



Management Software for the Provisioning Lifecycle for SAP Business Suite on Hitachi Unified Compute Platform for VMware vSphere

Implementation Guide

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Feedback

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Management Software for the Provisioning Lifecycle for SAP Business Suite on Hitachi Unified Compute Platform for VMware vSphere

Implementation Guide

This implementation guide provides a procedure for provisioning SAP Business Suite on Hitachi Unified Compute Platform 4000 for VMware vSphere.

The implementation procedures use Hitachi Unified Compute Platform Director with an open virtualization format (OVF) template to automate various procedures. Unified Compute Platform Director integrates the configuration and administration of the physical infrastructure with the hypervisor manager that you use to administer your virtual infrastructure with VMware vCenter. This enables the scalable, automated deployment and administration of your physical and virtual resources from the same platform.

A SAP HANA open virtual appliance (OVA) package includes an OVF template and installation scripts. Deploying the OVF template allows you to add pre-configured virtual machines to your VMware vCenter Server or VMware ESXi inventory. You can deploy the OVF template from any local file system accessible from VMware vSphere Web Client or from a remote Web server. The installation scripts allow you to configure post-installation settings with simplified procedure.

Hitachi Unified Compute Platform for VMware vSphere allows for complete application landscapes, such as SAP Business Suite, to be deployed and managed at the virtualization level. It is no longer necessary to be concerned with the underlying hardware configuration, because all application interaction and management is provided at the virtualization level.

Note — Testing of this configuration was in a lab environment. Many things affect production environments beyond prediction or duplication in a lab environment. Follow the recommended practice of conducting proof-of-concept testing for acceptable results in a non-production, isolated test environment that otherwise match your production environment before your production implementation of this solution.

Tested Solution Components

These are the major components used in this solution. See the SAP Business Suite on SAP HANA on Hitachi Unified Compute Platform 4000 for VMware vSphere Reference Architecture Guide to confirm the solution design.

Hardware Components

These are the major hardware components for this solution.

Hitachi Unified Compute Platform for VMware vSphere

[Hitachi Unified Compute Platform for VMware vSphere](#) offers the following:

- Start small and grow your infrastructure as more workloads are transitioned to a private cloud.
- Simplify management of physical and virtual resources with tight integration into VMware vCenter.
- Improve troubleshooting with physical and virtual infrastructure monitoring and alerting within VMware vCenter.

Unified Compute Platform for VMware vSphere provides the following benefits:

- Centralization and automation of compute, storage, and networking components
- Significant reduction of time to value and operational costs across data centers
- Faster deployment of converged infrastructure with more efficient resource allocation
- Provides a foundation for the journey to the software defined datacenter using full support of the RESTful API

Hitachi Unified Compute Platform 4000 provides the following for your infrastructure:

- Tightly integrate server, network, storage, and management infrastructure with preconfigured VLANs, server clusters and storage pools.
- On-demand scaling, with 2 to 128 high-density Intel-based blade servers.
- Include Hitachi Unified Compute Platform Director, a single infrastructure management tool to provision services and scale to multiple physical hosts and virtual machines.

Hitachi Compute Blade 500

[Hitachi Compute Blade 500](#) combines the high-end features with the high compute density and adaptable architecture you need to lower costs and protect investment. Safely mix a wide variety of application workloads on a highly reliable, scalable, and flexible platform. Add server management and system monitoring at no cost with Hitachi Compute Systems Manager, which can seamlessly integrate with Hitachi Command Suite in IT environments using Hitachi storage.

Hitachi Unified Storage VM

[Hitachi Unified Storage VM](#) is an entry-level enterprise storage platform. It combines storage virtualization services with unified block, file, and object data management. This versatile, scalable platform offers a storage virtualization system to provide central storage services to existing storage assets. Unified management delivers end-to-end central storage management of all virtualized internal and external storage on Unified Storage VM. A unique, hardware-accelerated, object-based file system supports intelligent file tiering and migration, as well as virtual NAS functionality, without compromising performance or scalability.

The benefits of Hitachi Unified Storage VM are the following:

- Enables the move to a new storage platform with less effort and cost when compared to the industry average
- Increases performance and lowers operating cost with automated data placement
- Supports scalable management for growing and a complex storage environment while using fewer resources
- Achieves better power efficiency with more storage capacity for more sustainable data centers
- Lowers operational risk and data loss exposure with data resilience solutions
- Consolidates management with end-to-end virtualization to prevent virtual server sprawl

Brocade Switches

[Brocade and Hitachi Data Systems](#) partner to deliver storage networking and data center solutions. These solutions reduce complexity and cost, as well as enable virtualization and cloud computing to increase business agility.

The Hitachi Unified Compute Platform for VMware vSphere system used for validating this environment used the following Brocade products:

- Two Brocade 6510 8 Gb Fibre Channel switches
- Two Brocade 6740 10 Gb Ethernet switches connected to the server blades and the customer network
- Two Brocade FCX648 1 Gb Ethernet switches for the management network of the chassis

Software Components

These are the software components for this solution.

Hitachi Dynamic Provisioning

On Hitachi storage systems, Hitachi Dynamic Provisioning provides wide striping and thin provisioning functionalities.

Using Dynamic Provisioning is like using a host-based logical volume manager (LVM), but without incurring host processing overhead. It provides one or more wide-striping pools across many RAID groups. Each pool has one or more dynamic provisioning virtual volumes (DP-VOLs) of a logical size you specify of up to 60 TB created against it without allocating any physical space initially.

Deploying Dynamic Provisioning avoids the routine issue of hot spots that occur on logical devices (LDEVs). These occur within individual RAID groups when the host workload exceeds the IOPS or throughput capacity of that RAID group. Dynamic Provisioning distributes the host workload across many RAID groups, which provides a smoothing effect that dramatically reduces hot spots.

When used with [Hitachi Unified Storage VM](#), Hitachi Dynamic Provisioning has the benefit of thin provisioning. Physical space assignment from the pool to the dynamic provisioning volume happens as needed using 42 MB pages, up to the logical size specified for each dynamic provisioning volume. There can be a dynamic expansion or reduction of pool capacity without disruption or downtime. An expanded pool can be rebalanced across the current and newly added RAID groups for an even striping of the data and the workload.

SAP Business Suite

The [SAP Business Suite](#), powered by SAP HANA, delivers a unified way of addressing your transactional and analytical needs within a single in-memory platform. Perform real-time planning, execution, reporting, and analysis across your end-to-end business processes to drive your entire business in real-time.

SAP Business Suite i2013 has the following five core applications:

- [SAP Customer Relationship Management](#)
- [SAP Enterprise Resource Planning](#)
- [SAP Product Lifecycle Management](#)
- [SAP Supply Chain Management](#)
- [SAP Supplier Relationship Management](#)

SAP NetWeaver, the underlying technology platform to power SAP Business Suite, is a three-layer application stack:

- Presentation
- Application server
- Database

This three-layer application stack has one deployment scenario when used with the SAP HANA database: “3-Tier.” In this scenario, the following is true:

- The Database and Application run on separate servers.
- The presentation layer runs on the separate operating system of the client.

SAP HANA

[SAP HANA](#) converges database and application platform capabilities in-memory to transform transactions, analytics, text analysis, predictive and spatial processing so businesses can operate in real-time. This combines database, data processing, and application platform capabilities in a single in-memory platform. Also, the platform provides libraries for predictive, planning, text processing, spatial, and business analytics — all on the same architecture.

By eliminating the divide between transactions and analytics, SAP HANA allows you to answer any business question anywhere in real time.

SUSE Linux Enterprise Server

Compete more effectively through improved uptime, better efficiency, and accelerated innovation using [SUSE Linux Enterprise Server](#). This is a versatile server operating system for efficiently deploying highly available enterprise-class IT services in mixed IT environments with performance and reduced risk.

SUSE Linux Enterprise Server was the first Linux operating system to be certified for use with SAP HANA. It remains the operating system of choice for the vast majority of SAP HANA customers.

VMware vSphere 5.5

[VMware vSphere 5.5](#) is a virtualization platform that provides a datacenter infrastructure. It features vSphere Distributed Resource Scheduler (DRS), High Availability, and fault tolerance.

VMware vSphere 5.5 has the following components:

- ESXi 5.5 — A hypervisor that loads directly on a physical server. It partitions one physical machine into many virtual machines that share hardware resources.
- vCenter Server — Management of the vSphere environment through a single user interface. With vCenter, there are features available such as vMotion, Storage vMotion, Storage Distributed Resource Scheduler, High Availability, and Fault Tolerance.

Solution Implementation

Implementation of this solution follows these best practices for provisioning the SAP Business Suite on HANA are based on testing of Hitachi Unified Compute Platform Director and the OVF template by Hitachi Data Systems:

- For enhanced storage utilization and usability, use Hitachi Dynamic Provisioning.
- Provision the VMware ESXi host with Unified Compute Platform Director using a service template. This allows simplified and quick provisioning of an ESXi host when compared to the traditional manual procedure.
- Provision the storage with Unified Compute Platform Director. This automates various procedures, such as creating LUNs, and configuring Fibre Channel zones and ports.
- Deploy the SAP HANA virtual machine using the OVF template. This allows deploying a HANA Database host with simple GUI procedures in the VMware vSphere Web Client. It reduces the need to manually install the operating system and SAP HANA Database.
- Perform post-virtual machine creation settings using the script by Hitachi Data Systems. This allows you to configure network settings and perform SAP HANA hostname change in a simple dialog.
- Deploy the SAP Business Suite virtual machine from the VMware vSphere Web Client.
- Install the operating system and configure network settings from the SUSE Linux Enterprise Server installer.
- Install SAP Business Suite using the SAP installation tool Software Provisioning Manager (SWPM).

To implement this solution based on these best practices, do the following procedures.

Obtain Required Software

- Obtain the SAP HANA OVA package from the Global Support and Services team at Hitachi Data Systems.
- Hitachi_vhana.ova
- Hitachi_vhana.nvram
- esx_vm_expand.sh
- Obtain the operating system from SUSE.
- SUSE Linux Enterprise Server 11 SP3
- Obtain SAP Business Suite installation media from [SAP Support Portal](#).
- SAP Business Suite ECC6 EHP7

Provision Storage and VMware ESXi Host with Hitachi Unified Compute Platform Director Using Service Template

This is how you provision the storage and the VMware ESXi host.

Create Service Template Images in Hitachi Unified Compute Platform Director

When deploying Hitachi Unified Compute Platform for first time, it has a default rule and a default VMware ESXi image for the 520H B1 server blade and the 520H B2 server blade.

The default ESXi image cannot be edited because it is marked as **Active**. You must clone the default image before you can add updates. Later, you will configure and clone the cloned and updated copy for deployment.

To create service template images, do the following.

1. In VMware vSphere Client, on the **Home** tab in the **Monitoring** area, click **UCP Director**. See Figure 1.

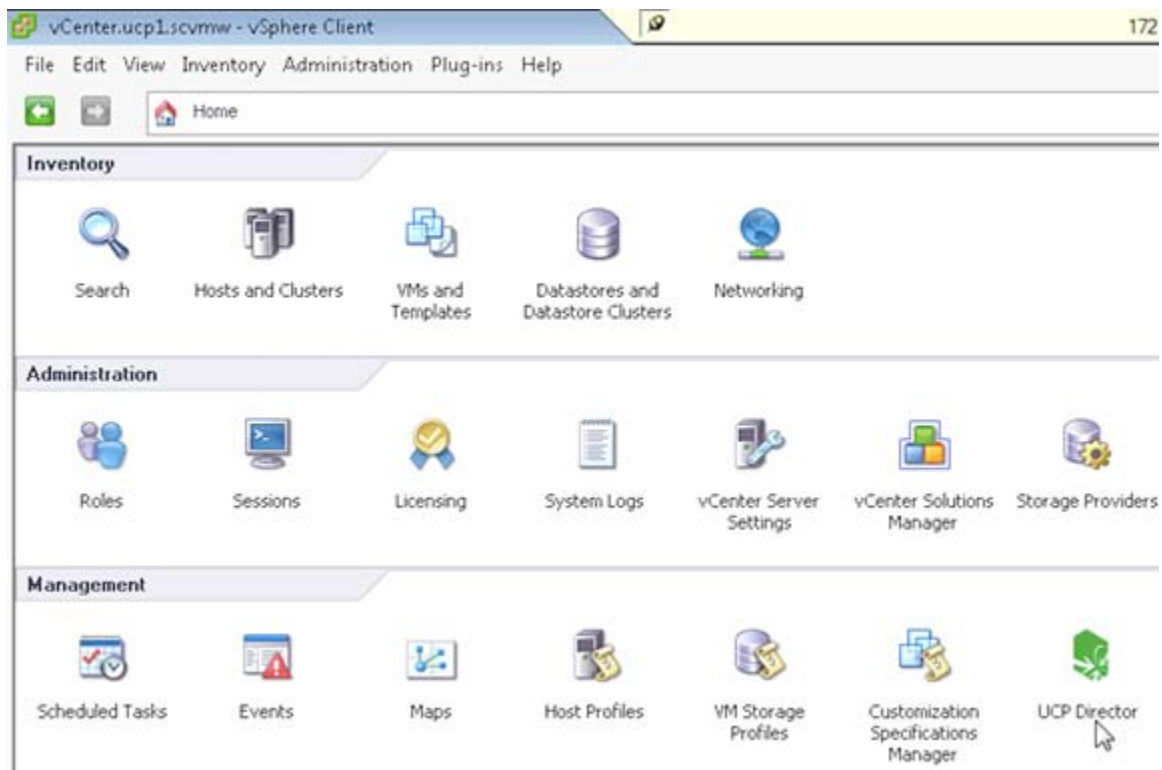


Figure 1

- From the menu, click the **Servers** button. See Figure 2

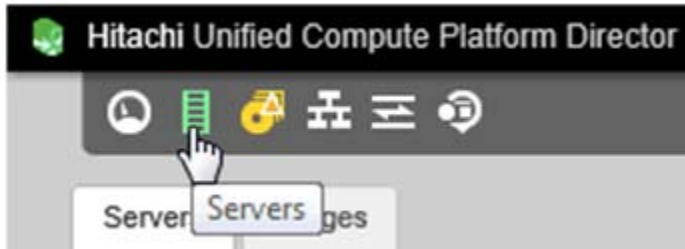


Figure 2

- Click the **Images** tab.

On the Images tab, you will see the VMware ESXi images that are pre-installed with Unified Compute Platform Director.

- Right-click the default ESXi image that is pre-installed in with UCP Director and click **Clone Image**. Then, give the clone a name.

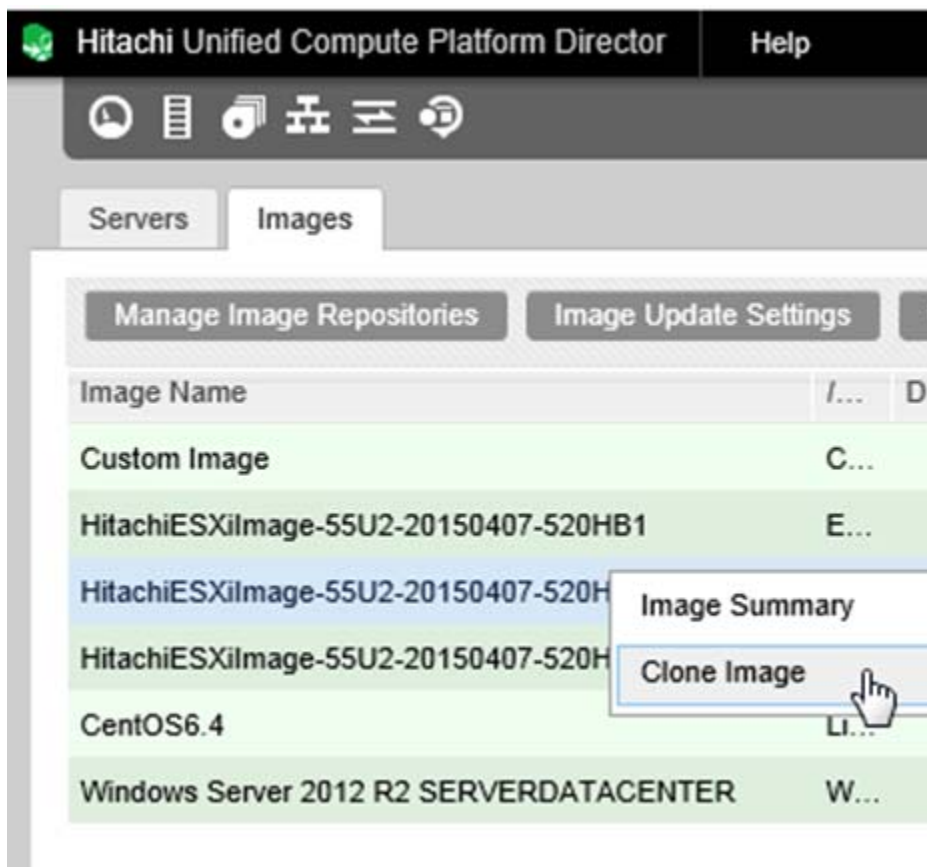


Figure 3

5. Right-click the cloned image and then click **Edit Image**.

The dialog box for the cloned image lists all the drivers and packages in the image as well as potential updates. Some items are flagged with a yellow exclamation point to indicate that updates are available from a newer image found in the external repository.

6. Select the packages that you want to update, and then click **OK**.

Create a Server Profile in Hitachi Unified Compute Platform Director

A server profile is assigned to each physical server to abstract the uniquely identifiable attributes of a server. This includes the MAC, WWPN, WWNN, UUID, and IP addresses. These identifiers are used by other components to communicate with the host that is operating on the server. For more information, refer to [Unified Compute Platform 3.5.1 UCP Administration Manual](#).

To create a server profile, do the following.

1. From VMware vSphere Client, click **UCP Director**.
2. From the menu (the navigation bar), click **Provision**. See Figure 4.

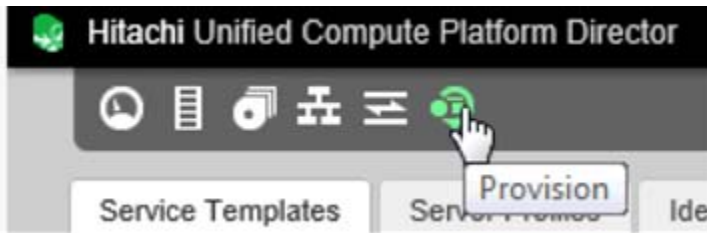


Figure 4

3. On the **Server Profiles** tab, click **Create Server Profile**. See Figure 5.

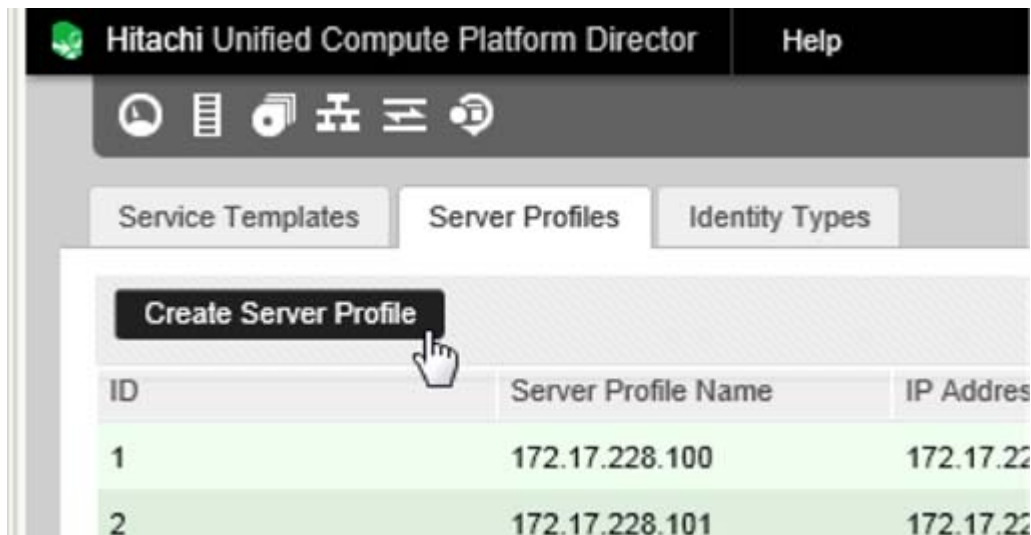


Figure 5

4. To create the server profile, do the following:
 - (1) Click **Next**. This opens the **Create Server Profile** window.
 - (2) On the **Create Server Profile** window, do the following:
 - i. In the **Server Profile Name** text box, type the name of the server profile.
 - ii. In the **Description** text box, type a description of the server profile.
 - iii. For the **OS Type** option, click either **Hypervisor** or **Non-Hypervisor**.
 - iv. A hypervisor server profile automatically uses the management VLAN. You can specify the management VLAN ID for non-hypervisor server profiles.
 - v. From the **Network Adapter Ports** list, click the number of adapter ports to designate for the server.
 - vi. From the **Server Model** list, click the model of the server.
 - vii. Click **Next**. This opens the **Identity Settings** window.
 - (3) On the **Identity Settings** window, do the following:
 - i. To enable Unified Compute Platform Director to assign the UUID automatically, in the **UUID** area, click the **From UUID Pool** option.
 - ii. In the **Management IP Address** area, to enable Unified Compute Platform Director to assign the IP address automatically, click the **From IP Pool** option, and then click the pool from the **IP Address Pool** list and the range from the **Range** list.
 - iii. If this is a Cisco Ethernet or Brocade Ethernet configuration, do this step. To enable Unified Compute Platform Director to automatically assign the MAC address, in the **Network Adapter MAC Address** area, click the **From MAC Pool** option. Then click the pool from the **MAC Address Pool** list and click the range from the **Range** list.
 - iv. If this is a Cisco Ethernet or Brocade Ethernet configuration, do this step. To enable Unified Compute Platform Director to automatically assign the WWNN and WWPNS, in the **WWNN and WWPNS** area, click the **From WWN Pool** option. Then click the pool from the **WWN Pool** list and the range from the **Range** list.
 - v. To manually specify each parameter, click the **Manual** option.

To be able to create a server profile, there needs to be enough IDs in the identity pools.
 - vi. Click **Next**. This opens the **EFI Settings** window.
 - (4) On the **EFI Default Settings** window, do the following.
 - i. To use default EFI settings, click the **EFI Default Settings** option.
 - ii. To manually specify the EFI settings, clear (unselect) the **EFI Default Settings** check box. Then, for each setting that you want, select the check box. Select **Existing** to leave the value that is currently set unchanged.
 - (5) Complete the server profile.
 - i. Review the server profile that will be created.
 - ii. Click **Submit**.

Deploy Images in Hitachi Unified Compute Platform Director

To deploy the images in Hitachi Unified Compute Platform Director, do the following.

1. From VMware vSphere Client, click **UCP Director**.
2. Click **Provisioning** in the menu.
3. Right-click the service template that you want to deploy and click **Apply**.

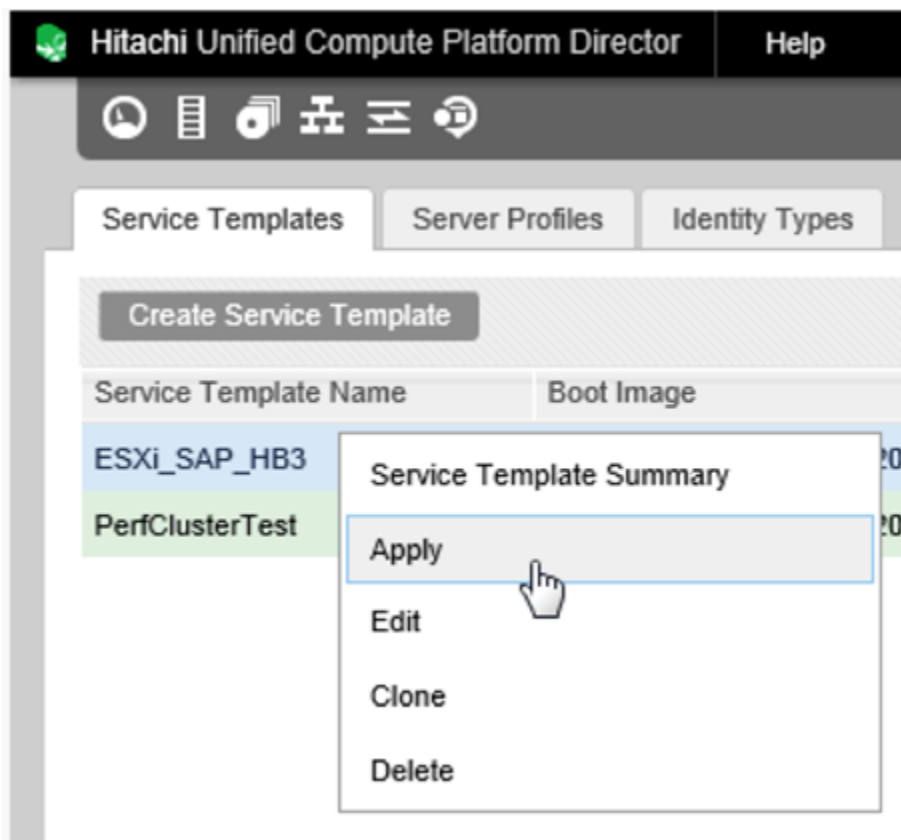
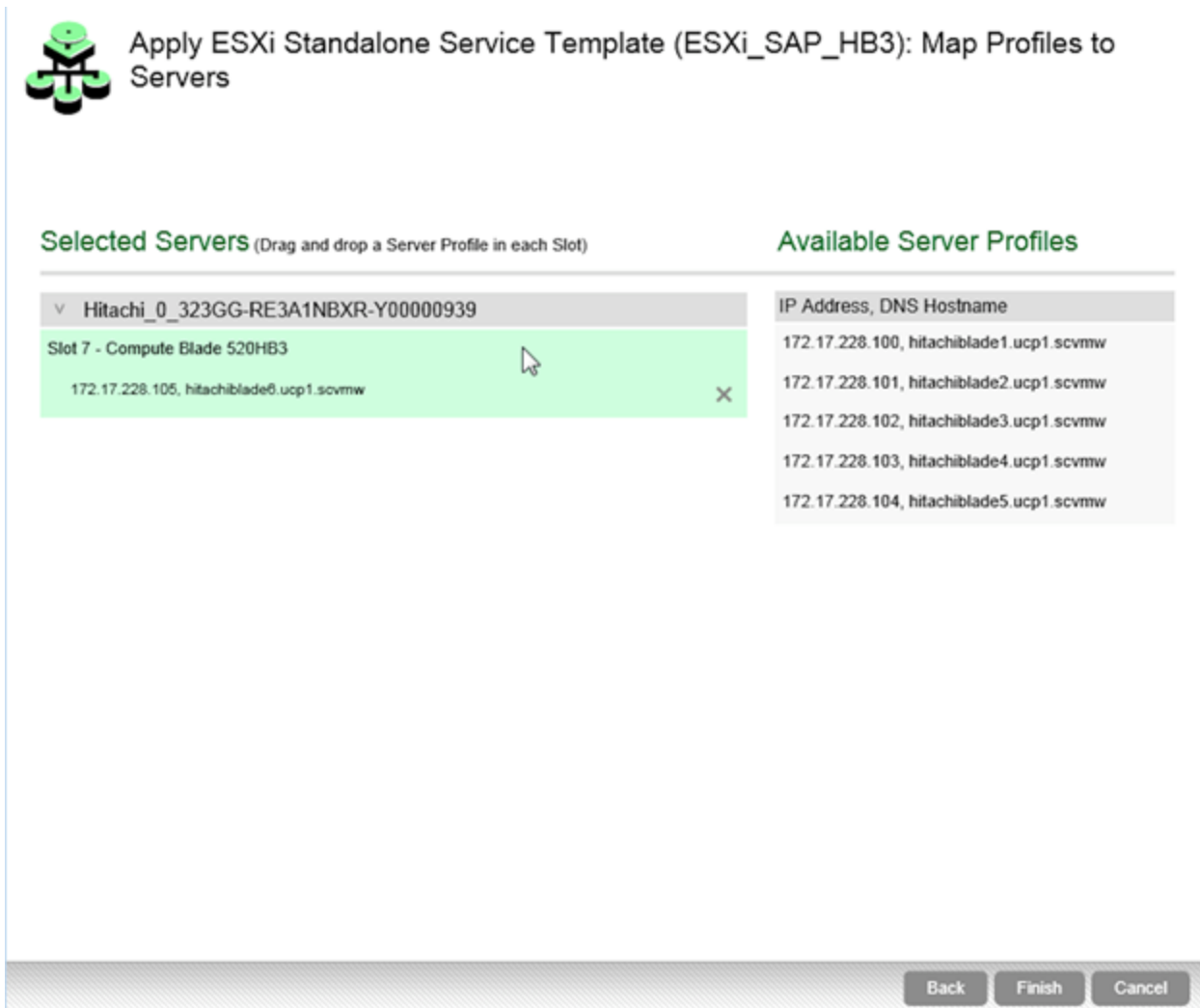


Figure 6

4. Select the servers to which you want to apply the service template to then click **Next**.
5. Assign an available server profile to each of the selected servers. Each selected server and available server profile is listed, as follows:
 - **Selected servers** — Listed by chassis and slot in the **Selected Servers** area.
 - **Available server profiles** — Listed in the **Available Server Profiles** area. Each available server profile is listed by both of the following:
 - Server profile name
 - Associated IP address
6. To assign an available server profile to a server, click it in the **Available Server Profiles** column and drag it to the slot that you want to assign it to in the **Selected Servers** column. If one of the servers already has a server profile applied, that same server profile needs to be reapplied to the server. See Figure 7.



Apply ESXi Standalone Service Template (ESXi_SAP_HB3): Map Profiles to Servers

Selected Servers (Drag and drop a Server Profile in each Slot)

| Hitachi_0_323GG-RE3A1NBXR-Y00000939 |
|---|
| Slot 7 - Compute Blade 520HB3 172.17.228.105, hitachiblade6.ucp1.scvmw |

Available Server Profiles

| IP Address, DNS Hostname |
|--|
| 172.17.228.100, hitachiblade1.ucp1.scvmw |
| 172.17.228.101, hitachiblade2.ucp1.scvmw |
| 172.17.228.102, hitachiblade3.ucp1.scvmw |
| 172.17.228.103, hitachiblade4.ucp1.scvmw |
| 172.17.228.104, hitachiblade5.ucp1.scvmw |

Back Finish Cancel

Figure 7

7. To deploy the service template, click **Finish**.
8. Go to **Hosts and Clusters**. Confirm that the deployed host is displayed under VMware vCenter.

Provision Storage with Hitachi Unified Compute Platform Director

Do the following to provision storage with Hitachi Unified Compute Platform Director.

Create the Dynamic Provisioning Pool VOLs for the SAP HANA Virtual Machine and SAP Business Suite Virtual Machine

To create the dynamic provisioning pools for the SAP HANA virtual machine and the SAP Business Suite virtual machine, do the following.

1. Open Hitachi Device Manager.
 - (1) From VMware vSphere Client, click **UCP Director**.
 - (2) Click **Storage System** in the menu (navigation bar).



Figure 8

- (3) Click **Open HDvM**.
2. In Hitachi Device Manager, do the following:
 - (1) On the **Resources** tab, from the **General Tasks** list, click **Create Volumes**.
 - (2) In the **Create Volumes** dialog box, configure the volumes with their characteristics. From the **Volume Type** list, click **Basic Volume**.
 - (3) To confirm that the information in the plan summary is correct, click **Show Plan**
 - If changes are required, click **Back**.
 - (4) Click **Submit**.

Create the Dynamic Provisioning Pools for SAP HANA Virtual Machines and SAP Business Suite Virtual Machines

To create dynamic provisioning pools for SAP HANA virtual machines and SAP Business Suite, do the following.

1. Open Hitachi Device Manager.
 - (1) From VMware vSphere Client, click **UCP Director**.
 - (2) Click **Storage System** in the menu (navigation bar).
 - (3) Click **Open HDvM**.
2. In Hitachi Device Manager, do the following:
 - (1) On the **Resources** tab, expand the storage system, select existing **DP Pools**, and click **Create Pool**.
 - (2) In the **Create Pool** dialog box, type a pool name> You can optionally select **Reflect this pool name to the storage system**.
 - (3) To configure an dynamic provisioning pool, from **HDP**, click a **Pool Type** and configure the following:
 - i. In the **Additional Parity Groups** area, click **Add Parity Groups**.
 - ii. Select one or more parity groups, click **Add to Pool**, and then click **Close**. This updates the **Pool Summary** information.
 - iii. Optionally, click **Advanced Options** to configure **Pool ID**, **Used Threshold**, **Subscription Thresholds**, and **DP volume protection** options.
 - iv. To configure a dynamic tiering pool, refer to Hitachi Command Suite User Guide.
 - (4) Click **Show Plan** to confirm that the information in the plan summary is correct.
 - If changes are required, click **Back**.
 - (5) Click **Submit**. If the task is to run immediately, the task begins.

Create the Storage Volumes for SAP HANA Virtual Machines and SAP Business Suite Virtual Machines

Perform this procedure for each storage volume in Table 1.

Table 1. Storage Volumes for SAP HANA Virtual Machines and SAP Business Suite Virtual Machines

| LUN ID | Storage Volume |
|--------|-----------------|
| 1 | HANA_OS_Storage |
| 2 | HANA_Shared |
| 3 | HANA_Log_VMFS1 |
| 4 | HANA_Log_VMFS2 |
| 5 | HANA_Log_VMFS3 |
| 6 | HANA_Log_VMFS4 |
| 7 | HANA_Data_VMFS1 |
| 8 | HANA_Data_VMFS2 |
| 9 | HANA_Data_VMFS3 |

Table 1. Storage Volumes for SAP HANA Virtual Machines and SAP Business Suite Virtual Machines (Continued)

| LUN ID | Storage Volume |
|--------|----------------|
| 10 | HANA_TMP |
| 11 | BS_OS_Storage |
| 12 | BS_Sapmnt |
| 13 | BS_SID |
| 14 | BS_Trans |

To create the storage volumes for SAP HANA virtual machines and SAP Business Suite virtual machines, do the following.

1. Open **Configure Host Storage** dialog box.
 - (1) In VMware vSphere Client, click **UCP Director**. From the menu (navigation bar), click **Servers**.
 - (2) To manage storage on a host, from the Servers table, right-click the host.
 - (3) Click **Configure Host Storage**.
2. In the **Configure Host Storage** window, do the following.
 - (1) Click the **Create New Volume** option.
 - (2) Click **Next**.
 - (3) On the Create **New Volume** page (Figure 9 on page 16), do the following:
 - i. In the **Disk Size** box, type the total amount of space to use to create the volume in gigabytes.
 Make sure the disk size of the volumes used for the same usage are the same size. For example, make sure the three volumes for SAP HANA data are the same size.
 - ii. To manually select the storage system ports to use, click the **Manually Select Storage System Ports** option, and then select the appropriate ports for each fabric.
 - iii. In the **Name** box, type the name to assign to the volume.
 - iv. Select the **Format** check box. In VMware vCenter, the volume will be formatted as a datastore.
 - v. In the **Pools** table, select the pool from which to create the volume.



Create New Volume: hitachiblade7.ucp1

Name Disk Size (GB)

Format

Manually Select Storage System Ports

Storage Pools

| Typ... | Status | Capacity | Used |
|--------------------------------------|--------|-------------|------|
| <input checked="" type="radio"/> HDP | Normal | 1,531.85 GB | |
| <input type="radio"/> HDT | Normal | 1,531.85 GB | |

Figure 9

(4) Click **OK**.

Deploy SAP HANA Virtual Machines Using an OVF Template

Do the following procedures to deploy SAP HANA virtual machines using an OVF template.

Deploy Virtual Machine from the OVF Template to the Host Created for SAP HANA

An OVF template captures the state of a virtual machine or vApp into a self-contained package. An OVA file is a tar file that contains an OVF package.

Prerequisites

Client integration plug-in is required before you deploy an OVF template. This plug-in enables OVF deployment from your local file system.

To install the client integration plug-in in the VMware vSphere Web Client, click the download link at the bottom of the window. This downloads the client integration plug-in.

To deploy the OVF template, do the following.

1. From **VMware vSphere Web Client** (not **VMware vSphere Client**), click **Host and Clusters**, then click the host.
2. From **Actions**, click **All vCenter Actions**, and then click **Deploy OVF Template**.

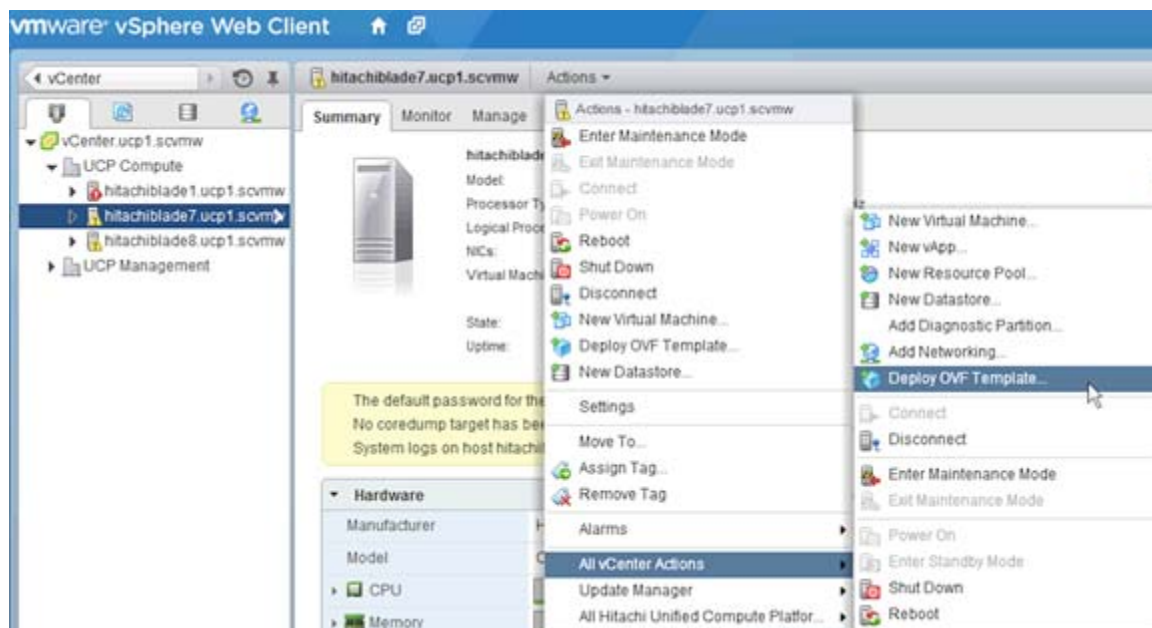


Figure 10

3. Choose the OVF file.

Specify the location where the source of OVF template resides.

(1) Specify the source location.

For a local file, click **Browse** and then click an OVF template from the local file system.

(2) Click **Next**.

4. Review the OVF template file details.

The OVF template details display available information about the file.

(1) Review the OVF template details.

(2) Click **Next**.

5. Select the **Accept extra configuration option** check box, and click **Next**.

6. Select the OVF name and location.

When you deploy an OVF template, you provide a unique name for the virtual machine. The name can contain up to 80 characters. You can select a datacenter or folder location for the virtual machine.

(1) Specify the name that the virtual machine will have when it is deployed at the target location. The name must be unique within each VMware vCenter Server virtual machine folder.

(2) Select or search for a datacenter or folder for the virtual machine.

(3) Click **Next**.

7. Select the storage for the OVF template.

(1) Click **Thin Provision** format to store the virtual machine virtual disks.

(2) Click the datastore **HANA_TMP** to store the deployed OVF template.

(3) Click **Next**.

8. Configure networks for the OVF template.

(1) Select a **Source network** in the table and map it to a **Destination network**.

(2) If the OVF template is set up to allow network customization, you can specify the IP protocol, the IP allocation, or both.

(3) Specify network protocol information.

(4) Click **Next**.

9. Review the settings.

(1) Review the settings. All required properties must have a valid value before you can continue.

(2) Click **Finish**.

Install VMware tools on the virtual machine, which enhances the performance of the guest operating system of your virtual machine. It improves the management of your virtual machines. For more information, refer to [VMware vSphere 6.0 Documentation Center](#).

Replace NVRAM

NVRAM is the file that stores the state of the BIOS of the virtual machine. In order to start the operating system in the deployed virtual machine, you need to replace this file with Hitachi_vhana.nvram.

To replace the NVRAM file, do the following.

1. To create a default NVRAM file, power on and power off the SAP HANA virtual machine.
2. Log on to the VMware vSphere client (not the Web Client). From **Home**, click **Datastores and Datastore Clusters**. Then go to the data storage for the virtual machine configuration files.
3. Right-click the storage name and then click **Browse Datastore** to open the **Datastore Browser** window.
4. Record the name of the NVRAM file.
 - (1) From the **Datastore Browser** window on the **Folders** tab, click the new virtual machine name. In this example, it is **vhana2-tmp**. The right pane shows files for the virtual machine.
 - (2) Write down the filename of the NVRAM file. In this example, it is **vhana2-tmp.nvram**.

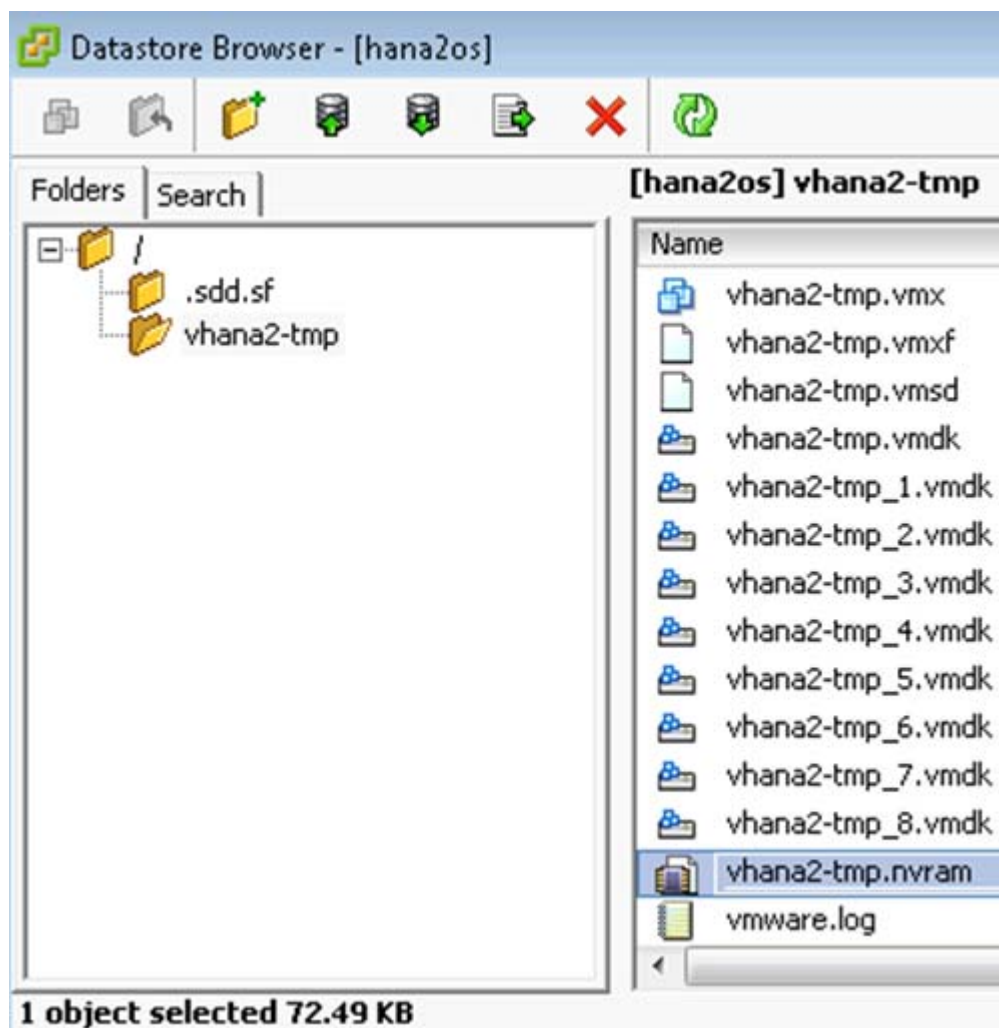


Figure 11

5. Replace the NVRAM file.

(1) Copy the Hitachi_vhana.nvram file that is in the SAP HANA OVA media package to your desktop computer.

(2) Rename Hitachi_vhana.nvram to the exact same file name as the current NVRAM file name in the previous step.

6. Upload the renamed NVRAM file.

(1) To upload the renamed NVRAM file from your laptop computer, in the **Datastore Browser** window, click the

Upload File button 

(2) When the warning message displays, click **Yes** to replace the file.


Convert the Virtual Machine to a Template in the Data Center for SAP HANA

To convert the virtual machine to a template, do the following.

1. Make a clone of the virtual machine into a template.
 - (1) From VMware vSphere Web Client, right-click the newly-deployed virtual machine under the host. An example would be **HDB_VM**.
 - (2) From **All vCenter Actions**, click **Clone to template**. Wait until the process completes.
2. In the **Edit Settings** window, type the template name and click **Next**. An example name would be HDB_VM.
3. From **1b Select a compute resource**, click the ESXi server on Hitachi Compute Blade 500, and click **Next**.
4. From **1c Select storage**, click **Advanced**.
5. Click the arrow to browse the storage to map it to the correct hard disk. See Table 2.

Table 2. Storage Volume Mapping

| File | Storage Volume |
|-------------|-----------------|
| Hard Disk 1 | HANA_Data_VMFS1 |
| Hard Disk 2 | HANA_Data_VMFS2 |
| Hard Disk 3 | HANA_Data_VMFS3 |
| Hard Disk 4 | HANA_Log_VMFS1 |
| Hard Disk 5 | HANA_Log_VMFS2 |
| Hard Disk 6 | HANA_Log_VMFS3 |
| Hard Disk 7 | HANA_Log_VMFS4 |
| Hard Disk 8 | HANA_Shared |
| Hard Disk 9 | HANA_OS_Storage |

6. Scroll to the right, click the arrow for each **Disk Format** to click **Thick Provision Eager Zeroed**.
7. Click **Next**.
8. Click **Finish**.
9. From the top in the left panel under **Datacenter**, click the **Template Generate** button . This template deploys SAP HANA virtual machines.

Create a New Virtual Machine with Expanded Size Using the Template

This procedure uses a 240 GB virtual machine deployment as an example.

To create an expanded size virtual machine, do the following.

1. Create a new virtual machine. This will not be the expanded size.
 - (1) Log on to the VMware vCenter Web Client to open **Hosts and Clusters**.
 - (2) Deploy a new virtual machine from a template.
 - i. Right-click the host and click **New Virtual Machine**.
 - ii. Click **Deploy from a template**, and then click **Next**.
 - (3) Configure the new virtual machine.
 - i. Expand the datacenter and click the template. For example, the datacenter could be **HDB_VM**.
 - ii. On the bottom on the **1b Select a template** window, select the **Customize this virtual machine's hardware (Experimental)** check box. Click **Next**.
 - iii. Type the virtual machine name, click the datacenter on **2a**, and then click **Next**. An example virtual machine name is **vHANA_1**.
 - iv. Under the datacenter on **2b**, click **CB500 ESXi Host** and then click **Next**.
 - v. On **2c Select Storage**, click **Advanced**.

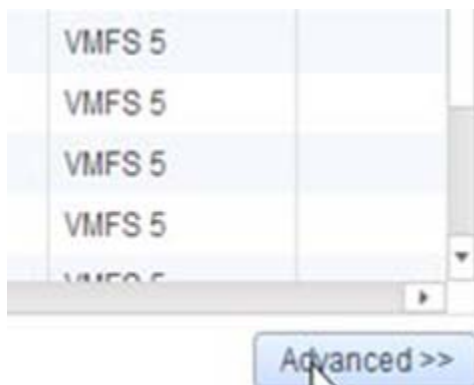


Figure 12

- vi. Make sure all storage matches the hard disk as listed in Table 2. Storage Volume Mapping, and put the **Disk Format** for all records as **Thick Provision Eager Zeroed**. When finished, click **Next**.

For the operating system volume, do not choose the same storage volume as the first virtual machine (the virtual machine used to create the virtual machine template).

vii. Expand **CPU** to select the number of CPU and cores required.

For example, select **60** CPUs and **2** cores per socket.

viii. Expand **Memory**, to set the **RAM** size. For example, set the RAM at **240** GB.

ix. Click **Next**.

(4) On **3 Ready for complete** screen, click **Finish**.

The virtual machine creation process takes about 15 to 30 minutes to complete. Do not power on the virtual machine after the completion yet.

2. Use WinSCP to copy the downloaded script `esx_vm_expand.sh` from the desktop to the ESXi server in the `/tmp` directory.

Note: In WinSCP, make sure the **Transfer Settings** is set to **Text**.

3. Log on to the VMware ESXi server using a PuTTY session.

For ESXi server's user credentials, contact **Global Support and Services** at Hitachi Data Systems.

To enable an SSH connection to the ESXi server from vSphere Web Client, do the following:

(1) Click the ESXi server.

(2) On the **Manage** tab, click **Settings**, click **Security Profile**, and then click **Services**. Finally, click **Edit** and then start SSH service.

4. Increase the size of the virtual disk space for `HANA_Shared`, `HANA_Data`, and `HANA_Log`.

(1) Run the script.

```
/tmp/esx_vm_expand.sh
```

(2) Type the new virtual machine name. An example is `vHANA_1`.

(3) Type the memory size of the new virtual machine.

Note: The script `esx_vm_expand.sh` supports only by these fixed memory sizes: 64, 128, 256, and 512. Use a size that is closest to your configuration.

(4) After providing the inputs, wait until the script finishes.

5. From VMware vSphere Web Client, confirm the size of the hard disks (VMDK files) attached to the virtual machine.
 - (1) Right-click the virtual machine and click **Edit Settings**.
 - (2) Confirm the size of hard disks. If the sizes are different from your configuration, change them.
 - (3) Click **OK**.

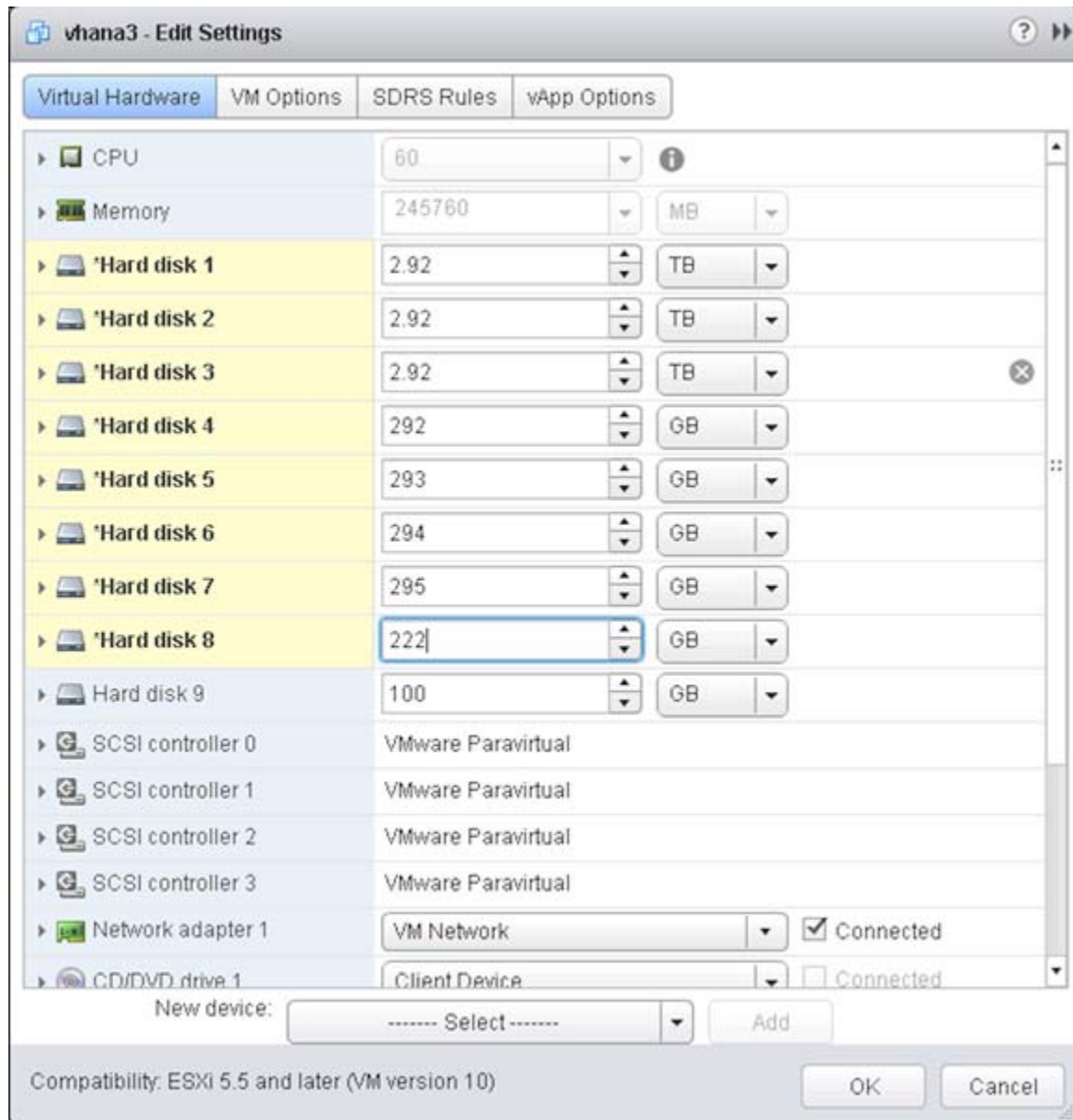


Figure 13

6. Power on the virtual machine.
 - (1) Go to **Hosts and Clusters**.
 - (2) Right-click the new virtual machine, and then click **Power on**.
 - (3) Right-click the virtual machine and then click **Remote Console**.

Perform Post-Virtual Machine Creation Settings to Rename SAP HANA System ID and Number

To perform the post-virtual machine creation procedure, do the following.

1. Log on to Remote Console as root. The password is *hana4us*.
2. Start the script `vhana_nt.sh`.
 - (1) To start the script, type the following:

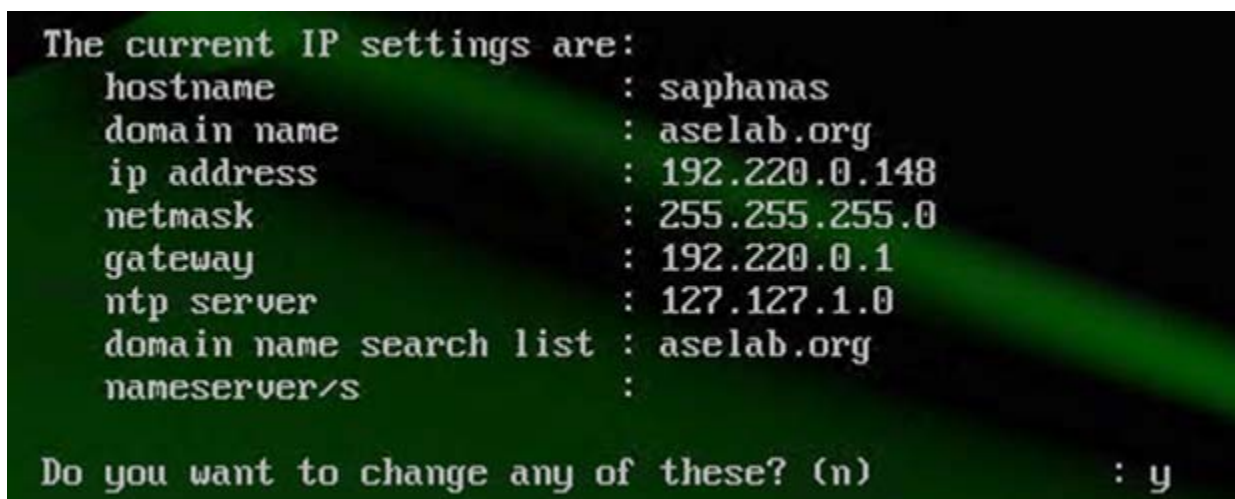

```
chmod 775 /tmp/vhana_nt.sh
/tmp/vhana_nt.sh
```
 - (2) To resize, type `y`.



```
saphanas:/tmp # ./vhana_nt.sh
Do you want to resize the SAP HANA specific file systems? (y): y
```

Figure 14

- (3) Press Enter.
3. Make the configuration changes for the hostname and IP addresses.
 - (1) To enter the new values, answer **Do you want to change any of these? (n)** by typing the following: `y`



```
The current IP settings are:
hostname           : saphanas
domain name       : aselab.org
ip address        : 192.220.0.148
netmask           : 255.255.255.0
gateway           : 192.220.0.1
ntp server        : 127.127.1.0
domain name search list : aselab.org
nameserver/s      :

Do you want to change any of these? (n)           : y
```

Figure 15

For multiple name servers, separate the IP addresses by a space.

```
Do you want to change any of these? (n)      : y
hostname (saphanas)                          : vhanatest
domainname (aselab.org)                      : test.lab
ip address (192.220.0.148)                   : 192.220.0.147
netmask (255.255.255.0)                     :
gateway (192.220.0.1)                       :
ntp server (127.127.1.0)                    :
domain name search list (test.lab)          :
nameserver/s ( )                             : 172.17.171.92 172.17.171.93
```

Figure 16

(2) After making the changes, type the following in the terminal to reboot the virtual machine: `reboot`

(3) Using PuTTY or remote console, log on to the virtual machine server as root. You should see the new hostname.

4. Verify the file system mounts and processes.

(1) Verify the file system mounts with expanded sizes by typing the following:

```
df -h
```

The output should show expected sizes for `/hana/shared`, `/hana/data`, and `/hana/log`.

(2) Start the SAP HANA Database verify all processes are running in green status by typing the following:

```
su - hi tadm
```

```
HDB start
```

```
sapcontrol -nr 10 -function GetProcessList
```

The password for user `hitadm` is the following: `Hithana4us`

5. Rename HANA SID, NR (instance number), and Hostname.

(1) To stop the SAP HANA Database, type the following commands:

```
HDB stop
```

```
exit
```

```
cd /hana/shared/HIT/hdblc
```

```
./hdblc
```

Note: To start SAP HANA database lifecycle manager (HDBLCM), make sure you are the root user.

(2) Change the SID, NR, and hostname by typing 5 and pressing Enter.

(3) Verify the successful HANA Database rename process by typing the following:

```
su - <newsi d>adm
```

```
sapcontrol -nr <new nr> -function GetProcessList
```

All SAP HANA processes should be green.

Deploy SAP Business Suite Virtual Machine

Perform the following processes to deploy the virtual machine for SAP Business Suite.

Create Virtual Machine

To create the virtual machine, from VMware vSphere Web Client (not VMware vSphere Client), do the following.

1. Start the New Virtual Machine Creation wizard.

You can open the New Virtual Machine wizard from any object in the inventory that is a valid parent object of a virtual machine.

2. Type the **Virtual Machine Name** and **Folder**.

3. Select a resource.

When you deploy a virtual machine, you select the host, cluster, or resource pool for the virtual machine to run in. The virtual machine will have access to the resources of the selected object.

4. Select a datastore.

Select the datastore or datastore cluster in which to store the virtual machine configuration files and all of the virtual disks. Each datastore might have a different size, speed, availability, and other properties. The available datastores are accessible from the destination resource that you selected.

5. Select the virtual machine compatibility.

You can accept the default VMware ESXi host version for this virtual machine or select a different version, depending on the hosts in your environment.

6. For **Guest OS Family**, click **Linux**, and for **Guest OS Version**, click **SUSE Linux Enterprise 11 (64-bit)**.

The guest operating system that you select affects the supported devices and number of virtual CPUs available for the virtual machine.

7. Customize the virtual machine hardware.

Before you deploy a new virtual machine, you have the option to configure the virtual hardware. When you create a virtual machine, the virtual disk is selected by default. You can choose an existing disk from the **New device** drop-down list on the **Customize Hardware** page to add a new hard disk.

(1) In the **Memory** area, make sure **Reserve all guest memory** check box is selected.

(2) Click **New Hard Disk** each for operating system and “swap.”

(3) Click **New Hard Disk** for the following, depending on your configuration:

- /sapmnt
- /usr/sap/SID
- /usr/sap/trans

8. Review the settings and finish Virtual Machine Creation wizard.

Install Operating System and Create File Systems

To install the operating system and create the file systems, do the following.

1. In VMware vSphere Web Client, power on the virtual machine.
2. Mount the installation DVD for SLES (*not* the Hitachi SAP HANA installer). Click the virtual machine. In the **VM Hardware** area, for **CD/DVD drive**, click **Connect to CD/DVD image on a local disk**.
3. Open the virtual machine’s console. Click **Send Ctrl-Alt-Delete**.



Figure 17

4. Click **SLES for SAP Applications – Installation** (Figure 18). The installation wizard starts.



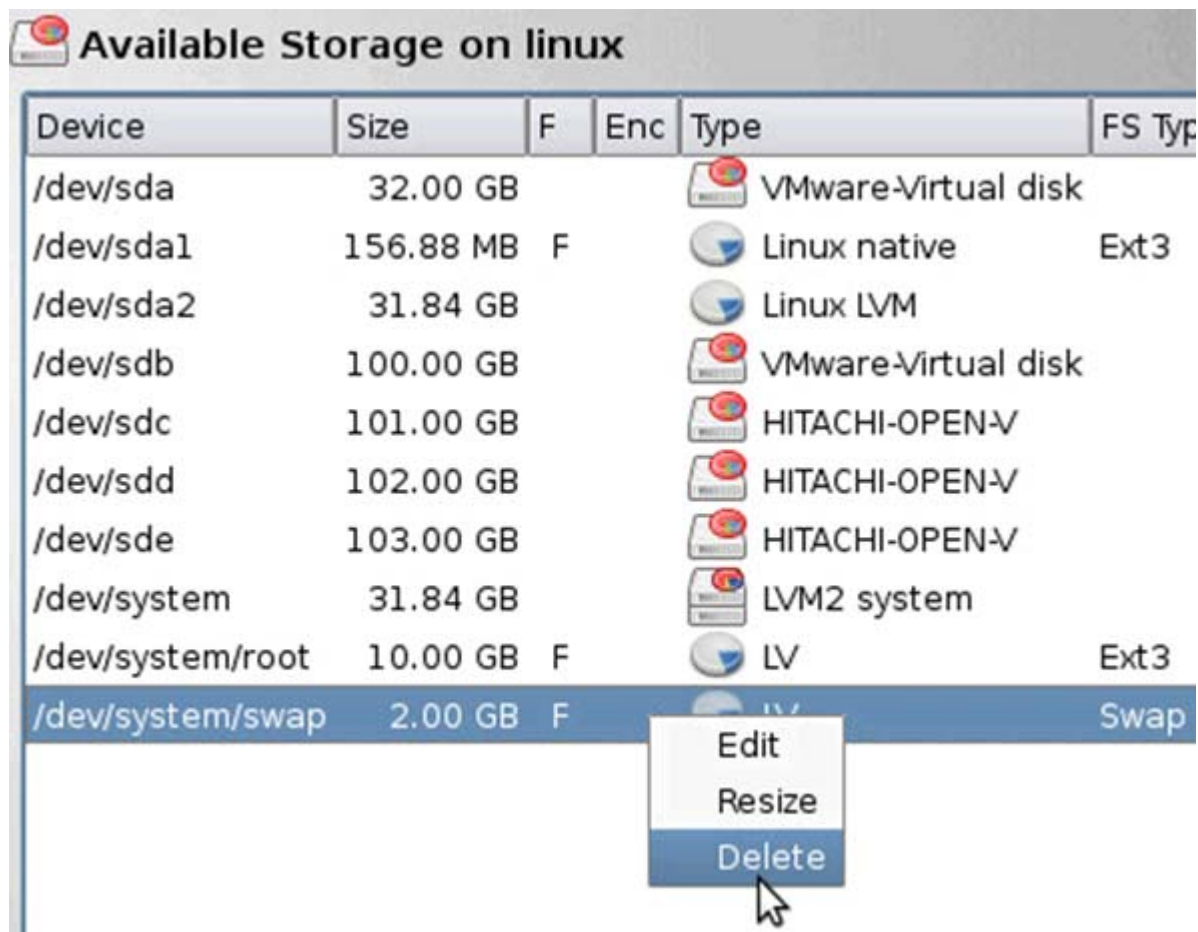
Figure 18

5. Input the parameters on each of the windows, proceeding with the wizard until the **Installation Settings** window (Figure 19).



Figure 19

6. Create custom partitions.
- (1) On the **Installation Settings** window, click **Partitioning**, click **Custom Partitions**, and then click **Next**.
 - (2) Configure the multipath.
 - i. On the **Expert Partitioner** screen, click **Configure** and then click **Configure Multipath**.
 - ii. If it has been created by default, delete the partition that shows in the **Swap in FS Type** column.



Available Storage on linux

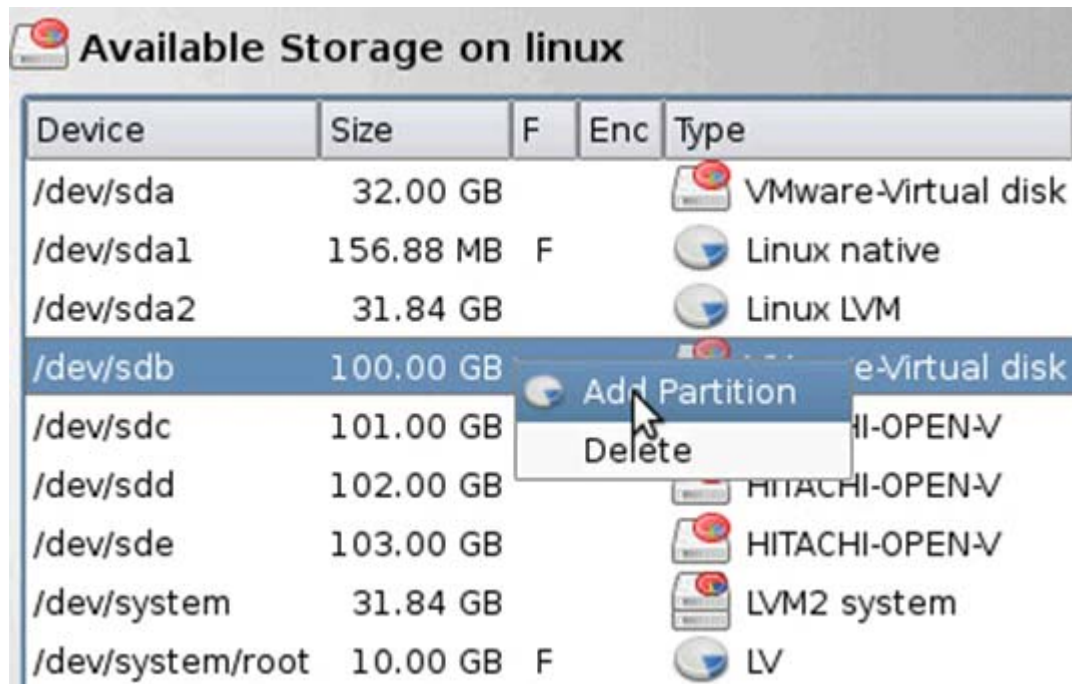
| Device | Size | F | Enc | Type | FS Type |
|------------------|-----------|---|-----|---------------------|---------|
| /dev/sda | 32.00 GB | | | VMware-Virtual disk | |
| /dev/sda1 | 156.88 MB | F | | Linux native | Ext3 |
| /dev/sda2 | 31.84 GB | | | Linux LVM | |
| /dev/sdb | 100.00 GB | | | VMware-Virtual disk | |
| /dev/sdc | 101.00 GB | | | HITACHI-OPEN-V | |
| /dev/sdd | 102.00 GB | | | HITACHI-OPEN-V | |
| /dev/sde | 103.00 GB | | | HITACHI-OPEN-V | |
| /dev/system | 31.84 GB | | | LVM2 system | |
| /dev/system/root | 10.00 GB | F | | LV | Ext3 |
| /dev/system/swap | 2.00 GB | F | | LV | Swap |

Context menu options: Edit, Resize, Delete

Figure 20

(3) Add a partition.

- i. Right-click the device that will be used for swap and then click **Add Partition**.



| Device | Size | F | Enc | Type |
|------------------|-----------|---|-----|---------------------|
| /dev/sda | 32.00 GB | | | VMware-Virtual disk |
| /dev/sda1 | 156.88 MB | F | | Linux native |
| /dev/sda2 | 31.84 GB | | | Linux LVM |
| /dev/sdb | 100.00 GB | | | VMware-Virtual disk |
| /dev/sdc | 101.00 GB | | | HITACHI-OPEN-V |
| /dev/sdd | 102.00 GB | | | HITACHI-OPEN-V |
| /dev/sde | 103.00 GB | | | HITACHI-OPEN-V |
| /dev/system | 31.84 GB | | | LVM2 system |
| /dev/system/root | 10.00 GB | F | | LV |

Figure 21

- ii. Click **Primary Partition** and then click **Next**.
- iii. Click **Maximum Size** and then click **Next**.
- iv. Under **Formatting Options**, click the **Format partition** option and then click **Swap** from the **File System** list. Under **Mounting Options**, click the **Mount partition** option. Click **Finish**.

The **Mount Point** is set to **Swap** by default.

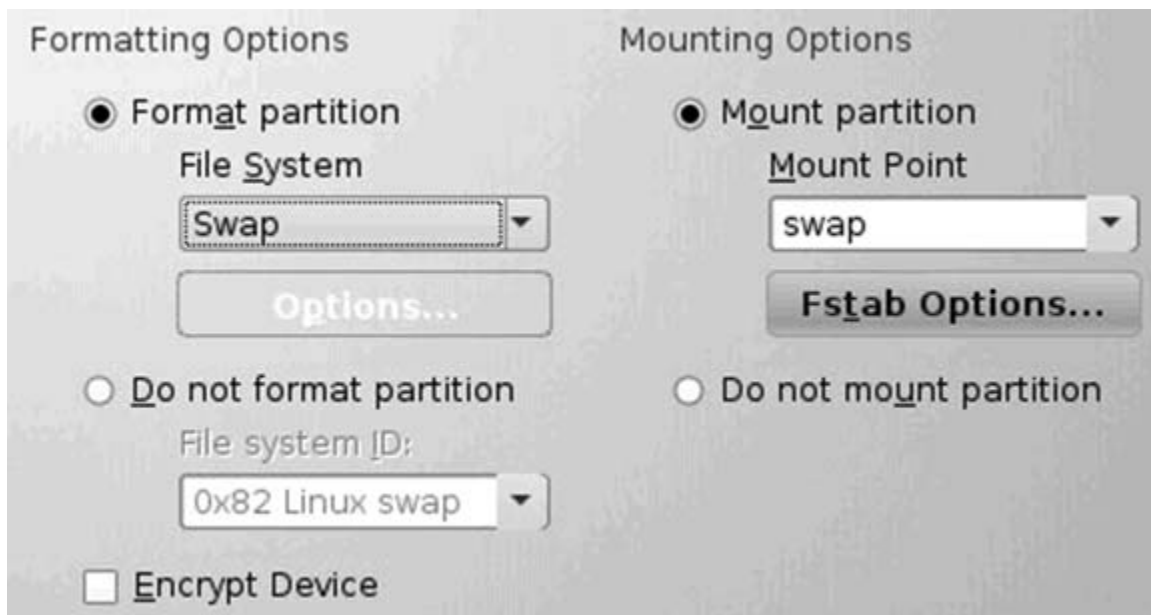


Figure 22

(4) And a volume group.

Repeat this for /usr/sap/SID and usr/sap/trans.

- i. In the **System View** area, click **Volume Management**. Click **Add**, and then click **Volume Group**.
- ii. Select the physical volumes to add to the volume group, and click **Add**. In the **System View** area, click **Linux**. Right-click the volume group, and click **Add Logical Volume**.
- iii. Type the name of the **Logical Volume**. For **Type**, click **Normal Volume**. Click **Next**.
- iv. Type the size and number of stripes. Click **Next**.
- v. For **File System**, click **XFS**. In the **Mount Point** text box, type the following: /sapmnt
Click **Next**.

(5) Click **Accept**.

7. Click **Install** and continue the wizard until the end.

Configure Network Settings for the Virtual Machine for SAP Business Suite

To configure the network settings for the virtual machine for SAP Business Suite, do the following.

1. Open YaST.
2. For each network device, configure the following:
 - IP address
 - Netmask
 - Default gateway
3. Open this file to confirm the name servers: `/etc/resolv.conf`
4. Configure name server and DNS server. Include the global and private networks.
5. Open this file to register FQDN: `/etc/hosts`
6. Enable the SSH connection.
 - (1) Open this file: `/etc/ssh/sshd_config`
 - (2) Change following parameters, as follows:
 - PermitRootLogin yes
 - PasswordAuthentication yes
 - PermitEmptyPasswords no
 - (3) To restart ssh, type the following: `/etc/init.d/sshd restart`

Install SAP Business Suite

Follow these procedures to install SAP Business Suite.

Prepare the Installation Media

To prepare the installation media, do the following.

1. Download the SAPCAR installation package.
 - (1) In a browser, open the **SAP Software Download Center** at: <http://support.sap.com/swdc>
 - (2) Under **Software Downloads**, click **Support Packages and Patches**.
 - (3) On the **Support Packages and Patches** page under **Find a Support Package or Patch you are entitled to**, click the large **A - Z Alphabetical List of Products** button.
 - (4) On the **A - Z Index** page, click **S**. The **Authentication Required** dialog box opens.
 - (5) In the **Authentication Required** dialog box, type your **User Name** and **Password**.
 - (6) Click **SAPCAR**.

2. Download the SL Toolset, including Software Provisioning Manager.
 - (1) In a browser, open the **SAP Software Download Center** at: <http://support.sap.com/swdc>
 - (2) Under **Software Downloads**, click **Support Packages and Patches**.
 - (3) On the **Support Packages and Patches** page under **Find a Support Package or Patch you are entitled to**, click the large **A - Z Alphabetical List of Products** button.
 - (4) On the **A - Z Index** page, click **S**. The **Authentication Required** dialog box opens.
 - (5) In the **Authentication Required** dialog box, type your **User Name** and **Password**.
 - (6) Click **SL Toolset**, and then click **SL Toolset <Release>**. There are entries by component.
 - (7) Click **Software Provisioning Manager**, and then click **Software Provisioning Mgr 1.0<OS>**.

For more details, see [SAP note 1680045](#) (user name and password required).
3. Download the SAP kernel.
 - (1) In a browser, open the **SAP Software Download Center** at: <http://support.sap.com/swdc>
 - (2) On the right side, click the **Search for Software** link. The **Authentication Required** dialog box opens.
 - (3) In the **Authentication Required** dialog box, type your **User Name** and **Password**.
 - (4) Search for **51049552_3**.
 - (5) Download the SAP kernel.
4. Download SAP ERP.
 - (1) In a browser, open the **SAP Software Download Center** at: <http://support.sap.com/swdc>
 - (2) Under **Software Downloads**, click **Installations and Upgrades**.
 - (3) On the **Installation and Upgrades** page under **Find an Installation or Upgrade you are entitled to**, click the large **A - Z Alphabetical List of Products** button.
 - (4) On the **A - Z Index** page, click **E**. The **Authentication Required** dialog box opens.
 - (5) In the **Authentication Required** dialog box, type your **User Name** and **Password**.
 - (6) Click **SAP ERP**, and then click **SAP ERP ENHANCE PACKAGE**.
 - (7) Click **EHP7 FOR SAP ERP 6.0**, click **SAP ERP on HANA incl. Simple Finance add-on**, and then click **ERP EHP7 INCL SFINANCIALS 1503**.

5. Download the SAP HANA database client revision matching your HANA database.
 - (1) In a browser, open the **SAP Software Download Center** at: <http://support.sap.com/swdc>
 - (2) Under **Software Downloads**, click **Support Packages and Patches**.
 - (3) On the **Support Packages and Patches** page under **Find a Support Package or Patch you are entitled to**, click the large **A - Z Alphabetical List of Products** button.
 - (4) On the **A - Z Index** page, click **H**. The **Authentication Required** dialog box opens.
 - (5) In the **Authentication Required** dialog box, type your **User Name** and **Password**.
 - (6) Click **SAP HANA PLATFORM EDITION**, and then click **SAP HANA PLATFORM EDITION 1.0**.
 - (7) Click **Entry by Component**, then click **HANA client**, click **SAP HANA CLIENT 1.00**, and then click **<Application_Server_OS>**.
 - (8) Click **IMDB_CLIENT100_*SAR**.
6. Unpack files to a local directory in the SAP Business Suite virtual machine.
 - (1) Unpack the **Software Provisioning Manager** 1.0 archive to a local directory using the following command:


```
SAPCAR -xvf <Path_To_Download_Directory>/<Archive>.SAR -R <Unpack_Directory>
```
 - (2) Unpack the three installation export files for SAP ERP in Microsoft® Windows®. Move the files to the Business Suite virtual machine (Linux).
 - Alternatively, you can unpack the 'installation export' files in Linux, following the procedures in [SAP Note 1039649](#).
 - (3) Unpack the HANA Client archive to a local directory using the SAPCAR command.

Note – If you cannot execute SAPCAR, check that you have the right permission to execute. Use the following commands: `ls -lt` and `chmod +x`

For the download links for the SAP software, see Table 3.

Table 3. SAP Software Download Links

| Software | Download link |
|-----------------|--|
| SAP HANA Client | http://support.sap.com/swdc / Support Packages / A-Z / H / SAP HANA Platform Edition / SAP HANA platform Edit. 1.0 / Entry by Component / HANA client / SAP HANA Client 1.00 / Linux on x86_64 64bit / IMDB_CLIENT_xx_...SAR. Use the same version as your SAP HANA installation, or next higher within the same support package. For example, 9x for SPS9 and 8x for SPS8. |
| SAP Kernel 7.2 | http://support.sap.com/swdc / Installations and Upgrades / A-Z / K / SAP Kernel 64bit Unicode / SAP Kernel 7.42 64-bit Unicode / Linux / SAP DC Kernel 7.42 PL101 Linux on x86_64 64bit (or later version) |

Table 3. SAP Software Download Links (Continued)

| Software | Download link |
|-------------------------------|--|
| SAPCAR | http://support.sap.com/swdc / Support Packages / A-Z / S / SAPCAR / SAPCAR 7.21 / Linux on x86_64 64bit / SAPCAR_XXXXX.EXE (Note: Despite what the filename suggests, this is a Linux executable file.) |
| SAPHOSTAGENT | http://support.sap.com/swdc / Support Packages / Browse Download Catalog / SAP Technology Components / SAP HOST AGENT / SAP HOST AGENT 7.21 / Linux x86_64 64bit Download the version with the highest patch level. |
| Software Provisioning Manager | http://support.sap.com/swdc / Support Packages / A-Z / S / SL Toolset / SL Toolset 1.0 / Entry by Component / Software Provisioning Manager / Software Provisioning Mgr 1.0 / Support Package Patches / Linux on x86_64 64bit / Latest version of SWPM10... (Note: NOT 70SWPM...) |

Prepare the Systems

To prepare the systems, do the following.

1. If you have the <sapsid>adm user already installed on the Business Suite virtual machine, do the following:

Before you start the installer, execute the following command as user <sapsid>adm to make sure that the csh scripts are up-to-date:

```
/bin/csh -c "source /home/<sapsid>adm/.cshrc; env"
```

2. Change to the csh shell.

(1) Log on to the installation host as user root.

(2) Confirm shell with this command: `ps -p $$`

(3) Change shell with this command: `chsh -s /bin/csh`

3. Make sure that the temporary directory has the permissions 777 by using these commands:

```
ls -al /
```

```
chmod 777 /tmp
```

4. Make sure that your DISPLAY environment variable is set to <Host_Name>:0.0, where <Host_Name> is the host on which you want to display the installer graphical user interface by using this command:

```
setenv DISPLAY <Host_Name>:0.0
```

5. Set umask to 022 for user root with the following command (as root user):

```
umask 022
```


6. Make sure that the limits for user root are set correctly:

Check the output of command `limit` (if you use `cs`h shell) or `ulimit -a` (if you use `ssh` or `ksh` shell) according to SAP Note 1704753.

The operating system dependencies apply to all operating systems.

(1) Using `cs`h shell, verify that the output of command `limit` is at least the values in Table 4.

Table 4. Command Limit Values

| Output | Properties |
|---------------------------|------------|
| <code>cputime</code> | unlimited |
| <code>filesize</code> | unlimited |
| <code>datsize</code> | unlimited |
| <code>stacksize</code> | 8192 KB |
| <code>coredumpsize</code> | unlimited |
| <code>descriptors</code> | 8192 |
| <code>memoryuse</code> | unlimited |

(2) If a property needs changing, the root user uses a command in this form: `limit -h <limit> <new_value>`

For example, to change the `datsize` property, type this: `limit -h datsize unlimited`

7. Update the parameters to the values in Table 5. Parameter Preparation.

Table 5. Parameter Preparation

| Parameter | Example Value |
|--|----------------------------|
| Unicode System | yes |
| SID | HS4 |
| Instance number | 00 |
| Virtual Host Name | hana-erp1 |
| SAP system profile directory | /<sapmnt>/<SAPSID>/profile |
| Master Password | Hs4hana4us |
| Message Server Port | blank (default) |
| SAP system administrator (id, password) | hs4adm, Hs4hana4us |
| Database administrator users (id, password) | SYSTEM, Hs4hana4us |
| Individual Encryption Key for the Secure Storage | default |
| DNS Domain Name for SAP System | aselab.org |
| SLD Destination for the System | No SLD destination |

8. Install the SAP front-end software.

Install the SAP graphical user interface on a Microsoft Windows client.

To download SAP GUI, do the following:

- (1) In a browser, open the **SAP Software Download Center** at: <http://support.sap.com/swdc>
- (2) Under **Software Downloads**, click **Installations and Upgrades**.
- (3) On the right side of the page, click **Search for Software**. The **Authentication Required** dialog box opens.
- (4) In the **Authentication Required** dialog box, type your **User Name** and **Password**.
- (5) Search for **SAP GUI FOR WINDOWS**.
- (6) Click **SAP GUI FOR WINDOWS**, click the version of the SAP GUI, and then click **Installation**.

9. Install components locally from a distribution medium.

- (1) In Gui\Windows\Win32 folder on the SAP NetWeaver Presentation DVD, start **SAPGUISetup.exe**. The SAP Setup Installation wizard opens with a list of components that are part of SAP GUI for Windows 7.30.
- (2) Click **Next**.
- (3) Select the products or SAP front-end components that you want to install, clearing the selection of products that you want to remove.
- (4) Click **Next**. Installation begins.
 - If the installation wizard asks you to enter or change information to customize the installation, such as the installation folder, make the change and click **Next**.

The installation starts. A progress screen displays.

10. Checking the time zones.

Before starting the installer, compare the following time zone settings:

- The time zone of the target host for the ABAP application server
- The time zone of the <sid>adm user of the SAP HANA system

To check the SAP HANA time zone, log on to the system with the command line interface using your user <sid>adm credentials and then type this at a command prompt: date

Run the Installer

Follow these procedures to run the installer for SAP Business Suite. These procedures are based on SAP ERP 6.0 Ehp 7 for SAP HANA. For the latest procedures, go to [Installation & Upgrade Guides](#) and see SAP Business Suite Applications.

To run the installer, do the following.

1. Log on to the installation host as the root user.
2. Start the installer from the directory with the unpacked SWPM10SP<Support_Package_Number>_<Version_Number>.SAR file by executing the following command:

```
<Path_To_Unpack_Directory>/sapi nst
```

- If you need to assign a virtual host name to the instance to be installed and you do not want to assign it by entering it as a parameter using the installer screens, start the installer with the SAPINST_USE_HOSTNAME property:

```
<Path_To_Unpack_Directory>/sapi nst SAPI NST_USE_HOSTNAME=<host name>
```

The host name needs to be from 8 to 13 characters.

3. To install an SAP system based on SAP NetWeaver application server ABAP, do the following:

(1) Install the system.

- i. Click <Product>.
- ii. Click <Database>.
- iii. Click **SAP Systems**.
- iv. Click **Application Server ABAP**.
- v. Click <System_Variant>.

Standard System — This installs an SAP system with all mandatory instances, except the database instance on one host. This is the standard system installation:

- vi. Click **SAP Business Suite 7i 2013 Support Release 2**, and then click **EHP7 for SAP ERP 6.0 ABAP including the SAP Simple Finance Add-on 2.0**.
- vii. Click **SAP HANA Database**.
- viii. Click **SAP Systems**.
- ix. click **Application Server ABAP**.
- x. Click **Standard System**, and then click **Standard System**.

4. Configure the system.

- (1) Click **Typical**, and then click **Next**.
- (2) Enter the following SAP system parameters:
 - i. Type the **SAPSID** (for example, **HS4**) and **SAP Mount Directory** (for example, **/sapmnt**) in each text box. Click **Next**.
 - ii. Type **DNS Domain Name** for the SAP System, and then click **Next**.
 - iii. Specify the media for SAP kernel, and then click **Next**.
 - iv. Type master password (for example, **Hs4hana4us**), and then click **Next**.
- (3) Enter HANA database parameters from Table 6, and then click **Next**.

Table 6. SAP HANA Database Parameters

| Parameter | Example Value |
|--|---------------------|
| Database ID | HIT |
| Database Host | saphanas.aselab.org |
| Instance Number of the SAP HANA Database | 00 |
| Password of the SAP HANA Database System Administrator | Hithana4us |

- (4) Click **Local Client Directory**. Click **Next**.
- (5) Specify the media for the following, and then click **Next**.
 - SAP HANA Client
 - Installation Export 1 for ECC
 - Installation Export 2 for ECC
- (6) Type the **Database Schema password**, and then click **Next**.
- (7) Configure system landscape directory (SLD).
 - If you have SLD, enter the parameters.
 - If you do not have SLD, click **No SLD destination**, and then click **Next**.
- (8) Type the **Secure Storage Individual Key Information**, and then click **Next**.
- (9) Decide to install diagnostics agent.
 - If you want to install it, click to install diagnostics agent, and then click **Next**.
- (10) Confirm the parameter summary and then click **Next**.

Wait until the installation is complete.

Post Installation Procedure

After the installation of SAP Business Suite, you should be able to access the SAP system from the SAP logon.

If you have a connection error due to the file systems not mounting automatically, do the following.

1. Log on to the terminal for SAP Business Suite.
2. Restart the UUID by typing the following: `/etc/init.d/uuid restart`
3. Run the shell script attached to SAP note 1391070: `check-libuid.zip`
4. Connect to the SAP system from SAP logon, and confirm that the connection is established.

Additional Information

These are the resources for this document, as well as additional sources of information.

Hitachi Data System Documentation

The following information is from Hitachi Data Systems:

- [Hitachi Unified Compute Platform 4000](#)
- [Hitachi Unified Storage VM](#)
- [Hitachi Compute Blade 500](#)
- [Brocade and Hitachi Data Systems](#)
- [Unified Compute Platform 3.5.1 UCP Administration Manual](#)
- [Hitachi Command Suite User Guide](#)

SAP Documentation and SAP Notes

The following information about SAP Business Suite and SAP HANA is from SAP:

- [SAP ERP 6.0 Enhancement Package 7](#)
- [Installation: Systems Based on SAP NetWeaver 7.1 and Higher](#)
- [SAP Front End Installation Guide](#)
- [SAP HANA Administration Guide](#)
- [Installation Guide SAP Enterprise Resource Planning 6.0 Including Enhancement Package 7 Java and ABAP](#)

VMware Documentation

The following information about vSphere is from VMware:

- [Deploy an OVF Template in the vSphere Web Client](#)

SUSE Documentation

The following information about SUSE Linux Enterprise Server is from SUSE:

- [SUSE Linux Enterprise Server for SAP Applications 11 SP3](#)

For More Information

Hitachi Data Systems Global Services offers experienced storage consultants, proven methodologies and a comprehensive services portfolio to assist you in implementing Hitachi products and solutions in your environment. For more information, see the Hitachi Data Systems [Global Services](#) website.

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