# Oracle® VM

# Release Notes for 3.2

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**Abstract**

The Oracle VM Release 3.2 documentation set includes information on Release 3.2, which is the initial release of Oracle VM Release 3.2. This documentation set should also be used for any future 3.2.$x$ releases. Use this documentation set in addition to any README files included with the 3.2.$x$ patch updates.

3.2.$x$ patch updates can be downloaded from http://www.oracle.com/technetwork/server-storage/vm/downloads/index.html.

This document contains information on Oracle VM Release 3.2 and supersedes the product documentation. This document contains last-minute information that could not be included the Oracle VM documentation. Read this document before installing Oracle VM. This document may be updated after it is released. To check for updates to this document, and to view other Oracle documentation, refer to the Documentation section on the Oracle Technology Network (OTN) Web site:

http://www.oracle.com/technology/documentation/

This document is intended for users, and administrators of Oracle VM. It includes a brief introduction of the product, and describes potential issues and the corresponding workarounds you may encounter while using Oracle VM.

Oracle recommends that you read this document before installing and using Oracle VM.

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# 1 Introduction

Oracle VM is a platform that provides a fully equipped environment for better leveraging the benefits of virtualization technology. Oracle VM enables you to deploy operating systems and application software within a supported virtualization environment. The components of Oracle VM are:

- Oracle VM Server for x86

- Oracle VM Server for SPARC

- Oracle VM Manager

Oracle VM Server for x86 (Oracle VM Server) is a self-contained virtualization environment designed to provide a lightweight, secure, server-based platform to run virtual machines on x86 hardware. Oracle VM Server is based upon an updated version of the underlying Xen hypervisor technology, and includes Oracle VM Agent. It also includes a Linux kernel with support for a broad array of devices and file systems. The Linux kernel is run as Dom0 to manage one or more DomU virtual machines, each of which could be Linux, Oracle Solaris, or Microsoft Windows.

Oracle VM Server for SPARC (previously called Sun Logical Domains, or LDoms) is Oracle's server virtualization and partitioning technology on Oracle's SPARC T-Series servers. Oracle VM Server for SPARC leverages the SPARC hypervisor to subdivide supported platforms' resources (CPUs, memory, I/O, and storage) by creating partitions called logical or virtual machines to take advantage of the massive thread scale offered by SPARC T-Series servers and the Oracle Solaris operating system.

Oracle VM Manager is a server side component that allows you to configure and manage your Oracle VM environment. Oracle VM Manager includes both a command line interface and a web-based user interface, which is a standard Application Development Framework (ADF) web application. Oracle VM Manager provides virtual machine management facilities, including creating virtual machines from installation media or from templates. It provides features such as power on, power off, deleting, importing, deploying, and live migration of virtual machines. Oracle VM Manager also manages resources, including ISO files, virtual machine templates, and shared virtual disks.

This document contains last-minute release information about Oracle VM.

# 2 What's New in Oracle VM?

This section introduces the new features and enhancements of Oracle VM. This information is useful to users who have used previous releases of Oracle VM.

## 2.1 What's New in Oracle VM Release 3.2?

The new features and enhancements in Oracle VM Release 3.2 include:

### Performance, Scalability and Security

- **Support for Oracle VM Server for SPARC:** Oracle VM Manager can now be used to discover SPARC servers running Oracle VM Server for SPARC, and perform virtual machine management tasks.

- **New Dom0 Kernel in Oracle VM Server for x86:** The Dom0 kernel in Oracle VM Server for x86 has been updated so that it is now the same Oracle Unbreakable Enterprise Kernel 2 (UEK2) as used in Oracle Linux, for complete binary compatibility with drivers supported in Oracle Linux. Due to the specialized nature of the Oracle VM Dom0 environment (as opposed to the more general purpose Oracle Linux environment) some Linux drivers may not be appropriate to support in the context of Oracle VM, even if the driver is fully compatible with the UEK2 kernel in Oracle Linux. Do not install any additional drivers unless directed to do so by Oracle Support Services.

## Installation

- **MySQL Database Support:** MySQL Database is used as the bundled database for the Oracle VM Manager management repository for simple installations. Support for an existing Oracle SE/EE Database is still included within the installer so that you can perform a custom installation to take advantage of your existing infrastructure. Simple installation using the bundled MySQL Database is fully supported within production environments.

- **Discontinued inclusion of Oracle XE Databases:** Oracle VM Manager no longer bundles the Oracle XE database as a backend database. If you are currently running Oracle VM Manager using Oracle XE and you intend to upgrade you must first migrate your database to Oracle SE or Oracle EE.

- **Oracle VM Server Support Tools:** A meta-package is provided on the Oracle VM Server ISO enabling you to install packages to assist with support. These packages are not installed automatically as they are Oracle VM Server does not depend on them. Installation of the meta-package and its dependencies may assist with the resolution of support queries and can be installed at your own discretion. Note that the `sudo` package was previously installed as a dependency for Oracle VM Server, but that this package has now been made a dependency of the `ovs-support-tools` meta-package. If you require `sudo` on your Oracle VM Server installations, you should install the `ovs-support-tools` meta-package.

## Improved Usability

- **Oracle VM Command Line Interface (CLI)**: The new Oracle VM Command Line Interface can be used to perform the same functions as the Oracle VM Manager Web Interface, such as managing all your server pools, servers and guests. The CLI commands can be scripted and run in conjunction with the Web Interface, thus bringing more flexibility to help you deploy and manage an Oracle VM environment. The CLI supports public-key authentication, allowing users to write scripts without embedding passwords, to facilitate secure remote login to Oracle VM Manager. The CLI also includes a full audit log for all commands executed using the facility. See the *Oracle VM Command Line Interface User's Guide* for information on using the CLI.

- **Accessibility options**: Options to display the UI in a more accessible way for screen readers, improve the contrast, or increase the font size. See Oracle VM Manager user interface Accessibility Features for more information.

- **Health tab**: Monitor the overall health and status of your virtualization environment and view historical statistics such as memory and CPU usage. See Health Tab for information on using the **Health** tab.

- **Multi-select of objects**: Select one or more objects to perform an action on multiple objects, for example, upgrading multiple Oracle VM Servers in one step, rather than upgrading them individually. See Multi-Select Functionality for information on using the multi-select feature.

- **Search for objects**: In many of the tab management panes and in some of the dialog boxes you can search for objects. This is of particular benefit to large deployments with many objects such as virtual machines or Oracle VM Servers. See Name Filters for information on using the search feature.

- **Tagging of objects**: It is now possible to tag virtual machines, servers and server pool objects within Oracle VM Manager to create logical groupings of items, making it easier to search for objects by tag.

- **Alphabetized tables and other UI listings**: Items listed in tables and other UI listings are now sorted alphabetically within Oracle VM Manager by default, to make it easier to find objects in larger deployments.

- **Present repository to server pools**: In addition to presenting a storage repository to individual Oracle VM Servers, you can now present a repository to all Oracle VM Servers in one or more server pools. See Presenting or Unpresenting a Storage Repository for more information.

- **Server Pool Cluster timeout configuration**: An additional attribute has been added to allow you to determine the timout in seconds for a cluster when configuring a clustered server pool within Oracle VM Manager.

- **NFS refresh servers and access lists for non-uniform exports**: For NFS configurations where different server pools are exposed to different exports, it is now possible to configure non-uniform exports and access lists to control how server pool refreshes are performed. For more information on this feature, please see NFS Access Groups for Non-uniform Exports.

- **Configure multiple iSCSI access hosts**: You can now configure multiple access hosts for iSCSI storage devices

- **Sizes of disks, ISOs and vdisks**: Oracle VM Manager now shows the sizes of disks, ISOs and vdisks within the virtual machine edit dialog, to make it easier to select a disk.

- **Automated backups and easy restore**: Oracle VM Manager installations taking advantage of the bundled MySQL Enterprise Edition Database include fully automated database backups and a quick restore tool that can help with easy database restoration.

- **Serial console access**: A serial console java applet has been included within Oracle VM Manager to allow serial console access to virtual machines running on both SPARC and x86 hardware. This facility complements the existing VNC-based console access to virtual machines running on x86 hardware.

- **Set preferences for recurring jobs**: Facilities have been provided within Oracle VM Manager to control the preferences for recurring jobs. These include the ability to enable, disable or set the interval for tasks such as refreshing repositories and file systems; and to control the Yum Update checking task.

- **Processor Compatibility Groups**: Since virtual machines can only be migrated between servers that use compatible processor types, Oracle VM Manager now provides the ability to define Processor Compatibility Groups to enable you to pick which servers a virtual machine can be migrated between.

- **Configure additional Utility and Virtual Machine roles**: New roles are now supported on Oracle VM Servers to control the type of functionality that the server will be responsible for. The Virtual Machine role is required in order for an Oracle VM Server to run a virtual machine. Oracle VM Servers configured with the Utility role are favoured for performing operations such as file cloning, importing of templates, the creation of repositories, and other operations not directly related to running a virtual machine.

- **Directly import a virtual machine**: It is now possible to directly import a virtual machine using Oracle VM Manager, no longer requiring that you first import to a template and then clone.

- **Virtual machine start policy**: You can now specify a start policy for a virtual machine, determining whether to always start the virtual machine on the server on which it has been placed, or to start the virtual machine on the best possible server in the server pool.

- **Hot-add a VNIC to a virtual machine**: It is now possible to add a VNIC directly to a running virtual machine from within Oracle VM Manager.

- **Send messages to a virtual machine**: Facilities have been provided within Oracle VM Manager to send messages directly to a virtual machine in the form of key-value pairs.

- **NTP configuration**: Ensuring that time is synchronized across all servers is important. Oracle VM Manager now provides a facility to bulk configure NTP across all servers.

## 2.2 What's New in Oracle VM 3.1.1?

The new features and enhancements in Oracle VM Release 3.1.1 include:

### Performance, Scalability and Security

- **Updated Xen Hypervisor:** Xen is updated to Release 4.1.2.

- **New Dom0 Kernel in Oracle VM Server for x86:** The Dom0 kernel is now the same Oracle Unbreakable Enterprise Kernel 2 (UEK2) as used in Oracle Linux, for complete binary compatibility with drivers supported in Oracle Linux. Due to the specialized nature of the Oracle VM Dom0 environment (as opposed to the more general purpose Oracle Linux environment) some Linux drivers may not be appropriate to support in the context of Oracle VM, even if the driver is fully compatible with the UEK2 kernel in Oracle Linux. Do not install any additional drivers unless directed to do so by Oracle Support Services.

- **Jumbo Frames Support:** Fully supports different MTU sizes. See Managing Bonded Interfaces for information on setting the network MTU size.

- **LUN Resizing:** A LUN (either used as a storage repository or a server pool file system) also resizes the OCFS2 file system.

- **Backup/Restore Access to OCFS2 Storage Repositories:** Present OCFS2 storage repositories as NFS shares to enable access to external tools in order to back up and copy storage repository contents. See Enabling Storage Repository Back Ups for more information on enabling back ups of storage repositories.

- **Move OCFS2 Repositories Between Server Pools:** Remove an OCFS2 storage repository from one server pool and add it to another. The process of moving a storage repository from one server pool to another has been streamlined to facilitate easier disaster recovery and more storage agility.

### Installation

- **Multipath Boot from SAN:** Oracle VM Server can be installed to perform boot from multipath SAN without requiring any type of local storage.

### Improved Usability

- **Create Virtual Machine Templates:** Virtual machines can be cloned as templates, templates can be used to create other templates, and a template can be created in a similar way as creating a virtual machine using a wizard. See Creating a Virtual Machine Template for information on creating virtual machine templates.

- **Move or Clone Virtual Machines and Templates:** Moving or cloning a virtual machine or template (including the configuration information, disk resources, storage and networking). See Cloning a Virtual Machine or Template, Moving Virtual Machines Between Oracle VM Servers, Cloning a Virtual Machine Template and Moving a Virtual Machine Template for more information on moving and cloning virtual machines and templates.

- **Hot Add vCPUs:** Add virtual CPUs on the fly to a running virtual machine. See Editing a Virtual Machine for information on editing a virtual machine and adding vCPUs to a running virtual machine.

- **Discover Multiple Oracle VM Servers Using Hostnames and IPs:** Discover Oracle VM Servers by entering or pasting in multiple hostname or IP addresses in a text field, instead of entering each IP

address individually. See Discovering Oracle VM Servers for information on discovering Oracle VM Servers.

- **Virtual Machine Keyboard Mapping:** Support for keyboard mapping for different languages for each individual virtual machine, not just for the server pool. See Creating a Virtual Machine for information on the keyboard mapping when creating a virtual machine.

- **Virtual Machine Console:** If the a virtual machine console is in use by another user, you can take over control of the virtual machine console. See Connecting to a Virtual Machine for information on the virtual machine console.

- **User Interface Enhancements:** Significant user interface enhancements improve ease of use, make work flows more intuitive, and reduce the amount of clicks required to perform tasks. See Using Oracle VM Manager for information on the Oracle VM Manager user interface.

- **Drag and Drop:** Objects can be dragged and dropped in the user interface. See Drag and Drop for information using the drag and drop feature.

# 2.3 What's New in Oracle VM 3.0.3?

The new features and enhancements in Oracle VM Release 3.0.3 include:

## Performance, Scalability and Security

- **Anti-Affinity Support:** Define which virtual machines cannot reside on the same Oracle VM Servers. Use this feature to achieve better availability by ensuring that critical resources do not reside on a shared single point of failure. See Anti-Affinity Groups in the *Oracle VM User's Guide* for information on anti-affinity.

- **Change Oracle VM Agent Password:** The Oracle VM Agent password for all Oracle VM Servers in a server pool can be changed from Oracle VM Manager. See Changing Oracle VM Agent Passwords on Oracle VM Servers in the *Oracle VM User's Guide* for information on how to change the Oracle VM Agent password.

## Installation

- **Maintain Oracle VM Manager Identity After Reinstall:** See Installing Oracle VM Manager in the *Oracle VM Installation and Upgrade Guide* for information on how to reinstall Oracle VM Manager and maintain the previous UUID.

## Improved Usability

- **User Interface:** Improved wizards to allow smooth operation and closely match operational needs.

- **Virtual Machines:** Explicitly set maximum memory when creating virtual machines. Flexibility to update virtual disk attributes. Choose thick or thin provision. CDROM dynamic update. Virtual machine console does not require username/password. See Managing Virtual Machines in the *Oracle VM User's Guide* for information on these new virtual machine features.

- **Live Migration Assistant:** During live migration, only *allowed* target Oracle VM Servers can be selected in the Live Migration dialog box. An additional section entitled **Why don't I see other servers to migrate to?** shows why migrating to a given server is not possible. Anti-affinity and hardware factors such as CPU family are taken into account.

- **Maximum Guest Memory:** The new **Create Virtual Machine** wizard contains a maximum memory setting. This is the maximum amount of RAM you can configure for the running virtual machine.

## 2.4 What's New in Oracle VM 3.0.2?

The new features and enhancements in Oracle VM Release 3.0.2 include:

### Performance, Scalability and Security

- **Updated Xen 4.0 Hypervisor:** More efficient power management capabilities, broader hardware support, and better performance, scalability and security for both hardware virtualized and paravirtualized guests.

- **Updated Dom0 Linux Kernel with Newer Drivers:** Better hardware support for higher performance, with the latest Unbreakable Enterprise Kernel.

- **Improved Scalability:** Capable of supporting Oracle VM Servers with up to 160 CPUs and 2TB memory.

- **Updated OCFS2 1.8 Cluster File System:** Instant clone support in OCFS2 1.8 enables significantly faster virtual machine provisioning and cloning.

- **Support for OVF:** Use Oracle VM Manager to import a broad range of Open Virtualization Format (OVF) based software assemblies produced by Oracle to accelerate application deployment. See Assemblies in the *Oracle VM User's Guide* for information on working with assemblies.

### Network and Storage Configuration and Management

- **Network Configuration and Management:** All Oracle VM Server logical network configuration and management is now performed using Oracle VM Manager, for example, NIC port bonding, and configuring VLAN Networks. See Managing Networks in the *Oracle VM User's Guide* for information on network management in Oracle VM Manager.

- **Storage Configuration and Management:** The Oracle VM Storage Connect framework enables Oracle VM Manager to directly access the resources and functionality of existing storage systems, supporting native storage services such as SAN or NFS storage creation, deletion, expansion. This allows Oracle VM Manager to automatically discover available storage and create new storage repositories, or to map raw storage directly to virtual machines. See Managing Storage in the *Oracle VM User's Guide* for information on storage management.

### Physical and Virtual Status and Resource Information

- **Resource Information:** Performance statistics are available for CPU, memory, disk and network for each physical Oracle VM Server and virtual machine. Events are displayed for each physical and virtual object, such as port up/down status. IP address and other configuration information is displayed directly in the user interface.

**Note**

Not all metrics are exposed through the Oracle VM Manager user interface.

### Policy-Based Resource Management

- **Distributed Resource Scheduling (DRS) for Capacity Management:** DRS provides real-time monitoring of Oracle VM Server utilization with the goal to rebalance a server pool to provide consistent resources to the running virtual machines. DRS migrates load away from heavily-loaded Oracle VM Servers to less-loaded Oracle VM Servers.

- **Distributed Power Management (DPM) to Optimize Server Pool for Minimum Power Consumption:** DPM complements DRS to reduce the Oracle VM Servers in a server pool when there are periods of low resource utilization. DPM can automatically add capacity as needed when resource utilization increases.

See Server Pool Policies in the *Oracle VM User's Guide* for information on using DRS and DPM.

## Improved Usability

- **User Interface:** Based on the latest Oracle Application Development Framework (ADF), Oracle VM Manager now includes a fully interactive tree view and automatic refresh to show the real-time state of the physical and virtual environment. See Using Oracle VM Manager in the *Oracle VM User's Guide* for information on using the new user interface.

- **Virtual Machines:** Specify the boot order (for example: disk, CDROM) to simplify installs. Directly attach raw storage or virtual disks (vdisks). See Managing Virtual Machines in the *Oracle VM User's Guide* for information on virtual machines.

# 3 Notable Bug Fixes

This section discusses any notable bug fixes in Oracle VM. There are many other bugs that are fixed in this release; this section highlights the more notable ones. This information is useful to users who have used previous releases of Oracle VM.

## 3.1 Bug Fixes in Oracle VM Release 3.2.1

The following notable bugs are fixed in Oracle VM Release 3.2.1:

- Fixes the issue where during server discovery, Oracle VM attempted to discover all file server mounts even if the server was not in the file server's admin server list. (14573204)

- Improves the handling of slave ports with differing MTU settings during bond creation. (13929346)

- Adds check for network port value, prevents a null pointer exception from being thrown. (14653155)

- Fixes the "Object Not Found" issue when hitting the Escape button in the VLAN dialog box. (15827079)

- Adds support for dynamically changing the cluster store cache size. The default cache size is now 150K. (15850684)

- Fixes the issue where the latest update of Microsoft Internet Explorer versions 7, 8 and 9 failure to connect to Oracle VM Manager over HTTPS [1] . (14754924)

- Fixes the issues where closing the browser leaves open jobs in Oracle VM Manager in a bad state. (15838028)

- Removes unnecessary locks when creating VNICs in a multi-threaded operation. (14054156)

- Fixes the issue when discovering a virtual machine that has disks in a undiscovered repository or has undiscovered physical disks. (14104117)

- Object not found where vdisks are left stale in certain multi-thread operations.(14043681)

- Oracle VM Manager hangs after a restart due to various tasks running jobs in the global context. (14175298)

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[1] This problem occurs after applying the recent security patch available at http://support.microsoft.com/kb/2661254. Please refer to Oracle VM Installation and Upgrade Guide for instructions to implement this fix.

- Stale lock issue on multithreaded server where object not found error happens in some rare situations. (14108096)

- Oracle VM Manager fails to discover the server or start the server after the server hardware configuration (i.e. BIOS) was modified. (14169237)

- HTTP cannot be disabled. (13524729)

- Oracle VM Manager UI time-out issue where the default value is not long enough for storage repository creation. (13925232)

- List of target servers (and "other servers") is not ordered by name when migrating a virtual machine. (14160596)

- Size of the "Edit Vlan Group" window should display all information correctly. (14160610)

- Navigation tree (servers) is not ordered by name. (14160581)

- Upgrade process must not continue when the Oracle VM Manager cannot be stopped. (14305714)

- Issue in server rediscovery due to the yum repository URL reset. (14228607)

- iSCSI initiators are no longer associated with the ZFS Storage Appliance Access Groups after a restart of the Oracle VM Manager. (14180913)

## 3.2 Bug Fixes in Oracle VM 3.1.1

The following notable bugs are fixed in Oracle VM Release 3.1.1:

- Outage scenario requires acknowledging multiple events on multiple objects. (13845733)

- The installer does not allow the reuse of an existing database. (13744793)

- Cannot remove server pool file system from Oracle VM Manager if the server pool file system is corrupted. (13601257)

- Unable to create a repository on a LUN that already has partitions on it. (13596838)

- HVM guests failed to start or panic when MEM is not equal to MAXMEM. (13560881)

- Cannot remove VM and Oracle VM Server from Oracle VM Manager if the Oracle VM Server goes away. (13473061)

- OCFS2 storage repository size is not updated in core and user interface even if repository is refreshed. (13449381)

- Oracle VM Server boot over multipath SAN fails to initialize DM MP devices. (13341598)

- VM start is pending. (13044663)

- API for CPU utilization returning negative values. (12999197)

- Resizing a physical disk/LUN does not resize the file system. (12962538)

- Oracle VM Server fails to boot from multipath SAN disks. (12682785)

- Unable to upgrade from Oracle VM Server Release 3.0.3 to Oracle VM Server Release 3.1.1 on an HP ProLiant BL680c G5 Server. (14690247)

## 3.3 Bug Fixes in Oracle VM 3.0.3

The following notable bugs are fixed in Oracle VM Release 3.0.3:

- Oracle VM Manager upgrade improvements significantly reduces upgrade time.

- IP addresses entered in Oracle VM Manager are always validated to ensure correct formatting. An error message is displayed if the IP address is not properly formatted.

- The Linux kernel device manager (udev) has been improved to increase performance. The most significant improvement is that the time udev takes to run after booting the server has been shortened from 2-3 minutes to just seconds, eliminating system *'hangs'* and other problems in systems which are sensitive to startup time.

- When the management network also fulfills the role of virtual machine network, a bridge for virtual machine network connectivity is created on Oracle VM Servers as they are added to the environment. As a result, virtual machines will continue to work properly when migrated to a new Oracle VM Server.

- DHCP is able to be used for VLAN Group interfaces. (13322814)

- Both Oracle VM Server and the Unbreakable Enterprise Kernel (UEK) have been patched to prevent the flood of kernel warning messages caused by illegal configuration of certain Broadcom NetXtreme II XGb (bnx2x) network controllers. If an illegal configuration is detected, only one warning message per controller card is displayed.

- Several network throughput issues with certain Broadcom NetXtreme II XGb (bnx2x) network controllers on Oracle VM Server have been resolved: default TPA settings have no adverse effect on network throughput, and network between virtual machines and NFS storage no longer hangs with bnx2x controllers.

- When using the untagged VLAN segment, the user must configure IP address information on the NIC port, not on the VLAN interface. This eliminates duplicate configurations and any associated risks of misconfiguration.

- A late locking scheme has been implemented for networks on virtual machine clones: the virtual NIC connection in the virtual machine is only locked at the end of the clone operation. As a result, locking issues with ethernet networks no longer occur when multiple virtual machines are cloned in parallel from the same template.

- In Oracle VM Manager, the **Acknowledge All Events** button effectively clears **all** events, not just the items visible in the current list view.

# 4 Supported Guest Operating Systems

The guest virtual machines you create must be one of the supported configurations listed in this section. The supported guest operating systems differ virtual machines created in x86-based server pools, and SPARC-based server pools.

## 4.1 Oracle VM Server for x86 Supported Guest Operating Systems

The guest virtual machines you create in an Oracle VM Server for x86-based server pool must be one of the following supported configurations.

**Table 1 64-bit CPU Hardware Virtualized Supported Guest Operating Systems (Linux and Solaris)**

| Guest Operating System | Hardware Virtualized 32-bit | Hardware Virtualized 32-bit with PV Drivers | Hardware Virtualized 64-bit | Hardware Virtualized 64-bit with PV Drivers |
|---|---|---|---|---|
| Oracle Linux Release 7.*x* | N/A | N/A | Yes | Yes |
| Oracle Linux Release 6.*x* | Yes | Yes | Yes | Yes |
| Oracle Linux Release 5.*x* | Yes | Yes | Yes | Yes |
| Oracle Linux Release 4.*x* | Yes | Yes | Yes | Yes |
| Oracle Solaris 11 [a] | N/A | N/A | N/A | Yes |
| Oracle Solaris 10 [a] | N/A | Yes | N/A | Yes |
| Red Hat Enterprise Linux 7.*x* | N/A | N/A | Yes | Yes |
| Red Hat Enterprise Linux 6.*x* | Yes | Yes | Yes | Yes |
| Red Hat Enterprise Linux 5.*x* | Yes | Yes | Yes | Yes |
| Red Hat Enterprise Linux 4.*x* | Yes | Yes | Yes | Yes |
| CentOS 6.*x* | Yes | Yes | Yes | Yes |
| CentOS 5.*x* | Yes | Yes | Yes | Yes |
| CentOS 4.*x* | Yes | Yes | Yes | Yes |
| SUSE Linux Enterprise Server 11.*x* [b] | No | No | Yes | Yes |

[a] Oracle Solaris support begins with Solaris 10 10/09. The Solaris 10 or Solaris 11 OS runs as a hardware virtual machine (HVM), which requires HVM support (Intel VT or AMD-V) on the underlying hardware platform. By default, Solaris 10 or Solaris 11 OS already has the required paravirtualized (PV) drivers installed as part of the OS. Oracle Solaris 10 supports x86 32-bit and 64-bit architecture. 32-bit or 64-bit mode is selected at OS boot time by examining the hypervisor and the underlying hardware. Oracle Solaris 11 supports x86 64-bit architecture only.

[b] The minimum required kernel version for SLES 11 is 3.0.31-0.9.

To start a PVHVM guest on SLES 11, the following steps are required:

• Install the operating system and upgrade to the 3.0.31-0.9 kernel version.

• Shutdown the virtual machine.

• In Oracle VM Manager, edit the Domain Type for the virtual machine to set it to "Xen PVM".

• Restart the virtual machine.

See also Section 8.3.25, "(x86 Only) Netconsole Does Not Work on a SUSE Linux Enterprise Server Guest"

**Note**

For details about Oracle software certification, please refer to My Oracle Support Document 464754.1, titled *Certified Software on Oracle VM* at https://support.oracle.com/oip/faces/secure/km/DocumentDisplay.jspx?id=464754.1.

Please also visit the Oracle VM resource page at http://www.oracle.com/us/technologies/virtualization/oraclevm/resources/index.html to learn about the support plans for available for Oracle VM, Oracle Linux and Oracle Solaris.

**Table 2 64-bit CPU Paravirtualized Supported Guest Operating Systems**

| Guest Operating System | Paravirtualized 32-bit | Paravirtualized 64-bit |
|---|---|---|
| Oracle Linux Release 7.*x* | No | No |

| Guest Operating System | Paravirtualized 32-bit | Paravirtualized 64-bit |
|---|---|---|
| Oracle Linux Release 6.*x* | Yes | Yes |
| Oracle Linux Release 5.*x* | Yes | Yes |
| Oracle Linux Release 4.*x* | Yes | Yes |
| Red Hat Enterprise Linux 7.*x* | No | No |
| Red Hat Enterprise Linux 6.*x* | Yes | Yes |
| Red Hat Enterprise Linux 5.*x* | Yes | Yes |
| Red Hat Enterprise Linux 4.*x* | Yes | Yes |
| CentOS 6.*x* | Yes | Yes |
| CentOS 5.*x* | Yes | Yes |
| CentOS 4.*x* | Yes | Yes |
| SUSE Linux Enterprise Server 11.*x* | No | Yes |

**Table 3 Microsoft Windows Supported Guest Operating Systems**

| Guest Operating System with Oracle VM Paravirtual Drivers for Microsoft Windows Installed | 64-bit | 32-bit |
|---|---|---|
| Microsoft Windows Server 2012 R2 | Yes | N/A |
| Microsoft Windows Server 2012 | Yes | N/A |
| Microsoft Windows Server 2008 R2 SP1 | Yes | N/A |
| Microsoft Windows Server 2008 SP2 | Yes | Yes |
| Microsoft Windows Server 2003 R2 SP2 | Yes | Yes |
| Microsoft Windows 8.1 | Yes | Yes |
| Microsoft Windows 8 | Yes | Yes |
| Microsoft Windows 7 SP1 | Yes | Yes |
| Microsoft Windows Vista SP2 | Yes | Yes |

**Table 4 Oracle VM Paravirtual Drivers for Microsoft Windows Supported Releases**

| Oracle VM Release | Oracle VM Paravirtual Drivers for Microsoft Windows Release 3.0.1 | Oracle VM Paravirtual Drivers for Microsoft Windows Release 3.2.2 |
|---|---|---|
| Oracle VM 3.0 | Yes | No |
| Oracle VM 3.1 | Yes | No |
| Oracle VM 3.2 | Yes | Yes |
| Oracle VM 3.3 | No | Yes |

## 4.2 Oracle VM Server for SPARC Supported Guest Operating Systems

The guest virtual machines you create in an Oracle VM Server for SPARC-based server pool must be one of the following supported configurations.

- Oracle Solaris 11

- Oracle Solaris 10 8/11 or later

See the *Oracle VM Server for SPARC 3.0 Release Notes* for any specific patches that may be necessary on these supported guest operating systems.

http://docs.oracle.com/cd/E37707_01/html/E29668/gentextid-298.html#ldomsrequiredsoftwarepatches

# 5 Storage Connect Plug-ins

The Storage Connect Plug-ins supported in Oracle VM Release 3.1.1 are also fully supported in Release 3.2.

# 6 Configuration Limits

This section contains the configuration maximums for Oracle VM. The limits presented in the following tables represent tested, recommended limits, and are fully supported by Oracle.

**Table 5 Virtual machine maximums**

| Item | x86 Maximum | SPARC Maximum |
| --- | --- | --- |
| Virtual CPUs | 128 | Equivalent to the number of available CPUs on the server. [a] |
| Virtual RAM on 32-bit guests | 63 GB | N/A |
| Virtual RAM on 64-bit guests | 2 TB | Equivalent to the amount of available RAM installed on the server. [b] |
| **Paravirtualized Guests** | | |
| Virtual NICs | 31 | 768 [c] |
| Virtual disks | PVM 104, PVHVM 107 | 768 [c] |
| **Hardware Virtualized Guests** | | |
| Virtual NICs | 8 | N/A |
| Disks (including IDE, SCSI, CDROM and virtual disks) | 4 | N/A |

[a] On a fully configured M10 this is equal to 2048.

On an Oracle M6 this is equal to 3072.

On an M5 this is equal to 1536.

On a T5 this is equal to 1024.

Note that these maximums do not account for CPUs allocated to any other domains, such as the control domain. The hypervisor can allocate subsets of the overall CPU, memory, and I/O resources of a server to any given logical domain.

[b] 32 TB on a Fujitsu M10, Oracle M5 or Oracle M6.

4 TB on an Oracle T5.

A small amount of RAM is required for the hypervisor.

These maximums do not account for RAM that is allocated to any other domains, such as the control domain. The hypervisor can allocate subsets of the overall CPU, memory, and I/O resources of a server to a given logical domain.

[c] Total number of virtual NICs and virtual disks for SPARC is no more than the total number of available LDC (logical domains channels) of the supported SPARC T-Series server.

**Note**

Virtual Machine maximums assume a single virtual machine using all available resources.

**Table 6 Oracle VM Server maximums**

| Item | x86 Maximum | SPARC Maximum |
|---|---|---|
| CPUs | 160 | Equivalent to the number of available CPUs. [a] |
| RAM | 4 TB | Equivalent to available RAM. [b] |
| Virtual Machines | 128 | 128 per physical domain (PDOM) [c] |

[a] On an Oracle M6 this is equal to 3072.

On a fully configured Fujitsu M10 this is equal to 2048.

On an Oracle M5 this is equal to 1536.

On a Oracle T5 this is equal to 1024.
[b] 32 TB on a Fujitsu M10, Oracle M5 or Oracle M6.

4 TB on a Oracle T5.

A small amount of RAM is required for the hypervisor.
[c] In practice, there can be a maximum of 512 PDOMs. However, when following Oracle best practices that allocate full cores for guests, the maximum number of PDOMs are 192 on Oracle M5 and 384 on Oracle M6.

**Table 7 Server pool and cluster maximums**

| Item | x86 Maximum | SPARC Maximum |
|---|---|---|
| Oracle VM Servers in a server pool (unclustered) | 64 | 64 |
| Oracle VM Servers in a server pool (clustered) | 32 | N/A |

**Table 8 Storage maximums**

| Item | x86 Maximum | SPARC Maximum |
|---|---|---|
| LUNs in a storage array | 1,000 | N/A |
| OCFS2 volume size | 64 TB | N/A |
| Files per OCFS2 volume | 30,000 | N/A |
| Virtual disk | 10 TB | Limited by hardware capacity. |
| Virtual IDE drives per device | 4 | N/A |

**Table 9 Network maximums**

| Item | x86 Maximum | SPARC Maximum |
|---|---|---|
| NICs ports per network bond | 4 | 255 per bond or aggregate. |
| Network bonds per Oracle VM Server | 10 | Limited by hardware. |

# 7 Using Oracle VM Server for SPARC with Oracle VM Manager

This section discusses any limitations when using Oracle VM Server for SPARC and managing those servers in Oracle VM Manager.

There are a number of features that exist in Oracle VM Server for SPARC that cannot be represented in Oracle VM Manager at this time. Those feature are:

- Assigning crypto accelerators to guest domains. This is a feature on SPARC servers prior to the T4 series.

- Whole-core and max-cores constraints.

- Multiple service domains, which are typically used to provide redundancy.

There are a number of features that exist in Oracle VM Manager that cannot be used in a server pool that contains Oracle VM Server for SPARC servers. Those feature are:

- ISCSI or Fibre Channel storage. NFS storage is, however, supported.

- Server pools cannot be HA-enabled.

- Yum updates/upgrades of Oracle VM Servers.

- Virtual machine suspend and resume functionality.

# 8 Known Limitations and Workarounds

This section contains information on the known limitations and workarounds for Oracle VM. Issues that are related to Oracle VM Server for x86 only are marked with *x86 Only* in the title. Issues that are related to Oracle VM Server for SPARC only are marked with *SPARC Only* in the title. Issues that are related to both x86 and SPARC platforms do not have any special marking in the title.

## 8.1 Oracle VM Manager User Interface

This section contains the known issues and workarounds related to the Oracle VM Manager user interface.

### 8.1.1 Only One Instance of the UI Per Browser Supported

If you connect to the Oracle VM Manager UI in a web browser twice, in two different tabs or windows, unexpected display issues may occur.

**Workaround:** You should only connect to one instance of the Oracle VM Manager UI per web browser session.

**Bug 13034728**

### 8.1.2 Pending Jobs Are Terminated When the Browser is Closed

Closing the web browser tab or the entire browser that has been used to access Oracle VM Manager results in the closure of the session, as validated by WebLogic server, within the specified timeout period. By default this is set to 30 minutes. Any open or pending jobs associated with the session are aborted after this period.

**Workaround:** Ensure that the browser window or the tab in which Oracle VM Manager is running is not closed before all pending jobs have completed.

**Bug 15838028**

### 8.1.3 Parent Jobs May Not Indicate Completed Status

Some jobs that spawn many sub-tasks or child jobs, such as refreshing NFS storage with many refresh servers, may take longer to complete than indicated in the Oracle VM Manager user interface. This can cause some actions to be blocked until all of the child jobs have completed.

The status of all spawned child jobs is correctly indicated in the Jobs View within the Oracle VM Manager user interface.

**Bug 15946119**

## 8.1.4 Create New VM Wizard Creates a New Virtual Machine Even When the Wizard is Cancelled

The Create New VM Wizard consists of a series of steps, some of which are optional. Once the required parameters have been entered within the wizard, and prior to performing any optional steps, the virtual machine is actually created within the environment. If you attempt to cancel out of the wizard once you reach the optional configuration steps within the wizard, you discover that the virtual machine has still been created.

**Workaround:** Simply delete the unwanted virtual machine when you exit the wizard.

**Bug 15968687**

## 8.1.5 Guest VM Console May Not Work On Oracle Linux or Windows Client

The Guest VM Console accessible from Oracle VM Manager may not work properly for particular versions of the Java Runtime Environment (JRE) in conjunction with some web browsers and operating systems. The JRE that has been shown to work most consistently is Java SE6 Update 35. On some systems other versions of the JRE may function as well.

**Workaround:** While it is possible to run concurrent versions of the JRE, it is recommended that to use the Guest VM Console in Oracle VM Manager, you completely remove any previously installed JRE along with any downloaded certificates or temporary files before installing the Java SE6 Update 35 from http://www.oracle.com/technetwork/java/javase/downloads/index.html on the client desktop computer that you are using to access Oracle VM Manager.

**Bug 14497293 and Bug 14276511**

## 8.1.6 Packages to be Installed on Oracle VM Manager to Enable Guest Serial Console and VNC Console.

RPM Packages are available to ensure the correct functioning of the Guest Serial Console and the VNC Console within Oracle VM Manager when accessing virtual machines. These packages must be installed on the Oracle VM Manager host. The packages that must be installed are the TightVNC package which provides VNC access to the guest virtual machine, and the JTA package which is used to provide serial console access to the guest virtual machine.

VNC access is only available for x86 guests. Serial console access is available for both x86 and SPARC guests.

Packages are available at Oracle's public yum server:

- TightVNC (Oracle Linux 5): http://public-yum.oracle.com/repo/EnterpriseLinux/EL5/addons/x86_64/tightvnc-java-1.3.9-4.noarch.rpm

- TightVNC (Oracle Linux 6): http://public-yum.oracle.com/repo/OracleLinux/OL6/addons/x86_64/tightvnc-java-1.3.9-4.noarch.rpm

- JTA (Oracle Linux 5): http://public-yum.oracle.com/repo/EnterpriseLinux/EL5/addons/x86_64/jta-2.6-1.noarch.rpm

- JTA (Oracle Linux 6): http://public-yum.oracle.com/repo/OracleLinux/OL6/addons/x86_64/jta-2.6-1.noarch.rpm

**Bug 14395338**

## 8.1.7 (SPARC Only) Guest Serial Console From Oracle VM Manager is Unresponsive When the VM is running the Installation Configuration Tool

Opening a guest serial console from Oracle VM Manager for a SPARC guest sometimes results in the console displaying information about the telnet connection but the console remains unresponsive. This tends to happen when the VM is running the installation configuration tool.

**Workaround:** Use ~w to get write permission to the console. Then refresh the console display using Ctl-L. If that does not work, type ~# for a break, then click r to reset the VM and watch it reboot in the console. Thereafter the console should work properly.

**Bug 14803291**

## 8.1.8 IPv6 Updates On Some Microsoft Windows Guests Do Not Reflect in Oracle VM Manager

On Microsoft Windows guests prior to Microsoft Windows Vista, if the IPv6 address is changed and the IPv4 address remains constant, Oracle VM Manager does not reflect the IP address change until the IPv4 address is changed as well.

**Bug 14005821**

## 8.1.9 Drag and Drop to Invalid Targets Fail Without an Error Message

If you drag and drop a resource, such as a virtual machine or server, to an invalid target it fails silently. Please see Drag and Drop in the Oracle VM User's Guide for more information.

**Bug 15957926**

## 8.1.10 Incorrect Text Color After Acknowledging VM Errors

After acknowledging an error event on a virtual machine, the text in the **Event Severity** column of the **Virtual Machines** perspective in the **Servers and VMs** tab is displayed in red, instead of black. The error event has been acknowledged, and the incorrect text color can be ignored.

**Workaround:** Navigate to another page in the UI, then return to the **Virtual Machines** perspective in the **Servers and VMs** tab. The text is the correct color, black.

**Bug 14027051**

# 8.2 Oracle VM Servers and Server Pools

This section contains the known issues and workarounds related to Oracle VM Servers and server pools.

## 8.2.1 It is Possible to Incorrectly Add SPARC Servers to an empty Xen Server Pool in Oracle VM Manager.

If a server pool has been created within Oracle VM Manager and has been configured to use the Xen hypervisor, but all servers have been removed from the server pool, it is possible to incorrectly add SPARC servers to the server pool in the Edit Server Pool dialog. Server pools must contain a homogenous

collection of either SPARC or x86 servers. If you are managing both, make certain that you do not mix SPARC and x86 servers within the same server pool.

In cases where a server pool already contains servers, the list of available servers that can be assigned to it is automatically filtered to match servers that are able to run on the specified hypervisor.

**Bug 14360725**

## 8.2.2 Unable to Edit Virtual IP Field After A Server Pool is Created

When a server pool has finished being created, if an incorrect IP address was entered into the Virtual IP field, it is not possible to change the virtual IP address.

The only way to resolve this is to remove all the servers from the server pool, delete the server pool and create a new one.

**Bug 12821548**

## 8.2.3 (x86 Only) Server BIOS Settings

The following server BIOS settings may be required to use Oracle VM Server:

- AHCI mode may be necessary to recognize the CDROM device to perform an installation from CDROM.

- Disable I/O MMU Virtualization Settings; for Intel-based servers this is *VT-d*; for AMD based servers this is *AMD-Vi* or *IOMMU*. I/O MMU is not supported in this release.

## 8.2.4 (x86 Only) Network Interface in PXE Kickstart File

When using a PXE boot kickstart file to perform an Oracle VM Server installation, make sure you specify the network interface to be used for the management interface first. If you have more than one network interfaces specified in a kickstart file, the first interface is used as the management interface. The management interface is the only *live* interface after a PXE install of Oracle VM Server. You should manually configure any other network interfaces on the Oracle VM Server to start on boot in the /etc/sysconfig/network-scripts/ifcfg-* files. Set the `ONBOOT=NO` parameter to ONBOOT=YES.

**Bug 12557470**

## 8.2.5 (x86 Only) Oracle VM Server Kickstart Installation Not Supported with Multipath SAN Boot

When using a PXE boot kickstart file to perform an Oracle VM Server installation, there is no option available to enable the installer setting to make the server boot from a multipath device on a SAN. The installer option to boot from a multipath SAN device can only be set manually during the installation procedure.

**Workaround:** Some success with a multipath kickstart installation may be acheived by following these instructions:

- Create an `/etc/sysconfig/mkinitrd/boot-multipath` configuration file that contains the 'BOOT_MULTIPATH=yes' directive.

- Run `mkinitrd`.

- Ensure that the `/etc/blkid/blkid.tab` cache file that is created by `mkinitrd` is removed at the end of your %post.

**Bug 13967964**

## 8.2.6 (x86 Only) Dom0 Memory Calculations for Servers with More than 128GB RAM

When installing Oracle VM Server on a machine with more than 128GB RAM, the memory allocated to Dom0 may turn out to be too restrictive for some configurations. For example, you may need to increase Dom0 memory in case the Oracle VM Server runs a large number of virtual machines and connects to a large number of LUNs.

Dom0 memory is calculated as follows: 2% of server RAM + 512MB. However, calculations are cut off at a maximum of 2% of 128GB RAM, meaning that Dom0 has a maximum of around 3GB RAM available. This should be sufficient for most scenarios, but an increase in Dom0 memory may be required to accommodate the demand of a particular environment.

**Bug 13922885**

## 8.2.7 (x86 Only) Increasing Dom0 Memory

There are cases where it may become necessary to increase the Dom0 memory size to meet the demand of running applications. For example, presenting one iSCSI LUN takes approximately 3.5MB of system memory. Consequently, a system that uses many LUNs quickly requires a larger amount of memory in accordance with the storage configuration.

**Workaround:** Change the amount of memory allocated to Dom0. See Changing the Dom0 Memory Size for information on how to change the Dom0 memory allocation.

## 8.2.8 (x86 Only) Setting Default Shell in `kdump.conf` Ignored

Editing the `kdump.conf` file on an Oracle VM Server to add the "default shell" parameter does not have the intended effect. The server reboots, but does not drop to a shell prompt.

**Bug 15938733**

## 8.2.9 VMCore Not Generated by Kdump on the Default Path `/var/crash`

When using kdump on an Oracle VM Server instance that crashes, the vmcore that is generated is not dumped to the default path `/var/crash`, if the filesystem type and mountpoint are not specified in `/etc/kdump.conf`. These options are usually commented out by default when you install kdump. In order for kdump to function correctly, your `/etc/kdump.conf` file should include lines similar to the following:

```
ext3 /dev/sda1
path /var/crash
```

It is also important that the path configured for kdump has enough disk space to contain the vmcore file. By default, the root filesystem installed with Oracle VM Server is too small to contain the vmcore file. Therefore, you should either specify a different partition where there is disk space to match the machine memory or you should increase the root partition size according to the requirements of the given system during the installation stage.

**Bug 15844134**

## 8.2.10 Kdump Core Collector Using Sparse Copy Fails

When kdump on an Oracle VM Server is configured to use sparse files for vmcore dump files to reduce the dump file size, kdump fails with an error similar to:

```
Scanning and configuring dmraid supported devices
```

```
...
cp: unrecognized option `--sparse=always'
...
```

**Workaround:** Add the following to the kdump.conf on the Oracle VM Server:

```
 core_collector /bin/cp --sparse=always
```

**Bug 15959684**

## 8.2.11 Kdump Over Netwok Using a XEN Bridged Interface Fails

Using kdump on an Oracle VM Server over a network using a XEN bridged interface fails and is not supported in this release.

**Bug 16085278**

## 8.2.12 (x86 Only) Oracle VM Server Installation Fails with Broadcom Gigabit Ethernet Controller

Installing Oracle VM Server on a system such as the Dell 380, with a Broadcom Gigabit Ethernet Controller fails with an error similar to the following example:

```
Traceback (most recent call first):
File "/usr/lib/anaconda/network.py", line 685, in write
if dev.get('BOOTPROTO').lower() in ['dhcp', 'ibft']:
File "/usr/lib/anaconda/yuminstall.py", line 1394, in doPreInstall
anaconda.id.network.write(anaconda.rootPath)
File "/usr/lib/anaconda/backend.py", line 184, in doPreInstall
anaconda.backend.doPreInstall(anaconda)
File "/usr/lib/anaconda/dispatch.py", line 207, in moveStep
```

The installer cannot detect the network adapter, so fails to complete the installation.

**Bug 13387076**

## 8.2.13 (x86 Only) Oracle VM Server Installation Fails on GPT or EUFI Partitioned Disk

The Oracle VM Server installer is unable to install to a disk that is using a GUID partition table (GPT) or a Unified Extensible Firmware Interface (EUFI). Currently Oracle VM only uses the standard BIOS to support MBR disk installation. Attempting to install on a GPT disk results in an error and the installation fails.

**Workaround:** Use Alt-F2 to access a different terminal screen to the installer. Use fdisk from the command line to manually repartition the disk using a dos partition table. Alternatively repartition the disk prior to installation, ensuring that the partition table is not using GPT.

**Bugs 14674445, 15856811**

## 8.2.14 (x86 Only) Oracle VM Server Installation on Sun Fire X4800

If you are installing Oracle VM Server on a Sun Fire X4800, you must provide extra parameters when booting from the installation media (CDROM or ISO file), or when using a kickstart installation. These parameters allow the megaraid_sas driver to load correctly.

If booting from the installation media, press F2 when the initial boot screen is displayed and provide the following additional parameters as part of the boot command:

```
mboot.c32 xen.gz extra_guest_irqs=64,2048 nr_irqs=2048 --- vmlinuz --- initrd.img
```

If using a kickstart installation, add the additional kernel parameters to the PXE configuration file.

If you want to make these changes permanent, edit the /boot/grub/grub.conf file in your Oracle VM Server after the installation has completed.

**Bug 12657272**

## 8.2.15 (x86 Only) Installation of Oracle VM Server on some HP Server Hardware May Fail if Tape Drive is Attached

Installation of Oracle VM Server may fail on some HP server hardware when the tape drive is attached, rendering error messages describing a problem with a call to "makeDriveDeviceNodes". To avoid this issue, disconnect the tape drive and begin the installation again.

**Bug 14667345**

## 8.2.16 (SPARC Only) Cannot Create Clustered Server Pool

When creating a SPARC-based server pool, the **Storage Location** field in the **Create a Server Pool** dialog box is grayed out and unavailable. As HA of SPARC-based servers is not available in this release, a server pool file system is not required. All SPARC-based server pools must be unclustered.

**Workaround:** Create an unclustered server pool.

## 8.2.17 (x86 Only) Wake On Lan (WOL) Fails if Oracle VM Servers on Different Subnets

Starting or restarting Oracle VM Servers fails if the Oracle VM Servers in a server pool are on different subnets.

**Workaround:** Use IPMI (Intelligent Platform Management Interface) to start or restart Oracle VM Servers in a server pool that are on different subnets.

**Bug 12410458**

## 8.2.18 Remove Oracle VM Server from Server Pool Fails on Redeployed Oracle VM Manager

If Oracle VM Manager is redeployed to a new computer, you should rediscover any file servers. If you do not rediscover the file servers, and the server pool file system is on the file server, you cannot remove Oracle VM Servers from the server pool.

**Bug 12333132**

## 8.2.19 Unable to Rediscover Server Pool after Database Clean

If you have server pools in your environment and you clear the Oracle VM Manager database, you cannot rediscover and rebuild your previous Oracle VM environment. The following error is in the job:

```
OVMRU_000021E Cannot perform operation on pool: Unknown pool found for discovered Pool FS.
The pool does not have a Virtual IP Address.
```

**Workaround:** Follow these steps to rediscover the server pools:

1. Discover one Oracle VM Server from the server pool.

2. Register, and refresh your storage server.

3. Refresh the file system that contains the server pool file system.

4. Refresh the file systems that contains the repositories.

5. Refresh the repositories.

6. Refresh all Oracle VM Servers in the server pool to discover the virtual machines.

**Bug 12724969**

## 8.2.20 (x86 Only) Inconsistent Master Role Assignment after Cluster Failure

If the master Oracle VM Server in a clustered server pool becomes unavailable or loses its connection to the storage containing the server pool file system, another Oracle VM Server takes over the master role and the server pool virtual IP. When the unavailable server comes back online, it rejoins the cluster, unless its access to the server pool file system is not (yet) restored. This is where the inconsistency occurs. The original master server contains information indicating it has the master role, while another server in the cluster may have assumed the master role in the meantime. If the entire cluster has been down, the original master server can continue to fulfill that role. If the cluster remained operational, however, changes may have occurred that the original master server has no information about. As a result, two Oracle VM Servers in the same clustered server pool may claim the master role and the virtual IP, and Oracle VM Manager may not be able to resolve that conflict.

**Workaround:** Manually assign the master role either to the original master or to another server that is still active within the cluster. Follow these steps:

1. In Oracle VM Manager, open the **Servers and VMs** tab.

2. In the navigation pane, select the server pool and click **Edit Server Pool**.

3. Select the appropriate server as master server and click **OK** to save your changes.

**Bugs 13875603**

## 8.2.21 (x86 Only) I/O-intensive Storage Operations Disrupt Cluster Heartbeat

The OCFS2 heartbeating function can be disturbed by I/O-intensive operations on the same physical storage. For example: importing a template or cloning a virtual machine in a storage repository on the same NFS server where the server pool file system resides may cause a time-out in the heartbeat communication, which in turn leads to server fencing and reboot.

**Workaround:** To avoid unwanted rebooting, it is recommended that you choose a server pool file system location with sufficient and stable I/O bandwidth. Place server pool file systems on a separate NFS server or use a small LUN, if possible.

**Bug 12813694**

## 8.2.22 (x86 Only) Unable to Remove Oracle VM Server from Cluster: Heartbeat Region Still Active

If OCFS2 file systems are still mounted on an Oracle VM Server you want to remove from a cluster, the remove operation may fail. This is due to the fact that the OCFS2 mount is an active pool file system or storage repository.

**Workaround:** If a storage repository is still presented, unpresent it from the Oracle VM Server before attempting to remove the Oracle VM Server from the cluster. If a pool file system is causing the remove operation to fail, other processes might be working on the pool file system during the unmount. Try removing the Oracle VM Server at a later time.

## 8.2.23 (x86 Only) Unable to Remove Oracle VM Server from Cluster: Heartbeat in Configured Mode

An Oracle VM Server is in *heartbeat configured* mode if the server pool file system is not mounted. Either the file system failed to mount or the mount was lost because of hardware issues such as unavailability of the LUN of NFS server containing the file system to be mounted.

**Workaround:** Mount the file system at the Oracle VM Server command line, or, as a last resort, reboot the Oracle VM Server and allow it to join the cluster automatically at boot time.

## 8.2.24 (x86 Only) Sun Fire X4170 Server Not Fenced During Cluster Failure

In some situations where a Sun Fire X4170 server has a hardware failure or fault/error, the Oracle VM Server may not be fenced and removed from the cluster, even though it is not available to participate in the cluster.

**Workaround:** Fix the hardware fault, and/or clear the error messages/faults using the ILOM CLI.

**Bug 14463948**

## 8.2.25 (x86 Only) Netconsole Error During Oracle VM Server Startup, *Unknown Error 524*

To use netconsole you must specify a non-bridged eth*x* device, in the /etc/sysconfig/netconsole file on an Oracle VM Server, for example:

```
# The ethernet device to send console messages out of (only set this if it
# can't be automatically determined)
# DEV=
DEV=eth2
```

**Bug 12861134**

## 8.2.26 (x86 Only) ACPI Buffer Error After Installing Oracle VM Server

On some Intel-based systems, the following error may occur after installing Oracle VM Server when the computer is started:

```
[    0.674742] ACPI Error: Field [CPB3] at 96 exceeds Buffer [NULL] size 64 (bits)
 (20090903/dsopcode-596)
[    0.675167] ACPI Error (psparse-0537): Method parse/execution failed
[\_SB_._OSC] (Node ffff88002e4fba50), AE_AML_BUFFER_LIMIT
```

This has been observed on systems with the following BIOS information, but may also occur in other BIOS versions:

Vendor: Intel Corp. Version: S5500.86B.01.00.0036-191.061320091126 Release Date: 06/13/2009 BIOS Revision: 17.18 Firmware Revision: 0.0

HP ProLiant BL685c G6 HP BIOS A17 12/09/2009 Backup Version 12/01/2008 Bootblock 10/02/2008

This error can safely be ignored.

**Bugs 12865298 and 12990146**

## 8.2.27 (x86 Only) Cisco Blade Servers Must Have Fixed UUID

Cisco Blade servers cannot be configured to boot with random UUIDs. Each Oracle VM Server must have a fixed UUID to allow the Oracle VM Server to move between Blades. To configure a fixed UUID, see:

**Bug 13000392**

## 8.2.28 (x86 Only) Radeon Ring Test Failed Error On Boot Resulting in Disabled GPU Acceleration

When booting Oracle VM Server on a system using a Radeon graphics adapter, and error may appear in the dmesg output similar to the following:

```
[drm:r100_ring_test] *ERROR* radeon: ring test failed
(scratch(0x15E4)=0xCAFEDEAD)
[drm:r100_cp_init] *ERROR* radeon: cp isn't working (-22).
radeon 0000:01:03.0: failed initializing CP (-22).
radeon 0000:01:03.0: Disabling GPU acceleration
```

**Workaround:** Ensure that the radeon module is loaded with the modeset parameter set to zero. To do this, add the following line in `/etc/modprobe.conf`:

```
options radeon modeset=0
```

In order for the change to take effect, you should reboot the server.

Alternatively, the parameter `radeon.modeset=0` can be appended to the boot options within `/boot/grub/grub.conf`. For example:

```
title Oracle VM Server (2.6.39-300.20.1.el5uek)
 root (hd0,0)
 kernel /xen.gz dom0_mem=987M
 module /vmlinuz-2.6.39-300.20.1.el5uek ro root=UUID=8d7687eb-fa2b-42ef-b411-044ba66cca6c radeon.modeset=0
 module /initrd-2.6.39-300.20.1.el5uek.img
```

**Bug 14376597**

# 8.3 Virtual Machines

This section contains the known issues and workarounds related to virtual machines.

## 8.3.1 Virtual Machines Using Resources in an OCFS2 Repository Cannot be Migrated To The Unassigned Virtual Machines Folder

Any virtual machine which has resources in ocfs2 repository cannot be migrated to Unassigned Virtual Machines folder, the only exception is if the ownership of this OCFS2 repository has already been released.

**Bug 16005634**

## 8.3.2 Editing Virtual Machine Configuration File Results in Unexpected Behavior

Any changes to the virtual machine configuration file should be performed using Oracle VM Manager. The only exception to this is if advised to manually edit the vm.cfg file by Oracle Support Services, or as explicitly specified in these Release Notes.

Manual changes made to the virtual machine configuration file (vm.cfg) are not reflected in Oracle VM Manager. Any manual changes to the vm.cfg file may result in unexpected and undesirable behaviour. For example, if you edit the HA setting in the vm.cfg to disable HA, and the virtual machine is stopped by any method other than using Oracle VM Manager, the virtual machine is restarted. Oracle VM Manager is not aware of the HA change in the virtual machine's configuration file.

**Bugs 12654125 and 13391811**

## 8.3.3 Concurrent Template Operations May Fail Due to Lock Issue

When importing and deleting several templates concurrently, or when an Oracle VM Server is removed during the import of a template, a lock exception error may appear. However, the template upload often completes successfully despite the error message, but it does not appear in the list of available templates in the storage repository.

To resolve this problem, refresh the storage repository. The uploaded template file should then appear in the list. In some cases the imported template turns out to be incomplete. In that case, you should delete the template and import the template again.

## 8.3.4 Concurrent Clone Jobs Silently Fail

Running more than one clone job at a time causes the subsequent clone job(s) to silently fail, without error. This only occurs when you use the cloning wizard multiple times, not when cloning an object multiple times.

**Workaround:** Run only one clone job at a time, then wait for the cloning job to complete before running the cloning wizard again.

**Bug 16013472**

## 8.3.5 Live Migration Fails but Oracle VM Manager Reports Running Virtual Machine on Target Oracle VM Server

When live migration of a virtual machine fails, Oracle VM Manager reports the migration job as failed. However, the migrated virtual machine may appear under the correct target Oracle VM Server in running status, as if the migration had completed successfully. At the same time, the virtual machine remains in running status on the Oracle VM Server it was supposed to be migrated away from, but Oracle VM Manager reports it as stopped.

**Workaround:** Kill the virtual machine affected by the failed migration operation on the target Oracle VM Server; then restart the server. Rediscover the Oracle VM Server on which the virtual machine was originally running, and it should appear again in running status.

**Bugs 13939895, and 13939802**

## 8.3.6 (x86 Only) Virtual Machine Fails to Restart On Another Server in the Cluster if ACPI is Enabled

A virtual machine may fail to restart on another server within the cluster when the original server becomes unavailable and ACPI power management is enabled within the BIOS for either of the Oracle VM Servers within the cluster.

**Workaround:** Disable ACPI within the BIOS for each of the Oracle VM Servers within the cluster.

**Bug 14747722**

## 8.3.7 (x86 Only) Oracle Solaris 10 Virtual Machine Hangs During Shutdown on Oracle VM Server

When performing a graceful shutdown from within a virtual machine running Oracle Solaris 10, or when attempting to stop the virtual machine from within Oracle VM Manager, or when performing a migration of the virtual machine, the virtual machine hangs during the shutdown process.

This bug does not affect virtual machines running Oracle Solaris 11.

**Workaround:** Kill the virtual machine affected using the Kill VM option within Oracle VM Manager.

**Bug 15863719**

### 8.3.8 Yum Updates Fails Due to ServerEvacuateFailedEvent

When you update an Oracle VM Server, the following jobs are submitted:

- *Server Yum update check operation*

- *Server Maintenance Mode*

- *Queued Server Yum upgrade*

The *Yum Update on Server `server_name`* job displayed in the Oracle VM Manager **Job Summary** pane indicates that these three jobs have been successfully submitted, but may not mean that the Oracle VM Server has actually been updated. To see which version the Oracle VM Server is running before and after an upgrade, click the **Servers and VMs** tab, select the Oracle VM Server in the navigation tree and then select **Control Domains** in the **Perspective** drop-down list.

If the Yum update fails due to the ServerEvacuateFailedEvent event (use the **Events** perspective when selecting an Oracle VM Server to check for this event), a virtual machine is running that cannot be automatically migrated. To remedy this situation, either shut down the running virtual machine on the Oracle VM Server, or provide more resources in the server pool so that the running virtual machine can be migrated to another Oracle VM Server.

**Bug 16080382**

### 8.3.9 (x86 Only) Virtual Machine Created with Network (PXE) Installation Does Proceed Beyond Pre Boot

Creating a virtual machine using the Network method (PXE) does not proceed beyond pre boot, so the virtual machine is not created. This occurs for Oracle Linux 5.*x* virtual machines.

**Bug 12905120**

### 8.3.10 (x86 Only) Hardware Requirements for Hardware Virtualized Guests

Creating hardware virtualized guests requires the Oracle VM Server has an Intel-VT (code named as Vanderpool) or AMD-V (code named as Pacifica) CPU. See the *Oracle VM Installation and Upgrade Guide* for a list of supported hardware.

### 8.3.11 (x86 Only) Creating a PVM Guest Slow Using Local Storage

Creating a PVM guest using local storage may take a very long time. This may be caused by write caching being turned off for the local disk.

**Workaround:** Enable write caching for the disk using the hdparam utility.

**Bug 12922626**

### 8.3.12 (x86 Only) Virtual CDROM in PVHVM Guests not Initialized as IDE Device

If the configuration file of a PVHVM virtual machine or template lists a virtual CDROM drive as an IDE device, that is as /dev/hda, dev/hdb, and so on, the virtual CDROM is not available inside the guest. To

enable the CDROM drive inside the guest, it must be defined in the vm.cfg file as a paravirtual device, that is /dev/xvda, /dev/xvdb, and so on.

**Bug 14000249**

## 8.3.13 (x86 Only) Virtual Machines with 32 or More Virtual CPUs Fail

When creating or editing a virtual machine, you can set both the number of CPUs it uses and the maximum number of CPUs it is allowed to use. However, if the guest is configured with a large number of virtual CPUs, the respective `vcpus` and `maxvcpus` values are not passed correctly to the hypervisor. As a result, the creation of the virtual machine fails, or if the virtual machine already exists, it fails to start.

**Workaround:** When creating or editing a virtual machine with 32 or more virtual CPUs, do not enter a value for the maximum number of CPUs.

**Bug 13823522**

## 8.3.14 (x86 Only) Guests with More than 32 Virtual CPUs Hang at Boot

If a guest is configured with a large number of virtual CPUs, the virtual machine may hang at some point in the boot sequence. This is likely caused by the kernel or the hypervisor, and there is no workaround if you need more than 32 virtual CPUs.

**Bug 12913287**

## 8.3.15 (x86 Only) Live Migration of a VM may be Affected by Guest Linux Kernel Version

Linux UEK x86_64 2.6.32-100.26.2.el5 as guest kernel does not work well for live migration. Please update to the latest UEK.

**Bug 14276606**

## 8.3.16 (x86 Only) Limitations for Hot-Changing Number of Virtual CPUs

For both hardware virtualized (HVM) guests and hardware virtualized guests with paravirtualized drivers (PVHVM), the possibility to change the number of virtual CPUs is limited by the kernel of the virtual machine. The table below provides an overview of guest kernel support; it applies to both x86 and x86_64 guest architectures.

**Table 10 Guest kernel support for hot-changing virtual CPUs**

| Oracle Linux Version | Type | Kernel Version | Hot-Add | Hot-Remove |
|---|---|---|---|---|
| Oracle Linux R5U5 | PVM | 2.6.18-194.0.0.0.3.el5xen | **Yes** | **Yes** |
| Oracle Linux R5U5 | PVHVM | 2.6.18-194.0.0.0.3.el5 | No | No |
| Oracle Linux R5U6 | PVM | 2.6.18-238.0.0.0.1.el5xen | **Yes** | **Yes** |
| Oracle Linux R5U6 | PVHVM | 2.6.18-238.0.0.0.1.el5 | No | No |
| Oracle Linux R5U7 | PVM | 2.6.32-200.13.1.el5uek | No | **Yes** |
| Oracle Linux R5U7 | PVHVM | 2.6.32-200.13.1.el5uek | No | No |
| Oracle Linux R5U8 | PVM | 2.6.32-300.10.1.el5uek | No | **Yes** |
| Oracle Linux R5U8 | PVHVM | 2.6.32-300.10.1.el5uek | No | No |
| Oracle Linux R6U1 | PVM | 2.6.32-100.34.1.el6uek | **Yes** | **Yes** |
| Oracle Linux R6U1 | PVHVM | 2.6.32-100.34.1.el6uek | No | No |

| Oracle Linux Version | Type | Kernel Version | Hot-Add | Hot-Remove |
|---|---|---|---|---|
| Oracle Linux R6U2 | PVM | 2.6.32-300.3.1.el6uek | **Yes** | **Yes** |
| Oracle Linux R6U2 | PVHVM | 2.6.32-300.3.1.el6uek | No | No |
| Oracle Linux R5U8 with UEK2 | PVM | 2.6.39-100.5.1.el5uek | No | **Yes** |
| Oracle Linux R5U8 with UEK2 | PVHVM | 2.6.39-100.5.1.el5uek | No | No |
| Oracle Linux R6U2 with UEK2 | PVM | 2.6.39-100.5.1.el6uek | **Yes** | **Yes** |
| Oracle Linux R6U2 with UEK2 | PVHVM | 2.6.39-100.5.1.el6uek | **Yes** | No |

**Bugs 12913287, 13905845, 13823853, and 13898210**

### 8.3.17 (x86 Only) Virtual Machine Console Certificate Error

When using the virtual machine console, the following error may be displayed:

```
JAR sources in JNLP file are not signed by the same certificate
```

This occurs if the client JRE version is 1.6.0_14.

**Workaround:** Upgrade the client JRE version to 1.6.0_30 or above.

**Bug 13621606**

### 8.3.18 (x86 Only) Improving Mouse Pointer Control in Virtual Machine Console

When you launch the virtual machine console from Oracle VM Manager you may experience that the mouse pointer on your local machine and the mouse pointer in the virtual machine travel across the screen at different speeds.

If your guest virtual machine's operating system is Linux-based, the following workaround may reduce the mouse control issue. Enter the following on the guest's command line:

```
# xset m 1 1
```

### 8.3.19 (x86 Only) Solaris 10 Kernel Panic on Some AMD Systems

Virtual machines with the guest operating system Solaris 10 may experience kernel panic on systems with AMD processors. Kernel panic has been seen in Solaris 10 9/10 (Update 9) and Solaris 10 8/11 (Update 10).

**Workaround:** To work around this issue:

1. During the installation or first time boot up, edit the grub menu and append the `-kd` kernel boot parameter.

2. Continue with the boot to run the Solaris kmdb. When the following screen prompt is displayed:

```
Welcome to kmdb
[0]>
```

Enter the command:

```
cmi_no_init/W 1
```

Enter the following to continue the installation or system boot:

```
:c
```

3.  After Solaris is installed and booted up, append the following line to the /etc/system file to make this change persistent across system reboot.

```
set cmi_no_init = 1
```

**Bug 13332538**

## 8.3.20 (x86 Only) Solaris 10 Release 8/11 Guest Hangs at Boot

When booting a virtual machine with Oracle Solaris 10 Release 8/11, the guest OS hangs when the copyright information screen appears. This is caused by a change in CPUID handling in dom0, which triggers a Solaris bug on platforms with CPUs of the Westmere-EP family.

**Workaround:** To make Solaris 10 run, kill the virtual machine from Oracle VM Manager and then apply the following manual fix:

1.  At boot, edit the grub menu: append the -kd kernel boot parameter. This runs the Solaris kernel debugger.

2.  Continue the boot sequence up to Solaris kmdb.

3.  At the kmdb prompt, enter the following command:

```
Welcome to kmdb
[0]> apix_enable/W 0
```

4.  Enter :c to continue the system boot sequence.

5.  When Solaris has been installed and has successfully booted, make this fix persistent by adding the following line to /etc/system:

```
set apix_enable = 0
```

**Bug 13876544**

## 8.3.21 (x86 Only) Solaris 11 Release 2011.11 Guest Hangs at Boot

When booting a virtual machine with Oracle Solaris 11 Release 2011.11, the guest OS hangs. This is caused by a Solaris bug where interrupt storms occur on Intel systems based on Sandy bridge and Westmere CPUs. The issue has been fixed in Solaris 11 2011.11 SRU 2a.

**Workaround:** To make Solaris 11 2011.11 run on Oracle VM 3.2, use the SRU 2a, or apply the following manual fix to the GA release:

1.  At boot, edit the grub menu: append the -kd kernel boot parameter. This runs the Solaris kernel debugger.

2.  In the kernel debugger, enter the following commands:

```
[0]> ::bp pcplusmp`apic_clkinit
[0]> :c
kmdb: stop at pcplusmp`apic_clkinit
kmdb: target stopped at: pcplusmp`apic_clkinit: pushq %rbp
```

```
[0]> apic_timer_preferred_mode/W 0
pcplusmp`apic_timer_preferred_mode:    0x2    =    0x0
[0]> :c
```

3. Continue the system boot sequence.

4. When Solaris has been installed and has successfully booted, make this fix persistent by adding the
   following line to `/etc/system`:

```
set pcplusmp:apic_timer_preferred_mode = 0x0
```

For more information, please consult the Support Note with ID 1372094.1. You can also find this document
by logging on to My Oracle Support and searching the knowledge base for `1372094.1`.

**Bug 13885097**

## 8.3.22 (x86 Only) Windows Server 2008 R2 x64 HVM Guests do Not Cleanly Shut Down

Windows Server 2008 Release 2 64-bit hardware virtualized guests fail to shut down cleanly. After the
guest has been shut down, and started again, Windows reports that it was not shut down cleanly.

This is not an issue for Windows Server 2008 Release 2 32-bit hardware virtualized guests with
paravirtualized drivers (PVHVM).

**Bug 12658534**

## 8.3.23 (x86 Only) New Disks Displayed with Yellow Icon in Windows Guests

When you add a new disk to a virtual machine and refresh the device manager, the new disk is displayed
with a yellow mark. This occurs in Microsoft Windows guests that have the Oracle VM Windows Paravirtual
Drivers for Microsoft Windows Release 2.0.7 installed.

**Bug 12837744**

## 8.3.24 (x86 Only) New Disks are not Automatically Detected in Windows 2008 Guests

When you add a new disk to a virtual machine, the new disk is not automatically detected. This occurs in
Microsoft Windows 2008 Release 2, 64-bit guests that have the Oracle VM Windows Paravirtual Drivers for
Microsoft Windows Release 2.0.7 installed.

**Workaround:** After you add a new disk, scan for new hardware changes using **Server Manager** > **Disk
Drives** > **Scan for hardware changes**.

**Bug 12837004**

## 8.3.25 (x86 Only) Netconsole Does Not Work on a SUSE Linux Enterprise Server Guest

Netconsole does not work on a virtual machine running SUSE Linux Enterprise Server 11 (SLES) guest, as
polling is not supported by xennet.

**Novell Bug ID 763858**

## 8.3.26 (x86 Only) Can Not Migrate Suspended and Stopped Guest VM Using Oracle VM Command Line Interface

It is not possible to migrate a guest VM that has been stopped or suspended using the Oracle VM
Command Line Interface.

**Workaround:** If a VM is stopped or suspended, perform a remove VM and then and add VM operation to successfully perform a migration. Alternatively, use the Oracle VM Manager User Interface, which fully supports migration of suspended and stopped VMs, to perform the operation.

**Bug 14501247**

## 8.3.27 (SPARC Only) Bridge Removal Can Fail After Poweroff From the Virtual Machine OS

If a virtual machine is powered off from the OS running within the virtual machine, using the `poweroff` command for example, and if you subsequently try to remove the VM role from the network used by this virtual machine then this will fail with an error similar to the following:

```
command "remove-vswitch": failure (failure: Service is active and being used
        by bound client(s) Failed to remove virtual switch)
```

This is caused because the `poweroff` command stops the virtual machine, but it remains bound on the Oracle VM Server. When you attempt to remove the VM role, Oracle VM attempts to remove the corresponding bridge or vswitch on the Oracle VM Server, but this fails because the virtual machine is still bound.

**Workaround:** Do not use the `poweroff` command from within the virtual machine, but rather stop the virtual machine from within Oracle VM Manager. If the `poweroff` command has already been used, use Oracle VM Manager to kill the stopped virtual machine before attempting to remove the VM role from the network.

**Bug 15942008**

## 8.3.28 (SPARC Only) Sparse Copy for Virtual Disks Not Supported

Although Oracle VM Manager provides the option to add a sparse-allocate virtual disk to a virtual machine, cloning the virtual machine results in a non-sparse file for the cloned virtual machine. This is because sparse copy is not supported by the Solaris `dd` command.

**Bug 14851945**

## 8.3.29 (SPARC Only) Memory Size Mismatch Between Virtual Machine and Oracle VM Manager After a Hot Add or Remove

When adding or removing memory for a running virtual machine Oracle VM Server for SPARC, the request to add or remove memory may be partially fulfilled. In such a case, Oracle VM Manager does not report any error after the memory add or remove operation, and Oracle VM Manager indicates that the entire operation has succeeded. However the virtual machine is actually allocated an amount of memory different from the amount indicated by Oracle VM Manager.

The correct amount of memory will be restored when the virtual machine is stopped and then restarted.

**Bug 14844937**

## 8.3.30 (SPARC Only) Need Actual Available Memory for Live Migration

If the virtual machine memory is less than the available memory on the Oracle VM Server that the virtual machine is to be migrated to, the migration may fail with an error message stating that there is not enough memory available to complete the request. This is due to memory fragmentation on the target server. The details of this are discussed in http://docs.oracle.com/cd/E35434_01/html/E23807/migratingactivedomain.html#memory.

**Bug 14851322**

## 8.3.31 (SPARC Only) Dynamic Reconfiguration of Memory for a Virtual Machine is Disabled After Migration

For virtual machines not running Oracle Solaris 11.1 or greater, dynamic reconfiguration (DR) of memory is disabled after the virtual machine is migrated. This is a documented issue and is described at http://docs.oracle.com/cd/E37707_01/html/E29665/migratingactivedomain.html#memory. In order to re-enable DR, simply reboot the migrated virtual machine.

**Bug 14844852**

# 8.4 Networks

This section contains the known issues and workarounds related to networks and networking.

## 8.4.1 VLAN Group Names Must be Unique

The vlangroup name is used as the ID when a vlangroup is created. Subsequently (since IDs must be unique) a vlangroup's name must be unique. This means that you cannot create two vlangroups with the same name.

**Bug 14470245**

## 8.4.2 Bridge Not Created On Newly Discovered Server if Management Network Already Has the VM Role

If you have a management network set up and none of the servers on that network have the VM Role enabled, enabling the VM Role on one of the servers creates a bridge on that server; going on to discover another server on the network with the VM Role enabled, results in the server being discovered but the bridge not being created.

**Workaround**: This can be achieved in the Oracle VM Manager user interface by removing the VM Role from the management network and then adding it again. Unfortunately, this would require you to stop all running virtual machines. To effect the change without removing the VM Role first, you can set the role list for a network in the Oracle VM Command Line Interface. As long as there is at least one change in the list of roles, the CLI applies the set of roles for the network. This causes the bridge to be created. The simplest way to force a change in the list of roles would to be add or remove the Storage role at the same time that you add the VM role. After the VM role is added, you can then add back or remove the Storage role as needed to re-set the initial state. Adding and removing the storage role should have no impact while this change is occurring.

**Bug 15888317**

## 8.4.3 (x86 Only) Network Card Limit in Virtual Machines

Oracle VM Manager supports eight network cards for each HVM virtual machine as outlined in Table 5 "Virtual machine maximums". However, the system library does not allow users to add more than *three* network cards when creating a virtual machine from installation media.

**Workaround**: After the virtual machine is created, add up to *five* new network cards by editing the virtual machine in Oracle VM Manager.

## 8.4.4 (x86 Only) QLogic QLE8242 CNA Card is Not Supported On Oracle VM Server

QLogic currently does not provide a supported driver for the QLE8242 CNA network card on Oracle VM Server Release 3.1 or Release 3.2. Installation of the provided RedHat driver fails with the error message, `Cannot determine the Redhat release`.

**Bug 14300919**

## 8.4.5 QLogic cLOM8214 1/10 Gigabit Ethernet NIC Initializes with Link State Down

On some systems, such as the HP ProLiant DL980 G7 server, the QLogic cLOM8214 1/10GbE NIC initializes with link state down.

**Workaround**: Disable the use_msi_x option for the qlcnic module in `/etc/modprobe.conf`:

```
options qlcnic use_msi_x=0
```

In order for the change to take effect, you should reboot the server. To temporarily disable the option for the module without rebooting, you can perform the following steps:

```
# ifconfig ethx down
# rmmod qlcnic
# modprobe qlcnic use_msi_x=0
```

**Bug 15865548**

## 8.4.6 Renaming of QLogic cLOM8214 1/10 Gigabit Ethernet NIC is Incorrect

On some systems at initial install, udev may rename the QLogic cLOM8214 1/10GbE Ethernet port to __tmpxxxxxxxx. This is due to a slow initialization of the port.

**Workaround**: Determine which interface name the QLogic cLOM8214 1/10GbE Ethernet NIC should use, for example eth1. Find the MAC address for the QLogic cLOM8214 1/10GbE Ethernet NIC that you want to configure. You can do this by running the following command and studying its output to find the incorrectly named interface:

```
# cat /etc/issue
IF : bond0      MAC : 1c:c1:de:74:b9:34 IP : 10.211.1.135
IF : eth0       MAC : 1c:c1:de:74:b9:34
IF : eth1       MAC : 1c:c1:de:74:b9:35
IF : __tmp713192749      MAC : 24:be:05:ef:5a:f4
```

In `/etc/sysconfig/network-scripts`, create an `ifcfg-ethx` configuration file for the interface name that you wish to use and ensure that the file contains a line that expresses the MAC address for the NIC that you want to assign to this interface name. For example, using the example output from the previous command, you could create a new file at `/etc/sysconfig/network-scripts/ifcfg-eth2` with the following contents:

```
DEVICE=eth2
BOOTPROTO=none
HWADDR=24:BE:05:EF:5A:F4
ONBOOT=yes
```

Finally, bring up the interface using the `ifconfig` command. For example:

```
ifconfig eth2 up
```

**Bug 15897549**

## 8.4.7 (x86 Only) TPA disabled for Broadcom 10 Gigabit Ethernet

To solve a networking bug where Broadcom 10 Gigabit ethernet NICs would throw crash information on HP ProLiant DL980 G7 servers when used for a virtual machine network, resulting in adverse performance, TPA is disabled for the bnx2x driver module.

If the port is used for Dom0 traffic only, you can enable TPA by changing the entry for the bnx2x module in `/etc/modprobe.conf` to:

```
options bnx2x disable_tpa=0
```

**Bug 15971208**

### 8.4.8 (x86 Only) Broadcom BCM5754 Gigabit Ethernet Does Not Support Jumbo Frames

The Broadcom BCM5754 Gigabit Ethernet network controller does not support Jumbo Frames.

### 8.4.9 (x86 Only) ARP Packet Checksum Errors

VLANs over bond mode 6 (balance-alb) bridge interface are not supported as this mode is incompatible with VLAN bridge interfaces.

**Workaround:** There are two workarounds for this problem:

- Use bond mode 6 as a bridge interface; do not use VLANs over bond mode 6.

- Use VLANs over bond modes (1=active-backup or 4=802.3ad) as a bridge interface.

### 8.4.10 (x86 Only) Changing Cluster Heartbeat Network Does Not Reflect New IP Address

If you move the Cluster Heartbeat network role to another network, with a different IP address, the change is not reflected in the Oracle VM Servers.

**Workaround:** Edit the /etc/ocfs2/cluster.conf file on each Oracle VM Server in the network to reflect the new IP address, and restart each Oracle VM Server.

**Bug 12870099**

## 8.5 Storage

This section contains the known issues and workarounds related to storage.

### 8.5.1 (x86 Only) Unclean File System Causes Errors When Used as a Server Pool File System

If a server pool file system is not clean (contains existing files and server pool cluster information) and used to create a server pool, a number of errors may occur.

- Cannot create a server pool using the file system. The following error is displayed:

```
OVMAPI_4010E Attempt to send command: create_pool_filesystem to server: server_name failed.
OVMAPI_4004E Server Failed Command: create_pool_filesystem  ... No such file or directory
```

  **Bug 12839313**

- An OCFS2-based storage repository becomes orphaned (the clusterId that was used when the OCFS2 file system was created no longer exists), you cannot mount or refresh the repository, and the following error is displayed:

```
"OVMRU_002037E Cannot present the Repository to server: server_name. Both server and repository
need to be in the same cluster."
```

**Workaround:** Clean the file system of all files before it is used as a server pool file system.

**Bug 12838839**

**Discovering a Generic ISCSI SAN Server Using CHAP**

When discovering a generic ISCSI SAN server using CHAP authentication, it is important to select the **Use Chap** check box in the **Access Information** step of the **Discover SAN Server** wizard *before* adding the access host. If you add an access host first, then select the **Use Chap** authentication box, an error is displayed at the end of the wizard:

```
OVMRU_007202 ... The access host value must be set for this type of storage server.
```

**Workaround:** In the **Access Information** step of the **Discover SAN Server** wizard, select the **Use Chap** check box, *then* add an access host. The error is no longer displayed.

**Bug 16036915**

## 8.5.2 (x86 Only) Rescanning a LUN Does Not Show the New Size of a Resized LUN

When you resize a LUN and rescan the physical disks on the storage array, the new size is not reflected in Oracle VM Manager.

**Bug 12772588**

## 8.5.3 (x86 Only) Size of New LUN on Server is Incorrect If an Existing LUN Is Unmapped First

If a LUN belonging to an unmanaged Fibre Channel array is unmapped from a server and a new target is mapped to it using the same LUN, then after rescanning the physical disks on that server, the size of the new LUN is set to the size of the LUN that was unmapped.

Remapping LUNs is risky because it can data corruption since the targets have been switched outside of the server. An error should appear in the messages file:

```
Warning! Received an indication that the operating parameters on this
target have changed. The Linux SCSI layer does not automatically adjust
these parameters.
```

**Workaround:** Ensure that when exposing a new target, you do so with a LUN that has not previously been used since the last reboot.

**Bug 14851579**

## 8.5.4 (x86 Only) LUNs Must Be Cleaned Prior to Storage Repository Creation

When you attempt to create a storage repository on a LUN that was previously used by another clustered server pool, the operation will fail. This is due to a built-in mechanism that prevents the creation of a new OCFS2 file system if the disk or partition already contains cluster data.

**Workaround:** Clear all files and file system information on the LUN before placing a storage repository on it.

**Bugs 13806344**

## 8.5.5 (x86 Only) Black Listing of System Disks for Legacy LSI MegaRAID Controllers Not Supported

Oracle VM Server cannot add the system disks for Legacy LSI MegaRAID (Dell PERC4) bus controllers to the /etc/blacklisted.wwids file, so the disks are not blacklisted in the multipath configuration. This occurs because the bus controllers are not capable of returning a unique hardware ID for each disk. Using system disks on Legacy LSI MegaRAID (Dell PERC4) bus controllers is therefore not supported.

**Bug 12944281**

## 8.5.6 (x86 Only) Blacklisting of System Disks for Multipathing Fails on HP Smart Array (CCISS) Disk Devices

Installing Oracle VM Server on an HP Smart Array (CCISS) fails to blacklist system disks (they are not included in the /etc/blacklisted.wwids file). Messages similar to the following are logged in the /var/log/messages file:

```
multipathd: /sbin/scsi_id exited with 1
last message repeated 3 times
```

**Workaround:** Configure multipathing to blacklist the CCISS system devices by adding a new line to the multipath.conf file:

```
# List of device names to discard as not multipath candidates
#
## IMPORTANT for OVS do not remove the black listed devices.
blacklist {
        devnode "^(ram|raw|loop|fd|md|dm-|sr|scd|st|nbd)[0-9]*"
        devnode "^hd[a-z][0-9]*"
        devnode "^etherd"
+       devnode "^cciss!c[0-9]d[0-9]*"     <<====
        %include "/etc/blacklisted.wwids"
}
```

> **Note**
>
> This workaround is not required for HP Smart Array disks backed by the HPSA module.

**Bug 12722044**

## 8.5.7 (x86 Only) HP Smart Array CCISS Disk Devices Are Not Supported For Creation of Local Storage Repositories

HP Smart Array disk devices backed by the older CCISS module are not supported for use as a local storage repository, or for use as raw disks for virtual machines, or for server pool file systems. HP Smart Array disk devices backed by the HPSA module are fully supported.

To verify whether the controller has support for the HPSA module, first obtain the PCI ID of the raid controller for the local disk using the following command:

```
lspci -vnn|grep "RAID bus controller"
```

Check the list of controllers supported by the HPSA module to confirm whether or not your controller's PCI ID appears within the list, by running the following command:

```
modinfo hpsa -F alias
```

If your controller is supported, ensure that you use the HPSA module instead of the CCISS module for your controller.

**Bug 16072257**

## 8.5.8 Multi-homed NFS Shares Are Not Supported

When an NFS file server has two IP addresses, it cannot expose the same file system over both interfaces. This situation would occur if you configure both IP addresses as separate access hosts; for example to

provide access to different Oracle VM Servers via different paths. As a result, the same file system would correspond with two different storage object entries, each with a different path related to each of the IP addresses. As a storage server can only be represented by one object, this configuration is not supported in Oracle VM Release 3.2.

**Workaround:** Configure only one access host per storage server.

## 8.5.9 (x86 Only) Multipath SAN Boot with Single Path Causes Kernel Panic or File System to be Read-Only

On a multipath SAN boot server with only one active path from server to storage, there is a potential risk of kernel panic, or the file system becoming read-only when doing storage rescans. This occurs because multipath SAN boot is only supported with full path redundancy. A minimal full path redundancy configuration can be illustrated as:

```
Server HBA1 --- FC switch 1 ---- Storage controller 1 port1
                            |-- Storage controller 2 port1

Server HBA2 --- FC switch 2 ---- Storage controller 1 port2
                            |-- Storage controller 2 port2
```

**Workaround:** Configure multiple paths to the file systems, instead of a single path.

**Bug 13774291**

## 8.5.10 (x86 Only) Multiple Paths Used in Multipath Environments on Oracle Pillar Axiom Storage

When performing a fail-over (for example, by disabling one protocol such as Fibre Channel), the paths are grouped and the traffic flows through all protocols (for example, both Fibre Channel and ISCSI), which is not as expected. This also occurs with fail-back. This issue occurs in Oracle VMRelease 3.1.1 and Release 3.2.

**Workaround:** Run the following commands on the Axiom server:

```
# service multipathd restart
# multipath -v3
```

**Bugs 14329375 and 14314282**

## 8.5.11 Refreshing a NAS-based File System Produces Invalid/Overlapping Exports

When a NAS-based file system is refreshed, it may produce invalid or overlapping exports. During a file system refresh job, all mount points defined in the NAS-based file server's exports file are refreshed, even file systems that are not intended to be used in Oracle VM environments.

Top level directories which also contain subdirectories in the exports file may also cause problems, for example, if an export file contains /xyz as an export location, and also contains /xyz/abc. In this case, the following error may be displayed during a refresh file system job:

```
OVMRU_002024E Cannot perform operation. File Server: server_name, has invalid exports.
```

**Workaround:** For the second issue, to work around this problem, do not export top level file systems in the NAS-based file server's exports file.

**Bug 12800760**

## 8.5.12 (x86 Only) SAS Disks Only Supported in Local Configuration

Only local SAS storage is supported with Oracle VM Manager. Oracle VM Release 3.2 does not support shared SAS storage (SAS SAN), meaning SAS disks that use expanders to enable a SAN-like behavior can only be accessed as local storage devices. Oracle VM Manager recognizes local SAS disks during the discovery process and adds these as Local File Systems. SAS SAN disks are ignored during the discovery process and are not accessible for use by Oracle VM Manager.

It is possible to determine whether SAS devices are shared or local by running the following command:

```
# ls -l /sys/class/sas_end_device
```

Local SAS:

```
lrwxrwxrwx 1 root root 0 Dec 18 22:07 end_device-0:2 ->\
 ../../devices/pci0000:00/0000:00:01.0/0000:0c:00.0/host0/port-0:2/end_device-0:2/sas_end_device/
   end_device-0:2
lrwxrwxrwx 1 root root 0 Dec 18 22:07 end_device-0:3 ->\
../../devices/pci0000:00/0000:00:01.0/0000:0c:00.0/host0/port-0:3/end_device-0:3/sas_end_device/
  end_device-0:3
```

SAS SAN:

```
lrwxrwxrwx 1 root root 0 Dec 18 22:07 end_device-0:0:0 -> \
../../devices/pci0000:00/0000:00:01.0/0000:0c:00.0/host0/port-0:0/expander-0:0/port-0:0:0/
  end_device-0:0:0/sas_end_device/end_device-0:0:0
lrwxrwxrwx 1 root root 0 Dec 18 22:07 end_device-0:1:0 -> \
../../devices/pci0000:00/0000:00:01.0/0000:0c:00.0/host0/port-0:1/expander-0:1/port-0:1:0/
  end_device-0:1:0/sas_end_device/end_device-0:1:0
```

For SAS SAN storage, note the inclusion of the expander within the device entries.

**Bug 13409094**

## 8.5.13 Errors Occur when Storage Plug-in Versions Do Not Match Oracle VM Server Version

Oracle Storage Connect plug-ins for generic as well as vendor-specific storage hardware exist in different versions that have been adapted for use with a particular release of Oracle VM Server. If storage operations in Oracle VM Manager fail consistently with your storage plug-in, verify that the correct plug-in version is installed on your Oracle VM Servers. The lists below show compatibility of Oracle Storage Connect plug-ins for Oracle VM Server Release 3.0.3, 3.1.1 and Release 3.2.

Oracle VM Server Release 3.2 (GA release) compatible plug-ins:

- osc-plugin-manager-1.2.8-26.el5

- osc-plugin-manager-devel-1.2.8-26.el5

- osc-oracle-ocfs2-0.1.0-38.el5

- osc-oracle-netapp-1.2.8-7.el5

- osc-oracle-generic-1.1.0-74.el5

- osc-oracle-s7k-0.1.2-50.el5

Oracle VM Server Release 3.1.1 (GA release) compatible plug-ins:

- osc-plugin-manager-devel-1.2.8-19.el5

- osc-oracle-netapp-1.2.8-6.el5

- osc-plugin-manager-1.2.8-19.el5

- osc-oracle-generic-1.1.0-55.el5

- osc-oracle-s7k-0.1.2-45.el5

- osc-oracle-ocfs2-0.1.0-36.el5

Oracle VM Server Release 3.0.3 (GA release) compatible plug-ins:

- osc-plugin-manager-devel-1.2.8-9.el5

- osc-oracle-netapp-1.2.8-1.el5

- osc-plugin-manager-1.2.8-9.el5

- osc-oracle-generic-1.1.0-44.el5

- osc-oracle-s7k-0.1.2-31.el5

- osc-oracle-ocfs2-0.1.0-31.el5

**Bug 13938125**

## 8.5.14 (x86 Only) Shared OCFS2 Cluster File System on Virtual Disk Not Supported

When you create a configuration with virtual machines sharing an OCFS2 cluster file system on a virtual disk, severe I/O interruptions may occur. These may affect the heartbeating function of a clustered server pool and even cause Oracle VM Servers to reboot. Therefore, a shared OCFS2 cluster file system on a virtual disk is not a supported configuration.

**Workaround:** Use a physical disk or LUN. Make sure that the virtual machines in your configuration have shared access to this physical disk or LUN, and create the shared OCFS2 cluster file system there.

**Bug 13935496**

## 8.5.15 Virtual Disk Images Must Be Properly Aligned To The OCFS2 Block Size For Performance

If the partitions for a virtual disk are not properly aligned to the OCFS2 block size, OCFS2 serializes I/O to the virtual disk image resulting in degraded performance. This only affects virtual disk images stored on OCFS2 repositories and does not apply to NFS repositories.

**Workaround:** Check for misaligned partitions in the virtual disk images and, if any are found, recreate the disk images with properly aligned partitions. To determine whether partitions are correctly aligned, use `fdisk -lu` to find the starting sectors of the partitions. Ensure that these are a multiple of 8 (512 byte sectors), which aligns them at 4KB, the OCFS2 block size.

> **Note**
>
> Many recent operating systems often start the first partition in sector 2048, aligning it to 1MB, which works well for most storage RAID stripe sizes.

**Bug 14355588**

# 8.6 Miscellaneous

This section contains the known issues and workarounds related to any other issue that does not fit in the previous categories, for example, withOracle VM Utilities or the Oracle VM Command Line Interface.

### 8.6.1 MySQL Performance is Degraded on Oracle Linux Systems Using the EXT4 Filesystem

MySQL performance within Oracle VM Manager is severely degraded on Oracle Linux systems that have been formatted with an EXT4 filesystem due to default mount parameters.

**Workaround:** Change the mount parameters for the filesystem where Oracle VM Manager has been installed. This can be done by editing /etc/fstab and changing the mount options to **(rw,noatime,data=writeback,barrier=0,nobh).**.

**Bug 14624617**

### 8.6.2 Cannot Delete vmdiskMapping From a Running Virtual Machine Using Oracle VM Command Line Interface

It is not possible to delete a vmdiskMapping from a running virtual machine using the Oracle VM Manager CLI. This means that it is not possible to eject an ISO that is presented as a CDROM device to a virtual machine.

**Bug 15901598**

### 8.6.3 Unicode is Not Supported in Assemblies

Using unicode or multibyte characters for appliance or server names within an assembly is not supported within Oracle VM.

**Bug 14624338**

### 8.6.4 Oracle DB Corruption Can Occur on Databases Using the BasicFiles LOB

Using the BasicFiles configuration for Large Objects (LOBs) can result in the corruption of the Oracle VM Manager database. The BasicFiles LOB configuration has been superceded by the SecureFiles LOB, which offers better performance and more stability. Usually when a corruption occurs as a result of this configuration, a SQL Exception is returned with the following text:

```
ORA-01555: snapshot too old...
```

It is recommended that the database configuration is updated to avoid this bug in the future. To start using SecureFiles, instead of BasicFiles, the LOBs within all tables must be converted. Details describing how LOB migration should be performed are covered, along with a description of the benefits of SecureFiles, in the whitepaper available from:

http://www.oracle.com/technetwork/database/securefilesmigrationpaper-130440.pdf

Always ensure that your database is backed up regularly, so that it is possible to recover from a corruption event.

**Bug 13873367, 17080032**

# 9 Upgrading Oracle VM

Oracle VM Release 3.*x* is not backwardly compatible with previous Oracle VM releases. If you are using Oracle VM Release 2.*x* you cannot upgrade to Release 3.2. You must reinstall your Oracle VM Servers and Oracle VM Manager. You can however upgrade between Oracle VM 3.*x* releases, for example, upgrading from Oracle VM Release 3.0.3 to Release 3.2. See the *Oracle VM Installation and Upgrade Guide* for information on upgrading between Oracle VM 3.*x* releases.

Upgrading versions of Oracle VM Manager that are using an Oracle XE database as a backend repository is not supported in this release, as the Oracle XE database is no longer supported under Oracle VM. If you are currently running an Oracle XE database for an existing installation of Oracle VM Manager, you must migrate the Oracle XE database to Oracle SE or Oracle EE before performing an upgrade to Release 3.2.

Oracle VM Server Release 3.1.1 installs the `sudo` package by default. This package is no longer a dependency for Oracle VM Server Release 3.2. If you do not require this package, you can remove it. If you would like to continue to use it, you may also want to install the `ovs-support-tools` package. Instructions are provided in *Oracle VM Installation and Upgrade Guide*.