

# WB.16.04.0009 Release Notes



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## Description

This release note covers software versions for the WB.16.04 branch of the software.

Version WB.16.04.0008 is the initial build of Major version WB.16.04 software. WB.16.04.0008 includes all enhancements and fixes in the WB.16.03.0003 software, plus the additional enhancements and fixes in the WB.16.04.0008 enhancements and fixes sections of this release note.

Product series supported by this software:

Aruba 2920 Switch Series

## Important information

To avoid damage to your equipment, do not interrupt power to the switch during a software update.

Firmware downgrade to a version earlier than 16.04 will generate new SSH keys upon switch boot-up. These keys will be different than the ones previously stored in SSH peer's known hosts file and may result in SSH connectivity issues after the OS downgrade completes. You will need to erase the pre-existing switch keys from SSH peer's known hosts file to restore SSH connectivity.

This issue will not be encountered when the option "StrictHostKeyChecking" is disabled in the SSH peer.

For more information regarding clearing SSH keys and changing strict host key checking settings, see the documentation provided with your SSH client.

## Version history

All released versions are fully supported by Hewlett Packard Enterprise, unless noted in the table.

Version number	Release date	Based on	Remarks
WB.16.04.0009	2017-10-16	WB.16.04.0008	Released, fully supported, and posted on the web.
WB.16.04.0008	2017-07-27	WB.16.03.0003	Initial release of the WB.16.04 branch. Released, fully supported, and posted on the web.
WB.16.03.0005	2017-07-07	WB.16.03.0004	Released, fully supported, and posted on the web.
WB.16.03.0004	2017-04-17	WB.16.03.0003	Released, fully supported, and posted on the web.
WB.16.03.0003	2016-12-20	WB.16.02.0008	Initial release of the WB.16.03 branch. Released, fully supported, and posted on the web.

*Table Continued*

Version number	Release date	Based on	Remarks
WB.16.02.0014	2016-10-28	WB.16.02.0013	Please see the WB.16.02.0114 release notes for detailed information on the WB.16.02 branch. Released, fully supported, and posted on the web.
WB.16.02.0013	n/a	WB.16.02.0012	Never released.
WB.16.02.0012	2016-08-31	WB.16.02.0011	Released, fully supported, and posted on the web.
WB.16.02.0011	2016-08-24	WB.16.02.0010	Released, fully supported, and posted on the web.
WB.16.02.0010	2016-08-11	WB.16.02.0009	Released, fully supported, and posted on the web.
WB.16.02.0009	n/a	WB.16.02.0008	Never released.
WB.16.02.0008	2016-07-08	WB.16.01.0004	Initial release of the WB.16.02 branch. Released, fully supported, and posted on the web.

## Products supported

This release applies to the following product models:

Product number	Description
J9726A	Aruba 2920 24G Switch
J9728A	Aruba 2920 48G Switch
J9727A	Aruba 2920 24G PoE+ Switch
J9729A	Aruba 2920 48G PoE+ Switch
J9836A	Aruba 2920 48G PoE+ 740W Switch

## Compatibility/interoperability

The switch web agent supports the following web browsers:

Browser	Supported versions
Internet Explorer	<ul style="list-style-type: none"> <li>Edge</li> <li>11</li> </ul>
Chrome	<ul style="list-style-type: none"> <li>53</li> <li>52</li> </ul>

*Table Continued*

Browser	Supported versions
Firefox	<ul style="list-style-type: none"> <li>• 49</li> <li>• 48</li> </ul>
Safari (MacOS only)	<ul style="list-style-type: none"> <li>• 10</li> <li>• 9</li> </ul>

## Enhancements

This section lists enhancements added to this branch of the software.

Software enhancements are listed in reverse-chronological order, with the newest on the top of the list. Unless otherwise noted, each software version listed includes all enhancements added in earlier versions.

### Version WB.16.04.0009

#### Authentication

Added a new authentication option to pin Local-MAC and MAC-based authenticated clients and to allow them to remain authenticated when they become inactive, after the expiration of authentication log-off period. When mac pinning option is enabled on a port, it overrides the regular log-off period for authenticated clients. The option can be enabled using the following CLI command:

```
aaa port-access local-mac <PORT-LIST> mac-pin
aaa port-access mac-based <PORT-LIST> mac-pin
```

#### OpenFlow

Added a configuration option allowing you to specify the controller interface's source IP address used to establish a connection with the OpenFlow controller.

```
controller-id <ID> ip <IPV4-ADDR> [port <PORT-NUM>]
controller-interface vlan <VLAN-ID> source-ip <IPV4-ADDR>
```

### Version WB.16.04.0008

#### /31 Subnet Support

On a point-to-point link, where there is no need for a broadcast address, this enhancement allows configuration of an IP address with prefix length of /31. This feature allows users to set the subnet mask to 255.255.255.254 and accepts a broadcast address as a valid IP address for a host on the network. For more information, see the *ArubaOS-Switch Management and Configuration Guide* and the *ArubaOS-Switch Access Security Guide* for your switch.

#### Batch CLI command execution over REST Interface

REST interface users may now choose to push a subset of the switch configuration in one go via the newly added 'CliBatchCommand' instead of using the individual REST APIs to configure features. If the configuration (in CLI format) of the switch is already known, this command can be leveraged for initial setup by executing the CLI commands in a single batch over the REST API. For more information, see the *ArubaOS-Switch REST API Guide*.

## CLI Commands over REST Interface

As the ArubaOS-Switch software continues to add richer REST interface for programmatically managing the switch, there is a desire to execute configuration and show commands that are not currently supported by the REST interface for troubleshooting purposes.

ArubaOS-Switch 16.04 introduces the 'CliCommand' interface that allows execution of most configuration commands, action commands, and show commands to help existing REST interface users expand the set of tools in their arsenal. For more information, see the *ArubaOS-Switch REST API Guide*.

## Connected Device Reporting

Connected Device Reporting provides visibility to Central customers about wired devices connected to the switch. Central now has visibility into both authenticated as well as unauthenticated devices, helping customers understand the status of their current network. Central 2.3.6 is the minimum version required.

## Enhanced Fan Status

The `show system fans` command shows the status of power supply fans, fans in the fan trays, and fans on the individual members of stacks depending on the context from which the command is issued. For more information, see the *ArubaOS-Switch Management and Configuration Guide* for your switch.

## Increase Subject length for the certificate

In the self-signed certificates, or in certificate signing requests created by the switch, the length of the subject name has been increased to accommodate the maximum values of the individual maximums of each of the attributes in the subject (Distinguished Name). For more information, see the *ArubaOS-Switch Access Security Guide* for your switch.

## IPv6 Default Gateway on OOBM port

The option to allow setting of the default gateway for IPv6 on OOBM ports obviates the need to turn on neighbor discovery and helps simplify IPv6 rollouts in Campus Networks. For more information, see the *ArubaOS-Switch Management and Configuration Guide* for your switch.

## IPv6 Set Router Preference

This feature extends the IPv6 Router Advertisement message to include router preference to help hosts choose the best default router for off-link destinations. For more information, see the *ArubaOS-Switch Management and Configuration Guide* for your switch.

## Management of 2920 stacks on Aruba Central

Besides enabling the stacking REST APIs, 16.04 also allows for 2920 stacks to be fully managed by Aruba Central. Please refer to the Aruba Central release notes for information on availability on the feature. For more information, see the *ArubaOS-Switch Management and Configuration Guide* for your switch.

## Stacking support with REST APIs

This release enables the management of stacks of switches (both backplane and frontplane) via REST APIs. Backplane stacks (2920, 2930M, 3810M) and front plane or VSF stacks (2930F and 5400R) can now be fully set up and managed using the REST APIs. For more information, see the *ArubaOS-Switch Management and Configuration Guide* for your switch.

## Time-Domain Reflectometry for 2920

Cable tests using Time Domain Reflectometry (TDR) can help detect cable faults on copper cables within the resolution of meters and help admins troubleshoot cable faults. This feature has been available on other



ArubaOS-Switch platforms is now supported on the 2920. For more information, see the *ArubaOS-Switch Management and Configuration Guide* for your switch.

## Fixes

This section lists released builds that include fixes found in this branch of the software. Software fixes are listed in reverse-chronological order, with the newest on the top of the list. Unless otherwise noted, each software version listed includes all fixes added in earlier versions.

The Symptom statement describes what a user might experience if this is seen on the network. The Scenario statement provides additional environment details and trigger summaries. When available, the Workaround statement provides a workaround to the issue for customers who decide not to update to this version of software.



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The number that precedes the fix description is used for tracking purposes.

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## Version WB.16.04.0009

### Authentication CR\_0000235976

**Symptom:** Clients in guest VLAN (`unauth-vid`) are not reauthenticated.

**Scenario:** When RADIUS server is not available for authentication, if the client is placed in guest VLAN (`unauth-vid`) and the port is not configured for reauthentication, the switch does not re-authenticate the client after the RADIUS server connectivity becomes available.

**Workaround:** Do one of the following to resolve the issue:

1. Disable and re-enable the authentication port.
2. Configure re-authentication on the port ("`reauth-period`").

### Central CR\_0000236990

**Symptom:** Incorrect switch IP address is displayed in the Central UI.

**Scenario:** When the switch is configured with multiple IP addresses on the uplink interface, the DeviceInfo and SystemInfo stats in the Central UI may report incorrect switch IP address info.

### DHCP CR\_0000234234

**Symptom:** The switch may fail to obtain the IP address assigned from a DHCP Server.

**Scenario:** When a DHCP Server sends the DHCP OFFER messages with destination IP address set to 0.0.0.0 destined to the switch's DHCP client, the switch drops the DHCP packet and fails to assign the IP address to its VLAN.

### DHCP Snooping CR\_0000230898

**Symptom:** DHCP Snooping RMON messages intended for unicast client packets are incorrectly displayed for broadcast client packets.

**Scenario:** When DHCP Snooping is enabled globally and on a VLAN, if there is no trusted port or IP helper address configured on the VLAN, the switch logs incorrect event messages:

```
dhcp-snoop: backplane: Client packet destined to untrusted port dropped
dhcp-snoop: backplane: Ceasing untrusted port destination logs for 5m
```

New event messages were added for broadcast client packets:

```
dhcp-snoop: backplane: Client broadcast packet on <PORT-NUM> dropped, as neither
trusted port nor DHCP Relay configured on <VLAN-ID>
dhcp-snoop: backplane: Ceasing client broadcast packet drop logs for 5m.
```

## Physical Port CR\_0000234441

**Symptom:** Switch may fail with an error message similar to Health Monitor: Read Error Restr Mem Access <..> Task='mPmSlvCtrl'.

**Scenario:** When a switch port link repeatedly toggles and negotiated speeds change between 10G and 1G, the switch may crash with an error message similar to Health Monitor: Read Error Restr Mem Access <..> Task='mPmSlvCtrl'.

**Workaround:** Configure the port's speed and duplex settings to auto-10g or auto-1000 to avoid speed changes and minimize port toggling.

## Smart Link CR\_0000235633

**Symptom:** Standby Smart Link ports do not become active even if the active port goes down when one member is powered off.

**Scenario:** In a switch stack with non-consecutive Smart Link ports, if one member is powered off, the other non-consecutive ports also go down.

**Workaround:** Configure Smart Link ports as consecutive ports.

## SNMP CR\_0000237141

**Symptom:** SNMPv3 target address configured parameters are not displayed in the switch running configuration.

**Scenario:** When SNMPv3 is configured with target parameters using the CLI command `snmpv3 targetaddress <ASCII-STR> params <ASCII-STR>`, the parameters are not displayed in the output of CLI command `show running-config`.

**Workaround:** Use the CLI command `show snmpv3 targetaddress` to display target configured parameters.

## SSH CR\_0000233725

**Symptom:** A delay is observed with ping response between the switch and the RADIUS server. Slow CLI response from SSH sessions are also observed.

**Scenario:** Symptoms occur when RADIUS Accounting is configured for Network and the interim-update is configured with MAC-based or 802.1X clients for a duration of 1 minute.

**Workaround:** Do one of the following:

1. Remove the RADIUS Network Accounting interim-update configuration.
2. Increase the interim-update interval to more than 5 minutes.

## CR\_0000236513

**Symptom:** Switch may crash with an error message similar to `Health Monitor: Invalid Instr Misaligned Mem Access <...> Task='tWatchD'`.

**Scenario:** When the SSH public-keys are installed without comments using the switch OS version xx.15.17.xxxx or older and the switch is upgraded to a newer OS version, the switch may crash when issuing the CLI command `show crypto client-public-key`.

**Workaround:** Install all SSH public keys with comments section or remove all SSH public keys installed without comments before upgrading the switch to a newer OS version.

## Web UI

### CR\_0000234086

**Symptom/Scenario:** The **Save** button for Port Security configuration modifications is missing in the NextGen WebUI.

**Workaround:** Use CLI command to make changes to an existing Port Security configuration.

## Version WB.16.04.0008

### Authentication

#### CR\_0000232197

**Symptom:** The switch may delay the request for authentication credentials.

**Scenario:** When accessing telnet and console session, the switch prompts for authentication credentials with a slight delay.

**Workaround:** Use SSH to access the switch to get the prompt for authentication credentials immediately.

## Central

### CR\_0000233323

**Symptom/Scenario:** When a switch configuration is pushed via Aruba Central, the configuration may not be entirely pushed to the switch, resulting in an incomplete or truncated switch configuration.

## Console

### CR\_0000230819

**Symptom:** The switch console may become unresponsive.

**Scenario:** When disconnecting the console session, connected to a standby or member switch of a stack, using **ESC + ~**, the console may not disconnect properly and become unresponsive causing the respective stack member to crash with an error message similar to `Software exception at multMgmtUtil.c:141 -- in 'mLoopPTx' <...>`.

## LLDP

### CR\_0000232922

**Symptom:** The switch reports an incorrect error message when it fails to configure the loopback interface IP address for LLDP advertisements.

**Scenario:** When attempting to configure the loopback interface IP address for LLDP advertisements, the switch displays an incorrect error message:

```
This IP address is not configured or is a DHCP address
```

Instead, the following error message should be displayed:

```
This IP address is not configured or is a DHCP/Loopback address
```

**Workaround:** Configure a statically assigned VLAN IP address for LLDP advertisements.

## OpenFlow CR\_0000229081

**Symptom:** OpenFlow flow statistics counters may reset to zero and fail to increment after that.

**Scenario:** Packet count in the flow statistics reported in the CLI command `show openflow instance <name> flows` may stop incrementing. OpenFlow flows may fail to age out and the hard/idle timeout for the affected flows may not expire.

**Workaround:** Disable and re-enable OpenFlow instance state.

## CR\_0000229141

Added support for 'stats' flag in OpenFlow meter. The switch advertises OFPMF\_STATS as a configurable flag when creating/modifying a meter. You are now able to get the meter statistics using the multipart message for any configured meter.

With the added support of STATS, the users will be able to query the statistics only if the STATS flag is configured along with the KBPS/PKTPS flags. Users will no longer be able to query the statistics without STATS.

## CR\_0000229987

**Symptom:** OpenFlow may not be forwarding LLDP and CDP traffic to the specified port.

**Scenario:** LLDP and CDP traffic on OpenFlow enabled VLANs may not be properly redirected to the OpenFlow port.

## CR\_0000233449

**Symptom:** The output of CLI command `show openflow instance <inst_name> flow-table` may be incomplete.

**Scenario:** When using OpenFlow instance with custom pipeline model on a stack commander with more than 4 members or on a switch chassis with more than 10 slots, the output of the CLI command `show openflow instance <inst_name> flow-table` may be incomplete.

Example from a chassis with slots A-L populated:

```
HP-Switch-5412Rz12# show openflow instance a flow-table
```

```
OpenFlow Instance Flow Table Information
```

Table ID	Table Name	Flow Count	Miss Count	Goto Table
0	Custom L2 Src	1	688	1, 2, 3
1	Custom L2 Dst	1	0	2, 3
2	Custom L3 Table	1	0	3
3	Custom TCAM Table	1	0	*

```
Table
```

Table ID	Table Name	Available	Free	Flow	Count
0	Custom L2 Src	Slot A	:	7372	
		Slot B	:	7372	
		Slot C	:	7372	
		Slot D	:	7372	
		Slot E	:	7372	
		Slot F	:	7372	
		Slot G	:	7372	

	Slot H	: 7372
	Slot I	: 7372
	Slot J	: 7
1	Custom L2 Dst	Slot A : 6144
		Slot B : 6144
		Slot C : 6144
		Slot D : 6144
		Slot E : 6144
		Slot F : 6144
		Slot G : 6144
		Slot H : 6144
		Slot I : 6144
		Slot J : 6

...

## OSPF CR\_0000230472

**Symptom:** OSPF interface authentication may fail.

**Scenario:** After a switch reboot, the OSPF authentication may fail when it is set to `md5-auth-key-chain` and `encrypt-credentials` is enabled on only one peer.

**Workaround:** Enable `encrypt-credentials` on both OSPF peers and reboot.

## Private VLAN CR\_0000233782

**Symptom:** The switch may not properly forward traffic to the promiscuous port in the private VLAN.

When there is a client connected on a security enabled port and the port is an access port of the secondary VLAN, the client is not able to reach the router connected on the promiscuous port.

**Scenario:** In a private VLAN configuration, when using security enabled VLAN (for example, radius assigned attributes) on the secondary VLAN, the switch may fail to forward traffic from authenticated client to the promiscuous port.

**Workaround:** Disable security on the access port.

## CR\_0000234099

**Symptom:** The switch may not properly move a client's MAC address from one port to another.

**Scenario:** In a private VLAN, when a client moves from one access port to another on the same secondary VLAN across the ISL, the switch may not correctly move the client's MAC address to the new access port.

The MAC will clear when MAC age time expires, allowing the MAC address to be re-learned on the new port.

**Workaround:** Manually clear the MAC address from CLI to allow immediate MAC address re-learning on the new port.

## sFlow CR\_0000228486

**Symptom:** sFlow displays invalid levels of dropped samples.

**Scenario:** When using trunk interfaces, sFlow is incorrectly calculating the levels of dropped samples displayed in the output of the CLI command `show sflow <INSTANCE> sampling-polling`.

## Smart Link CR\_0000233339

**Symptom:** The Smart Link port might flood VLAN traffic even though it is not a member of that VLAN.

**Scenario:** When the switch is configured with Smart Links and multiple VLANs, VLAN traffic is sent on Smart Link ports that are not a member of those VLANs.

**Workaround:** No workaround. Remove the Smart Link port configuration to avoid this issue.

## SSH CR\_0000229176

**Symptom:** Unable to access switch via SSH.

**Scenario:** When using raw console terminal (`console terminal none`) with message of the day banner configured (`banner motd`) and SSH session to the switch may fail with the error message `Session terminated, unable to login`.

**Workaround:** Configure console ANSI or VT100 console terminal or disable message of the day banner.

## CR\_0000232500

**Symptom:** Switch fails to authenticate an SSH client using keyboard-interactive method.

**Scenario:** When the switch access is enabled for SSH public key authentication (for example, `aaa authentication ssh login public-key`), if the SSH client fails to authenticate using client private key for N-1 configured number of authentication attempts (for example, `aaa authentication num-attempts N`), the switch does not failover to authenticate the client using keyboard-interactive method. The switch causes the client authentication to fail with an error message similar to `Too many authentication failures, even when one more attempt is available`.

## UDLD CR\_0000229788

**Symptom:** In a redundant configuration, the switch may stop forwarding traffic on LACP aggregated ports.

**Scenario:** In a redundant configuration with Spanning Tree enabled, when multiple redundancy switchover events occur, the switch may fail to forward traffic over an LACP trunk which has UDLD enabled in "verify-then-forward" mode.

**Workaround:** Disable and re-enable Spanning Tree. Alternatively, disable and re-enable the affected port.

## Web UI CR\_0000229939

**Symptom:** Switch port PoE status cannot be changed from the Web UI.

**Scenario:** In a stacked switch environment, the Web UI does not allow you to change the PoE status of a port belonging to a stack member other than commander switch. It reports an error message: `Not a valid PoE port`.

**Workaround:** Use the following CLI command to change PoE status for the port:

```
[no] interface <PORT-LIST> power-over-ethernet
```

## CR\_0000234086

**Symptom/Scenario:** The **Save** button for Port Security configuration modifications is missing in the NextGen WebUI.

**Workaround:** Use CLI command to make changes to an existing Port Security configuration.

## Issues and workarounds

The following are known open issues with this branch of the software.

The Symptom statement describes what a user might experience if this is seen on the network. The Scenario statement provides additional environment details and trigger summaries. When available, the Workaround statement provides a workaround to the issue.

### Central

#### CR\_0000237778

**Symptom:** Login to switch from Central Remote Console System (RCS) may fail.

**Scenario:** When the switch is configured with local authentication as well as RADIUS/TACACS authentication and the local user credentials are not provisioned in RADIUS/TACACS, Central RCS authentication fails.

**Workaround:** Add local user credentials to RADIUS/TACACS server.

## Upgrade information

### Upgrading restrictions and guidelines

WB.16.04.0009 uses BootROM WB.16.03. If your switch has an older version of BootROM, the BootROM will be updated with this version of software.

For more information about BootROM, see the *ArubaOS-Switch Management and Configuration Guide WB.16.04*.

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ⓘ During the software update, the switch will automatically boot twice. The switch will update the primary BootROM, then reboot, and then update the secondary BootROM. After the switch flash memory is updated and the final boot is initiated, no additional user intervention is needed. Do not interrupt power to the switch during this important update.

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Firmware downgrade to a version earlier than 16.01 is not allowed if the max-vlans value is greater than 2048.

Unconfigure the max-vlans before attempting to downgrade from WB.16.02.0008 or later to a version earlier than 16.01 of the firmware.

Firmware downgrade to a version earlier than 16.04 will generate new SSH keys upon switch boot-up. These keys will be different than the ones previously stored in SSH peer's known hosts file and may result in SSH connectivity issues after the OS downgrade completes. You will need to erase the pre-existing switch keys from SSH peer's known hosts file to restore SSH connectivity.

This issue will not be encountered when the option "StrictHostKeyChecking" is disabled in the SSH peer.

For more information regarding clearing SSH keys and changing strict host key checking settings, see the documentation provided with your SSH client.

For information on best practices when updating software or rolling back to previous versions of software, see the "Best practices for software updates" section of the *ArubaOS-Switch Basic Operations Guide Version 16.04*.

A Security Bulletin is the first published notification of security vulnerabilities and is the only communication vehicle for security vulnerabilities.

- Fixes for security vulnerabilities are not documented in manuals, release notes, or other forms of product documentation.
- A Security Bulletin is released when all vulnerable products still in support life have publicly available images that contain the fix for the security vulnerability.

## Finding Security Bulletins

### Procedure

1. Go to the HPE Support Center - Hewlett Packard Enterprise at [www.hpe.com/support/hpesc](http://www.hpe.com/support/hpesc).
2. Enter your product name or number and click **Go**.
3. Select your product from the list of results.
4. Click the **Top issues & solutions** tab.
5. Click the **Advisories, bulletins & notices** link.

## Security Bulletin subscription service

You can sign up at [http://www.hpe.com/support/Subscriber\\_Choice](http://www.hpe.com/support/Subscriber_Choice) to initiate a subscription to receive future Hewlett Packard Enterprise Security Bulletin alerts via email.



### Networking Websites

Hewlett Packard Enterprise Networking Information Library

[www.hpe.com/networking/resourcefinder](http://www.hpe.com/networking/resourcefinder)

Hewlett Packard Enterprise Networking Software

[www.hpe.com/networking/software](http://www.hpe.com/networking/software)

Hewlett Packard Enterprise Networking website

[www.hpe.com/info/networking](http://www.hpe.com/info/networking)

Hewlett Packard Enterprise My Networking website

[www.hpe.com/networking/support](http://www.hpe.com/networking/support)

Hewlett Packard Enterprise My Networking Portal

[www.hpe.com/networking/mynetworking](http://www.hpe.com/networking/mynetworking)

Hewlett Packard Enterprise Networking Warranty

[www.hpe.com/networking/warranty](http://www.hpe.com/networking/warranty)

### General websites

Hewlett Packard Enterprise Information Library

[www.hpe.com/info/EIL](http://www.hpe.com/info/EIL)

For additional websites, see [Support and other resources](#).

## Accessing Hewlett Packard Enterprise Support

- For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website:  
<http://www.hpe.com/assistance>
- To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website:  
<http://www.hpe.com/support/hpesc>

### Information to collect

- Technical support registration number (if applicable)
- Product name, model or version, and serial number
- Operating system name and version
- Firmware version
- Error messages
- Product-specific reports and logs
- Add-on products or components
- Third-party products or components

## Accessing updates

- Some software products provide a mechanism for accessing software updates through the product interface. Review your product documentation to identify the recommended software update method.
- To download product updates:
  - Hewlett Packard Enterprise Support Center**  
[www.hpe.com/support/hpesc](http://www.hpe.com/support/hpesc)
  - Hewlett Packard Enterprise Support Center: Software downloads**  
[www.hpe.com/support/downloads](http://www.hpe.com/support/downloads)
  - Software Depot**  
[www.hpe.com/support/softwaredepot](http://www.hpe.com/support/softwaredepot)
- To subscribe to eNewsletters and alerts:  
[www.hpe.com/support/e-updates](http://www.hpe.com/support/e-updates)
- To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center **More Information on Access to Support Materials** page:  
[www.hpe.com/support/AccessToSupportMaterials](http://www.hpe.com/support/AccessToSupportMaterials)



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Access to some updates might require product entitlement when accessed through the Hewlett Packard Enterprise Support Center. You must have an HPE Passport set up with relevant entitlements.

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## Customer self repair

Hewlett Packard Enterprise customer self repair (CSR) programs allow you to repair your product. If a CSR part needs to be replaced, it will be shipped directly to you so that you can install it at your convenience. Some parts do not qualify for CSR. Your Hewlett Packard Enterprise authorized service provider will determine whether a repair can be accomplished by CSR.

For more information about CSR, contact your local service provider or go to the CSR website:

<http://www.hpe.com/support/selfrepair>

## Remote support

Remote support is available with supported devices as part of your warranty or contractual support agreement. It provides intelligent event diagnosis, and automatic, secure submission of hardware event notifications to Hewlett Packard Enterprise, which will initiate a fast and accurate resolution based on your product's service level. Hewlett Packard Enterprise strongly recommends that you register your device for remote support.

If your product includes additional remote support details, use search to locate that information.

### Remote support and Proactive Care information

#### HPE Get Connected

[www.hpe.com/services/getconnected](http://www.hpe.com/services/getconnected)

#### HPE Proactive Care services

[www.hpe.com/services/proactivecare](http://www.hpe.com/services/proactivecare)

#### HPE Proactive Care service: Supported products list

[www.hpe.com/services/proactivecaresupportedproducts](http://www.hpe.com/services/proactivecaresupportedproducts)

#### HPE Proactive Care advanced service: Supported products list

[www.hpe.com/services/proactivecareadvancedsupportedproducts](http://www.hpe.com/services/proactivecareadvancedsupportedproducts)

### Proactive Care customer information

#### Proactive Care central

[www.hpe.com/services/proactivecarecentral](http://www.hpe.com/services/proactivecarecentral)

#### Proactive Care service activation

[www.hpe.com/services/proactivecarecentralgetstarted](http://www.hpe.com/services/proactivecarecentralgetstarted)

## Warranty information

To view the warranty for your product or to view the *Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products* reference document, go to the Enterprise Safety and Compliance website:

[www.hpe.com/support/Safety-Compliance-EnterpriseProducts](http://www.hpe.com/support/Safety-Compliance-EnterpriseProducts)

### Additional warranty information

#### HPE ProLiant and x86 Servers and Options

[www.hpe.com/support/ProLiantServers-Warranties](http://www.hpe.com/support/ProLiantServers-Warranties)

#### HPE Enterprise Servers

[www.hpe.com/support/EnterpriseServers-Warranties](http://www.hpe.com/support/EnterpriseServers-Warranties)

## HPE Storage Products

[www.hpe.com/support/Storage-Warranties](http://www.hpe.com/support/Storage-Warranties)

## HPE Networking Products

[www.hpe.com/support/Networking-Warranties](http://www.hpe.com/support/Networking-Warranties)

# Regulatory information

To view the regulatory information for your product, view the *Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products*, available at the Hewlett Packard Enterprise Support Center:

[www.hpe.com/support/Safety-Compliance-EnterpriseProducts](http://www.hpe.com/support/Safety-Compliance-EnterpriseProducts)

## Additional regulatory information

Hewlett Packard Enterprise is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and the Council). A chemical information report for this product can be found at:

[www.hpe.com/info/reach](http://www.hpe.com/info/reach)

For Hewlett Packard Enterprise product environmental and safety information and compliance data, including RoHS and REACH, see:

[www.hpe.com/info/ecodata](http://www.hpe.com/info/ecodata)

For Hewlett Packard Enterprise environmental information, including company programs, product recycling, and energy efficiency, see:

[www.hpe.com/info/environment](http://www.hpe.com/info/environment)

# Documentation feedback

Hewlett Packard Enterprise is committed to providing documentation that meets your needs. To help us improve the documentation, send any errors, suggestions, or comments to Documentation Feedback ([docsfeedback@hpe.com](mailto:docsfeedback@hpe.com)). When submitting your feedback, include the document title, part number, edition, and publication date located on the front cover of the document. For online help content, include the product name, product version, help edition, and publication date located on the legal notices page.