Installing Dell™ OpenManage™ 5.0 Software in a VMware® ESX® Server Software 3.0 Environment

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Notes, Notices, and Cautions

NOTE: A NOTE indicates important information that helps you make better use of your computer.

NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

Contents

1. Overview

This document provides installation steps, usage and support information for the Dell™ OpenManage™ systems management suite on VMware® ESX Server software.

2. Supported OpenManage Software Versions

Supported VMware ESX Server software and the corresponding supported OpenManage software versions are listed in the following table:

Supported VMware ESX Server software versions	Supported OpenManage Versions
3.0	5.0
2.5.2	4.5
2.5.1	4.3, 4.4, 4.5
2.5	4.3, 4.2, 4.1.3
2.1.2	4.1
2.1	3.8
2.0.1	3.6

This document provides installation steps for OpenManage 5.0 on ESX 3.0. For other older versions, refer to the Archives in the *Resource Center* at www.dell.com/vmware.

For more information on supported servers and storage, consult the document "VMware Software Compatibility Matrix for Dell servers and Dell/EMC storage" in the Resource Center at www.dell.com/vmware.

3. OpenManage Components and Support Information

Dell™ OpenManage™ is a suite of system management applications for managing Dell PowerEdge servers. This section lists the features available in OpenManage 5.0 and details what is supported and what is not supported when running Dell OpenManage 5.0 on VMware ESX 3.0 Server software.

For more information on each of these features, refer to the Dell OpenManage website at www.dell.com/openmanage.

3.1 Server Administrator

Server Administrator provides single server management with a secure command-line or web-based graphical management user interface. There are several sub-components in Server Administrator:

- **Instrumentation Services:** Provides hardware instrumentation and configuration information. Instrumentation services are supported in VMware ESX Server.
- **Storage Services:** Provides monitoring and instrumentation of the local storage system. OpenManage Storage services are supported in VMware ESX Server.
- **Remote Access Service:** The Remote Access Service provides a complete, remote system management solution for systems equipped with a DRAC solution. Remote Access service is supported in VMware ESX Server.
- **Online Diagnostics:** The Diagnostic Service provides a suite of diagnostic programs that run locally on a system or remotely on a system connected to the network. Online diagnostics are not supported in VMware ESX Server. Diagnostics can be performed offline by downloading utilities from http://support.dell.com.

3.2 Dell Remote Access Controller

Dell Remote Access Controller (DRAC) is designed to allow anywhere, anytime "Lights Out" monitoring, troubleshooting, and server repairs/upgrades independent of OS status.

Remote Access Controller is supported in VMware ESX Server.

3.3 IT Assistant

Dell IT Assistant (ITA) provides an integrated view of Dell's comprehensive suite of server monitoring and reporting tools. It includes one-to-many management for Dell Servers.

Hardware monitoring of Dell servers is supported in VMware ESX Server software. Dell IT Assistant does not monitor or perform operations on the Virtual Machines running on the servers. IT Assistant does not support SNMP traps from VMware Virtual Center.

3.4 IPMI Baseboard Management Controller

IPMI Baseboard Management Controller (BMC) provides a standard interface for monitoring and managing Dell Servers.

IPMI Baseboard Management Controller is supported in VMware ESX Server.

3.5 Server Update Utility

Server Update Utility helps simplify single server updates with the latest system software features - including inventories, reports, and recommendations - and checks for prerequisite conditions.

Server Update Utility is not supported in VMware ESX Server. Use the DOS utilities provided by Dell to perform BIOS and firmware upgrades.

3.6 Server Assistant

Dell Server Assistant includes all necessary tools and the latest drivers to help speed setup, configuration and optimization of Dell PowerEdge™ systems and software.

Server Assistant is not supported in VMware ESX Server.

3.7 Deployment Toolkit

Deployment Toolkit helps provide quick and easy configuration of multiple servers from bare metal all the way through OS deployment. It provides a framework for updating the BIOS

Deployment Toolkit works independent of the server operating system and hence is independent of VMware ESX Server.

3.8 PowerEdge Service and Diagnostics Utilities

PowerEdge Service and Diagnostics Utilities provide operating system-level diagnostics and software components to detect and resolve hardware issues.

Service and diagnostics are not supported in VMware ESX Server. Perform offline diagnostics by downloading utilities from http://support.dell.com.

Refer to section 10 for known issues on the supported OpenManage components.

4. Getting Dell OpenManage Software

Acquire Dell OpenManage software from one of the following sources:

4.1 OpenManage software kits

Dell servers ship with Dell OpenManage systems management software kits. The software kit contains all the software components described in section 3. The software kit includes OpenManage Server Administrator. Refer to section 5 for instructions on installing OpenManage on VMware ESX Server software.

4.2 OpenManage package from support.dell.com

OpenManage systems management software kits can be downloaded from http://support.dell.com. Use the following steps to download OpenManage:

1. Go to http://support.dell.com
2. Select the appropriate server model (example: PowerEdge 2850) or enter the Service Tag of the server
3. Select "Drivers and Downloads"
4. Click on "Go"
5. Select "Red Hat Enterprise Linux 3"
6. Click on "Find Downloads"
7. Select "Systems Management"
8. Click on "Dell OpenManage Server Administrator Managed Node" to download a *tar* package for Server Administrator. Select "Dell CD ISO - Installation and Server Management" to download an ISO image of the entire CD-ROM.

4.3 Subscribing to OpenManage updates

To stay updated with the latest OpenManage software releases, enroll in the OpenManage Subscription Service. Visit www.dell.com/openmanage for more information.

5. Installing OpenManage Server Administrator

1. Log on with administrator privileges (root) to the Service Console.

2. Make sure there is at least 512MB of free disk space in the */root* partition of ESX Server service console. This can be verified by running the `df -lh` command in the service console.

3. Use the following steps to install OpenManage Server Administrator:

   a. If you are using OpenManage CD, mount the CD and change the working directory with the following command:

      ```
      mount /dev/cdrom /mnt/cdrom
      cd /mnt/cdrom/srvadmin/linux/supportscripts
      ```

   b. If you are using tar file from support.dell.com, download the file to a temporary directory and extract the files:

      ```
      tar -zxvf OMI-SrvAdmin-Dell-Web-LX-50_A00.tar.gz
      ```

where `OMI-SrvAdmin-Dell-Web-LX-50_A00.tar.gz` is the file downloaded from http://support.dell.com.

4. Install OpenIPMI (version 35.13) by executing the following commands:

```
./srvadmin-openipmi.sh install-force
dkms install --force -m openipmi -v 35.13.RHEL3
```

This command will install OpenIPMI using DKMS. Failure to use this command will cause the OpenManage to use the default IPMI present in the service console and may result in slow response from OpenManage and increased boot up time.

5. Install OpenManage by executing one of the following command:

   a. If you are installing OpenManage on a Dell PowerEdge 1855 system, or on a system that does not have a Remote Access Card (RAC), use the following command:

   ```
   ./srvadmin-install.sh –b –w -s
   ```

   b. For all other configurations, use the following command:

   ```
   ./srvadmin-install.sh –b –w –r -s
   ```

The options used in the OpenManage installation script expand as:

> `b`: Base install of OpenManage Server Administrator
> `w`: Web interface for OpenManage Server Administrator
> `r`: Dell Remote Access Controller (DRAC) services
> `s`: OpenManage Storage Services (OMSS)

⬤ **NOTICE:** Failure to use the correct command options may result in errors during the OpenManage startup sequence.

6. If you have installed the IT Assistant management application on your network, configure the SNMP daemon to send SNMP trap messages to the management console. Edit /etc/snmp/snmpd.conf and add the following line to the end of the file:

```
trapsink <ITA_IP_Address> <community name>
```

7. If you are using OpenManage CD, unmount and eject the CD with the following command:

```
eject
```

8. To access the ESX server using a OpenManage Web Administrative console, open the ports used by OpenManage using the following commands:

```
esxcfg-firewall -o 1311,tcp,in,OpenManageRequest
```

9. To access the ESX server from IT Assistant and to allow SNMP traps from the server to reach IT Assistant, open the ports used by the SNMP daemon using the following commands:

```
esxcfg-firewall -e snmpd
```

6. Updating from a previous version of OpenManage

If both VMware ESX Server software and OpenManage need to be updated, Dell recommends updating VMware ESX Server before updating OpenManage.

Use the following steps when upgrading OpenManage from version 4.x to 5.x:

1. Log on with administrator privileges (root) to the Service Console.

2. Use the following steps to install OpenManage Server Administrator:

   a. If you are using OpenManage CD, mount the CD and change the working directory with the following command:

   ```
   mount /dev/cdrom /mnt/cdrom
   cd /mnt/cdrom/srvadmin/linux/supportscripts
   ```

   b. If you are using tar file from support.dell.com, download the file to a temporary directory and extract the files:

   ```
   tar -zxvf OMI-SrvAdmin-Dell-Web-LX-50_A00.tar.gz
   ```

   where `OMI-SrvAdmin-Dell-Web-LX-50_A00.tar.gz` is the file downloaded from http://support.dell.com.

3. Install OpenIPMI (version 35.13) by executing the following commands:

   ```
   ./srvadmin-openipmi.sh install-force
   dkms install --force -m openipmi -v 35.13.RHEL3
   ```

This command will install OpenIPMI using DKMS. Failure to use this command will cause the OpenManage to use the default IPMI present in the service console and may result in slow response from OpenManage and increased boot up time.

4. Install OpenManage by executing one of the following command

   ```
   ./srvadmin-install.sh
   ```

The installation script will detect the current version of OpenManage and prompt the user for an upgrade. Follow the on screen instructions to upgrade OpenManage.

7. Using OpenManage in an ESX Server Environment

To start OpenManage services from ESX Service Console, issue the command:

```
srvadmin-services.sh start
```

To stop OpenManage services from ESX Service Console, issue the command:

```
srvadmin-services.sh stop
```

For information about using OpenManage to manage Dell Servers, refer to the *OpenManage Documentation CD-ROM,* which comes with the Dell Server and also available at www.dell.com/openmanage.

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8. Using IT Assistant in an ESX Server Environment

Dell IT Assistant can be used for basic discovery, monitoring and management of VMware ESX Servers. No special steps are required for using IT Assistant to monitor an ESX server. For more information on using the IT Assistant refer to *Dell OpenManage IT Assistant: User Guide* at http://support.dell.com.

9. Uninstalling OpenManage from ESX Server

To uninstall OpenManage from ESX Server, use the following steps:

1. Log on with administrator privileges (root) to the Service Console.

2. Uninstall OpenManage using the following command:

   ```
   srvadmin-uninstall.sh
   ```

10. Known Issues

Issue	Description	Resolution
SNMP Traps from Virtual Center are not displayed properly in IT Assitant	SNMP traps from VirtualCenter are displayed as "Undefined" with no status information.	This is working as designed. IT Assistant currently does not have the feature to import VMware MIBs.
Poor Graphics in remote installation through Console Redirect in DRAC IV	When ESX Server is installed using Console Redirect in DRAC IV, the installation has poor graphics display.	When using DRAC Console Redirect function, switch to the text based ESX Server installation interface. This is done by typing "text" in the installation options menu.
OpenManage does not report IP addresses of the Service Console NIC, VMkernel NIC and Virtual Machine NICs	Both the OpenManage web interface and CLI, does not report IP address for the NICs in VMware ESX Server.IP address is reported as "[Not Obtained]"	In ESX 3.0, all physical NICs are dedicated to VMkernel. Service Console uses a virtual NIC. OpenManage reports information about the physical hardware. Since IP addresses are tied to virtual NICS in ESX 3.0, OpenManage will not report this information. MAC address and connectivity status of the physical NICs are reported.
Remote shutdown option using `ipmish` through BMC does not gracefully shutdown the ESX Server	When a remote shutdown command is issued through BMC using ipmsh command, the ESX server does a hard shutdown, instead of a graceful shutdown.	This is a known issue. To do a graceful shutdown on VMware ESX Server, use the remote shutdown option using DRAC or use VirtualCenter client.
ESX Server software installation deletes the Utility Partition in the Dell Servers	When ESX Server is installed, it deletes the Utility Partition that ships will the Dell Servers	Utility Partition is not supported in VMware ESX Server. Utility Partition is used to run diagnostics on the server. Diagnostics can be downloaded from support.dell.com, and is available in the OpenManage software kits.
Remote shutdown option using DRAC does not gracefully shutdown the ESX server on Dell blades	When a remote shutdown command is issued through DRAC, the ESX server does a hard shutdown, instead of a graceful shutdown.	This is a known issue. Use VirtualCenter to do a graceful shutdown of VMware ESX Server.
I/O errors are seen in VMware log files when detaching a remote floppy using DRAC 5	When a remote floppy is attached through a DRAC 5 to the service console and then detached, I/O errors are seen in `/var/log/messages`	This is a known issue. VMware maps the remote media to a SCSI device and logs errors when the remote floppy is removed. This message can safely be ignored. To stop the messages from reappearing, detach the remote media and restart the server.

Issue	Description	Resolution
ESX 3.0 VMs not shutting down gracefully using DRAC	When the ESX Server is shutdown gracefully, using the remote shutdown feature in DRAC, the Virtual Machines do not shutdown gracefully.	This is a known issue and is scheduled to be fixed in the next release. Use VirtualCenter to remote shutdown the ESX Server to gracefully shutdown the VMs.
Virtual floppy I/O errors in /var/log/messages after system boot up	After system boot up, /var/log/messages reports the following error "end_request: I/O error, dev 21:00 (hde), sector 2", where hde is device for the remote media.	The errors do not represent actual functionality loss. The errors can be ignored.

11. Troubleshooting

Issue	Description	Resolution
In ESX 3.0, OM 5.0 service takes four minutes to start, during boot-up	During boot up, one of the OpenManage services dsm_sa_datamgr takes around four minutes to start.	This happens when the incorrect version of OpenIPMI is used in the ESX server. Make sure OpenIPMI is updated using step 4 in the installation steps.
Unable to access OpenManage web interface	OpenManage Web interface cannot be accessed using Web browser.	Make sure that the VMware ESX firewall is configured to allow OpenManage web access using the following commands: esxcfg-firewall -o 1311,tcp,in,OpenManageRequest
Device details in ITA are incomplete for ESX 3.0 servers	ITA collects information through SNMP. Some of the server device information on an ESX server is not available through the ITA inventory. The information appears either blank or unknown. This happens when SNMP queries timeout.	This happens when an incorrect version of OpenIPMI is used in the ESX server. Make sure OpenIPMI is updated using step 4 in the installation steps.

Issue	Description	Resolution
ESX 3.0: Virtual CDROM shown as /dev/hdN instead of /dev/cdrom1	ESX Server maps the virtual CDROM from DRAC to /dev/hdN instead of /dev/cdrom1.	To use the DRAC CDROM, use `dmesg` command or browse `/var/log/messages` to find out where the DRAC CDROM is mounted.
OpenManage upgrade from 4.x to 5.0 fails	OpenManage upgrade from version 4.x to 5.0 fails with the error message: error: Failed dependencies: `openipmi >= 35.12 is needed by srvdmin-ipmi-5.0.0-434.rhel3`	This happens when you attempt to upgrade OpenManage without upgrading the OpenIPMI. Follow the steps in section 6, to perform an upgrade.
When installing OpenManage using `omasetup.sh` command the following error is displayed "`-bash: omasetup.sh: command not found`"	When `omasetup.sh` command is used to install OpenManage, the installation fails with the error: `-bash: omasetup.sh: command not found`	`omasetup.sh` command is no longer required to install OpenManage. OpenManage can be directly installed with the standard installation scripts provided in the OpenManage CDROM.

12. Reference

The following documents are available at the Resource Center on www.dell.com/vmware:

- VMware Virtual Infrastructure 2.0 for Dell PowerEdge Servers - Release Notes
- Remote Installation of VMware ESX Server Software Using Dell Remote Access Controller
- Console Redirection on VMware ESX Server Software and PowerEdge Servers
- VMware Software Compatibility Matrix for Dell servers and Dell|EMC storage

Other references:

- Dynamic Kernel Module Support (DKMS) at http://linux.dell.com/projects.shtml.
- OpenIPMI at http://www.openipmi.org/ and http://openipmi.sourceforge.net/.