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NEWS

Software update of SIMATIC Virtualization as a Service (SIVaaS) systems

> Siemens Industry Online Support



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1 Introduction

This document contains information on the software update of a virtualization system implemented with "SIMATIC Virtualization as a Service".

The software update is carried out in the following steps:

- Update of thin clients
 - Adjustment of settings
 - VMware vSphere Client
 - Client Integration Plugin
 - ILO Remote Console
- Virtualization server update
 - Firmware
 - VMware vSphere ESXi (Hypervisor)
- Updating of the virtual machine software.

Validity

This document applies to the following products: "SIMATIC Virtualization as a Service" as of V1.0

2 Creating a backup

Backup of the virtual machines

Before starting the upgrade, make a complete backup of your data. The current state of a virtual machine can be exported to the OVF format. You can find information about this in the manual on the supplied data medium

3 Updating the Thin Clients

3.1 Disabling the write protection

In order to preserve any changes made to the system settings after the restart, the write protection of the thin clients must be deactivated. This requires administrator rights

To deactivate the Thin Client write protection, proceed as follows:

- 1. Log on as Administrator.
- Right-click on the "lock" icon in the system tray and select "Disable EWF (D)" (EWF = Enhanced Write Filter) or "Disable UWF" (UWF = Unified Write Filter). This deactivates the write protection of the HP Thin Client.



3.2 Changing the swap directory

The swap directory (TEMP or TMP) is set up on a RAM disk whose size is insufficient for unpacking the VMware vSphere Client software during installation. For this reason, the directories for the installation must be placed on the C partition.

Proceed as follows to change the directories for the installation:

- 1. Open the "Environment Variables" dialog via "Control Panel > System > Advanced System > Environment Variables".
- 2. Click on the "Edit" button and change the paths as follows:
 - Z:\TEMP > C:\TEMP
 - Z:\TMP > C:\TMP

System ← → ▼ ↑ ♀ Control	Panel > All Control Panel Items > System		- C X	
Control Panel Home	View basic information about your computer		0	
ᠹ Device Manager	Windows edition	Environment Variables		×
💡 Remote settings	System Properties ×			
System protection		User variables for Admin		
Advanced system settings	Computer Name Hardware Advanced System Protection Remote	Variable	Value	
	You must be logged on as an Administrator to make most of these changes.	Path	%USERPROFILE%\AppData\Local\Microsoft\WindowsApps	
	Performance	TEMP	Z:\Temp	
	Visual effects, processor scheduling, memory usage, and virtual memory	TMP	Z:\Temp	
	Continue			
	Settings			
	User Profiles			
	Desktop settings related to your sign-in			
			New Edit Delete	e
	Settings		43	
	Startup and Recovery	System variables		
	System startup, system failure, and debugging information	Variable	Value	^
		ComSpec	C:\Windows\system32\cmd.exe	
	Settings	NUMBER_OF_PROCESSORS	4	
		OS	Windows_NT	
	Environment Variables	Path	C:\Windows\system32;C:\Windows;C:\Windows\System32\Wbem;	•
			AMD64	
See also	OK Cancel Annie	PROCESSOR IDENTIFIER	AMD64 Family 21 Model 96 Stepping 1. AuthenticAMD	~
Security and Maintenance	ОК Санов лрру			
			New Edit Delete	8
v Alexandra Alexandra			OK Cancel	
e				

3.3 Downloading the installation file to update the "VMware vSphere Client"application

To download a recent installation file of the VMware vSphere Client application, follow these steps:

- 1. Open Internet Explorer and enter the IP address of your ESXi server as the destination.
- 2. Confirm that you acknowledge the certificate of the server. The server's welcome page is displayed.
- 3. Select "Download vSphere Client for Windows" to download the installation file.
- **Note** The version of the VMware vSphere Client application must be the same as the installed ESXi version.
 - If the thin client does not have an Internet connection, you can copy the link and download the installation file from another device connected to the Internet.



3.4 Installing the "VMware vSphere Client application"

- Run the application installation file. The destination folder for the installation must be an uncompressed folder on the C:\ partition. To do this, as suggested by the system, create a new folder under "C:\Program Files (x86)\VMware\Infrastructure" and remove the compression from the folder properties.
- 2. Follow the instructions of the installation wizard.

3.5 Installation of the "Client Integration Plugin"

For a description of how to install the Client Integration Plugin, see:

https://docs.vmware.com/en/VMwarevSphere/6.0/com.vmware.vsphere.vm_admin.doc/GUID-3FC8F86B-7F4A-450C-9D1F-0275E403F71C.html

3.6 Installation or update of the application "Integrated Remote Console"

If you want to use HPE iLO to administer the server, we recommend that you install the HP Lights-Out Console.

http://h20564.www2.hpe.com/hpsc/swd/public/detail?swltemId=MTX_4f842ceb31cf 48d392e22705a8

3.7 Resetting to the defaults

After installation, the swap directories must, as described in section 3.2, be placed back in the Z:\ partition.

Proceed analogously to the steps described in section 3.2.

3.8 Activate write protection

After the installation is finished and the swap directories are reset, the changes to the system are completed.

- To enable write protection, follow the procedure in section Fehler! Verweisquelle konnte nicht gefunden werden. and in this case, select the option "EWF(E)"/"Enable UWF".
- 4. Then restart the Thin Client

4 Virtualization server update

4.1 Updating the firmware

Introduction

The firmware of the virtualization server should be kept up to date. The following section describes how to obtain and install the latest firmware.

Downloading the installation file to update the firmware

- To update the firmware, you need the latest "HP Service Pack for ProLiant". To download this, click on the following link: <u>http://h17007.www1.hpe.com/us/en/enterprise/servers/products/service_pack/s</u> <u>pp/index.aspx</u>
 The dewnload the upp of the UD Complete Pack for Pack for Pack for Pack for Pack.
 - The download page of the HP Service Pack for ProLiant (SPP) opens.
- 2. If your server belongs to generation 8, click on the corresponding postproduction version at the top of the download page.



3. In the "SPP ISO Image" section, click the "Service Pack for ProLiant" link to request the entire service pack.

Is required

Important Notes:	RECOMMENDATION: Before downloading, please complete the one-time association of a warranty or HPE Support Services to the user profile on
HPE OneView Customers - Please review HPE OneView - OneView Reports "The Firmware Bundle Information Is Unavailable" When Unloading the Service Pack for Prol iant	the Contracts & Warranties page.
2017.07.1 (or Later) prior to using the SPP. Before installing this SPP on Synergy, please review the information at	SPP Custom Download
www.hpe.com/downloads/synergy.	Create an SPP Custom Download
The 2017.10.1 SPP is a production SPP and contains components for the Gen9 and Gen10 server platforms. Components for the G7 and Gen8 server platforms are available in the Post-Production SPPs and can be downloaded from www.hee.com/servers/SPP/download. For additional information.	Filter the SPP to create a customized download. Add SPP Supplements o reduce the download size by selecting pre-defined filter sets or choosing individual filter options.
please refer to Reducing Server Updates.	+ -
Release Summary:	
SPP 2017.10.1 is a replacement for SPP 2017.10.0 addressing these issues:	- SPP ISO Image
HPE Virtual Connect 4.60 and 4.61 – Reboot/Reset/Power- Cycle of Blade(s) or VC Module(s) May Result in Loss of Stacking Link Between VC Modules, Latency in FCoE Traffic and United May Net Fore LACE Owner Counters a Network	Service Pack for ProLiant (5.6 GB) MD5 Checksum: 9c01d4a07b356c5b36frd5b39eb34db5

The description of the service pack (SSP) is displayed.

4. Click on "Obtain software".

<u>Drivers & software</u>	SGI product documentation a your SGI documentation and	nd software downloads are currently being migrated, please visit the <u>SGI portal</u> for software needs during this migration period.			
	Service Pack for	ProLiant			
	By downloading, you agree Agreement.	e to the terms and conditions of the <u>Hewlett Packard Enterprise Software License</u>			
	Note: Some software requ a license fee.	ires a valid warranty, current Hewlett Packard Enterprise support contract, or			
	Type: Version:	Application (Entitlement Required) - System Management 2017.10.1(31 Oct 2017)			
	Operating System(s):	SUSE Linux Enterprise Server 11 (AMD64/EM64T) Red Hat Enterprise Linux 6 Server (x86-64)			
		SUSE Linux Enterprise Server 12 Red Hat Enterprise Linux 7 Server			
		Microsoft Windows Server 2012 Microsoft Windows Server 2012 Essentials			
		Microsoft Windows Server 2012 R2 VMware vSphere 6.0			
		Microsoft Windows Server 2016			
	Obtain software	VMware vSphere 6.5			
	Description Enhancemer	its Installation Release Fixes Important Revision			

5. Click on the link "Sign-in now". The log-in dialog is opened.

Hewlett Packard Enterprise	Solutions	Services	Products	About Us	Support	۵
Sign in						
Sign in using HPE	Passport ?					
Required *						
User ID *						
1						
Your user ID may be your e	mail. Forgot User ID					
Password *						
Forgot Password						
Bomombor mo on	this computer					
	uns computer					
Cro	eate an accour	nt Sigi	n in			
	🖯 HPE F	Passport is sec	ure ?			

- 6. If you are not yet registered with HP, click "Create an account" and create a user account. This is necessary to download and manage the installation file.
- If you have an HP user account, log in to the HP website accordingly. To prove that you have permission to download the installation file, you must enter your virtualization server in your HP user account.

8. Repeat steps 1 and 2 (if necessary). Click on "Obtain software" again. Confirm the dialog by clicking on "Contracts & warranties".



9. Click on "Link warranties".



10. Enter the serial number and product number of your virtualization server and confirm the entry.

The product number of the generation 9 server is 719064-B21. The product number of the generation 8 server is 653200-B21.

Product se Item number*	erial Product nu * <mark>1</mark>	mber Product location Assig	gn nickname 👔 🛛 Ownership type * 🖡
1. CZ3602W	ISM + 719064-B21	+ Germany + SIVa	aS + Multiple V
2.	+	+ United States 🖌	+ Single ✓
3.	+	+ United States 🖌	+ Single 🗸
4.	+	+ United States 💙 +	+ Single 💙
5.	+	+ United States 💙 +	+ Single 💙
6.	+	+ United States 🖌 +	+ Single 🗸
7.	+	+ United States 🖌	+ Single 🗸
8.	+	+ United States 🖌	+ Single 🗸
9.	+	+ United States 🖌 +	+ Single 💙
10.	+	+ United States 👻 +	+ Single 💙

Your guarantee agreement will be linked to your user account.

11. Repeat steps 1. to 3.

Since you are already logged in and your virtualization server is known, you will be taken to the "Product details & specifications" page. On this page you will find prerequisites, improvements to previous versions and instructions for updating.





- 13. On the next page, review and confirm your personal contact information and license agreement.
- 14. Download the SSP as an ISO file. You will receive the required confirmation number by e-mail.

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Hewlett Packard Solutions Enterprise	Services Produc	ts About Us Sup	port				c	2
Welcome, daniel.voelschow@siemens.co Software dowr	om Sign-out Edi	t your profile			United S	tates-English 🗸		
Software Depot Electronic download Frequently asked	Customer Name: Company Name: Email:	Daniel Voelschow Siemens AG daniel.voelschow@sieme	ens.com	Confirmation I Transaction D	Number: 5 Date: S	26686569 eptember 21 2017	at 09:57 (UTC)
questions	Service Pack for Pr	Product Name roLiant 2017.07.1	Product # spp-2017.0)7.1_1	Version 2017.07.1	Qty I	Deliverable	5
At Provide site feedback								
 Sign up to get product updates, drivers and support alerts 	Q Search					+ Expand All	- Colla	npse All
	- 🗸 Software							
		Description	1	File Size		Use Standard Download		•
	881936-001 (spp-20	017.07.1-SPP2017071.2017	0718.11.iso)	4.65 GB		More Details 🛇	Downlo	ad
	md5sum (spp- 2017.07.1-SPP2017(071.2017_0718.11.iso.md5su	ım)	0.06 KB		More Details 😡	Downlo	ad

Installation

Note

As an alternative to installing via iLO, you can write the SPP to a USB stick using the HP USB key utility. For a description of the procedure, see the <u>Hewlett</u> <u>Packard Enterprise Support Center</u>. The link to download the tool is listed at the end of the description.

Then plug the USB stick into the server and continue with step 4 of the installation.

- 1. Open Internet Explorer, enter the IP address of your ILO account and log in to the ILO portal.
- _ 🗆 🗙 /10.10.40.5/ D - 😢 Certific... 🖒 🏉 iLO: localhost.sivaas.local - I... × 4 Local User: Administrator SIGN OUT iLO 4 iLO Overview Information Information Status Server Name localhost.sivaas.local System Health A Degraded ON
 UID OFF
 Not Present Product Name ProLiant DI 380 Gen9 Server Power iLO Event Log UUID UID Indicator Server Serial Numbe TPM Status Integrated Mana Product ID e en se SD-Card Status Not Present Active Health System Loo System ROM System ROM Date iLO Date/Time Wed Sep 20 13:04:35 2017 P89 v2.30 (09/13/2016 Diagnostics 09/13/2016 Backup System ROM 015 Location Disc Connection to HPE Integrated Remote Co .NET Java Web Start Java Applet Insight Agent License Type anced A Not registered > iLO Federation il O Firmware Versio 2.50 Sep 23 2016 IP Address 10.10.40.5 > Remote Console Link-Local IPv6 Address > Virtual Media iLO Hostname 1. State Provide > Power Managemen > Network Active Sessions > Remote Support IP Address 10.10.149.234 10.10.149.234 10.10.3.239 > Administration Source HTTPS Remote Console HTTPS User Local User: Administrato Local User: Administrato Local User: Administrato R: ON 🔗 UID: OFF
- 2. Start the integrated remote console on a .NET basis.

The remote connection to the virtualization server interface is established.

- iLO Integrated Remote Console Server: sivaas01 | iLO: ILOSiVaaS01.itfc.local Power Switch Virtua Drives Keyboard Help di Carata di 8. 144 Folder <u>____</u> Removable Media Image File VМыа Build 2403361) URL Removable Media HP CD-ROM/DVD Image File 2 URL CD-ROM/DVD 0 2.50GHz 2 x 📃 🎐 40 GTD TICHULY
- 3. Connect the downloaded PLC via the menu command "Virtual Drives> Image File".

4. Once the image file is connected, restart the virtualization server and press the F11 key to bring up the boot menu. Set the option "Start DVD".



The software automatically performs the update for all firmware components of the virtualization server.

The ILO connection may be interrupted when updating the ILO firmware and must be re-established manually.

9 iLO Integrated Remote Console - Server: localhost.sivaas.local iLO:						
Power Switch Virtual Drives Keyboard Help						
Smart Update Manager 8.0.0			?			
Localhost Guided Update						
			Exit			
	:					
Step 1 Step 2	Step 3 Deployment					
	: :					
Inventory of baseline and node						
Service Pack for ProLiant Baseline successfully added	Total components 699					
▼ Inventory of Localhost			h			
Iocalhost Inventory in progress	Inventory started.					
Abort Start Over						
Abort Startover						
1024 x 768		🔒 RC4	4 🥥 🔿 🕲			

5. After completion of the installation, restart the virtualization server.

4.2 Updating the hypervisor (VMware vSphere ESXi)

This section provides information on upgrading the virtualization server to the latest released version. You can find information on release versions in the "SIMATIC Virtualization as a Service" manual.

For operation on a virtualization server (HP ProLiant), VMware provides a custom installation.

Downloading the installation file to update the hypervisor

 To upgrade the VMware VSphere ESXi software of the virtualization server, you need the appropriate installation image file. To download this, click on the following link: <u>https://my.vmware.com/web/vmware/info/slug/datacenter_cloud_infrastructure/</u><u>vmware_vsphere/6_0#custom_iso</u>

The download page of the software opens.

- 2. Select the latested version released for your automation software and click on the "Custom ISOs" tab.
- **NOTE** For compatibility information start the compatibility tool: <u>http://www.siemens.com/kompatool</u>.

In the first step, select the version of the desired automation software in the compatibility tool (e.g. SIMATIC PCS 7 V9.0 SP1) for which you want to query a compatibility statement. In the second step, select the product "SIMATIC Virtualization as a Service" and activate the option "any version". Click on the "Show compatibility" button and download the compatibility list.

Home / VMware vSphere

Download VMware vSphere



VMware Software Manager makes it easy to find, select, and download the content needed to install or upgrade a VMware product or suite with the push of a button.

Download Now

Customers who have purchased VMware vSphere 6.0 can download their relevant installation package from the product download tab below. Looking to upgrade from vSphere 5? Visit the VMware vSphere Upgrade Center.

Important Note for SDK/CLI Users

vCenter 6.0 U3 is configured to use TLSv1.1 and TLSv1.2 which is a change from the previous 6.0 version and may cause issues with SDK/CLI communication. See Knowledge Base article 2149213.

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Support Resources
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	Custom ISOs	Release Date	
~	OEM Customized Installer CDs		
	Lenovo Custom Image for ESXi 6.0 U3 GA Install CD	2017-12-01	Go to Downloads
	Hitachi Custom Image for ESXi 6.0 U3a GA Install CD	2017-11-06	Go to Downloads
	HPE Custom Image for VMware ESXi 6.0 U3 Install CD	2017-11-03	Go to Downloads
	CISCO Custom Image for ESYI 6.0.113 Install CD	2017-08-24	Go to Downloade

- 3. Select the last released version (e.g. V6.0 U3) of "HPE Custom Image for ESXi Install CD" as an ISO file from the list and download it.
- **Note** Login to the VMware page is required for download. If you are not already registered, create an account and then log in.

Installation

- 1. Open a browser, enter the IP address of your ILO account and log in to the ILO portal.
- 2. Start the Integrated Remote Console by clicking on ".NET".

		LINCOM, DO	and, Springer, Sectors	- Manual Rold	_		
(+) (2 https://10.10.4	40.5/ 🔎 👻 Certific.	. C 🙋 iLO: localhost.sivaas.local - L ×					ĥ☆‡
Hewlett Packard Enterprise	iLO 4 ProLiant DL380 Gen9			iLO Ho:	Local User: Administrator	HOME	SIGN OUT
Expand All	iLO Overview						
 Information 	Information		Stat	tus			
Overview							
System Information	Server Name Product Name	localhost.sivaas.local ProLlant DL380 Gen9	Syste	em Health 🔥 Degrade er Power 🔹 ON	1		
ILO Event Log	UUID	The construction of the second	UID I	Indicator 🛛 UID OFF			
Integrated Management Log	Server Serial Number		TPM	Status Not Present			
Active Health System Log	Product ID		SD-C	Card Status Not Present	40-04-05-0047		
Diagnostics	System ROM Date	09/13/2016	ILU L	Date/Time Web Sep 20	113.04.35 2017		
Location Discovery Services	Backup System ROM	015	Con	nnection to HPE			
Insight Agent	Integrated Remote Consol	.NET Java Web Start Java Applet	•	Not registered			
> iLO Federation	iLO Firmware Version	2.50 Sep 23 2016	-	Not registered			
> Remote Console	IP Address	10.10.40.5					
> Virtual Media	iLO Hostname	1. State Providen					
> Power Management							
> Network	Aution Considered						
> Remote Support	Active Sessions						
> Administration	User	4	IP Address		Source		
	Local User: Administrator		10.10.149.234		HITPS Remote Console		
	Local User: Administrator		10.10.3.239		HTTPS		
	_				() POWER: C	N (?) U	D: OFF 🛛 🔺

The remote connection to the virtualization server interface is established.

3. Connect the downloaded ISO file via the menu command "Virtual Drives > Image File".



4. Once the image file is connected, restart the virtualization server and press the F11 key to bring up the boot menu.



5. As a boot option, select the HPE iLO Virtual USB CD/DVD drive.



6. Select the ESXi installation file and press Enter.

iLO Integrated Remote Console - Serve	-	×		
Power Switch Virtual Drives Keyboard	Help			
	Loading ESXi i	installer		
Leading /tboot.b00 Leading /b.b00 Leading /b.b00 Leading /popstt.g2 Leading /boots.g2 Leading /chardevs.b00 Leading /chardevs.b00 Leading /vsc.b00 Leading /vsc.b00 Leading /vsc.b00 Leading /vsc.b00 Leading /vsc.b00 Leading /sb.v00				

The installation is started.

iLO Integra	ted Remote Console - Server: localhost.sivaas.local iLO	in in the second second	-		×
Power Switch	Virtual Drives Keyboard Help				
	VMware ESXi 6.0.0 (VMKernel Release Build 3620	759)			
	HP ProLiant DL380 Gen9				
	Intel(R) Xeon(R) CPU E5-2640 v3 @ 2.60GHz 32 GIB Menory				
	Starting up services				
	Running DCUI start				
1024 - 769			n	-4	
1024 x 708			t KU	4 4	

7. Follow the wizard and select the internal SD card as installation target.

Select a Disk to Install or Upgrade								
* Contains a VMFS partition # Claimed by VMware Virtual SAN (VSAN)								
Storage Dev	vice						Capacity	
Local: HP 110 Remote: * HP	Intern LOGICA	al SD-CARD L VOLUME	(mpx.v	nhba33 00508b	::C0:10:L0 1001ca67d) 5cbea)	3.74 GiB 1.64 TiB	
(Esc) Ca	ancel	(F1) Deta	ils	(F5) R	efresh	(Enter)	Cont inve	

8. Select the "Upgrade" option as installation type.

Select a Disk to Install or Upgrade							
* Cont # Clai Storag Local:	ESXi Found The selected storage device contains an upgradable installation of ESXi. Choose whether to install or to upgrade ESXi. () Install (X) Upgrade Use the arrow keys and spacebar to select an option.						
Remote * HP							
	(Esc) Cancel (Enter) OK						
(Esc) Cancel (F1) Details (F5) Refresh (Enter) Continue							

9. After completion of the installation, restart the virtualization server.

5 Updating of the virtual machine software

5.1 Updating of PCS 7

5.1.1 General procedure for the PCS 7 upgrade

The PCS 7 software is updated according to the manuals for the PCS 7 software update/upgrade.

https://support.industry.siemens.com/cs/ww/en/view/39980937

5.1.2 Importing the PCS 7 installation into the virtual environment

Since you have the PCS 7 software as a DVD, the contents of the DVDs must be transferred to the virtual environment before installation. For this, the installation files should be stored on the data partition of the virtual machine.

Copy contents of the installation DVDs to the internal hard disk of a virtual machine (VM)

The partition D:\ contains a folder with the installation files for the currently installed PCS 7 version for each VM containing PCS 7. When upgrading, remove these installation files and replace them with files from the target version.

- 1. Connect a data medium containing the PCS 7 DVDs with your VM to be upgraded.
- Copy the contents of the first DVD to the "DVD_1" folder and the contents of the second DVD to "DVD_2".
- 3. Run the setup from the "DVD_1" folder and start the PCS 7 update. After restarting the PCS 7 installation, the setup will continue automatically. By naming the folders in DVD_1 and DVD_2, the setup automatically finds the second DVD.

Alternative method 1: Integrate ISO images via the datastore

You can create ISO files from the PCS 7 DVDs. These ISO files can be stored on the datastore of the ESXi server and integrated from there via the management console into the respective VM to be installed. A DVD change during the installation is necessary here.

Alternative method 2: Connect installation DVDs to the management console via an external drive

If you are using a management console that has an external DVD drive, you can perform the installation from the DVDs. The DVD can be passed to the VM via the "VMware vSphere Client" application and works the same way as a classic PCS 7 installation on the hardware computers.

5.2 Updating the VMware Tools

For information on how to update or install VMware Tools, see the VMware Knowledge Base at the following link: <u>https://kb.vmware.com/s/article/1018377</u>

6 Compatibility

Information about the compatibility between the components of SIMATIC virtualization as a Service and the SIMATIC PCS 7 versions is available in the <u>compatability tool</u>.