Release Notes *for* Version 05.2.16 of the HP ProCurve Routing Switch 9304M, 9308M, and 6308M-SX, and the HP ProCurve Switch 6208M-SX Operating System

These release notes describe:

- New operating system enhancements not available in software releases prior to version 05.2.16
- Earlier software operating problems fixed in version 05.2.16

Contents

Summary of New Features in Release 05.2.16

- No default SNMP community
- New trap to indicate a software reset of the device
- Change in the information shown by the **appletalk interface** command
- New **show tech** command to consolidate the output produced by various **show** commands
- Larger default maximum number of prefixes for BGP4 neighbors supported on Redundant Management modules
- Faster BGP4 route update convergence time
- Layer 3 enhancements for routing switches
- Layer 2 enhancements
- System-Level enhancements

Software Release 05.2.16

Software version 05.2.16 (or later) and the corresponding product documentation is included in switch and routing switch shipments beginning in October, 1999 and can also be downloaded from HP's ProCurve website as described below.

Table 1. Device Compatibility with Software Versions

Device	Supported Software Versions:				
	05.0.84	H2R 05.2.16	HPR 05.2.16	HPS 05.2.16	
HP ProCurve Routing Switch 9304M (J4139A) *With Redundant Management Module(s)*	*No*	**Yes**	*No*	*No*	**Note**: The flash image files for this software release differ depending on the product.
HP ProCurve Routing Switch 9308M (J4138A) *With Redundant Management Module(s)*	*No*	**Yes**	*No*	*No*	
HP ProCurve Routing Switch 9304M (J4139A) *Without Redundant Management Module(s)*	**Yes**	*No*	**Yes**	*No*	
HP ProCurve Routing Switch 9308M (J4138A) *Without Redundant Management Module(s)*	**Yes**	*No*	**Yes**	*No*	
HP ProCurve Routing Switch 6308M-SX (J4840A)	*No*	*No*	**Yes**	*No*	
HP ProCurve Switch 6208M-SX (J4841A)	*No*	*No*	*No*	**Yes**	

If you have a 9304M or 9308M routing switch that was shipped before version 05.2.16 was available, you may want to download this release from HP's ProCurve website. To do so, go to **http://www.hp.com/go/procurve** and click on **Free Software Updates**. Then click on **Switches** and execute the download process for the appropriate file, as shown in table 2, below.

Table 2. Software Download Files for Release 05.2.16

HP Device	Appropriate File
HP ProCurve Routing Switch 9308M (J4138A), 9304M (J4139A), and 6308M-SX (J4840A) *without* Redundant Management Software	hpr_5216.exe
HP ProCurve Routing Switch 9308M (J4138A) and 9304M (J4139A) *with* Redundant Management Software	h2r_5216.exe
HP ProCurve Switch 6208M-SX (J4841A) Software	hps_5216.exe

For information on how to update your routing switch software, refer to the chapter titled "Updating Software Images and Configuration Files" in the documentation you received with the device.

Already Using a 9304M or 9308M? Here's New Information!

If you have an HP 9304M or 9308M received before software release 05.2.16 began shipping, and you are updating the routing switch to release 05.2.16, then you may want to examine the new product manuals that are available beginning with the 05.2.16 release. To view (and freely download) PDF versions of these manuals (chapter-by-chapter files), go to HP's ProCurve website at **http://www.hp.com/go/procurve**, then:

1. Click on **Technical Support**, then **Manual**.
2. In the resulting display, step through the selections for accessing and viewing the new manuals.
3. On the page listing the manuals, find the new manuals under the heading "**For software version HPR 05.2.16 or greater**".

You will need the Adobe® Acrobat® Reader to view and/or print the manuals. You can also purchase printed versions of either new manual and/or the CD-ROM containing PDF files of both manuals. To do so, see the ordering information provided in edition 5 of the *Read Me First for the HP ProCurve Routing Switches 9304M, 9308M, and 6308M-SX and the HP ProCurve Switch 6208M-SX*. This document is available on the HP ProCurve website (URL shown above).

Logging On Using a Serial Connection, Telnet, or theWeb Management Interface

You can access an HP device through the CLI (Command Line Interface) using a direct serial connection, a Telnet connection, or through the Web management interface using a web browser.

To Access the CLI Through a Serial Connection

1. Attach the serial cable (shipped with your HP switch or routing switch) to the management port on the HP device and to the appropriate port on your terminal device.

   Note: The serial connection requires a straight-through EIA/TIA DB-9 serial cable (M/F). If you prefer to build your own cable, see the pinout information in the installation chapter in the manual you received with the device.

2. Use a terminal emulation application with the following settings to access the CLI:
   - Baud: 9600 bps
   - Data bits: 8
   - Parity: None
   - Stop bits: 1
   - Flow control: None

To Access the CLI Through a Direct Telnet Connection

To access a routing switch CLI through a networked Telnet connection, you must first assign an IP address to a router interface attached to the network. The easiest method for assigning an initial IP address is to use a direct serial connection, as described above. However, if you are unable to make a serial connection, you can use a direct LAN connection from a terminal device to the routing switch.

Attaching a PC or Terminal Using a Direct LAN Connection:

Note: Use this procedure if you are not able to make the serial connection described above.

Note: The switch or routing switch was shipped from the factory with a default IP address and subnet mask of 209.157.22.254 and 255.255.255.0.

1. Directly connect the LAN port on a Telnet-capable terminal device such as a laptop or desktop PC to one of the following:
   - In a chassis device, port 1 in slot 1
   - In a fixed-port device, port 1
2. Configure the terminal device with an IP address and subnet mask that assigns the terminal to the same subnet as the switch or routing switch's IP address for port 1 (switch) or port 1, slot 1 (routing switches). For example, if the port's IP address and subnet mask is the factory default (209.157.22.254 and 255.255.255.0), you can use 209.157.22.1 and 255.255.255.0.
3. From the DOS prompt, enter **telnet <ip address>** to access the switch or routing switch CLI, where **<ip address>** is the IP address for the switch or routing switch port. For example, with the factory default IP address configured in port 1, slot 1 of a 9308M routing switch and a direct LAN connection from your terminal device to this port, you would enter the following command at the DOS prompt:

   ```
   >telnet 209.157.22.254
   ```

4. To use the CLI to assign an IP address and subnet mask, go to one of the following:
   - **Routing Switches:** "Using the CLI To Assign an IP Address and Subnet Mask on a Routing Switch", below
   - **Switch:** "Assigning an IP Address and Subnet Mask on a Switch", page

Using the CLI To Assign an IP Address and Subnet Mask on a Routing Switch

This procedure assigns an IP address to a port on the routing switch so that you can access the device using Telnet or a Web browser over your network.

Note: This procedure applies only to routing switches. Use the next procedure for switches.

1. At the User EXEC level prompt enter the **enable** command, for example:

   ```
   HP9300> enable
   ```

   (If you are prompted for a password, enter your enable password.) This takes you to the Privileged EXEC level.

   ```
   HP9300#
   ```

2. At the Privileged EXEC level prompt enter the **configure terminal** command, for example:

   ```
   HP9300# configure terminal
   ```

   This takes you to the Interface CONFIG level.

   ```
   HP9300(config)#
   ```

3. Enter one of the following commands to access the Interface CONFIG level for the interface:

   `HP9300(config)#int e <slot-num/port-num>` (for the 9308M or 9304M)

   `HP6308M(config)#int e <port-num)` (for the 6308M-SX)

   Where `e` indicates an Ethernet interface, `<slot-num>` indicates the slot number of a module in a chassis device, and `<port-num>` indicates the port number in the module or fixed-port device. For example, `e 1/1` indicates port 1 in slot 1 of an ethernet module of a 9304M or 9308M. Similarly, `e 1` indicates port 1 on a 6308M-SX. To access port 1 in slot 1 of a 9308M, you would enter this:

   ```
   HP9300(config)#int e 1/1
   ```

   resulting in this prompt:

   ```
   HP9300(config-if-1/1)#
   ```

4. On a port that you will use to connect the device to your network, configure an appropriate IP address and mask. For example, if you want to configure an IP address of 192.22.3.44 and a mask of 255.255.255.0 on port 1 in slot 1 of a 9308M to connect the device to your network, you would do the following:

   a. Delete the factory default IP address from port 1 in slot 1:

      ```
      HP9300(config-if-1/1)# no ip address 209.157.22.254 255.255.255.0
      ```

   b. Enter the new IP address and mask:

      ```
      HP9300(config-if-1/1)# ip address 192.22.3.44 255.255.255.0
      ```

5. Enter the **write memory** command to save the configuration to the HP device's flash memory.

   ```
   HP9300(config-if-1/1)# write memory
   ```

The routing switch is now ready for connection to your network using the port to which you assigned the IP address.

Using the CLI To Assign an IP Address and Subnet Mask on a Switch

This procedure assigns an IP address to a port on the switch so that you can access the device using Telnet or a Web browser over your network.

Note: This procedure applies only to the HP 6208M switch. Use the above procedure for routing switches.

Enter the **enable** command at the User EXEC level prompt. (If you are prompted for a password, enter your enable password.)

1. At the User EXEC level prompt enter the **enable** command, for example:

   ```
   HP9300> enable
   ```

   (If you are prompted for a password, enter your enable password.) This takes you to the Privileged EXEC level.

   ```
   HP6208#
   ```

2. At the Privileged EXEC level prompt enter the **configure terminal** command, for example:

   ```
   HP6208# configure terminal
   ```

   This takes you to the Interface CONFIG level.

   ```
   HP6208(config)#
   ```

3. Enter the following command to access the Interface CONFIG level for the interface:

   ```
   HP6208M(config)#int e <port-num)
   ```

   Where `e` indicates an Ethernet interface and `<port-num>` indicates the port number in the switch. For example, `e 1` indicates port 1 on a 6208M-SX. To access port 1 of a 6208M, you would enter this:

   ```
   HP6208(config)#int e 1
   ```

   resulting in this prompt:

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

4. On a port that you will use to connect the device to your network, configure an appropriate IP address and mask. For example, if you want to configure an IP address of 192.22.3.44 and a mask of 255.255.255.0 on port 1 of a 6208M to connect the device to your network, you would do the following:

   a. Delete the factory default IP address from port 1:

      ```
      HP6208(config-if-1)# no ip address 209.157.22.254 255.255.255.0
      ```

   b. Enter the new IP address and mask:

      ```
      HP6208(config-if-1)# ip address 192.22.3.44 255.255.255.0
      ```

5. To set a default gateway address (optional) for the switch, enter the **ip default-gateway <ip address>** command. For example, to specify a default gateway address of 192.22.3.1:

   ```
   HP6208(config-if-1)#ip default-gateway 192.22.3.1
   ```

   Note: Executing this command on the configuration level for any port on the switch sets the IP default gateway (router) address for all ports on the switch.

6. Enter the **write memory** command to save the configuration to the HP device's flash memory.

   ```
   HP6208(config-if-1)# write memory
   ```

7. Enter the **write memory** command to save the configuration information to the HP device's flash memory.

The switch is now ready for connection to your network using the port to which you assigned the IP address.

Accessing the Web Management Interface

To access the Web management interface through a web browser, enter the HP device's IP address in the browser's Location or Address field, then press Enter. When the Login dialog is displayed, enter the default user name and password for read-only or read-write access:

- For read-write access, enter "`set`" in the User Name field and a valid read-write community string in the Password field. (If this does not work, you have not yet configured the read-write community string using the CLI. Beginning with software release 05.0.84, there is no default read-write community string.

- For read-only access, enter "`get`" in the User Name field and "`public`" in the Password field. (If this does not work, the read-only community name has been changed. Enter the current read-only community name configured on the device.)

Recovering from a Lost Password

By default, the CLI does not require passwords. However, if someone has configured a password for the HP device but the password has been lost, you can regain super-user access to the device using the following procedure.

Note: Recovery from a lost password requires direct physical access to the serial port, and a system reset.

To recover from a lost password:

1. Start a CLI session over the serial interface to the device.
2. Reboot the device.
3. At the initial boot prompt at system startup, enter `b` to enter the boot monitor mode.
4. Enter `no password` at the prompt. (You cannot abbreviate this command.)
5. Enter **boot system flash primary** at the prompt. This command causes the device to bypass the system password check.
6. After the console prompt reappears, assign a new password.

Change in Default Read-Write SNMP Community

Beginning with software release 05.2.16, the software does not have a default read-write SNMP community. If you use the default community name "`private`" as the password for Web management access, you need to use the CLI to add the read-write community string first.

Software Reset Indicator

The software generates a warm start trap to indicate when the device has been reset by the software (using the **boot** or **reload** CLI command or equivalent Web management option).

Note: If you reset the device by powering it down and back up or by pressing the reset button on the management module, the software generates a cold start trap instead of a warm start trap.

AppleTalk Routing Enhancements

The **show appletalk interface** command displays AppleTalk configuration information for the interfaces on a routing switch. In software releases earlier than 05.2.16, the command displays information for all interfaces on the routing switch, even for interfaces that are not configured for AppleTalk. On devices containing many interfaces, the display can be quite lengthy.

In software release 05.2.16, the command lists information only for the interfaces that are configured for AppleTalk.

Note: In this release and earlier releases, you can use the ethernet **<port>** or **ve <num>** parameters to display configuration information for a specific physical or virtual interface.

Show Tech Command Output

The **show tech** command displays output that normally can be produced only by entering various show commands. The information displayed by the **show tech** command can be useful when you are working with HP to resolve a technical issue. In software release 05.2.16, this command also displays the running-config file. You can list the running-config file separately by entering the **show running-config** command or the **write terminal** command.

Note: The syntax of the **show tech** command has changed. In previous releases, the full command name was **show tech-support**. This name is no longer valid. The valid command name is **show tech**.

BGP4 Enhancements

Prefixes for BGP4 Neighbors

Release 05.2.16 increases the maximum number of prefixes for neighbors that a Redundant Management module supports from 5,000 to 80,000.

Note: These enhancements apply only to a Redundant Management module.

Faster BGP4 route update convergence time

When a routing switch comes up as a BGP4 router, it sends its route table more quickly than in the previous software release.

New Diagnostic Commands

These commands begin with "**debug**". They are used by HP for technical support, but are made visible to enable you to more easily use the commands when working with HP support.

Layer 3 Enhancements for Routing Switches

These features apply to the HP ProCurve 9304M, 9308M, and 6208M-SX Routing Switches unless otherwise noted.

- Support for up to 64 IP sub-nets per interface – Previous software releases allow up to 24 IP sub-net interfaces on a routing switch port. You now can configure up to 64 IP sub-net interfaces on each port.

  Note: This feature applies only to the HP ProCurve 6308M-SX Routing Switch.

- Support for up to 255 virtual interfaces (VEs) – Previous software releases allow you to configure up to 64 virtual router interfaces on a routing switch. You now can configure up to 255 virtual router interfaces on a routing switch.

- Support for BGP4 route reflectors – You can configure an HP ProCurve routing switch as a BGP4 route reflector.

  Note: This feature applies only to the HP ProCurve 9304M and 9308M Routing Switches.

- Increase in default maximum number of BGP4 routes and route-attribute entries on Redundant Management modules – The default maximum for BGP4 routes is increased from 30,000 to 256,000. The default maximum number of route-attribute entries is increased from 10,000 to 100,000.

  Note: This feature applies only to the HP ProCurve 9304M and 9308M Routing Switches using Redundant Management modules. This change does not apply to older management modules.

- Change to default administrative distance for default routes – the default administrative distance is now 1, which causes the routing switch to prefer the static routes over other types of routes, regardless of the source of the other routes.

- IP route table display enhancements for the CLI – The **show ip route** command now has options for displaying routes for a specific protocol type (RIP, OSPF, or BGP4).
- New CLI commands and options for OSPF – You can display the OSPF route table or individual routes in the table separately from the IP route table. You also can display more details about external link-state advertisements (LSDBs).
- Increase in maximum number of OSPF routes – You can configure the routing switch to hold as many as 32,000 routes.
- Increase in maximum number of summary Link State Advertisements (LSAs) – You can configure the routing switch to hold as many as 18,000 LSAs, an increase of 10,000 over the maximum in the previous release. IPX enhancements – For IPX RIP and IPX SAP, you can configure the maximum packet size aging interval for learned entries, and advertisement interval, on individual IPX interfaces.
- Route Health Injection – You can use an HP routing switch to check the health of an HTTP application with a server, a third-party SLB device, or directly-attached web hosts to advertise host routes to globally-distributed web sites.

Layer 2 Enhancements

These features apply to the HP ProCurve 9304M, 9308M, and 6208M-SX Routing Switches and the HP ProCurve 6208M-SX Switch, unless otherwise noted.

- AppleTalk cable VLANs – This feature allows you to configure AppleTalk cable VLANs within Layer 2 port-based VLANs.

  Note: This enhancement applies only to the 9304M, 9308M, and 6208M-SX routing switches.
- Support for dynamic port membership in protocol VLANs – You can dynamically add ports to an IP protocol, IP sub-net, IPX protocol, IPX network, or AppleTalk protocol VLAN.

  Note: This feature applies only to the 9304M, 9308M, and 6208M-SX routing switches. The feature does *not* apply to AppleTalk cable VLANs. You must statically add ports to an AppleTalk cable VLAN.
- Enhancement to VLAN information display – You can display VLAN information for a specific port.
- Layer 2 broadcast and multicast filters – You can filter Layer 2 broadcast and multicast packets on specific ports.

System-Level Enhancements

These features apply to the HP ProCurve 9304M, 9308M, and 6208M-SX Routing Switches and the HP ProCurve 6208M-SX Switch, unless otherwise noted.

- Tighter security for default Web management access – The default read-write SNMP community string "private" has been removed. Users cannot open a read-write Web management session on an HP device unless you configure a read-write community string or you configure local access.
- Support for multiple read-only and read-write SNMP community strings – You can configure multiple read-only and read-write community strings.
- New commands to restrict remote management access to specific hosts – You can restrict Web management, Telnet, and network management access to an HP device to specific hosts based on their IP addresses.
- Terminal Access Controller Access Control System (TACACS) and TACACS+ support – You can secure serial or Telnet CLI access to an HP device by identifying a TACACS or TACACS+ server and configuring authentication-method lists to use TACACS or TACACS+.

- Enhancement to negotiation mode for Gigabit Ethernet ports – To enhance compatibility between devices and reduce administrative overhead, Gigabit Ethernet ports now attempt to auto-negotiate first, then switch to no-negotiate if the port on the other device does not respond to the auto-negotiate.

  Note: This feature applies only to the 9304M, 9308M, and 6308M-SX routing switches.

- New commands for limiting broadcast, multicast, and unknown-unicast traffic – The previous software release contains a command to limit broadcast traffic on an HP device. The new software release changes the command syntax for this command and also expands the feature by adding new commands for limiting multicast and unknown-unicast traffic.

- Support for filter ranges – When you configure a filter list for a port, you can use ranges to simplify configuration.

- Support for two SyslogD servers – You can configure an HP device to use two SyslogD servers.

- Multi-module trunk groups – On chassis devices, you can configure trunk groups that span line cards.

  Note: This enhancement applies only to Gigabit Ethernet modules on the 9304M and 9308M.

- Enhanced traceroute display – When you start a traceroute, the software now displays information for each hop as soon as the information is received by the device. In previous software releases, the software does not display any results until information for all the hops is received.

- Enhanced hot-swap support – You can insert a module in a chassis slot that has not previously contained or been configured for a module.

  Note: This enhancement applies only to the 9304M and 9308M.

- New command to disable IGMP on individual interfaces – All interfaces are enabled to send and receive IGMP queries by default. You can disable transmission and receipt of IGMP queries on individual interfaces.

- Ctrl-key based CLI editing commands – A set of popular CTRL-key commands allows you to edit the CLI command line for easy command entry.

- New log message for IP address conflicts with an HP device – If another device on the network has an IP address that also is configured on an HP device, the HP device writes a message to the log as well as to all active CLI management sessions.

- New log message and SNMP trap for packets denied by Layer 2 MAC filters or IP access policies – You can configure an HP device to generate Syslog messages and SNMP traps for packets denied by Layer 2 MAC filters and IP access policies.

- New command to reduce the number of required 10/100Base-Tx port startup confirmations – You can configure an HP device to require fewer confirmations of a port's up status before bringing the port up for use. This feature 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 HP ports as they wait for the multiple status indications before coming up.

  IMPORTANT: Do not use this feature unless advised to do so by HP technical support.

Software Fixes

This section lists the software problems occurring on chassis-based routing switches that have been fixed in software release 05.2.16.

- **Gigabit ports** – In some cases, in a chassis containing two or more modules, disabling a Gigabit port while it was forwarding traffic could cause a system reset.

- **Console delays** – If a device was configured to use IP access policies and the IP cache contained a large number of entries, when the device learned a new route, the console's response could temporarily be slowed while the software performed checking and cleanup of various tables. The slowness also could occur when

a user manually cleared the IP route table or IP route cache when a device configured with IP access policies also had a large number of cache entries. The checking and cleanup have been enhanced to reduce the console delays.

- **ip access-policy** command – In some circumstances, (1) if a policy was deleted (using the **<no ip access-policy <num>** command), (2) a new policy was added using the same policy number, and (3) the configuration was saved to flash memory; the configuration file contained the deleted policy. This was observed on a system in which the startup-config file contained the **ip access-policy 1 deny 1.1.1.1 255.255.255.0 any tcp eq 5000** command. When this policy was removed and the policy ip access-policy **1 deny 1.1.1.1 255.255.255.0 any tcp** was added, the startup-config file still contained the removed policy instead of the new policy.

- **ip access-policy** command – The software incorrectly saved IP access policy commands containing **permit any any** to the startup-config file as **permit any 0.0.0.1. 0.0.0.0**.

- **TCP/UDP access policies** – TCP/UDP access policies did not correctly filter IP packets if the packets contained the IP Options field. This field begins at the twentieth byte in an IP packet, where TCP/UDP information begins in IP packets that do not contain the IP Options field. The software attempted to use the information beginning at the twentieth byte. The software now correctly filters on TCP/UDP information even in IP packets that have the IP Options field.

- **Trunk groups –** In some trunking configurations, if the destination MAC address and source MAC address of a MAC entry were both in the same 10/100 Fast Ethernet packet controller, the MAC entry sometimes did not age properly. As a result, if the host for the MAC entry went down, the HP device continued to forward traffic to the host.

- **Loopback interfaces** – The software did not save state changes to loopback interfaces from enabled to disabled in the startup-config file. If a loopback interface was disabled, even if changes were then saved to the startup-config file, the loopback interface was re-enabled following a system reload. In addition, the software did not display the state change in the running-config file.

- **TCP and HTTP** – In some cases, a situation occurred in which the HTTP software freed TCP buffers twice, leading to loops that eventually caused a system reset.

- **DHCP –** When performing the DHCP relay function, HP devices would not forward DHCP reply packets in which the IP address assigned to the DHCP client and the address in the packet's Gateway field were in different sub-nets.

- **VLAN configuration using the Web –** The following VLAN configuration problems are fixed in 05.2.16:
  - If a VLAN contained an excluded port and the Web management interface was used to remove that port from the port-based VLAN, the VLAN configuration still contained the excluded port. This prevented saving changes to the startup-config file. This problem did not occur if the CLI was used for the configuration change.
  - If a Layer 3 protocol VLAN was disabled using the Web management interface, the software also deleted any virtual interface (VE) associated with the Layer 2 VLAN.

- **Clearing information using the Web –** IPX statistics could not be cleared using the Web management interface.

- **AppleTalk –** The following AppleTalk issues are resolved in software release 05.2.16:
  - AppleTalk pings did not work correctly because the echoed packets were the wrong size.
  - The software did not forward AppleTalk broadcast packets (addressed to **<network_number>** 255; that is, node 255 in the network).
  - The device could reset if it had more than 1024 AppleTalk addresses.
  - The software sometimes did not increase the hop count for forwarded packets.

- **SNMP** – The following SNMP problems are fixed in software release 05.2.16:
  - The tcpRtoAlgorithm, tcpRtoMin, tcpRtoMax, and tcpMaxConn MIB-II objects reported incorrect values.

- The dot1dTpFdbPort object in the Bridge MIB reported incorrect values.

- **Statistics counter for incoming packet errors** – The software sometimes displayed erroneous incoming packet error (InError) statistics for Gigabit ports that were down.

- **Layer 2 traffic –** The 9304M and 9308M routing switches forwarded Layer 2 traffic on a port that was blocked by the Spanning Tree Protocol (STP).

- **Spanning Tree Protocol (STP)** – Convergence of MAC addresses following a Layer 2 topology change could take longer than usual. In software release 05.2.16, convergence in these topologies happens more quickly, generally in about 30 – 40 seconds.

- **IP traffic –** Traffic received on a 10/100 port and forwarded to port 1/1 of the chassis was forwarded twice. This occurred when the traffic's source address was not in the Content Addressable Memory (CAM).

- **IP –** In situations where the IP cache is full, the software removes an entry from the IP cache to make room for a new entry. In earlier software releases, if the entry to be removed had pending ARP packets queued up, the software did not free the correct buffer.

- **ip access-policy** command **–** When this command was saved in the startup-config file, the software replaced the "`range`" keyword with the "`high`" keyword. For example, the CLI command **ip access-policy 1 perm any any tcp range 200 300** was saved in the startup-config file as the following: **ip access-policy 1 perm any any tcp high 200 300**.

- **BGP4 and the IP cache –** IP cache entries were not cleared after the routing switch learned a default BGP4 route. As a result, a device that was not directly connected to the routing switch appeared to be directly attached in the IP cache table. Software release 05.2.16 fixes this problem by clearing the IP cache after the routing switch learns a default BGP4 route.

- **Telnet and web access –** Unauthorized Telnet clients and excessive HTTP connections caused TCP buffers to become used up and not freed, resulting in unavailability of Telnet and web access.

- **IPX –** If an IPX RIP entry was deleted and only the first SAP entry associated with the RIP entry was deleted, the remaining SAP entries associated with the deleted RIP entry stayed in the SAP table with hop counts of 16.

- **IPX –** In configurations with a large number of virtual interfaces (VEs), the statistics for IPX ports could sometimes include invalid packets received and "packets dropped" counts.

- **PIM –** If a port went down, the prune states for some PIM entries were not deleted correctly. This could result in inconsistent data and sometimes even lead to a loop when the traffic was traversing the multicast tree.

- **SNMP and Syslog –** The software erroneously reported bad power supplies for power supply slots that were empty.

- **ARP –** The following ARP issues are resolved in software release 05.2.16:
  - On virtual interfaces (VEs), an ARP for the next hop router of a static route sometimes was not resolved. Also, default routes were not being learned.
  - The same MAC address on a multiple VLANs could cause ARP to move to the wrong port.
  - ARP entries for next-hop routers were aging out. When this occurred, the routing switch dropped one data packet before resolving the ARP entry again. In software release 05.2.16, the software prevents dropping the data packet by sending an ARP request one minute before the entry is due to time out, to proactively refresh the entry.

- **ARP and VLANs –** The routing switch did not forward ARPs to tagged VLAN ports if the VLAN did not have a virtual interface (VE).

- **Spanning Tree and VLANs –** In triangle configurations involving a switch, if the switch received a packet with an unrecognized VLAN ID, the switch forwarded the Spanning Tree packets for the unknown VLAN ID to all ports.

- **IP –** If the routing switch received a TOS packet longer than 36 bytes, the system would reset. The routing switch now can accept TOS packets longer than 36 bytes.
- **IP –** The routing switch did not allow configuration of loopback interfaces with 31-bit or 32-bit network masks. Thus, addresses with the following masks were not supported: 255.255.255.254 or /31; 255.255.255.255 or /32.
- **BGP4 and route health injection –** The routing switch was not synchronizing BGP and IBGP when routes were learned or added manually. This was observed on a routing switch configured for BGP4 and for route health injection. When the server that the routing switch was health checking became active, a route learned by BGP4 disappeared from the IP route table. BGP4 still knew about the route, but the route was removed from the IP route table. If the server that the routing switch was health-checking became unavailable, the route that had disappeared from the route table reappeared.
- **OSPF TOS support –** The routing switches did not support OSPF External Link State Advertisements that contained multiple Type of Service (TOS) metrics. This support has been provided for older implementations of OSPF in which TOS-based routing is still used.
- **DVMRP –** If multicast was not enabled on a VE, multicast data packets with a TTL greater than 1 were not bridged on the VE.
- **IPX –** Specifying a server name at the end of the **show ipx server** command sometimes caused the system to reset when there were more than 1000 SAP entries.
- **IPX (16-port 10/100 Management Module only) –** The 16-port 10/100 Management Module would not forward IPX packets on the module's ports.
- **AppleTalk –** The following AppleTalk issues are resolved in software release 05.2.16:
  - In configurations in which there were multiple paths from a client to a server through the routing switch, if a link went down, the AppleTalk ARP (AARP) entry retained the original path information and did not learn the new path.
  - The routing switch could reset in configurations containing more than 64 zones.
  - The **show appletalk zone** command sometimes did not display information correctly.
- **IP Multicast** (**9304M and 9308M routing switches only**) – In configurations in which a port was tagged and was a member of multiple VLANs, the routing switch did not properly bridge multicast traffic.
- **Hot Swap and Spanning Tree –** Swapping out a module could interfere with the operation of Spanning Tree on other modules.
- **SNMP –** A 32-character SNMP read-write community string caused an HP device to lock up when the **write memory** or **write terminal** command was entered. This problem did not occur for read-only community strings. In software release 05.2.16, HP devices support 32-character SNMP read-only and read-write community strings. Strings longer than 32 characters are not supported and the software ignores them.
- **TAB key –** If you accidentally entered invalid command syntax and then pressed the TAB key for help, the CLI merely confirmed that the syntax was invalid. In software release 05.2.16, if you press the TAB key after entering invalid command syntax, the key lists the valid commands and options.
- **Short packet counter –** The software counted runt packets (frames that were missing a delimiter but had carrier assertion) as short packets. The software now counts packets shorter than 64 bytes, but with good CRCs as short packets.
- **IP route table display –** If you entered the **show ip route** command in a Telnet management session to the routing switch, you could sometimes be disconnected from the Telnet session.
- **OSPF display commands –** Formatting errors in the displays for the **show ip ospf interface** and **show ip ospf abr** command have been fixed. The **show ip ospf interface** command now correctly shows the port number. The output of the **show ip ospf abr** command is now correctly aligned.
- **Telnet –** When multiple Telnet management sessions were open on a chassis device, an **appletalk show inter-**

face command that resulted in a prompt to display more information prevented all the Telnet sessions from entering further **show** commands.

- **BootP support** – In some configurations, the system did not associate a DHCP request received on a virtual interface (VE) with the correct interface and thus did not forward the request to the UDP helper address on the virtual interface.
- **SNMP –** An SNMP set request to set the object **ifAdminStatus** in the ifTable object to "up" or "down", which enables or disables a port, did not enable or disable the port.
- **VRRP/SRP –** If a VRRP/SRP physical interface is running Spanning Tree Protocol and the port status is blocking, the VRRP/SRP routing switch would treat this port as down, resulting in the other routing switch taking over as the new master/active router.

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