# HP Virtual Connect 3.60 Release Notes

**Abstract**

This document provides Virtual Connect release information for version 3.60. This document supersedes the information in the documentation set released with version 2.3x, 3.0x, 3.1x, 3.30, and 3.51. This document is intended for the person who installs, administers, and troubleshoots servers and storage systems. HP assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.

# Contents

# Update recommendation

Update Recommendation: Recommended

# Supercede information

Supercedes: 3.51

# Product models

Virtual Connect 3.60 is supported on the following interconnect modules:

- HP VC FlexFabric 10Gb/24-Port Module
- HP VC Flex-10 10Gb Enet Module
- HP 1/10Gb VC Enet Module (399593-B22 – Discontinued on December 31, 2009)
- HP 1/10Gb-F VC Enet Module (447047-B21 – Discontinued on March 31, 2013)
- HP VC 4Gb FC Module (409513-B22 – End of Life announced in December, 2011)
- HP VC 8Gb 20-Port FC Module
- HP VC 8Gb 24-Port FC Module

> **IMPORTANT:** The HP 1/10Gb VC Enet Module (399593-B22) and the HP 1/10Gb-F VC Enet Module (447047-B21) will no longer be supported after the VC 3.60 release.

# Operating systems

The HP Virtual Connect version 3.60 firmware package operates in an embedded environment within each Virtual Connect module; therefore, it is not dependent on any operating system.

For more information, see the HP Operating Systems and Virtualization Software Support for ProLiant Servers web page on the HP website (http://h18004.www1.hp.com/products/servers/software/index.html), or see the Operating Systems section for Integrity Servers on the HP website (http://h20341.www2.hp.com/integrity/us/en/systems/integrity-systems-overview.htm).

# Languages

Languages supported for this release: English, Japanese

# Enhancements

Version 3.60 of Virtual Connect contains support for the following products:

- HP ProLiant BL420c Gen8 Server Series
- HP ProLiant BL465c Gen8 Server Blade
- HP LPe1205A 8Gb FC HBA for BladeSystem c-Class
- HP Ethernet 1Gb 2-port 361FLB Adapter
- HP Ethernet 1Gb 4-port 366M Adapter

# Fixes

The following issues have been resolved in the VC 3.60 release:

- Resolved an issue where the restore domain operation would fail if any of the storage blades were in a power-on state.
- Resolved an issue with concurrent hot-plug servers that could leave a server disconnected from assigned networks. This issue applied to servers with Flex-10 or Flex-Fabric ports with assigned profiles.
- Resolved an issue observed on multi-blade servers with a multi-port mezzanine card where HP-UX had an extended boot time and the EFI driver did not attach to the multi-port mezzanine card. This happened when a multi-port mezzanine card had only a single Ethernet connection assigned to a port and the other ports did not have connections assigned.
- Resolved an issue with the HP VC 1/10Gb-F module when using mixed media types (RJ45 and SFP) in an LACP channel, where when the VC module was reset, the channels using SFP did not rejoin either channel.
- Previously, to enable SMIS you also had to enable SNMP. Now SNMP and SMIS can be independently enabled.
- Resolved an issue where the downlinks from some HP servers were shut down by SmartLink during a firmware upgrade.
- Resolved an issue where the CLI did not block restoring a configuration when any of the servers were still powered on.
- Resolved an issue where the VCM GUI did not allow '@' and '#' as part of a VCM user password, but the VCM CLI did not have these restrictions.

- Resolved an issue where VC or VCEM changed the boot order with the FC HBA boot parameters being configured, and the end result was not what was expected.

- Resolved an issue where a pair of FlexNIC interfaces might experience failure to establish connectivity due to addition or removal of FCoE connections in the server profile that resulted in those interfaces changing their mapping from Ethernet to FCoE connection (or vice versa).

- Resolved an issue where using the HP BLc Virtual Connect 1Gb RJ-45 Small Form Factor Pluggable Option Kit (Part Number 453154-B21) or HP BLc VC 1Gb SX SFP (Part Number 453151-B21) on a HP VC Flex-10 10Gb Ethernet Module for c-Class BladeSystem caused Cyclic Redundancy Check (CRC) errors during normal operation after a period of time, and then the link might go down. This issue only occurred with the HP VC Flex-10 10Gb Ethernet Module. When the link went down, Virtual Connect reported the link as down. However, the link to the external switch was still maintained. This fix resolved the Customer Advisory c03367942.

- Resolved an issue where OpenSSH used by VC was vulnerable to NIST alerts CVE-2008-5161 and CVE-2008-1483.

- Resolved an issue where the Apache HTTP Server used by VC was vulnerable to the NIST alert for Denial Of Service Vulnerability CVE-2011-3192.

- Resolved an issue where the boot parameter might be incorrect when VC or VCEM changed the boot order using FC HBA boot parameters to configure Port 2 as primary and Port 1 as secondary.

- Resolved an issue where VCM might enable server ports with no network connections. For example, if a simple server profile had only one Ethernet connection, which maps to LOM1, then only LOM1 should be enabled. However, both LOM1 and LOM2 were enabled.

- Resolved an issue where both the GUI and CLI allowed restoring from a configuration file when a domain existed and server blades were powered on, which could result in duplicate MACs or WWNs on the network or SAN.

- Resolved an issue when Upgrading VC FlexFabric firmware from 3.15, 3.17, or 3.18 to a newer version might result in a temporary FCoE outage.

  This behavior was limited to systems using HP ProLiant or Integrity server blades with a FlexFabric Mezzanine adapter and a corresponding FCoE connection to an HP VC FlexFabric 10Gb/24-port module. This behavior did not appear for FCoE connections using an embedded FlexFabric adapter (LOM).

  For more information, see Customer Advisory c02950493 on the HP website (http://h20000.www2.hp.com/bizsupport/TechSupport/Document.jsp?objectID=c02950493).

- Resolved an issue for the Shared Uplink Sets screen, where the list of networks on the Associated Networks tab might not be displayed in the correctly sorted order.

- Resolved an issue when VC was used and Integrity BL870c i2 or BL890c i2 Server Blades were present, after an OA was reset the OA occasionally displayed factory-assigned WWNs and MAC addresses for the auxiliary blades in a multi-blade server, even though VC-assigned values existed. This problem does not affect the operation of the server. The server blades have and operate with the correct VC-assigned WWNs and MAC addresses.

- Resolved an issue for Virtual Connect release 3.0x or later, where the Server Admin user was not able to modify the IGMP Snooping settings. This known issue was related to the authorizations of the Server Admin user in the security token being passed between VC software components.

- Resolved an issue where editing the SAN fabric should not allow changes to the fabric I/O bay. The "Add Port" menu might show incorrect menu entries instead of showing the port details only for the

current or previously added bay entries. If they were selected, the SAN fabric was not updated with the current modifications.

- Resolved an issue where in a double-dense domain configuration, interconnect bays 7 and 8 should not be used to create an FC fabric. The fabric should instead be created on bays 5 and 6. If a fabric was created on bays 7 or 8 using the VCM CLI, an incorrect error message might appear, indicating "ERROR: Module not found" instead of "ERROR: A fabric is not allowed to be created with the specified bay for a double-sense configuration."

- Resolved an issue where VC allowed mapping of non-supported iSCSI connections for NC522m Mezz ports 1-a and 2-a.

- In a multi-enclosure environment, if local and remote enclosures were shut down and powered back up, VC might incorrectly report that some empty I/O module bays in a remote enclosure were "NO-COMM". This error occurred if VC-FC modules were installed in the local enclosure and the corresponding bays in the remote enclosure were empty. The empty module bays are now correctly reported as "MISSING".

# Issues and workarounds

### New issues

**Issue**

When using the Virtual Connect Support Utility or HP Smart Update Manager, Virtual Connect firmware upgrades from Virtual Connect firmware v3.18 or earlier might fail on a single module when updating to Virtual Connect firmware v3.60.

**Workaround**

For the workaround, see Customer Advisory c03395976 on the HP website (http://h20000.www2.hp.com/bizsupport/TechSupport/Document.jsp?objectID=c03395976).

**Issue**

When using IE9 to activate the VC GUI, there is no error message when executing without Flash Player.

**Issue**

The VC Unknown (unmanaged) module states (Operational, VC, OA, Comm) are not being displayed in a consistent manner.

**Issue**

HP VC Flex-10 and FlexFabric modules may experience an extended timeout when re-establishing a Link Aggregation Group (LAG). This issue may increase chances for encountering a ping loss, and the likelihood of encountering a lost ping also increases with the number of the port members in the LAG that are being recovered or reintegrated.

**Issue**

When one of the uplink ports X1–X4 on the FlexFabric module is not configured for FC or is configured for Enet, but has an FC SFP inserted into the SFP cage, the "Connector Type" displayed by VCM and the information displayed in the detailed statistics screen are not consistent.

**Issue**

Changing uplink ports in a SUS removes SmartLink settings on all vNets.

**Issue**

If the Primary VC module is still unable to acquire an IP address after all retries have been exhausted, VCM incorrectly clears the module configuration. If VCSU is used to check the VC health state, VCSU reports that the module is not configured.

**Issue**

VC 3.60 release is still exposed to the security vulnerability CVE-2010-4180. The security concern reference can be found on the NIST website (http://web.nvd.nist.gov/view/vuln/detail?vulnId=CVE-2010-4180).

**Issue**

The Virtual Connect Manager CLI interface does not allow creation of the local user account with passwords containing the "|" (pipe) character.

**Workaround**

Use the VCM GUI to create local user accounts with passwords containing the "|" (pipe) character.

## General issues

**Issue**

While performing OA fail over events, the GUI prompt for "restoring OA credentials" is delayed longer than expected. The GUI displays the message "Web browser unable to communicate with VCM, please close the browser and re-connect". The GUI might also display additional errors.

**Workaround**

Start a new VCM GUI session and OA credentials can be restored successfully.

**Issue**

The GUI fabric status is green for uplinks linked to the Ethernet switch, even through the port type is FC and FC SFPs are installed.

**Issue**

A non-user friendly SOAP error message appears in the GUI after confirming a DELETE DOMAIN operation. This might occur when a user that is logged in with multiple sessions tries to log out of one session (either a tab or window) or if another user deleted the VC domain.

**Workaround**

Acknowledge the message and continue.

**Issue**

After fail over from the primary module to a backup module, the following SNMP traps are not received.

| Traps | Value/Severity |
|---|---|
| vcDomainManagedStatus | Minor |
| vcModuleManagedStatus | Critical |
| vcEnclosureManagedStatusChange | Minor |
| vcProfileManagedStatusChange | Unknown |
| vcEnetNetworkManagedStatus | Unknown |

**Issue**

Virtual Connect Manager might reset when it contains more assigned and unassigned profiles than can be in use by physical servers in the domain.

**Issue**

The VCM CLI `show uplinkport` command does not display the serial numbers for pluggable modules.

**Issue**

For double-dense server blades, the side B server mezz port mapping is incorrect.

**Issue**

The timestamp for SNMP traps from VC FC interconnect modules is not in sync with the timestamp kept by Virtual Connect Manager.

**Issue**

The GUI allows importing a new domain from and existing configuration file without warning you to power off all server blades.

**Workaround**

Power off all server blades before using a configuration file to import a new domain.

**Issue**

The HP VC 8 Gb 24-Port FC Module does not respond to the HP Insight Control cpqHoGUID MIB request and is reported as an error.

**Workaround**

Remove the FC module from the query.

**Issue**

HP Systems Insight Manager might incorrectly identify the HP VC 8 Gb 24-Port FC module as a SAN switch because of the incorrect value returned in the SysObjectOid.

**Issue**

In expanded VLAN mode, the number of allowed connections to a Flex-10 server port is 162. If a profile has more than 162 connections defined on a physical Flex-10 port, the port is disabled when the profile is applied and the port status is displayed as disabled.

**Issue**

The CLI `copy uplinkset` command does not allow copying of Private Networks within the shared uplink set.

**Issue**

When a HP VC 8Gb 24-Port FC module is connected to a Brocade 8510 (16Gb) switch, the link between the FC module and the 8510 can only negotiate to 4Gb instead of 8Gb.

**Workaround**

Lock the 8510 port speed to 8Gb for the port that the FC is connecting to.

**Issue**

If a user attempts to remove or add a mezzanine card to a server blade, then VCM might not detect the addition or removal of the mezzanine card when the server is re-inserted into the enclosure. However, the OA shows the correct configuration.

**Workaround**

> Reset the VC Manager before powering up the server blade that has the mezzanine card changes. For new server installations, VCM correctly detects the server configuration and no reset is required. The VCM reset does not affect the operation of any other servers.

**Issue**

HP VC 8 Gb 24-Port FC Module does not return a proper value for the cpqHoGUID element of the CPHSHOST MIB during HP System Insight Control discovery, which causes discovery to complete with errors.

**Issue**

iSCSI Boot from SAN is supported only on the NC551i Dual Port FlexFabric 10Gb Adapter and NC553i/m 10Gb 2-port FlexFabric Converged Network Adapter. The boot LUN IDs must be in the range of 0 to 8.

**Issue**

If an enclosure import is attempted with a server blade in a failed state, VCM might incorrectly report an error when one does not exist. If the import completes, close the browser and log in again to verify that the import was successful. Use the OA to verify the working state of all server blades.

**Issue**

Under certain circumstances, the checkpoint status icon in the GUI persists for a long time and is not cleared. The CLI also shows a "Checkpoint Status: Invalid" status in the "show domain" output. This condition has been observed periodically after a VCSU firmware upgrade of the VC module firmware. To resolve this issue, reset VCM on the primary module, or reset the primary module using the OA.

**Issue**

The SNMP Managed Status Change trap (vcProfileManagedStatusChange) for all unassigned profiles is not sent by VC when the profile status transitions to Normal state.

**Issue**

When a server blade server port has multiple FlexNICs defined and one of the ports is defined as FCoE, deleting the FCoE FlexNIC does not redistribute the bandwidth to other active FlexNICs, even though the GUI indicates that this redistribution occurred.

**Issue**

If a profile that is currently assigned to a server is modified so that Network connections or FCoE connections are added or removed, VC might change the protocol (Ethernet or FCoE) for a particular Flex-10 interface without properly reinitializing it. This can result in unexpected behavior.

**Workaround**

> Unassign the profile, and then reassign the profile.

# Prerequisites

- There is a known issue with Virtual Connect data not appearing correctly in Insight Control for VMware vCenter Server version 6.2. HP recommends that customers using Insight Control for VMware vCenter Server upgrade to version 6.3 when using Virtual Connect firmware version 3.30 or higher.

- The Virtual Connect GUI requires a minimum of 512 MB of available memory to operate efficiently.

- Disable Network Loop Protection if you are using HP 1/10Gb-F Virtual Connect Ethernet Modules or HP 1/10Gb Virtual Connect Ethernet Modules.

- Immediately review OA Customer Advisory c02639172 on the HP website (http://h20000.www2.hp.com/bizsupport/TechSupport/Document.jsp?lang=en&cc=us&objectID=c02639172) to see if any recent changes made to the enclosure configuration are at risk of not being preserved persistently. If you made changes using a non-Administrator user account, before the next OA firmware upgrade or reset, execute the workaround documented in Customer Advisory c02639172 to ensure that the enclosure configuration changes are being preserved persistently. The issue described in Customer Advisory c02639172 was resolved with OA 3.21 and later.

- To operate with HP VC 8Gb 20-Port FC modules, all HP Emulex LPe 1205 8Gb FC HBAs that are revision A (identified by label EDC A-4904) must perform a CFL region 19 flash update. For download and installation instructions, see the LPe1205 product page on the HP website (http://www.hp.com).

- Although the GUI enables the selection of SNMP v2 traps, the VC 4Gb FC Module and the VC 8Gb 20-Port FC Module default to v1 traps.

- Configuring more than one FC trap destination with the same IP trap destination address results in only one entry, with the community string being the latter of the duplicated trap entries. The other community strings in the duplicate traps are not used to send traps.

- Changes in the server RBSU can override Virtual Connect server profile settings for PXE (enabled or disabled). If you make a change in RBSU, that change is not reflected in Virtual Connect Manager. If you set PXE through RBSU, HP recommends using the "Use-BIOS" setting.

- For proper server functionality in a Virtual Connect environment, enable the RBSU option by selecting **System Options > Embedded NIC Boot Options > Network Boot**. If you disable the RBSU option with RBSU, HP ProLiant G7 servers may not accept Virtual Connect configuration information correctly, which causes the server to malfunction.

- New GUI components

  The VCM GUI introduces a new visual component in 3.0x. Data grids enable users to access available operations through a right-click context menu. To add, delete, or edit a row (such as a connection or a profile), select the row and then right-click the row to access the context menu.

  Some properties displayed in a data grid are editable. An editable indicator provides feedback on which items can be edited inside a data grid. The editable indicator underlines a property when you move the cursor over the property. If the property is underlined, left-click the property to edit.

- After an enclosure import, the Virtual Connect CLI shows the Stacking Links Connections Status as "Failed" until all modules have been initialized. Depending on the actual configuration, this may take up to 30 seconds.

- Before installing any HP Integrity BL8x0c i2 Server Blades, be sure to do the following:
  - Verify that no profiles are assigned to any of the bays where the HP Integrity BL8x0c i2 servers will be installed.
  - Perform the updates to the recommended OA and VC firmware revisions.

  If any HP Integrity BL8x0c i2 Server Blades have already been installed, then they can be left powered on during the entire update to the recommended OA and VC firmware revisions.

- Each FlexNIC and FlexHBA is recognized by the server as a PCIe physical function device. Adjustable speeds range from 100Mb to 10Gb in 100-Mb increments when connected to an NC553i/m 10Gb 2-port FlexFabric Converged Network Adapter or any Flex-10 NIC. Adjustable speeds range from 1Gb to 10Gb in 100-Mb increments when connected to an NC551i/m Dual Port FlexFabric 10Gb Converged Network Adapter.

- Virtual Connect Manager version 3.60 requires Adobe Flash Player 10.x or higher before you can log in. HP recommends updating to Adobe Flash Player 10.2 or higher. When using IE9, HP recommends using Adobe Flash Player 10.3.181.16 or higher.

  The recommended Adobe Flash Player web browser plug-in can be downloaded and installed from the Adobe website (http://get.adobe.com/flashplayer/), or downloaded as a standalone executable from the Adobe website (http://www.adobe.com/downloads).

  For the latest Adobe Flash Player Security Bulletin Updates, see the Adobe website (http://www.adobe.com/support/security/index.html#flashplayer).

- When multiple Internet Explorer 7 browser sessions are open to the Virtual Connect Manager application, the VC GUI might hang.

  Add the following registry value:

  ```
  [HKLM\HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Inte
  rnet Settings] "MaxConnectionsPerServer"=dword:6
  ```

  By default, this registry value does not exist and Internet Explorer 7 defaults to the value of 2. Increasing the value to 6 resolves the hanging issue. Internet Explorer 8 defaults to a value of 6, so this issue does not occur. The Firefox web browser may also default to a higher value.

- If you are planning to use VC 3.60 firmware in a VCEM environment, HP recommends upgrading to VCEM v7.1. For more information about the VC firmware that is compatible with VCEM, see the *Virtual Connect Enterprise Manager User Guide* on the HP website (http://h20000.www2.hp.com/bizsupport/TechSupport/DocumentIndex.jsp?contentType=Support Manual&lang=en&cc=us&docIndexId=64179&taskId=101&prodTypeId=18964&prodSeriesId=360 1866).

- When VC 8Gb 20-port FC Module and VC FlexFabric 10Gb/24-port Module Fibre Channel uplink ports are configured to operate at 8Gb speed and connect to HP B-series (Brocade) Fibre Channel SAN switches, the minimum supported version of the Brocade Fabric OS (FOS) is v6.4.x. In addition, the Fill Word on those switch ports must be configured with option Mode 3 to prevent connectivity issues at 8Gb speed.

  On HP B-series (Brocade) FC switches, use the portCfgFillWord (`portCfgFillWord <Port#> <Mode>`) command to configure this setting.

| Mode | Link Init/Fill Word |
|------|---------------------|
| Mode 0 | IDLE/IDLE |
| Mode 1 | ARBF/ARBF |
| Mode 2 | IDLE/ARBF |
| Mode 3 | If ARBF/ARBF fails, use IDLE/ARBF |

  Modes 2 and 3 are compliant with FC-FS-3 specifications (standards specify the IDLE/ARBF behavior of Mode 2, which is used by Mode 3 if ARBF/ARBF fails after three attempts). For most environments, Brocade recommends using Mode 3, as it provides more flexibility and compatibility with a wide range of devices. In the event that the default setting or Mode 3 does not work with a particular device, contact your switch vendor for further assistance.

# Installation instructions

Two options are available for VC firmware update:

- HP BladeSystem c-Class Virtual Connect Support Utility

  For this release of HP Virtual Connect, the minimum firmware requirement for VCSU is version 1.9.0. HP recommends that you always use the latest version available.

  For more information about VCSU, see the HP BladeSystem c-Class Virtual Connect Support Utility release notes on the HP website (http://www.hp.com/go/bladesystem/documentation). To download the firmware, view the BladeSystem for ProLiant Release Set Compatibility Table on the HP website (http://www.hp.com/go/bladesystemupdates) and select the appropriate download.

- HP Service Pack for ProLiant

  SPP is the replacement product for Insight Foundation (PSPs, Smart Update Firmware DVD, and other systems software). To download the update, see the HP Service Pack for ProLiant website (http://www.hp.com/go/spp).

  > **IMPORTANT:** When upgrading the HP VC 4Gb FC firmware from version VC-FC 1.2x to version VC-FC 1.4x, the VC-FC module can drop connectivity temporarily during the activation process. A redundant customer configuration experiences a failover with no loss of application connectivity to the fabric.

  > **IMPORTANT:** When updating the above firmware, update each domain with the entire firmware package, which includes the individual VC-Enet and VC-FC firmware. Updating only the VC-Enet firmware or only the VC-FC firmware is not supported.

**Firmware upgrade requirements**

> **IMPORTANT:** For VC 3.60 upgrades when Virtual Connect Enterprise Manager (VCEM) is in use, HP recommends upgrading to VCEM v7.1. For more information about the VC firmware that is compatible with VCEM, see the *Virtual Connect Enterprise Manager User Guide* on the HP website (http://h20000.www2.hp.com/bizsupport/TechSupport/DocumentIndex.jsp?contentType=SupportManual&lang=en&cc=us&docIndexId=64179&taskId=101&prodTypeId=18964&prodSeriesId=3601866).

Each HP Virtual Connect firmware package contains a separate HP VC-FC firmware version. The following tables show the version of VC-FC firmware included with each VC firmware package.

> **IMPORTANT:** When upgrading the HP VC 4Gb FC firmware from version VC-FC 1.2x to version VC-FC 1.4x, the VC-FC module can drop connectivity temporarily during the activation process. A redundant customer configuration experiences a failover with no loss of application connectivity to the fabric.

| Virtual Connect firmware | VC 4Gb FC firmware within Virtual Connect | VC 8Gb 20-Port FC firmware within Virtual Connect | VC 8Gb 24-Port FC firmware within Virtual Connect |
|---|---|---|---|
| v1.31 | 1.20 | — | — |
| v1.32, v1.34 | 1.21 | — | — |

| Virtual Connect firmware | VC 4Gb FC firmware within Virtual Connect | VC 8Gb 20-Port FC firmware within Virtual Connect | VC 8Gb 24-Port FC firmware within Virtual Connect |
|---|---|---|---|
| v2.01, v2.02 | 1.30 | — | — |
| v2.10, v2.12 | 1.32 | 1.32 | 1.00 |
| v2.30–v2.33 | 1.40 | 1.40 | 1.01 |
| v2.34 | 1.41 | 1.41 | 1.01 |
| v3.0x | 1.40 | 1.40 | 1.02 |
| v3.10, v3.15 | 1.41 | 1.41 | 1.03 |
| v3.17, v3.18 | 1.41 | 1.41 | 1.04 |
| v3.30 | 1.42 | 1.42 | 1.04 |
| v3.51, v3.60 | 1.43 | 1.43 | 1.04 |

The following table shows firmware upgrade/downgrade support for the HP VC 4Gb FC Modules or HP VC 8Gb 20-Port FC Modules.

| Upgrade to or downgrade from | 1.31 | 1.32, 1.34 | 2.01, 2.02 | 2.10, 2.12 | v2.3x | 3.0x | 3.10, 3.15, 3.17, 3.18 | 3.30, 3.51, 3.60 |
|---|---|---|---|---|---|---|---|---|
| VC 1.31 | — | Normal | Fabric outage* | Fabric outage* | Fabric outage* | Fabric outage* | Fabric outage* | Fabric outage* |
| VC 1.32/1.34 | Normal | — | Fabric outage* | Fabric outage* | Fabric outage* | Fabric outage* | Fabric outage* | Fabric outage* |
| VC 2.01/2.02 | Fabric outage* | Fabric outage* | — | Normal | Normal | Normal | Normal | Normal |
| VC 2.10/2.12 | Fabric outage* | Fabric outage* | Normal | — | Normal | Normal | Normal | Normal |
| VC 2.3x | Fabric outage* | Fabric outage* | Normal | Normal | — | Normal | Normal | Normal |
| VC 3.0x | Fabric outage* | Fabric outage* | Normal | Normal | Normal | — | Normal | Normal |
| VC 3.10/3.15/3.17/3.18 | Fabric outage* | Fabric outage* | Normal | Normal | Normal | Normal | — | Normal |
| VC 3.30/3.51/3.60 | Fabric outage* | Fabric outage* | Normal | Normal | Normal | Normal | Normal | — |

* Always reset the module after the upgrade or downgrade.

On HP Virtual Connect 4Gb Fibre Channel Modules (with enhanced NPIV), downgrading the firmware to any version older than VC 2.10 is not supported.

**Firmware version for HP BladeSystem for ProLiant**

The firmware versions and software versions listed in this section have been tested as a solution set using HP Service Pack for ProLiant 2012.06.0 (B) as a baseline. The minimum supported SPP version is SPP 2012.06.0 (B). HP also fully supports all published SPP versions after 2012.06.0 (B) until a Virtual Connect version 3.6x supercedes V3.60. For best results, follow the pre-deployment planning steps in the *HP Virtual Connect for c-Class BladeSystem Setup and Installation Guide* and the *HP BladeSystem ProLiant Firmware Management Best Practices Implementer Guide* on the HP website (http://h18004.www1.hp.com/products/servers/service_packs/documentation/index.html) to deploy the baseline set with component updates.

HP Service Pack for ProLiant is the replacement product for Insight Foundation (PSPs, Smart Update Firmware DVD, and other systems software). To download the update, see the HP Service Pack for ProLiant website (http://www.hp.com/go/spp).

⚠ **CAUTION:** HP recommends using the specific firmware and software versions listed together within the chosen SPP version to ensure complete solution component compatibility and full functionality. These versions have been tested as a set. Using other version levels might result in operational issues.

## Baseline Firmware Release Set

The contents of a supported SPP is documented in the corresponding *Release Notes* and *Service Pack for Server Support Guide* on the HP website (http://h18004.www1.hp.com/products/servers/service_packs/documentation/index.html).

## Additional information

Versions 3.15 and higher of HP Virtual Connect Manager check the server ROM image version and display an incompatible state only for server blades that have a VC Server Profile assigned and are using incompatible server ROM versions.

Virtual Connect does not have the capability to perform version checking of the mezzanine card firmware. Validate this information through server POST for mezzanine support utilities.

Server blades and mezzanine cards that do not meet the required firmware versions do not accept Virtual Connect-assigned parameters such as MACs and WWNs properly, and therefore maintain factory defaults. However, these server blades do have the Ethernet network and Fibre Channel fabric connectivity specified in their Virtual Connect server profiles. This connectivity enables you to use network-based firmware update tools for server blade and mezzanine firmware updates.

For Virtual Connect Fibre Channel and FlexFabric modules, the supported firmware and OS drivers are listed in the HP Single Point of Connectivity Knowledge (SPOCK) website (http://www.hp.com/storage/spock). The link to Virtual Connect is under the category "Other Hardware" in the list of selections on the left.

## Firmware version for HP BladeSystem for Integrity

⚠ **CAUTION:** HP recommends using the specific firmware and software versions listed together to ensure complete solution component compatibility and full functionality. These versions have been tested as a set. Using other version levels might result in operational issues.

## Baseline Firmware Release Set

| HP Integrity i2 Server Blade | Version |
|---|---|
| HP Smart Updated Firmware – HP Integrity BL860c/870c/890c i2 System Firmware Bundle for Linux/Windows (http://h18004.www1.hp.com/products/blades/integrity-release-sets.html) | 26.31 |

| HP Integrity Server Blade | Version |
|---|---|
| HP Integrity BL860c (http://h20000.www2.hp.com/bizsupport/TechSupport/SoftwareIndex.jsp?lang=en&cc=us&prodNameId=3351095&prodTypeId=3709945&prodSeriesId=3331044&swLang=13&taskId=135&swEnvOID=4001) | 04.26 |
| HP Integrity BL870c (http://h20000.www2.hp.com/bizsupport/TechSupport/DriverDownload.jsp?lang=en&cc=us&prodNameId=3676869&taskId=135&prodTypeId=3709945&prodSeriesId=3676868&lang=en&cc=us) | 04.26 |

# Related information

**Virtual Connect Enterprise Manager support**

For information about the VC firmware that is compatible with VCEM, see the *Virtual Connect Enterprise Manager User Guide* on the HP website (http://h20000.www2.hp.com/bizsupport/TechSupport/DocumentIndex.jsp?contentType=SupportManual&lang=en&cc=us&docIndexId=64179&taskId=101&prodTypeId=18964&prodSeriesId=3601866).

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