



Installing and Configuring HP SIM 6.x on HP Integrity VM White Paper

Table of Contents

| | |
|--|----|
| Introduction | 2 |
| Requirement | 2 |
| Software | 2 |
| Hardware | 2 |
| Installing and configuring HPVM | 2 |
| Installing | 2 |
| Configuring | 3 |
| Creating storage space for the virtual machine | 3 |
| Creating virtual switche | 4 |
| Creating a guest | 5 |
| Adding USB DVD Player | 5 |
| Booting guest | 6 |
| Installing the operating system on the guest | 7 |
| Installing a guest software depot | 8 |
| Managing HPVM in HP SIM | 8 |
| Installing HP SIM and VSE | 8 |
| Configuring HP SIM for VSE | 9 |
| For more information | 11 |

Introduction

This paper describes the procedure to install and configure HP Integrity Virtual Machine for HP Systems Insight Manager on Integrity Machine. Installation of Integrity VM can be carried out in HPUX 11.23 or later operating environment. The virtual machine environment consists of:

- VM Host
- Virtual Machines (also known as Guest)

The VM Host virtualizes the CPU, Memory, and any input/output devices, enabling you to allocate resources. The Virtual Machines are an abstraction of physical machines. They are fully loaded, operational systems, complete with operating systems, management utilities, applications and network, running in a virtual environment.

HP SIM can help manage HP Integrity Virtual Machines and associate the Virtual Machines with the VM Host.

Note:

On the HP Integrity Machine, prior to installing the operating system, make sure the USB DVD player is connected to USB01. This enables the drivers to be installed correctly and identify the USB DVD player.

Requirement

This paper assumes the user is familiar with the HP-UX 11.23 or later operating environment and has the ability to install software from a depot file.

Software

- HP-UX 11.23 v2 May 2005 or later operating environment
- Integrity Virtual Machine (integrity_vm.depot)
- HP SIM 5.1 or later

Hardware

- Integrity server
- 2GB memory minimum

Installing and configuring HPVM

Installing

1. Install the Integrity VM software into a depot directory, then install as follows:

```
# swinstall -x autoreboot=true -s /path-to-depot-file B7697BA T2801AA
```

2. To verify that Integrity VM installed successfully enter the following command:

```
# hpvminfo
```

```
hpvminfo: Running on an HPVM host.
```

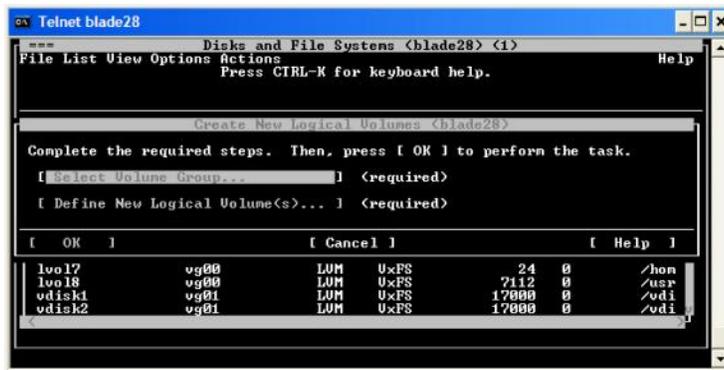
Configuring

Creating storage space for the virtual machine

When you create a guest, you specify the virtual storage device that the guest uses. HP recommends that you practice allocating the storage devices the guest uses. The following example uses SAM to allocate the Logical Volume that is used for a single guest.

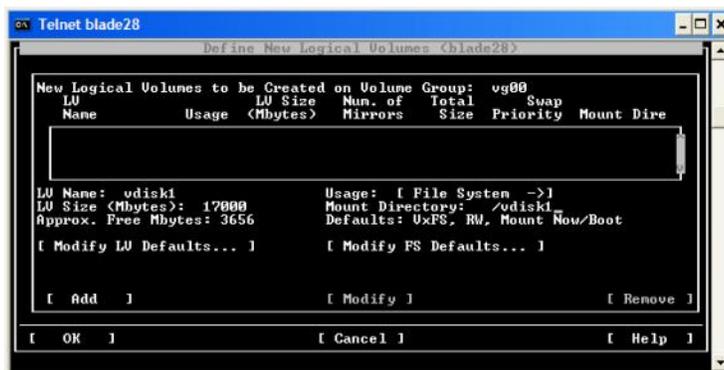
1. Launch SAM:
SAM
2. Select **Disk and File Systems**→**Logical Volumes**→**Action**→**Create**. The Create New Logical Volume menu appears as shown in Figure 1.

Figure 1: Create New Logical Volume menu



3. Tab down to Select Volume Group, and then enter the Volume Group name. If you have two LV, it will be either vg00 or vg01.
4. Select **Define New Logical Volume**. The Define New Logical Volume menu appears as shown in Figure 2.

Figure 2: Define New Logical Volume menu



5. Provide an LV Name, for example vdisk1.
6. Select the LV Size. Ensure that it is large enough to accommodate an operating system and applications. In Figure 2, the LV Size is 17GB.

7. Select the Mount Directory such as /vdisk1, and then click **[Add]**.
8. After the LV is added, select **[OK]**, and then exit SAM.

Creating virtual switch

To provide network access for the guests, you must create virtual network switches (vswitch) for them.

To create virtual switches, use the `hpxmnet` command. The following is the basic command used to create a virtual switch:

```
# hpxmnet -c -S switchname -n 1
```

- `-c` indicates the create of a vswitch
- `-S switchname` specifies the name of the virtual switch
- `-n 1` associates the new vswitch with the physical network device `lan1`

For example, to create two vswitches: `vswA` and `vswB`, enter the following command:

```
# hpxmnet -c S vswA -n1
# hpxmnet -c -S vswB -n2
```

To verify the creation of the vswitch, enter the following command:

```
# hpxmnet
```

To start the vswitch:

```
# hpxmnet -S switchname -b
# hpxmnet -S switchname -b
```

Verify if the vswitches are up:

```
# hpxmnet
```

| Name | Number | State | Mode | PPA | MAC Address | IP Address |
|----------|--------|-------|--------|------|----------------|------------|
| Localnet | 1 | Up | Shared | | N/A | N/A |
| vswA | 2 | Up | Shared | Lan1 | 0x0016353c0dat | |
| vawB | 3 | Up | Shared | Lan2 | 0x0016353c0dba | |

```
#
```

To delete a vswitch, stop the vswitch, and then enter the `hpxmnet` command with the `-d` option. For example:

```
# hpxmnet -S vswA -h
hpxmnet: Halt the vswitch 'vswA' ? [n]: y
# hpxmnet -S vswA -d
hpxmnet: Remove the vswitch 'vswA' ? [n]: y
```

Note:

If you try to delete the vswitch without stopping the guest, a message displays "hpxmnet: The vswitch is currently active. hpxmnet: Unable to continue."

Creating a guest

To create a guest, use the `hpvmcreate` command, specifying the guest characteristic options for the virtual devices, such as network, storage, and DVD.

The following example creates a guest with 1CPU, 1GB RAM, access to the network using `vswA`, and access to raw logical volume name `rvdisk1`.

```
# hpvmcreate -P vm01 -c1 -r1G -a network:lan::vswitch:vswA -a
disk:scsi::lv:/dev/vg01/rvdisk1
```

- `-P` indicates guest name
- `-c` number of virtual CPU
- `-r` number of virtual memory
- `-a` indicates the addition of resource to use
 - network
 - disk
 - dvd

Note:

The default amount of virtual CPU and Memory is 1.

To verify the guest create, enter the following command:

```
# hpvmstatus

[Virtual Machines]

Virtual Machine Name      VM #   OS Type      State # vCPUs   # Devs   # Nets
Memory

=====

vm01  1  HPUX      Off   1     1     1     1 GB
```

Adding USB DVD Player

To add a USB DVD player, ensure the DVD player is connected to USB01 port on the BL20P dongle. Use the `ioscan` command to discover the DVD player:

```
# ioscan -funC disk
```

```
Class  I H/W Path      Driver S/W State  H/W Type  Description
=====
disk   1  0/1/1/0.0.0  sdisk CLAIMED      DEVICE TEAC  USB DVDROM
/dev/dsk/c0t0d0 /dev/rdisk/c0t0d0
```

The path to the DVD player is `/dev/rdisk/c0t0d0`. Use the `hpvmmodify` command to make changes or additions to the guest.

To add the DVD player to `vm01`, enter the following command:

```
# hpvmmodify -P vm01 -a dvd:scsi::disk:/dev/rdisk/c0t0d0
```

Verify that the devices number has increased to 2 devices:

```
# hpvmstatus

[Virtual Machines]
```

| Virtual Machine Name | VM # | OS Type | State | # vCPUs | # Devs | # Nets | Memory |
|----------------------|------|---------|-------|---------|--------|--------|--------|
| vm01 | 1 | HPUX | On | 1 | 2 | 1 | 1 GB |

Booting guest

To start the guest, use the **hpvmstart** command.

```
#hpvmstart -P vm01
```

Opening minor device and creating guest machine container

Creation of VM, minor device 1

Allocating guest memory: 1024MB

allocating low RAM (0-40000000, 1024MB)

```
/opt/hpvm/sbin/hpvmapp (/var/opt/hpvm/uuids/5f35dd00-105a-11db-96a4-0016353c0dba
```

```
/vmm_config.current): Allocated 1073741824 bytes at 0x6000000100000000
```

allocating firmware RAM (ffaa0000-ffab5000, 84KB)

```
/opt/hpvm/sbin/hpvmapp (/var/opt/hpvm/uuids/5f35dd00-105a-11db-96a4-0016353c0dba
```

```
/vmm_config.current): Allocated 86016 bytes at 0x6000000140000000
```

Loading boot image

Image initial IP=102000 GP=5E4000

Initialize guest memory mapping tables

Initializing System Event Log

Initializing Forward Progress Log

Starting event polling thread Starting thread initialization
Daemonizing....

hpvmstart: Successful start initiation of guest 'vm01'

Verify if the guest's state is on run the command:

```
# hpvmstatus
```

```
[Virtual Machines]
```

| Virtual Machine Name | VM # | OS Type | State | # vCPUs | # Devs | # Nets | Memory |
|----------------------|------|---------|-------|---------|--------|--------|--------|
| vm01 | 1 | HPUX | On | 1 | 2 | 1 | 2 GB |

To access the virtual console, use the **hpvmconsole** command:

```
# hpvmconsole -P vm01
```

VMP MAIN MENU

CO: Console

CM: Command Menu

CL: Console Log

SL: Show Event Logs

VM: Virtual Machine Menu

HE: Main Help Menu

X: Exit Connection

[vm01] vMP> CO

Note:

The virtual console will have a lower case 'v' in front of the Management Processor (MP).

Installing the operating system on the guest

There are two ways to install the HP-UX OS on the virtual machine guest:

- Physical DVD
- Ignite Server

To install using a physical DVD device, ensure the DVD was added to the guest, as explained in Adding USB DVD Player.

Launch the virtual console to access the EFI Boot Manager. The EFI Boot Manager is the initial screen that displays during the boot process. If the screen displays a command prompt, then you must reset the system. This can be done by going back to the MP screen and using the Reset command:

```
[vm01] vMP>CM>RS
```

After executing the command, go back to the console to see the EFI Boot Manager, as shown:

```
EFI Boot Manager ver 1.10 [14.62] [Build: Tue Nov      8 09:15:06 2005]
Please select a boot option
```

```
EFI Shell [Built-in]
```

```
Boot option maintenance menu
```

```
Use ^ and v to change option(s). Use Enter to select an option
```

After the EFI Boot Manager appears:

1. Select **EFI Shell**.
2. Enter `fs0: INSTALL`. The installation starts.

To boot from LAN, make sure you have access to an Ignite Server and that it is configured correctly for a PXE request. Launch the virtual console to access the EFI Boot Manager:

```
EFI Boot Manager ver 1.10 [14.62] [Build: Tue Nov      8 09:15:06 2005]
Please select a boot option
```

```
EFI Shell [Built-in]
```

```
Boot option maintenance menu
```

```
Use ^ and v to change option(s). Use Enter to select an option.
```

After the EFI Boot Manager appears:

1. Select Boot option maintenance menu.
2. Select Add a boot option.
3. Select the device with a MAC Address, which is the LAN.
 - Enter a Description: `lan1boot`.
 - Enter **N** for no boot options.
 - Save in NVRAM and then select **[Exit]**.
4. Select **lan1boot**.

5. The guest connects to the ignite server through PXE.

Note:

Installing Linux and Windows operating systems on HPVM is supported, but for installing HP SIM on Linux and Windows guest is not supported.

Installing a guest software depot

The Integrity VM product also contains guest software that you can install on a virtual machine after you have installed its HP-UX operating system. Installing this depot improves the performance of the guest's operating system and provides the `hpvminfo` and `hpvmcollect` commands to guest administrators. After you install Integrity VM, the media is in the form of an SD (Software Distributor) distribution tape file located in `/opt/hpvm/guest-images/hpux/hpvm_guest_depot.sd`. This file can be used to create a general-purpose SD depot on the system you specify. For example, to create the guest depot on `myhost.corporate.com:/your/depot`, enter the following commands:

1. On the VM Host, create the general-purpose depot:

```
# swcopy -s /opt/hpvm/guest-images/hpux/hpvm_guest_depot.sd \* /
> @myhost.corporate.com:/your/depot
```
2. Verify that the software depot has been copied correctly:

```
# swverify -d \* @myhost.corporate.com:/your/depot
```
3. On the VM Host, register the new depot on depot-host:

```
# swreg -l depot /your/depot
```
4. On the guest, install the HPVM-Guest bundle from the new depot:

```
# swinstall -s /your/depot
```

Managing HPVM in HP SIM

Managing your Integrity Virtual Machines (VM) with HP System Insight Manager (HP SIM) requires Virtual Server Environment (VSE) Management Software installed on the same server as HP SIM.

More information on VSE can be found at:

<http://docs.hp.com/en/T2786-90062/T2786-90062.pdf>

Installing HP SIM and VSE

Use the following procedure to install HP SIM and the VSE Management Software on an HP-UX CMS.

1. Install the software by executing the following command:

```
/usr/sbin/swinstall -s path-to-depot-file HPSIM-HP-UX
```

After the system reboots after the HP SIM installation, install the VSE software by executing the following command:

```
/usr/sbin/swinstall -s path-to-depot-file VSEgmt
```

2. Configure HP SIM by executing the following command:

```
/opt/mx/bin/mxinitconfig -a
```

This command performs HP SIM setup tasks, including database initialization. It typically takes several minutes for the `mxinitconfig` command to complete. Errors and exceptions are logged to the file

`/var/opt/mx/logs/initconfig.log`.

Configure the VSE Management Software by executing the following command:

```
/opt/vse/bin/vseinitconfig -a
```

The `vseinitconfig` command logs status, errors, and exceptions to the file

```
/var/opt/vse/logs/vseinitconfig.log .
```

Configuring HP SIM for VSE

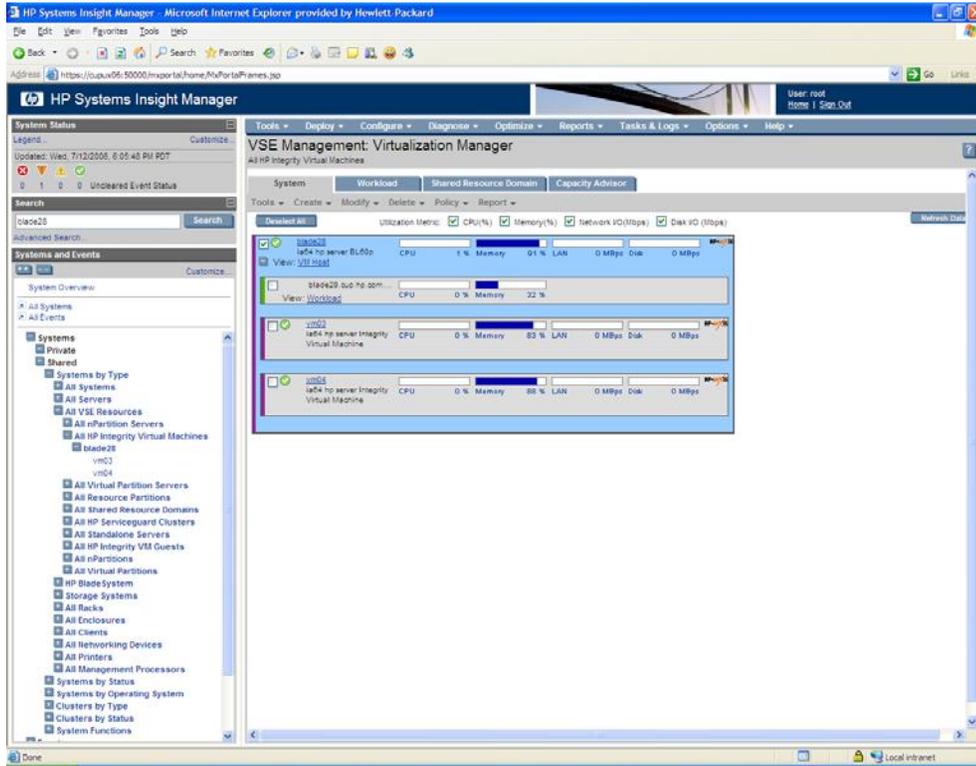
1. Ensure that the SSH is installed and configured for HP SIM on each of your managed systems. To configure SSH for HP SIM, select the systems to configure, and then from the HP SIM menu, select **Configure>Configure or Repair Agents**.
2. From the HP SIM menu, select the managed systems, and then select **Configure>Configure VSE Agents>Install VSE Agents...** Click **Run Now** to start the installation. Review the output for error messages before continuing.
3. Run the HP SIM discovery process again on the managed systems where agent software has been installed. This process causes HP SIM to update its information about these systems. Select the affected systems, from the HP SIM menu bar select, **Options>Discovery...**, and then click **Run Now**.

The Virtual Host and the virtual machine can be managed with HP SIM, as shown in Figure 3.

Note:

VSE is not required for the Virtual Machine Host and Virtual Machines to be associated. Once discovered and identified, the virtual machine associates itself to the host.

Figure 3: VSE Management Virtualization Manager



For more information

Integrity Virtual Machine Overview

http://h20293.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=integrity_vm

HP Integrity Virtual Machines Installation, Configuration and Administration

<http://docs.hp.com/en/T2767-90067/T2767-90067.pdf>

VSE Management Software Quick Start Guide

<http://docs.hp.com/en/T2786-90062/T2786-90062.pdf>

VSE Management Overview

<http://h20293.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=vse>

Technology for better business outcomes

© Copyright 2010 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

447783-003, February 2010



Get connected

www.hp.com/go/getconnected

Current HP drivers, support & security alerts
delivered directly to your desktop

