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# D Using HP SIM and vMedia for Provisioning OpenVMS

HP Systems Insight Manager (HP SIM) allows you to provision OpenVMS to one or more Integrity servers in the network. This means that, from a single location in the network (a Microsoft Windows ProLiant server designated as the management workstation), you can use HP SIM to install, upgrade or configure OpenVMS on several servers simultaneously.

For installing or upgrading OpenVMS, HP SIM uses either InfoServer utility or virtual media (vMedia) to provide the booting service over the network. Using the HP SIM interface, you can initiate the installation or upgrade process, and OpenVMS is then booted from the InfoServer or vMedia. While the installation or upgrade continues in the background, you can monitor the process from your console or attend to other tasks. Using InfoServer, you can provision up to eight servers simultaneously. Using vMedia, you can provision one server at a time. HP SIM provisioning facilitates installing or upgrading OpenVMS on Integrity servers that do not include a CD/DVD drive.

You can also use HP SIM provisioning to configure OpenVMS servers. HP SIM provisioning supports applying OpenVMS licenses and configuring TCP/IP (for HP TCP/IP Services for OpenVMS) on up to eight servers simultaneously.

You can also use vMedia independently of HP SIM to install or upgrade OpenVMS on a server. When using vMedia, the bootable image can be stored on a network drive, or on the system from where you browse to access the server. Unlike HP SIM provisioning, using vMedia independently of HP SIM to install or upgrade OpenVMS, you interactively perform the procedure, specifying answers to prompts (as documented in Chapter 3 (page 45) and Chapter 6 (page 103)).

This appendix explains how to do the following:

- Enable and use HP SIM provisioning to install, upgrade or configure OpenVMS on one or more servers (HP SIM Provisioning of OpenVMS).
- Enable and use vMedia to install or upgrade OpenVMS (Using vMedia Independently of HP SIM).

## D.1 HP SIM Provisioning of OpenVMS

### D.1.1 About HP SIM and Provisioning

HP Systems Insight Manager (HP SIM) is the foundation for HP's unified server-storage management strategy. It provides simplified, centralized management of multiple servers and platforms through a web-based, unified ("single-pane-of-glass") interface. HP SIM provides the basic tools needed to identify, discover, monitor, and deploy systems and other assets on the network. The core HP SIM software uses WBEM to deliver essential capabilities required to manage HP server platforms.

HP SIM running on a Microsoft Windows ProLiant server supports provisioning of OpenVMS on selected HP Integrity rack and blade servers. For information on prerequisites for HP SIM, see "Prerequisites for HP SIM Provisioning" (page 246). An OpenVMS provisioning plug-in for HP SIM must be installed on the ProLiant server. You can access HP SIM from a browser on your PC. With provisioning support, HP SIM installs or upgrades OpenVMS quickly and easily on one or more servers in the network, in much the same way as HP-UX supports provisioning. You can also use provisioning support to apply OpenVMS licenses (Product Authorization Keys) and to configure OpenVMS TCP/IP on one or more servers in the network simultaneously.

You use HP SIM to initiate the provisioning, after which the installation, upgrade or configuration process occurs automatically in the background. To install or upgrade OpenVMS over the network with HP SIM provisioning, you can use network services provided by the InfoServer utility and TCP/IP services for OpenVMS, or you can use the vMedia feature provided with your Integrity server firmware. Currently, HP SIM provisioning does not support booting from a shadowed system disk.

To use the InfoServer software utility, you must create a service for a bootable image of OpenVMS (a container file) stored at a location on the network that is accessible to the InfoServer. The OpenVMS InfoServer utility serves for provisioning in much the same way as does the HP

Ignite-UX server for provisioning HP-UX on Integrity servers. Using HP SIM with InfoServer, you can provision up to eight servers simultaneously.

To use vMedia, which is provided with Integrity servers that include iLO 2 MP, you must create an ISO image of the OpenVMS OE DVD, store the image on an accessible PC or Windows server in the network, and use HP SIM to connect your Integrity servers vMedia to that image. Using vMedia, you can provision one server at a time. You can also use vMedia independently of HP SIM to install or upgrade a server over the network. For more information about vMedia, see Section D.2 (page 279).



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**NOTE:** DVDs are accessible by vMedia as read-only.

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## D.1.2 Prerequisites for HP SIM Provisioning

Support of OpenVMS Provisioning using HP SIM Version 4.0 requires the following:

- HP SIM Version 6.0, running on a Microsoft Windows ProLiant server (32-bit), designated as the management workstation.

The ProLiant server must be on the same LAN as any Integrity servers that you plan to provision. To provision OpenVMS, HP SIM requires that the OpenVMS Provisioning Plug-in for HP SIM be installed. This plug-in enables HP SIM to manage and provision OpenVMS. For information on acquiring and installing the plug-in, see “Setting Up HP SIM and the Windows Server to Provision OpenVMS” (page 256). For information on installing, configuring, and using HP SIM, see the documentation located at the following website:

<http://www.hp.com/go/hpsim>



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**NOTE:** When OpenVMS is installed by means of HP SIM provisioning, the WBEM Services for OpenVMS, and WBEM Providers for OpenVMS are installed automatically. These products along with TCP/IP Services for OpenVMS are required for HP SIM management support.

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- A LAN connection to the iLO 2 MP port of each Integrity server that you plan to provision.
- You can use HP SIM provisioning for the following Integrity servers: rx3600, rx6600, and the HP Integrity BL860c and BL870c Blade servers.



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**IMPORTANT:** Provisioning Version 4.0 does not support installing, upgrading or configuring OpenVMS as a guest operating system on HP Integrity VM.

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- Verify that the version of OpenVMS being provisioned is supported on the target Integrity server. For more information on supported Integrity servers, see the following documents:
  - *OpenVMS Hardware Support Chart* available at the following location:  
[http://h71000.www7.hp.com/openvms/hw\\_supportchart.html](http://h71000.www7.hp.com/openvms/hw_supportchart.html)
  - *OpenVMS OE Support Chart* available at the following location:  
[http://h71000.www7.hp.com/openvms/openvms\\_supportchart.html](http://h71000.www7.hp.com/openvms/openvms_supportchart.html)
- If you plan to use the InfoServer utility to provide HP SIM provisioning, the InfoServer utility must be running on an OpenVMS Version 8.4 system connected to the same LAN as your Integrity server. You must provide the IP address of your InfoServer to HP SIM provisioning for installing or upgrading OpenVMS. For information on setting up the InfoServer for HP SIM provisioning, see “Setting Up InfoServer Support” (page 247).
- If you plan to use vMedia, the following are required:

### On the Integrity server:

- vMedia licensing through the Advanced Server Management option (iLO 2 Advanced Pack) and the user virtual media access right. vMedia is part of the iLO Advanced Pack feature set. This license is provided and pre-enabled on the Integrity BL860c and BL870c Server Blade products.

### On the management workstation (or a Windows-based PC/server on the same LAN as the Integrity server):

- Microsoft Internet Explorer Version 6 or later.
- Java Plug-in 1.5.0\_08 or later. (The vMedia Java applet has only been tested on x86 PCs and Windows servers.)
- An ISO image of the OpenVMS Integrity servers OE DVD stored on a local disk or a network drive accessible through a high-speed link. To create the ISO image, you can use ILO 2 MP through your browser, as described in “Setting Up vMedia” (page 250). HP recommends that you do not use vMedia to install or upgrade directly from a DVD on the management workstation.



**NOTE:** When using vMedia to install or upgrade OpenVMS, HP recommends that you use an image of the OpenVMS Integrity servers OE DVD located on your Windows-based management station. This has two advantages:

- If the DVD is defective or corrupted, when you attempt to create an image of it, the imaging software will fail, thereby indicating the DVD's condition.
- Installing or upgrading OpenVMS from the image file is much faster than installing from a DVD. This advantage outweighs any extra cost or time of copying the DVD to the ISO image file.

**NOTE:** If your Integrity server has a local DVD drive, install or upgrade from the OpenVMS for Integrity servers OE DVD inserted in the DVD drive on your Integrity server instead of using vMedia from your Windows-based management workstation. In short, for best performance with installations or upgrades, choose from the following, listed according to the potential speed (from fastest to slowest):

- Use local DVD drive — If your Integrity server has a local DVD drive, install or upgrade using the OpenVMS for Integrity servers OE DVD from that DVD drive.
- Use vMedia with OpenVMS OE DVD ISO image — To install or upgrade using an ISO image of the OpenVMS for Integrity servers OE DVD, where the image is stored on your Windows-based management workstation.
- vMedia with OpenVMS OE DVD — It is a slow process, and is not recommended unless you have no other recourse. Install or upgrade from a DVD drive on your Windows-based management workstation.

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To set up your environment for vMedia support, see Section D.1.4 (page 250).

- Up-to-date firmware for the Integrity server (on server blades, this includes the firmware for the Onboard Administrator).
- Optionally, HP iLO or other means for monitoring the console.

## D.1.3 Setting Up InfoServer Support

If you want to use the InfoServer utility to provide a network service for provisioning, follow the steps described in this section. To use the InfoServer utility to enable provisioning over the network, the utility must be running on an OpenVMS Alpha or OpenVMS Integrity server system in the same LAN as the target Integrity server that is to be provisioned. The InfoServer utility uses the TCP/IP Services for OpenVMS (BOOTP server and TFTP servers) to help boot the OpenVMS operating system. The InfoServer accesses a bootable image of OpenVMS that you store on a system in the same LAN. Follow these steps to enable the required InfoServer support for HP SIM provisioning. For more information, see Appendix C (page 227).

1. At least one system in the LAN must be designated as the InfoServer server. This is the system that hosts the DVD drive from which network booting is performed. To deploy OpenVMS Version 8.4, the InfoServer server must be running OpenVMS Integrity Version 8.4 or later. Perform these basic steps to set up InfoServer:
  - a. Copy the SYS\$STARTUP:ESS\$LAD\_STARTUP.TEMPLATE file to the SYS\$STARTUP:ESS\$LAD\_STARTUP.DAT file. If any changes are necessary for your environment (typically none are required), modify the SYS\$STARTUP:ESS\$LAD\_STARTUP.DAT file.
  - b. Copy the SYS\$STARTUP:ESS\$LAST\_STARTUP.TEMPLATE file to the SYS\$STARTUP:ESS\$LAST\_STARTUP.DAT file. Modify the SYS\$STARTUP:ESS\$LAST\_STARTUP.DAT file as follows, along with any other changes necessary for your environment:
    1. Remove the comment (!) character from the line that has the following text: DEVICE = (). Within the parentheses, specify the device name. For example: DEVICE = (EIA).
    2. Comment out the line that specifies ALL\_CONTROLLERS = ON (comment out a line by inserting an exclamation point (!) at the beginning of the line).
  - c. Optionally, add the following two lines to the SYS\$MANAGER:SYSTARTUP\_VMS.COM system startup file:

```
@SYS$STARTUP:ESS$LAD_STARTUP.COM
@SYS$STARTUP:LD$STARTUP
```



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**NOTE:** Invoke these commands manually to start these services immediately rather than initiating a reboot.

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2. Set up the BOOTP server and TFTP server on the InfoServer server:



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**IMPORTANT:** For HP SIM provisioning, the BOOTP and TFTP server must be set up on the same system as the InfoServer. TFTP is required on the boot server for supplying the boot files to the client systems.

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- a. Make sure TCP/IP Services for OpenVMS is installed and that:
  - At least one IP interface is defined.
  - The BOOTP server and TFTP server are configured and started.
  - Optionally, make sure TELNET and FTP are configured and started.

To display IP interface information, use the TCPIP SHOW INTERFACE command.



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**NOTE:** If you are currently using the DHCP service, you must disable it. The BOOTP service must be enabled instead. For information about disabling or enabling services, see the *HP TCP/IP Services for OpenVMS Management* manual.

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**IMPORTANT:** When you install or upgrade to OpenVMS Integrity servers Version 8.4 or later from an InfoServer through Provisioning, OpenVMS is booted on the target server through a memory disk. So, you need not complete steps b and c for OpenVMS Integrity servers Version 8.4 systems. Complete steps b and c only for OpenVMS systems of version 8.3-1H1 and lower.

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- b. Set up a location for the OpenVMS Integrity servers boot files by creating the directory accessible by TFTP, as in the following example. HP recommends that you create a separate boot file directory for each version of the operating system.

```
$ CREATE/DIRECTORY TCPIP$TFTP_ROOT: [V831H1]
```




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**IMPORTANT:** For each subsequent upgrade of OpenVMS, you must create a separate directory for the boot files specific to the OpenVMS version and, where appropriate, modify the path specified for each client's boot files. To make subsequent upgrades easier, you can use systemwide or clusterwide logical names.

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- c. Copy the following two files from the DVD to the TCPIP\$TFTP\_ROOT:[V831H1] directory:
  - [SYS0.SYSCOMMON.SYSEXE]VMS\_LOADER.EFI
  - [SYS0.SYSCOMMON.SYSEXE]IPB.EXE
- d. Gather data for each boot client (each node that is going to be provisioned, hereafter referred to as a provisioning/boot client), including the IP address of the network device (the Integrity server core I/O card).
- e. Define each provisioning/boot client's host name in the TCP/IP Services for OpenVMS local host database using the TCPIP SET HOST command.

In the following example, *hostname* is the host name of the provisioning/boot client and *ipaddress* is its IP address:

**\$ TCPIP SET HOST hostname /ADDRESS=ipaddress**

- f. For each provisioning/boot client, you might need to add an entry in the BOOTP database to specify a gateway and network mask.

To do so, use the SET BOOTP command in the following format, where *hostname* specified the host name of the boot client, *MACAddress* specifies the MAC address of the network port of the boot client used for LAN booting, *gateways-ip* specifies the gateways used for routing, *ip-network-mask* specifies the subnet mask, and *diskname* specifies either the DVD or LD device containing the OpenVMS OS image

To determine the names of the gateways and the subnet information, consult your network administrator. For more information on this command, see the TCP/IP Services for OpenVMS documentation.

For V8.3-1H1 or lower:

```
$ TCPIP SET BOOTP hostname /HARDWARE=ADDRESS=MACAddress -
/GATEWAYS=gateways-ip -
/NETWORK_MASK=ip-network-mask -
/FILE=TCPIP$TFTP_ROOT:[V831H1]VMS_LOADER.EFI
```

For Version 8.4 or later:

```
$ TCPIP SET BOOTP hostname /HARDWARE=ADDRESS=MACAddress -
/GATEWAYS=gateways-ip -
/NETWORK_MASK=ip-network-mask -
/FILE = <disk_name>[SYS0.SYSCOMMON.SYSEXE]VMS_LOADER.EFI
```

To display and verify your BOOTP server configuration, use the TCPIP SHOW BOOTP/FULL command.




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**IMPORTANT:** For each new version of OpenVMS Integrity server, you must modify the client entry in the BOOTP database to point to the new, version-specific boot file. As shown in the previous examples, the boot file for OpenVMS Version 8.3-1H1 is [V831H1]VMS\_LOADER.EFI and for Version 8.4 and later it is the actual path to VMS\_LOADER which is either in the DVD or the LD device created.

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- 3. Create a copy of the OpenVMS OE DVD on an LD device (logical disk or virtual drive) that is accessible to the InfoServer utility. The following example shows how to establish an LD device and copy the OpenVMS DVD (DNA0:) to the device on an OpenVMS system that is the InfoServer server:

```
$ @SYS$STARTUP:LD$STARTUP
$ LD CREATE I64084.DSK/SIZE=6005000
$ LD CONNECT I64084.DSK
$ MOUNT/FOREIGN/NOASSIST LDA1:
```

```
$ MOUNT/OVERRIDE=IDENTIFICATION DNA0:  
$ BACKUP/IMAGE/VERIFY DNA0: LDA1:  
$ DISMOUNT DNA0:  
$ DISMOUNT LDA1:
```

For more information about InfoServer commands, including how to work with LD devices, see the InfoServer help (at the InfoServer prompt, type HELP) or the *HP OpenVMS System Management Utilities Reference Manual*.

4. Start the InfoServer client on your Integrity servers, and on any other systems that are to be provisioned, by entering the following command:

```
$ @SYS$STARTUP:ESS$STARTUP DISK
```

To have the InfoServer start at system boot, include the preceding command in the SYS\$MANAGER:SYSTARTUP\_VMS.COM file.

5. Enable the LD device as the InfoServer service, as in the following example:

```
$ MOUNT/SYSTEM/NOWRITE LDA1: I64084  
$ INFOSERVER ::= $ESS$INFOSERVER  
$ INFOSERVER  
INFOSERVER> CREATE SERVICE I64084 LDA1:  
INFOSERVER> EXIT
```

## D.1.4 Setting Up vMedia

If you want to use vMedia to provide a virtual CD/DVD drive or image file over the network from which you can install or upgrade OpenVMS on your Integrity servers, follow the steps described in this section. These steps show you how to use iLO 2 MP through your browser to create an ISO image of your OpenVMS OE DVD.



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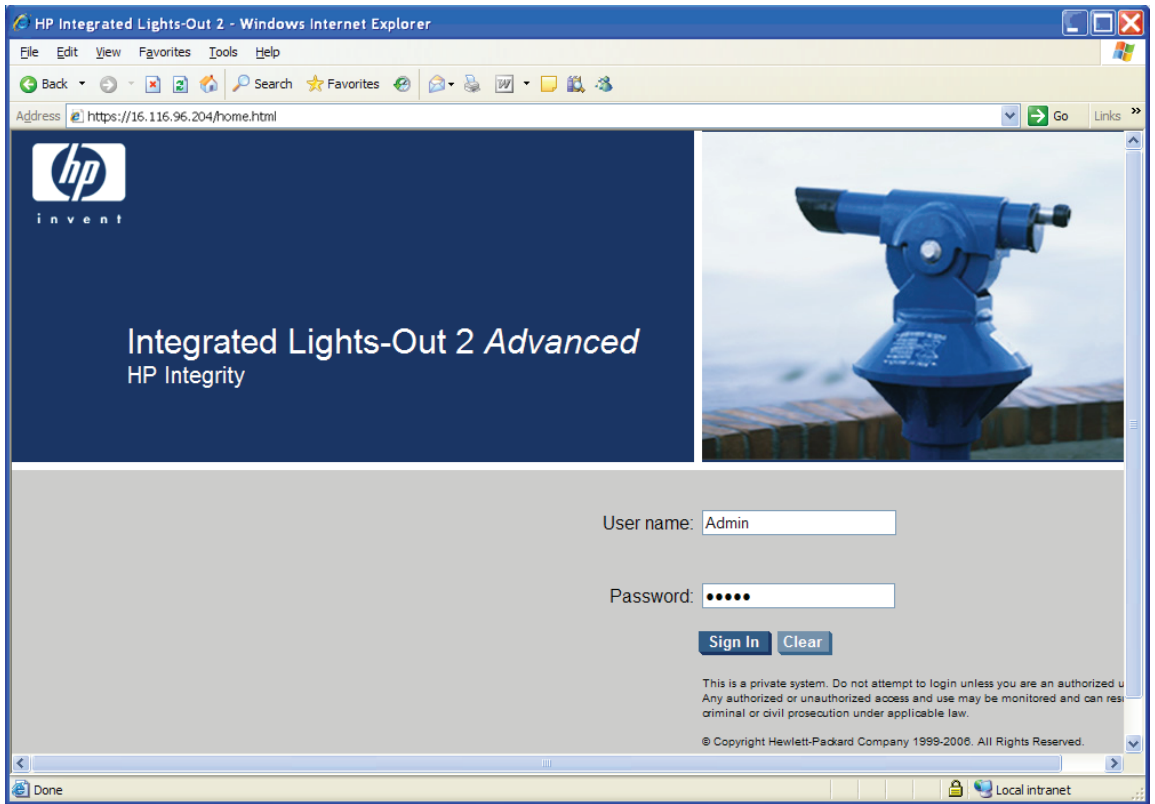
**NOTE:** Contents of screens shown in this section may vary according to the type of browser software being used.

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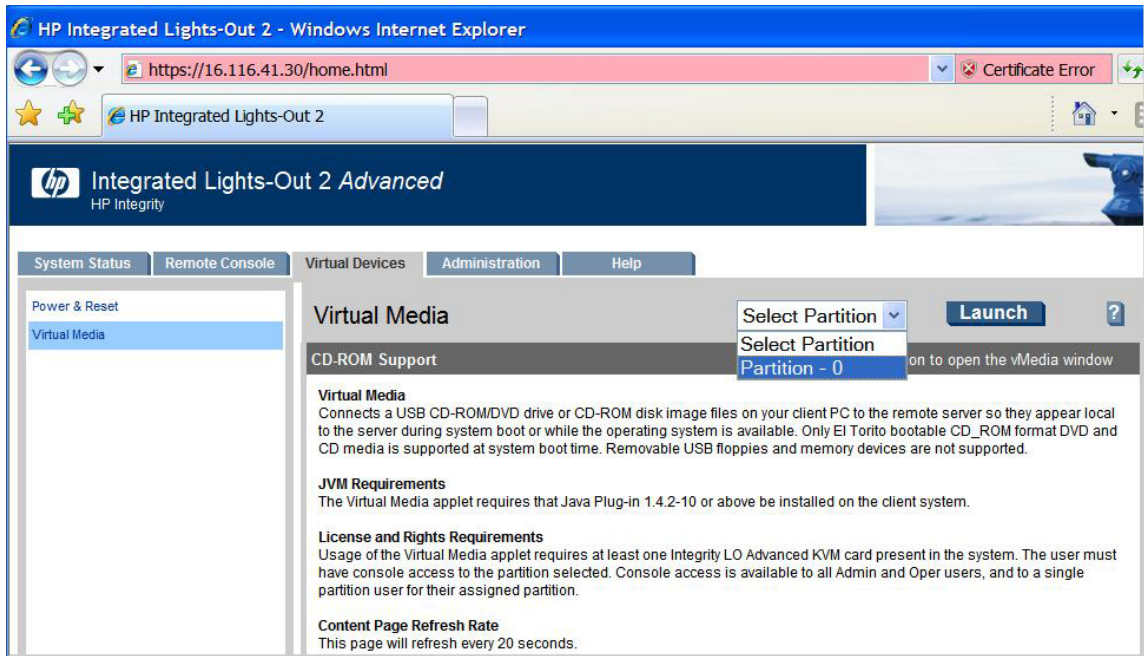
1. Insert the OpenVMS OE DVD into the DVD drive on your PC or Windows server.
2. Make sure your Integrity servers iLO 2 MP and vMedia are set up as documented in your Integrity server hardware documentation (for example, see the *HP Integrity iLO 2 MP Operations Guide*). Enable the right to use the vMedia applet.

Make sure your Integrity server is powered on. Once you connect to your server's iLO 2 MP and log in, you can check the status and power on your Integrity servers from your browser. Select the Virtual Devices tab and access the Power & Reset screen by selecting Power Management (on the left of the screen).

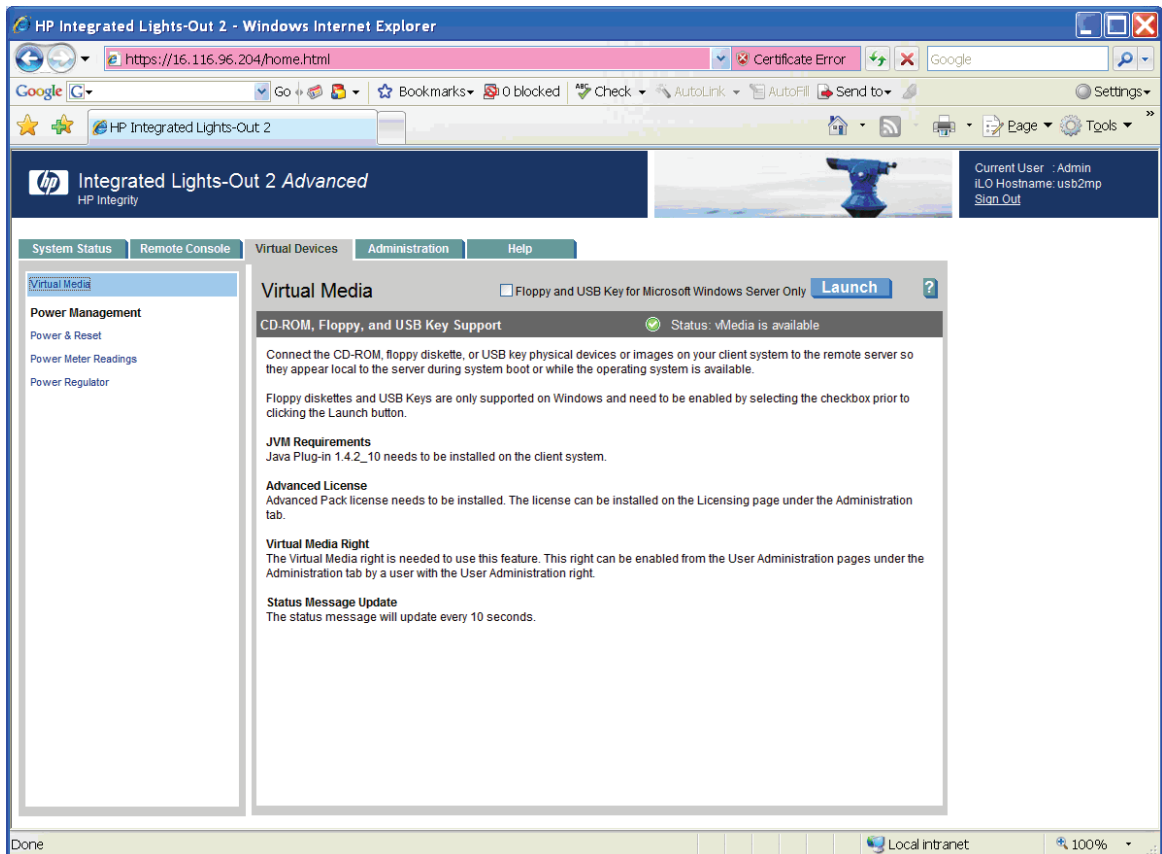
3. From a browser on a Windows-based PC or server in the same network as your Integrity servers, access your Integrity server's iLO 2 MP by specifying the DNS name or IP address. Then log in as shown in the following example (in this example, the IP address is entered):



4. Select the Virtual Devices tab and then select Virtual Media from the list on the left. If your Integrity server is not a cell-based system, skip to the next step. If your server is a cell-based system, you must select the partition before launching the vMedia application, as in the following example:



5. Click **Launch** in the upper right corner of the Virtual Media screen, as shown in the following example:





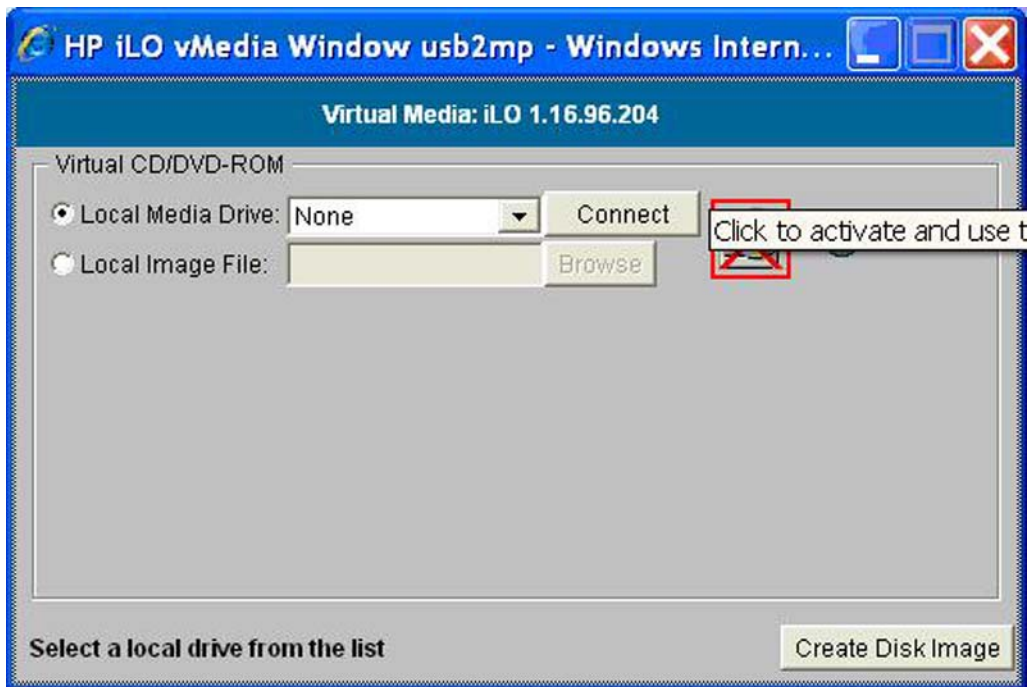
- You might see the following warning or similar warnings or informational messages regarding security. In the security warning shown here, you can check the box to always trust content, and then click **Yes**. (To avoid certification warnings, install valid certificates for the iLO 2 MP. For more information, see the *HP Integrity iLO 2 MP Operations Guide*. In addition, see the online help provided by your browser.)



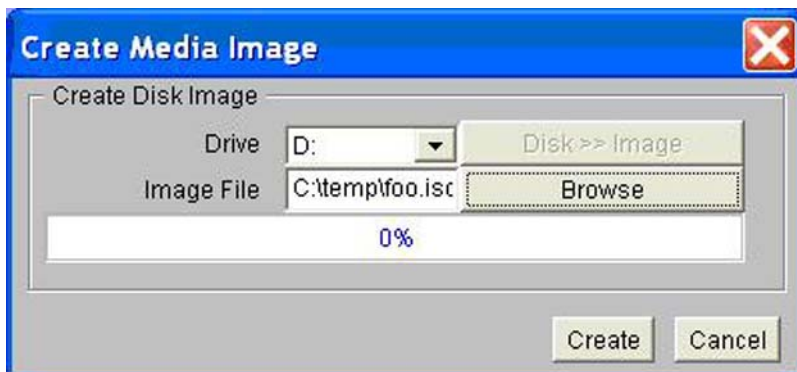
A screen similar to the following might appear next. Check the box to always trust content, and then click **Run**.



- From the Virtual CD/DVD-ROM dialog box that appears next, make sure the Local Media Drive option is selected, and then click **Create Disk Image**, as in the following example:



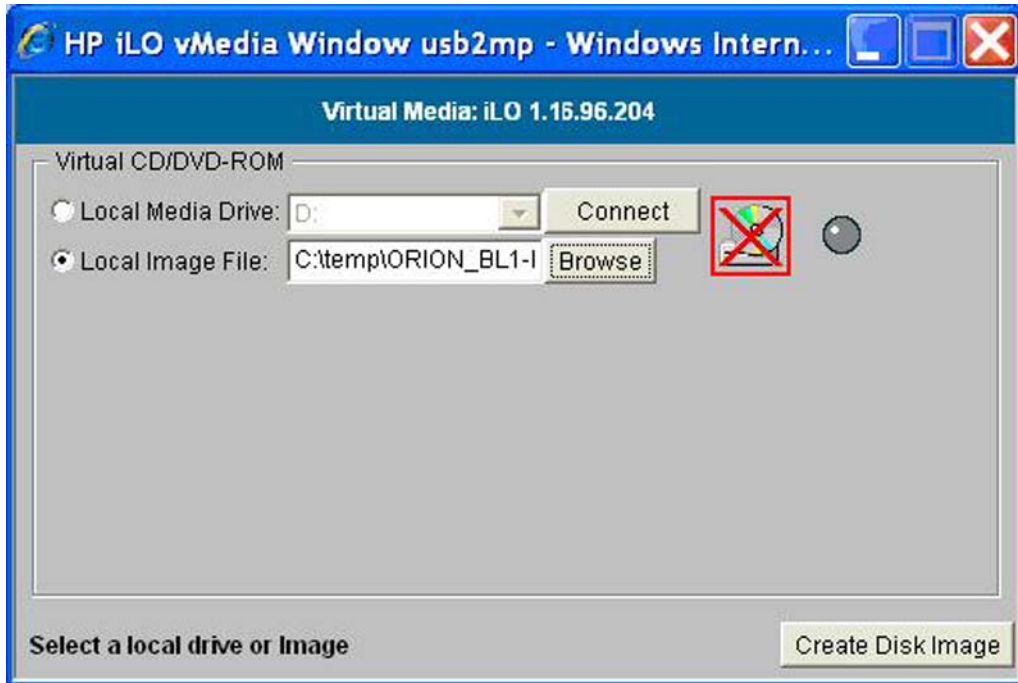
8. The Create Disk Image dialog box appears, as in the following example. Specify a path or file name for the image to be created, and then click **Create**.



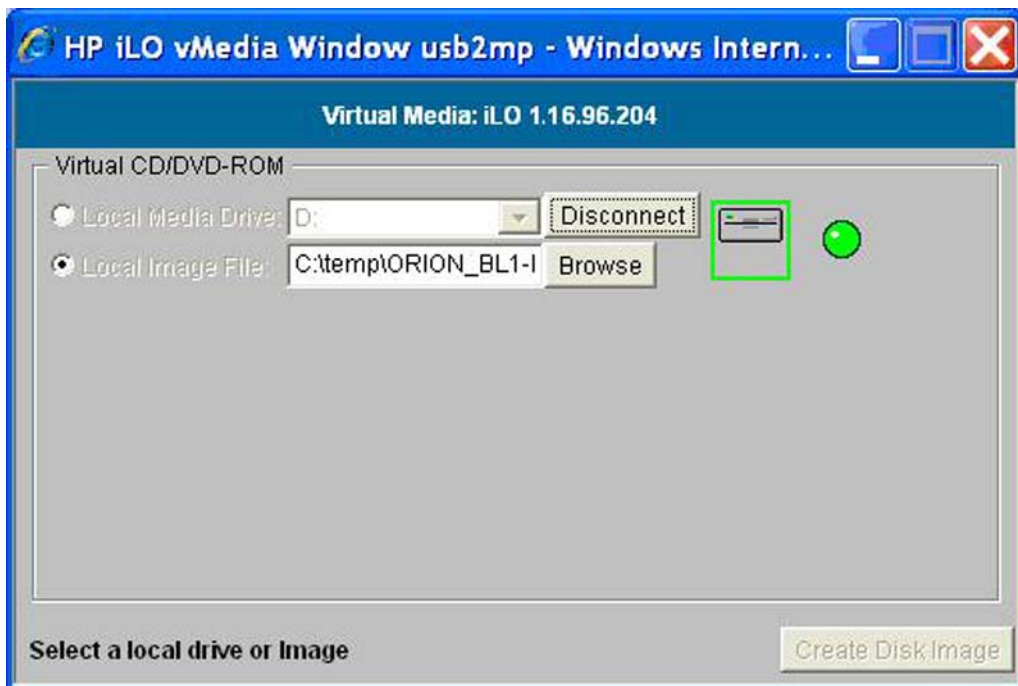


**NOTE:** As noted previously, HP recommends that you do not install or upgrade directly from a DVD (on your local Windows-based management workstation) with vMedia. Creating a disk image on the local drive (or a network drive) will make the installation or upgrade much faster. This assumes the local or network drive is accessible to your Integrity servers over a high-speed network link.

9. This brings up the Virtual CD/DVD-ROM dialog box, as in the following example. Select the Local Image File option, browse for the created ISO image file that you want vMedia to access, and then click **Connect**.



The screen should then indicate the image is connected to vMedia, as in the following example. Now the targeted Integrity server is ready to be booted using the ISO image file.



You can now provision OpenVMS through HP SIM (see Section D.1.6.2 (page 268)) or use vMedia independently of HP SIM (see Section D.2 (page 279)).

## D.1.5 Setting Up HP SIM and the Windows Server to Provision OpenVMS

Install and configure HP SIM on a Microsoft Windows ProLiant server in the LAN according to the instructions in the *HP SIM Windows Installation and Configuration Guide* and the *HP SIM Release Notes* available in the Information Library on the following website:

<http://www.hp.com/go/hpsim>

Once HP SIM is installed and configured, do the following:

- Acquire and install the OpenVMS Provisioning Plug-in for HP SIM, as described in Section D.1.5.1 (page 256).
- Enable HP SIM to discover and identify the MPs of the Integrity servers on which you want OpenVMS provisioned, as described in Section D.1.5.2 (page 256).

### D.1.5.1 Installing or Upgrading the OpenVMS Provisioning Plug-in for HP SIM

The OpenVMS Provisioning Plug-in for HP SIM enables HP SIM to support provisioning of OpenVMS. Follow these steps to acquire and install the plug-in or upgrade an existing version of the plug-in:

1. Download the HP OpenVMS Provisioning kit (ZIP file) from the following website:  
<http://www.hp.com/go/openvms/provisioning>
2. Extract the ZIP file to a folder on your Windows server. Navigate to this folder, and double-click the `InstallOpenVMSProvisioning.jar` file and click the **Install** button on the resulting installer wizard window. The OpenVMS Provisioning for HP SIM installation wizard indicates the completion of the installation or upgrade of the provisioning components and the update of HP SIM deployment tools.



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**NOTE:** If you double-click on the `.jar` file and a Windows popup message indicates that Windows cannot open the file, enter the following command at the MS-DOS prompt after changing the current directory to the folder where the provisioning kit ZIP file was extracted:

```
java -jar InstallOpenVMSProvisioning.jar
```

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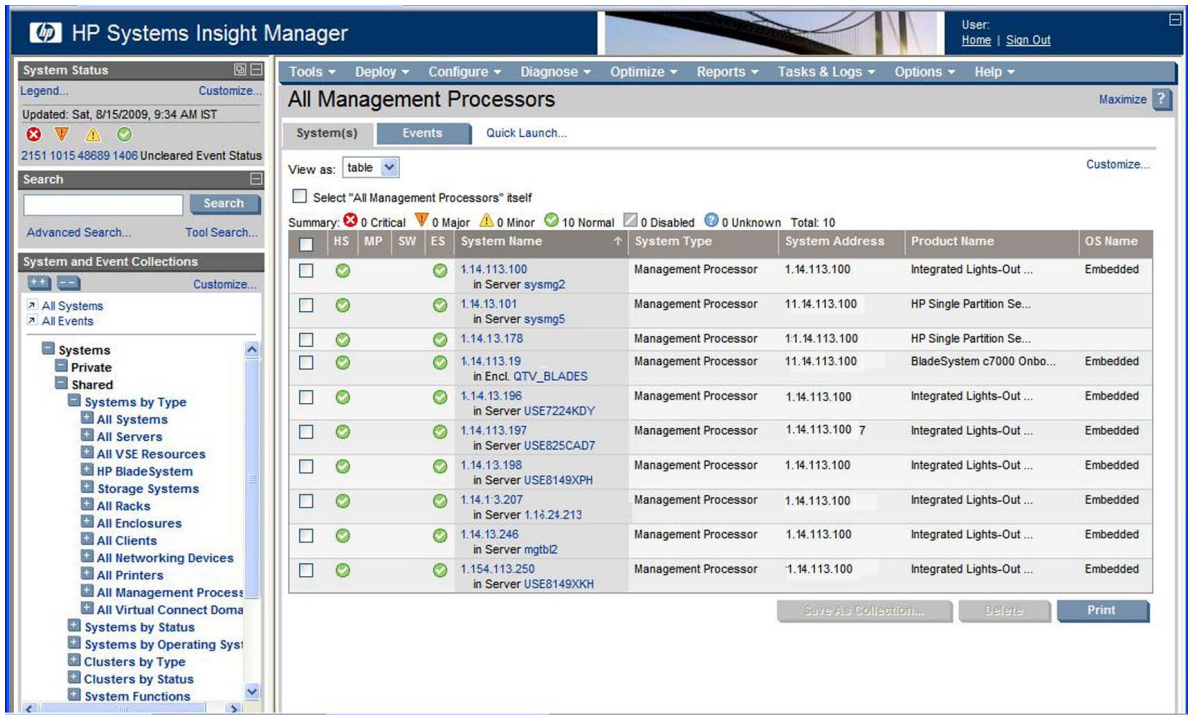
3. If your OpenVMS InfoServer or vMedia is configured properly, you can use HP SIM to provision (deploy) OpenVMS. However, first make sure HP SIM can discover and identify the MPs of the Integrity servers that are to be provisioned.

### D.1.5.2 Discovering and Identifying Your New Provisioning Client Management Processors

On any Integrity server that is to be provisioned by HP SIM, the iLO 2 MP must be connected to the network, and HP SIM must be able to discover and identify the Management Processors (MP). For information about connecting your iLO 2 MP, see the appropriate documentation for Integrity servers.

You can configure HP SIM to automatically discover iLO 2 MP ports in the network. But in some cases you might need to manually discover a port that you have recently turned on. The procedure in this section describes how to use HP SIM to discover a newly introduced iLO 2 MP port. This is a one-time procedure. For more information on using HP SIM, see the *HP SIM User Guide*.

To determine whether your system iLO 2 MP has already been discovered, access the HP SIM home page and select **System and Event Collections** -> **All Management Processors** in the left-hand panel. The following is an example of an HP SIM **All Management Processors** listing.



If your system is listed with the proper port IP address and identification, you are ready to provision. (HP SIM identifies such properties as the type of system, which in this case is MP, the operating system and version, and the product name.) If your MP is not listed, perform a manual discovery as described in the subsequent sections.

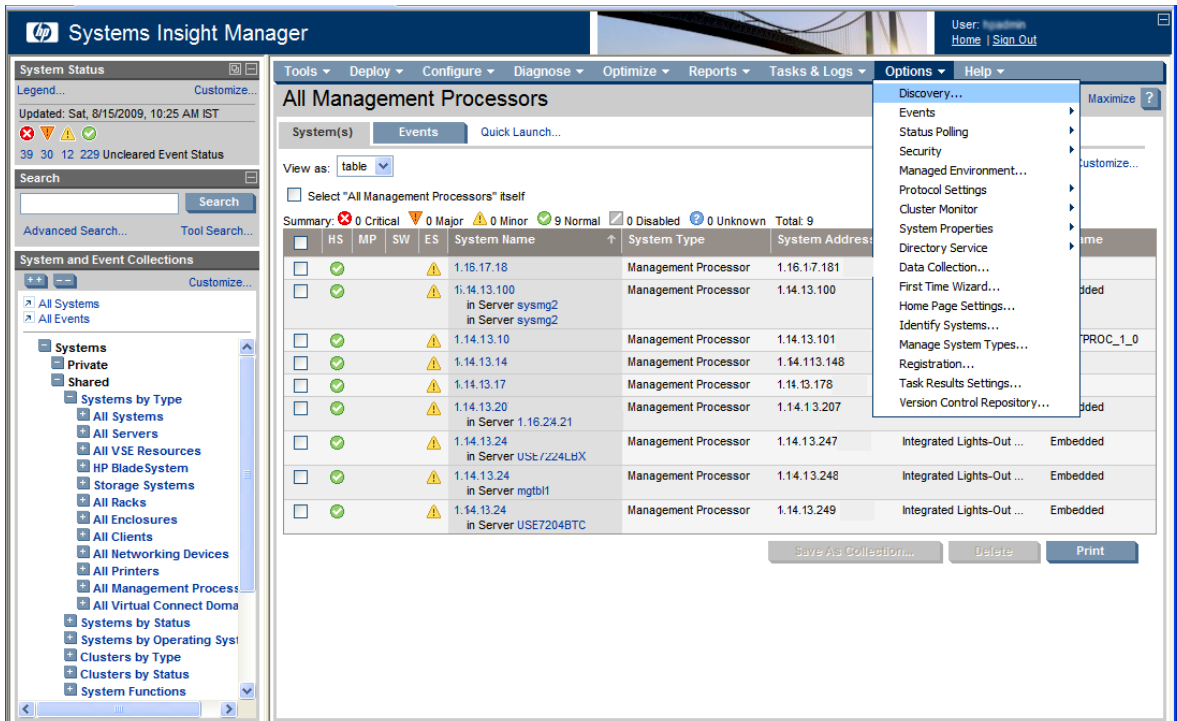


**NOTE:** If your iLO 2 MP is connected properly and turned on, HP SIM must discover it. If your port is not discovered, check the LAN cable connections and proper port configuration. For more information on these tasks, see the *HP BladeSystem Onboard Administrator User Guide* or the *HP Integrity iLO 2 MP Operations Guide*. For information on discovery problems related to HP SIM, see the HP SIM documentation.

#### D.1.5.2.1 Manually Discovering an MP with HP SIM

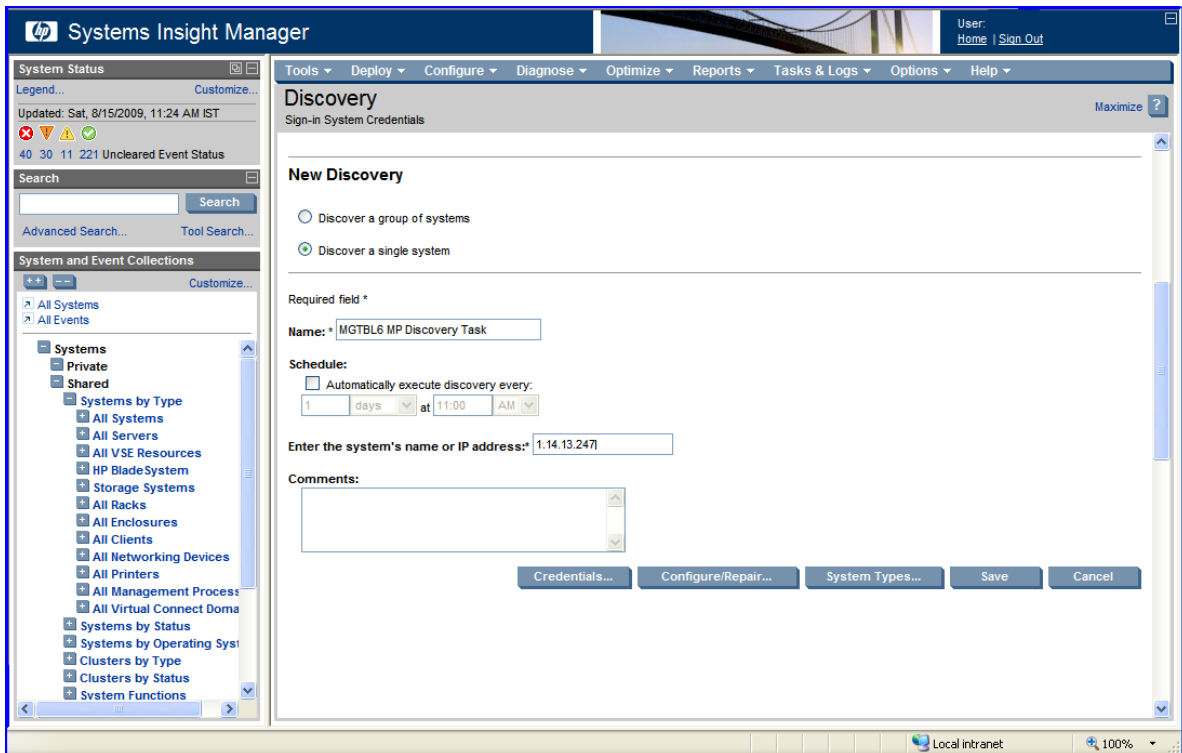
To enable HP SIM to manually discover the Integrity servers iLO 2 MP in HP SIM, use the following procedure:

1. Select **Options** → **Discovery**, as shown in the following example:

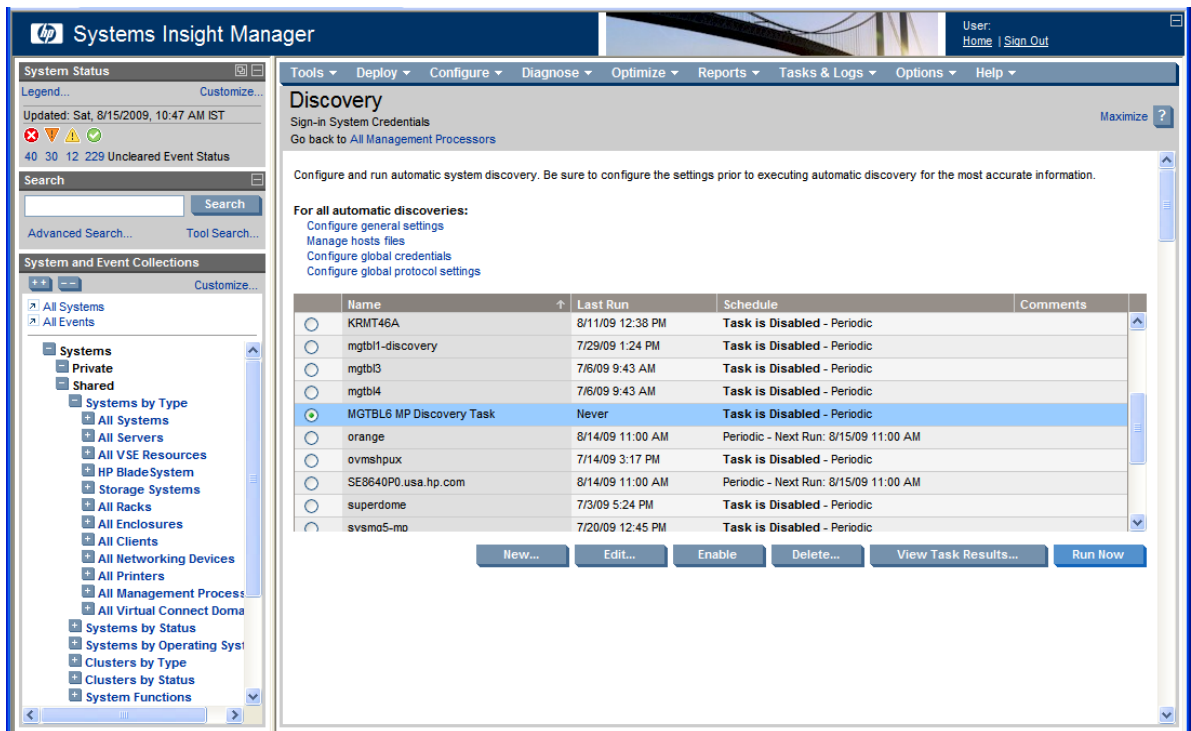


2. Click **New**.

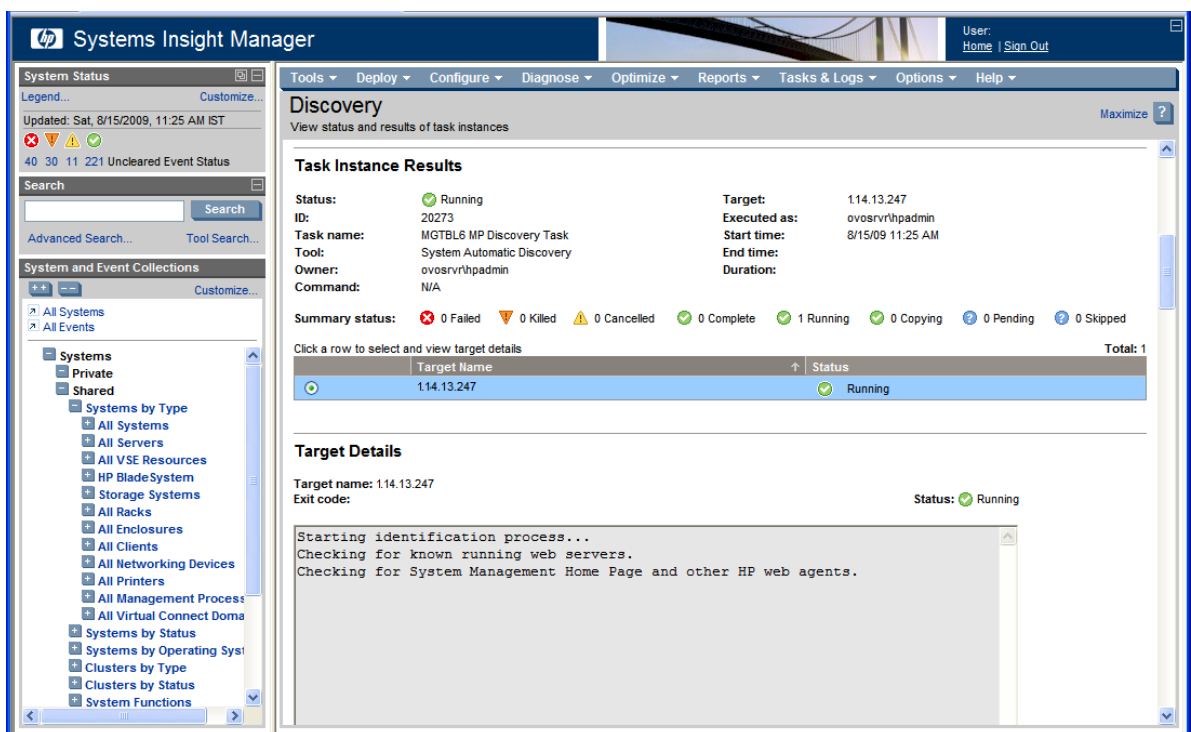
Under the resulting **New Discovery** heading, select **Discover a single system**. Enter the name of the discovery task in the **Name:** text box. Under Schedule, clear the **Automatically execute discovery every** check box. Enter the IP address of the Integrity servers iLO 2 MP port to be discovered, and click **Save**.



3. After the discovery task is saved, select the newly created discovery task on the Discovery page and click **Run Now**. HP SIM will now attempt to discover the MP with the given IP address.



4. Click **View Task Results** to view the progress of the discovery.



## D.1.6 Provisioning OpenVMS

Once the iLO 2 MP of your Integrity servers (and any other servers you want to provision) has been discovered and identified, you can provision OpenVMS (deploy or configure the operating system on the target Integrity servers).

To provision OpenVMS using the InfoServer, see ““Provisioning OpenVMS Through the InfoServer” (page 261).”

To provision OpenVMS using the vMedia device, see “Provisioning OpenVMS Through vMedia” (page 268).

To apply OpenVMS licenses on your Integrity servers running OpenVMS, see “Installing Licenses on OpenVMS Servers Through Provisioning” (page 272).

To configure OpenVMS TCP/IP on your Integrity servers through Provisioning, see “Configuring OpenVMS TCP/IP Through Provisioning” (page 275).



## D.1.6.1 Provisioning OpenVMS Through the InfoServer

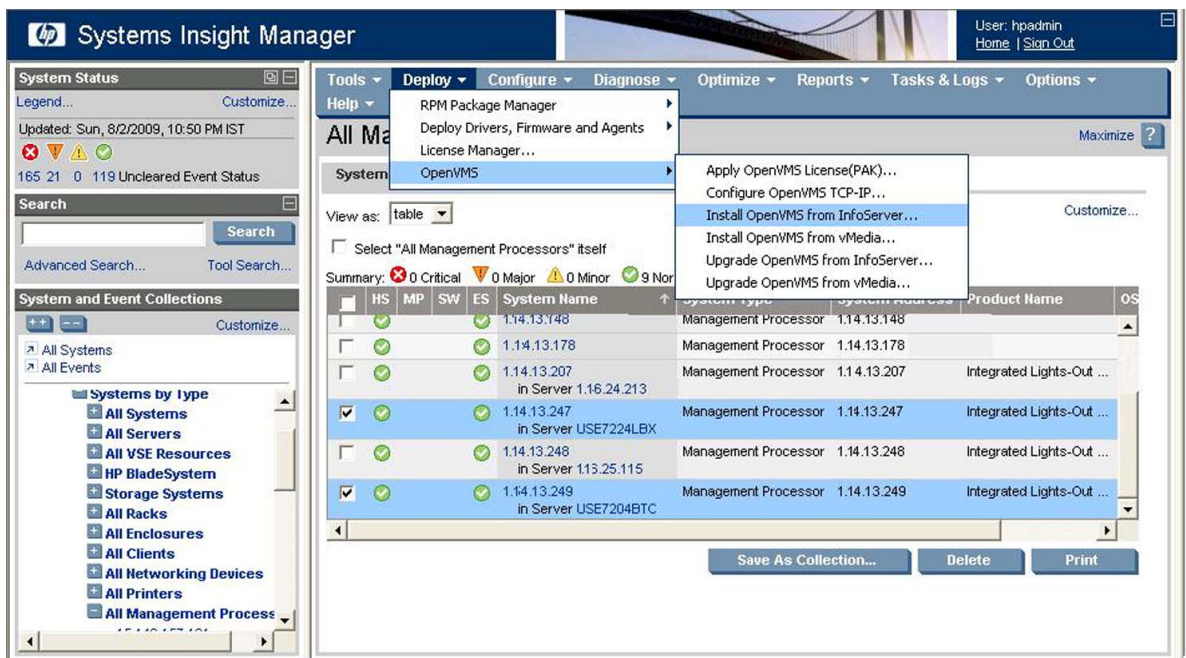
To provision OpenVMS using HP SIM with the InfoServer, follow these steps.

1. Complete the procedure described in “Setting Up InfoServer Support” (page 247) to setup InfoServer for use with Provisioning.
2. Ensure that each server to be provisioned is not booted into an operating system. The servers can be in a powered-OFF state, in a halted state, or booted into the EFI shell. If a server is powered-OFF, Provisioning will power ON the system before deploying OpenVMS.



**IMPORTANT:** Provisioning performs a system reset through the MP before deploying OpenVMS on a server. If the server is booted into an OS, ensure that the OS is gracefully shutdown before proceeding further with Provisioning to avoid losing any unsaved data.

3. Ensure that the AutoBoot Timeout value for each server to be provisioned is set to at least 5 seconds. This parameter can be configured through the EFI Boot Manager menu (**Boot Configuration** -> **AutoBoot Configuration** -> **Set AutoBoot Timeout**).
4. From the HP SIM home page, select **System and Event Collections** -> **All Management Processors**.
5. Select the MPs of the Integrity servers to be provisioned. Then, select **Deploy** -> **OpenVMS**, and select one of the following options from the OpenVMS menu:
  - **Install OpenVMS from InfoServer**
  - **Upgrade OpenVMS from InfoServer**

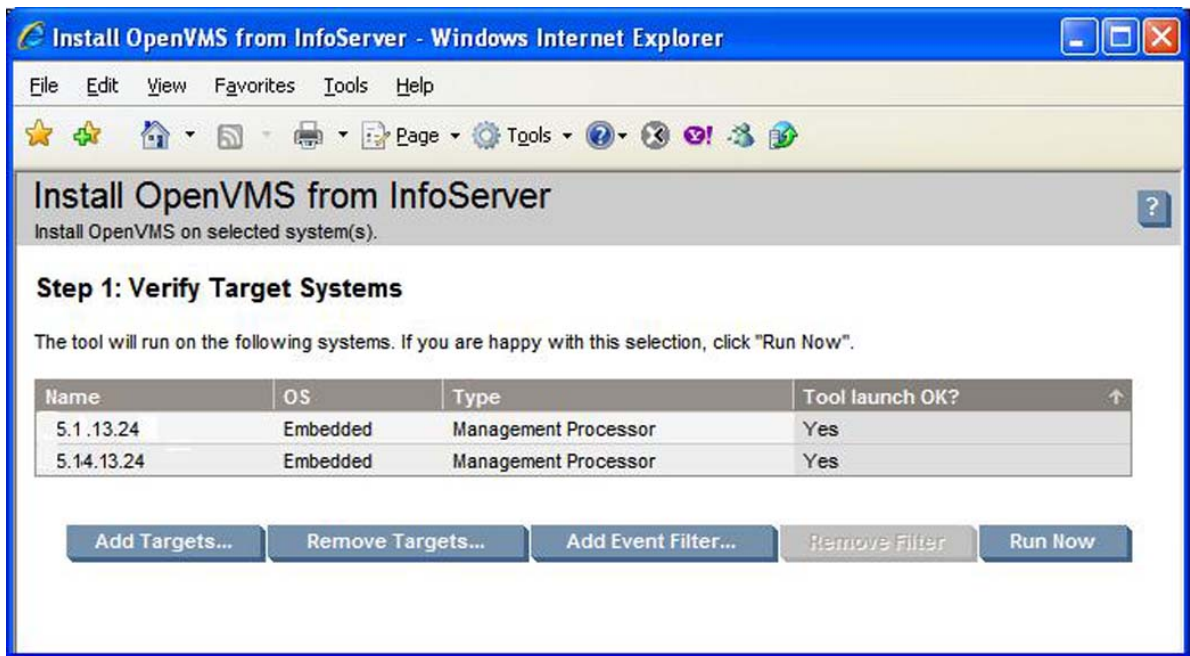


In this example, the option **Install OpenVMS from InfoServer** is selected.



**NOTE:** OpenVMS from InfoServer can be provisioned on up to eight servers at a time.

6. On the resulting page, HP SIM displays the Integrity servers to be provisioned. Verify the target servers that you have selected, and click **Run Now**.



7. Provide the following information for each Integrity server being provisioned:
  - **MP Login Credentials:** This information is used to login to the MP console of the target server to provision OpenVMS. The default for the user name and password is Admin.
  - **Timeout (in minutes):** This value determines the maximum duration of inactivity allowed on the system console during OpenVMS installation or upgrade, after which HP SIM provisioning reports that the system is not responding. The default value of this parameter is set to five minutes. You can modify this default value, but HP does not recommend decreasing the value.
  - **LAN Boot Settings:**
    - **Use DHCP:** Select this option if the target server must receive its TCP/IP settings from a DHCP server for the LAN boot.
    - **InfoServer IP and Service Name:** InfoServer/BOOTP server IP address and InfoServer service name that must be used for provisioning OpenVMS.
    - **Client Static IP, Subnet Mask, and Gateway IP:** Specify these settings for the target server if DHCP is not being used.
    - **VMS\_LOADER.EFI Location:** Location of the VMS loader that must be used to network boot the target server. For example, LDA3 : [VMS\$COMMON.SYSEXE]
    - **OpenVMS version:** Version of OpenVMS being provisioned from InfoServer.
  - **OpenVMS Installation Options:**
    - **Installation Disk:** Device name of the system disk on which OpenVMS is installed. For example, DKA200.
    - **Volume Label:** Volume label assigned to the system disk. Ensure that the label name you provide is unique. Problems could arise if the same label is used for different disks. The volume label has a limit of 12 characters, and can be a combination of letters (A to Z) and numbers (0 to 9), and can include special characters such as the dollar sign (\$), hyphen (-), and underscore (\_).
    - **Initialize Disk:** Indicates whether or not the system disk will be initialized. Disk structure to use if it is being initialized (ODS-2/ODS-5), and use of hard links if the disk structure selected is ODS-5.

- **Installation of optional products:** You can choose to install the following optional products with the OpenVMS installation:
  - DECwindows Motif for OpenVMS
  - HP TCP/IP Services for OpenVMS
  - DECnet Phase IV or DECnet-Plus for OpenVMSIf you select DECnet Phase IV or DECnet-Plus for installation, you must specify the DECnet address to be used. Enter the DECnet address as 0.0 if you plan to use DECnet without Phase IV compatible addresses.



**NOTE:** WBEM Services for OpenVMS and WBEM Providers for OpenVMS are automatically installed as part of the OpenVMS OS installation.

---

- **SCSNODE:** Value of the SCSNODE system parameter for OpenVMS on the target server. The value must be a combination of at least one letter and numbers ranging from 1 to 6.
- **SCSSYSTEMID:** Value of the SCSSYSTEMID system parameter for OpenVMS on the target server. If you have selected DECnet for installation and provided a valid DECnet address, the SCSSYSTEMID parameter is automatically computed by provisioning based on the DECnet address.
- **Create/Validate Boot Options:** Select this option if you want OpenVMS to create a new boot option when none exist for the selected system disk, or to validate an existing boot option in the EFI Boot Manager boot options menu.

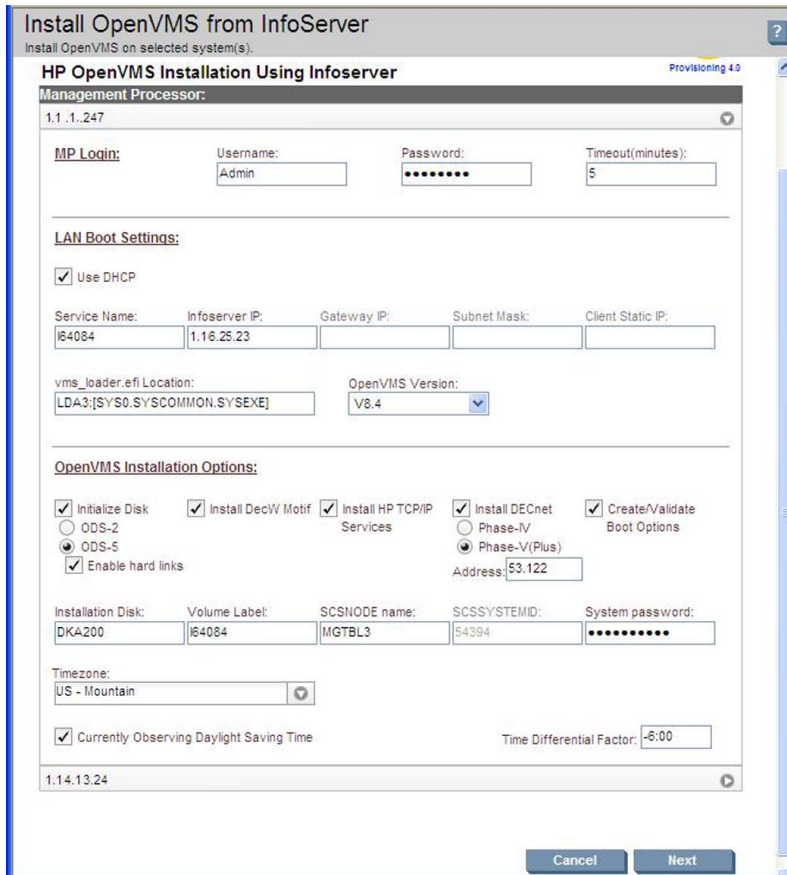


**NOTE:** If this option is enabled, and no boot option exists for the selected system disk, Provisioning sets the VMS boot flags for the new boot option as 0,0.

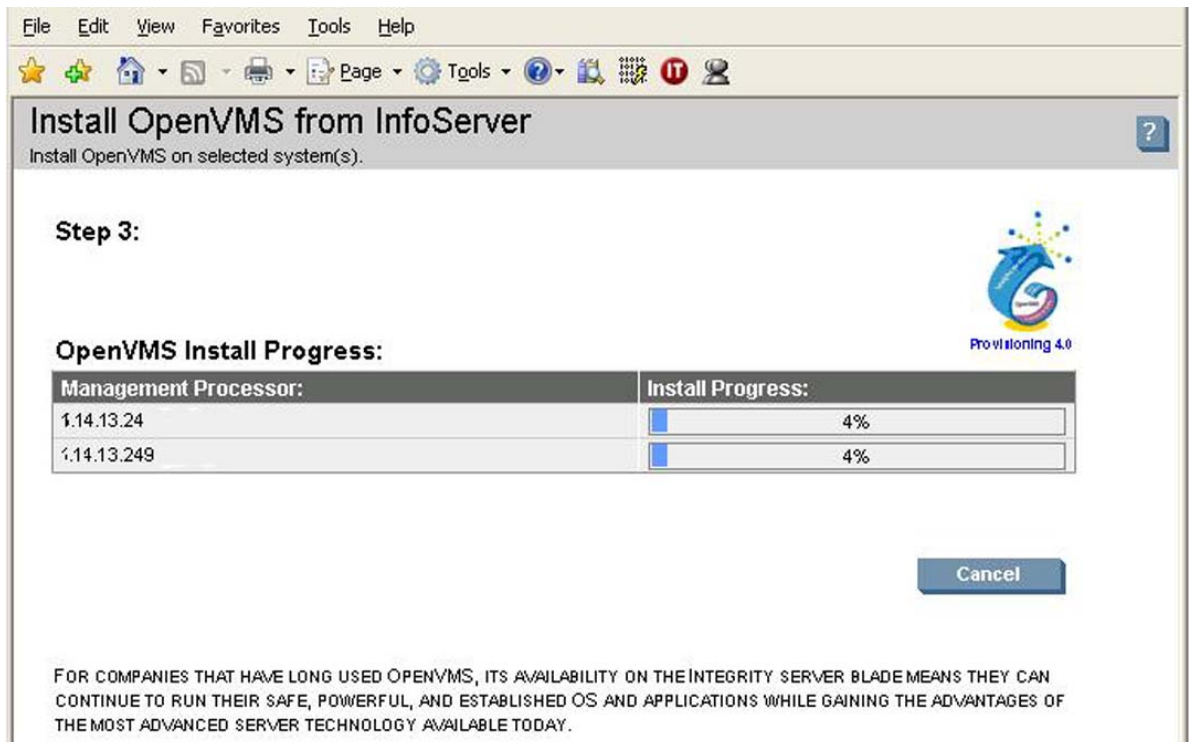
---

- **Time Zone Settings:** Time zone in which the target server resides. Depending on the time zone selected, you need to indicate whether daylight saving is currently being observed and the time differential factor with respect to the Coordinated Universal Time (UTC).

Verify the information provided for each target server and click **Next**.



8. In Step 5, HP SIM LAN-boots the target servers, and uses InfoServer to provision the selected version of OpenVMS on each target server. The installation progress is indicated for each target server, as shown in the example.



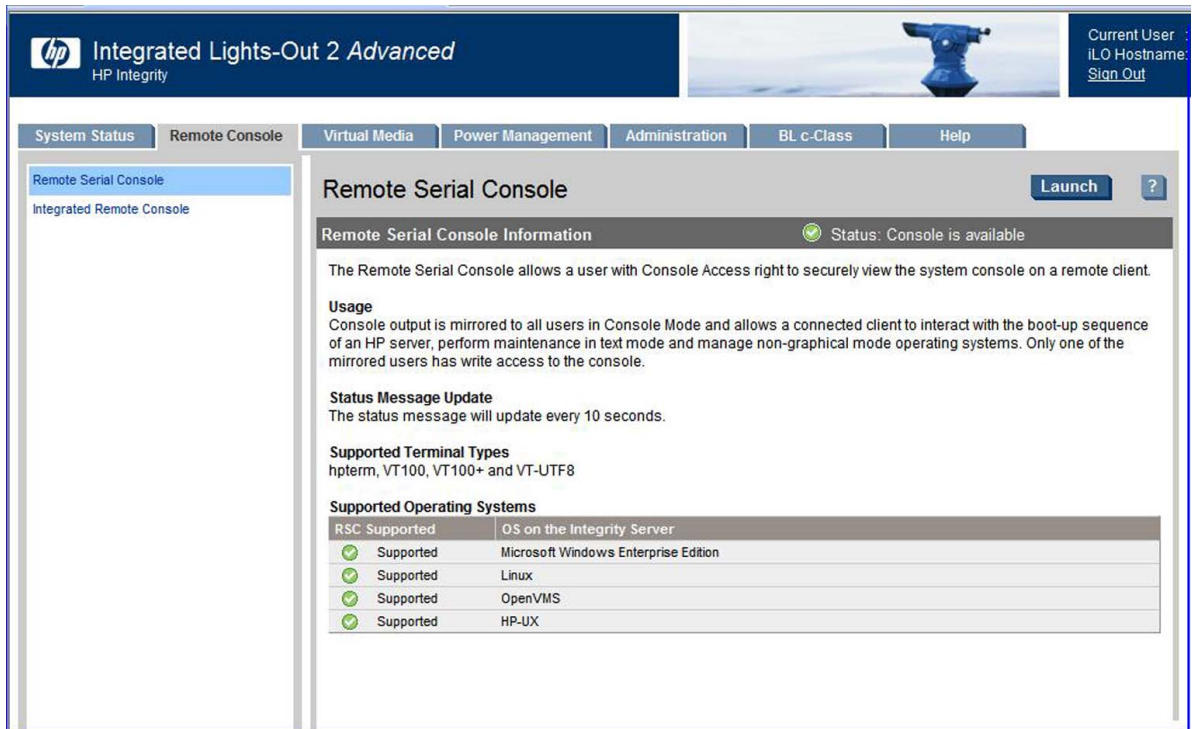
This image illustrates the progress of provisioning OpenVMS from InfoServer.

9. To view what is going on in the background for an Integrity server that is being provisioned, access the server iLO 2 MP website address from any browser, as shown in the image below. Click **Launch** to access the server serial console.

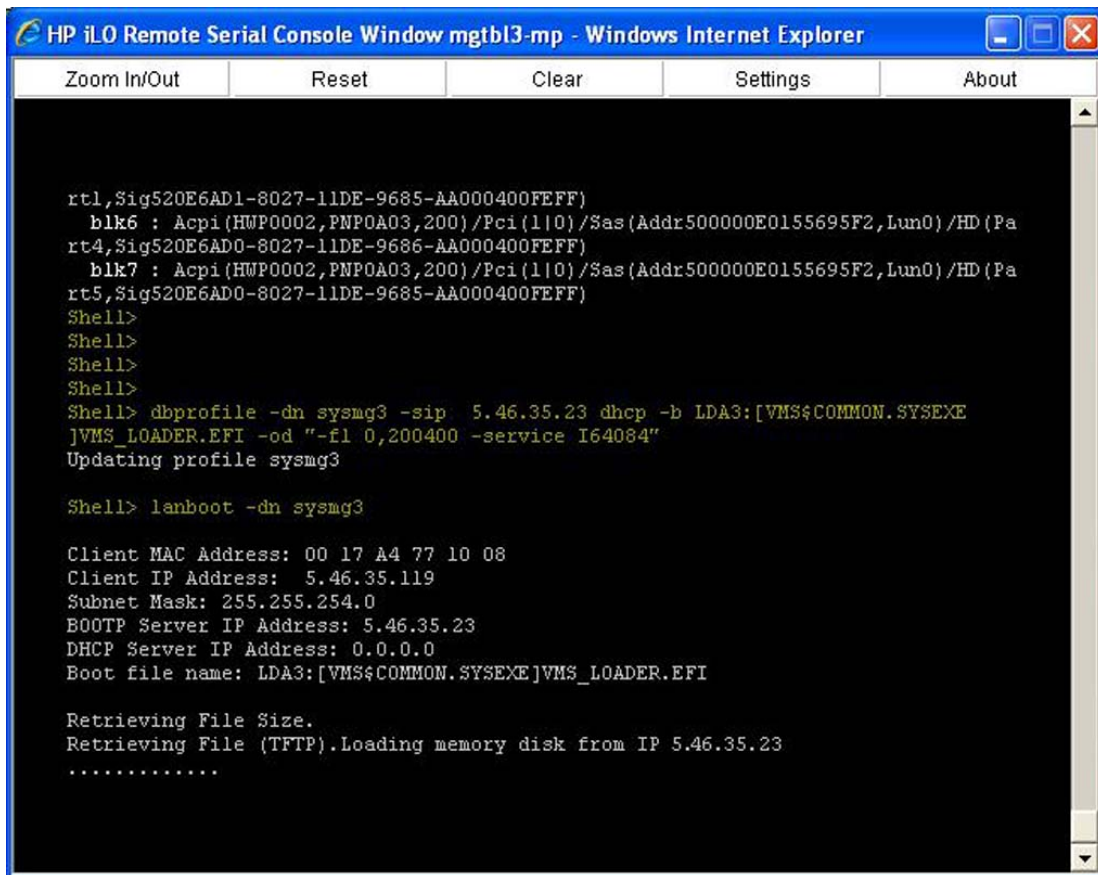


**IMPORTANT:**

- Do not interrupt the installation process.
- Do not allow Write access to the server console while the installation or upgrade process is in progress.



This example shows the provisioning feature providing the InfoServer information and retrieving the system loader `VMS_LOADER.EFI` and other files needed to install OpenVMS.



```
HP iLO Remote Serial Console Window mgtbl3-mp - Windows Internet Explorer
Zoom In/Out Reset Clear Settings About

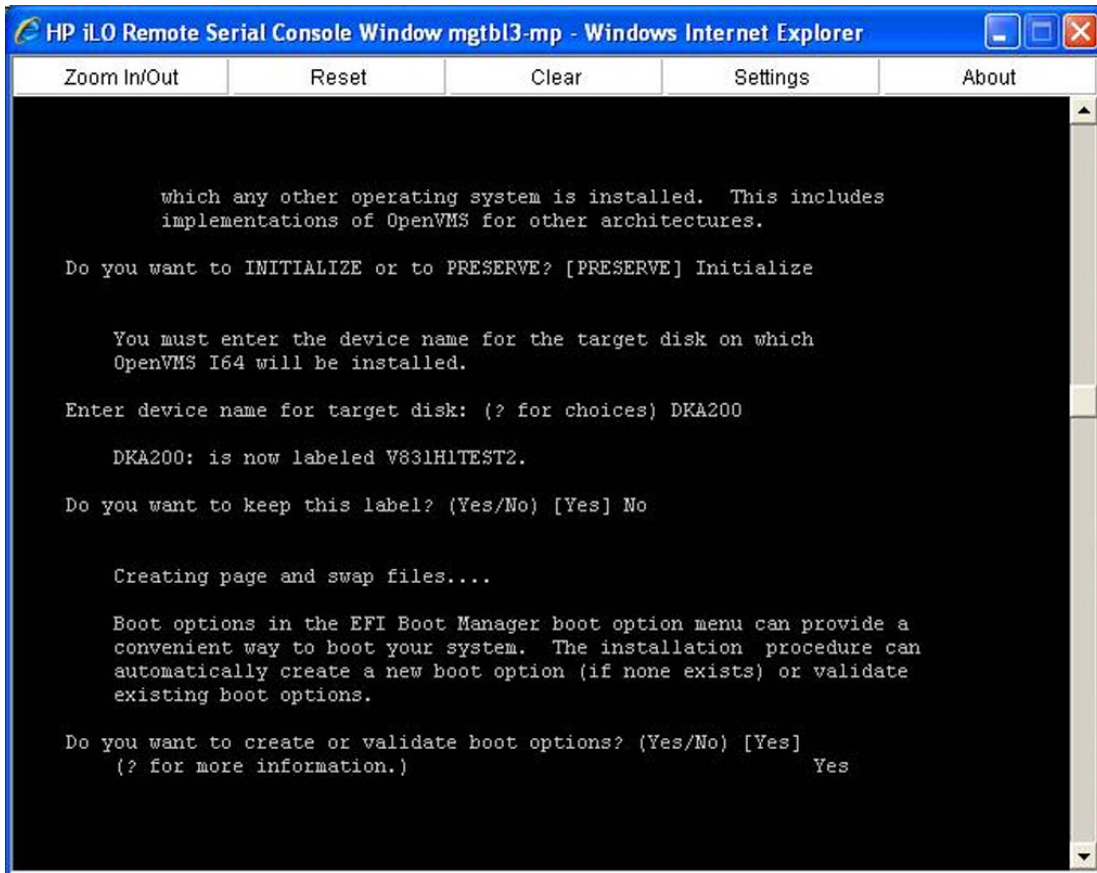
rtl,Sig520E6AD1-8027-11DE-9685-AA000400FEFF)
  blk6 : Acpi(HWP0002,PNP0A03,200)/Pci(110)/Sas(Addr500000E0155695F2,Lun0)/HD (Pa
rt4,Sig520E6AD0-8027-11DE-9686-AA000400FEFF)
  blk7 : Acpi(HWP0002,PNP0A03,200)/Pci(110)/Sas(Addr500000E0155695F2,Lun0)/HD (Pa
rt5,Sig520E6AD0-8027-11DE-9685-AA000400FEFF)
Shell>
Shell>
Shell>
Shell>
Shell> dbprofile -dn sysmg3 -sip 5.46.35.23 dhcp -b LDA3:[VMS$COMMON.SYSEXE
]VMS_LOADER.EFI -od "-fl 0,200400 -service I64084"
Updating profile sysmg3

Shell> lanboot -dn sysmg3

Client MAC Address: 00 17 A4 77 10 08
Client IP Address: 5.46.35.119
Subnet Mask: 255.255.254.0
BOOTP Server IP Address: 5.46.35.23
DHCP Server IP Address: 0.0.0.0
Boot file name: LDA3:[VMS$COMMON.SYSEXE]VMS_LOADER.EFI

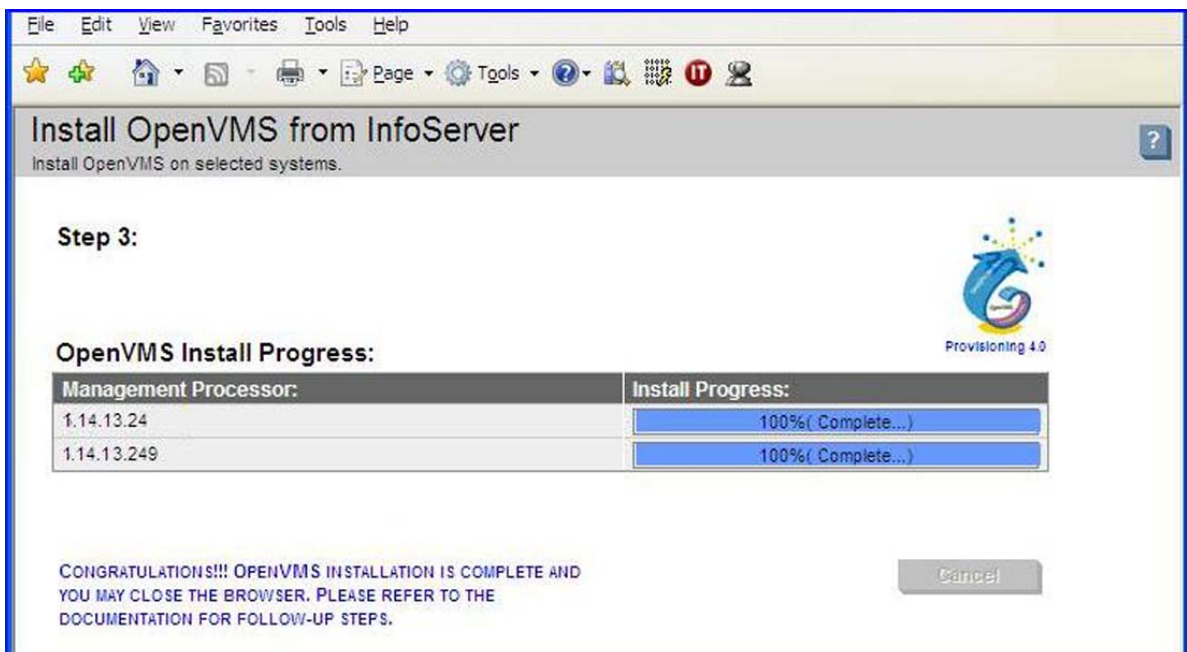
Retrieving File Size.
Retrieving File (TFTP).Loading memory disk from IP 5.46.35.23
.....
```

The provisioning install script runs in the background and provides responses to install OpenVMS on the target servers. The following example shows some of the automatic responses from the install script.



**IMPORTANT:** Do not interrupt the process. Do not allow Write access to your server console while the installation or upgrade process is in progress.

After approximately 60 minutes, depending on the network bandwidth and configuration, the installation completes.



If the procedure does not complete successfully, provisioning terminates. The reason for failure is displayed in the progress column and on the console screen, as well as in the log file <HP SIM

Installation Directory>\logs\OPENVMS\



**NOTE:** After completing the installation, you must register all licenses for use of the operating system and any installed layered products. For information about registering licenses, see “Registering Your Licenses” (page 128). For information on using HP SIM provisioning to register your licenses, see “Installing Licenses on OpenVMS Servers Through Provisioning” (page 272).

### D.1.6.2 Provisioning OpenVMS Through vMedia

To provision OpenVMS using HP SIM with the vMedia, follow these steps:

1. Complete the procedure described in “Setting Up vMedia” (page 250) to use vMedia to present the OpenVMS OE DVD or DVD image to the Integrity servers to be provisioned.
2. Ensure that each server to be provisioned is not booted into an operating system. The servers can be in a powered-OFF state, in a halted state, or booted into the EFI shell. If a server is powered-OFF, Provisioning will power ON the system before deploying OpenVMS.



**IMPORTANT:** Provisioning performs a system reset through the MP before deploying OpenVMS on a server. If the server is booted into an OS, ensure that the OS is gracefully shutdown before proceeding further with Provisioning to avoid losing any unsaved data.

3. Ensure that the AutoBoot Timeout value for each server to be provisioned is set to at least 5 seconds. This parameter can be configured through the EFI Boot Manager menu (**Boot Configuration -> AutoBoot Configuration -> Set AutoBoot Timeout**).
4. From the HP SIM home page, select **System and Event Collections**—> **All Management Processors**.
5. Select the MP of the Integrity server to be provisioned. Select **Deploy** —> **OpenVMS**, and choose one of the following options from the OpenVMS menu:
  - **Install OpenVMS from vMedia**
  - **Upgrade OpenVMS from vMedia**

The screenshot shows the HP Systems Insight Manager (SIM) interface. The 'Deploy' menu is open, and the 'OpenVMS' option is selected. A sub-menu is displayed with the following options: 'Apply OpenVMS License(PAK)...', 'Configure OpenVMS TCP-IP...', 'Install OpenVMS from InfoServer...', 'Install OpenVMS from vMedia...', 'Upgrade OpenVMS from InfoServer...', and 'Upgrade OpenVMS from vMedia...'. The 'Upgrade OpenVMS from vMedia...' option is highlighted. The background shows a table of management processors with columns for HS, MP, SW, ES, System Name, Address, Product Name, and OS Name.

HS	MP	SW	ES	System Name	Address	Product Name	OS Name
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.18.17.181	1.16.17.181	HP Single Partition Se...	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.14.13.100 in Server sysmg2 in Server sysmg2	1:14.13.100	Integrated Lights-Out ...	Embedded
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.14.13.101	1:14.13.101	HP Single Partition Se...	MGMTPROC_1_0
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.14.13.148	1:14.13.148	Management Processor	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.14.13.178	1:14.13.178	Management Processor	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.14.13.207	1:14.13.207	Management Processor	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.14.13.207	1:14.13.207	Integrated Lights-Out ...	Embedded
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.14.13.247 in Server USE7224LBX	1:14.13.247	Integrated Lights-Out ...	Embedded
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.14.13.248 in Server mgtbl1	1:14.13.248	Integrated Lights-Out ...	Embedded
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.14.13.249 in Server USE7204BTC	1:14.13.249	Integrated Lights-Out ...	Embedded

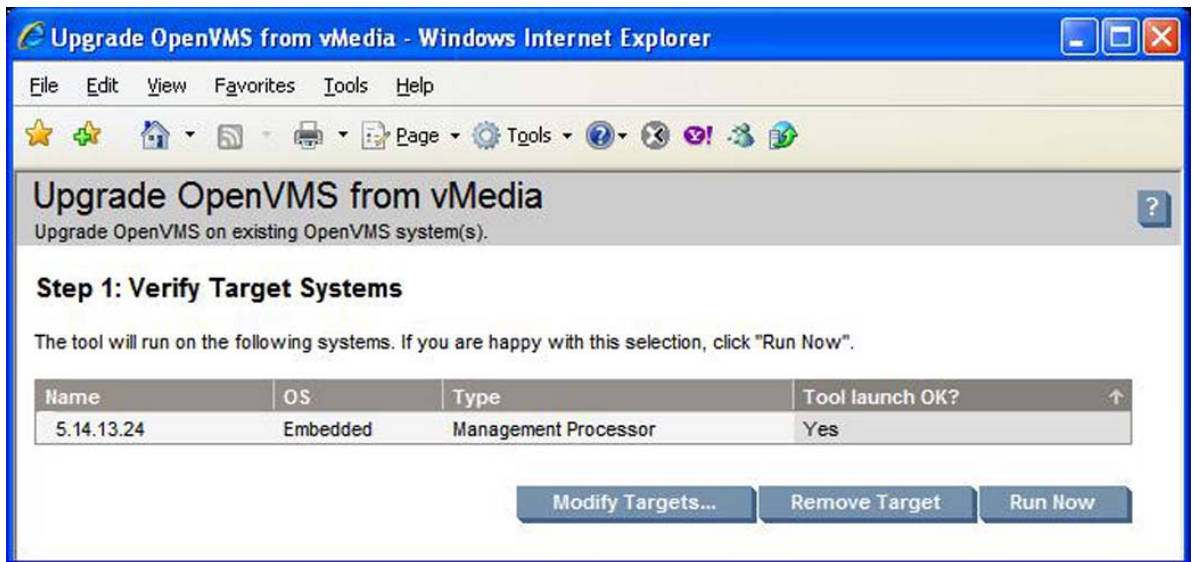
In this example, the option **Upgrade OpenVMS from vMedia** is selected.



**NOTE:** OpenVMS from vMedia can be provisioned on one server at a time.

6. HP SIM displays the Integrity server to be provisioned. Verify the target server that you have selected, and click **Run Now**.





7. Provide the following information for the Integrity server being provisioned:
  - **MP Login Credentials:** This information is used to login to the MP console of the target server to provision OpenVMS. The default for the user name and password is Admin.
  - **Timeout (in minutes):** This value determines the maximum duration of inactivity allowed on the system console during OpenVMS installation or upgrade, after which HP SIM provisioning reports that the system is not responding. The default value for vMedia provisioning is set to ten minutes. You can modify this default value, but HP does not recommend decreasing the value.
  - **OpenVMS Upgrade Options:**
    - **Upgrade Disk:** Device name of the system disk containing a previous version of OpenVMS that has to be upgraded. For example — DKA200.
    - **Create/Validate Boot Options:** Select this if you want OpenVMS to create a new boot option if none exists for the selected system disk, or to validate an existing boot option in the EFI Boot Manager boot options menu.



**NOTE:** If this option is enabled, and no boot option exists for the selected system disk, Provisioning sets the VMS boot flags for the new boot option as 0,0.

Upgrade OpenVMS from vMedia - Windows Internet Explorer

File Edit View Favorites Tools Help

Upgrade OpenVMS from vMedia  
Upgrade OpenVMS on existing OpenVMS system(s).

**Step 2:**

**HP OpenVMS Upgrade Using vMedia**

Management Processor:  
5.14.13.24

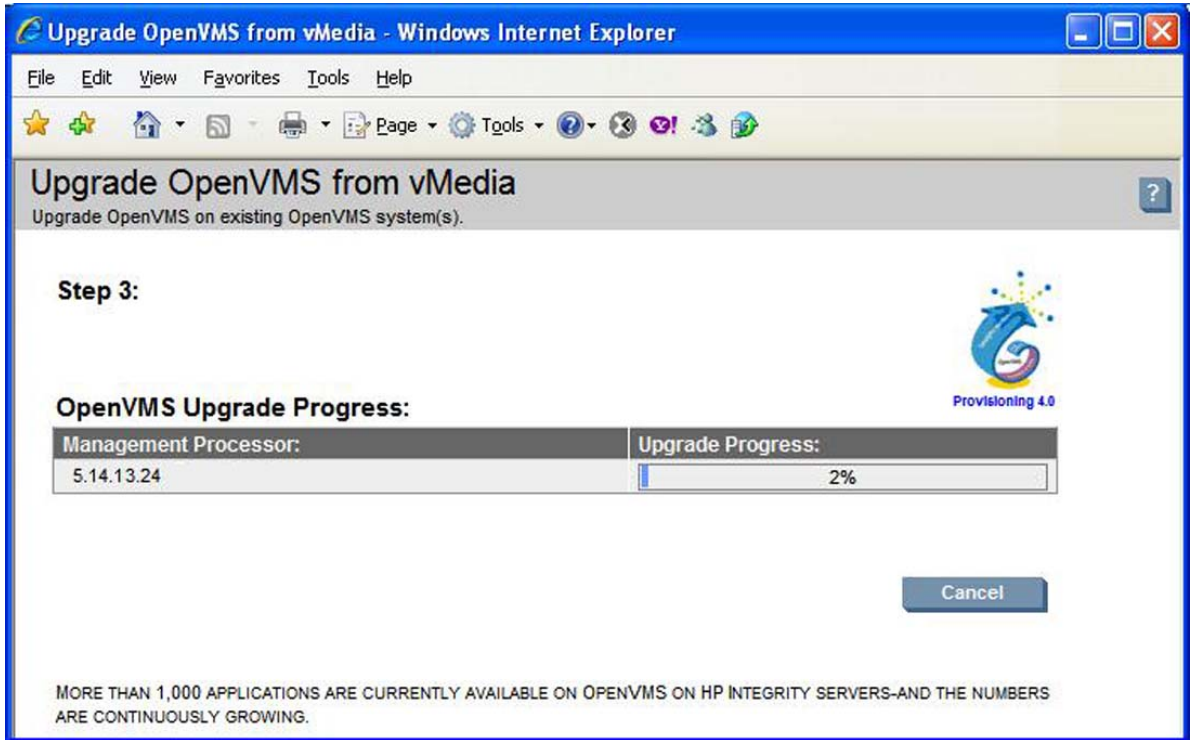
**MP Login:** Username: Admin Password: ..... Timeout(minutes): 15

**OpenVMS Upgrade Options:**

Upgrade Disk: DKA200  Create/Validate Boot Options

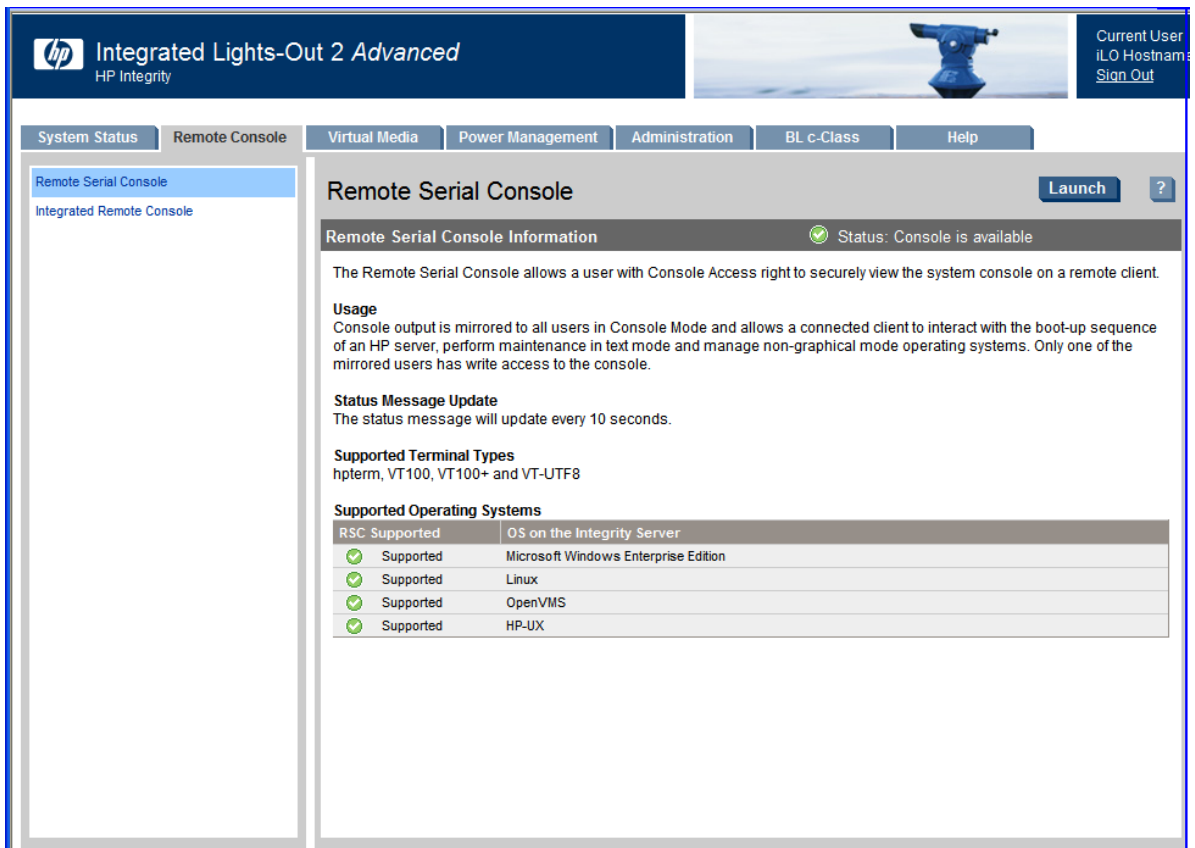
Cancel Next

8. Verify that the information for the target server is accurate, and click **Next**.  
HP-SIM boots OpenVMS from vMedia and provisions OpenVMS on the selected target server. The upgrade progress is indicated, as shown in the example below:



This image illustrates the progress of provisioning OpenVMS from vMedia.

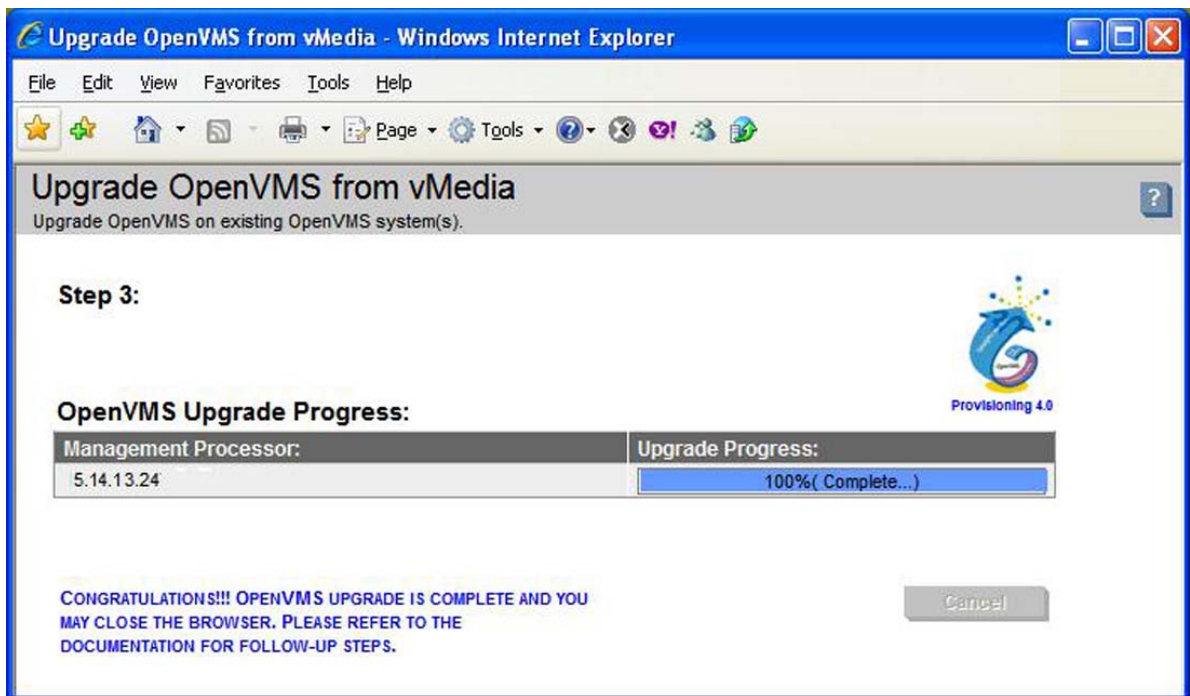
9. Meanwhile, to view what is going on in the background on the Integrity server that is being provisioned, access the server iLO 2 MP website address from any browser. Click **Launch** to access the server serial console.





**IMPORTANT:** Do not interrupt the provisioning process. Do not allow Write access to your server console while the installation or upgrade process is in progress.

10. After approximately 90 minutes, depending on the network bandwidth and configuration, the upgrade procedure is completed.



If the procedure does not complete successfully, provisioning terminates. The reason for failure is displayed in the progress column and on the console screen, as well as in the log file `<HP SIM Installation Directory>\logs\OPENVMS\<mp-ipaddress>_<date>.log` on the ProLiant Server that is running HP SIM.

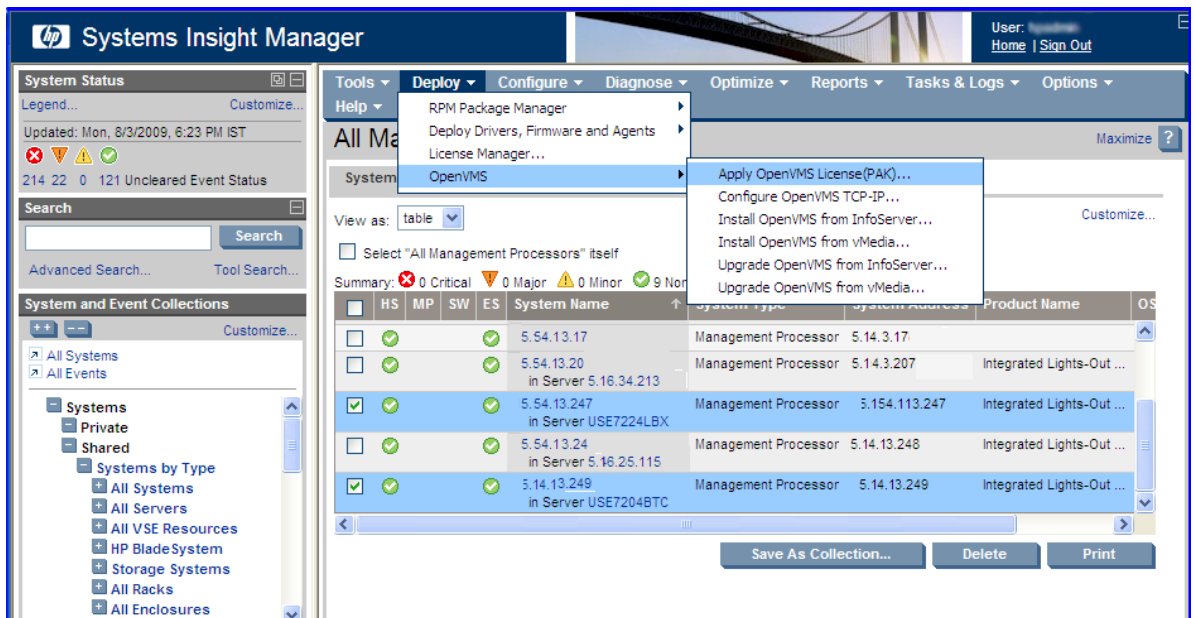


**NOTE:** After completing the installation, you must register all licenses for use of the operating system and any installed layered products. For information about registering licenses, see “Registering Your Licenses” (page 128). For information on using HP SIM provisioning to register your licenses, see “Installing Licenses on OpenVMS Servers Through Provisioning” (page 272).

### D.1.6.3 Installing Licenses on OpenVMS Servers Through Provisioning

You can use Provisioning to install licenses on Integrity servers that are running OpenVMS. You will need the OpenVMS license PAK command procedure for this purpose. Follow the steps below to install licenses:

1. From the HP SIM home page, select **System and Event Collections -> All Management Processors**.
2. Select the MPs of the Integrity servers on which you want to install the licenses. Select **Deploy -> OpenVMS -> Apply OpenVMS License (PAK)**.



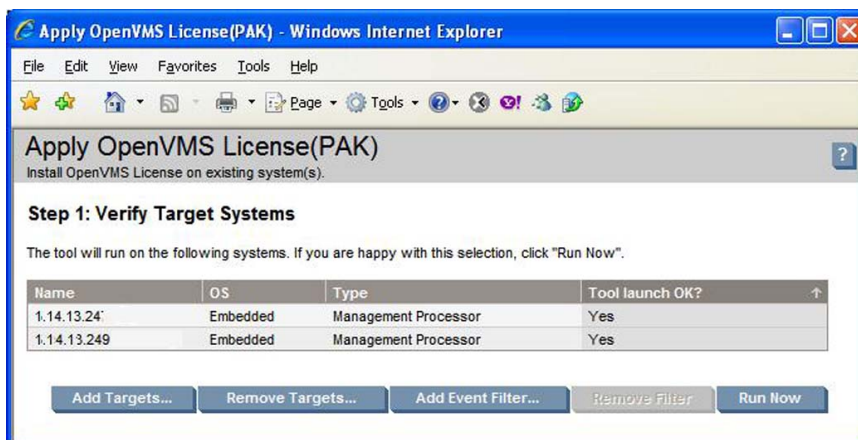
You can install licenses on up to eight Integrity servers at a time.



**NOTE:** To install the license, ensure that OpenVMS is up and running. Before proceeding, verify that the correct installation of OpenVMS is running on all the selected servers.

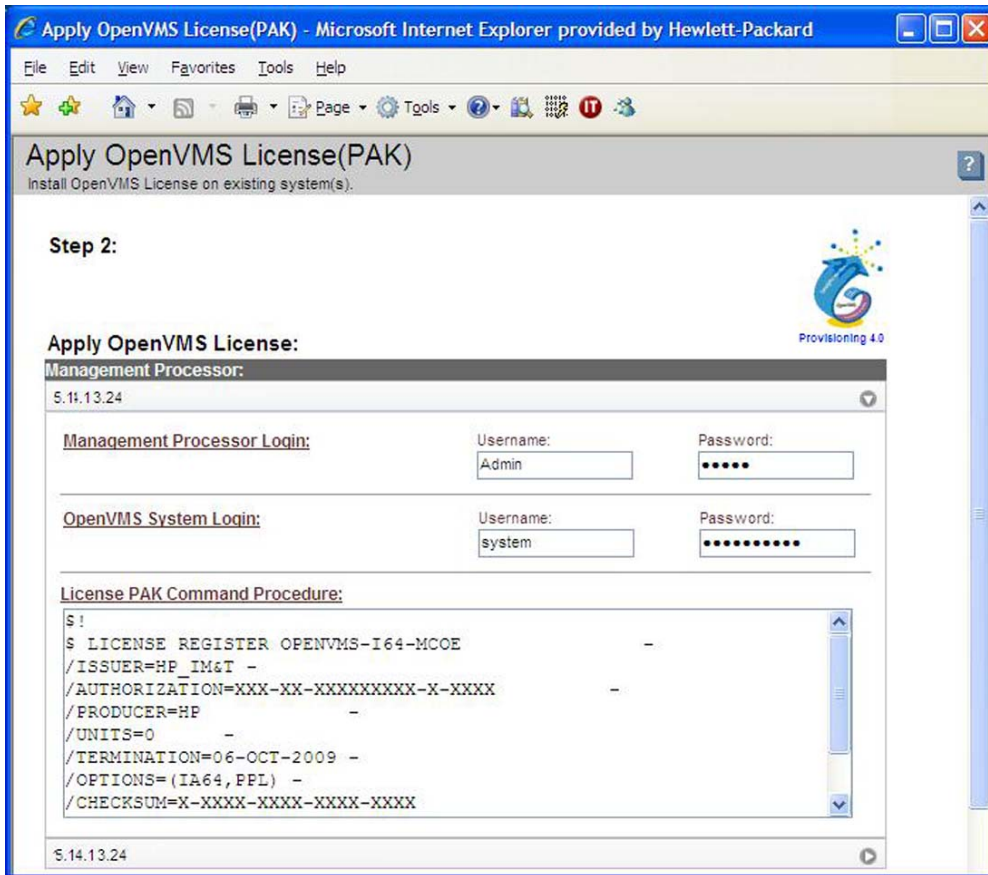
HP SIM displays the Integrity servers to be provisioned.

3. Verify the target servers that you have selected, and click **Run Now**.

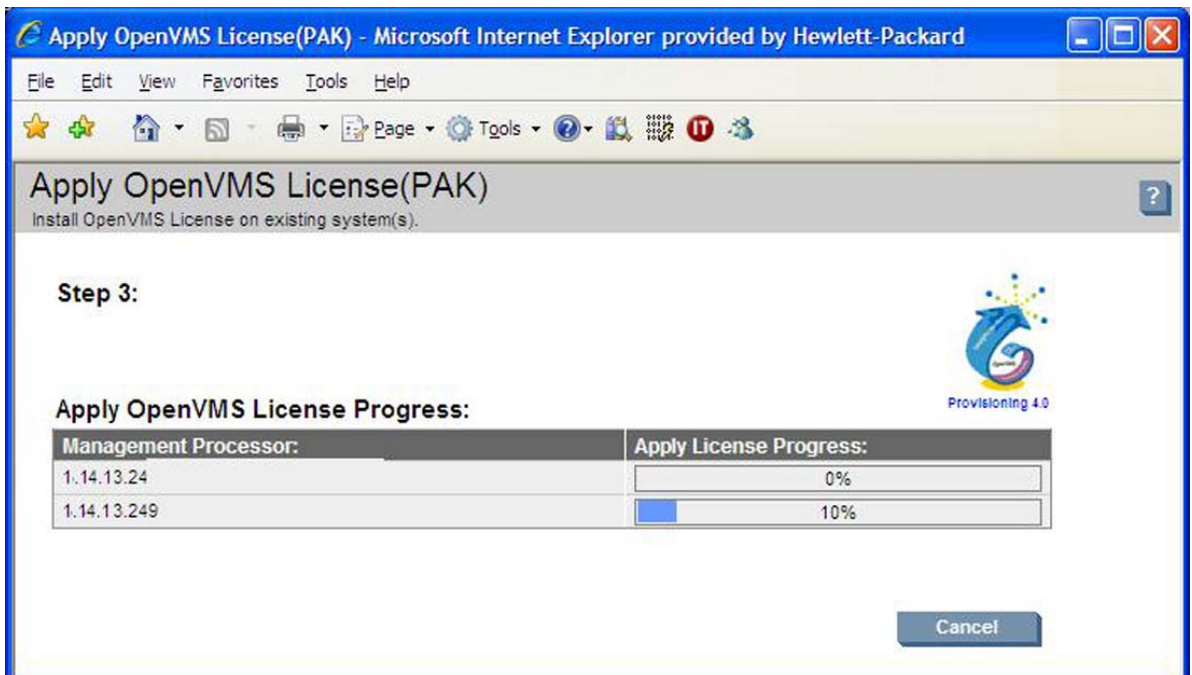


4. On the subsequent page, provide the following information for each Integrity server that must be provisioned:
  - **MP Login Credentials:** This information is used to login to the MP console of the target server to install licenses. The default for the user name and password is Admin.
  - **OpenVMS System Login Credentials:** This information is used to login to OpenVMS that is running on the target server to install licenses.
  - **License PAK Command Procedure:** Copy and paste the OpenVMS license PAK command procedure into this text box.

Following is an example of all these values. Verify the information provided for the target server and click **Apply PAK**.



5. HP-SIM logs in to the MP console and OpenVMS on each target server, and installs the provided licenses in the background. The license installation progress is indicated, as shown in the example.





---

**IMPORTANT:** Do not interrupt the license installation process. Do not allow Write access to your server console while the license installation is in progress.

---

The license installation process completes within a few minutes.

If the procedure does not complete successfully, provisioning terminates. The reason for failure is displayed in the progress column and on the console screen, as well as in the log file, <HP SIM Installation Directory>\logs\OPENVMS\  
<mp-ipaddress>\_<date>\_License.log on the ProLiant server that is running HP SIM.

#### D.1.6.4 Configuring OpenVMS TCP/IP Through Provisioning

HP SIM Provisioning can be used to configure OpenVMS TCP/IP on Integrity servers. Through provisioning, you can configure or re-configure the TCP/IP core environment, client components and server components. With provisioning, you can configure TCP/IP on up to eight Integrity servers simultaneously and on each server, one network interface can be configured.



**NOTE:**

- Provisioning supports configuring TCP/IP with IPv4 addresses only; IPv6 addresses are currently not supported.
- Provisioning does not support configuring an alias or secondary IP address.
- Provisioning does not support configuring the DHCP server component on a target server.
- Provisioning allows you to configure up to one network interface on each target server.
- Provisioning does not support configuring optional components in HP TCP/IP Services for OpenVMS.
- Provisioning does not support setting up logical LAN devices and LAN failover configurations.

---

The subsequent sections describe the prerequisites and procedures for configuring HP TCP/IP Services for OpenVMS with Provisioning.

##### D.1.6.4.1 Prerequisites for Configuring TCP/IP

Following are the prerequisites for configuring TCP/IP through HP SIM provisioning:

- The target server must have the correct installation of OpenVMS up and running.
- The HP TCP/IP Services for OpenVMS Version 5.6 or higher must be installed on the target server. HP SIM provisioning supports configuring HP TCP/IP Services for OpenVMS only. Configuration of non-HP TCP/IP implementations is not supported.
- The target server must have a valid license to use HP TCP/IP Services for OpenVMS.
- The target server must have at least one network interface in the link-up state. Configuration of a TCP/IP interface that is in a link-down state is not allowed. On each server, up to one network interface can be configured.
- To configure a target server as a DHCP client, the DHCP server (serving client IP addresses) must be setup and running on another system in the same network.

##### D.1.6.4.2 Configuring TCP/IP

Prior to configuring TCP/IP on the target Integrity servers, ensure that the prerequisites are met.



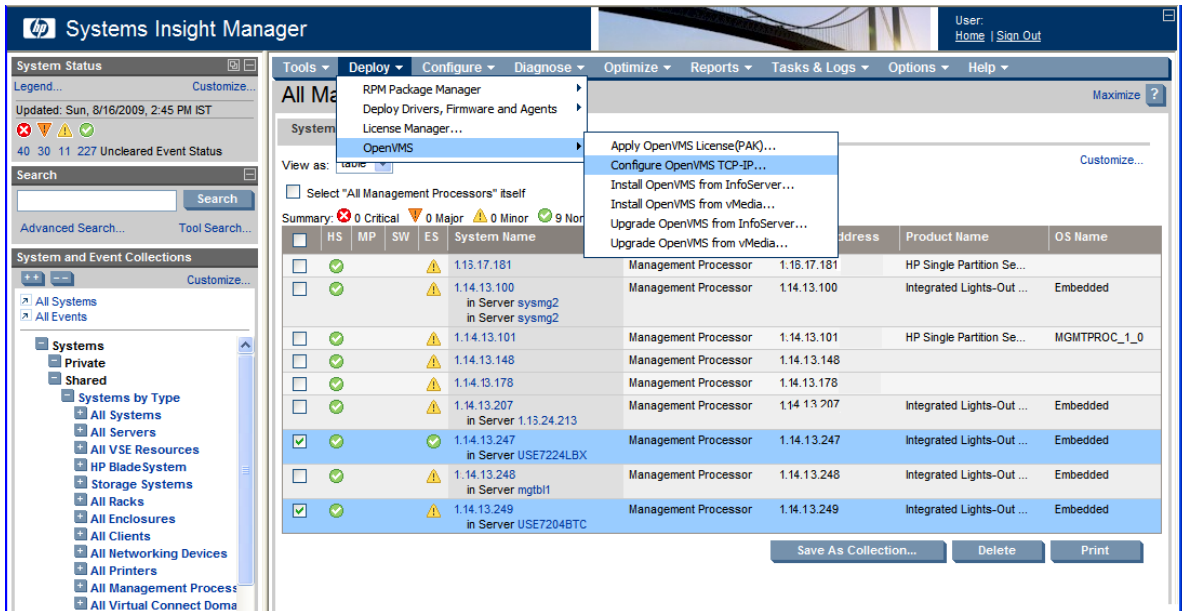
---

**IMPORTANT:** Using Provisioning to re-configure TCP/IP on a target server will delete any existing TCP/IP configuration on the server.

---

Complete the following procedure to configure TCP/IP:

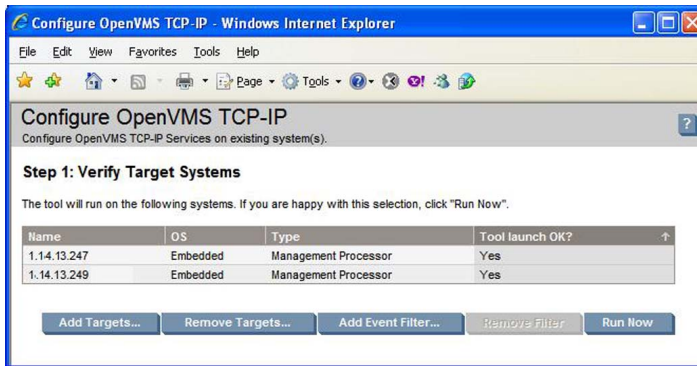
1. From the HP SIM home page, select **System and Event Collections -> All Management Processors**.
2. Select the MPs of the Integrity servers on which you need to configure TCP/IP.  
Select **Deploy ->OpenVMS -> Configure OpenVMS TCP-IP**.



HP SIM displays the Integrity servers to be provisioned.

You can configure TCP/IP on up to eight Integrity servers at a time.

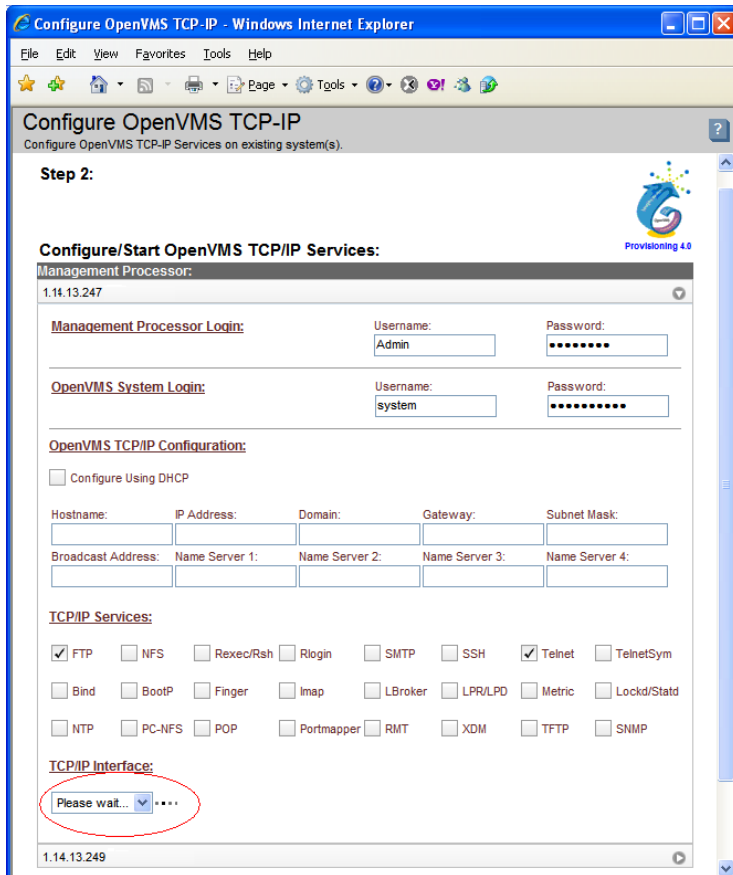
3. Verify the target servers that you have selected, and click **Run Now**.



4. On the subsequent page, provide the following information for each Integrity server being provisioned:
  - **MP Login Credentials:** This information is used to login to the MP console of the target server to configure TCP/IP. The default values for the user name and password is Admin.
  - **OpenVMS System Login Credentials:** This information is used to login to OpenVMS running on the target server to configure TCP/IP.

After you have provided the MP login and OpenVMS system login credentials for a server, and move the cursor focus away from the credentials, provisioning automatically accesses the server and fetches the TCP/IP network interfaces in the link-up state. During this process, a message as shown in the figure below is displayed.





**IMPORTANT:** Do not interrupt the provisioning process. Do not allow write access to your server console while this procedure is in progress.

You can continue to fill out rest of the details for OpenVMS TCP/IP Configuration and TCP/IP Services while provisioning fetches the network interfaces in the background. After completion, provisioning populates the TCP/IP Interfaces field in the GUI with the interfaces found in the link-up state. You can select the TCP/IP interface later, if required.



**NOTE:** If you accidentally specified incorrect credentials for MP login and OpenVMS system login, and provisioning has started accessing the target server, you can correct the credentials. Provisioning will use the corrected credentials to access the target server.

If the TCP/IP interface fetch procedure does not complete successfully, the reason for failure is displayed against the corresponding target server (next to the TCP/IP Interface combo box) and in the log file <HP SIM Installation Directory>\logs\OPENVMS\  
<mp-ipaddress>\_<date>\_GetInterface.log on the ProLiant server that is running HP SIM.

5. Specify the OpenVMS TCP/IP configuration and TCP/IP Services details for each target server.
  - **OpenVMS TCP/IP Configuration:** Specify the following TCP/IP configuration details for the selected interface:
    - Hostname — TCP/IP host name for the target server. When configuring the target server as a DHCP client, the host name (if specified) is suggested to the DHCP server when acquiring the DHCP address settings.
    - Configure using DHCP — Select this option if the address configuration for the interface will be managed by DHCP client. If not, the following information needs to be provided for a static IP address configuration:
      - Interface IP address
      - Subnet mask

- Gateway IP address
  - Domain suffix for the connection
  - Broadcast address: This address is automatically computed from the interface IP address.
  - At least one and up to four name server IP addresses.
- **TCP/IP Services:** Select the client and server components to be enabled on the target server. You must select at least one TCP/IP service for each target server. If the FTP, NFS, RLOGIN, SSH or TELNET services are selected to be enabled, provisioning enables its client and server components on the target server.



**NOTE:** If a target server is being configured as a DHCP client, the services BIND, BOOTP, TFTP and XDM cannot be configured on the target server. These services are disabled from the selection.

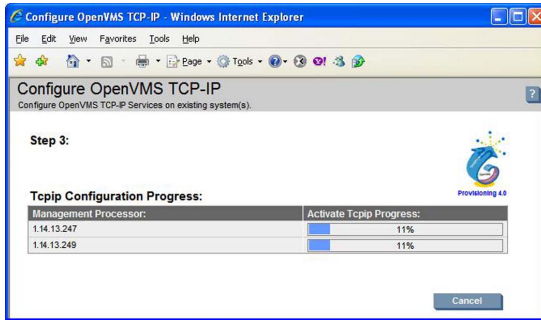
6. After provisioning has populated the TCP/IP Interface details for each target server, select the network interface to which the OpenVMS TCP/IP configuration that was specified in point 5 will be applied.

7. Verify the information provided for each target server and click **Start Tcpiip**.



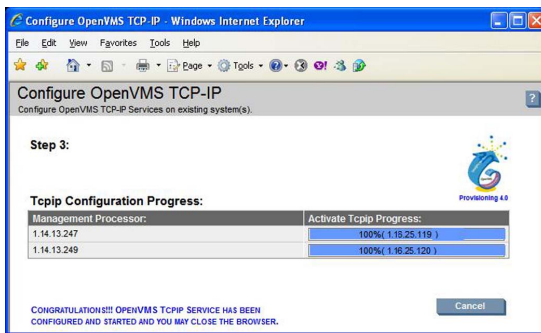
**NOTE:** The **Start Tcpiip** button remains disabled if the TCP/IP interface list cannot be successfully populated for one or more target servers. For example, this button remains disabled if incorrect MP or OpenVMS login credentials have been specified for a target server.

HP SIM logs in to each target server, and configures TCP/IP in the background.



**IMPORTANT:** Do not interrupt the configuration process. Do not allow write access to your server console while the TCP/IP configuration is in progress.

After configuring TCP/IP, provisioning starts the TCP/IP services on each target server. The TCP/IP configuration provisioning completes within a few minutes.



If the procedure does not complete successfully, provisioning terminates. The reason for failure is displayed in the progress column and on the console screen, as well as in the log file `<HPSIM-Installation-Directory>\logs\OPENVMS\  
<mp-ipaddress>_<date>_ConfigTcpi.log` on the ProLiant server that is running HP SIM.



**NOTE:** To start TCP/IP services automatically after a system is restarted, uncomment the following line in the COM procedure `SYS$COMMON: [SYSMGR] SYSTARTUP_VMS.COM`:

```
$!$ @SYS$STARTUP:TCPIP$STARTUP.COM
```

## D.2 Using vMedia Independently of HP SIM

If you do not have access to HP SIM, you can use vMedia independently, as described in this section. If you have several Integrity servers connected by a high-speed network, you can use vMedia from a central location to perform the installation or upgrades on the servers (one at a time). You can use vMedia on a wider variety of Integrity servers. For a list of the supported servers, see Section D.2.1 (page 280).

The vMedia functionality provides virtual devices that mimic physical hardware devices. For example, it can provide you with a virtual CD/DVD drive that connects over the network to your Integrity servers just as if being physically connected. For maximum performance, HP recommends using image files stored on a hard drive of your management station PC or Windows server or on a network drive accessible through a high-speed network link. You can use vMedia for initial system installation on a system without a built-in DVD or for remote installation on a system physically located elsewhere. Unlike HP SIM provisioning, which automatically installs OpenVMS and provides defaults for the various installation options, with vMedia installations independent of HP SIM, you perform installations interactively, determining the values of choice for each option or prompt.

vMedia also allows the installation of layered products, either remotely or on systems without a built-in DVD drive. The connected virtual device is not limited to installation or upgrade purposes. You can access the virtual device while OpenVMS is running. For example, you can use vMedia to install and enable layered products.



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**NOTE:** DVDs are accessible by vMedia as read only.

---

The vMedia device is the first in a series of virtual-disk capabilities included in the current generation of MP hardware. vMedia consists of two primary components:

- On the Integrity servers where OpenVMS is to be installed or upgraded: iLO 2 MP firmware that emulates a USB DVD and streams the vMedia data across a live network connection between the remote management console and the Integrity server.
- On the management workstation (the remote x86 PC or Windows server from where you will browse to connect to the Integrity servers iLO 2 MP): Java code that provides data to the iLO 2 MP firmware as requested.

## D.2.1 Prerequisites for Using vMedia to Install or Upgrade OpenVMS

The vMedia functionality is included with the iLO 2 MP. OpenVMS supports the use of vMedia with the HP Integrity rx2660, rx3600, rx6600, rx7620, rx7640, rx8620, and rx8640 servers and with the Integrity BL860c and BL870c Server Blade products. Using vMedia requires the following:

### On Integrity servers:

- On Integrity rx2660, rx3600, and rx6600 servers, vMedia licensing through the Advanced Server Management option (iLO 2 Advanced Pack) and the user virtual media access right. vMedia is part of the iLO Advanced Pack feature set. This license is provided and pre-enabled on the Integrity BL860c and BL870c Server Blade products and on the supported cell-based servers (rx7640, rx8640, and Superdomes with the sx2000 chipset).
- On the supported cell-based servers, HP Lights Out Advanced/KVM card (AD370A).

### On Windows-based PC or server from which you browse to the iLO 2 MP:

- Microsoft Internet Explorer Version 6 or later
- Java Plug-in 1.4.2\_10 or later.
- The vMedia Java applet has only been tested on x86 PCs and Windows servers.
- An ISO image of the OpenVMS Integrity servers OE DVD stored on a local disk or a network drive accessible through a high-speed link. To create the ISO image, you can use iLO 2 MP through your browser, as described in [Section D.1.4 \(page 250\)](#). HP recommends that you do not use vMedia to install or upgrade directly from a DVD on the management workstation.



---

**NOTE:** When using vMedia to install or upgrade OpenVMS, HP recommends using an image of the OpenVMS Integrity servers OE DVD located on your Windows-based PC or server. This has two advantages:

- If the DVD is defective or corrupted, the imaging software will fail when you attempt to create an image of it, thereby indicating the DVD's condition.
- Installing or upgrading OpenVMS from the image file is much faster than installing from a DVD. This advantage outweighs any extra cost or time of copying the DVD to the ISO image file.

**NOTE:** If your Integrity servers has a local DVD drive, install or upgrade from the OpenVMS for Integrity servers OE DVD inserted in the DVD drive on your Integrity servers instead of using vMedia from your Windows-based management workstation. In short, for best performance with installations or upgrades, choose from the following, listed according to the potential speed (from fastest to slowest):

- If your Integrity server has a local DVD drive, install or upgrade using the OpenVMS for Integrity servers OE DVD from that DVD drive instead of using vMedia from your Windows-based system.
  - Install or upgrade using an ISO image of the OpenVMS for Integrity servers OE DVD, where the image is stored on your Windows-based management workstation.
  - Slowest, and not recommended unless you have no other recourse, install or upgrade from a DVD drive on your Windows-based management workstation.
- 

## D.2.2 Using vMedia to Install or Upgrade OpenVMS

To use vMedia to install or upgrade OpenVMS on Integrity servers, perform these steps.



---

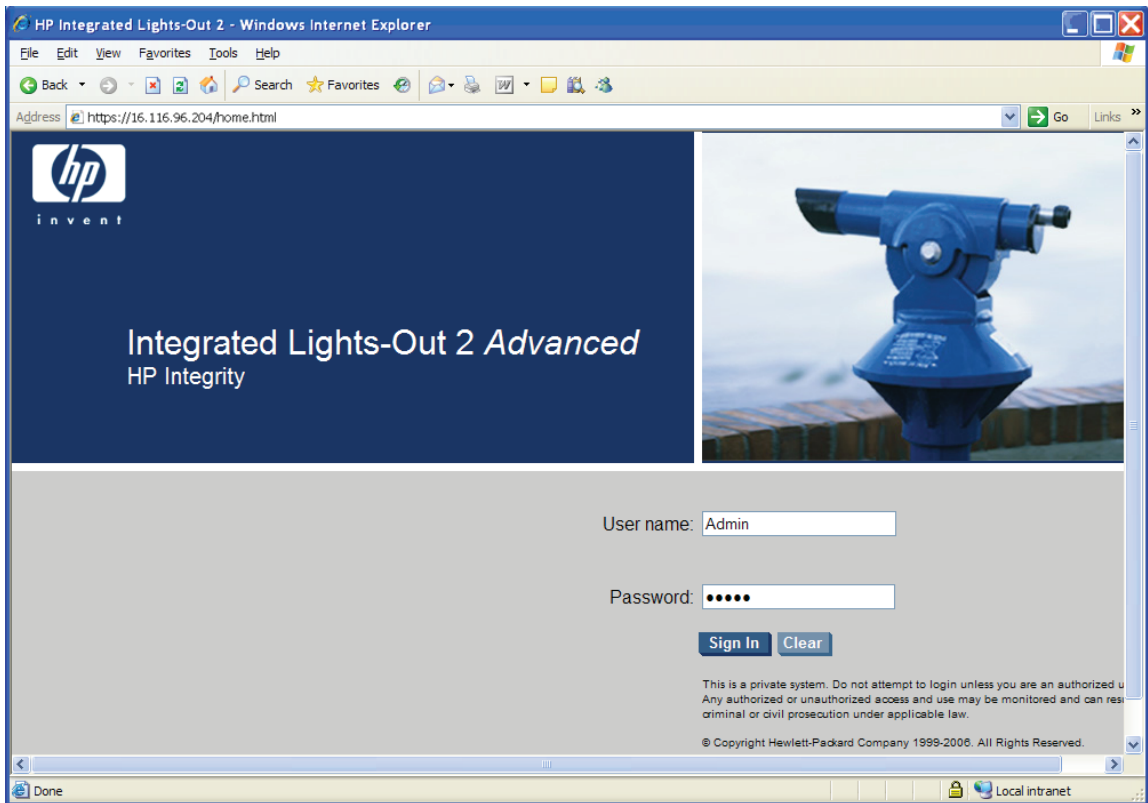
**NOTE:** Contents of screens shown in this section may vary according to the type of browser software being used.

---

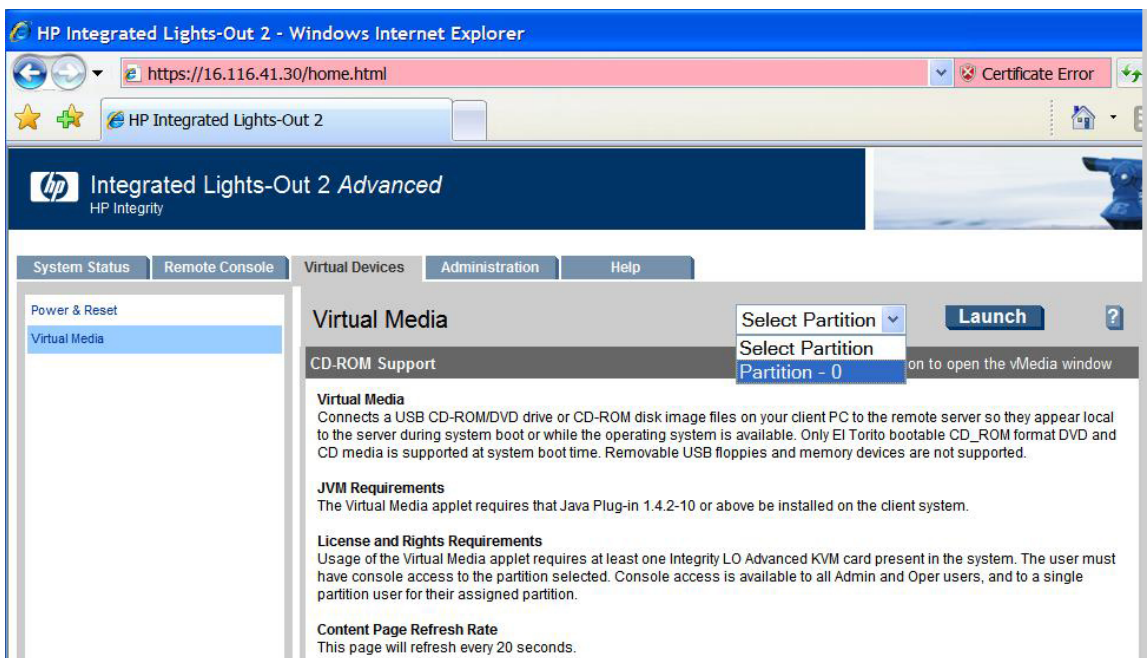
1. Insert the OpenVMS OE DVD into the DVD drive of your PC or Windows server.
2. Make sure your Integrity servers iLO 2 MP and vMedia are set up as documented in your Integrity servers hardware documentation (for example, see the *HP Integrity iLO 2 MP Operations Guide*). Enable the right to use the vMedia applet.

Make sure your Integrity server is powered on. Once you connect to your server's iLO 2 MP and log in, you can check the status and power on your Integrity server from your browser. Select the Virtual Devices tab and access the Power & Reset screen by selecting Power Management (on the left of the screen).

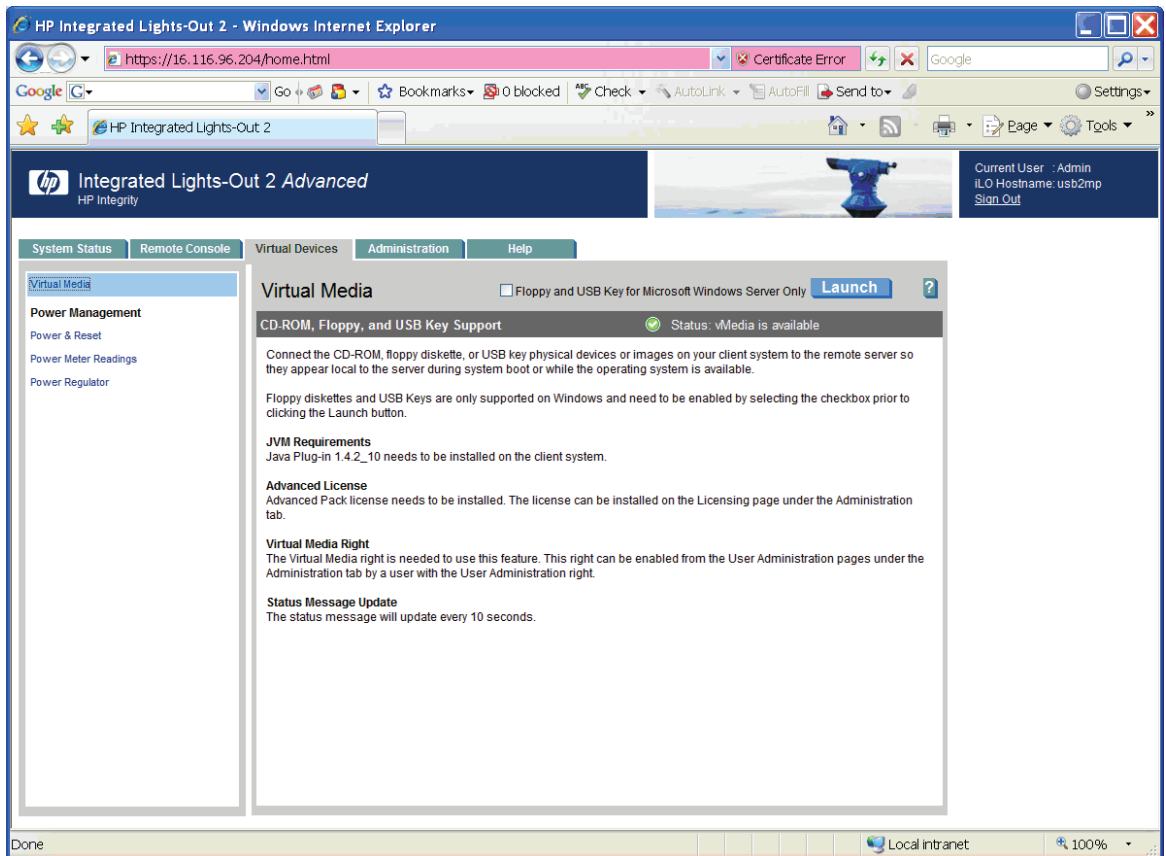
- From a browser on a Windows-based PC or server in the same network as your Integrity servers, access your Integrity server's iLO 2 MP by specifying the DNS name or IP address. Then log in as shown in the following example:



- Select the Virtual Devices tab, then select Virtual Media from the list on the left. If your Integrity server is not a cell-based system, skip to the next step. If your server is a cell-based system, select the partition before launching the vMedia application, as shown:

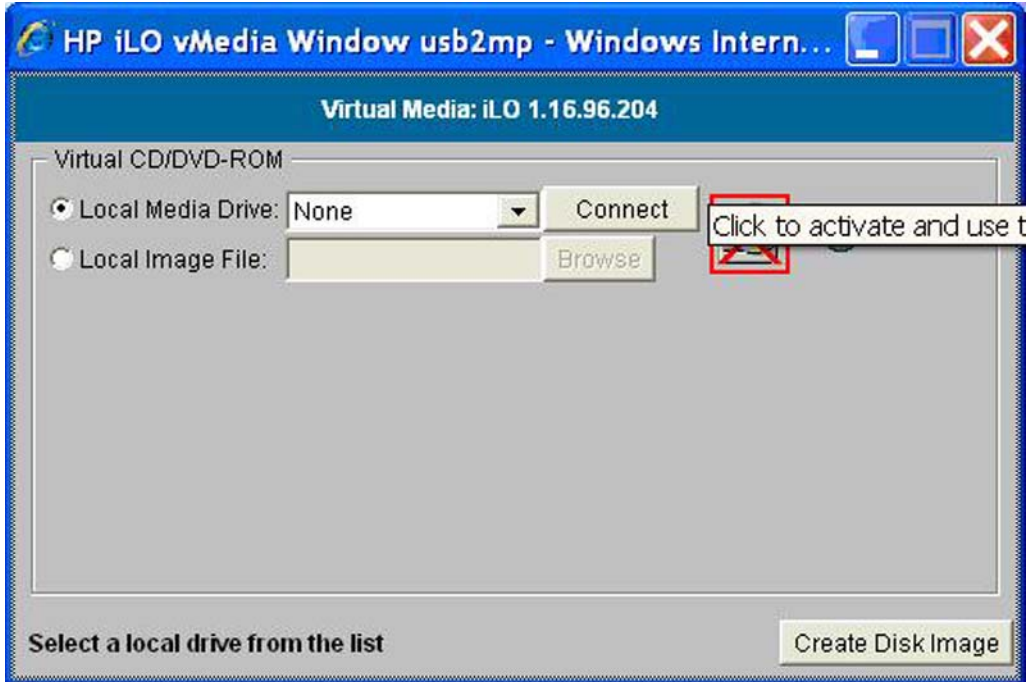


5. Now launch the vMedia application by clicking **Launch**, as shown in the following example:

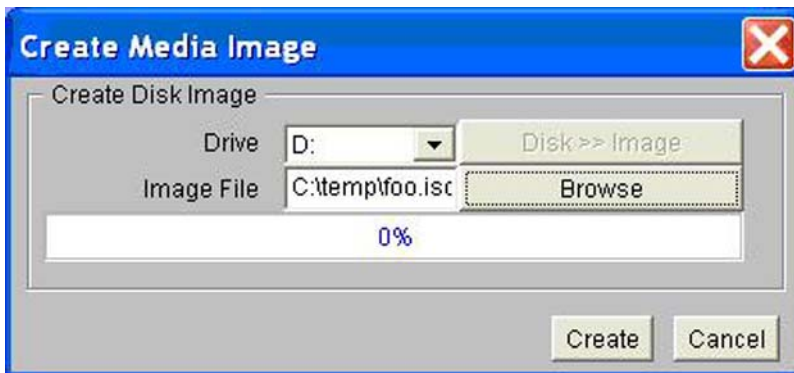


6. At this point, you might see popup security warnings, such as the one shown in Section D.1.4 (page 250). In this case, you can check the box to always trust content, and then click **Yes**. (To avoid certification warnings, install valid certificates for the iLO 2 MP hardware. For more information, see the *HP Integrity iLO 2 MP Operations Guide*. In addition, see the online help provided by your browser.)

- From the Virtual CD/DVD-ROM dialog box shown in the following example, make sure the Local Media Drive option is selected, and then click **Create Disk Image**:



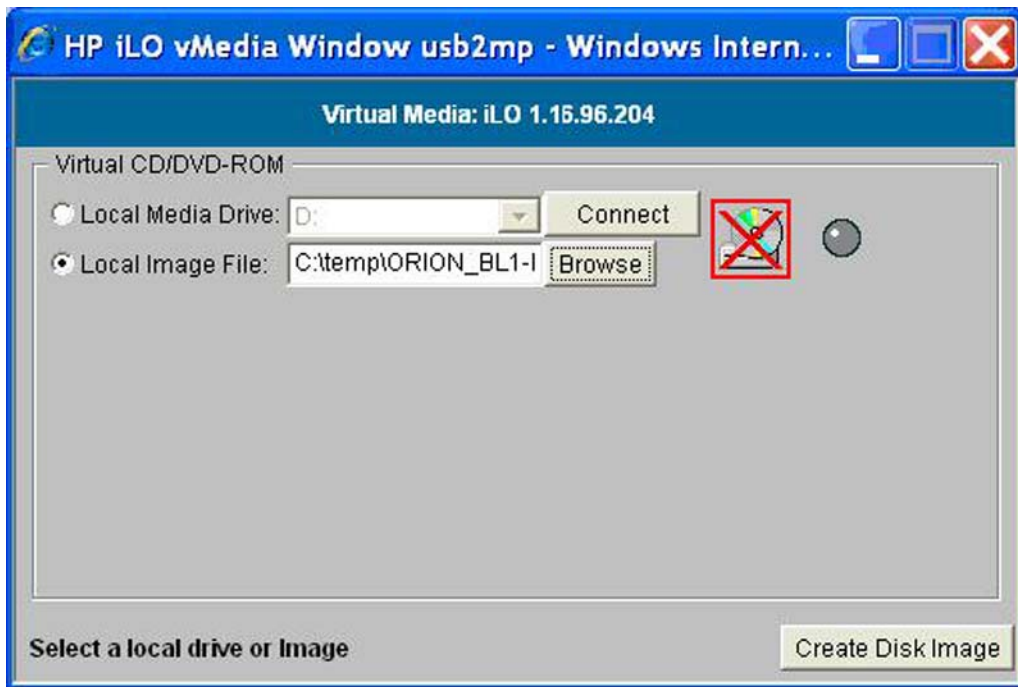
- The Create Disk Image dialog box appears, as in the following example. Specify a path or file name for the image to be created, and then click **Create**.



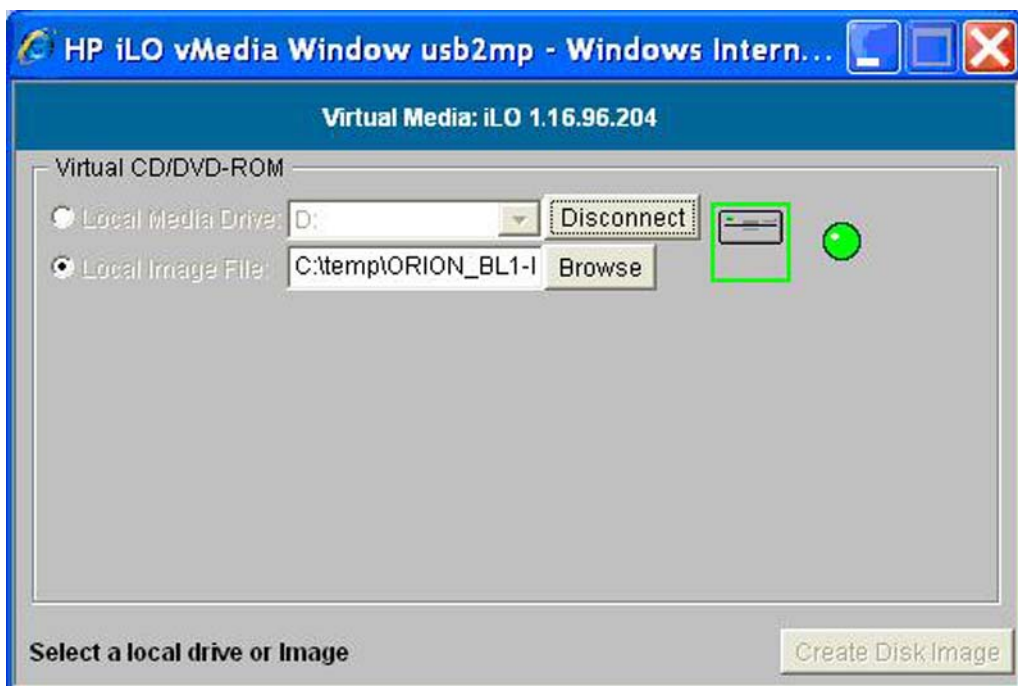
**NOTE:** As noted previously, HP recommends that you do not install or upgrade directly from a DVD (on your local Windows-based management workstation) with vMedia. Creating a disk image on the local drive (or a network drive) will make the installation or upgrade much faster. This assumes the local or network drive is accessible to your Integrity servers over a high-speed network link.



- The Virtual CD/DVD-ROM dialog box appears, as in the following example. Select the Local Image File option, and then browse for the created ISO image file that you want vMedia to access. Then click **Connect**.



The following screen indicates that the image is connected to vMedia. Now the targeted Integrity server is ready to be booted using the ISO image file.



- At this point, access the Integrity server's console from a browser or terminal emulator, log in to the MP, and enter the `co` command at the MP main menu:

MP MAIN MENU:

CO: Console  
VFP: Virtual Front Panel  
CM: Command Menu

SMCLP: Server Management Command Line Protocol  
CL: Console Log  
SL: Show Event Logs  
HE: Main Help Menu  
X: Exit Connection

[usb2mp] MP> **co**

11. At the EFI Shell prompt, enter the `reconnect -r` command to make sure all devices are discovered:

```
Shell> reconnect -r
```

12. When the EFI Shell prompt next appears, enter the `map -r` command to remap and rebuild the list of known devices that have a bootable EFI system partition:

```
Shell> map -r
```

The following example shows the boot mapping table displayed by the `map -r` command. The significant lines in the table are those that include both USB and CDROM information. Thus, in this example, `fs0` is the file-structured logical partition on the physical disk to be booted from; it includes the bootable partition, and `blk2` is the block device that has the bootable partition.

```
Device mapping table
fs0 : Acpi (HWP0002, PNP0A03, 0) / Pci (2 | 0) / Usb (0, 2) / CDROM (Entry0)
fs1 : Acpi (HWP0002, PNP0A03, 200) / Pci (1 | 0) / Sas (Addr500000E014887A22, Lun0) / HD (Part1, ... FF)
fs2 : Acpi (HWP0002, PNP0A03, 200) / Pci (1 | 0) / Sas (Addr500000E014887A22, Lun0) / HD (Part4, ... FF)
blk0 : Acpi (HWP0002, PNP0A03, 0) / Pci (2 | 1) / Usb (0, 0)
blk1 : Acpi (HWP0002, PNP0A03, 0) / Pci (2 | 0) / Usb (0, 2)
blk2 : Acpi (HWP0002, PNP0A03, 0) / Pci (2 | 0) / Usb (0, 2) / CDROM (Entry0)
blk3 : Acpi (HWP0002, PNP0A03, 200) / Pci (1 | 0) / Sas (Addr5000C50000A7B30D, Lun0)
blk4 : Acpi (HWP0002, PNP0A03, 200) / Pci (1 | 0) / Sas (Addr500000E014887A22, Lun0)
blk5 : Acpi (HWP0002, PNP0A03, 200) / Pci (1 | 0) / Sas (Addr500000E014887A22, Lun0) / HD (Part1, ... FF)
blk6 : Acpi (HWP0002, PNP0A03, 200) / Pci (1 | 0) / Sas (Addr500000E014887A22, Lun0) / HD (Part2, ... FF)
blk7 : Acpi (HWP0002, PNP0A03, 200) / Pci (1 | 0) / Sas (Addr500000E014887A22, Lun0) / HD (Part3, ... FF)
blk8 : Acpi (HWP0002, PNP0A03, 200) / Pci (1 | 0) / Sas (Addr500000E014887A22, Lun0) / HD (Part4, ... FF)
blk9 : Acpi (HWP0002, PNP0A03, 200) / Pci (1 | 0) / Sas (Addr500000E014887A22, Lun0) / HD (Part5, ... FF)
```

13. Now you can boot the OpenVMS Integrity servers image, either using the EFI boot menu or the following command at the EFI Shell prompt:

```
Shell> fs0:\efi\boot\bootia64.efi
```

As shown in the following example, the OpenVMS displays several messages followed by the operating system menu. You can now begin the installation or upgrade of OpenVMS on the Integrity servers.



---

**NOTE:** The %SYSTEM-I-MOUNTVER messages and the Universal Serial Bus Configuration Manager message are new to OpenVMS Version 8.4 and are seen only when using USB or vMedia devices for booting the Integrity rx2660, rx3600, and rx6600 servers.

---

```
.
.
.
.
Installing required known files...
%RUN-S-PROC_ID, identification of created process is 00000024
%SYSTEM-I-MOUNTVER, DNA0: is offline. Mount verification in progress.

%SYSTEM-I-MOUNTVER, DNA0: has completed mount verification.

Universal Serial Bus Configuration Manager, Version V2.1 Reset Unconfigured devices

Configuring devices...

%PKA0, Copyright (c) 2001 LSI Logic, PKM V1.1.01 Chip LSISAS1068
%PKA0, LSISAS1068 firmware version is 1.16.0.0
%EWA0, Auto-negotiation mode assumed set by console
%EWA0, Mer15704 located in 64-bit, 66-mhz PCI-X slot
%EWA0, Device type is BCM5704C (UTP) Rev B0 (21000000)
%EWB0, Auto-negotiation mode assumed set by console
%EWB0, Mer15704 located in 64-bit, 66-mhz PCI-X slot
%EWB0, Device type is BCM5704C (UTP) Rev B0 (21000000)
%EWA0, Link up: 100 mbit, full duplex, flow control (txrx)
%EWB0, Link up: 100 mbit, full duplex, flow control (txrx)

*****

You can install or upgrade the OpenVMS I64 operating system
or you can install or upgrade layered products that are included
on the OpenVMS I64 distribution media (CD/DVD).

You can also execute DCL commands and procedures to perform
"standalone" tasks, such as backing up the system disk.

Please choose one of the following:

    1) Upgrade, install or reconfigure OpenVMS I64 Version X8.4
    2) Display layered products that this procedure can install
    3) Install or upgrade layered products
    4) Show installed products
    5) Reconfigure installed products
    6) Remove installed products
    7) Find, Install or Undo patches; Show or Delete Recovery Data
    8) Execute DCL commands and procedures
    9) Shut down this system

Enter CHOICE or ? for help: (1/2/3/4/5/6/7/8/9/?)
```

Perform the installation or upgrade. Follow the installation instructions in “Installing OpenVMS Using Option 1 of the Operating System Menu” (page 55), or the upgrade instructions in “Performing the Upgrade” (page 107).



---

**NOTE:** After an installation finishes, you must register all licenses for use of the operating system and any installed layered products. For information about registering licenses, see Section 7.3 (page 128).

After the installation or upgrade finishes, you can change responses that you made to the installation or upgrade script and perform any other postinstallation or postupgrade tasks. HP recommends that you specify a new SYSTEM password rather than using the default.

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