Read Me First

for the HP ProCurve Routing Switches 9304M, 9308M, and 6308M-SX
and the HP ProCurve Switch 6208M-SX

Covering Software Release 05.2.14 (or Later)

Contents:

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⚠ **Caution**

9304M Exceeds 40 lbs. (18.1 kg)
9308M Exceeds 55 lbs. (24.9 kg)
When handling, two or more people are required.

Warning: Do not use the handles on the power supply units to lift or carry the routing switch.

Software Updates Are *Free*!

Help Us Help You...Register Now To Keep Up-To-Date on the Latest Software!

Hewlett-Packard provides *free* software updates for all managed HP ProCurve networking products. To access the software updates, to to the HP ProCurve website at **http://www.hp.com/go/procurve**, then click on Free Software Updates.

Register for Automatic Notification of Updates. From the Free Software Updates page you can also register yourself to automatically receive email notice of new updates for your managed HP ProCurve networking products. Just follow the instructions on that page for how to receive the update notices.

To determine whether you have the latest software, compare the software version that is available on the website with the version that is currently installed in your switch or routing switch. To load a new software image, see chapter 4, "Updating Software Images and Configuration Files", in the manual you received with the switch or routing switch.

Note that current product documentation, plus any supplements describing how to use any recently released software updates are also available on the above website (click on **Technical Support**, then **Manual**).

New Software Release 05.2.14 (or Later) Is Now Available with the Following New Features

- Support for Redundant Management Modules
  - Increased Default Maximum Number of IP Routes
  - Larger Default Maximum Number of BGP4 Neighbor Prefixes
- Single-Instance Spanning Tree
- Enhanced **show tech** command

- Faster BGP4 route update convergence time
- SNMP and Syslog Message Enhancements
- More Layer 2, Layer 3, and System Level Enhancements
- Software Fixes

For more information, refer to the documentation shipped with the switch or routing switch, or to *Release Notes for Version 05.2.14 of the HP ProCurve Routing Switches 9304M, 9308M, and 6308M-SX, and the HP ProCurve Switch 6208M-SX Operating System*. This booklet is available on HP's ProCurve website at **http://www.hp.com/go/procurve** (click on **Technical Support**, then **Manual**).

Module Installation

Caution—Routing Switch 9304M and 9308M

To avoid hardware damage during module installation, be careful to properly line up the edges of the module board with the guides built into the module slot on the chassis.

Getting Started

You can initially access the routing switch in either of the following ways:

■ Via Telnet or FTP *through port 1 on the management module*, using the factory default IP address (209.157.22.254) and subnet mask (255.255.255.0)

■ By connecting a terminal device to the serial port on the management module

   Note: HP recommends that you use the console cable provided with the routing switch. If you need to use a different cable, please see the "Console Cable" entry under "Accessory Parts List" on the next page.

After you have accessed the routing switch, change the default IP address and subnet mask to correspond to your network's addressing scheme. For more on assigning an IP address and other topics, see the following:

Topic	Location in the *Installation and Configuration Guide*
Installation Procedures and Precautions	Chapter 2
Attaching a Terminal Device and Assigning an IP Address	Chapter 2
Using Redundant Management Modules	Chapter 3
System Boot from a Bootp Server	Appendix B
Software Overview	Chapter 5
Hardware Overview and Specifications	Chapter 6
Enabling Telnet	Chapters 2 (pp. 2-28, 2-29) and 5 (p. 5-9)

Your *Free* Ticket to Proactive Networking!

HP TopTools for Switches & Hubs is a breakthrough in network management software that gives you more network with less work. The TopTools for Switches & Hubs CD is included at no extra charge with your HP ProCurve routing switch. See the system requirements printed on the sleeve containing the HP TopTools CD.

Accessory Parts List

The following accessories are included with your HP ProCurve routing switch.

Item	Notes
Power Cord Kit	The HP ProCurve 9304M: Either three power cords (one each for the U.S.A., the U.K., and continental Europe) or one power cord for Australia.
	The HP ProCurve 9308M: Either six power cords (two each for the U.S.A., the U.K., and continental Europe) or two power cords for Australia.
	The HP ProCurve 6308M-SX: Two power cords for either the U.S.A., continental Europe, Australia, or the UK.
	The HP ProCurve 6208M-SX: Two power cords for either the U.S.A., continental Europe, Australia, or the UK.
	Caution: If the installation requires a different power cord than the one supplied with the switch or routing switch, be sure to use a shielded power cord displaying the mark of the safety agency that defines the regulations for power cords in your country. The mark is your assurance that the power cord can be used safely with the switch or routing switch.
Console Cable	Connects terminal, PC, or modem to serial port on any HP 9300 management module, 6308M-SX routing switch, or 6208M-SX switch for direct-connect or modem access management using the Command Line Interface (CLI), or console. If you need to use a different cable, select a "straight-through" serial cable with a female DB-9 to DB-9 connector for the connection to the switch or routing switch. For more information, see "Attaching a PC or Terminal" in chapter 2, "Installation".
Rack Mount Kit	Contains two mounting brackets and the screws required to attach the brackets to the switch or routing switch.
HP TopTools for Switches & Hubs CD	For system requirements, see the sleeve containing the CD.
Product Documentation	• *Installation and Getting Started Guide*
	• *Product Documentation CD-ROM*
	• *Release Notes and Manual Supplements describing software features (if any) added after the last revision of the manuals (For the latest information, go to* **http://www.hp.com/go/procurve***, click on* **Technical Support***, and then click on* **Manual***.)*
	• *Declaration of Conformity* (for product shipments in Europe)
Warranty Booklet	—

Operating Notes, Troubleshooting, and Errata

Redundant Management Module Operation

When two redundant management modules are installed in an HP 9304M or 9308M Routing Switch, the two modules work together as active and standby management modules. If the active module becomes unavailable, the standby module automatically takes over system operation. If this occurs, the routing tables, ARP tables, etc. are all updated dynamically, as if the routing switch had been rebooted. As a result of this reconvergence, a noticeable, temporary network disruption will occur. The duration of the disruption depends on the number of routes being utilized through the device, and can be significant.

Default Spanning Tree Protocol (STP) Settings

Pages 5-12 and 8-31 in *Book 1: Installation and Getting Started Guide*, and page 17-7 in *Book 2: Advanced Configuration and Management Guide*, incorrectly state that STP is enabled by default on the HP 6208M Switch. The default STP setting for the 6208M switch as well as the 9304M, 9308M, and 6308M routing switches is "disabled". On all of these devices, STP must be enabled at the system level to allow assignment of this capability to the VLAN level. For more information on STP, see:

■ The next topic, "Configuring Single-Instance Spanning Tree Protocol (STP)" on page 4.

- "Enabling or Disabling Spanning Tree Protocol (STP)" on page 8-31 in *Book 1: Installation and Getting Started*, that was shipped with your device

- *Book 2: Advanced Configuration and Management* (included on the *Product Documentation CD-ROM* shipped with your device):

  - "Spanning Tree Protocol" on page 17-7
  - "Enable Spanning Tree on a VLAN" on page 17-19
  - "**spanning-tree**" on page B-153

Configuring Single-Instance Spanning Tree Protocol (STP)

Beginning with software release 05.2.14, you can configure either single-instance or multiple-instance spanning tree on the HP 9304M, 9308M, and 6308M-SX routing switches, and the HP 6208M-SX Switch. When single-instance STP is enabled, all VLANS on the device belong to the same spanning tree VLAN—with a shared STP VLAN ID of 4094. When multi-instance STP is used, each VLAN has a unique spanning tree ID.

To enable single-instance STP:

1. Enable single-instance STP globally.

2. Enable STP on each interface on which you want STP to operate.

   - On the 9304M, 9308M, and 6308M-SX routing switches, you can enable STP on a per port or per VLAN basis.
   - On the 6208M switch, enabling single-instance STP initially applies to all VLANs in the switch. You can use the **no spanning tree** command to disable STP on individual VLANs in the switch.

Example of Single-Instance STP Configuration: Beginning at the User EXEC level of the CLI, execute the following:

```
HP9308>enable
HP9308#configure terminal
HP9308(config)#spanning-tree single    Enables single-instance STP globally.
HP9308#wr mem                          Saves the configuration change to memory.
```

Single instance STP must be enabled for each VLAN that participates in the spanning-tree algorithm. The configuration file will show whether STP is enabled for a specific VLAN. In the following example, VLAN 100 is configured for STP (participating in the STP algorithm), while VLAN 101 is not.

```
HP9308(config)#vlan 100
HP9308(config-vlan-100)#span         Continuing from above, this command enables single-instance STP on VLAN 100.
                                     ("100" is the <vlan ID>.)
HP9308(config)#wr mem                Saves the configuration change to memory.
```

After executing the above commands, the **show config** command will list the following VLAN/STP information:

```
ver 05.2.1x                   Shows the software version number for the device.
!
span single                   Indicates single-instance STP is enabled on the device.
!
vlan 100 by port              "span" indicates single-instance STP is configured on VLAN 100.
tagged ethe 3/1 to 3/2        (Note: on the 6208M-XS switch, the word "span" does not appear, even though the
span                          device has been enabled for that VLAN.)
!
vlan 101 by port              "no span" indicates that STP is not configured on VLAN 101.
tagged ethe 3/1 to 3/2
no span
```
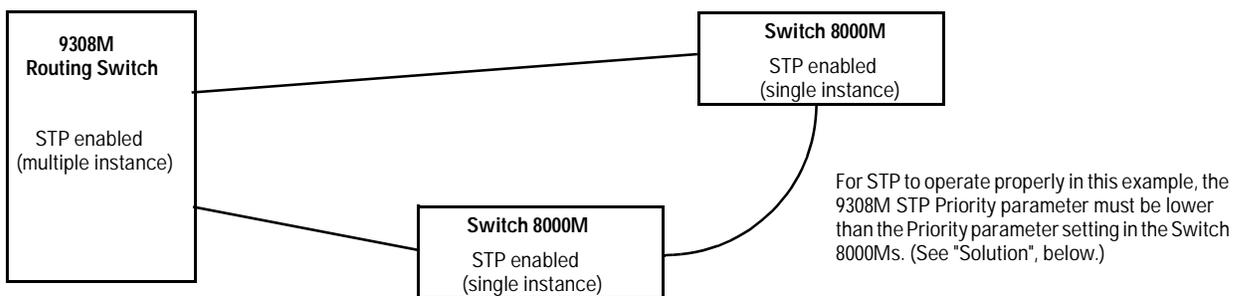
When multiple-instance STP is enabled, if VLAN 100 uses STP and VLAN 101 does not, the configuration file generated by **show config** shows the following:

```
ver 05.2.1x                    Shows the software version for the device.
!
global-stp                     Indicats that multiple-instance STP is enabled on the device.
!
vlan 100 by port               In the case of multiple-instance STP, the VLAN(s) on which STP is running are
tagged ethe 3/1 to 3/2         indicated by the presence of span.
span
!
vlan 101 by port
tagged ethe 3/1 to 3/2
```

For more information on STP, see "Default Spanning Tree Protocol (STP) Settings" on page 3.

Implementing Spanning Tree Protocol (STP) in a Tagged VLAN Environment

Condition. The HP ProCurve 9304M, 9308M, and 6308M-SX routing switches and the 6208M-SX switch offer both multiple-instance and single-instance spanning tree. The HP ProCurve 1600M, 2400M, 2424M, 4000M, and 8000M switches use single-instance spanning tree only. In a network where multiple-instance STP is configured on a 9304M, 9308M, 6308M-SX, or 6208M-SX, STP will fail on a connection between any of these devices and a single-instance STP device if the STP Priority parameter settings are left at their defaults. (In most cases, the 6308M-SX and 6208M-SX would be used in the core network, and would not be configured for multiple-instance STP.) That is, if one or more of the single-instance STP-enabled switches in the network uses the default STP **Priority** parameter setting (**32768**), then one of these switches will become the root bridge (due the MAC addresses in these switches being lower than the MAC addresses in the multiple-instance STP devices). When this occurs, STP fails on any links between the (root bridge) switch and any multiple-instance STP device (9304M, 9308M, 6308M-SX, or 6208M-SX) to which the switch is connected.

```
┌─────────────────┐                        ┌─────────────────┐
│   9308M         │────────────────────────│  Switch 8000M   │
│ Routing Switch  │                        │                 │
│                 │                        │  STP enabled    │
│                 │                        │ (single instance)│
│  STP enabled    │                        └─────────────────┘
│ (multiple       │                                  │
│  instance)      │        ┌─────────────────┐       │
│                 │────────│  Switch 8000M   │───────┘
│                 │        │                 │
│                 │        │  STP enabled    │
└─────────────────┘        │ (single instance)│
                           └─────────────────┘
```

For STP to operate properly in this example, the 9308M STP Priority parameter must be lower than the Priority parameter setting in the Switch 8000Ms. (See "Solution", below.)

Solution. Interoperability testing indicates that the STP configuration allows for proper interoperation between a 9304M, 9308M, 6308M-SX, or 6208M-SX (configured for multiple-instance STP) and a 1600M, 2400M, 2424M, 4000M, or 8000M switch in a tagged VLAN environment.

1. On the 9304M, 9308M, 6308M-SX, or 6208M-SX, ensure that software release 05.2.14 or later is installed. (This release is included with devices shipped after 10/01/99, and is also available in the Support area of HP's ProCurve website at **http://www.hp.com/go/procurve).**

2. Disconnect the 9304M, 9308M, 6308M-SX, or 6208M-SX from all 1600M, 2400M, 2424M, 4000M, and 8000M switches.

3. Configure the 9304M, 9308M, 6308M-SX, or 6208M-SX to be the root bridge. Do this by changing the STP **Priority** parameter to a value that is lower than the default setting of 32768. (This assumes that the **STP Priority** parameter in the 1600M, 2400M, 2424M, 4000M, and 8000M switch(es) is either set at the default or is set to a higher value than the **Priority** setting you are using in the 9304M, 9308M, 6308M-SX, or 6208M-SX.)

4. Connect the 9304M, 9308M, 6308M-SX, or 6208M-SX to the switch(es) that were disconnected in step 2 and bring up the network.

Operating Notes for Using the 9304M, 9308M, 6308M-SX, or 6208M-SX in a Tagged VLAN Environment.

If there is more than one of these devices in the network, the root (primary) device must have an STP Priority setting that is lower than the other such devices in the network. This ensures that the device will become the root if the primary device fails.

Caution

If there is more than one such device in a tagged VLAN environment with STP enabled, STP will fail if the link between the primary and secondary device fails while both devices continue to route packets. An STP failure will cause broadcast storms and will result in a catastrophic failure of the network. For this reason, using STP in a tagged VLAN environment with multiple devices is not recommended.

The following scenarios will cause STP to fail:

■ The 9304M, 9308M, 6308M-SX, or 6208M-SX is not configured to be the root bridge, as described above. In this case, STP fails between any of these devices and an HP ProCurve switch.

■ If there is more than one such device in the network and they are not directly connected, STP will fail between these devices. Multiples of these devices must be directly connected to each other in order to correctly interpret each other's BPDU (bridge protocol data unit) packets.

Auto-Negotiation Between the HP 9300M Routing Switches and Extreme Summit™ Switches

Condition. Auto-Negotiation between the HP 9300M routing switches and Extreme Summit switches may sometimes fail.

Solution. Disable auto-gig on the routing switch port(s) attached to the Extreme Summit switch.

For example, use the following CLI commands to disable auto-gig on port 2 in slot 1 of the HP J9304M Routing Switch:

```
HP 9304M (config)# int e 1/2
HP 9304M (config-if-1/2)# no auto-gig
```

Web Management Interface Running Slow or Failing To Respond

Condition. The Web management interface on the routing switch times out or does not respond. This can occur when the routing switch CPU is processing an excessive amount of broadcast traffic.

Solution. The Web management interface recovers automatically when the CPU is sufficiently free of broadcast traffic. Because the Web management interface is a low priority for the CPU, you may want to take steps to reduce the broadcast traffic on your network. One method for doing this is to use TopTools for Hubs & Switches (version N.01.03 or later) to determine the "top talkers" on your network, then create VLANs to segment the network for optimum traffic control.

Web Management Interface "Not Available" or "In Use"

Condition. You are unable to access the Web managment interface.

Solution. A routing switch allows only one session of the Web management interface at any given time. Thus, if one user is accessing the routing switch via the Web, the not available or in use messages will appear to another user who is trying to access that routing switch through the Web management interface. You can, however, limit access via the Web management interface by assigning a password to the routing switch. With a password set, access via the Web management interface will be available only to users who can enter the password. For more on passwords, refer to the *Installation and Configuration Guide* you received with the routing switch.

Device Will Not Boot Up Due to Corrupt Operating System

Condition. The operating system (OS) is corrupt on both the primary and secondary flash memory, and the routing switch will not boot up.

Solution. The routing switch will first try to boot up using the primary OS written to flash memory. If this fails, the device automatically tries to boot from the secondary flash memory. If this also fails, the routing switch then tries to connect to a TFTP server and boot from there. This will fail if a TFTP server is not configured to support the routing switch, or is not found. You can perform this solution only if you have access to a TFTP server. Otherwise, there are TFTP applications (available on the World Wide Web) that you can use to enable your PC to appear as a TFTP server to the routing switch. One website where such software can be found is http://www.walusoft.co.uk.

1. Using a straight-through cable, directly connect a PC or terminal to the serial port on the routing switch. (For more information on attaching a PC or terminal, refer to chapter 2, "Installation", in the *Installation and Configuration Guide*.)

2. Reboot the routing switch.

3. While the system is booting up, enter b at the CLI to go into the boot monitor mode.

4. Enter the following commands:

   a. boot> ip address *<ip address> <subnet mask>*

   b. boot> ip default_gateway *<ip address of tftp server --or-- default gateway to get to tftp server>*

   c. boot> boot system tftp *<ip address of tftp server> <configuration file name>*

The routing switch will now be able to boot up over the network. a new copy of the operating system can now be downloaded to the primary and secondary flash memories via the TFTP server.

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