Smart Update Tools for VMware ESXi User Guide

Version 2.2.0.0

Abstract

This document describes how to use Smart Update Tools to update firmware and operating system drivers on HPE ProLiant servers. This document is intended for individuals who understand the configuration and operations of VMware ESXi, Microsoft Windows, Windows Server, Linux, smart components, and the risk of data loss from performing updates.

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SUT introduction

Smart Update Tools

Smart Update Tools is a software utility used with iLO 4, HPE OneView, iLO Amplifier Pack, Service Pack for ProLiant (SPP), and Smart Update Manager (SUM) to stage, install, and activate firmware and driver updates.

NOTE:

HPE OneView or iLO Amplifier Pack manage the iLO while SUT runs on each server and deploys the updates. The same tool might not manage both applications. Create a process that notifies the administrators when updates are available.

- **Smart Update Tools**: Polls iLO to check for requests from HPE OneView or iLO Amplifier Pack for updates through the management network and orchestrates staging, deploying, and activating updates. You can adjust the polling interval by issuing the appropriate command-line option provided by SUT. Performs inventory on target servers, stages deployment, deploys updates, and then reboots the servers.

- **iLO Amplifier Pack**: Displays available updates for servers. Communicates with SUT (or SUT 1.x) through iLO to perform updates.

- **HPE OneView:** Displays available updates for servers. Communicates with SUT (or SUT 1.x) to initiate updates, reports the status on the **Firmware** section of the **Server Profile** page of HPE OneView. HPE OneView provides automated compliance reporting in the dashboard.

- **SPP**: A comprehensive systems software and firmware update solution, which is delivered as a single ISO image.

- **SUM**: A tool for firmware and driver maintenance for HPE ProLiant servers and associated options.

NOTE:

Do not manage the same nodes with iLO Amplifier Pack and HPE OneView at the same time.

SUT operating modes

SUT runs in the following modes:

- **OnDemand mode** (default): OnDemand mode enables the administrator to write commands in the CLI window that reboots server.

- **Auto mode**: SUT runs in the following Auto modes:

  ◦ AutoDeploy

    – Performs all the tasks in AutoStage mode.

    – Deploys available components on the host server.

  ◦ AutoDeployReboot

–   Performs all the tasks in AutoDeploy mode.

–   If required, reboots the host server.

Use the `status` command to view which mode SUT is running.

Downloading SUT

Downloading SUT

SUT is available through the product downloads page.

Procedure

Download SUT from **https://www.hpe.com/servers/sut**.

Downloading SUM

Procedure

1. Go to **https://www.hpe.com/servers/sum**.
2. Click **Download**.
3. Select the SUM version you want to download.
4. In the **Delivery Options** area, select the SUM file you want to download.

Downloading SUT RPM keys

Procedure

Open the link **https://downloads.linux.hpe.com/SDR/keys.html** in a web browser and follow the instructions.

Installing SUT

SUT for ESXi installation requirements

SUT for ESXi requires the following:

- Red Hat Enterprise Linux
- Network ports

  ◦ Port to HPE OneView: 80 (HTTP) and 443 (HTTPS)

  ◦ Port to vCenter: 443 (HTTPS)

  > **NOTE:**
  >
  > SUT for VMware ESXi needs read-only access to HPE OneView and VMware vCenter.

  ◦ SUM ports: For more information, see the *Smart Update Manager User Guide* at **https://www.hpe.com/info/sum-docs**.

  ◦ Port to iLO of managed servers: 443 (HTTPS)

Red Hat Enterprise Linux packages:

- `coreutils`

  ◦ `rm`

  ◦ `chmod`

  ◦ `shutdown`

  ◦ `df`

- `sed`

  ◦ `sed`

- `rpm`

  ◦ `rpm`

- bash
- util-linux

  ◦ kill

- `gawk`

- awk
- grep

SUT installation restrictions

SUT manages ESXi hosts in one of the following combinations:

- One HPE OneView with multiple vCenters
- One vCenter with multiple HPE OneViews

SUT for ESXi does not run directly on the host. SUT runs remotely on a separate VM or server. Configure the SUT instance to communicate with HPE OneView and one ESXi host.

NOTE:

Do not install SUT for VMware ESXi on the same server managed by HPE OneView. This might cause SUT to stop working when SUT updates firmware.

SUT for ESXi relationship with HPE OneView & vCenter

Configuration for Multiple vCenter, single OneView
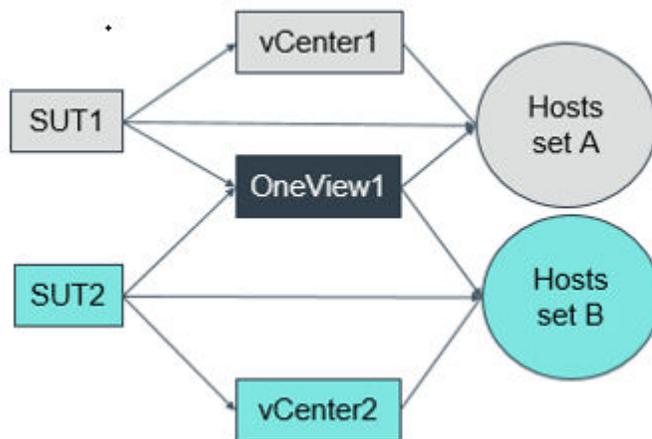
Configuration for Multiple OneView, single vCenter
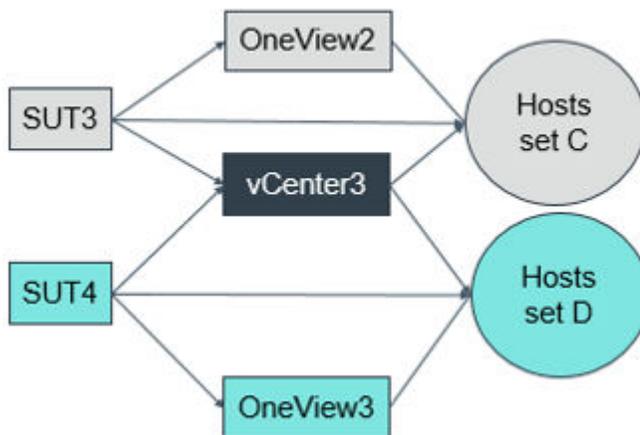
For example:

- Host set A

  ◦ HPE OneView 1

  ◦ vCenter 1

  ◦ SUT instance 1

- Host set B

  ◦ HPE OneView instance 1

  ◦ vCenter 2

  ◦ SUT instance 2

- Host set C

  ◦ HPE OneView instance 2

  ◦ vCenter 3

  ◦ SUT instance 3

- Host set D

  ◦ HPE OneView instance 3

  ◦ vCenter 3

  ◦ SUT instance 4

Restrictions

- You cannot assign multiple vCenter and multiple HPE OneView instances to a single SUT instance.

- You cannot assign the same vCenter and the same HPE OneView instances to other SUT instances.

- You can assign single instances of vCenter and HPE OneView per SUT instance.

- Ensure that each instance of vCenter or HPE OneView manages mutually exclusive servers.

- Both SUT instances can view all requests for all hosts. However, a SUT instance can retrieve credentials only for the hosts managed by the vCenter it points to.

Installing SUT with the SUM GUI

You can also use the SUM CLI, CLI with Input File, and interactive CLI modes to install SUT. For more information on using SUM, see the *Smart Update Manager CLI and Interactive CLI Guide* at **www.hpe.com/support/SUM-CLI-en**.

Directory with the SUT components.

Procedure

1. Launch SUM in GUI mode.

2. On the **Baseline Library** screen, add a baseline, and then map to the directory that contains the configured SUT components.

3. On the **Nodes Library** screen, add the nodes where you are installing SUT and assign the baseline with the SUT components.

4. On the **Nodes Library** screen, perform inventory on the nodes where you are installing SUT.

5. Install the components.

Verifying SUT installation

Procedure

Issue the following command on the host.

```
sutesxi –status
```

If SUT is installed, the system displays SUT settings. For example, mode and baseline version.

Configuring SUT for VMware ESXi

Use the command line to configure the following parameters after installing SUT. These parameters allow SUT to retrieve the firmware profile details from HPE OneView and use the OATH token from vCenter Server to gain credentialless access to the ESXi host. SUT can then perform firmware and operating system driver updates.

*   `vcenterhost`

*   `vcenterusername`

*   `vcenterpassword`

*   `managementhost`

*   `managementhostusername`

*   `managementhostpassword`

Setting the staging directory

If you do not want to use the default SUT staging directory, issue a `set` parameter to assign the staging directory.

Procedure

1. Open a command-line window.

2. Enter the command `sutesxi /set stagingdirectory=<directory_path>`.

SUT creates a backup configuration file that SUT can use in future sessions.

Reinstalling SUT with the SUM GUI

You can reinstall SUT with SUM and overwrite the currently installed version of SUT. You can reinstall SUT to change the configuration for multiple servers at the same time.

Prerequisites

Directory with SUT components configured.

Procedure

1. Launch SUM in GUI mode.

2. On the **Baseline Library** screen, add a baseline, and then map to the directory that contains the configured SUT components.

3. On the **Nodes Library** screen, add the nodes where you are installing SUM and assign the baseline with the SUT components.

4. On the **Nodes Library** screen, perform inventory on the nodes where you are installing SUT.

5. Install the components. Use the **Advanced Deployment** mode and **Force** the component updates.

Issuing SUT commands

SUT command-line basics

The following example is the basic SUT syntax.

`sutesxi` -[command] (Linux)

NOTE:

To run the iLO of the server in High Security mode, provide the iLO Administrator credentials for all the On Demand commands. You can also store the iLO credentials, by providing the credentials once in the `set` command.

Changing the SUT mode

Prerequisites

SUT installed on the server.

Procedure

1. Open a command line on the server.

2. Issue the **set** parameter.
   `sutesxi -set mode=[mode_type}`

Reviewing staged components

Use the `/status` parameter to display a list of all components staged by SUT.

Procedure

From a command line, type `sutesxi -status`.

SUT generates a list of components available for deployment, and required user actions.

Deploying updates with SUT in ESXi overview

Procedure

1. Download an SPP from **http://www.hpe.com/servers/spp/download**.

   Access to the SPP requires validation through the HPE Support Center. An active warranty or HPE support agreement is required to download the SPP.

2. Add your ESXi hosts to HPE OneView and assign them a profile. For more information, see the HPE OneView documentation at **http://www.hpe.com/info/oneview/docs**.

3. Install SUT.

4. Issue the CLI command to assign SUT a mode.

5. If SUT is in AutoDeploy mode, issue the reboot command.

Command-line parameters

The following parameters are valid for the command line.

Help

Syntax

`-help`

Description

Displays command-line help information.

Example input

`sutesxi -help`

Set

Syntax

`-set`

Description

Change SUT options.

Options

`sutesxi -set mode=<AutoDeploy,AutoDeployReboot>`

   Selects the mode SUT uses.

```
sutesxi -set managementhost=<management appliance IP>
managementhostusername=<management appliance username>
managementhostpassword=<management appliance password>
```

```
sutesxi -set vcenterhost=<vcenter IP> vcenterusername=<vcenter username>
vcenterpassword=<vcenter password>
```

Example input

This command-line input sets the HPE OneView IP address, username, and password.

```
sutesxi -set managementhost=<string> managementhostusername=<string>
```

```
managementhostpassword=<string> ldapdomanname="MyDirectory"
```

The format of the `<string>` parameter value is xxx.xxx.xxx.xxx for the parameter managementhost. The sut esxi binary parses or validates whether the string is in IP format and then logs the request into the database. The request is read by the SUT service from the database and upon validating the connectivity and the credentials, updates the HPE OneView host address in its cache.

The parameter `ldapdomainname` is optional and if you pass it, sut esxi uses it while trying to log in to HPE OneView. Pass `ldapdomainname` when HPE OneView is configured with a domain directory (Microsoft AD or OpenLDAP) and local authentication is disabled.

Results: The HPE OneView host address, username, and password are set successfully.

Start

Syntax

`-start`

Description

Starts the SUT for VMWare ESXi service.

Example input

`sutesxi -start`

Stop

Syntax

`-stop`

Description

If running, this parameter stops the SUT for VMWare ESXi service.

Example input

`sutesxi -stop`

Version

Syntax

`-version`

Description

Displays the version of SUT for VMWare ESXi .

Example input

`sutesxi -version`

SUT log files

About log files

After SUT automatically generates updates after:

- Deploying updates.
- Staging updates.
- Verifying updates.

SUT saves the log files in the following location:

Linux: `/var/tmp/sutesxi`

Collecting log files in Linux

Procedure

Run the script `gatherlogs.sh` in `/opt/sut/sutesxi/bin`

SUT ESXi runs gatherlogs and copies the log file after each stage and deploy operation at the following location:

`/opt/sut/sutesxi/logs`

Uninstalling SUT

Uninstalling SUT in Linux

Make sure that SUT is not installed on your server.

Procedure

1. Use the following to find the SUT filename.
   `rpm –q sutesxi | grep -i sutesxi`

2. Use the following command to uninstall SUT:
   `- rpm –e sutesxi`

SUT troubleshooting

SUT cannot access Synergy IPv6 local host

Symptom

A Synergy local address using IPv6 cannot be accessed

Cause

Synergy enclosure blade iLOs are configured with only an IPv6 local address by default. SUT uses an IPv4 address.

Action

Configure a local IPv4/IPv6 address for the local iLOs on compute nodes inside Synergy enclosures.

The new address must be reachable from a system outside the Synergy enclosure.

Firmware update is delayed when firmware is applied in mixed mode

Symptom

When you create a profile in mixed mode, the firmware update schedule is delayed.

Cause

A group of nodes sent to SUM for deployment can have maximum 10 nodes. The scheduled nodes are inserted first and have the same schedule time. If the number of nodes is less than 10, the immediate or non-scheduled nodes are inserted in that group until the count reaches 10. If the properties of the non-scheduled nodes do not match with the scheduled nodes, the schedule is delayed.

Action

Ensure that a single group of nodes sent to SUM for deployment has the following matching properties: Force Flag, Install type, Baseline URI, and Schedule time (optional).

SUT baseline validation failed

Symptom

Downloaded SUM baseline components failed.

Cause

The staging directory is read-only or the component download failed due to network issues.

Action

1. Make sure the staging directory has write permissions.

2. Make sure that the network connection is stable during the download.

3. Resubmit the firmware deployment request.

SUM binary download failed

Symptom

Downloading SUM files failed.

Cause

The network connection is not stable.

Action

1. Make sure that the network connection is stable during the download.

2. Resubmit the firmware deployment request.

SUT did not create an SPP folder

Symptom

SUT was unable to create an SPP folder.

Cause

The staging directory does not have write permissions.

Action

1. Make sure that the staging directory has write permissions.

2. Resubmit the firmware deployment request.

SUT reboot request did not execute

Symptom

SUT was unable to reboot a server.

Action

Reboot the server using another method.

iLO version mismatch

Symptom

SUT reports an iLO version mismatch

Cause

The iLO4 version is lower than the minimum version, 2.30.

Action

Upgrade the iLO4 firmware to version 2.30 or later.

SUT reports an `installfailed` state

Symptom

The ESXi target moves to `installfailed` state when updating SUT through HPE OneView.

Cause

SUT gets stuck when installing if you have HPE QLogic NX2 Online Firmware Upgrade Utility for VMware.

Action

1. Create a custom baseline using corresponding versions of SUM and SPP supported by SUT. For example, SUM 7.6.0, and SPP 2017.04.0.

2. Remove the existing HPE QLogic card component.

   If you are using the extracted path, remove the HPE QLogic NX2 Online Firmware Upgrade Utility for VMware component (`CP026245.zip`) from the temporary directory before launching SUM.

   If you are using the mount location, deselect the `CP026245.zip` component.

Symptoms of vCenter and HPE OneView connection failure

The following symptoms might occur if there is a connection failure.

- The status command displays management software/vCenter relationship and connection status.

  ◦ Success: ConnectionSuccess

  ◦ Failure: ConnectionFailed

- If the vCenter Server credentials entered are incorrect, the following response is displayed:

  ```
  Failed to connect to vCenter Server. <Incorrect credentials are provided.
  Please enter the correct credentials.>
  ```

- If the vCenter Server is not reachable over the network, the following response is displayed:

  ```
  Failed to connect to vCenter Server. <vCenter server is unreachable over
  the network. Ensure that IP assigned to the vCenter server is reachable.>
  ```

- If the Management appliance credentials entered are incorrect, the following response is displayed:

  ```
  Failed to connect to Management appliance. <Incorrect credentials are
  provided. Please enter the correct credentials.>
  ```

- If the Management appliance is not reachable over the network, the following response is displayed:

  ```
  Failed to connect to Management appliance. <Management appliance is
  unreachable over the network. Ensure that IP assigned to the Management
  appliance is reachable.>
  ```

- For SUT for VMware ESXi, the size of the SUM files and VMware components are approximately 1 GB. If the SUM files or components cannot be downloaded because of low disk space, examine the size of the staging directory. Delete the old SPPs and unused SPPs from the staging directory. SUT does not automatically manage SPPs. Manual deletion is required.

Websites and support

Websites

Hewlett Packard Enterprise Information Library	**www.hpe.com/info/EIL**
Smart Update Manager	**www.hpe.com/servers/sum**
Smart Update Manager Downloads	**www.hpe.com/servers/sum-download**
Smart Update Manager Information Library	**www.hpe.com/info/sum-docs**
Smart Update Tools	**www.hpe.com/servers/sut**
Smart Update Tools Information Library	**www.hpe.com/info/sut-docs**
Service Pack for ProLiant	**www.hpe.com/servers/spp**
Service Pack for ProLiant documentation	**www.hpe.com/info/spp/documentation**
Service Pack for ProLiant downloads	**www.hpe.com/servers/spp/download**
Service Pack for ProLiant custom downloads	**www.hpe.com/servers/spp/custom**
HPE SDR site	**downloads.linux.hpe.com**

For additional websites, see **Support and other resources**.

Support and other resources

Accessing Hewlett Packard Enterprise Support

- For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website:

    http://www.hpe.com/assistance

- To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website:

    http://www.hpe.com/support/hpesc

Information to collect

- Technical support registration number (if applicable)
- Product name, model or version, and serial number
- Operating system name and version
- Firmware version
- Error messages

- Product-specific reports and logs

- Add-on products or components

- Third-party products or components

Accessing updates

- Some software products provide a mechanism for accessing software updates through the product interface. Review your product documentation to identify the recommended software update method.

- To download product updates:

  Hewlett Packard Enterprise Support Center
  > **www.hpe.com/support/hpesc**

  Hewlett Packard Enterprise Support Center: Software downloads
  > **www.hpe.com/support/downloads**

  Software Depot
  > **www.hpe.com/support/softwaredepot**

- To subscribe to eNewsletters and alerts:

  www.hpe.com/support/e-updates

- To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center **More Information on Access to Support Materials** page:

  www.hpe.com/support/AccessToSupportMaterials

(!) **IMPORTANT:**

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

Customer self repair

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

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

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

Remote support

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

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

Remote support and Proactive Care information

HPE Get Connected

    www.hpe.com/services/getconnected

HPE Proactive Care services

    www.hpe.com/services/proactivecare

HPE Proactive Care service: Supported products list

    www.hpe.com/services/proactivecaresupportedproducts

HPE Proactive Care advanced service: Supported products list

    www.hpe.com/services/proactivecareadvancedsupportedproducts

Proactive Care customer information

Proactive Care central

    www.hpe.com/services/proactivecarecentral

Proactive Care service activation

    www.hpe.com/services/proactivecarecentralgetstarted

Warranty information

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

www.hpe.com/support/Safety-Compliance-EnterpriseProducts

Additional warranty information

HPE ProLiant and x86 Servers and Options

    www.hpe.com/support/ProLiantServers-Warranties

HPE Enterprise Servers

    www.hpe.com/support/EnterpriseServers-Warranties

HPE Storage Products

    www.hpe.com/support/Storage-Warranties

HPE Networking Products

    www.hpe.com/support/Networking-Warranties

Regulatory information

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

www.hpe.com/support/Safety-Compliance-EnterpriseProducts

Additional regulatory information

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

www.hpe.com/info/reach

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

www.hpe.com/info/ecodata

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

www.hpe.com/info/environment

Documentation feedback

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