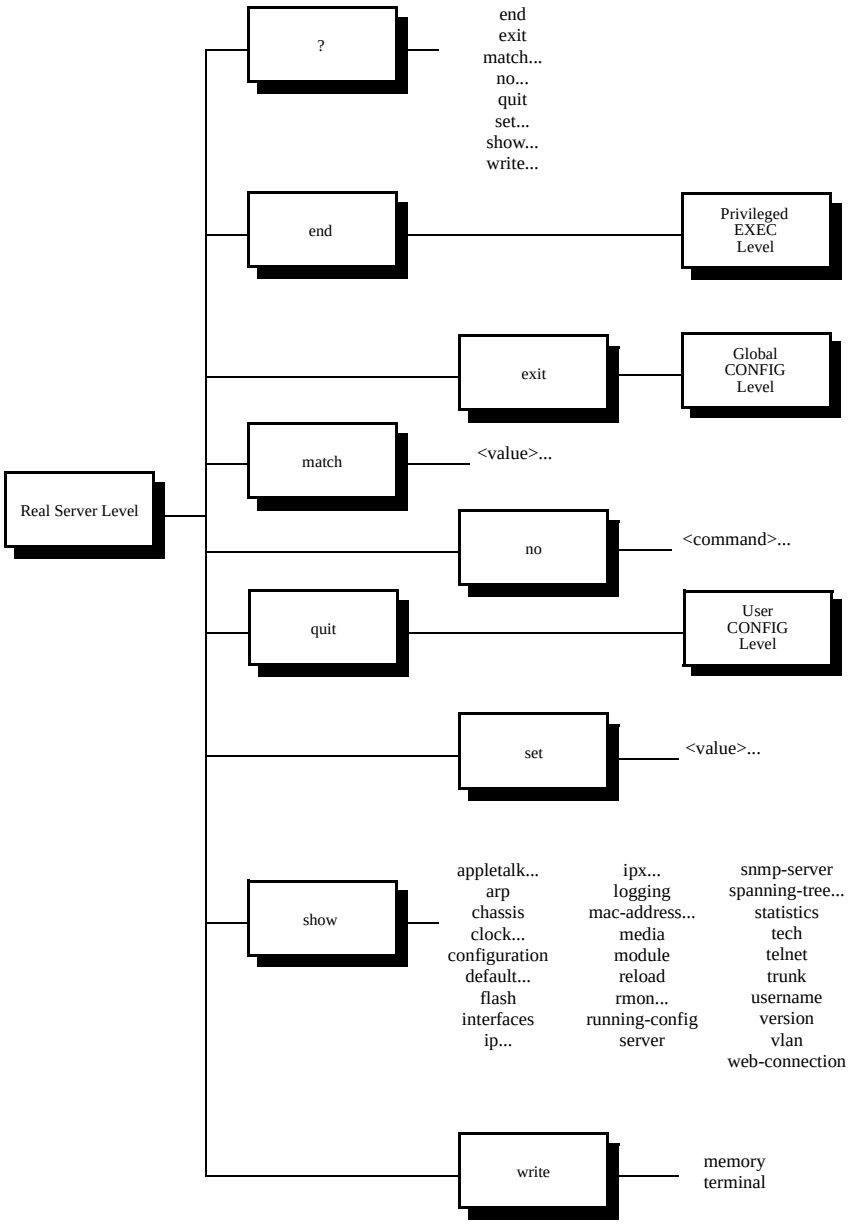

Figure B.27 Command options of the Route Map level

Router VRRP Level (routing switches only)

The VRRP level allows you to configure parameters for the Virtual Router Redundancy Protocol (VRRP).

You reach this level by entering the **router vrrp** command at the global CONFIG level.

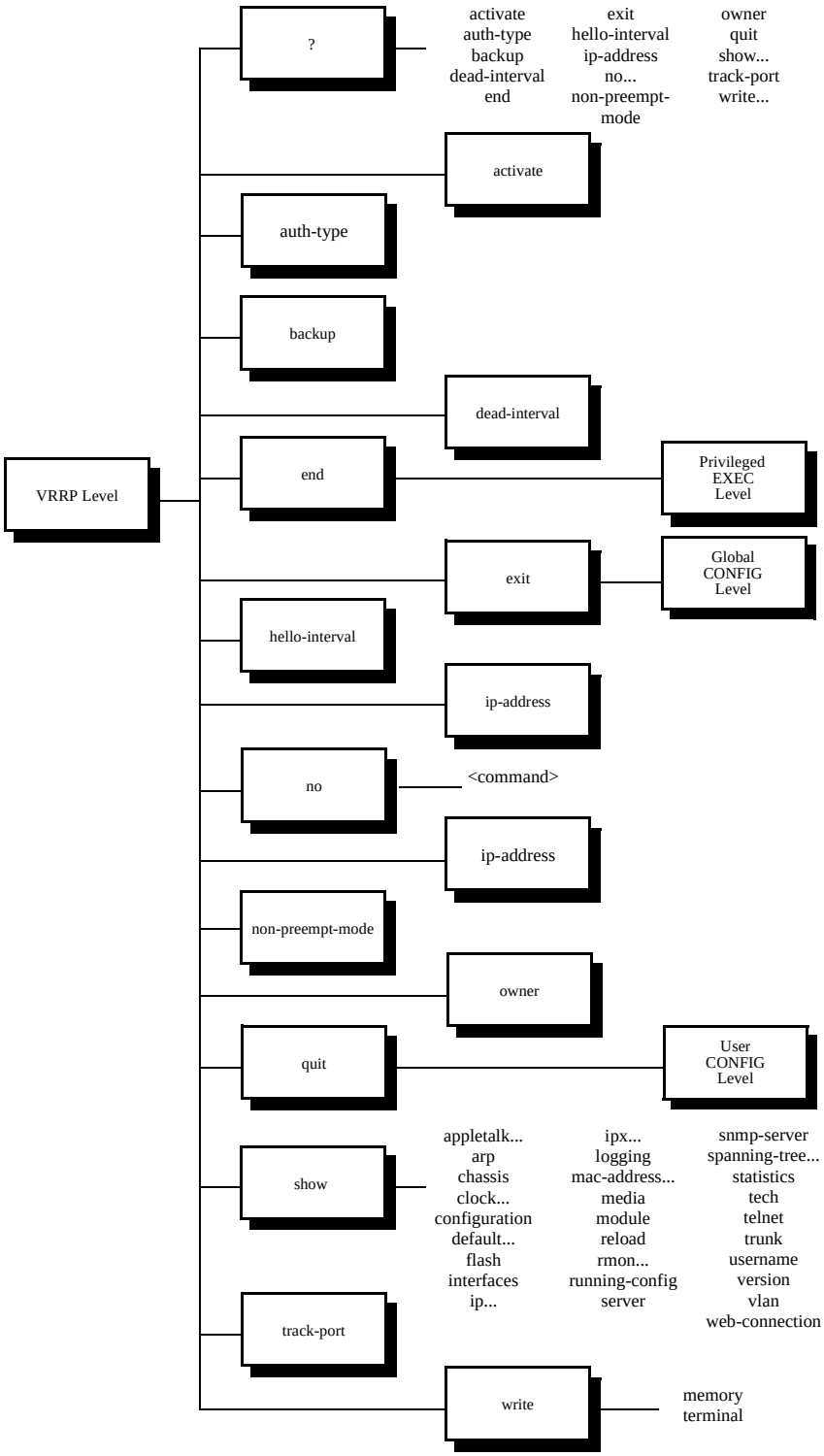

Figure B.28 Command options of the VRRP router level

VLAN Level

Policy-based VLANs allow you to assign VLANs on a protocol (IP, IPX, Decnet, AppleTalk, NetBIOS, Others), sub-net (IP sub-net and IPX network), port or 802.1q tagged basis.

You reach this level by entering the **vlan <vlanID> by port** command at the Global CONFIG Level for switches and **vlan 1** for routing switches.

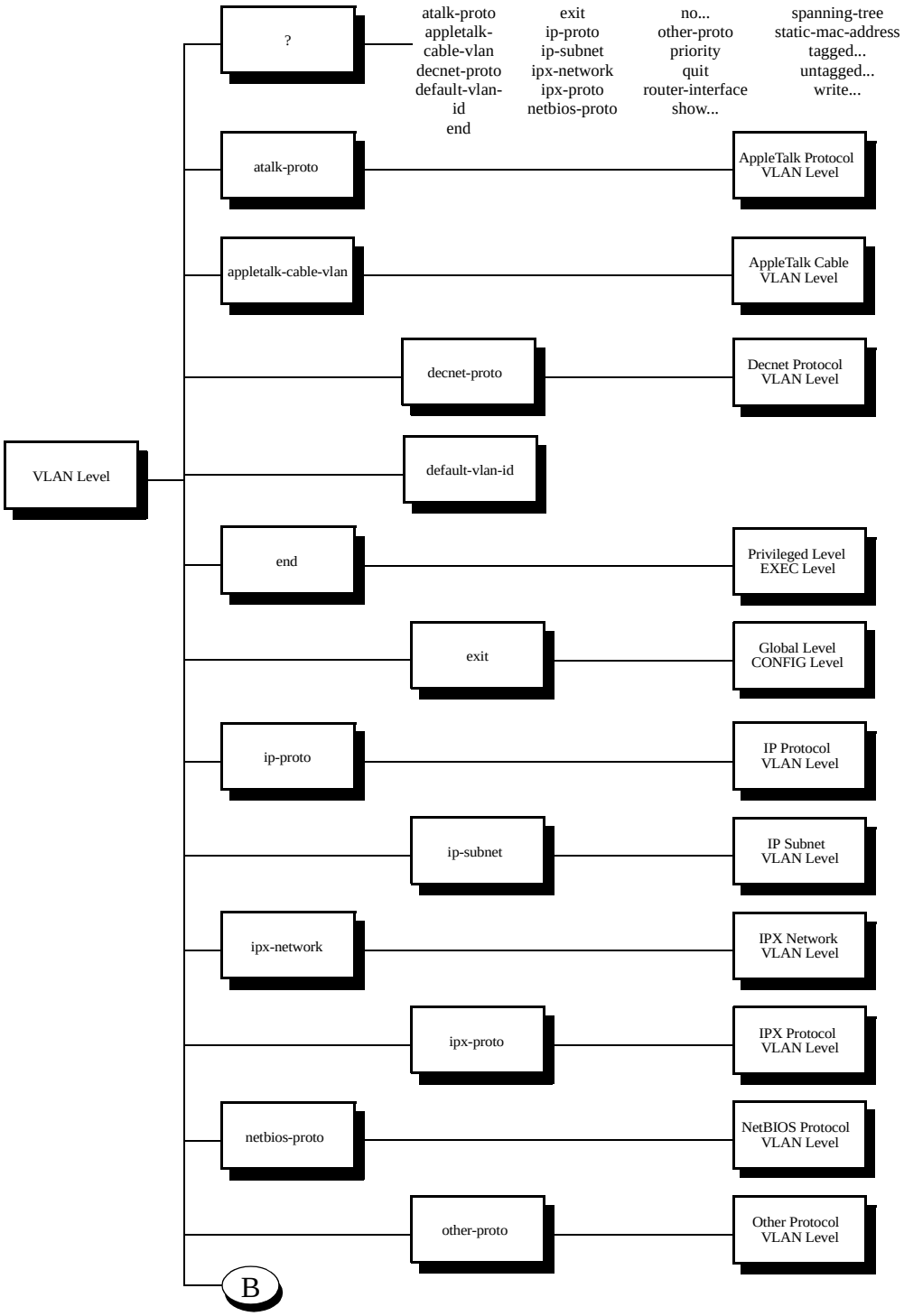

Figure B.29 Command options of the VLAN level (1 of 2)

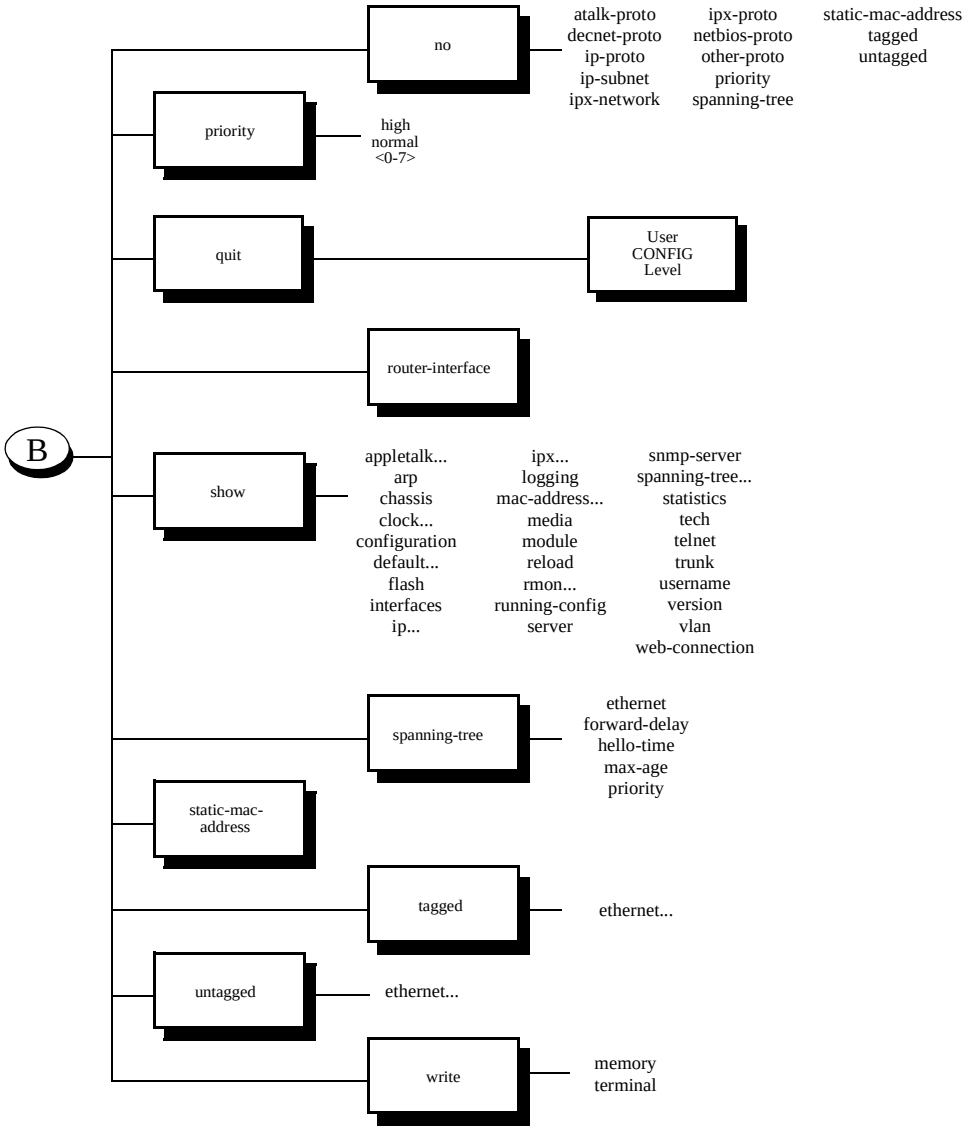

Figure B.30 Command options of the VLAN level (2 of 2)

Accessing the CLI

The CLI can be accessed through both serial and Telnet connections. For initial log on, you must use a serial connection. Once an IP address is assigned, you can access the CLI through Telnet.

NOTE: When accessing the CLI through Telnet, you are prompted for a password. By default, the password required is the password you enter for general access at initial setup. You also have the option of assigning a separate password for Telnet access with the **enable telnet password <password>** command, found at the Global Level.

NOTE: At initial log on, all you need to do is type **enable** at the prompt, then press Return. You only need to enter a password after a permanent password is entered at Global CONFIG Level of the CLI.

Once connectivity to the switch or routing switch is established, you will see one of the following prompts:

```
HP9300>

HP6308>

HP6208>
```

At this prompt (>), you are at the user EXEC level of the CLI command structure.

To reach the Global CONFIG Level, the uppermost level of the CONFIG commands, enter the following commands:

```
HP9300> enable                 User Level–EXEC commands
HP9300# configure terminal     Privileged Level–EXEC commands
HP9300(config)#                Global Level-CONFIG commands
```

You can then reach all other levels of the CONFIG command structure from this point.

NOTE: Switch configuration is done using the following CLI levels: global, interface, VLAN port and protocol, real server, and virtual server.

NOTE: Routing switch configuration is done using the following CLI levels: global, interface, IP tunnel, VLAN, and router levels.

The CLI prompt will change at each level of the CONFIG command structure, to easily identify the current level:

```
HP9300>                                  User Level EXEC Command
HP9300#                                  Privileged Level EXEC Command
HP9300(config)#                          Global Level CONFIG Command
HP9300(config-if-5/1)#                   Interface Level CONFIG Command
HP9300(config-lbif-1)#                   Loopback Interface CONFIG Command
HP9300(config-ve-1)#                     Virtual Interface CONFIG Command
HP9300(config-if-tunnel)#                IP Tunnel Level CONFIG Command
HP9300(config-bcast-filter-id-1)#        Broadcast Filter Level CONFIG Command
HP9300(config-mcast-filter-id-1)#        Multicast Filter Level CONFIG Command
HP9300(config-bgp-router)#               BGP Level CONFIG Command
HP9300(config-dvmrp-router)#             DVMRP Level CONFIG Command
HP9300(config-ospf-router)#              OSPF Level CONFIG Command
HP9300(config-pim-router)#               PIM Level CONFIG Command
```

```
HP9300(config-rip-router)#                  RIP Level CONFIG Command
HP9300(config-rs-realservername)#           Real Server Level CONFIG Command
HP9300(config-port-80)#                     Application Port CONFIG Command
HP9300(config-bgp-routemap Map_Name)#       Route Map Level CONFIG Command
HP9300(config-vrrp-router)#                 VRRP Level CONFIG Command
HP9300(config-vlan-1)#                      VLAN Port-based Level CONFIG Command
HP9300(config-vlan-atalk-proto)#            VLAN Protocol Level CONFIG Command
```

Navigating Among Command Levels

To reach other CLI command levels, you need to enter certain commands. At each level there is a launch command that allows you to move either up or down to the next level. The CLI hierarchy and the launch commands for each level are noted in Figure B.31.

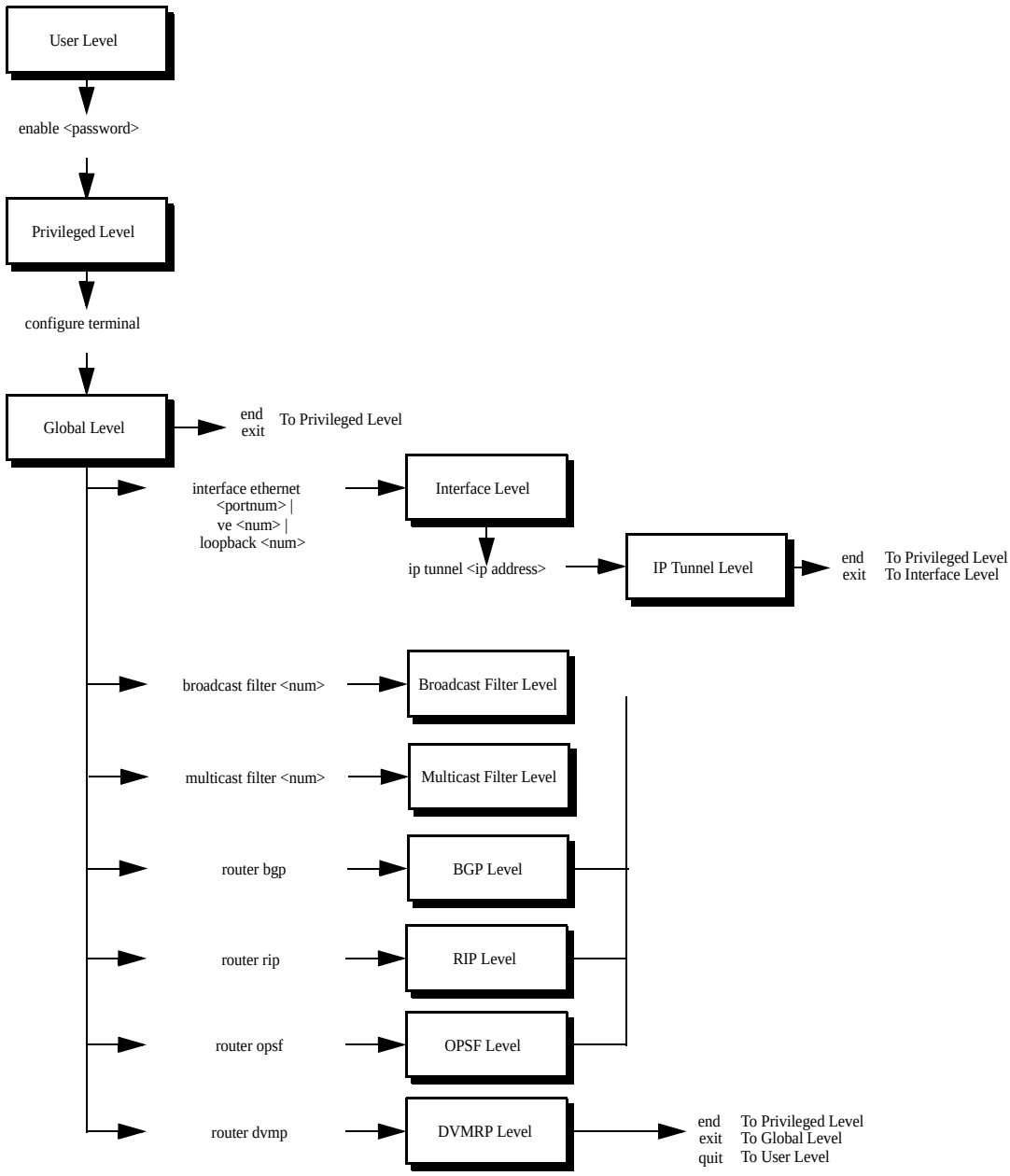

Figure B.31 Summary of the CLI launch commands (1 of 2)

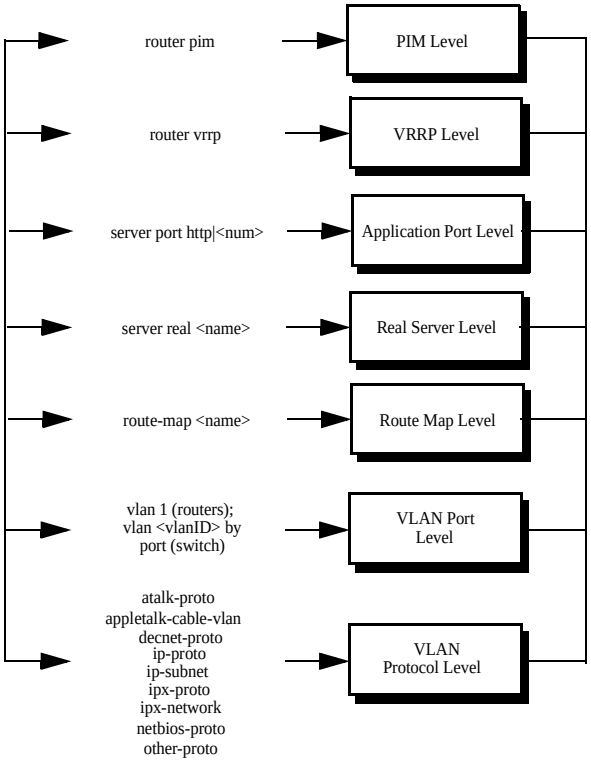

Figure B.32 Summary of the CLI launch commands (2 of 2)

CLI Command Structure

Many CLI commands may require textual or numeral input as part of the command. These fields are either required or optional depending on how the information is bracketed. For clarity, a few CLI command examples are explained below.

EXAMPLE:

```
deny redistribute <value> <all|ospf|static> address <ip address> <ip mask>
[match-metric <value> | set-metric <value>]
```

Whenever an item is bracketed with **"< >"** symbols, the information requested is required.

Whenever an item is bracketed with **"[ ]"** symbols**,** the information requested is optional.

Whenever two or more options are separated by a vertical bar, " **|** ", you must enter one of the options as part of the command.

EXAMPLE:

`deny redistribute <value> <all|ospf|static>` *means enter* all*,* ospf*, or* static

For example, the command structure above requires that either **all**, **ospf**, or **static** to be entered as part of the command.

To get a quick display of available options at a CLI level or for the next option in a command string, enter a question mark (?) at the prompt or press TAB.

EXAMPLE: To view all available commands at the user EXEC level, enter the following or press TAB at the User EXEC CLI level:

```
HP9300> ? <return>
  enable
  exit
  fastboot
  ping
  show
  stop-trace-route
  traceroute
```

You also can use the question mark (?) with an individual command, to see all available options or to check context.

EXAMPLE: To view possible **copy** command options, enter the following:

```
HP9300# copy ?
  flash
  running-config
  startup-config
  tftp
HP9300#copy flash ?
  tftp
```

Syntax Shortcuts

A command or parameter can be abbreviated as long as enough text is entered to distinguish it from other commands at that level. For example, given the possible commands **copy tftp…** and **config tftp…**, possible shortcuts are ***c*op tftp** and **con tftp** respectively. In this case, **co** does not properly distinguish the two commands.

Saving Configuration Changes

You can make configuration changes while the switch or routing switch is running. The type of configuration change determines whether or not it becomes effective immediately or requires a save to flash (**write memory**) and reset of the system (**reload**), before it becomes active.

This approach in adopting configuration changes:

- allows you to make configuration changes to the operating or running configuration of the switch or routing switch to address a short-term requirement or validate a configuration without overwriting the permanent configuration file, the startup configuration, that is saved in the system flash, and;
- ensures that dependent or related configuration changes are all cut in at the same time.

In all cases, if you want to make the changes permanent, you need to save the changes to flash using the **write memory** command. When you save the configuration changes to flash, this will become the configuration that is initiated and run at system boot.

NOTE: The majority of configuration changes are dynamic in nature. Those changes that require a reset of the system are highlighted in the specific configuration chapter in this guide and in the CLI command descriptions in this appendix.

Modify Boot Sequence

You can specify the preferred initial boot source and boot sequence in the startup-config file. If upon boot, the user-specified boot source and sequence fails, then by default the device will attempt to load the software image from a different source. The following sources will be tried one at a time, in the order noted, until a software load is successful.

- flash primary
- flash secondary
- tftp
- bootp

If the image does not load successfully from the above sources, you are prompted to enter alternative locations from which to load an image, as listed below:

- boot system bootp
- boot system flash primary
- boot system flash secondary
- boot system tftp

Summary of CLI Commands

The following sections provide a detailed overview of the CLI commands available categorized by CLI level. Each section is arranged in alphabetical order.

When assigning some parameters, you might need to negotiate between different levels of the CLI. See “Navigating Among Command Levels” on page 36

NOTE: The majority of CLI commands are supported on both the routing switches and the switch.

The chassis prompt (HP9300>) is used in most examples for simplicity. In those cases where the command is supported only on certain platforms, this is noted in the example.

In those cases where a CLI command is supported only on a switch, the 6208M-SX prompt (HP6208) is used.

EXEC Commands – User Level

appletalk-ping	B-66
enable	B-66
enable <password>	B-66
enable <username> <password>	B-66
fastboot…	B-67
ping	B-67
show…	B-68
stop-traceroute	B-68
traceroute	B-68

EXEC Commands – Privileged Level

appletalk-ping	B-69
boot system bootp	B-69
boot system flash primary	B-69
boot system flash secondary	B-69
boot system tftp	B-70
clear appletalk arp	B-70
clear appletalk cache	B-70
clear appletalk route	B-70
clear appletalk traffic	B-71
clear arp	B-71
clear dvmrp cache	B-71
clear dvmrp flow	B-71
clear dvmrp route	B-72
clear ip bgp neighbor	B-72
clear ip bgp traffic	B-72
clear ip cache	B-72
clear ip route	B-72
clear ip vrrp-stat	B-73
clear ipx cache	B-73
clear ipx route	B-73
clear logging	B-73
clear mac-address	B-73
clear pim cache	B-74
clear pim flow	B-74
clear statistics	B-74
clear web-connection	B-74
clock	B-74
configure terminal	B-75
copy flash flash…	B-75
copy flash tftp	B-75
copy running-config tftp	B-75
copy startup-config tftp	B-76

copy tftp flash B-76
copy tftp startup-config B-76
erase flash primary B-76
erase flash secondary B-76
erase startup-config B-77
exit B-77
fastboot… B-77
fast-reload B-77
m2 sync-running-config B-77
m2 temperature shutdown B-78
m2 temperature warning B-78
page-display B-78
ping B-79
quit B-80
reload B-80
reset B-80
show… B-80
skip-page-display B-80
sntp B-81
stop-traceroute B-81
telnet B-81
traceroute B-81
write memory B-82
write terminal B-82

CONFIG Commands – Global Level

aaa	B-83
all-client	B-84
appletalk arp-retransmit-count	B-84
appletalk arp-retransmit-interval	B-84
appletalk glean-packets	B-84
appletalk qos socket	B-85
appletalk rtmp-update-interval	B-85
appletalk zip-query-interval	B-85
arp	B-85
boot system bootp	B-85
boot system flash primary	B-86
boot system flash secondary	B-86
boot system tftp	B-86
bootp-relay-max-hops	B-87
broadcast filter	B-87
broadcast limit	B-88
chassis name	B-88
chassis poll-time	B-88
chassis trap-log	B-89
clock summer-time	B-89
clock time-zone	B-89
confirm-port-up	B-90
default-vlan-id	B-91
dhcp-gateway-list	B-90
enable password	B-91
enable skip-page-display	B-91
enable snmp config-radius	B-92
enable snmp config-tacacs	B-92
enable telnet authentication	B-92
enable telnet password…	B-92
end	B-92
exit	B-93

flow-control B-93
gig-default B-93
hostname B-93
interface... B-94
ip access-policy B-94
ip address B-96
ip arp-age B-97
ip default-gateway B-97
ip directed-broadcast B-97
ip dns domain-name B-97
ip dns server-address B-97
ip forward-protocol B-98
ip igmp group-membership-time B-98
ip igmp max-response-time B-98
ip igmp query-interval B-99
ip irdp B-99
ip load-sharing B-99
ip multicast B-99
ip multicast-routing B-100
ip policy B-100
ip proxy-arp B-101
ip rarp B-101
ip route B-101
ip router-id B-102
ip show-subnet-length B-102
ip ttl B-102
ipx forward-filter B-102
ipx max-rip-entries B-103
ipx max-sap-entries B-103
ipx netbios-allow B-103
ipx rip-filter B-103
ipx rip-filter-group B-103
ipx sap-filter B-104
ipx sap-filter-group B-104

lock-address ethernet B-104
logging B-105
m2 active-management B-106
m2 load-standby-source B-107
m2 sync boot-standby B-107
m2 sync running-config B-108
mac-age-time B-108
mac filter B-108
mac filter log_en B-110
mirror-port ethernet B-110
module B-111
multicast filter B-112
multicast limit B-113
no B-113
password-change B-113
perf-mode B-114
ping B-114
privilege B-115
quit B-116
radius-server B-116
rarp B-116
rmon alarm B-117
rmon event B-117
rmon history B-117
route-map B-118
route-only B-118
router appletalk B-118
router bgp B-119
router dvmrp B-119
router srp B-119
router ipx B-119
router ospf B-120
router pim B-120
router rip B-120

router vrrp B-120
server port B-121
server real B-121
service password-encryption B-121
show... B-122
snmp-client B-122
snmp-server community B-122
snmp-server contact B-122
snmp-server location B-123
snmp-server trap B-123
snmp-server trap-receiver B-124
sntp poll-interval B-124
sntp server B-124
spanning-tree B-124
spanning-tree <parameter> B-125
static... B-126
system-max B-126
tacacs-server B-126
tag-type B-127
telnet-client B-127
telnet-server B-128
telnet-timeout B-128
trunk B-128
unknown-unicast B-129
username B-130
vlan B-130
vlan max-vlans B-131
web-client B-131
web-management B-131
write memory B-131
write terminal B-132

CONFIG Commands – Interface Level

appletalk address	B-133
appletalk arp-age	B-133
appletalk cable-range	B-133
appletalk deny	B-133
appletalk permit	B-134
appletalk routing	B-134
appletalk zone-name	B-134
dhcp-gateway-list	B-134
disable	B-135
enable	B-135
end	B-135
exit	B-135
flow-control	B-136
gig-default	B-136
ip access-policy-group	B-137
ip address	B-137
ip bootp-gateway	B-137
ip dont_advertise	B-138
ip dvmrp advertise local	B-138
ip dvmrp metric	B-138
ip dvmrp ttl-threshold	B-139
ip encapsulation	B-139
ip follow	B-139
ip helper-address	B-140
ip metric	B-140
ip mtu	B-140
ip-multicast-disable	B-140
ip ospf area	B-141
ip ospf authentication-key	B-141
ip ospf cost	B-141
ip ospf dead-interval	B-142
ip ospf hello-interval	B-142

ip ospf md5-authentication B-142
ip ospf priority B-143
ip ospf retransmit-interval B-143
ip ospf transmit-delay B-143
ip-policy B-143
ip rip B-144
ip rip poison-reverse B-144
ip srp address preference B-144
ip srp address track-port B-145
ip srp address vir-rtr-ip B-145
ip srp address vir-rtr-ip other-rtr-ip B-145
ip srp <ip address> keep-alive-time B-146
ip srp <ip address> router-dead-time B-146
ip tunnel B-146
ip vrrp B-147
ipg10 B-147
ipg100 B-147
ipg1000 B-148
ipx forward-filter-group B-148
ipx netbios-allow B-148
ipx network B-149
ipx rip-filter-group B-149
ipx rip-max-packetsize B-149
ipx rip-multiplier B-149
ipx sap-filter-group B-150
ipx sap-interval B-150
ipx sap-max-packetsize B-150
ipx sap-multiplier B-151
ipx update-time B-151
mac filter-group B-151
mac filter-group log_en B-152
monitor B-152
no B-152
phy-mode B-152

port-name B-152
priority B-153
quit B-153
show... B-153
speed-duplex B-153
spanning-tree B-153
write memory B-131
write terminal B-132

CONFIG Interface Commands – IP Tunnel Level

encap-control	B-155
end	B-155
exit	B-155
ip tunnel	B-146
metric	B-155
no	B-156
quit	B-156
show...	B-156
ttl-threshold	B-156
write memory	B-156
writ terminal	B-156

CONFIG Commands – BGP Level

address-filter B-161
aggregate-address B-161
always-compare-med B-162
as-path-filter B-162
auto-summary B-163
client-to-client-reflection B-163
cluster-id B-163
community-filter B-164
default-information-originate B-164
default-local-preference B-164
default-metric B-165
distance B-165
end B-165
exit B-166
fast-external-fallover B-166
local-as B-166
max-attribute-entries B-166
max-neighbors B-167
max-routes B-167
neighbor... B-167
network B-169
no B-169
quit B-169
redistribute ospf B-169
redistribute rip B-170
redistribute static B-170
show... B-153
synchronization B-171
table-map B-171
timers B-171
write memory B-172
write terminal B-172

CONFIG Commands – Broadcast Filter Level

end	B-157
exclude-ports	B-157
exit	B-158
no	B-158
quit	B-158
show	B-158
write	B-158

CONFIG Commands – Multicast Filter Level

end	B-159
exclude-ports	B-159
exit	B-159
no	B-159
quit	B-160
show	B-160
write	B-160

CONFIG Commands – DVMRP Router Level

NOTE: The interface and IP tunnel parameters for DVMPR are configured at the Interface and IP Tunnel levels, respectively. Please refer to those sections of this appendix for specific examples.

default-gateway	B-173
end	B-173
exit	B-173
graft-retransmit-time	B-173
nbr-timeout	B-174
no	B-174
probe-interval	B-174
prune-age	B-174
quit	B-174
report-interval	B-175
route-discard-time	B-175
route-expire-time	B-175
show...	B-175
trigger interval	B-175
write memory	B-176
write terminal	B-176

CONFIG Commands – OSPF Router Level

area	B-177
area range	B-177
area <num>|<ip address> virtual-link	B-177
database-overflow-interval	B-178
default-metric	B-179
deny redistribute	B-179
end	B-180
exit	B-180
external-lsdb-limit	B-180
maximum-number-of-lsa	B-180
max-routes	B-181
metric-type	B-181
no	B-181
permit redistribute	B-182
quit	B-182
redistribution	B-182
rfc-1583-compatibility	B-182
router-id	B-183
show...	B-183
trap	B-183
write memory	B-184
write terminal	B-184

CONFIG Commands – PIM Router Level

end	B-185
exit	B-185
no	B-185
pim-graft-retransmit-timer	B-185
pim-hello-timer	B-185
pim-inactivity-timer	B-186
pim-nbr-timeout	B-186
pim-prune-timer	B-186
quit	B-186
show...	B-187
write memory	B-187
write terminal	B-187

CONFIG Commands – RIP (IP/RIP) Router Level

default-metric	B-188
deny redistribute	B-188
end	B-188
exit	B-189
filter	B-189
filter-group	B-189
learn-default	B-190
neighbor	B-190
no	B-190
permit redistribute	B-190
quit	B-191
redistribution	B-191
show...	B-191
update-time	B-191
use-vrrp-path	B-191
write memory	B-192
write terminal	B-192

CONFIG Commands – Real Server Level

end	B-193
exit	B-193
no	B-193
port <num> disable	B-193
port <num> keepalive	B-193
port <num> status_code	B-194
port <num> url	B-194
quit	B-195
show	B-195
write memory	B-195
write terminal	B-195

CONFIG Commands – Application Port Level

end	B-196
exit	B-196
no	B-196
quit	B-196
show	B-196
tcp keepalive	B-196
write memory	B-197
write terminal	B-197

CONFIG Commands – Route Map Level

end	B-198
exit	B-198
match	B-198
no	B-199
quit	B-199
set	B-199
show...	B-200
write memory	B-200
write terminal	B-200

CONFIG Commands – VLAN Level

appletalk-cable-vlan	B-201
atalk-proto	B-201
default-vlan-id	B-202
decnet-proto	B-202
end	B-202
exit	B-203
ip-proto	B-203
ip-subnet	B-203
ipx-network	B-204
ipx-proto	B-204
netbios-proto	B-205
no	B-205
other-proto	B-205
priority	B-206
quit	B-206
router-interface	B-207
show...	B-207
spanning-tree	B-207
static-mac-address	B-208
tagged	B-208
untagged	B-208
write memory	B-209
write terminal	B-209

CONFIG Commands – VRRP Level

activate	B-210
auth-type	B-210
backup	B-210
dead-interval	B-210
end	B-210
exit	B-210
hello-interval	B-210
ip-address	B-210
non-preempt-mode	B-211
no	B-210
owner	B-211
quit	B-211
show...	B-211
track-port	B-211
write memory	B-211
write terminal	B-211

Commands – All Levels

end	B-212
exit	B-212
show appletalk arp	B-216
show appletalk cache	B-212
show appletalk globals	B-212
show appletalk interface	B-213
show appletalk route	B-214
show appletalk traffic	B-215
show appletalk zone	B-216
show arp	B-216
show chassis	B-217
show clock	B-217
show configuration	B-218
show default	B-218
show flash	B-220
show interfaces	B-220
show ip	B-220
show ip bgp attribute-entries	B-221
show ip bgp neighbors	B-221
show ip bgp routes	B-222
show ip bgp summary	B-223
show ip cache	B-224
show ip dvmrp	B-224
show ip dvmrp flowcache	B-225
show ip dvmrp graft	B-225
show ip dvmrp group	B-225
show ip dvmrp interface	B-225
show ip dvmrp mcache	B-226
show ip dvmrp nbr	B-226
show ip dvmrp prune	B-226
show ip dvmrp route	B-227
show ip dvmrp traffic	B-227

show ip filter-cache B-227
show ip flow-cache B-228
show ip srp B-228
show ip interface B-228
show ip multicast B-228
show ip ospf abr-asbr-routers B-229
show ip ospf area B-229
show ip ospf config B-229
show ip ospf external-link-state B-230
show ip ospf general B-231
show ip ospf interface B-231
show ip ospf link-state B-232
show ip ospf neighbor B-232
show ip ospf routes B-233
show ip ospf trap B-234
show ip ospf virtual-link B-234
show ip ospf virtual-neighbor B-235
show ip pim flowcache B-235
show ip pim group B-235
show ip pim interface B-235
show ip pim mcache B-236
show ip pim nbr B-236
show ip pim prune B-236
show ip pim traffic B-237
show ip policy B-237
show ip rip B-237
show ip route B-238
show ip traffic B-239
show ip vrrp stat B-239
show ipx B-240
show ipx cache B-240
show ipx interface B-240
show ipx route B-241

show ipx servers B-241
show ipx traffic B-242
show logging B-242
show mac-address B-245
show mac-address statistics B-246
show media B-246
show module B-247
show reload B-247
show rmon alarm B-247
show rmon event B-248
show rmon history B-248
show rmon statistics B-248
show running-config B-249
show server B-249
show snmp-server B-249
show spanning-tree B-250
show spanning-tree vlan B-251
show statistics B-251
show tech B-252
show telnet B-252
show trunk B-253
show username B-253
show version B-253
show vlan B-253
show web-connection B-254

EXEC Commands – User Level

appletalk-ping

Verifies connectivity to an AppleTalk network and node.

EXAMPLE: To verify connectivity to node 50 on network 100, enter the following:

```
HP9300> appletalk-ping 100.50
```

Syntax: appletalk-ping <network.node>

Possible values: N/A

Default value: N/A

enable

At initial startup, you enter this command to access the privileged EXEC level of the CLI. You access subsequent levels of the CLI using the proper launch commands.

You can assign a permanent password with the **enable password…** command at the global level of the CONFIG command structure. To reach the global level, enter **configure terminal**. Until a password is assigned, you have access only to the user EXEC level.

EXAMPLE:

```
HP9300> enable
```

Syntax: enable

Possible values: N/A

Default value: No system default

enable <password>

Once a password is defined for the device, you must enter this command along with the defined password to access the Privileged EXEC level of the CLI.

EXAMPLE:

```
HP9300> en whatever
HP9300#
```

Syntax: enable <password>

Possible values: N/A

Default value: N/A

enable <username> <password>

If local access control is configured ion the device, you need to enter a user name and password to access the Privileged EXEC level. See “Securing Access to the Device” on page 2-23".

EXAMPLE:

```
HP9300> en waldo whereis
HP9300#
```

Syntax: enable <username> <password>

Possible values: Up to 32 alphanumeric characters can be assigned as the user name and as the password.

Default value: N/A

fastboot…

By default, this option is turned off, to provide a three-second pause to allow you to break into the boot prompt, if necessary. Use **fastboot on** to turn this option on and eliminate the three-second pause. To turn this feature off later, enter the command, **fastboot off**. Fastboot changes will be saved automatically but will not become active until after a system reset.

To execute an immediate reload of the boot code from the console without a three-second delay, enter the **fast reload** command. The **fast reload** command is available at the privileged EXEC level.

EXAMPLE:

```
HP9300> fastboot on
```

Syntax: fastboot [on | off]

Possible values: N/A

ping

Verifies connectivity to a switch or routing switch or other device. The command performs an ICMP echo test to confirm connectivity to the specified device.

EXAMPLE:

```
HP9300> ping 192.22.2.33
```

Syntax: ping <ip address>|<hostname> [count <num>] [timeout <msec>] [ttl <num>] [size <byte>] [no-fragment] [quiet] [verify] [data <1 – 4 byte hex>]

The only required parameter is the IP address or host name of the device.

NOTE: If the device is a switch or routing switch, you can use the host name only if you have already enabled the Domain Name Server (DNS) resolver feature on the device from which you are sending the ping. See “Enabling Domain Name Server (DNS) Resolver” on page 8-6.

The **count** <num> parameter specifies how many ping packets the device sends. You can specify from 1 – 4294967296. The default is 1.

The **timeout** <msec> parameter specifies how many milliseconds the device waits for a reply from the pinged device. You can specify a timeout from 1 – 4294967296 milliseconds. The default is 5000 (5 seconds).

The **ttl** <num> parameter specifies the maximum number of hops. You can specify a TTL from 1 – 255. The default is 64.

The **size** <byte> parameter specifies the size of the ICMP data portion of the packet. This is the payload and does not include the header. You can specify from 0 – 4000. The default is 16.

The **no-fragment** parameter turns on the "don’t fragment" bit in the IP header of the ping packet. This option is disabled by default.

The **quiet** parameter hides informational messages such as a summary of the ping parameters sent to the device and instead only displays messages indicating the success or failure of the ping. This option is disabled by default.

The **verify** parameter verifies that the data in the echo packet (the reply packet) is the same as the data in the echo request (the ping). By default the device does not verify the data.

The **data** <1 – 4 byte hex> parameter lets you specify a specific data pattern for the payload instead of the default data pattern, "abcd", in the packet’s data payload. The pattern repeats itself throughout the ICMP message (payload) portion of the packet.

NOTE: For numeric parameter values, the CLI does not check that the value you enter is within the allowed range. Instead, if you do exceed the range for a numeric value, the software rounds the value to the nearest valid value.

Possible values: see above

Default value: see above

show…

Displays a variety of configuration and statistical information about the switch or router. See “Commands – All Levels” on page 212.

stop-traceroute

Stops an initiated trace on a switch or routing switch.

EXAMPLE:

```
HP9300> stop-traceroute
```

Syntax: stop-traceroute

Possible values: N/A

Default value: N/A

traceroute

Allows you to trace the path from the current switch or routing switch to a host address. The CLI displays trace route information for each hop as soon as the information is received.

EXAMPLE:

```
HP9300> traceroute 192.33.4.7 minttl 5 maxttl 5 timeout 5
```

Syntax: traceroute <IP-addr> [minttl <value> maxttl <value> timeout <value>]

Possible and default values:

Minttl -minimum TTL (hops) value: Possible values are 1 – 255. Default value is 1 second.

Maxttl- maximum TTL (hops) value: Possible values are 1 – 255. Default value is 30 seconds.

Timeout: Possible values are 1 – 120. Default value is 2 seconds.

EXEC Commands – Privileged Level

appletalk-ping

Verifies connectivity to an AppleTalk network and node.

EXAMPLE: To verify connectivity to node 50 on network 100, enter the following:

```
HP9300> appletalk-ping 100.50
```

Syntax: appletalk-ping <network.node>

Possible values: N/A

Default value: N/A

boot system bootp

Initiates a system boot from a BootP server. You can specify the preferred initial boot source and boot sequence in the startup-config file. If upon boot, the user-specified boot source and sequence fails, then by default, the switch or routing switch will attempt to load the software image from a different source. The following sources will be tried one at a time, in the order noted, until a software load is successful.

- flash primary
- flash secondary
- bootp

If the image does not load successfully from the above sources, you are prompted to enter alternative locations from which to load an image:

- boot system bootp
- boot system flash primary
- boot system flash secondary
- boot system tftp

EXAMPLE:

```
HP9300# boot sys bootp
```

Syntax: boot system bootp

Possible values: N/A

Default value: N/A

boot system flash primary

Initiates a system boot from the primary software image stored in flash.

EXAMPLE:

```
HP9300(config)# boot sys fl pri
```

Syntax: boot system flash primary

Possible values: N/A

Default value: N/A

boot system flash secondary

Initiates a system boot from the secondary software image stored in flash.

EXAMPLE:

```
HP9300(config)# boot sys fl sec
```

Syntax: boot system flash secondary

Possible values: N/A

Default value: N/A

boot system tftp

Initiates a system boot of the software image from a TFTP server.

EXAMPLE:

```
HP9300(config)# boot sys tftp 192.22.33.44 current.img
```

Syntax: boot system tftp <ip address> <filename>

Possible values: N/A

Default value: N/A

NOTE: Before entering the TFTP boot command, you must first assign an IP address, IP mask and default gateway (if applicable) at the boot prompt as shown.

EXAMPLE:

```
boot>ip address 192.22.33.44 255.255.255.0
```

```
boot>ip default-gateway 192.22.33.1
```

You now can proceed with the **boot system tftp…** command.

clear appletalk arp

Erases all data currently resident in the AppleTalk ARP table, as displayed by the **show appletalk arp** command.

EXAMPLE:

```
HP9300>clear appletalk arp
```

Syntax: clear appletalk arp

Possible values: N/A

Default value: N/A

clear appletalk cache

Erases all learned data from non-local networks that is currently resident in the AppleTalk cache (forwarding table), as displayed by the **show appletalk cache** command.

EXAMPLE: To remove all non-local entries from the AppleTalk cache, enter the following:

```
HP9300>clear appletalk cache
```

NOTE: Local routes are indicated by zeros in a **show appletalk cache** display. All entries not marked with 0.0 or 0000.0000.0000 will be erased.

Syntax: clear appletalk cache

Possible values: N/A

Default value: N/A

clear appletalk route

Erases all learned routes and zones (non-local routes and zones) currently resident in the AppleTalk routing table, as displayed by the **show appletalk route** command.

EXAMPLE: To remove all non-local entries from the AppleTalk routing table, enter the following:

```
HP9300>clear appletalk route
```

NOTE: Local routes are indicated by zeros as shown in the **show appletalk route** display. All entries not marked with 0.0 or 0000.0000.0000 will be erased.

Syntax: clear appletalk route

Possible values: N/A

Default value: N/A

clear appletalk traffic

Erases all RTMP, ZIP, AEP, DDP, and AARP statistics for the routing switch. You can display a summary of the statistics to be erased by entering the **show appletalk traffic** command.

EXAMPLE:

```
HP9300> clear appletalk traffic
```

Syntax: clear appletalk traffic

Possible values: N/A

Default value: N/A

clear arp

Removes all data from the ARP cache.

EXAMPLE:

```
HP9300# clear arp
```

Syntax: clear arp [ethernet <num> | mac-address <xxxx.xxxx.xxxx> [<mask>] | <IP-addr> [<mask>]]

Specify the MAC address mask as "f"s and "0"s, where "f"s are significant bits. Specify IP address masks in standard decimal mask format (for example, 255.255.0.0).

Possible values: N/A

Default value: N/A

The following command clears all ARP entries for port 2 on the module in slot 3.

```
HP9300# clear arp ethernet 3/2
```

clear dvmrp cache

Erases all DVMRP forwarding entries.

EXAMPLE:

```
HP9300# clear dvmrp cache
```

Syntax: clear dvmrp cache

Possible values: N/A

Default value: N/A

clear dvmrp flow

Erases all information in the DVMRP flow cache, specifically source, group and forwarding index information.

EXAMPLE:

```
HP9300# clear dvmrp flow
```

Syntax: clear dvmrp

Possible values: N/A

Default value: N/A

clear dvmrp route

Erases all DVMRP routing information that DVMRP exchanges with its peers.

EXAMPLE:

```
HP9300# clear dvmrp route
```

Syntax: clear dvmrp

Possible values: N/A

Default value: N/A

clear ip bgp neighbor

Closes a neighbor session and flushes all the routes exchanged by the routing switch and the neighbor. You also can reset a neighbor session without closing it by resending the BGP route table (soft-outbound option).

See “Closing or Resetting Sessions With Neighbors” on page 12-59 for more information.

EXAMPLE 1: To close all neighbor sessions, enter the following command.

```
HP9300# clear ip bgp neighbor
```

Closes a neighbor session and flushes all the routes exchanged by the routing switch and the neighbor.

EXAMPLE 2: To resend routes to a neighbor without closing the neighbor session, enter a command such as the following:

```
HP9300# clear ip bgp neighbor 10.0.0.1 soft-outbound
```

syntax: clear ip bgp neighbor all|<IP-addr> soft-outbound

Possible values: N/A

Default value: N/A

clear ip bgp traffic

Clears the BGP4 message counter for all neighbors.

EXAMPLE:

```
HP9300# clear ip bgp traffic
```

Syntax: clear ip bgp neighbor

Possible values: N/A

Default value: N/A

clear ip cache

Removes all entries from the IP cache.

EXAMPLE:

```
HP9300# cl ip cache
```

Syntax: clear ip cache

Possible values: N/A

Default value: N/A

clear ip route

Clears all IP routes from memory.

EXAMPLE:

```
HP9300# cl ip ro
```

Syntax: clear ip route

Possible values: N/A

Default value: N/A

clear ip vrrp-stat

Clears VRRP statistics from memory.

EXAMPLE:

```
HP9300# cl ip vrrp
```

Syntax: clear ip vrrp-stat

Possible values: N/A

Default value: N/A

clear ipx cache

Clears all entries in the IPX cache.

EXAMPLE:

```
HP9300# cl ipx ca
```

Syntax: clear ipx cache

Possible values: N/A

Default value: N/A

clear ipx route

Clears all IPX routes and servers from memory.

EXAMPLE:

```
HP9300# cl ipx rou
```

Syntax: clear ipx route

Possible values: N/A

Default value: N/A

clear logging

Removes all entries from the SNMP event log.

EXAMPLE:

```
HP9300# cl logging
```

Syntax: clear logging

Possible values: N/A

Default value: N/A

clear mac-address

Removes all static MAC address entries from the address table.

EXAMPLE:

```
HP9300# cl mac-address
```

Syntax: clear mac-address

Possible values: N/A

Default value: N/A

clear pim cache

Erases all forwarding entries from the PIM cache.

EXAMPLE:

```
HP9300# cl pim
```

Syntax: clear pim

Possible values: N/A

Default value: N/A

clear pim flow

Erases all information in the PIM flow cache.

EXAMPLE:

```
HP9300# cl pim
```

Syntax: clear pim

Possible values: N/A

Default value: N/A

clear statistics

Resets all port statistic counters to zero. This command is a hidden CLI command.

EXAMPLE:

```
HP9300# cl statistics
```

Syntax: clear statistics

Possible values: N/A

Default value: N/A

clear web-connection

Clears all Web management interface sessions with the device. The sessions are immediately ended when you enter the command.

EXAMPLE:

```
HP9300# cl web
```

Syntax: clear web-connection

Possible values: N/A

Default value: N/A

clock

The system clock can be set for a switch or routing switch. This command allows you to set the time and date. The time zone must be set using the **clock time-zone...** command at the global CONFIG level.

NOTE: Clock settings are not saved over power cycles; however, you can configure the system to reference an SNTP server at power up. This server will then automatically download the correct time reference for the network. For more details on this capability, reference the **sntp** command at the privileged EXEC level and the **sntp poll-interval** and **sntp server** commands at the global CONFIG level.

EXAMPLE:

```
HP9300# clock set 10:15:05 10-15-98
```

Syntax: [no] clock set <hh:mm:ss> <mm-dd-yy | mm-dd-yyyy>

Possible values: N/A

Default value: N/A

configure terminal

Launches you into the global CONFIG level.

EXAMPLE:

```
HP9300# conf term
HP9300(config)#
```

Syntax: configure terminal

Possible values: N/A

Default value: N/A

copy flash flash…

Copies a software image between the primary and secondary flash storage locations.

EXAMPLE: Suppose you want to copy the software image stored in the primary flash into the secondary storage location. To do so, enter the following command.

```
HP9300# copy flash flash secondary
```

If you want to copy the image from the secondary flash to the primary flash, enter the following command.

```
HP9300# copy flash flash primary
```

In the **copy flash flash*…*** command, the first 'flash' refers to the origin of the image and the second 'flash' in the command points to the destination flash. Note that in the command above, when 'primary' is entered, the system automatically knows that the origin flash is the secondary flash location.

Syntax: copy flash flash [primary | secondary]

Possible values: N/A

Default value: N/A

copy flash tftp

Uploads a copy of the primary or secondary software image to a TFTP server.

EXAMPLE:

```
HP9300# copy flash tftp 192.22.33.4 test.img secondary
```

Syntax: copy flash tftp <ip address> <filename> <primary|secondary>

Possible values: TFTP IP address, filename, primary or secondary

Default value: No system default

copy running-config tftp

Uploads a copy of the running configuration file from the switch or routing switch to a designated TFTP server.

EXAMPLE:

```
HP9300# copy startup-config tftp 192.22.3.44 new.cfg
```

Syntax: copy running-config tftp <ip address> <filename>

Possible values: TFTP IP address, filename

Default value: No system default

copy startup-config tftp

Uploads a copy of the startup configuration file from the switch or routing switch to a designated TFTP server.

EXAMPLE:

```
HP9300# copy startup-config tftp 192.22.3.44 new.cfg
```

Syntax: copy startup-config tftp <ip address> <filename>

Possible values: TFTP IP address, filename

Default value: No system default

copy tftp flash

Downloads a copy of a switch or routing switch software image from a TFTP server into the system flash in the primary or secondary storage location.

EXAMPLE:

```
HP9300# copy tftp flash 192.22.33.4 test.img primary
```

To download into the secondary storage location, enter the command listed below instead:

```
HP9300# copy tftp flash 192.22.33.4 test.img secondary
```

Syntax: copy tftp flash <ip address> <filename> <primary|secondary>

Possible values: IP address, filename, primary or secondary

Default value: N/A

copy tftp startup-config

Downloads a copy of a configuration file from a TFTP server into the startup configuration file of the switch or routing switch. To activate this configuration file, reload (reset) the system.

EXAMPLE:

```
HP9300# copy tftp startup-config 192.22.33.4 new.cfg
```

Syntax: copy tftp startup-config <ip address> <filename>

Possible values: TFTP IP address, filename

Default value: no system default

erase flash primary

Erases the image stored in primary flash.

EXAMPLE:

```
HP9300# er f pri
```

Syntax: erase flash primary

Possible values: N/A

Default value: N/A

erase flash secondary

Erases the image stored in secondary flash.

EXAMPLE:

```
HP9300# er f sec
```

Syntax: erase flash secondary

Possible values: N/A

Default value: N/A

erase startup-config

Erases the configuration stored in the startup-config file.

EXAMPLE:

```
HP9300# er start
```

Syntax: erase startup-config

Possible values: N/A

Default value: N/A

exit

Moves activity up one level from the current level. In this case, activity will be moved to the user EXEC level.

EXAMPLE: To move from the privileged EXEC level back to the user EXEC level, enter the following:

```
HP9300# exit
HP9300>
```

Syntax: exit

Possible values: N/A

Default value: N/A

fastboot…

Provides a configurable option to speed up the system startup time. By default, this option is turned off, providing a three-second pause to allow you to break into the boot prompt, if necessary. Use **fastboot on** to turn this option on and eliminate the three-second pause. To turn this feature off later, enter the command **fastboot off**. Fastboot changes will be saved automatically but will not become active until after a system reset.

To execute an immediate reload from the console of the boot code without a three-second delay, you can enter the **fast reload** command.

EXAMPLE:

```
HP9300# fastboot on
```

Syntax: fastboot [on|off]

Possible values: on or off

Default value: N/A

fast-reload

Initiates an immediate fast boot. Fastboot requires a boot flash image version of 02.00.06 or later to be operational. You can use the CLI command **show flash** to check the boot image version number.

NOTE: Fast reload is a hidden command of the privileged level of the CLI.

EXAMPLE:

```
HP9300# fast-reload
```

Syntax: fast-reload

Possible values: N/A

Default value: Disabled

m2 sync-running-config

Immediately synchronizes the running-config file on a standby Redundant Management module with the running-config on the active Redundant Management module. When you synchronize code or a file on the active and standby Redundant Management modules, the active module updates the standby module.

NOTE: This command applies only to Redundant Management modules.

EXAMPLE:

```
HP9300# m2 sync-running-config
```

Syntax: m2 sync-running-config

To immediately synchronize the boot code, enter the following command:

```
HP9300# copy flash flash boot standby
```

Syntax: copy flash flash boot standby

Possible values: N/A

Default value: N/A

m2 temperature shutdown

Changes the shutdown temperature of a module containing a temperature sensor. If the temperature matches or exceeds the shutdown temperature, the software sends a Syslog message to the Syslog buffer and also to the SyslogD server if configured. The software also sends an SNMP trap to the SNMP trap receiver, if you have configured the device to use one.

If the temperature equals or exceeds the shutdown temperature for five consecutive polls of the temperature by the software, the software shuts down the module to prevent damage.

EXAMPLE:

To change the shutdown temperature from 55 to 57 degrees Celsius, enter the following command:

```
HP9300# m2 temperature shutdown 57
```

Syntax: m2 temperature shutdown <value>

The **<value>** can be 0 – 125.

Possible values: 0 – 125 degrees Celsius

Default value: 55

m2 temperature warning

Changes the warning temperature of a module containing a temperature sensor. If the temperature of the module reaches the warning value, the software sends a Syslog message to the Syslog buffer and also to the SyslogD server, if configured. In addition, the software sends an SNMP trap to the SNMP trap receiver, if you have configured the device to use one.

NOTE: You cannot set the warning temperature to a value higher than the shutdown temperature.

EXAMPLE:

To change the warning temperature from 45 to 47 degrees Celsius, enter the following command:

```
HP9300# m2 temperature warning 57
```

Syntax: m2 temperature warning <value>

The **<value>** can be 0 – 125.

Possible values: 0 – 125 degrees Celsius

Default value: 45

page-display

Enables page-by-page display of the configuration file. When you display or save the file, one "page" (window-full) of the file is displayed. The following line provides you with options to continue the display or to cancel:

```
--More--, next page: Space/Return key, quit: Control-c
```

If you disable the page-display mode, the CLI displays the entire file without interruption.

Page-display mode is enabled by default. To disable it, enter the **skip-page-display** command.

NOTE: This command is equivalent to the **enable skip-page-display** command at the global CONFIG level.

EXAMPLE:

```
HP9300> page-display
```

Syntax: page-display

Possible values: N/A

Default value: N/A

ping

Verifies connectivity to a switch or routing switch. The command performs an ICMP echo test to confirm connectivity to the specified device.

EXAMPLE:

```
HP9300# ping 192.22.2.33
```

Syntax: ping <ip address>|<hostname> [count <num>] [timeout <msec>] [ttl <num>] [size <byte>] [no-fragment] [quiet] [verify] [data <1 – 4 byte hex>]

The only required parameter is the IP address or host name of the device.

NOTE: If the device is a switch or routing switch, you can use the host name only if you have already enabled the Domain Name Server (DNS) resolver feature on the device from which you are sending the ping. See “Enabling Domain Name Server (DNS) Resolver” on page 8-6.

The **count** <num> parameter specifies how many ping packets the device sends. You can specify from 1 – 4294967296. The default is 1.

The **timeout** <msec> parameter specifies how many milliseconds the device waits for a reply from the pinged device. You can specify a timeout from 1 – 4294967296 milliseconds. The default is 5000 (5 seconds).

The **ttl** <num> parameter specifies the maximum number of hops. You can specify a TTL from 1 – 255. The default is 64.

The **size** <byte> parameter specifies the size of the ICMP data portion of the packet. This is the payload and does not include the header. You can specify from 0 – 4000. The default is 16.

The **no-fragment** parameter turns on the "don’t fragment" bit in the IP header of the ping packet. This option is disabled by default.

The **quiet** parameter hides informational messages such as a summary of the ping parameters sent to the device and instead only displays messages indicating the success or failure of the ping. This option is disabled by default.

The **verify** parameter verifies that the data in the echo packet (the reply packet) is the same as the data in the echo request (the ping). By default the device does not verify the data.

The **data** <1 – 4 byte hex> parameter lets you specify a specific data pattern for the payload instead of the default data pattern, "abcd", in the packet’s data payload. The pattern repeats itself throughout the ICMP message (payload) portion of the packet.

NOTE: For numeric parameter values, the CLI does not check that the value you enter is within the allowed range. Instead, if you do exceed the range for a numeric value, the software rounds the value to the nearest valid value.

Possible values: see above

Default value: see above

quit

This command returns you from any level of the CLI to the User EXEC mode.

EXAMPLE:

```
HP9300# quit
HP9300>
```

Syntax: quit

Possible values: N/A

Default value: N/A

reload

Initiates a system reset. All configuration changes made since the last reset or start of the switch or routing switch will be saved to the startup configuration file.

EXAMPLE:

```
HP9300# reload
```

Syntax: reload

Possible values: 'Reload' must be typed in its entirety.

Default value: N/A

reset

Forces the active Redundant Management module in a chassis device that contains Redundant Management modules to switch over to the standby module, thus making it the active Redundant Management module.

NOTE: This command applies only to devices containing Redundant Management modules.

EXAMPLE:

To switch over to the Redundant Management module in chassis slot 2, enter a command such as the following:

```
HP9300# reset 2
```

Syntax: reset <slot-num>

Specify the slot number containing the currently active management module. Do not specify the slot number containing the standby module to which you want to switch over.

Possible values: 'Reset' must be typed in its entirety.

Default value: N/A

show…

Displays a variety of configuration and statistical information about the switch or routing switch. See "Commands – All Levels" on page 212.

skip-page-display

Disables page-display mode. Page-display mode displays the file one page at a time and prompts you to continue or cancel the display. When page-display mode is disabled, if you display or save the configuration file, the CLI displays the entire file without interruption.

Page display mode is enabled by default.

NOTE: This command is equivalent to the **no enable skip-page-display** command at the global CONFIG level.

EXAMPLE:

```
HP9300> stop-page-display
```

Syntax: skip-page-display

Possible values: N/A

Default value: N/A

sntp

Enables the SNTP function on a switch or routing switch. This will allow a system to automatically retrieve clock references from a designated SNTP server in the network.

You define the SNTP server using the **sntp server...** command found at the global CONFIG level. You can also define how often the clock references are validated between the switch or routing switch and the SNTP server by using the **sntp poll-interval** command found at the global CONFIG level.

To synchronize the device's time counter with your SNTP server time, enter the **sntp sync** command.

NOTE: Configure the **clock time-zone** parameter before configuring an SNTP server.

EXAMPLE:

```
HP9300# sntp
```

Syntax: sntp

Possible values: N/A

Default value: N/A

stop-traceroute

Stops an initiated trace on a switch or routing switch.

EXAMPLE:

```
HP9300# stop-trace-route
```

Syntax: stop-trace-route

Possible values: N/A

Default value: N/A

telnet

Allows a Telnet connection to a remote switch or routing switch using the console. Up to five read-access Telnet sessions are supported on a switch or routing switch at one time. Write access through Telnet is limited to one session and only one outgoing Telnet session is supported on a switch or routing switch at one time. To see the number of open Telnet sessions at any time, enter the command **show telnet**.

EXAMPLE:

```
HP9300# telnet 208.96.6.101
```

Syntax: telnet <ip address | hostname>

Possible values: N/A

Default value: N/A

traceroute

Allows you to trace the path from the current device to a host address. The CLI displays trace route information for each hop as soon as the information is received.

EXAMPLE:

```
HP9300> traceroute 192.33.4.7 minttl 5 maxttl 5 timeout 5
```

Syntax: traceroute <host IP address> [minttl <value> maxttl <value> timeout <value>]

Possible and default values:

- Minttl -minimum TTL (hops) value: Possible values are 1 – 255. Default value is 1 second.
- Maxttl- maximum TTL (hops) value: Possible values are 1 – 255. Default value is 30 seconds.
- Timeout: Possible values are 1 – 120. Default value is 2 seconds.

write memory

Saves the running configuration into the startup-config file.

EXAMPLE:

```
HP9300# wr mem
```

Syntax: write memory

Possible values: N/A

Default value: N/A

write terminal

Displays the running configuration on the terminal screen.

NOTE: This command is equivalent to the **show running-config** command.

EXAMPLE:

```
HP9300# wr t
```

Syntax: write terminal

Possible values: N/A

Default value: N/A

CONFIG Commands – Global Level

aaa

Defines an authentication-method list for access to a switch or routing switch. See “Configuring Authentication-Method Lists” on page 2-41 for more information.

EXAMPLES:

To configure an access method list, enter a command such as the following:

```
HP9300(config)# aaa authentication web-server default local
```

This command configures the device to use the local user accounts to authenticate access to the device through the Web management interface. If the device does not have a user account that matches the user name and password entered by the user, the user is not granted access.

To configure the device to consult a RADIUS server first for Enable access, then consult the local user accounts if the RADIUS server is unavailable, enter the following command:

```
HP9300(config)# aaa authentication enable default radius local
```

Syntax: [no] aaa authentication <snmp-server|web-server|enable|login> default <method1> [method2] [method3] [method4] [method5] [method6] [method7]

The **snmp-server|web-server|enable|login** parameter specifies the type of access this authentication-method list controls. You can configure one authentication-method list for each type of access.

NOTE: TACACS/TACACS+ and RADIUS are supported only for enable and login.

The **<method1>** parameter specifies the primary authentication method. The remaining optional **<method>** parameters specify the secondary methods to try if an error occurs with the primary method. A method can be one of the values listed in the Method Value column in the following table.

Authentication Method Values

Method Value	Description
tacacs or **tacacs+**	A TACACS/TACACS+ server. You can use either parameter. Each parameter supports both TACACS and TACACS+. You also must identify the server to the device using the **tacacs-server** command. See “Configuring for TACACS/TACACS+ Authentication” on page 2-34.
radius	A RADIUS server. You also must identify the server to the device using the **radius-server** command. See “Configuring for RADIUS Authentication” on page 2-39.
local	A local user name and password you configured on the device. Local user names and passwords are configured using the **username…** command. See “Configuring Local User Accounts” on page 2-32.
line	The password you configured for Telnet access. The Telnet password is configured using the **enable telnet password…** command. See “Setting a Telnet Password” on page 2-29.
enable	The super-user "enable" password you configured on the device. The enable password is configured using the **enable super-user-password…** command. See “Setting the Enable Passwords” on page 2-29.
none	No authentication is used. The device automatically permits access.

Possible values: see above

Default value: N/A

all-client

Restricts management access to the device to the host whose IP address you specify. No other device except the one with the specified IP address can access the device through Telnet (CLI), the Web (Web management interface), or SNMP.

If you want to restrict access for some of the management platforms but not all of them, use one or two of the following commands:

- **snmp-client** – restricts SNMP access. See “snmp-client” on page B-122.
- **telnet-client** – restricts Telnet access. See “telnet-client” on page B-127.
- **web-client** – restricts web access. See “web-client” on page B-131.

EXAMPLE:

To restrict all management access to the device to the host with IP address 209.157.22.26, enter the following command:

```
HP9300(config)# all-client 209.157.22.26
```

Syntax: [no] all-client <IP-addr>

Possible values: a valid IP address. You can enter one IP address with the command. You can use the command up to ten times for up to ten IP addresses.

Default value: N/A

appletalk arp-retransmit-count

Allows you to modify the maximum number of times that a packet will be sent out for ARP cache informational updates. The packet will be sent out to the maximum amount defined, until the information is received.

If no response is received before the count number expires, no additional packets will be sent.

EXAMPLE: To modify the number of times packet requests will be sent out for ARP updates from the default value of 2 to 8, enter the following:

```
HP9300(config)# appletalk arp retransmit-count 8
```

Syntax: appletalk arp retransmit-count <value>

Possible values: 1 – 10

Default value: 2

appletalk arp-retransmit-interval

Allows you to modify the interval between the transmission of ARP packets.

EXAMPLE: To modify the retransmission interval from the default value of 1 to 15 seconds, enter the following:

```
HP9300(config)# appletalk arp retransmit-interval 15
```

Syntax: appletalk arp retransmit-interval <value>

Possible values:1 – 120 seconds

Default value: 1

appletalk glean-packets

When the glean packet parameter is enabled on an AppleTalk router, it will try to learn the MAC address from the packet instead of sending out an AARP request.

EXAMPLE: To enable glean packets on an AppleTalk router, enter the following:

```
HP9300(config)# appletalk glean-packets
```

Syntax: appletalk glean-packets

Possible values: enabled or disabled

Default value: disabled

appletalk qos socket

You can use the QoS socket parameter to assign a higher priority to specific AppleTalk sockets. Possible values are either zero (0) for normal priority or one (1) for high priority when configuring a release 3.0 system. For release 4.0 software or higher, enter a value from 0 – 7. The default value for all sockets is zero (normal priority).

EXAMPLE: To assign a high priority to socket 123, enter the following:

```
HP9300(config)# appletalk qos socket 123 priority 1
```

Syntax: appletalk qos socket < 0 | 1 > (release 3.0 systems); appletalk qos socket < 0-7> (release 4.0 systems);

Possible values: 0 or 1 for release 3.0 systems; 0 – 7 for release 4.0 systems

Default value: 0

appletalk rtmp-update-interval

Allows you to modify how often RTMP updates are sent out on AppleTalk interfaces.

EXAMPLE: To change the value to 50 seconds from a default value of 10 seconds, enter the following:

```
HP9300(config)# appletalk rtmp-update-interval 50
```

Syntax: appletalk qos socket < 0 | 1 >

Possible values: 1 – 3600 seconds

Default value: 10 seconds

appletalk zip-query-interval

Allows you to modify how often ZIP query messages are retransmitted.

EXAMPLE: To change the ZIP query interval to 30 seconds from a default value of 10 seconds, enter the following:

```
HP9300(config)# appletalk zip-query-interval 30
```

Syntax: appletalk zip-query-interval < value >

Possible values: 1 to 1000 seconds

Default value: 10 seconds

arp…

Enters a static IP ARP entry for static routes. This command is not available on the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# arp 1 192.53.4.2 1245.7654.2348 e2
```

Syntax: arp <num> <ip-addr> <mac-addr> ethernet <portnum>

Possible values: Up to 16,000 entries can be defined.

Default value: N/A

boot system bootp

Initiates a system boot from a BootP server. You can specify the preferred initial boot source and boot sequence in the startup-config file. If upon boot, the user-specified boot source and sequence fails then by default, the switch or routing switch will attempt to load the software image from a different source. The following sources will be tried one at a time, in the order noted, until a software load is successful.

- flash primary
- flash secondary
- bootp

If the image does not load successfully from the above sources, you are prompted to enter alternative locations from which to load an image:

- boot system bootp
- boot system flash primary
- boot system flash secondary
- boot system tftp

EXAMPLE:

```
HP9300(config)# boot sys bootp
```

Syntax: boot system bootp

Possible values: N/A

Default value: N/A

boot system flash primary

Initiates a system boot of the primary software image stored in flash.

EXAMPLE:

```
HP9300(config)# boot sys fl pri
```

Syntax: boot system flash primary

Possible values: N/A

Default value: N/A

boot system flash secondary

Initiates a system boot of the secondary software image stored in flash.

EXAMPLE:

```
HP9300(config)# boot sys fl sec
```

Syntax: boot system flash secondary

Possible values: N/A

Default value: N/A

boot system tftp

Initiates a system boot of the software image from a TFTP server.

EXAMPLE:

```
HP9300(config)# boot sys tftp 192.22.33.44 current.img
```

NOTE: Before entering the TFTP boot command, you must first assign an **IP address**, **IP mask**, and **default gateway** (if applicable) at the boot prompt as shown.

EXAMPLE:

```
boot>ip address 192.22.33.44 255.255.255.0
boot>ip default-gateway 192.22.33.1
```

You now can proceed with the **boot system tftp…** command.

Syntax: boot system tftp <ip address> <filename>

Possible values: N/A

Default value: N/A

NOTE: See “Updating Software Images and Configuration Files” on page 4-1 for more information regarding software and configuration file transfers and updates.

bootp-relay-max-hops

Defines the maximum number of hops that a BootP request will be allowed to traverse before being dropped.

EXAMPLE:

```
HP9300(config)# bootp-relay-max-hops 5
```

Syntax: bootp-relay-max-hops <value>

Possible values: 1 – 15

Default value: 4

broadcast filter

Configures a Layer 2 broadcast packet filter. You can filter on all broadcast traffic or on IP UDP broadcast traffic.

EXAMPLE 1:

To configure a Layer 2 broadcast filter to filter all types of broadcasts, then apply the filter to ports 1/1, 1/2, and 1/3, enter the following commands:

```
HP9300(config)# broadcast filter 1 any
HP9300(config-bcast-filter-id-1)# exclude-ports ethernet 1/1 to 1/3
HP9300(config-bcast-filter-id-1)# write mem
```

EXAMPLE 2:

To configure two filters, one to filter IP UDP traffic on ports 1/1 – 1/4, and the other to filter all broadcast traffic on port 4/6, enter the following commands:

```
HP9300(config)# broadcast filter 1 ip udp
HP9300(config-bcast-filter-id-1)# exclude-ports ethernet 1/1 to 1/4
HP9300(config-bcast-filter-id-1)# exit
HP9300(config)# broadcast filter 2 any
HP9300(config-bcast-filter-id-2)# exclude-ports ethernet 4/6
HP9300(config-bcast-filter-id-2)# write mem
```

EXAMPLE 3:

To configure an IP UDP broadcast filter and apply that applies only to port-based VLAN 10, then apply the filter to two ports within the VLAN, enter the following commands:

```
HP9300(config)# broadcast filter 4 ip udp vlan 10
HP9300(config-bcast-filter-id-4)# exclude-ports eth 1/1 eth 1/3
HP9300(config-bcast-filter-id-1)# write mem
```

Syntax: [no] broadcast filter <filter-ID> <any | ip udp> [vlan <vlan-id>]

The **<filter-ID>** specifies the filter number and can a number from 1 – 8. The software applies the filters in ascending numerical order. As soon as a match is found, the software takes the action specified by the filter (block the broadcast) does not compare the packet against additional broadcast filters.

You can specify **any** or **ip udp** as the type of broadcast traffic to filter. The **any** parameter prevents all broadcast traffic from being sent on the specified ports. The **ip udp** parameter prevents all IP UDP broadcasts from being sent on the specified ports but allows other types of broadcast traffic.

If you specify a port-based VLAN ID, the filter applies only to the broadcast domain of the specified VLAN, not to all broadcast domains (VLANs) on the device.

As soon as you press Enter after entering the command, the CLI changes to the configuration level for the filter you are configuring. You specify the ports to which the filter applies at the filter's configuration level.

Syntax: [no] exclude-ports ethernet <port-num> to <port-num>

Or

Syntax: [no] exclude-ports ethernet <port-num> ethernet <port-num>

These commands specify the ports to which the filter applies.

NOTE: This is the same command syntax as that used for configuring port-based VLANs. Use the first command for adding a range of ports. Use the second command for adding separate ports (not in a range). You also can combine the syntax. For example, you can enter **exclude-ports ethernet 1/4 ethernet 2/6 to 2/9**.

Possible values: see above

Default value: N/A

broadcast limit

This command specifies the maximum number of broadcast packets the device can forward each second. By default the device sends broadcasts and all other traffic at wire speed and is limited only by the capacities of the hardware. However, if other devices in the network cannot handle unlimited broadcast traffic, this command allows you to relieve those devices by throttling the broadcasts at the device.

NOTE: The broadcast limit does not affect multicast or unicast traffic. However, you can use the **multicast limit** and **unknown-unicast limit** commands to control these types of traffic. See "multicast limit" on page B-113 and "unknown-unicast limit" on page B-129.

EXAMPLE:

```
HP9300(config)# broadcast limit 30000
```

Syntax: broadcast limit <num>

Possible values: 0 – 4294967295

Default value: N/A

chassis name

This command is used to name the device.

EXAMPLE: To change the name of a 9304M to RouterNYC from the system default, enter the following:

```
HP9300(config)# chassis name routernyc
Routernyc(config)#
```

Syntax: chassis name <text>

Possible values: Up to 32 alphanumeric characters can be assigned to hostname text string.

Default value: HP9300

chassis poll-time

Changes the number of seconds between polls of the power supply, fan, and temperature status.

Use the **show chassis** command to display the hardware status.

EXAMPLE: To change the hardware poll time from 60 seconds (the default) to 30 seconds:

```
HP9300(config)# chassis poll-time 30
```

Syntax: chassis poll-time <num>

Possible values: 0 – 65535

Default value: 60

chassis trap-log

Disables or re-enables status polling for individual power supplies and fans. When you disable status polling, a fault in the power supply does not generate a trap in the system log.

EXAMPLE: To disable polling of power supply 2, enter the following command:

```
HP9300(config)# no chassis trap-log ps2
```

Syntax: [no] chassis trap-log <ps1|ps2|ps3|ps4|fan1|fan2|fan3|fan4>

Possible values: see above

Default value: all traps enabled

clock summer-time

This command will automatically activate and deactivate daylight savings time for the relevant time zones.

EXAMPLE:

```
HP9300# clock summer-time
```

Syntax: clock summer-time

Possible values: N/A

Default value: N/A

clock time-zone

Allows you to define the time zone of the clock. This parameter is used in conjunction with the **clock set** command or for timestamps obtained from an SNTP server. The **clock set...** command is configured at the privileged EXEC level of the CLI.

NOTE: Use this **clock** command before all others to ensure accuracy of the clock settings.

NOTE: For those time zones that recognize daylight savings time, the **clock summer-time** command will also need to be defined.

NOTE: Clock settings are not saved over power cycles; however, you can configure the system to reference a SNTP server at power up. This server will then automatically download the correct time reference for the network. The local switch and routing switch will then adjust the time according to its time zone setting. For more details on setting up an SNTP reference clock, refer to the **sntp** command at the privileged EXEC level and the **sntp poll-interval** and **sntp server** commands at the global CONFG level.

EXAMPLE:

```
HP9300# clock time-zone us eastern
```

Syntax: clock time-zone <gmt>|<us> <time-zone>

Possible values: The following time zones can be entered for US or GMT:

- US time zones: alaska, aleution, arizona, central, east-indiana, eastern, hawaii, michigan, mountain, pacific, samoa
- GMT time zones: gmt+12, gmt+11, gmt+10...fmt+01, gmt+00, gmt-01...gmt-10, gmt-11, gmt-12

Default value: none

confirm-port-up

Reduces the number of up-status confirmations the software requires before bringing a port up for use. This command is useful for network interface cards (NICs) that are designed to come up very quickly in certain applications and are sensitive to the slight delay caused by the ports as they wait for the multiple status indications before coming up. You can configure a device to reduce the number of status indications the software requires before bringing up a 10/100Base-Tx port.

NOTE: Do not use this command unless advised to do so by HP technical support.

By default, devices wait for multiple indications that a port is good before bringing the port up. Specific types of networking devices are sensitive to the very slight delay caused by the multiple status indications. In this case, you can use one of the following methods to reduce the number of status indications the software requires before bringing up a 10/100Base-Tx port.

You can set this parameter on individual ports.

EXAMPLE: By default, the device brings a 10/100 Base-Tx port up after receiving three consecutive up-status indications for the port. You can reduce this number to just one indication. To reduce the up-status indications required to bring up 10/100 ports 1/1 – 1/8 to just one, enter the following commands:

```
HP9300(config)# int ethernet 1/1 to 1/8

HP9300(config-mif-1/1-1/8) confirm-port-up 1

HP9300(config-mif-1/1-1/8) write mem
```

Syntax: [no] confirm-port-up <num>

The **<num>** parameter specifies the number of indications required by the software and can be from 1 – 10. The default for chassis devices is 3.

Possible values: 1 – 10

Default value: 3

dhcp-gateway-list

This parameter must be defined when the feature, DHCP Assist, is enabled on a switch. A gateway address must be defined for each sub-net that will be requesting addresses from a DHCP server. This allows the stamping process to occur. Each gateway address defined on the switch corresponds to an IP address of the routing switch interface or other routing switch involved.

Up to eight addresses can be defined for each gateway list in support of ports that are multi-homed. When multiple IP addresses are configured for a gateway list, the switch inserts the addresses into the discovery packet in a round robin fashion.

Up to 32 gateway lists can be defined for each switch.

NOTE: For more details on this command and the DHCP Assist feature, see “Configuring DHCP Assist (switch only)” on page 8-48.

EXAMPLE: To define the sub-net address 192.95.5.1 as a gateway address and assign it to interface 2, enter the following:

```
HP6208(config)# dhcp-gateway-list 1 192.95.5.1

HP6208HP6208(config)# int e 2

HP6208(config-if-2)# dhcp-gateway-list 1
```

Syntax: dhcp-gateway-list <num> <ip-addr>

Possible values: N/A

Default value: N/A

default-vlan-id

When you enable port-based VLAN operation, all ports are assigned to VLAN 1 by default. As you create additional VLANs and assign ports to them, the ports are removed from the default VLAN. All ports that you do not assign to other VLANs remain members of default VLAN 1. This behavior ensures that all ports are always members of at least one VLAN.

You can change the VLAN ID for the default VLAN by entering the following command at the global CONFIG level of the CLI:

```
HP9300(config)# default-vlan-id 4095
```

You must specify a valid VLAN ID that is not already in use. For example, if you have already defined VLAN 10, do not try to use "10" as the new VLAN ID for the default VLAN. Valid VLAN IDs are numbers from 1 – 4095.

NOTE: Changing the default VLAN name does not change the properties of the default VLAN. Changing the name allows you to use the VLAN ID "1" as a configurable VLAN.

enable password

Three levels of passwords can be assigned to provide a range of access point for various users within the network.

The three levels are:

- Super user: This user has unlimited access to all levels of the CLI. This level is generally reserved for system administration. The super user is also the only user that can assign a password access level to another user.
- Configure Port: This user has the ability to configure interface parameters only. The user can also use the show commands.
- Read only: A user with this password level is able to use only the show commands. No configuration is allowed with this access type.

EXAMPLE:

```
HP9300(config)# enable super-user-password Ed
HP9300(config)# enable read-only-password Jenni
HP9300(config)# enable port-config-password Drusilla
```

Syntax: enable <super-user-password | read-only-password | port-config-password <text>

Possible values: Up to 32 alphanumeric characters can be assigned in the text field.

Default value: No system default

enable skip-page-display

Removes the stop page display characteristic for the **write terminal** command. For example, by default, when you enter the command **write terminal**, the full configuration file displayed will generally involve more than a single page display. You are prompted to press the Return key to view the next page of information. When this command is enabled, this page-by-page prompting will be removed and the entire display will roll on the screen until the end is reached.

To re-enable the stop page display characteristic, enter the **no enable skip-page-display**.

EXAMPLE: To remove the page-by-page display of configuration information, enter the following:

```
HP9300(config)# enable skip-page-display
```

Syntax: enable skip-page-display

Possible values: N/A

Default value: Disabled

enable snmp config-radius

Enables users of SNMP management applications to configure RADIUS authentication parameters on the device.

EXAMPLE: To enable SNMP users to configure RADIUS authentication parameters on the device, enter the following:

```
HP9300(config)# enable snmp config-radius
```

Syntax: enable snmp config-radius

Possible values: N/A

Default value: Disabled

enable snmp config-tacacs

Enables users of SNMP management applications to configure TACACS/TACACS+ authentication parameters on the device.

EXAMPLE: To enable SNMP users to configure TACACS/TACACS+ authentication parameters on the device, enter the following:

```
HP9300(config)# enable snmp config-tacacs
```

Syntax: enable snmp config-tacacs

Possible values: N/A

Default value: Disabled

enable telnet authentication

Allows you to use local access control, a RADIUS server, or a TACACS/TACACS+ server to authenticate telnet access to the device.

EXAMPLE:

```
HP9300(config)# enable telnet authentication
```

Syntax: [no] enable telnet authentication

Possible values: N/A

Default value: Disabled

enable telnet password…

Allows you to assign a password for Telnet session access. To close a Telnet session, enter **logout**.

EXAMPLE:

```
HP9300(config)# enable telnet password secretsalso
```

Syntax: enable telnet password <text>

Possible values: Up to 32 alphanumeric characters can be assigned as the password.

Default value: No system default.

end

Moves activity to the privileged EXEC level from any level of the CLI, with the exception of the user level.

EXAMPLE: To move to the privileged level, enter the following from any level of the CLI.

```
HP9300(config)# end
HP9300#
```

Syntax: end

Possible values: N/A

Default value: N/A

exit

Moves activity up one level from the current level. In this case, activity will be moved to the privileged level.

EXAMPLE: To move from the global level, back to the privileged level, enter the following:

```
HP9300(config)# exit
HP9300#
```

Syntax: exit

Possible values: N/A

Default value: N/A

flow-control

Allows you to turn flow control (802.3x) for full-duplex ports on or off (no). By default, flow control is on. To turn the feature off, enter the command **no flow-control**.

EXAMPLE:

```
HP9300(config)# no flow-control
```

To turn the feature back on later, enter the following command:

```
HP9300(config)# flow-control
```

Syntax: [no] flow-control

Possible values: N/A

Default value: on

gig-default

Changes the default negotiation mode for Gigabit ports. You can configure the default Gigabit negotiation mode to be one of the following:

- Negotiate-full-auto – The port first tries to perform a handshake with the other port to exchange capability information. If the other port does not respond to the handshake attempt, the port uses the manually configured configuration information (or the defaults if an administrator has not set the information). This is the default.
- Auto-Gigabit – The port tries to perform a handshake with the other port to exchange capability information.
- Negotiation-off – The port does not try to perform a handshake. Instead, the port uses configuration information manually configured by an administrator.

See “Changing the Default Gigabit Negotiation Mode” on page 8-20 for more information.

EXAMPLE: To change the mode globally to negotiation-off, enter the following command:

```
HP9300(config)# gig-default neg-off
```

To override the global default on an individual Gigabit port, see “gig-default” on page B-136.

Syntax: gig-default neg-full-auto | auto-gig | neg-off

Possible values: see above

Default value: neg-full-auto

hostname

Changes the hostname field to more easily identify the device within the network.

EXAMPLE: To change the host name of a 6308M-SX routing switch to "Router1" from the default, enter the following:

```
HP6308(config)# hostname Router1
Router1(config)#
```

Syntax: hostname <text>

Possible values: Up to 32 alphanumeric characters can be assigned to hostname text string.

Default value: HP6208 or HP6308

interface...

Accesses the interface CONFIG level of the CLI. You can define a physical interface, loopback interface, or virtual interface (ve) at this level.

By default, you can add up to 24 IP addresses to a physical, virtual, or loopback interface.

You can configure up to 255 virtual interfaces on a routing switch.

You can configure up to eight loopback interfaces on a routing switch.

EXAMPLE 1: To change the configuration for port 1 on the 6208M-SX switch, enter the following:

```
HP6208(config)# inter e 1
HP6208(config-if-1)#
```

NOTE: To change the port for a chassis, you also need to enter the slot number of the module on which the port resides.

Syntax: interface ethernet <port number | slot/port number>

Syntax: interface loopback <num>

Syntax: interface ve <num>

EXAMPLE 2: To add a virtual interface to a routing switch, enter the following. Use commands at the Virtual Interface level (vif) to configure the interface.

```
HP9300(config)# inter ve 1
HP9300(config-vif-1)#
```

Syntax: interface ve <num>

Possible values: 1 – 255 (chassis)

Default value: N/A

EXAMPLE 3: To add a loopback interface to a routing switch, enter the following:

```
HP9300(config)# int loopback 1
HP9300(config-lbif-1)# ip address 10.0.0.1/24
```

Syntax: interface loopback <num>

Possible values: 1 – 8 (chassis)

Default value: N/A

ip access-policy

This command configures permit and deny policies and Later 4 QoS policies on routing switches. See “Policies and Filters” on page D-1 for more information.

NOTE: After you configure an IP access policy, you need to apply it to specific ports using the ip access-policy-group command at the Interface level of the CLI. See “ip access-policy-group” on page B-137.

NOTE: For backward compatibility, the routing switches also support the **ip filter** and **ip policy** commands. The parameters are the same as those for the **ip access-policy** command.

Permit and Deny Policies

IP access policies are rules that determine whether the device forwards or drops IP packets. You create an IP access policy by defining an IP filter, then applying it to an interface. The filter consists of source and destination IP information and the action to take when a packet matches the values in the filter. You can configure an IP filter to permit (forward) or deny (drop) the packet.

You can apply an IP filter to inbound or outbound packets. When you apply the filter to an interface, you specify whether the filter applies to inbound packets or outbound packets. Thus, you can use the same filter on multiple interfaces and specify the filter direction independently on each interface.

EXAMPLE: To configure an IP access policy to explicitly permit HTTP traffic (TCP port 80) from IP address 10.0.0.1 on port 1/2, enter the following commands:

```
HP9300(config)# ip access-policy 2 permit 10.0.0.1 255.0.0.0 tcp eq 80
HP9300(config)# int e 1/2
HP9300(config-if-1/2)# ip access-policy-group in 2
```

Syntax: ip access-policy <num> deny|permit <ip-addr> <mask>|any <ip-addr> <mask>|any icmp|igmp|igrp|ospf|tcp|udp|<num> [<operator> [tcp/udp-port-num>]] [log]

ip access-policy-group in|out <policy-list>

ip access-policy-group in|out <policy-list>

The **<num>** parameter is the policy number.

The **deny|permit** parameter specifies the action the routing switch takes if a packet matches the policy.

- If you specify deny, the routing switch drops the packet.
- If you specify permit, the routing switch forwards the packet.

The **<ip-addr> <mask>|any <ip-addr> <mask>|any** parameters specify the source and destination IP addresses. If you specify a particular IP address, you also need to specify the mask for that address. If you specify **any** to apply the policy to all source or destination addresses, you do not need to specify **any** again for the mask. Make sure you specify a separate address and mask or **any** for the source and destination address.

The **icmp|igmp|igrp|ospf|tcp|udp|<num>** parameter specifies the Layer 4 port to which you are applying the policy. If you specify **tcp** or **udp**, you also can use the optional **<operator>** and **<tcp/udp-port-num>** parameters to fine-tune the policy to apply to specific TCP or UDP ports.

The **<operator>** parameter applies only if you use the **tcp** or **udp** parameter above. Use the **<operator>** parameter to specify the comparison condition for the specific TCP or UDP ports. For example, if you are configuring QoS for HTTP, specify **tcp eq http**. You can enter one of the following operators:

- **eq** – The policy applies to the TCP or UDP port name or number you enter after **eq**.
- **gt** – The policy applies to TCP or UDP port numbers greater than the port number or the numeric equivalent of the port name you enter after **gt**.
- **lt** – The policy applies to TCP or UDP port numbers that are less than the port number or the numeric equivalent of the port name you enter after **lt**.
- **neq** – The policy applies to all TCP or UDP port numbers except the port number or port name you enter after **lt**.
- **range** – The policy applies to all TCP or UDP port numbers that are between the first TCP or UDP port name or number and the second one you enter following the range parameter. The range includes the port names or numbers you enter. For example, to apply the policy to all ports between and including 23 (Telnet) and 53 (DNS), enter the following: **range 23 53**. The first port number in the range must be lower than the last number in the range.
- **established** – This operator applies only to TCP packets. If you use this operator, the policy applies to TCP packets that have the ACK (Acknowledgment) or RST (Reset) bits set on (set to "1") in the Control Bits field of the TCP packet header. Thus, the policy applies only to established TCP sessions, not to new sessions. See Section 3.1, "Header Format", in RFC 793 for information about this field.

The **log** parameter applies only to deny policies. This parameter generates a Syslog entry for packets that are denied by the policy. See Example 4 in “show logging” on page B-242.

Layer 4 Policies

EXAMPLE: To assign a priority of 4 to all HTTP traffic on port 3/12 on a routing switch, enter the following:

```
HP9300(config)# ip access-policy 1 priority 4 any any tcp eq http
HP9300(config)# int e 3/12
HP9300(config-if-3/12)# ip access-policy-group out 1
```

Syntax: ip access-policy <num> priority <0-7> <ip-addr> <mask>|any <ip-addr> <mask>|any <tcp|udp> [<operator> [tcp/udp-port-num>]]

ip access-policy-group <in|out> <policy-list>

The **<num>** parameter is the policy number.

The **priority <0-7>** and **high|normal** parameters specify the QoS priority level. The defaults are 0 (normal priority) and **normal**. The highest priority on chassis is 7.

The **<ip-addr> <mask>|any <ip-addr> <mask>|any** parameters specify the source and destination IP addresses. If you specify a particular IP address, you also need to specify the mask for that address. If you specify **any** to apply the policy to all source or destination addresses, you do not need to specify **any** again for the mask. Make sure you specify a separate address and mask or **any** for the source and destination address.

The **icmp|igmp|igrp|ospf|tcp|udp|<num>** parameter specifies the Layer 4 port to which you are applying the policy. If you specify **tcp** or **udp**, you also can use the optional **<operator>** and **<tcp/udp-port-num>** parameters to fine-tune the policy to apply to specific TCP or UDP ports.

The **<operator>** parameter applies only if you use the **tcp** or **udp** parameter above. Use the **<operator>** parameter to specify the comparison condition for the specific TCP or UDP ports. For example, if you are configuring QoS for HTTP, specify **tcp eq http**. You can enter one of the following operators:

- **eq** – The policy applies to the TCP or UDP port name or number you enter after **eq**.
- **gt** – The policy applies to TCP or UDP port numbers greater than the port number or the numeric equivalent of the port name you enter after **gt**.
- **lt** – The policy applies to TCP or UDP port numbers that are less than the port number or the numeric equivalent of the port name you enter after **lt**.
- **neq** – The policy applies to all TCP or UDP port numbers except the port number or port name you enter after **lt**.
- **range** – The policy applies to all TCP or UDP port numbers that are between the first TCP or UDP port name or number and the second one you enter following the range parameter. The range includes the port names or numbers you enter. For example, to apply the policy to all ports between and including 23 (Telnet) and 53 (DNS), enter the following: **range 23 53**. The first port number in the range must be lower than the last number in the range.
- **established** – This operator applies only to TCP packets. If you use this operator, the QoS policy applies to TCP packets that have the ACK (Acknowledgment) or RST (Reset) bits set on (set to "1") in the Control Bits field of the TCP packet header. Thus, the policy applies only to established TCP sessions, not to new sessions. See Section 3.1, "Header Format", in RFC 793 for information about this field.

ip address…

Assigns an IP address and network mask to a switch to support Telnet and SNMP management.

EXAMPLES:

```
HP6208(config)# ip address 192.22.3.44 255.255.255.0
HP6208(config)# ip address 192.22.3.44/24
```

Syntax: ip address <ip-addr> <mask>

or

ip address <ip-addr>/<mask-bits>

Possible values: N/A

Default value: N/A

ip arp-age

Defines how long an ARP entry will be resident in the ARP cache before it is aged out.

EXAMPLE:

```
HP9300(config)# ip arp-age 20
```

Syntax: ip arp-age <minutes>

Possible values: 0 – 240 minutes

Default value: 10 minutes

ip default-gateway

Assigns an IP address and mask to a switch to support Telnet and SNMP management.

This command is not available on routing switches.

EXAMPLE:

```
HP6208(config)# ip default-gateway 192.22.33.100
```

Syntax: ip default-gateway <ip address>

Possible values: N/A

Default value: N/A

ip directed-broadcast

Disables or re-enables forwarding of directed IP broadcasts on a routing switch.

EXAMPLE:

```
HP9300(config)# no ip directed-broadcast
```

Syntax: [no] ip directed-broadcast

Possible values: N/A

Default value: Forwarding of directed IP broadcasts is enabled.

ip dns domain-name

This command is used to define a domain name for a range of addresses on the switch or routing switch. This eliminates the need to type in the domain name. It will automatically be appended to the hostname.

EXAMPLE:

```
HP9300(config)# ip dns domain-name newyork.com
```

Syntax: ip dns domain-name

Possible values: N/A

Default value: N/A

ip dns server-address

Up to four DNS servers can be defined for each DNS entry. The first entry serves as the primary default address (207.95.6.199). If a query to the primary address fails to be resolved after three attempts, the next gateway address will be queried for three times as well. This process will continue for each defined gateway address until a query is resolved. The order in which the default gateway addresses are polled is tied to the order in which they are entered when initially defined as shown in the example.

EXAMPLE:

```
HP9300(config)# ip dns server-address 207.95.6.199 205.96.7.1 5 208.95.7.25
201.98.7.15
```

Syntax: ip dns server-address <ip-addr> [<ip-addr>] [<ip-addr>] [<ip-addr>]

Possible values: Up to four IP addresses

Default value: N/A

ip forward-protocol

This command is used in conjunction with the UDP helper feature to define the type of application traffic (port number socket) that is being forwarded to the server.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# ip-forward-protocol udp snmp-trap
```

Syntax: ip forward-protocol udp <UDP-application-name>|<UDP-application-num>

Possible values:

number	echo	snmp-trap
bootpc	mobile-ip	tacacs
bootps	netbios-dgm	talk
discard	netbios-ns	
dnsix	ntp	
tftp	snmp	

In addition, you can specify any UDP application by using the application's UDP port number.

Default value: By default, when an IP helper address is configured on an interface, UDP broadcast forwarding is enabled for the following UDP packet types: bootps, domain, tftp, time, netbios-dgm, netbios-ns and tacacs.

ip igmp group-membership-time

Defines how long a group will remain on an interface in the absence of a group report, if DVMRP is enabled on the routing switch.

NOTE: You must enter the **ip multicast-routing** command before entering this command. Otherwise, the command does not take effect and the software uses the default value.

EXAMPLE:

```
HP9300(config)# ip igmp group-membership-time 240
```

Syntax: ip igmp group-membership-time <value>

Possible values: 1 – 7200 seconds

Default value: 140 seconds

ip igmp max-response-time

Defines how many seconds the routing switch will wait for an IGMP response from an interface before concluding that the group member on that interface is down and removing the interface from the group.

NOTE: You must enter the **ip multicast-routing** command before entering this command. Otherwise, the command does not take effect and the software uses the default value.

EXAMPLE:

```
HP9300(config)# ip igmp max-response-time 5
```

Syntax: ip igmp max-response-time <value>

Possible values: 1 – 10 seconds

Default value: 10 seconds

ip igmp query-interval

Defines how often the routing switch will query an interface for group membership.

NOTE: You must enter the **ip multicast-routing** command before entering this command. Otherwise, the command does not take effect and the software uses the default value.

EXAMPLE:

```
HP9300(config)# ip igmp query 120
```

Syntax: ip igmp query-interval <value>

Possible values: 1 – 3600 seconds

Default value: 60 seconds

ip irdp

Enables a routing switch to advertise its network IP addresses to the network. The routing switch will also answer queries. IRDP stands for ICMP Router Discovery Protocol (IRDP).

EXAMPLE:

```
HP9300(config)# ip irdp
```

Syntax: ip irdp

Possible values: On, off

Default value: On

ip load-sharing

Allows traffic being sent from one routing switch to another to be sent across multiple paths of equal cost for faster transmission when using OSPF routing. OSPF routing must be enabled on the routing switch for this command to operate.

See “Enable Load Sharing” on page 10-21 for more information about this feature.

EXAMPLE:

```
HP9300(config)# ip load-sharing 6

HP9300(config)# exit
```

Syntax: ip load-sharing [<num>]

Possible values: 2 – 8

Default value: 4

ip multicast…

Enables IP Multicast Traffic Reduction on a 6208M-SX switch. A switch can operate in either an active or passive IP multicast mode. You must save changes to flash and reset (reload) the switch for the configuration changes to become active. For more details on this feature, see “Enabling or Disabling IP Multicast Traffic Reduction (switch only)” on page 8-53.

- If configured to be active, the switch will actively send out host queries to identify IP Multicast groups on the network and insert this information in the IGMP packet. Routers in the network generally handle this operation.
- If configured to be passive, the switch will only identify the packet as an IGMP packet and forward it accordingly.

EXAMPLE:

```
HP6208(config)# ip multicast passive
HP6208(config)# write memory
HP6208(config)# end
HP6208# reload
```

Syntax: ip multicast <active | passive>

Possible values: Active or passive

Default value: Disabled

ip multicast-routing

Allows you to change the following global IP Multicast parameters:

- IGMP query interval
- IGMP group membership time
- IGMP maximum response time

NOTE: You must enter the **ip multicast-routing** command before changing these parameters. Otherwise, the changes do not take effect and the software uses the default values.

EXAMPLE:

```
HP9300(config)# ip multicast-routing
```

Syntax: [no] ip multicast-routing

Possible values: N/A

Default value: Disabled

ip policy

Configures a Layer 4 QoS policy on a switch. You can configure the policy to apply globally or locally. If you configure it to apply globally, the policy applies to all ports. If you configure the policy to apply locally, you must use the **ip-policy** command to apply the policy to individual ports. See “ip-policy” on page B-143.

EXAMPLE 1: To configure a Layer 4 QoS policy to give the highest priority to HTTP packets on all ports on the 6208M-SX switch, enter the following command:

```
HP6208(config)# ip policy 1 priority 7 tcp http global
```

EXAMPLE 2: To configure a Layer 4 QoS policy to give the highest priority to HTTP packets on ports 1/1 and 1/2 on the 6208M-SX switch, enter the following commands:

```
HP6208(config)# ip policy 1 priority 7 tcp http local
HP6208(config)# int e 1
HP6208(config-if-1)# ip-policy 1
HP6208(config-if-1)# int e 2
HP6208(config-if-1)# ip-policy 1
```

Syntax: ip policy <num> priority <0-7> tcp|udp <tcp/udp-port-num> global|local

The **<num>** parameter is the policy number.

The **priority <0-7>** parameter specifies the QoS priority level. The default is 0 (normal priority). The highest priority is 7. See “Quality of Service Algorithm” on page C-1 for information about the QoS priorities.

The **tcp|udp <tcp/udp-port-num>** parameter specifies the TCP or UDP port to which you are applying the policy

The **global** and **local** parameters specify the scope of the policy:

- If you specify **global**, the policy applies to all ports.
- If you specify **local**, the policy will apply to the ports you specify. Use the following command on the Interface level of the CLI to apply the policy to a port: **ip-policy <num>**

Possible values: See above

Default value: normal or 0 priority

ip proxy-arp

Allows a routing switch to act as a proxy for devices on its interfaces when responding to ARP requests.

EXAMPLE:

```
HP9300(config)# ip proxy
```

Syntax: ip proxy-arp

Possible values: On or off

Default value: On

ip rarp

Enables Reverse Addressing Resolution Protocol (RARP) and allows the routing switch to assign IP addresses for hosts based on their MAC addresses. A routing switch will check the RARP table for an IP match to a MAC address sent from a host. If the table contains an entry for the MAC address, the routing switch will answer back with the IP address.

EXAMPLE:

```
HP9300(config)# ip rarp
```

Syntax: ip rarp

Possible values: N/A

Default value: N/A

ip route

Allows you to configure static IP routes for a routing switch.

EXAMPLE:

```
HP9300(config)# ip route 1 192.0.0.0 255.0.0.0 195.1.1.1
```

NOTE: You can also assign the default routing switch as the destination by entering 0.0.0.0 0.0.0.0.

Syntax: ip route <routenum> <dest-ip-addr> <dest-mask> <next-hop-ip-addr> [<metric>] [distance <num>]

Possible values: Route number (1 – 16), IP address and mask of destination, next hop router IP address, metric (default 1, maximum 16), distance (default 1, maximum 255, which makes the route unusable)

Default value: metric 1, distance 1

NOTE: The routing switch will replace the static route if the routing switch receives a route with a lower administrative distance. See “Changing Administrative Distances” on page 12-22 for a list of the default administrative distances for all types of routes.

---

ip router-id

Assigns a router ID to a routing switch. OSPF and BGP4 use router IDs to identify routers. A routing switch can have one router ID, which is used by both OSPF and BGP4 if both are enabled.

Router IDs are in IP address format (for example, 1.1.1.1). The default router ID is the numerically lowest IP address configured on the routing switch. This ensures that the router ID on each routing switch is unique even if you use the default value.

EXAMPLE:

```
HP9300(config)# ip router-id 1.1.1.1
```

Syntax: ip router-id <ip-addr>

Possible values: N/A

Default value: the numerically lowest IP address configured on the routing switch

ip show-subnet-length

Changes display of network mask information from class-based notation (xxx.xxx.xxx.xxx) to Classless Interdomain Routing (CIDR) notation. By default, devices display network mask information in class-based notation.

EXAMPLE:

```
HP9300(config)# ip show-subnet-length
```

Syntax: [no] ip show-subnet-length

Possible values: N/A

Default value: Disabled

ip ttl

Sets the maximum time that a packet will live on the network.

This command applies both to the routing switches and to the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# ip ttl 25
HP9300(config)# exit
HP9300# write mem
```

Syntax: ip ttl <hops>

Possible values: 1 – 255 hops

Default value: 64 hops

ipx forward-filter

Defines forward filters for IPX routes.

IPX must be enabled on the switch or routing switch and a network number and frame type defined for each IPX interface, for this command to be operational.

EXAMPLE:

```
HP9300(config)# ipx forward-filter 2 permit 1110005 451 11101050 120 any
```

Syntax: ipx forward-filter <index> <permit|deny> <source network number | any> <source node number | any> <destination network number | any> <destination node number | any> <destination socket number | any>

Possible values: up to 32 forward filters

Default value: N/A

ipx max-rip-entries

Defines the maximum number of IPX/RIP routes that will be stored and forwarded. IPX must be enabled on the routing switch for this command to be operational.

NOTE: This command is only available on routing switches installed with release 3.0 software. In release 4.0, this parameter is set using the **system-max** command at the global CONFIG level.

EXAMPLE:

```
HP9300(config)# ipx max-rip-entries 3500
```

Syntax: ipx max-rip-entries <value>

Possible values: 64 – 8192

Default value: 2048

ipx max-sap-entries

Defines the number of IPX/SAP server entries that will be stored and forwarded. IPX must be enabled on the routing switch for this command to be operational.

EXAMPLE:

```
HP9300(config)# ipx max-sap-entries 4000
```

Syntax: ipx max-sap-entries <value>

Possible values: 128 – 8192

Default value: 4096

ipx netbios-allow

Enables NetBIOS broadcasts (type 20) to be routed over IPX. IPX must be enabled on the routing switch and a network number and frame type defined for each IPX interface.

EXAMPLE:

```
HP9300(config)# ipx netbios-allow
```

Syntax: ipx netbios-allow

Possible values: N/A

Default value: disabled

ipx rip-filter

Defines IPX/RIP filters for the routing switch. IPX must be enabled on the routing switch for this command to be operational.

EXAMPLE:

```
HP9300(config)# ipx rip-filter 2 permit 11005000 fffff00
```

-OR-

```
HP9300(config)# ipx rip-filter 2 permit any any
```

Syntax: ipx rip-filter <index> <permit|deny> <network number | any> <network mask | any>

Possible values: up to 32 RIP filters can be defined for a routing switch

Default value: N/A

ipx rip-filter-group

Allows a group of filters to be applied globally to all IPX interfaces at the Global Level, or individually to an IPX interface at the Interface Level. The filter can be applied to either incoming or outgoing traffic.

EXAMPLE: To apply previously defined filters 1, 2, 3, and 10 to all incoming IPX RIP routes across all interfaces, enter the following command:

```
HP9300(config)# ipx rip-filter-group in 1 2 3 10
```

To apply filters on an individual interface (e.g. interface 2) basis versus globally, enter the following:

```
HP9300(config)# int e2
```

```
HP9300(config-if-2)# ipx rip-filter-group in 1 2 3 10
```

Syntax: ipx rip-filter-group <in|out> <index>

Possible values: in or out, filter Ids

Default value: disabled

ipx sap-filter

Defines IPX/SAP filters for all IPX interfaces on the routing switch. The IPX network number and frame type must be defined for the interfaces for this command to be operational.

EXAMPLE:

```
HP9300(config)# ipx sap-filter 5 permit any server1
```

-OR-

```
HP9300(config)# ipx sap-filter 5 permit 0004 any
```

Syntax: ipx sap-filter <index> <permit|deny> <server type | any> <server name | any>

Possible values: Filter IDs

Default value: Disabled

ipx sap-filter-group

Allows a group of defined IPX/SAP filters to be applied either globally (at the Global Level) or individually (at the Interface Level) to IPX interfaces on the routing switch.

The filter can be applied to either incoming or outgoing traffic.

EXAMPLE: To apply previously defined filters 2, 3, and 10 to all incoming IPX SAP server traffic across all interfaces, enter the following command:

```
HP9300(config)# ipx sap-filter-group in 2 3 5
```

To apply filters on an individual interface basis instead of a global basis (for example, apply a filter to interface 2), enter the following:

```
HP9300(config)# int e2
```

```
HP9300(config-if)# ipx sap-filter-group in 2 3 5
```

Syntax: ipx sap-filter-group <in|out> <index>

Possible values: in or out, defined filter indexes

Default value: N/A

lock-address ethernet

Allows you to limit the number of devices that have access to a specific port. The parameter **address count** will only allow that value of learned addresses to have access to the port. Access violations will be reported in SNMP traps.

EXAMPLE:

```
HP9300(config)# lock e2 addr 15
```

```
HP9300(config-if)# end
```

```
HP9300# write memory
```

Syntax: lock-address ethernet <port number> [addr-count <number>]

Possible values: Address count: 1 – 2,048

Default value: Address count: 8

logging

You can save SNMP traps locally to an event log on the switch or routing switch by turning this feature on. You also can configure the device to use one or two third-party SyslogD servers and modify the message level and facility using this command. In addition, you can change the number of log messages the local Syslog buffer will retain.

EXAMPLE 1: To enable logging of SNMP traps to a locally saved event log, enter the following:

```
HP9300(config)# logging on
```

Syntax: logging <on | off>

Possible values: On, off

Default value: Disabled (off)

EXAMPLE 2: To specify two third-party SyslogD servers to receive Syslog messages in addition to the device's local Syslog buffer, enter commands such as the following:

```
HP9300(config)# logging 10.0.0.99
HP9300(config)# logging 209.157.23.69
```

Syntax*:* logging <ip-address |server-name>

NOTE: If you specify two SyslogD servers, the device uses the same facility and message level for messages to both servers.

Possible values: N/A

Default value: N/A

EXAMPLE 3: To change the logging facility from the default facility user to local7, enter the following command:

```
HP9300(config)# logging local7
```

Syntax*:* logging facility <facility-name>

Possible values:

- kern – kernel messages
- user – random user-level messages
- mail – mail system
- daemon – system daemons
- auth – security/authorization messages
- syslog – messages generated internally by syslogd
- lpr – line printer subsystem
- news – netnews subsystem
- uucp – uucp subsystem
- sys9 – cron/at subsystem
- sys10 – reserved for system use
- sys11 – reserved for system use
- sys12 – reserved for system use

- sys13 – reserved for system use
- sys14 – reserved for system use
- cron – cron/at subsystem
- local0 – reserved for local use
- local1 – reserved for local use
- local2 – reserved for local use
- local3 – reserved for local use
- local4 – reserved for local use
- local5 – reserved for local use
- local6 – reserved for local use
- local7 – reserved for local use

Default value: user

EXAMPLE 4: To disable logging of debugging and informational messages, enter the following commands:

```
HP9300(config)# no logging buffered debugging
HP9300(config)# no logging buffered informational
```

Syntax: [no] logging buffered <level>

Possible values: The <level> can be emergencies, alerts, critical, errors, warnings, notifications, informational, or debugging.

Default value: All message levels are enabled by default. You can disable message levels individually.

EXAMPLE 5: To change the local buffer capacity from the default 50 to 100, enter the following command:

```
HP9300(config)# logging buffered 100
```

Syntax: logging buffered <num-entries>

Possible values: <num-entries> can be 50 – 100

Default value: default local buffer capacity is 50 entries.

m2 active-management

In chassis containing Redundant Management modules, changes the default assignment of the active management module. By default, the Redundant Management module in the lower slot number becomes the active Redundant Management module. You must use this command to override the default and make the Redundant Management module in the higher slot number the default active module.

NOTE: This command applies only to devices containing Redundant Management modules.

NOTE: The change does not take effect until you reload the system. If you save the change to the active module's system-config file before reloading, the change persists across system reloads. Otherwise, the change affects only the next system reload.

EXAMPLE: To override the default and specify the active Redundant Management module, enter a command such as the following:

```
HP9300(config)# m2 active-management 5
```

Syntax: m2 active-management <slot-num>

- Slots on the 6304M are numbered 1 – 4, from top to bottom.
- Slots on the 6308M are numbered 1 – 8, from left to right.

This command overrides the default and makes the Redundant Management module in slot 5 the active module following the next reload. The change affects only the next reload and does not remain in effect for future reloads.

To make the change permanent across future reloads, enter the write memory command to save the change to the system-config file, as shown in the following example:

```
HP9300(config)# m2 active-management 5
HP9300(config)# write mem
```

Possible values: a valid chassis slot number

Default value: the Redundant Management module in the lower-numbered chassis slot is the default active module

m2 load-standby-source

Copies the system software image file onto the flash memory of a standby Redundant Management module. Use this command if your primary boot source is TFTP.

During switchover, the standby Redundant Management module boots using the system software it copied from the other Redundant Management module's primary or secondary flash. By default, the standby module uses the same flash (primary or secondary) as the active module uses for its primary boot source.

However, a standby Redundant Management module does not boot from a TFTP or BootP server. If the active module uses a TFTP or BootP server as the primary boot source, you must copy the flash code (system software) onto the active module's flash, then instruct the active module to boot the standby module using the software.

NOTE: This command applies only to devices containing Redundant Management modules.

EXAMPLE: To copy the routing switch flash code for software version 05.2.00 (B2R05200) from a TFTP server to the active Redundant Management module's primary flash, then load the standby module using the copied flash code, enter the following commands:

```
HP9300# copy tftp flash 209.157.22.5 B2R05200.bin primary
HP9300# m2 load-standby-source primary
```

Syntax: copy tftp flash <TFTP-IP-addr> <file-name> primary|secondary

Syntax: m2 load-standby-source primary|secondary

Possible values: see above

Default value: N/A

m2 sync boot-standby

Configures a device containing Redundant Management modules to automatically update the boot flash on the standby Redundant Management module to the version installed on the active Redundant Management module. The "active" module is the Redundant Management module that is active when you enter the command or select the Web management option.

By default, the active Redundant Management module does not synchronize its boot flash code with the boot flash code on the standby Redundant Management module. Thus, it is possible for the Redundant Management modules to have different boot flash releases. If the active module is updated with boot code that contains a problem, the system can still run using the standby module, which is running the older boot code.

NOTE: This command applies only to devices containing Redundant Management modules.

EXAMPLE: To enable boot code synchronization, enter the following commands:

```
HP9300(config)# m2 sync boot-standby
HP9300(config)# write mem
```

Syntax: m2 sync boot-standby

Possible values: N/A

Default value: N/A

m2 sync running-config

Changes the interval at which the active Redundant Management module updates the running-config file on the standby Redundant Management module. You also can disable the updates.

At system startup and each time you save the system-config file, the active Redundant Management module updates the system-config file on the standby Redundant Management module. By default, the active Redundant Management module also sends a copy of the running-config file to the standby Redundant Management module every 10 seconds. Thus, if a switchover occurs, the standby module contains not only the configuration information in the system-config file, but also the unsaved configuration changes, which are contained in the running-config file.

NOTE: This command applies only to devices containing Redundant Management modules.

EXAMPLE: To change the synchronization interval for the running-config file to 15 seconds, enter the following commands:

```
HP9300(config)# m2 sync running-config 15
HP9300(config)# write mem
```

Syntax: m2 sync running-config [<num>]

You can specify from 4 – 20 seconds. If you set the interval to 0, the file is not copied to the standby Redundant Management module. If you do not specify a value, the current value is shown. Here is an example:

```
HP9300(config)# m2 sync running-config
Current m2 sync running-config-standby period is 15 seconds
```

Possible values: 0 or 4 – 20 seconds; 0 disables synchronization of the running-config file.

Default value: 10 seconds

mac-age-time

Sets the aging period for all address entries in the switch or routing switch address table.

EXAMPLE:

```
HP9300(config)# mac-age 600
```

Syntax: mac-age-time <value>

Possible values: 0 – 65,535 seconds. If you specify 0, the entries do not age.

Default value: 300 seconds

mac filter

Allows you to filter on MAC addresses.

NOTE: You cannot use Layer 2 filters to filter Layer 4 information. To filter Layer 4 information, use IP access policies. See “Defining IP Access Policies” on page 9-14.

EXAMPLE:

```
HP9300(config)# mac filter 2 deny 3565.3475.3676 any etype eq 806
```

Syntax: mac filter <filter-num> permit|deny any|<H.H.H> any|<H.H.H> etype|IIc|snap eq|gt|lt|neg <frame-type>

Possible values:

The <filter-num> is 1 – 64 (64 is the default system-max setting). If you use the **system-max mac-filter-sys** command, you can increase the maximum number of MAC filters support to 128 for global filter definitions.

The **permit|deny** argument determines the action the software takes when a match occurs.

The first **any**|<H.H.H> argument specifies the source MAC address matching criteria. Use the keyword **any** to apply the filter to all source MAC addresses. If you use **any**, you do not need the mask keyword. Enter the MAC address as three groups of two bytes each separated by a period. Example: 0260.8C00.0102. The mask is bit-significant; if the mask has a bit set to one, then the corresponding bit in the MAC address is significant (that is, it is checked).

The second **any**|<H.H.H> argument specifies the destination MAC address matching criteria. Use the keyword **any** to apply the filter to all destination MAC addresses. If you use **any**, you do not need the mask keyword. Enter the MAC address as three groups of two bytes each separated by a period. Example: 0260.8C00.0102. The mask is bit-significant; if the mask has a bit set to one, then the corresponding bit in the MAC address is significant (that is, it is checked).

Use the **etype|llc|snap** argument if you want to filter on information beyond the source and destination address. The MAC filter allows for you to filter on the following encapsulation types:

- **etype** (Ethertype) – a two byte field indicating the protocol type of the frame. This can range from 0x0600 to 0xFFFF.
- **llc** (IEEE 802.3 LLC1 SSAP and DSAP) – a two byte sequence providing similar function as the EtherType but for an IEEE 802.3 frame.
- **snap** (IEEE 802.3 LLC1 SNAP) – a specific LLC1 type packet.

To determine which type of frame is used on your network, use a protocol analyzer. If byte 12 of an Ethernet packet is equal to or greater than 0600 (hex), it is an Ethernet framed packet. Any number below this indicates an IEEE 802.3 frame (byte 12 will now indicate the length of the data field). Some well-known Ethernet types are 0800 (TCP/IP), 0600 (XNS), and 8137 (Novell Netware). Refer to RFC 1042 for a complete listing of EtherTypes.

For IEEE 802.3 frame, you can further distinguish the SSAP and DSAP of LLC header. Some well-known SAPs include: FE (OSI), F0 (NetBIOS), 42 (Spanning Tree BPDU), and AA (SNAP). Usually the DSAP and SSAP are the same.

NOTE: You must type in both bytes, otherwise the software will fill the field, left justified with a 00. Refer to RFC 1042 for a complete listing of SAP numbers.

SNAP is defined as an IEEE 802.3 frame with the SSAP, DSAP, and control field set to AA, AA, and 03. Immediately following these is a five-byte SNAP header. The first three bytes in this header are not used by the MAC filters. However, the next two bytes usually are set to the EtherType, so you can define the EtherType inside the SNAP header that you want to filter on.

The **eq|gt|lt|ne**g argument specifies the possible operator: eq (equal), gt (greater than), lt (less than) and neg (not equal).

The <frame-type> argument is a hexadecimal number for the frame type. For example, the hex number for ARP is 806.

Default value: N/A

Additional Examples of Layer 2 MAC Filter Definitions

```
HP9300(config)# mac filter 1 permit any any etype eq 0800
```

This filter configures the device to permit (forward) any inbound packet with the Ethertype field set to 0800 (IP).

```
HP9300(config)# mac filter 2 deny 0080.0020.000 ffff.ffff.0000 any etype eq 0800
```

This filter configures the device to deny an inbound packet with the first four bytes set to 0800.0020.xxxx *and* an EtherType field set to 0800 (IP). The destination field does not matter.

```
HP9300(config)# mac filter 3 deny any 00e0.5200.1234 ffff.ffff.ffff snap eq 0800
```

This filter configures the device to deny any inbound IEEE 802.3 packet with a destination set to 00e0.5200.1234 and a SNAP EtherType set to 0800. The source address does not matter.

```
HP9300(config)# mac filter 32 permit any any
```

This filter permits all packets. This filter is used as the last filter assigned in a filter-group that has previous deny filters in the group.

Abbreviating the Address or Mask

Address and Mask abbreviations are allowed. However, be careful when configuring them. The default fill character is a 0 and it will fill a byte range as left-justified. This applies only to the MAC address and mask. A range of frame types cannot be filtered. Each frame type must be entered. Here are some examples.

```
HP9300(config)# mac filter 1 deny 0800.0700 ffff.ff00 any
```

This command expands to the following: `mac filter 1 deny 0800.0700.0000 ffff.ff00.0000`

The filter shown above denied forwarding of an inbound frame that has the source address set to 080007 as the first three bytes. All other information is not significant.

Here is another example of the fill feature.

```
HP9300(config)# mac filter 2 deny 0260.8C00.0102 0.0.ffff any
```

This command expands to the following: `mac filter 1 deny 0260.8C00.0102 0000.0000.ffff any`

Since the fill character is 0's and the fill is left justified, certain filters will not allow for abbreviations. For example, suppose you want to deny an inbound packet that contained a broadcast destination address. Enter the following command:

```
HP9300(config)# mac filter 5 deny any ff ff
```

This command contains a destination of address all F's and mask of F's. The command expands to the following:

```
HP9300(config)# mac filter 1 deny any 00ff.0000.0000 00ff.0000.0000
```

Here is another example for DSAP and SSAP.

```
HP9300(config)# mac filter 10 deny any any llc eq F0
```

This command expands to the following: `mac filter 2 deny any any llc eq 00f0`

If you want to filter on both the SSAP and DSAP, then the following example shows this:

```
HP9300(config)# mac filter 4 deny any 0020.0010.1000 ffff.ffff.0000 llc eq e0e0
```

mac filter log_en

Enables logging of packets that are denied by Layer 2 MAC filters. When you enable this feature, the device generates Syslog entries and SNMP traps for denied packets.

See Example 4 in "show logging" on page B-242 for an example of log entries generated by this feature.

EXAMPLE:

```
HP9300(config)# mac filter log_en
```

Syntax: mac filter log_en

Possible values: N/A

Default value: Disabled

mirror-port ethernet

Enables and assigns a specific port to operate as a mirror port for other ports on a switch or routing switch. Once enabled, you can connect an external traffic analyzer to the port for traffic analysis.

You also need to enable the **monitor** command on a port for it to be mirrored by this port.

EXAMPLE 1: To assign port 1 on module 1 as the mirror port and port 5 on the same module as the port to be monitored, enter the following:

```
HP9300(config)# mirror-port e 1/1
HP9300(config)# interface e 1/5
HP9300(config-if-1/5)# monitor both
```

NOTE: To define a mirror port on a chassis system, define a slot number in addition to the port number as seen in the syntax below.

Syntax: mirror-port ethernet <port number | slot/port number>

Possible values: N/A

Default value: Undefined

module

Adds a hardware module to a 9304M or 9308M chassis.

EXAMPLE: To add an 8-port Gigabit Ethernet management module to slot 3 in a chassis, enter the following command:

```
HP9300(config)# module 3 8-port-gig-management-module
```

Syntax: module <slot-number> <module-type>

The <slot number> parameter indicates the chassis slot number.

- Slots on the 9304M are numbered 1 – 4, from top to bottom.
- Slots on the 9308M are numbered 1 – 8, from left to right.

See “Slot and Port Numbers” on page 6-8 for more information about slot and port numbering.

The <module type> parameter can be one of the following. You can, of course, take advantage of the CLI’s support for abbreviated command and parameter names.

NOTE: Some module strings apply to more than one module. This is because the slot configuration does not differ based on the physical layer. For example, a slot does not distinguish between an 8-port LX Fiber module and 8-port SX Fiber module. However, the software does indicate the physical layer type when you display module information. For example, the output of the **show module** command indicates the physical layer types of each module.

Table 2.2: Module Options

Module Type	Part Number and Description	Module String
Redundant Management modules	J4845A HP ProCurve 9300 GigLX Redundant Management Module (8-port)	8-port-gig-management-module
	J4846A HP ProCurve 9300 GigSX Redundant Management Module (8-port)	8-port-gig-management-module
	J4847A J4847A HP ProCurve 9300 Redundant Management Module (0-port)	0-port-management-module

Table 2.2: Module Options

Module Type	Part Number and Description	Module String
Management modules	J4141A ProCurve 9300 10/100 Management Module (16-port)	16-port-copper-management-module
	J4144A HP ProCurve 9300 Gigabit SX Management Module (8-port)	8-port-gig-management-module
	J4146A HP ProCurve 9300 Gigabit 4LX/ 4SX Management Module (8-port)	8-port-gig-management-module
Unmanaged modules	J4140A HP ProCurve 9300 10/100 Module (24-port)	24-port-copper-module
	J4142A HP ProCurve 9300 100Base FX Module (24-port MT-RJ)	24-port-100fx-module
	J4143A HP ProCurve 9300 Gigabit SX Module (8-port)	8-port-gig-module
	J4145A HP ProCurve 9300 Gigabit 4LX/ 4SX Module (8-port)	8-port-gig-module
	J4844A HP ProCurve 9300 GigLX Module (8-port)	8-port-gig-module

Possible values: see above

Default value: N/A

multicast filter

Configures a Layer 2 filter for multicast packets. You can filter on all multicast packets or on specific multicast groups.

EXAMPLE 1:

To configure a Layer 2 multicast filter to filter all multicast groups, then apply the filter to ports 2/4, 2/5, and 2/8, enter the following commands:

```
HP9300(config)# multicast filter 1 any
HP9300(config-mcast-filter-id-1)# exclude-ports ethernet 2/4 to 2/5 ethernet 2/8
HP9300(config-mcast-filter-id-1)# write mem
```

EXAMPLE 2:

To configure a multicast filter to block all multicast traffic destined for multicast addresses 0100.5e00.5200 – 0100.5e00.52ff on port 4/8, enter the following commands:

```
HP9300(config)# multicast filter 2 0100.5e00.5200 ffff.ffff.ff00
HP9300(config-mcast-filter-id-2)# exclude-ports ethernet 4/8
HP9300(config-mcast-filter-id-2)# write mem
```

The software calculates the range by combining the mask with the multicast address. In this example, all but the last two bits in the mask are “significant bits” (ones). The last two bits are zeros and thus match on any value.

Syntax: [no] multicast filter <filter-ID> any|ip udp mac <multicast-address>|any [mask <mask>] [vlan <vlan-id>]

The parameter values are the same as the for the broadcast filter command. In addition, the multicast filter command requires the **mac <multicast-address> | any** parameter, which specifies the multicast address. Enter **mac any** to filter on all multicast addresses. Enter **mac** followed by a specific multicast address to filter only on that multicast address.

To filter on a range of multicast addresses, use the **mask <mask>** parameter. For example, to filter on multicast groups 0100.5e00.5200 – 0100.5e00.52ff, use **mask ffff.ffff.ff00**. The default mask matches all bits (is all Fs). You can leave the mask off if you want the filter to match on all bits in the multicast address.

Possible values: see above

Default value: N/A

multicast limit

This command specifies the maximum number of multicast packets the device can forward each second. By default the device sends multicasts and all other traffic at wire speed and is limited only by the capacities of the hardware. However, if other devices in the network cannot handle unlimited multicast traffic, this command allows you to relieve those devices by throttling the multicasts at the device.

NOTE: The multicast limit does not affect broadcast or unicast traffic. However, you can use the **broadcast limit** and **unknown-unicast limit** commands to control these types of traffic. See “broadcast limit” on page B-88 and “unknown-unicast limit” on page B-129.

EXAMPLE:

```
HP9300(config)# multicast limit 30000
```

Syntax: multicast limit <num>

Possible values: 0 – 4294967295

Default value: N/A

no

This command is used to disable many commands. To do so, place the word ***no*** before the command.

password-change

This command allows you to define those access points from which the system password can be defined. Options are **serial-port-only**, **telnet-only**, or **any**. The **any** option allows the password to be modified from a serial port, Telnet session.

EXAMPLE: To allow password changes from a serial port connection only, enter the following command:

```
HP9300(config)# password-change serial-port only
```

Syntax: password-change <any | serial-port-only | telnet-only>

Possible values: any, serial-port-only or telnet-only

Default value: None

perf-mode

This command allows you to define the performance mode as 'high' to allow flow control to activate at an earlier stage, when heavy congestion exists on the network. This feature must be saved to memory and the system reset before it becomes active.

EXAMPLE:

```
HP9300> perf-mode hi
```

Syntax: perf-mode <normal | hi>

Possible values: hi

Default value: normal

ping

Verifies connectivity to a switch or routing switch or other device. The command performs an ICMP echo test to confirm connectivity to the specified device.

EXAMPLE:

```
HP9300#(config) ping 192.22.2.33
```

Syntax: ping <ip address>|<hostname> [count <num>] [timeout <msec>] [ttl <num>] [size <byte>] [no-fragment] [quiet] [verify] [data <1 – 4 byte hex>]

The only required parameter is the IP address or host name of the device.

NOTE: If the device is a switch or routing switch, you can use the host name only if you have already enabled the Domain Name Server (DNS) resolver feature on the device from which you are sending the ping. See "Enabling Domain Name Server (DNS) Resolver" on page 8-6.

The **count** <num> parameter specifies how many ping packets the device sends. You can specify from 1 – 4294967296. The default is 1.

The **timeout** <msec> parameter specifies how many milliseconds the device waits for a reply from the pinged device. You can specify a timeout from 1 – 4294967296 milliseconds. The default is 5000 (5 seconds).

The **ttl** <num> parameter specifies the maximum number of hops. You can specify a TTL from 1 – 255. The default is 64.

The **size** <byte> parameter specifies the size of the ICMP data portion of the packet. This is the payload and does not include the header. You can specify from 0 – 4000. The default is 16.

The **no-fragment** parameter turns on the "don't fragment" bit in the IP header of the ping packet. This option is disabled by default.

The **quiet** parameter hides informational messages such as a summary of the ping parameters sent to the device and instead only displays messages indicating the success or failure of the ping. This option is disabled by default.

The **verify** parameter verifies that the data in the echo packet (the reply packet) is the same as the data in the echo request (the ping). By default the device does not verify the data.

The **data** <1 – 4 byte hex> parameter lets you specify a specific data pattern for the payload instead of the default data pattern, "abcd", in the packet's data payload. The pattern repeats itself throughout the ICMP message (payload) portion of the packet.

NOTE: For numeric parameter values, the CLI does not check that the value you enter is within the allowed range. Instead, if you do exceed the range for a numeric value, the software rounds the value to the nearest valid value.

Possible values: see above

Default value: see above

privilege

This command augments the default access privileges for an access level. When you configure a user account, you can give the account one of three privilege levels: full access, port-configuration access, and read-only access. Each privilege level provides access to specific areas of the CLI by default:

- Full access provides access to all commands and displays.
- Port-configuration access gives access to:
  - The User EXEC and Privileged EXEC levels, and the port-specific parts of the CONFIG level
  - All interface configuration levels
- Read-only access gives access to:
  - The User EXEC and Privileged EXEC levels

EXAMPLE:

To enhance the port-configuration privilege level so users also can enter ip commands at the global CONFIG level (useful for adding IP addresses for multinetting), enter the following command:

```
HP9300(config)# privilege configure level 4 ip
```

In this command, configure specifies that the enhanced access is for a command at the global CONFIG level of the CLI. The level 4 parameter indicates that the enhanced access is for privilege level 4 (port-configuration). All users with port-configuration privileges will have the enhanced access. The **ip** parameter indicates that the enhanced access is for the IP commands. Users who log in with valid port-configuration level user names and passwords can enter commands that begin with "ip" at the global CONFIG level.

Syntax: [no] privilege <CLI-level> level <privilege-level> <command-string>

The <CLI-level> parameter specifies the CLI level and can be one of the following values:

- **exec** – EXEC level; for example, `HP9300> or HP9300#`
- **configure** – CONFIG level; for example, `HP9300(config)#`
- **interface** – interface level; for example, `HP9300(config-if-6)#`
- **virtual-interface** – virtual-interface level; for example, `HP9300(config-vif-6)#`
- **rip-router** – RIP router level; for example, `HP9300(config-rip-router)#`
- **ospf-router** – OSPF router level; for example, `HP9300(config-ospf-router)#`
- **dvmrp-router** – DVMRP router level; for example, `HP9300(config-dvmrp-router)#`
- **pim-router** – PIM router level; for example, `HP9300(config-pim-router)#`
- **bgp-router** – BGP4 router level; for example, `HP9300(config-bgp-router)#`
- **port-vlan** – Port-based VLAN level; for example, `HP9300(config-vlan)#`
- **protocol-vlan** – Protocol-based VLAN level

The <privilege-level> indicates the privilege level you are augmenting.

The **level** parameter specifies the privilege-level. You can specify one of the following:

- **0** – Full access (super-user)
- **4** – Port-configuration access
- **5** – Read-only access

The <command-string> parameter specifies the command you are allowing users with the specified privilege level to enter. To display a list of the commands at a CLI level, enter "?" at that level's command prompt and press Return.

quit

This command returns you from any level of the CLI to the User EXEC mode.

EXAMPLE:

```
HP9300(config)# quit
HP9300>
```

Syntax: quit

Possible values: N/A

Default value: N/A

radius-server

Identifies a RADIUS server and sets other RADIUS authentication parameters for authenticating access to the device. This section describes the command syntax. See “Configuring for RADIUS Authentication” on page 2-39 for more information.

EXAMPLE:

```
HP9300(config)# radius-server 209.157.22.99
```

Syntax: radius-server <IP address|server-name> [auth-port <number>] [acct-port <number>]

<IP address | name> is either an IP address or an ASCII text string.

<auth-port> is the Authentication port number; it is an optional parameter. The default is 1645.

<acct-port> is the Accounting port number; it is an optional parameter. The default is 1646.

Syntax: radius-server [key <key string>] [timeout <number>] [retransmit <number>] [dead-time <number>]

The key **<key string>** parameter is the encryption key; valid key string length is from 1 – 16.

The **timeout <number>** is how many seconds to wait before declaring a RADIUS server timeout for the authentication request. The default timeout is 3 seconds. The range of possible timeout values is from 1 – 15.

The **retransmit <number>** is the maximum number of retransmission attempts. When an authentication request timeout, the software will retransmit the request up to the maximum number of retransmissions configured. The default retransmit value is 3 seconds. The possible retransmit value is from 1 – 5.

The **dead-time** parameter is not used in this software release. When the software allows multiple authentication servers, this parameter will specify how long the device waits for the primary authentication server to reply before deciding the server is dead and trying to authenticate using the next server. The dead-time value can be from 1 – 5 seconds. The default is 3.

Possible values: see above

Default value: see above

rarp

Enters a static IP RARP entry for static routes on a routing switch.

EXAMPLE:

```
HP9300(config)# rarp 1 1245.7654.2348 192.53.4.2
HP9300(config)# exit
HP9300# write mem
```

Syntax: rarp <number> <mac address>.<ip address> ethernet <port>

Possible values: Up to 16 static RARP entries can be assigned

Default value: N/A

rmon alarm

This command defines what MIB objects are monitored, the type of thresholds that will be monitored (falling, rising or both), the value of those thresholds, and the sample type (absolute or delta).

An alarm event will be reported each time that a threshold is exceeded. The alarm entry also defines the action (event) to take should the threshold be exceeded.

A sample CLI alarm entry and its syntax is shown below:

EXAMPLE:

```
HP9300(config)# rmon alarm 1 ifInOctets.6 10 delta rising-threshold 100 1 falling
threshold 50 1 owner nyc02
```

Syntax: rmon alarm <entry number> <MIB object.interface number> <sampling time> <sample type> <threshold type> <threshold value> <event number> <threshold type> <threshold value> <event number> owner <text>

Possible values:

- Threshold type: rising-threshold or falling threshold
- Sample type: delta or absolute

Default value: N/A

rmon event

There are two elements to the RMON event group 9, the event control table and the event log table.

The event control table defines the action to be taken when an alarm is reported. Defined events can be displayed by entering the CLI command, **show event**.

The event log table collects and stores reported events for retrieval by an RMON application.

EXAMPLE:

```
HP9300(config)# rmon event 1 description ‘testing a longer string’ log-and-trap
public owner nyc02
```

Syntax: rmon event <event entry> description <text string> <log | trap | log -and-trap> owner <RMON station>

Possible values: N/A

Default value: N/A

rmon history

All active switch and routing switch ports by default will generate two RMON history (group 2) control data entries. If a port becomes inactive, then the two entries will automatically be deleted.

Two history entries are generated for each switch by default:

- a sampling of statistics every 30 seconds
- a sampling of statistics every 30 minutes

You can modify how many of these historical entries are saved in an event log (buckets) as well as how often these intervals are taken. The station (owner) that collects these entries can also be defined.

To review the control data entry for each port or interface, enter the **show rmon history** command.

EXAMPLE:

```
HP9300(config)# rmon history 1 interface 1 buckets 10 interval 10 owner nyc02
```

Syntax: rmon history <entry number> interface <port | slot/port> buckets <number> interval <sampling interval> owner <text string>

Possible values: Buckets: 1 – 50 entries.

Default value: N/A

route-map

Creates a route map and places you in the Route Map CONFIG level of the CLI. A route map is a named set of match conditions and parameter settings that the routing switch can use to modify route attributes and to control redistribution of the routes into other protocols. See “Defining Route Maps” on page 12-36.

EXAMPLE:

To add instance 1 of a route map named "GET_ONE" with a permit action, enter the following command.

```
HP9300(config)# route-map GET_ONE permit 1
HP9300(config-bgp-routemap GET_ONE)#
```

syntax: route-map <map-name> permit|deny <num>

As shown in this example, the command prompt changes to the Route Map level. You can enter the match and set statements at this level. See “CONFIG Commands – Route Map Level” on page B-198. Also see “Specifying the Match Conditions” on page 12-39 and “Setting Parameters in the Routes” on page 12-40.

The <map-name> is a string of characters that names the map. Map names can be up to 32 characters in length. You can define up 50 route maps on the routing switch.

The **permit|deny** parameter specifies the action the routing switch will take if a route matches a match statement.

- If you specify **deny**, the routing switch does not advertise or learn the route.
- If you specify **permit**, the routing switch applies the match and set statements associated with this route map instance.

The <num> parameter specifies the instance of the route map you are defining. Each route map can have up to 50 instances. Routes are compared to the instances in ascending numerical order. For example, a route is compared to instance 1, then instance 2, and so on.

Possible values: N/A

Default value: N/A

route-only

Disables Layer 2 switching on a routing switch.

EXAMPLE:

```
HP9300(config)# route-only
HP9300(config)# exit
HP9300# write mem
HP9300# reload
```

Syntax: [no] route-only

Possible values: N/A

Default value: Enabled

router appletalk

This is a launch command that allows you to move to the AppleTalk configuration level of the Command Line Interface (CLI).

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# router appletalk
HP9300(config-atalk-router)# end
HP9300# write mem
```

```
HP9300# end
HP9300# reload
```

NOTE: You must reset the system when AppleTalk is first enabled on the routing switch using the **router appletalk** command. If you have previously reset the system and defined AppleTalk interface(s), and the interface configuration represents an addition, then no reset of the system is required.

Syntax: router appletalk

Possible values: N/A

Default value: disabled

router bgp

This is a launch command that allows you to move to the BGP configuration level.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# router bgp
HP9300(config-bgp-router)#
```

Syntax: router bgp

Possible values: N/A

Default value: disabled

router dvmrp

This is a launch command that allows you to move to the DVMRP configuration level.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# router dvmrp
HP9300(config-dvmrp-router)#
```

Syntax: router dvmrp

Possible values: N/A

Default value: disabled

router srp

This is a launch command that enables the SRP feature. SRP allows redundant paths to be assigned. Parameters for SRP are set using the Interface level command **ip srp address <ip address>…**

This command is not supported on the 6208M-SX switch.

EXAMPLE: To enable SRP on the routing switch, enter the following:

```
HP9300(config)# router srp
```

Possible values: N/A

Default value: disabled

router ipx

Activates IPX routing on a routing switch.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# router ipx
```

Syntax: router ipx

Possible values: N/A

Default value: disabled

router ospf

Activates OSPF routing on a routing switch and launches you into the OSPF configuration level.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# router ospf
HP9300(config-ospf-router)#
```

Syntax: router ospf

Possible values: N/A

Default value: disabled

router pim

Activates PIM multicast on a routing switch.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# router pim
HP9300(config-pim-router)#
```

Syntax: router pim

Possible values: N/A

Default value: disabled

router rip

Activates RIP routing on a routing switch and launches you into that configuration level to assign or modify RIP parameters.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# router rip
HP9300(config-rip-router)#
```

Syntax: router rip

Possible values: N/A

Default value: disabled

router vrrp

Launches you into the VRRP configuration level.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# router vrrp
HP9300(config-vrrp-router)#
```

Syntax: router vrrp

Possible values: N/A

Default value: disabled

server port

Adds a profile for an application TCP or UDP port. This command applies only when you are using a routing switch for the Globally-distributed Server Load Balancing (SLB) feature. See “Route Health Injection” on page 18-1. When you add a profile for an application port, the health check for the port is automatically enabled.

Example: To add a profile for TCP port 80 and thus enable its health check, enter the following commands:

```
HP9300(config) server port http
HP9300(config-port-80)
```

Syntax: server port http|<num>

See for “CONFIG Commands – Application Port Level” on page B-196 for information about the commands you can enter at the Application Port level.

Possible values: http or a TCP port number

Default value: N/A

server real

Identifies a web server for Globally-distributed Server Load Balancing (SLB). Globally-distributed SLB allows the same web site (and same IP address) to reside on multiple servers, which usually are in geographically dispersed locations. See “Route Health Injection” on page 18-1.

Use the **server real...** command to identify the web sites for which the routing switch is helping to provide geographically-distributed SLB.

EXAMPLE:

```
HP9300(config) server real S2 209.157.22.249
HP9300(config-rs-S2) port http keepalive
```

Syntax: [no] server real <name> <VIP>

The **<name>** parameter identifies the third-party SLB or real server. This value does not need to match a value on the third-party SLB or real server. The value simply identifies the third-party SLB or real server uniquely on the routing switch.

The **<VIP>** parameter is the IP address of the web site. If the web server is directly attached to the routing switch, this is the IP address of the IP address on the web server. If the web server is attached to a third-party SLB, the VIP is the virtual IP address configured on the third-party SLB for the web site.

Possible values: see above

Default value: N/A

service password-encryption

This command enables password encryption. When encryption is enabled, users cannot learn the device’s passwords by viewing the configuration file. Password encryption is enabled by default.

NOTE: Password encryption does not encrypt the password in Telnet packets sent to the device. This feature applies only to the configuration file.

EXAMPLE:

```
HP9300(config)# no service password-encryption
```

Syntax: [no] service password-encryption

Possible values: N/A

Default value: Enabled

show…

Displays a variety of configuration and statistical information about the switch or routing switch. See “Commands – All Levels” on page 212.

snmp-client

Restricts SNMP management access to the device to the host whose IP address you specify. No other device except the one with the specified IP address can access the device through an SNMP management application.

If you want to restrict access from Telnet or the Web, use one or two of the following commands:

- **telnet-client** – restricts Telnet access. See “telnet-client” on page B-127.
- **web-client** – restricts Web access. See “web-client” on page B-131.

If you want to restrict all management access, you can use the commands above and the **snmp-client** command or you can use the following command: **all-client**. See “all-client” on page B-84.

EXAMPLE:

To restrict SNMP access to the device to the host with IP address 209.157.22.26, enter the following command:

```
HP9300(config)# snmp-client 209.157.22.26
```

Syntax: [no] snmp-client <IP-addr>

Possible values: a valid IP address. You can enter one IP address with the command. You can use the command up to ten times for up to ten IP addresses.

Default value: N/A

snmp-server community

Assigns an SNMP community string for the system:

- read-only (public)
- read-write (private)

EXAMPLE:

```
HP9300(config)# snmp-server community planet1 ro
```

Syntax: snmp-server community <string> <ro|rw>

Possible values: Up to 32 alphanumeric characters for the community string.

Default value: The default read-only (**ro**) community string is "public". Devices do not have a default read-write (**rw**) community string.

snmp-server contact

Identifies a system contact. You can designate a contact name for the switch or routing switch and save it in the configuration file for later reference. You can later access contact information using the **show snmp-server** command.

EXAMPLE:

```
HP9300(config)# snmp-server contact Jack London
HP9300(config)# end
HP9300(config)# write memory
```

Syntax: snmp-server contact <text>

Possible values: up to 32 alphanumeric characters for the system contact text string

Default value: N/A

snmp-server location

Identifies a system location for the switch or routing switch. This information is saved in the configuration file for later reference. You can later access system location information using the **show snmp-server** command.

EXAMPLE:

```
HP9300(config)# snmp-server location oakcabldg519
HP9300(config)# end
HP9300(config)# write memory
```

Syntax: snmp-server location <text>

Possible values: up to 32 alphanumeric characters for the snmp-server location text string

Default value: N/A

snmp-server trap

When the command is preceded with **no**, the command is used to stop certain traps from being generated by a system. The following SNMP traps are collected by default:

- authentication key
- cold-start
- link-up
- link-down
- new-root
- topology-change
- power-supply-failure
- locked-address-violation

EXAMPLE: To stop reporting incidences of links that are down, enter the following commands:

```
HP9300(config)# no snmp-server trap link-down
HP9300(config)# end
HP9300(config)# write memory
```

Syntax: [no] snmp-server trap <trap-type>

Possible values: trap type (for example, cold-start, new-root, and so on)

Default value: All of the following SNMP traps are enabled and will be generated by default for a system:

- authentication key
- cold-start
- link-up
- link-down
- new-root
- topology-change
- power-supply-failure
- locked-address-violation

To disable a fan failure trap or power supply trap, use one of the following values:

- ps1
- ps2
- ps3
- ps4
- fan1
- fan2
- fan3
- fan4

snmp-server trap-receiver

Assigns or removes a station as an SNMP trap receiver. To assign the trap receiver, use the command **snmp-server trap-receiver**. To later remove the trap receiver feature, enter **no snmp-server trap-receiver**.

EXAMPLE: To disable a station as an SNMP trap receiver, enter the following:

```
HP9300(config)# no snmp-server trap-receiver 192.22.3.33 public
```

Syntax: [no] snmp-server trap-receiver <ip address> <communitystring>

Possible values: IP address of trap receiver station, community string

Default value: no system default

sntp poll-interval

This parameter sets how often clock updates are requested from an SNTP server.

EXAMPLE: To configure the switch or routing switch to poll for clock updates from an SNTP server every 15 minutes, enter the following:

```
HP9300(config)# sntp poll-interval 900
```

Syntax: sntp poll-interval <1 – 65535>

Possible values: 1 – 65535 seconds

Default value: 1800 seconds

sntp server

This command allows you to define the SNTP server that will be used for clock synchronization for the switch or routing switch. You can enter the SNTP server's IP address or its host name.

Up to three SNTP server entries can be defined.

EXAMPLE: To define the SNTP server (IP address 208.99.8.95) that will be polled by the switch or routing switch for time updates, enter:

```
HP9300(config)# sntp server
```

Syntax: sntp server <ip address | hostname>

Possible values:

Default value: No system default

spanning-tree

Enables or disables (no) Spanning Tree on the switch or routing switch. This change can be viewed by the **show spanning tree** command.

- For switches, this feature is enabled by default.
- For routing switches, this feature is disabled by default.

To disable this feature, enter **no spanning-tree**. To later re-enable spanning tree on the routing switch, enter **spanning-tree**.

EXAMPLE 1: To disable spanning tree, enter the following:

```
HP9300(config)# no span
HP9300(config)# end
HP9300(config)# write memory
```

EXAMPLE 2: To enable spanning tree, enter the following:

```
HP9300(config)# span tree
HP9300(config)# end
HP9300(config)# write memory
```

Syntax: [no] spanning-tree

Possible values: N/A

Default value: Enabled on switches. Disabled on routing switches.

spanning-tree <parameter>

Spanning Tree bridge and port parameters are configurable using one CLI command. When no port-based VLANs are active on the system, spanning tree parameters are set at the Global CONFIG Level.

When port-based VLANs are active on the system, spanning tree protocol bridge and port parameters can be configured globally at the VLAN Level. Additionally, you can disable or enable STP on an interface basis.

NOTE: If VLANs are active on a switch or routing switch, spanning-tree will not be seen as an option at the Global CONFIG Level of the CLI but will be an option of the VLAN Level.

All bridge and port parameters have default values and do not need to be modified unless required to match network needs. Additionally, all values will be globally applied to the switch or routing switch. By default this feature is enabled on switches and disabled on routing switches.

You can modify the following STP Parameters:

1. Modify bridge parameters—forward delay, maximum age, hello time, and priority
2. Modify port parameters—priority and path cost

EXAMPLE: Suppose you want to enable spanning tree on a system in which no port-based VLANs are active and change the hello-time from the default value of 2 to 8 seconds. Additionally, suppose you want to change the path and priority costs for port 5 only. To do so, enter the following commands.

```
HP9300(config)# span hello-time 8
HP9300(config)# span ethernet 5 path-cost 15 priority 64
```

syntax for global parameters: spanning-tree [forward-delay <value>] | [hello-time <value>] | [maximum-age <time>] | [priority <value>]

syntax for port parameters: spanning-tree ethernet <portnum> path-cost <value> | priority <value>

Possible values: see below

Bridge Parameters:

- Forward-delay: Possible values: 4 – 30 seconds. Default is 15 seconds.
- Max-age: Possible values: 6 – 40 seconds. Default is 20 seconds.
- Hello-time: Possible values: 1 – 10 seconds. Default is 2 seconds.
- Priority: Possible values: 1 – 65,535. Default is 32,678.

Port Parameters:

- Path: Possible values: 1-65,535. Default: Auto

NOTE: The default value 'Auto' means that the port will adjust the default value automatically based on the port speed. The default value is based on the following:

- Half-duplex ports: 1000/port speed
- Full-duplex ports: (1000/port speed)/2

- Priority: possible values are 0 – 255. Default is 128.

static mac-address

Defines a static MAC address on an individual switch or switching port to ensure it is not aged out.

EXAMPLE:

```
HP9300(config)# static 1145.5563.67FF e12 7 router-type
```

Syntax: static-mac-address <MAC-addr> ethernet <port-num> [priority <0-7>] [host-type|router-type]

Possible values: The priority can be 0 – 7, where 0 is lowest and 7 is highest.

Default value: host-type; 0

system-max

This command allows you to modify the default settings for parameters that use system memory. The configurable parameters and their defaults and maximums differ depending on the device. To display the configurable parameters, their defaults, and the maximum configurable values for each, enter the following command at any level of the CLI: **show default values**. See "show default" on page B-218.

EXAMPLE: To increase the system capacity of a 9308M for IP routes from the default 10000 to 50000, enter the following command:

```
HP9300(config)# system-max ip-route 50000
```

Syntax: system-max <parameter> <value>

Possible values: These depend on the device you are configuring. See the System Parameters section in the **show default values** display. The CLI will display the acceptable range if you enter a value that is outside the range.

tacacs-server

Identifies a TACACS or TACACS+ server and sets other TACACS/TACACS+ parameters for authenticating access to the device. This section describes the command syntax. See "Configuring for TACACS/TACACS+ Authentication" on page 2-34 for more information.

EXAMPLE:

```
HP9300(config)# tacacs-server 209.157.22.99
```

Syntax: tacacs-server <IP-addr|hostname> [auth-port <number>]

The only required parameter is the IP address or host name of the server.

NOTE: To specify the server's host name instead of its IP address, you must first identify a DNS server using the **ip dns server-address <IP-addr>** command at the global CONFIG level. See "Enabling Domain Name Server (DNS) Resolver" on page 8-6.

The **auth-port** parameter specifies the UDP port number of the authentication port on the server. The default port number is 49.

Syntax: tacacs-server [key <key string>] [timeout <number>] [retransmit <number>] [dead-time <number>]

The **key** parameter specifies the value that the device sends to the server when trying to authenticate user access. The TACACS/TACACS+ server uses the key to determine whether the device has authority to request authentication from the server. The key can be from 1 – 16 characters in length.

The **timeout** parameter specifies how many seconds the device waits for a response from the TACACS/ TACACS+ server before either retrying the authentication request or determining that the TACACS/TACACS+ server is unavailable and moving on to the next authentication method in the authentication-method list. The timeout can be from 1 – 15 seconds. The default is 3 seconds.

The **retransmit** parameter specifies how many times the device will resend an authentication request when the TACACS/TACACS+ server does not respond. The retransmit value can be from 1 – 5 times. The default is 3 times.

The **dead-time** parameter is not used in this software release. When the software allows multiple authentication servers, this parameter will specify how long the device waits for the primary authentication server to reply before deciding the server is dead and trying to authenticate using the next server. The dead-time value can be from 1 – 5 seconds. The default is 3.

Possible values: see above

Default value: see above

tag-type

This parameter defines the value that will be sent out on a packet to indicate it is part of a tagged VLAN port. The 802.1q standard recognizes the value of 8100 for this purpose. Other values can be assigned to this parameter but are not recommended.

EXAMPLE:

```
HP9300(config)# tag-type 8100
```

Syntax: tag-type <value>

Possible values: 1 – 65535

Default value: 8100

telnet-client

Restricts Telnet management access to the device to the host whose IP address you specify. No other device except the one with the specified IP address can access the device's CLI through Telnet.

If you want to restrict access from SNMP or the Web, use one or two of the following commands:

- **snmp-client** – restricts SNMP access. See "snmp-client" on page B-122.
- **web-client** – restricts web access. See "web-client" on page B-131.

If you want to restrict all management access, you can use the commands above and the **telnet-client** command or you can use the following command: **all-client**. See "all-client" on page B-84.

EXAMPLE:

To restrict Telnet access to the device to the host with IP address 209.157.22.26, enter the following command:

```
HP9300(config)# telnet-client 209.157.22.26
```

Syntax: [no] telnet-client <IP-addr>

Possible values: a valid IP address. You can enter one IP address with the command. You can use the command up to ten times for up to ten IP addresses.

Default value: N/A

telnet-server

This command enables or disables Telnet access to a switch or routing switch. By default, Telnet access is allowed on a system.

EXAMPLE: To disable Telnet access to a switch, enter the following:

```
HP9300(config)# no telnet-server
```

Syntax: [no] telnet-server

Possible values: Enabled or disabled

Default value: Enabled

telnet-timeout

This parameter defines how many minutes a Telnet session can remain idle before it is timed out. An idle Telnet session is a session that is still sending TCP ACKs in response to keepalive messages from the device, but is not being used to send data.

By default, the Telnet timeout is zero (which means Telnet sessions do not time out).

NOTE: The device also has another, non-configurable Telnet timer used to close sessions that have ended abnormally. This mechanism is enabled regardless of the setting of the Telnet timeout. The device sends TCP keepalive messages to the Telnet client once a minute. If the client fails to respond to two consecutive keepalive messages, the device concludes that the TCP session has ended abnormally and immediately ends the session. A typical cause of a session ending abnormally is the client rebooting during the TCP session.

EXAMPLE:

```
HP9300(config)# telnet-timeout 120
```

Syntax: telnet-timeout <0 – 240>

Possible values: 0 – 240 minutes

Default value: 0 minutes (no timeout)

trunk

This command allows you to add a trunk group and connect the ports in the group to a switch, routing switch, or server for high-speed connections. See “Configuring Trunk Groups” on page 8-38 for more trunk configuration rules and other information.

NOTE: The ports in a trunk group make a single logical link. Therefore, all the ports in a trunk group must be connected to the same device at the other end.

NOTE: On chassis with Gigabit Ethernet modules, you can configure a trunk group that spans two Gigabit Ethernet modules and contains up to eight ports.

EXAMPLE 1: To assign ports 1, 2, and 3 to a trunk group on the 6308M-SX routing switch, enter the following command:

```
HP6308(config)# trunk switch e 1 to 3
```

A trunk group must then also be configured on the connecting switch or routing switch at the other end of the trunk group. The **switch** parameter in the above command can refer to either a switch or routing switch.

If you are going to connect to a server, then enter the following command:

```
HP6308(config)# trunk server e1 to 3
```

This will connect a trunk group of ports 1, 2, and 3 to a server.

Syntax: trunk [server|switch] ethernet <primary-portnum> to <portnum>

The **server|switch** parameter specifies whether the trunk ports will be connected to a server or to another switch or routing switch. This parameter affects the type of load balancing performed by the device. See “Trunk Group Load Sharing” on page 8-40. The default is **switch**.

Each **ethernet** parameter introduces a port group.

The **<primary-portnum> to <portnum>** parameters specify a the ports. The first port must be a primary port and the remaining ports must be the ports that follow it. The primary port is always the lowest number in the following port ranges:

- 9304M and 9308M: 1 – 4, 5 – 8, 9 – 12, 13 – 16 and 17 – 18 and 21 –24
- 6208M-SX and 6308M-SX: 1 – 4 and 5 – 8 or 1 – 2, 3 – 4, 5 – 6, 7 – 8

EXAMPLE 2: To configure a trunk group consisting of two groups of ports, 1/1 – 1/4 on module 1 and 4/5 – 5/8 on module 4, enter the following commands:

```
HP9300(config)# trunk ethernet 1/1 to 1/4 ethernet 4/5 to 4/8
HP9300(config)# write mem
HP9300(config)# exit
HP9300# reload
```

Syntax: trunk [server|switch] ethernet <primary-portnum> to <portnum> ethernet <primary-portnum> to <portnum>

The **server|switch** parameter specifies whether the trunk ports will be connected to a server or to another switch or routing switch. This parameter affects the type of load balancing performed by the device. See “Trunk Group Load Sharing” on page 8-40. The default is **switch**.

Each **ethernet** parameter introduces a port group.

The **<primary-portnum> to <portnum>** parameters specify a port group. Notice that each port group must begin with a primary port. After you enter this command, the primary port of the first port group specified (which must be the group with the lower port numbers) becomes the primary port for the entire trunk group. For Gigabit Ethernet modules, the primary ports are 1, 3, 5, and 7.

Possible values: see above

Default value: N/A

unknown-unicast limit

This command specifies the maximum number of unknown-unicast packets the device can forward each second. By default the device sends unknown unicasts and all other traffic at wire speed and is limited only by the capacities of the hardware. However, if other devices in the network cannot handle unlimited unknown-unicast traffic, this command allows you to relieve those devices by throttling the unknown unicasts at the device.

NOTE: The unknown-unicast limit does not affect broadcast or multicast traffic. However, you can use the **broadcast limit** and **multicast limit** commands to control these types of traffic. See “broadcast limit” on page B-88 and “multicast limit” on page B-113.

EXAMPLE:

```
HP9300(config)# unknown-unicast limit 30000
```

Syntax: unknown-unicast limit <num>

Possible values: 0 – 4294967295

Default value: N/A

username

This command configures a local user account. For each user account, you specify the user name. You also can specify the following parameters:

- A password
- The privilege level, which can be one of the following:
- Full access (super-user). This is the default.
- Port-configuration access
- Read-only access

EXAMPLE:

To configure a user account, enter a command such as the following at the global CONFIG level of the CLI.

```
HP9300(config)# username wonka password willy
```

This command adds a user account for a super-user with the user name "wonka" and the password "willy", with privilege level super-user. This user has full access to all configuration and display features.

NOTE: If you configure user accounts, you must add a user account for super-user access before you can add accounts for other access levels. You will need the super-user account to make further administrative changes.

```
HP9300(config)# username waldo privilege 5 password whereis
```

This command adds a user account for user name "waldo", password "whereis", with privilege level read-only. Waldo can look for information but cannot make configuration changes.

Syntax: [no] username <user-string> privilege <privilege-level> password|nopassword <password-string>

The privilege parameter specifies the privilege-level. You can specify one of the following:

- **0** – Full access (super-user)
- **4** – Port-configuration access
- **5** – Read-only access

The default privilege level is **0**. If you want to assign full access to the user account, you can enter the command without "**privilege 0**", as shown in the command example above.

The **password|nopassword** parameter indicates whether the user must enter a password. If you specify **password**, enter the string for the user's password.

NOTE: You must be logged on with super-user access (privilege level 0, or with a valid Enable password for super-user access) to add user accounts or configure other access parameters.

---

vlan

Creates or changes the CLI focus to a port-based VLAN.

EXAMPLE:

```
HP9300(config)# vlan 200 by port
```

```
HP9300(config)# vlan 200 name CopyBoy
```

Syntax: vlan <num> by port

Syntax: vlan <num> name <string>

NOTE: The second command is optional and also creates the VLAN if the VLAN does not already exist. You can enter the first command after you enter the second command if you first exit to the global CONFIG level of the CLI.

Possible values: VLAN ID 1 – 1024; VLAN name can be a string up to 16 characters. You can use blank spaces in the name if you enclose the name in double quotes (for example, "Marsha Marsha".)

Default value: n/a

vlan max-vlans

Allows you to assign a set number of VLANs to be supported on a switch or routing switch. This allows you to set a smaller value than the default to preserve memory on the system.

EXAMPLE:

```
HP9300(config)# vlan max-vlans 200
```

Syntax: vlan max-vlans <value>

Possible values: 1 – 1,024

Default value: 32

web-client

Restricts Web management access to the device to the host whose IP address you specify. No other device except the one with the specified IP address can access the device's Web management interface.

If you want to restrict access from SNMP or Telnet, use one or two of the following commands:

- **snmp-client** – restricts SNMP access. See "snmp-client" on page B-122.
- **telnet-client** – restricts Telnet access to the CLI. See "telnet-client" on page B-127.

If you want to restrict all management access, you can use the commands above and the **web-client** command or you can use the following command: **all-client**. See "all-client" on page B-84.

EXAMPLE:

To restrict Web access to the device to the host with IP address 209.157.22.26, enter the following command:

```
HP9300(config)# web-client 209.157.22.26
```

Syntax: [no] web-client <IP-addr>

Possible values: a valid IP address. You can enter one IP address with the command. You can use the command up to ten times for up to ten IP addresses.

Default value: N/A

web-management

This command enables or disables the Web management interface on a switch or routing switch. By default this feature is enabled.

EXAMPLE: To disable the Web management interface on a switch or routing switch, enter the following:

```
HP9300(config)# no web-management
```

Syntax: [no] web-management

Possible values: Enabled, Disabled

Default value: Enabled

write memory

Saves the running configuration into the startup-config file.

EXAMPLE:

```
HP9300# wr mem
```

Syntax: write memory

Possible values: N/A

Default value: N/A

write terminal

Displays the running configuration of the switch or routing switch on the terminal screen.

NOTE: This command is equivalent to the **show running-config** command.

EXAMPLE:

```
HP9300# wr term
```

Syntax: write terminal

Possible values: N/A

Default value: N/A

CONFIG Commands – Interface Level

appletalk address

This command is used to assign AppleTalk addresses to a seed router.

EXAMPLE: To assign an AppleTalk address of 10.5 to interface 3, module 2, enter the following:

```
HP9300(config)# int e 2/3
HP9300(config-if-2/3)# appletalk address 10.5
```

Syntax: appletalk address <node.network>

Possible values: N/A

Default value: N/A

appletalk arp-age

This defines how long an AppleTalk ARP entry will remain active before being aged out.

EXAMPLE:

```
HP9300(config)# int e 2/3
HP9300(config-if-2/3)# appletalk arp-age 115
```

Syntax: appletalk arp-age <1 – 240>

Possible values: 1 – 240 minutes

Default value: 10 minutes

appletalk cable-range

This command is used to assign network numbers (cable range) to an AppleTalk seed router.

EXAMPLE: To support network numbers from 10 – 50 on interface 3 (module 2):

```
HP9300(config)# int e 2/3
HP9300(config-if-2/3)# appletalk cable-range 10 - 50
```

Syntax: appletalk cable-range <network number | network number - network number>

Possible values: N/A

Default value: N/A

appletalk deny...

This command is used to restrict access to an AppleTalk zone.

EXAMPLE: To deny Marketing (interface 2/1) and Field Service (interface e 2/3) zones access to the Finance server, enter the following:

```
HP9300(config)# int e 2/1
HP9300(config-if-2/1)# appletalk deny zone finance
HP9300(config)# int e 2/3
HP9300(config-if-2/3)# appletalk deny zone finance
```

Syntax: appletalk deny zone <zone name>

Possible values: N/A

Default value: N/A

appletalk permit...

This command is used to allow access to an AppleTalk zone.

EXAMPLE: To allow the Marketing (interface 2/1) and Field Service (interface e 2/3) zones access to the Finance server, enter the following:

```
HP9300(config)# int e 2/1
HP9300(config-if-2/1)# appletalk permit zone finance
HP9300(config)# int e 2/3
HP9300(config-if-2/3)# appletalk permit zone finance
```

Syntax: appletalk permit zone <zone name>

Possible values: N/A

Default value: N/A

appletalk routing

This command is used to enable AppleTalk routing on a seed router.

You also can use this command, when preceded by **no** (**no appletalk routing**) to disable routing on an interface. Disable routing when you need to make configuration changes to the seed router. After all the changes are made, re-enable routing on the interface using the **appletalk routing** command.

EXAMPLE: To enable AppleTalk routing on interface 2/1, enter the following:

```
HP9300(config)# int e 2/1
HP9300(config-if-2/1)# appletalk routing
HP9300(config)# int e 2/3
HP9300(config-if-2/3)# appletalk permit zone finance
```

Syntax: [no] appletalk routing

Possible values: N/A

Default value: N/A

appletalk zone-name

This command is used to assign AppleTalk zones to a seed router.

EXAMPLE: To assign Marketing and Sales zones to interface 2/1, enter the following:

```
HP9300(config)# int e 2/1
HP9300(config-if-2/1)# appletalk zone sales
HP9300(config-if-2/1)# appletalk zone marketing
```

Syntax: appletalk zone-name <zone name>

Possible values: N/A

Default value: N/A

dhcp-gateway-list

This parameter assigns a defined DHCP gateway list to a specific interface on the 6208M-SX switch. DHCP gateway lists must be defined at the Global CONFIG level and the DHCP Assist feature enabled to support assignment of this feature.

This feature is not supported on routing switches.

NOTE: For more details on this command and the DHCP Assist feature, see “Configuring DHCP Assist (switch only)” on page 8-48.

EXAMPLE: To assign a defined DHCP gateway list (1) to interface 2/5, enter the following:

```
HP9300(config)# int e 2/5
HP9300(config-if-2/5)# dhcp-gateway-list 1
```

Syntax: dhcp-gateway-list <number>

Possible values: N/A

Default value: N/A

disable

Disables a specific port.

EXAMPLE:

```
HP9300(config)# interface e 1/5
HP9300(config-if-1/5)# disable
```

Syntax: disable

Possible values: N/A

Default value: N/A

enable

Enables a specific port. All ports are enabled at initial startup. This command is necessary only if a port has been disabled. All ports are by default enabled at system startup.

EXAMPLE:

```
HP9300(config)# interface e 1/5
HP9300(config-if-1/5)# enable
```

Syntax: enable

Possible values: N/A

Default value: All ports are enabled at system startup.

end

Moves activity to the privileged level from any level of the CLI except the User EXEC level.

EXAMPLE: To move to the privileged level, enter the following:

```
HP9300(config-if-5/3)# end
HP9300#
```

Syntax: end

Possible values: N/A

Default value: N/A

exit

Moves activity up one level from the current level of the CLI. This command is available at all levels.

EXAMPLE: To move from the Interface level back to the global CONFIG level, enter the following:

```
HP9300(config-if-4/3)# exit
HP9300(config)#
```

Syntax: exit

Possible values: N/A

Default value: N/A

flow-control

Allows you to turn flow control (802.3x) for full-duplex ports on or off (no). Flow control is on by default.

EXAMPLE: To turn the feature off, enter the following:

```
HP9300(config)# int e5
HP9300(config-if-5)# no flow control
```

To turn the feature on after being turned off, enter the following:

```
HP9300(config-if-5)# flow-control
```

Syntax: [no] flow-control

Possible values: N/A

Default value: on

gig-default

Overrides the global default setting of the Gigabit negotiation mode. You can configure the Gigabit negotiation mode for a port to be one of the following:

- Default – The port uses the negotiation mode that was set at the global level.
- Negotiate-full-auto – The port first tries to perform a handshake with the other port to exchange capability information. If the other port does not respond to the handshake attempt, the port uses the manually configured configuration information (or the defaults if an administrator has not set the information). This is the default.
- Auto-Gigabit – The port tries to perform a handshake with the other port to exchange capability information.
- Negotiation-off – The port does not try to perform a handshake. Instead, the port uses configuration information manually configured by an administrator.

See “Changing the Default Gigabit Negotiation Mode” on page 8-20 for more information.

EXAMPLE: To overrides the global setting and set the negotiation mode to auto-Gigabit for ports 4/1 – 4/4, enter the following commands:

```
HP9300(config)# int ethernet 4/1 to 4/4
HP9300(config-mif-4/1-4/4)# gig-default auto-gig
```

Syntax: gig-default neg-full-auto | auto-gig | neg-off

Possible values: see above

Default value: neg-full-auto

ip-multicast-disable

Disables disable Internet Group Membership Protocol (IGMP) queries from being sent or received on the port.

EXAMPLE: To disable IGMP queries on an interface, enter commands such as the following:

```
HP9300(config)# int ethernet 1/5
HP9300(config-if-1/5)# ip-multicast-disable
```

To re-enable the IGMP queries on the interface, enter the following command:

```
HP9300(config-if-1/5)# no ip-multicast-disable
```

Syntax: [no] ip-multicast-disable

Possible values: N/A

Default value: IGMP queries are enabled.

ip access-policy-group

Applies an IP access policy group to an interface on a routing switch and defines whether the policies are applied to incoming packets, outgoing packets, both. You must configure the access policies using the ip access-policy command before you can apply them using this command. See “ip access-policy” on page B-94.

This command is not supported on the 6208M-SX switch.

NOTE: For backward compatibility, the routing switches also support the **ip filter-group** and **ip policy-group** commands. The parameters are the same as those for the **ip access-policy-group** command.

EXAMPLE 1: To apply IP access policies 2, 3, and 4 to interface 1 (module 4), enter the following commands:

```
HP9300(config)# int e 4/1
HP9300(config-if-4/1)# ip filter-gr in 2 3 4
```

EXAMPLE 2: You also can specify policy ranges. For example, to apply policies 1 – 3, policy 9, and policies 11 – 25 to port 2/4’s outbound policy group, enter the following commands:

```
HP9300(config)# int ethernet 2/4
HP9300(config-if-2/4)# ip access-policy-group out 1 to 3 9 11 to 25
```

Syntax: ip access-policy-group <in|out> <policy-list>

Possible values: access policy numbers; enter all the policies you want to apply on the same command.

Default value: N/A

ip address

Assigns interface (sub-net) addresses to routing switch interfaces. By default, you can configure up to 24 IP addresses on each interface on a routing switch. You can configure one IP address on the 6208M-SX switch using this command.

EXAMPLE:

```
HP9300(config)# int e 2/3
HP9300(config-if-2/3)# ip address 192.55.6.54 255.255.0.0
```

Syntax: ip address <ip-addr> <mask> [secondary]

or

Syntax: ip address <ip-addr>/<mask-bits> [secondary]

Use the **secondary** parameter if you have already configured an IP address within the same sub-net on the interface.

Possible values: Valid IP address

Default value: N/A

ip bootp-gateway

Specifies the interface address the routing switch should use for stamping BootP/DHCP packets. Use this command when the interface has multiple IP sub-net addresses. By default, the routing switch uses the lowest numbered IP address for stamping BootP/DHCP requests.

EXAMPLE:

```
HP9300(config)# int e 2/3
HP9300(config-if-2/3)# ip bootp-gateway 192.55.6.54
```

Syntax: ip bootp-gateway <ip-addr>

Possible values: Valid IP address

Default value: N/A

ip dont_advertise

Configures the routing switch to block advertisement of the host route for the interface. If you do not block the host route, the routing switch will still advertise a network route to the network containing the host even if the host itself is unavailable.

Use this command when configuring a routing switch to assist third-party SLBs or web servers with Geographically-distributed SLB. Globally-distributed SLB allows the same web site (and same IP address) to reside on multiple servers, which usually are in geographically dispersed locations. See “Route Health Injection” on page 18-1.

After you enter the **ip dont_advertise** command, the routing switch advertises only a host route to the IP address. Thus, if the web site fails the HTTP health check, the routing switch removes the static host route for the web site’s IP address and also does not advertise a network route for the network containing the IP address.

EXAMPLE: To block advertisement of a network route for a Class-C host with IP address 209.157.22.1, enter the following commands.

```
HP9300(config-if-1/9) ip address 209.157.22.1/24
HP9300(config-if-1/9) ip dont_advertise 209.157.22.1/24
```

Syntax: [no] ip dont_advertise <IP-addr> <mask>

Or

Syntax: [no] ip dont_advertise <IP-addr>/<mask-bits>

Possible values: see above

Default value: network routes are advertised

ip dvmrp advertise local

Enables (on) or disables (off) advertisement of a local route on an interface with DVMRP enabled. DVMRP must be enabled on the routing switch for this command to be operational.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# int e 1/4
HP9300(config-if-1/4)# ip dvmrp advertise-local on
```

Syntax: advertise-local <on | off>

Possible values: on, off

Default value: off

ip dvmrp metric

Sets the default metric for a directly connected interface, when operating with DVMRP multicast.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# interface 3/5
HP9300(config-if-3/5)# ip dvmrp metric 10
```

Syntax: ip dvmrp metric <value>

Possible values: 1 – 31 hops

Default value: 1 hop

ip dvmrp ttl-threshold

Specifies how long a packet is considered viable on an interface configured for DVMRP multicast.

This command is not supported on the 6208M-SX switch.

EXAMPLE: To modify the default TTL value for interface 1 that is configured to operate with DVMRP, enter the following:

```
HP9300(config)# int e 1/4
HP9300(config-if-1/4)# ip dvmrp ttl 60
```

Syntax: ttl-threshold <value>

Possible values: 1 to 254

Default value: 1

ip dvmrp encapsulation

Enables IP encapsulation and defines the type of encapsulation to be used on a given port.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# int e 1/6
HP9300(config-if-1/6)# ip dvmrp encap ethernet-2
```

Syntax: ip encapsulation <ethernet-2 | snap>

Possible values: ethernet-2, snap

Default value: ethernet-2

ip follow

Configures a virtual interface to "follow" the IP address configured on another virtual interface. Thus, you can use this command to conserve your IP address space by configuring multiple virtual interfaces with the same IP address.

EXAMPLE: To configure an IP sub-net address on virtual interface 1, then configure virtual interfaces 2 and 3 to "follow" the IP sub-net address configured on virtual interface 1, enter the following commands.

```
HP9300(config-vlan-3)# interface ve 1
HP9300(config-vif-1)# ip address 10.0.0.1/24
HP9300(config-vif-1)# interface ve 2
HP9300(config-vif-2)# ip follow ve 1
HP9300(config-vif-2)# interface ve 3
HP9300(config-vif-3)# ip follow ve 1
```

NOTE: Since virtual interfaces 2 and 3 do not have their own IP sub-net addresses but instead are "following" virtual interface 1's IP address, you still can configure an IPX or AppleTalk interface on virtual interfaces 2 and 3.

Syntax: ip follow ve <num>

Possible values: a configured virtual interface

Default value: N/A

ip helper-address

The 9304M, 9308M, and 6308M-SX routing switches support the relay of UDP/DHCP packets to a destination for a specific application (for example; bootps, domain, tftp), when the destination server is not on the local LAN segment.

To aid in relaying packets to a specific application on a server (for example; bootps, bootpc, domain, TFTP, NetBIOS, time) on a remote network, the routing switch is configured with the destination address of the remote server.

To enter the address of the remote server, enter the commands below. Note that the interface entered is the interface on which the originating host is attached. The value '1' seen in the example, is the identifier of that UDP address. The valid range for identifiers for each interface is 1 – 4.

EXAMPLE: To support relaying of UDP/DHCP packets to a remote server with an IP address of 207.95.7.6, enter the following:

```
HP9300(config)# interface e 5/2
HP9300(config-if-5/2)# ip helper-address 1 207.95.7.6
```

Syntax: ip helper-address < value> <ip address>

Possible values: 1, 2, 3 or 4

Default value: N/A

ip metric

Defines the cost applied to all IP routes by default.

EXAMPLE:

```
HP9300(config)# int e 3/1
HP9300(config-if-3/1)# ip metric 15
```

Syntax: ip metric <value>

Possible values: 1 – 16

Default value: 1

NOTE: RIP considers the metric 16 to be unreachable.

ip mtu

Defines the maximum transmission unit (MTU) for IP packets on a given routing switch interface.

EXAMPLE:

To change the MTU for an interface (for example, 5) to 1000, enter the following:

```
HP9300(config)# int e 5
HP9300(config-if-5)#ip mtu 1000
```

syntax: ip mtu <572 – 1500> (Ethernet SNAP); ip mtu <572 – 1492> (Ethernet II);

Possible values: Ethernet type: 572 – 1500; SNAP type: 572 – 1492

Default value: Ethernet type: 1500; SNAP type: 1492

ip-multicast-disable

Disables transmission and receipt of IGMP queries on a port. Transmission and receipt of IGMP queries is enabled by default.

EXAMPLE: To disable the queries on an interface, enter commands such as the following:

```
HP6208(config)# int e5
HP6208(config-if-5)# ip-multicast-disable
```

To re-enable the queries, enter the following:

```
HP6208(config-if-5)# no ip-multicast-disable
```

Syntax: [no] ip-multicast-disable

Possible values: N/A

Default value: on

ip ospf area

Assigns interfaces to an OSPF area. OSPF must be active on the routing switch and reference the area IP address to which the routing switch will be attached, for this command to be operational. OSPF is enabled at the global CONFIG level.

EXAMPLE: To assign interface (port) 1, module 5, of a 9304 to area ID, 192.45.1.0, enter the following commands:

```
HP9300(config)# int e 5/1
HP9300(config-if-5/1)# ip ospf area 192.45.1.0
```

NOTE: Each port supports eight interfaces. All eight interfaces can be assigned to a port at one time using this command.

Syntax: ip ospf area <ip address>

Possible values: N/A

Default value: N/A

ip ospf authentication-key

Assigns a password for managed interface access when operating with OPSF.

OSPF must be active, and the areas to which the routing switch will be attached assigned on the routing switch, for this command to be operational.

EXAMPLE: To assign an authentication key (password) of 'passkey' for access to interface 1 (module 4), enter the following:

```
HP9300(config)# int e 4/1
HP9300(config-if-4/1)# ip ospf authentication-key passkey
HP9300(config-if-4/1)# end
HP9300# write memory
```

Syntax: ip ospf authentication-key <password>

Possible values: Up to eight alphanumeric characters.

Default*:* None.

ip ospf cost

Represents the cost that will be advertised for an interface for various types of service (for example; low delay, high bandwidth (10^8/ Interface Speed), or link reliability).

Use this command to assign higher or lower costs than the default. This allows you to bias traffic to or from links. The higher the cost on the link, the less desirable the path.

EXAMPLE: To assign a cost of 10 to interface 8 (module 2), enter the following:

```
HP9300(config)# int e 2/8
HP9300(config-if-2/8)# ip ospf cost 10
```

Possible values: 1 – 65,535

Default: 1 for 100 or 1000 Mbps links; 10 for 10Mbps links

ip ospf dead-interval

Defines the number of seconds that a neighbor OSPF router will wait for receipt of a hello packet, before declaring the router down.

EXAMPLE: To change the dead interval time for interface 5 (module 3) from the default of 40 seconds, enter the following:

```
HP9300(config)# int e 3/5
HP9300(config-if-3/5)# ip ospf dead-interval
```

Syntax: ip ospf dead-interval <value>

Possible values: 1 – 65,535 seconds.

Default: 40 seconds

ip ospf hello-interval

Defines the length of time between the transmission of OSPF hello packets.

EXAMPLE: To change the hello interval for interface 5 to 20 seconds from the default value of 10 seconds, enter the following:

```
HP9300(config)# int e 3/5
HP9300(config-if-3/5)# ip ospf hello-interval 20
```

Syntax: ip ospf hello-interval <value>

Possible values: 1 – 65,535 seconds

Default: 10 seconds

ip ospf md5-authentication

Configures MD5 authentication parameters for OSPF. You can configure the following parameters using this command:

- MD5 key-activation wait time – specifies how many seconds the routing switch waits before placing a new MD5 key into effect. The wait time provides a way to gracefully transition from one MD5 key to another without disturbing the network. The wait time can be from 0 – 14400 seconds. The default is 300 seconds (5 minutes).
- Key ID and key string – specifies the MD5 key ID and the string value for the key. The key ID can be from 1 – 255. The string can be up to 16 alphanumeric characters long. The routing switch encrypts the key in each OSPF packet sent on this interface.

EXAMPLE 1: To change the key activation wait time from 300 seconds to 45 seconds, enter the following:

```
HP9300(config)# int e 2/5
HP9300(config-if-2/5)# ip ospf md5-authentication key-activation-wait-time 30
```

EXAMPLE 2: To configure key ID 35 with the string value "UR2crusty", enter the following:

```
HP9300(config)# int e 2/5
HP9300(config-if-2/5)# ip ospf md5-authentication key-id 35 key UR2crusty
```

Syntax: ip ospf md5-authentication key-activation-wait-time <num>| key-id <num> key <string>

Possible values: key-activation wait time 0 – 14400; key ID 1 – 255; key up to 16 alphanumeric characters.

Default: key-activation wait time 300 seconds (5 minutes)

ip ospf priority

Indicates the priority of an interface. Priority is used to select the designated router. The higher the number, the greater the priority. In the case of equal priority, the router with the highest IP Address will be the designated router. A value of zero signifies that the routing switch is not eligible to become the designated router on its network.

EXAMPLE: To modify the priority of interface 5 (module 2) to 15 from the default of 1 second, enter the following:

```
HP9300(config)# int e 2/5
HP9300(config-if-2/5)# ip ospf priority 15
```

Syntax: ip ospf priority <value>

Possible values: 0 – 255. If you set the priority to 0, the routing switch does not participate in DR and BDR election.

Default: 1 second

ip ospf retransmit-interval

Defines the time between retransmits of link state advertisements to router adjacencies for an interface.

EXAMPLE: To modify the retransmit interval of interface 5 (module 2) to 15 from the default of 5 seconds, enter the following:

```
HP9300(config)# int e 2/5
HP9300(config-if-2/5)# ip ospf retransmit-interval 15
```

Syntax: ip ospf retransmit-interval <value>

Possible values: 0 – 3600 seconds

Default: 5 seconds

ip ospf transmit-delay

Indicates the time it takes to transmit Link State Update packets on an interface.

EXAMPLE: To modify the transit delay of interface 5 (module 2) to 10, from the default of 1 second, enter the following:

```
HP9300(config)# int e 2/5
HP9300(config-if-2/5)# ip ospf transmit-delay 10
```

Syntax: ip ospf transmit-delay <value>

Possible values: 0 – 3600 seconds

Default: 1 second

ip-policy

Locally applies a Layer 4 QoS policy to a port on a switch. If you use the **local** parameter instead of the **global** parameter when you configure the policy using the **ip policy** command, you need to use the **ip-policy** command at the Interface level to apply the policy to a specific port.

NOTE: You must use the **ip policy** command to configure the policy before using the **ip-policy** command. See “ip policy” on page B-100.

EXAMPLE 1: To configure a Layer 4 QoS policy to give the highest priority to HTTP packets on ports 1/1 and 1/2 on the 6208M-SX switch, enter the following commands:

```
HP6208(config)# ip policy 1 priority 7 tcp http local
HP6208(config)# int e 1
HP6208(config-if-1)# ip-policy 1
```

```
HP6208(config-if-1)# int e 2
HP6208(config-if-2)# ip-policy 1
```

Syntax: ip-policy <num>

Possible values: See above

Default value: N/A

ip rip

Sets the RIP type on all interfaces that will route RIP. The following RIP types are supported:

- RIP version 1 only
- RIP version 2 only
- RIP v1-compatible-v2

RIP must be active and the redistribution table set (using the **permit** and **deny** commands) for this command to be operational. RIP is enabled at the Global CONFIG Level.

EXAMPLE: To modify the RIP type for interface 1 (module 4), to version 1 only, enter the following:

```
HP9300(config)# int e 4/1
HP9300(config-if-4/1)# ip rip v1-only
HP9300(config-if-4/1)# end
HP9300# write memory
```

Syntax: ip rip <v1-only | v1-compatible-v2 | v2-only>

Possible values: v1-only, v1-compatible-v2, v2-only

Default value: v2-only

ip rip poison-reverse

Enables poison-reverse on the RIP routing protocol to prevent routing loops and slow convergence within the network.

For this command to be operational, RIP must be enabled and active on the routing switch, and the RIP type configured.

EXAMPLE:

```
HP9300(config)# int e 4/1
HP9300(config-if-4/1)# ip rip poison-reverse
```

Syntax: ip rip poison-reverse

Possible values: N/A

Default value: enabled

ip srp address preference

Modifies the priority for a routing switch interface configured for SRP operation. The routing switch in the network with the highest value will be the ***active*** (master) routing switch.

SRP must be active on the routing switch for this command to be operational. SRP is enabled at the global CONFIG level.

EXAMPLE: To modify the preference (priority) of a routing switch interface, enter the following command:

```
HP9300(config)# inter e1
HP9300(config-if-1)# ip srp add 192.33.52.5 pref 200
```

Syntax: ip srp address <ip address> preference <value>

Possible values: 1 – 255

Default value: 60

ip srp address track-port

Assigns a track port for use by the SRP protocol. The ***track port*** feature is used to track the status of those ports that provide redundant paths. If change in state occurs (up or down), the track port will detect this and the priority of the SRP Group Interface will be increased or decreased.

SRP must be active on the routing switch for this command to be operational. SRP is enabled at the global CONFIG level.

EXAMPLE:

```
HP9300(config)# inter e 2/1

HP9300(config-if-2/1)# ip srp add 192.33.52.5 track 1
```

Syntax: ip srp address <ip address> track-port <port>

Possible values: 1 – 26; range is determine by port capacity of the switch or routing switch

Default value: Disabled

ip srp address vir-rtr-ip

Defines the virtual router and its address for the specified interface. The virtual router IP address needs to be configured on at least one routing switch in the SRP group.

NOTE: The virtual router is what arbitrates the redundant path management under the SRP protocol.

SRP must be active on the routing switch for this command to be operational. SRP is enabled at the global CONFIG level.

Syntax: ip srp address <ip address> vir-rtr-ip <ip address>

NOTE: The virtual IP router must belong to the same sub-net and SRP group as the defined SRP interface.

EXAMPLE:

```
HP9300(config)# inter e 1/5

HP9300(config-if-1/5)# ip srp add 192.33.52.5 vir-rtr-ip 195.45.5.1
```

Possible values: N/ A

Default value: 0.0.0.0

ip srp address vir-rtr-ip other-rtr-ip

Defines the partner routing switch interface address. SRP must be active on the routing switch for this command to be operational.

EXAMPLE:

```
HP9300(config)# inter e 1/3

HP9300(config-if-1/3)# ip srp add 192.33.52.5 vir-rtr-ip 195.45.5.1 other-rtr-ip
195.55.2.1
```

Syntax: ip srp address <ip address> vir-rtr-ip <ip address> other-rtr-ip <ip address>

Possible values: N/A

Default value: 0.0.0.0

ip srp <ip address> keep-alive-time

The **keep-alive-time** parameter allows you to modify how often the SRP hello message will be sent on a routing switch's interface on which the keep alive time is being configured.

NOTE: The keep-alive-time value must be set to the same value on both the active and standby routing switch when both routing switches are connected to the same sub-net.

EXAMPLE:

```
HP9300(config)# int 2

HP9300(config-if-2)# ip srp 192.55.4.3 keep-alive-time 15
```

Syntax: ip srp <ip address> keep-alive-time <value>

Possible values: 1 – 120 seconds

Default value: 3 seconds

ip srp <ip address> router-dead-time

The **router-dead-time** parameter allows you to define the period of time (hold time) that the standby routing switch will wait before determining the active routing switch unavailable (dead). When the configured period of time expires, the standby routing switch will become active.

NOTE: The router-dead-time value must be set to the same value on both the active and standby routing switch when both routing switches are connected to the same sub-net.

EXAMPLE:

```
HP9300(config)# int 4/2

HP9300(config-if-4/2)# ip srp 192.55.4.3 router-dead-time 30
```

Syntax: ip srp <ip address> router-dead-time <value>

Possible values: 3 – 255

Default value: 9 seconds

ip tunnel

This is a launch command that moves activity to the IP tunnel CONFIG level. It allows you to define an IP tunnel for a specific interface. The requested IP address is the end point of the tunnel (the destination interface). IP tunnels must be defined for PIM and DVMRP multicast traffic that will be passing through routers that are not IP-multicast capable.

For this command to be operational, PIM or DVMRP must be enabled on the routing switch. IP tunneling must also be enabled and defined on the destination routing switch interface.

EXAMPLE:

```
HP9300(config)# inter e 3/1

HP9300(config-if-3/1)# ip tun 192.33.65.4

HP9300(config-if-tunnel)# ip tun 192.33.65.4

HP9300(config-if-tunnel)# end

HP9300# write mem
```

Syntax: ip tunnel <ip address>

Possible values: valid ip address

Default value: N/A

ip vrrp

This command lets you configure a Virtual Router Redundancy Protocol (VRRP) virtual router on an interface.

syntax: ip vrrp vrid <VRID>

ipg10

This command allows you to modify the inter-packet gap (delay) between packets on a 10Mbps Ethernet segment. By default, the delay between packets will be 12 bytes or 9.6 microseconds.

Use this command only to adjust the inter-packet gap to match older adapters that do not meet the default IPG requirements for Ethernet.

In determining the value to enter in the CLI command, note that one byte equals.8 microseconds for packets on a 10Mbps segment, so the following equation can be used:

IPG10 = 9.6 microseconds + (value *.8)

where value is the number of bytes by which you want to increase the inter-packet gap.

EXAMPLE: To increase the delay between packets by 3.2 microseconds, enter the port to be modified and then enter the value of 4 (4*.8 =3.2 microseconds):

```
HP9300(config)# int e 4/4
HP9300(config-if-4/4)# ipg10 4
```

Syntax: ipg10 <value>

Possible values: 0 – 100 bytes

Default value: 12 bytes or ipg10 0

NOTE: Entering the value of 0 with the **ipg10**, **ipg100**, and **ipg1000** commands restores the inter-packet gap (IPG) to the default of 12 bytes.

ipg100

This command allows you to modify the inter-packet gap (delay) between packets on a 100Mbps Ethernet segment on a port-by-port basis. By default, the delay between packets will be 12 bytes or 0.96 microseconds.

Use this command only to adjust the inter-packet gap to match that of older adapters that do not meet the default IPG requirements for Fast Ethernet.

In determining the value to enter in the CLI command, note that one byte equals.08 microseconds for packets on a 100Mbps segment, so the following equation can be used:

IPG100 = 0.96 microseconds + (value *.08)

where value is the number of bytes by which you want to increase the inter-packet gap.

EXAMPLE: To increase the delay between packets by 3.2 microseconds, enter the port to be modified and then enter the value of 40 (40*.08 =3.2 microseconds):

```
HP9300(config)# int e 3/4
HP9300(config-if-3/4)# ipg100 40
```

Syntax: ipg100 <value>

Possible values: 0 – 100

Default value: 12 bytes or ipg100 0

NOTE: Entering the value of 0 with the **ipg10**, **ipg100**, and **ipg1000** commands restores the inter-packet gap (IPG) to the default of 12 bytes.

ipg1000

This command allows you to modify the inter-packet gap (delay) between packets on a 1000Mbps Gigabit Ethernet segment on a port-by-port basis. By default, the delay between packets will be 12 bytes or.096 microseconds.

Use this command only to adjust the inter-packet gap to match that of older adapters that do not meet the default IPG requirements for Gigabit Ethernet.

In determining the value to enter in the CLI command, note that one byte equals.008 microseconds for packets on a 1000Mbps segment, so the following equation can be used:

IPG1000 =.096 microseconds + (value *.008)

where value is the number of bytes by which you want to increase the inter-packet gap.

EXAMPLE: To increase the delay between packets by.32 microseconds, first enter the port to be modified and then enter the value of 40 (40*.008 =.32 microseconds):

```
HP9300(config)# int e 3/4
HP9300(config-if-4)# ipg1000 40
```

Syntax: ipg1000 <value>

Possible values: 1 – 100

Default value: 12 bytes or ipg1000 0

NOTE: Entering the value of 0 with the **ipg10**, **ipg100**, and **ipg1000** commands restores the inter-packet gap (IPG) to the default of 12 bytes.

---

ipx forward-filter-group

Allows a group of defined forward filters to be applied to an IPX interface. The filter can be applied to either **in**coming or **out**going traffic.

Prior to using this command, you must first enable IPX on the routing switch using the **router ipx** command.

EXAMPLE:

```
HP9300(config)# int e 4/1
HP9300(config-if-4/1)# ipx forward-filter-group in 2 3 5
```

Syntax: ipx forward-filter-group <in|out> <index>

Possible values: in or out, defined filter indexes

Default value: N/A

ipx netbios-allow

Enables NetBIOS broadcasts (type 20) to be routed over IPX. IPX must be enabled on the routing switch and a network number and frame type defined for each IPX interface.

EXAMPLE: To enable NetBIOS on an interface (for example, module 5 on port 2), enter the following:

```
HP9300(config)# int e 5/2
HP9300(config-if-5/2)# ipx netbios-allow
```

Syntax: ipx netbios-allow

Possible values: N/A

Default value: disabled

ipx network

Assigns network numbers and frame types for each IPX interface. This is the second step in using IPX on the routing switch. Prior to using this command, enable IPX on the routing switch using the **router ipx** command.

EXAMPLE:

```
HP9300(config)# int e 3/2
HP9300(config-if-3/2)# ipx network 11110055 ethernet_snap
```

NOTE: Other frame types are supported:

ethernet_802.2

ethernet_802.3

ethernet_ii

---

syntax: ipx network <network number> <frame type> [<netbios-allow | netbios-disallow>]

Possible values: see above

Default value: NetBIOS allowed

ipx rip-filter-group

Allows a group of RIP filters to be applied to an IPX interface. The filter can be applied to either incoming or outgoing traffic.

EXAMPLE: To apply filters to an individual interface basis (for example, interface 2 on module 2), enter the following:

```
HP9300(config)# int e 2/2
HP9300(config-if-2/2)# ipx rip-filter-group in 1 2 3 10
```

Syntax: ipx rip-filter-group <in|out> <index>

Possible values: in or out, defined filter indices

Default value: disabled

ipx rip-max-packetsize

Changes the maximum size of IPX RIP update packets sent by the routing switch.

EXAMPLE: To change the maximum packet size of IPX RIP advertisements sent on interface 1/1 from the default 432 bytes to 832 bytes, enter the following command. This command increases the number of IPX RIP routes an advertisement packet holds from 50 to 100.

```
HP9300(config) int e 1/1
HP9300(config-if-1/1) ipx rip-max-packetsize 832
HP9300(config-if-1/1) write mem
```

Syntax: ipx rip-max-packetsize <bytes>

The number of bytes can be from 40 bytes (enough for one route) – 1488 bytes (enough for 182 routes). The default is 432 bytes.

Possible values: 40 – 1488 bytes

Default value: 432

ipx rip-multiplier

Changes the age time for learned IPX routes. The software calculates the age time by multiplying the advertisement interval times the age timer. For example, the default age time for IPX routes is 180 seconds, which is 60 (the default advertisement interval) multiplied by 3 (the default age timer).

EXAMPLE: To change the age timer for IPX routes from 3 to 4 on interface 1/1, enter the following commands.

```
HP9300(config) int e 1/1
HP9300(config-if-1/1) ipx rip-multiplier 4
HP9300(config-if-1/1) write mem
```

Syntax: ipx rip-multiplier <num>

The **<num>** parameter specifies the age time and can be from 1 – 65535. The default is 3.

Possible values: 1 – 65535

Default value: 3

ipx sap-filter-group

Allows a group of defined IPX/SAP filters to be applied to IPX interfaces. The filters can be applied to either incoming or outgoing traffic.

EXAMPLE: To apply filters to an individual interface's inbound IPX filter group, enter commands such as the following:

```
HP9300(config)# int e 3/2
HP9300(config-if-3/2)# ipx sap-filter-group in 2 3 5
```

Syntax: ipx sap-filter-group <in|out> <index>

Possible values: in or out, defined filter indexes

Default value: N/A

ipx sap-interval

Changes how often the routing switch sends IPX SAP updates to neighboring IPX routers.

EXAMPLE: To change the advertisement interval for IPX SAP advertisements sent on interface 1/1 from 60 seconds to 120 seconds, enter the following commands:

```
HP9300(config) int e 1/1
HP9300(config-if-1/1) ipx sap-interval 120
HP9300(config-if-1/1) write mem
```

Syntax: ipx sap-interval <interval>

The **<interval>** can be from 10 – 65535 seconds. The default is 60.

Possible values: 10 – 65535

Default value: 60

ipx sap-max-packetsize

Changes the maximum size of IPX SAP update packets sent by the routing switch.

EXAMPLE: To change the maximum number of bytes in IPX SAP advertisements sent on interface 5/1 from 480 to 672 (enough for 10 servers plus the 32 bytes of packet header), enter the following commands:

```
HP9300(config) int e 5/1
HP9300(config-if-5/1) ipx sap-max-packetsize 672
HP9300(config-if-5/1) write mem
```

Syntax: ipx sap-max-packetsize <bytes>

The number of bytes can be from 96 bytes (enough for one server) – 1440 bytes (enough for 22 servers). The default is 480 bytes.

Possible values: 96 – 1440 bytes

Default value: 480

ipx sap-multiplier

Changes the age time for learned IPX SAP entries. The software calculates the age time by multiplying the advertisement interval times the age timer. For example, the default age time for IPX SAP entries is 180 seconds, which is 60 (the default advertisement interval) multiplied by 3 (the default age timer).

EXAMPLE: To change the age timer for IPX servers from 3 to 2 on interface 5/1, enter the following commands.

```
HP9300(config) int e 5/1
HP9300(config-if-5/1) ipx sap-multiplier 2
HP9300(config-if-5/1) write mem
```

Syntax: ipx sap-multiplier <num>

The **<num>** parameter specifies the age time and can be from 1 – 65535. The default is 3.

Possible values: 1 – 65535

Default value: 3

ipx update-time

Changes how often the routing switch sends IPX RIP updates to neighboring IPX routers.

EXAMPLE: To change the advertisement interval for IPX RIP advertisements sent on interface 1/1 from 60 seconds to 30 seconds, enter the following commands:

```
HP9300(config) int e 1/1
HP9300(config-if-1/1) ipx update-time 30
HP9300(config-if-1/1) write mem
```

Syntax: ipx update-time <interval>

The **<interval>** can be from 10 – 65535 seconds. The default is 60.

Possible values: 10 – 65535

Default value: 60

mac filter-group

Applies a group of MAC filters to an interface. You can configure one filter group on each interface.

NOTE: You must define the filters at the global CONFIG level using the **mac filter** command (see B-108) before you can apply the filters to a port.

EXAMPLE: To assign MAC filter 1 to interface port 1 on slot 1, enter the following:

```
HP9300(config-if-1/1)# mac filter-group 1
```

Syntax: mac-filter-group <filter-list>

NOTE: ***Syntax:*** mac filter-group <filter-list>

Possible values: 1 – 1024

Default value: N/A

mac filter-group log_en

Enables logging of packets that are denied by Layer 2 MAC filters. When you enable this feature, the device generates Syslog entries and SNMP traps for denied packets.

See Example 4 in “show logging” on page B-242 for an example of log entries generated by this feature.

EXAMPLE:

```
HP9300(config)# int e 1/1
HP9300(config-if-1/1)# mac filter-group log_en
```

Syntax: mac filter-group log_en

Possible values: N/A

Default value: Disabled

monitor

This command allows you to select a port to be diagnosed by a designated mirror port. You can configure incoming, outgoing or both incoming and outgoing traffic to be monitored on the port.

EXAMPLE: To monitor both incoming and outgoing traffic on interface 5/1:

```
HP9300(config)# interface e5
HP9300(config-if-5/1)# monitor both
```

Syntax: monitor <input | output | both >

Possible values: N/A

Default value: Disabled

no

This command disables other commands. To disable a command, place the word **no** before the command.

phy-mode

If a port on a switch or routing switch is to be attached to a Bay Networks™ 28000 switch, enter this command at the Interface Level as shown below.

This command helps the switch or routing switch to adjust to interoperability requirements of the 28000.

EXAMPLE:

```
HP9300(config)# int e 3/1
HP9300(config-if-3/1)# phy-mode 28k
```

Syntax: phy-mode <28k>

Possible values: 28k

Default value: Option is turned off.

port-name

Assigns a name to a port. Assigning a name to a physical interface (port) provides additional identification for a segment on the network.

EXAMPLE:

```
HP9300(config)# interface e 5/1
HP9300(config-if-1)# port-name marketing
```

Syntax: port-name <string>

Possible values: N/A

Default value: N/A

priority

Sets the QoS priority for a port. The priority can be a number from 0 – 7:

- 0 or 1– Assigns an internal priority queue of 0. This is the default and is normal priority.
- 2 or 3 – Assigns an internal priority queue of 1.
- 4 or 5 – Assigns an internal priority queue of 2.
- 6 or 7 – Assigns an internal priority queue of 3

See “Quality of Service Algorithm” on page C-1 for information about how the queues work.

EXAMPLE:

```
HP9300(config)# interface e 5/1
HP9300(config-if-5/1)# priority 7
```

Syntax: priority <0-7>

Possible values: see above

Default value: 0 or normal

quit

This command returns you from any level of the CLI to the User EXEC mode.

EXAMPLE:

```
HP9300(config-if-1)# quit
HP9300>
```

Syntax: quit

Possible values: N/A

Default value: N/A

show…

Displays a variety of configuration and statistical information about the switch or routing switch. See “Commands – All Levels” on page 212.

speed-duplex

Modifies port speed and duplex. It defines the speed and duplex mode for a 10BaseT and 100BaseTx ports.

Gigabit (1000BaseSx and 1000BaseLx) and 100BaseFx ports operate at a fixed speed and mode (full-duplex) and cannot be modified.

EXAMPLE:

```
HP9300(config)# interface e8
HP9300(config-if-8)# speed-duplex 10-full
```

Syntax: speed-duplex <value>

Possible values: 10-full, 10-half, 100-full, 100-half, auto

Default value: 10/100 autosense

spanning-tree

Spanning tree can be disabled or enabled on an interface basis.

EXAMPLE 1: To disable spanning tree on physical port 4 of a system with no VLANs operating, enter the following:

```
HP9300(config)# interface ethernet 4
HP9300(config-if-4) no spanning-tree
```

EXAMPLE 2: To disable spanning tree on physical port 4 of a system within VLAN 2, enter the following:

```
HP9300(config)# vlan 2
HP9300(config-vlan-2) no spanning-tree
```

Syntax: spanning-tree

Possible values: N/A

Default value: Disabled

CONFIG Commands – IP Tunnel Level

encap-control

Enables or disables encapsulation of PIM or DVMRP control messages such as probe, route report, and so on using IP-IN-IP encapsulation on an IP Tunnel.

EXAMPLE:

```
HP9300(config-if-5/4)# ip tunnel 192.3.45.6
HP9300(config-if-dvmrp-tunnel)# encap on
```

Syntax: encap-control <on | off>

Possible values: on, off

Default value: off

end

Moves activity to the privileged EXEC level from any level of the CLI except the user EXEC level.

EXAMPLE: To move to the privileged level, enter the following from any level of the CLI.

```
HP9300(config-if-4/5-tunnel)# end
HP9300#
```

Syntax: end

Possible values: N/A

Default value: N/A

exit

Moves activity up one level from the current level. In this case, activity will be moved to the interface level.

EXAMPLE:

```
HP9300(config-if-4/5-tunnel)# exit
HP9300(config-if-4/5)#
```

Syntax: exit

Possible values: N/A

Default value: N/A

metric

Sets the metric for an IP tunnel for use with either the PIM or DVMRP multicast protocol.

NOTE: Assign a higher metric to an IP tunnel than that of the interface, to ensure that the IP tunnel path takes precedence.

EXAMPLE: To define an IP tunnel metric (cost) of 15, enter the following:

```
HP9300(config)# interface 5/2
HP9300(config-if-5/2)# ip tunnel 192.45.3.2 pim
HP9300(config-if-pim-tunnel)# metric 15
```

Syntax: metric <1-255>

Possible values: 1 – 255

Default value: N/A

no

This command is used to disable other commands. To do so, place the word **no** before the command.

quit

This command returns you from any level of the CLI to the User EXEC mode.

EXAMPLE:

```
HP9300(config-if-4/5-tunnel)# quit
HP9300>
```

Syntax: quit

Possible values: N/A

Default value: N/A

show…

Displays a variety of configuration and statistical information about the switch or routing switch. See “Commands – All Levels” on page 212.

ttl-threshold

Specifies how long a packet is considered viable on an IP Tunnel link.

EXAMPLE:

```
HP9300(config-if-3/4)# ip tunnel
HP9300(config-if-3/4-tunnel)# ttl 60
```

Syntax: ttl-threshold <value>

Possible values: 1 – 254

Default value: 1

write memory

Saves the running configuration into the startup-config file.

EXAMPLE:

```
HP9300(config-if-3/4-tunnel)# wr mem
```

Syntax: write memory

Possible values: N/A

Default value: N/A

write terminal

Displays the running configuration of the switch or routing switch on the terminal screen.

NOTE: This command is equivalent to the **show running-config** command.

EXAMPLE:

```
HP9300(config-if-3/4-tunnel)# wr term
```

Syntax: write terminal

Possible values: N/A

Default value: N/A

CONFIG Commands – Broadcast Filter Level

end

Moves activity to the privileged EXEC level from any level of the CLI except the user EXEC level.

EXAMPLE: To move to the privileged level, enter the following from any level of the CLI.

```
HP9300(config-bcast-filter-id-4)# end
HP9300#
```

Syntax: end

Possible values: N/A

Default value: N/A

exclude-ports

Specifies the ports to which you are applying a Layer 2 broadcast filter. Broadcast filters drop broadcast packets from the outbound queue of the ports you specify.

EXAMPLE 1:

To configure a Layer 2 broadcast filter to filter all types of broadcasts, then apply the filter to ports 1/1, 1/2, and 1/3, enter the following commands:

```
HP9300(config)# broadcast filter 1 any
HP9300(config-bcast-filter-id-1)# exclude-ports ethernet 1/1 to 1/3
HP9300(config-bcast-filter-id-1)# write mem
```

EXAMPLE 2:

To configure two filters, one to filter IP UDP traffic on ports 1/1 – 1/4, and the other to filter all broadcast traffic on port 4/6, enter the following commands:

```
HP9300(config)# broadcast filter 1 ip udp
HP9300(config-bcast-filter-id-1)# exclude-ports ethernet 1/1 to 1/4
HP9300(config-bcast-filter-id-1)# exit
HP9300(config)# broadcast filter 2 any
HP9300(config-bcast-filter-id-2)# exclude-ports ethernet 4/6
HP9300(config-bcast-filter-id-2)# write mem
```

EXAMPLE 3:

To configure an IP UDP broadcast filter and apply that applies only to port-based VLAN 10, then apply the filter to two ports within the VLAN, enter the following commands:

```
HP9300(config)# broadcast filter 4 ip udp vlan 10
HP9300(config-bcast-filter-id-4)# exclude-ports eth 1/1 eth 1/3
HP9300(config-bcast-filter-id-1)# write mem
```

Syntax: [no] exclude-ports ethernet <portnum> [to | ethernet <portnum>]

Possible values: see above

Default value: N/A

exit

Moves activity up one level from the current level. In this case, activity will be moved to the interface level.

EXAMPLE:

```
HP9300(config-bcast-filter-id-4)# exit
HP9300(config)#
```

Syntax: exit

Possible values: N/A

Default value: N/A

no

This command is used to disable other commands. To do so, place the word **no** before the command.

quit

This command returns you from any level of the CLI to the User EXEC mode.

EXAMPLE:

```
HP9300(config-bcast-filter-id-4)# quit
HP9300>
```

Syntax: quit

Possible values: N/A

Default value: N/A

show…

Displays a variety of configuration and statistical information about the switch or routing switch. See “Commands – All Levels” on page 212.

write memory

Saves the running configuration into the startup-config file.

EXAMPLE:

```
HP9300(config-bcast-filter-id-4)# wr mem
```

Syntax: write memory

Possible values: N/A

Default value: N/A

write terminal

Displays the running configuration of the switch or routing switch on the terminal screen.

NOTE: This command is equivalent to the **show running-config** command.

EXAMPLE:

```
HP9300(config-bcast-filter-id-4)# wr term
```

Syntax: write terminal

Possible values: N/A

Default value: N/A

CONFIG Commands – Multicast Filter Level

end

Moves activity to the privileged EXEC level from any level of the CLI except the user EXEC level.

EXAMPLE: To move to the privileged level, enter the following from any level of the CLI.

```
HP9300(config-mcast-filter-id-1)# end
HP9300#
```

Syntax: end

Possible values: N/A

Default value: N/A

exclude-ports

Specifies the ports to which you are applying a Layer 2 multicast filter. Multicast filters drop multicast packets from the outbound queue of the ports you specify.

EXAMPLE 1:

To configure a Layer 2 multicast filter to filter all multicast groups, then apply the filter to ports 2/4, 2/5, and 2/8, enter the following commands:

```
HP9300(config)# multicast filter 1 any
HP9300(config-mcast-filter-id-1)# exclude-ports ethernet 2/4 to 2/5 ethernet 2/8
HP9300(config-mcast-filter-id-1)# write mem
```

EXAMPLE 2:

To configure a multicast filter to block all multicast traffic destined for multicast addresses 0100.5e00.5200 – 0100.5e00 on port 4/8, enter the following commands:

```
HP9300(config)# multicast filter 2 0100.5e00.5200 ffff.ffff.ff00
HP9300(config-mcast-filter-id-2)# exclude-ports ethernet 4/8
HP9300(config-mcast-filter-id-2)# write mem
```

The software calculates the range by combining the mask with the multicast address. In this example, all but the last two bits in the mask are “significant bits” (ones). The last two bits are zeros and thus match on any value.

Syntax: [no] exclude-ports ethernet <portnum> [to | ethernet <portnum>]

Possible values: see above

Default value: N/A

exit

Moves activity up one level from the current level. In this case, activity will be moved to the interface level.

EXAMPLE:

```
HP9300(config-mcast-filter-id-1)# exit
HP9300(config)#
```

Syntax: exit

Possible values: N/A

Default value: N/A

no

This command is used to disable other commands. To do so, place the word **no** before the command.

quit

This command returns you from any level of the CLI to the User EXEC mode.

EXAMPLE:

```
HP9300(config-mcast-filter-id-1)# quit
HP9300>
```

Syntax: quit

Possible values: N/A

Default value: N/A

show…

Displays a variety of configuration and statistical information about the switch or routing switch. See “Commands – All Levels” on page 212.

write memory

Saves the running configuration into the startup-config file.

EXAMPLE:

```
HP9300(config-mcast-filter-id-1)# wr mem
```

Syntax: write memory

Possible values: N/A

Default value: N/A

write terminal

Displays the running configuration of the switch or routing switch on the terminal screen.

NOTE: This command is equivalent to the **show running-config** command.

EXAMPLE:

```
HP9300(config-mcast-filter-id-1)# wr term
```

Syntax: write terminal

Possible values: N/A

Default value: N/A

CONFIG Commands – BGP Router Level

address-filter

Configures an address filter for filtering routes in BGP4 updates based on IP address.

EXAMPLE:

To define an IP address filter to deny routes to 209.157.0.0, enter the following command:

```
HP9300(config-bgp-router)# address-filter 1 deny 209.157.0.0 255.255.0.0
```

syntax: address-filter <num> permit|deny <IP-addr>|any <network-mask>|any

The <num> parameter identifies the filter's position in the address filter list and can be from 1 – 100. Thus, the address filter list can contain up to 100 filters. The routing switch applies the filters in numerical order, beginning with the lowest-numbered filter. When a filter match is true, the routing switch stops and does not continue applying filters from the list.

NOTE: If the filter is referred to by a route map's match statement, the filter is applied in the order in which the filter is listed in the match statement.

The **permit|deny** parameter indicates the action the routing switch takes if the filter match is true.

- If you specify **permit**, the routing switch permits the route into the BGP4 table if the filter match is true.
- If you specify **deny**, the routing switch denies the route from entering the BGP4 table if the filter match is true.

The <IP-addr> <network-mask> parameter indicates the IP address you want to filter. If you specify **any any**, all IP routes containing the specified IP addresses are permitted or denied (assuming the IP address is not filtered by a lower-numbered filter with the opposite action).

NOTE: Once you define a filter, the default action for addresses that do not match a filter is "deny". To change the default action to "permit", configure the last filter as "permit any any".

To filter based on network mask only, enter **any** for the IP address and then enter the network mask.

Possible values: see above

Default value: N/A

aggregate-address

Configures the routing switch to aggregate routes in a range of networks into a single CIDR number.

NOTE: To summarize CIDR networks, you must use the aggregation feature. The auto summary feature does not summarize networks that use CIDR numbers instead of class A, B, or C numbers.

EXAMPLE:

To aggregate routes for 209.157.22.0, 209.157.23.0, and 209.157.24.0, enter the following command:

```
HP9300(config-bgp-router)# aggregate-address 209.157.0.0 255.255.0.0
```

syntax: aggregate-address <IP-addr> <network-mask> [as-set] [summary-only] [suppress-map <map-name>] [advertise-map <map-name>] [attribute-map <map-name>]

The <IP-addr> and <network-mask> parameters specify the aggregate value for the networks. Specify 0 for the host portion and for the network portion that differs among the networks in the aggregate. For example, to aggregate 10.0.1.0, 10.0.2.0, and 10.0.3.0, enter the IP address 10.0.0.0 and the network mask 255.255.0.0.

The **as-set** parameter causes the routing switch to aggregate AS-path information for all the routes in the aggregate address into a single AS-path.

The **summary-only** parameter prevents the routing switch from advertising more specific routes contained within the aggregate route.

The **suppress-map** <map-name> parameter prevents the more specific routes contained in the specified route map from being advertised.

The **advertise-map** <map-name> parameter configures the routing switch to advertise the more specific routes in the specified route map.

The **attribute-map** <map-name> parameter configures the routing switch to set attributes for the aggregate routes based on the specified route map.

NOTE: For the **suppress-map**, **advertise-map**, and **attribute-map** parameters, the route map must already be defined. See "Defining Route Maps" on page 12-36 for information on defining a route map.

Possible values: see above

Default value: N/A

always-compare-med

Configures the routing switch to compare the MEDs for all paths for a route, regardless of the AS through which the paths pass. By default, the routing switch compares the MED values only among paths through the same AS.

EXAMPLE:

To configure the routing switch to always compare MEDs, enter the following command:

```
HP9300(config-bgp-router)# always-compare-med
```

syntax: [no] always-compare-med

Possible values: N/A

Default value: Disabled

as-path-filter

Configures an AS-path filter for filtering routes in BGP4 updates based on AS-path.

EXAMPLE:

To define AS-path filter 4 to permit AS 2500, enter the following command:

```
HP9300(config-bgp-router)# as-path-filter 4 permit 2500
```

syntax: as-path-filter <num> permit|deny <AS-path>

The <num> parameter identifies the filter's position in the AS-path filter list and can be from 1 – 100. Thus, the AS-path filter list can contain up to 100 filters. The routing switch applies the filters in numerical order, beginning with the lowest-numbered filter. When a filter match is true, the routing switch stops and does not continue applying filters from the list.

NOTE: If the filter is referred to by a route map's match statement, the filter is applied in the order in which the filter is listed in the match statement.

The **permit|deny** parameter indicates the action the routing switch takes if the filter match is true.

- If you specify **permit**, the routing switch permits the route into the BGP4 table if the filter match is true.
- If you specify **deny**, the routing switch denies the route from entering the BGP4 table if the filter match is true.

The <AS-path> parameter indicates the AS-path information. You can enter an exact AS-path string if you want to filter for a specific value. You also can use regular expressions in the filter string.

NOTE: You can use regular expressions as part of the AS-path. See "Using Regular Expressions" on page 12-33.

Possible values: N/A

Default value: Disabled

auto-summary

Disables or re-enables auto summary. The auto summary feature summarizes the routes it redistributes from IGP to BGP4. The routing switch summarizes subnets into their natural class A, B, or C networks. For example, if an AS contains subnets 1.1.0.0, 1.2.0.0, and 1.3.0.0 with the network mask 255.255.0.0, the auto summary feature summarizes the subnets in its advertisements to BGP4 neighbors as 1.0.0.0/8.

The auto summary feature is enabled by default. If you want to disable the feature, use either of the following methods.

NOTE: The auto summary feature summarizes only the routes that are redistributed from IGP into BGP4.

NOTE: The auto summary feature does not summarize networks that use CIDR numbers instead of class A, B, or C numbers. To summarize CIDR networks, use the aggregation feature. See “Aggregating Routes Advertised to BGP4 Neighbors” on page 26.

EXAMPLE:

To disable auto summary, enter the following command:

```
HP9300(config-bgp-router)# no auto-summary
```

To re-enable auto summary, enter the following command:

```
HP9300(config-bgp-router)# auto-summary
```

syntax: [no] auto-summary

Possible values: N/A

Default value: Enabled

client-to-client-reflection

Disables or re-enables route reflection. For more information about route reflection, see “Configuring Route Reflection Parameters” on page 12-24.

EXAMPLE:

If you need to disable route reflection on a routing switch, enter the following command. Disabling route reflection allows you to turn off the feature without removing Cluster ID and route reflector client information from the system configuration file.

```
HP9300(config-bgp-router)# no client-to-client-reflection
```

Enter the following command to re-enable the feature:

```
HP9300(config-bgp-router)# client-to-client-reflection
```

syntax: [no] client-to-client-reflection

Possible values: N/A

Default value: Enabled

cluster-id

Changes the BGP4 cluster ID. Use this command only on a BGP4 routing switch that you are using as a route reflector. For more information about route reflection, see “Configuring Route Reflection Parameters” on page 12-24.

EXAMPLE:

Enter the following commands to configure a routing switch as a route reflector for two neighbors in cluster 1:

```
HP9300(config-bgp-router)# cluster-id 1
HP9300(config-bgp-router)# neighbor 10.0.1.0 route-reflector-client
HP9300(config-bgp-router)# neighbor 10.0.2.0 route-reflector-client
```

syntax: cluster-id <num>

Possible values: 1 – 4294967295

Default value: the router ID, expressed as a 32-bit number

community-filter

Configures a community address filter for filtering routes in BGP4 updates based on community.

EXAMPLE:

To define filter 3 to permit routes that have the NO_ADVERTISE community, enter the following command:

```
HP9300(config-bgp-router)# community-filter 3 permit no-advertise
```

syntax: community-filter <num> permit|deny <community-number>|internet|no-advertise|no-export

The <num> parameter identifies the filter's position in the community filter list and can be from 1 – 100. Thus, the community filter list can contain up to 100 filters. The routing switch applies the filters in numerical order, beginning with the lowest-numbered filter. When a filter match is true, the routing switch stops and does not continue applying filters from the list.

NOTE: If the filter is referred to by a route map's match statement, the filter is applied in the order in which the filter is listed in the match statement.

The **permit|deny** parameter indicates the action the routing switch takes if the filter match is true.

- If you specify **permit**, the routing switch permits the route into the BGP4 table if the filter match is true.
- If you specify **deny**, the routing switch denies the route from entering the BGP4 table if the filter match is true.

The <community-number> parameter indicates a specific community number to filter. Use this parameter to filter for a private (administrator-defined) community. If you want to filter for the well-known communities "NO_EXPORT" or "NO_ADVERTISE", use the corresponding keyword (described below).

The **internet** keyword checks for routes that do not have the community attribute. Routes without a specific community are considered by default to be members of the largest community, the Internet.

The **no-advertise** keyword filters for routes with the well-known community "NO_ADVERTISE". A route in this community should not be advertised to any BGP4 neighbors.

The **no-export** keyword filters for routes with the well-known community "NO_EXPORT". A route in this community should not be advertised to any BGP4 neighbors outside the local AS.

Possible values: N/A

Default value: Disabled

default-information-originate

Enables the routing switch to advertise a default BGP4 route.

EXAMPLE:

To enable the routing switch to advertise a default BGP4 route, enter the following command:

```
HP9300(config-bgp-router)# default-information-originate
```

syntax: [no] default-information-originate

Possible values: N/A

Default value: Enabled

default-local-preference

Changes the local preference. The local preference is an attribute that indicates a degree of preference for a route relative to other routes in the local AS. BGP4 neighbors can send the local preference value as an attribute of a route in an UPDATE message. Local preference applies only to routes within the local AS.

EXAMPLE:

To change the default local preference to 200, enter the following command:

```
HP9300(config-bgp-router)# default-local-preference 200
```

syntax: default-local-preference <num>

Possible values: 0 – 4294967295

Default value: 100

default-metric

Sets the default BGP4 MED (metric), a global parameter that specifies the cost that will be applied to all routes by default when they are redistributed into BGP4. When routes are selected, lower metric values are preferred over higher metric values.

EXAMPLE:

To change the default metric to 40, enter the following command:

```
HP9300(config-bgp-router)# default-metric 40
```

Syntax: default-metric <num>

Possible values: 0 – 4294967295

Default value: 0

distance

Changes the administrative distance for IBGP, EBGP, or Local BGP routes. To select one route over another based on the source of the route information, the routing switch can use the administrative distances assigned to the sources.

See “Changing Administrative Distances” on page 12-22 for a list of the default administrative distances for all types of routes.

EXAMPLE:

To change the default administrative distances for EBGP, IBGP, and Local BGP, enter a command such as the following:

```
HP9300(config-bgp-router)# distance 180 160 40
```

syntax: distance <external-distance> <internal-distance> <local-distance>

The <external-distance> sets the EBGP distance and can be a value from 1 – 255. The default is 20.

The <internal-distance> sets the IBGP distance and can be a value from 1 – 255. The default is 200.

The <local-distance> sets the Local BGP distance and can be a value from 1 – 255. The default is 200.

Possible values: see above

Default value: see above

end

Moves activity to the privileged EXEC level from any level of the CLI except the user EXEC level.

EXAMPLE: To move to the privileged level, enter the following from any level of the CLI.

```
HP9300(config-bgp-router)# end
HP9300#
```

Syntax: end

Possible values: N/A

Default value: N/A

exit

Moves activity up one level from the current level. In this case, activity will be moved to the global level.

EXAMPLE:

```
HP9300(config-bgp-router)# exit
HP9300(config)#
```

Syntax: exit

Possible values: N/A

Default value: N/A

fast-external-fallover

Configures the routing switch to immediately close the BGP4 session and TCP connection to locally attached neighbors that die. This feature is enabled by default.

EXAMPLE:

To re-enable fast external fallover, enter the following command:

```
HP9300(config-bgp-router)# fast-external-fallover
```

Syntax: [no] `fast-external-fallover`

Possible values: N/A

Default value: Enabled

local-as

The local AS number identifies the AS the BGP4 router is in. The AS number can be from 1 – 65535. The default local AS number is 1. AS numbers 64512 – 65535 are the well-known private BGP4 AS numbers. If you want to set a different local AS value, use either of the following methods.

EXAMPLE:

To set the local AS, enter a command such as the following:

```
HP9300(config-bgp-router)# local-as 64512
```

Syntax: local-as <num>

Possible values: 1 – 65535

Default value: 1

max-attribute-entries

Changes the maximum number of BGP4 route attribute entries the routing switch can have.

EXAMPLE:

To change the maximum number of route-attribute entries to 25000, enter the following command:

```
HP9300(config-bgp-router)# max-attribute-entries 25000
HP9300(config-bgp-router)# exit
HP9300# reload
```

Syntax: max-attribute-entries <num>

Possible values: 200 – 30000

Default value: 100000 for 9304M and 9308M routing switches using Redundant Management modules; 10000 for the 6308M-SX routing switch.

max-neighbors

Changes the maximum number of BGP4 neighbors the routing switch can have.

EXAMPLE:

To change the maximum number of BGP4 neighbors to 10, enter the following command:

```
HP9300(config-bgp-router)# max-neighbors 10
HP9300# reload
```

Syntax: max-neighbors <num>

Possible values: 1 – 10

Default value: 3

max-routes

Changes the maximum number of BGP4 routes the routing switch can have.

EXAMPLE:

To change the maximum number of BGP4 routes to 60000, enter the following command:

```
HP9300(config-bgp-router)# max-routes 60000
HP9300(config-bgp-router)# exit
HP9300# reload
```

Syntax: max-routes <num>

Possible values:

10000 – 256000 for the 9304M or 9308M with Redundant Management modules

10000 – 70000 for the 6308M-SX or the 9304M or 9308M with a standard management module

Default value: 256000 for 9304M or 9308M using Redundant Management modules; 30000 for the 6308M-SX or the 9304M or 9308M with a standard management module

neighbor

Adds a BGP4 neighbor (peer). In addition to identifying the neighbor's IP address and AS number, you can set other parameters that control the routing switch's interaction with the neighbor.

EXAMPLE:

You can add a neighbor by specifying just the IP address and AS number. To set additional options, see the syntax descriptions below.

```
HP9300(config-bgp-router)# neighbor <router ID> remote-as <AS number>
```

Syntax: neighbor <router ID> remote-as <AS number>
[advertisement-interval <num>] [distribute-list in|out <num,num,...>]
[ebgp-multihop] [filter-list in|out <num,num,...>] [maximum-prefix <num>]
[next-hop-self] [remote-as <AS number>] [remove-private-as]
[route-map <in|out> <map name>] [route-reflector-client] [send-community]
[update-source loopback <num>] [weight <num>]

advertisement-interval <num> specifies the minimum delay (in seconds) between messages to the specified neighbor. The default is 30 for EBGP neighbors (neighbors in other ASs). The default is 5 for IBGP neighbors (neighbors in the same AS). The range is 0 – 600.

distribute-list in|out <num,num,...> specifies a distribute list to be applied to updates to or from the specified neighbor. The **in|out** keyword specifies whether the list is applied on updates received from the neighbor or sent to the neighbor. The <num,num,...> parameter specifies the list of address-list filters. The routing switch applies the filters in the order in which you list them and stops applying the filters in the distribute list when a match is found.

NOTE: By default, if a route does not match any of the filters, the routing switch denies the route. To change the default behavior, configure the last filter as "permit any any".

NOTE: The address filter must already be configured. See “Filtering Specific IP Addresses” on page 30.

ebgp-multihop specifies that the neighbor is more than one hop away and that the session type with the neighbor is thus EBGP-multihop. This option is disabled by default.

filter-list in|out <num,num,...> specifies an AS-path filter list. The **in|out** keyword specifies whether the list is applied on updates received from the neighbor or sent to the neighbor. The <num,num,...> parameter specifies the list of AS-path filters. The routing switch applies the filters in the order in which you list them and stops applying the filters in the AS-path filter list when a match is found.

NOTE: By default, if an AS-path does not match any of the filters, the routing switch denies the route. To change the default behavior, configure the last filter as "permit any any".

NOTE: The AS-path filter must already be configured. See “Filtering AS-Paths” on page 32.

maximum-prefix <num> specifies the maximum number of IP network prefixes (routes) that can be learned from the specified neighbor. The default is 80000 for chassis devices using Redundant Management modules. The default is 5000 for the 6308M-SX and chassis devices using other management modules. The range is from 100 to the maximum number of BGP4 routes allowed on the routing switch. The maximum value depends on the type of routing switch you have and also on whether you have changed the maximum number of routes for the device. See “Changing the Maximum Number of Routes” on page 12-18.

next-hop-self specifies that the routing switch should list itself as the next hop in updates sent to the specified neighbor. This option is disabled by default.

remote-as <AS number> specifies the AS the remote neighbor is in. The <AS number> can be a number from 1 – 65535. There is no default.

remove-private-as configures the routing switch to remove private AS numbers from UPDATE messages the routing switch sends to this neighbor. The routing switch will remove AS numbers 64512 – 65535 (the well-known BGP4 private AS numbers) from the AS-path attribute in UPDATE messages the routing switch sends to the neighbor. This option is disabled by default.

route-map in|out <map name> specifies a route map to be applied to updates sent to or received from the specified neighbor. The **in|out** keyword specifies whether the list is applied on updates received from the neighbor or sent to the neighbor.

NOTE: The route map must already be configured. See “Defining Route Maps” on page 36.

route-reflector-client specifies that this neighbor is a route-reflector client of the routing switch. Use the parameter only if this routing switch is going to be a route reflector. For information, see “Configuring Route Reflection Parameters” on page 12-24. This option is disabled by default.

send-community enables sending the community attribute in updates to the specified neighbor. By default, the routing switch does not send the community attribute. This option is disabled by default.

update-source loopback <num> configures the routing switch to communicate with the neighbor through the loopback address on the specified interface. Using a loopback address for neighbor communication avoids problems that can be caused by unstable routing switch interfaces. Generally, loopback interfaces are used for links to IBGP neighbors, which often are multiple hops away, rather than EBGP neighbors. The <num> parameter indicates the loopback interface number and can be from 1 – 4. There is no default.

weight <num> specifies a weight to be added to routes received from the specified neighbor. BGP4 prefers larger weights over smaller weights. The default weight is 0.

Possible values: see above

Default value: N/A

network

Specifies a list of networks for the routing switch to advertise through BGP4.

EXAMPLE:

To configure the routing switch to advertise network 209.157.22.0/24, enter the following command:

```
HP9300(config-bgp-router)# network 209.157.22.0 255.255.255.0
```

syntax: network <IP-addr> mask <network-mask> [weight <num>] [backdoor]

The <IP-addr> is the network number and the **mask** <network-mask> specifies the network mask.

The **weight** <num> parameter specifies a weight to be added to routes to this network.

The **backdoor** parameter changes the administrative distance of the route to this network from the EBGP administrative distance (20 by default) to the Local BGP weight (200 by default), thus tagging the route as a backdoor route. Use this parameter when you want the routing switch to prefer IGP routes such as RIP or OSPF routes over the EBGP route for the network.

Possible values: see above

Default value: N/A

no

This command is used to disable other commands. To do so, place the word **no** before the command.

quit

This command returns you from any level of the CLI to the User EXEC mode.

EXAMPLE:

```
HP9300(config-bgp-router)# quit
HP9300>
```

Syntax: quit

Possible values: N/A

Default value: N/A

redistribute ospf

Configures parameters for redistributing OSPF routes into BGP4. Redistribution into BGP4 is disabled by default.

EXAMPLE:

To configure the routing switch to redistribute OSPF external type 1 routes, enter the following command:

```
HP9300(config-bgp-router)# redistribute ospf match external1
```

syntax: redistribute ospf [metric <num>] [route-map <map-name>] [weight <num>] [match internal|external1|external2]

The **ospf** parameter indicates that you are redistributing OSPF routes into BGP4.

The **metric** <num> parameter changes the metric. You can specify a value from 0 – 4294967295. The default is 0.

The **route-map** <map-name> parameter specifies a route map to be consulted before adding the filter to the IP route table.

NOTE: The route map you specify must already be configured on the routing switch. See “Defining Route Maps” on page 12-36 for information about defining route maps.

The **weight** <num> parameter changes the weight. You can specify a value from 0 – 65535. The default is 0.

The **match internal|external1|external2** parameter applies only to OSPF. This parameter specifies the types of OSPF routes to be redistributed into BGP4.

Possible values: see above

Default value: see above

redistribute rip

Configures parameters for redistributing IP/RIP routes into BGP4. Redistribution into BGP4 is disabled by default.

EXAMPLE:

To configure BGP4 to redistribute RIP routes and add a weight of 10 to the redistributed routes, enter the following command:

```
HP9300(config-bgp-router)# redistribute rip weight 10
```

syntax: redistribute rip [metric <num>] [route-map <map-name>] [weight <num>]

The **rip** parameter indicates that you are redistributing RIP routes into BGP4.

The **metric** <num> parameter changes the metric. You can specify a value from 0 – 4294967295. The default is 0.

The **route-map** <map-name> parameter specifies a route map to be consulted before adding the filter to the IP route table.

NOTE: The route map you specify must already be configured on the routing switch. See “Defining Route Maps” on page 12-36 for information about defining route maps.

The **weight** <num> parameter changes the weight. You can specify a value from 0 – 65535. The default is 0.

Possible values: see above

Default value: see above

redistribute static

Configures parameters for redistributing static routes into BGP4. Redistribution into BGP4 is disabled by default.

EXAMPLE:

To configure the routing switch to redistribute static routes, enter the following command:

```
HP9300(config-bgp-router)# redistribute static
```

syntax: redistribute static [metric <num>] [route-map <map-name>] [weight <num>]

The **static** parameter indicates that you are redistributing static routes into BGP4.

The **metric** <num> parameter changes the metric. You can specify a value from 0 – 4294967295. The default is 0.

The **route-map** <map-name> parameter specifies a route map to be consulted before adding the filter to the IP route table.

NOTE: The route map you specify must already be configured on the routing switch. See “Defining Route Maps” on page 12-36 for information about defining route maps.

The **weight** <num> parameter changes the weight. You can specify a value from 0 – 65535. The default is 0.

Possible values: see above

Default value: see above

show...

Displays a variety of configuration and statistical information about the switch or routing switch. See “Commands – All Levels” on page 212.

synchronization

Disables or re-enables synchronization. When synchronization is enabled, the routing switch waits until the IGPs in the local AS have fully exchanged route information before BGP4 advertises the routes to its remote BGP4 neighbors.

EXAMPLE:

To disable synchronization, enter the following command:

```
HP9300(config-bgp-router)# no synchronization
```

To re-enable synchronization, enter the following command:

```
HP9300(config-bgp-router)# synchronization
```

syntax: [no] synchronization

Possible values: N/A

Default value: Enabled

table-map

Configures an existing route map to change the route tag in routes when adding them to the IP route table.

EXAMPLE:

To create a route map and identify it as a table map, enter commands such as following. These commands create a route map that uses an address filter. For routes that match the address filter, the route map changes the tag value to 100. This route map is then identified as a table map. As a result, the route map is applied only to routes that the routing switch places in the IP route table. The route map is not applied to all routes. This example assumes that address filter 11 has already been configured.

```
HP9300(config)# route-map TAG_IP permit 1
HP9300(config-bgp-routemap TAG_IP)# match address-filters 11
HP9300(config-bgp-routemap TAG_IP)# set tag 100
HP9300(config-bgp-routemap TAG_IP)# router bgp
HP9300(config-bgp-router)# table-map TAG_IP
```

Possible values: a route-map name

Default value: N/A

timers

Sets the BGP4 Keep Alive Time and Hold Time on the routing switch.

EXAMPLE:

To change the Keep Alive Time to 30 and Hold Time to 90, enter the following command:

```
HP9300(config-bgp-router)# timers keep-alive 30 hold-time 90
```

syntax: timers keep-alive <num> hold-time <num>

Possible values:

Keep Alive Time 0 – 65535.

Hold Time 0 or 3 – 65535 (1 and 2 are not allowed).

If you set the Hold Time to 0, the routing switch waits indefinitely for messages from a neighbor without concluding that the neighbor is dead.

Default value:

Keep Alive Time 60 seconds.

Hold Time 180 seconds.

write memory

Saves the running configuration into the startup-config file.

EXAMPLE:

```
HP9300(config-bgp-router)# wr mem
```

Syntax: write memory

Possible values: N/A

Default value: N/A

write terminal

Displays the running configuration of the switch or routing switch on the terminal screen.

NOTE: This command is equivalent to the **show running-config** command.

EXAMPLE:

```
HP9300(config-bgp-router)# wr term
```

Syntax: write terminal

Possible values: N/A

Default value: N/A

CONFIG Commands – DVMRP Router Level

default-gateway

Defines the default gateway for DVMRP IP multicast routing. If designated as the default gateway, the routing switch must be on a directly connected network for this command to be operational.

EXAMPLE:

```
HP9300(config)# router dvmrp
HP9300(config-dvmrp-router)# default-gateway 192.35.4.1
```

Syntax: default-gateway <ip address>

Possible values: valid ip address

Default value: no system default

end

Moves activity to the privileged EXEC level from any level of the CLI except the user EXEC level.

EXAMPLE: To move to the privileged level, enter the following from any level of the CLI.

```
HP9300(config-dvmrp-router)# end
HP9300#
```

Syntax: end

Possible values: N/A

Default value: N/A

exit

Moves activity up one level from the current level. In this case, activity will be moved to the global level.

EXAMPLE:

```
HP9300(config-dvmrp-router)# exit
HP9300(config)#
```

Syntax: exit

Possible values: N/A

Default value: N/A

graft-retransmit-time

Defines the initial period of time that a DVMRP router sending a graft message, will wait for a graft acknowledgment from an upstream router, before re-transmitting that message.

Subsequent re-transmissions will be sent at an interval of twice that of the preceding interval.

DVMRP must be enabled on the routing switch for this command to be operational.

EXAMPLE:

```
HP9300(config)# router dvmrp
HP9300(config-dvmrp-router)# graft 120
```

Syntax: graft-retransmit-time <value>

Possible values: 5 to 3600 seconds

Default value: 10 seconds

nbr-timeout

Sets neighbor timeout value. Specifies the period of time that a routing switch will wait before it defines an attached DVMRP neighbor router as down.

DVMRP must be enabled on the routing switch for this command to be operational.

EXAMPLE:

```
HP9300(config)# router dvmrp
HP9300(config-dvmrp-router)# nbr 100
```

Syntax: nbr-timeout <value>

Possible values: 40 – 8000 seconds

Default value: 40 seconds

no

This command is used to disable other commands. To do so, place the word ***no*** before the command.

probe-interval

Defines how often neighbor probe messages are sent to the ALL-DVMRP-ROUTERS IP multicast group address. A router's probe message lists those neighbor DVMRP routers from which it has received probes.

DVMRP must be enabled on the routing switch for this command to be operational.

EXAMPLE:

```
HP9300(config)# router dvmrp
HP9300(config-dvmrp-router)# probe 10
```

Syntax: probe-interval <value>

Possible values: 5 – 30 seconds

Default value: 10 seconds

prune-age

Defines how long a prune state will remain in effect for a source-routed multicast tree. After the prune age period expires, flooding will resume.

DVMRP must be enabled on the routing switch for this command to be operational.

EXAMPLE:

```
HP9300(config)# router dvmrp
HP9300(config-dvmrp-router)# prune 25
```

Syntax: prune-age <value>

Possible values: 20 – 3600 seconds

Default value: 180 seconds

quit

This command returns you from any level of the CLI to the User EXEC mode.

EXAMPLE:

```
HP9300(config-dvmrp-router)# quit
HP9300>
```

Syntax: quit

Possible values: N/A

Default value: N/A

report-interval

Defines how often routing switches will propagate their complete routing tables to other neighbor DVMRP routers.

DVMRP must be enabled on the routing switch for this command to be operational.

EXAMPLE:

```
HP9300(config)# router dvmrp
HP9300(config-dvmrp-router)# report 100
```

Syntax: report-interval <value>

Possible values: 10 – 2000 seconds

Default value: 60 seconds

route-discard

Defines the period of time before a route is deleted on a DVMRP router.

DVMRP must be enabled on the routing switch for this command to be operational.

EXAMPLE:

```
HP9300(config)# router dvmrp
HP9300(config-dvmrp-router)# route d 50
```

Syntax: route-discard <value>

Possible values: 40 – 8000 seconds

Default value: 340 seconds

route-expire

Defines how long a route is considered valid without the next route update.

DVMRP must be enabled on the routing switch for this command to be operational.

EXAMPLE:

```
HP9300(config)# router dvmrp
HP9300(config-dvmrp-router)# route-exp 50
```

Syntax: route-expire <value>

Possible values: 20 – 4000 seconds

Default value: 200 seconds

show…

Displays a variety of configuration and statistical information about the switch or routing switch. See “Commands – All Levels” on page 212.

trigger interval

Defines how often trigger updates, which reflect changes in the network topology, are sent. Changes in a network topology can include a routing switch coming up or going down or changing its metric.

DVMRP must be enabled on the routing switch for this command to be operational.

EXAMPLE:

```
HP9300(config)# router dvmrp
HP9300(config-router)# trig 25
```

Syntax: trigger interval <value>

Possible values: 5 – 30 seconds

Default value: 5

write memory

Saves the running configuration into the startup-config file.

EXAMPLE:

```
HP9300# wr mem
```

Syntax: write memory

Possible values: N/A

Default value: N/A

write terminal

Displays the running configuration of the switch or routing switch on the terminal screen.

NOTE: This command is equivalent to the **show running-config** command.

EXAMPLE:

```
HP9300# wr term
```

Syntax: write terminal

Possible values: N/A

Default value: N/A

CONFIG Commands – OSPF Router Level

area...

Assigns an area ID value to which the routing switch will be attached. Area membership is assigned using the Interface Level command, **ip ospf address <areaID>**.

- When an area is defined as **normal**, all external routes will be advertised into the area.
- When an area is defined as **stub**, external routes will not be advertised into the area.

NOTE: You can assign one area per routing switch port. If the routing switch has 64 ports, 64 areas are supported on that routing switch.

By default, the OSPF feature is disabled. OSPF must be enabled and active on the routing switch for this command to be operational.

EXAMPLE 1: To define a normal area, enter the following commands:

```
HP9300(config)# router ospf
HP9300(config-ospf-router)# area 192.53.0.0 normal
```

EXAMPLE 2: To define an area as a stub area, enter the following commands:

```
HP9300(config)# router ospf
HP9300(config-ospf-router)# area 192.53.0.0 stub 1
```

Syntax: area <ip address> <normal | stub <cost> >

Possible values: Area ID: Valid IP address; Stub cost: 1 to 16777215

Default value: N/A

area range

Assigns representative values to a range of IP addresses within an area, so that only those reference range addresses are advertised to the network, instead of all the addresses within that range. Up to four ranges can be assigned to an area.

NOTE: Range assignment is optional.

EXAMPLE:

```
HP9300(config)# router ospf
HP9300(config-ospf-router)# area 192.53.0.0 range 193.45.0.0 255.255.0.0
```

Syntax: area <ip address> range <ip address> <ip mask>

Possible values: area id (ip address), ip address and ip mask

Default value: N/A

area <num>|<ip address> virtual-link

Provides an area-border router a logical connection to the backbone area (0.0.0.0) when a physical connection to the backbone area does not exist.

The **area <num>|<ip address>** represents the shared area of the two area border routers—the one with a physical connection to the backbone and the router that requires a logical connection to the backbone. The defined area serves as the connection point between the two routers.

The **virtual-link <ip address>** is the Router ID of the router physically connected to the backbone, when assigned from the router interface requiring a logical connection. When assigning the parameters from the router with the physical connection, the router ID is the IP address of the router requiring a logical connection to the backbone.

NOTE: When establishing an area virtual link, it must be configured on both of the routers (both ends of the virtual link).

By default, the OSPF feature is disabled. OSPF must be enabled and active on the routing switch for this command to be operational. In addition, the neighbor area border router that has a physical connection to the backbone and the common area, must have connections to both the neighbor area border router and the area border router requiring a logical connection.

EXAMPLE: To define the virtual link for area 195.22.0.0, enter the following:

```
HP9300(config)# router ospf
HP9300(config-ospf-router)# area 195.22.0.0 virt 201.44.53.44
```

Other parameters that can be modified with this command, as seen in the syntax, are summarized below:

authentication-key: A password used to validate action

dead-interval: The number of seconds that a neighbor router will wait for a hello packet from the current router, before declaring the router down

hello-interval: The length of time between the transmission of hello packets.

md5-authentication: The MD5 key-activation wait time, key ID, and key string.

retransmit-interval: The time between retransmits of link state advertisements to router adjacencies for this interface.

transmit-delay: The time it takes to transmit Link State Update packets on this interface

Syntax: area <num>|<ip address> virtual-link <ip address> [authentication-key <string>] [dead-interval <num>] [hello-interval <num>] [md5-authentication key-activation-wait-time <num>| key-id <num> key <string>] [retransmit-interval <num>] [transmit-delay <num>]

Possible values and Default values:

Parameter	Possible Values	Default
authentication-key:	up to 8 alphanumeric characters	none
dead-interval:	1 – 65535 seconds	40 seconds
hello-interval:	1 – 65535	10 seconds
md5-authentication key-activation-wait-time:	0 – 14400	300 seconds (5 minutes)
md5-authentication key ID:	1 – 255	none
md5-authentication key string:	up to 16 alphanumeric characters	none
retransmit-interval:	0 – 3600 seconds.	5 seconds
transmit-delay:	0 – 3600	1

database-overflow-interval

Configures how often a routing switch will check to see if the OSPF external link state database overflow condition has been eliminated by removal of entries originated on the routing switch.

If the configured value of the data-base-overflow-interval is zero, then the routing switch will never leave the database overflow condition. The default value for the database overflow interval is zero.

EXAMPLE:

```
HP9300(config-ospf-router)# data-base-overflow-interval 60
```

Syntax: database-overflow-interval <value>

Possible values: 0 – 86,400 seconds

Default value: 0

default-metric

Sets the global default-metric value that will be adopted by all external routes imported into OSPF.

EXAMPLE: To set a default metric of 1000 to be applied to all external routes imported into OSPF, enter the following command.

```
HP9300(config)# router ospf
HP9300(config-ospf-router)# def 1000
```

Syntax: default-metric <value>

Possible values: 1 to 16,777,215

Default value: 10

deny redistribute

Defines the route(s) upon which you do not want to perform OSPF redistribution.

EXAMPLE: To deny redistribution on incoming routes received from the 192.95.0.0 network, enter the following:

```
HP9300(config-ospf-router)# deny redis all 2 192.95.0.0 255.255.0.0
```

syntax: deny redistribute <filter-num> all|bgp|rip|static address <ip address> <network mask> [match-metric <value> | set-metric <value>]

Possible values: see below

all	apply redistribution to all route types
rip	apply redistribution to RIP routes only
static	apply redistribution to the static route only
ip address	network and sub-net addresses
match-metric	applies redistribution only to those incoming routes that match a specific metric value; Possible values: 1 – 15
set-metric	OSPF metric value that will be applied to all routes imported into OSPF

Default value: N/A

NOTE: If a **set-metric** value is not set using the set-metric parameter, then the value configured for the global parameter default-metric will be applied.

end

Moves activity to the privileged EXEC level from any level of the CLI except the user EXEC level.

EXAMPLE: To move to the privileged level, enter the following from any level of the CLI.

```
HP9300(config-ospf-router)# end
HP9300#
```

Syntax: end

Possible values: N/A

Default value: N/A

exit

Moves activity up one level from the current level. In this case, activity will be moved to the global level.

EXAMPLE:

```
HP9300(config-ospf-router)# exit
HP9300(config)#
```

Syntax: exit

Possible values: N/A

Default value: N/A

external-lsdb-limit

Provides compliance with RFC 1765 in the handling of OSPF external link-state database (LSDB) overflow. The routing switches, by default, support 2000 IP OSPF external link state advertisements before a database overflow condition exists.

EXAMPLE: To decrease this value to 1500 seconds, enter the following:

```
HP9300(config-ospf-router)# external-lsdb-limit 1500
```

Syntax: database-external-lsdb-interval <value>

Possible values: 0 to 2000

Default value: 2000

maximum-number-of-lsa

Adjusts the table sizes for Link-State Advertisements (LSAs) on routing switches with 32MB or more memory.

The following table lists the types of LSAs for which you can configure the table size, the default number of entries the tables can hold, and the range of maximum values you can specify. You cannot configure the LSA tables globally; you must configure them for individual LSA types.

LSA Type	Default Maximum Number of Entries	Range of Values
External	2000	500 – 8000
Network	2000	200 – 2000
Router	2200	200 – 2200
Summary	2000	500 – 18000

EXAMPLE:

To change the maximum number of summary LSA entries from 2000 to 18000, enter the following commands:

```
HP9300(config-ospf-router)# maximum-number-of-lsa summary 18000
HP9300(config-ospf-router)# write memory
HP9300(config-ospf-router)# exit
HP9300(config)# exit
HP9300# reload
```

Syntax: maximum-number-of-lsa external|network|router|summary <value>

You must save the change to the startup-config file and reload or reboot. The change does not take effect until your reload or reboot.

NOTE: When you allocate high values for the LSA types, you reduce the amount of memory available to other protocols. If you need to run more than one memory-intensive protocol simultaneously, make sure you consider the memory needs of each. For example, if you are planning to run OSPF and BGP4 on the same routing switch, you might not want to allocate the maximum memory capacity for all the LSA types. Doing so could take memory away from BGP4 and thus limit configurable BGP4 table sizes such as the maximum number of routes the BGP route table can hold.

Possible values: see above

Default value: see above

max-routes

Changes the maximum number of OSPF routes the routing switch can hold.

EXAMPLE:

To change the maximum number of OSPF routes to 32000, enter the following command:

```
HP9300(config-ospf-router)# max-routes 32000
HP9300(config-ospf-router)# exit
HP9300# reload
```

Syntax: max-routes <num>

Possible values: 4000 – 32000

Default value: 16000

metric-type

Specifies the type of OSPF metric to be used for routes imported into OSPF. Type 2 specifies a big metric (3 bytes). Type 1 specifies a small metric (2 bytes).

EXAMPLE:

```
HP9300(config-ospf-router)# metric-type type1
```

Syntax: metriB-type<type1 | type2>

Possible values: type1, type2

Default value: type2

no

This command is used to disable other commands. To do so, place the word ***no*** before the command.

permit redistribute

Defines the route types upon which you want to perform OSPF redistribution.

OSPF must be enabled and active for this command to be operational. OSPF is disabled by default.

EXAMPLE:

```
HP9300(config-ospf-router)# permit redis rip 1 address 192.147.72.0 255.255.255.0
```

syntax: permit redistribute <filter-num> all|bgp|rip|static address <ip address> <network mask> [match-metric <value> | set-metric <value>]

Possible values:

all:	apply redistribution to all route types
rip:	apply redistribution to RIP routes only
static:	apply redistribution to the static route only
ip address:	network and sub-net addresses
match-metric:	match a specific metric value; Possible values: are 1 – 16777215
set-metric:	OSPF metric value that will be applied to all routes imported into OSPF

Default value: N/A

quit

This command returns you from any level of the CLI to the User EXEC mode.

EXAMPLE:

```
HP9300(config-ospf-router)# quit
HP9300>
```

Syntax: quit

Possible values: N/A

Default value: N/A

redistribution

Enables the OSPF route function, redistribution on the routing switch. When enabled, OSPF will import external routes (RIP or Static Routes) into the OSPF domain. The routing switch will behave as an Autonomous System Boundary Router (ASBR).

EXAMPLE:

```
HP9300(config-ospf-router)# redistribution
```

Syntax: [no] redistribution

Possible values: N/A

Default value: disabled

rfc-1583-compatibility

The routing switches are configured by default to be compliant with RFC 1583 OSPF V2 specification. Routing switches can also be configured to operate with the latest OSPF standard, RFC 2178, by entering the **no rfc1583-compatibility** command.

EXAMPLE:

```
HP9300(config-ospf-router)# rfc-1583-compatibility
```

Syntax: [no] rfc-1583-compatibility

Possible values: N/A

Default value: disabled

router-id

The parameter changes the device's router ID. The default router ID is the lowest configured IP address on the device.

EXAMPLE:

```
HP9300(config-ospf-router)# router id 222
```

Syntax: router-id <ip address>|<num>

Possible values: N/A

Default value: disabled

show…

Displays a variety of configuration and statistical information about the switch or routing switch. See "Commands – All Levels" on page 212.

trap

Generation of OSPF traps is enabled, by default, on the routing switch when OSPF is enabled. To disable all traps, use the global level CONFIG command **no snmp-server trap ospf**.

To stop a specific OSPF trap from being collected, use the CLI command **no trap <trap>**.

EXAMPLE: To stop changes in the state of neighbors being generated by a routing switch, enter the following command:

```
HP9300(config-ospf-router)# no trap neighbor-state-change-trap
```

To reinstate the command, enter the following command:

```
HP9300(config-ospf-router)# trap neighbor-state-change-trap
```

Syntax: [no] trap <trap>

Possible values: see below: traps are from RFC 1850

Default value: All traps are active when OSPF is enabled.

interface-state-change-trap	[MIB object: OspfIfstateChange]
virtual-interface-state-change-trap	[MIB Object: OspfVirtIfStateChange
neighbor-state-change-trap	[MIB object:ospfNbrStateChange]
virtual-neighbor-state-change-trap	[MIB object: ospfVirtNbrStateChange]
interface-config-error-trap	[MIB object: ospfIfConfigError]
virtual-interface-config-error-trap	MIB object: ospfIfConfigError]
interface-authentication-failure-trap	[MIB object: ospfIfAuthFailure]
virtual-interface-authentication-failure-trap	[MIB object: ospfVirtIfAuthFailure]
interface-receive-bad-packet-trap	[MIB object: ospfIfrxBadPacket]
virtual-interface-receive-bad-packet-trap	[MIB object: ospfVirtIfRxBadPacket]
interface-retransmit-packet-trap	[MIB object: ospfTxRetransmit]
virtual-interface-retransmit-packet-trap	[MIB object: ospfVirtIfTxRetransmit]

originate-lsa-trap	[MIB object: ospfOriginateLsa]
originate-maxage-lsa-trap	[MIB object: ospfMaxAgeLsa]
link-state-database-overflow-trap	[MIB object: ospfLsdbOverflow]
link-state-database-approaching-overflow-trap	[MIB object: ospfLsdbApproachingOverflow]

write memory

Saves the running configuration into the startup-config file.

EXAMPLE:

```
HP9300# wr mem
```

Syntax: write memory

Possible values: N/A

Default value: N/A

write terminal

Displays the running configuration of the switch or routing switch on the terminal screen.

NOTE: This command is equivalent to the **show running-config** command.

EXAMPLE:

```
HP9300# wr term
```

Syntax: write terminal

Possible values: N/A

Default value: N/A

CONFIG Commands – PIM Router Level

end

Moves activity to the privileged EXEC level from any level of the CLI except the user EXEC level.

EXAMPLE: To move to the privileged level, enter the following from any level of the CLI.

```
HP9300(config-pim-router)# end
HP9300#
```

Syntax: end

Possible values: N/A

Default value: N/A

exit

Moves activity up one level from the current level. In this case, activity will be moved to the global level.

EXAMPLE:

```
HP9300(config-pim-router)# exit
HP9300(config)#
```

Syntax: exit

Possible values: N/A

Default value: N/A

no

This command is used to disable other commands. To do so, place the word **no** before the command.

pim-graft-retransmit-timer

Defines the interval between the transmission of graft messages.

A graft message is sent by a router to cancel a prune state. When a routing switch receives a graft message it will respond with a Graft Ack message. If this Graft Ack message is lost, the router that sent the graft message, resends it. The interval between the transmission of the first and subsequent graft message is what is configurable with the PIM graft retransmit timer.

EXAMPLE: To change the graft retransmit timer from the default of 180 to 90 seconds, enter the following:

```
HP9300(config)# router pim
HP9300(config-pim-router)# pim-graft-retransmit-timer 90
```

Syntax: pim-graft-retransmit-timer <value>

Possible values: 10 – 3600 seconds

Default value: 180 seconds

pim-hello-timer

Defines the time interval at which periodic hellos are sent out on all interfaces of a PIM-capable routing switch. Routers use hello messages to inform neighboring routers of their presence.

EXAMPLE: To apply a PIM hello timer of 120 seconds to all ports on the routing switch operating with PIM, enter the following:

```
HP9300(config)# router pim
HP9300(config-pim-router)# pim-hello-timer 120
```

Syntax: pim-hello-timer <value>

Possible values: 10 – 3600 seconds

Default value: 60 seconds

pim-inactivity-timer

A forwarding entry is deleted if it is not used to send multicast packets. The PIM inactivity timer defines the time interval after which an inactive forwarding entry is deleted.

EXAMPLE: To apply a PIM inactivity timer of 90 seconds to all ports on the routing switch operating with PIM, enter the following:

```
HP9300(config)# router pim
HP9300(config-pim-router)# pim-inactivity-timer 90
```

Syntax: pim-inactivity-timer <value>

Possible values: 10 – 3600 seconds

Default value: 180 seconds

pim-nbr-timeout

If a neighboring PIM router stops sending out PIM Hello messages, the routing switch will eventually discover that the neighbor is not present. Neighbor timeout is the interval after which a PIM-capable routing switch will consider a neighbor to not be present.

EXAMPLE: To apply a PIM neighbor timeout value of 360 seconds to all ports on the routing switch operating with PIM, enter the following:

```
HP9300(config)# router pim
HP9300(config-pim-router)# pim-nbr-timeout 360
```

Syntax: pim-nbr-timeout <value>

Possible values: 60 – 8000 seconds.

Default value: 180 seconds

pim-prune-timer

This parameter is used to define how long a routing switch will maintain a prune state for a forwarding entry.

The first received multicast interface is forwarded to all other PIM interfaces on the routing switch. If there is no presence of groups on that interface, the leaf node will send a prune message upstream and store a prune state. This prune state will travel up the tree and install a prune state.

A prune state is maintained until the prune timer expires or a graft message is received for the forwarding entry.

EXAMPLE: To apply a PIM prune timer of 90 seconds to all ports on the routing switch operating with PIM, enter the following:

```
HP9300(config)# router pim
HP9300(config-pim-router)# pim-prune-timer 90
```

Syntax: pim-prune-timer <value>

Possible values: 10 – 3600 seconds.

Default value: 180 seconds

quit

This command returns you from any level of the CLI to the User EXEC mode.

EXAMPLE:

```
HP9300(config-pim-router)# quit
HP9300>
```

Syntax: quit

Possible values: N/A

Default value: N/A

show…

Displays a variety of configuration and statistical information about the switch or routing switch. See “Commands – All Levels” on page 212.

write memory

Saves the running configuration into the startup-config file.

EXAMPLE:

```
HP9300# wr mem
```

Syntax: write memory

Possible values: N/A

Default value: N/A

write terminal

Displays the running configuration of the switch or routing switch on the terminal screen.

NOTE: This command is equivalent to the **show running-config** command.

EXAMPLE:

```
HP9300# wr term
```

Syntax: write terminal

Possible values: N/A

Default value: N/A

CONFIG Commands – IP/RIP Router Level

default-metric

Defines the global default-metric value that will be assigned to all external routes imported into RIP for redistribution.

RIP must be active on the routing switch for this command to be operational.

EXAMPLE: To assign a default metric of 4 to all routes imported as RIP, enter the following:

```
HP9300(config)# router rip
HP9300(config-rip-router)# def 4
```

Syntax: default-metric <value>

Possible values: 1 to 15

Default value: 1

deny redistribute

Defines the route types upon which you *do not* want to perform RIP redistribution.

RIP must be active on the routing switch for this command to be operational. RIP is enabled by default.

EXAMPLE: To deny redistribution on all incoming routes received from the 207.92.0.0 network, enter the following:

```
HP9300(config)# router rip
HP9300(config-rip-router)# deny redis 2 all  207.92.0.0 255.255.0.0
```

Syntax: deny redistribute <index> <all|ospf|static> address <ip address> <network mask> [match-metric <value>|set-metric <value>]

Possible values:

all	apply redistribution to all route types
ospf	apply redistribution to OSPF routes only
static	apply redistribution to the static route only
ip address	apply redistribution to a specific network and sub-net address
match-metric	apply redistribution to those routes with a specific metric value; possible *v*alues are 1 – 15
set-metric:	N/A to **deny redistribute** command

Default value: N/A

end

Moves activity to the privileged EXEC level from any level of the CLI except the user EXEC level.

EXAMPLE: To move to the privileged level, enter the following from any level of the CLI.

```
HP9300(config-rip-router)# end
HP9300#
```

Syntax: end

Possible values: N/A

Default value: N/A

exit

Moves activity up one level from the current level. In this case, activity will be moved to the global level.

EXAMPLE:

```
HP9300(config-rip-router)# exit
HP9300(config)#
```

Syntax: exit

Possible values: N/A

Default value: N/A

filter

Defines which IP/RIP network numbers the routing switch will learn from the RIP protocol and store in its IP routing table. Once RIP filters are defined, you can assign these filters to individual interfaces with the **filter-group** command at the Interface Level of CLI.

To define an IP/RIP filter, you must first enable RIP on the routing switch using the **router rip** command to access the RIP Router Level of the CLI.

NOTE: A filter defines for inbound routes what routes it will permit to be stored in its IP routing table. For outbound routes, the filter defines what routes are allowed to be advertised through a given interface. You can also specify all routes by using the value, **any**, instead of specifying a specific route.

An IP address and mask define a route.

EXAMPLE: To define filters with respect to network traffic from 192.53.41, 192.53.5.1, 192.53.6.1 and 192.53.7.1, enter the following:

```
HP9300(config)# router rip
HP9300(config-rip-router)# filter 1 permit 192.53.4.1 255.255.255.0
HP9300(config-rip-router)# filter 2 permit 192.53.5.1 255.255.255.0
HP9300(config-rip-router)# filter 3 permit 192.53.6.1 255.255.255.0
HP9300(config-rip-router)# filter 4 deny 192.53.7.1 255.255.255.0
```

Syntax: filter <filter ID> <permit | deny> <ip address | any> <ip mask | any>

Possible values: Filter ID: 1 to 64

Default value: N/A

filter-group

This command assigns a group of defined RIP filters on either a global or interface basis. Assignments to interfaces are done at the interface level of the CLI.

EXAMPLE: < >

```
HP9300(config)# router rip
HP9300(config-rip-router)# filter-group out 1 3 6 9
```

Syntax: `filter-group <in|out> <1-64> [<1-64]`

Possible values: 1 to 64 (filter index value)

Default value: N/A

learn-default

This feature allows a routing switch to learn and advertise default IP/RIP routes. This command can be applied on a global or interface basis. This example shows the feature enabled at the global level.

EXAMPLE:

```
HP9300(config-rip-router)# learn-default
```

Syntax: learn-default

Possible values: N/A

Default value: N/A

neighbor

This command is used to specify those routers from which a routing switch will receive RIP routes.

In the example below, no RIP routes will be learned from any neighbor router. By default, RIP routes will be learned from all neighbors.

EXAMPLE: To configure a routing switch so that no RIP routes are learned from its neighbor routers, enter the following:

```
HP9300(config)# router rip
HP9300(config-rip-router)# neighbor 1 deny any
```

Syntax: neighbor <number> <permit|deny> <ip address|any>

Possible values: 1 to 64

Default value: N/A

no

This command is used to disable other commands. To do so, place the word **no** before the command.

permit redistribute

Allows you to define the route types upon which you want to perform RIP redistribution.

EXAMPLE: To allow (permit) redistribution of all routes received from network 192.147.72.0, enter the following:

```
HP9300(config)# router rip
HP9300(config-router)# permit redis 1 all 192.147.72.0 255.255.255.0
```

Syntax: permit|deny redistribute <filter-num> all|bgp|ospf|static <ip-addr> <mask> [match-metric<value>|set-metric <value>]

Possible values:

The **all** parameter applies redistribution to all route types.

The **bgp** parameter applies redistribution to BGP4 routes only.

The **ospf** parameter applies redistribution to OSPF routes only.

The **static** parameter applies redistribution to the static route only.

The **<ipaddr> <mask>** parameters apply redistribution to the specified network and sub-net address.

The **match-metric <value>** parameter applies redistribution to those routes with a specific metric value; possible values are from 1 – 15.

The **set-metric <value>** parameter sets the RIP metric value that will be applied to those routes imported into RIP.

Default value: N/A

quit

This command returns you from any level of the CLI to the User EXEC mode.

EXAMPLE:

```
HP9300(config-rip-router)# quit
HP9300>
```

Syntax: quit

Possible values: N/A

Default value: N/A

redistribution

This command enables RIP route redistribution on a routing switch. When enabled, RIP will import external routes (OSPF or Static Routes) into the RIP domain. Do this prior to setting up the redistribution table using the **permit** and **deny** commands.

EXAMPLE: To enable RIP redistribution on the routing switch, enter the following within the Router RIP Level.

```
HP9300(config)# router rip
HP9300(config-rip-router)# redistribution
```

Syntax: redistribution

Possible values: N/A

Default value: disabled

show…

Displays a variety of configuration and statistical information about the switch or routing switch. See “Commands – All Levels” on page 212.

update-time

Sets the time interval that will exist between the transmission of regular RIP response packets. This parameter is set to 30 seconds by default. RIP must be enabled and active on the routing switch for this command to be operational.

EXAMPLE: To modify the default update time value to 120 seconds, enter the following:

```
HP9300(config)# router rip
HP9300(config-rip-router)# update 120
```

Syntax: update-time <value>

Possible values: 1 to 1,000 seconds

Default value: 30 seconds

use-vrrp-path

Prevents Backup VRRP routers from advertising route information for the backed up interface, by enabling suppression of the advertisements. To suppress RIP advertisements for a backed up interface, enter the following command on the VRRP Backup router:

```
HP9300(config)# use-vrrp-path
```

syntax: use-vrrp-path

Possible values: N/A

Default value: N/A

write memory

Saves the running configuration into the startup-config file.

EXAMPLE:

```
HP9300# wr mem
```

Syntax: write memory

Possible values: N/A

Default value: N/A

write terminal

Displays the running configuration of the switch or routing switch on the terminal screen.

NOTE: This command is equivalent to the **show running-config** command.

EXAMPLE:

```
HP9300# wr term
```

Syntax: write terminal

Possible values: N/A

Default value: N/A

CONFIG Commands – Real Server Level

end

Moves activity to the privileged EXEC level from any level of the CLI except the user EXEC level.

EXAMPLE: To move to the privileged EXEC level, enter the following from any level of the CLI.

```
HP9300(config-rs-S2)# end
HP9300#
```

Syntax: end

Possible values: N/A

Default value: N/A

exit

Moves activity up one level from the current level.

EXAMPLE:

```
HP9300(config-rs-S2)# exit
HP9300(config)#
```

Syntax: exit

Possible values: N/A

Default value: N/A

no

This command is used to disable many commands. To do so, place the word ***no*** before the command.

port <num> disable

Disables the application health check for the port. By default, when you create a profile for the port (using the server port <num> command), the health check is enabled.

EXAMPLE:

```
HP9300(config-rs-S2)# port http disable
HP9300(config)#
```

Syntax: port http|<num>

The **http** parameter is for port 80. If your server uses a different port number for HTTP, enter the port number.

Possible values: N/A

Default value: N/A

port <num> keepalive

Enables the HTTP health check for a web site you configured a routing switch to assist with Geographically-distributed Server Load Balancing (SLB). Globally-distributed SLB allows the same web site (and same IP address) to reside on multiple servers, which usually are in geographically dispersed locations. To specify the web sites that the routing switch is assisting, use the **server real...** command. See “server real” on page B-121.

The health check is disabled by default.

NOTE: By default, the HTTP health check sends a HEAD request to the web server for its default web page ("1.0"). If the server responds with a status code from 200 – 299, the server passes the health check. You can customize the URL requested by the health check and also the status codes that the routing switch determines satisfactory replies to a health check. See “port <num> url” on page B-194 and “port <num> status_code” on page B-194.

EXAMPLE: To configure a routing switch to assist a web site at IP address 209.157.22.249 and enable the HTTP health check for the web site, enter the following commands:

```
HP9300(config)# server real S2 209.157.22.249

HP9300(config-rs-S2)# port http
```

Syntax: [no] port <num>|http [keepalive <interval> <retries>]

The **http** parameter is for port 80. If your server uses a different port number for HTTP, enter the port number.

The **<interval>** parameter specifies the number of seconds between health checks sent by the routing switch. You can specify a number from 2 – 60 seconds. The default is 5 seconds.

The **<retries>** parameter specifies how many times the routing switch will resend a health check if the web site does not respond. You can specify from 1 – 5 retries. The default is 2.

Possible values: N/A

Default value: enabled

port <num> status_code

Changes the range of status codes that the routing switch considers acceptable as replies to an HTTP health check. This command applies only when you are configuring a routing switch to assist Server Load Balancers (SLBs) or directly-connected web servers with Globally-distributed Server Load Balancing. See “Route Health Injection” on page 18-1.

EXAMPLE: To add a web server, enable the HTTP health check for the server, and change the HTTP status codes that the routing switch considers successful replies to the health check, enter the following commands.

```
HP9300(config)# server real S2 209.157.22.249

HP9300(config-rs-S2)# port http keepalive

HP9300(config-rs-S2)# port http status_code 200 199
```

Syntax: [no] port http status_code <range> [<range>[<range>[<range>]]]

The **http** parameter is for port 80. If your server uses a different port number for HTTP, enter the port number.

The default status code range for HTTP health checks is 200 – 299. You can specify up to four discrete ranges. To specify a single message code for a range, enter the code twice. For example, to specify 200 only, enter the following command: **port http status_code 200 200**.

Possible values: 100 – 505

Default value: 200 – 299

port <num> url

Changes the URL or request method for HTTP health checks. This command applies only when you are configuring a routing switch to assist SLBs or directly-connected web servers with Globally-distributed Server Load Balancing. See “Route Health Injection” on page 18-1.

By default, the HTTP health check sends a HEAD request to the web server for its default web page ("1.0").

EXAMPLE 1: To add a web server, enable the HTTP health check for the server, and change the URL requested by the health check to "Scully-Files", enter the following commands.

```
HP9300(config) server real S2 209.157.22.249

HP9300(config-rs-S2)# port http keepalive

HP9300(config-rs-S2)# port http url "/Scully-Files.html"
```

EXAMPLE 2: To change the request from a HEAD to a GET, enter the following command.

```
HP9300(config-rs-S2)# port http url GET "/Scully-Files.html"
```

Syntax: [no] port http url “[GET|HEAD] [/]<URL page name>”

The **http** parameter is for port 80. If your server uses a different port number for HTTP, enter the port number.

Possible values: 100 – 505

Default value: 200 – 299

quit

This command returns you from any level of the CLI to the User EXEC mode.

EXAMPLE:

```
HP9300(config-rs-S2)# quit
HP9300>
```

Syntax: quit

Possible values: N/A

Default value: N/A

show…

Displays a variety of configuration and statistical information about the switch or routing switch. See "Commands – All Levels" on page 212.

write memory

Saves the running configuration into the startup-config file.

EXAMPLE:

```
HP9300(config-rs-S2)# wr mem
```

Syntax: write memory

Possible values: N/A

Default value: N/A

write terminal

Displays the running configuration on the terminal screen.

NOTE: This command is equivalent to the **show running-config** command.

EXAMPLE:

```
HP9300(config-rs-S2)# wr t
```

Syntax: write terminal

Possible values: N/A

Default value: N/A

CONFIG Commands – Application Port Level

end

Moves activity to the privileged EXEC level from any level of the CLI except the user EXEC level.

EXAMPLE: To move to the privileged EXEC level, enter the following from any level of the CLI.

```
HP9300(config-port-80)# end
HP9300#
```

Syntax: end

Possible values: N/A

Default value: N/A

exit

Moves activity up one level from the current level.

EXAMPLE:

```
HP9300(config-port-80)# exit
HP9300(config)#
```

Syntax: exit

Possible values: N/A

Default value: N/A

no

This command is used to disable many commands. To do so, place the word ***no*** before the command.

quit

This command returns you from any level of the CLI to the User EXEC mode.

EXAMPLE:

```
HP9300(config-port-80)# quit
HP9300>
```

Syntax: quit

Possible values: N/A

Default value: N/A

show…

Displays a variety of configuration and statistical information about the switch or routing switch. See “Commands – All Levels” on page 212.

tcp keepalive

Modifies health check parameters for an application port.

EXAMPLE:

```
HP9300(config-port-80)# tcp keepalive 10 3
```

Syntax: tcp keepalive <interval> <retries> | disable | enable

The **<interval>** parameter specifies the number of seconds between health checks sent by the routing switch. You can specify a number from 2 – 60 seconds. The default is 5 seconds.

The **<retries>** parameter specifies how many times the routing switch will resend a health check if the web site does not respond. You can specify from 1 – 5 retries. The default is 2.

The **disable** parameter disables the health check.

The **enable** parameter re-enables the health check. When you add the port (using the server port <num> command), the health check is automatically enabled for the port.

Possible values: see above

Default value: see above

write memory

Saves the running configuration into the startup-config file.

EXAMPLE:

```
HP9300(config-port-80)# wr mem
```

Syntax: write memory

Possible values: N/A

Default value: N/A

write terminal

Displays the running configuration on the terminal screen.

NOTE: This command is equivalent to the **show running-config** command.

EXAMPLE:

```
HP9300(config-port-80)# wr t
```

Syntax: write terminal

Possible values: N/A

Default value: N/A

CONFIG Commands – Route Map Level

end

Moves activity to the privileged EXEC level from any level of the CLI except the user EXEC level.

EXAMPLE: To move to the privileged EXEC level, enter the following from any level of the CLI.

```
HP9300(config-bgp-routemap GET_ONE)# end
HP9300#
```

Syntax: end

Possible values: N/A

Default value: N/A

exit

Moves activity up one level from the current level. In this case, activity will be moved to the port-based VLAN level if configuring a protocol VLAN. If configuring a port-based VLAN, activity would be moved to the global level.

EXAMPLE:

```
HP9300(config-bgp-routemap GET_ONE)# exit
HP9300(config)#
```

Syntax: exit

Possible values: N/A

Default value: N/A

match

Configures a value that a route must match in order for the route map instance containing the match statement to be evaluated as "true".

Match statements compare the route against one or more of the following:

- The route's BGP4 MED (metric)
- A sequence of AS-path filters
- A sequence of community filters
- A sequence of address filters
- The IP address of the next hop router
- The route's tag
- For OSPF routes only, the route's type (internal, external type-1, or external type-2)

When a route comparison yields a "true" value, the routing switch uses the set statements configured for the route map instance to modify the route.

EXAMPLE:

```
HP9300(config-bgp-routemap GET_ONE)# match address-filters 11
```

syntax: match [as-path-filters|community-filters|address-filters <num,num,...>] | [metric <num>] | [next-hop <address-filter-list>] | [route-type internal|external-type1|external-type2] | [tag <tag-value>]

The **as-path-filters|community-filters|address-filters** <num,num,...> specifies a filter or list of filters to be matched for each route. The routing switch treats the first match as the best match. If a route does not match any filter in the list, then the routing switch considers the match condition to have failed.

NOTE: The filters must already be configured.

The **metric** <num> parameter compares the route's MED (metric) to the specified value.

The **next-hop** <address-filter-list> parameter compares the IP address of the route's next hop to the specified IP address filters. The filters must already be configured.

The **route-type internal|external-type1|external-type2** parameter applies only to OSPF routes. This parameter compares the route's type to the specified value.

The **tag** <tag-value> parameter compares the route's tag to the specified value.

Possible values: see above

Default value: see above

no

This command is used to disable many commands. To do so, place the word ***no*** before the command.

quit

This command returns you from any level of the CLI to the User EXEC mode.

EXAMPLE:

```
HP9300(config-bgp-routemap GET_ONE)# quit

HP9300>
```

Syntax: quit

Possible values: N/A

Default value: N/A

set

Modifies a route that matches at least one of the match statements in a route map. The route map's set statements can perform one or more of the following modifications to the route's attributes:

- Prepend AS numbers to the front of the route's AS-path. By adding AS numbers to the AS-path, you can cause the route to be less preferred when compared to other routes on the basis of the length of the AS-path.
- Add a user-defined tag to the route or add an automatically calculated tag to the route.
- Set the community value to the well-known value "NO_EXPORT" or "NO_ADVERTISE", or set it to "none".

  NOTE: The community "none" is equivalent to the community "internet", which can be checked for using a community filter. See "Filtering Communities" on page 12-35.

- Set the local preference.
- Set the MED (metric).
- Set the IP address of the next hop router.
- Set the origin to IGP or INCOMPLETE.
- Set the weight.

EXAMPLE:

```
HP9300(config-bgp-routemap GET_ONE)# set as-path prepend 65535
```

syntax: set as-path [prepend <AS-num,AS-num,...>] | [automatic-tag] | [community no-export|no-advertise|none] | [local-preference <num>] | [metric <num>] | [next-hop <IP-addr>] | [origin igp|incomplete] | [tag <tag-value>] | [weight <num>]

The **as-path prepend** <num,num,...> parameter adds the specified AS numbers to the front of the AS-path list for the route.

The **automatic-tag** parameter calculates and sets an automatic tag value for the route.

NOTE: This parameter applies only to routes redistributed into OSPF.

The **community no-export|no-advertise|none** parameter sets the community attribute for the route to "NO_EXPORT", "NO_ADVERTISE", or "none".

The **local-preference** <num> parameter sets the community attribute for the route. The default local preference is 100. You can set the preference to a value from 0 – 4294967295.

The **metric** <num> parameter sets the MED (metric) value for the route. The default MED value is 0. You can set the preference to a value from 0 – 4294967295.

The **next-hop** <IP-addr> parameter sets the IP address of the route's next hop router.

The **origin igp|incomplete** parameter sets the route's origin to IGP or INCOMPLETE.

The **tag** <tag-value> parameter sets the route's tag. You can specify a tag value from 0 – 4294967295.

NOTE: This parameter applies only to routes redistributed into OSPF.

NOTE: You also can set the tag value using a table map. The table map changes the value only when the routing switch places the route in the IP route table instead of changing the value in the BGP route table. See "Using a Table Map To Set the Tag Value" on page 12-42.

The **weight** <num> parameter sets the weight for the route. You can specify a weight value from 0 – 4294967295.

Possible values: see above

Default value: see above

show...

Displays a variety of configuration and statistical information about the switch or routing switch. See "Commands – All Levels" on page 212.

write memory

Saves the running configuration into the startup-config file.

EXAMPLE:

```
HP9300(config-bgp-routemap GET_ONE)# wr mem
```

Syntax: write memory

Possible values: N/A

Default value: N/A

write terminal

Displays the running configuration of the switch or routing switch on the terminal screen.

NOTE: This command is equivalent to the **show running-config** command.

EXAMPLE:

```
HP9300(config-bgp-routemap GET_ONE)# wr term
```

Syntax: write terminal

Possible values: N/A

Default value: N/A

CONFIG Commands – VLAN Level

appletalk-cable-vlan

Configures an AppleTalk cable VLAN within a port-based VLAN.

EXAMPLE: To configure AppleTalk cable VLAN 1 in port-based VLAN 10, then configure the routing parameters for the VLAN, enter the following commands.

```
HP9300(config-vlan-10)# appletalk-cable-vlan 1 name cable-one
HP9300(config-vlan-10)# static ethe 2/1 ethe 3/1 to 3/2
HP9300(config-vlan-10)# router-interface ve 1
HP9300(config-vlan-10)# interface ve 1
HP9300(config-vif-1)# appletalk cable-range 10 - 19
HP9300(config-vif-1)# appletalk address 10.1
HP9300(config-vif-1)# appletalk zone-name AA
HP9300(config-vif-1)# appletalk routing
```

Syntax: appletalk-cable-vlan <vlan-id> [name <string>]

The **<vlan-id>** can be from 1 – 8.

The **name** <string> parameter specifies a name and can be a string up to 32 characters long.

Possible values: VLAN ID 1 – 8; name up to 32 characters long

Default value: N/A

atalk-proto

This command creates an AppleTalk protocol VLAN within a switch or routing switch port-based VLAN when entered at the VLAN Level. All ports are assumed by default to be members of the VLAN when initially created. Protocol VLAN membership can be modified using the **dynamic**, **static**, or **exclude** commands.

EXAMPLE: To create an AppleTalk protocol VLAN with permanent port membership of 9 and 13 (module 3) and no dynamic ports within an already defined port-based VLAN 2, enter the following commands.

```
HP9300(config)# vlan 2
HP9300(config-vlan-2)# atalk-proto
HP9300(config-vlan-atalk-proto)# static e 3/9 e 3/13
HP9300(config-vlan-atalk-proto) no dynamic
```

NOTE: If configuring this on a switch, enter **vlan 2 by port** at the CONFIG Level versus **vlan 2**, as shown in the example above.

Syntax: atalk-proto [<name>]

The name can be up to 16 characters long and can contain blanks. The name appears in VLAN show displays.

To specify a VLAN name, use the **name** keyword followed by a string. The **name** keyword and string are the last arguments in the command. For example, to name an AppleTalk VLAN, enter the following command:

```
HP9300(config)# atalk-proto name AppleVLAN1
```

To name an IP VLAN, enter the following commands:

```
HP9300(config)# ip-proto 192.75.5.0/24 name "Ship and Recv"
```

This example shows how to specify a name that contains a blank. Use double quotation marks before and after the name.

Possible values: N/A

Default value: N/A

decnet-proto

This command creates a Decnet protocol VLAN within a switch or routing switch port-based VLAN, when entered at the VLAN Level. All ports are assumed by default to be members of the VLAN when initially created. Protocol VLAN membership can be modified using the **dynamic**, **static**, or **exclude** commands.

EXAMPLE: To create a Decnet protocol VLAN with permanent port membership of 15 and 16 with port 17 as dynamic member port (module 3), within VLAN 5, enter the following commands.

```
HP9300(config)# vlan 5
HP9300(config-vlan-5)# decnet-proto
HP9300(config-vlan-decnet-proto)# exclude e 3/1 to 3/14 e 3/18
```

NOTE: If configuring this on a switch, enter **vlan 5 by port** at the CONFIG Level versus **vlan 5**, as shown in the example above.

Syntax: decnet-proto [<name>]

Syntax: atalk-proto [<name>]

The name can be up to 16 characters long and can contain blanks. The name appears in VLAN show displays.

To specify a VLAN name, use the **name** keyword followed by a string. The **name** keyword and string are the last arguments in the command. The name can contain blank spaces if you use double quotation marks before and after the name.

Possible values: N/A

Default value: N/A

default-vlan-id

When you enable port-based VLAN operation, all ports are assigned to VLAN 1 by default. As you create additional VLANs and assign ports to them, the ports are removed from the default VLAN. All ports that you do not assign to other VLANs remain members of default VLAN 1. This behavior ensures that all ports are always members of at least one VLAN.

You can change the VLAN ID for the default VLAN by entering the following command at the global CONFIG level of the CLI:

```
HP9300(config-vlan-2)# default-vlan-id 4095
```

You must specify a valid VLAN ID that is not already in use. For example, if you have already defined VLAN 10, do not try to use "10" as the new VLAN ID for the default VLAN. Valid VLAN IDs are numbers from 1 – 4095.

NOTE: Changing the default VLAN name does not change the properties of the default VLAN. Changing the name allows you to use the VLAN ID "1" as a configurable VLAN.

end

Moves activity to the privileged EXEC level from any level of the CLI except the user EXEC level.

EXAMPLE: To move to the privileged EXEC level, enter the following from any level of the CLI.

```
HP9300(config-vlan-decnet-proto)# end
HP9300#
```

Syntax: end

Possible values: N/A

Default value: N/A

exit

Moves activity up one level from the current level. In this case, activity will be moved to the port-based VLAN level if configuring a protocol VLAN. If configuring a port-based VLAN, activity would be moved to the global level.

EXAMPLE:

```
HP9300(config-vlan-decnet-proto)# exit
HP9300(config)#
```

Syntax: exit

Possible values: N/A

Default value: N/A

ip-proto

This command creates an IP protocol VLAN on a switch or routing switch within a port-based VLAN, when entered at the VLAN Level.

When configuring on a switch, all ports are dynamically allocated to the VLAN. You can modify port membership by using the **static** or **exclude** commands.

When configuring on a routing switch, ports must be added to the VLAN with the **static** command if you configure routing information on the port. Otherwise, you can add ports dynamically.

EXAMPLE: To assign ports 1, 2, 6 and 8 (module 2) to an IP protocol VLAN within VLAN 7, enter the following:

```
HP9300(config)# vlan 7
HP9300(config-vlan-7)# ip-proto
HP9300(config-vlan-ip-proto)# static e 3/1 to 3/2 e 3/6 e 3/8
```

NOTE: If configuring this on a switch, enter **vlan 7 by port** at the CONFIG Level versus **vlan 7**, as shown in the example above.

NOTE: An IP protocol and IP sub-net VLAN cannot both be configured to operate on a switch or routing switch at the same time. This restriction is also true for IPX and IPX network VLANs.

Syntax: ip-proto

Possible values: N/A

Default value: N/A

ip-subnet

This command creates an IP sub-net protocol VLAN on a switch or routing switch within a port-based VLAN, when entered at the VLAN Level. This allows you to define additional granularity than that of an IP protocol VLAN, by partitioning the broadcast domains by sub-net. In creating an IP sub-net VLAN, an IP address is used as identifier.

When configuring on a switch, all ports are dynamically allocated to the VLAN. You can modify port membership by using the **static** or **exclude** commands.

When configuring on a routing switch, ports must be added to the VLAN with the **static** command if you configure routing information on the port. Otherwise, you can add ports dynamically.

EXAMPLE: To create an IP sub-net of IP address 192.75.3.0 with permanent port membership of 1 and 2 (module 2), within VLAN 10, enter the following commands.

```
HP9300(config)# vlan 10
HP9300(config-vlan-10)# ip-subnet 192.75.3.0 255.255.255.0
HP9300(config-vlan-ip-subnet)# static e 2/1 to 2/2
```

NOTE: If configuring this on a switch, enter **vlan 10 by port** at the CONFIG Level versus **vlan 10**, as shown in the example above.

NOTE: An IP protocol and IP sub-net VLAN cannot both be configured to operate simultaneously on a switch or routing switch. This restriction is also true for IPX and IPX network VLANs.

Syntax: ip-subnet <ip address> <ip mask> [<name>]

The name can be up to 16 characters long and can contain blanks. The name appears in VLAN show displays.

To specify a VLAN name, use the **name** keyword followed by a string. The **name** keyword and string are the last arguments in the command. The name can contain blank spaces if you use double quotation marks before and after the name.

Possible values: N/A

Default value: N/A

ipx-network

This command creates an IPX network VLAN on a switch or routing switch within a port-based VLAN, when entered at the VLAN Level. This allows you to define additional granularity than that of the IPX protocol VLAN, by partitioning the broadcast domains by IPX network number. In creating an IPX network VLAN, an IPX network number is used as identifier. The frame type must also be specified.

When configuring on a switch, all ports are dynamically allocated to the VLAN. You can modify port membership by using the **static** or **exclude** commands.

When configuring on a routing switch, ports must be added to the VLAN with the **static** command if you configure routing information on the port. Otherwise, you can add ports dynamically.

EXAMPLE: To create an IPX network VLAN with a network number of 500 and frame type of 802.2 with permanent port membership of 10 and 14 (module 2) within port-based VLAN 15, enter the following commands.

```
HP9300(config)# vlan 15
HP9300(config-vlan-15)# ipx-network 500 ethernet_802.2
HP9300(config-vlan-ipx-proto)# static e 1/10 e 1/14
```

Syntax: ipx-network<ipx network number> <frame type>

NOTE: If configuring this on a switch, enter **vlan 15 by port** at the CONFIG Level versus **vlan 15**, as shown in the example above.

NOTE: An IPX network and IPX protocol VLAN cannot both be configured to operate simultaneously on a switch or routing switch. This restriction is also true for IP protocol and IP sub-net VLANs.

Possible values: Frame type: ethernet_ii, ethernet_802.2, ethernet_802.3, ethernet_snap

Default value: N/A

ipx-proto

This command creates an IPX protocol VLAN on a switch or routing switch within a port-based VLAN, when entered at the VLAN Level.

When configuring on a switch, all ports are dynamically allocated to the VLAN. You can modify port membership by using the **static** or **exclude** commands.

When configuring on a routing switch, ports must be added to the VLAN with the **static** command if you configure routing information on the port. Otherwise, you can add ports dynamically.

EXAMPLE: To assign ports 1, 2, 6 and 8 (module 2) to an IPX protocol VLAN within port-based VLAN 22, enter the following:

```
HP9300(config)# vlan 22
HP9300(config-vlan-22)# ipx-proto
HP9300(config-vlan-ipx-proto)# static e 2/1 to 2/2 e 2/6 e 2/8
```

NOTE: If configuring this on a switch, enter **vlan 22 by port** at the CONFIG Level versus **vlan 22**, as shown in the example above.

NOTE: An IPX protocol and IPX network VLAN cannot both be configured to operate simultaneously on a switch or routing switch. This restriction is also true for IP and IP sub-net VLANs.

Syntax: ipx-proto [<name>]

The name can be up to 16 characters long and can contain blanks. The name appears in VLAN show displays.

To specify a VLAN name, use the **name** keyword followed by a string. The **name** keyword and string are the last arguments in the command. The name can contain blank spaces if you use double quotation marks before and after the name.

Possible values: N/A

Default value: N/A

netbios-proto

This command creates a NetBIOS protocol VLAN on a switch or routing switch within a port-based VLAN, when entered at the VLAN Level.

All ports are dynamically allocated to a NetBIOS VLAN when it is created. VLAN Membership can be modified using the **dynamic**, **static**, or **exclude** commands.

EXAMPLE: To create a NetBIOS protocol VLAN with permanent port membership of 4 and 5 and ports 8 – 12 as dynamic member ports (module 2), within port-based VLAN 25, enter the following commands.

```
HP9300(config)# vlan 25
HP9300(config-vlan-25)# netbios-proto
HP9300(config-vlan-netbios-proto)# static e 2/4 e 2/5
HP9300(config- vlan-netbios-proto)# exclude e 2/1 to 2/3 e 2/6 e 2/7 e 2/13 to 2/18
```

NOTE: If configuring this on a switch, enter **vlan 25 by port** at the CONFIG Level versus **vlan 25**, as show in the example above.

Syntax: netbios-proto [<name>]

The name can be up to 16 characters long and can contain blanks. The name appears in VLAN show displays.

To specify a VLAN name, use the **name** keyword followed by a string. The **name** keyword and string are the last arguments in the command. The name can contain blank spaces if you use double quotation marks before and after the name.

Possible values: N/A

Default value: N/A

no

This command is used to disable other commands. To do so, place the word ***no*** before the command.

other-proto

This command creates an other-protocol VLAN on a switch or routing switch within a port-based VLAN, when entered at the VLAN Level.

All ports of the switch or routing switch are by default dynamically assigned to a newly created "other-protocol" VLAN. VLAN Membership can be modified using the **dynamic**, **static**, or **exclude** commands.

You can use this option to define a protocol-based VLAN for protocols that do not require a singular protocol broadcast domain or are not currently supported on the switch or routing switch.

EXAMPLE: On a 16-port switch ports 13 – 16 represent protocols Decnet and AppleTalk. You do not need to separate traffic by protocol into separate broadcast domains. Instead, create an other-protocol VLAN, with just those ports as members, within port-based VLAN 50.

```
HP9300(config)# vlan 50
HP9300(config-vlan-50)# other-proto
HP9300(config-vlan-other-proto)# static e13 to 16
HP9300(config-vlan-other-proto)# exclude e1 to 12
```

NOTE: If configuring this on a switch, enter **vlan 50 by port** at the CONFIG Level versus **vlan 50**, as show in the example above.

Syntax: other-proto [<name>]

The name can be up to 16 characters long and can contain blanks. The name appears in VLAN show displays.

To specify a VLAN name, use the name keyword followed by a string. The **name** keyword and string are the last arguments in the command. The name can contain blank spaces if you use double quotation marks before and after the name.

Possible values: N/A

Default value: N/A

priority

This assigns a higher priority to a VLAN so that in times of congestion, it will receive precedence over other transmissions. Up to eight levels of priority can be assigned to a VLAN.

EXAMPLE:

```
HP9300(config)# vlan 25
HP9300(config-vlan-25)# priority 5
```

Syntax: priority <0-7>

Possible values: N/A

Default value: N/A

quit

This command returns you from any level of the CLI to the User EXEC mode.

EXAMPLE:

```
HP9300(config-ip-subnet)# quit
HP9300>
```

Syntax: quit

Possible values: N/A

Default value: N/A

router-interface

Defining a routing switch interface for a VLAN allows traffic to be routed between VLANs.

EXAMPLE: To configure a routing switch interface for an IP sub-net VLAN, enter the following:

```
HP9300(config)# ip-subnet 192.75.3.0 255.255.255.0
HP9300(config-ip-subnet)# static e 5/1 to 5/3
HP9300(config-ip-subnet)# router-interface ve 3
```

NOTE: Once a routing switch interface is assigned to a VLAN, it must be assigned an IP address at the interface level.

Syntax: router-interface ve <port | slot/port>

Possible values: N/A

Default value: N/A

show…

Displays a variety of configuration and statistical information about the switch or routing switch. See “Commands – All Levels” on page 212.

spanning-tree

Spanning Tree bridge and port parameters are configurable using one command set at the global level for VLANs.

NOTE: When port-based VLANs are not operating on the system, spanning tree is set on a system level at the Global CONFIG Level.

EXAMPLE: Suppose you want to change the hello-time value of VLAN 3 from the default value. Additionally, you want to change the path and priority costs for port 5, a member of VLAN 3. Enter the following commands:

```
HP9300(config)# vlan 3
HP9300(config-vlan-3)# span hello-time 8
HP9300(config)# span ethernet 5 path-cost 15 priority 64
```

NOTE: You do not need to configure values for the spanning tree parameters. All parameters have default values as noted below. Additionally, all values will be globally applied to all ports on the system or port-based VLAN for which they are defined.

To configure a specific path-cost or priority value for a given Ethernet port, enter those values using the key words in the brackets [ ] shown in the syntax summary below. If you do not want to specify any specific values for any given Ethernet port, this portion of the command is not required.

Syntax: spanning-tree [ethernet <portnumber> path-cost <value> priority <value>] forward-delay <value> hello-time <value> maximum-age <time> priority <value>

Bridge STP Parameters (applied to all ports within a VLAN)

- Forward Delay: the period of time a bridge will wait (the listen and learn period) before forwarding data packets. Possible values: 4 – 30 seconds. Default is 15.
- Maximum Age: the interval a bridge will wait for receipt of a hello packet before initiating a topology change. Possible values: 6 – 40 seconds. Default is 20.
- Hello Time: the interval of time between each configuration BPDU sent by the root bridge. Possible values: 1 – 10 seconds. Default is 2.
- Priority: a parameter used to identify the root bridge in a network. The bridge with the lowest value has the highest priority and is the root. Possible values: 0 – 255. Default is 128.

Port Parameters (applied to a specified port within a VLAN)

- Path Cost: a parameter used to assign a higher or lower path cost to a port. Possible values: 1 – 65535. Default is (1000/Port Speed) for Half-Duplex ports and is (1000/Port Speed)/2 for Full-Duplex ports.
- Priority: value determines when a port will be rerouted in relation to other ports. Possible values: 0 – 255. Default is 128.

static-mac-address

This command allows you to define a static MAC addresses for a port on a switch or routing switch to ensure the device is not aged out. When defining the MAC address entry, you can also define the port's priority and whether or not it is a router-type or host-type.

EXAMPLE: To enter a static MAC address entry for port 5, that is also resident in port-based VLAN 4, enter the following:

```
HP9300(config)# vlan 4
```

```
HP9300(config-vlan-4)# static-mac-address 023.876.735 ethernet 5 high-priority
router-type
```

Syntax: static-mac-address <MAC-addr> ethernet <port-num> [priority <0-7>] [host-type|router-type]

Possible values: see above

Default values: priority 0 or normal-priority; host-type

tagged

Once a port-based VLAN is created, port membership for that VLAN must be defined. To assign a port to a port-based VLAN, either the **tagged** or **untagged** command is used. When a port is tagged, it can be a member of multiple port-based VLANs.

When a port is tagged, it allows communication among the different VLANs to which it is assigned. A common use for this might be to place an email server that multiple groups may need access to on a tagged port, that in turn, is resident in all VLANs whose members need access to the server.

EXAMPLE: Suppose you want to make port 5 (module 5), a member of port-based VLAN 4, a tagged port. Enter the following:

```
HP9300(config)# vlan 4
```

```
HP9300(config-vlan-4)# tagged ethernet 3/5
```

Syntax: tagged ethernet <port-num> [to <port-num> [ethernet <port-num>]]

Possible values: see above.

Default value: N/A

untagged

Once a port-based VLAN is created, port membership for that VLAN must be defined. To assign a port to a port-based VLAN, either the **tagged** or **untagged** command is used. When a port is 'untagged' it can be a member of only one VLAN.

EXAMPLE: Suppose you want to assign all ports on a 16-port routing switch except port 5 (module 3) as untagged to a VLAN. To assign ports 1 – 4 and 6 – 16 to VLAN 4, enter the following:

```
HP9300(config)# vlan 4
```

```
HP9300(config-vlan-4)# untagged ethernet 3/1 to 3/4 e 3/6 to 3/16
```

Syntax: untagged ethernet <port | slot/port> [to <port | slot/port> ethernet <port | slot/port>]

Possible values: see above.

Default value: N/A

write memory

Saves the running configuration into the startup-config file.

EXAMPLE:

```
HP9300# wr mem
```

Syntax: write memory

Possible values: N/A

Default value: N/A

write terminal

Displays the running configuration of the switch or routing switch on the terminal screen.

NOTE: This command is equivalent to the **show running-config** command.

EXAMPLE:

```
HP9300# wr term
```

Syntax: write terminal

Possible values: N/A

Default value: N/A

CONFIG Commands – VRRP Level

activate

Activates a virtual router configuration on a routing switch interface.

syntax: activate

auth-type

Configures the authentication type for a virtual router interface.

syntax: ip vrrp auth-type <no-auth|simple-text-auth> <auth data>

backup

Indicates that the virtual router interface you are configuring is for a Backup router.

syntax: backup [priority <value>] [track-priority <value>]

dead-interval

Sets the VRRP dead interval.

syntax: dead-interval <value>

end

Moves activity to the privileged EXEC level from any level of the CLI except the user EXEC level.

EXAMPLE: To move to the privileged EXEC level, enter the following from any level of the CLI.

```
HP9300(config-if-1/6-vrid-1)# end
HP9300#
```

Syntax: end

Possible values: N/A

Default value: N/A

exit

Moves activity up one level from the current level. In this case, activity will be moved to the port-based VLAN level if configuring a protocol VLAN. If configuring a port-based VLAN, activity would be moved to the global level.

EXAMPLE:

```
HP9300(config-if-1/6-vrid-1)# exit
HP9300(config)#
```

Syntax: exit

Possible values: N/A

Default value: N/A

hello-interval

Sets the VRRP hello interval.

syntax: hello-interval <value>

ip-address

Indicates the IP address for which the virtual router is providing redundancy.

syntax: ip-address <ipaddr>

no

This command is used to disable other commands. To do so, place the word ***no*** before the command.

non-preempt-mode

By default, a Backup VRRP router that has a higher priority than another Backup router that has become Master can preempt that router to become the new Master router. If you want to prevent this behavior, disable preemption.

syntax: non-preempt-mode

owner

Indicates that the virtual router interface you are configuring owns the real IP address for which the virtual router is providing redundancy.

syntax: owner [track-priority <value>]

quit

This command returns you from any level of the CLI to the User EXEC mode.

EXAMPLE:

```
HP9300(config-if-1/6-vrid-1)# quit
HP9300>
```

Syntax: quit

Possible values: N/A

Default value: N/A

show...

Displays a variety of configuration and statistical information about the switch or routing switch. See “Commands – All Levels” on page 212.

track-port

Configures a track port.

syntax: track-port ethernet <slot/port>

write memory

Saves the running configuration into the startup-config file.

EXAMPLE:

```
HP9300(config-if-1/6-vrid-1)# wr mem
```

Syntax: write memory

Possible values: N/A

Default value: N/A

write terminal

Displays the running configuration of the switch or routing switch on the terminal screen.

NOTE: This command is equivalent to the **show running-config** command.

EXAMPLE:

```
HP9300(config-if-1/6-vrid-1)# wr term
```

Syntax: write terminal

Possible values: N/A

Default value: N/A

Commands – All Levels

The following commands are found at all levels of the CLI for the switch and the routing switches, except where noted. For simplicity, the commands are summarized in this section as well as in the individual sections above.

end

Moves activity to the privileged EXEC level of the CLI from any level of the CLI except of the user EXEC level.

EXAMPLE: To move to the privileged level, enter the following from any level of the CLI.

```
HP9300(config)# end
HP9300#
```

Syntax: end

Possible values: N/A

Default value: N/A

exit

Moves activity up one level from the current level of the CLI. This command is available at all levels.

EXAMPLE: To move from the IP Tunnel level, back to the Interface Level, enter the following:

```
HP9300(config-if-tunnel)# exit
HP9300(config-if)#
```

Syntax: exit

Possible values: N/A

Default value: N/A

show appletalk arp

Displays the ARP Table for the AppleTalk routing protocol.

EXAMPLE:

```
Index     Node Address     Mac Address      Port
1         10.30            00e0.5200.0000   1
```

Syntax: show appletalk arp

Possible values: N/A

Default value: N/A

show appletalk cache

Displays the forwarding table for the AppleTalk routing protocol. You can clear this cache by entering the CLI command, **clear appletalk cache**.

EXAMPLE:

```
HP9300> show appletalk cache
Total number of cache entries: 8
D:Dynamic  P:Permanent  F:Forward  U:Us  W:Wait ARP  K:Drop
     Destination       Next Hop      MAC              Type  Fid Vlan
1    6499.193          6300.22       0000.c541.bc71   DF    9    1
2    6401.0            6300.22       0000.c541.bc71   DF    9    1
3    6300.177          0.0           0000.0000.0000   PU    0
```

```
4    6300.22          0.0          0000.c541.bc71   DF    9    1
5    450.0            0.0          0000.0000.0000   PU    0
6    400.0            0.0          0000.0000.0000   PU    0
7    6300.0           0.0          0000.0000.0000   PU    0
8    450.177          0.0          0000.0000.0000   PU    0
```

Syntax: show appletalk cache

Possible values: N/A

Default value: N/A

show appletalk globals

Displays the global configuration parameters for the AppleTalk routing protocol.

EXAMPLE:

```
HP9300>show appletalk globals
AppleTalk Routing Global Settings:
enabled: Routing
disabled: Glean Packets
rtmp-update-interval: 10
zip-query-interval:10, arp-retransmit-interval: 1, arp-retransmit-count: 2
QOS Priority 0 Sockets: 1 - 254
QOS Priority 1 Sockets: None
```

Syntax: show appletalk globals

show appletalk interface [ethernet <port>]

Displays the AppleTalk configuration for an individual interface or all interfaces.

EXAMPLE: To view the configuration for all interfaces, enter **show appletalk interface**, as shown in the example below. To view the configuration of a specific interface, enter **show appletalk interface ethernet <port>**.

```
HP9300>show appletalk interface
Interface Ethernet 15
  port state: UP
  routing: Enabled
  operation mode:Seed Router
  address: 100.50,  cable-range: 100 - 100 arp-age 10
  Zone Filter List:
  Action: Permit  Zone name: sales, no RTMP Filtering
  Additional Zones Action: Permit, No RTMP Filtering
Interface Ethernet 16
  port state: DOWN
routing: Disabled
  operation mode:Routing not enabled.
  address: 200.50,  cable-range: 200 - 400 arp-age 10
  Zone Filter List:  No zone filters are configured.
```

```
Interface Ve 3
  members: ethe 1 to 3
  active: ethe 1
  port state: UP
  routing: Enabled
  operation mode: Seed Router
  address: 200.50,  cable-range: 200 - 200 arp-age 10
  Zone List:
  Finance
  Zone Filter List:  No zone filters are configured.
```

Syntax: show appletalk interface [ethernet <port>]

Possible values: N/A

Default value: N/A

show appletalk route

Displays the AppleTalk routing table.

Up to 512 route entries can be stored in the routing table for a system with 32 MB of memory. Up to 128 entries are supported on a routing switch with 8 MB of memory.

You can clear learned routes stored in the routing table by entering the **clear appletalk route** command.

EXAMPLE:

```
HP9300>show appletalk route
Index     Cable Range     Next Hop     Distance     State     Port
1         6300  - 6400    0.0          0            0         2
2         6401  - 6500    6300.22      1            0         2
3         400   - 499     0.0          0            0         1
4         500   - 599     450.10       1            0         1
5         600   - 699     450.10       2            0         1
6         200   - 300     450.10       2            0         1
7         1000  - 1100    450.10       2            0         1
8         1200  - 1299    450.10       2            0         1
9         7000  - 8000    450.10       1            0         1
```

NOTE: Please note the following regarding the information displayed in the AppleTalk routing table:

Index: Identifies the entry.

Cable Range: Shows the network numbers to which the route information applies.

Next Hop: Shows the address of the next hop router to which packets for that destination will be sent.

Distance: Indicates the number of hops away that the destination is from this routing switch

State: Indicates the state of the entry. The possible states that may be displayed in this field are listed below with the numerical value that will appear in the table:

- Good route: 0
- Suspect route: 2
- Bad Route: 4

Port: References the port number upon which the next hop router is found.

Syntax: show appletalk route

Possible values: N/A

Default value: N/A

show appletalk traffic

Displays statistical information for RTMP, ZIP, AEP, DDP and AARP packets.

EXAMPLE:

```
HP9300>show appletalk traffic
RTMP Statistics:
  Received: 16038, Transmitted: 16032, Filtered: 0
ZIP Statistics:
  Query Received:16, Transmitted:6, GZL Received: 2, Transmitted: 1
NetInfo Statistics:
  Received: 10   , Reply:8
AEP Statistics:
  Request Received: 0, Request Transmitted: 0
  Reply Received: 0,   Reply Transmitted: 0
DDP Statistics:
  Received: 55468,  Transmitted: 55445,  Forwarded: 39372
  In-Delivered: 16092, Dropped-No-Route:0, Dropped-Bad-Hop-Counts: 0
  Dropped-Other-Reasons: 0
AARP Statistics:
Received: 14, Transmitted: 22
```

NOTE: Note the following regarding the information displayed in the AppleTalk traffic table.

RTMP Statistics: Provides a count of all RTMP packets received, transmitted and filtered on the routing switch.

ZIP statistics: Provides a count of requests for zone information (Recv. Query) the system receives as well as a count of those ZIP queries made to other routers (Query, Transmitted). The 'Recv GZL' count lists those Get Zone List requests received from other routers and the 'Transmitted' field lists those GZL requests transmitted to other routers.

NetInfo Statistics: The received and reply values of this field refer to the number of zone and network number requests made and received by the routing switch.

AEP Statistics: Provides a count of those AppleTalk Echo Protocol (pings) requests received or transmitted and a count of the replies received or transmitted.

DDP Statistics: Displays the total count of those DDP packets transmitted, received and forwarded from the routing switch; those packets received and forwarded up the AppleTalk protocol stack (in-delivered) and those packets dropped due to an unknown route (no-route), those packets that exceeded maximum hop count and those that were dropped due to unknown MAC address (other-reasons).

AARP Statistics: Displays the total count of those AARP packets received and transmitted by the routing switch.

Syntax: show appletalk traffic

Possible values: N/A

Default value: N/A

show appletalk zone

Displays the network numbers and zones learned on the network. You can clear all information stored in the zone table by entering the **clear appletalk route** command.

EXAMPLE:

```
HP9300>show appletalk zone
Index       Cable   Range      Zonename
1           6300    - 6400     QA
2           6300    - 6400     QARouter
3           6401    - 6500     QA1
4           6401    - 6500     QALab2
5           400     - 499      account
6           1200    - 1299     sales
7           1000    - 1100     engineering
8           1000    - 1100     HP
9           1000    - 1100     HP1
10          200     - 300      marketing
11          600     - 699      management
12          500     - 599      gigabit
13          7000    - 8000     gatethernet0
```

Syntax: show appletalk zone

Possible values: N/A

Default value: N/A

show arp

Displays the ARP cache of the switch or routing switch. For switches, the **show arp** command will not display the 'type' column, but will display a VLAN ID column.

EXAMPLE:

```
HP9300# show arp
Total number of ARP entries: 5
     IP Address          MAC Address         Type        Age     Port
1     207.95.6.102        0800.5afc.ea21      Dynamic     0         6
2     207.95.6.18         00a0.24d2.04ed      Dynamic     3         6
3     207.95.6.54         00a0.24ab.cd2b      Dynamic     0         6
```

```
4     207.95.6.101        0800.207c.a7fa      Dynamic     0         6
5     207.95.6.211        00c0.2638.ac9c      Dynamic     0         6
```

Syntax: show arp [ethernet <num> | mac-address <xxxx.xxxx.xxxx> [<mask>] | <IP-addr> [<mask>]] [<num>]

Specify the MAC address mask as "f"s and "0"s, where "f"s are significant bits. Specify IP address masks in standard decimal mask format (for example, 255.255.0.0).

The optional <num> parameter lets you display the table beginning with a specific entry number.

Possible values: N/A

Default value: N/A

Here are some examples of how to use these commands.

The following command displays all ARP entries for MAC addresses that begin with "abcd":

```
HP9300# show arp mac-address a.b.c.d ffff.0000.0000
```

The following command displays all IP address entries for IP addresses that begin with "209.157":

```
HP9300# show arp 209.157.0.0 255.255.0.0
```

show chassis

Displays the presence and status of power supplies and fans in the chassis.

EXAMPLE:

```
HP9300# show chassis
power supply 1 ok
power supply 2 not present
fan 1 ok
fan 2 ok
fan 3 ok
fan 4 ok
power supply 3 ok
power supply 4 not present
```

Syntax: show chassis

Possible values: N/A

Default value: N/A

show clock

Displays the current settings for the on-board time counter and Simple Network Time Protocol (SNTP) clock, if configured.

EXAMPLE:

```
HP9300# show clock
```

Syntax: show clock [detail]

Possible values: N/A

Default value: N/A

show configuration

Lists the operating configuration of a switch or routing switch. This command allows you to check configuration changes before saving them to flash.

EXAMPLE:

```
HP9300# show configuration
```

Syntax: show configuration

Possible values: N/A

Default value: N/A

show default

Displays the defaults for system parameters.

If you specify "default" but not the optional "values", the default states for parameters that can either be enabled or disabled are displayed. If you also specify "values", the default values for parameters that take a numeric value are displayed.

You can reconfigure the system parameters displayed by the "values" option using the system-max command. See “system-max” on page B-126.

EXAMPLE 1:

Here are some examples of the information displayed by these commands. The first example shows the information displayed by the **show default** command on a 9308M routing switch.

NOTE: If the information scrolls off the screen, you can enable page-display mode. See “page-display” on page B-78.

```
HP9300# show default
spanning tree disabled
auto sense port speed      port untagged              port flow control on
no username assigned       no password assigned       boot sys flash primary
system traps enabled       sntp disabled              radius disabled
rip disabled               ospf disabled              bgp disabled

when ip routing enabled :
ip irdp enabled            ip load-sharing enabled    ip proxy arp enabled
ip rarp enabled            ip bcast forward enabled
dvmrp disabled             pim/dm disabled
vrrp disabled              srp disabled

when rip enabled :
rip type:v2 only           rip poison rev enabled

ipx disabled               appletalk disabled
```

EXAMPLE 2:

The following example shows the command output when you use the values option on a 9304M or 9308M routing switch.

```
HP9300# show default values
sys log buffers:50         mac age time:300 sec       telnet sessions:5

ip arp age:20 min          bootp relay max hops:4     ip ttl:64 hops
ip addr per intf:24

when multicast enabled :
igmp group memb.:140 sec   igmp query:60 sec

when ospf enabled :
ospf dead:40 sec           ospf hello:10 sec          ospf retrans:5 sec
ospf transit delay:1 sec

when bgp enabled :
bgp local pref.:100        bgp keep alive:60 sec      bgp hold:180 sec
bgp metric:10              bgp local as:1             bgp cluster id:0
bgp ext. distance:20       bgp int. distance:200      bgp local distance:200

System Parameters    Default    Maximum
arp                  4000       16000
atalk-route          512        3072
atalk-zone-port      64         255
atalk-zone-sys       255        1024
dvmrp                2048       32000
igmp                 255        1024
ip-cache             16000      64000
ip-filter-port       32         256
ip-filter-sys        64         2048
ipx-forward-filter   32         256
ipx-rip-entry        2048       16384
ipx-rip-filter       32         256
ipx-sap-entry        4096       16384
ipx-sap-filter       32         256
l3-vlan              32         1024
ip-qos-session       128        32000
```

```
mac                  8000       64000
ip-route             10000      200000
ip-static-route      64         1024
vlan                 8          4096
mac-filter-port      16         256
mac-filter-sys       32         512
```

Syntax: show default [values]

Possible values: N/A

Default value: N/A

show flash

Displays the version of the software image saved in the primary and secondary flash of a switch or routing switch.

EXAMPLE:

```
HP9300# show flash
```

Syntax: show flash

Possible values: N/A

Default value: N/A

show interfaces

Displays all port interfaces of the switch or routing switch and their state, duplex mode, STP state, priority and MAC address.

EXAMPLE:

```
HP9300# show interfaces
```

Syntax: show interfaces

Possible values: N/A

Default value: N/A

show ip

For the 6208M-SX switch, this command displays the switch IP address and mask, its default routing switch, the IP address of a TFTP server where configuration or image files are stored, if defined; and the file names of image and configuration files saved on that TFTP server.

For the 9304M, 9308M, and 6308M-SX routing switches, this command displays the global parameters for IP—specifically, router ID, IP TTL, ARP age values as well as all protocols and IP features enabled on the routing switch. This command also displays all active filters.

EXAMPLE:

```
Global Settings
  ttl: 64, arp-age: 10, bootp-relay-max-hops: 4
  router-id : 10.1.1.1
  enabled : UDP-Broadcast-Forwarding  IRDP  Proxy-ARP  RARP  RIP  VRRP
  disabled: BGP4 Load-Sharing  RIP-Redist  OSPF  DVMRP  SRP
Policies
  Index   Action   Source           Destination      Protocol   Port  Operator
  1       deny     209.157.22.34    209.157.22.26    tcp        http  =
  64      permit   any              any
```

Syntax: show ip

Possible values: N/A

Default value: N/A

show ip bgp attribute-entries

Shows information entries in a routing switch's BGP4 route attributes table. The route-attribute entries table lists the sets of BGP4 attributes stored in the routing switch's memory. Each set of attributes is unique and can be associated with one or more routes. In fact, the routing switch typically has fewer route attribute entries than routes.

See "Displaying BGP4 Route-Attribute Entries" on page 12-55 for information about the fields in this display.

EXAMPLE:

```
HP9300# show ip bgp attribute-entries
        Total number of BGP Attribute Entries: 7753
1       Next Hop  :192.168.11.1       Metric   :0               Origin:IGP
        Originator:0.0.0.0            Cluster List:None
         Aggregator:AS Number :0         Router-ID:0.0.0.0          Atomic:FALSE
        Local Pref:100                Communities:Internet
        AS Path   :(65002) 65001 4355 2548 3561 5400 6669 5548
2       Next Hop  :192.168.11.1       Metric   :0               Origin:IGP
        Originator:0.0.0.0            Cluster List:None
         Aggregator:AS Number :0         Router-ID:0.0.0.0          Atomic:FALSE
        Local Pref:100                Communities:Internet
        AS Path   :(65002) 65001 4355 2548
```

remaining 7751 entries not shown...

Syntax: show ip attribute-entries

Possible values: N/A

Default value: N/A

show ip bgp neighbors

Shows information about a routing switch's BGP4 neighbors (peer BGP4 routers). See "Displaying BGP4 Neighbor Information" on page 12-46 for information about the fields in this display.

EXAMPLE:

```
HP9300# show ip bgp neighbors 192.168.11.1
        Total number of BGP Neighbors: 3
        IP Address           Remote AS            EBGP/IBGP        State
1       192.168.11.1         65001                EBGP             ESTABLISHED
        Keep Alive Time      Hold Time            Advertisement Interval
        0                    0                    5
                             Message Sent         Message Received
        Keep Alive           3                    3
        Update               19                   28270
        Notifications        0                    0
        Open                 3                    3
```

```
        Last Connection Reset Reason:Port State Down
        Notification Message Error Code Received:Unspecified
        Notification Message Error SubCode Received:Not Applicable
        Notification Message Error Code Transmitted:Unspecified
        Notification Message Error SubCode Transmitted:Not Applicable
```

syntax: show ip bgp neighbor [<IP-addr> [advertised-routes] [last-packet-with-error] [attribute-entries] [received-routes] [routes-summary]]

The <IP-addr> option lets you narrow the scope of the command to a specific neighbor.

The **advertised-routes** option displays only the routes that the routing switch has advertised to the neighbor during the current BGP4 neighbor session.

The **last-packet-with-error** displays a hexadecimal dump of the first 400 bytes of the last packet received from the neighbor that contained an error.

The **attribute-entries** option shows the attribute-entries associated with routes received from the neighbor.

The **received-routes** option lists the routes received in UPDATE messages from the neighbor.

The **routes-summary** option displays a summary of the following information:

- Number of routes received from the neighbor
- Number of routes accepted by this routing switch from the neighbor
- Number of routes this routing switch filtered out of the UPDATES received from the neighbor and did not accept
- Number of routes advertised to the neighbor
- Number of attribute entries associated with routes received from or advertised to the neighbor.

Possible values: see above

Default value: information for all neighbors is displayed

show ip bgp routes

Shows the BGP4 routes in a routing switch's BGP4 route table. See "Displaying the BGP4 Route Table" on page 12-52 for information about the fields in this display.

EXAMPLE:

```
HP9300#show ip bgp routes
       Total number of BGP Routes: 58788
       Status A: AGGREGATE B:BEST  I:INTERNAL L: LOCAL  S: SUPPRESSED
       Network         ML Next Hop        Metric     LocPrf     Weight Status
1      8.9.253.160     27 192.168.11.1    0          100        0      B
2      12.0.0.0        8  192.168.11.1    0          100        0      B
3      12.2.97.0       24 192.168.11.1    0          100        0      B
4      12.2.169.0      24 192.168.11.1    0          100        0      B
5      12.3.123.0      24 192.168.11.1    0          100        0      B
6      12.3.63.0       24 192.168.11.1    0          100        0      B
7      12.2.109.0      24 192.168.11.1    0          100        0      B
8      12.4.5.0        24 192.168.11.1    0          100        0      B
```

remaining 58780 entries not shown...

Here is an example of the information displayed when you use the detail option. In this example, the information for one route is shown.

```
HP9300#show ip bgp routes detail
       Total number of BGP Routes: 388
       Status A: AGGREGATE B:BEST  I:INTERNAL L: LOCAL  S: SUPPRESSED
       Network          MaskLen Next Hop         Metric     LocPrf     Weight
1      12.2.97.0        24      192.168.11.1     0          100        0
       Originator       Atomic  AGGREGATION-ID   AS     Cluster List
       0.0.0.0          FALSE   0.0.0.0          0      None
       Origin  Status  Route Tag   Communities
       IGP     B       00000000    Internet
       AS Path : (65002) 65001 4355 2548 7018 10656
```

remaining 387 entries not shown...

Syntax: show ip bgp routes <num> [cidr-only] [community <num>|no-export|no-advertise|internet] [community-list <num>] [detail <option>] [filter-list <num, num,...>] [network <IP-addr>] [regular-expression <value>]

The <num> option specifies the table entry with which you want the display to start. For example, if you want to list entries beginning with table entry 100, specify 100.

The **cidr-only** option lists only the routes that do not have a mask length of 8, 16, or 24bits (the standard Class-A, -B, and -C sub-net mask lengths).

The **community** option lets you displays routes for a specific community. You can specify **no-export**, **no-advertise**, **internet**, or a private community number.

The **community-list** option lets you display routes that match a specific community filter.

The **detail** option lets you display greater detail for one of the other options.

The **filter-list** option displays routes that match a specific address filter list.

The **network** option displays routes for a specific network.

The **regular-expression** option filters the display based on a regular expression. See “Using Regular Expressions” on page 12-33.

Possible values: see above

Default value: all routes are displayed

show ip bgp summary

Shows a summary of BGP4 configuration information for a routing switch. See “Displaying Summary BGP4 Information” on page 12-43 for information about the fields in this display.

EXAMPLE:

```
HP9300# show ip bgp summary
  BGP4 Summary
  Local AS Number : 65002
  Maximum Number of Attribute Entries Supported :10000
  Maximum Number of Routes Supported : 60000
  Maximum Number of Neighbors Supported : 3
  Number of Routes Installed : 58756
  Number of Attribute Entries Installed : 7750
```

```
  Neighbor Address  State         StateChangeTime  RoutesRecvd  RoutesInstalled
  192.168.11.1      ESTABLISHED   0  :0  :43 :54   58737        58737
  192.168.88.28     ESTABLISHED   0  :2  :26 :43   0            0
  192.168.199.1     ESTABLISHED   0  :0  :48 :5    13           13
```

Syntax: show ip bgp summary

Possible values: N/A

Default value: N/A

show ip cache

Displays the IP host table showing indices to MAC addresses and the IP address of the next hop for routing switches.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ip cache
Total number of cache entries: 243
D:Dynamic  P:Permanent  F:Forward  U:Us  C:Complex Filter
W:Wait ARP  I:ICMP Deny  K:Drop  R:Fragment  S:Snap Encap
      IP Address       Next Hop      MAC             Type  Fid 1     207.95.95.1
0.0.0.0       0000.0000.0000   PU    0
2     111.111.100.111  0.0.0.0       0000.0000.0000   PU    0
3     207.95.45.1      0.0.0.0       0000.0000.0000   PU    0
4     207.195.1.255    0.0.0.0       0000.0000.0000   PU    0
5     207.95.133.255   0.0.0.0       0000.0000.0000   PU    0
. . .  [entries 6-242 not shown]
243   207.95.42.1      0.0.0.0       0000.0000.0000   PU    0
```

Syntax: show ip cache [<IP-addr>] | [<num>]

The optional <num> parameter lets you display the table beginning with a specific entry number.

Possible values: N/A

Default value: N/A

show ip dvmrp

Displays the global and interface settings for DVMRP on the routing switches.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ip dvmrp
Global Settings
  prune age: 180, neighbor timeout: 40
  probe interval: 10, report interval: 60
  route expire interval: 200, route discard interval: 340
  triggered update interval: 5, graft retransmit interval: 10
```

```
Interface Ethernet 1
TTL Threshold: 1 Metric: 1
Local Address: 192.094.005.001
[. . . ]
Interface Ethernet 16
TTL Threshold: 1 Metric: 1
Local Address: 193.095.016.001
```

Syntax: show ip dvmrp

Possible values: N/A

Default value: N/A

show ip dvmrp flowcache

Displays all active IP DVMRP flows for a routing switches. A ***flow*** is a cached forwarding entry.

EXAMPLE:

```
HP9300# show ip dvmrp flow-cache
```

Syntax: show ip flow-cache

Possible values: N/A

Default value: N/A

show ip dvmrp graft

Displays active DVMRP grafts. Information shown is port, source network, group address, neighbor router and age for a routing switch configured for DVMRP operation.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ip dvmrp graft
```

Syntax: show ip dvmrp graft

Possible values: N/A

Default value: N/A

show ip dvmrp group

Displays network address, mask and gateway and associated IP multicast group membership and port for a routing switch configured for DVMRP operation.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ip dvmrp group
```

Syntax: show ip dvmrp group

Possible values: N/A

Default value: N/A

show ip dvmrp interface

Displays the interface DVMRP settings, TTL threshold and metric for all sub-nets (interfaces) for a routing switch configured for DVMRP operation.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ip dvmrp interface
Interface Ethernet 1
TTL Threshold: 1 Metric: 1 Enabled: Querier
```

Syntax: show ip dvmrp interface

Possible values: N/A

Default value: N/A

show ip dvmrp mcache

Displays the DVMRP multicast cache for a routing switch configured for DVMRP operation.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ip dvmrp mcache
F:Fast S:Slow P:Prune L:Leaf
      SourceNet      GroupAddress    Type  PortMask & PruneMask
 1 207.095.002.000   226.000.000.019   P 15   F15.      P12
 2 207.095.002.000   226.000.000.021   P 15   F15.      P12
```

Syntax: show ip dvmrp mcache

Possible values: N/A

Default value: N/A

show ip dvmrp nbr

Displays all neighbor DVMRP routers and the ports to which they are attached, for routing switches configured for DVMRP operation.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ip dvmrp nbr
Port   Neighbor          GenId      Age  UpTime
 11    207.095.018.001  -12198       40      900
Port   Neighbor          GenId      Age  UpTime
 12    207.095.009.040       0       40      900
Port   Neighbor          GenId      Age  UpTime
 14    207.095.008.030       0       40      130
```

Syntax: show ip dvmrp nbr

Possible values: N/A

Default value: N/A

show ip dvmrp prune

Displays active prunes on the network for a routing switch configured for DVMRP operation.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ip dvmrp prune
Port  SourceNetwork    GroupAddress      NbrRouter       Age UpTime
 11    207.095.002.000  226.000.000.027   207.095.018.001   180  0
 11    207.095.002.000  226.000.000.026   207.095.018.001   180  0
 11    207.095.002.000  226.000.000.025   207.095.018.001   180  0
```

Syntax: show ip dvmrp prune

Possible values: N/A

Default value: N/A

show ip dvmrp route

Displays network address, mask and gateway and associated IP multicast group membership and ports for a routing switch with DVMRP configured.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ip dvmrp route
```

Syntax: show ip dvmrp route

Possible values: N/A

Default value: N/A

show ip dvmrp traffic

Displays all active DVMRP traffic on a routing switch.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ip dvmrp traffic
Port  Probe                                        Graft          Prune
[Rx  Tx Discard] [Rx Tx Discard] [Rx  Tx Discard]
10     0     95   0     0     0   0     0     0       0
12    95     95   0     0     0   0    21     0       0
13    95     95   0     0     9   0     0     72      0
Tot  195    285   0     0     9   0    21     72      0
```

Syntax: show ip dvmrp traffic

Possible values: N/A

Default value: N/A

show ip filter-cache

Displays all active IP filter definitions for a 6208M-SX switch operating with Layer 3 switching.

This command is not supported on routing switches.

EXAMPLE:

```
HP6208# show ip filter-cache
```

Syntax: show ip filter-cache

Possible values: N/A

Default value: N/A

show ip flow-cache

Displays all active IP flows for a routing switch. A ***flow*** is a cached forwarding entry.

EXAMPLE:

```
HP9300# show ip flow-cache
```

Syntax: show ip flow-cache [<ip-addr>]

Possible values: IP address

Default value: N/A

show ip srp

Displays the current settings of SRP on a routing switch.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ip srp
SRP Interfaces currently defined:
Ethernet Interface: 1
ip srp ip address 192.147.200.165
ip srp virtual router ip address 192.147.200.100
ip srp other router ip address 192.147.200.170
ip srp state  Active
ip srp preference level 50
ip srp track port 3
ip srp keep alive time 15
ip srp router dead interval 30
```

Syntax: show ip srp

Possible values: N/A

Default value: N/A

show ip interface

Displays interface configuration details for all interfaces or a specified interface on a routing switch.

EXAMPLE 1: To view all IP interfaces and their configuration on a routing switch, enter the following:

```
HP9300# show ip interface
```

EXAMPLE 2: To view a specific interface configuration, in this case interface 5, enter the following:

```
HP9300# show ip interface e5
```

Syntax: show ip interface [ethernet <port>] | [ve <num>]

Possible values: N/A

Default value: N/A

show ip multicast

Indicates whether IP multicast is active on the 6208M-SX switch, and notes its operating mode—active or passive.

This command is not supported on routing switches.

EXAMPLE:

```
HP6208# show ip multicast
```

Syntax: show ip multicast

Possible values: N/A

Default value: N/A

show ospf abr-asbr-routers

Shows entries for ABR and ASBR routers.

EXAMPLE:

```
HP9300# show ip ospf abr-asbr-routers
```

Syntax: show ip ospf abr-asbr-routers [<IP-addr>]

The **<IP-addr>** parameter displays the ABR and ASBR entries for the specified IP address.

Possible values: IP address

Default value: N/A

show ip ospf area

Displays for all active OSPF areas, the following information:

- type of area—stub or normal
- cost (for stub area only)
- number of times the SPF (shortest path first) calculation is performed for the area
- number of area borders within the area
- number of AS boundary routers within the area
- number of link state advertisements (LSA) in the link state database of the area
- sum of LSA checksums in the area

NOTE: This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ip ospf area
Indx  Area      Type  Cost  SPFR ABR ASBR LSA Chksum(Hex)
1   0.0.0.0     normal  0    1     0     0   1   0000781f
2  192.147.60.0 normal  0    1     0     0   1   0000fee6
3  192.147.80.0 stub    1    1     0     0   2   000181cd
```

Syntax: show ip ospf area [<area-id>] | [<num>]

The <**area-id>** parameter shows information for the specified area.

The **<num>** parameter displays the entry that corresponds to the entry number you enter. The entry number identifies the entry's position in the area table.

Possible values: N/A

Default value: N/A

show ip ospf config

Displays global and interface runtime configuration details for OSPF on a routing switch.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ip ospf config
Router OSPF: Enabled
Redistribution: Disabled
default OSPF Metric: 10
OSPF Area currently defined:
Area-ID          Area-Type Cost
0.0.0.0          normal    0
OSPF Interfaces currently defined:
Ethernet Interface: 1
ip ospf cost 1
ip ospf dead-interval 40
ip ospf hello-interval 10
ip ospf priority 1
ip ospf retransmit-interval 5
ip ospf transmit-delay 1
ip ospf area 0.0.0.0
Ethernet Interface: 2
ip ospf cost 1
ip ospf dead-interval 40
ip ospf hello-interval 10
ip ospf priority 1
ip ospf retransmit-interval 5
ip ospf transmit-delay 1
ip ospf area 0.0.0.0
```

Syntax: show ip ospf config

Possible values: N/A

Default value: N/A

show ip ospf external-link-state

Displays information about external link state advertisements stored in the database.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300> show ip ospf external-link-state
Index Aging  LS ID           Router          Seq(hex) Chksum
1     1332   130.132.81.208  130.130.130.241 80000002 000085ae
2     1325   130.132.116.192 130.130.130.241 80000002 0000a37d
3     1330   130.132.88.112  130.130.130.241 80000002 0000fb91
4     1333   130.132.75.48   130.130.130.241 80000002 00000ecc
5     1338   130.132.46.224  130.130.130.241 80000002 000067df
```

Syntax: show ip ospf external-link-state [advertise <num>] | [link-state-id <IP-addr>] | [router-id <IP-addr>] | [sequence-number <num(Hex)>] | [status <num>]

The **advertise <num>** parameter displays the hexadecimal data in the specified LSA packet. The **<num>** parameter identifies the LSA packet by its position in the routing switch's External LSA table. To determine an LSA packet's position in the table, enter the **show ip ospf external-link-state** command to display the table. See "Displaying the Data in an LSA" on page 10-38 for an example.

The **link-state-id <IP-addr>** parameter displays the External LSAs for the LSA source specified by **<IP-addr>**.

The **router-id <IP-addr>** parameter shows the External LSAs for the specified OSPF router.

The **sequence-number <num(Hex)>** parameter displays the External LSA entries for the specified hexadecimal LSA sequence number.

Possible values: see above

Default value: N/A

show ip ospf general

Displays global status information about OSPF for a routing switch. The following information is displayed:

- count of external Link State Advertisements (LSA)
- sum of external LSA checksums
- number of new LSAs originated by the routing switch
- number of new LSAs received by the routing switch

NOTE: This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ip ospf gen

External LSA Counter          0

External LSA Checksum Sum     0000

Originate New LSA Counter     4

Rx New LSA Counter            4
```

Syntax: show ip ospf general

Possible values: N/A

Default value: N/A

show ip ospf interface

Displays information about all or a specific OSPF interface.

This command is not supported on the 6208M-SX switch.

The following information is provided:

- OSPF interface parameters
- State of the interface
- IP address of the designated router
- IP address of the backup designated router

EXAMPLE:

```
HP9300# show ip ospf interface
Indx Port   IP Address   Area ID    OSPF Mode   Priority
1    1       2.0.0.1      0.0.0.0   enabled       1
Transit(sec)  Retrans(sec) Hello(sec) Dead(sec)   cost
     1          5            10          40        1
Type        D. Router    Backup D. Router events  state
broadcast    2.0.0.1     2.0.0.2    1            DRouter
Authentication-Key: None
```

Syntax: show ip ospf interface [<IP-addr>]

The **<IP-addr>** parameter displays the OSPF interface information for the specified IP address.

Possible values: N/A

Default value: N/A

show ip ospf link-state

Displays the router, network, summary, and summary ASBR link state advertisements. The **status** parameter provides a detailed display. The **advertise** parameter provides a summary.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ip ospf link-state status
Index: 1  Area ID: 0.0.0.0
Age(sec) Type     LS ID    Router     Seq(hex) Chksum(hex)
565     Summary  192.147.200.0   192.147.80.3  80000001   781f
```

Syntax: show ip ospf link-state [advertise <num>] | [link-state-id <IP-addr>] | [network] | [router] | [router-id <num>] | [sequence-number <num(Hex)>] | [status <num>] [summary]

The **advertise <num>** parameter displays the hexadecimal data in the specified LSA packet. The **<num>** parameter identifies the LSA packet by its position in the routing switch's LSA table. To determine an LSA packet's position in the table, enter the **show ip ospf link-state** command to display the table. See "Displaying the Data in an LSA" on page 10-38 for an example.

The **link-state-id <IP-addr>** parameter displays the External LSAs for the LSA source specified by **<IP-addr>**.

The **router-id <IP-addr>** parameter shows the External LSAs for the specified OSPF router.

The **sequence-number <num(Hex)>** parameter displays the External LSA entries for the specified hexadecimal LSA sequence number.

Possible values: N/A

Default value: N/A

show ip ospf neighbor

Displays information about all neighbor routers or a specific neighbor router.

This command is not supported on the 6208M-SX switch.

The following information is shown for a routing switch:

- neighbor router ID
- neighbor IP address
- neighbor state

- number of times the neighbor state has changed
- count of packets retransmitted to the neighbor router

EXAMPLE:

```
HP9300> show ip ospf neighbor

Index port    IP address      router ID       Neighbor address
1     8       212.76.7.251    173.35.1.220    212.76.7.200
      options priority        state           router state     events count
      2       1               full            designated       23     0

Index port    IP address      router ID       Neighbor address
2     8       212.77.7.251    173.35.1.220    212.77.7.200
      options priority        state           router state     events count
      2       1               full            designated       39     0
```

Syntax: show ip ospf neighbor [router-id <IP-addr>] | [<num>]

The **router-id <num>** parameter displays only the neighbor entries for the specified router.

The **<num>** parameter displays the table beginning at the specified entry number.

Possible values: see above

Default value: N/A

show ip ospf routes

Displays the OSPF route table. See “Displaying OSPF Information” on page 10-29 for information about the fields in this display.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

To display OSPF route information, enter the following command at any CLI level:

```
HP9300> show ip ospf routes

Index Destination     Mask            Path_Cost Type2_Cost Path_Type
1     212.95.7.0      255.255.255.0   1         0          Intra
      Adv_Router      Link_State      Dest_Type State      Tag       Flags
      173.35.1.220    212.95.7.251    Network   Valid      00000000  7000
      Paths Out_Port  Next_Hop        Type      Arp_Index  State
      1     5/6       209.95.7.250    OSPF      8          84 00

Index Destination     Mask            Path_Cost Type2_Cost Path_Type
2     11.3.63.0       255.255.255.0   11        0          Inter
      Adv_Router      Link_State      Dest_Type State      Tag       Flags
      209.95.7.250    11.3.63.0       Network   Valid      00000000  0000
      Paths Out_Port  Next_Hop        Type      Arp_Index  State
      1     5/6       209.95.7.250    OSPF      8          84 00
```

Syntax: show ip ospf routes [<IP-addr>]

The **<IP-addr>** parameter specifies a destination IP address. If you use this parameter, only the route entries for that destination are shown.

Possible values: see above

Default value: N/A

show ip ospf trap

Displays the list of all OSPF traps and their current state of enabled or disabled.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# show ip ospf trap
Interface State Change Trap:Enabled
Virtual Interface State Change Trap:Enabled
Neighbor State Change Trap:Enabled
Virtual Neighbor State Change TrapEnabled
Interface Configuration Error Trap:Enabled
Virtual Interface Configuration Error Trap:Enabled
Interface Authentication Failure Trap:Enabled
Virtual Interface Authentication Failure Trap:Enabled
Interface Receive Bad Packet Trap:Enabled
Virtual Interface Receive Bad Packet Trap:Enabled
Interface Retransmit Packet Trap:Enabled
Virtual Interface Retransmit Packet Trap:Enabled
Originate LSA Trap: Enabled
Originate MaxAge LSA Trap:Enabled
Originate MaxAge LSA Trap:Enabled
Link State Database Overflow TrapEnabled
Link State Database Approaching Overflow TrapEnabled
```

Syntax: show ip ospf trap

Possible values: N/A

Default value: N/A

show ip ospf virtual-link

Displays transit area, router ID and transit specifics for an OSPF virtual link on a routing switch.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ip ospf virtual-link 1
Indx Transit Area   Router ID       Transit(sec) Retrans(sec) Hello(sec)
1    192.147.60.0   192.147.180.30   1  5   10
Dead(sec)      events           state        Authentication-Key
40             0                down         None
```

Syntax: show ip ospf virtual-link [<num>]

The **<num>** parameter displays the table beginning at the specified entry number.

Possible values: see above

Default value: N/A

show ip ospf virtual-neighbor

Displays the OSPF virtual neighbor information.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ip ospf virtual-neighbor 3
```

Syntax: show ip ospf virtual-neighbor [<num>]

The **<num>** parameter displays the table beginning at the specified entry number.

Possible values: see above

Default value: N/A

show ip pim flowcache

Displays all active PIM flows for a routing switch. A ***flow*** is a cached forwarding entry.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# show ip pim flowcache
Source               Group        Parent
207.95.5.155      239.255.0.1      16
207.95.5.155      224.2.230.64     16
```

Syntax: show ip pim flowcache

Possible values: N/A

Default value: N/A

show ip pim group

Displays all active PIM groups by interface—both physical and virtual—for a routing switch. Physical ports are displayed as numerals only. Virtual interfaces are preceded with a 'v' as in the example below.

This command is not supported on the 6308M-SX switch.

EXAMPLE:

```
HP9300(config)# show ip pim group
Index   Group                                    Port
1   224.2.230.64  v01
2   239.255.0.1   v01
```

Syntax: show ip pim group

Possible values: N/A

Default value: N/A

show ip pim interface

Lists all active interfaces configured for a routing switch.

This command is not supported on the 6308M-SX switch.

EXAMPLE:

```
HP9300(config) #sh ip pim interface
Interface Ethernet 1
TTL Threshold: 1, Enabled
```

```
Local Address: 207.95.18.20
Interface Ethernet 3
TTL Threshold: 1, Enabled
Local Address: 207.95.5.1
```

Syntax: show ip pim interface

Possible values: N/A

Default value: N/A

show ip pim mcache

Displays all forwarding entries for a routing switch with PIM enabled.

This command is not supported on the 6308M-SX switch.

In the example below, the source, group pair is defined for ports 2 and 3 as listed in hex in the PortMask column.

EXAMPLE:

```
HP9300(config)# show ip pim mcache
F:Fast P:Prune
SourceNet      Group       veMask     PortMask
                              Hex           Hex
207.95.5.0     239.255.0.1   0000     00000006
207.95.5.0     224.2.230.64  0000     00000006
```

Syntax: show ip pim mcache

Possible values: N/A

Default value: N/A

show ip pim nbr

Displays all PIM neighbor routers for physical, virtual and tunnel interfaces.

Port numbers preceded by a ‘T’ are tunnel interfaces, ‘E’ refers to physical interfaces and ‘VE’ refers to routed interfaces within a VLAN.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# show ip pim nbr
Port    Neighbor      Holdtime       Age   UpTime
T16   207.95.7.20       180          0       32220
```

Syntax: show ip pim nbr

Possible values: N/A

Default value: N/A

show ip pim prune

Shows those prune states that are active on a routing switch with PIM enabled.

Port numbers preceded by a ‘T’ are tunnel interfaces, ‘E’ refers to physical interfaces and ‘VE’ refers to routed interfaces within a VLAN.

This command is not supported on a 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# show ip pim nbr
Port      SourceNet     Group          Nbr               Age
T16       207.95.5.0    239.255.0.2    207.95.6.10       0
```

Syntax: show ip pim prune

Possible values: N/A

Default value: N/A

show ip pim traffic

Displays active PIM interfaces and their statistics for a routing switch.

Port numbers preceded by a 'T' are tunnel interfaces, 'E' refers to physical interfaces and 'VE' refers to routed interfaces within a VLAN.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# show ip pim traffic
Port      Hello    Join       Prune         Graft         Assert
          [Rx Tx]      [Rx Tx]      [Rx  Tx]     [Rx  Tx]     [Rx  Tx]
e5        0  2         0  0         0  0         0  0         0  0
t1        538  540     0  0         3 775        0  4         0  0
ve1       0  541       0  0         0  0         0  0         0  0
ve3       0  541       0  0         0  0         0  0         0  0
Total     538  2163    0  0         33 775       0  4         0  0
```

Syntax: show ip pim traffic

show ip policy

Displays the configured global and local session policies defined using the **ip policy** command.

This command does not apply to routing switches.

EXAMPLE:

```
Index                    Priority                 Protocol           Socket
Type
  1                      high                     tcp          pop3  global
  2                      high                     udp          dns   global
```

Syntax: show ip policy

Possible values: N/A

Default value: N/A

show ip rip

Displays the IP/RIP filters defined for a routing switch and its neighbor router.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300(config)# show ip rip

RIP Route Filter Table

Index                   Action       Route IP Address           Sub-net Mask

1                       Permit              192.58.5.3          255.255.255.0

RIP Neighbor Filter Table

Index                   Action              Neighbor IP address

1                       Permit              195.98.7.2
```

Syntax: show ip rip

Possible values: N/A

Default value: N/A

show ip route

Displays active IP routes on a routing switch. See “Displaying the IP Route Table” on page 9-49 for information about the fields in this display.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300> show ip route

Total number of IP routes: 514
Starting index: 1  B:BGP D:Directly-Connected  R:RIP  S:Static  O:OSPF
IA:OSPF inter area  E1:OSPF external type 1  E2:OSPF external type 2

Destination       NetMask           Gateway           Port   Cost   Type

1.1.0.0           255.255.0.0       99.1.1.2          1/1    2      R
1.2.0.0           255.255.0.0       99.1.1.2          1/1    2      R
1.3.0.0           255.255.0.0       99.1.1.2          1/1    2      R
1.4.0.0           255.255.0.0       99.1.1.2          1/1    2      R
```

Syntax: show ip route [<IP-addr> | <num> | bgp | ospf | rip]

The **<ip-addr>** parameter displays the route to the specified IP address.

The **<num>** option display the route table entry whose row number corresponds to the number you specify. For example, if you want to display the tenth row in the table, enter “10”.

NOTE: To simplify the table, the row number is not displayed in software release 05.2.00 and later.

The **bgp** option displays the BGP4 routes.

The **ospf** option displays the OSPF routes.

The **rip** option displays the RIP routes.

Possible values: see above

Default value: N/A

show ip traffic

Displays IP (including ICMP, UDP, TCP, and RIP) traffic statistics for a switch or routing switch.

EXAMPLE:

```
HP9300# show ip traffic
IP Statistics
  464 received, 2267 sent, 0 forwarded
  0 filtered, 0 fragmented, 0 reassembled, 0 bad header
  0 no route, 0 unknown proto, 0 no buffer, 0 other errors
ICMP Statistics
Received:
  0 total, 0 errors, 0 unreachable, 0 time exceed
0 parameter, 0 source sequence, 0 redirect, 0 echo,
  0 echo reply, 0 timestamp, 0 timestamp rely, 0 addr mask
  0 addr mask reply, 0 irdp advertisement, 0 irdp solicitation
Sent:
  54 total, 0 errors, 0 unreachable, 0 time exceed
  0 parameter, 0 source sequence, 0 redirect, 0 echo,
  0 echo reply, 0 timestamp, 0 timestamp rely, 0 addr mask
  0 addr mask reply, 54 irdp advertisement, 0 irdp solicitation
```

NOTE: This example is an excerpt, not a complete display.

Syntax: show ip traffic

Possible values: N/A

Default value: N/A

show ip vrrp stat

Displays VRRP statistics.

```
HP9300# show ip vrrp stat
Interface ethernet e 1/6
 rxed vrrp header error count = 0
 rxed vrrp auth error count = 0
 rxed vrrp auth passwd mismatch error count = 0
 rxed vrrp vrid not found error count = 0
 VRID 1
 rxed arp packet drop count = 0
 rxed ip packet drop count = 0
 rxed vrrp port mismatch count = 0
 rxed vrrp ip address mismatch count = 0
 rxed vrrp hello interval mismatch count = 0
```

```
rxed vrrp priority zero from master count = 0
rxed vrrp higher priority count = 0
transitioned to master state count = 1
transitioned to backup state count = 0
```

Syntax: show ip vrrp stat

Possible values: N/A

Default value: N/A

show ipx

Displays IPX global parameters for a routing switch.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ipx
Global Settings
IPX Routing Mode: Enabled
IPX NetBIOS (type 20): Disallowed
```

Syntax: show ipx

Possible values: N/A

Default value: N/A

show ipx cache

Displays summary by port, network number, forwarding (Next Hop Router), MAC address, out filter status and frame type for a switch or routing switch.

EXAMPLE:

```
HP9300# show ipx cache
Total number of IPX cache entries 3
Forwarding
Index  Network   Router      Out-Filter  Frame-Type    Port
1     11110007  0000.0000.0000  off      ethernet_802.3    7
2     11110005  0000.0000.0000  off      ethernet_802.3    5
3     32D564FA  00a0.24bf.89ca  off      ethernet_802.3    5
```

Syntax: show ipx cache [<num(hex)>]

Possible values: The optional **<num(hex)>** parameter lets you specify an IPX network number.

Default value: N/A

show ipx interface

Lists network number, MAC address, and port state and frame type for all interfaces or a specific IPX interface on a routing switch.

To display data on all interfaces, enter the command **show ipx interface**.

This command is not supported on the 6208M-SX switch.

EXAMPLE: To display data for interface 5, enter the following:

```
HP9300# show ipx interface ethernet 3/5

Interface Ethernet 3/5
  MAC address: 00e0.5284.0b44  Port state: UP
  IPX network:       0000ABCD  Frame type: ethernet_snap   Allow NetBIOS: NO
  rip-interval: 60  rip-max-packet-size: 432  rip-multiplier: 3
  sap-interval: 60  sap-max-packet-size: 480  sap-multiplier: 3
```

Syntax: show ipx interface [ethernet <portnum> | ve <num>]

The **ethernet <portnum>** parameter lets you specify a routing switch port.

The **ve <num>** parameter lets you specify a virtual interface (VE).

Possible values: see above

Default value: N/A

show ipx route

Displays active IPX routes noting hop, tick and port for a routing switch.

EXAMPLE:

```
HP9300# show ipx route

Total number of IPX route entries 3

Forwarding

Index   Network   Router          Hops  Ticks Port

1       11110007  0000.0000.0000     0     1     7

2       32D564FA  00a0.24bf.89ca     1     2     5

3       11110005  0000.0000.0000     0     1     5
```

Syntax: show ipx route [<num(hex)>]

Possible values: The optional **<num(hex)>** parameter lets you specify an IPX network number.

Default value: N/A

show ipx servers

Displays IPX servers defined for a routing switch.

This command is not supported on the 6208M-SX switch.

EXAMPLE:

```
HP9300# show ipx servers

Total number of IPX server entries 3

Index  Network   Node            Socket    Type      Hops

1      32D564FA  0000.0000.0001   0005     026B        1

         Server-name: HPD

2      32D564FA  0000.0000.0001   4006     0278        1

         Server-name: HPM

3      32D564FA  0000.0000.0001   0451     0004        1

         Server-name: HP-MPR2
```

Syntax: show ipx servers [<name>]

Possible values: The optional **<name>** parameter lets you specify a server name.

Default value: N/A

show ipx traffic

Displays a port summary of total IPX packets forwarded. It also breaks down the packets by transmit and receive. Totals for dropped and filtered packets are also shown.

EXAMPLE:

```
HP9300# show ipx traffic
Dropped              Filtered
Port  Forward  Receive  Transmit  Receive  Transmit   Receive  Transmit
  5    46         36        8          2       0         0         0
  7     0          0        6          0       0         0         0
Tot    46         36       14          2       0         0         0
```

Syntax: show ipx traffic

Possible values: N/A

Default value: N/A

show logging

Displays the SNMP event log.

EXAMPLE 1:

```
HP9300# show logging
Syslog logging: enabled (0 messages dropped, 0 flushes, 0 overruns)
    Buffer logging: level ACDMEINW, 7 messages logged
    level code: A=alert C=critical D=debugging M=emergency E=error
                I=informational N=notification W=warning
Log Buffer (50 entries):

at 0 days 0 hours 1 minutes 3 seconds, level informational
Bridge is new root, vlan 1, root ID 800000e052801400
at 0 days 0 hours 0 minutes 47 seconds, level informational
Bridge root changed, vlan 1, new root ID 800000e052000f2b, root port 1/1
at 0 days 0 hours 0 minutes 31 seconds, level informational
Bridge topology change, vlan 23, port 5/20, changed state to forwarding
at 0 days 0 hours 0 minutes 29 seconds, level informational
Bridge topology change, vlan 1, port 1/1, changed state to forwarding
at 0 days 0 hours 0 minutes 2 seconds, level informational
Cold start
at 0 days 0 hours 0 minutes 2 seconds, level informational
Interface Ethernet 5/20, changed state to up
at 0 days 0 hours 0 minutes 0 seconds, level informational
Interface Ethernet 1/1, changed state to up
```

EXAMPLE 2: This example shows log entries for authentication failures. If someone enters an invalid community string when attempting to access the SNMP server on the device, the device generates a trap in the device's syslog buffer. (If you have configured the device to use a third-party SyslogD server, the device also sends a log entry to the server.)

Here is an example of a log that contains SNMP authentication traps. In this example, someone attempted to access the device three times using invalid SNMP community strings. The unsuccessful attempts indicate either an authorized user who is also a poor typist, or an unauthorized user who is attempting to access the device.

```
HP9300(config)#show log
Syslog logging: enabled (0 messages dropped, 0 flushes, 1 overruns)
Buffer logging: level ACDMEINW, 50 messages logged
level code: A=alert C=critical D=debugging M=emergency E=error
I=informational N=notification W=warning

Log Buffer (50 entries):

at 0 days 3 hours 57 minutes 18 seconds, level informational
SNMP Authentication failure, intruder IP: 207.95.6.55
at 0 days 3 hours 57 minutes 14 seconds, level informational
SNMP Authentication failure, intruder IP: 207.95.6.55
at 0 days 3 hours 57 minutes 10 seconds, level informational
SNMP Authentication failure, intruder IP: 207.95.6.55
```

EXAMPLE 3: This example shows a log entry for an IP address conflict between the device and another device on the network.

In addition to placing an entry in the log, the software sends a log message to the SyslogD server, if you have configured one, and sends a message to each open CLI session.

```
HP9300(config)#show log
Syslog logging: enabled (0 messages dropped, 0 flushes, 1 overruns)
Buffer logging: level ACDMEINW, 50 messages logged
level code: A=alert C=critical D=debugging M=emergency E=error
I=informational N=notification W=warning

Log Buffer (50 entries):

at 43 days 6 hours 39 minutes 57 seconds, level warning
Duplicate IP address 209.157.23.188 detected,
sent from MAC address 00e0.5201.3bc9 coming from port 7/7
```

EXAMPLE 4: Here are some examples of log entries for packets denied by Layer 2 MAC filters.

NOTE: On devices that use Layer 2 MAC filters and IP access policies, both types of log entries can appear in the same log. The entries are shown in separate examples here for clarity.

First example—Packets Denied by Layer 2 MAC Filters

```
HP9300(config)# show log
Syslog logging: enabled (0 messages dropped, 0 flushes, 0 overruns)
    Buffer logging: level ACDMEINW, 38 messages logged
    level code: A=alert C=critical D=debugging M=emergency E=error
                I=informational N=notification W=warning

Log Buffer (50 entries):

at 0 days 0 hours 5 minutes 30 seconds, level warning
mac filter group denied packets on port 1/1 src macaddr 0000.c02d.a2bf, 22 packets
at 0 days 0 hours 0 minutes 30 seconds, level warning
mac filter group denied packets on port 1/1 src macaddr 0000.c02d.a2bf, 1 packets
```

Second example—Packets Denied by IP Access Policies

```
HP9300(config)# show log
Syslog logging: enabled (0 messages dropped, 0 flushes, 0 overruns)
    Buffer logging: level ACDMEINW, 38 messages logged
    level code: A=alert C=critical D=debugging M=emergency E=error
                I=informational N=notification W=warning

Log Buffer (50 entries):

at 0 days 0 hours 49 minutes 40 seconds, level warning
list 1 denied udp 0.0.0.0 (Ethernet1/2 00e0.5200.0010) <- 0.0.0.0, 1 packets
at 0 days 0 hours 15 minutes 46 seconds, level warning
list 1 denied udp 0.0.0.0 (Ethernet1/2 00e0.5200.0010) <- 0.0.0.0, 8 packets
at 0 days 0 hours 10 minutes 46 seconds, level warning
list 1 denied udp 0.0.0.0 (Ethernet1/2 00e0.5200.0010) <- 0.0.0.0, 15 packets
at 0 days 0 hours 5 minutes 46 seconds, level warning
list 1 denied udp 0.0.0.0 (Ethernet1/2 00e0.5200.0010) <- 0.0.0.0, 35 packets
at 0 days 0 hours 0 minutes 46 seconds, level warning
list 1 denied udp 0.0.0.0 (Ethernet1/2 00e0.5200.0010) <- 0.0.0.0, 1 packets
```

In these examples, the two-line message at the bottom is the first entry, which the software immediately generates the first time a Layer 2 MAC filter or IP access policy denies a packet. The second line of a log entry for packets denied by a Layer 2 MAC filter begins with “mac filter group denied” and indicates the port number, the source MAC address, and the number of packets denied. The second line of a log entry for packets denied by an IP access policy begins with “list <policy-num> denied”, where <policy-num> is the number of the policy. For example, an entry for IP access policy 1 begins “list 1 denied”.

The log entries for IP access policies also indicate the IP protocol type (for example, UDP) and the IP address of the denied packet, as well as the port number and MAC address of the port that denied the packet.

When the software places the first entry for denied packets in the log, the software also starts the five-minute timer for subsequent log entries. Thus, five minutes after the first log entry, the software generates another log entry and SNMP trap for denied packets. The same timer applies to Layer 2 MAC filters and IP access policies.

As long as at least one Layer 2 MAC filter or IP access policy denies a packet, the timer continues to generate new log entries and SNMP traps every five minutes. In the second example above, after the fourth log entry (at 15 minutes and 46 seconds), the five minute interval expires without any Layer 2 MAC filters or IP access policies denying packets. As a result, the timer stops. However, at 49 minutes and 40 seconds, an IP access policy denies a packet, thus restarting the five-minute timer.

Syntax: show logging

Possible values: N/A

Default value: N/A

show mac-address

Displays all MAC addresses on a switch or routing switch.

EXAMPLE: To display all MAC addresses on a switch or routing switch, enter the following:

```
HP6208(config)# show mac-address

Total entries from all ports = 75

       MAC     Port   Age CamF CIDX0 CIDX1 CIDX2 CIDX3 CIDX4 CIDX5
0000.0300.0000  10  17293 00H     0     0     0     0     0     0
0060.089f.8086   1     12 0bH    23    15     0     6     0     0
0060.9709.914b  16   2130 00H     0     0     0     0     0     0
00a0.249a.0163  16    130 00H     0     0     0     0     0     0
0060.979d.41a5  11    475 00H     0     0     0     0     0     0
00a0.24c5.01d1  11      0 0cH     0     0    20    14     0     0
0060.979d.41df  11    570 00H     0     0     0     0     0     0
0060.9759.4226  16    240 00H     0     0     0     0     0     0
0060.9759.4235  16    130 00H     0     0     0     0     0     0
0800.208f.725b   2    135 00H     0     0     0     0     0     0
0060.9759.4264  16      0 0aH     0    14     0    21     0     0
00a0.24c5.02a1  16     15 09H     5     0     0    33     0     0
0000.c02c.a2bf   7     11 03H    27     5     0     0     0     0
00a0.24c5.02f8   4    135 00H     0     0     0     0     0     0
00a0.24c5.02fc   6      0 06H     0     8    31     0     0     0
0800.207e.c312   2      2 0dH    25     0    24    13     0     0
0800.208f.5331   2    135 00H     0     0     0     0     0     0
```

```
00e0.5200.0385  10   5160 00H     0     0     0     0     0     0
00e0.5200.0388  10  35420 00H     0     0     0     0     0     0
0000.f820.a3ad   3  11239 00H     0     0     0     0     0     0
0000.c06f.d3be   3    135 00H     0     0     0     0     0     0
--More--, next page: Space/Return key, quit: Control-c
```

NOTE: The information displayed in columns with headings, **CamF**, and **CIDX0** through **CIDX5**, is not relevant for day-to-day management of the switch or routing switch. The information is used by engineering and technical support staff for debug purposes.

Syntax: show mac-address [ethernet <portnumber>|session|statistics|<MAC-addr>]

The **ethernet <portnumber>** option displays the MAC address(es) on the specified port.

The **session** parameter displays the MAC session table.

The **statistics** option displays statistics. See “show mac-address statistics” on page B-246.

The **<MAC-addr>** option displays information about the specified MAC address. Specify the MAC address in the following format: abcd.egh.1234. (Separate each four bytes with a period.)

Possible values: see above

Default value: N/A

show mac-address statistics

Displays the total number of MAC addresses currently active on a switch or routing switch. This command serves as a numerical summary of the detailed summary provided by the command **show mac-addresses**.

For each port, the number of learned MAC addresses is displayed.

EXAMPLE:

```
HP9300(config)# show mac-address-statistics
Total entries  = 41
Port     1     2     3     4     5     6     7     8     9
         0     6    11     1     1     1     2     1     1
Port     10     11      12    13    14    15    16
          0      3       1      3     1     1     8
```

Syntax: show mac-address-statistics

Possible values: N/A

Default value: N/A

show media

This command shows the type of ports active on a chassis system.

EXAMPLE:

```
HP9300(config)# show media
1/1:SX 1/2:SX 1/3:SX 1/4:SX
2/1:SX 2/2:SX 2/3:SX 2/4:SX 2/5:SX 2/6:SX 2/7:SX 2/8:SX
3/1:SX 3/2:SX 3/3:SX 3/4:SX 3/5:SX 3/6:SX 3/7:SX 3/8:SX
4/1:SX 4/2:SX 4/3:SX 4/4:SX 4/5:SX 4/6:SX 4/7:SX 4/8:SX
```

```
6/1:SX 6/2:SX 6/3:SX 6/4:SX 6/5:SX 6/6:SX 6/7:SX 6/8:SX
7/1:SX 7/2:SX 7/3:SX 7/4:SX 7/5:SX 7/6:SX 7/7:SX 7/8:SX
8/1:SX 8/2:SX 8/3:SX 8/4:SX 8/5:SX 8/6:SX 8/7:SX 8/8:SX
```

Syntax: show media

Possible values: N/A

Default value: N/A

show module

This command shows the types of modules installed on a chassis system.

EXAMPLE 1:

Here is an example of the command's display output on a 9308M routing switch.

```
HP9300# show module
    Module                            Status    Ports Starting MAC
S1: B8GM Fiber Management Module      OK          8   00e0.52f0.5a00
S2: B24E Copper Switch Module         OK         24   00e0.52f0.5a20
S3: B24E Copper Switch Module         OK         24   00e0.52f0.5a40
S4: B24E Copper Switch Module         OK         24   00e0.52f0.5a60
S5: B8G Fiber Switch Module           OK          8   00e0.52f0.5a00
S6: B24E Copper Switch Module         OK         24   00e0.52f0.5aa0
S7: B8G Fiber Switch Module           OK          8   00e0.52f0.5a00
S8: B8G Fiber Switch Module           OK          8   00e0.52f0.5a00
```

Possible values: N/A

Default value: N/A

show reload

Displays the time and date for scheduled system reloads.

EXAMPLE:

```
HP9300# show reload
```

Syntax: show reload

Possible values: N/A

Default value: N/A

show rmon alarm

This command will display any reported RMON alarms for the system.

EXAMPLE:

```
HP9300# show rmon alarm
Alarm table is empty
```

Syntax: show rmon alarm

Possible values: N/A

Default value: N/A

show rmon event

This command will display any reported RMON events for the system.

EXAMPLE:

```
HP9300# show rmon event
Event table is empty
```

Syntax: show rmon event

Possible values: N/A

Default value: N/A

show rmon history

This command will display the RMON history for the system.

EXAMPLE:

```
HP9300# show rmon history
History 1 is active, owned by monitor
 Monitors interface 1/1 (ifIndex 1) every 30 seconds
 25 buckets were granted to store statistics

History 2 is active, owned by monitor
 Monitors interface 1/1 (ifIndex 1) every 1800 seconds
 25 buckets were granted to store statistics

History 3 is active, owned by monitor
 Monitors interface 5/20 (ifIndex 148) every 30 seconds
 25 buckets were granted to store statistics

History 4 is active, owned by monitor
 Monitors interface 5/20 (ifIndex 148) every 1800 seconds
 25 buckets were granted to store statistics
```

Syntax: show rmon history

Possible values: N/A

Default value: N/A

show rmon statistics

Displays detailed statistics for each port.

EXAMPLE:

```
HP9300# sh rmon st
```

Syntax: show rmon statistics [ethernet <portnumber>] | [<num>]

The **ethernet <portnumber>** parameter displays the RMON port statistics for the specified port.

The **<num>** parameter displays the specified entry. Entries are numbered beginning with 1.

Possible values: see above

Default value: N/A

show running-config

Displays the running configuration of the switch or routing switch on the terminal screen.

NOTE: This command is equivalent to the **write terminal** command.

EXAMPLE:

```
HP9300# sh run
```

Syntax: show running-config

Possible values: N/A

Default value: N/A

show server

Displays configuration information and statistics for a web server address you added using the server real-name command.

This command applies only to routing switches you have configured to assist ServerIrons, third-party Server Load Balancers, or directly connected web servers with globally-distributed Server Load Balancing (SLB). See “Route Health Injection” on page 18-1.

EXAMPLE:

```
HP9300# show server real tinman

Real Servers Info

Server State - 1:enabled, 2:failed, 3:test, 4:suspect, 5:grace_dn, 6:active
Name:tinman             IP:  209.157.23.60:4    State:1
```

Syntax: show server real <name> | keepalive-port

See “Displaying Server Information” on page 18-7 for an explanation of the fields in this display.

Possible values: N/A

Default value: N/A

show snmp-server

Lists system administrative information—contact name, system location, community strings, and traps enabled for a switch or routing switch.

EXAMPLE:

```
HP9300# show snmp-server
Contact: Marshall
     Location: Copy Center
Community(ro): public
Community(rw): private
Traps
                   Cold start: Enable
                      Link up: Enable
                    Link down: Enable
                Authentication: Enable
                        [ ..........]
```

```
            L4 switch standby: Enable
 Total Trap-Receiver Entries: 4
Trap-Receiver IP Address       Community
     1        207.95.6.211
     2        207.95.5.21
```

Syntax: show snmp-server

Possible values: N/A

Default value: N/A

show spanning-tree

Displays spanning tree statistics such as root cost, root port, and priority.

EXAMPLE:

```
HP9300# show span
Global STP Parameters:
VLAN Root             Root Root Prio Max He- Ho- Fwd Last     Chg  Bridge
 ID   ID              Cost Port rity Age llo ld  dly Chang    cnt  Address
                             Hex  sec sec sec sec sec
   1 800000e052801400 0    Root 8000 20  2   2   15  0        1    00e052801400

Port STP Parameters:

VLAN Port Prio Path State      Fwd    Design Design           Design
 ID  Num  rity Cost            Trans  Cost   Root             Bridge
          Hex
   1 1/1  80   1    FORWARDING 1      0      800000e052801400 800000e052801400
   1 1/2  80   0    DISABLED   0      0      0000000000000000 0000000000000000
   1 2/1  80   0    DISABLED   0      0      0000000000000000 0000000000000000
   1 2/3  80   0    DISABLED   0      0      0000000000000000 0000000000000000
   1 2/5  80   0    DISABLED   0      0      0000000000000000 0000000000000000
```

Syntax: show spanning-tree

Possible values: N/A

Default value: N/A

show spanning-tree vlan

Displays global and port STP information for a given VLAN on a switch or routing switch.

EXAMPLE:

```
HP9300# show span vlan 2
Global Bridge Parameters:
VLAN Root   Root   Root    Prio    Max  He-  Ho-  Fwd   Last   Chg  Bridge
 ID  ID     Cost   Port    rity    Age  llo  ld   dly   Chang  cnt  Address
                              Hex    sec    sec   sec
2   800000e0520002f5  0     Root  8000   20      2     2     15     0   0
00e0520002f5
Port STP Parameters:
VLAN  Port  Prio  Path State     Fwd         Design   Design    Design
 ID   Num   rity   Cost          Trans        Cost    Root     Bridge
           Hex
    2        1      0080    0                DISABLED         0
0000000000000000    0000000000000000
   2         2      0080    0                DISABLED         0
0000000000000000    0000000000000000
   2         3      0080    0                DISABLED         0
0000000000000000    0000000000000000
   2         4      0080    0                DISABLED         0
0000000000000000    0000000000000000
   2         5      0080    0                DISABLED         0
0000000000000000    0000000000000000
```

Syntax: show span vlan <vlanID>

Possible values: N/A

Default value: N/A

show statistics

Displays port statistics for a switch or routing switch (transmit, receive, collisions, errors).

EXAMPLE:

```
HP9300# show statistics
       Buffer Manager           Queue
  [Pkt Receive Pkt Transmit]
          0            0
   Port Counters:  Packets         Collisions              Errors
Port    [Receive  Transmit] [Receive Transmit]  [Align     FCS   Giant  Short]
1/1        15935       5443        0         0       0       0       0       0
1/2            0          0        0         0       0       0       0       0
1/3            0          0        0         0       0       0       0       0
1/4            0          0        0         0       0       0       0       0
```

2/1	0	0	0	0	0	0	0	0
2/2	0	0	0	0	0	0	0	0
2/3	0	0	0	0	0	0	0	0
2/4	0	0	0	0	0	0	0	0
2/5	0	0	0	0	0	0	0	0
2/6	0	0	0	0	0	0	0	0

NOTE: 2/7 0 0 0 0 0 0 0 0

2/8	0	0	0	0	0	0	0	0

Syntax: show statistics [ethernet <portnumber>] | [slot <slotnumber>]

The **ethernet <portnumber>** parameter displays statistics for a specific port.

The **slot <slotnumber>** parameter displays statistics for a specific chassis slot.

NOTE: The **slot <slotnumber>** parameter applies only to the 9304M and 9308M.

Possible values: N/A

Default value: N/A

show tech

Shows technical details to you for assistance in troubleshooting issues when working with technical support. The information shown is a sub-set of all the available information.

EXAMPLE:

```
HP9300# show tech
```

Syntax: show tech

Possible values: N/A

Default value: N/A

show telnet

Shows the IP address of the station with the active Telnet session. Up to five read-only access Telnet sessions are supported on the switch or routing switch at one time. Write access through Telnet is limited to one session.

EXAMPLE:

```
HP9300# show telnet
Telnet connection: Yes
client IP address: 207.95.6.18
Telnet connection:  No
Telnet connection:  No
Telnet connection:  No
Telnet connection:  No
```

Syntax: show telnet

Possible values: N/A

Default value: N/A

show trunk

Displays trunk groups and their port membership.

EXAMPLE:

```
HP9300(config-if)# show trunk
Configured trunks:
Trunk Group      Ports
1                1      2      3
Operational trunks:
Trunk Group      Ports               Duplex        Speed         Tag       Priority
1                1      2      3     Full          100M          No        High
```

Syntax: show trunk

Possible values: N/A

Default value: N/A

show username

Lists the user accounts configured on the device. See “Configuring Local User Accounts” on page 2-32.

EXAMPLE:

```
HP9300# sh u
```

Syntax: show username

Possible values: N/A

Default value: N/A

show version

Lists software, hardware and firmware details for a switch or routing switch. Much of the information displayed by this command can be used by HP technical support to help identify your system if you need help to resolve an issue. The following information might be particularly useful and is highlighted in bold type in the example:

- Software version – The version number of the software. This is the number referred to in release notes and other product documentation.
- Software label – The name of the software image file. This is the name of the file you install into the device’s flash memory. Note that the same software version usually has different software labels depending on the product and in come cases on the contents of the software.
- DRAM – the amount of memory on the device. This memory amount can be important if you want to use memory-intensive features such as Border Gateway Protocol version 4 (BGP4).

EXAMPLE:

```
HP9300# sh ver
```

Syntax: show version

Possible values: N/A

Default value: N/A

show vlan

Displays the VLANs configured on the system, their member ports, assigned priority, and STP status.

EXAMPLE:

```
HP9300(config)# show vlan

Total PORT-VLAN entries: 2
Maximum PORT-VLAN entries: 8
legend: [S=Slot]

PORT-VLAN 1, Name DEFAULT-VLAN, Priority level0, Spanning tree Off
 Untagged Ports: (S2)  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16
 Untagged Ports: (S2) 17 18 19 20 21 22 23 24
 Untagged Ports: (S4)  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16
 Untagged Ports: (S4) 17 18 19 20 21 22 23 24
   Tagged Ports: None

PORT-VLAN 10, Name IP_VLAN, Priority level0, Spanning tree Off
 Untagged Ports: (S1)  1  2  3  4  5  6
   Tagged Ports: None

 IP-subnet VLAN 1.1.1.0 255.255.255.0, Dynamic port enabled
          Name: Mktg-LAN
  Static ports: None
 Exclude ports: None
 Dynamic ports: (S1)  1  2  3  4  5  6
 PORT-VLAN 20, Name IPX_VLAN, Priority level0, Spanning tree Off
 Untagged Ports: (S2)  1  2  3  4  5  6
   Tagged Ports: None

 IPX-network VLAN 0000ABCD, frame type ethernet_ii, Dynamic port enabled
          Name: Eng-LAN
  Static ports: None
 Exclude ports: None
 Dynamic ports: (S2)  1  2  3  4  5  6
```

Syntax: show vlan [<vlan-id> | ethernet <portnum>]

The **<vlan-id>** parameter specifies a VLAN for which you want to display the configuration information.

The **ethernet <portnum>** parameter specifies a port. If you use this parameter, the command lists all the VLAN memberships for the port.

Possible values: N/A

Default value: N/A

show web-connection

Displays the access levels and IP addresses of the devices that currently have Web management interface sessions with the device.

To clear all sessions displayed by this command, see “clear web-connection” on page B-74.

EXAMPLE:

```
HP9300(config)# show web-connection

User                            IP address

set                             10.10.11.150
```

Syntax: show web-connection

Possible values: N/A

Default value: N/A