HP 5900_5920-CMW710-R2108P03

Release Notes

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This document describes the features, restrictions and guidelines, open problems, and workarounds for version R2108P03. Before you use this version in a live network, back up the configuration and test the version to avoid software upgrade affecting your live network.

Use this document in conjunction with <HP 5900_5920-CMW710-R2108P03 Release Notes (Software Feature Changes)> and the documents listed in "Related documentation."

Version information

Version number

HP Comware Software, Version 7.1.023, Release 2108P03
Note: You can see the version number with the command display version in any view. Please see Note①.

Version history

Table 1 Version history

Version number	Last version	Release Date	Release type	Remarks
5900_5920-CMW710-R2108P03	5900_5920-CMW710-R2108P02	2012-8-15	Release version	Modify feature: Duplex and rate configuration for 40GE ports Fixes bugs
5900_5920-CMW710-R2108P02	5900_5920-CMW710-R2108P01	2012-5-29	Release version	New features: Enabling display of debugging information on the current terminal Fixes bugs
5900_5920-CMW710-R2108P01	5900_5920-CMW710-R2108	2012-4-9	Release version	Fixes bugs
5900_5920-CMW710-R2108	First release	2012-1-20	Release version	New features: Configuring the maximum number of equal-cost routes Modify feature Fixes bugs
5900_5920-CMW710-E2107	Controlled release	2011-12-15	Release version	None

Hardware and software compatibility matrix

Table 2 Hardware and software compatibility matrix

Item	Specifications
Product family	HP 5900/5920 Series

Item	Specifications	
Hardware platform	5900AF-48XG-4QSFP+	5920AF-24XG
Memory	2GB	
Flash	512M	256M
Boot ROM version	Version 117 or higher (Note: Perform the command display version command in any view to view the version information. Please see Note②)	
Host software	5900_5920-CMW710-R2108P03.ipe	
iMC version	iMC PLAT 5.1 SP1 (E0202P05)	
Web version	None	
OAA version	None	

Sample: To display the host software and Boot ROM version of 5900/5920, perform the following:

```
<Sysname> display version
HP Comware Software, Version 7.1.023, Release 2108P03          ------- Note①
Copyright (c) 2010-2011 Hewlett-Packard Development Company, L.P.
HP 5900AF-48XG-4QSFP+ Switch uptime is 0 week, 0 day, 0 hour, 9 minutes
Last reboot reason : User reboot

Boot image: flash:/5900_5920-cmw710-boot-r2108p03.bin
Boot image version: 1.1.0
System image: flash:/5900_5920-cmw710-system-r2108p03.bin
System image version: 7.1.023, Release 2108P03

Slot 1
HP 5900AF-48XG-4QSFP+ Switch with 2 Processors
Last reboot reason : User reboot
2048M   bytes SDRAM
4M      bytes Nor Flash Memory
512M    bytes Nand Flash Memory
Config Register points to Nand Flash

Hardware Version is Ver.A
CPLDA Version is 002, CPLDB Version is 002
BootRom Version is 117                                      ------ Note②
[SubSlot 0] 48SFP Plus+4QSFP Plus Hardware Version is Ver.A
```

Upgrading restrictions and guidelines

None

Hardware feature updates

R2108P03

None

R2108P02

None

R2108P01

None

R2108

None

E2107

None

Software feature and command updates

For more information about the software feature and command update history, see HP 5900_5920-CMW710-R2108P03 Release Notes (Software Feature Changes).

MIB updates

Table 3 MIB updates

Item	MIB file	Module	Description
5900_5920-CMW710-R2108P03			
New	None	None	None
Modified	None	None	None
5900_5920-CMW710-R2108P02			
New	None	None	None
Modified	rfc1213.mib	RFC1213-MIB	Modify the description of MIB node "sysObjectID" For detailed information, see <Comware V7

Item	MIB file	Module	Description
			S5820V2&S5830V2 MIB Companion(V0.10)>
5900_5920-CMW710-R2108P01			
New	rfc1493-bridge.mib rfc2674-pbridge.mib rfc2674-qbridge.mib hh3c-splat-inf.mib hh3c-splat-vlan.mib hh3c-sys-man.mib hh3c-ip-address.mib hh3c-mac-information.mib hh3c-splat-devm.mib hh3c-splat-mam.mib hh3c-splat-mstp.mib ieee8023-lag.mib hh3c-flash-man.mib rfc2013-udp.mib rfc4022-tcp-mib.mib rfc2925-disman-ping.mib	BRIDGE-MIB P-BRIDGE-MIB Q-BRIDGE-MIB HH3C-LswINF-MIB HH3C-LswVLAN-MIB HH3C-SYS-MAN-MIB HH3C-IP-ADDRESS-MIB HH3C-MAC-INFORMATION-MIB HH3C-LswDEVM-MIB HH3C-LswMAM-MIB HH3C-LswMSTP-MIB IEEE8023-LAG-MIB HH3C-FLASH-MAN-MIB UDP-MIB TCP-MIB DISMAN-PING-MIB	For detailed information, see <Comware V7 S5820V2&S5830V2 MIB Companion(V0.10)>
Modified	rfc1213.mib	RFC1213-MIB	Added "Address Translation Group","ICMP Group"," ARP MIB", " tcpConnTable", "udpTable". Modified Description for Scalar objects of tcp Group.
5900_5920-CMW710-R2108			
New	First release	First release	First release
Modified	First release	First release	First release
5900_5920-CMW710-E2107			
New	Controlled release	Controlled release	Controlled release
Modified	Controlled release	Controlled release	Controlled release

Operation changes

Operation changes in R2108P03

None

Operation changes in R2108P02

None

Operation changes in R2108P01

None

Operation changes in R2108

None

Operation changes in E2107

None

Restrictions and cautions

None

Open problems and workarounds

None

List of resolved problems

Resolved problems in R2108P03

LPD26673

- Symptom: The CLI of an IRF fabric is suspended when the configuration file is saved.
- Condition: This symptom might occur if the configuration file is saved on an IRF fabric that comprises multiple 5900 and 5920 switches.

LPD037817

- Symptom: A 5900/5920 switch in an IRF fabric works abnormally after a reboot during an automatic software upgrade.
- Condition: This symptom might occur if a 5900 switch in an IRF fabric reboot during an automatic software upgrade and the IRF fabric comprises both 5900 and 5920 switches.

LPD036160

- Symptom: When an anomaly occurs, the switch cannot recover by reboot itself automatically.
- Condition: This symptom occurs when an anomaly occurs on a switch.

LPD37801

- Symptom: A switch that acts as NQA server reboots.
- Condition: This symptom might occur on a switch acting as the NQA server if deleting and adding secondary IP addresses for the VLAN interface enabled with the NQA server repeatedly.

LPD039133

- Symptom: Some PCs connected to the backup switch in a VRRP group cannot learn the ARP of VRRP virtual gateway.
- Condition: This symptom might occur if the following conditions exist:
  - The VRRP master and backup switches work in load balancing mode.
  - The two switches exchange heartbeat packets through a directly connected cable.
  - Multiple PCs connected to the backup switch.

LPD35326

- Symptom: A 5920 switch in an IRF fabric has an anomaly during a reboot of the IRF fabric.
- Condition: This symptom might occur if the IRF fabric comprises both 5920 and 5900 switches and is repeatedly rebooted.

LPD37306

- Symptom: The transceiver MIB node information obtained by the MIB browser is incorrect.
- Condition: This symptom occurs when the MIB browser is used to read the transceiver related MIB node.

ZDD05295

- Symptom: The IP address of a Null interface can be assigned through SNMP but cannot be deleted through SNMP or CLI.
- Condition: This symptom occurs if the IP address of the Null interface is assigned by the MIB browser.

LPD042522

- Symptom: The service SYSMAN reboot repeatedly and such information repeatedly appears(log time and device name is different on different devices):

```
%Jan  1 00:06:33:905 2011 HP SCMD/5/JOBINFO: The service SYSMAN status failed : abnormal exit!
%Jan  1 00:06:33:911 2011 HP SCMD/6/JOBINFO: The service SYSMAN is stopped...
%Jan  1 00:06:33:912 2011 HP SCMD/6/JOBINFO: The service SYSMAN is starting...
%Jan  1 00:06:34:089 2011 HP SCMD/6/JOBINFO: The service SYSMAN is running...
```

- Condition: This symptom might occur if a bin or ipe file downloaded to flash has incorrect header information.

LPD042436

- Symptom: The certificate of a peer in a PKI domain on standby device cannot be deleted.
- Condition: This symptom occurs on an IRF fabric when deleting the certificate of a peer in a PKI domain.

LPD041110

- Symptom: A switch work abnormally if multiple VTY users log in to the switch and execute the display diagnostic-information command simultaneously.
- Condition: This symptom might occur if multiple VTY users log in to the switch and execute the display diagnostic-information command simultaneously.

Resolved problems in R2108P02

LPD34510

- Symptom: The image specified by the boot-loader command cannot be loaded.
- Condition: This symptom occurs if the boot-loader command is executed in the root directory of a subordinate device in an IRF fabric.

LPD26824

- Symptom: There is no suggestive information when the tftp ip filename ? command is executed.
- Condition: This symptom occurs when the tftp ip filename ? command is executed.

LPD26261

- Symptom: The system prompts "Permission denied" if a user deletes a file with the root attribute created by the system through the console port of the master device in an IRF fabric, and the delete operation fails.
- Condition: This symptom occurs if a user deletes a file with the root attribute created by the system through the console port of the master device in an IRF fabric.

LPD29455

- Symptom: The console port stops responding when a user logged in through the console port deletes a file with a name that has more than 31 characters in the recycle bin from the BootROM menu.
- Condition: This symptom might occur when a user logged in through the console port deletes a file with a name that has more than 31 characters in the recycle bin from the BootROM menu.

LPD30055

- Symptom: The system assigns the vd-operator attribute to a user created by an SSH management user that has a user level 15. The assigned attribute is incorrect because the switch does not support VD.
- Condition: This symptom occurs if an SSH management user with user level 15 creates a new user.

LPD29574

- Symptom: After a master/subordinate switchover, the previous master fails to start up.
- Condition: This symptom might occur if a master/subordinate switchover is performed when the following conditions exist on the IRF fabric:
  - The IRF fabric comprises multiple switches
  - MSTP is enabled.
  - BPDU tunnels are configured.
  - The IRF fabric is connected to another device through a cross-card aggregate link.

LPD032502

- Symptom: After a master/subordinate switchover, ports in a link aggregation group on the previous master cannot become selected ports although they have been up.
- Condition: This symptom might occur if the following conditions exist:
  - The local IRF fabric is connected to another IRF fabric through the link aggregation group (an aggregate link).
  - MSTP is enabled on the local IRF fabric.
  - On the connected IRF fabric, STP is enabled, the aggregate interface is configured as an edge port. global BPDU protection is configured.
  - A master/subordinate switchover is performed on the local IRF fabric.

ZDD05103

- Symptom: When many MAC addresses move to different ports, the system updates ARP entries for only 32 MAC addresses among those MAC addresses.
- Condition: This symptom occurs if many MAC addresses move to different ports

LPD031621

- Symptom: A memory leak occurs.
- Condition: This symptom occurs if two or more traffic behaviors are configured and then the reset counters interface command is executed.

LPD30059

- Symptom: A walk of the dot1dPortCapabilities MIB node through the MIB browser returns empty data.
- Condition: This symptom occurs if the MIB browser is used to walk the dot1dPortCapabilities MIB node.

LPD30063

- Symptom: The cd command executed in user view fails to display Flash information for subordinate switches in an IRF fabric that comprises four switches.
- Condition: This symptom might occur if repeated master/subordinate switchovers occur on the IRF fabric.

LPD32451

- Symptom: An anomaly occurs after the display stp history command is executed.
- Condition: This symptom might occur if the display stp history command executed accesses memory that has not been initialized.

LPD032399

- Symptom: The output of the display clock command does not show the time information according to the zone specified by the clock summer-time command.
- Condition: This symptom exists in the output of the display clock command.

LPD32152

- Symptom: The value of the dot1qTpFdbPort MIB node obtained through the MIB browser contains the data length, which should not be returned.
- Condition: This symptom occurs when the MIB browser walks the dot1qTpFdbPort MIB node.

LPD31252

- Symptom: A message "500 Unknown command" appears when the dir command is executed on the FTP server through a switch that acts as the FTP client.
- Condition: This symptom occurs when the dir command is executed on the FTP server through a switch that acts as the FTP client.

Resolved problems in R2108P01

LPD24186

- Symptom: The actual broadcast forwarding rate on a port is 1000000 pps although the broadcast suppression threshold configured for the port is 2000000, 4000000 or 8000000 pps.
- Condition: This symptom occurs if the broadcast suppression threshold on a port is configured as 2000000, 4000000 or 8000000 pps, and then the shutdown and undo shutdown commands are executed on the port.

LPD24112

- Symptom: The switch cannot forward broadcast packets with a size less than 80 bytes at line rate.
- Condition: Execute the burst-mode enable command and send broadcast traffic with packet size less than 80 bytes at line rate to a port.

LPD28657

- Symptom: A PC connected to a device cannot communicate for a while.
- Condition: This symptom might occur if the following conditions exist:
  - The device connects to a device and the device connects to an IRF fabric through a cross-card aggregate link
  - The master in the IRF fabric is rebooted.

LPD26305

- Symptom: After an IRF master/subordinate switchover, an aggregate interface stays in STP down state.
- Condition: This symptom might occur if the following conditions exist:
  - The aggregate interface is an STP edge port.
  - The stp bpdu-protection and shutdown-interval 1 commands are configured.
  - A master/subordinate switchover is performed.

LPD24183

- Symptom: If an IRF subordinate switch is rebooted, its aggregation member ports change to inactive state and then to active state. After that, the switch reboots. The switch should reboot when its aggregation member ports change to inactive state.
- Condition: This symptom might occur when a subordinate switch in an IRF fabric is rebooted.

LPD35324

- Symptom: An IRF fabric fails to upgrade software from R2108 to a later version.
- Condition: This symptom occurs when an IRF fabric uses the automatic software update function to upgrade software from R2108 to a later version.

Resolved problems in R2108

LPD21989

- Symptom: Some VRRP virtual MAC addresses cannot be deleted after an IRF split.
- Condition: This symptom might occur if the following conditions exist:
  - The IRF fabric comprises four switches in ring topology.
  - VRRP and MAD are configured.
  - The two IRF ports on a subordinate switch are shut down to split the IRF fabric.

LPD21097

- Symptom: VRRP master/backup switchovers occur after a reboot.
- Condition: This symptom might occur if a device configured with more than 200 standard VRRP groups is rebooted.

LPD21873

- Symptom: Traffic forwarding fails if the queue scheduling mode is repeatedly changed on the egress port.
- Condition: This symptom might occur if the egress port forwards Layer 3 traffic received from other two ports and the queue scheduling mode is repeatedly changed on the egress port.

LPD22391

- Symptom: After receiving line-rate packets with a size larger than 1600 bytes, the network management port cannot ping the directly connected device.
- Condition: This symptom might occur after the network management port receives line-rate packets with a size larger than 1600 bytes.

LPD22364

- Symptom: An aggregate interface connected to another switch cannot go up.
- Condition: This symptom might occur if the aggregate interface on the peer switch is repeatedly created and deleted.

LPD22318

- Symptom: The output of the display interface command does not include the number of pause frames that were generated when congestion occurred.
- Condition: This symptom exists in the output of the display interface command.

LPD22583

- Symptom: A port cannot deliver incoming LACP packets to the CPU.
- Condition: This symptom might occur after the port is added to, removed from, and then re-added to a link aggregation group.

LPD19088

- Symptom: An IRF fabric splits and packet forwarding fails if PFC configuration on a port where user traffic exists is modified or removed.
- Condition: This symptom might occur if PFC configuration on a port where user traffic exists is modified or removed.

LPD20867

- Symptom: Some MAC addresses displayed by the display mac-address command are incorrect.
- Condition: This symptom might occur when the display mac-address command is used to display a specified MAC address.

LPD21711

- Symptom: After an IRF master/subordinate switchover, the network management port cannot transmit packets and the IRF fabric cannot be managed through the port.
- Condition: This symptom might occur after a master/subordinate switchover on an IRF fabric that comprises four switches in ring topology.

LPD21950

- Symptom: The time stamps for received and transmitted traffic statistics are inconsistent with the system time configured by the clock timezone command. This problem also exists in the saved configuration file.
- Condition: This symptom occurs if configure system time by the clock timezone command.

LPD22554

- Symptom: The output of the display telnet client or display ssh client command does not shows the source interface configured by the telnet client source inter vlan or ssh client source interface vlan command.
- Condition: This symptom occurs if the specified source interface is removed.

LPD22445

- Symptom: The help information for the telnet server acl ? command shows "Error".
- Condition: This symptom occurs if a user role with Telnet only has writes right.

LPD23669

- Symptom: The priority-flow-control enable and shutdown settings on the IRF interface of the subordinate switch get lost after an IRF master/subordinate switchover.
- Condition: This symptom might occur after an IRF master/subordinate switchover.

Resolved problems in E2107

First release.

Related documentation

Documentation set

- About the HP 5900 Configuration Guides
- HP 5900 Fundamentals Configuration Guide
- HP 5900 IRF Configuration Guide
- HP 5900 Layer 2 - LAN Switching Configuration Guide
- HP 5900 Layer 3 - IP Services Configuration Guide

- HP 5900 Layer 3 - IP Routing Configuration Guide
- HP 5900 MCE Configuration Guide
- HP 5900 ACL and QoS Configuration Guide
- HP 5900 Security Configuration Guide
- HP 5900 High Availability Configuration Guide
- HP 5900 Network Management and Monitoring Configuration Guide
- About the HP 5900 Command References
- HP 5900 Fundamentals Command Reference
- HP 5900 IRF Command Reference
- HP 5900 Layer 2 - LAN Switching Command Reference
- HP 5900 Layer 3 - IP Services Command Reference
- HP 5900 Layer 3 - IP Routing Command Reference
- HP 5900 MCE Command Reference
- HP 5900 ACL and QoS Command Reference
- HP 5900 Security Command Reference
- HP 5900 High Availability Command Reference
- HP 5900 Network Management and Monitoring Command Reference
- LSWM1FANSC and LSWM1FANSCB Installation Manual
- LSVM1FANSC & LSVM1FANSCB Fan Assemblies Installation
- LSVM1AC650 & LSVM1DC650 Power Modules User Manual
- HP 5920&5900 Installation Guide

Obtaining documentation

To find related documents, browse to the Manuals page of the HP Business Support Center website:

http://www.hp.com/support/manuals

Contacting HP

For worldwide technical support information, see the HP support website:

http://www.hp.com/support

Before contacting HP, collect the following information:

- Product model names and numbers
- Technical support registration number (if applicable)
- Product serial numbers
- Error messages
- Operating system type and revision level
- Detailed questions

Subscription service

HP recommends that you register your product at the Subscriber's Choice for Business website:

http://www.hp.com/go/wwalerts

After registering, you will receive email notification of product enhancements, new driver versions, firmware updates, and other product resources.

Appendix A Feature list

Hardware features

Table 4 5900/5920 series hardware features

Item	5920AF-24XG	5900AF-48XG-4QSFP+
Dimensions (H × W × D)	43.6 × 440 × 700 mm (1.72 × 17.32 × 27.56 in)	43.6 × 440 × 660 mm (1.72 × 17.32 × 25.98 in)
Weight	≤ 13.5 kg (29.76 lb)	≤ 13 kg (28.66 lb)
Console ports	1	1
Management Ethernet ports	1	1
USB ports	N/A	1
SFP+ ports	24	48
QSFP+ ports	N/A	4
Fan trays	LSVM1FANSC LSVM1FANSCB	LSWM1FANSC LSWM1FANSCB
Power modules	A58x0AF 650W AC Power Supply(JC680A) A58x0AF 650W DC Power Supply(JC681A)	A58x0AF 650W AC Power Supply(JC680A) A58x0AF 650W DC Power Supply(JC681A)
AC-input voltage	Rated voltage: 100 VAC to 240 VAC @ 50 or 60 Hz Max voltage: 90 VAC to 264 VAC @ 47 to 63 Hz	Rated voltage: 100 VAC to 240 VAC @ 50 or 60 Hz Max voltage: 90 VAC to 264 VAC @ 47 to 63 Hz
DC-input voltage	Rated voltage: –40 VDC to –60 VDC Max voltage: –40 VDC to –72 VDC	Rated voltage: –40 VDC to –60 VDC Max voltage: –40 VDC to –72 VDC
Minimum power consumption	AC inputs: 343 W DC inputs: 339 W	AC inputs: 200 W DC inputs: 197 W
Maximum power consumption	AC inputs: 366 W DC inputs: 366 W	AC: 257 W DC: 250 W
Operating temperature	0°C to 45°C (32°F to 113°F)	0°C to 45°C (32°F to 113°F)
Operating humidity	10% to 90%, noncondensing	10% to 90%, noncondensing

Software features

Table 5 Software features of the 5900/5920 series

Feature	5900AF-48XG-4QSFP+	5920AF-24XG
Full duplex Wire speed L2 switching capacity	1280 Gbps	480 Gbps
Whole system Wire speed L2 switching Packet forwarding rate	952.32	357.12
Forwarding mode	Store-forward and cut-through	
IRF	• Ring topology • Daisy chain topology • LACP MAD • ARP MAD • ND MAD	
Link aggregation	• Aggregation of 10-GE ports • Aggregation of 40-GE ports • Static link aggregation • Dynamic link aggregation • When stacked, supports up to 128 aggregation groups, each supporting up to 16 ports	• Aggregation of 10-GE ports • Static link aggregation • Dynamic link aggregation • When stacked, supports up to 128 aggregation groups, each supporting up to 16 ports
Data center	• PFC	
Jumbo Frame	Supports maximum frame size of 10000	
MAC address table	• 128K MAC addresses • 1K static MAC addresses • Blackhole MAC addresses • MAC address learning limit on a port	
VLAN	• Port-based VLANs (4094 VLANs)	
VLAN mapping	• One-to-one VLAN mapping (in the future) • Many-to-one VLAN mapping (in the future) • Two-to-two VLAN mapping (in the future)	
ARP	• 16K entries • 1K static entries • Gratuitous ARP • Standard proxy ARP and local proxy ARP • ARP source suppression • ARP detection (based on DHCP snooping entries/802.1x security entries/static IP-to-MAC bindings)	
ND	• 8K entries • 1K static entries	
VLAN virtual interface	1K	

Feature	5900AF-48XG-4QSFP+ 5920AF-24XG
IPv4 route	• 1K static routes • RIP (Routing Information Protocol) v1/v2; up to 2K IPv4 routes • OSPF (Open Shortest Path First) v1/v2; up to 16K IPv4 routes • BGP (Border Gateway Protocol); up to 16K IPv4 routes • IS-IS (Intermediate System-to-Intermediate System); up to 16K IPv4 routes • Configurable maximum number of equal-cost routes; up to 4K equal-cost routes • VRRP
IPv6 route	• 1K static routes • OSPF v3; up to 8K IPv6 routes • Configurable maximum number of equal-cost routes; up to 4K equal-cost routes • VRRP
MCE	Supported
Broadcast/multicast/unicast storm control	• Storm control based on port rate percentage • PPS-based storm control • Bps-based storm control
MSTP	• STP/RSTP/MSTP protocol • STP Root Guard • BPDU Guard
QoS/ACL	• Restriction of the rates at which a port sends and receives packets, with a granularity of 8 kbps. • Committed access rate (CAR), with a granularity of traffic limit 8 kbps. • Eight output queues for each port • Flexible queue scheduling algorithms based on port and queue, including strict priority (SP), Weighted Deficit Round Robin (WDRR), Weighted Fair Queuing (WFQ), SP + WDRR, and SP + WFQ. • Remarking of 802.1p and DSCP priorities • Packet filtering at L2 (Layer 2) through L4 (Layer 4); flow classification based on source MAC address, destination MAC address, source IP (IPv4/IPv6) address, destination IP (IPv4/IPv6) address, port, protocol, and VLAN. • Time range • Weighted Random Early Detection (WRED) • Explicit Congestion Notification (ECN)
Mirroring	• Port mirroring • Multiple mirror observing port

Feature	5900AF-48XG-4QSFP+ 5920AF-24XG
Security	• Hierarchical management and password protection of users • AAA authentication • RADIUS authentication • HWTACACS • SSH 2.0 • Port isolation • IP-MAC-port binding • IP Source Guard • HTTPS • SSL • PKI • Boot ROM access control (password recovery)
Loading and upgrading	• Loading and upgrading through XModem protocol • Loading and upgrading through FTP • Loading and upgrading through the trivial file transfer protocol (TFTP)
Management	• Configuration at the command line interface • Remote configuration through Telnet • Configuration through Console port • Simple network management protocol (SNMP) • IMC NMS • System log • Hierarchical alarms • NTP • Power supply alarm function • Fan and temperature alarms
Maintenance	• Debugging information output • Ping and Tracert • Track • Remote maintenance through Telnet • File download and upload through USB port

Appendix B Upgrading software

This section describes how to upgrade system software while the router is operating normally or when the router cannot correctly start up.

System software file types

Software required for starting up the switch includes:

- Boot ROM image—A .bin file that comprises a basic section and an extended section. The basic section is the minimum code that bootstraps the system. The extended section enables hardware initialization and provides system management menus. You can use these menus to load software and the startup configuration file or manage files when the switch cannot correctly start up.
- Software images—Includes boot images and system images.
    - Boot image—A .bin file that contains the operating system kernel. It provides process management, memory management, file system management, and the emergency shell.
    - System image—A .bin file that contains the main application code required for device operation. This includes device management, interface management, configuration management, and routing management.

The software images that have been loaded are called "current software images." The software images specified to load at next startup are called "startup software images."

These images might be released separately or as a whole in one .ipe package file. If an .ipe file is used, the system automatically decompresses the file, loads the .bin boot and system images in the file and sets them as startup software images. Typically, the Boot ROM and software images for this switch series are released in an .ipe file named main.ipe.

NOTE:

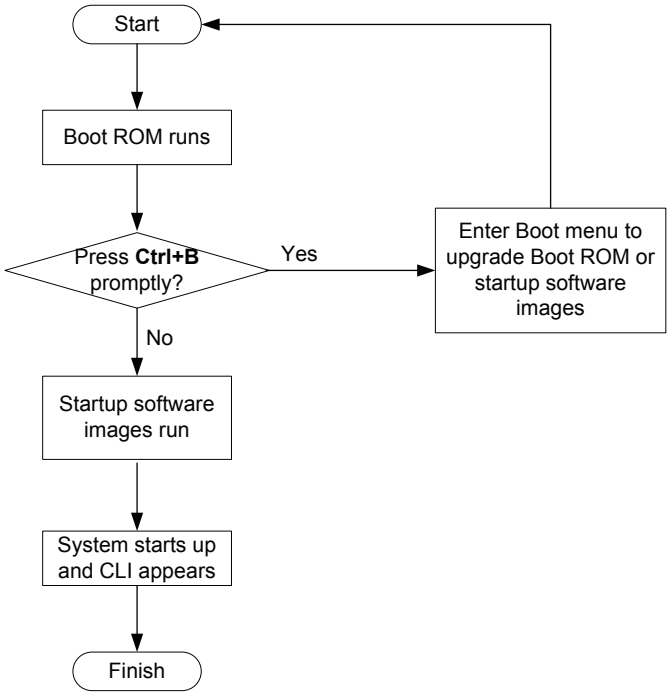
Boot ROM images are not released along with the boot images and system images. To get a version of Boot ROM image, contact the HP technical support.

In addition to these images, HP irregularly releases patch packages for you to fix bugs without rebooting the switch. A patch package does not add new features or functions.

System startup process

Upon power-on, the Boot ROM image runs to initialize hardware and then the software images run to start up the entire system, as shown in Figure 1.

Figure 1 System startup process



Upgrade methods

You can upgrade system software by using one of the following methods:

Upgrading method	Software types	Remarks
Upgrading from the CLI	Software images	• You must reboot the switch to complete the upgrade. • This method can interrupt ongoing network services.
	Patch packages	The upgrade does not interrupt ongoing services. Make sure the patch packages match the current software images. A patch package can fix bugs only for its matching software image version.
Upgrading from the Boot menu	• Boot ROM image • Software images	Use this method when the switch cannot correctly start up. △ CAUTION: Upgrading an IRF fabric from the CLI rather than the Boot menu. The Boot menu approach requires that you upgrade the member switches one by one and has larger impact on services than the CLI approach.

The output in this document is for illustration only and might vary with software releases. For example, this document uses boot.bin and system.bin to represent boot and system image names, whereas the actual software image name format is chassis_software platform version_image type_release, for example, 5900_5920-cmw710-boot-e2107.bin and 5900_5920-cmw710-system-e2107.bin.

Upgrading from the CLI

This section uses a two-member IRF fabric as an example to describe how to upgrade software from the CLI. If you have more than two subordinate switches, repeat the steps for the subordinate switch to upgrade their software. If you are upgrading a standalone switch, ignore the steps for upgrading the subordinate switch. For more information about setting up and configuring an IRF fabric, see the installation guide and IRF configuration guide for the HP 5920 and 5900 switch series.

Preparing for the upgrade

Before you upgrade software, complete the following tasks:

1. Log in to the IRF fabric through Telnet or the console port (details not shown).
2. Perform the display irf command in any view to identify the number of IRF members, each member switch's role and IRF member ID.

```
<Sysname> display irf
MemberID   Role    Priority  CPU-Mac         Description
 *+1       Master  5         0023-8927-afdc  ---
   2       Slave   1         0023-8927-af43  ---
-------------------------------------------------
 * indicates the device is the master.
 + indicates the device through which the user logs in.

 The Bridge MAC of the IRF is: 0023-8927-afdb
 Auto upgrade                : no
 Mac persistent              : 6 min
 Domain ID                   : 0
```

3. Perform the dir command in user view to identify the free storage space of each member switch.
4. Identify the free Flash space of the master switch.

```
<Sysname> dir
Directory of flash:
     0      -rw-       41424  Jan 01 2011 02:23:44     startup.mdb
     1      -rw-        3792  Jan 01 2011 02:23:44     startup.cfg
     2      -rw-    23129088  Nov 25 2011 09:53:48     system.bin
     3      drw-           -  Jan 01 2011 00:00:07     seclog
     4      drw-           -  Jan 01 2011 00:00:07     diagfile
     5      drw-           -  Jan 02 2011 00:00:07     logfile
```

```
6       -rw-      8996864  Nov 25 2011 09:53:48     boot.bin
7       -rw-      9012224  Nov 25 2011 09:53:48     backup.bin

524288 KB total (481540 KB free)
```

5. Identify the free Flash space of each subordinate switch, for example, switch 2.

```
<Sysname> dir slot2#flash:/
Directory of slot2#flash:/
0       -rw-        41424  Jan 01 2011 02:23:44     startup.mdb
1       -rw-         3792  Jan 01 2011 02:23:44     startup.cfg
2       -rw-     23129088  Nov 25 2011 09:53:48     system.bin
3       drw-            -  Jan 01 2011 00:00:07     seclog
4       drw-            -  Jan 01 2011 00:00:07     diagfile
5       drw-            -  Jan 02 2011 00:00:07     logfile
6       -rw-      8996864  Nov 25 2011 09:53:48     boot.bin
7       -rw-      9012224  Nov 25 2011 09:53:48     backup.bin

524288 KB total (481540 KB free)
```

6. Compare the free Flash space of each member switch with the size of the software file to load. If the space is sufficient, start the upgrade process. If not, go to the next step.
7. Delete obsolete files in Flash to free space:

CAUTION:

- To avoid data loss, do not delete the current configuration file. For information about the current configuration file, perform the display startup command. HP recommends that you preferentially delete obsolete software images. To avoid inadvertent delete of the current software images, perform the display boot-loader command in any view to identify them.
- The delete /unreserved *file-url* command deletes a file permanently and the action cannot be undone.
- The delete *file-url* command moves a file to the recycle bin and the file still occupies storage space. To permanently delete the file from the recycle bin, first perform the undelete command to restore the file and then perform the delete /unreserved *file-url* command.

---

8. Delete obsolete files from the Flash memory of the master switch.

```
<Sysname> delete /unreserved flash:/backup.bin
The file cannot be restored. Delete flash:/backup.bin?[Y/N]:y
Deleting the file permanently will take a long time. Please wait...
Start to delete flash:/backup.bin...Done.
```

9. Delete obsolete files from the Flash memory of the subordinate switch.

```
<Sysname> delete /unreserved slot2#flash:/backup.bin
The file cannot be restored. Delete slot2#flash:/backup.bin?[Y/N]:y
Deleting the file permanently will take a long time. Please wait...
Start to delete slot2#flash:/backup.bin...Done.
```

Downloading software to the master switch

Before you start upgrading software images or patch packages, make sure you have downloaded the upgrading software files to the root directory in Flash memory. This section describes downloading an .ipe software file as an example.

The following are ways to download, upload, or copy files to the master switch:

- FTP download from a server
- FTP upload from a client
- TFTP download from a server
- Copying files from a USB flash drive

Prerequisites

If FTP or TFTP is used, the IRF fabric and the PC working as the FTP/TFTP server or FTP client can reach each other.

Prepare the FTP server or TFTP server program yourself for the PC. The switch series does not come with these software programs.

FTP download from a server

You can use the switch as an FTP client to download files from an FTP server.

To download a file from an FTP server, for example, the server at 10.10.110.1:

1. Run an FTP server program on the server, configure an FTP username and password, specify the working directory and copy the file, for example, newest.ipe, to the directory.
2. Perform the ftp command in user view on the IRF fabric to access the FTP server.

```
<Sysname> ftp 10.10.110.1
Trying 10.10.110.1...
Press CTRL+K to abort
Connected to 10.10.110.1
220 FTP service ready.
User(10.10.110.1:(none)):username
331 Password required for username.
Password:
230 User logged in
```

3. Enable the binary transfer mode.

```
[ftp] binary
  200 Type set to I.
```

4. Perform the get command in FTP client view to download the file from the FTP server.

```
[ftp] get newest.ipe
  227 Entering Passive Mode (10,10,110,1,17,97).
  125 BINARY mode data connection already open, transfer starting for /newest.ipe
  226 Transfer complete.
  32133120 bytes received in 35 seconds (896. 0 kbyte/s)
```

```
[ftp] bye
221 Server closing.
```

FTP upload from a client

You can use the IRF fabric as an FTP server and upload files from a client to the IRF fabric.

To FTP upload a file from a client:

1. On the IRF fabric:
2. Enable FTP server.

```
<Sysname> system-view
[Sysname] ftp server enable
```

3. Add a local FTP user account, set its password and access service type, and assign it to the user role network-admin for uploading file to the working directory of the server.

```
[Sysname] local-user abc
[Sysname-luser-abc] password simple pwd
[Sysname-luser-abc] service-type ftp
[Sysname-luser-abc] authorization-attribute user-role network-admin
[Sysname-luser-abc] quit
[Sysname] quit
```

4. On the PC:
5. FTP to the IRF fabric (the FTP server).

```
c:\> ftp 1.1.1.1
Connected to 1.1.1.1.
220 FTP service ready.
User(1.1.1.1:(none)):abc
331 Password required for abc.
Password:
230 User logged in.
```

6. Enable the binary file transfer mode.

```
ftp> binary
200 TYPE is now 8-bit binary.
```

7. Upload the file (for example, newest.ipe) to the root directory in the Flash memory of the master switch.

```
ftp> put newest.ipe
200 PORT command successful
150 Connecting to port 10002
226 File successfully transferred
ftp: 32133120 bytes sent in 64.58 secs (497.60 Kbytes/sec).
```

TFTP download from a server

To download a file from a TFTP server, for example, the server at 10.10.110.1:

1. Run a TFTP server program on the server, specify the working directory, and copy the file, for example, newest.ipe, to the directory.
2. On the IRF fabric, perform the tftp command in user view to download the file to the root directory in the Flash memory of the master switch.

```
<Sysname> tftp 10.10.110.1 get newest.ipe
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 30.6M    0 30.6M    0     0   143k      0 --:--:--  0:03:38 --:--:--  142k
```

Copying files from a USB flash drive

Every 5900 switch provides a USB port for you to copy files from a USB flash drive.

To copy a file from a USB flash drive to the Flash memory of the master switch:

1. Plug the USB flash drive in the USB port of the switch.
2. Copy the file (for example, newest.ipe) to the Flash memory of the switch.

```
<Sysname> cd usba:
<Sysname> copy usba:/newest.ipe newest.ipe
Copy usba:/newest.ipe to flash:/newest.ipe?[Y/N]:y
Start to copy usba:/newest.ipe to flash:/newest.ipe... Done.
```

Upgrading the software images

To upgrade the software images:

1. Specify the upgrading image file (newest.ipe in this example) used at the next startup for the master switch, and assign the M attribute to the boot and system images in the file.

```
<Sysname> boot-loader file flash:/newest.ipe slot 1 main
Images in IPE:
  boot.bin
  system.bin
This command will set the main startup software images. Continue? [Y/N]:y
Add images to target slot.
The specified file list will be used as the main startup software images at the next
reboot on slot 1.
```

2. Specify the upgrading image file used at next startup for the subordinate switch, and assign the M attribute to the boot and system images in the file. (As a result, the subordinate switch automatically copies the file to the root directory in its Flash memory.)

```
<Sysname> boot-loader file flash:/newest.ipe slot 2 main
Images in IPE:
  boot.bin
  system.bin
This command will set the main startup software images. Continue? [Y/N]:y
Add images to target slot.
The specified file list will be used as the main startup software images at the next
reboot on slot 2.
```

3. (Optional) If the IRF fabric size has a lot of members, enable the software auto-update function.

```
<Sysname> system-view
[Sysname] irf auto-update enable
```

```
[Sysname] quit
```

Software auto-update is typically used for synchronizing the software images of the master switch to new member switches when you expand the IRF fabric. This function enables a subordinate switch to compare its main startup software image version with that of the IRF master. If the versions are different, the subordinate switch automatically downloads the current software images from the master, sets the downloaded images as the main software images at the next reboot, and automatically reboots with the new images to re-join the IRF fabric. In this upgrade process, the function avoids the failure of assign all the subordinate switch the same main software image file as the master switch causing an upgrade failure.

4. Save the current configuration in any view to prevent data loss.

```
<Sysname> save
The current configuration will be written to the device. Are you sure? [Y/N]:y
Please input the file name(*.cfg)[flash:/startup.cfg]
(To leave the existing filename unchanged, press the enter key):
flash:/startup.cfg exists, overwrite? [Y/N]:y
Validating file. Please wait.................
Saved the current configuration to mainboard device successfully.
Slot 2:
Save next configuration file successfully.
```

5. Reboot the IRF fabric to complete the upgrade.

```
<Sysname> reboot
Start to check configuration with next startup configuration file, please wait.
........DONE!
This command will reboot the device. Continue? [Y/N]:y
 Now rebooting, please wait...
```

   The system automatically loads the .bin boot and system images in the .ipe file and sets them as the startup software images.

6. Perform the display version command in any view to verify that the current main software images have been updated (details not shown).

NOTE:

The system automatically checks the compatibility of the Boot ROM image and the boot and system images during the reboot. If you are prompted that the Boot ROM image in the upgrading image file is different than the current Boot ROM image, upgrade both the basic and extended sections of the Boot ROM image for compatibility. If you choose to not upgrade the Boot ROM image, the system will ask for an upgrade at the next reboot performed by powering on the switch or rebooting from the CLI (promptly or as scheduled). If you fail to make any choice in the required time, the system upgrades the entire Boot ROM image.

Installing a patch package

To install a patch package, for example, system-patch.bin:

1. Activate the patch package on the master switch and the subordinate switch.

```
<Sysname> install activate patch flash:/system-patch.bin slot 1
<Sysname> install activate patch flash:/system-patch.bin slot 2
```

2. Verify that the patch package has been activated.

```
<Sysname> display install active
Active packages on slot 1:
  flash:/boot.bin
  flash:/system.bin
  flash:/system-patch.bin
Active packages on slot 2:
  flash:/boot.bin
  flash:/system.bin
  flash:/system-patch.bin
```

3. Commit the installation so the patch package continues to take effect after a reboot.

```
<Sysname> install commit
```

4. Verify that the patch package installation has been committed.

```
<Sysname> display install committed
Committed packages on slot 1:
  flash:/boot.bin
  flash:/system.bin
  flash:/system-patch.bin
Committed packages on slot 2:
  flash:/boot.bin
  flash:/system.bin
  flash:/system-patch.bin
```

For more information about installing patch packages, see HP 5920 & 5900 Switch Series Fundamentals Configuration Guide.

Upgrading from the Boot menu

You can upgrade the Boot ROM image and software images but not patch packages from the Boot menu.

In this approach, you must access the Boot menu of each member switch to upgrade their software one by one. If you are upgrading software images for an IRF fabric, using the CLI is a better choice.

The following sections describe the methods of upgrading software images:

- Using TFTP to upgrade software images through the management Ethernet port
- Using FTP to upgrade software through the management Ethernet port
- Using XMODEM to upgrade software through the console port

The following sections describe the methods of upgrading Boot ROM images:

- Using TFTP to upgrade Boot ROM through the management Ethernet port
- Using FTP to upgrade Boot ROM through the management Ethernet port
- Using XMODEM to upgrade Boot ROM through the console port

TIP:

Upgrading through an Ethernet port is faster than through the console port.

Prerequisites

Make sure that the prerequisites are met before you start upgrading software from the Boot menu.

Upgrading environment

Use a console cable to connect the console terminal, for example, a PC, to the console port on the switch. Run a terminal emulator program on the console terminal and set the following terminal settings:

- Bits per second—9,600
- Data bits—8
- Parity—None
- Stop bits—1
- Flow control—None
- Emulation—VT100

TFTP/FTP download

To use TFTP or FTP:

- Run a TFTP or FTP server program on the file server or the console terminal.
- Copy the upgrade file to the file server.
- Correctly set the working directory on the TFTP or FTP server.
- Make sure that the file server and the switch can reach each other.

Storage space

Make sure that sufficient space is available for the upgrading software file. If no sufficient space is available, delete obsolete files as described in "Managing files from the Boot menu."

Upgrading time

Make sure that the upgrade has minimal impact on the network services. During the upgrade, the switch cannot provide any services.

Accessing the Boot menu

Power on the switch (for example, an HP 5900AF-48XG-4QSFP+ Switch), and you can see the following information:

```
Starting......
```

```
********************************************************************************
*                                                                              *
*              HP 5900AF-48XG-4QSFP+ Switch BOOTROM, Version 113               *
*                                                                              *
********************************************************************************
Copyright (c) 2010-2011 Hewlett-Packard Development Company, L.P.


Creation Date   : Nov 14 2011,16:32:02
CPU Clock Speed : 1000MHz
Memory Size     : 2048MB
Flash Size      : 512MB
CPLD Version    : 002/002
PCB Version     : Ver.A
Mac Address     : 00E0FC005800



Press Ctrl-B to enter Extended Boot menu...1
```

Press Ctrl + B at the prompt within one second to access the Boot menu. If you fail to do that within the time limit, the system starts decompressing files, and you must restart the switch to access the Boot menu.

NOTE:

The system has two startup modes: full startup and fast startup. By default, the system starts up in fast mode and the waiting time is one second. If you set the startup mode to full, the waiting time is five seconds.

```
Please input BootRom password:
```

Enter the Boot ROM password (no password is required by default) at the following prompt to access the Boot menu:

NOTE:

After three password attempts fail, you must reboot the switch and try again.

```
   BOOT  MENU

1. Download image to flash
2. Select image to boot
3. Display all files in flash
```

```
4. Delete file from flash
5. Modify BootRom password
6. Enter BootRom upgrade menu
7. Skip current system configuration
8. Set BootRom password recovery
9. Set switch startup mode
0. Reboot

Enter your choice(0-9):
```

Table 6 Boot menu options

Item	Description
1. Download image to flash	Download a software image file to the Flash memory.
2. Select image to boot	Select the main or backup startup software image to boot. Select the main or backup configuration file to boot.
3. Display all files in flash	Display all files in the Flash memory.
4. Delete file from flash	Delete files from the Flash memory.
5. Modify BootRom password	Modify the Boot ROM password. The system by default has no Boot ROM password. HP recommends that you set a Boot ROM password immediately after you access the Boot menu.
6. Enter BootRom upgrade menu	Access the Boot ROM update submenu.
7. Skip current system configuration	Start the switch with the factory default configuration. This is a one-time operation and does not take effect at the next reboot. You use this option when you forget the console login password.
8. Set BootRom password recovery	Disable or enable the Boot ROM password recovery function. By default, Boot ROM recovery is enabled. You can disable this function to protect system security. △ CAUTION: If Boot ROM recovery is enabled, you can contact the HP support to get a super Boot ROM password to access the Boot menu after your Boot ROM password is lost. If Boot ROM recovery is disabled, you cannot use a super Boot ROM password to access the Boot menu after your Boot ROM password is lost, and must contact your HP agent for help.
9. Set switch startup mode	Set the startup mode of the switch to normal (full) mode or fast mode.
0. Reboot	Restart the switch.

Using TFTP to upgrade software images through the management Ethernet port

1. Enter 1 in the Boot menu to access the file transfer protocol submenu.

```
1. Set TFTP protocol parameters
2. Set FTP protocol parameters
3. Set XMODEM protocol parameters
0. Return to boot menu

Enter your choice(0-3):
```

2. Enter 1 to set the TFTP parameters.

```
Load File name      :update.ipe
Server IP address   :192.168.0.3
Local IP address    :192.168.0.2
Subnet Mask         :255.255.255.0
Gateway IP Address  :0.0.0.0
```

Table 7 TFTP parameter description

Item	Description
Load File Name	Name of the file to download (for example, update.ipe).
Server IP Address	IP address of the TFTP server (for example, 192.168.0.3).
Local IP Address	IP address of the switch (for example, 192.168.0.2).
Subnet Mask	Subnet mask of the switch (for example, 255.255.255.0).
Gateway IP Address	IP address of the gateway (in this example, no gateway is required because the server and the switch are on the same subnet).

NOTE:

- To use the default setting for a field, press Enter without entering any value.
- If the switch and the server are on different subnets, you must specify a gateway address for the switch.

3. Enter all required parameters, and enter Y to confirm the settings. The following prompt appears:

```
Are you sure to download file to flash? Yes or No (Y/N):Y
```

4. Enter Y to start downloading the image file. To return to the Boot menu, enter N.

```
Loading.....................................................................
.............................................................................
.............................................................................
.....................................................................Done!
```

5. Enter the M (main), B (backup), or N (none) attribute for the images. In this example, assign the main attribute to the images.

```
Please input the file attribute (Main/Backup/None) M
The boot.bin image is self-decompressing...
Free space: 534980608 bytes
Writing flash...............................................................
.............................................................................
.............................................................
Done!
The system.bin image is self-decompressing...
```

```
Free space: 525981696 bytes
Writing flash.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
.....................................................................
Done!
```

NOTE:

- The switch always attempts to boot first with the main images, and if the attempt fails, for example, because the main images are not available, the switch tries to boot with the backup images. An image with the none attribute is just stored in Flash memory for backup and you must change its attribute to make it usable at reboot.
- If an image with the same attribute as the image you are loading is already in Flash memory, the attribute of the old image changes to none after the new image becomes valid.

6. Enter 0 in the Boot menu to reboot the switch with the new software images.

```
   BOOT MENU

1. Download image to flash
2. Select image to boot
3. Display all files in flash
4. Delete file from flash
5. Modify BootRom password
6. Enter BootRom upgrade menu
7. Skip current system configuration
8. Set BootRom password recovery
9. Set switch startup mode
0. Reboot

Enter your choice(0-9):0
```

Using FTP to upgrade software through the management Ethernet port

1. Enter 1 in the Boot menu to access the file transfer protocol submenu.

```
1. Set TFTP protocol parameters
2. Set FTP protocol parameters
3. Set XMODEM protocol parameters
0. Return to boot menu

Enter your choice(0-3):
```

2. Enter 2 to set the FTP parameters.

```
Load File name      :update.ipe
```

```
Server IP address   :192.168.0.3
Local IP address    :192.168.0.2
Subnet Mask         :255.255.255.0
Gateway IP Address  :0.0.0.0
FTP User Name       :switch
FTP User Password   :123
```

Table 8 FTP parameter description

Item	Description
Load File Name	Name of the file to download (for example, update.ipe).
Server IP Address	IP address of the FTP server (for example, 192.168.0.3).
Local IP Address	IP address of the switch (for example, 192.168.0.2).
Subnet Mask	Subnet mask of the switch (for example, 255.255.255.0).
Gateway IP Address	IP address of the gateway (in this example, no gateway is required because the server and the switch are on the same subnet).
FTP User Name	Username for accessing the FTP server, which must be the same as configured on the FTP server.
FTP User Password	Password for accessing the FTP server, which must be the same as configured on the FTP server.

NOTE:

- To use the default setting for a field, press Enter without entering any value.
- If the switch and the server are on different subnets, you must specify a gateway address for the switch.

3. Enter all required parameters, and enter Y to confirm the settings. The following prompt appears:

```
Are you sure to download file to flash? Yes or No (Y/N):Y
```

4. Enter Y to start downloading the image file. To return to the Boot menu, enter N.

```
Loading.....................................................................
.............................................................................
.............................................................................
.....................................................................Done!
```

5. Enter the M (main), B (backup), or N (none) attribute for the images. In this example, assign the main attribute to the images.

```
Please input the file attribute (Main/Backup/None) M
The boot.bin image is self-decompressing...
Free space: 534980608 bytes
Writing flash...............................................................
.............................................................................
.....................................................................
Done!
The system.bin image is self-decompressing...
Free space: 525981696 bytes
Writing flash...............................................................
.............................................................................
```

```
................................................................................
................................................................................
................................................................................
................................................................................
.....................................................................
Done!

   BOOT MENU

1. Download image to flash
2. Select image to boot
3. Display all files in flash
4. Delete file from flash
5. Modify BootRom password
6. Enter BootRom upgrade menu
7. Skip current system configuration
8. Set BootRom password recovery
9. Set switch startup mode
0. Reboot

Enter your choice(0-9):0
```

NOTE:

- The switch always attempts to boot first with the main images, and if the attempt fails, for example, because the main images not available, the switch tries to boot with the backup images. An image with the none attribute is just stored in Flash memory for backup and you must change its attribute to make it usable at reboot.
- If an image with the same attribute as the image you are loading is already in Flash memory, the attribute of the old image changes to none after the new image becomes valid.

6. Enter 0 in the Boot menu to reboot the switch with the new software images.

Using XMODEM to upgrade software through the console port

XMODEM download through the console port is slower than TFTP or FTP download through the management Ethernet port. To save time, use the management Ethernet port as long as possible.

1. Enter 1 in the Boot menu to access the file transfer protocol submenu.

```
1. Set TFTP protocol parameters
2. Set FTP protocol parameters
3. Set XMODEM protocol parameters
0. Return to boot menu

Enter your choice(0-3):
```

2. Enter 3 to set the XMODEM download baud rate.

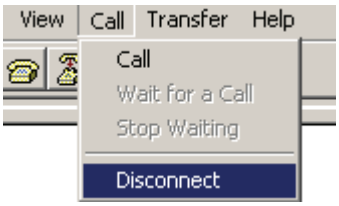
```
Please select your download baudrate:
1.* 9600
2.  19200
3.  38400
4.  57600
5.  115200
0.  Return to boot menu

Enter your choice(0-5):5
```

3. Select an appropriate download rate, for example, enter 5 to select 115200 bps.

```
Download baudrate is 115200 bps
Please change the terminal's baudrate to 115200 bps and select XMODEM protocol
Press enter key when ready
```

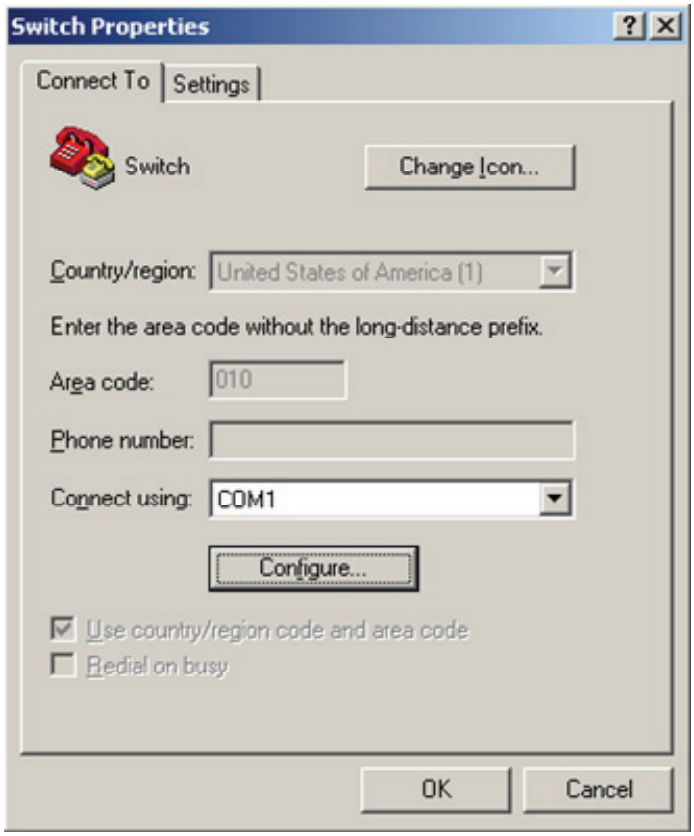
4. Set the serial port on the terminal to use the same baud rate and protocol as the console port. If you select 9600 bps as the download rate for the console port, skip this task.
5. Select Call > Disconnect in the HyperTerminal window to disconnect the terminal from the switch.

Figure 2 Disconnecting the terminal from the switch



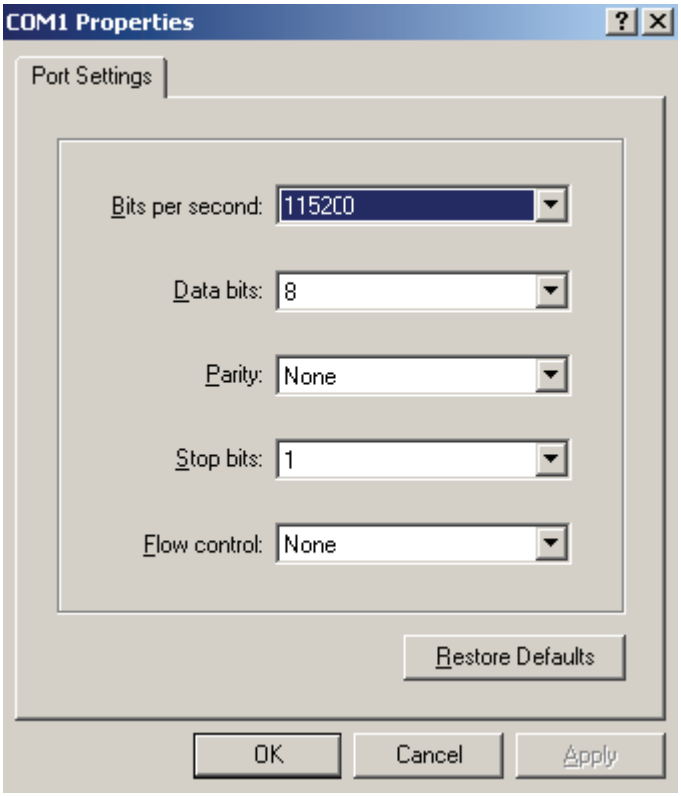
6. Select File > Properties, and in the Properties dialog box, click Configure.

Figure 3 Properties dialog box



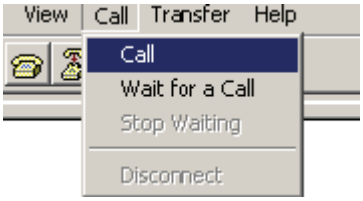
7. Select 115200 from the Bits per second list and click OK.

Figure 4 Modifying the baud rate



8. Select Call > Call to reestablish the connection.

Figure 5 Reestablishing the connection



9. Press Enter. The following prompt appears:

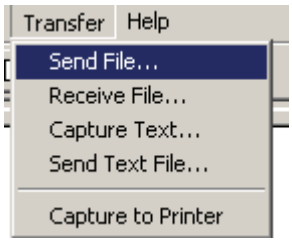
```
Are you sure to download file to flash? Yes or No (Y/N):Y
```

10. Enter Y to start downloading the file. (To return to the Boot menu, enter N.)

```
Now please start transfer file with XMODEM protocol
If you want to exit, Press <Ctrl+X>
Loading ...CCCCCCCCCCCCCCCCCCCCCCCCC
```

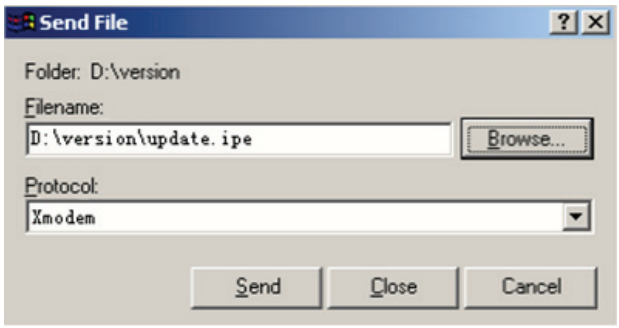
11. Select Transfer > Send File in the HyperTerminal window.

Figure 6 Transfer menu



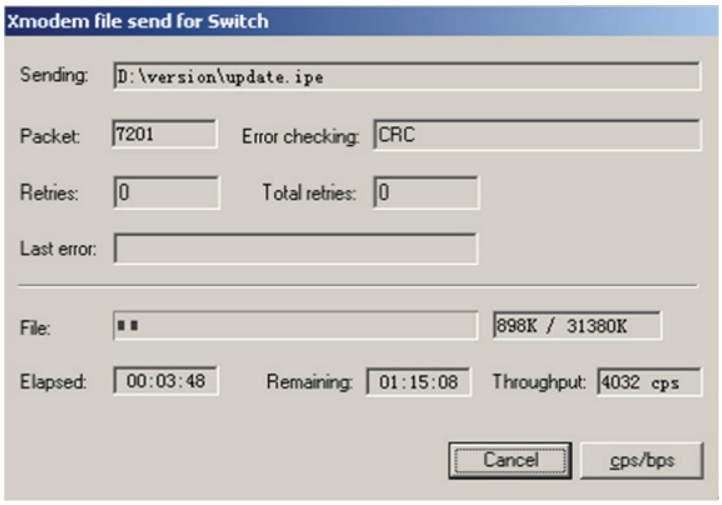
12. In the dialog box that appears, click Browse to select the source file, and select Xmodem from the Protocol list.

Figure 7 File transmission dialog box



13. Click Send. The following dialog box appears:

Figure 8 File transfer progress



14. Enter the M (main), B (backup), or N (none) attribute for the images. In this example, assign the main attribute to the images.

```
Please input the file attribute (Main/Backup/None) m
The boot.bin image is self-decompressing...
At the Load File name prompt, enter a name for the Boot image to be saved to Flash memory.
Load File name  : default_file boot-update.bin
Free space: 470519808 bytes
```

```
Writing flash.....................................................................
.............
Done!
The system-update.bin image is self-decompressing...
At the Load File name prompt, enter a name for the system image to be saved to Flash
memory.
Load File name  : default_file system-update.bin
Free space: 461522944 bytes
Writing flash.....................................................................
.............
Done!
Your baudrate should be set to 9600 bps again!
Press enter key when ready
```

NOTE:

- The switch always attempts to boot first with the main images, and if the attempt fails, for example, because the main images not available, the switch tries to boot with the backup images. An image with the none attribute is just stored in Flash memory for backup and you must change its attribute to make it usable at reboot.
- If an image with the same attribute as the image you are loading is already in Flash memory, the attribute of the old image changes to none after the new image becomes valid.

15. If the baud rate of the HyperTerminal is not 9600 bps, restore it to 9600 bps. If the baud rate is 9600 bps, skip this step.

To access the switch through the console port after a reboot, you must perform this step, because the console port rate reverts to 9600 bps at a reboot.

16. Press Enter to access the Boot menu.

```
   BOOT  MENU


1. Download image to flash
2. Select image to boot
3. Display all files in flash
4. Delete file from flash
5. Modify BootRom password
6. Enter BootRom upgrade menu
7. Skip current system configuration
8. Set BootRom password recovery
9. Set switch startup mode
0. Reboot

Enter your choice(0-9):0
```

17. Enter 0 to reboot the system with the new software images.

Using TFTP to upgrade Boot ROM through the management Ethernet port

1. Enter 6 in the Boot menu to access the Boot ROM update menu.

```
1. Update full BootRom
2. Update extended BootRom
3. Update basic BootRom
0. Return to boot menu

Enter your choice(0-3):
```

2. Enter 1 in the Boot ROM update menu to upgrade the full Boot ROM.

The file transfer protocol submenu appears:

```
1. Set TFTP protocol parameters
2. Set FTP protocol parameters
3. Set XMODEM protocol parameters
0. Return to boot menu

Enter your choice(0-3):
```

3. Enter 1 to set the TFTP parameters.

```
Load File name      :update.btm
Server IP address   :192.168.0.3
Local IP address    :192.168.0.2
Subnet Mask         :255.255.255.0
Gateway IP Address  :0.0.0.0
```

Table 9 TFTP parameter description

Item	Description
Load File Name	Name of the file to download (for example, update.btm).
Server IP Address	IP address of the TFTP server (for example, 192.168.0.3).
Local IP Address	IP address of the switch (for example, 192.168.0.2).
Subnet Mask	Subnet mask of the switch (for example, 255.255.255.0).
Gateway IP Address	IP address of the gateway (in this example, no gateway is required because the server and the switch are on the same subnet).

NOTE:

- To use the default setting for a field, press Enter without entering any value.
- If the switch and the server are on different subnets, you must specify a gateway address for the switch.

4. Enter all required parameters and press Enter to start downloading the file.

```
Loading.....................................................Done!
```

5. Enter Y at the prompt to upgrade the basic Boot ROM section.

```
Will you Update Basic BootRom? (Y/N):Y
```

```
Updating Basic BootRom..........Done!
```

6. Enter Y at the prompt to upgrade the extended Boot ROM section.

```
Updating extended BootRom? (Y/N):Y
Updating extended BootRom.........Done!
```

7. Enter 0 in the Boot ROM update menu to return to the Boot menu.

```
1. Update full BootRom
2. Update extended BootRom
3. Update basic BootRom
0. Return to boot menu

Enter your choice(0-3):
```

8. Enter 0 in the Boot menu to reboot the switch with the new Boot ROM image.

Using FTP to upgrade Boot ROM through the management Ethernet port

1. Enter 6 in the Boot menu to access the Boot ROM update menu.

```
1. Update full BootRom
2. Update extended BootRom
3. Update basic BootRom
0. Return to boot menu

Enter your choice(0-3):
```

2. Enter 1 in the Boot ROM update menu to upgrade the full Boot ROM.

The file transfer protocol submenu appears:

```
1. Set TFTP protocol parameters
2. Set FTP protocol parameters
3. Set XMODEM protocol parameters
0. Return to boot menu

Enter your choice(0-3):
```

3. Enter 2 to set the FTP parameters.

```
Load File Name     :update.btm
Server IP Address  :192.168.0.3
Local IP Address   :192.168.0.2
Subnet Mask        :255.255.255.0
Gateway IP Address :0.0.0.0
FTP User Name      :switch
FTP User Password  :123
```

Table 10 FTP parameter description

Item	Description
Load File Name	Name of the file to download (for example, update.btm).

Item	Description
Server IP Address	IP address of the FTP server (for example, 192.168.0.3).
Local IP Address	IP address of the switch (for example, 192.168.0.2).
Subnet Mask	Subnet mask of the switch (for example, 255.255.255.0).
Gateway IP Address	IP address of the gateway (in this example, no gateway is required because the server and the switch are on the same subnet).
FTP User Name	Username for accessing the FTP server, which must be the same as configured on the FTP server.
FTP User Password	Password for accessing the FTP server, which must be the same as configured on the FTP server.

NOTE:

- To use the default setting for a field, press Enter without entering any value.
- If the switch and the server are on different subnets, you must specify a gateway address for the switch.

4. Enter all required parameters and press Enter to start downloading the file.

```
Loading.....................................................Done!
```

5. Enter Y at the prompt to upgrade the basic Boot ROM section.

```
Will you Update Basic BootRom? (Y/N):Y
Updating Basic BootRom...........Done!
```

6. Enter Y at the prompt to upgrade the extended Boot ROM section.

```
Updating extended BootRom? (Y/N):Y
Updating extended BootRom.........Done!
```

7. Enter 0 in the Boot ROM update menu to return to the Boot menu.

```
1. Update full BootRom
2. Update extended BootRom
3. Update basic BootRom
0. Return to boot menu

Enter your choice(0-3):
```

8. Enter 0 in the Boot menu to reboot the switch with the new Boot ROM image.

Using XMODEM to upgrade Boot ROM through the console port

XMODEM download through the console port is slower than TFTP or FTP download through the management Ethernet port. To save time, use the management Ethernet port as long as possible.

1. Enter 6 in the Boot menu to access the Boot ROM update menu.

```
1. Update full BootRom
2. Update extended BootRom
3. Update basic BootRom
```

```
0. Return to boot menu

Enter your choice(0-3):
```

2. Enter 1 in the Boot ROM update menu to upgrade the full Boot ROM.

The file transfer protocol submenu appears:

```
1. Set TFTP protocol parameters
2. Set FTP protocol parameters
3. Set XMODEM protocol parameters
0. Return to boot menu

Enter your choice(0-3):
```

3. Enter 3 to set the XMODEM download baud rate.

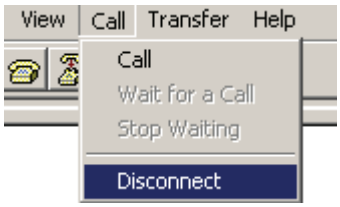
```
Please select your download baudrate:
1.* 9600
2.  19200
3.  38400
4.  57600
5.  115200
0.  Return to boot menu

Enter your choice(0-5):5
```

4. Select an appropriate download rate, for example, enter 5 to select 115200 bps.

```
Download baudrate is 115200 bps
Please change the terminal's baudrate to 115200 bps and select XMODEM protocol
Press enter key when ready
```

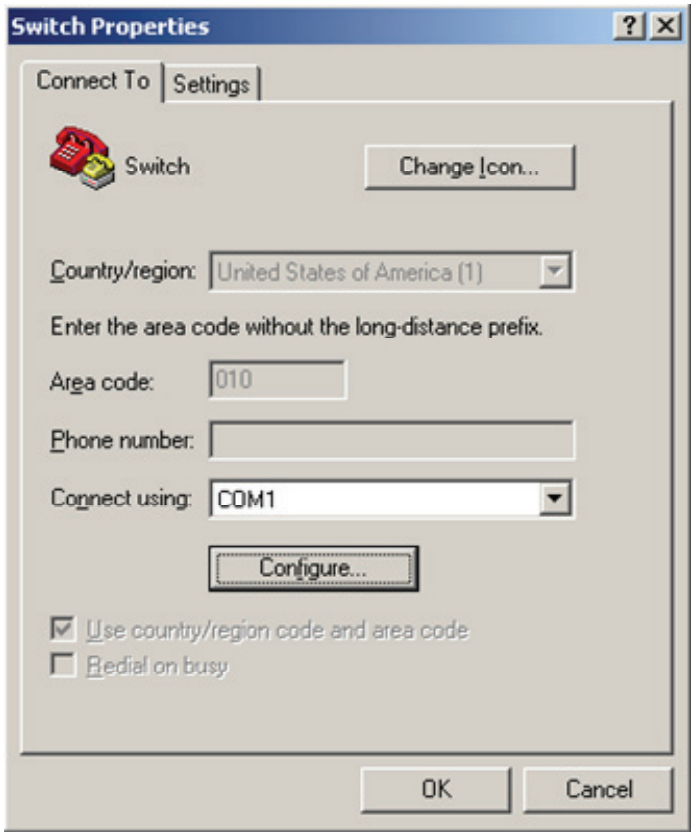
5. Set the serial port on the terminal to use the same baud rate and protocol as the console port. If you select 9600 bps as the download rate for the console port, skip this task.
6. Select Call > Disconnect in the HyperTerminal window to disconnect the terminal from the switch.

Figure 9 Disconnecting the terminal from the switch



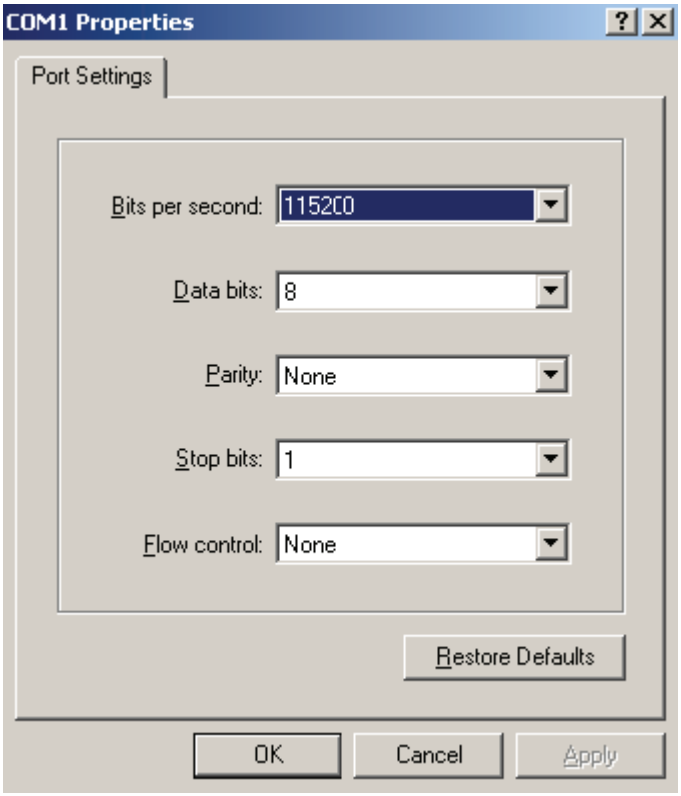
7. Select File > Properties, and in the Properties dialog box, click Configure.

Figure 10 Properties dialog box



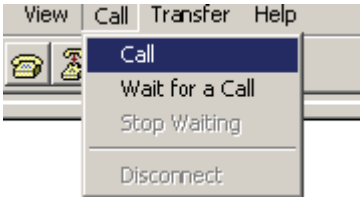
8. Select 115200 from the Bits per second list and click OK.

Figure 11 Modifying the baud rate



9. Select Call > Call to reestablish the connection.

Figure 12 Reestablishing the connection

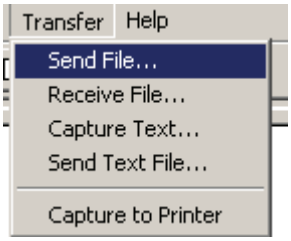


10. Press Enter to start downloading the file.

```
Now please start transfer file with XMODEM protocol
If you want to exit, Press <Ctrl+X>
Loading ...CCCCCCCCCCCCCCCCCCCCCCCCC
```

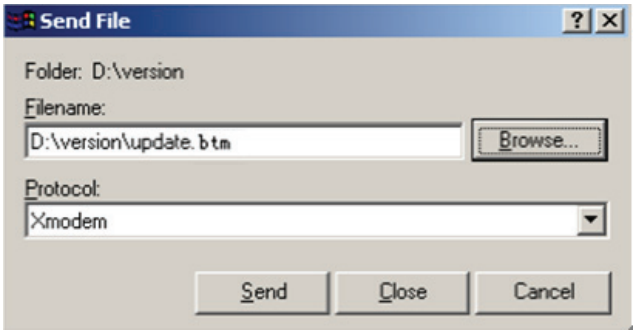
11. Select Transfer > Send File in the HyperTerminal window.

Figure 13 Transfer menu



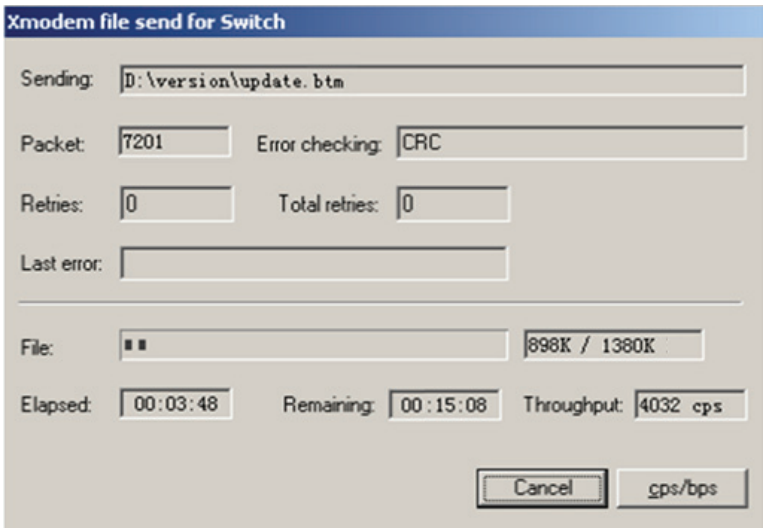
12. In the dialog box that appears, click Browse to select the source file, and select Xmodem from the Protocol list.

Figure 14 File transmission dialog box



13. Click Send. The following dialog box appears:

Figure 15 File transfer progress



14. Enter Y at the prompt to upgrade the basic Boot ROM section.

```
Loading ...CCCCCCCCCCCCC  ...Done!
Will you Update Basic BootRom? (Y/N):Y
Updating Basic BootRom..........Done!
```

15. Enter Y at the prompt to upgrade the extended Boot ROM section.

```
Updating extended BootRom? (Y/N):Y
Updating extended BootRom.........Done!
```

16. If the baud rate of the HyperTerminal is not 9600 bps, restore it to 9600 bps at the prompt. If the baud rate is 9600 bps, skip this step.

```
Please change the terminal's baudrate to 9600 bps, press ENTER when ready.
```

To access the switch through the console port after a reboot, you must perform this step, because the console port rate reverts to 9600 bps at a reboot.

17. Press Enter to access the Boot ROM update menu.

18. Enter 0 in the Boot ROM update menu to return to the Boot menu.

```
1. Update full BootRom
2. Update extended BootRom
3. Update basic BootRom
0. Return to boot menu

Enter your choice(0-3):
```

19. Enter 0 in the Boot menu to reboot the switch with the new Boot ROM image.

Managing files from the Boot menu

From the Boot menu, you can display files in Flash memory to check for obsolete files, incorrect files, or space insufficiency, delete files to release storage space, or change the attributes of software images.

Displaying all files

Enter 3 in the Boot menu to display all files in Flash memory and identify the free space size.

```
   BOOT  MENU

1. Download image to flash
2. Select image to boot
3. Display all files in flash
4. Delete file from flash
5. Modify BootRom password
6. Enter BootRom upgrade menu
7. Skip current system configuration
8. Set BootRom password recovery
9. Set switch startup mode
0. Reboot

Enter your choice(0-9): 3
```

The following is a sample output:

```
Display all file(s) in flash:

File Number    File Size(bytes)     File Name
================================================================================
1              8177                 flash:/testbackup.cfg
2(*)           23129088             flash:/system.bin
3(*)           8996864              flash:/boot.bin
4              3678                 flash:/startup.cfg_backup
5              30033                flash:/default.mdb
6              42424                flash:/startup.mdb
7              18                   flash:/.pathfile
8              232311               flash:/logfile/logfile.log
9              5981                 flash:/startup.cfg_back
```

```
10(*)          6098                flash:/startup.cfg
11             20                  flash:/.snmpboots
Free space: 502804480 bytes
The current image is boot.bin
(*)-with main attribute
(b)-with backup attribute
(*b)-with both main and backup attribute
```

Deleting files

If storage space is insufficient, delete obsolete files to free up storage space.

To delete files:

1. Enter 4 in the Boot menu:

```
Deleting the file in flash:

File Number    File Size(bytes)     File Name
=============================================================================
1              8177                flash:/testbackup.cfg
2(*)           23129088            flash:/system.bin
3(*)           8996864             flash:/boot.bin
4              3678                flash:/startup.cfg_backup
5              30033               flash:/default.mdb
6              42424               flash:/startup.mdb
7              18                  flash:/.pathfile
8              232311              flash:/logfile/logfile.log
9              5981                flash:/startup.cfg_back
10(*)          6098                flash:/startup.cfg
11             20                  flash:/.snmpboots
Free space: 502804480 bytes
The current image is boot.bin
(*)-with main attribute
(b)-with backup attribute
(*b)-with both main and backup attribute
```

2. Enter the number of the file to delete. For example, enter 1 to select the file testbackup.cfg.

```
Please input the file number to change: 1
```

3. Enter Y at the confirmation prompt.

```
The file you selected is testbackup.cfg,Delete it? (Y/N):Y
Deleting.................................Done!
```

Changing the attribute of software images

Software image attributes include main (M), backup (B), and none (N). System software and boot software can each have multiple none-attribute images but only one main image and one backup image on the switch. You can assign both the M and B attributes

to one image. If the M or B attribute you are assigning has been assigned to another image, the assignment removes the attribute from that image. If the removed attribute is the sole attribute of the image, its attribute changes to N.

For example, the system image system.bin has the M attribute and the system image system-update.bin has the B attribute. After you assign the M attribute to system-update.bin, the attribute of system-update.bin changes to M+B and the attribute of system.bin changes to N.

To change the attribute of a system or boot image:

1. Enter 2 in the Boot menu.

```
   BOOT  MENU

1. Download image to flash
2. Select image to boot
3. Display all files in flash
4. Delete file from flash
5. Modify BootRom password
6. Enter BootRom upgrade menu
7. Skip current system configuration
8. Set BootRom password recovery
9. Set switch startup mode
0. Reboot

Enter your choice(0-9): 2
```

2. Enter 1 at the prompt to set the attribute of a software image. (To set the attribute of a configuration file, enter 2.)

```
1. Set image file
2. Set configuration file
0. Return to boot menu

Enter your choice(0-2): 1

File Number    File Size(bytes)     File Name
================================================================================

1(*)              7913472              flash:/system.bin
2(*)              8996864              flash:/boot.bin
3                 8996864              flash:/boot-update.bin
4                 23129088             flash:/system-update.bin
Free space: 461413664 bytes
(*)-with main attribute
(b)-with backup attribute
(*b)-with both main and backup attribute
```

3. Enter the number of the file you are working with. For example, enter 3 to select the boot image boot-update.bin.

```
Please input the file number to change: 3
```

4. Enter M or B to change its attribute to main or backup. If you change its attribute to M, the attribute of boot.bin changes to none.

```
Please input the file attribute (Main/Backup/None) M
This operation may take several minutes. Please wait....
Next time, boot-update.bin will become default boot file!
```

5. At the prompt, enter Y to reboot the switch with the new main boot image or enter N to return to the Boot menu.

```
Do you want to run boot-update.bin now? Yes or No (Y/N): Y
Loading the main images...
Starting to get the image flash:/boot-update.bin.............................
.....................................................................................
.....................................................................................
..........Done!
```

Handling software upgrade failures

If a software upgrade fails, the system runs the old software version.

To handle a software upgrade failure:

1. Verify that the software release is compatible with the switch model and the correct file is used.
2. Verify that the software release and the Boot ROM release are compatible. For software and Boot ROM compatibility, see the hardware and software compatibility matrix in the correct release notes.
3. Check the physical ports for a loose or incorrect connection.
4. If you are using the console port for file transfer, check the HyperTerminal settings (including the baud rate and data bits) for any wrong setting.
5. Check the file transfer settings:
   - If XMODEM is used, you must set the same baud rate for the terminal as for the console port.
   - If TFTP is used, you must enter the same server IP addresses, file name, and working directory as set on the TFTP server.
   - If FTP is used, you must enter the same FTP server IP address, source file name, working directory, and FTP username and password as set on the FTP server.
6. Check the FTP or TFTP server for any incorrect setting.
7. Check that the storage device has sufficient space for the upgrade file.