

# Oracle Linux

Oracle Linux is an optimized and secure operating environment that helps accelerate digital transformation. It delivers leading performance and security for hybrid and multicloud deployments. Oracle Linux is 100% application binary compatible with Red Hat Enterprise Linux. Oracle Linux Support subscriptions offer customers access to award-winning Oracle support resources and Linux support specialists, zero-downtime patching with Ksplice, cloud native tools such as Kubernetes and Kata Containers, KVM virtualization and oVirt-based virtualization manager, DTrace, clustering tools, Oracle Linux Automation Manager and Automation Engine, Oracle Linux Manager, Oracle Enterprise Manager, and lifetime support. All this and more is included in a single cost-effective support offering. Unlike many other commercial Linux distributions, Oracle Linux is easy to download and completely free to use, distribute, and update.

## Latest Linux innovations

Oracle Linux powers [Oracle Autonomous Linux](#), extending autonomous capabilities to Linux. Oracle Autonomous Linux is the first and only autonomous operating environment that helps greatly reduce complexity and human error to deliver increased cost savings, security, and availability for customers.

Oracle Linux comes with a choice of two kernels, the Unbreakable Enterprise Kernel (UEK), which is installed and enabled by default, and the Red Hat Compatible Kernel. UEK tracks the latest Linux kernel releases, supplying more innovation than other commercial Linux kernels while providing binary compatibility with applications certified to run on Red Hat Enterprise Linux (RHEL). UEK is designed for enterprise workloads requiring stability, scalability, and performance, such as [Oracle Database](#).

Oracle Linux is a great platform for [application development](#) and deployment. Oracle Linux delivers advanced features for supporting and optimizing the latest enterprise hardware and software. For example:

- **Ksplice Zero Downtime Updates** - Available to Oracle Linux Premier Support customers, [Ksplice](#) technology updates the kernels, hypervisors and critical user space libraries without requiring a reboot or interruption. Known Exploit Detection in Ksplice enables auditing and alerting for known privilege escalation vulnerabilities. Only Oracle Linux



## Key Features

- Free to use, free to distribute, free to update
- Zero-downtime kernel, hypervisor and user space updates with Ksplice
- KVM server virtualization and oVirt-based virtualization manager
- AWX and Ansible based Automation Manager and Automation Engine
- Cloud native tools such as Kubernetes and Kata Containers
- Comprehensive kernel and application tracing with DTrace
- Linux management and high availability
- Optimized for highly demanding workloads

## Key Benefits

- Increase security by applying patches with zero-downtime
- Improve performance of enterprise workloads
- Proven performance and reliability in Oracle Engineered Systems and Oracle Cloud
- Simplify and automate operations with a single complete support offering
- Lower total cost of ownership (TCO)

offers this unique capability, making it possible to keep up with important kernel and user space updates without the operational cost and disruption of rebooting for every update.

- **Security and Compliance** - Oracle Linux 7 has received both a [Common Criteria \(CC\) Certification](#) and [FIPS 140-2 validation](#) of its cryptographic modules. Oracle has implemented the published Security Technical Implementation Guide (STIG) in Security Content Automation Protocol (SCAP) format for [Oracle Linux 7](#) and [Oracle Linux 8](#).
- **XFS File System** – XFS is a journaling file system known for extreme scalability with near native I/O performance. XFS is the default filesystem for Oracle Linux 7 and Oracle Linux 8.
- **Gluster Storage for Oracle Linux** - Gluster provides a scalable, distributed file system that aggregates disk storage resources from multiple servers into a single global namespace. [Gluster Storage](#) is available for Oracle Linux 7 and Oracle Linux 8.

Running Oracle Linux with UEK gives you additional advanced features and security enhancements, including:

- **Unbreakable Enterprise Kernel** - UEK for Oracle Linux provides the latest open source innovations and business-critical performance and security optimizations for cloud and on-premises deployment. UEK Release 6, based on the mainline Linux kernel version 5.4, includes many upstream enhancements and is available on Oracle Linux 7 and Oracle Linux 8.
- **Containers and Orchestration** – Containers are the fundamental infrastructure to deploy modern cloud applications. Oracle Cloud Native Environment uses Kubernetes to deploy and manage containers. It automatically installs and configures Kubernetes, CRI-O, runC and Kata Containers on the Kubernetes nodes and brings up a Kubernetes cluster.
- **DTrace** – DTrace is a comprehensive dynamic tracing framework that provides a powerful infrastructure to permit administrators, developers, and service personnel to concisely answer arbitrary questions about the behavior of the operating system and user programs in real time.
- **Persistent Memory (PMEM)** – Oracle provides the latest Linux PMEM support beginning with Oracle Linux 7 with UEK Release 5.
- **AMD Secure Memory Encryption (SME)** – Beginning with UEK Release 5, Oracle Linux enables the hardware accelerated memory encryption, available on AMD EPYC processor-based systems, for data-in-use protection.
- **Btrfs** – The Btrfs file system is designed to meet the expanding scalability requirements of large storage subsystems for Linux. It provides copy-on-write functionality, checksum functionality, transparent compression, transparent defragmentation, and integrated logical volume management.
- **Oracle Cluster File System 2 (OCFS2)** – OCFS2 is a general purpose, extent-based clustered file system that Oracle developed and contributed to the Linux community. It provides high performance and high availability, offering an open source, enterprise-class alternative to proprietary cluster file systems.

## Supported Hardware

Oracle Linux is supported on the following hardware architectures

- 64-bit Intel and AMD (x86-64)
- 64-bit [Arm](#) (aarch64)

Visit Oracle Linux [Hardware Compatibility List \(HCL\)](#).

## Related products

- [Oracle VM VirtualBox](#)
- [Oracle Enterprise Manager](#)
- [Oracle Engineered Systems](#)

- **Data Integrity** – Oracle Linux supports the T10 Protection Information Model (T10-PIM) to help prevent silent data corruption.

## Flexible support options, higher value

Oracle is the only vendor in the industry that offers a complete Linux-based solution stack – applications, middleware, database, management tools, operating system, virtualization, hardware, engineered systems, and cloud. With Oracle as your Linux support provider, you have a single point of contact for all your support needs. Oracle delivers [enterprise-class support for Oracle Linux](#), including premier backports, indemnification and testing.

Oracle Support for Oracle Linux installations is significantly lower in cost than competing vendors' Linux support. You are free to decide which of your systems should be covered by a support subscription, and at which level each of them should be supported. This makes Oracle Linux an ideal choice for both your development and production systems. You decide which support coverage is the best for each of your systems individually, while keeping all of them up-to-date and secure with the same level of bug fixes and security errata.

Oracle Linux is also the Linux development standard at Oracle. The same Oracle products customers deploy in their data center and in the cloud were developed using Oracle Linux. In addition, Oracle understands mission-critical application requirements and Oracle Linux is developed and tested to provide the reliability, scalability, security, and performance for these demanding enterprise workloads.

## Running Oracle Linux in the cloud

IT departments are increasingly moving traditional corporate systems to multicloud and hybrid cloud infrastructure. Customers can choose to run the same Oracle Linux everywhere. Oracle-built Oracle Linux images are available in Oracle Cloud Infrastructure, Microsoft Azure, and Amazon Web Services. This makes it easy to [launch Oracle Linux instances in the cloud](#).

Oracle and SAP have certified SAP NetWeaver-based applications using Oracle Database to run on Oracle Cloud Infrastructure, Microsoft Azure, and Amazon Web Services. Oracle Linux is the [only supported Linux OS for these environments](#).

## Cloud Native DevSecOps simplified

[Oracle Cloud Native Environment](#) is a [curated set of open source software](#) selected from open source projects that are based on open standards, specifications and APIs defined by the Open Container Initiative (OCI) and Cloud Native Computing Foundation (CNCF) that can be easily deployed, have been tested for interoperability and for which enterprise-grade support is offered. Oracle Cloud Native Environment delivers a simplified framework for installations, updates, upgrades and configuration of key features for orchestrating microservices.

### Related services

Support services for Oracle Linux

- [Oracle Linux Support](#)
- [Oracle Premier Support for Systems](#)
- [Oracle Cloud Infrastructure](#)

## Virtualization made easy

With your Oracle Linux Support subscription there is no need to worry about whether the system will run as a physical or virtual instance because it is all included in the price of a single subscription. Users can run Oracle Linux on the host and as many Oracle Linux guest instances as desired, without additional cost.

Oracle Linux includes support for the Kernel-based Virtual Machine (KVM) hypervisor, including support for Intel VT-x and VT-d hardware extensions along with the Secure Encrypted Virtualization (SEV) for AMD-V enabled processors. Oracle Linux Virtualization Manager is the server virtualization management platform that can be easily deployed to configure, monitor, and manage Oracle Linux KVM with enterprise-grade performance and support from Oracle.

[Oracle VM VirtualBox](#) is the world's most popular open source and cross-platform virtualization software. It is used by millions of developers around the world to develop, test, and build virtual appliances. Customers develop applications on a desktop and easily deploy the software into Oracle Cloud and other cloud services. You can easily download/install VirtualBox on Oracle Linux via the [Oracle Linux yum server](#) or the [Unbreakable Linux Network \(ULN\)](#).

## Comprehensive automation and management

[Oracle Linux Automation Manager](#) and [Oracle Linux Automation Engine](#) are the latest additions to the Oracle Linux operating environment. Oracle Linux Automation Manager and Engine, based upon the open source AWX and Ansible projects respectively, are included with an Oracle Linux Premier Support subscription. Together, they provide a cost-effective, powerful, scalable, and secure infrastructure automation framework for enterprise environments. Additionally, they streamline software provisioning, configuration management, and application-deployment, enabling infrastructure as code.

To ease migrations from existing infrastructures, Oracle Linux also includes and supports [Oracle Linux Manager](#). Based on the open source Spacewalk project, Oracle Linux Manager provides an effective set of tools for managing the Oracle Linux software life cycle in small or large deployments. Oracle Linux Manager also helps you automate a kickstart installation, system configuration, and maintenance tasks, which enables you to rapidly deploy proven and consistent software configurations for Oracle Linux systems. Oracle Linux Manager has integrated enhancements for [Oracle Linux 8 clients](#).

Oracle Enterprise Manager is a feature-rich systems and applications management suite, capable of managing thousands of servers from a central and easy to use web-based interface. The base installation of Oracle Enterprise Manager is included with every Oracle Linux Support subscription at no additional cost.

Additionally, customers have the option of using the Oracle [OS Management Service](#) which provides tools to automate common operating system

management tasks such as patch and package management, and security and compliance reporting for Oracle Linux and Microsoft Windows compute instances deployed in Oracle Cloud.

### **Enterprise high availability**

Oracle Clusterware, an enterprise high-availability software solution, is included with Oracle Linux Support subscriptions. Oracle Clusterware enables independent servers to operate together as a single system and provides high availability for both Oracle and third-party workloads.

Oracle also provides support for Corosync and Pacemaker, the de-facto standard open source high availability solution for Linux, along with support for `HAproxy` and `keepalived` which provide load balancing services.

### **Oracle Linux partner ecosystem**

Oracle Linux is 100% application binary compatible with Red Hat Enterprise Linux, which means the vast majority of applications run unchanged on Oracle Linux. Oracle also works closely with industry leading ISV and IHV partners to enable fully tested, certified, and supported solutions for Oracle Linux and virtualization customers. With an extensive ecosystem, customers can improve time to market and simplify deployment.

[A thriving ISV ecosystem](#) allows customers to rest assured that when they want to move workloads between different deployment models – Oracle Linux on-premises to Oracle Linux in the cloud – the transition can be virtually seamless.

[The Hardware Compatibility Program](#) helps ensure major and emerging server and storage hardware solutions are qualified on Oracle Linux and Virtualization.

### **Established member of the Linux community**

Oracle is a platinum member of the [Linux Foundation](#), a platinum member of the [Cloud Native Computing Foundation](#), and a premier member of the [Open Source Security Foundation](#) as well as one of the industry's largest contributors to open source.

Oracle is committed to cultivating, supporting, and promoting popular [open source technologies](#) that customers can confidently deploy in business-critical environments.

Many of Oracle's Linux engineers participate in the Linux community as maintainers of projects in the upstream Linux source process, and work closely with other maintainers. This work helps to develop features and improvements that benefit Linux overall and can be delivered as part of Oracle Linux.

## Free and easy to download, install, use, and distribute

Oracle Linux can be downloaded, used, and distributed free of charge and updates and errata are freely available, excluding certain updates and errata such as those released with Ksplice and Extended Support, which may require Oracle Linux Premier or Extended Support.

ISO installation images are available from the [Oracle Linux yum server](#) and [Oracle Software Delivery Cloud](#). Individual RPM packages are available on the [Oracle Linux yum server](#) and the [Unbreakable Linux Network \(ULN\)](#). Container images are available via [Oracle Container Registry](#), [GitHub Container Registry](#) and [Docker Hub](#).

There are additional Oracle Linux resources such as [scripts to build Oracle Linux images](#), [virtual machine templates](#) and [Vagrant projects](#) that can help you rapidly build and provision Oracle Linux instances for VirtualBox, KVM, Oracle Cloud or other clouds.

## Free and comprehensive training and learning resources

In addition to documentation, Oracle offers [free and comprehensive resources](#) such as learning paths, tutorials, hands-on labs, and videos to help you develop your applications on Oracle Linux and get the best value from your Oracle Linux deployments.

## Migrating from Red Hat Enterprise Linux or CentOS

Migrating an existing system from RHEL or CentOS to Oracle Linux is simple. There is no need to re-install the operating system or any application. Oracle can also take over support for your existing RHEL or CentOS systems. Just follow the instructions outlined at [linux.oracle.com/switch.html](http://linux.oracle.com/switch.html) and [linux.oracle.com/switch/centos](http://linux.oracle.com/switch/centos).

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