

Oracle® VM
Release Notes for 3.4.5

ORACLE®

E94829-03
November 2018

Oracle Legal Notices

Copyright © 2011, 2018 Oracle and/or its affiliates. All rights reserved.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

Table of Contents

Preface	ix
1 Introduction	1
2 Installing and Upgrading Oracle VM	3
3 What's New in Oracle VM?	5
3.1 What's New in Oracle VM Release 3.4.5?	5
3.2 What's New in Oracle VM Release 3.4.4?	9
3.3 What's New in Oracle VM Release 3.4.3?	11
3.4 What's New in Oracle VM Release 3.4.2?	15
3.5 What's New in Oracle VM Release 3.4.1?	21
3.6 What's New in Oracle VM Release 3.3.5?	26
3.7 What's New in Oracle VM Release 3.3.4?	29
3.8 What's New in Oracle VM Release 3.3.3?	31
3.9 What's New in Oracle VM Release 3.3.2?	33
3.10 What's New in Oracle VM Release 3.3.1?	36
3.11 What's New in Oracle VM Release 3.2.1?	40
3.12 What's New in Oracle VM Release 3.1.1?	42
3.13 What's New in Oracle VM Release 3.0.3?	43
3.14 What's New in Oracle VM Release 3.0.2?	44
4 Notable Bug Fixes	47
4.1 Bug Fixes in Oracle VM 3.4.5	47
4.2 Bug Fixes in Oracle VM 3.4.4	49
4.3 Bug Fixes in Oracle VM 3.4.3	50
4.4 Bug Fixes in Oracle VM 3.4.2	51
4.5 Bug Fixes in Oracle VM 3.4.1	52
4.6 Bug Fixes in Oracle VM 3.3.5	53
4.7 Bug Fixes in Oracle VM 3.3.4	54
4.8 Bug Fixes in Oracle VM 3.3.3	55
4.9 Bug Fixes in Oracle VM 3.3.2	57
4.10 Bug Fixes in Oracle VM 3.3.1	58
4.11 Bug Fixes in Oracle VM 3.2.1	60
4.12 Bug Fixes in Oracle VM 3.1.1	61
4.13 Bug Fixes in Oracle VM 3.0.3	62
5 Supported Guest Operating Systems	65
5.1 Oracle VM Server for x86 Supported Guest Operating Systems	65
5.2 Oracle VM Server for SPARC Supported Guest Operating Systems	69
6 Oracle VM Manager Support for Previous Oracle VM Server Releases	71
7 Configuration Limits for Release 3.4	75
8 Deprecated and Removed Oracle VM Features	81
9 Known Limitations and Workarounds	83
9.1 Integration Between Oracle VM Server for SPARC and Oracle VM Manager	87
9.2 Cannot Re-install Oracle VM Server Across Multiple Disks or LUNs using a Kickstart Configuration	88
9.3 Oracle VM Server Installation Hangs with RAID10 Boot Partition	88
9.4 Cannot Retrieve Information for File System Mounted on Invalid Mount Point	88
9.5 Cannot Configure the Oracle Solaris Support Repository using the Oracle VM Manager Web Interface	88
9.6 Backup Failure for the MySQL Database Repository	89
9.7 Unable to Login into the Oracle VM Web Services API	89
9.8 Incorrect PVM Migration Error Message Displayed when Secure VM Migration Enabled	90
9.9 Default VM Start Policy Is Different in Oracle VM Manager Command Line Interface and Oracle VM Manager Web Interface	90

9.10 Virtual Machine Fails to Boot with <code>kexec</code>	90
9.11 Missing Physical Disk Warning for Oracle VM Server Instance After Upgrading Oracle VM Manager	90
9.12 Suspend Error During Storage Live Migration	91
9.13 Cannot Change Memory Configuration of Running PVHVM Guests Based on CentOS 6	92
9.14 PVHVM Guests Based on CentOS 5 Do Not Start Successfully After Conversion from PVM ..	92
9.15 PVM Guests Based on CentOS 5 Do Not Start Successfully After Conversion from PVHVM ..	92
9.16 Guests Based on CentOS 5.11 Start with the Maximum Memory Configuration	92
9.17 Guests Based on CentOS 5 Display Incorrect Number of VNICs	93
9.18 Live Migrating Oracle Solaris Guests to Oracle VM Server Release 3.4.4 or Later Results in Guest Reboot	93
9.19 Cannot Remove Software RAID Devices from Oracle VM Manager	94
9.20 VNICs Deleted When Editing Virtual Machine	95
9.21 Enable High Availability Option is Disabled Due to Restart Option	95
9.22 Cannot Upgrade Oracle VM Manager Due to Presence of Temporary Files	95
9.23 Job List Excel Spreadsheet Name Contains Unexpected Characters	95
9.24 Oracle Linux 6 HVM Guest Virtual Machine with Hard Disk of 2TiB in Size Hangs on Boot	96
9.25 Kernel Panic when Assigning More Than 32 virtual CPUs to Oracle Linux 32-bit PVM Guests	97
9.26 Live Migration of Guest Virtual Machine Fails Due to Linux Kernel Version	97
9.27 PVHVM Guest Boot Delayed by Xen Balloon Driver	97
9.28 Oracle VM Server Cannot Boot from Software RAID Devices with Disks that are 2TB or Larger	98
9.29 Oracle VM Server Does Not Boot After Installation to LUN Targets Larger Than 2TB	98
9.30 Oracle VM Server Boot Delay and I/O Error Messages with Oracle ZFS Storage Array	99
9.31 FIPS Integrity Error Message for SSH Connections from Oracle VM Server	99
9.32 Incorrect MAC Address Displayed for Bond Port	99
9.33 Kernel Panic when Booting Guest Virtual Machine with 100 or more Virtual Disks	100
9.34 Different Default Values for the <code>serverAffinityType</code> when Creating Anti-Affinity Groups	100
9.35 Performance Impact when Less than 8 CPUs Configured for <code>dom0</code>	100
9.36 Upgrading Oracle VM Server from Release 3.2.10 to 3.3.4 and then to 3.4.2 fails	100
9.37 Logical Volume Manager (LVM) is enabled on Oracle VM Server Release 3.4.1	101
9.38 Btrfs Root File System Not Supported on PVM Guest Virtual Machines	101
9.39 SUSE Linux Enterprise Server 12 SP2 and Later Not Supported For PVM Guest Virtual Machines	102
9.40 Cannot Connect to the Oracle VM Manager Web Interface with Microsoft Internet Explorer ..	102
9.41 The Virtual Machine Console Window in the Oracle VM Manager Web Interface Opens in the Background when using Microsoft Internet Explorer	102
9.42 Inconsistent Value for SPARC Domain Type	103
9.43 Integer Only Values for the <code>statValue</code> Option	103
9.44 Aborting a Server Discovery Operation Results in Server Listed with an Unknown Operational State	103
9.45 Automatic Discovery Operations can Conflict with Server Configuration Operations	103
9.46 Solaris 11 x86 Virtual Machine Disk Type Can Cause Kernel Panic on Boot	104
9.47 Solaris 10 x86 Virtual Machine Installation Fails To Boot	104
9.48 Oracle Linux 7 Virtual Machines Imported from a VirtualBox Virtual Appliance Do Not Start on Oracle VM	104
9.49 (x86 Only) IOStat Stays at 100% Util for Oracle Linux Virtual Machines After a Storage Migration	105
9.50 Serial Console Does Not Respond for Oracle Linux 7 HVM Virtual Machines	105
9.51 Error When Attaching CD-ROM Drives to Running HVM Virtual Machines	106
9.52 Deleting Bond Ports for VLANIF Interfaces Deletes the VLANIF	106
9.53 (SPARC Only) NFSv4 Delegation Interferes with Cluster Heartbeat, Using NFSv3 Results in RPC Error PROGRAM/VERSION MISMATCH	106

9.54 Cannot Import OVF Files into Oracle VirtualBox	107
9.55 Oracle VM Manager Cannot Receive Messages from SPARC Virtual Machines	107
9.56 Cannot Boot Oracle VM Server Installed on an HP DL380 Gen9 Server in UEFI mode	107
9.57 (x86 Only) Cannot Boot Oracle VM Server with Broadcom 57840S CNA Card After PXE Install	107
9.58 Changing to Dynamic Mode IP Address Assignment Does Not Rollback if the Server is Unable to Obtain an IP Address	108
9.59 Drag and Drop from Blank Space of Object	108
9.60 Error When Using the Administrator Tool in Parallel	108
9.61 Oracle VM Manager Command Line Interface TCP Port Conflicts With Port Reserved for NDMP	108
9.62 When A Virtual Machine Using A Shared Virtual Disk Is Moved To Another Repository, The Shared Virtual Disk Is Cloned	109
9.63 Unable to Remove a Storage Array if a File System Exists on a LUN	109
9.64 Cluster Failure After An Offline Server is Removed From the Cluster While Another Cluster Member is Offline	109
9.65 LSI Logic / Symbios Logic MegaRAID SAS 1078 is not supported on Oracle VM Server	110
9.66 (SPARC Only) Hot-added CD-ROM Device is Detected As Hard Disk	110
9.67 Fibre Channel LUNs Missing From Oracle VM Manager After Refresh	111
9.68 (SPARC Only) Size of Physical Disk in Oracle VM Manager Incorrect When LUN Size is Decreased on Storage Array	112
9.69 The Apparent Size of a Repository in Oracle VM Manager Web Interface Does Not Update Automatically	112
9.70 Virtual Disks Do Not Display on Solaris 10 Guests	112
9.71 Oracle Linux 5 Virtual Machines Converted from Physical Hosts Do Not Boot	112
9.72 SSL Exception in AdminServer Log File	113
9.73 Oracle VM Servers in a Server Pool Must Be at the Same Minor Version	113
9.74 Oracle VM Manager Displays Incorrect Details for ZFS Storage Appliances After Cluster Failover	113
9.75 Oracle VM Server Upgrade Not Possible with NetApp Storage plug-in	114
9.76 Oracle VM Manager Web Interface Incorrectly Displays Oracle VM Server Upgrade Required	114
9.77 The Oracle VM Manager Silent Install Option Using A YAML Configuration File Is Deprecated	114
9.78 Aborting An Oracle VM Server Upgrade Initiated By The UpgradeServers.py Script May Result In Inconsistent Reporting on Upgrade Status	114
9.79 Kdump On Oracle VM Server Only Supports Dump Levels 0 and 1	115
9.80 Network Receive Statistics For A Virtual Machine Are Invalid And Set To -1	115
9.81 CPU Affinity After Live Migration of Virtual Machine on Non-Uniform Memory Access (NUMA) Systems	115
9.82 Virtual Machines Based on Oracle Solaris 11 Do Not Boot	116
9.83 Changing Domain Type from Xen HVM to Xen HVM PV Drivers Causes Informational Messages in AdminServer.log	116
9.84 Single-Stream TCP Throughput is Degraded for Guest Virtual Machines Running UEK Release 4	116
9.85 Error Partitioning Caused by Disk Label or Format in UEFI Mode	116
9.86 Kernel Panic when Booting Guest Virtual Machine with Oracle Solaris 11.2	117
9.87 Oracle VM Manager Web Interface Goes to Blank Screen with Mozilla Firefox on a Linux System	117
9.88 HugePages Deprecated for PVM Guests as of Oracle VM Release 3.4.1	117
9.89 HugePages Does Not Display as Selected in Oracle VM Manager Web Interface	118
9.90 Kdump Service Hangs at Discovery of FCoE Device with Broadcom CNA on HP Servers	118
9.91 Do Not Discover Oracle VM Servers Earlier than Release 3.2.10	118
9.92 (SPARC Only) Cannot Export Virtual Appliance with Physical Disk Access	118

9.93 (SPARC Only) MTU Resets to the Default of 1500 After Server Power Off	119
9.94 Oracle VM Server Installer Fails When Modifying Swap Partitions	119
9.95 Kernel Startup is Slow after Upgrading to UEK4 on PVHVM Guests	119
9.96 Cannot Enable High Availability (HA) for Virtual Machines with HugePages	120
9.97 Kdump is Not Supported on FCoE SANs	120
9.98 Cannot Edit Running Virtual Machines with HugePages and HA Enabled	120
9.99 Import URL Cannot Exceed Maximum Character Length	120
9.100 Performance Impact for Fewer than 8 CPUs Configured for dom0	121
9.101 Migration of PVHVM Guest Virtual Machines may be Affected by Linux Kernel Version	121
9.102 SR-IOV Is Not a Supported Feature	121
9.103 Oracle VM Manager Upgrade Does Not Restore External Authentication Provider	121
9.104 Limit of 3 Virtual Machine Console Windows with Microsoft Internet Explorer	122
9.105 Virtual Machine Migration Job Loop During Oracle VM Upgrade	122
9.106 The kdump Service Cannot Mount the Root Partition if Zone Connection to EMC Storage Array	123
9.107 Oracle VM Server Hangs During Upgrade if Boot Partition Not Large Enough	124
9.108 GRO Must Be Disabled After an Upgrade When Routing/Bridging with IXGBE Driver	124
9.109 Change in Variable Name for the eventGetTypes SOAP Call using Oracle VM Web Services API	124
9.110 Restart Virtual Machines After Upgrade	124
9.111 LRO Setting Bridge Interface	125
9.112 Disable Transitional Update Repository	125
9.113 (X86 Only) SWIOTLB Buffer Errors When Using Jumbo Frames on Oracle VM Server	125
9.114 Operation Transactions	125
9.115 One Instance of Oracle VM Manager Web Interface Per Browser Session	125
9.116 IPv6 Updates On Some Microsoft Windows Guests Do Not Reflect in Oracle VM Manager	126
9.117 Incorrect Text Color After Acknowledging VM Errors	126
9.118 Unable to Copy Text or Take Screen Shots of Error Dialogs	126
9.119 Safari Web Browser on Windows is not Supported	126
9.120 Object Lock Prevents Some Operations	126
9.121 Unable to Configure NTP For All Servers	127
9.122 (x86 Only) Oracle VM Server Installer Goes To Black Screen After Running <code>/sbin/ loader</code>	127
9.123 (x86 Only) Oracle VM Server Installer Hangs Waiting for Hardware to Initialize	127
9.124 (x86 Only) Oracle VM Server Installer Hangs Examining Storage Devices For Large Number of LUNS	127
9.125 (x86 Only) Benign Error Message During Install: HDIO_GET_IDENTITY failed	128
9.126 (x86 Only) Cannot Use Installation Media to Upgrade Oracle VM Server if Earlier than Release 3.3.x	128
9.127 (x86 Only) Oracle VM Server Upgrade From ULN or Oracle Public Yum Repositories is Restricted to Servers That Do Not Use Non-Native Packages	128
9.128 (x86 Only) Many ISCSI or Fibre Channel LUNs Require More Server Memory	128
9.129 Clustered Server Pools in Mixed Platform Environments Require NFS Access Groups To Be Configured	129
9.130 (SPARC Only) Cluster Recovery May Fail When Using NFSv3 For Server Pool File System	129
9.131 (x86 Only) Server BIOS Settings	130
9.132 (x86 Only) Oracle VM Server Does Not Support <code>crashkernel=auto</code> Boot Parameter	130
9.133 Kdump Core Collector Using Sparse Copy Fails	130
9.134 (x86 Only) Oracle VM Server Installation on Sun Fire X4800	131
9.135 (x86 Only) Installation of Oracle VM Server on some HP Server Hardware May Fail if Tape Drive is Attached	131
9.136 (x86 Only) Wake On Lan (WOL) Fails if Oracle VM Servers on Different Subnets	131
9.137 (x86 Only) Sun Fire X4170 Server Not Fenced During Cluster Failure	131

9.138 (x86 Only) Netconsole Unknown Error 524 During Oracle VM Server Start-up	131
9.139 (x86 Only) ACPI Buffer Error After Installing Oracle VM Server	132
9.140 Failed Server Evacuation Defined in DPM Policy Generates User Acknowledgeable Event	132
9.141 (SPARC Only) Serial Console Hangs During Installation of Oracle Solaris 11 on Virtual Machine	132
9.142 Editing Virtual Machine Configuration File Results in Unexpected Behavior	133
9.143 Concurrent Template Operations May Fail Due to Lock Issue	133
9.144 (SPARC Only) Wrong Error Message Returned When Importing A Template From An Incorrect URL	133
9.145 (x86 Only) Virtual Machine Fails to Restart On Another Server in the Cluster if ACPI is Enabled	134
9.146 (x86 Only) Oracle Solaris 10 Virtual Machine May Hang During Shutdown	134
9.147 (x86 Only) Virtual Machine Created with Network (PXE) Installation Does Proceed Beyond Pre Boot	134
9.148 (x86 Only) Maximum Memory to Start a PVM Guest is 470 GB	134
9.149 (x86 Only) Creating a PVM Guest Slow Using Local Storage	134
9.150 (x86 Only) Live Migration of a VM may be Affected by Guest Linux Kernel Version	135
9.151 (x86 Only) Improving Mouse Pointer Control in Virtual Machine Console	135
9.152 (x86 Only) Solaris 10 Kernel Panic on Some AMD Systems	135
9.153 (x86 Only) Solaris 10 Release 8/11 Guest Hangs at Boot	136
9.154 (x86 Only) Solaris 11 Guest With More Than 2 VCPUs Hangs at Boot	136
9.155 (x86 Only) Solaris 11 Release 2011.11 Guest Hangs at Boot	137
9.156 (x86 Only) Windows Server 2008 R2 x64 HVM Guests do Not Cleanly Shut Down	137
9.157 (SPARC Only) Need Actual Available Memory for Live Migration	137
9.158 (x86 Only) Network Card Limit in Virtual Machines	138
9.159 QLogic cLOM8214 1/10 Gigabit Ethernet NIC Initializes with Link State Down	138
9.160 Renaming of QLogic cLOM8214 1/10 Gigabit Ethernet NIC is Incorrect	138
9.161 (x86 Only) Incorrect ARP Reply When Using Jumbo Frames	139
9.162 (x86 Only) Changing Cluster Heartbeat Network Does Not Reflect New IP Address	139
9.163 NFSv4 Read/Write Delegation Not Supported	139
9.164 (x86 Only) Unclean File System Causes Errors When Used as a Server Pool File System .	140
9.165 (SPARC Only) Agent Fails to Reconcile Multipath LUNS If Solaris I/O Multipathing is Disabled	140
9.166 (x86 Only) Size of New LUN on Server is Incorrect If an Existing LUN Is Unmapped First ...	140
9.167 (x86 Only) Remapping LUNs Causes Storage Refresh To Hang	141
9.168 (x86 Only) LUNs Must Be Cleaned Prior to Storage Repository Creation	141
9.169 NetApp ONTAP (8.2 c-mode) Operating System Does Not Work With Oracle VM	141
9.170 (x86 Only) Black Listing of System Disks for Legacy LSI MegaRAID Controllers Not Supported	142
9.171 (x86 Only) Blacklisting of System Disks for Multipathing Fails on HP Smart Array (CCISS) Disk Devices	142
9.172 (x86 Only) HP Smart Array CCISS Disk Devices Are Not Supported For Creation of Local Storage Repositories	142
9.173 (x86 Only) Multiple Paths Used in Multipath Environments on Oracle Pillar Axiom Storage .	143
9.174 Refreshing a NAS-based File System Produces Invalid/Overlapping Exports	143
9.175 (x86 Only) Shared OCFS2 Cluster File System on Virtual Disk Not Supported	143
9.176 Virtual Disk Images Must Be Properly Aligned To The OCFS2 Block Size For Performance	144
9.177 Oracle VM Manager Command Line Interface Backspace Key	144
9.178 Oracle VM Manager Command Line Interface Allows THIN_CLONE cloneType On NFS	145
9.179 Untagged VLAN Interface Missing After Upgrade of Oracle VM Manager	145
10 Additional Software for Oracle VM	147
10.1 Oracle VM Paravirtual Drivers for Microsoft Windows	147
10.2 Oracle VM Storage Connect plug-ins	147

10.3 Oracle VM Guest Additions	147
10.4 Oracle VM Utilities	147
10.5 Oracle OpenStack	148
10.6 Oracle Enterprise Manager	148
10.7 Third Party Software	148
11 Oracle VM Accessibility Features	149

Preface

The Oracle VM Release Notes contain information on Oracle VM Release 3.4 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/>

The release notes provided for each subsequent release of Oracle VM are published as individual documents at the time that the release is made available. You should check that you are referring the correct document for the release that you are interested in. The release notes for each of the Oracle VM 3.4.x releases is available at:

http://download.oracle.com/docs/cd/E64076_01

This document is intended for users, and administrators of Oracle VM. It includes 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.

Audience

This document is intended for Oracle VM administrators with privileged access to the physical and virtual resources of the Oracle VM environment. This guide assumes that you have an in depth knowledge of Oracle VM (see the *Oracle VM Manager User's Guide*), and that you are familiar with Oracle Linux system administration and Linux command line operation.

Related Documents

For more information, see the following documents in the Oracle VM documentation set:

- *Oracle VM Release Notes*
- *Oracle VM Installation and Upgrade Guide*
- *Oracle VM Concepts Guide*
- *Oracle VM Manager Getting Started Guide*
- *Oracle VM Manager User's Guide*
- *Oracle VM Manager Command Line Interface User's Guide*
- *Oracle VM Administrator's Guide*
- *Oracle VM Paravirtual Drivers for Microsoft Windows Guide*
- *Oracle VM Web Services API Developer's Guide*
- *Oracle VM Security Guide*
- *Oracle VM Licensing Information User Manual*

You can also get the latest information on Oracle VM by going to the Oracle VM Web site:

<http://www.oracle.com/us/technologies/virtualization/oraclevm>

Command Syntax

Oracle Linux command syntax appears in `monospace` font. The dollar character (\$), number sign (#), or percent character (%) are Oracle Linux command prompts. Do not enter them as part of the command. The following command syntax conventions are used in this guide:

Convention	Description
backslash \	A backslash is the Oracle Linux command continuation character. It is used in command examples that are too long to fit on a single line. Enter the command as displayed (with a backslash) or enter it on a single line without a backslash: <pre>dd if=/dev/rdskc0t1d0s6 of=/dev/rst0 bs=10b \ count=10000</pre>
braces { }	Braces indicate required items: <pre>.DEFINE {macro1}</pre>
brackets []	Brackets indicate optional items: <pre>cvtcrt <i>termname</i> [<i>outfile</i>]</pre>
ellipses ...	Ellipses indicate an arbitrary number of similar items: <pre>CHKVAL fieldname value1 value2 ... valueN</pre>
<i>italics</i>	Italic type indicates a variable. Substitute a value for the variable: <pre><i>library_name</i></pre>
vertical line	A vertical line indicates a choice within braces or brackets: <pre>FILE <i>filesize</i> [K M]</pre>
forward slash /	A forward slash is used to escape special characters within single or double quotes in the Oracle VM Manager Command Line Interface, for example: <pre>create Tag name=MyTag description="HR/'s VMs"</pre>

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
<code>monospace</code>	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

Chapter 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 as follows:

Oracle VM Server for x86

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

Oracle VM Server for SPARC (previously called Sun Logical Domains) is Oracle's server virtualization and partitioning technology on SPARC servers. Oracle VM Server for SPARC leverages the SPARC hypervisor to subdivide supported platforms' resources (CPUs, memory, I/O, and storage) by creating logical domains, also called virtual machines, to take advantage of the massive thread scale offered by SPARC servers and the Oracle Solaris operating system.

Oracle VM Manager

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 sets out to describe items of interest and relevance to the current release of Oracle VM. The release notes provided for each subsequent release of Oracle VM are published as individual documents at the time that the release is made available. You should check that you are referring to the correct document for the release that you are interested in. The release notes for each of the Oracle VM 3.4.x releases is available at:

http://download.oracle.com/docs/cd/E64076_01



Note

This errata update for Oracle VM Release 3.4 provides complete installation packages for Oracle VM Manager and Oracle VM Server. Each errata update for Oracle VM includes all cumulative enhancements, bug fixes, and security updates since Oracle VM Release 3.4.1.

Chapter 2 Installing and Upgrading Oracle VM

The *Oracle VM Installation and Upgrade Guide* explains how to install and upgrade Oracle VM. For instructions on:

- Installing Oracle VM Server, see [Installing Oracle VM Server](#).
- Installing Oracle VM Manager, see [Installing Oracle VM Manager](#).
- Upgrading between Oracle VM 3.x releases, see [Upgrading Oracle VM](#).

Restrictions for Upgrading

You can upgrade Oracle VM between 3.x Releases only; for example, upgrading from Oracle VM Release 3.3.1 to 3.4.1. You cannot upgrade from a Release 2.x to a Release 3.x, however. In this case, you must reinstall Oracle VM Servers and Oracle VM Manager.

Upgrading versions of Oracle VM Manager that are using an Oracle XE database as a back end 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 3.4.

As of Release 3.4.5, Oracle VM Manager uses the TLSv1.2 protocol as the default to secure all connections. As a result, management of Oracle VM Server for x86 at Release 3.2.10 or 3.2.11, and Oracle VM Agent for SPARC at Release 3.3.1, is not possible by default. When upgrading to Release 3.4.5, you need to temporarily enable TLSv1 until all Oracle VM Servers have been upgraded to the latest version. For instructions to enable TLSv1, and revert to the default and more secure TLSv1.2 protocol, see [Enabling the TLS Version 1 Protocol](#) in the *Oracle VM 3.4 Installation and Upgrade guide*.

Running Oracle Solaris 11.4 in the control domain of SPARC systems is not supported by Oracle VM Release 3.4.5.

Chapter 3 What's New in Oracle VM?

Table of Contents

3.1 What's New in Oracle VM Release 3.4.5?	5
3.2 What's New in Oracle VM Release 3.4.4?	9
3.3 What's New in Oracle VM Release 3.4.3?	11
3.4 What's New in Oracle VM Release 3.4.2?	15
3.5 What's New in Oracle VM Release 3.4.1?	21
3.6 What's New in Oracle VM Release 3.3.5?	26
3.7 What's New in Oracle VM Release 3.3.4?	29
3.8 What's New in Oracle VM Release 3.3.3?	31
3.9 What's New in Oracle VM Release 3.3.2?	33
3.10 What's New in Oracle VM Release 3.3.1?	36
3.11 What's New in Oracle VM Release 3.2.1?	40
3.12 What's New in Oracle VM Release 3.1.1?	42
3.13 What's New in Oracle VM Release 3.0.3?	43
3.14 What's New in Oracle VM Release 3.0.2?	44

Review the new features and enhancements in each release of Oracle VM.

3.1 What's New in Oracle VM Release 3.4.5?

Oracle VM Release 3.4.5 includes features, enhancements, and security updates that were included in previous 3.4.x errata releases.

New features and enhancements included in Oracle VM Release 3.4.5 are as follows:

Infrastructure

Update to the dom0 Kernel	The dom0 kernel for Oracle VM Server is updated to Unbreakable Enterprise Kernel Release 4 Update 7 (UEK R4 U7) in this release. See the UEK R4 U7 Release Notes for information on new features and updates: https://docs.oracle.com/cd/E93554_01/E94694/html/index.html .
Update to Boot Protocol Support for Xen	The updated Xen hypervisor for Oracle VM Server is delivered as a single binary, named <code>xen.mb.efi</code> instead of <code>xen.gz</code> , which can be loaded by the EFI loader, Multiboot, and Multiboot2 protocols.
Package Additions and Updates	The full list of package additions and updates is beyond the scope of this document, but the following list includes the notable package updates that are included in this release: <ul style="list-style-type: none">• <code>cloud-init-0.7.5-8.0.1.el6_9.x86_64.rpm</code>• <code>oswatcher-7.3.3-3.el6.x86_64.rpm</code>• <code>boost-filesystem-1.41.0-28.el6.x86_64.rpm</code>• <code>boost-regex-1.41.0-28.el6.x86_64.rpm</code>• <code>boost-python-1.41.0-28.el6.x86_64.rpm</code>

- libyaml-0.1.3-4.el6_6.x86_64.rpm
- PyYAML-3.10-3.1.el6.x86_64.rpm
- oracle-Ofed-release-1.0.0-41.el6.x86_64.rpm

Several other user space packages were also updated to align with the latest Oracle Linux 6 Update 9 versions, or to resolve dependencies.

Performance and Scalability

Increased Performance for Microsoft Windows guest operating systems

This release provides the ability to enable the exposure of Windows virtualization (also referred to as viridian) compatible entitlements to Microsoft Windows guest operating systems. Enabling viridian support is strongly recommended to ensure improved performance for all Microsoft Windows guest operating systems. For more information about how to enable this support, see [Create Virtual Machine](#) in the Oracle VM Manager User's Guide.

Hybrid Columnar Compression Support

As of this release, Oracle VM provides support for Hybrid Columnar Compression (HCC) on Oracle Database Release 18c with Oracle ZFS Storage Appliance and Oracle FS1 Series Flash Storage Systems. Hybrid Columnar Compression is an Oracle Database compression technology that enables the highest levels of data compression and provides cost savings and performance improvements due to reduced I/O.



Note

The following RPM packages are required for Oracle VM to provide support for Hybrid Columnar Compression (HCC) on Oracle Database Release 18c:

- The `ovmport-1.0-8.el6.x86_64.rpm` package must be installed on the Oracle VM Server instance. This package is included by default with the Oracle VM Server Release 3.4.5 ISO.
- The `libxenstore` and `libxenstore-devel` packages must be installed on the Oracle Linux 6 or 7 guest. These packages are available from the addons channel for the Oracle Linux Yum Server.

For more information, see the [Hybrid Columnar Compression](#) section of the *Oracle Database Concepts* guide for Oracle Database Release 18c.

Usability

Additional VM Migration Check Added to Oracle VM Manager Stop and Restart Options

A `check_migrate` option is now available for use with the Oracle VM Manager stop and restart commands, allowing you to check for active VM migration jobs that are triggered by a server pool load

balancing job. For more information, see [Starting and Stopping Oracle VM Manager](#) in the *Oracle VM Installation and Upgrade Guide*.

New Start Policy Available for Virtual Machines	A new virtual machine start policy called Balance Server is now available for selection when creating or editing a server pool or virtual machine. Virtual machines can be started on the best available Oracle VM Server as determined by CPU and memory utilizations, with CPU utilization taking precedence over memory utilization. This ensures that virtual machines are evenly distributed amongst all Oracle VM Servers in the server pool, starting with the least utilized Oracle VM Server first. For more information, see Servers and VMs Tab in the <i>Oracle VM Manager User's Guide</i> .
New LIP Scan Option for Fibre Channel Storage Arrays	A Loop Initialization Protocol (LIP) scan is now optional and can be enabled when modifying an Unmanaged FibreChannel Storage Array. A LIP issued to an Oracle VM Server connected to a fabric causes the Host Bus Adapter (HBA) driver to reset the SCSI bus and as a result, may also cause the target to reset. Disabling a LIP scan for an Unmanaged FibreChannel Storage Array may result in faster times for storage array refreshes when configuring a new SCSI target on a Fibre Channel interconnect. For more information, see the Storage Tab section in the <i>Oracle VM Manager User's Guide</i> and the CLI Command Reference section in the <i>Oracle VM Manager Command Line Interface User's Guide</i> .

Server Upgrade Warning Events Displayed with Blue Icon

After an Oracle VM Manager upgrade, there are warning events associated with each Oracle VM Server that has not yet been upgraded to the latest version. Oracle recommends that you upgrade to the latest version of Oracle VM Server at your earliest convenience, but it is not a strict requirement. Previously, both warnings and errors were displayed in the Events perspective of the Oracle VM Manager Web Interface with the same red icon, although in practice there is a clear difference in severity level and priority. As of this release, the warning events for Oracle VM Servers requiring upgrade are displayed with a blue icon, to make them visually distinguishable.

Documentation

New Section Listing Oracle VM Release 3.4 Deprecated Features

As of Oracle VM Release 3.4.5, a new section called [Chapter 8, Deprecated and Removed Oracle VM Features](#) has been added to the Oracle VM Release Notes. This can be used to track features that have been deprecated and removed for current and previous Oracle VM Release 3.4.x release.

Security

Support for TLS Version 1.2 Protocol	As of this release, Oracle VM Manager uses the TLSv1.2 protocol for all connections to ensure enhanced security protection. As a result, management of Oracle VM Server for x86 at Release 3.2.10 or 3.2.11, and Oracle VM Agent for SPARC at Release 3.3.1, is not possible by default. It is strongly recommended to upgrade your Oracle VM Server instances to the latest version, but if this is not possible, you can enable the TLSv1 protocol, which is less secure. For instructions, see Enabling the TLS Version 1 Protocol in the <i>Oracle VM 3.4 Installation and Upgrade guide</i> .
--------------------------------------	--

Xen 4.4.x Performance and Scalability Updates

- **Idle Driver Updates:** The mwait idle driver has been improved to make use of deeper C-states on Broadwell and Skylake platforms. In addition, turbo boost works properly when C-states are in use.
- **Better ACPI Handling:** ACPI handling has been improved to enable turbo boost functionality on Oracle Server X7 based platforms.
- **Improved Memory Scrubbing:** The scrubbing mechanism allows better handling of memory assigned to a domain close to the host boundaries. This prevents out-of-memory issues when guest-driven reboots occur.
- **APICv Support:** On platforms that support it, APICv is exposed, allowing guests to use native MSI-X handling for PCI devices, instead of pirqs. This results in a latency improvement of approximately 10 percent for certain workloads.

Security updates included

Security updates included in this errata update release are as follows:

- **Oracle MySQL patch update:** This release of Oracle VM includes the April 2018 Critical Patch Update for MySQL. (26836018)
- **Oracle WebLogic patch update:** This release of Oracle VM includes the April 2018 Critical Patch Update for WebLogic. (26835998)
- **Oracle Java patch update:** This release of Oracle VM includes the April 2018 Critical Patch Update for Java. (26836007)
- **Xen security advisories:** The following Xen security advisories are included in this release:
 - XSA-231 (CVE-2017-14316)
 - XSA-233 (CVE-2017-14317)
 - XSA-234 (CVE-2017-14319)
 - XSA-236 (CVE-2017-15597)
 - XSA-237 (CVE-2017-15590)
 - XSA-239 (CVE-2017-15589)
 - XSA-240 (CVE-2017-15595)
 - XSA-241 (CVE-2017-15588)
 - XSA-242 (CVE-2017-15593)
 - XSA-243 (CVE-2017-15592)
 - XSA-244 (CVE-2017-15594)
 - XSA-246 (CVE-2017-17044)
 - XSA-247 (CVE-2017-17045)
 - XSA-248 (CVE-2017-17566)
 - XSA-249 (CVE-2017-17563)

- XSA-250 (CVE-2017-17564)
- XSA-251 (CVE-2017-17565)
- XSA-252 (CVE-2018-7540)
- XSA-254 (CVE-2017-5753, CVE-2017-5715, CVE-2017-5754)
- XSA-255 (CVE-2018-7541)
- XSA-260 (CVE-2018-8897)
- XSA-261 (CVE-2018-10982)
- XSA-262 (CVE-2018-10981)

3.2 What's New in Oracle VM Release 3.4.4?

Oracle VM Release 3.4.4 includes features, enhancements, and security updates that were included in previous 3.4.x errata releases.

New features and enhancements included in Oracle VM Release 3.4.4 are as follows:

Infrastructure

Support for Microsoft Windows Server 2016	As of this release, Oracle VM supports Microsoft Windows Server 2016 guest operating systems. See Chapter 5, Supported Guest Operating Systems .
Update to the dom0 Kernel	The dom0 kernel for Oracle VM Server is updated to Unbreakable Enterprise Kernel Release 4 Update 4 (UEK R4 U4) in this release. See the UEK R4 U4 Release Notes for information on new features and updates: https://docs.oracle.com/cd/E52668_01/E86280/html/index.html .
Support for Skylake processors	Oracle VM provides improved support for servers that use Skylake processors, including the Intel® Xeon® E3 v5, Intel® Xeon® Platinum 8100, Intel® Xeon® Gold 6100, Intel® Xeon® Gold 5100, Intel® Xeon® Silver 4100 and Intel® Xeon® Bronze 3100 families of processors. This support is available as part of the dom0 kernel update to UEK R4 U4.
Package Additions and Updates	<p>The full list of package additions and updates is beyond the scope of this document, but the following list includes the notable package updates that are included in this release:</p> <ul style="list-style-type: none"> • This release adds the <code>network-scripts-vxlan</code> package. • The <code>device-mapper-multipath</code>, <code>kpartx</code>, and <code>udev</code> packages are updated as follows: <ul style="list-style-type: none"> • <code>device-mapper-multipath-libs-0.4.9-100.0.3.el6.x86_64</code> • <code>device-mapper-multipath-0.4.9-100.0.3.el6.x86_64</code> • <code>kpartx-0.4.9-100.0.3.el6.x86_64</code>

- [libgudev1-147-2.73.0.1.el6_8.2.x86_64](#)
- [libudev-147-2.73.0.1.el6_8.2.x86_64](#)
- [udev-147-2.73.0.1.el6_8.2.x86_64](#)
- The `irqbalance` package is updated to [irqbalance-1.0.9-2.0.1.el6.x86_64](#).

Performance and Scalability

Increased Performance for Oracle VM

This release provides several enhancements to increase the performance of Oracle VM. These enhancements enable Oracle VM to utilize fewer resources and improve performance measurements such as input/output operations per second (IOPs).

Xen 4.4.4 Performance and Scalability Updates

- **Update to netfront and netback drivers:** Along with UEK R4 U4, this release of Oracle VM delivers updates to the netfront and netback drivers.
- **Improved grant locking:** Xen-netback multi-queue improvements take advantage of grant locking enhancements that are now available in Oracle VM Server Release 3.4.4.
- **Improved guest performance by recycling grants:** With both host and guest virtual machines using the latest dom0 kernel version UEK R4 U4, network and database performance is enhanced by recycling grants, resulting in improved guest virtual machine performance.

Usability

CentOS is now listed as a supported guest OS type in Oracle VM

Oracle VM now displays CentOS as a supported guest operating system in the Oracle VM Manager Web Interface, Oracle VM Manager Command Line Interface, and Oracle VM Web Services API.

Documentation

New Location for the Oracle VM Paravirtual Drivers for Microsoft Windows Documentation

As of Oracle VM Release 3.4.4, the Oracle VM Paravirtual Drivers for Microsoft Windows documentation has moved to a new library location: http://docs.oracle.com/cd/E88077_01/index.html.



Note

Oracle VM Release 3.4, Release 3.3, and Release 3.2 library pages are updated with a *Related Documentation* section that includes a link to the Oracle VM Paravirtual Drivers for Microsoft Windows library. For example, see http://docs.oracle.com/cd/E64076_01/index.html.

Security

Security updates included in this errata update release are as follows:

- **Oracle MySQL patch update:** This release of Oracle VM includes the July 2017 Critical Patch Update for MySQL. (26120786)
- **Oracle WebLogic patch update:** This release of Oracle VM includes the July 2017 Critical Patch Update for WebLogic. (26120775)
- **Oracle Java patch update:** This release of Oracle VM includes the July 2017 Critical Patch Update for Java. (26120782)
- **Xen security advisories:** The following Xen security advisories are included in this release:
 - XSA-216 (CVE-2017-10911)
 - XSA-217 (CVE-2017-10912)
 - XSA-218 (CVE-2017-10913, CVE-2017-10914)
 - XSA-219 (CVE-2017-10915)
 - XSA-220 (CVE-2017-10916)
 - XSA-221 (CVE-2017-10917)
 - XSA-222 (CVE-2017-10918)
 - XSA-223 (CVE-2017-10919)
 - XSA-224 (CVE-2017-10920, CVE-2017-10921, CVE-2017-10922)
 - XSA-226 (CVE-2017-12135)
 - XSA-227 (CVE-2017-12137)
 - XSA-228 (CVE-2017-12136)
 - XSA-230 (CVE-2017-12855)

3.3 What's New in Oracle VM Release 3.4.3?

The new features and enhancements in Oracle VM Release 3.4.3 include:

Installation and Upgrades

Simplified UEFI PXE Boot for Oracle VM Server

As of this release, you do not need to manually build the GRUB 2 boot loader to install Oracle VM Server on UEFI-based systems in a PXE boot environment. The Oracle VM Server ISO image file provides the `/EFI/BOOT/grubx64.efi` boot loader for UEFI-based systems. See [Installing Oracle VM Server for x86 from PXE Boot](#) in the *Oracle VM Installation and Upgrade Guide*.



Note

If you plan to install Oracle VM Server on BIOS-based systems, you use the `pxelinux.0` boot loader from the `syslinux` package on Oracle Linux.

Infrastructure

Support for Software RAID Devices with Oracle VM Server

You can now create kickstart configurations that assemble software RAID devices during the Oracle VM Server installation. See [Software RAID Partitions](#) in the *Oracle VM Installation and Upgrade Guide*.

You can also create software RAID devices in `dom0` after installation. Oracle VM Server then presents those software RAID devices to Oracle VM Manager so that you can use them as storage repositories or for virtual disks. See [Configuring Software RAID for Storage](#) in the *Oracle VM Administrator's Guide*.



Important

The following notes apply to using software RAID devices with Oracle VM Server in this release:

- Oracle VM Server supports installation on software RAID devices on BIOS-based systems only.
- You should not attempt to install Oracle VM Server on a software RAID if a disk that is 2 TB or larger is a member of the array. Due to a limitation with the Master Boot Record (MBR), Oracle VM Server cannot boot from disks that are 2 TB or larger in a software RAID configuration.
- As a best practice, you should use software RAID devices as storage repositories in a test environment before using them in a production environment.
- In environments where you use software RAID devices as storage repositories for server pools, unexpected behavior can occur with certain virtual machine migration operations. For example, if you clone a virtual machine and then attempt to live migrate it to an instance of Oracle VM Server in the same server pool, the migration fails with an error that indicates the virtual machine disk does not exist. In this case, you must stop the virtual machine and then move it to the appropriate instance of Oracle VM Server.

Support for Microsoft Windows Server Failover Clustering

Microsoft Windows Server guests can now use SCSI-3 persistent reservation to form a Windows Server Failover Cluster (WSFC) with *Oracle VM Paravirtual Drivers for Microsoft Windows Release 3.4.2* or later. See [Oracle VM Paravirtual Drivers for Microsoft Windows](#) for information about failover cluster capabilities on specific Microsoft Operating System versions.

Update to Oracle VM Agent for SPARC As of this release, Oracle VM Agent for SPARC is updated to run Python 2.7.

Update to the dom0 Kernel The dom0 kernel is updated to a newer Unbreakable Enterprise Kernel Release 4 (UEK R4) version [kernel-uek-4.1.12-61.40.1.el6uek.x86_64.rpm](#).



Note

This UEK R4 kernel update is a quarterly update 2 (QU2) errata version.

If you received a one-off version of UEK R4 QU2 before this release, you should upgrade Oracle VM Server to UEK R4 QU4 after you upgrade to Oracle VM Release 3.4.3. Upgrading the kernel ensures your Oracle VM Servers include any bug fixes that were included in the one-off version of UEK R4 QU2.

If you are upgrading from an earlier release of Oracle VM, such as Release 3.4.2, and you have a mainstream version of UEK R4, you can optionally upgrade Oracle VM Server to UEK R4 QU4 after you upgrade to Oracle VM Release 3.4.3.

The UEK R4 QU4 version of the kernel is available on the Oracle Linux Yum Server for all Oracle VM Release 3.4.3 users.

Package Additions and Updates The full list of package additions and updates is beyond the scope of this document, but the following list includes the notable package updates that are included in this release:

- The tzdata package is updated to [tzdata-2017b-1.el6.noarch.rpm](#).
- The Netscape Portable Runtime (NSPR) package is updated to [nspr-4.11.0-1.el6.x86_64.rpm](#).
- The ovmpport package is updated to [ovmpport-1.0-6.el6.x86_64.rpm](#).

Updates to Multipath Configuration for Oracle ZFS Storage Appliance

- This release includes the Oracle Sun ZFS Storage.* product in the [multipath.conf](#) file, which includes the ZFS Storage 7350 and ZFS Storage 7330 products.
- The default value for the [multipath](#) configuration parameter [no_path_retry](#) is updated to **180**. This new default setting enhances the performance of the multipath daemon, [multipathd](#), and improves response times when issuing the [multipath -ll](#) command.

Performance and Scalability

Oracle VM Manager Performance Enhancements

- **Improved Job completion performance:** Reduction in the time taken to complete certain jobs, for example cloning a virtual machine or template.
- **Improved Storage refresh performance:** Rescanning physical disks is enhanced to ensure that local storage on an Oracle VM Server is refreshed in a timely manner.

Improved Performance
With Multiple Concurrent
Connections to the Oracle
VM Manager Command Line
Interface

This release improves Oracle VM performance when there are multiple concurrent connections to the Oracle VM Manager Command Line Interface.

Usability

Password Modification for the MySQL root user

Oracle VM now lets you change the password for the MySQL root user that the Oracle VM Manager Administrator Tool uses to connect to the MySQL database instance. See [Changing the Password for the MySQL Root User](#) in the *Oracle VM Administrator's Guide*.

Documentation

The following changes apply to the Oracle VM Release 3.4.3 documentation library:

- The Oracle VM Manager Online Help has been updated in the Oracle VM Manager Web Interface.
- CentOS 7 is added to the list of supported guest operating systems in the Oracle VM Release Notes. See [Chapter 5, Supported Guest Operating Systems](#).
- The Oracle VM Installation and Upgrade Guide has been corrected and no longer includes a statement that you cannot boot Oracle VM Server from SAN.

Security

- **Oracle MySQL patch update:** This release of Oracle VM includes the January 2017 Critical Patch Update for MySQL. (23087157)
- **Oracle WebLogic patch update:** This release of Oracle VM includes the January 2017 Critical Patch Update for WebLogic. (23087146)
- **Oracle Java patch update:** This release of Oracle VM includes the January 2017 Critical Patch Update for Java. (23087165).
- **Xen security advisories:** The following Xen security advisories are included in this release:
 - XSA-184 (CVE-2016-5403)
 - XSA-190 (CVE-2016-7777)
 - XSA-191 (CVE-2016-9386)
 - XSA-192 (CVE-2016-9382)
 - XSA-193 (CVE-2016-9385)

- XSA-195 (CVE-2016-9383)
- XSA-197 (CVE-2016-9381)
- XSA-198 (CVE-2016-9379, CVE-2016-9380)
- XSA-199 (CVE-2016-9637)
- XSA-200 (CVE-2016-9932)
- XSA-202 (CVE-2016-10024)
- XSA-204 (CVE-2016-10013)
- XSA-206 (no CVE yet assigned)
- XSA-207 (no CVE yet assigned)
- XSA-208 (CVE-2017-2615)
- XSA-209 (CVE-2017-2620)
- XSA-211 (CVE-2016-9603)
- XSA-212 (CVE-2017-7228)
- XSA-213 (CVE-2017-8903)
- XSA-214 (CVE-2017-8904)
- XSA-215 (CVE-2017-8905)

3.4 What's New in Oracle VM Release 3.4.2?

The new features and enhancements in Oracle VM Release 3.4.2 include:

Installation and Upgrades

Oracle VM Manager support for previous Oracle VM Server releases

As of Oracle VM Release 3.4.2, Oracle VM Manager supports current and previous Oracle VM Server releases. For more information, see [Chapter 6, Oracle VM Manager Support for Previous Oracle VM Server Releases](#).

Infrastructure

Support for NVM Express (NVMe) devices

Oracle VM Server now discovers NVMe devices and presents them to Oracle VM Manager, where the NVMe device is available as a local disk that you can use to store virtual machine disks or create storage repositories.

The following rules apply to NVMe devices:

Oracle VM Server for x86

- To use the entire NVMe device as a storage repository or for a single virtual machine physical

disk, you should not partition the NVMe device.

- To provision the NVMe device into multiple physical disks, you should partition it on the Oracle VM Server where the device is installed. If an NVMe device is partitioned then Oracle VM Manager displays each partition as a physical disk, not the entire device.

You must partition the NVMe device outside of the Oracle VM environment. Oracle VM Manager does not provide any facility for partitioning NVMe devices.

- NVMe devices can be discovered if no partitions exist on the device.
- If Oracle VM Server is installed on an NVMe device, then Oracle VM Server does not discover any other partitions on that NVMe device.

Oracle VM Server for SPARC

- Oracle VM Manager does not display individual partitions on an NVMe device but only a single device.

Oracle recommends that you create a storage repository on the NVMe device if you are using Oracle VM Server for SPARC. You can then create as many virtual disks as required in the storage repository. However, if you plan to create logical storage volumes for virtual machine disks, you must manually create ZFS volumes on the NVMe device. See [Creating ZFS Volumes on NVMe Devices](#) in the *Oracle VM Administrator's Guide*.

Using Oracle Ksplice to update the dom0 kernel

Oracle Ksplice capabilities are now available that allow you to update the dom0 kernel for Oracle VM Server without requiring a reboot. Your systems remain up to date with their OS vulnerability patches and downtime is minimized. A Ksplice update takes effect immediately when it is applied. It is not an on-disk change that only takes effect after a subsequent reboot.

**Note**

This does not impact the underlying Xen hypervisor.

Depending on your level of support, contact your Oracle support representative for assistance before using Oracle Ksplice to update the dom0 kernel for Oracle VM Server. For more information, see *Oracle VM: Using Ksplice Uptrack* Document ID 2115501.1, on My Oracle Support at: <https://support.oracle.com/oip/faces/secure/km/DocumentDisplay.jspx?id=2115501.1>.

Extended SCSI functionality available for virtual machines

Oracle VM now provides additional support for SCSI functionality to virtual machines:

- Linux guests can now retrieve vital product data (VPD) page 0x84 information from physical disks if the device itself makes it available.
- Microsoft Windows Server guests can use SCSI-3 persistent reservation to form a Microsoft Failover Cluster in an upcoming *Oracle VM Paravirtual Drivers for Microsoft Windows* release. See the *Oracle VM Paravirtual Drivers for Microsoft Windows* documentation for information about the availability of failover cluster capabilities on specific Microsoft Operating System versions.

Dom0 kernel upgraded

The dom0 kernel for Oracle VM Server is updated to Oracle Unbreakable Enterprise Kernel Release 4 Quarterly Update 2 in this release.

Package additions and updates

- The `ovmport-1.0-1.el6.4.src.rpm` package is added to the Oracle VM Server ISO to support Microsoft Clustering and enable communication between Dom0 and DomU processes using the `libxenstore` API.
- The Perl package is updated to `perl-5.10.1-141.el6_7.1.src.rpm`.
- The Netscape Portable Runtime (NSPR) package is updated to `nspr-4.11.0-1.el6.x86_64.rpm`.
- The openSCAP package is updated to `openscap-1.2.8-2.0.1.el6.rpm`.
- The Linux-firmware package is updated to `linux-firmware-20160616-44.git43e96a1e.0.12.el6.src.rpm`.

Performance and Scalability

Oracle VM Manager performance enhancements

This release enhances the performance of Oracle VM Manager by reducing the number of non-critical events that Oracle VM Server sends to Oracle VM Manager when a system goes down.

**Note**

If you are running a large Oracle VM environment, it is recommended to increase the amount of memory allocated to the Oracle WebLogic Server. This ensures

that adequate memory is available when required. See [Increasing the Memory Allocated to Oracle WebLogic Server](#) in the *Oracle VM Administrator's Guide* for more information.

Oracle VM Server for x86 performance optimization

For information on performance optimization goals and techniques for Oracle VM Server for x86, see *Optimizing Oracle VM Server for x86 Performance*, on Oracle Technology Network at: <http://www.oracle.com/technetwork/server-storage/vm/ovm-performance-2995164.pdf>.

Xen 4.4.4 performance and scalability updates

- **Improved memory allocation:** Host system performance is improved by releasing memory more efficiently when tearing down domains, for example, migrating a virtual machine from one Oracle VM Server to another or deleting a virtual machine. This ensures that the host system can manage other guest systems more effectively without experiencing issues with performance.
- **Improved aggregate performance:** Oracle VM Server now uses ticket locks for spinlocks, which improves aggregate performance on large scale machines with more than four sockets.
- **Improved performance for Windows and Solaris guests:** Microsoft Windows and Oracle Solaris guests with the HVM or PVHVM domain type can now specify local APIC vectors to use as upcall notifications for specific vCPUs. As a result, the guests can more efficiently bind event channels to vCPUs.
- **Improved workload performance:** Changes to the Linux scheduler ensure that workload performance is optimized in this release.
- **Improved grant locking:** Xen-netback multi-queue improvements take advantage of the grant locking enhancements that are now available in Oracle VM Server Release 3.4.2.
- **Guest disk I/O performance improvements:** Block scalability is improved through the implementation of the Xen block multi-queue layer.

Usability

Oracle VM Manager Rule for Live Migration

To prevent failure of live migration, and subsequent issues with the virtual machine environment, a rule has been added to Oracle VM Manager, as follows:

Oracle VM Manager does not allow you to perform a live migration of a virtual machine to or from any instance of Oracle VM Server with a Xen release earlier than `xen-4.3.0-55.e16.22.18`. This rule applies to any guest OS.

Table 3.1 Live Migration Paths between Oracle VM Server Releases using Oracle VM Manager Release 3.4.2

Using Oracle VM Manager Release 3.4.2		Live Migrate To:							
		Release 3.2.10	Release 3.2.11	Release 3.3.1	Release 3.3.2	Release 3.3.3	Release 3.3.4	Release 3.4.1	Release 3.4.2
Live Migrate From:	Release 3.2.10	Yes	Yes	Depends on Xen release	Depends on Xen release	Yes	Yes	Yes	Yes
	Release 3.2.11	Yes	Yes	Depends on Xen release	Depends on Xen release	Yes	Yes	Yes	Yes
	Release 3.3.1	No	No	Depends on Xen release					
	Release 3.3.2	No	No	Depends on Xen release					
	Release 3.3.3	No	No	Depends on Xen release	Depends on Xen release	Yes	Yes	Yes	Yes
	Release 3.3.4	No	No	Depends on Xen release	Depends on Xen release	Yes	Yes	Yes	Yes
	Release 3.4.1	No	No	No	No	No	No	Yes	Yes
	Release 3.4.2	No	No	No	No	No	No	Yes	Yes

Xen Release (from)	Xen Release (to)	Live Migration Available?
xen-4.3.0-55.el6.x86_64	xen-4.3.0-55.el6.0.17.x86_64	No
xen-4.3.0-55.el6.22.18.x86_64	and newer xen-4.3.0-55	Yes

For example, as a result of this live migration rule, all virtual machines in an Oracle VM server pool running Oracle VM Server Release 3.3.2 with Xen version `xen-4.3.0-55.el6.22.9.x86_64` must be stopped before migrating to Oracle VM Server Release 3.4.2.

**Tip**

Run the following command on Oracle VM Server to find the Xen version:

```
# rpm -qa | grep "xen"
```

PVHVM hot memory modification

As of this release, it is possible to modify the memory allocated to running PVHVM guests without a reboot. Additionally, Oracle VM Manager now allows you to set the allocated memory to a value that is different to the maximum memory available.

**Note**

- Hot memory modification is supported on x86-based PVHVM guests running on Linux OS and guests running on Oracle VM Server for SPARC. For x86-based PVHVM guests running on Oracle Solaris OS, you cannot change the memory if the virtual machine is running.
- See the *Oracle VM Paravirtual Drivers for Microsoft Windows* documentation for information about the availability of hot memory modification on PVHVM guests that are running a Microsoft Windows OS. You must use a Windows PV Driver that supports hot memory modification or you must stop the guest before you modify the memory.
- Oracle VM supports hot memory modification through Oracle VM Manager only. If you have manually created unsupported configurations, such as device passthrough, hot memory modification is not supported.

Security

- **Oracle MySQL patch update:** This release of Oracle VM includes the July 2016 Critical Patch Update for MySQL. (23087189)
- **Oracle WebLogic patch update:** This release of Oracle VM includes the July 2016 Critical Patch Update for WebLogic. (23087185)
- **Oracle Java patch update:** This release of Oracle VM includes the July 2016 Critical Patch Update for Java. (23087198).
- **Xen security advisories:** The following Xen security advisories are included in this release:
 - XSA-154 (CVE-2016-2270)
 - XSA-170 (CVE-2016-2271)
 - XSA-172 (CVE-2016-3158 and CVE-2016-3159)
 - XSA-173 (CVE-2016-3960)
 - XSA-175 (CVE-2016-4962)
 - XSA-176 (CVE-2016-4480)
 - XSA-178 (CVE-2016-4963)
 - XSA-179 (CVE-2016-3710 and CVE-2016-3712)
 - XSA-180 (CVE-2014-3672)
 - XSA-182 (CVE-2016-6258)
 - XSA-185 (CVE-2016-7092)
 - XSA-187 (CVE-2016-7094)
 - XSA-188 (CVE-2016-7154)

3.5 What's New in Oracle VM Release 3.4.1?

The new features and enhancements in Oracle VM Release 3.4.1 include:

Installation and Upgrades

Upgrading to Release 3.4

Oracle VM provides scripts that automate the upgrade process and minimize downtime for your virtualization infrastructure.

Upgrading Oracle VM Manager to Release 3.4

Use the `runInstaller.sh` script that is included with the Release 3.4 installation media. See [Upgrading Oracle VM Manager](#) in the *Oracle VM Installation and Upgrade Guide* for more information.

Upgrading Oracle VM Server from Release 3.3.x

Upgrade server pools and multiple Oracle VM Servers directly through the Oracle VM Manager Web Interface. The Oracle VM Manager Web Interface provides an intuitive interface to perform upgrades either individually or across multiple servers at once in batch mode.

- See [Upgrading Oracle VM Server for x86 from Release 3.3.x or Between 3.4.x Errata Releases](#) in the *Oracle VM Installation and Upgrade Guide* for more information on upgrading from Oracle VM Server Release 3.3.x.
- See [Update Server](#) and [Server Update Groups](#) in the *Oracle VM Manager User's Guide* for more information on upgrading from the Oracle VM Manager Web Interface.

Upgrading Oracle VM Server from Release 3.2.10

Use the `UpgradeServers.py` script for Oracle VM Server for x86 or the `./upgrade` script for Oracle VM Server for SPARC

- See [Upgrading Oracle VM Server for x86 from Release 3.2.10 or later](#) in the *Oracle VM Installation and Upgrade Guide* for more information on upgrading from Oracle VM Server Release 3.2.10.
- See [Upgrading Oracle VM Agent for SPARC](#) in the *Oracle VM Manager User's Guide* for more

information on upgrading Oracle VM Server for SPARC.

- Local disk partitioning
Interactive installations of Oracle VM Server allow you to configure disk partitioning. See [Installing Oracle VM Server From a DVD-ROM](#) in the *Oracle VM Installation and Upgrade Guide* for more information.
- Enabling Kdump during Oracle VM Server installation
During installation of Oracle VM Server, you can now choose to enable the Kdump service that captures a memory dump from dom0 and stores it on the filesystem to help you debug and diagnose issues in the event of a system crash.
 - See [Installing Oracle VM Server From a DVD-ROM](#) in the *Oracle VM Installation and Upgrade Guide* for information on enabling Kdump.
 - See [Manually Configuring kdump for Oracle VM Server](#) in the *Oracle VM Administrator's Guide* for information on configuring Kdump after installation.

Infrastructure

- Support for Oracle VM Virtual Appliances
Oracle VM Manager now provides the ability to import and export Oracle VM Virtual Appliances as a single .ova (Open Virtualization Format Archive) file or a set of .ovf (Open Virtualization Format) and .img (disk image) files. See [How are Virtual Appliances Managed?](#) in the *Oracle VM Concepts Guide* for more information on virtual appliances.



Note

In previous releases of Oracle VM, Oracle VM Virtual Appliances were referred to as assemblies.

- Automated installation of VNC and Serial Console software
The Oracle VM Manager installer also manages the installation and upgrading of the VNC and Serial Console software package on the Oracle VM Manager host. Reducing administrative overhead during a deployment of the environment.
- Storage live migration
You can now perform live migrations of running virtual machines that have virtual disks on local storage. Oracle VM uses features built into the OCFS2 file system on x86 platforms to provide this live migration capability that helps you achieve nearly uninterrupted uptime for virtual machines.

Some restrictions apply to storage live migration. In particular, there are various requirements surrounding disk space on the source and target repositories. See [How Can a Virtual Machine be Moved or Migrated?](#) in the *Oracle VM Concepts Guide* for more information.

Additionally, performing storage live migration can disrupt the cluster heartbeat function if the server pool file system is not separate to the cluster heartbeat file system. Additionally, you should ensure that you configure separate channels for live migration network traffic and other network functions such as cluster heartbeat. For more information about storage configuration guidelines, see [Are there Guidelines for](#)

	<p>Configuring Storage? in the <i>Oracle VM Concepts Guide</i>. For more information about network channels, see How are Network Functions Separated in Oracle VM? in the <i>Oracle VM Concepts Guide</i>.</p>
<p>User interface enhancements for virtual disk allocation</p>	<p>As of this release, when editing virtual disks, Oracle VM Manager now displays the allocation type that was specified when the virtual disk was created. Additionally, tooltips are available in the Oracle VM Manager Web Interface to provide more information about how virtual disks are created and how subsequent virtual disk space is allocated. See Create Virtual Machine in the <i>Oracle VM Manager User's Guide</i> for more information on creating virtual machines and virtual disk allocation.</p>
<p>Fiber Channel over Ethernet (FCoE) support</p>	<p>Oracle VM provides support for installing Oracle VM Server into FCoE Storage Area Networks (SAN) over some Host Bus Adapters (HBA) or Converged Network Adapters (CNA). See Installing Oracle VM Server to Multipath Storage in the <i>Oracle VM Installation and Upgrade Guide</i> for more information.</p>
<p>Booting from UEFI</p>	<p>Oracle VM Server can now boot from systems that use Unified Extensible Firmware Interface (UEFI). See Installing Oracle VM Server From a DVD-ROM in the <i>Oracle VM Installation and Upgrade Guide</i> for more information about installing Oracle VM Server in UEFI mode.</p> <p>You can install Oracle VM Server in legacy BIOS mode or UEFI mode. However, you cannot change modes after installation. For example, if you install Oracle VM Server in legacy BIOS mode, you cannot then switch to UEFI mode. If you want to change from legacy BIOS mode to UEFI mode, or from UEFI mode to legacy BIOS mode, you must re-install Oracle VM Server.</p> <p>The following restrictions currently apply to UEFI mode:</p> <ul style="list-style-type: none"> • You cannot create custom partition layouts if you are installing Oracle VM Server in UEFI mode. • You cannot boot Oracle VM Server from FCoE or iSCSI if you use UEFI mode.
<p>SOAP API deprecated</p>	<p>The Oracle VM SOAP API is deprecated as of Release 3.4.1.</p>
<p>Oracle VM Utilities use Oracle VM Web Services API</p>	<p>The Oracle VM Utilities version 2.1 now communicate directly with Oracle VM Manager using a Oracle VM API. This change improves performance and usability of the Oracle VM Utilities. Additionally, in this release, a number of the Oracle VM Utilities scripts have been deprecated by the Oracle VM Manager Command Line Interface. For more information, see Using the Oracle VM Utilities in the <i>Oracle VM Administrator's Guide</i>.</p>
<p>P2V utility on Oracle VM Server ISO file</p>	<p>This release includes the P2V utility on the Oracle VM Server ISO file. You can use the P2V utility to convert physical hosts to virtual machines. For more information, see Converting Physical Hosts to Virtual Machines in the <i>Oracle VM Administrator's Guide</i>.</p>
<p>OSWatcher Utility Available on Oracle VM Server</p>	<p>As of this release, the OSWatcher utility is installed on Oracle VM Server by default and is enabled to run at boot. OSWatcher (oswbb) is a collection of shell scripts that collect and archive operating system</p>

and network metrics to diagnose performance issues with Oracle VM Server. For more information, see [Working with the OSWatcher Utility on Oracle VM Server](#) in the *Oracle VM Administrator's Guide*.

Repository apparent size Oracle VM Manager now displays the apparent size, in GiB, of repositories. The apparent size is the total size of the entire repository. For more information, see [Repositories Perspective](#) in the *Oracle VM Manager User's Guide*.

dom0 kernel upgraded The dom0 kernel for Oracle VM Server is updated to Oracle Unbreakable Enterprise Kernel Release 4 in this release.

Performance and Scalability

Increased supported limits Oracle VM supports increased configuration limits, including a maximum of 256 virtual CPUs (vCPU) for virtual machines of PVM domain type. See [Chapter 7, Configuration Limits for Release 3.4](#) for a complete list of configuration limits for Oracle VM.

Improved performance This release of Oracle VM includes several enhancements to overall performance and scalability, including the time it takes to discover a large number of servers.

The following table highlights performance improvements for the Oracle VM Manager Web Interface from Release 3.3.x to Release 3.4.1:

Action in the Oracle VM Manager Web Interface	First time	Subsequent times
Logging in	85%	80%
Switching from Status Overview to Statistics on the Health tab	23% faster response time	1 second
Expanding the Server Pools folder on the Servers and VMs tab	66% faster response time	0 seconds
Switching from the Servers and VMs tab to the Health tab	62% faster response time	73% faster response time

Security

Improved character handling for filters Improvements to Oracle VM Manager allow for better handling of characters used in filter fields to improve matching capabilities and to provide improved protection against attempted SQL injection attacks.

Improved handling of user passwords This release of Oracle VM includes changes to how user passwords are stored on the system so that they are not exposed on the command line.

FIPS 140-2 Validation This release supports enabling FIPS mode for OpenSSL to be compliant with Federal Information Processing Standard (FIPS)

Publication 140-2. For more information about FIPS and Oracle VM security, see the *Oracle VM Security Guide*.

Information on enabling FIPS mode for OpenSSL is provided in the *Oracle Linux 6 Security Guide*, available at: http://docs.oracle.com/cd/E37670_01/

Usability and Serviceability

Device mappings	Virtual machine configuration details under the Servers and VMs tab in the Oracle VM Manager Web Interface display device mappings that allow you to easily identify which physical resources, such as disks in the repository, correspond to virtual resources, such as virtual disks assigned to virtual machines. See Virtual Machines Perspective in the <i>Oracle VM Manager User's Guide</i> for more information.
Object topology view	You can view graphical representations, and generate reports, of virtual machine object nodes and attributes to quickly locate resources and view information about those resources. See Display VM Hierarchy Viewer in the <i>Oracle VM Manager User's Guide</i> for more information.
Context sensitive help	Online help for Oracle VM now launches directly from elements in the Oracle VM Manager Web Interface to the relevant help topics. This online help system eliminates the need to navigate through help topics to find information. See Help Icon in the <i>Oracle VM Manager User's Guide</i> for more information.
User preferences	Oracle VM Manager stores certain user preferences across sessions. See User Preference Persistence in the <i>Oracle VM Manager User's Guide</i> for more information about user preferences.
Simple names for repository objects	Oracle VM Manager persists simple names for repository objects as metadata. As a result, the simple names are retained when the repository is transferred to a different instance of Oracle VM Manager. Likewise, the metadata allows you to easily recover the simple names in cases where Oracle VM Manager is manually restored without a database backup. For more information, see How is Object Metadata Stored in a Repository? in the <i>Oracle VM Concepts Guide</i> .
Generating XML reports	Oracle VM Manager lets you generate XML reports on objects, the object attributes, and direct subobjects. You can generate reports for virtual machines, Oracle VM Servers, server pools, and storage. For more information, see Reports in the <i>Oracle VM Manager User's Guide</i> .
Configuring database backups	The Preferences tab in the Oracle VM Manager Web Interface lets you set the interval for backing up the MySQL database and number of backups to keep. For more information, see Preferences in the <i>Oracle VM Manager User's Guide</i> .
Listing the locations of virtual machine disks	Oracle VM Manager provides detailed information on the location of virtual machine disks to facilitate backup tasks. <ul style="list-style-type: none">• See Virtual Machines Perspective in the <i>Oracle VM Manager User's Guide</i> for more information about locating virtual machine disks in the Oracle VM Manager Web Interface.

Monitoring Oracle VM Server through SNMP	<ul style="list-style-type: none"> • See the <i>Oracle VM Manager Command Line Interface User's Guide</i> for more information about various commands that return attributes for the location of virtual machine disks.
	<p>This release provides an SNMP shared object module that lets you retrieve details about Oracle VM Server, monitor Oracle VM Server health, and return a list of running virtual machines. See Monitoring Oracle VM Server with SNMP in the <i>Oracle VM Administrator's Guide</i> for more information on the Oracle VM Server shared object module.</p>
Viewing virtual machine configuration files	<p>Oracle VM lets you easily retrieve the configuration files for virtual machines (vm.cfg).</p> <ul style="list-style-type: none"> • See View Virtual Machine Configuration File in the <i>Oracle VM Manager User's Guide</i> for more information on viewing a virtual machine configuration file in the Oracle VM Manager Web Interface. • See getVmCfgFileContent in the <i>Oracle VM Manager Command Line Interface User's Guide</i> for more information on viewing a virtual machine configuration file in the Oracle VM Manager Command Line Interface.
Avoiding multiple physical disk allocation	<p>Oracle VM provides detailed information about how physical disks are in use to avoid multiple physical disk allocation.</p> <ul style="list-style-type: none"> • See Physical Disks Perspective in the <i>Oracle VM Manager User's Guide</i> for more information on working with physical disks. • See Local Storage in the <i>Oracle VM Concepts Guide</i> for more information about local storage and physical disks.
Virtual IP addresses for server pools	<p>The field to specify a virtual IP address (VIP) while creating a server pool is deprecated in this release but available for backwards compatibility.</p> <ul style="list-style-type: none"> • See Create Server Pool in the <i>Oracle VM Manager User's Guide</i> for information on creating a server pool. • See What is a Master Server and a Virtual IP Address? in the <i>Oracle VM Concepts Guide</i> for more details on why VIPs are deprecated for server pools in this release.



Note

The Oracle VM Server object module applies to x86 systems only. This object module does not apply to Oracle VM Server for SPARC.

3.6 What's New in Oracle VM Release 3.3.5?

Oracle VM Release 3.3.5 includes separate patches for Oracle VM Manager, Oracle VM Server, and Oracle VM Agent for SPARC as follows:

- Oracle VM Manager: patch ID [20492250](#).
- Oracle VM Server: patch ID [20492240](#).

- Oracle VM Agent for SPARC: patch ID [20492222](#).

Download the patches from [My Oracle Support](#).

The new features and enhancements in Oracle VM Release 3.3.5 include:

Performance

Oracle VM Manager performance enhancements

- This release enhances the performance of Oracle VM Manager by reducing the number of non-critical events that are generated and stored in Oracle VM Manager, for example, server discover scan and [PortUp](#) and [PortDown](#) events. (22894434 and 22894398)
- Support added for Microsoft Internet Explorer 11, ensuring that users can now access the Oracle VM Manager Web Interface using this browser. (22163132)

Infrastructure

- **Update to the dom0 Kernel:** Updates the dom0 kernel to a newer Unbreakable Enterprise Kernel Release 3 [3.8.13-118.15.1.el6uek.x86_64.rpm](#).
- **Package and library updates:** The following changes apply to this release of Oracle VM:
 - The OCFS2 package is updated to [ocfs2-tools-1.8.6-5.el6.x86_64.rpm](#).
 - The openSCAP package is updated to [openscap-1.2.8-2.0.1.el6.rpm](#).
 - The Netscape Portable Runtime (NSPR) package is updated to [nspr-4.11.0-1.el6.x86_64.rpm](#).
 - The Network Security Services (NSS) package is updated to [nss-3.21.3-2.0.1.el6_8.x86_64.rpm](#).
 - The tzdata package is updated to [tzdata-2016g-2.el6.noarch.rpm](#).
 - The Xen package is updated to [xen-4.3.0-55.el6.186.6.x86_64.rpm](#).
 - The VMPInfo3 package is updated to [vmpinfo3-sosreport-1.0.0-11.el6.2.1.noarch.rpm](#).

Security

- **Oracle MySQL patch update:** This release of Oracle VM includes the October 2016 Critical Patch Update for MySQL. (23087176)
- **Oracle WebLogic patch update:** This release of Oracle VM includes the October 2016 Critical Patch Update for WebLogic. (23087171)
- **Oracle Java patch update:** This release of Oracle VM includes the October 2016 Critical Patch Update for Java. (23087180)

Oracle VM Security Advisories

This release includes the following Oracle VM Security Advisories:

Table 3.2 Oracle VM Security Advisories

Advisory Identifier	Severity	Description
OVMSA-2016-0031	Important	Oracle VM 3.3 openssl security update

Advisory Identifier	Severity	Description
OVMSA-2016-0034	Critical	Oracle VM 3.3 nss-util security update
OVMSA-2016-0035	Moderate	Oracle VM 3.3 libssh2 security update
OVMSA-2016-0036	Important	Oracle VM 3.3 bind security update
OVMSA-2016-0039	Moderate	Oracle VM 3.3 krb5 security update
OVMSA-2016-0040	Moderate	Oracle VM 3.3 foomatic security update
OVMSA-2016-0042	Moderate	Oracle VM 3.3 nss nss-util nspr security update
OVMSA-2016-0046	Moderate	Oracle VM 3.3 kernel-uek security update
OVMSA-2016-0048	Moderate	Oracle VM 3.3 openssh security update
OVMSA-2016-0049	Important	Oracle VM 3.3 openssl security update
OVMSA-2016-0050	Moderate	Oracle VM 3.3 file security update
OVMSA-2016-0053	Important	Oracle VM 3.3 kernel-uek security update
OVMSA-2016-0082	Moderate	Oracle VM 3.3 ntp security update
OVMSA-2016-0084	Important	Oracle VM 3.3 kernel-uek security update
OVMSA-2016-0087	Important	Oracle VM 3.3 libxml2 security update
OVMSA-2016-0089	Important	Oracle VM 3.3 xen security update
OVMSA-2016-0092	Important	Oracle VM 3.3 kernel-uek security update
OVMSA-2016-0093	Important	Oracle VM 3.3 libtiff security update
OVMSA-2016-0095	Important	Oracle VM 3.3 Unbreakable Enterprise kernel security update
OVMSA-2016-0098	Important	Oracle VM 3.3 Unbreakable Enterprise kernel security update
OVMSA-2016-0099	Moderate	Oracle VM 3.3 python security update
OVMSA-2016-0103	Important	Oracle VM 3.3 xen security update
OVMSA-2016-0133	Important	Oracle VM 3.3 Unbreakable Enterprise kernel security update
OVMSA-2016-0135	Important	Oracle VM 3.3 openssl security update
OVMSA-2016-0136	Important	Oracle VM 3.3 bind security update
OVMSA-2016-0139	Important	Oracle VM 3.3 Unbreakable Enterprise kernel security and bugfix update
OVMSA-2016-0145	Important	Oracle VM 3.3 bind security update
OVMSA-2016-0150	Important	Oracle VM 3.3 Unbreakable Enterprise kernel security update
OVMSA-2016-0151	Important	Oracle VM 3.3 ovm-console security update
OVMSA-2016-0152	Important	Oracle VM 3.3 bind security update
OVMSA-2016-0155	Important	Oracle VM 3.3 Unbreakable Enterprise kernel security update
OVMSA-2016-0156	Moderate	Oracle VM 3.3 libgrypt security update
OVMSA-2016-0157	Important	Oracle VM 3.3 policycoreutils security update
OVMSA-2016-0159	Moderate	Oracle VM 3.3 nss and nss-util security update
OVMSA-2016-0163	Important	Oracle VM 3.3 Unbreakable Enterprise kernel security update

Advisory Identifier	Severity	Description
OVMSA-2016-0165	Important	Oracle VM 3.3 xen security update
OVMSA-2016-0168	Moderate	Oracle VM 3.3 expat security update
OVMSA-2016-0170	Moderate	Oracle VM 3.3 sudo security update
OVMSA-2016-0171	Important	Oracle VM 3.3 xen security update
OVMSA-2016-0175	Important	Oracle VM 3.3 Unbreakable Enterprise kernel security update
OVMSA-2016-0177	Important	Oracle VM 3.3 xen security update

3.7 What's New in Oracle VM Release 3.3.4?

Oracle VM Release 3.3.4 includes separate patches for Oracle VM Manager, Oracle VM Server, and Oracle VM Agent for SPARC as follows:

- Oracle VM Manager: patch ID [20492250](#).
- Oracle VM Server: patch ID [20492240](#).
- Oracle VM Agent for SPARC: patch ID [20492222](#).

Download the patches from [My Oracle Support](#).

The new features and enhancements in Oracle VM Release 3.3.4 include:

Infrastructure

- **Oracle Unbreakable Enterprise Kernel (UEK) update:** This release of Oracle VM includes UEK Release 3 Quarterly Update 7 [kernel-uek-3.8.13-118](#).
- **Update to netfront and netback drivers:** Along with UEK Release 3 Quarterly Update 7, this release of Oracle VM delivers updates to the netfront and netback drivers.
- **Package and library updates:** The following changes apply to this release of Oracle VM:
 - The [udev](#) RPM file is updated in this release.
 - The [libxml2](#) RPM file is updated in this release.
 - The [libxml2-python](#) RPM file is updated in this release.
 - The [UEK3 QU7](#) RPM file is included in this release.
- **Updates to the irqbalance package:** This release updates the [irqbalance](#) package to [irqbalance-1.0.9-2](#) so that interrupts are now better balanced across available dom0 CPUs to improve network I/O performance.
- **Multipath configuration for Oracle ZFS Appliance:** This release includes the Oracle Sun ZFS Storage 7330 in the [multipath.conf](#) file.

Installation and Upgrades

- **Compatibility Fix for Different Release Versions of Oracle VM Server During Upgrade:** This release includes changes to facilitate the upgrade of different versions of Oracle VM Server.

Security

- **FIPS-Compliant OpenSSL Library Supported for Oracle VM Server:** As of this release, it is possible to install and configure the FIPS-compliant OpenSSL library on Oracle VM Server as per the instructions provided in the Oracle Linux 6 Security Guide at:

http://docs.oracle.com/cd/E37670_01/

If you are following the instructions provided in the Oracle Linux 6 Security Guide, there is a step where you enable FIPS in the kernel by editing `/etc/grub.conf` and adding the `fips=1` option to the 'kernel' line. For this to work on an Oracle VM Server, the `fips=1` option must be added to the 'module' line instead.

- **Critical patch updates:** This release of Oracle VM includes security fixes from critical patch updates for Oracle WebLogic Server, Oracle Java 7, and Oracle MySQL.
- **Ciphersuite update:** The ciphersuite selection configuration is updated in this release of Oracle VM to support a higher level of security.

Oracle VM Security Advisories

This release includes the following Oracle VM Security Advisories:

Table 3.3 Oracle VM Security Advisories

Advisory Identifier	Severity	Description
OVMSA-2016-0014	Important	Oracle VM 3.3 Unbreakable Enterprise kernel security update
OVMSA-2016-0013	Critical	Oracle VM 3.3 glibc security update
OVMSA-2016-0011	Moderate	Oracle VM 3.3 sos security update
OVMSA-2016-0009	Moderate	Oracle VM 3.3 bind security update
OVMSA-2016-0007	Important	Oracle VM 3.3 xen security update
OVMSA-2016-0006	Important	Oracle VM 3.3 ntp security update
OVMSA-2016-0005	Important	Oracle VM 3.3 kernel-uek security update
OVMSA-2016-0004	Moderate	Oracle VM 3.3 gnutls security update
OVMSA-2016-0003	Moderate	Oracle VM 3.3 nss security update
OVMSA-2016-0002	Moderate	Oracle VM 3.3 rpcbind security update
OVMSA-2016-0001	Moderate	Oracle VM 3.3 openssl security update
OVMSA-2015-0156	Important	Oracle VM 3.3 bind security update
OVMSA-2015-0155	Moderate	Oracle VM 3.3 openssl security update
OVMSA-2015-0154	Important	Oracle VM 3.3 kernel-uek security update
OVMSA-2015-0153	Moderate	Oracle VM 3.3 libpng security update
OVMSA-2015-0152	Moderate	Oracle VM 3.3 libxml2 security update
OVMSA-2015-0150	Important	Oracle VM 3.3 kernel-uek security update
OVMSA-2015-0147	Important	Oracle VM 3.3 kernel-uek security and bugfix update
OVMSA-2015-0145	Critical	Oracle VM 3.3 nss, nss-util, and nspr security update

Advisory Identifier	Severity	Description
OVMSA-2015-0144	Moderate	Oracle VM 3.3 kernel-uek security update
OVMSA-2015-0141	Important	Oracle VM 3.3 xen security update
OVMSA-2015-0140	Important	Oracle VM 3.3 ntp security update
OVMSA-2015-0123	Important	Oracle VM 3.3 openldap security update
OVMSA-2015-0122	Important	Oracle VM 3.3 kernel-uek security update
OVMSA-2015-0120	Important	Oracle VM 3.3 libXfont security update
OVMSA-2015-0119	Important	Oracle VM 3.3 bind security update
OVMSA-2015-0118	Moderate	Oracle VM 3.3 nss-softokn security update
OVMSA-2015-0117	Moderate	Oracle VM 3.3 pam security update
OVMSA-2015-0116	Moderate	Oracle VM 3.3 net-snmp security update
OVMSA-2015-0115	Moderate	Oracle VM 3.3 sqlite security update
OVMSA-2015-0114	Important	Oracle VM 3.3 kernel-uek security update
OVMSA-2015-0113	Low	Oracle VM 3.3 kernel-uek security update
OVMSA-2015-0111	Important	Oracle VM 3.3 xen security update
OVMSA-2015-0109	Important	Oracle VM 3.3 kernel-uek security update
OVMSA-2015-0107	Moderate	Oracle VM 3.3 curl security update
OVMSA-2015-0106	Important	Oracle VM 3.3 libuser security update
OVMSA-2015-0105	Important	Oracle VM 3.3 bind security update
OVMSA-2015-0104	Moderate	Oracle VM 3.3 kernel-uek security update
OVMSA-2015-0103	Moderate	Oracle VM 3.3 sudo security update
OVMSA-2015-0102	Moderate	Oracle VM 3.3 ntp security update
OVMSA-2015-0101	Moderate	Oracle VM 3.3 gnutls security update
OVMSA-2015-0100	Moderate	Oracle VM 3.3 grep security update
OVMSA-2015-0099	Moderate	Oracle VM 3.3 net-snmp security update
OVMSA-2015-0098	Moderate	Oracle VM 3.3 python security update
OVMSA-2015-0097	Moderate	Oracle VM 3.3 libxml2 security update
OVMSA-2015-0095	Important	Oracle VM 3.3 xen security update
OVMSA-2015-0094	Moderate	Oracle VM 3.3 kernel-uek security update

3.8 What's New in Oracle VM Release 3.3.3?

Oracle VM Release 3.3.3 includes separate patches for Oracle VM Manager, Oracle VM Server, and Oracle VM Agent for SPARC as follows:

- Oracle VM Manager: patch ID [20492250](#).
- Oracle VM Server: patch ID [20492240](#).
- Oracle VM Agent for SPARC: patch ID [20492222](#).

Download the patches from [My Oracle Support](#).

The new features and enhancements in Oracle VM Release 3.3.3 include:

Infrastructure

- **Support for Fibre Channel over Ethernet (FCoE):** Oracle VM now includes drivers to detect Converged Network Adapters (CNA). These drivers make it possible to install Oracle VM Server into an FCoE SAN. (20140781)
- **Maximum vCPU limit:** The maximum vCPU limit of 128 for Oracle VM Server for SPARC is removed in this release. (20576711)
- **Support of Converged Network Adapters:** The Oracle VM Server installer is updated in this release to support more Converged Network Adapters (CNA) such as HP FlexFabric 10Gb 2-port 536FLB Adapter, Broadcom 57840S CNA, etc. (20492419)
- **Updated hwdata package:** The hwdata package has been updated to [hwdata-0.233-11.1.el6.noarch.rpm](#) to list recently released network adapters. (20854084)
- **Updated OvmClient.jar library:** The corporate signing authority for the [OvmClient.jar](#) library has been updated. (20488470)
- **Updated virtual machine console packages:** The [ovmcore-console-1.0-42.rpm](#) package has been added to the Oracle VM Manager Web Interface and is updated on the Oracle VM Manager ISO. (20138989)
- **Oracle VM Server dracut packages:** This release adds the [dracut-fips](#) package and the [dracut-network](#) package to the Oracle VM Server ISO. This release also includes updates to the [dracut-004](#) package and the [dracut-kernel](#) package. (20829905)

Installation and Upgrades

- **Installer check before upgrading:** As of this release, the Oracle VM Manager installation program now checks for sufficient `/tmp` space before starting an upgrade of Oracle VM. (20347269)
- **Delete running jobs:** The Oracle VM Manager upgrade script now allows you to delete running jobs so that the upgrade can proceed. (20103466)

Networking

- **Support for TCP-based NFS Repository Mounts:** Repositories hosted on an NFS share are mounted using TCP by default, with the option to fallback to UDP, in this release. (14692942)
- **Add Python networking package:** This release adds the [python-ipaddr-2.1.9-3.el6.noarch.rpm](#) package to Oracle VM Server for improved IPv6 support. (20855848)

Performance

- **Improved navigation performance in the Oracle VM Manager Web Interface:** This release provides improved performance when navigating to VLAN information. (20814204)
- **Quicker response times in the Oracle VM Manager Web Interface Health tab:** This release provides improved performance when navigating through the **Health** tab. (20963394)
- **Retrieving available servers for virtual machines:** This release improves the time it takes to retrieve a list of available servers for virtual machines. (20982855)
- **Improved performance when expanding tree nodes in the Oracle VM Manager Web Interface:** This release provides improved performance when expanding a tree node that contains a large number of servers. (20305165)

Security

- **Oracle MySQL patch update:** This release of Oracle VM includes the April 2015 Critical Patch Update for MySQL. (20916257)
- **Oracle WebLogic patch update:** This release of Oracle VM includes the April 2015 Critical Patch Update for WebLogic. (20918659)
- **Oracle Java patch update:** This release of Oracle VM includes the April 2015 Critical Patch Update for Java. (20918735)
- **UEK3 quarterly update:** This release of Oracle VM includes the UEK3 quarterly update 5. (20594222)
- **Xen security advisories:** The following Xen security advisories are included in this release:
 - XSA-136 (CVE-2015-4164)
 - XSA-134 (CVE-2015-4163)
 - XSA-135 (CVE-2015-3209)

Oracle VM Security Advisories

This release includes the following Oracle VM Security Advisories:

Table 3.4 Oracle VM Security Advisories

Advisory Identifier	Severity	Description
OVMSA-2015-0040	Important	Oracle VM 3.3 kernel-uek security update
OVMSA-2015-0054	Moderate	Oracle VM 3.3 krb5 security update
OVMSA-2015-0055	Moderate	Oracle VM 3.3 glibc security update
OVMSA-2015-0056	Important	Oracle VM 3.3 kernel-uek security update
OVMSA-2015-0057	Critical	Oracle VM 3.3 Xen security update
OVMSA-2015-0060	Important	Oracle VM 3.3 kernel-uek security update
OVMSA-2015-0064	Important	Oracle VM 3.3 Xen security update
OVMSA-2015-0065	Moderate	Oracle VM 3.3 Openssl security update
OVMSA-2015-0067	Important	Oracle VM 3.3 Xen security update
OVMSA-2015-0070	Moderate	Oracle VM 3.3 Openssl security update
OVMSA-2015-0071	Important	Oracle VM 3.3 cups security update
OVMSA-2015-0072	Important	Oracle VM 3.3 kernel-uek security update
OVMSA-2015-0073	Moderate	Oracle VM 3.3 nss security update

3.9 What's New in Oracle VM Release 3.3.2?

Oracle VM Release 3.3.2 includes separate patches for Oracle VM Manager, Oracle VM Server, and Oracle VM Agent for SPARC as follows:

- Oracle VM Manager: patch ID [20492250](#).
- Oracle VM Server: patch ID [20492240](#).
- Oracle VM Agent for SPARC: patch ID [20492222](#).

Download the patches from [My Oracle Support](#).

The new features and enhancements in Oracle VM Release 3.3.2 include:

Performance

- **Performance Monitoring:** This release adds support for Oracle VM performance monitoring. (19707131)
- **Caching Job States:** Oracle VM Manager Web Interface now caches the states of jobs to improve performance. (19903847)
- **CPU Load of the MySQL Process:** Several performance improvements have been implemented to lower the CPU load of the MySQL process. (19563329)
- **Looking Up Objects by Name:** Oracle VM Manager Web Interface provides improved performance when looking up an object based on its name. (19482992)
- **Method Call Improvement:** Improves the performance of the `OvmWsClient.getWsUtilities()` Oracle VM Web Services API call. (19402315)
- **Virtual Machine Shutdown Time:** Virtual machines now shut down faster, especially for virtual machines with a large amount of memory. (18489484)

Usability

- **Expanding Server Lists:** Oracle VM Manager Web Interface is now more responsive and quicker when expanding lists of Oracle VM Servers. (19879474 and 19385050)
- **Scrolling through Large Tables:** Oracle VM Manager Web Interface provides improved performance when scrolling through large tables such as the **Unassigned Virtual Machines** folder. (19879459)
- **Searching for Jobs:** Oracle VM Manager Web Interface now provides results quicker when searching for jobs. (19590118)
- **Querying Statistics:** Oracle VM Manager Web Interface provides improved performance when querying Oracle VM Manager statistics. (19563481)
- **Servers and VMs Tab Displays as Default:** The **Servers and VMs** tab now displays when opening the Oracle VM Manager Web Interface. (19429440)
- **Opening Menu with Right Mouse Button:** Oracle VM Manager Web Interface provides improved performance when opening context menus with the right mouse button. (19402302)
- **Prevent VNIC Changes for Running Virtual Machines:** Oracle VM now includes a rule to prevent virtual network interface card (VNIC) changes in the network while virtual machines are running. (19644535)

Installation and Upgrades

- **Upgrade Support:** This release adds support to upgrade from Oracle VM Release 3.2.9 to Oracle VM Release 3.3.2. (20122857)
- **Discover Servers After Upgrade:** This release adds support to discover Oracle VM Release 3.2 Servers after upgrading to Oracle VM Release 3.3. (19958455)
- **Prevent Oracle VM Manager Upgrade with Running Jobs:** Oracle VM now includes a rule to prevent an upgrade of Oracle VM Manager when jobs are still running (19562031)

Infrastructure

- **Updated Virtual Machine Console:** This release includes an updated virtual machine console package, `ovmcore-console-1.0-42`, to the Oracle VM Manager installation ISO. (20138989)
- **Import OVF 2.1 VM Templates:** Oracle VM now provides support for importing Oracle VM Templates that are created according to the OVF 2.1 specification. (19639096)
- **Improved NUMA Support:** Oracle VM provides improved NUMA support for PCI devices. (20088513)
- **Xen Command Support:** Adds support for the `-p` option to the `xendomains/auto-start` feature of Xen. (20087455)
- **Update to the dom0 Kernel:** Updates the dom0 kernel to a newer Oracle Unbreakable Enterprise Kernel Release 3 `3.8.13-55.1.3.el6uek`. (20028783)
- **Update to OpenSSL Package:** This Oracle VM Release includes the latest OpenSSL package. (19933498)
- **Support for Larger Number of Virtual CPUs:** This Oracle VM release adds support for a larger number of virtual CPUs. (19564352)
- **Support for an HP Server:** Oracle VM now supports installing Oracle VM Server on an HP DL580 G8 server. (19295185)
- **Oracle Virtual Networking Package:** This Oracle VM release adds the Oracle Virtual Networking user package, `orclovn-user-6.0.r7588-1`, to Oracle VM Server. (19159220)

Security

This release includes the following Oracle VM Security Advisories:

Table 3.5 Oracle VM Security Advisories

Advisory Identifier	Severity	Description
OVMSA-2015-0022	Critical	Oracle VM 3.3 glibc security update
OVMSA-2014-0018	Critical	Oracle VM 3.3 bash security update
OVMSA-2015-0026	Important	Oracle VM 3.3 xen security update
OVMSA-2014-0014	Important	Oracle VM 3.3 nss security update
OVMSA-2014-0015	Important	Oracle VM 3.3 nss-util security update
OVMSA-2014-0012	Important	Oracle VM 3.3 openssl security update
OVMSA-2014-0023	Important	Oracle VM 3.3 nss security update
OVMSA-2014-0021	Important	Oracle VM 3.3 bash security update
OVMSA-2014-0017	Important	Oracle VM 3.3 glibc security update
OVMSA-2014-0025	Important	Oracle VM 3.3 xen security update
OVMSA-2014-0080	Important	Oracle VM 3.3 libXfont security update
OVMSA-2014-0032	Important	Oracle VM 3.3 openssl security update
OVMSA-2014-0038	Important	Oracle VM 3.3 xen security update
OVMSA-2015-0031	Important	Oracle VM 3.3 xen security update
OVMSA-2015-0034	Important	Oracle VM 3.3 kernel-uek security update
OVMSA-2015-0036	Important	Oracle VM 3.3 freetype security update

Advisory Identifier	Severity	Description
OVMSA-2014-0087	Important	Oracle VM 3.3 jasper security update
OVMSA-2015-0004	Important	Oracle VM 3.3 xen security update
OVMSA-2015-0006	Important	Oracle VM 3.3 jasper security update
OVMSA-2014-0083	Important	Oracle VM 3.3 rpm security update
OVMSA-2014-0082	Important	Oracle VM 3.3 nss security update
OVMSA-2014-0085	Important	Oracle VM 3.3 ntp security update
OVMSA-2014-0084	Important	Oracle VM 3.3 bind security update
OVMSA-2015-0003	Moderate	Oracle VM 3.3 glibc security update
OVMSA-2015-0033	Moderate	Oracle VM 3.3 bind security update
OVMSA-2015-0037	Moderate	Oracle VM 3.3 unzip security update
OVMSA-2015-0039	Moderate	Oracle VM 3.3 openssl security update
OVMSA-2015-0005	Moderate	Oracle VM 3.3 openssl security update
OVMSA-2014-0086	Moderate	Oracle VM 3.3 mailx security update
OVMSA-2014-0033	Moderate	Oracle VM 3.3 glibc security update
OVMSA-2014-0031	Moderate	Oracle VM 3.3 libxml2 security update
OVMSA-2014-0036	Moderate	Oracle VM 3.3 wget security update
OVMSA-2014-0030	Moderate	Oracle VM 3.3 rsyslog security update
OVMSA-2014-0034	Moderate	Oracle VM 3.3 krb5 security update
OVMSA-2014-0035	Moderate	Oracle VM 3.3 cups security update

3.10 What's New in Oracle VM Release 3.3.1?

The new features and enhancements in Oracle VM Release 3.3.1 include:

Programmability

- **Fully Supported Web Services API:** Oracle VM Manager now exposes a fully supported Oracle VM Web Services API that offers both SOAP and REST interfaces to program any action supported within Oracle VM. See the [Oracle VM Web Services API Developer's Guide](#) for more information.

Performance

- **New Statistics and Events model:** The statistics and events model has been entirely rewritten to offer significant performance gains. A queued job task is in place to monitor the number of generated statistics and to adjust the threshold automatically during periods where the number of statistics exceeds the threshold.
- **Oracle VM Server Notification Thresholding:** Oracle VM Server notifications can increase the number of generated events and jobs impacting on performance and filling log files to make them unusable. A facility has been provided to control and limit the number of notifications that an Oracle VM Server can generate by setting notification thresholds.
- **Huge Page Support:** Support for Huge Pages (or Super Pages) has been added to allow guests, hosted on an x86-based server pool, to take advantage of this functionality to improve performance and reduce the I/O that results from page lookups in virtualized environments. See [Create Virtual Machine](#) in the *Oracle VM Manager User's Guide* for more information on Huge Page support.

- **Improvements to Guest VM Messaging:** A change to the Oracle VM Guest Additions messaging facility to support multiple key-value pairs in a single message reduces the number of jobs generated within Oracle VM Manager, resulting in significant performance gains. See [Sending Messages to Virtual Machines](#) in the *Oracle VM Concepts Guide* for more information on guest virtual machine messaging.
- **Other Code Changes:** Various portions of the code-base have been rewritten to enhance performance in environments that have been scaled up to make use of many disks, storage repositories, Oracle VM Servers or virtual machines.

Security

- **Service Consolidation:** The number of required ports open in a deployment, and the mechanisms that are used for components to communicate have been reduced through the consolidation of various services and the global use of the Oracle VM Web Services API. These changes reduce the number of potential attack vectors available to malicious users. See the [Oracle VM Security Guide](#) for more information.
- **Certificate-based Authentication:** The Oracle VM Agent now uses SSL certificates to authenticate requests from Oracle VM Manager when an Oracle VM Server is discovered. This reduces the possibility that a malicious user can perform a brute-force dictionary attack to authenticate against an Oracle VM Server that is under the ownership of an Oracle VM Manager instance. Furthermore, certificate-based authentication can be used for all Oracle VM Web Services API requests, to ease automation while retaining a better security model for authentication. See the *Oracle VM Security Guide* for more information on SSL in Oracle VM.

Usability and Serviceability

- **New Virtual Machine Console:** The virtual machine console has been redesigned to use JavaScript and HTML5 features. There is no longer any requirement to install or run software locally on the client computer. The new console runs within the web-browser, and only requires that the browser is capable of supporting the technologies used. Most modern browsers are supported. This change reduces complexity and provides a more reliable console tool. See [Accessing the Virtual Machine Console](#) in the *Oracle VM Concepts Guide* for more information on the virtual machine console.
- **Virtual Machine Configuration File View:** It is now possible to view the virtual machine configuration file for any virtual machine directly within the Oracle VM Manager Web Interface and Oracle VM Manager Command Line Interface, to provide more transparency for the configuration that is actually applied to a virtual machine when it is started by the hypervisor. See [View Virtual Machine Configuration File](#) in the *Oracle VM Manager User's Guide* for more information on viewing the virtual machine configuration file.
- **Stack Trace Removal:** The Oracle VM Manager Command Line Interface no longer has stack trace information in job error messages. This makes it easier to read the more useful content of error messages.
- **Job Details Improvements:** The Oracle VM Manager Web Interface job details view (displayed by clicking the **Details** button in the **Job Summary** pane) has been improved with more appropriate information, and stack trace information has been removed. The job stack trace information is still available, but has been moved to the **Jobs** view. See [Job Details](#) in the *Oracle VM Manager User's Guide* for more information on job details.

Reliability

- **Database Consolidation:** Only the bundled Oracle MySQL Enterprise database is supported as a back end repository for the Oracle VM Manager. Removal of support for other Oracle Database types

allows Oracle VM Manager to have more control over regular automated database backup, support for database consistency checking tools, and other facilities required to improve reliability and performance. Furthermore, by limiting support to the bundled database, it is possible to improve troubleshooting documentation and tools.

- **Database Object Consistency Checking:** Tools are now in place to check the status of objects stored within the database, along with their relationships and references. These tools can assist in tuning the database and can help resolve potential database issues. Consistency checks are performed alongside the automated backup facility.
- **Inbound Migration Lock:** A new feature allows you to protect an Oracle VM Server from attempts to move or migrate other virtual machines to that server. This allows you to run selected virtual machines on a specified Oracle VM Server, and to be certain that no other virtual machines are started on the server, consuming resources that may be mission critical for some applications. See [How Can I Protect Virtual Machines?](#) in the *Oracle VM Concepts Guide* for more information.

Networking

- **Addition of Network Bridges and Virtual Switches to Model:** The Oracle VM Manager core model has been updated to provide better representation of network bridge and virtual switch objects as they exist on each Oracle VM Server. This helps to resolve issues where bridges or virtual switches have been created manually on an Oracle VM Server, and provides the mechanism to develop tools to better handle bridge and virtual switch configuration. See [Understanding Networks](#) in the *Oracle VM Concepts Guide* for information on network architecture.
- **Improved VLAN Support:** VLAN support has been completely restructured. The previous model, which involved configuring VLAN Groups and VLAN Segments, was inflexible, confusing, and could sometimes impact on the Management Network. VLAN support has been simplified, and introduces the concept of a VLAN Interface, allowing you to simply define which ports are used for which VLAN tags. You can define VLAN Interfaces as you need them and many of the restrictions on using VLANs have been removed. See [How are VLANs Used in Oracle VM?](#) in the *Oracle VM Concepts Guide* for information on VLANs.
- **Added Support for HTTP Proxies:** Oracle VM Manager now has added support to define an HTTP proxy to use when importing an assembly, virtual disk, or virtual CDROM. This change expands on the ability to define a proxy when importing a template or virtual machine.

SPARC Support

- **Support for iSCSI, Fibre Channel, ZFS and Local Disk for Virtual Machine Assignment:** iSCSI and Fibre Channel disks can now be discovered for SPARC systems, and can be directly assigned to virtual machines running in a SPARC server pool. Configuring storage repositories on these disks is currently not supported. Local disks, ZFS volumes and NFS exports can be discovered on SPARC systems and can be used for repositories, or can be assigned for use by any virtual machine running on the same server.
- **Package Management and SPARC Upgrades:** Added support for package management within the Oracle VM Agent has made it possible to manage future SPARC server upgrades directly from Oracle VM Manager. Changes to the upgrade tools within Oracle VM Manager allow you to define Server Update Groups where you can specify the IPS repository that should be used to perform future upgrades. See [Creating Server Update Repositories in Oracle VM Manager](#) in the *Oracle VM Installation and Upgrade Guide* for information on creating Server Update Groups for SPARC.
- **Support for HA Virtual Machines:** Virtual machines running in a SPARC server pool can now be configured for high availability if the storage for the server pool is using an NFS file system. See [How does High Availability \(HA\) Work?](#) in the *Oracle VM Concepts Guide* for information on high availability.

- **Improved Network Support:** The following network functionality is now supported on Oracle VM Server for SPARC systems:
 - Active-Backup network bonding.
 - VLAN integration.
 - Jumbo Frames and MTU configuration on network port and bond configuration.

Installation and Upgrades

- **Oracle VM Server Installation Partitioning:** The Oracle VM Server Installer now handles all disk partitioning itself, to optimize installation. Part of this process make sure that only the maximum required disk space for the Oracle VM Server software is used. Any remaining disk space is automatically partitioned to be used as a discoverable local disk that can be used to host a storage repository, or attached to a virtual machine hosted on the server. This improvement to disk space usage ensures the best possible use of machine resources. This change is only supported for locally hosted boot disks and does not apply to SAN disks.

Documentation

- **New Guides and Improved Interface Coverage:** The documentation has been restructured to provide more comprehensive coverage. The [Oracle VM Manager User's Guide](#) has been structured to map more directly onto the Oracle VM Manager Web Interface, to make it easier to find information in the context of user interface related items. A new guide, the [Oracle VM Concepts Guide](#), has been created to cover more conceptual information, and to answer many more generic questions about the architecture and configuration of an Oracle VM deployment. The previously named *Oracle VM Utilities Guide* has been replaced with the [Oracle VM Administrator's Guide](#), which provides broader coverage of all items relating to the underlying administration of an Oracle VM deployment, including handling backups, configuring SSL certificates and general troubleshooting. A new [Oracle VM Web Services API Developer's Guide](#) has been created to provide some general guidelines, and an introduction to programming against the Oracle VM Web Services API.

Infrastructure

- **Infrastructure Changes in Oracle VM Manager:** Much of the technology used to enable Oracle VM Manager has been updated to take advantage of new features, improved performance and security fixes. Major changes to these components include:
 - Oracle WebLogic Server upgraded to 12c.
 - Java upgraded to version 7.
 - MySQL Database upgraded to version 5.6.

The Oracle VM Manager Web Interface and the Oracle VM Manager Command Line Interface have been rewritten to use the new Oracle VM Web Services API to provide further consolidation.

- **Infrastructure Changes in Oracle VM Server:** Major changes to the underlying technology used for Oracle VM Server on x86 hardware have been implemented, including:
 - Xen hypervisor upgraded to version 4.3.
 - Dom0 kernel upgraded to Oracle Linux 6.
 - Linux kernel (used in dom0) updated to Oracle Unbreakable Enterprise Kernel 3 (UEK3).

3.11 What's New in Oracle VM Release 3.2.1?

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 back end 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.

Usability

- **Oracle VM Manager Command Line Interface (CLI):** The new Oracle VM Manager 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 Manager 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 Accessibility Features](#) in the *Oracle VM Manager User's Guide* 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](#) in the *Oracle VM Manager User's Guide* 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](#) in the *Oracle VM Manager User's Guide* 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](#) in the *Oracle VM Manager User's Guide* 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 [Present or Unpresent Repository](#) in the *Oracle VM Manager User's Guide* for more information.
- **OCFS2 timeout configuration:** An additional attribute has been added to allow you to determine the timeout 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, see [Access Groups Perspective](#) in the *Oracle VM Manager User's Guide*.
- **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 server update repository 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.

3.12 What's New in Oracle VM Release 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 [Create Bond Port](#) in the *Oracle VM Manager User's Guide* 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 [Repository Exports Perspective](#) in the *Oracle VM Manager User's Guide* 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.

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 [Clone a Virtual Machine or Template](#) in the *Oracle VM Manager User's Guide* for information on creating virtual machine templates.

- **Clone Virtual Machines and Templates:** Cloning a virtual machine or template (including the configuration information, disk resources, storage and networking). See [Clone a Virtual Machine or Template](#) in the *Oracle VM Manager User's Guide* 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 [Edit Virtual Machine](#) in the *Oracle VM Manager User's Guide* 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 [Discover Servers](#) in the *Oracle VM Manager User's Guide* 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 [Create Virtual Machine](#) in the *Oracle VM Manager User's Guide* 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 [Launch Console](#) in the *Oracle VM Manager User's Guide* 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](#) in the *Oracle VM Manager User's Guide* 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](#) in the *Oracle VM Manager User's Guide* for information using the drag and drop feature.

3.13 What's New in Oracle VM Release 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 Perspective](#) in the *Oracle VM Manager 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.

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.

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 [Understanding Virtual Machines](#) in the *Oracle VM Concepts 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.

3.14 What's New in Oracle VM Release 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 2 TB 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 [How are Virtual Appliances Managed?](#) in the *Oracle VM Concepts 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 [Understanding Networks](#) in the *Oracle VM Concepts 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 [Storage Tab](#) in the *Oracle VM Manager 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 [What are Server Pool Policies?](#) in the *Oracle VM Concepts Guide* for information on using DRS and DPM.

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 Manager 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 [Understanding Virtual Machines](#) in the *Oracle VM Concepts Guide* for information on virtual machines.

Chapter 4 Notable Bug Fixes

Table of Contents

4.1 Bug Fixes in Oracle VM 3.4.5	47
4.2 Bug Fixes in Oracle VM 3.4.4	49
4.3 Bug Fixes in Oracle VM 3.4.3	50
4.4 Bug Fixes in Oracle VM 3.4.2	51
4.5 Bug Fixes in Oracle VM 3.4.1	52
4.6 Bug Fixes in Oracle VM 3.3.5	53
4.7 Bug Fixes in Oracle VM 3.3.4	54
4.8 Bug Fixes in Oracle VM 3.3.3	55
4.9 Bug Fixes in Oracle VM 3.3.2	57
4.10 Bug Fixes in Oracle VM 3.3.1	58
4.11 Bug Fixes in Oracle VM 3.2.1	60
4.12 Bug Fixes in Oracle VM 3.1.1	61
4.13 Bug Fixes in Oracle VM 3.0.3	62

Each Oracle VM release includes bug fixes that improve performance, usability, or resolve significant issues. Because each release contains many bug fixes, it is beyond the scope of this document to provide an exhaustive list of each bug fix. Rather, this chapter highlights the more notable bug fixes in each release.

4.1 Bug Fixes in Oracle VM 3.4.5

Oracle VM Release 3.4.5 includes the notable bugs that have been fixed in previous 3.4.x errata releases. Additionally, Oracle VM Release 3.4.5 includes a number of enhancements, as described in [Section 3.1, "What's New in Oracle VM Release 3.4.5?"](#).

Notable bugs fixed in Oracle VM Release 3.4.5 are as follows:

- To resolve SSH connection issues with the Oracle VM Manager Command Line Interface, the SSH server implementation used by the CLI has been updated to support all required security algorithms. Systems accessing Oracle VM Manager using OpenSSH Release 7.0 can now connect to the CLI using the stronger default security protocols. (24742496)
- Connection leaking in the Oracle WebLogic component used by Oracle VM Manager has been fixed. This eliminates login failures, database corruption issues and connection errors experienced by some Oracle VM Manager users due to a lack of available resources. This fix reduces the occurrence of error messages such as "no resources available in pool ovm-odof-ds to allocate to applications" and "Waiting for connection". (26675991)
- The Oracle VM Server installer can now complete the installation process in case xen.gz is not present; for example in the case of ipxe-, uefi-, and iscsi-based installation. (24376778)
- Virtual machine logging has been enhanced to indicate what causes the migration of a VM. For example, when a VM is live-migrated due to a DRS policy, administrators see information such as "CPU usage is at 41.1% which is over the threshold of 25.0%". (27911937)
- Several issues have been addressed with the Oracle VM Agent and generic Oracle Storage Connect plugin. This includes better retrieval of device mapping information when EMC Power Path is in use. (27901631)

- The RDMA functionality has been improved to correctly detect and configure Mellanox network interface cards, whether they provide Ethernet or InfiniBand connectivity. This allows Oracle VM to complete its boot sequence on systems with Mellanox cards installed and RDMA enabled. (25238309)
- Scripts in the Oracle VM Agent have been improved to correctly detect Ethernet and InfiniBand interfaces manufactured by Mellanox. This eliminates issues with creating bond interfaces on servers containing network interfaces of the affected types. (26541812)
- The Oracle VM devmon service has been hardened to correctly handle block devices with long names and paths, as well as multipath devices. This significantly reduces the risk of the service crashing due to a buffer overflow. (27486687 and 27486525)
- The method to persist certain server pool settings, such as the cluster timeout, has been improved. Customized server pool settings are now correctly preserved even after a regeneration of the Oracle VM Manager database. (26795755)
- If a virtual machine is configured with CPU pinning, it can now be cloned to a template. This operation failed in previous versions. (26789306 and 26365024)
- Statistics collection through the Oracle VM Agent has been improved to make sure that repository file system details are always communicated correctly to the Oracle VM Manager. (26003962)
- An issue was resolved where virtual machines configured with an amount of RAM close to the maximum provided by the host server, regularly failed to start or restart. The Oracle VM code now makes sure that there is enough scrubbed RAM available before the VM is started. (27534600)
- An issue in Xen 4.4.4-155.14 through 4.4.4-155.17 has been resolved to allow Oracle Solaris guests with multiple vCPUs to boot correctly. (27525698)
- The Oracle VM Manager code for operations on virtual machines with high availability enabled has been improved to ensure the correct VM status is always reported. (27241657)
- Thanks to better management of C-states in Xen, virtual machines can now take advantage of higher frequencies of physical CPUs at times when the load on other CPUs in the system is low. (27182738)
- When "Best Server" is selected as the VM start policy, an improved algorithm now selects a server more efficiently than before. This results in significantly better performance and shorter times for a virtual machine to start up or Live Migrate. (27161103)
- The upgrade code has been hardened to ensure that an Oracle VM Server can never be upgraded to a version higher than Oracle VM Manager. In a normal upgrade scenario, the Oracle VM Manager is upgraded first, and can be used to manage certain older Oracle VM Server versions until they are also upgraded. However, managing newer Oracle VM Server versions is not supported. (26988270)
- With certain devices, SCSI inquiry commands generate warning messages in the logs, because the commands are not supported by the device and considered illegal. Since there is no impact on functionality, the logging has been modified to write DEBUG instead of WARNING. (26932873)
- It is now acceptable that the URL of the Oracle VM Manager Web Interface starts with "<https://console.<domain>>". Previously, the word "console" at the start of the URL would be rejected, and the connection attempt would result in an "Error 404: Page not found". (26283106)
- Additional checks for resource locking have been included in Oracle VM Server for SPARC, to avoid crashes due to duplicate removal attempts and similar purge list issues. (26241929)
- Virtual machines running Oracle Linux with UEK R2 no longer lock up during live migration, thanks to a fix that allows processes to be frozen and thawed correctly through Xen. To take advantage of this fix, you must upgrade the virtual machine kernel to the latest version of UEK R2. (25644455)

- A newly implemented Xen boot parameter, `dom0_vcpus_pin`, allows administrators to specify how dom0 vCPUs are mapped to the server's physical CPUs. This results in more flexible and accurate CPU pinning. Further information on CPU pinning can be found in [Oracle VM Virtual Machine Control](#), in the *Oracle VM Administrator's Guide*. (25559771)
- Code changes have been implemented to make sure that configuration updates to a virtual machine, such as disk migrations, are always represented correctly in the `vm.cfg` file. Previously, discrepancies sometimes occurred when jobs failed and modifications were not rolled back. (24626034)
- Several issues have been addressed with Template and Virtual Appliance data truncation in the MySQL database. Previously, origin file paths longer than 4,000 characters could result in job errors and Oracle VM upgrade failures. (23099378)
- In the storage configuration section of the Anaconda installer, a call to a non-existent kernel module has been removed. The many resulting non-fatal log messages no longer appear, which makes debugging much simpler. (27525259)

4.2 Bug Fixes in Oracle VM 3.4.4

Oracle VM Release 3.4.4 includes the notable bugs that have been fixed in previous 3.4.x errata releases. Additionally, Oracle VM Release 3.4.4 includes a number of enhancements, as described in [Section 3.2, "What's New in Oracle VM Release 3.4.4?"](#).

Notable bugs fixed in Oracle VM Release 3.4.4 are as follows:

- Fixes an issue where the Oracle VM Manager pre-upgrade script fails with the following error message: `cannot concatenate 'str' and 'javainstance' objects`. (25896467)
- Fixes an issue where Microsoft Windows guest virtual machines fail to migrate. (25801187)
- Fixes an issue where VNICs are displayed in the incorrect order when using the Oracle VM Manager Web Interface to edit a virtual machine with multiple VNICs. (25249076)
- Fixes an issue where it is not possible to delete storage repositories when error messages indicate that the storage device is busy and Oracle VM Server cannot unmount the file system for the repository. (26427886)
- Fixes an issue so that dom0 can reclaim space on the file system when a user domain makes space available. (25342487)
- Reduces the amount of time it takes to start virtual machines with large amounts of memory. (25860374)
- Fixes an issue where additional memory is incorrectly allocated to virtual machines when they are restarted. (26396728)
- Fixes an issue where removing block devices results in unresponsive behavior. (25498155)
- Fixes an issue where virtual machine migration hangs indefinitely. (25638583)
- Fixes an issue where it is not possible to add VNICs to running virtual machines after they are migrated. (25692157)
- Fixes an issue where virtual machines do not restart after stopping unexpectedly. (25729452)
- Fixes an issue where the operation to add or remove a VLAN exits with error messages instead of indicating if the VLAN already exists. (25796887)
- Fixes an issue in cases where Xen kernel panics occur when the Kdump service restarts. (25861742)

- Fixes an issue to persist the disabling of multicast snooping on a bridge. (25870875)
- Fixes an issue where it is not possible to create repository exports on Oracle VM Server. (26244801)
- Fixes an issue where the default maximum number of grant frames and PIRQs numbers for dom0 and user space domains must be increased. (26338166)

4.3 Bug Fixes in Oracle VM 3.4.3

The following notable bugs are fixed in Oracle VM Release 3.4.3:

- Fixes an issue where Link Local Discovery Protocol (LLDP) packages are enabled by default on Oracle VM Server. These packages are not required, and are disabled by default in this release. (25254072)
- Fixes an issue where the Oracle VM Server discovery process fails due to the Oracle VM Manager Yum repository configuration. (25107129)
- Fixes an issue where Desktop Bus (D-Bus) support is not available as part of the `libvirt` package that is supplied with Oracle VM Server. (25035614)
- Fixes an issue where you are unable to configure CPU pinning for a running virtual machine. As a result, there is no longer a requirement to stop and then start the virtual machine for the configuration to take effect. (24938500)
- Fixes an issue where the Oracle VM Agent is unable to distinguish local root disk partitions from LUN disk names when there are a large number of LUNs on the system. (25261502)
- Fixes an issue where slow response times are encountered when rescanning physical LUNs on Oracle VM Servers. (25105813)
- Fixes an issue where the vmcore memory size on the Management Domain (dom0) exceeds the total memory allocated to the dom0 . (24842742)
- Fixes an issue where instances of Oracle VM Server are not booting after installation to LUN targets larger than 2TB in size. (24811512)
- Fixes an issue where Guest VM creation is slow due an issue in the `XENMEM_populate_physmap` macro resulting in Xend 100% CPU usage. (24738858)
- Fixes an issue where MD RAID devices are disabled during Oracle VM Server upgrades. (24676299)
- Fixes an issue where importing a compressed virtual machine template may result in large system image files once the templates are unpacked. (23594530)
- Fixes an issue where you are unable to create kickstart configurations that assemble software RAID devices during the Oracle VM Server installation. (22204542)
- Fixes an issue where Oracle VM Server is unable to present software RAID devices to Oracle VM Manager. (21910748)
- Improves prompts used when changing the password for the MySQL root password to ensure instructions are clear. (25485730)
- Fixes an issue where you are unable to update the MySQL root password in the database so that it matches the MySQL root password that you set with the Oracle VM Manager Administrator Tool. (22973573)
- Fixes an issue where the **Edit Virtual Machine** dialog does not load vNICs in the correct order. (25904204)

- Fixes an issue where the **Export to Excel** option on the **Jobs** tab is unresponsive. (24805469)
- Fixes an issue where you may experience delays when rescanning physical disks from Oracle VM Manager. (25073132)
- Fixes an issue where Oracle VM Manager miss-interprets the `on_crash` parameter in the `vm.cfg` when the repository is refreshed. (25060508)
- Fixes an issue where Oracle VM ULN and public ULN channels do not contain the latest tzdata package. The tzdata package is now updated to `tzdata-2017b-1.el6.noarch.rpm`. (24847941)
- Enhances the Oracle VM Agent to automatically include existing vSwitches to the Oracle VM Agent network database. (18508248)
- Fixes an issue where memory release is unacceptably slow during graceful VM shutdown. (20816669)
- Fixes an issue where the Kdump service fails to start on the user domain (domU). (19807079)

4.4 Bug Fixes in Oracle VM 3.4.2

The following notable bugs are fixed in Oracle VM Release 3.4.2:

- Fixes an issue where multiple sets of `PortUp` and `PortDown` events are unnecessarily generated when a server is discovered or when the port on a server goes up or down, resulting in a slow down in performance on Oracle VM Manager. (23738392)
- Fixes an issue where duplicate server scan events are generated when re-discovering a server, resulting in a slow down in performance on Oracle VM Manager. (2888398)
- Updates to the Oracle VM Utilities to resolve some issues are now posted on My Oracle Support (MOS) at patch 13602094. (24303705, 24300124, 24300120)
- Enables network configuration operations on a Xsigo port for Oracle Private Cloud Appliance. (22694975)
- Fixes an issue where the `block` hotplug script does not account for gaps in used Loop devices. (22875089)
- Fixes an issue where some Oracle VM Manager jobs fail with operations on Dell Storage with Dell `multipath.conf`. (22909259)
- Adds the `libxenstore` and `libxenstore-devel` packages to the `addons` channel for the Oracle Linux Yum Server, so they can be used with Oracle Linux 6 guests. (22909892)
- Fixes an issue where it takes an excessive amount of time to release memory from a guest during a live migration. (23095319)
- Adds a new command to add, delete, or show routes on a given interface from the Oracle Private Cloud Appliance User Interface. (23154685)
- Fixes an issue where a server cluster failure occurs in some cases during a server reboot, when managing a large number of LUNs. (23169165)
- Fixes an issue where the VM console in the Oracle VM Manager Web Interface hangs during some live migration events. (23253588)
- Fixes an issue where a DNS Round-Robin configuration forces NFS to be mounted multiple times due to multiple IP assignments. (23577814)

- Enhancement added to the Xen hypervisor that makes devices assignable and unassignable. (23749204)
- Adds `/etc/grub.d/30_linux` to the Oracle VM Server installation to enable bare metal Linux installs for some Cloud operators. (24348702)
- Fixes an issue where a VM cannot start due to frequent duplicate Xend child processes. (24371183)
- Fixes an issue where the `storage_plugin_listFileSystems` command is not returning complete discovery data to Oracle VM Manager. (24414865)
- Fixes an issue where GRUB2 does not inherit the `crashkernel` parameters when upgrading Oracle VM Server from Release 3.2.x or 3.3.x to Release 3.4.2. If you have manually installed and configured the kdump service on Oracle VM Server Release 3.2.x or Release 3.3.x, and you then upgrade Oracle VM Server to Release 3.4.1, the kdump service no longer functions. See [Confirm kdump Service Settings after Upgrading](#) in the *Oracle VM Installation and Upgrade Guide*. (24512683)
- Fixes an issue with yum upgrades from 3.2.10 or 3.2.11 due to the removal of the `ql2xxx-firmware` from Oracle VM Release 3.4. (24529773)
- Fixes a Kdump failure and kernel panic in Oracle Server X5-8 with the QLogic 25Gb NIC. (24554631)
- Fixes an issue where several VM related jobs cannot complete after an upgrade from Oracle VM Release 3.3.x. (23134128)
- Fixes an issue where a user is unable to set more than 512GB of memory for Solaris 11 guests on Oracle VM Server for SPARC. (23206373)
- Fixes an issue where some upgrades fail with the following message: `Error upgrading core database, upgrade cannot continue!` and the following entry in the log files: `UpdateUserAndCertEntities does not exit.` (23283190)
- Fixes an issue where a user is unable to discover a server using the Oracle VM Manager Web Interface due to the use of uppercase alphabetic characters in the UUID. (23635359)
- Fixes an issue where a user cannot login to Oracle VM Manager with an `AUTHORIZED_GROUP` and is using Microsoft Active Directory authentication. (23744937)
- Fixes an issues where the Oracle VM Manager upgrade terminates in some cases shortly after running the `ovm_preUpgrade` script. (24009772)
- Fixes an issue where a running VM is moved to a different shared repository. (24387377)

4.5 Bug Fixes in Oracle VM 3.4.1

Oracle VM Release 3.4.1 includes the notable bugs that have been fixed in the earlier 3.3.x errata releases. Additionally, Oracle VM 3.4.1 includes a number of enhancements, as described in [Section 3.5, "What's New in Oracle VM Release 3.4.1?"](#).

Oracle VM Manager build 1369 is an errata update for the Release 3.4.1 build 1350. Build 1369 offers fixes for bugs that were identified after build 1350 was released. Oracle VM Manager Release 3.4.1 build 1369 has been validated in combination with Oracle VM Server Release 3.4.1 build 1351 and Oracle VM Agent for SPARC Release 3.4.1 build 1350.

Notable bugs fixed in Oracle VM Manager Release 3.4.1 build 1369 are as follows:

- Fixes an issue where the upgrade does not complete when VM origin URLs or network install path is greater than 512 characters. (23003986)

- Fixes an issue where OVA files with URLs that are greater than 512 characters cannot be imported. (23012337)
- Fixes an issue where the user cannot proceed beyond the web UI login prompt after successfully entering user credentials. (23017746)
- Fixes an issue where in some cases the pre-upgrade script fails with an error “cannot concatenate 'str' and 'javainstance' objects”. (23031621)

4.6 Bug Fixes in Oracle VM 3.3.5

The following notable bugs are fixed in Oracle VM Release 3.3.5:

- Fixes an issue where the logs get loaded with “Data too long for column” entries. (24848792)
- Fixes an issue where the `ovs-agent` logs get loaded with “Event queue is full” entries, causing Oracle VM Manager jobs to hang. (24841984)
- Fixes an issue where some upgrades from Oracle VM Server Release 3.2.10 fail with “Transaction Check” errors. (24510423)
- Fixes an issue where in some cases a virtual machine migration may fail with Oracle VM Agent for SPARC. (24486936)
- Fixes an issue where two pop-up menus are displayed incorrectly when you right click on the VNC console display area. (23247656)
- Fixes an issue where in some cases the upgrade script fails with the message “Server upgrade in progress”. (22746573)
- Fixes an issue where the `OVModelDump` fails to retain tag information when rebuilding Oracle VM Manager. (22741229)
- Fixes an issue where in some cases the Oracle VM Manager upgrade fails with the message “AttributeError: getSummaryDisplayStatus”. (22660433)
- Fixes an issue where in some cases the repository cannot be refreshed and the following message is displayed: “DOM0 has invalid exports”. 22616221
- Fixes an issue where discovery of Oracle VM Server on Fiber Channel over Ethernet (FCoE) LUN fails due to the interface name appended with `-fcoe`. (22584539)
- Fixes an issue where problems may occur when doing a UI refresh in some scenarios. (22270904)
- Fixes an issue where a DNS entry is removed after discovering Oracle VM Server. (25353998)
- Fixes an issue where very slow response times are encountered when re-scanning ISCSI physical LUNS on Oracle VM Server. (25176548)
- Fixes an issue where Oracle VM Server is slow to create a virtual machine, resulting in `Xend` 100% CPU usage. (24738894)
- Fixes an issue where in some cases `Xend` hangs with a high CPU utilization. (24376707)
- Fixes an issue with statistics validation that results in statistics being dropped. (24369962)
- Fixes an issue where a virtual machine cannot start due to frequent duplicate `Xend` child processes. (23625563)

- Fixes an issue where the block hotplug script does not account for gaps in used loop devices. (23269321)
- Fixes an issue where `bondport` names are changed after Oracle VM Server is deleted and then re-discovered. (23193644)
- Fixes an issue with an Oracle VM Server SSL key vulnerability. (22755974)
- Fixes an issue where the `kdump` service for Oracle VM Server on an Oracle Sun Server X4-4 with a QLogic QLE2562 Host Bus Adapter (HBA) requires the `nox2apic` kernel parameter. (22729287)
- Fixes an issue where a DNS Round-Robin configuration forces NFS to be mounted multiple times due to multiple IP assignments. (22683343)
- Fixes an issue with Netra X5-2 where 40G Ethernet interfaces (i40e) goes into an up and down loop status after adding `bond0` to the bridge. (22605450)
- Fixes an issue with two instances of the same virtual machine running on different servers under a heavy load. (22393202)
- Fixes a Xen issue for memory management. (22145952)
- Fixes an issue where installations are not possible on an instance of Oracle VM Server with more than 4TB of memory. (21219500)
- Fixes an issue with LACP bond mode with 1GB NIC and with `dom0_max_vcpus=20`. (20745556)
- Fixes an issue where the LRO setting should remain disabled if all the VLAN interfaces are not removed from a bridge. (20466383)
- Fixes an issue where the Oracle VM Agent for SPARC fails to start after a reboot on T7 servers. (25106965)
- Fixes an issue where the Oracle VM Agent for SPARC upgrade from 3.2.10 may fail in certain cases with an active guest domain. (22651391)
- Fixes an issue where Oracle VM Agent for SPARC on Oracle Solaris displays the message: "Numeric value (n) out of range of long (-x - y)" (24575522)

4.7 Bug Fixes in Oracle VM 3.3.4

The following notable bugs are fixed in Oracle VM Release 3.3.4:

- Resolves a problem where in some cases that an Oracle VM Manager event (ArchiveTask) does not have the proper status. (22300975)
- Fixes a problem with the UI where in some cases the parent job is marked as completed in the job summary; however, the children jobs are still running. (22101966)
- Corrects a problem where the database backup hangs on an upgrade if there is a root keystore. (21804503)
- Corrects a problem that Oracle VM Manager failed to be installed on Oracle Linux 6.7. (21548314)
- Sets the default CLI client inactivity timeout value to 45 minutes to allow for the copy of large files. (21547396)
- Fixes an issue where the Java processes grow very large with many VMs. (21368302)

- Enhances the periodic database cleanup process when it is unable to keep up with many VMs and the database grows over time. (21320889)
- Enhances the discovery process by dropping invalid Page83 ID events from the Server. (21121751)
- Fixes an issue that prevents users to add more than 4 virtual disks to Solaris 10 guest (Oracle Solaris 10 1/13) with the domain type Xen_HVM_PV_Drivers. (20626989)
- Fixes a compatibility issue in Oracle VM Agent database (Berkeley DB) during the server upgrade. (22821483)
- Fixes a problem where a PVHVM guest cannot start when Xen virtual disk is on the driver domain. (22242513)
- Fixes a problem that Oracle VM Server installation failed on the HP BL465C GEN8. (21906833)
- Fixes a problem that HVM guest failed to launch using xl command. (21748894)
- Fixes a Xen hypervisor bug that caused race condition under certain situation. (21544772)
- Fixes an issue where kdump was not working when X2APIC is set to "enable". (21197271)
- Fixes an issue where the deprecated ETHTOOL_OFFLOAD_OPT needs to be converted to ETHTOOL_OPTS in network startup script upgrading from Oracle VM Server 3.3.1. (20989506)
- Improves the memory release during a graceful VM shutdown. (20816684)
- Fixes an issue where the LRO setting should be disabled when the interface is part of a bridge. (20390557)
- Fixes a problem where the kickstart installation failed for a specific VLAN interface. (20011623)
- Fixes an issue where rebooting a large VM (256G memory and higher) took over 4 minutes. (19731529)
- Fixes a problem where a VM cannot be started when the images are stored on the NFS server of another VM. (18889929)
- Resolves an issue where the Oracle VM Agent does not come up with Python 2.7 which is the default for Solaris 11.3. (21976240)
- Fixes a problem where the Manager was unable to discover a SPARC server with a virtual switch. (21302405)

4.8 Bug Fixes in Oracle VM 3.3.3

The following notable bugs are fixed in Oracle VM Release 3.3.3:

- Disables the transitional YUM repository temporarily during an upgrade to ensure a successful upgrade between Oracle VM Server 3.3.x errata releases. (20330043)
- Fixes an issue in the statistic query builder for the file system. (20364416)
- Fixes a problem with the upgrade script that was causing it to fail after the first step in the process. (20372446)
- Fixes a null pointer exception error with Page83 when attempting to delete a server from a pool or model. (20373362)

- Fixes a problem where resizing existing LUNs did not always work. (20397450)
- Fixes a problem with an SSL handshake exception when adding a customer SSL certificate. (20702236)
- Fixes a server sorting problem in the navigation panel in the Oracle VM Manager Web Interface. (20814532)
- Fixes an issue where the console did not display information about virtual machines after an upgrade. (20828842)
- Fixes an issue where user was not able to register multiple storage arrays. (20958122)
- Fixes an issue that caused autobackup feature to hang. (21123499)
- Fixes an error condition where sometimes after rebooting a virtual machine, an ext4 filesystem error is displayed. (19357800)
- Fixes long server discovery time with a large number of disks on Oracle VM Server for SPARC. (20158892)
- Fixes Discover_Network failure with “no device found for vswitch” message on Oracle VM Server for SPARC. (20593971)
- Disables GRO on new installs when routing/bridging with IXGBE driver. (19514003)
- Fixes an issue with a VLAN created over a bond, where it may not come up on restart if the MAC address of the bond changes. (19802253)
- Fixes an issue where dom0 kernel reported "Can't map rx data" with bnx2x 10Gb NICs (20397398)
- Fixes a problem where refreshing a file server would sometimes return the error message "too many values to unpack". (20510340)
- Fixes an issue when upgrading from Oracle VM Server 3.2 the ETHTOOL_OFFLOAD_OPT parameter name changed to ETHTOOL_OPTS in ifcfg files. (20526276)
- Fixes a problem with select hardware configurations where dom0 does not come back online after a reboot. (20659992)
- Fixes an issue where guests were not shutting down correctly. (20663386)
- Fixes a problem where a Brocade HBA does not detect storage and shows the error "kernel: Can't locate firmware cbfw-3.2.3.0.bin". (20682061)
- Fixes a deadlock problem when calling logging functions in XendBootloader. (20752002)
- Fixes an intermittent issue where a virtual machine would not bootup after a successful shutdown. (20781679)
- Fixes an issue where InfinBand Virtual Functions were being put "Out of Service" when large virtual machines were being started or shutdown. (21133414)
- Fixes a problem where memory release was slow during a graceful shutdown of a virtual machine. (21133543)
- Fixes a problem when rebooting a large virtual machine takes a long time and causes the XM CMD to hang. (21133626)
- Fixes an issue where Live Migration with the -SSL option fails with a bad descriptor error. (21269578)

4.9 Bug Fixes in Oracle VM 3.3.2

The following notable bugs are fixed in Oracle VM Release 3.3.2:

- Fixes an issue that causes network discover to fail when Oracle VM Agent for SPARC is installed on Oracle Solaris 11.2 under certain configuration. (20646623)
- Fixes an issue that causes changing the MTU to fail when the dlmp service is enabled. (20185577)
- Fixes an issue that causes the action of taking ownership to fail when the control domain runs Oracle Solaris 11.2. (20185575)
- Fixes an issue that causes Oracle VM Agent for SPARC to fail on Oracle Solaris 11.2 control domain. (18371968)
- Fixes a server upgrade issue where fba (Brocade Fibre Channel HBA Driver) is not loaded for the FC slots. (20729090)
- Fixes an issue where the virtual machine status shows "domain-unnamed" after live migration. The fix is delivered with newer Xen package (xen-4.3.0-55.el6.22.18 or later). (20687187)
- Fixes an issue that live migration from earlier Oracle VM Server versions to 3.3.2 leaves Linux PVHVM guest in a hung state. The fix is delivered with newer Xen package (xen-4.3.0-55.el6.22.18 or later). (19517860)
- Fixes an issue that idle virtual machines may use more CPU resources than they need. (20138111)
- Fixes a network setting issue by using the "ETHTOOL_OPTS" directive instead of "ETHTOOL_OFFLOAD_OPTS". (19731130)
- Fixes "unauthorized access" errors when an Oracle VM Server has been removed from a clustered server pool. (19725961)
- Fixes an issue where the virtual machine cannot ssh to a server located outside the Oracle VM environment. (19589497)
- Fixes an issue when stopping a virtual machine. (19557384)
- Fixes the issue where an HVM guest may reboot under certain configuration. (19440731)
- Fixes the issue where a PXE boot installation fails when there is no DNS resolution. (19181050)
- Fixes incorrect copying of small files. (19121000)
- Fixes an issue where Oracle VM Server cannot be installed on a server that has a LUN attached with a Windows file system. (19173545)
- Fixes an issue that caused some other software installation to fail. (19181087)
- Fixes a user interface issue when cloning Oracle VM templates using Internet Explorer 9. (20077741)
- Fixes an issue with the SOS Report Tool to include the vm.cfg files and Ethtool data. (19952640)
- Fixes the issue where the VM START ON BEST Server Policy does not balance the load correctly. (19982628)
- Fixes a time-out issue for Oracle VM Manager Web Services during long-running operations. (19788626)

- Fixes the issue where a successfully launched Job is killed after multiple launch attempts. (19636855)
- Fixes an issue to show the correct virtual machine console of the selected virtual machine. (19590077)
- Fixes the issue where adding an Oracle VM Server that has its management network interface in a VLAN, didn't add the IP address and hostname to the /etc/hosts file. (19587036)
- Fixes an issue that caused an upgrade failure. (19526524)
- Fixes an upgrade issue where the MTU is inconsistent between the Bridges and the Virtual Interfaces (VIFs). (19241260)
- Fixes the issue that some special characters were not handled correctly when using Firefox browser to access the serial console. (19187642)
- Fixes the issue where non-sparse Virtual Disks became sparse after resizing them via the Oracle VM Manager. (19146857)
- Fixes the issue where sparse copying of virtual disks did not work in SPARC environments. You must run Oracle Solaris 11.2 or greater within the control domain. (14851945)
- Fixes the issue where Oracle VM Manager shows the disk size as 0 when using multipath devices and the first device in the list is passive. (19131600)
- Fixes the issue that Control-C is mishandled in serial console. (19004079)
- Fixes the issue that the serial console fails to display long entries correctly. (18969505)
- Fixes the issue of non-US keyboard mapping when accessing virtual machine console. (18089107)
- Fixes the issue that the cursor is not displayed in the serial console for SPARC guest. (18085387)
- Updates MySQL to the newer version 5.6.21. (20062369)
- Includes the latest critical patch update for Weblogic from October 2014. (19346370)
- Includes Java 7 critical patch updates in Oracle VM Manager (19346310)

4.10 Bug Fixes in Oracle VM 3.3.1

The following notable bugs are fixed in Oracle VM Release 3.3.1:

- Fixes an issue with uninstalling Oracle WebLogic Server during uninstalling Oracle VM Manager. (16203060)
- Fixes an issue where the Oracle VM Manager does not initialize after installing and starting it. (16202979)
- Fixes an issue where an object cannot be deleted.(16823781)
- Fixes an "Object Not Found" exception when deleting a file system mount. (17219387)
- Fixes an issue where it is not possible to upgrade due to a JDBC connection error. (17250224)
- Fixes a performance issue to speed up the discovery process of a physical LUN. (17447037)
- Fixes an issue to properly handle duplicated storage initiators when deleting an Oracle VM Server. (17263779)

- Adds support to specify the network ID when editing a Virtual NIC via the Oracle VM Manager Command Line Interface. (17294253)
- Fixes an issue in which VLAN objects were deleted during discovery. (16886580)
- Fixes the failure which occurred when trying to add more than four disks on Solaris 10. (16939432)
- Fixes an issue where ISCSI log out fails with the error "FAILED TO DELETE NODE RECORD FOR PORTAL". (16886208)
- Fixes the exception when Oracle VM Manager is started and shows the error "FAILED TO START MODEL ENGINE - JAVA.LANG.NULLPOINTEREXCEPTION". (17192350)
- Fixes the exception that occurs during the Storage Connect plug-in upgrade when Oracle VM Manager cannot access the plug-in. (16855900)
- Fixes a performance issue to speed up job debug transcript. (16988868)
- Fixes the issue where jobs are missing start and end times. (17192350)
- Fixes the issue to make sure a server local network does not have any ports allocated to it before creating the network. (17173360)
- Fixes an issue that prevented Oracle VM Server from upgrading to a version not supported by Oracle VM Manager. (16225828)
- Fixes an issue with redundant "refresh storage layers" operations in the case of multiple LUNs presented to an access group. (16345107)
- Fixes an issue with "Object Not Found" exceptions during parallel operations which include discovery and VM delete. (16569334)
- Fixes Null Pointer Exception in the event of a null Storage Connect plug-in. (16843328)
- Fixes problem importing a VM on SPARC servers. (16441398)
- Improves Oracle VM Manager performance. (16600883)
- Displays the correct version number for Oracle VM Manager during installation or upgrade. (16473785)
- Fixes incorrect object count for virtual machines in the Oracle VM Manager log files. (16382730)
- Prevents thread leaks when stopping multiple virtual machines sequentially or in parallel when using the Oracle VM Manager CLI. (16357202)
- Prevents a Null Pointer Exception when removing a LUN from an Access Group. (16357417)
- Fixes a rare condition when the starting command of a virtual machine did not get executed. (16051311)
- Fixes a security vulnerability exposed by Oracle VM Manager upgrade process. (16239127)
- Fixes the "Object Not Found" issue when a virtual disk file has been manually removed (or renamed). (16226364)
- Fixes a memory leak issue after exiting the Oracle VM Manager Command Line Interface when running the exit.sh script. (16236217)
- Adds certain event classes required by some Oracle software. (16092276)

- Fixes the issue that the Oracle VM Guest Additions (VM-API) send keys and values are logged in events. (16179187)
- Adds support in Oracle VM Manager Command Line Interface for returning the "Page83 ID" when listing physical disks. (15950559)
- Improves the time needed to scrub the free memory during installation or boot time for Oracle's Sun Server X2. (14829299)
- Fixes an issue where weak cipher connections are allowed for secure live migration. (16721961)
- Fixes an issue where the Oracle VM Agent allows weak cipher connections. (16721654)
- Fix which includes Xen tools (QEMU) patches to make hot-plug for vCPU work correctly. (17562626)
- Fixes an issue where the (deprecated) `modprobe.conf` file was still used for bonding configuration. (16892503)
- Updates the `ethtool` package to support the `-f` option. (17264204)
- Fixes an issue where OVMWATCH reports the wrong UUID on live migration. (16453997)
- Fixes an issue where HVM virtual machines in an OVF assembly have a limit of four virtual disks. (16609127)
- Fixes an issue with mounting EMC Power Path volumes. (16511097)
- Fixes an issue where the network interface does not come up after reboot in LACP mode. (16495256)
- Fixes an issue where PV virtual machines cannot connect to network when using 31 virtual interfaces. (16039922)
- Fixes an issue that failover failed on bond using `ixgbe` driver with jumbo frames enabled. (16886409)
- Disables the bridge `multicast_snooping` to avoid potential packet drop from the guests. (16746299)
- Fixes an upgrade issue to return the correct UUID when discovering an Oracle VM Server with an SMBIOS newer than version 2.6. (16221689)
- Sets a maximum of 20 vCPUs for Dom0 on large systems to provide better out-of-the-box 10Gb Ethernet performance. (15865742)
- Adds IPMI lanplus interface support. (14777351)
- Fixes an issue where a SPARC virtual machine may fail to access its ZFS pool after restart from Oracle VM Manager. (16909866)
- Fixes the issue where duplicated warning message is displayed when logging into the control domain. (16173730)
- Adds package dependency on NTP to ensure it is present. (16297871)
- Fixes the issue that Oracle SPARC M5 servers are not correctly identified. (16383869)
- Provides the update script to perform Oracle VM Agent upgrade on SPARC. (16383971)

4.11 Bug Fixes in Oracle VM 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 . (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)
- 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)

4.12 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)

4.13 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 start-up 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.

Chapter 5 Supported Guest Operating Systems

Table of Contents

5.1 Oracle VM Server for x86 Supported Guest Operating Systems	65
5.2 Oracle VM Server for SPARC Supported Guest Operating Systems	69

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.

5.1 Oracle VM Server for x86 Supported Guest Operating Systems

On Oracle VM Server for x86, guest virtual machines based on Linux and Solaris can be either Hardware Virtualized (HVM) or Hardware Virtualized with PV Drivers (PVHVM).

The following table lists support for virtual machines with an HVM domain type and a Linux operating system. Refer to the notes that follow the table for additional support information.

Table 5.1 HVM-Supported Linux Guest Operating Systems

Guest Operating System	HVM 32-bit	HVM 64-bit
Oracle Linux Release 7.x	N/A	Yes
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	N/A	Yes
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 7.x	N/A	Yes
CentOS 6.x	Yes	Yes
CentOS 5.x	Yes	Yes
SUSE Linux Enterprise Server 11.x	No	Yes
SUSE Linux Enterprise Server 12 SP2 or later	No	Yes



Note

Additional support information for HVM-supported Linux guest operating systems is as follows:

- You can create HVM guest virtual machines for Oracle Linux, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, and CentOS. However, the Xen PV drivers are included by default with the kernels. Creating PVHVM guest virtual machines is recommended for hardware virtualization to improve performance.
- The minimum required kernel version for SUSE Linux Enterprise Server (SLES) 11 is [3.0.31-0.9](#).

The following table lists support for virtual machines with a PVHVM domain type and a Linux operating system. Refer to the notes that follow the table for additional support information.

Table 5.2 PVHVM-Supported Linux Guest Operating Systems

Guest Operating System	PVHVM 32-bit	PVHVM 64-bit
Oracle Linux Release 7.x	N/A	Yes
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	N/A	Yes
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 7.x	N/A	Yes
CentOS 6.x	Yes	Yes
CentOS 5.x	Yes	Yes
SUSE Linux Enterprise Server 11.x	No	Yes
SUSE Linux Enterprise Server 12 SP2 or later	No	Yes



Note

Additional support information for PVHVM-supported Linux guest operating systems is as follows:

- Oracle Linux, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, and CentOS 5.x include the Xen PV drivers in the [kernel-xen](#) variant of the kernel. Oracle Linux 5.x also includes the PV drivers in [kernel-uek](#), the Unbreakable Enterprise Kernel (UEK). Creating PVHVM guest virtual machines is recommended for hardware virtualization with these kernels.
- Oracle Linux, Red Hat Enterprise Linux and SUSE Linux Enterprise Server require the [kernel-xenU](#) variant of the kernel to use the PV drivers mode.
- The minimum required kernel version for SUSE Linux Enterprise Server (SLES) 11 is [3.0.31-0.9](#).
- To start a PVHVM guest on SLES 11, you must perform the following steps:
 1. Install the operating system and upgrade to the [3.0.31-0.9](#) kernel version.
 2. Shutdown the virtual machine.
 3. In Oracle VM Manager, set the domain type for the virtual machine to [Xen PVM](#).
 4. Restart the virtual machine.

The following table lists support for virtual machines with either an HVM or a PVHVM domain type and a Solaris operating system. Refer to the notes that follow the table for additional support information.

Table 5.3 HVM and PVHVM-Supported Solaris Guest Operating Systems

Guest Operating System	PVHVM 32-bit	HVM 32-bit	PVHVM 64-bit	HVM 64-bit
Oracle Solaris 11	N/A	N/A	Yes	N/A
Oracle Solaris 10	Yes	N/A	Yes	N/A

**Note**

Additional support information for HVM and PVHVM-supported Solaris guest operating systems is as follows:

- Oracle Solaris support begins with Solaris 10 1/13 (update 11). 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 has the required 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.

For details about Oracle software certification, 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>.

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 5.4 CPU Paravirtualized Supported Guest Operating Systems

Guest Operating System	Paravirtualized 32-bit	Paravirtualized 64-bit
Oracle Linux Release 7.x	No	No
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 7.x	No	No
CentOS 6.x	Yes	Yes
CentOS 5.x	Yes	Yes
SUSE Linux Enterprise Server 11.x	No	Yes
SUSE Linux Enterprise Server 12 SP2 or later	No	No

Table 5.5 Microsoft Windows Supported Guest Operating Systems

Guest Operating Systems	64-bit	32-bit	HVM	HVM with Oracle VM Paravirtual Drivers for Microsoft Windows
Microsoft Windows Server 2016	Yes	N/A	Supported	Supported
Microsoft Windows Server 2012 R2	Yes	N/A	Supported	Supported
Microsoft Windows Server 2012	Yes	N/A	Supported	Supported
Microsoft Windows Server 2008 R2 SP1	Yes	N/A	Supported	Supported
Microsoft Windows Server 2008 SP2	Yes	Yes	Supported	Supported
Microsoft Windows Server 2003 R2 SP2	Yes	Yes	Supported	Supported
Microsoft Windows 10	Yes	Yes	Supported	Supported
Microsoft Windows 8.1	Yes	Yes	Supported	Supported
Microsoft Windows 8	Yes	Yes	Supported	Supported
Microsoft Windows 7 SP1	Yes	Yes	Supported	Supported
Microsoft Windows Vista SP2	Yes	Yes	Supported	Supported

**Note**

To run Microsoft Windows guests as PVHVM-supported operating systems, you must install the Oracle VM Paravirtual Drivers for Microsoft Windows. For a full list of Microsoft Windows guest operating systems that are PVHVM-supported, see [Oracle VM Paravirtual Drivers for Microsoft Windows](#).

Table 5.6 Oracle VM PV Drivers for Microsoft Windows Supported Releases

Oracle VM Release	Oracle VM PV Drivers for Microsoft Windows Release 3.0.1	Oracle VM PV Drivers for Microsoft Windows Release 3.2.2	Oracle VM PV Drivers for Microsoft Windows Release 3.2.3	Oracle VM PV Drivers for Microsoft Windows Release 3.4.1	Oracle VM PV Drivers for Microsoft Windows Release 3.4.2	Oracle VM PV Drivers for Microsoft Windows Release 3.4.3
Oracle VM 3.0	Yes	No	No	No	No	No
Oracle VM 3.1	Yes	No	No	No	No	No
Oracle VM 3.2	Yes	Yes	Yes	Yes	Yes	Yes
Oracle VM 3.3	No	Yes	Yes	Yes	Yes	Yes
Oracle VM 3.4	No	Yes	Yes	Yes	Yes	Yes

5.2 Oracle VM Server for SPARC Supported Guest Operating Systems

Guest virtual machines in an Oracle VM Server for SPARC-based server pool must run at:

- Oracle Solaris 10 11/06 as a minimum.
- Oracle Solaris 11 or later as a recommended guest OS.

See *Creating and Starting a Guest Domain* in the *Oracle VM Server for SPARC Administration Guide*.

For detailed information about supported firmware and operating systems, see *System Firmware Versions and Oracle Solaris OS Versions* in the *Oracle VM Server for SPARC Installation Guide*.

For information about specific patches and additional information about supported guest operating systems, see the *Oracle VM Server for SPARC Release Notes* and *Oracle VM Server for SPARC Installation Guide*.



Note

Access the Oracle VM Server for SPARC documentation at <http://www.oracle.com/technetwork/documentation/vm-sparc-194287.html>. To determine the version of the Oracle VM Server for SPARC documentation to reference, run the `pkg list ldomsmanager` command.

Chapter 6 Oracle VM Manager Support for Previous Oracle VM Server Releases

As of Oracle VM Release 3.4.2, Oracle VM Manager supports current and previous Oracle VM Server releases. For example, you can use Oracle VM Manager 3.4.2 or later to manage Oracle VM Server Release 3.4.x, 3.3.x, 3.2.10, or 3.2.11.



Important

Although Oracle VM Manager supports current and previous Oracle VM Server releases, it is highly recommended that you upgrade all instances of Oracle VM Server to the latest release version to ensure that you have the latest supported operations and features.

The following table shows the backward compatibility support that Oracle VM Manager Release 3.4.2 or later provides for previous Oracle VM Server releases:

Table 6.1 Oracle VM Manager Backward Compatibility Support

Oracle VM Manager Release	Oracle VM Server Releases	Oracle VM Server for x86	Oracle VM Server for SPARC
Release 3.4.2 or later	Release 3.4.x	Yes	Yes
Release 3.4.2 or later	Release 3.3.x	Yes	Yes
Release 3.4.2 or later	Release 3.2.10 or 3.2.11	Yes	No



Note

As of Release 3.4.5, Oracle VM Manager uses the TLSv1.2 protocol as the default to secure all connections. As a result, management of Oracle VM Server for x86 at Release 3.2.10 or 3.2.11, and Oracle VM Agent for SPARC at Release 3.3.1, is not possible by default. When upgrading to Release 3.4.5, you need to temporarily enable TLSv1 until all Oracle VM Servers have been upgraded to the latest version. For instructions to enable TLSv1, and revert to the default and more secure TLSv1.2 protocol, see [Enabling the TLS Version 1 Protocol](#) in the *Oracle VM 3.4 Installation and Upgrade guide*.

If your Oracle VM environment consists of Oracle VM Manager Release 3.4.2 or later and one or more instances of Oracle VM Server at a different release, you should review the list of supported and unsupported operations and features, as follows:

Supported Operations	Oracle VM supports most common operations when using Oracle VM Manager to manage an instance of Oracle VM Server that is at an earlier release, for example, creating virtual machines (VMs), cloning VMs, starting and stopping VMs, migrating VMs, adding a server to an existing server pool, and so on.
Unsupported Operations and Features	In general, if you are using Oracle VM Manager to manage an instance of Oracle VM Server that is at an earlier release, you cannot use capabilities and features that were added in a later release than a given Oracle VM Server release. For example, Oracle VM Release 3.4.1 introduced support to export Oracle VM virtual machines. This feature is available only if you are using both Oracle VM Manager and Oracle VM

Server Release 3.4.1 or later. This capability is not available if you are using Oracle VM Manager Release 3.4.2 to manage Oracle VM Server Release 3.3.4.

The following operations and features are not supported in an Oracle VM environment where Oracle VM Manager 3.4.2 or later is managing one or more instances of Oracle VM Server at an earlier release, for example Release 3.3.4:

- Exporting Oracle VM virtual machines.
- Performing live migrations of virtual machines that have virtual disks on local storage.
- Persisting simple names for repository objects as metadata.
- Calculating the apparent size (GIB) of storage repositories.
- Using NVM Express (NVMe) devices as storage repositories or for local storage of virtual machine disks.
- Using Microsoft Windows Failover Clustering functionality.
- Discovering vital product data (VPD) page 0x84 information from LUNs on Linux-based guests.

Known Issues and Caveats with Backward Compatibility

In the case where you are using Oracle VM Manager to manage an instance of Oracle VM Server that is at an earlier release, certain known issues and conditions exist. Before you attempt to upgrade your Oracle VM environment or use mixed Oracle VM Manager and Oracle VM Server releases, you should review the following points:

Oracle VM Server for x86

- You must ensure that you upgrade all instances of Oracle VM Server to Release 3.2.10 or later before you upgrade to Oracle VM Manager Release 3.4. You can upgrade to Release 3.4 only if all instances of Oracle VM Server are at Release 3.2.10 or later.
- You must ensure that each instance of Oracle VM Server within a server pool is at the same minor version. For example, all servers in a server pool must be at Release 3.2.10/3.2.11, 3.3.x, or Release 3.4.x.
- It is not possible to change the Oracle VM Agent password if you are using Oracle VM Manager 3.4.2 or later to manage instances of Oracle VM Server at Release 3.2.x. You should remove ownership of the server, then use the `ovs-agent-password` on Oracle VM Server to change the Oracle VM Agent password, and then discover Oracle VM Server from Oracle VM Manager.
- The repository apparent size displays incorrect values if you present NFS-based storage repositories that share the same file system on the same NFS server to one or more Oracle VM Server(s).

Oracle VM Server for SPARC

- All instances of Oracle VM Server for SPARC must be at 3.3.x or later, if you are using Oracle VM Manager 3.4.2 or later to manage previous instances of Oracle VM Server for SPARC.

- You must ensure that each instance of Oracle VM Server within a server pool is at the same minor version. For example, all servers in a server pool must be at Release 3.3.x, or Release 3.4.x.
- The repository apparent size displays incorrect values if you present NFS-based storage repositories that share the same file system on the same NFS server to one or more Oracle VM Server(s).

Chapter 7 Configuration Limits for Release 3.4

Configuration limits for Oracle VM represent tested and recommended limits, and are fully supported by Oracle.

Table 7.1 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	32
Number of servers	256 (16 servers * 16 server pools)	256 (16 servers * 16 server pools)
Number of server pools	16	16
Number of configured virtual machines	5120 (20 virtual machines * 256 servers)	5120 (20 virtual machines * 256 servers)
Number of running virtual machines	2,560 (10 virtual machines per server * 256 servers)	32768 (128 virtual machines per server * 256 servers) <ul style="list-style-type: none">• Fujitsu M10-4S server, this limitation is 65536 (256 virtual machines per server * 256 servers)• Oracle SPARC M-series servers, this limitation is 128 virtual machines per server * the number of physical domains (PDOMs). Each physical domain acts as its own server with its own set of logical domains.



Note

Some performance tuning is required in Oracle VM environments where you manage more than 80 instances of Oracle VM Server with a single instance of Oracle VM Manager. In these environments, you should increase JVM memory allocation to 8G and reduce the interval of statistics collection. See the following topics for more information:

- [Increasing the Memory Allocated to Oracle WebLogic Server](#) in the *Oracle VM Administrator's Guide*
- [Preferences](#) in the *Oracle VM Manager User's Guide*

Oracle Support can apply additional tuning configurations to optimize Oracle VM Manager performance, such as reducing the number of events that Oracle VM Manager processes. Contact Oracle Support for more information.

Table 7.2 Oracle VM Server Maximums

Item	x86 Maximum	SPARC Maximum
CPUs	384 (Tested) 2048 (Designed)	Equivalent to the number of available CPUs. <ul style="list-style-type: none"> • SPARC M7-16 server, this is equal to 4096 • SPARC M6-series servers, this is equal to 3072. • SPARC M5-series servers, this is equal to 1536. • SPARC T5-series servers, this is equal to 1024. • Fujitsu M10-series servers, this is equal to 2048 (fully configured).
Virtual CPUs per host	4096	8 per core on Oracle M-series and Oracle T-series servers <ul style="list-style-type: none"> • SPARC M5-series servers have 6 cores per socket. • SPARC M6-series servers have 12 cores per socket. • SPARC T5-series servers have 16 cores per socket. 2 per core on Fujitsu M10 <ul style="list-style-type: none"> • Fujitsu M10-series servers have 16 cores per socket.
RAM	6 TB	Equivalent to available RAM. <ul style="list-style-type: none"> • 32 TB on Fujitsu M10-series servers, SPARC M5-series servers, or SPARC M6-series servers. • 2 TB on a SPARC T7-4 server. • 8 TB on a SPARC M7-16 server. • 4 TB on SPARC T5-series servers. A small amount of RAM is required for the hypervisor.

Item	x86 Maximum	SPARC Maximum
Concurrently Running Virtual Machines	1024 The maximum number of concurrently running virtual machines depends on the virtual machine configuration, hardware resources, and workloads the virtual machines are running. For this reason, the practical limit for concurrently running virtual machines is 300.	128 per physical domain (PDOM) SPARC M5 or M6-series server each have a maximum of 512 logical domains (128 logical domains per physical domain * 4 physical domains). However, when following Oracle best practices that allocate full cores for guests, the maximum number of logical domains is 192 on SPARC M5-series servers and 384 on SPARC M6-series servers.



Note

- By default, when you install Oracle VM Server, dom0 is configured with a maximum of 20 vCPUs. This configuration optimizes performance for large systems and is suitable for most deployments.

If you plan to change the number of maximum vCPUs for dom0, Oracle Corporation recommends that you set the number of vCPUs for dom0 to no greater than the number of physical CPUs per socket. Oracle Corporation also recommends that you pin dom0 vCPUs to physical CPUs on the first socket. If you use hyper-threading, you should count in units of threads instead of cores. For more information see [Editing Boot Parameters To Enable Hypervisor Features](#) in the *Oracle VM Installation and Upgrade Guide*.

- For information on performance optimization goals and techniques for Oracle VM Server for x86, see *Optimizing Oracle VM Server for x86 Performance*, on Oracle Technology Network at: <http://www.oracle.com/technetwork/server-storage/vm/ovm-performance-2995164.pdf>.

Table 7.3 Virtual Machine Maximums

Item	x86 Maximum	SPARC Maximum
Virtual CPUs	PVM: 256 HVM: 128; or 32 for Microsoft Windows guests. PVHVM: 128; or 32 if using Oracle VM Paravirtual Drivers for Microsoft Windows.	Equivalent to the number of available CPUs on the server. <ul style="list-style-type: none"> • SPARC M7-16 server available CPUs is equal to 4096. • SPARC M6-series servers available CPUs is equal to 3072. • Fujitsu M10-series server (fully configured) available CPUs is equal to 2048. <p>These maximums do not account for CPUs allocated to any other domains, such as the control domain. The hypervisor can</p>

Item	x86 Maximum	SPARC Maximum
		allocate subsets of the overall CPU, memory, and I/O resources of a server to any given logical domain.
Virtual RAM on 32-bit guests	PVM: 64 GB HVM: 64 GB PVHVM: 64 GB	N/A
Virtual RAM on 64-bit guests	<p>PVM: 500,000 MB</p> <div style="display: flex; align-items: center;">  <div style="border-left: 2px solid black; padding-left: 10px;"> <p>Note</p> <p>The amount of memory supported is dependent on the guest kernel. Oracle has tested 470GB with Oracle VM Release 3.4.2.</p> </div> </div> <p>HVM: 1,000,000 MB</p> <p>Exceeding the 1 TB limit may work, but can result in slow boot times and the possibility that the virtual machine hangs at boot and soft lockups occur on the hosting Oracle VM Server.</p> <p>If your environment needs to support live migration for HVM guests, this value must not exceed 1 TB.</p> <p>PVHVM: 2,000,000 MB; or 256 GB if using Oracle VM Paravirtual Drivers for Microsoft Windows Release 3.2.3 and later.</p>	<p>Equivalent to the amount of available RAM installed on the server.</p> <ul style="list-style-type: none"> • 32 TB on Fujitsu M10-series servers, SPARC M5-series servers or SPARC M6-series servers. • 2 TB on an SPARC T7-4 server. • 8 TB on an SPARC M7-16 server. <p>A small amount of RAM is required for the hypervisor.</p> <p>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.</p>
Virtual NICs	PVM: 31 HVM: 8 PVHVM: 8	Depends on the total number of available Logical domain channels (LDC).

Item	x86 Maximum	SPARC Maximum
	<p>The limit to the number of virtual disks and virtual NICs is shared when using the Oracle VM Paravirtual Drivers for Microsoft Windows. Therefore, if you define 8 virtual NICs, only 32 virtual disks can be defined for the same virtual machine.</p>	<p>Total number of virtual NICs and virtual disks per domain for SPARC is no more than the total number of available LDCs of the supported SPARC server.</p> <p>For more information, see <i>Using Logical Domain Channels</i> in the <i>Oracle VM Server for SPARC Administration Guide</i>.</p>
Virtual disks	<p>Limits provided here are imposed by the guest kernel and not the hypervisor. The maximums presented depend on the capabilities of the guest operating system.</p> <p>PVM: 104</p> <p>HVM: 4 IDE (including CD-ROM), 7 SCSI</p> <p>PVHVM: 107; or 40 if using Oracle VM Paravirtual Drivers for Microsoft Windows Release 3.2.3 and later.</p> <p>The limit to the number of virtual disks and virtual NICs is shared when using the Oracle VM Paravirtual Drivers for Microsoft Windows. Therefore, if you define 8 virtual NICs, only 32 virtual disks can be defined for the same virtual machine.</p>	<p>Depends on the total number of available Logical domain channels (LDC).</p> <p>Total number of virtual NICs and virtual disks per domain for SPARC is no more than the total number of available LDCs of the supported SPARC server.</p> <p>For more information, see <i>Using Logical Domain Channels</i> in the <i>Oracle VM Server for SPARC Administration Guide</i>.</p>
Virtual disk size	<p>OCFS2: 64 TB</p> <p>NFS: 10 TB</p>	<p>Equivalent to the size of available disks on the server.</p> <p>The Oracle Solaris limit is 2⁶³.</p>



Note

- For information on the configuration limits used for the latest Oracle VM Paravirtual Drivers for Microsoft Windows release, see http://docs.oracle.com/cd/E88077_01/index.html.
- Virtual machine maximums assume a single virtual machine using all available resources.
- Access the Oracle VM Server for SPARC documentation at <http://www.oracle.com/technetwork/documentation/vm-sparc-194287.html>. To determine the version of the Oracle VM Server for SPARC documentation to reference, run the `pkg list ldomsmanager` command.

Table 7.4 Storage Maximums

Item	x86 Maximum	SPARC Maximum
<p>LUNs in a storage array</p> <p>This limit should not be confused with multipath devices. Each identical LUN connected to a single multipath device is considered to be a separate LUN with regard to this limit.</p> <p>Examples of supported configurations of iSCSI LUNs:</p> <ul style="list-style-type: none"> • 1,000 LUNs with 2 paths each • 500 LUNs with 4 paths each • 250 LUNs with 8 paths each <p>Examples of supported configurations of Fibre Channel LUNs:</p> <ul style="list-style-type: none"> • 1,000 LUNs with 2 paths each • 1,000 LUNs with 4 paths each • 500 LUNs with 8 paths each • 250 LUNs with 16 paths each 	<p>iSCSI:</p> <ul style="list-style-type: none"> • 1,000 LUNs • 2,000 Paths <p>Fibre Channel (FC):</p> <ul style="list-style-type: none"> • 1,000 LUNs • 4,000 Paths 	<p>2^{32} targets.</p>
OCFS2 volume size	64 TB	N/A
Files per OCFS2 volume	30,000	N/A

Table 7.5 Network Maximums

Item	x86 Maximum	SPARC Maximum
NICs/ports per network bond	256	255 per bond or aggregate.
Network bonds per Oracle VM Server	No limit	No limit
Number of VLANs	1024	1024
Number of MAC addresses	10240	10240

Chapter 8 Deprecated and Removed Oracle VM Features

The following Oracle VM features are deprecated and will be removed from a future release of this software:

- **Paravirtualized (PVM) guests:** Support for Paravirtualized (PVM) guests is deprecated. It is recommended to convert your PVM guests to hardware virtualized, with paravirtualized drivers (PVHVM) or hardware virtualized (HVM) guest domain types. For instructions, see [Disabling Paravirtualized Guests on Oracle VM Server](#) in the *Oracle VM Administrator's Guide*.
- **Management of Oracle VM Server for x86 at Release 3.2.10 or 3.2.11, and Oracle VM Agent for SPARC at Release 3.3.1:** Management of Oracle VM Server for x86 at Release 3.2.10 or 3.2.11, and Oracle VM Agent for SPARC at Release 3.3.1, is deprecated. If management of Oracle VM Servers at these release versions is still required, see [Enabling the TLS Version 1 Protocol](#) in the *Oracle VM 3.4 Installation and Upgrade guide*.

The following previously deprecated Oracle VM features will be removed from a future release of this software:

- **Oracle VM SOAP API :** The Oracle VM SOAP API is deprecated.
- **Oracle VM Utilities scripts:** A number of the Oracle VM Utilities scripts are deprecated by the Oracle VM Manager Command Line Interface. For more information, see [Using the Oracle VM Utilities](#) in the *Oracle VM Administrator's Guide*
- **Virtual IP address (VIP) :** The field to specify a virtual IP address (VIP) while creating a server pool is deprecated but is still available for backwards compatibility.
 - See [Create Server Pool](#) in the *Oracle VM Manager User's Guide* for information on creating a server pool.
 - See [What is a Master Server and a Virtual IP Address?](#) in the *Oracle VM Concepts Guide* for more details on why VIPs are deprecated for server pools in this release.
- **YAML formatted configuration file :** The function to install Oracle VM Manager silently using a predefined YAML formatted configuration file is deprecated for customer use and is only intended for internal use during testing at Oracle.
- **HugePages support:** The HugePages feature is deprecated. You should not enable HugePages when creating or editing virtual machines with a domain type of PVM in the Oracle VM Manager Web Interface or Oracle VM Manager Command Line Interface.
- **Assembly terminology:** The use of the term Assembly to refer to Oracle VM Virtual Appliances is deprecated.

Chapter 9 Known Limitations and Workarounds

Table of Contents

9.1 Integration Between Oracle VM Server for SPARC and Oracle VM Manager	87
9.2 Cannot Re-install Oracle VM Server Across Multiple Disks or LUNs using a Kickstart Configuration	88
9.3 Oracle VM Server Installation Hangs with RAID10 Boot Partition	88
9.4 Cannot Retrieve Information for File System Mounted on Invalid Mount Point	88
9.5 Cannot Configure the Oracle Solaris Support Repository using the Oracle VM Manager Web Interface	88
9.6 Backup Failure for the MySQL Database Repository	89
9.7 Unable to Login into the Oracle VM Web Services API	89
9.8 Incorrect PVM Migration Error Message Displayed when Secure VM Migration Enabled	90
9.9 Default VM Start Policy Is Different in Oracle VM Manager Command Line Interface and Oracle VM Manager Web Interface	90
9.10 Virtual Machine Fails to Boot with <code>kexec</code>	90
9.11 Missing Physical Disk Warning for Oracle VM Server Instance After Upgrading Oracle VM Manager	90
9.12 Suspend Error During Storage Live Migration	91
9.13 Cannot Change Memory Configuration of Running PVHVM Guests Based on CentOS 6	92
9.14 PVHVM Guests Based on CentOS 5 Do Not Start Successfully After Conversion from PVM	92
9.15 PVM Guests Based on CentOS 5 Do Not Start Successfully After Conversion from PVHVM	92
9.16 Guests Based on CentOS 5.11 Start with the Maximum Memory Configuration	92
9.17 Guests Based on CentOS 5 Display Incorrect Number of VNICs	93
9.18 Live Migrating Oracle Solaris Guests to Oracle VM Server Release 3.4.4 or Later Results in Guest Reboot	93
9.19 Cannot Remove Software RAID Devices from Oracle VM Manager	94
9.20 VNICs Deleted When Editing Virtual Machine	95
9.21 Enable High Availability Option is Disabled Due to Restart Option	95
9.22 Cannot Upgrade Oracle VM Manager Due to Presence of Temporary Files	95
9.23 Job List Excel Spreadsheet Name Contains Unexpected Characters	95
9.24 Oracle Linux 6 HVM Guest Virtual Machine with Hard Disk of 2TiB in Size Hangs on Boot	96
9.25 Kernel Panic when Assigning More Than 32 virtual CPUs to Oracle Linux 32-bit PVM Guests	97
9.26 Live Migration of Guest Virtual Machine Fails Due to Linux Kernel Version	97
9.27 PVHVM Guest Boot Delayed by Xen Balloon Driver	97
9.28 Oracle VM Server Cannot Boot from Software RAID Devices with Disks that are 2TB or Larger	98
9.29 Oracle VM Server Does Not Boot After Installation to LUN Targets Larger Than 2TB	98
9.30 Oracle VM Server Boot Delay and I/O Error Messages with Oracle ZFS Storage Array	99
9.31 FIPS Integrity Error Message for SSH Connections from Oracle VM Server	99
9.32 Incorrect MAC Address Displayed for Bond Port	99
9.33 Kernel Panic when Booting Guest Virtual Machine with 100 or more Virtual Disks	100
9.34 Different Default Values for the <code>serverAffinityType</code> when Creating Anti-Affinity Groups	100
9.35 Performance Impact when Less than 8 CPUs Configured for <code>dom0</code>	100
9.36 Upgrading Oracle VM Server from Release 3.2.10 to 3.3.4 and then to 3.4.2 fails	100
9.37 Logical Volume Manager (LVM) is enabled on Oracle VM Server Release 3.4.1	101
9.38 Btrfs Root File System Not Supported on PVM Guest Virtual Machines	101
9.39 SUSE Linux Enterprise Server 12 SP2 and Later Not Supported For PVM Guest Virtual Machines	102
9.40 Cannot Connect to the Oracle VM Manager Web Interface with Microsoft Internet Explorer	102
9.41 The Virtual Machine Console Window in the Oracle VM Manager Web Interface Opens in the Background when using Microsoft Internet Explorer	102

9.42 Inconsistent Value for SPARC Domain Type	103
9.43 Integer Only Values for the statValue Option	103
9.44 Aborting a Server Discovery Operation Results in Server Listed with an Unknown Operational State	103
9.45 Automatic Discovery Operations can Conflict with Server Configuration Operations	103
9.46 Solaris 11 x86 Virtual Machine Disk Type Can Cause Kernel Panic on Boot	104
9.47 Solaris 10 x86 Virtual Machine Installation Fails To Boot	104
9.48 Oracle Linux 7 Virtual Machines Imported from a VirtualBox Virtual Appliance Do Not Start on Oracle VM	104
9.49 (x86 Only) IOStat Stays at 100% Util for Oracle Linux Virtual Machines After a Storage Migration .	105
9.50 Serial Console Does Not Respond for Oracle Linux 7 HVM Virtual Machines	105
9.51 Error When Attaching CD-ROM Drives to Running HVM Virtual Machines	106
9.52 Deleting Bond Ports for VLANIF Interfaces Deletes the VLANIF	106
9.53 (SPARC Only) NFSv4 Delegation Interferes with Cluster Heartbeat, Using NFSv3 Results in RPC Error PROGRAM/VERSION MISMATCH	106
9.54 Cannot Import OVF Files into Oracle VirtualBox	107
9.55 Oracle VM Manager Cannot Receive Messages from SPARC Virtual Machines	107
9.56 Cannot Boot Oracle VM Server Installed on an HP DL380 Gen9 Server in UEFI mode	107
9.57 (x86 Only) Cannot Boot Oracle VM Server with Broadcom 57840S CNA Card After PXE Install	107
9.58 Changing to Dynamic Mode IP Address Assignment Does Not Rollback if the Server is Unable to Obtain an IP Address	108
9.59 Drag and Drop from Blank Space of Object	108
9.60 Error When Using the Administrator Tool in Parallel	108
9.61 Oracle VM Manager Command Line Interface TCP Port Conflicts With Port Reserved for NDMP ..	108
9.62 When A Virtual Machine Using A Shared Virtual Disk Is Moved To Another Repository, The Shared Virtual Disk Is Cloned	109
9.63 Unable to Remove a Storage Array if a File System Exists on a LUN	109
9.64 Cluster Failure After An Offline Server is Removed From the Cluster While Another Cluster Member is Offline	109
9.65 LSI Logic / Symbios Logic MegaRAID SAS 1078 is not supported on Oracle VM Server	110
9.66 (SPARC Only) Hot-added CD-ROM Device is Detected As Hard Disk	110
9.67 Fibre Channel LUNs Missing From Oracle VM Manager After Refresh	111
9.68 (SPARC Only) Size of Physical Disk in Oracle VM Manager Incorrect When LUN Size is Decreased on Storage Array	112
9.69 The Apparent Size of a Repository in Oracle VM Manager Web Interface Does Not Update Automatically	112
9.70 Virtual Disks Do Not Display on Solaris 10 Guests	112
9.71 Oracle Linux 5 Virtual Machines Converted from Physical Hosts Do Not Boot	112
9.72 SSL Exception in AdminServer Log File	113
9.73 Oracle VM Servers in a Server Pool Must Be at the Same Minor Version	113
9.74 Oracle VM Manager Displays Incorrect Details for ZFS Storage Appliances After Cluster Failover	113
9.75 Oracle VM Server Upgrade Not Possible with NetApp Storage plug-in	114
9.76 Oracle VM Manager Web Interface Incorrectly Displays Oracle VM Server Upgrade Required	114
9.77 The Oracle VM Manager Silent Install Option Using A YAML Configuration File Is Deprecated	114
9.78 Aborting An Oracle VM Server Upgrade Initiated By The UpgradeServers.py Script May Result In Inconsistent Reporting on Upgrade Status	114
9.79 Kdump On Oracle VM Server Only Supports Dump Levels 0 and 1	115
9.80 Network Receive Statistics For A Virtual Machine Are Invalid And Set To -1	115
9.81 CPU Affinity After Live Migration of Virtual Machine on Non-Uniform Memory Access (NUMA) Systems	115
9.82 Virtual Machines Based on Oracle Solaris 11 Do Not Boot	116
9.83 Changing Domain Type from Xen HVM to Xen HVM PV Drivers Causes Informational Messages in AdminServer.log	116

9.84 Single-Stream TCP Throughput is Degraded for Guest Virtual Machines Running UEK Release 4	116
9.85 Error Partitioning Caused by Disk Label or Format in UEFI Mode	116
9.86 Kernel Panic when Booting Guest Virtual Machine with Oracle Solaris 11.2	117
9.87 Oracle VM Manager Web Interface Goes to Blank Screen with Mozilla Firefox on a Linux System	117
9.88 HugePages Deprecated for PVM Guests as of Oracle VM Release 3.4.1	117
9.89 HugePages Does Not Display as Selected in Oracle VM Manager Web Interface	118
9.90 Kdump Service Hangs at Discovery of FCoE Device with Broadcom CNA on HP Servers	118
9.91 Do Not Discover Oracle VM Servers Earlier than Release 3.2.10	118
9.92 (SPARC Only) Cannot Export Virtual Appliance with Physical Disk Access	118
9.93 (SPARC Only) MTU Resets to the Default of 1500 After Server Power Off	119
9.94 Oracle VM Server Installer Fails When Modifying Swap Partitions	119
9.95 Kernel Startup is Slow after Upgrading to UEK4 on PVHVM Guests	119
9.96 Cannot Enable High Availability (HA) for Virtual Machines with HugePages	120
9.97 Kdump is Not Supported on FCoE SANs	120
9.98 Cannot Edit Running Virtual Machines with HugePages and HA Enabled	120
9.99 Import URL Cannot Exceed Maximum Character Length	120
9.100 Performance Impact for Fewer than 8 CPUs Configured for dom0	121
9.101 Migration of PVHVM Guest Virtual Machines may be Affected by Linux Kernel Version	121
9.102 SR-IOV Is Not a Supported Feature	121
9.103 Oracle VM Manager Upgrade Does Not Restore External Authentication Provider	121
9.104 Limit of 3 Virtual Machine Console Windows with Microsoft Internet Explorer	122
9.105 Virtual Machine Migration Job Loop During Oracle VM Upgrade	122
9.106 The kdump Service Cannot Mount the Root Partition if Zone Connection to EMC Storage Array ..	123
9.107 Oracle VM Server Hangs During Upgrade if Boot Partition Not Large Enough	124
9.108 GRO Must Be Disabled After an Upgrade When Routing/Bridging with IXGBE Driver	124
9.109 Change in Variable Name for the eventGetTypes SOAP Call using Oracle VM Web Services API	124
9.110 Restart Virtual Machines After Upgrade	124
9.111 LRO Setting Bridge Interface	125
9.112 Disable Transitional Update Repository	125
9.113 (X86 Only) SWIOTLB Buffer Errors When Using Jumbo Frames on Oracle VM Server	125
9.114 Operation Transactions	125
9.115 One Instance of Oracle VM Manager Web Interface Per Browser Session	125
9.116 IPv6 Updates On Some Microsoft Windows Guests Do Not Reflect in Oracle VM Manager	126
9.117 Incorrect Text Color After Acknowledging VM Errors	126
9.118 Unable to Copy Text or Take Screen Shots of Error Dialogs	126
9.119 Safari Web Browser on Windows is not Supported	126
9.120 Object Lock Prevents Some Operations	126
9.121 Unable to Configure NTP For All Servers	127
9.122 (x86 Only) Oracle VM Server Installer Goes To Black Screen After Running <code>/sbin/loader</code>	127
9.123 (x86 Only) Oracle VM Server Installer Hangs Waiting for Hardware to Initialize	127
9.124 (x86 Only) Oracle VM Server Installer Hangs Examining Storage Devices For Large Number of LUNS	127
9.125 (x86 Only) Benign Error Message During Install: HDIO_GET_IDENTITY failed	128
9.126 (x86 Only) Cannot Use Installation Media to Upgrade Oracle VM Server if Earlier than Release 3.3.x	128
9.127 (x86 Only) Oracle VM Server Upgrade From ULN or Oracle Public Yum Repositories is Restricted to Servers That Do Not Use Non-Native Packages	128
9.128 (x86 Only) Many iSCSI or Fibre Channel LUNs Require More Server Memory	128
9.129 Clustered Server Pools in Mixed Platform Environments Require NFS Access Groups To Be Configured	129
9.130 (SPARC Only) Cluster Recovery May Fail When Using NFSv3 For Server Pool File System	129

9.131 (x86 Only) Server BIOS Settings	130
9.132 (x86 Only) Oracle VM Server Does Not Support crashkernel=auto Boot Parameter	130
9.133 Kdump Core Collector Using Sparse Copy Fails	130
9.134 (x86 Only) Oracle VM Server Installation on Sun Fire X4800	131
9.135 (x86 Only) Installation of Oracle VM Server on some HP Server Hardware May Fail if Tape Drive is Attached	131
9.136 (x86 Only) Wake On Lan (WOL) Fails if Oracle VM Servers on Different Subnets	131
9.137 (x86 Only) Sun Fire X4170 Server Not Fenced During Cluster Failure	131
9.138 (x86 Only) Netconsole Unknown Error 524 During Oracle VM Server Start-up	131
9.139 (x86 Only) ACPI Buffer Error After Installing Oracle VM Server	132
9.140 Failed Server Evacuation Defined in DPM Policy Generates User Acknowledgeable Event	132
9.141 (SPARC Only) Serial Console Hangs During Installation of Oracle Solaris 11 on Virtual Machine	132
9.142 Editing Virtual Machine Configuration File Results in Unexpected Behavior	133
9.143 Concurrent Template Operations May Fail Due to Lock Issue	133
9.144 (SPARC Only) Wrong Error Message Returned When Importing A Template From An Incorrect URL	133
9.145 (x86 Only) Virtual Machine Fails to Restart On Another Server in the Cluster if ACPI is Enabled ..	134
9.146 (x86 Only) Oracle Solaris 10 Virtual Machine May Hang During Shutdown	134
9.147 (x86 Only) Virtual Machine Created with Network (PXE) Installation Does Proceed Beyond Pre Boot	134
9.148 (x86 Only) Maximum Memory to Start a PVM Guest is 470 GB	134
9.149 (x86 Only) Creating a PVM Guest Slow Using Local Storage	134
9.150 (x86 Only) Live Migration of a VM may be Affected by Guest Linux Kernel Version	135
9.151 (x86 Only) Improving Mouse Pointer Control in Virtual Machine Console	135
9.152 (x86 Only) Solaris 10 Kernel Panic on Some AMD Systems	135
9.153 (x86 Only) Solaris 10 Release 8/11 Guest Hangs at Boot	136
9.154 (x86 Only) Solaris 11 Guest With More Than 2 VCPUs Hangs at Boot	136
9.155 (x86 Only) Solaris 11 Release 2011.11 Guest Hangs at Boot	137
9.156 (x86 Only) Windows Server 2008 R2 x64 HVM Guests do Not Cleanly Shut Down	137
9.157 (SPARC Only) Need Actual Available Memory for Live Migration	137
9.158 (x86 Only) Network Card Limit in Virtual Machines	138
9.159 QLogic cLOM8214 1/10 Gigabit Ethernet NIC Initializes with Link State Down	138
9.160 Renaming of QLogic cLOM8214 1/10 Gigabit Ethernet NIC is Incorrect	138
9.161 (x86 Only) Incorrect ARP Reply When Using Jumbo Frames	139
9.162 (x86 Only) Changing Cluster Heartbeat Network Does Not Reflect New IP Address	139
9.163 NFSv4 Read/Write Delegation Not Supported	139
9.164 (x86 Only) Unclean File System Causes Errors When Used as a Server Pool File System	140
9.165 (SPARC Only) Agent Fails to Reconcile Multipath LUNS If Solaris I/O Multipathing is Disabled ...	140
9.166 (x86 Only) Size of New LUN on Server is Incorrect If an Existing LUN Is Unmapped First	140
9.167 (x86 Only) Remapping LUNs Causes Storage Refresh To Hang	141
9.168 (x86 Only) LUNs Must Be Cleaned Prior to Storage Repository Creation	141
9.169 NetApp ONTAP (8.2 c-mode) Operating System Does Not Work With Oracle VM	141
9.170 (x86 Only) Black Listing of System Disks for Legacy LSI MegaRAID Controllers Not Supported ..	142
9.171 (x86 Only) Blacklisting of System Disks for Multipathing Fails on HP Smart Array (CCISS) Disk Devices	142
9.172 (x86 Only) HP Smart Array CCISS Disk Devices Are Not Supported For Creation of Local Storage Repositories	142
9.173 (x86 Only) Multiple Paths Used in Multipath Environments on Oracle Pillar Axiom Storage	143
9.174 Refreshing a NAS-based File System Produces Invalid/Overlapping Exports	143
9.175 (x86 Only) Shared OCFS2 Cluster File System on Virtual Disk Not Supported	143
9.176 Virtual Disk Images Must Be Properly Aligned To The OCFS2 Block Size For Performance	144
9.177 Oracle VM Manager Command Line Interface Backspace Key	144
9.178 Oracle VM Manager Command Line Interface Allows THIN_CLONE cloneType On NFS	145

9.179 Untagged VLAN Interface Missing After Upgrade of Oracle VM Manager 145

Find information on known limitations and workaround procedures for Oracle VM.

The titles of known issues contain platform designations as follows:

- If an issue applies to Oracle VM Server for x86 only, the title includes *x86 Only*.
- If an issue applies to Oracle VM Server for SPARC only, the title includes *SPARC Only*.
- If an issue applies to both Oracle VM Server and Oracle VM Server for SPARC, the title does not include any platform designation.

9.1 Integration Between Oracle VM Server for SPARC and Oracle VM Manager

In addition to known issues that might apply for a given release of Oracle VM, limitations exist for managing Oracle VM Server for SPARC with Oracle VM Manager.

There are currently several features in Oracle VM Server for SPARC that cannot be represented in Oracle VM Manager. These features include the following:

- Physical I/O domains such as SR-IOV, direct I/O, and root domains.
- Certain network options such as Private VLAN (PVLAN), "vNICs on VNets" or multiple MAC addresses per virtual network device, and Quality of Service (QoS) configurations.
- Crypto accelerators assigned to guest domains. This is a feature on SPARC servers prior to the T4 series that required some administrative effort. With the T4 series and later, crypto accelerators are always available without any administrative effort required.
- Whole-core and max-cores constraints, although these can be configured by editing the configuration file named `/etc/ovs-agent/agent.ini` that is used by the Oracle VM Agent for SPARC on each Oracle VM Server.
- Multiple service domains, also known as 'shadow service domains', which are typically used to provide redundancy. Initial support for these has been implemented in the Oracle VM Agent for SPARC.

There are a number of limitations that exist in Oracle VM Manager for server pools that contain Oracle VM Server for SPARC servers. These limitations include the following:

- iSCSI or Fibre Channel storage cannot be used to store a repository or a server pool cluster file system. However, these disks can be used for direct virtual machine assignment. NFS storage should be used if you need to set up a server pool cluster file system. Either NFS, ZFS or a local disk may be used to configure a repository.
- Huge page support on SPARC systems is not controlled by Oracle VM. All the page sizes available on the underlying hardware are always available to the guest virtual machine.
- Virtual machine suspend and resume functionality is not available for virtual machines running in a SPARC-based server pool.
- Support for a secondary service domain, running alongside the primary service domain, has been added to the Oracle VM Agent. This feature allows you to restart the primary service domain without causing any interruption to network or disk I/O for any of your running virtual machines.

9.2 Cannot Re-install Oracle VM Server Across Multiple Disks or LUNs using a Kickstart Configuration

If you try to re-install Oracle VM Server using a kickstart configuration across multiple LUNs, with one LUN dedicated to swap, the installation fails with a device error message, similar to the following:

```
DeviceError: ('cannot replace active format', 'sdh')
```

This occurs because during the re-installation, the anaconda installation wizard fails to reformat the LUN dedicated to swap as it is already in use from the previous installation, resulting in the error.

Workaround: There is no workaround for this issue. Oracle VM Release 3.4 supports installations of Oracle VM Server onto a single disk or LUN only. As a result, kickstart installations across multiple disks in a non-software RAID configuration is not supported.

Bug 27021529

9.3 Oracle VM Server Installation Hangs with RAID10 Boot Partition

If you install Oracle VM Server on a machine with a RAID10 disk configuration, the installation process hangs at the end, because the command `mdadm --wait-clean --scan` cannot be completed. This issue is caused by the fact that boot partitions are not supported on RAID10, but only on RAID1.

Workaround: Configure the software RAID on the server such that the `/boot` partition is written to a RAID1 device. Restart the Oracle VM Server installation on the supported configuration.

Bug 27525377

9.4 Cannot Retrieve Information for File System Mounted on Invalid Mount Point

If you are utilizing Oracle VM Server for SPARC in your Oracle VM environment and you are mounting a file system, you must ensure that no white spaces or invalid characters are specified in the mount point directory path. This also applies when mounting devices using the automounter mechanism. Mounting file systems on invalid mount points can result in file system information retrieval failures, similar to:

```
AttributeError: 'NoneType' object has no attribute 'split'
```

Workaround: If possible, rename the device or alternatively, unmount the invalid mount point and mount the device to a mount point that contains no white spaces or invalid characters. Refer to the Oracle Solaris 11.3 documentation for information on managing file systems: https://docs.oracle.com/cd/E53394_01/html/E54785/.

Bug 27479482

9.5 Cannot Configure the Oracle Solaris Support Repository using the Oracle VM Manager Web Interface

If you are updating a set of local Oracle VM Servers running on SPARC hardware, you may want to utilize the Oracle Solaris Support Repository with its associated SSL key and certification. Currently, the Oracle VM Manager Web Interface does not provide any option to insert the required key and certification when creating a new server update repository.

Workaround: Instructions on installing a certificate and key can be found in the book titled *Install a Certificate and Key for the Oracle Solaris Support Repository* in the *Oracle Solaris 11.3 Information Library* at: https://docs.oracle.com/cd/E53394_01/html/E54747/installkeycert.html

Bug 27572483

9.6 Backup Failure for the MySQL Database Repository

If you specify a new MySQL database backup directory, you may encounter a failure during the MySQL database backup if the new directory does not exist, or does not have the correct permissions assigned. By default, the MySQL database backup files are stored within `/u01/app/oracle/mysql/dbbackup` on the Oracle VM Manager host, but it is possible to set a different directory if required.

Workaround: When changing the default MySQL database backup directory, you must ensure that the new directory exists and has the correct permissions assigned on the Oracle VM Manager host as follows:

1. Create the new directory that you want to use for the MySQL database backup files, for example:

```
# mkdir /u01/app/oracle/mysql/new-backup-dir
```

2. Ensure the right permissions are set for the new directory:

```
# chmod 777 /u01/app/oracle/mysql/new-backup-dir
```

3. Update `/etc/sysconfig/ovmm` and specify the new directory for the `DBBACKUP` parameter:

```
DBBACKUP=/u01/app/oracle/mysql/new-backup-dir
```

4. Save and close `/etc/sysconfig/ovmm` for the new directory to take effect.

For more information on backing up the MySQL Database repository, see [Backing up and Restoring Oracle VM Components](#) in the *Oracle VM Administrator's Guide*.

Bug 27582009

9.7 Unable to Login into the Oracle VM Web Services API

Connections to the Oracle VM Web Services API fail if you are using a Java runtime version lower than `1.7.0_131-b31`. As of Oracle VM Release 3.4.5, the SSL/TLS version 1 (TLSv1) protocol is disabled within Oracle VM Manager for security reasons and connections using the TLSv1.2 protocol are only accepted. The TLSv1.2 protocol is the default in Java runtime version `1.7.0_131-b31`, and as a result, connections to the Oracle VM Web Services API fail if a lower Java runtime version is used.

Workaround: Make sure you are using Java runtime version `1.7.0_131-b31` or higher. The Java runtime version that ships with Oracle VM Manager Release 3.4.5 is sufficient. Alternatively, for lower versions of Java runtime, update the Java client and make sure that the `SSLContext ctx` attribute is set as follows:

```
SSLContext ctx = SSLContext.getInstance("TLSv1.2");
```

For more information about authentication against the REST API in the Java Client, see the [Java](#) topic in the *Oracle VM Web Services API Developer's Guide*.

Bug 27611305

9.8 Incorrect PVM Migration Error Message Displayed when Secure VM Migration Enabled

As of Oracle VM Release 3.4.5, you can disable PVM guests from running on your Oracle VM Server instance. As a result, migrating PVM guests to a destination Oracle VM Server instance with PVM guests disabled is not possible and the following error message is displayed:

```
stderr: Error: PV guests disabled by xend.
```

However, when migrating PVM guests with secure vm migration enabled to a destination Oracle VM Server instance with PVM guests disabled, the following incorrect message is displayed:

```
stderr: Error: [Errno 9] Bad file descriptor
```

Workaround: The incorrect migration error message should be ignored. The PVM migration is still prevented regardless of whether secure vm migration is enabled or not for the server pool where the vm resides.

For information on how to disable PVM guests on your Oracle VM Server instance, see [Disabling Paravirtualized Guests on Oracle VM Server](#) in the *Oracle VM Administrator's Guide*. For information on secure VM migrations when creating a server pool, see the [Create Server Pool](#) topic in the *Oracle VM Manager User's Guide*.

Bug 27679547

9.9 Default VM Start Policy Is Different in Oracle VM Manager Command Line Interface and Oracle VM Manager Web Interface

In Oracle VM Release 3.4.5, the start policies for virtual machines have changed. At the server pool level, the Oracle VM Manager Command Line Interface and Oracle VM Manager Web Interface apply a different default start policy: a server pool created through the web UI uses the "Best Server" policy, while a server pool created through the CLI uses the "Current Server" policy.

Workaround: There is no functional issue. The difference in behavior between both interfaces will not be addressed, because changing the default policy may break existing customers' CLI automation. Set the virtual machine start policy within your server pools as required.

Bug 27805945

9.10 Virtual Machine Fails to Boot with `kexec`

If you attempt to boot a virtual machine into a different kernel using `kexec`, the sequence sometimes fails due to certain devices not loading. Issues have been reported with missing networking or logical volumes, on a variety of kernel combinations. No root cause has been identified.

Workaround: The issue is intermittent, so you can retry. There is currently no workaround.

Bug 27338786

9.11 Missing Physical Disk Warning for Oracle VM Server Instance After Upgrading Oracle VM Manager

If you are using Oracle VM Manager Release 3.4.2 or later to manage previous versions of Oracle VM Server that have not yet been upgraded, warnings about missing physical disks in the internal ZFS storage

appliance may be displayed in the Oracle VM Manager **Storage** tab and the **Physical Disks** perspective of the **Servers and VMs** tab. For example:

```
OVMEVT_007005D_000 Discover storage elements on server [ovcacn10r1] did not return
physical disk [SUN (2)] for storage array [OVCA_ZFSSA_Rack1].
```

Workaround: Upgrade all instances of Oracle VM Server to the same release version of Oracle VM Manager.

Bug 26320569

9.12 Suspend Error During Storage Live Migration

When migrating running virtual machines that use local storage, the virtual disks are migrated first from the source server's local repository to the destination server's local repository. In certain cases, during the storage live migration, a suspend error may occur for the source Oracle VM Server guest virtual machine when there is additional disk activity. For example, additional disk activity may involve a process that is running on the guest virtual machine that is writing to the virtual disk on the source server's local repository while it is being migrated to the destination server's local repository.

The suspend operation requires more time to complete due to the additional disk activity, resulting in a suspend error that causes the storage live migration to fail. A suspend error similar to the following is displayed in the `/var/log/xen/xend.log` on the source Oracle VM Server instance:

```
[timestamp 2792] DEBUG (XendDomainInfo:3509) waitForSuspend: domain 1 state:
[timestamp 2792] INFO (XendCheckpoint:430) [9836] xc: error:
Suspend request failed: Internal error
[timestamp 2792] DEBUG (XendDomainInfo:1943) XendDomainInfo.handleShutdownWatch
[timestamp 2792] INFO (XendCheckpoint:430) [9836] xc: error: Domain appears not
to have suspended: Internal error
```

A timeout error is also displayed in the kernel log on the source Oracle VM Server guest virtual machine:

```
timestamp server kernel: [ 1601.227167] Freezing of tasks failed
after xx seconds (0 tasks refusing to freeze, wq_busy=1):
```

Workaround: Update the `/sys/power/pm_freeze_timeout` parameter, which is specified in milliseconds on the source Oracle VM Server guest virtual machine to ensure adequate time is available when additional disk activity occurs during storage live migration:

1. Log in to the guest virtual machine.
2. It is strongly recommended to update the `pm_freeze_timeout` parameter to the maximum downtime that you can afford, up to a maximum of 5 minutes, or 300000 milliseconds. For example, to update the `/sys/power/pm_freeze_timeout` parameter to 5 minutes, run the following command on the guest virtual machine:

```
# echo "300000" > /sys/power/pm_freeze_timeout
```



Note

The value you set for the `pm_freeze_timeout` parameter impacts the amount of time the source Oracle VM Server guest virtual machine remains offline during storage live migration.

3. Perform the live migration with storage again and no suspend errors should occur.

If a suspend error still occurs for the source Oracle VM Server guest virtual machine after the `pm_freeze_timeout` parameter is updated, you may need to avoid storage live migration until the

additional disk activity completes, or reconsider the maximum time you can afford for the guest virtual machine to remain offline during storage live migration.

Bug 26289880

9.13 Cannot Change Memory Configuration of Running PVHVM Guests Based on CentOS 6

For PVHVM guests based on CentOS 6, the available memory is set to the maximum memory in the virtual machine configuration when the virtual machine starts. Any operations to modify the memory while the guest is running complete successfully but do not take effect.

Workaround: Stop the virtual machine and then change the memory configuration.

Bug 26542210

9.14 PVHVM Guests Based on CentOS 5 Do Not Start Successfully After Conversion from PVM

If you change the domain type of a virtual machine based on CentOS 5 from PVM to PVHVM, and then attempt to start the virtual machine, it does not boot successfully. The following error displays in the virtual machine console:

```
Error 13: Invalid or unsupported executable format
```

Workaround: There is no workaround for this issue.

Bug 26537271

9.15 PVM Guests Based on CentOS 5 Do Not Start Successfully After Conversion from PVHVM

If you change the domain type of a virtual machine based on CentOS 5 from PVHVM to PVM, and then attempt to start the virtual machine, it does not boot successfully. The following error message is displayed:

```
ELF image has no shstrtab
```

Workaround: There is no workaround for this issue.

Bug 26537152

9.16 Guests Based on CentOS 5.11 Start with the Maximum Memory Configuration

Virtual machines based on CentOS 5.11 start running with a total memory that is equal to the maximum memory instead of the available memory, as defined in the virtual machine configuration.

Workaround: Change the memory configuration in the running virtual machine.

Bug 26536834

9.17 Guests Based on CentOS 5 Display Incorrect Number of VNICs

If you create a virtual machine based on CentOS 5 and then add a VNIC to the virtual machine, that VNIC is duplicated when you reboot the virtual machine. For example, if you add one VNIC, duplicate settings are displayed for the `eth0` and `eth1` interfaces.

The duplicate VNIC is caused by an issue with the CentOS 5 kernel that loads two drivers for the same network interface.

Workaround: There is no workaround for this issue.

Bug 26535868

9.18 Live Migrating Oracle Solaris Guests to Oracle VM Server Release 3.4.4 or Later Results in Guest Reboot

Live migrating Oracle Solaris HVM or PVHVM 64-bit guests from previous versions of Oracle VM Server to a destination Oracle VM Server at Release 3.4.4 or later results in an Oracle Solaris guest reboot. The following message is quickly displayed on the Oracle Solaris guest console, followed by a reboot:

```
gnttab_maps: Invalid pfn
```

Workaround: The following migration options are available:

Live migrate Oracle Solaris HVM or PVHVM 64-bit guests to Oracle VM Server Release 3.4.4 or later



Note

The following points should be reviewed before proceeding with this solution:

- To ensure minimal disruption, it is recommended to complete the instructions described in this solution immediately after upgrading to Oracle VM Server Release 3.4.4 or later and before the Oracle VM Server is returned to service.
- All Oracle VM Server instances at Release 3.4.4 or later in the server pool must be updated based on the instructions described in this solution.
- The configuration setting update described in this solution will be carried forward during future Oracle VM Server upgrades.

1. Using the Oracle VM Manager Web Interface, edit the destination Oracle VM Server and place it into maintenance mode. For more information, see [Edit Server](#).



Note

If you have just upgraded to Oracle VM Server Release 3.4.4 or later, the Oracle VM Server may already be in maintenance mode.

2. On the Oracle VM Server instance, open `/etc/default/grub` for editing.

3. Add `gnttab_max_frames=64` to the `GRUB_CMDLINE_XEN` line.

4. Regenerate the GRUB2 configuration.

- BIOS-based systems:

```
grub2-mkconfig -o /boot/grub2/grub.cfg
```

- UEFI-based systems:

```
grub2-mkconfig -o /boot/efi/EFI/redhat/grub.cfg
```

5. Reboot the Oracle VM Server instance for the update to take effect.

6. Edit the Oracle VM Server on the Oracle VM Manager Web Interface and take it out of maintenance mode by unchecking the **Maintenance Mode** check box.

7. Proceed to live migrate the Oracle Solaris guest to the destination Oracle VM Server instance.

Migrate Oracle Solaris HVM or PVHVM 64-bit guests to Oracle VM Server Release 3.4.4 or later



Note

Although live migration of Oracle Solaris guests to Oracle VM Server Release 3.4.4 or later is not possible with this solution, you avoid updating the configuration setting on the Oracle VM Server instance and the consequent required server reboot. In addition, there will be improved guest performance and the custom parameter `gnttab_max_frames=64` will not need to be maintained on any future installations of Oracle VM Server.

1. Before migrating the Oracle Solaris guest to the destination Oracle VM Server, you must stop the virtual machine guest on the source server.
2. Migrate the Oracle Solaris guest to the destination Oracle VM Server.
3. Once migration completes, restart the Oracle Solaris guest on the destination Oracle VM Server.

For more information, see [Migrate or Move Virtual Machines](#).

Bug 26594820

9.19 Cannot Remove Software RAID Devices from Oracle VM Manager

You cannot use Oracle VM Manager to remove physical disks that are included in a software RAID. If you attempt to remove software RAID devices from Oracle VM Manager, the job fails with the following error message:

```
OVMRU_007016E: Operation is not supported for local storage.
```

Workaround: Manually remove the software RAID devices from Oracle VM Server. For more information, see [Removing Software RAID Devices](#) in the *Oracle VM Administrator's Guide*.

Bug 25554732

9.20 VNICs Deleted When Editing Virtual Machine

Modifying a virtual machine configuration deletes the VNICs associated with that virtual machine if edit jobs are in progress. For example, if you modify a virtual machine and then perform a subsequent modification before the first job completes, the VNICs associated with that virtual machine are deleted.

Workaround: When editing a virtual machine, you must wait until all previous edit jobs complete before making any further modifications.

Bug 24961613

9.21 Enable High Availability Option is Disabled Due to Restart Option

If you edit a virtual machine configuration to enable high availability, and the **Restart** or **Restart After Dump** option is set to either **Stop** or **Stop After Dump**, the **Enable High Availability** option is disabled on the Oracle VM Manager Web Interface.

Workaround: To enable the **Enable High Availability** option, you must first edit the virtual machine configuration and set the **Restart Action on Crash** option to **Restart** or **Restart After Dump** and then save the configuration before you attempt to enable high availability.

Bug 24961613

9.22 Cannot Upgrade Oracle VM Manager Due to Presence of Temporary Files

When upgrading Oracle VM Manager Release 3.3.3 to Release 3.4.x, the upgrade procedure may fail due to the presence of temporary files.

Workaround: Delete any temporary files that cause the upgrade failure. For example, run the following command as the root user on the Oracle VM Manager host:

```
# rm -Rf /tmp/workdir_sel
# rm -Rf /tmp/ovm*
```

Once these files are removed, restart the upgrade procedure again.

Bug 25394965

9.23 Job List Excel Spreadsheet Name Contains Unexpected Characters

In the Oracle VM Manager Web Interface, when you export the job list as a Microsoft Office Excel spreadsheet, the browser Save/Open File dialog may display the Job List Excel spreadsheet name with unexpected characters, for example, `=_UTF-8_Q_JobList=2Exls_`. This issue occurs if you are using Microsoft Internet Explorer 11 as your browser, and you are using a language setting other than English.

Workaround: Although the Excel spreadsheet can be successfully downloaded and opened, it is recommended to remove the unexpected characters and rename the spreadsheet to `JobList.xls`.

Bug 25574313

9.24 Oracle Linux 6 HVM Guest Virtual Machine with Hard Disk of 2TiB in Size Hangs on Boot

You cannot start hardware virtualized (HVM) guests running Oracle Linux 6 if the guest boots from hard disks of 2TiB in size.

Workaround:

1. Host the contents of the Oracle VM Server ISO image file over the network so that you can access the required GRUB2 package files.
2. Log in to the Oracle VM Manager Web Interface.
3. Clone the Oracle Linux 6 virtual machine and ensure that it is not attached to a hard disk of 2TiB in size.
4. Attach the 2TiB hard disk to the cloned virtual machine.
5. Install the `grub2` packages on the 2TiB hard disk that you attached to the cloned virtual machine, for example:

```
# cd /tmp
# wget --no-proxy /path/grub2-version.rpm
# wget --no-proxy /path/grub2-tools-version.rpm
# mkdir tmp
# cd tmp
# rpm2cpio ../grub2version.rpm | cpio -iumd
# rpm2cpio ../grub2-tools-version.rpm | cpio -iumd
# /usr/sbin/grub2-install -d /usr/lib/grub/i386-pc/ --force /dev/sdb
Installing for i386-pc platform.
./usr/sbin/grub2-install: warning: this GPT partition label contains no BIOS Boot
Partition; embedding won't be possible.
./usr/sbin/grub2-install: warning: Embedding is not possible. GRUB can only be
installed in this setup by using blocklists. However, blocklists are UNRELIABLE and
their use is discouraged.
Installation finished. No error reported.
```



Note

- Substitute `path` with the path to the contents of the Oracle VM Server ISO image file on your file system.
- Substitute `version` with the `grub2` package version contained in your Oracle VM Server instance.
- Substitute `/dev/sdb` with the device name for the 2TiB hard disk that you attached to the cloned virtual machine.

6. Create the `/boot/grub2/grub.cfg` configuration as follows:

```
set default="0"
set timeout=5
menuentry 'Linux' {
    insmod part_gpt
    insmod ext2
    set root='hd0,gpt1'
    linux /vmlinuz-version ro root=/dev/mapper/VolGroup-lv_root
    initrd /initramfs-version.img
}
```

**Note**

Update the `vmlinux` and `initramfs version` accordingly based on the Oracle Linux 6 version installed.

7. Re-attach the 2TiB hard disk to the virtual machine that you could not boot.

Bug 25655807

9.25 Kernel Panic when Assigning More Than 32 virtual CPUs to Oracle Linux 32-bit PVM Guests

You cannot assign more than the 32 virtual CPUs to Oracle Linux 32-bit Paravirtualized (PVM) guests running Oracle Unbreakable Enterprise Kernel (UEK) Release 2. Oracle Linux 32-bit PVM guests running UEK Release 2 support a maximum of 32 virtual CPUs. If you assign more than the maximum virtual CPUs allowed, kernel panic may occur.

Workaround: Set the maximum virtual CPUs to 32 or less. Use the `uname` command to determine the UEK version you are running on the guest virtual machine and from the result, you can determine the maximum number of virtual CPUs supported, for example:

```
# uname -r
2.6.39-400.278.3.el6uek.i686
# cat config-2.6.39-400.278.3.el6uek.i686 | grep CONFIG_NR_CPUS
CONFIG_NR_CPUS=32
```

Bug 25745578

9.26 Live Migration of Guest Virtual Machine Fails Due to Linux Kernel Version

Running Linux UEK x86_64 `2.6.39-400.109.1.el6` as the guest kernel may cause issues during live migration. For example, live migration may fail with an unresponsive guest virtual machine on the VNC Console.

Workaround: Upgrade the guest kernel to the latest version.

Bug 25644455

9.27 PVHVM Guest Boot Delayed by Xen Balloon Driver

Booting PVHVM guests takes longer than expected and the following message is written to stack trace:

```
INFO: task <task_name>:234 blocked for more than 120 seconds
"echo 0 > /proc/sys/kernel/hung_task_timeout_secs" disables this message.
```

This issue occurs when the virtual machine configuration includes a maximum memory value that is much larger than the available memory value. This configuration causes the Xen balloon driver to shrink the guest memory to the target size. As a result, the boot time for the virtual machine takes longer than expected.

Workaround: The greater the difference between the values for maximum memory and available memory, the longer it takes to boot PVHVM guests. If you encounter this issue, you should either decrease the maximum memory or increase the available memory in the virtual machine configuration.

Bug 25709221

9.28 Oracle VM Server Cannot Boot from Software RAID Devices with Disks that are 2TB or Larger

You should not attempt to install Oracle VM Server on a software RAID if a disk that is 2 TB or larger is a member of the array. Due to a limitation with the Master Boot Record (MBR), Oracle VM Server cannot boot from disks that are 2 TB or larger in a software RAID configuration.

Workaround: There is no workaround for this issue.

Bug 25608136

9.29 Oracle VM Server Does Not Boot After Installation to LUN Targets Larger Than 2TB

In some cases, Oracle VM Server does not have a valid boot entry after installation to Fibre Channel or Fiber Channel over Ethernet (FCoE) LUNs. As a result, Oracle VM Server cannot boot successfully. This issue affects both BIOS and UEFI-based environments and is the result of outdated firmware for the host bus adapter (HBA) or other host controller on the target server.

As of Release 3.4.3, support for installation of Oracle VM Server to systems where Fibre Channel or FCoE LUNs are greater than 2TB in size applies to the following tested versions only:

Server	Host Adapter or Controller	Part Number	Firmware version	BIOS or UEFI
Oracle Server X4-4	Sun StorageTek Dual 8 Gb Fibre Channel PCIe HBA	SG-XPCIE2FC-QF8-Z	8.05.00	UEFI
Oracle Server X5-2	Sun Storage 16 Gb Fibre Channel PCIe Universal HBA, QLogic	7101674	8.05.00	UEFI
Oracle Server X5-4	Sun Storage 16 Gb Fibre Channel PCIe Universal HBA, Emulex	7101684	11.1.160.6	BIOS and UEFI
Oracle Server X5-8	Sun Storage 16 Gb Fibre Channel PCIe Universal HBA, QLogic	7101674	8.05.00	UEFI

**Note**

- Legacy BIOS SAN boot is not supported for Fibre Channel or FCoE LUNs that are greater than 2TB in size for QLogic HBA or other host controllers on the target server.
- UEFI SAN boot for QLogic HBA or other host controllers are supported, but the firmware for the HBA or other host controllers on the target server may need to be updated.
- Both Legacy BIOS and UEFI SAN boot for HBA or other host controllers, such as Emulex are supported, but the firmware for the HBA or other host controllers on the target server may need to be updated.

Workaround: Update the firmware for the host bus adapter (HBA) or other host controller on the target server.

Bug 25701247

9.30 Oracle VM Server Boot Delay and I/O Error Messages with Oracle ZFS Storage Array

A known issue with the Oracle ZFS SCSI storage driver causes significant delays during Oracle VM Server boot and writes a large number of I/O error messages to the kernel log. This issue occurs because the storage driver loads before the SCSI device handler modules (`scsi_dh`) are available. As a result, the system issues I/O operations to SCSI multipath devices before the devices can handle them.

Workaround: Add the SCSI device handler modules (`scsi_dh`) to the kernel command line parameters as follows:

1. Open `/etc/default/grub` for editing.
2. Add `rdloaddriver=scsi_dh_alua` to the `GRUB_CMDLINE_LINUX` line.
3. Regenerate the GRUB2 configuration.

- BIOS-based systems:

```
grub2-mkconfig -o /boot/grub2/grub.cfg
```

- UEFI-based systems:

```
grub2-mkconfig -o /boot/efi/EFI/redhat/grub.cfg
```

Bug 25686610

9.31 FIPS Integrity Error Message for SSH Connections from Oracle VM Server

If you are logged in to Oracle VM Server and you establish an SSH connection to another system, the following message is displayed:

```
FIPS integrity verification test failed.
```

This message indicates that Oracle VM Server cannot enable FIPS mode for outbound SSH connections. However, Oracle VM Server can still establish an SSH connection to the remote system but that connection is not validated by FIPS cryptographic algorithms.

Workaround: There is no workaround for this issue.

Bug 25831585

9.32 Incorrect MAC Address Displayed for Bond Port

In some cases, Oracle VM Manager displays an incorrect MAC address for bond ports instead of the MAC address assigned for the bond port on Oracle VM Server for SPARC.

Workaround: Ensure the bond port is up by running the `dladm show-aggr -x` command on the primary domain of the SPARC server, and then rediscover the instance of Oracle VM Server for SPARC.

Bug 25768560

9.33 Kernel Panic when Booting Guest Virtual Machine with 100 or more Virtual Disks

Adding 100 or more virtual disks to a guest virtual machine and then booting the virtual machine with a UEK2, UEK3, or UEK4 kernel results in a kernel panic, as the virtual machine does not recognize all the virtual disks and loses network connectivity.

Workaround: For more information on this issue and the workaround, see *Oracle VM: VM Guest With 100+ Virtual Disks Does Not Recognize Them All And Loses Connectivity* Document ID 2038050.1, on My Oracle Support at: <https://support.oracle.com/oip/faces/secure/km/DocumentDisplay.jspx?id=2038050.1>.

Bug 24428913

9.34 Different Default Values for the serverAffinityType when Creating Anti-Affinity Groups

When you create an anti-affinity group, the default value for the affinity group type that is returned for the `getServerAffinityType` method is different, depending on whether you create the anti-affinity group in the Oracle VM Manager Web Interface or the Oracle VM Web Services API. If you create the anti-affinity group in the Oracle VM Manager Web Interface, the server affinity type is set to ANTI_AFFINITY . If you create the anti-affinity group using the Oracle VM Web Services API, the server affinity type is set to NO_AFFINITY .

Workaround: There is no workaround for this issue.

Bug 23542910

9.35 Performance Impact when Less than 8 CPUs Configured for dom0

For best performance, if dom0 is configured with less than 8 CPUs, the `xen_netback max_queues` option in the `ovs.conf` file should be set to the number of CPUs configured for dom0. For example, if you configure dom0 with 6 CPUs, then you should set the value of the `xen_netback max_queues` option to 6.

Workaround:

1. Start an ssh session to Oracle VM Server.
2. Open `/etc/modprobe.d/ovs.conf` for editing.
3. Set the value of the `xen_netback max_queues` option equal to the number of CPUs configured for dom0.
4. Reboot Oracle VM Server for the setting to take effect.

Bug 24329130

9.36 Upgrading Oracle VM Server from Release 3.2.10 to 3.3.4 and then to 3.4.2 fails

When upgrading Oracle VM Server Release 3.2.10 to Release 3.4.2, and your upgrade path is from Release 3.2.10 to 3.3.4 and then to Release 3.4.2, the upgrade fails with the following message:

```
kernel-uek-firmware-2.6.39-400.249.3.el5uek.noarch has missing requires of aic94xx-firmware
```

Workaround: After upgrading to Oracle VM Server Release 3.3.4, remove the `kernel-uek-firmware-2.6.39-400.249.3.el5uek.noarch` rpm package before upgrading to Release 3.4.2. For example, run the following command to delete the rpm package:

```
# rpm -e --justdb kernel-uek-firmware-2.6.39-400.249.3.el5uek.noarch
```

Bug 24665394

9.37 Logical Volume Manager (LVM) is enabled on Oracle VM Server Release 3.4.1

By default, Logical Volume Manager (LVM) should not be enabled. However, in Oracle VM Server Release 3.4.1 LVM is not disabled correctly. As a result, LVM disks are inadvertently activated. This setting also applies to Oracle VM Server instances that you upgrade from Oracle VM Server Release 3.4.1.

Workaround: Disable LVM on Oracle VM Server. If you plan to upgrade to a later version, you should complete these steps before upgrading:

1. Start an ssh session to Oracle VM Server Release 3.4.1.
2. Open `/etc/lvm/lvm.conf` for editing.
3. Locate the `global {` section of the file and comment out the `global_filter = ["r/*/"]` setting option, so it is displayed as follows:

```
# For OVS, don't even open any device
# global_filter = [ "r/*/" ]
```

4. Locate the `devices {` section of the file. Uncomment the `global_filter = []` setting and update it as follows:

```
# Since "filter" is often overridden from command line, it is not suitable
# for system-wide device filtering (udev rules, lvmtools). To hide devices
# from LVM-specific udev processing and/or from lvmtools, you need to set
# global_filter. The syntax is the same as for normal "filter"
# above. Devices that fail the global_filter are not even opened by LVM.
global_filter = [ "r/*/" ]
```

5. Save and close the file.
6. If LVM disks are activated, you must manually deactivate them or reboot Oracle VM Server for the updates to take effect.
7. If LVM disks are not activated, no further action is required.

Bug 24583291

9.38 Btrfs Root File System Not Supported on PVM Guest Virtual Machines

Btrfs root file system is not supported on x86-based PVM guest virtual machines. For example, updating the domain type of PVHVM guests running on SUSE Linux Enterprise Server 12 SP2 or later to PVM results in the virtual machine failing to start-up. This occurs as btrfs is the default file system on SUSE Linux Enterprise Server 12 SP2 or later operating system.

Workaround: There is no workaround for this issue.

Bug 25040512

9.39 SUSE Linux Enterprise Server 12 SP2 and Later Not Supported For PVM Guest Virtual Machines

Although SUSE Linux Enterprise Server 12 SP2 or later is supported for both hardware virtualization (HVM) and hardware virtualization with paravirtual drivers (PVHVM), it is not possible to run this operating system as a paravirtualized domain (PVM). This is due to the default btrfs file system on SUSE Linux Enterprise Server 12 SP2 or later not being supported on PVM.

Bug 25040512

9.40 Cannot Connect to the Oracle VM Manager Web Interface with Microsoft Internet Explorer

In some cases, if you attempt to connect to the Oracle VM Manager Web Interface with Microsoft Internet Explorer version 10 or lower, the Oracle VM Manager Web Interface does not respond when you enter login credentials. No messages are written to the AdminServer.log file to indicate errors or provide debugging information.

Workaround: Do one of the following:

- Reset Internet Explorer settings.
- Use Internet Explorer version 11 or a different browser, such as Mozilla Firefox, to connect to the Oracle VM Manager Web Interface.

Bug 20691432

9.41 The Virtual Machine Console Window in the Oracle VM Manager Web Interface Opens in the Background when using Microsoft Internet Explorer

The virtual machine VNC or serial console windows, that can be opened from within the Oracle VM Manager Web Interface, may initially open in the background and not have immediate focus when using Microsoft Internet Explorer. This means that after you click on the menu option to open a console dialog, it initially appears as if nothing has happened as the main browser window remains in the foreground. However, the console window has opened but is in the background. This is the result of a bug in the underlying framework that is used for the development of the Oracle VM Manager Web Interface.

Workaround: Do one of the following:

- Check in the Windows task bar to determine whether another window has been opened in the background, or use the Alt-Tab key combination to cycle through open windows.
- Use a different browser, such as Mozilla Firefox or Chrome to connect to the Oracle VM Manager Web Interface.

Bug 21235816

9.42 Inconsistent Value for SPARC Domain Type

In the Oracle VM Manager Web Interface, you can select **OVM/SPARC** as a value for the `Domain Type` option used to create or edit a virtual machine. In the Oracle VM Manager Command Line Interface, and in the Oracle VM Web Services API, the value for the `DomainType` option can be set as **LDOMS_PVM**. These two values should be understood to be equivalent and refer to the hypervisor that is available on an Oracle VM Server for SPARC.

You are unable to use these values interchangeably and must use the correct value for the interface that you are using to configure the virtual machine. Check the appropriate documentation if you are unsure of the values that can be set for this option.

Workaround: There is no workaround for this issue.

Bug 20786024

9.43 Integer Only Values for the statValue Option

In the Oracle VM Manager Command Line Interface, you must use only integers to specify values for the `statValue` option when using the `equalityType` option for the `getStatListByQuery` command. Floats and decimals are not supported values for the `statValue` option.

Workaround: There is no workaround for this issue.

Bug 21046910

9.44 Aborting a Server Discovery Operation Results in Server Listed with an Unknown Operational State

Aborting a server discovery operation within Oracle VM Manager can result in the server being listed within the Oracle VM Manager Web Interface with an unknown operational state. Equally, the server object may appear as locked within the Oracle VM Manager Web Interface. This is because events triggered by the discovery operation may cause the state of the Oracle VM Manager Web Interface to fall out-of-sync with the actual state of the environment.

Workaround: To correct the operational state returned by Oracle VM Manager, rediscover any Oracle VM Servers that are affected. If you wish to remove these servers, delete them after you have performed the discovery operation.

Bug 21495833, 21495187

9.45 Automatic Discovery Operations can Conflict with Server Configuration Operations

In certain rare cases, an automatic server rediscovery is triggered by an error condition at the same time that a server configuration operation is taking place. In this situation, it is possible that this conflict can result in configuration information specific to the Oracle VM Server falling out-of-sync with the information reflected by Oracle VM Manager.

Workaround: To correct the information returned by Oracle VM Manager, rediscover any Oracle VM Servers that are affected.

Bug 21341236

9.46 Solaris 11 x86 Virtual Machine Disk Type Can Cause Kernel Panic on Boot

On Oracle VM, Solaris 11 x86 virtual machines are all installed and run with Xen Virtual Disk (XVD) disks by default. Exporting a Solaris 11 x86 virtual machine as a virtual appliance (OVA), and then importing it to a virtualization platform that supports a different disk type or disk controller, changes the path to the boot disk for the virtual machine. As a result, a kernel panic occurs for the Solaris 11 x86 virtual machine because it cannot locate the boot disk.

Workaround: Use the Solaris 11 x86 live installation ISO to boot the Solaris virtual machine. When the live installation GUI displays, open a terminal window and change to the root user. Run `zpool import -f rpool` and then run `shutdown`. After the virtual machine shuts down, remove the live installation ISO and boot from the disk.

Bug 21253581

9.47 Solaris 10 x86 Virtual Machine Installation Fails To Boot

On Oracle VM, virtual machines that are installed with Solaris 10 directly from the installation ISO may fail to boot immediately after installation and can return the error: 'Bad PBR Sig'.

This bug is related to the way in which virtual disks are referenced in the virtual machine configuration file, where they are configured as Xen Virtual Disk (XVD) disks by default. For Solaris to recognize this disk type, a patch needs to be applied to the Solaris installer to recognize the new disk type and to allow it to write to the boot block of the disk. This patch can be applied for network installs, but is not applied to the installation ISO, therefore additional steps must be taken when performing an installation from the ISO.

Workaround: The workaround provided here has been tested for Solaris 10u11. If you require that you complete an installation of Solaris 10u11 from ISO, it is possible to rectify the issue described here by performing the following steps:

- Reboot the virtual machine and use the ISO to perform the boot.
- During the boot process select the option to go to command line mode (option 6).
- At the command prompt, run `installgrub` to manually install the grub loader to the boot partition, as follows:

```
/a/sbin/installgrub -m /a/boot/grub/stage1 /a/boot/grub/stage2 /dev/rdisk/c1t0d0s0
```

Substitute `c1t0d0s0` with your device as appropriate.

- Reboot the virtual machine and the installation completes.

Solaris 11 is unaffected by this issue.

Bug 21775043

9.48 Oracle Linux 7 Virtual Machines Imported from a VirtualBox Virtual Appliance Do Not Start on Oracle VM

Virtual machines running Oracle Linux 7 exported from Oracle VirtualBox as a virtual appliance and then imported into Oracle VM may not boot correctly and may exit to an emergency shell. This is caused by

a missing xen-blkfront driver in the initramfs image. Typically, output during boot, for affected systems, appears as follows:

```
[ OK ] Reached target Basic System.
dracut-initqueue[227]: Warning: Counld not boot.
dracut-initqueue[227]: Warning: /dev/mapper/ol-root does not exist
dracut-initqueue[227]: Warning: /dev/ol/root does not exist
dracut-initqueue[227]: Warning: /dev/ol/swap does not exist
Starting Dracut Emergency Shell ...
Warning: /dev/mapper/ol-root does not exist
Warning: /dev/ol/root does not exist
Warning: /dev/ol/swap does not exist
```

Workaround: There are two workarounds to this problem. The first involves adding the missing drivers prior to exporting the Oracle Linux 7 virtual machine from Oracle VirtualBox. To do this, run the following command as root before you perform the export:

```
# dracut --add-drivers "xen-blkfront xen-netfront" --force
```

If you are unable to perform this step prior to the export, you can temporarily boot the virtual machine as an HVM and add the following boot option in GRUB prior to boot:

```
xen_emul_unplug=never
```

Once the virtual machine has booted, you can add the missing drivers by running the following command as root:

```
# dracut --add-drivers "xen-blkfront xen-netfront" --force
```

Reboot the virtual machine once the drivers have been added to the initramfs.

Bug 21244825

9.49 (x86 Only) IOStat Stays at 100% Util for Oracle Linux Virtual Machines After a Storage Migration

When a virtual machine running a kernel prior to UEK 3.8.13-68.2.1 is migrated from a local repository using the 'live migrate with storage' option, and all IO has been terminated, the IOStat on the virtual machine remains stuck at 100% Util.

This is related to a kernel bug where a call to the Xen blkfront driver caused the IO statistics to not be properly refreshed after a migration was completed, causing the accounting to fall out of sync with actual IO activity.

Workaround: This bug is resolved in UEK 3.8.13-68.2.1 and greater. To avoid this issue, upgrade the kernel used by your virtual machine.

Bug 21614184

9.50 Serial Console Does Not Respond for Oracle Linux 7 HVM Virtual Machines

The serial console does not respond, or provide any output, for virtual machines based on Oracle Linux 7 that are of domain type HVM or PVHVM.

Workaround: Configure the GRUB bootloader for the virtual machine as follows:

1. Add the following lines to the `/etc/default/grub` file:

```
GRUB_CMDLINE_LINUX=" console=ttyS0 console=tty0 crashkernel=auto \  
rd.lvm.lv=ol/root rd.lvm.lv=ol/swap rhgb quiet "  
GRUB_TERMINAL="serial console"  
GRUB_SERIAL_COMMAND="serial --unit=0"
```

2. Run the following command to update the `grub.cfg` file:

```
grub2-mkconfig -o /boot/grub2/grub.cfg
```

3. Restart the virtual machine.

Note that the preceding lines provide suggested configuration. You should consult the GNU GRUB manual for descriptions of each line and additional configuration options to suit your business needs. The GNU GRUB manual is available from the following directory on the virtual machine: [usr/share/doc/](#). Additionally, you should refer to the *About the GRUB2 Boot Loader* section of the Oracle Linux Administrator's Guide for more information.



Tip

Use the following keys to navigate the boot menu: **v** for down-arrow and **^** for up-arrow.

Bug 21229730

9.51 Error When Attaching CD-ROM Drives to Running HVM Virtual Machines

If you attempt to attach a CD-ROM drive to an available slot on a running virtual machine of domain type HVM, an error occurs and it is no longer possible to use the specified slot. For example, after you attempt to attach a CD-ROM drive to slot 2, you then attempt to attach a virtual disk to slot 2. In both cases an error occurs and slot 2 becomes unusable.

This issue occurs because running HVM virtual machines do not support the function to attach CD-ROM drives.

Workaround: Stop the virtual machine and then attach the CD-ROM drive.

Bug 21300944

9.52 Deleting Bond Ports for VLANIF Interfaces Deletes the VLANIF

Deleting a bond port that is in use by a VLANIF interface configuration also deletes the VLANIF interface.

Workaround: There is no workaround for this issue.

Bug 21217364

9.53 (SPARC Only) NFSv4 Delegation Interferes with Cluster Heartbeat, Using NFSv3 Results in RPC Error PROGRAM/VERSION MISMATCH

Server pool clustering on SPARC based server pools can cause servers to automatically fence due to NFSv4 write delegation revocation timeouts which exceed the timeout value for the cluster.

It is not possible to use NFSv3 as this results in an RPC error reporting a "PROGRAM/VERSION MISMATCH" and can cause the cluster database to hang due to the NFSv3 locking mechanism. This is expected behavior.

Workaround: There is no workaround for this issue. Only NFSv4 is supported for SPARC clustering, and you must disable delegation for this to work.

Bugs 18997487, 20443098, 21317571

9.54 Cannot Import OVF Files into Oracle VirtualBox

You cannot successfully import a virtual appliance into Oracle VirtualBox if you exported that virtual appliance from Oracle VM as an extracted OVF that includes three separate files, a `package.ovf` file, a `package.mf` file, and a `disk.vmdk` file.

Workaround: Delete the `package.mf` file before you import the virtual appliance into Oracle VirtualBox. Alternatively, export the virtual appliance from Oracle VM as an OVA file.

Bug 21261077

9.55 Oracle VM Manager Cannot Receive Messages from SPARC Virtual Machines

After sending messages to a virtual machine running on Oracle VM Server for SPARC to configure network settings, Oracle VM Manager does not receive messages that indicate that the network was configured successfully.

Workaround: There is no workaround for this issue.

Bug 21062991

9.56 Cannot Boot Oracle VM Server Installed on an HP DL380 Gen9 Server in UEFI mode

In some cases, after you install Oracle VM Server on an HP DL380 Gen9 server in UEFI mode, you cannot successfully boot Oracle VM Server. This is the result of an issue with HP Smart Array firmware versions lower than 2.52.

Workaround: Update the HP Smart Array firmware to version 2.52 or higher.

Bug 21466879

9.57 (x86 Only) Cannot Boot Oracle VM Server with Broadcom 57840S CNA Card After PXE Install

If you perform a network installation of Oracle VM Server on an x86 system using the Broadcom 57840S CNA Card, you are unable to boot using FCoE. This issue is the result of a bug in the anaconda installer, where the installer is unable to see all of the disks when the system is booted using PXE.

Workaround: Do not use PXE boot to install systems that make use of this hardware.

Bug 20830496

9.58 Changing to Dynamic Mode IP Address Assignment Does Not Rollback if the Server is Unable to Obtain an IP Address

If you choose to change the IP address assignment mode to 'Dynamic' for any Oracle VM Server network interface or port within Oracle VM Manager, the operation that is triggered is a multi-step operation. First, the network configuration is changed on the server and within the Oracle VM Manager database. Then the server attempts to obtain an IP address from the DHCP server. If this second operation fails, the server returns an error but the Oracle VM Manager is unable to rollback the initial operation. The result is that the server remains configured for DHCP but the port does not have an IP address assigned.

If the port is used for the Management Network, it is possible that the server is no longer accessible to the Oracle VM Manager and you must correct the networking manually on the server. This may require you to reissue a DHCP request by running the `dhclient` command on the command line of the server, or it may require that you reconfigure the network interface with a static IP address and network mask. You may do this temporarily using the `ip addr` command on the command line. Once your server has an IP address within the management network range, you must rediscover the server.

Workaround: There is no workaround for this issue. You must ensure that your infrastructure is fully functional and that servers are able to obtain IP addresses from the DHCP server if you choose to use Dynamic Mode for IP address assignment for a server. Alternately, use Static IP addressing.

Bug 21370280

9.59 Drag and Drop from Blank Space of Object

It is not possible to drag and drop one or more virtual machines or Oracle VM Servers if you select the text area of the object or the expansion arrow next to the object.

Workaround: Select an area of blank space in the object to drag and drop that object.

Bug 21687716

9.60 Error When Using the Administrator Tool in Parallel

If two or more users connect to the same instance of Oracle VM Manager and simultaneously attempt to create users with the Oracle VM Manager Administrator Tool (`ovm_admin`), an error occurs and the following message is written to `AdminServer.log`:

```
Problem invoking WLST - Traceback (innermost last): File
"/u01/app/oracle/ovm-manager-3/ovm_wlst/jython/ovm/admin/createuser.py"
```

Workaround: Ensure that only one user at a time connects to Oracle VM Manager to use the Oracle VM Manager Administrator Tool (`ovm_admin`).

Bug 21679271

9.61 Oracle VM Manager Command Line Interface TCP Port Conflicts With Port Reserved for NDMP

The Oracle VM Manager Command Line Interface uses TCP port 10000 by default. This port is usually reserved for the Network Data Management Protocol (NDMP).

Workaround: Change the default port for the Oracle VM Manager Command Line Interface if you require TCP port 10000 for other applications that use NDMP, see [SSH Port](#) in the *Oracle VM Manager Command Line Interface User's Guide*.

Bug 21960034

9.62 When A Virtual Machine Using A Shared Virtual Disk Is Moved To Another Repository, The Shared Virtual Disk Is Cloned

When a virtual machine that is using a shared virtual disk is moved to another repository, the shared virtual disk is cloned during the move process to allow the virtual machine to continue to use the resources on the shared virtual disk. This may not be the behavior that you expect when you move a virtual machine and could result in duplicated data resources that could eventually become unsynchronized and difficult to reconcile.

This design decision allows virtual machines to be restarted after a move with minimum impact as all used resources continue to be available. However, the behavior is not intuitive and may be modified in subsequent releases.

Workaround: Be aware of the existing behavior and detach any shared disks before moving the virtual machine. If the virtual machine needs to make use of resources on the shared disk, detach the shared disk from all virtual machines and move it separately before reconfiguring your virtual machine to use it again. Make sure that all virtual machines that require access to the same shared disk are located in the same repository.

Bug 21316001

9.63 Unable to Remove a Storage Array if a File System Exists on a LUN

In the case where a repository is hosted on a LUN on a storage array and ownership of the repository is released, a rule violation is reported if you attempt to delete the storage array. This issue only affects storage arrays. File servers are unaffected.

Workaround: To resolve this issue you must completely unconfigure the elements of the storage array before attempting to remove it. Remove ownership of any repositories hosted on the storage array, remove the storage server from any access groups and finally delete the storage array.

Bug 22313650

9.64 Cluster Failure After An Offline Server is Removed From the Cluster While Another Cluster Member is Offline

If more than one Oracle VM Server within a clustered server pool is offline at the same time, and one of those servers is removed from the server pool, when the other offline servers come back online, the cluster remains in a failed state. This is because the cluster configuration falls out of sync across the members of the cluster.

Whenever a server is added or removed from a cluster, Oracle VM Manager triggers an operation on each Oracle VM Server in the cluster to update the cluster configuration information. However, if any servers are offline at this time, they are unable to receive the updated configuration resulting in a configuration mismatch between the cluster configuration on the server and the actual configuration for the rest of the cluster. As a result, the server is no longer able to participate in the cluster.

On an x86 platform, this situation is simply represented within Oracle VM Manager and can be easily resolved from within Oracle VM Manager. On a SPARC platform, this can cause a server to repeatedly reboot when it comes online again due to a cluster panic.

Workaround (SPARC): In the case where a SPARC server is rebooting continuously, the problem is caused by the server attempting to rejoin the cluster even though it is no longer a member of the cluster. As a result, the server can panic repeatedly with a message similar to the following:

```
panic[cpu5]/thread=2a102a13c60:
**** dlm FENCING this system by PANICing
```

If this issue occurs and a server is repeatedly panicking then you can prevent the server from panicking again by stopping the ovs-agent service and deconfiguring the cluster. To do so, connect to the server as root and run the following commands:

```
# svcadm disable -s ovs-agent
# dlmccconf -S
```

If you are unable to run these commands because the server is panicking too quickly, then boot the server in single-user mode:

```
ok boot -s
```

Disable the ovs-agent service:

```
# svcadm disable ovs-agent
```

Reboot the server. The server stops panicking while the ovs-agent service is disabled. If you want to re-enable the ovs-agent service, then you must resolve the cluster configuration issue first.

Once you have resolved the cluster configuration issue, you can acknowledge the server cluster failure event within Oracle VM Manager to resume normal operations.

Workaround (x86): To restore the environment to normal operation, you must first acknowledge the server cluster failure event within Oracle VM Manager. Remove any servers from the server pool that were offline when you made the configuration change, and then add them back to the server pool, so that the cluster configuration information can be properly refreshed for that server.

Bug 22304185, 18776654

9.65 LSI Logic / Symbios Logic MegaRAID SAS 1078 is not supported on Oracle VM Server

Oracle VM Server may not be able to detect disks on systems using the Dell PowerEdge Expandable RAID Controller 5 which uses LSI Logic/Symbios Logic MegaRAID SAS 1078. This is due to the unavailability of compatible driver firmware to enable device support within UEK4 from the hardware manufacturer. You may not be able to successfully upgrade servers using this hardware to Oracle VM Server 3.4.1 or above.

There are no workarounds for this issue. You must upgrade your hardware.

Bug 21843131, 21223382

9.66 (SPARC Only) Hot-added CD-ROM Device is Detected As Hard Disk

If you hot add a virtual CD-ROM device to a virtual machine running on Oracle VM Server for SPARC, the CD-ROM device is not detected as a removable device and is not shown when you run the `rmformat` or `format` commands. Instead, the device is listed as a virtual disk and is mapped this way as a device alias. This can be verified using the OpenBoot PROM to run the `show-disks` and `devalias` commands.

Workaround: There is no workaround to this issue. Remain aware that when hot-adding a virtual CD-ROM device, this is detected as a virtual disk instead and is mapped in Solaris as a `/dev/dsk/c1dXsX` entry.

Bug 21278127

9.67 Fibre Channel LUNs Missing From Oracle VM Manager After Refresh

In some instances, after you refresh physical disks in the *Storage* tab in Oracle VM Manager Web Interface, fibre channel LUNs might not be included in the refresh. As a result, the LUNs appear to be missing even though they are online at the server.

Workaround: You should first examine all components of the infrastructure, such as switches, cables, and HBAs, to ensure that no defects or failures exist. If, after a subsequent refresh, the LUNs still appear to be missing, you can perform the following steps to resolve this issue:

1. List all attached SCSI devices.

```
# lsscsi
[0:0:0:0] disk HP LOGICAL VOLUME 1.34 /dev/sda
[0:0:0:1] disk HP LOGICAL VOLUME 1.34 /dev/sdb
[0:3:0:0] storage HP P440ar 1.34 -
[1:0:0:0] disk SUN ZFS Storage 7330 1.0 /dev/sdc
[1:0:0:1] disk SUN ZFS Storage 7330 1.0 /dev/sdd
[1:0:0:2] disk SUN ZFS Storage 7330 1.0 /dev/sde
[1:0:1:0] disk SUN ZFS Storage 7330 1.0 /dev/sdf
[1:0:1:1] disk SUN ZFS Storage 7330 1.0 /dev/sdg
[1:0:1:2] disk SUN ZFS Storage 7330 1.0 /dev/sdh
[1:0:2:1] disk NETAPP LUN 7330 /dev/sdo
[1:0:2:2] disk NETAPP LUN 7330 /dev/sdp
[1:0:2:3] disk NETAPP LUN 7330 /dev/sdq
```

2. Change to the SCSI address of the affected LUNs.

Based on the preceding example, you can enter `rport-1:0-2` to cover [1:0:2:1], [1:0:2:2], [1:0:2:3], and so on.

```
# cd /sys/class/fc_remote_ports/rport-1:0-2/
```

3. Check the timeout value of the `fast_io_fail_tmo` option.

```
# cat fast_io_fail_tmo
5
```

4. Increase the timeout value to just over the amount of time it takes for the LUN to return to the running state. The value that you set should be less than the value of the `dev_loss_tmo` option in the same directory. You should need to change only one of the affected LUNs.

```
# echo 15 > fast_io_fail_tmo
```

5. Add the command to `/etc/rc.local` to make the change permanent.

```
# cat /etc/rc.local
#!/bin/sh
#
# This script will be executed *after* all the other init scripts.
# You can put your own initialization stuff in here if you don't
# want to do the full Sys V style init stuff.

echo 15 > /sys/class/fc_remote_ports/rport-1:0-2/fast_io_fail_tmo
```

Bug 22322461

9.68 (SPARC Only) Size of Physical Disk in Oracle VM Manager Incorrect When LUN Size is Decreased on Storage Array

In the event that a LUN is resized directly on the storage array and that LUN is used by an Oracle VM Server for SPARC, the size of the LUN may not be correctly updated in Oracle VM Manager if the LUN size was decreased. This is due to the mechanism that the Oracle VM Agent for SPARC uses to obtain and report on the LUN size, which does not update once the disk is mapped on the server.

This problem does not occur when the LUN size is increased.

Workaround: The reported LUN size can be updated by rebooting the Oracle VM Server for SPARC where the LUN is mapped as a physical disk after you have resized the LUN. Once the server is back online, you must refresh the storage array where the affected LUN is located. The correct size is displayed for the LUN within Oracle VM Manager.

Bug 22087392

9.69 The Apparent Size of a Repository in Oracle VM Manager Web Interface Does Not Update Automatically

The apparent size of a repository filesystem is displayed in the Oracle VM Manager Web Interface on the Repositories tab in the Info perspective for a selected repository. This information is a statistical value that is updated periodically within Oracle VM Manager but which is not updated automatically within the table within the Oracle VM Manager Web Interface. The information displayed for this value matches the information available within Oracle VM Manager at the time that the page loads.

Workaround: To refresh the information displayed for the apparent size of a repository within the Oracle VM Manager Web Interface, you may click on an alternate tab and then return to the view of the repository to force the page to refresh.

Bug 22147488

9.70 Virtual Disks Do Not Display on Solaris 10 Guests

If you add virtual disks to a Solaris 10 virtual machine that is stopped, those virtual disks do not display when you list the virtual disks for the virtual machine.

Workaround: This is a Solaris 10 issue that you can resolve as follows:

1. Start the virtual machine.
2. Run the following command on the virtual machine: `devfsadm -v`

Bug 22460766

9.71 Oracle Linux 5 Virtual Machines Converted from Physical Hosts Do Not Boot

In some cases, virtual machines based on Oracle Linux 5 do not boot when started. This can occur if you used the P2V utility to convert a physical host based on Oracle Linux 5 to a virtual machine and then imported that virtual machine to Oracle VM Manager.

Unbreakable Enterprise Kernel version kernel-uek-2.6.32-100.34.1 adds support for paravirtualized drivers in a HVM guest on Oracle VM. Starting with this kernel version, the default is to present only paravirtualized drivers when running in a hardware virtualized guest. To run kernel-uek, including the drivers, fully hardware virtualized, an additional kernel boot parameter `xen_emul_unplug=never` must be added to the boot parameters in `/etc/grub.conf`.

Workaround: Add the kernel boot parameter as follows:

```
kernel /vmlinuz-2.6.32-100.34.1.el5uek ro root=/dev/VolGroup00/LogVol100 xen_emul_unplug=never
```

Bug 22285006

9.72 SSL Exception in AdminServer Log File

In rare cases, the following SSL exception is written to `AdminServer.log` after attempting to perform an operation on a virtual machine:

```
<Error> <ovm.mgr.ras.WebSocketHandler>
<SSLException, writeNWBuf: java.nio.HeapByteBuffer[pos=0 lim=27 cap=16971] is
not large enough for SSLEngine.unwrapAndHandleResults, results: Status =
BUFFER_OVERFLOW HandshakeStatus = NOT_HANDSHAKING
bytesConsumed = 0 bytesProduced = 0
java.io.IOException: SSLException, writeNWBuf: java.nio.HeapByteBuffer[pos=0
lim=27 cap=16971] is not large enough for SSLEngine.unwrapAndHandleResults,
results: Status = BUFFER_OVERFLOW HandshakeStatus = NOT_HANDSHAKING
bytesConsumed = 0 bytesProduced = 0
```

Workaround: This exception is due to a known issue with Oracle WebLogic Server. You can ignore the exception. Subsequent attempts to edit or perform an operation on the virtual machine should be successful.

Bug 22451280

9.73 Oracle VM Servers in a Server Pool Must Be at the Same Minor Version

Each instance of Oracle VM Server in a server pool must be at the same minor version. In other words, all servers in a server pool must be at Release 3.2.x, or Release 3.3.x, or Release 3.4.x. For example, a server pool cannot contain one or more instances of Oracle VM Server Release 3.3.1 and one or more instances of Oracle VM Server Release 3.2.10.

During an upgrade, each instance of Oracle VM Server in the server pool is upgraded separately, which results in a mixed version server pool until the upgrade process is complete. For this reason, mixed version server pools are supported only during an upgrade of Oracle VM Server.

Workaround: There is no workaround for this issue.

Bug 22516403

9.74 Oracle VM Manager Displays Incorrect Details for ZFS Storage Appliances After Cluster Failover

In environments where two or more ZFS storage appliances are in an active/active cluster configuration, and a cluster failover occurs, it is possible for Oracle VM Manager to display incorrect IP addresses and file system information.

Workaround: Stop all running virtual machines, unpresent the repositories, and then delete the NFS servers from Oracle VM Manager.

Bug 21466858

9.75 Oracle VM Server Upgrade Not Possible with NetApp Storage plug-in

It is not possible to upgrade Oracle VM Server from Release 3.3.x to Release 3.4.1 if the NetApp Storage plug-in, `netapp-osc-linux`, is installed.

Workaround: Remove the `netapp-osc-linux` plug-in before you upgrade Oracle VM Server to Release 3.4.1. When the upgrade successfully completes, reinstall the `netapp-osc-linux` plug-in.

Bug 21052337

9.76 Oracle VM Manager Web Interface Incorrectly Displays Oracle VM Server Upgrade Required

The **Update Required** column incorrectly indicates that an update is required for Oracle VM Server when you create a server update repository but do not enable that repository and then refresh the servers to which that server update repository applies. If you subsequently attempt to upgrade Oracle VM Server, the upgrade does not occur.



Note

The **Update Required** column is located in the **Servers** perspective in the management pane on the **Servers and VMs** tab.

Workaround: There is no workaround for this issue.

Bug 22374697

9.77 The Oracle VM Manager Silent Install Option Using A YAML Configuration File Is Deprecated

The function to install Oracle VM Manager silently using a predefined YAML formatted configuration file is intended only for internal use during testing at Oracle. The option to install using this facility is deprecated for customer use and is undocumented in this release.

Workaround: There is no workaround for this issue.

Bug 22478672

9.78 Aborting An Oracle VM Server Upgrade Initiated By The UpgradeServers.py Script May Result In Inconsistent Reporting on Upgrade Status

In the unlikely case that an Oracle VM Server is in the process of being upgraded using the UpgradeServers.py Script and the upgrade job is aborted from within Oracle VM Manager, the upgrade on the Oracle VM Server may complete but the UpgradeServers.py script may also report that the upgrade has failed. Equally, Oracle VM Manager may report an incorrect version or upgrade status for the Oracle VM Server.

Workaround: Reboot the affected server and then disable maintenance mode on the server.

Bug 22488078

9.79 Kdump On Oracle VM Server Only Supports Dump Levels 0 and 1

The `makedumpfile` command, used to manually trigger a vmcore dump file is documented to support dump levels from 0 to 31 using the `-d` switch. Notably, the manual page states that it is possible to specify a value higher than 1 on an x86_64 machine running the Xen hypervisor. This is not the case for Oracle VM Server. Only the values 0 and 1 can be specified for this parameter, or a vmcore file is not generated.

Workaround: There is no workaround. Only use dump levels of 0 or 1 if using the `makedumpfile` command.

Bug 22329501

9.80 Network Receive Statistics For A Virtual Machine Are Invalid And Set To -1

DRS/DPM algorithms that monitor network load on a virtual machine do comparisons between the most recent network statistics and the previous network statistics to determine the deltas that can then be evaluated in terms of user-defined thresholds.

The network statistics are captured as unsigned integers. This means that they have a range of [0, 4294967295]. If the number of bytes received is greater than 4 GB the value of the integer overflows and begins from 0 again. In this situation, it is possible the start value for the statistic recorded by Oracle VM Manager is greater than the end statistic. Once this has occurred, Oracle VM Manager sets this statistic to -1 as it is no longer meaningful or valid.

If you have a DRS/DPM policy set to trigger on network load, the following error may appear in the log:

```
VM rx stats are not valid, the stats wrapped around.
```

In the event that an invalid network statistic is returned, the statistic is ignored by the DRS/DPM algorithm for that cycle. Normal behavior resumes on the next cycle. This bug has a very limited effect and is only noticeable on very loaded networks where the occasional log message may appear.

Workaround: There is no workaround required for this issue. It is expected behavior and the issue is resolved automatically by the environment.

Bug 22550810

9.81 CPU Affinity After Live Migration of Virtual Machine on Non-Uniform Memory Access (NUMA) Systems

After a live migration of a virtual machine between two servers with NUMA architecture, the CPU affinity is set to "any CPU". As a result, the migrated virtual machine uses memory across multiple nodes, which degrades performance of the virtual machine.

Workaround: Before performing the live migration of virtual machines, configure CPU pinning in the guest `vm.cfg` file. For example, to pin a virtual machine with 4 VCPUs to physical CPUs 4, 5, 6, and 7, add the following line to the `vm.cfg`:

```
cpu = "4-7"
```

Bug 22382809

9.82 Virtual Machines Based on Oracle Solaris 11 Do Not Boot

In some cases virtual machines based on Oracle Solaris 11 lower than 11.3 do not boot.

Workaround: Upgrade the guest operating system to Oracle Solaris 11.3 or higher.

Bug 22085158

9.83 Changing Domain Type from Xen HVM to Xen HVM PV Drivers Causes Informational Messages in AdminServer.log

Changing the domain type of a virtual machine from **Xen HVM** to **Xen HVM PV Drivers** results in the following informational messages of type `vm.domain.mismatch` and `vm.os.mismatch` being written to `AdminServer.log`.

This issue occurs because Oracle VM Server does not distinguish between the **Xen HVM** and **Xen HVM PV Drivers** domain types. When the domain type of the virtual machine changes to **Xen HVM PV Drivers**, Oracle VM Server reports the domain type of the virtual machine as **Xen HVM** to Oracle VM Manager. As a result, Oracle VM Manager falsely detects an error and logs the informational messages.

Workaround: You can ignore the informational messages and change the domain type of the virtual machine to **Xen HVM PV Drivers**. The virtual machine successfully loads the PV drivers despite these messages.

Bug 21163194

9.84 Single-Stream TCP Throughput is Degraded for Guest Virtual Machines Running UEK Release 4

The single-stream TCP throughput in the TX subgroup is degraded for guest virtual machines running Oracle Unbreakable Enterprise Kernel (UEK) Release 4.

Workaround: This issue occurs because UEK Release 4 includes support for the TCP Small Queues (TSQ) mechanism. To resolve this issue, you can configure the guest virtual machine with the following command:

```
echo 1048576 > /proc/sys/net/ipv4/tcp_limit_output_bytes
```

Bug 22546060

9.85 Error Partitioning Caused by Disk Label or Format in UEFI Mode

If you attempt to install Oracle VM Server in UEFI mode on a virtual drive that is not GPT or only MBR, a partitioning error occurs in the Anaconda installation program.

Workaround: Do the following to work around this issue:

1. Select **OK** to return to the previous installer screen.

2. Enter **Alt+F2** to open a shell prompt.
3. Use the `parted` command to change the label of the disk. Alternatively, use the `dd` command to clean up the disk.
4. Return to the installation program and then select **Back** to return to the previous installer screen.
5. Ensure that storage is discovered and then continue the installation.

Bug 22503847

9.86 Kernel Panic when Booting Guest Virtual Machine with Oracle Solaris 11.2

When creating a virtual machine with a guest operating system of Oracle Solaris 11.2 on Oracle VM Server, a kernel panic occurs when the virtual machine boots.

Workaround: Upgrade the guest operating system to Oracle Solaris 11.3.

Bug 22457279

9.87 Oracle VM Manager Web Interface Goes to Blank Screen with Mozilla Firefox on a Linux System

When creating a new repository, the Oracle VM Manager Web Interface temporarily displays a blank screen and the following message is written to `AdminServer.log`:

```
<Error>
<oracle.adfinternal.controller.application.AdfcExceptionHandler> <ADFC-50018>
<ADFC: No exception handler was found for an application exception.
javax.faces.FacesException: Broken pipe
```

This issue occurs when using a version of Mozilla Firefox that is lower than Version 44.0 on a Linux system to access the Oracle VM Manager Web Interface. This issue does not affect the jobs in Oracle VM Manager to create a new repository.

Workaround: Upgrade to Mozilla Firefox Version 44.0.

Bug 22553553

9.88 HugePages Deprecated for PVM Guests as of Oracle VM Release 3.4.1

The HugePages feature is deprecated in Oracle VM Release 3.4.1. You should not enable HugePages when creating or editing virtual machines with a domain type of PVM in the Oracle VM Manager Web Interface or Oracle VM Manager Command Line Interface. This feature will be removed in a future release of Oracle VM.

If you have HugePages enabled for any PVM guests, Oracle recommends that you change the domain type for virtual machines from Paravirtualized (PVM) to Hardware virtualized, with paravirtualized drivers (PVHVM). If you cannot change the domain type for a virtual machine, you should disable the HugePages setting and then restart the virtual machine.

Workaround: There is no workaround for this issue.

Bug 22540900

9.89 HugePages Does Not Display as Selected in Oracle VM Manager Web Interface

The **Enable Huge Pages** option in the **Edit Virtual Machine** dialog box does not display as selected when virtual machines with a PVM domain type are running.

Workaround: There is no workaround for this issue. However, Oracle recommends that you do not enable HugePages for any PVM guests. See [Section 9.88, “HugePages Deprecated for PVM Guests as of Oracle VM Release 3.4.1”](#).

Bug 22746016

9.90 Kdump Service Hangs at Discovery of FCoE Device with Broadcom CNA on HP Servers

If you install Oracle VM Server in Fiber Channel over Ethernet (FCoE) LUNs over Broadcom Converged Network Adapters (CNA) on HP servers, the kdump service hangs when discovering FCoE LUNs.

Workaround: There is no workaround for this issue.

Bug 22508971

9.91 Do Not Discover Oracle VM Servers Earlier than Release 3.2.10

If you attempt to discover an instance of Oracle VM Server that is earlier than Release 3.2.10 with Oracle VM Manager Release 3.4, the following occurs:

- The discovery job fails with the following error message:

```
OVMAPI_4010E Attempt to send command: update_core_api_bindings to server:
server_fgdn failed. OVMAPI_4004E Sync command failed on
server: server_ip. Command: update_core_api_bindings, Server error:
org.apache.xmlrpc.XmlRpcException: urlgrabber.grabber.URLGrabError:[Errno 14]
problem making ssl connection
```

- Conflicts occur between the databases that Oracle VM Manager requires for maintaining synchronization between internal components. As a result, the Oracle VM Manager Web Interface can display inaccurate information about the Oracle VM environment.
- The instances of Oracle VM Server, earlier than Release 3.2.10, that you discover cannot be removed with either the Oracle VM Manager Web Interface or the Oracle VM Manager Command Line Interface.

Workaround: Do not use Oracle VM Manager Release 3.4 to discover or interact with any instances of Oracle VM Server earlier than Release 3.2.10.

Bug 22735203

9.92 (SPARC Only) Cannot Export Virtual Appliance with Physical Disk Access

If you create a virtual machine on an Oracle VM Server for SPARC with a physical disk access, it is not possible to export that virtual machine as a virtual appliance.

In this case, when you attempt to export the virtual machine as a virtual appliance with the Oracle VM Manager Command Line Interface, the following error message is displayed:

```
Server error: vbox-img didn't return expected value (0,)
  CMDERR:
    vbox-img: error: VD: error VERR_FILE_NOT_FOUND opening image file '/dev/mapper/<disk_Id>'
    vbox-img: error: Error while opening source image: File not found.
(VERR_FILE_NOT_FOUND)
```

Workaround: There is no workaround for this issue.

Bug 22745868

9.93 (SPARC Only) MTU Resets to the Default of 1500 After Server Power Off

If you configure the MTU parameter of a network interface for an ethernet bridge and then power off the Oracle VM Server for SPARC, the MTU used by the bridge after the boot can be reset to the default value of **1500** instead of the configured value.

Workaround: When the interface used for the bridge is persistently plumbed in the primary domain, the bridge is created with the appropriate MTU parameter after the server power off and reboot. Use the `ipadm(1M)` command to persistently plumb a network interface, as in the following example:

```
# ipadm create-ip net0
```

Bug 22705349

9.94 Oracle VM Server Installer Fails When Modifying Swap Partitions

An exception occurs and the Oracle VM Server installer stops abruptly if you select **File System Options** while editing a swap partition from the **Partitioning Type** screen.

Workaround: Do one of the following from the **Review Partition Layout** screen:

- Select **Yes** to review and modify the partitioning layout. On the **Partitioning** screen, delete the swap and then create a new one.
- Select **No** to skip the partitioning layout check and proceed with the installation.

Bug 22807435

9.95 Kernel Startup is Slow after Upgrading to UEK4 on PVHVM Guests

If you upgrade the kernel on a PVHVM virtual machine to UEK4, the kernel init process takes several minutes to complete.

Workaround: Upgrade GRUB to the most recent version.

Bug 22761370

9.96 Cannot Enable High Availability (HA) for Virtual Machines with HugePages

If you attempt to enable HA for a running virtual machine that has HugePages enabled, the job to enable HA fails with the following error message:

```
OVMRU_005002E Operation not allowed- Virtual Machine: vm_name, is not STOPPED. It is RUNNING.
```

This error occurs if you attempt to enable HA in either the Oracle VM Manager Web Interface or the Oracle VM Manager Command Line Interface.

The preceding error message does not accurately describe the issue. The fact that the virtual machine is in the running state does not affect the ability to enable HA. The error results from the fact that HugePages is enabled for the virtual machine.

Workaround: Disable the HugePages setting and then restart the virtual machine. After the virtual machine starts, enable HA.

Bug 22753803

9.97 Kdump is Not Supported on FCoE SANs

Kdump is not supported if you install Oracle VM Server on an Fiber Channel over Ethernet (FCoE) SAN .

Workaround: There is no workaround for this issue.

Bug 22816860

9.98 Cannot Edit Running Virtual Machines with HugePages and HA Enabled

It is not possible to edit a running virtual machine through the Oracle VM Manager Web Interface if that virtual machine has both HugePages and high availability (HA) enabled. The job to edit the virtual machine fails with the **OVMRU_005002E Operation not allowed** error message.

Workaround: There is no workaround for this issue.

Bug 22814818

9.99 Import URL Cannot Exceed Maximum Character Length

The maximum character length of the URL to import objects into Oracle VM Manager, such as virtual appliances, virtual disks, or ISO files, is 3,988. The maximum character length of the URL to import templates is 3,985.

If you attempt to import an object from a URL that exceeds the maximum character length, an error occurs and the import fails, as in the following example:

```
OVMAPI_D000E Cannot set description on object: my_virtual_appliance.ova.  
Its length: 4,012, exceeds the maximum size: 4,000.
```

Even though the error message indicates the maximum character length is 4,000, a prefix is automatically added to the URL during the import job. As a result, the effective character limit for the URL is 3,988 or 3,985.

Workaround: There is no workaround for this issue. Ensure that the origin URL for any object that you plan to import into Oracle VM Manager is not greater than the maximum character limit.

Bug 23073177

9.100 Performance Impact for Fewer than 8 CPUs Configured for dom0

For best performance, if dom0 is configured with fewer than 8 CPUs, the `xen_netback max_queues` option in the `ovs.conf` file should be set to the number of CPUs configured for dom0. For example, if you configure dom0 with 6 CPUs, then you should set the value of the `xen_netback max_queues` option to 6.

Workaround:

1. Start an ssh session to Oracle VM Server.
2. Open `/etc/modprobe.d/ovs.conf` for editing.
3. Set the value of the `xen_netback max_queues` option equal to the number of CPUs configured for dom0.
4. Reboot Oracle VM Server for the setting to take effect.

Bug 22817196

9.101 Migration of PVHVM Guest Virtual Machines may be Affected by Linux Kernel Version

When migrating a PVHVM guest virtual machine with Linux kernel version `3.8.13-68.el6uek.x86_64`, soft lockup issues may occur.

Workaround: Before migrating a PVHVM guest virtual machine from one instance of Oracle VM Server to another, update the Linux kernel version to `3.8.13-104.el6uek.x86_64` or higher to avoid soft lockup issues. For more information, see *PVHVM Guest Was Not Reachable After Being Live Migrated* Document ID 2204849.1, on My Oracle Support at: <https://support.oracle.com/oip/faces/secure/km/DocumentDisplay.jspx?id=2204849.1>.

Bug 20878962

9.102 SR-IOV Is Not a Supported Feature

Oracle VM does not support Single Root I/O Virtualization (SR-IOV) except for where SR-IOV is used by Oracle Exalogic systems.

Workaround: There is no workaround for this issue.

Bug 21957308

9.103 Oracle VM Manager Upgrade Does Not Restore External Authentication Provider

The Oracle VM Manager upgrade process does not save and restore any configurations you create for external authentication providers. For example, if you configure Oracle VM Manager to authenticate users

against an LDAP or Active Directory and then perform an upgrade, that configuration is not restored after the upgrade is complete.

Workaround: Complete the steps to enable LDAP or Active Directory authentication after you successfully upgrade Oracle VM Manager.

Bug 21314388

9.104 Limit of 3 Virtual Machine Console Windows with Microsoft Internet Explorer

Microsoft Internet Explorer allows a default maximum of six concurrent WebSocket connections to a single server domain. Each virtual machine console window, or serial console, uses two WebSocket connections. As a result, the maximum number of virtual machine console windows that you can open in Internet Explorer is three.

Workaround: Do one of the following:

- Refer to the appropriate Microsoft documentation for information on changing the maximum number of concurrent WebSocket connections.
- Use a different browser, such as Mozilla Firefox.

Bug 21617374

9.105 Virtual Machine Migration Job Loop During Oracle VM Upgrade

During the upgrade process, if virtual machines are running on Oracle VM Server, a job to migrate those virtual machines can fail and then be repeatedly triggered without the ability to stop or abort the job. As a result, it is not possible to upgrade that instance of Oracle VM Server using the Yum repositories that you configure in Oracle VM Manager.

You must reboot the Oracle VM Server and then complete the upgrade process by manually upgrading Oracle VM Server with the installation media. When you successfully complete the upgrade, the instance of Oracle VM Server that you manually upgraded is in maintenance mode. Taking the server out of maintenance mode then causes the following error:

```
VMAPI_2005E "ID" contains a component "ID" in error.  
Error event: server.upgrade.in.progress., Summary: Server Upgrade in Progress,  
Description: Upgrade continuing after an interruption.
```

This issue occurs if you upgrade to Oracle VM Release 3.3.4 through multiple previous releases. For example, if you upgrade from Release 3.1.1 to Release 3.2.9 and then upgrade to Release 3.3.2.

Workaround: Clear the `server.upgrade.in.progress.` event from the Oracle VM Manager database as follows:

1. Open an SSH connection to Oracle VM Manager.
2. Run the following command to connect to the MySQL database:

```
# mysql --user='username' -p -S /u01/app/oracle/mysql/data/mysqlld.sock
```

3. Specify the password for the user at the prompt.

- Run the following command to change to the `ovs` database:

```
mysql> use ovs
```

- Run the following statement:

```
mysql> select associatedObjectId, description from OVM_EVENT where type=
'server.upgrade.in.progress.' -> ;
```

The statement returns an object ID for the instance of Oracle VM Server to which the event applies, as in the following example:

```
+-----+-----+
| associatedObjectId | description |
+-----+-----+
|          303      | Server: server_name, is being upgraded. |
+-----+-----+
1 rows in set (0.00 sec)
```

- Run the following statement, substituting `object_ID` with the object ID that was returned with the preceding statement:

```
mysql> update OVM_EVENT set acknowledged=1 where associatedObjectId=object_ID and type=
'server.upgrade.in.progress.' ;
```

The statement acknowledges the event and displays a message such as the following:

```
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

- Run the following statement to confirm the `server.upgrade.in.progress.` event is acknowledged:

```
mysql> select acknowledged from OVM_EVENT where type='server.upgrade.in.progress.' ;
```

A message such as the following displays:

```
+-----+
| acknowledged |
+-----+
|          1   |
+-----+
```

- Exit the database.

```
mysql> exit
```

For information about manually upgrading Oracle VM Server with the installation media, see [Upgrading Oracle VM Server Using the ISO File](#) in the *Oracle VM Installation and Upgrade Guide*.

Bug 22746573 and 22752343

9.106 The kdump Service Cannot Mount the Root Partition if Zone Connection to EMC Storage Array

The kdump service on Oracle VM Server cannot mount the root partition if the host has a zone connection to an EMC storage array.

Workaround: Specify the UUID as the device name in `/etc/kdump.conf`.

Bug 22605466

9.107 Oracle VM Server Hangs During Upgrade if Boot Partition Not Large Enough

During the upgrade of Oracle VM Server, using the [UpgradeServer.py](#) script, the server can hang when it reboots if there is not enough space allocated to the boot partition.

Workaround: Allocate as much space as possible to the boot partition before you attempt to upgrade Oracle VM Server. At a minimum, you should allocate 500MB for the boot partition.

Bug 22600941

9.108 GRO Must Be Disabled After an Upgrade When Routing/Bridging with IXGBE Driver

A kernel issue requires that Generic Receive Offload (GRO) be disabled when routing or bridging with the IXGBE driver. This issue has been fixed for fresh installs, but if you are upgrading to the current release from a release prior to Oracle VM Server 3.3.3, you must disable GRO manually yourself.

Workaround: Disable GRO manually on each affected Oracle VM Server, using `ethtool`:

```
# ethtool -K ethX gro off
```

Bug 21353855

9.109 Change in Variable Name for the eventGetTypes SOAP Call using Oracle VM Web Services API

The member variable in the response class for the `eventGetTypes` call in the SOAP API was changed from `return` to `eventTypes` in Oracle VM 3.3.3. Therefore, if you have client code written for the SOAP API using the original WSDL or client library code provided with an earlier release, the parser for this call may fail.

The REST API is unaffected by this change.

Workaround: If you used the client library `OvmWsClient.jar` provided in the SDK within your client code, this problem is easily remedied by simply updating the `OvmWsClient.jar` file with a version from the current release. Alternately, if you did not use the supplied client library and relied on the WSDL to build your own library instead, you may need to rebuild your own library.



Important

The SOAP API is deprecated and support will be discontinued in future releases. If you are affected by this bug, consider changing your code to use the REST API instead. This is the preferred approach to resolving this issue.

Bug 22005704

9.110 Restart Virtual Machines After Upgrade

If you upgrade from Oracle VM Server Release 3.3.1 using PVHVM and live migration, you must restart your virtual machines after the upgrade is complete.

Workaround: There is no workaround for this issue.

Bug 20826023

9.111 LRO Setting Bridge Interface

The LRO setting should be disabled when the interface is part of a bridge.

Workaround: There is no workaround for this issue.

Bug 20390704

9.112 Disable Transitional Update Repository

Known issue where the Transition Update Repository needs to be disabled via Oracle VM Manager UI when upgrading Oracle VM Server to a newer 3.3 maintenance release

Workaround: Disable the transitional update repository before upgrading Oracle VM Server Release 3.3.

Bug 20288874

9.113 (X86 Only) SWIOTLB Buffer Errors When Using Jumbo Frames on Oracle VM Server

When a network port has been configured for jumbo frames on an Oracle VM Server, errors may appear in the logs of the Oracle VM Server indicating that the SWIOTLB buffer is full. The SWIOTLB is a software component used by the Xen hypervisor. By default, 128 chunks of 512 KB of memory are allocated to SWIOTLB. On an active Oracle VM Server with jumbo frames enabled, these chunks of memory can be used up quickly, degrading network performance and resulting in errors in the system log.

Workaround: Change the Oracle VM Server grub configuration to append the `swiotlb=131072` option to the kernel line.

Bug 20693762

9.114 Operation Transactions

A major change to the way in which the CLI and Oracle VM Manager Web Interface interacts with Oracle VM Manager means that transactions have changed in Release 3.3.1. From Release 3.3.1 onwards, if an operation that contains child operations fails, it is important to check the state of all objects affected by the parent and child operations. For example, during the creation of a server pool, the parent command calls a number of child operations. If any of these child operations fail, the command returns an error, but the server pool object may still be created by the parent operation. In this case, the server pool object must be removed manually before attempting to create the server pool again.

Workaround: If an operation fails, check to ensure that the object you were attempting to create is not listed within Oracle VM Manager. If the object is listed, you must remove it before attempting to create it again.

Bugs 17377700, 17436889

9.115 One Instance of Oracle VM Manager Web Interface Per Browser Session

Connecting to multiple instances of the Oracle VM Manager Web Interface per web browser session can result in unexpected issues.

Workaround: Connect to one instance of the Oracle VM Manager Web Interface per web browser session.

Bug 13034728 and 21695861

9.116 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

9.117 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

9.118 Unable to Copy Text or Take Screen Shots of Error Dialogs

Some web browser versions have been shown to have trouble allowing users to copy the text in pop-up error dialogs, or to take screen shots of these. This problem is limited to ADF induced pop-up dialogs.

Workaround: Update your web browser to a more recent version, or try using an alternative web browser.

Bug 17832280

9.119 Safari Web Browser on Windows is not Supported

On Windows using Safari to access Oracle VM Manager results in a blank page. This is due to a failure that occurs during the SSL handshake when the server has enabled two-way SSL. Since Oracle VM Manager uses two-way SSL for client certificate authentication, the Safari browser is not supported on Windows.

Bug 18025985

9.120 Object Lock Prevents Some Operations

Some operations, such as server discovery, lock particular objects in the data model until they have finished executing. This is to protect these objects from modification by an external process that may interrupt the currently running operation or result in inconsistencies within the data model. If an object is locked when either the Oracle VM Manager Web Interface or Oracle VM Manager Command Line Interface attempts to edit it, an error is returned to notify you of the lock. This error may look similar to the following:

```
GEN_000029:Object server1.example.com:ff:20:00:08:ff:ff:ff:ff:ff:ff:00:21:28:af:a4:92  
of type Server could not be modified as it was locked when it was fetched.
```

Workaround: If you are using the Oracle VM Manager Web Interface to perform the edit, close the edit dialog and then reopen it to refresh the data that is contained within it before attempting to retry the edit operation.

If you are using the Oracle VM Manager Command Line Interface perform a [show](#) operation against the object to see the current values and to ensure that the object is not locked. Objects that can be locked include a 'locked' attribute that is displayed when you perform a [show](#) operation. If the object is no longer locked, you can retry your edit.

Bug 18385924

9.121 Unable to Configure NTP For All Servers

Previous releases of the Oracle VM Manager Web Interface provided an option to configure NTP for all of the Oracle VM Servers that were under the ownership of the Oracle VM Manager instance. The option to perform batch configuration of NTP is no longer available in the Oracle VM Manager Web Interface, however it is possible to edit the NTP servers for each individual Oracle VM Server in Oracle VM Manager in the **Edit Server** dialog.

If you need to batch edit the NTP servers for a large number of Oracle VM Servers in your environment, you should use the Oracle VM Manager Command Line Interface or the Oracle VM Web Services API to do this programmatically.

Bug 18435973

9.122 (x86 Only) Oracle VM Server Installer Goes To Black Screen After Running [/sbin/loader](#)

While the Oracle VM Server Installer is booting, the installer runs [/sbin/loader](#) and then the screen goes black on some systems, such as the Dell Optiplex 755. This is a hardware issue related to the Intel 82Q35 Graphics Controller used on these systems.

The fix is to disable Intel VT-d (Intel Virtualization Technology for Directed I/O) functionality within the BIOS.

Bug 17817142

9.123 (x86 Only) Oracle VM Server Installer Hangs Waiting for Hardware to Initialize

While the Oracle VM Server Installer is booting, it can hang for between 9 and 30 minutes with the message: "Waiting for hardware to initialize...". This occurs when the system BIOS is misconfigured to search for a floppy drive and the system has no floppy drive installed.

This behavior only occurs in the installer, and is not present once Oracle VM Server has completed installation.

The fix is to correct the BIOS setting and disable the floppy drive.

Bug 18036268

9.124 (x86 Only) Oracle VM Server Installer Hangs Examining Storage Devices For Large Number of LUNS

When performing a kickstart installation of Oracle VM Server, the Installer can hang for long periods with the message: "Examining storage devices...". This occurs when a very large number of Fibre Channel

LUNs is attached to the server and the kickstart configuration file has not been configured to ignore all disks other than the target installation disk.

To resolve this issue add a line to your kickstart configuration similar to the following:

```
ignoredisk --only-use=/dev/disk/by-path/pci-0000:00:1f.2-scsi-0:0:0:0
```

Change the path of the `--only-use` parameter to match the target disk that you intend to install to.

See the [Oracle VM Installation and Upgrade Guide](#) for more information on this and on kickstart installations.

Bug 17586422

9.125 (x86 Only) Benign Error Message During Install: HDIO_GET_IDENTITY failed

A benign error message may appear on the Oracle VM Server console during or at the end of an installation. The error usually looks similar to the following:

```
ata_id[23584]: HDIO_GET_IDENTITY failed for '/dev/sdh'
```

This error does not affect installation in any way.

Bug 17457813

9.126 (x86 Only) Cannot Use Installation Media to Upgrade Oracle VM Server if Earlier than Release 3.3.x

Upgrading an instance Oracle VM Server earlier than Release 3.3.x from the installation media is not supported. Upgrades from releases earlier than Release 3.3.x involve transitional steps that require you to configure and set up Yum repositories. For more information, see the [Oracle VM Installation and Upgrade Guide](#).

Bug 17946919

9.127 (x86 Only) Oracle VM Server Upgrade From ULN or Oracle Public Yum Repositories is Restricted to Servers That Do Not Use Non-Native Packages

Upgrading an x86 Oracle VM Server directly using ULN or Oracle Public Yum Repositories is supported on condition that your Oracle VM Server does not use any third party storage plugins or have any non-native packages installed.

9.128 (x86 Only) Many iSCSI or Fibre Channel LUNs Require More Server Memory

As the number of iSCSI or Fibre Channel LUNs or targets used by an Oracle VM Server is increased, the memory consumption increases on the server. This is normal, as more memory is required by dom0 to connect to each LUN or target. Therefore, if you intend to add a large number of LUNs to a server, you must allocate an appropriate amount of physical memory to the server to handle this, and the additional memory must be assigned to dom0 for use. Typically this should be around 1 MB per LUN on top of

the memory allocated to run dom0. See [Changing the Memory Size of the Management Domain](#) for information on how to change the dom0 memory allocation.

Memory is assigned to dom0 within the grub configuration on the server. If you are using UEFI boot, the grub configuration file is located at `/boot/efi/EFI/redhat/grub.cfg`, otherwise the grub configuration file is located at `/boot/grub2/grub.cfg`. Edit the line starting with 'multiboot2 /xen.gz' and append the required boot parameters. For example, you may adjust the value for the `dom0_mem` parameter as shown in the following line of the configuration:

```
multiboot2 /xen.gz dom0_mem=max:6144M allowsuperpage dom0_vcpus_pin dom0_max_vcpus=20  
placeholder ${xen_rm_opts}
```

On servers running an earlier release of the current Oracle VM Server software, an earlier version of grub may still be in use. In this case the same result can be achieved by editing the `/boot/grub/grub.conf` file on the server and amending the `dom0_mem` parameter in the line starting with 'kernel /xen.gz', as shown in the following line of the configuration:

```
kernel /xen.gz console=com1,vga com1=38400,8n1 dom0_mem=6144M allowsuperpage
```

Ideally this should be allocated at installation so that the dom0 grub configuration is updated automatically. Otherwise, you may need to adjust the grub configuration yourself.

Insufficient memory to support the number of LUNs on an Oracle VM Server results in out-of-memory (oom) kills and server instability.

Bug 17614799

9.129 Clustered Server Pools in Mixed Platform Environments Require NFS Access Groups To Be Configured

When creating a clustered server pool with NFS as the storage for the server pool file system, Oracle VM Manager randomly selects a server to initialize the NFS file system to be used by the clustered server pool. This can cause problems in environments where Oracle VM Manager has been configured for both x86 and SPARC servers, since the pool file system is different for each of these platforms and can only be used by servers of the same type.

If an NFS pool file system is initialized by an x86 server then that file system can only be used for a cluster server pool with x86 servers. Similarly, if an NFS pool file system is initialized by a SPARC server then that file system can only be used for a cluster server pool with SPARC servers.

To prevent this issue, before creating a clustered server pool with an NFS file system, create a file system access group for that file system with only the servers that will be in the server pool.

Bug 17490488

9.130 (SPARC Only) Cluster Recovery May Fail When Using NFSv3 For Server Pool File System

If an Oracle VM Server in a clustered server pool fails, any file locks created by the NFS server while the Oracle VM Server was online are enforced until the Oracle VM Server recovers and notifies the NFS server to release those locks. This can block other Oracle VM Servers in the cluster indefinitely. This behavior is the result of the stateless nature of NFSv3 and its file locking mechanism. The locks can be cleared in Solaris, using the `clear_locks` command. However, this problem is recurrent as long as you continue to use NFSv3 to host a cluster file system.

Since NFSv4 is a stateful protocol and its locking mechanism is built into the protocol, this problem does not occur if you use NFSv4 to host a cluster file system. Under NFSv4, the state associated with file locks is maintained at the server under a lease-based model, where locks are leased to a client and the client needs to renew the lease. If the client fails to renew the lease then the NFS server is free to give the lock to another client. Therefore, SPARC-based server pools that are configured to use clustering, should use an NFSv4 export to host the cluster file system.

Note that since x86 server pools use an OCFS2 file system, even if they are hosted on an NFS share, they are unaffected by this problem.

Bug 18997487

9.131 (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.

9.132 (x86 Only) Oracle VM Server Does Not Support `crashkernel=auto` Boot Parameter

Although Oracle Unbreakable Enterprise Kernel 3 (UEK3) supports the `crashkernel=auto` boot parameter, this option is not supported by the Xen hypervisor that is used for Oracle VM Server. Attempting to set this parameter results in the following boot errors:

```
(XEN) crashkernel: memory value expected
(XEN) Command line: console=com2,vga com2=57600,8n1 dom0_mem=840M allowsuperpage
crashkernel=auto
```

Dom0 fails to load the kdump service at start-up with the following message:

```
kdump: No crashkernel parameter specified for running kernel
```

Workaround: Specify a valid fixed memory range suitable for the server hardware if you choose to use this parameter. For example, `crashkernel=256M@64M`.

Bug 18174580

9.133 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:

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

Bug 15959684, 17943175

9.134 (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

9.135 (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

9.136 (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

9.137 (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

9.138 (x86 Only) Netconsole Unknown Error 524 During Oracle VM Server Start-up

To use netconsole you must specify a non-bridged ethx 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

9.139 (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

9.140 Failed Server Evacuation Defined in DPM Policy Generates User Acknowledgeable Event

Certain conflicting and concurrent events can cause server evacuation, the process whereby running virtual machines are migrated to an alternate Oracle VM Server before shutdown due to a DPM policy, to fail. For instance, attempting to manually migrate a virtual machine on an Oracle VM Server at the same time that the DPM policy is attempting to shutdown the Oracle VM Server can cause the DPM policy to fail with a server evacuation error message. This leaves the Oracle VM Server in a warning state, which must be cleared before the server can return to normal operation.

Workaround: If a server is in warning state after a failed DPM operation, acknowledge the related event. The server assumes its normal operational role again and the warning is cleared.

Bug 18962618

9.141 (SPARC Only) Serial Console Hangs During Installation of Oracle Solaris 11 on Virtual Machine

The serial console in the Oracle VM Manager Web Interface hangs during the installation of Oracle Solaris 11 on a virtual machine.

Workaround: Manually access the console from the Oracle VM Server hosting the virtual machine, by identifying UUID and the port where the virtual machine is running, and then telnetting to that port from the Oracle VM Server. For example, to access the console for a virtual machine with UUID 0004fb00000600000a395ecc901e7822:

```
# ldm list
NAME                STATE      FLAGS    CONS    VCPU  MEMORY  UTIL  UPTIME
primary             active    -n-cv-   SP      16     16G     9.3%  44d 20h 41m
0004fb00000600000a395ecc901e7822 active    -n----- 5000    8      4G     0.2%  2d 14m
0004fb0000060000014fcd950934fbb3f active    -n----- 5001    8      4G     0.6%  4d 22h 51m
0004fb000006000006e6e2b1504cf6f64 active    -n----- 5003    8      4G     0.2%  2d 9m
0004fb00000600000fc8632393068ee2b active    -n----- 5002    8      4G     0.2%  3d 19h 4m

# telnet localhost 5000
Trying ::1...
telnet: connect to address ::1: Connection refused
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^]'.

Connecting to console "0004fb00000600000a395ecc901e7822" in group
"0004fb00000600000a395ecc901e7822
Press ~? for control options ..
```

Bug 18082287

9.142 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

9.143 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.

9.144 (SPARC Only) Wrong Error Message Returned When Importing A Template From An Incorrect URL

If you attempt to import a template for a virtual machine from an incorrect URL located on an HTTPS server that has an SSL certificate that cannot be verified, an incorrect error message is returned indicating that the certificate could not be verified instead of the fact that the file could not be found.

If you receive an error indicating that the certificate could not be verified, check that the file that you are attempting to import is accessible at the URL that you provided.

Bug 18003814

9.145 (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

9.146 (x86 Only) Oracle Solaris 10 Virtual Machine May Hang During Shutdown

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 may hang during the shutdown process. This may be caused by an operating system error, or some other unknown error. You can use the virtual machine console in the Oracle VM Manager Web Interface to check for operating system errors.

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

9.147 (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

9.148 (x86 Only) Maximum Memory to Start a PVM Guest is 470 GB

Although PVM guests are technically capable of running with up to 500,000 MB of virtual memory allocated, as described in [Chapter 7, Configuration Limits for Release 3.4](#), attempting to start a PVM Guest with more than 470 GB of memory can cause the virtual machine to crash on boot. This problem does not occur if the PVM Guest is started with 470 GB of memory. You are able to hot-add up to 500 GB virtual memory to the PVM Guest once it is running.

Bug 18538335 and 24527381

9.149 (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

9.150 (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

9.151 (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
```

9.152 (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 `kldb`. When the following screen prompt is displayed:

```
Welcome to kldb  
[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

9.153 (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 `kldb`.
3. At the `kldb` prompt, enter the following command:

```
Welcome to kldb  
[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

9.154 (x86 Only) Solaris 11 Guest With More Than 2 VCPUs Hangs at Boot

When booting a virtual machine with running Oracle Solaris 11 and configured with more than 2 virtual CPUs, the guest OS may hang. This is caused by a Solaris bug related to a change in the Xen hypervisor that was fixed in Oracle Solaris 11.2 SRU 8.4.

Workaround: To make Solaris 11 run on Oracle VM 3.4 with more than 2 virtual CPUs, either upgrade to Oracle Solaris 11.2 SRU 8.4 or above, or perform the following steps to implement a manual fix:

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 `kldb`. When the following screen prompt is displayed:

```
Welcome to kldb  
[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 18547858

9.155 (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 3.4, 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

9.156 (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

9.157 (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

9.158 (x86 Only) Network Card Limit in Virtual Machines

Oracle VM Manager supports eight network cards for each HVM virtual machine as outlined in [Table 7.3 “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.

9.159 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: To work around this problem install the qlcnic driver module with the option "use_msix=0". To do this, create the file `/etc/modprobe.d/qlcnic.conf` and ensure that it contains the following line:

```
options qlcnic use_msix=0
```

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_msix=0
```

Bug 15865548 and 18072952

9.160 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 `__tmpxxxxxxx`. 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

9.161 (x86 Only) Incorrect ARP Reply When Using Jumbo Frames

ARP Flux can cause confusion to some 10G switches when using jumbo frames causing network traffic to stop.

Workaround: disable ARP flux on the affected server. If the interfaces are all on different sub-networks, run the following command:

```
# sysctl -w net.ipv4.conf.all.arp_filter=1
```

If some of the interfaces are on the same sub-network, run the following commands:

```
# sysctl -w net.ipv4.conf.all.arp_ignore=1
# sysctl -w net.ipv4.conf.all.arp_announce=2
```

If you wish to make these changes permanent, add the relevant ARP parameter settings to `/etc/sysctl.conf`:

```
net.ipv4.conf.all.arp_filter=1
net.ipv4.conf.all.arp_ignore=1
net.ipv4.conf.all.arp_announce=2
```

Bug 17982926

9.162 (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

9.163 NFSv4 Read/Write Delegation Not Supported

As of Release 3.3.1, Oracle VM does not support NFS V4 read/write delegation. NFS V4 delegation must be disabled on network storage devices used for Oracle VM.

The following procedures provide examples for disabling NFS V4 read/write delegation on different network storage devices. You should refer to the manufacturer's documentation for your storage device to review additional details.

To disable read/write delegation on an Oracle ZFS Storage Appliance, log in to the browser user interface. Select [Configuration](#) and then [Services](#). Locate and then click [NFS](#). Deselect [Enable NFSv4 delegation](#) and then click [Apply](#).

To disable read/write delegation on a NetApp filer, go to the NetApp console. Select [FilerView](#), then click [NFS->Configure](#). Select `no` on the following two pull-down menus:

- Enable Read Delegation on NFS Version 4
- Enable Write Delegation on NFS Version 4

Bug 18391474

9.164 (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

9.165 (SPARC Only) Agent Fails to Reconcile Multipath LUNS If Solaris I/O Multipathing is Disabled

If you attempt to configure iSCSI disks that have multiple paths on an Oracle VM Server for which Solaris I/O Multipathing (MPxIO) has been disabled, the Oracle VM Agent for SPARC incorrectly returns multiple LUNs to Oracle VM Manager resulting in misconfiguration that could cause unexpected behavior.

Solaris I/O Multipathing should not be disabled on an Oracle VM Server, particularly where that server may access iSCSI disks with multiple paths.

Bug 18648267

9.166 (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

9.167 (x86 Only) Remapping LUNs Causes Storage Refresh To Hang

If an iSCSI NetApp storage array is refreshed within Oracle VM Manager after a LUN is unmapped at the array, and then refreshed again after the LUN is mapped back the second refresh may hang.

This is due to the fact that the Oracle VM Server sees the LUN size as zero and fails the multipath path to the LUN while the default path checker for NetApp `TUR` sees the path as up. The vacillating path statuses can cause IO to the affected LUN to hang.

Remapping LUNs is risky because it can data corruption since the targets have been switched outside of the server.

Workaround: One way to ensure that the Oracle VM Server maintains a consistent view of the path and avoids a possible hang scenario is to change the path checker for NetApp in `multipath.conf` to `directio`. Note that `directio` is not considered as performant as `TUR`. Running the following command on the affected Oracle VM Server clears the hang:

```
# iscsiadm -m node -R
```

Bug 18421164

9.168 (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.

Bug 13806344

9.169 NetApp ONTAP (8.2 c-mode) Operating System Does Not Work With Oracle VM

The current NetApp ONTAP (8.2 c-mode) operating system has an NFS related issue with the `showmount -e` command. This issue prevents Oracle VM from seeing any NFS file systems on a NetApp storage appliance running this operating system.

NetApp has provided a workaround for ONTAP 8.2 on the NetApp support site. Further instructions are provided for resolving this issue on My Oracle Support with Doc ID 1640848.1 available at the following URL:

<https://support.oracle.com/epmos/faces/DocumentDisplay?id=1640848.1>

You must reapply the workaround after you have upgraded an Oracle VM Server.

Bugs 18098710, 18672536

9.170 (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.wwid` 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

9.171 (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.wwid` 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.wwid"
}
```



Note

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

Bug 12722044

9.172 (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

9.173 (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 all Oracle VM Releases since 3.1.1.

Workaround: Run the following commands on the Axiom server:

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

Bugs 14329375 and 14314282

9.174 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

9.175 (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

9.176 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 4 KB, the OCFS2 block size.



Note

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

Bug 1435588

9.177 Oracle VM Manager Command Line Interface Backspace Key

In some command line terminals, the backspace key prints the previous line when the input wraps over two lines, for example:

```
OVM> create Vm name=MyVM repository=MyRepository domainType=XEN_HVM startPolicy=
USE_POOL_POLICY on ServerPool name=MyServerPool
Command: create Vm name=MyVM repository=MyRepository domainType=XEN_HVM startPol
icy=USE_POOL_POLICY on ServerPool name=MyServerPool
Status: Success
Time: 2014-03-17 05:25:29,912 CET
JobId: 1395030328969
Data:
  id:0004fb0000060000d38427b0b1fd06b7  name:MyVM
Use up arrow key to display previous command.
OVM> create Vm name=MyVM repository=MyRepository domainType=XEN_HVM startPolicy=
USE_POOL_POLICY on ServerPool name=MyServerPool
Use backspace key to delete last character from the command.
OVM> create Vm name=MyVM repository=MyRepository domainType=XEN_HVM startPolicy=
create Vm name=MyVM repository=MyRepository domainType=XEN_HVM startPolicy=USE_P
OOL_POLICY on ServerPool name=MyServerPoo
The first line of the command is printed again.
Use backspace key again to delete last character from the command.
OVM> create Vm name=MyVM repository=MyRepository domainType=XEN_HVM startPolicy=
create Vm name=MyVM repository=MyRepository domainType=XEN_HVM startPolicy=USE_P
create Vm name=MyVM repository=MyRepository domainType=XEN_HVM startPolicy=USE_P
OOL_POLICY on ServerPool name=MyServerPo
The first line of the command is printed again.
```

While this does not affect the editing or submission of the command, it may be difficult to read the command being edited. This issue has been seen on some GNOME window managers.

Workaround: Use PuTTY to connect to the CLI. Alternatively, you can use xterm, with the correct wraparound options. You should enable the xterm auto-wraparound (-aw) and reverse-wraparound (-rw) options. To set the xterm wraparound options correctly, start xterm with the `xterm -aw -rw` command.

Bugs 16810639 and 16049754

9.178 Oracle VM Manager Command Line Interface Allows THIN_CLONE cloneType On NFS

While thin cloning is only supported on OCFS2 file systems and the Oracle VM Manager Web Interface does not provide the option to create a clone storage mapping for a thin clone on an NFS file system, the Oracle VM Manager Command Line Interface does not prevent you from doing this. Therefore, a command similar to the following succeeds:

```
OVM> create vmclonestorageMapping name=clonestoragemapping
cloneType=THIN_CLONE vmDiskMapping=0004fb0000130000ef5b6a1671333bb3
repository=nfsrepo on vmclonecustomizer name=clonecustomizer1
```

However, when a clone is created using the clone customizer that this clone storage mapping is attached to, the action fails due to the fact that the clone target does not support the thin clone cloneType:

```
OVM> clone vm name=vm1.0 destType=vm serverPool=MyServerPool
cloneCustomizer=clonecustomizer1 targetRepository=nfsrepo
Command: clone vm name=vm1.0 destType=vm serverPool=MyServerPool
cloneCustomizer=clonecustomizer1 targetRepository=nfsrepo
Status: Failure
Time: 2014-05-06 22:40:33,755 PDT
JobId: 1399441233570
Error Msg: Job failed on Core: OVMRU_007013E Cannot thin clone: System.img
(2), to: nfsrepo. The clone target does not support thin cloning. [Tue May 06
22:40:33 PDT 2014]
```

This is expected behavior, but the flexibility offered by the Oracle VM Manager Command Line Interface is inconsistent with the Oracle VM Manager Web Interface and can result in misconfiguration by a user.

Bug 18716652

9.179 Untagged VLAN Interface Missing After Upgrade of Oracle VM Manager

In releases prior to 3.3, if VLAN port group names have one or more commas in them, they may not be parsed correctly when Oracle VM Manager is doing a re-discover of an Oracle VM Server after Oracle VM Manager has just been upgraded to 3.3 or 3.4. In the case of an untagged VLAN interface, this can lead to the VLAN interfaces or the underlying port not being associated with a network in Oracle VM Manager. However, the Oracle VM Server is still configured correctly.

Performing a re-discover of the Oracle VM Server after the upgrade to 3.3 or 3.4 corrects the view that Oracle VM Manager has of the network configuration. In version 3.3 and 3.4, VLAN port groups have been removed. Therefore, once the system is upgraded to version 3.3 or 3.4 and a re-discover is done, the issue is resolved.

Bug 18758922

Chapter 10 Additional Software for Oracle VM

Table of Contents

10.1 Oracle VM Paravirtual Drivers for Microsoft Windows	147
10.2 Oracle VM Storage Connect plug-ins	147
10.3 Oracle VM Guest Additions	147
10.4 Oracle VM Utilities	147
10.5 Oracle OpenStack	148
10.6 Oracle Enterprise Manager	148
10.7 Third Party Software	148

Additional software for Oracle VM includes tools and plugins to help you configure and integrate your environment.

10.1 Oracle VM Paravirtual Drivers for Microsoft Windows

The Oracle VM Paravirtual Drivers for Microsoft Windows improve performance for network and block (disk) devices on Microsoft Windows™ guests running in a virtual environment on Oracle VM.

For more information, see the Oracle VM Paravirtual Drivers for Microsoft Windows documentation at: http://docs.oracle.com/cd/E88077_01/index.html

10.2 Oracle VM Storage Connect plug-ins

Release 3.4 provides full support for the Oracle VM Storage Connect plug-ins that were added in Oracle VM Release 3.1. Support for iSCSI multipath, which was added in Oracle VM Release 3.2.1, is also fully supported in this release.

For more information, see [Installing Oracle VM Storage Connect plug-ins](#) in the *Oracle VM Administrator's Guide*.

10.3 Oracle VM Guest Additions

The Oracle VM Guest Additions are a set of packages that you install on virtual machines in an Oracle VM environment. The Oracle VM Guest Additions let you communicate with virtual machines from Oracle VM Manager and provide an easy method to configure virtual machines.

To find more information about the Oracle VM Guest Additions, see:

- [Installing and Using the Oracle VM Guest Additions](#) in the *Oracle VM Administrator's Guide*
- [What are the Oracle VM Guest Additions?](#) in the *Oracle VM Concepts Guide*

10.4 Oracle VM Utilities

The Oracle VM Utilities are a collection of command line scripts that allow you to perform basic management tasks in an Oracle VM environment. Release 3.4 works with the Oracle VM Utilities version 2.1.

To find more information about the Oracle VM Utilities, see:

- [Using the Oracle VM Utilities](#) in the *Oracle VM Administrator's Guide*
- [Oracle VM Utilities](#) in the *Oracle VM Concepts Guide*

10.5 Oracle OpenStack

Oracle OpenStack supports Oracle VM.

To find more information about Oracle VM with Oracle OpenStack, see:

- *Oracle OpenStack Installation and Deployment Guide*
- *System Requirements and Support* in the *Oracle OpenStack Release Notes*

You can locate Oracle OpenStack documentation at: <http://www.oracle.com/technetwork/server-storage/openstack/linux/documentation/index.html>

10.6 Oracle Enterprise Manager

Oracle Enterprise Manager Release 13.2 or later is required to manage Oracle VM Release 3.4.x. Oracle VM Manager integrates with Oracle Enterprise Manager so that you can manage the entire Oracle VM environment from within Oracle Enterprise Manager.

For more information about Oracle Enterprise Manager Release 13.2 or later, see the Oracle Enterprise Manager documentation at: <http://www.oracle.com/technetwork/oem/grid-control/documentation/oem-091904.html>

For example, for specific information on how to register Oracle VM Manager when setting up Cloud for Infrastructure as a Service (IaaS), refer to the following section in the *Enterprise Manager Release 13.2 Cloud Administration Guide*: https://docs.oracle.com/cd/E73210_01/EMCLO/GUID-152C4D4A-6FC2-42B0-ABE3-5884D6A466F4.htm#EMCLO183

10.7 Third Party Software

Oracle Corporation supports certain third party software in combination with Oracle VM.

For information about supported third party software, see the *Oracle VM Partners* page at: <http://www.oracle.com/technetwork/server-storage/vm/partners/index.html>



Note

If you plan to install third party software in an Oracle VM environment and are not sure if it is supported, contact your Oracle Corporation support representative.

For information about hardware certified for Oracle VM, see the Hardware Certification List (HCL) for Oracle Linux and Oracle VM at: <https://linux.oracle.com/hardware-certifications>.

Chapter 11 Oracle VM Accessibility Features

Accessibility features help people who have a physical disability, such as restricted mobility or limited vision, to use information technology products successfully.

Oracle VM documentation is provided in the following formats:

- Electronic format (HTML) is provided and is accessible.
- PDF format is provided but is not accessible.
- Online Help is provided in Oracle Help for Web (OHW) format for the Oracle VM Manager Web Interface. This format is accessible but known issues exist. For more information see [Documentation Accessibility Bugs](#).

Oracle VM Manager Accessibility Features

As part of the effort to make Oracle products, services, and supporting documentation accessible and usable to the disabled community, Oracle VM Manager Web Interface allows you to configure the following accessibility features:

- Support for Screen Reader.
- Support for High Contrast.
- Support for Large Fonts.

You can enable these features when logging in to the Oracle VM Manager Web Interface or you can set or change the accessibility options once you have logged in.

To enable accessibility options when logging in:

1. On the login page of the Oracle VM Manager Web Interface, click the arrow to expand **Accessibility Options**.
2. Select one or more check box from the following accessibility options:
 - `I use a screen reader.`
 - `I use high contrast.`
 - `I use large fonts.`
3. Alternatively, if you have already selected specific accessibility options during a previous session, you are able to restore these settings by ensuring that the 'Use saved accessibility options' checkbox is checked.

To set or change accessibility options while you are logged in:

1. In the Global Links at the top of the right-hand-side of the Oracle VM Manager Web Interface, click **Settings**.
2. From the drop-down list, select from the following accessibility options:
 - `I use a screen reader.`
 - `I use high contrast.`

- [I use large fonts.](#)

These settings are persistent across each user login, as described in [User Preference Persistence](#). To ensure that the same settings are applied on each subsequent login you should ensure that the [Use saved accessibility options](#) checkbox is checked on the login page when you login.

Oracle VM Manager HTML Access Keys

To access menus without using a mouse, you can use the HTML access keys. The shortcut key for a user interface item is shown as an underline of the shortcut key letter in the item name, for example, the shortcut key for the **Servers and VMs** tab is S, as that is the letter underlined in the tab text.

To access the shortcut key, enter the HTML access key for your browser, plus the access key letter. For example, to access a shortcut key on Microsoft Internet Explorer, press **Alt + [shortcut_key](#)** at the same time. See your web browser documentation to find the key combination to use for HTML access keys for your browser.

Documentation HTML Access Keys

To use the documentation without using a mouse, you can use HTML access keys. Enter the HTML access key for your browser, plus the access key letter. For example, using Mozilla Firefox, press **Alt+Shift +n** to go to the next page. See your web browser documentation to find the key combination to use for HTML access keys. The following table lists the tasks you can perform using access keys.

Task	Access Key
Go to the next page	n
Go to the previous page	p
Go to the document home page	h
Go up a level in the document	u
Activate the Contents tab	c
Activate the Search tab	s

In addition to the HTML access keys, the following keyboard shortcuts are available:

Task	Shortcut Key
Toggle hide and show the sidebar	Ctrl+Left Arrow
Toggle hide and show page header	Ctrl+Up Arrow

Documentation Accessibility Bugs

Oracle VM documentation currently exhibits the following known accessibility issues:

- HTML page heading levels might not start at h1 (Bug ID 26717728)
- Book title can extend off the screen with 200% zoom (Bug ID 26717874)
- docs.oracle.com Help drawer HTML heading tags have structure violation (Bug ID 26560104)

- Navigation header/footer uses inaccessible tables (Bug ID 26751108)
- OHW - TOC has no summary defined in Online Help viewer window (Bug ID 26758534)
- OHW - Unable to open TOC topics when using keyboard only functions in Online Help viewer window (Bug ID 26758747)

