

# Oracle VM VirtualBox Overview

An Oracle White Paper

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## VirtualBox

ORACLE®

## PURPOSE STATEMENT

This document provides an overview of features and enhancements included in Oracle VM VirtualBox 6.0 release. It is intended solely to help you assess the business benefits of upgrading to Oracle VM VirtualBox 6.0 and to plan your IT projects.

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Due to the nature of the product architecture, it may not be possible to safely include all features described in this document without risking significant destabilization of the code.

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## WHAT IS IN ORACLE VM VIRTUALBOX 6.0

Oracle VM VirtualBox is cross-platform virtualization software that allows users to extend their existing computer to run multiple operating systems at the same time. Designed for IT professionals and developers, Oracle VM VirtualBox runs on Microsoft Windows, Mac OS X, Linux, and Oracle Solaris systems and is ideal for testing, developing, demonstrating, and deploying solutions across multiple platforms on one machine.

Oracle VM VirtualBox has been designed to take advantage of the innovations introduced in the x86 hardware platform, and it is lightweight and easy to install and use. Yet under the simple exterior lies an extremely fast and powerful virtualization engine. With a well-earned reputation for speed and agility, Oracle VM VirtualBox contains innovative features to deliver tangible business benefits: excellent performance; a powerful virtualization system; and a wide range of supported guest operating system platforms.

Oracle VM VirtualBox is a bridge to open source and cloud development. The latest 6.0 release allows users to create and deploy virtual machines nearly everywhere, upload to the cloud, download from the cloud, and review and make changes offline.

With thousands of downloads each day, Oracle VM VirtualBox is the world's most popular free and open source, cross-platform virtualization software, based on vibrant community participation combined with world-class development and support supplied by Oracle.

Oracle VM VirtualBox 6.0 brings a range of useful changes and improvements that justify a whole-integer version increment. Oracle VM VirtualBox 6.0 simplifies cloud deployment by allowing developers to create multiplatform environments and to develop applications for Container and Virtualization technologies within Oracle VM VirtualBox on a single machine. Operating system and application updates can be done within Oracle VM VirtualBox virtual machines (VMs), and VMs can subsequently be deployed to server virtualization environments such as Oracle VM Server.



Oracle VM VirtualBox Enterprise is composed of two components: Oracle VM VirtualBox (main product) and Oracle VM VirtualBox Extension Pack. The following table summarizes each of the components:



Oracle VM VirtualBox



Oracle VM VirtualBox Extension Pack

Consists of all open source components and is licensed under the [GNU General Public License \(GPL\) Version 2](#)

Binaries are released under the Oracle VM VirtualBox [Personal Use and Evaluation License \(PUEL\)](#).

**Totally free for personal and business use**

**A license must be purchased for business/commercial use of the extension pack.**

**The paid-for license is perpetual.**

Can be distributed and modified by customers

Customers cannot distribute it.

Contains all the basic hypervisor features

The extension pack is the enterprise version of the main product and contains features such as the following:

- Virtual USB 3.0 and 2.0 device support
- VirtualBox Remote Desktop Protocol (VRDP)
- Host webcam passthrough
- Intel Preboot eXecution (PXE) boot ROM
- Disk-image encryption
- NVMe Storage Emulation
- Export to Oracle Cloud Infrastructure

Oracle VM VirtualBox Enterprise continues to evolve as an ideal choice for a next-generation development solution. The latest 6.0 release introduces paravirtualization support for Linux and Windows virtual machines and support for xHCI/USB 3.0 devices and new platforms, and it provides enhanced CPU capabilities and support for bidirectional drag and drop between a host and its guest virtual machines. It also introduces disk-image encryption and many other enhancements.

Oracle VM VirtualBox Enterprise provides world-class support for both the base package and the extension pack and licenses for commercial use of the extension pack.

For further details related to Oracle VM VirtualBox 6.0 please visit [Oracle Virtualization Blog](#).

## ORACLE VM VIRTUALBOX 6 ENTERPRISE USE CASES

### Development Platform for the Cloud

Software developers rely on Oracle VM VirtualBox 6.0 Enterprise for the development and debugging of their applications in multiple operating systems and environments on one unique device. Developers can clone a production environment on their personal desktop/laptop without any impact on the services.



### ONE UNIQUE SOLUTION FOR ALL PLATFORMS

Oracle VM VirtualBox 6 Enterprise is the only Desktop Virtualization Solution available for all x86 platforms, like Microsoft Windows, Linux, Apple MAC OS X and Solaris x86: the same solution on all company platforms.

Oracle VM VirtualBox 6 Enterprise is the cheapest Desktop Virtualization Solution that allows Software QA teams to control source code, share it within the company and execute software testing on multiple platforms on one unique device.

Oracle VM VirtualBox 6 introduced the support to export VMs to the Oracle Cloud Infrastructure and all the steps required can be managed by the Graphical User Interface.

By leveraging Oracle Vagrant Boxes, Oracle VM VirtualBox 6 gives you the opportunity to automate the deployment of your development environments.

## QA and Testing

Oracle VM VirtualBox 6 Enterprise allows to System Administrator to test patches, system and software upgrades on an isolated sandbox (VM) on a single device; between the others, Oracle VM VirtualBox 6 Enterprise allows to:

- Recreate customer conditions on a laptop/desktop
  - Need to replicate customer environment easily even on a laptop/desktop
  - Multi-Platforms products can require a lot of hardware due to different platforms/OS
- Test / Experiment sandboxes
  - Preserve customer environments while introducing changes
  - Clone VM for parallel test runs
  - Revert it to a known good point
- Platform deployment changes
  - Test different kernel, library, compiler, product installer versions
- One unique Demo Appliance
  - Export VM for reuse or for parallel test runs
  - Ability to supply unique-platform demo appliances of products on all platforms
  - New hire on-boarding in a safe place

## Demo system for Pre-Sales Support

Oracle VM VirtualBox 6 Enterprise allows to Technical Sales to easily show Enterprise solutions in a live-demo.

Thanks to [pre-built Virtual Machines](#) Sales team can create, share, present and demonstrate multi-tier architectures, also in a complex network topology where Host System interact with VMs running on top.

Engineering Teams can also prepare demo environments and share them with Sales: it does not matter which is the platform used, Oracle VM VirtualBox 6 is the same software for all x86 platforms.

## Secure and encrypted Virtual Machines

In this Cloud/Social era, where sharing of information is the foundation of IT, VMs created on top of VirtualBox could contain confidential information, or our next software release, software code or anything else that needs the highest security level.

Oracle VM VirtualBox 6 Enterprise allows to have encrypted VMs and even if you are going to copy/clone or move them on external-devices / web-storage / cloud-backup their built-in encryption will maintain your data secure.

## Training

Oracle VM VirtualBox 6 Enterprise allows to create virtual machines for training purposes; also in a big event, like Oracle OpenWorld, all the Hands-On-Labs are built on a laptop where students can work on Enterprise Solutions and learn Oracle Products and their best practices; the same approach can be applied within a Company for internal-training. Once the training is completed, Oracle VM VirtualBox snapshot capability allows, moreover, to revert all virtual machines to their original state.

## Corporate Compliancy

Oracle VM VirtualBox 6 Enterprise allows Corporate Global-IT to define and maintain a default host-platform for different BU, roles and requirements with control and security updates while, each employee, can define different virtual machines with different platforms based on their day-by-day needs.

## ORACLE VM VIRTUALBOX EXTENSION PACK FEATURES

The following list describes in more detail the features provided by Oracle VM VirtualBox Extension Pack:

### **USB 2.0/3.0 controller and Enhanced Host Controller Interface (EHCI)/xHCI device support**

This option allows users to have USB 2.0/3.0 devices connected to Oracle VM VirtualBox virtual machines. Everything is based on a virtual USB controller that is able to do the following:

- Improve the performance of native USB 2.0 devices on virtual machines
  - By using USB 3.0 virtual USB
- Obtain similar performance for USB 3.0 devices connected to the host

When Oracle VM VirtualBox acts as a virtual Remote Desktop Protocol (RDP) server, it is also possible to use USB devices remotely on RDP clients.

While USB 1.1 support is already available in the main product, Oracle VM VirtualBox Extension Pack allows the use of new-generation USB devices that require USB 2.0/3.0.

### **VirtualBox Remote Desktop Protocol (VRDP)**

Oracle VM VirtualBox can display virtual machines remotely, meaning that a virtual machine can execute on one computer even though the virtual machine will be displayed on a second computer. The virtual machine will be controlled from the second computer as well, as if the virtual machine was running on that computer.

VRDP is a backwards-compatible extension to Microsoft's Remote Desktop Protocol (RDP) and is implemented between the host and its guests. As a result, users can use any standard RDP client to control the remote VM, and any supported guest OS can be used, not just Microsoft Windows.

Thanks to this feature, developers can remotely work in their development environment (that is, the same project and the same machine) from nearly anywhere. For example, they can continue to work on their projects from home connected to a virtual machine that is live on their desktop PC at the office.

**VRDP is a real virtual machine remote console**—able to work on both IPv4 and IPv6—that allows IT administrators to access a virtual machine in cases such as the following:

- The virtual machine is starting
- The virtual machine operating system is not already installed
- The virtual machine has lost its network connectivity

### **NVMe (Non volatile memory express) emulation**

This option allows users to have NVMe devices connected to Oracle VM VirtualBox virtual machines; Guest Operating Systems need to support NVMe devices to make use of them.

### **Host webcam passthrough**

Oracle VM VirtualBox allows a guest to use a host webcam. This complements the general USB passthrough support. Thanks to this feature, if users need to use a webcam for a video conference

call, but the software for doing that is not available on the host platform, it's possible to use a webcam on a virtual machine.

### **Intel PXE boot ROM**

Oracle VM VirtualBox allows a guest to use a PXE environment on virtual machines. This means that a user can remotely install a virtual machine (using VRDP) and also supply the operating system packages via network access. Together, the Intel PXE boot ROM feature and the VRDP feature allow users to have installation packages preconfigured and remotely available.

### **Disk-Image Encryption**

Thanks to this feature, it is possible to encrypt the data stored in hard-disk images transparently to the guest. This feature provides security similar to encryption software installed on the host system where, usually, a dedicated product license is needed.

## **FOR MORE INFORMATION**

View the [Oracle VM VirtualBox pre-built appliances](#) web page

Check out the [Oracle hands-on labs](#) for Oracle VM VirtualBox

Shop for [Oracle VM VirtualBox Enterprise](#)

Visit us [www.virtualbox.org](http://www.virtualbox.org)

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## Integrated Cloud Applications & Platform Services

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