HP Service Pack for ProLiant User Guide

Abstract

This guide describes the Service Pack for ProLiant (SPP) and how to use it to update firmware and system software on ProLiant servers and Blade servers and enclosures. This guide is intended for individuals who are familiar with configuring Microsoft Windows, Linux, and VMware, and updating, maintaining, and deploying firmware and software to servers.

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Contents

1 Introduction to SPP

SPP is a comprehensive systems software and firmware solution delivered as a single ISO. This solution uses HP SUM as the deployment tool and is tested on all supported HP ProLiant servers including the new HP ProLiant Gen8 servers.

SPP release versions

HP releases several SPP versions each year. For the current and earlier SPP versions, see the SPP Download page: http://www.hp.com/go/spp/download.

For information about a specific SPP, see its release notes on the SPP Information Library: http://www.hp.com/go/spp/documentation.

SPP format

The SPP is delivered as a family of ISO images and bundles, which are listed in the release notes. The full ISO includes a boot environment, HP SUM, the HP USB Key Utility, and all available components.

Each SPP subset includes HP SUM, the HP USB Key Utility, and all of the components required for its specific audience. The subsets do not contain a boot environment, and are smaller for faster download. Subsets might not be available for earlier SPPs.

Table 1 SPP file structure and contents

File or directory	Contents
`\hp\swpackages`	Software and firmware components, and HP SUM. Information for all of the firmware and software components included in this directory is documented in the release notes.
`\usb`	HP USB Key Utility (see "Using the HP USB Key Utility" (page 41)).
`\dud`	DUD images used on Linux to update drivers on some storage devices. The DUD components cannot be installed with HP SUM.
`contents.html`	A table listing all of the software and firmware components on the SPP, including the version and filename. Entries are color coded to highlight new versions of components and components that are new to the SPP.
`\pxe`	Examples for using a PXE server to deploy components from the full SPP ISO over a network.
`Start.htm`	Click `Start.htm` in a web browser to select a language, access the HP End User License Agreement, and find instructions for starting HP SUM.

Hot Fixes

Hot Fixes and their associated Customer Advisories are released between SPP releases. These components are tested against the SPP.

You can find the Hot Fixes and the Customer Advisories for the latest SPP by selecting the **Hot Fixes & Advisories** button on the SPP Download page. On this page, you can review the Customer Advisory to determine if the Hot Fix applies to your configuration and which components you need to download.

To update your configuration with a Hot Fix:

1. Click the blue triangle to the left of the Hot Fix CA to expand the list of associated downloadable components.
2. Click the **Download** button to download the component to a repository of your choice.
3. Deploy it using HP SUM.

These documented Hot Fixes are supported as part of the SPP throughout the SPP support period.

To obtain Hot Fixes for earlier SPPs, go to the SPP Release Archive page, which is available from the SPP Download page. Find the entry for the SPP and select the link to the CA page for that SPP.

SPP Supplements

An SPP Supplement is a bundle containing software and/or firmware components with HP SUM as the deployment tool. The bundle might include support for a new operating system update or functionality that is not included in the SPP but works with the components in the SPP. The software and firmware included in the Supplement provides support for functionality that is required outside a normal SPP release cycle. Supplements allow HP to deliver support when it is needed so customers do not have to wait for the next SPP. Support for SPP Supplements is included as part of the associated SPP's support period.

The version number for each SPP supplement´ matches the version of its corresponding SPP. Supplement release notes include information on the components in the bundle. If the Supplement includes Linux components, the components will also be available on the SDR. Any operating system support added in a Supplement will be included in the next SPP.

You can download SPP Supplement from the SPP Information section on the SPP Download or Release Archive pages.

The release notes are on the SPP Information Library.

Deployment modes

For detailed information about deployment modes, see the *HP Smart Update Manager User Guide*: http://www.hp.com/support/HP_SUM_UG_en.

Online deployment mode

In online deployment mode, the update occurs while the host processor runs in its normal server environment. For example, if the server runs Microsoft Windows Server 2008, the update takes place under this environment. The update does not require you to boot to a special environment. You might need to reboot the target to activate the firmware.

With HP SUM in online mode, you can update firmware and software on the local host or one or more remote hosts. SPP supports remote installation of firmware components from a Windows host to a Linux host, does not support updating Windows hosts from a Linux host.

You can use either the HP SUM GUI or CLI in online mode. HP SUM also supports scripts and input files for automated updates.

The GUI includes a repository filter that is especially useful when deploying components from multiple repositories. Use the filter to select firmware components, software components, or both.

Offline deployment mode

In offline mode, the SPP ISO boots a small Linux kernel that enables updates on a single server using HP SUM. Use offline mode to update firmware that cannot be updated in online mode. Offline mode has the following restrictions:

- Only updates the local system.
- Only uses a single repository
- Only available for the complete SPP ISO. The subset versions to not contain a boot environment.

Offline mode includes the following options:

- Automatic (default) — HP SUM runs in unattended mode, without user interaction, and updates all the firmware components for which updated versions are available. The device is offline during the update process.
- Interactive — Use HP SUM to discover and install software, drivers, and firmware to the local system with user interaction. See "Initiating deployment" (page 13).
- Express — Use HP SUM to enforce the installation of a baseline set of components on the local system. HP SUM performs discovery and installation, and then exits without user interaction. An express installation will force install all components in the SPP and may downgrade drivers and firmware to the versions in the default directory.

Automatic versus interactive mode

In offline interactive mode, you can use HP SUM to select options and monitor the progress of the update.

In automatic mode, HP SUM runs without user interaction and updates all the firmware components for which updated versions are available. Automatic mode is useful for installing firmware on a blade or as an unattended, automated method in an offline environment. Because the tool requires you to boot to it, automatic mode is only available offline.

Use offline automatic mode in any of the following conditions:

- You want an automated way to update ProLiant server and BladeSystem firmware.
- You do not need to update ProLiant server and BladeSystem software, drivers, and firmware at the same time.
- You want to leverage the BladeSystem enclosure capability to load an ISO image to multiple server blades simultaneously.
- You do not need feedback during the update process.
- You do not need log files at the conclusion of the installation for archiving or debugging purposes.
- You need to support devices that can only be updated offline.
- You need to update firmware on multiple server blades simultaneously.
- You need to update firmware using the iLO 3 or iLO 4 Integrated Remote Console.

For procedures on using offline automatic mode in different scenarios, see the firmware best practices guides on the SPP Information Library.

Operating system support

For system requirements, prerequisites, and supported operating systems, servers, and devices, see the *HP Service Pack for ProLiant Release Notes* or the server support guide on the SPP Information Library.

For more information on HP operating systems and virtualization software support for HP ProLiant servers, please visit the OS support site: http://www.hp.com/go/ossupport.

Using SPP on Windows operating systems

The SPP and HP SUM are designed to work easily on supported Windows operating systems, integrating into the standard Windows update and installation processes. All HP SUM online modes are supported for Windows.

Using SPP on Linux operating systems

SPP provides system software and firmware support for Red Hat Enterprise Linux and SUSE LINUX Enterprise Server.

For specific supported operating system versions and minimum operating system requirements for HP ProLiant Gen8 servers, see the SPP release notes on the SPP Information Library.

On Linux, SPP components can be deployed with HP SUM or using Linux system deployment tools. Choose the components and utilities that work best in your environment:

- Use the software and firmware provided in the SPP.
- Use the firmware provided in the SPP and obtain the software from the SDR: http://downloads.linux.hp.com/SDR.
- Use the firmware provided in the SPP, software utilities provided in the SPP or SDR, and obtain the drivers from the Linux operating system distribution.

HP SUM as an RPM package

In addition to obtaining the HP SUM executable from the SPP `/hp/swpackages`, you can also find `hpsum-*.rpm` in native RPM format on the SDR. The repository contains a version of the `hpsum-*.rpm` for each supported operating system and architecture type.

Because the SDR is a yum-based repository, you can search for the HP SUM package with a yum command:

```
yum search hpsum
```

Or, immediately install HP SUM from the SDR with yum:

```
yum install hpsum
```

Because the SDR is web based, you can browse and download the package manually and then use rpm to perform the installation:

```
rpm –Uvh hpsum-5.3.0-<version>.<OS>.i386.rpm
```

You can also use yum to download HP SUM without installing it if you have the `yum-downloadonly` component installed. To install the `yum-downloadonly` component:

1. Obtain the `yum-downloadonly` component.
2. Run the following yum command to install the component:

   ```
   yum install yum-downloadonly
   ```

   Once the yum-downloadonly component is installed, the following options are available:

   - `--downloadonly` — just download an rpm file, don't update it
   - `--downloaddir=/path/to/dir` — specifies an alternate directory to store packages

Using SPP on VMware operating systems

SPP provides offline firmware update support for HP ProLiant servers running VMware operating systems.

SPP provides online firmware support for VMware vSphere and VMware ESXi operating systems. For specific supported operating system versions and available VMware online firmware components, see the SPP release notes on the SPP Information Library.

SPP can deploy firmware to a system running a supported VMware operating system in online remote mode. In online remote mode, HP SUM runs on a supported Linux or Windows system and communicates with the VMware server as a remote target. Online firmware update on a VMware server depends on the HP Insight Management WBEM Providers running on the VMware server. HP Insight Management WBEM Providers are available from:

- the HP Custom image, available from: http://www.hp.com/go/esxidownload
- the HP ESXi Offline Bundle on the HP website: http://h18000.www1.hp.com/products/servers/software/vmware-esxi/offline_bundle.html
- the HP ESXi Offline Bundle from the HP vibsdepot: http://vibsdepot.hp.com/hpq

For more information on using HP SUM for online firmware update of VMware systems, see the *HP Smart Update Manager User Guide*.

Because the VMware drivers are not included in the SPP, you will need to obtain them from one of the following sources:

- the VMware base image or the HP Custom image, available from the VMware website: http://VMware.com
- the VMware ESXi download page on the HP website: http://www.hp.com/go/esxidownload
- the HP vibsdepot: http://vibsdepot.hp.com/hpq

For a consolidated recipe of firmware and driver support, review the recipe document for the applicable release on the HP vibsdepot: http://vibsdepot.hp.com/hpq/recipes/.

The HP ProLiant Gen8 servers require an HP custom image, which contains the network and storage drivers required to install the HP ProLiant Gen8 servers. Because the current VMware images do not contain the latest drivers, they cannot be used to install HP ProLiant Gen8 servers.

For a list of the VMware drivers that have been tested with the firmware components in an SPP and links to HP VMware custom images, see the release notes on the SPP Information Library.

To determine whether your server supports one of the supported operating systems, see the HP ProLiant Server VMware Support Matrix: http://h18004.www1.hp.com/products/servers/vmware/supportmatrix/hpvmware.html.

Log and debug files

HP SUM generates a set of debug trace logs that contain internal process and debug information, which can be useful in determining HP SUM failures. See "Collecting trace directories" (page 29).

2 Downloading and installing an SPP

Before updating business-critical servers or those in a complex or distributed environment, develop an update plan to help make the process go more smoothly and minimize any required downtime. For additional information, see the *HP ProLiant and Integrity Firmware Management Best Practices Planning Guide*.

IMPORTANT: If you have not updated your server for over a year, HP recommends that you follow the planning steps from the *HP ProLiant and Integrity Firmware Management Best Practices Planning Guide* to develop an update plan to address any compatibility and dependency issues.

IMPORTANT: Before deploying any components to a system, be sure that a recent backup of the system is available in the event the deployment procedure fails.

To install the components from an SPP:

1. For component descriptions, review the SPP release notes from the SPP Information Library.
2. Download the SPP from the SPP Download page.
3. If you downloaded an SPP subset:
   a. Open the zip file and review `README.txt`.
   b. Extract the ISO to a file share.
4. Determine which updates you want to apply now and note any that you want to defer.
   - Use HP SUM reports to determine the recommended server updates. For instructions, see "Generating and viewing reports" (page 27).
   - Review the Hot Fixes and Supplements available for the SPP you downloaded. Download any components that you want to include in this update.

     NOTE: If you want to keep Hot Fixes or Supplements separate from SPP components, place them in a different directory, such as `\hp\hotfixes`. HP SUM considers this directory a separate repository, so you will need to add it as a repository when running HP SUM.

   - Identify component prerequisites. For a complete listing of component prerequisites, see the SPP release notes.
5. If needed, create a custom baseline by adding or selecting components from the SPP.
   a. Initiate HP SUM:
      - Windows: `\hp\swpackages\hpsum.exe`
      - Linux: `/hp/swpackages/hpsum`
   b. Select the check box for the repositories that contain the updates you want to include in the baseline.
   c. Under **Select the Criticality**, click the updates you want to choose: **Critical Updates**, **Recommended Updates**, or **Optional Updates**.
   d. Under **Type of Updates to Use**, click the updates you want to choose: **Firmware only**, **Software only**, or **Both**.
   e. Under **Select the Filter Options**:
      - Choose the operating system from the **Select OS Type** list.
      - Choose the type of devices from the **Select Device Type** list.
   f. Select the check box for the updates you want to use from the **Baseline Repositories** list.
   g. If you want to create more baselines, change the filter settings or select components. Click **Save and Continue** to save the new baselines.
   h. Click **Done** when you finish creating baselines.

NOTE: For instructions on customizing the SPP without using HP SUM, see "Adding or removing components from an SPP" (page 40).

6. Address prerequisites and initiate deployment using one of the supported methods:
   - HP SUM. Use HP SUM in most cases. See "Using HP SUM to deploy an SPP" (page 11).
   - PXE server. See "Using a PXE server to deploy components from the full SPP ISO over a network" (page 14).
   - Intelligent Provisioning (for Gen8 servers only). See "Using Intelligent Provisioning to update firmware and software (for Gen8 servers only)" (page 16).
   - HP SIM 7.0 or later. See "Using HP SIM to deploy an SPP" (page 16).
   - Onboard Administrator. Use to update an HP Blade System enclosure. See "Using Onboard Administrator to update servers in an enclosure" (page 17).

Using HP SUM to deploy an SPP

Determine whether you want to use online or offline mode to initiate deployment to your targets using the SPP:

- In online mode, HP SUM runs on a Windows or Linux hosted operating system.
- In offline mode, the server boots to the SPP ISO (Bootable ISO only).
  - In automatic mode, HP SUM updates firmware components without interaction.
  - In interactive mode, onscreen instructions guide you to update components.

Prerequisites for deploying SPP components on Windows

When running HP SUM or deploying components to systems running a Microsoft Windows operating system, the minimum requirements include:

- A local administrative system with 1 GB of memory
- Sufficient hard-drive space of at least twice the file size of the components to be deployed
- Enabled for WMI
- Visibility to all remote targets by the administrative system running HP SUM
- An account with administrator privileges on each target server
- The beginning and ending IP addresses entered for the range of targets must both be on the same subnet.
- The network ports that HP SUM uses must be enabled. For more information on the networking ports that HP SUM uses, see the *HP Smart Update Manager User Guide*.

HP recommends that the user name and password for the administrator account on each target server be the same as those on the local administrative system. If administrator privileges are not set up in this manner, you must have the user name and password available for each remote server available. Alternatively, you can use a domain account on the local administrative system that has administrator privileges on the target servers.

IMPORTANT: HP SUM requires you to be logged in using Administrator credentials. A user account elevated to "Run as administrator" in most cases does not have sufficient rights because access to protected system files and the Windows registry is restricted. This access is needed to deploy most firmware and driver updates. If the logged-in account is unable to perform the net using * \\server\ADMIN$ for Microsoft Windows targets, it does not have sufficient privileges to run HP SUM to remote targets. Deployment of some software updates on a local server might still be possible in some instances, but is not recommended.

NOTE: When attempting to use the remote deployment functionality of HP SUM on any edition of Windows Server 2008 or Windows Vista, you must ensure that the File and Print Services feature is enabled and that the File and Print Services exception has been enabled in the Windows firewall. Failure to do so prevents HP SUM from deploying remote Windows targets.

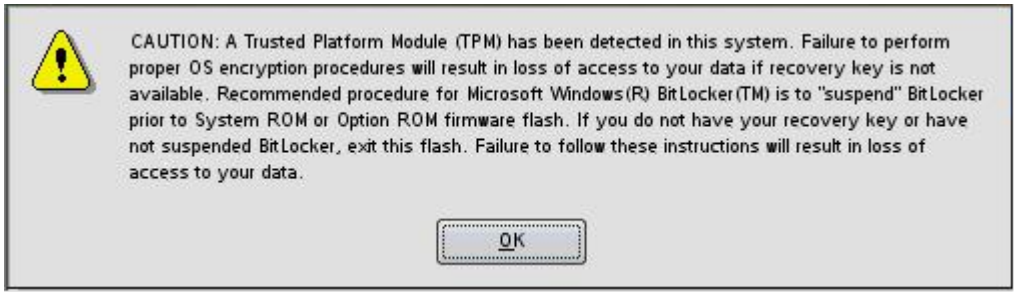
Disabling BitLocker to permit firmware updates

The TPM, when used with BitLocker, measures a system state. Upon detection of a changed ROM image, it restricts access to the Windows file system if the user cannot provide the recovery key. HP SUM detects if a TPM is enabled in your system. For some newer models of HP ProLiant servers, if a TPM is detected in your system or with any remote server selected as a target, HP SUM utilities for HP iLO, Smart Array, NIC, and BIOS warn users prior to a flash. If the user does not temporarily disable BitLocker and does not cancel the flash, the BitLocker recovery key is needed to access the user data upon reboot.

A recovery event is triggered in the following situations:

- You do not temporarily disable BitLocker before flashing the system BIOS when using the Microsoft BitLocker Drive Encryption.
- You have optionally selected to measure HP iLO, Smart Array, and NIC firmware.

If HP SUM detects a TPM, a warning message appears.



To enable firmware updates without the need to type in the TPM password on each server, the BitLocker Drive Encryption must be temporarily disabled. Disabling the BitLocker Drive Encryption keeps the hard drive data encrypted. However, BitLocker uses a plain text decryption key that is stored on the hard drive to read the information. After the firmware updates have been completed, the BitLocker Drive Encryption can be re-enabled. Once the BitLocker Drive Encryption has been re-enabled, the plain text key is removed and BitLocker secures the drive again.

CAUTION: Temporarily disabling BitLocker Drive Encryption can compromise drive security and should only be attempted in a secure environment. If you are unable to provide a secure environment, HP recommends providing the boot password and leaving BitLocker Drive Encryption enabled throughout the firmware update process. This requires setting the `/tpmbypass` parameter for HP SUM or the firmware update is blocked.

To temporarily disable BitLocker support to allow firmware updates:

1. Click **Start**, and then search for `gpedit.msc` in the Search Text box.
2. When the Local Group Policy Editor starts, click **Local Computer Policy**.
3. Click **Computer Configuration→Administrative Templates→Windows Components→BitLocker Drive Encryption**.
4. When the BitLocker settings are displayed, double-click **Control Panel Setup: Enable Advanced startup options**.
5. When the dialog box appears, click **Disable**.
6. Close all windows, and then start the firmware update.

To enable advanced startup options:

1. Enter `cscript manage-bde.wsf -protectors -disable c:`
2. When the firmware update process is completed, the BitLocker Drive Encryption support can be re-enabled by following steps 1 through 4 but clicking **Enabled** in step 5 instead. The following command can be used to re-enable BitLocker Drive Encryption after firmware deployment has completed.
3. Enter `cscript manage-bde.wsf -protectors -enable c:`

The following table describes TPM detection scenarios that you might encounter.

Scenario	Result
If TPM is detected and enabled, the installation is not silent, and a system ROM must be updated.	A warning message appears. Select **OK** to continue. The installation is not canceled.
If TPM is detected and enabled, the installation is silent, the `/tpmbypass` switch is not given, and any firmware updated must be applied to the server.	No warning appears. A new log file is generated (`%systemdrive%\cpqsystem\log\cpqstub.log`). Because the installation is silent, the installation is terminated and cannot continue.
If TPM is detected and enabled with Option ROM Measuring, the installation is not silent, and a system ROM must be updated.	A warning message appears. After selecting **OK**, you can continue. The installation is not canceled.
If TPM is detected and enabled with Option ROM Measuring, the installation is silent; the `/tpmbypass` switch is not given, and any firmware updated must be applied to the server.	No warning appears. A new log file is generated (`%systemdrive%\cpqsystem\log\cpqstub.log`). Because the installation is silent, the installation is terminated and cannot continue.
If TPM is detected and enabled, the installation is silent, the installation occurs, and the `/tpmbypass` switch is supplied.	The installation occurs.

Initiating deployment

Use the HP SUM GUI to deploy SPP components in online or offline interactive modes to local or remote hosts. For detailed instructions and prerequisites see the *HP Smart Update Manager User Guide*.

Online mode

To initiate deployment in online mode:

1. Copy the SPP to a USB thumb drive, hard drive, or file system. For instructions, see "SPP staging procedures" (page 40).
2. Launch HP SUM from the root of the ISO:
   - Windows: `\hp\swpackages\hpsum.exe`
   - Linux: `/hp/swpackages/hpsum`

TIP: If you are updating only firmware or software, you can use a filter argument:

- `/romonly` — With this filter switch, HP SUM only displays firmware components needed for installation.
- `/softwareonly` — With this filter switch, HP SUM only displays software components needed for installation.

3. To review the EULA, locate `Start.htm` in the root of the ISO and open it in one of the supported browsers.
4. Follow the instructions on the screen.

Offline mode

To initiate deployment in offline mode:

1. Copy the SPP to a USB thumb drive, hard drive, or file system. When using a USB thumb drive, the ISO must be bootable. For instructions, see "SPP staging procedures" (page 40).
2. Boot the server to the SPP.
3. Select whether you want to use automatic mode or interactive mode:
   - If you select automatic mode, the firmware will be updated on the server automatically without further interaction.
   - If you select interactive mode, follow the instructions on the screen.
4. Select the **Firmware Update** option on the screen to start HP SUM.

Using a PXE server to deploy components from the full SPP ISO over a network

Follow these steps to use a PXE server to deploy components from the full SPP ISO over a network.

Prerequisites

Before proceeding with the configuration, you must have the following:

- A good working knowledge of PXE and TFTP
- A network with a DHCP server on it
- A TFTP server configured on the same network as the DHCP server
- A network file server hosting the ISO images and can be accessed by a PXE booted system
- PXELINUX, available from the SYSLINUX website: http://syslinux.zytor.com/wiki/index.php/PXELINUX

This procedure assumes that you are using a Linux TFTP server and the TFTP package, available from the Linux Kernel Archives: http://www.kernel.org/pub/software/network/tftp. Other TFTP servers should work similarly.

Setup

Before proceeding with the configuration, ensure that your TFTP server and PXELINUX configuration are set up and configured properly.

To set up PXE boot for the SPP:

1. Copy the SPP ISO image to the network file system, and note its location. NFS and Windows file shares are supported.
2. For this example, the NFS and path to the ISO image used is `192.168.0.99/path/to/spp/image/SPP2012100.2012_1005.37.iso`. Test your network file system to ensure that is accessible before proceeding.
3. Access the `/system` directory of the ISO image, either by burning the ISO image, mounting the ISO image, or extracting it using a third-party tool.
4. Copy all the files from the `/system` directory of the ISO image to your TFTP server so that it is accessible by the TFTP software.

Configuring PXELINUX

To configure PXELINUX:

1. Using the `isolinux.cfg` file from the `/system/` directory of the ISO as a guide, copy the labeled targets to your PXELINUX configuration file. You do not need to include the entire file:

   label sos

   ```
   MENU LABEL Automatic Firmware Update Version 2013.02.0
   kernel hpboot_v.c32
   append vmlinuz initrd=initrd.img media=cdrom rw root=/dev/ram0 ramdisk_size=
   init=/bin/init loglevel=3 ide=nodma ide=noraid nopat pnpbios=off vga=791
   splash=silent hp_fibre showopts noexec32=off numa=off nox2apic TYPE=AUTOMATIC AUTOPOWEROFFONSUCCESS=no
   AUTOREBOOTONSUCCESS=yes
   ```

   label vsos

   ```
   MENU LABEL Interactive Firmware Update Version 2013.02.0
   kernel hpboot_v.c32
   append vmlinuz initrd=initrd.img media=cdrom rw root=/dev/ram0 ramdisk_size= init=/bin/init loglevel=3
   ide=nodma ide=noraid nopat pnpbios=off vga=791 splash=silent hp_fibre showopts noexec32=off numa=off
   nox2apic TYPE=MANUAL AUTOPOWEROFFONSUCCESS=no
   ```

   label sos_poweroff

   ```
   MENU HIDE Automatic & POWEROFF Firmware Update Version 2013.02.0
   kernel hpboot_v.c32
   append vmlinuz initrd=initrd.img media=cdrom rw root=/dev/ram0 ramdisk_size= init=/bin/init loglevel=3
   ide=nodma ide=noraid nopat pnpbios=off vga=791 splash=silent hp_fibre showopts noexec32=off numa=off
   nox2apic TYPE=AUTOMATIC hp_poweroff
   ```

2. Replace the lines "kernel hpboot_v.c32" with "kernel vmlinuz".
3. Remove `vmlinuz` from the append line.

IMPORTANT: The paths to files on the TFTP server are `vmlinuz` and `initrd.img`. You must modify them to include any directories or naming conventions you may have on your TFTP server.

4. Replace "media=cdrom" with "media=net" on the append line.
5. Specify the ISO image path. For the PXE booted server to find the ISO Image, you must add the ISO Image path to the append line in the PXELINUX configuration file. Add the following arguments:

   ```
   iso1=nfs://192.168.0.99/path/to/spp/image/SPP2012100.2012_1005.37.iso
   iso1mnt=/mnt/bootdevice
   ```

   The iso1 parameter helps the PXE booted SPP locate the ISO image. The iso1mnt parameter tells the PXE booted FWDVD where the iso1 image must be mounted.

   Your final configuration file must be similar to the following example:

   label sos

   ```
   MENU LABEL Automatic Firmware Update Version 2013.02.0
   kernel vmlinuz
   append initrd=initrd.img media=net rw root=/dev/ram0 ramdisk_size= init=/bin/init loglevel=3 ide=nodma
   ide=noraid nopat pnpbios=off vga=791 splash=silent hp_fibre showopts noexec32=off numa=off nox2apic
   TYPE=AUTOMATIC AUTOPOWEROFFONSUCCESS=no AUTOREBOOTONSUCCESS=yes
   iso1=nfs://192.168.0.99:/path/to/spp/image/SPP2013020.2013_0144.102.iso iso1mnt=/mnt/bootdevice
   ```

   label vsos

   ```
   MENU LABEL Interactive Firmware Update Version 2013.02.0
   kernel vmlinuz
   append initrd=initrd.img media=net rw root=/dev/ram0 ramdisk_size= init=/bin/init loglevel=3 ide=nodma
   ide=noraid nopat pnpbios=off vga=791 splash=silent hp_fibre showopts noexec32=off numa=off nox2apic
   TYPE=MANUAL
   AUTOPOWEROFFONSUCCESS=no iso1=nfs:// 192.168.0.99:/path/to/spp/image/SPP2013020.2013_0114.102.iso
   iso1mnt=/mnt/bootdevice
   ```

   label sos_poweroff

   ```
   MENU HIDE Automatic & POWEROFF Firmware Update Version 2013.02.0
   kernel vmlinuz
   append initrd=initrd.img media=net rw root=/dev/ram0 ramdisk_size= init=/bin/init loglevel=3 ide=nodma
   ide=noraid nopat pnpbios=off vga=791 splash=silent hp_fibre showopts noexec32=off numa=off nox2apic
   TYPE=AUTOMATIC hp_poweroff iso1=nfs:// 192.168.0.99:/path/to/spp/image/SPP2013020.2013_0114.102.iso
   iso1mnt=/mnt/bootdevice
   ```

   You can add additional ISO images by specifying the additional `iso#` and `iso#mnt` arguments, for example, `iso2=/path/to/iso2.iso iso2mnt=/mnt/iso2`.

Supported network file systems

The following network file systems are supported for use with PXE booting:

- NFS:

  ```
  iso1=nfs://192.168.0.99/path/to/spp/image/SPP2013020.2013_0114.102.iso
  iso1mnt=/mnt/bootdevice
  ```

  NFS volumes are mounted with the following options:

  - `-o ro`
  - `nolock`

  You can also set the mount points with the *`iso#opts`* parameter:

  ```
  iso1opts="rsize=32768,ro,nolock"
  ```

- Windows operating systems:

  ```
  iso1=smbfs://192.168.0.99/share/path/to/ spp/image/SPP2013020.2013_0114.102.iso
  iso1mnt=/mnt/bootdevice
  ```

- Windows operating systems with login credentials:

  ```
  iso1=smbfs://user:password@192.168.0.99/share/path/to/ spp/image/SPP2013.2013_0114.102.iso
  iso1mnt=/mnt/bootdevice
  ```

Once you have completed these steps, you should be ready to deploy the SPP components using the PXE boot functionality.

Using Intelligent Provisioning to update firmware and software (for Gen8 servers only)

NOTE: Intelligent Provisioning does not support modified SPPs. Use HP SUM to deploy a modified SPP.

To update a server with Intelligent Provisioning:

1. If the SPP is not already accessible to the server, copy the it to a USB thumb drive, hard drive, or the local file system. See "SPP staging procedures" (page 40).
2. Press **F10** to launch Intelligent Provisioning.
3. In the **Step 1: Set preferences** screen, enter the location of the SPP in the **System Software Update** field. This instructs Intelligent Provisioning to search the SPP for system software updates.
4. Continue using Intelligent Provisioning as described in the *HP Intelligent Provisioning User Guide* on the HP website: http://www.hp.com/support/IP_UG_en.

Using HP SIM to deploy an SPP

1. Copy the SPP to a USB thumb drive, hard drive, or file system. See "SPP staging procedures" (page 40).
2. Launch HP SIM 7.0 or later. For more information on setting up and using HP SIM, see the HP Systems Insight Manager Information Library: http://www.hp.com/go/hpsim/docs.
3. Click **Tools→System Information→System Management Homepage**.
4. Enter the server's IP address, and then click **Run Now**.
5. Click **HP Version Control Repository Manager** on the System Management Homepage.

   NOTE: SPP requires VCRM version 7.0 or later.

6. Click **Upload a support pack**. Browse to the `hp/swpackages` folder in the update directory.
7. Click **Upload**.

8. After the upload finishes, go to the HP SIM home page. Choose a system to update.
9. Click on the IP address of the server you want to update.
10. On the server details page, click **Tools & Links**.
11. Click **System Credentials**.
12. Enter the user credentials for the update target.
13. Go to the HP SIM home page.
14. Select the check box for the server you want to update.
15. Click **Deploy→Deploy Drivers, Firmware and Agents→Install Software and Firmware**.

Using Onboard Administrator to update servers in an enclosure

IMPORTANT: When updating targets within a C-class enclosure, run a health check to verify that the OA and VC firmware are ready for updates.

Use the following instructions to update an HP Blade System enclosure through the OA.

Updating servers in a c-Class enclosure using HP SUM

1. Copy the SPP to a USB thumb drive.

IMPORTANT: Leave the SPP as an ISO file. The OA will not recognize the file if you extract it.

2. Insert the USB key in to a USB slot on the OA module.
3. Use a web browser to connect to the OA.
4. In your web browser, click **Enclosure Information→Device Bays**, and then select the device you want to update.
5. Click **Virtual Devices**.
6. Under **DVD Drive**, select **Connect to USB** from the drop-down menu.
7. Click **Apply** to connect the USB key to the OA.
8. Click **Reset** to reboot the selected servers from the HP SPP on the USB key.
9. Do one of the following:
   - To run the updates automatically, wait 30 seconds for the update to begin.

     NOTE: Automatic mode updates firmware only. Use interactive mode to update software and drivers.

   - To use HP SUM in interactive mode, connect to the server using iLO Remote Console, and then press a key within 30 seconds, before the update begins automatically.

     For more information on using HP SUM, see the *HP Smart Update Manager User Guide*.

Updating servers in the OA enclosure using EFM

Enclosure Firmware Management (EFM), a feature of OA, can be used to update servers in an enclosure using SPP.

NOTE: EFM is disabled by default and must be enabled before it can be used.

IMPORTANT: After EFM operations (updates an discoveries) have begun on a server, you cannot stop these operations.

1. Copy the SPP to a USB thumb drive.

IMPORTANT: Leave the SPP as an ISO file. The OA will not recognize the file if you extract it.

2. If necessary, disable TPM.
3. Click **Enclosure Information→Enclosure Setting→Enclosure Firmware Setting**.
4. Select the **Enclosure Firmware Management** check box.
5. Click the **Firmware ISO on local media** option.
6. Select the USB key as the media source.
7. Select the bay from **Server Bay**.
8. Click **Apply**.
9. Do one of the following:
   - To run the updates automatically, wait 30 seconds for the update to begin.
   - To use HP SUM in interactive mode, press a key within 30 seconds, before the update begins automatically.

     For more information on using HP SUM, see the *HP Smart Update Manager User Guide*.

For additional information on updating firmware using EFM, see the *HP BladeSystem Onboard Administrator User Guide* available from the Onboard Administrator website: http://www.hp.com/go/oa.

3 SPP usage scenarios

This chapter contains high-level procedures that illustrate typical uses of the SPP. You can use these scenarios to learn about the SPP, adapt your custom installation and update procedures to use the SPP, or evaluate the SPP for use in your environment.

Local bootable firmware update for a standalone server

This scenario updates the server firmware using the bootable method, which updates firmware identified by the HP SUM pre-installation environment. This is a good method for installing or updating a system without an operating system.

This method is similar to using the OA EFM feature with the bootable image to assist with firmware updates. The EFM feature schedules blades and BladeSystem components to be updated by booting selected servers in to the pre-installation environment, conducting the update, and then booting the server back to the loaded operating system.

1. Download the bootable complete SPP ISO.
2. Determine the target system and connect via iLO:
   a. Connect to the target system's console.
   b. Connect the bootable SPP ISO to the iLO virtual media.
3. Boot the server to the ISO.

   The server is booted to the pre-installation environment, and the HP SUM GUI launches.
4. Use HP SUM to conduct a firmware delta analysis:
   - HP SUM scans the SPP repository.
   - HP SUM scans the local machine for outdated components.
   - HP SUM provides a report of available firmware components against the installed firmware components.
   - HP SUM identifies dependencies and updates the firmware.

Remote BladeSystem firmware update

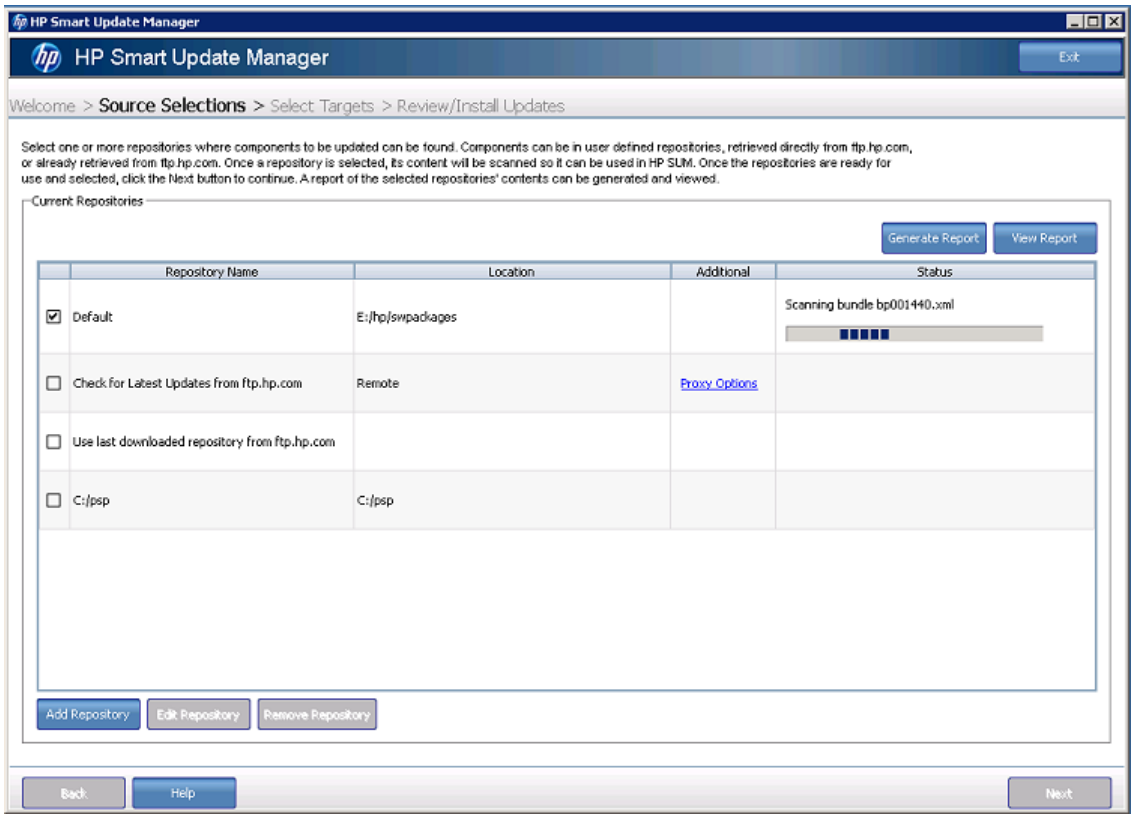
This method updates BladeSystem C7000 or C3000 enclosure firmware from a remote location. The SPP is launched from a central server or a PC and remotely scans the blade enclosure for firmware components to update. This process should not require a reboot of an online server operating system. This type of update is typically used to update infrastructure firmware.

1. Download the bootable and complete SPP ISO.

2. Unpack or mount the SPP ISO to gain access to HP SUM:
   a. Unpack the ISO to a local directory or share, or mount the ISO to a local virtual drive.
   b. Invoke HP SUM:

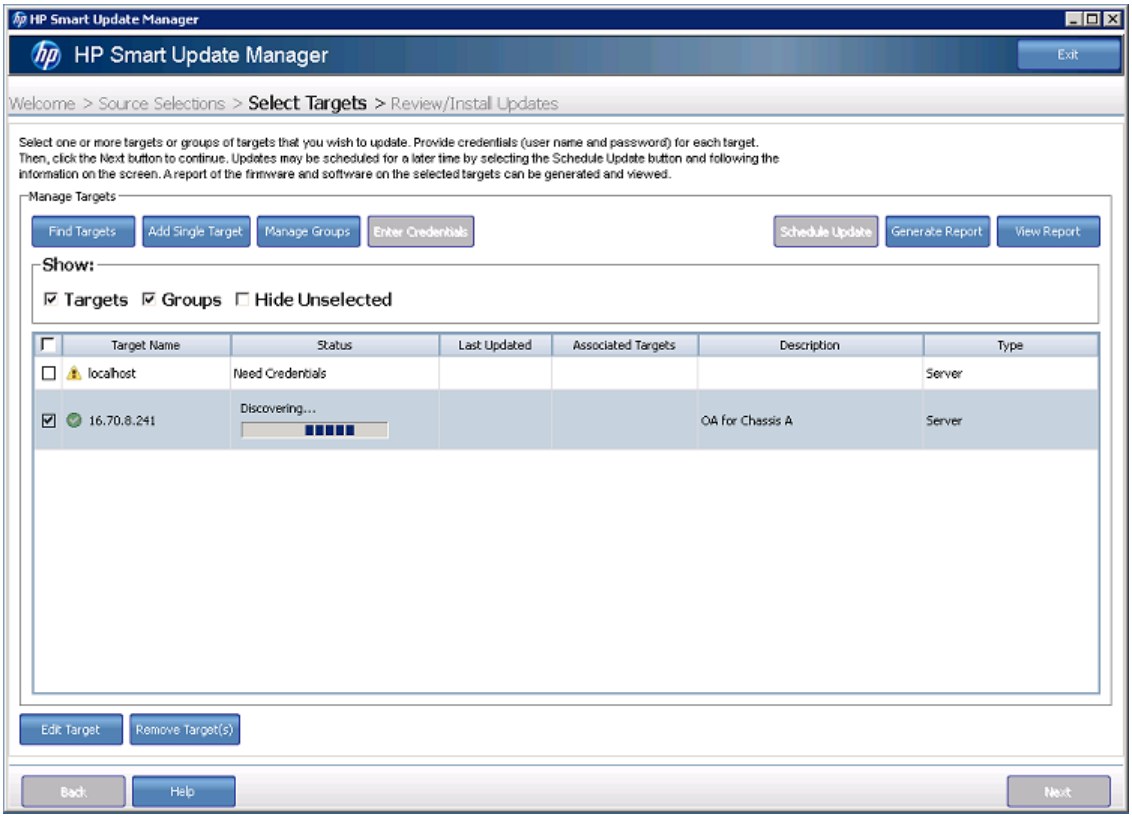
      `\hp\swpackages\hpsum.exe`

      The HP SUM GUI launches and begins scanning the repository in the SPP ISO.



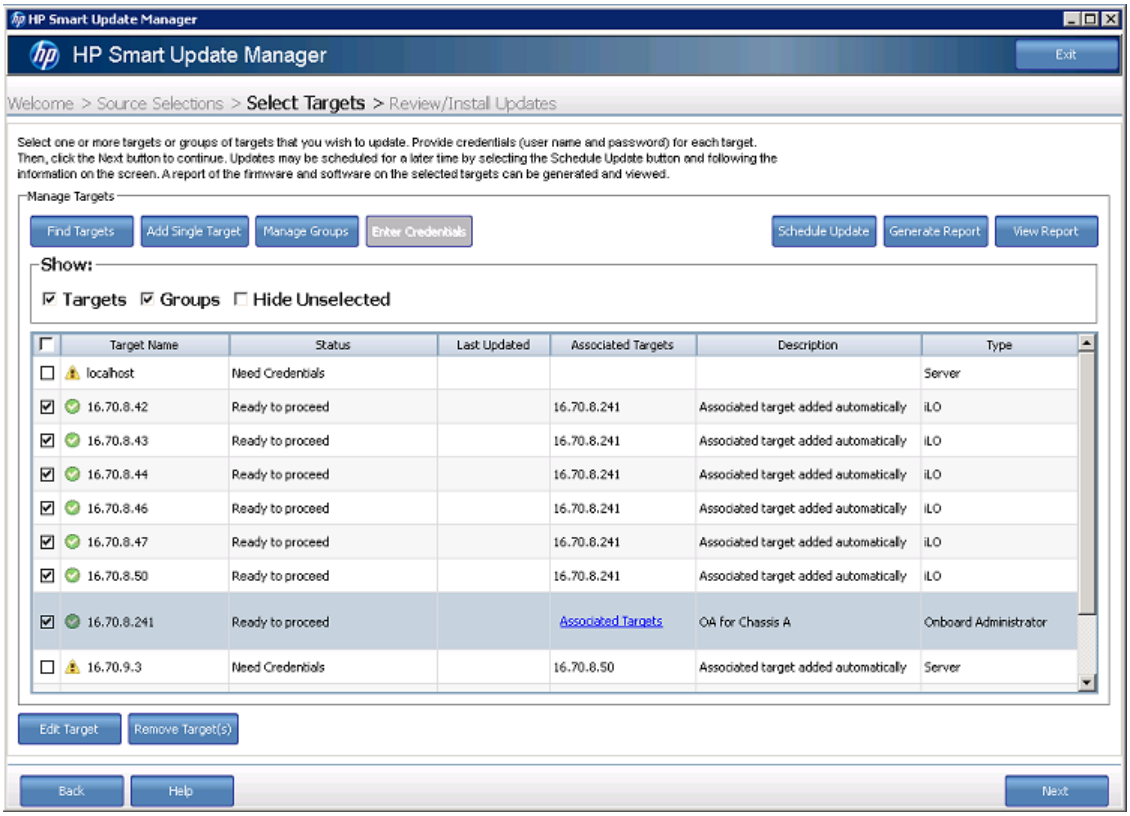
   c. After the repository has been scanned, click **Next**.

3. Determine a BladeSystem chassis to be scanned and updated:
   a. Obtain the OA IP address.
   b. In HP SUM, click **Add Single Target**.
   c. Provide the OA credentials and allow HP SUM to scan the OA.



4. HP SUM finds all outdated components in the chassis and lists them in a pop-up window.
   - This process can also update VirtualConnect directly. The VC Update Management Utility is no longer required.
   - HP SUM handles dependency notification and correct firmware update order.
5. Select the components required for scanning or updating.

   HP SUM scans all requested components, displays status information, and then shows when it is ready to proceed.



6. To view comprehensive details for each scanned component:
   a. Expand the **Components** for each selected target.
   b. View the required or recommended firmware updates by clicking **Select Components**, and then proceed with the update as required.

Full online update for Windows server

This method updates all components, including firmware and drivers, for an online Windows server. The same process can be used for a Linux host provided that HP SUM is also launched from a Linux host.

1. Download the bootable and complete SPP ISO.
2. Unpack or mount the SPP ISO to a local directory or share, or mount the ISO to a local virtual drive to gain access to HP SUM.
3. Initiate HP SUM:

   ```
   \hp\swpackages\hpsum.exe
   ```

4. Determine a live server to be scanned and updated:
   a. Obtain the server IP address.
   b. Add the server as a target and provide the server credentials.

   HP SUM loads a SOAP server to the target to scan the local machine:

   - HP SUM compares the installed components with the components in the SPP repository.
   - HP SUM displays a delta report on the console.

5. Select reboot options as appropriate for the environment.
6. Proceed with the recommended updates as required.

Scripted online update for Linux server

This method updates all of the software components for an online Linux server in a scripted method using an answer file. The same process can be used for a Windows server, provided HP SUM is launched from a Windows server. The scripting answer files are similar for the Windows and Linux environments.

Both SPP and HP ProLiant Support Pack (PSP) use HP SUM, so a scripted installation that worked for PSP 9.10 should work with SPP. See the HP SUM release notes for any changes that would affect your scripts.

1. Download the bootable and complete SPP ISO.
2. Unpack or mount the SPP ISO to a local directory or share, or mount the ISO to a local virtual drive to gain access to HP SUM.
3. Prepare an answer file based on the command line options.

   For HP SUM command line options, see the *HP Smart Update Manager User Guide*.

Example answer file

```
REBOOTALLOWED = YES
REBOOTREQUIRED = YES
REBOOTDELAY = 15
BUNDLESLIST = bp001190.xml
CMALOCALHOSTRWCOMMSTR = <string>
CMALOCALHOSTROCOMMSTR = <string>
CMAMGMTSTATIONRWIPORDNS = xxx.xxx.xxx.xxx
CMAMGMTSTATIONRWCOMMSTR = <string>
CMAMGMTSTATIONROIPORDNS = xxx.xxx.xxx.xxx
CMADEFTRAPCOMMSTR = <string>
CMAMGMTSTATIONROCOMMSTR = <string>
CMATRAPDESTINATIONCOMMSTR = <string>
CMATRAPDESTINATIONIPORDNS = xxx.xxx.xxx.xxx
CMASYSCONTACT = email@domain.com
CMASYSLOCATION = <string>
CMASTARTWEBAGENT = NO
CMASTARTSTORAGEAGENT = YES
CMANOTAINTEDKERNEL = YES
```

4. Initiate HP SUM with the answer file:

   `./hpsum/s/softwareonly/answerfile`

   The `/softwareonly` switch tells HP SUM to only update software components, such as drivers and agents.

   The `/answerfile` location must be a valid PAT.

4 FAQs

This chapter provides typical questions and answers about using SPP.

Can I add or remove components from an SPP?

Yes, you can add or remove components from an SPP. This can be helpful to:

- Incorporate a Hot Fix or newly released component that is not part of the SPP into your SPP baseline.
- Ensure that only necessary files are loaded onto the system, which can make tracking changes easier if troubleshooting is required.
- Maintain compatibility with third-party products. For example, if HP releases an update to your FC HBA, but the vendor of your external switch does not support the HP version, you can remove this update to continue to receive support from the switch vendor.

NOTE: Modified SPPs cannot be deployed with HP Intelligent Provisioning. Use HP SUM to deploy a modified SPP.

For instructions on adding or removing components from an SPP, see:

- To modify an SPP that has been extracted from its ISO, see "Creating a directory with files" (page 40).
- To modify an SPP within its ISO format, see "Creating a custom ISO" (page 41).

Does the SPP need to be in its ISO format or extracted?

Most update methods require that the SPP be extracted from the ISO file so the individual files can be accessed by operating system commands. OA requires that the SPP be in its ISO format.

When should I use online versus offline mode?

In *online* mode, the installation occurs while the host processor is running in the normal server environment. For example, if the server runs Microsoft Windows Server 2008, the update occurs under this environment. The update does not require the server to be booted to a special environment to update the firmware. You might need to reboot the target to activate the firmware. HP recommends using online mode when possible.

In *offline* mode, HP SUM boots a small Linux kernel and enables updates to occur on a single server. In offline mode, you can only update the local system using a single repository, and some features of HP SUM that require the regular local host operating system are not supported in offline mode. HP recommends using offline mode when necessary, including the following situations:

- Installing or updating components that are only supported in offline mode
- The target does not have a supported or functional operating system

Where can I find information on planning updates for data centers and corporate environments?

The firmware management best practices guides can help you create strategies for using the SPP in data centers and corporate environments.

- *HP ProLiant and Integrity Firmware Management Best Practices Overview* – Provides information about keeping your system environment updated and running at its best.
- *HP ProLiant and Integrity Firmware Management Best Practices Planning Guide* – Provides an outline for creating a firmware update plan to follow before updating your server environment.
- *HP ProLiant and Integrity Firmware Management Best Practices Implementer Guide* – Provides examples of how to implement an update.

You can download these documents from the SPP Information Library.

How can I install firmware or software components only?

HP SUM provides filters for displaying only firmware or software components. You can select the filter in the GUI or specify a filter switch on the command line when starting HP SUM.

- `/romonly` — With this filter switch, HP SUM only displays firmware components needed for installation.
- `/softwareonly` — With this filter switch, HP SUM only displays software components needed for installation.

How does HP SUM work when applied to an entire chassis?

HP SUM performs dependency checking on targets, which ensures that all dependencies are met before an update begins. The HP SUM discovery process also detects the required updates for targets and allows HP SUM to perform updates in the correct order.

Is there a silent option to install an SPP?

The HP SUM CLI and input file modes each have a `/silent` parameter. In offline mode, you can use automatic mode to install firmware that needs to be updates. For more information on using these modes, see the *HP Smart Update Manager User Guide*.

When upgrading an entire c7000 Enclosure and all of its constituents, can I just give HP SUM the OA IP address?

- Can I simply give the HP SUM tool the OA IP address?
- Is the tool able to upgrade all of the components inside the chassis because the OA can automatically identify the addresses of the iLOs and modules?
- Do I have to manually add IP addresses of the blades, iLOs, modules, and so on, into the HP SUM GUI interface, thereby creating my own group, which is, in effect, the enclosure and all of its contents?
- Must I always manually add the host OS IP address that upgrades the blade server BIOS because the OA cannot identify what it is?

HP SUM updates all server firmware in online mode. HP SUM updates the OA through the OA interface, not through the NIC interface. The SPP provides the firmware versions that you use to update the server firmware.

You need to provide the IP address or DNS name for G7 and earlier targets that you want to update. HP SUM detects the OA host servers list on targets, and if you added servers to the OA host servers list, HP SUM will ask if you want to add the target.

If you are using a Gen8 server that is running AMS, you do not need to provide an IP address.

What is the order for updating an enclosure?

The update order depends on whether an operating system is already installed and the VC firmware version.

- With VC firmware earlier than 1.34, OA and the blades can be updated concurrently.
- With VC firmware 1.34 through 3.00:
  - Without an operating system, update the blade infrastructure firmware (OA or VC) first and then the blades (offline).
  - With an operating system, update the OA first, and then update the blades (online) and VC concurrently.
- With VC firmware greater than 3.00, you must install OA firmware 3.00 first.

SPP does not support Windows 2003. What should I do if I have a Windows 2003 server?

HP recommends that you continue to use PSP 8.70 and the Smart Update Firmware DVD 9.30 to update Windows 2003. You can also update firmware in offline mode with SPP 2011.09.0.

The Firmware Update from Intelligent Provisioning does not seem to be working. There is an `Error Reading Update Data` message. (Gen8 servers only)

You will see this message in the following cases:

- The server's network connection is not properly configured.
- The components are not available in the HP repository. This can happen when the repository is being updated with new components or the files have been inadvertently deleted.

Verify that the server's network connection is correct.

If the components are not available in the HP repository, download the SPP from the SPP Download page and access the components locally.

5 Troubleshooting

This chapter explains how to troubleshoot SPP issues.

For a listing of known limitations, see the SPP release notes on the SPP Information Library.

For any generation of HP ProLiant 200 series servers, or for HP ProLiant 100 series Gen8 and later servers, do the following to recover from a failed BIOS System ROM firmware update:

1. Remove the server access panel.
2. Locate the System Maintenance switch.
3. Set switches 1, 5, and 6 to the ON position.
4. Power on the server and wait for the server to stop beeping.
5. Power off the server, and then set the switches to their default positions (off).
6. Power on the server. The BIOS should have been reprogrammed from a backup copy.

For ProLiant 100-series G6 and earlier servers, see the server-specific service and maintenance guide.

Generating and viewing reports

You can generate either an HTML or XML report file detailing the repository contents, target firmware, target installable details, and failed dependencies. You can view both files in a web browser, such as Microsoft Internet Explorer. The reports support JavaScript-enabled web browsers Internet Explorer 6.0 or Mozilla Firefox 3.5 and later. The XML reports also allow you to write programs to pull the report information and display it in other locations.

NOTE: Not all reports are available on all screens. If a report is not available, HP SUM grays out the report.

Generating a Report

1. Click **Generate Report**.
2. Click the **Browse** button and then select the directory where you want to save the report.
3. Choose the topic you want to view in the report. Topics that are not valid are grayed out. The Report name will be displayed next to the report selected once it is checked.
   - Inventory Selections–Provides details of the contents in all selected repositories.
   - Target Firmware–Provides firmware versions for the selected targets. You can generate this report after you have entered the target credentials and HP SUM completes the discovery process on the Select Targets screen.
   - Target Installable details–Provides a list of updates available for the selected targets or devices. HP SUM will collect all the information available for this report on the Review/Install Update screen.
   - Failed Dependencies Report–Provides details on any failed dependencies that will prevent an update from succeeding.

     NOTE: The Failed Dependencies Report is automatically generated when you generate a Target Firmware details or Target Installable details report.

   - Installed Details Report–Provides details on the updates that HP SUM installed in this session.
4. Choose the type of report to generate:
   - HTML
   - XML

5. HP SUM selects the **View generated report** box by default. If you do not want to view the report immediately, clear this box.
6. Click **Generate**.

NOTE: HP SUM requires AMS to detect server IP addresses.

Viewing a report

1. Click **View Report**.
2. Click the **Browse** button and then select the report you want to view, and then click **View**.

Collecting debug information

HP SUM generates a set of debug trace logs located in the `%TEMP%\hp_sum` directory on Windows systems and `\tmp\hp_sum` on Linux systems. These files contain internal process and debug information, which can be useful in determining HP SUM failures. To break out to a Linux console while booted to SPP, press **`Ctrl+Alt+d+b+x`**. Each key (**`d`**, **`b`**, and **`x`**) is pressed in succession.

GatherLogs utility

HP SUM also has a log collecting utility for Windows (`GatherLogs.exe`) and Linux (`GatherLogs.sh`) that creates a compressed file (a Windows `.zip` file or a Linux `tar.Z` file) with all the logs. Run this utility to gather all the logs in one file.

GatherLogs must be run from writable media to create the archive of log files. Exit HP SUM before running the GatherLogs utility.

Analyzing the log files

Examine the `OpMan.trace` and the `InstallManager.log` trace files to determine the cause of a failure. These files provide the following information:

Debug Trace Files	Function
`Opman.trace`	Contains operations manager trace data of the overall installation process, details of repository components added/removed, and general errors if any.
`InventoryResults.xml`	Contains details of the component inventory from the repositories.
`Settings.xml`	Includes general settings information of HP SUM, such as Force downgrade or upgrade.
`SourceClient.trace`	Includes trace data of repository manager and general errors if any.
`Hpsumiserver\Hpsumiserver.log`	Contains trace data for HP SUM SOAP server sessions.
`Hpsumiserver\HpsumserverW32.log`	
`Hpsumiserver\localhpsumsoapserver.log`	Contains information about the HP SUM SOAP server.
`Sesssion.log`	Contains the data and time for each session has started. This file is saved in separate directory named with the date.
`RepositoryManager`	Provides repository and component information. This directory can be excluded in the trace data when collecting the trace files.
`<target>\Discoverymanager.log`	Provides the details of interaction between the Operations Manager and the remote discovery client. If a discovery tool fails, it is reported to this trace file and surfaced as a Discovery Failed message. This log is target specific.

Debug Trace Files	Function
<target>\Installmanager.log	Provides the interaction between the Operations Manager and the remote discovery client. If a discovery tool fails, it is reported to this trace file and surfaced as a Discovery Failed message. This log is target specific.
<target>\<target name>_log.txt	Provides the trace data from operations manager for specific target.
<target>\Settings.xml	Provides general settings information of HP SUM such as Force downgrade or upgrade for specific target.

Log Files	Function
<target>\hpsum_log.txt Note: <Target> is the name of the target in the source selections screen.	Contains information on HP SUM discovery, installation status, and errors if any.
Hpsum_detail_log.txt	Contains the log data of the components.
hpsum_execution_log_<date>_<time>.log	Provides detailed information of execution of HP SUM
hpsum.ini	Stores persistent data on the user's system.

From the OpMan.trace file you can see which components were winnowed from the installation set and which ones were added. Normally, components are winnowed when:

- They do not support installation on the given operating system.
- The hardware they are designed for is not discovered to be present in the server.
- The component is not for the type of target selected.
- The component does not report itself capable of being deployed to a given target.
- The component cannot be deployed in either the online or offline environment.

The following is an example of the output trace in the OpMan.trace on how to determine if a component was prevented from being shown on the **Select Items to Install screen** or being deployed from the silent console mode. In the example, the binary image files 0.bin and 1.bin (which represented HP iLO firmware files), components cp011301.exe and cp011500.exe, and the SPP represented by bundle file bp000648.xml were added to the installation set. All the other components were removed for various reasons.

```
InstallSet.cpp[212]: Winnow--Adding FileName 0.bin
InstallSet.cpp[212]: Winnow--Adding FileName 1.bin
InstallSet.cpp[222]: Winnow--Removing FileName 2.bin
InstallSet.cpp[212]: Winnow--Adding FileName cp011301.exe
InstallSet.cpp[222]: Winnow--Removing FileName cp011321.exe
InstallSet.cpp[222]: Winnow--Removing FileName cp011489.exe
InstallSet.cpp[222]: Winnow--Removing FileName cp011497.exe
InstallSet.cpp[212]: Winnow--Adding FileName cp011500.exe
InstallSet.cpp[222]: Winnow--Removing FileName cp011504.exe
InstallSet.cpp[222]: Winnow--Removing FileName cp011505.exe
InstallSet.cpp[222]: Winnow--Removing FileName cp011550.exe
InstallSet.cpp[222]: Winnow--Removing FileName cp011560.exe
InstallSet.cpp[242]: Target 0: Added Bundle bp000648.xml
```

Collecting trace directories

HP SUM generates a set of debug trace logs located in the %TEMP%\hp_sum directory on Windows systems. These files contain internal process and debug information which can be useful in determining HP SUM failures.

The debug trace files are located under `%temp%\hp_sum` for Windows. The log files are located under `C:\cpqsystem\hp\log`. These files provide the following information and are appended in each HP SUM session.

HP SUM 5.0.0 and later includes a utility named `GatherLogs.exe` (Windows) or `Gatherlogs.sh` (Linux) to create a compressed .zip (Windows) or tar.Z (Linux) file with all the logs. If you need to review the log files, you can run this utility to gather all the logs in one file.

NOTE: Exit HP SUM before running the GatherLogs utility.

Debug Trace Files	Function
`Opman.trace`	Contains operations manager trace data of the overall installation process, details of repository/components added/removed and general errors if any.
`InventoryResults.xml`	Contains details of the component inventory from the repositories.
`Settings.xml`	Includes general settings information of HP SUM such as Force downgrade or upgrade.
`SourceClient.trace`	Includes trace data of repository manager and general errors if any.
`Hpsumiserver\Hpsumiserver.log`	Contains trace data for HP SUM SOAP server sessions.
`Hpsumiserver\HpsumserverW32.log`	Contains remote trace data for HP SUM SOAP server sessions.
`Hpsumiserver\localhpsumsoapserver.log`	Contains information of the HP SUM SOAP server.
`Sesssion.log`	Contains the data and time for each session has started. This file is saved in separate directory named with the date.
`RepositoryManager`	Provides the repository and component information This directory can be excluded in the trace data when collecting the trace files.
`<target>\Discoverymanager.log`	Provides the details of interaction between the Operations Manager and the remote discovery client. If a discovery tool fails, it is reported to this trace file and surfaced as a `Discovery Failed` message. This log is target specific.
`<target>\Installmanager.log`	Provides the interaction between the Operations Manager and the remote discovery client. If a discovery tool fails, it is reported to this trace file and surfaced as a `Discovery Failed` message. This log is target specific.
`<target>\<target name>_log.txt`	Provides the trace data from operations manager for specific target. `<target>` is the name of the target in the source selections screen.
`<target>\Settings.xml`	Provides general settings information of HP SUM such as Force downgrade or upgrade for specific target.

Log Files	Function
`<target>\hpsum_log.txt`	Contains information of HP SUM discovery, installation status and errors if any.

Log Files	Function
	`<target>` is the name of the target in the source selections screen.
`Hpsum_detail_log.txt`	Contains the log data of the components.
`hpsum.ini`	Stores persistent data on the user's system.

Look in the `OpMan.trace` file to see which components were winnowed from the installation set and which ones were added.

If you are running HP SUM in offline mode, use the following instructions to collect trace directories and logs.

1. Launch HP SUM in offline mode.
2. Launch the command prompt from the HP SUM GUI by pressing **CTRL-ALT-D-B-X**.

   NOTE: After approximately 30 seconds, the command prompt will appear over the HP SUM GUI window.

3. Change the directory to the directory running HP SUM. For example, `cd /mnt/bootdevice/SPP2012060B/hp/swpackages`.
4. Type `./GatherLogs.sh` to collect the HP SUM logs. All logs are collected in a `.tar.gz` file in the directory where you placed HP SUM. The log file is named `HPSUM_Logs_$(datetime).tar`.
5. Place the logs on a removable media if you want to view them on another computer.

Downloading the Active Health System (AHS) log (for Gen8 servers only)

The HP Active Health System monitors and records changes in the server hardware and system configuration. It assists in diagnosing problems and delivering rapid resolution when system failures occur. HP Active Health System does not collect information about your operations, finances, customers, employees, partners, or data center (for example, IP addresses, hostnames, user names, and passwords).

By downloading and sending the Active Health System data to HP, you agree to have HP use the data for analysis, technical resolution, and quality improvements. The data that is collected is managed according to the HP Privacy Statement: http://www.hp.com/go/privacy.

The AHS log is a single binary file containing all the basic information that HP Support needs to start analyzing an HP ProLiant Gen8 server issue. The AHS log can be downloaded using:

- HP iLO
- Intelligent Provisioning
- Active Health System Download utility for Windows operating systems
- Active Health System Download utility for Linux distributions

The following table describes how to download the AHS log based on your operating system and if your server is online versus offline.

Table 2 AHS log generation methods

Operating system	Online server	Offline server
Microsoft Windows	AHSdownload CLI. See "Downloading the AHS log using AHSdownload" (page 32). iLO GUI. See "Downloading the AHS log using the iLO GUI" (page 32).	Intelligent Provisioning. See "Downloading the AHS log using Intelligent Provisioning (Gen8 servers only)" (page 33).
Linux		
VMware	iLO GUI. See "Downloading the AHS log using the iLO GUI" (page 32).	
Other operating systems		

Downloading the AHS log using AHSdownload

The Active Health System download CLI utility is available for Microsoft Windows operating systems and LINUX distributions. The AHS log is downloaded within the operating system using the iLO Advanced System Management driver. AHS download CLI requires the `HP ProLiant Integrated Lights-Out Management Interface Driver v1.15 or greater` HP iLO Advanced System management driver. The SPP installs this driver by default on all HP ProLiant Gen8 servers.

To download and run AHSdownload:

1. Download the AHSdownload utility from the HP FTP site: ftp://ftp.hp.com/pub/softlib2/software1/pubsw-windows/p1783870791/v75797/AHSdownload_Windows_1.0.8.04.zip.
2. Uncompress the .zip or .tar file.
3. At a command prompt, run `AHSdownload`.

Downloading the AHS log using the iLO GUI

The iLO GUI is available during POST. Download the AHS log from the **Active Health System Log** menu.

To download the Active Health System log using the iLO GUI:

1. Navigate to the **Information→Active Health System Log** page.
2. Enter the range of days to include in the log. Ensure that all possible failures are covered within the selected date range.

   The default is the last seven days or you can specify a date range. Click **Reset range to default value** to reset the dates.

   a. Click the **From** box.

      A calendar is displayed.

   b. Select the range start date on the calendar.
   c. Click the **To** box.

      A calendar is displayed.

   d. Select the range end date on the calendar.
3. Enter the contact information to include in the downloaded file (optional):
   - HP support case number
   - Contact name
   - Phone number
   - Email address
   - Company name

NOTE: The contact information you provide will be treated in accordance with the HP's Data Privacy Policy, available on the HP website: http://www.hp.com/go/privacy.

This information will not be written into the log data stored in the server.

4. Click **Download**.

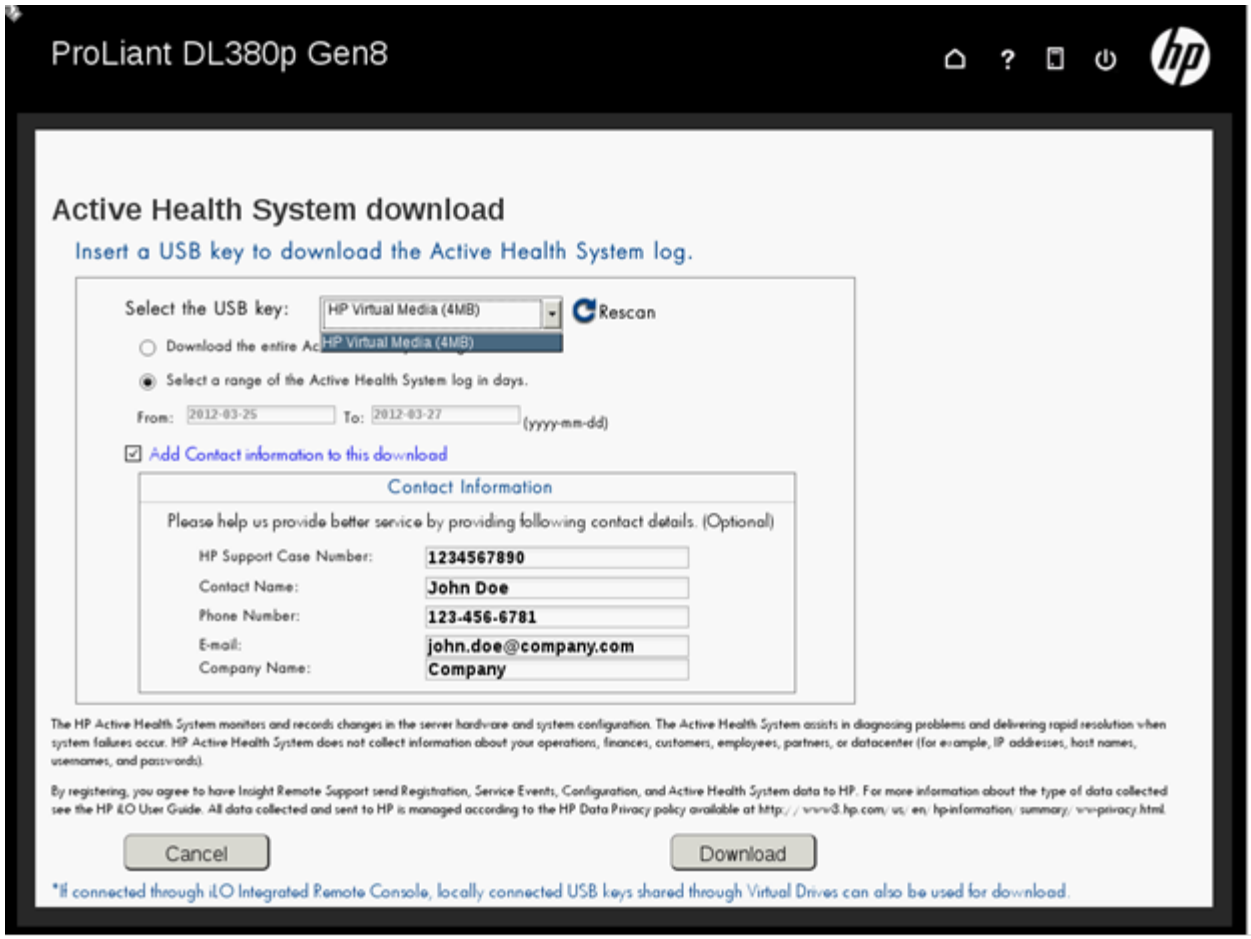
   A dialog box prompts you to open or save the file.
5. Click **Save**.

   A dialog box prompts you to choose a file location.
6. Specify a file location and file name, and then click **Save**.

   The default file name is `HP_serial_number_date.ahs`

Downloading the AHS log using Intelligent Provisioning (Gen8 servers only)

NOTE: If connected through iLO, locally connected USB keys shared through virtual devices can also be used for saving Active Health System log information.



To download Active Health System telemetry data with Intelligent Provisioning:

1. Insert a USB key into the server.
2. Press the **F10** key during POST to boot into Intelligent Provisioning.
3. From the Maintenance page, double-click the **Active Health System download** icon in the upper left corner.
4. Select the USB key from the drop down list.

NOTE: If you inserted the USB key after launching Active Health System Download, click **Rescan**.

5. Select one of the following:
   - **Download the entire Active Health System log**
   - **Select a range of the Active Health System log in days**

     The default is the last seven days, or you can specify a date range. To specify a date range:
     1. Click inside the **From** box and either enter a date (MM/DD/YYYY format) or select a date from the calendar.
     2. Click inside the **To** box and either enter a date (MM/DD/YYYY format) or select a date from the calendar.
6. Enter contact information, which will be appended to the file:

NOTE: Entering contact information is optional. The provided information will be treated in accordance with the HP Data Privacy Policy, which can be found on the HP website: http://www.hp.com/go/privacy.

This information will not be written into the log data stored in the server.

- HP support case number
- Contact name
- Phone number
- Email address
- Company name

7. Click **Download**.
8. Specify a file location and file name (default is `hp_[serial #]_date.ahs`), and then click **Save**.

Sending the AHS log file to HP Support

To submit the file to HP Support:

1. Contact HP Support, with the log file available for email submission.
2. After getting a Case ID from HP Support, email the log file to `HPSupport_Global@hp.com`, with the case ID in the subject. For example, **`<CASE: 123456789>`**.
3. You will receive a confirmation email when your AHS log file is correctly attached to your open HP Support case and received.

NOTE: Active Health System logs larger than 15 MB must be compressed before being mailed to HP Support, or they will need to be transferred with FTP.

6 Support and other resources

SPP support policy

For the support period of each active SPP, see the *HP Service Pack for ProLiant Release Notes* on the SPP Information Library.

Information to collect before contacting HP

Be sure to have the following information available before you contact HP:

- Active Health System log (HP ProLiant Gen8 servers only)

  Download and have available an Active Health System log for 3 days before the failure was detected. For more information, see "Downloading the Active Health System (AHS) log (for Gen8 servers only)" (page 31).
- OA SHOW ALL report (for HP BladeSystem products only)

  For information on obtaining the OA SHOW ALL report, see: http://www.hp.com/go/OAlog.
- Technical support registration number (if applicable)
- Product serial number
- Product model name and number
- Product identification number
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level

How to contact HP

Use the following methods to contact HP technical support:

- See the Contact HP worldwide website: http://www.hp.com/go/assistance
- Use the **Contact HP** link on the HP Support Center website: http://www.hp.com/go/hpsc
- In the United States, call +1 800 334 5144 to contact HP by telephone. This service is available 24 hours a day, 7 days a week. For continuous quality improvement, conversations might be recorded or monitored.

Subscription service

HP recommends that you register your product at the Subscriber's Choice website: http://www.hp.com/go/subscriberschoice

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

Related information

The SPP website contains documents, Customer Advisories, and a video library: http://www.hp.com/go/spp.

Table 3 Direct links to SPP web pages

Page	Link	Contains
SPP Information Library	http://www.hp.com/go/spp/documentation	SPP and related documentation, including: • *HP Service Pack for ProLiant Release Notes* • *HP Service Pack for ProLiant Support Guide* • HP ProLiant firmware management best practices guides • Contents reports, listing the contents of each SPP
SPP Download page	http://www.hp.com/go/spp/download	Current and archived SPP downloads, Hot Fixes, and advisories, link to the video library.
HP Systems and Server Software Management	http://www.hp.com/go/simple-fw-sw	Links to ProLiant server management utilities.

For information about HP SUM, see the *HP Smart Update Manager User Guide*: http://www.hp.com/support/HP_SUM_UG_en.

For information on the HP Systems Insight Manager, see the following documents on the HP Systems Insight Manager website: http://www.hp.com/go/hpsim/docs.

- *HP Systems Insight Manager Installation and User Guide*
- *HP Systems Insight Manager Help Guide*

For more information about ProLiant Gen8 server and software see the HP website: http://www.hp.com/go/proliantgen8/docs.

For information about HP Insight Control Management Software, see the HP website: http://www.hp.com/servers/rdp.

For information about operating systems supported by ProLiant servers, see the operating system support matrices: http://www.hp.com/go/supportos.

For information about support for updating SATA hard drives in a Modular Smart Array 20/50/60/70 storage enclosure connected to a ProLiant server using a Smart Array controller, see the support matrix on the HP StorageWorks Modular Smart Arrays website: http://www.hp.com/go/msa.

Typographic conventions

Table 4 Document conventions

Convention	Element
Blue text: Table 4 (page 36)	Cross-reference links and e-mail addresses
Blue, underlined text: http://www.hp.com	Website addresses
Bold text	• Keys that are pressed • Text typed into a GUI element, such as a box • GUI elements that are clicked or selected, such as menu and list items, buttons, tabs, and check boxes
Italic text	Text emphasis

Table 4 Document conventions *(continued)*

Convention	Element
`Monospace` text	• File and directory names • System output • Code • Commands, their arguments, and argument values
`Monospace, italic` text	• Code variables • Command variables
`Monospace, bold` text	Emphasized monospace text

CAUTION: Indicates that failure to follow directions could result in damage to equipment or data.

IMPORTANT: Provides clarifying information or specific instructions.

NOTE: Provides additional information.

TIP: Provides helpful hints and shortcuts.

HP Insight Remote Support software

HP strongly recommends that you install HP Insight Remote Support software to complete the installation or upgrade of your product and to enable enhanced delivery of your HP Warranty, HP Care Pack Service, or HP contractual support agreement. HP Insight Remote Support supplements your monitoring continuously to ensure maximum system availability by providing intelligent event diagnosis, and automatic, secure submission of hardware event notifications to HP, which will initiate a fast and accurate resolution, based on your product's service level. Notifications may be sent to your authorized HP Channel Partner for onsite service, if configured and available in your country.

HP Insight Remote Support software extends the HP enterprise remote support portfolio for customers with small and medium-sized IT environments. The software is available in two variants:

- **HP Insight Remote Support 7.x software** is optimized to support up to 500 devices and can be installed on a Windows ProLiant hosting device or a Windows ESXi Virtual Machine. It can be easily integrated to work with a supported version of HP Systems Insight Manager. HP Insight Remote Support 7.x provides anytime, anywhere personalized access to your IT environment through HP Insight Online, and is also the recommended version for HP Proactive Care Service.
- **HP Insight Remote Support Advanced** supports medium-sized to large environments with up to 3,500 devices. It can be installed on a Windows ProLiant hosting device or a Windows ESXi Virtual Machine and requires HP Systems Insight Manager. Optionally, customers using HP Operations Manager or SAP Solution Manager to manage their environment can easily integrate these platforms to create a single view. This software is also optimized to deliver Mission Critical Services through additional features.

For more information, see the HP website at http://www.hp.com/go/insightremotesupport. The *HP Insight Remote Support Release Notes* detail the prerequisites, supported hardware, and associated operating systems. The release notes are available on the HP website at http://www.hp.com/go/insightremotesupport/docs. HP Insight Remote Support is included as part of HP Warranty, HP Care Pack Service, or HP contractual support agreement.

HP Insight Online

HP Insight Online is a new capability of the HP Support Center portal. Combined with HP Insight Remote Support 7.x, it automatically aggregates device health, asset, and support information from iLO Management Engine with contract and warranty information, and then secures it in a single, personalized dashboard that is viewable from anywhere at any time. The dashboard organizes your IT and service data to help you understand and respond to that information more quickly. With specific authorization from you, an authorized HP Channel Partner can also remotely view your IT environment at HP Insight Online.

- For more information about using HP Insight Online, see the *HP Insight Online Getting Started Guide* at http://www.hp.com/go/proliantgen8/docs.
- To install HP Insight Remote Support and enable HP Insight Online, see the *HP Insight Online Integrated Solution and Management Setup Guide* at http://www.hp.com/go/proliantgen8/docs.

7 Documentation feedback

HP 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@hp.com**). Include the document title and part number, version number, or the URL when submitting your feedback.

A SPP staging procedures

After downloading the SPP, stage it for update and deployment. Select the staging method most adapted to your deployment processes.

NOTE: ProLiant configurable software components must be copied onto writable media for configuration.

- **Creating a bootable USB key** — Extracting the ISO to a bootable USB key is the easiest way to make the SPP available when you have physical access to a single or small number of servers. The USB key is writable, so it is suitable for all SPP components.
  - Windows — For instructions on using the USB Key Utility included in the SPP, see "Using the HP USB Key Utility" (page 41).
  - Linux — For instructions on using SYSLINUX, see "Creating a bootable USB key with SYSLINUX" (page 43).

IMPORTANT: When using OA, copy the SPP to the USB key directly, leaving it in its ISO package.

- **Mounting the ISO** — Mounting the ISO from the local file system is the easiest way to deploy components from the SPP if you have network access to a target server with a running operating system. For instructions, see "Mounting an ISO" (page 43).
- **Copying the SPP to a hard drive** — Copying the ISO to a hard drive is useful when preparing the SPP to update remote servers. The hard drive is writable, so it is suitable for all SPP components. For instructions on copying the SPP to a hard drive, see "Copying the SPP to a hard drive" (page 44).

Adding or removing components from an SPP

You can add or remove components from an SPP and optionally create a custom ISO. You might want to add or remove a component from the SPP to:

- Incorporate a Hot Fix or newly released component that is not part of the SPP into your SPP baseline.
- Ensure that only necessary files are loaded onto the system, which can make tracking changes easier if troubleshooting is required.
- Maintain compatibility with third-party products. For example, if HP releases an update to your FC HBA, but the vendor of your external switch does not support the HP version, you can remove this update to continue to receive support from the switch vendor.

NOTE: Modified SPPs cannot be deployed with HP Intelligent Provisioning.

The easiest way to create a custom SPP is with the HP SUM custom baseline feature. If you prefer not to use HP SUM, select the method that results in the format needed for your update process.

- **Directory with files** — This process leaves the modified SPP in a regular file system folder or directory. You can run HP SUM without creating and mounting an ISO. See "Creating a directory with files" (page 40).
- **ISO** — This process results in a modified ISO file. HP SIM requires an ISO file. See "Creating a custom ISO" (page 41).

Creating a directory with files

To add or remove components from the SPP:

1. Download the SPP ISO that best meets your needs and extract it onto writable media, such as a USB key or hard drive.

2. Download any Hot Fixes or other components that you want to add to your ISO. Place them in the `\hp\swpackages` directory of the SPP.

   NOTE: If you want to keep Hot Fixes separate from SPP components, place them in a different directory, such as `\hp\hotfixes`.

3. Remove any unneeded components from the `\hp\swpackages` directory.
4. Validate your custom solution before applying it to the targets. Doing this in a lab environment will minimize downtime.

Creating a custom ISO

If you want to modify an SPP while retaining the ISO format, you can create a custom ISO using an ISO editor.

To create a custom ISO:

1. Download an SPP ISO.
2. Use an ISO editor to add components to or remove components from the ISO.

   NOTE: There are several ISO creation applications available. If you are creating a bootable ISO, verify that the application you are using can create a valid boot record for your operating system.

Using the HP USB Key Utility

The HP USB Key Utility is a Windows application that enables you to copy SPP and other CD or DVD images to a USB flash drive.

Prerequisites

Installing applications onto a USB flash drive requires a supported source CD, DVD, or ISO, and a USB flash drive with adequate storage space for storing the source contents. The USB Key Utility requires a USB 2.0 flash drive with a storage size larger than the media or ISO image (2 GB or greater).

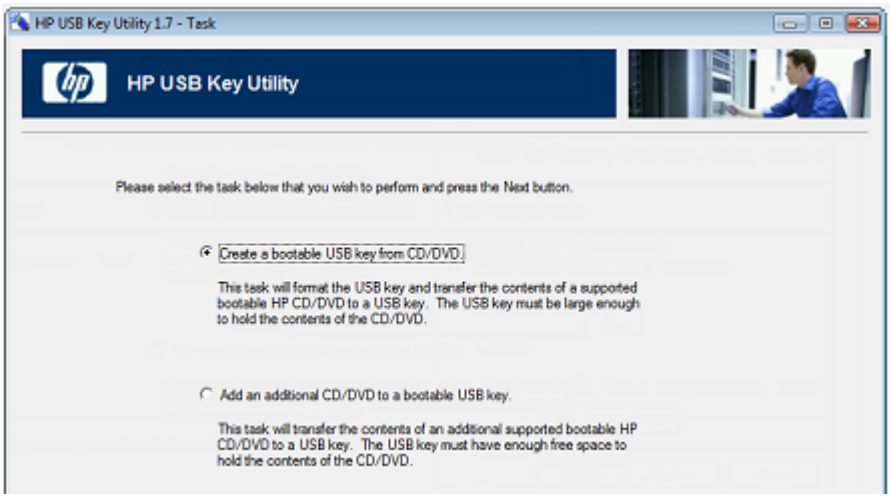
Creating a bootable USB key

After installation, the utility places a shortcut in HP System Tools in the Programs Start menu folder.

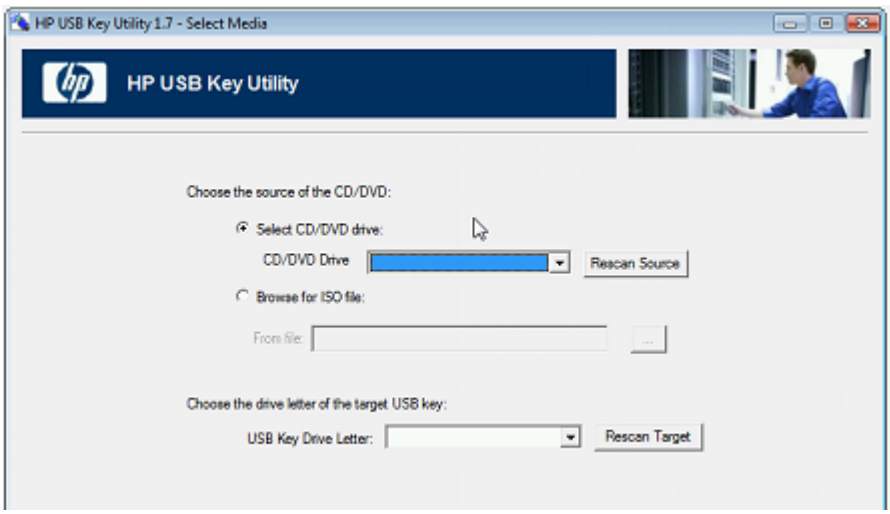
To create a bootable USB key:

1. Double-click the **HP USB Key Utility** shortcut in the HP System Tools folder.

2. Complete each step as presented by the application:
   a. Click **Next** at the splash screen.
   b. Read the End-User License Agreement, and then select **Agree** and click **Next**.
   c. Select **Create a bootable USB key from CD/DVD**, and then click **Next**.



   d. Place the USB flash drive in an available USB port. Insert the media in the optical drive or mount the ISO image, and then click **Next**.
   e. Choose the drive letter of the source, choose the drive letter of the target USB flash drive, and click **Next**.



> **CAUTION:** All data on the target USB key will be deleted.

   f. Click **Next** on the warning message screen. The USB flash drive is formatted, and the source contents are copied to the USB flash drive.
   g. Click **Finish** to display the `README.TXT` file.

Adding additional content to a bootable USB key

HP USB Key Utility supports multiple images on a single USB flash drive (provided there is adequate space available on the USB flash drive). To create a bootable USB key with multiple CD and DVD images, each image transferred to the USB key must support the multi-boot feature.

1. Follow the instructions for creating a bootable USB key.
2. Double-click the **HP USB Key Utility** shortcut in the HP System Tools folder.
3. Complete each step presented by the application:

a. Click **Next** at the splash screen.
b. Select **Agree**, and then click **Next** after reading the End-User License Agreement.
c. Select **Add an additional CD/DVD to a bootable USB key**, and then click **Next**.
d. Place the USB flash drive in an available USB port. Insert the media into the optical drive or mount the ISO image, and then click **Next**.
e. Choose the drive letter of the source, choose the drive letter of the target USB flash drive, and then click **Next**.
f. Click **Next** on the informational screen. The source contents are copied to the USB flash drive.
g. Click **Finish** to display the `README.TXT` file.

4. Repeat steps 2-3 for each source media or image to be transferred to the USB key.

Creating a bootable USB key with SYSLINUX

To create a bootable USB key with Linux:

1. Obtain SYSLINUX 3.2 or higher from http://syslinux.zytor.com and download it to a Linux workstation.
2. Install the SYSLINUX RPM obtained in the previous step.
3. Create a directory for the USB key mount point if one does not already exist. For example,

   ```
   mkdir /usbkey
   ```

   NOTE: The device mount point can vary depending on whether other SCSI drives are also installed on the server. Thus, the device mount point might be sdb1, sdc1, etc.

4. Insert the USB key and mount it. For example,

   ```
   mount /dev/sda1 /usbkey
   ```

5. To make the key bootable, write the boot partition to the USB key:

   ```
   ./syslinux /usbkey
   ```

6. Create a directory to mount the SPP. For example,

   ```
   mkdir /spp_mount_point
   ```

7. Mount the SPP via a loopback. For example,

   ```
   mount –t iso9660 spp.<version>.iso /spp_mount_point –o loop
   ```

8. Change to the directory on the mounted SPP ISO.

   ```
   cd /spp_mount_point/usb
   ```

9. Run the `usbcreator.sh` script, passing in the SPP mount point and the USB mount point to move the SPP files to the USB key. For example,

   ```
   ./usbcreator.sh /spp_mount_point /usbkey
   ```

10. If you want to add Hot Fixes or other components, copy them to the `/hp/swpackages` directory on `/usbkey`.

    NOTE: HP SUM will install additional components that it finds in the `/hp/swpackages` directory. Intelligent Provisioning will not update additional components.

11. Unmount the SPP ISO and USB key. For example,

    ```
    umount /dev/sda1
    umount spp.<version>.iso
    ```

12. Remove the USB key.

Mounting an ISO

You can access the ISO contents directly by mounting the ISO file:

1. Use virtual CD/DVD image software available from various software suppliers to mount the SPP ISO.

2. Navigate to the `\hp\swpackages` folder on the mounted directory.
3. To run HP SUM, double-click `hpsum.exe` and then follow the instructions on the screen.

Copying the SPP to a hard drive

To deploy SPP components with HP SUM using a hard drive:

1. Copy the contents of the `\hp\swpackages` directory from the SPP ISO image to a directory on the hard drive where HP SUM will be executed.
2. For Linux, ensure that execute privileges are available by using the `chmod 700 *` command.
3. Copy any Hot Fixes into the directory where the files were copied in step 1. If you prefer to keep the Hot Fix components separate, place them in a separate directory, such as `\hp\hotfixes`.
4. Run HP SUM.

B Acronyms and abbreviations

DUD
Driver User Diskette

EFM
Enclosure Firmware Management — a feature of OA

HBA
host bus adapter

HP SUM
HP Smart Update Manager

HP iLO
Integrated Lights-Out

LDU
Linux Deployment Utility

LILO
Linux Loader

OA
Onboard Administrator

POST
power-on self test

PSP
HP ProLiant Support Pack

RBSU
HP ROM-Based Setup Utility

RIBCL
Remote Insight Board Command Language

RPM
Red Hat Package Manager

SAS
serial attached SCSI

SDR
Software Delivery Repository

SLES
SUSE Linux Enterprise Server

SMHP
HP System Management Homepage

SOAP
Simple Object Access Protocol

SPP
HP Service Pack for ProLiant

SSH
Secure Shell

SSL
Secure Sockets Layer

SUV
serial, USB, video

TPM
Trusted Platform Module

UNC
Universal Naming Convention

VC
Virtual Connect

VCA
Version Control Agent

VCRM
Version Control Repository Manager

WMI
Windows Management Instrumentation

XML
extensible markup language

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