

# Oracle® Linux 7

## Administrator's Guide

**ORACLE**

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### Abstract

This manual provides an introduction to administering various features of Oracle Linux 7 systems.

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## Preface

*Oracle® Linux 7: Administrator's Guide* provides introductory information about administering various features of Oracle Linux 7 systems, including system configuration, networking, network services, storage devices, file systems, authentication, and security.



### Note

The information in this book has been migrated to separate and more updated documentation. For the most current information, refer the individual, topic-based guides in the *Oracle Linux 7 Documentation*.

## Audience

This document is intended for administrators who need to configure and administer Oracle Linux. It is assumed that readers are familiar with web technologies and have a general understanding of using the Linux operating system, including knowledge of how to use a text editor such as *emacs* or *vim*, essential commands such as *cd*, *chmod*, *chown*, *ls*, *mkdir*, *mv*, *ps*, *pwd*, and *rm*, and using the *man* command to view manual pages.

## Document Organization

The document is organized as follows:

- [Part I, “System Configuration”](#) describes how to configure software and kernel updates, booting, kernel and module settings, and devices, how to schedule tasks, and how to monitor and tune your system.
- [Part II, “Networking and Network Services”](#) describes how to configure network interfaces, network addresses, name service, network time services, basic web and email services, load balancing, and high availability.
- [Part III, “Storage and File Systems”](#) describes how to configure storage devices and how to create and manage local, shared, and cluster file systems.
- [Part IV, “Authentication and Security”](#) describes how to configure user account databases and authentication, how to add group and user accounts, how to administer essential aspects of system security, and how to configure and use the OpenSSH tools.
- [Part V, “Virtualization”](#) describes how to configure containers to isolate applications from the other processes that are running on a host system.

## Related Documents

The documentation for this product is available at:

[Oracle® Linux 7 Documentation](#)

## Conventions

The following text conventions are used in this document:

Convention	Meaning
<b>boldface</b>	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.

<b>Convention</b>	<b>Meaning</b>
<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.

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# Part I System Configuration

This section contains the following chapters:

- [Chapter 1, \*Yum\*](#) describes how you can use the `yum` utility to install and upgrade software packages.
  - [Chapter 2, \*Ksplice\*](#) describes how to configure Ksplice Uptrack to update the kernel on a running system.
  - [Chapter 3, \*Boot and Service Configuration\*](#) describes the Oracle Linux boot process, how to use the GRUB boot loader, how to change the run level of a system, and how to configure the services that are available at each run level.
  - [Chapter 4, \*System Configuration Settings\*](#) describes the files and virtual file systems that you can use to change configuration settings for your system.
  - [Chapter 5, \*Kernel Modules\*](#) describes how to load, unload, and modify the behavior of kernel modules.
  - [Chapter 6, \*Device Management\*](#) describes how the system uses device files and how the udev device manager dynamically creates or removes device node files.
  - [Chapter 7, \*Task Management\*](#) describes how to configure the system to run tasks automatically within a specific period of time, at a specified time and date, or when the system is lightly loaded.
  - [Chapter 8, \*System Monitoring and Tuning\*](#) describes how to collect diagnostic information about a system for Oracle Support, and how to monitor and tune the performance of a system.
  - [Chapter 9, \*System Dump Analysis\*](#) describes how to configure a system to create a memory image in the event of a system crash, and how to use the `crash` debugger to analyse the memory image in a crash dump or for a live system.
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# Chapter 1 Yum

This chapter describes how you can use the `yum` utility to install and upgrade software packages.



## Note

The information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Managing Software](#) .

For information about creating and using a Yum server that acts as a local mirror of the ULN channels, see [Oracle® Linux: Unbreakable Linux Network User's Guide for Oracle Linux 6 and Oracle Linux 7](#).



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## Chapter 2 Ksplice

This chapter provides a high-level overview of Oracle Ksplice.

**Note**

The information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux: Ksplice User's Guide](#).



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## Chapter 3 Boot and Service Configuration

This chapter describes the Oracle Linux boot process, how to use the GRUB 2 bootloader, how to change the `systemd` target for a system, and how to configure the services that are available for a target.

**Note**

The information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Managing Core System Configuration](#) .





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## Chapter 4 System Configuration Settings

This chapter describes the files and virtual file systems that you can use to change configuration settings for your system.

**Note**

The information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Managing Core System Configuration](#).



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## Chapter 5 Kernel Modules

This chapter describes how to load, unload, and modify the behavior of kernel modules.

**Note**

The information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Managing Core System Configuration](#).



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## Chapter 6 Device Management

This chapter describes how the system uses device files and how the udev device manager dynamically creates or removes device node files.

**Note**

The information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Managing Core System Configuration](#).



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## Chapter 7 Task Management

This chapter describes how to configure the system to run tasks automatically within a specific period of time, at a specified time and date, or when the system is lightly loaded.

**Note**

The information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Managing Core System Configuration](#).





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## Chapter 8 System Monitoring and Tuning

This chapter describes how to collect diagnostic information about a system for Oracle Support, and how to monitor and tune the performance of a system.

**Note**

The information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Managing Core System Configuration](#).



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## Chapter 9 System Dump Analysis

This chapter describes how to configure a system to create a memory image in the event of a system crash, and how to use the [crash](#) debugger to analyse the memory image in a crash dump or for a live system.



### Note

The information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Managing Core System Configuration](#).



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# Part II Networking and Network Services

This section contains the following chapters:

- [Chapter 10, \*Network Configuration\*](#) describes how to configure a system's network interfaces and network routing.
  - [Chapter 11, \*Network Address Configuration\*](#) describes how to configure a DHCP server, DHCP client, and Network Address Translation.
  - [Chapter 12, \*Name Service Configuration\*](#) describes how to use BIND to set up a DNS name server.
  - [Chapter 13, \*Network Time Configuration\*](#) describes how to configure the chrony, Network Time Protocol (NTP), or Precision Time Protocol (PTP) daemons for setting the system time.
  - [Chapter 14, \*Web Service Configuration\*](#) describes how to configure a basic HTTP server.
  - [Chapter 15, \*Email Service Configuration\*](#) describes email programs and protocols that are available with Oracle Linux, and how to set up a basic Sendmail client.
  - [Chapter 16, \*High Availability Configuration\*](#) describes how to use Pacemaker and Corosync to set up high availability cluster configurations with networked systems.
  - [Chapter 17, \*Load Balancing Configuration\*](#) describes how to use Keepalived and HAProxy to set up load balancing for networked systems.
  - [Chapter 18, \*VNC Service Configuration\*](#) describes how to enable a VNC server to provide remote access to a graphical desktop.
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# Chapter 10 Network Configuration

This chapter describes how to configure a system's network interfaces and network routing.

**Note**

Information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Setting Up Networking](#).



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# Chapter 11 Network Address Configuration

This chapter describes how to configure a DHCP server, DHCP client, and Network Address Translation.

**Note**

Information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Setting Up Networking](#).



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## Chapter 12 Name Service Configuration

This chapter describes how to use BIND to set up a DNS name server.

**Note**

Information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Setting Up Networking](#).



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## Chapter 13 Network Time Configuration

This chapter describes how to configure a system to use the chrony, Network Time Protocol (NTP), or Precision Time Protocol (PTP) daemons for setting the system time.

**Note**

Information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Setting Up Networking](#).





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## Chapter 14 Web Service Configuration

This chapter describes how to configure a basic HTTP server.

**Note**

Information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Setting Up Networking](#).



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## Chapter 15 Email Service Configuration

This chapter describes email programs and protocols that are available with Oracle Linux, and how to set up a basic Sendmail client.

**Note**

Information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Setting Up Networking](#).



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## Chapter 16 High Availability Configuration

This chapter describes how to configure the Pacemaker and Corosync technologies to create an HA cluster that delivers continuous access to services running across multiple nodes.

**Note**

Information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Setting Up Networking](#).



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## Chapter 17 Load Balancing Configuration

This chapter describes how to configure the Keepalived and HAProxy technologies for balancing access to network services while maintaining continuous access to those services.

**Note**

Information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Setting Up Networking](#).





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## Chapter 18 VNC Service Configuration

This chapter describes how to enable a Virtual Network Computing (VNC) server to provide remote access to a graphical desktop.

**Note**

Information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Setting Up Networking](#).



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# Part III Storage and File Systems

This section contains the following chapters:

- [Chapter 19, \*Storage Management\*](#) describes how to configure and manage disk partitions, swap space, logical volumes, software RAID, block device encryption, iSCSI storage, and multipathing.
  - [Chapter 20, \*File System Administration\*](#) describes how to create, mount, check, and repair file systems, how to configure Access Control Lists, how to configure and manage disk quotas.
  - [Chapter 21, \*Local File System Administration\*](#) describes administration tasks for the btrfs, ext3, ext4, OCFS2, and XFS local file systems.
  - [Chapter 22, \*Shared File System Administration\*](#) describes administration tasks for the NFS and Samba shared file systems, including how to configure NFS and Samba servers.
  - [Chapter 23, \*Oracle Cluster File System Version 2\*](#) describes how to configure and use the Oracle Cluster File System Version 2 (OCFS2) file system.
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## Chapter 19 Storage Management

This chapter describes how to configure and manage disk partitions, swap space, logical volumes, software RAID, block device encryption, iSCSI storage, and multipathing.

**Note**

The information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Managing Storage and Storage Devices](#).





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## Chapter 20 File System Administration

This chapter describes how to create, mount, check, and repair file systems, how to configure Access Control Lists, how to configure and manage disk quotas.

**Note**

The information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Managing File Systems](#).



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## Chapter 21 Local File System Administration

This chapter describes administration tasks for the btrfs, ext3, ext4, OCFS2, and XFS local file systems.

**Note**

The information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Managing File Systems](#).



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## Chapter 22 Shared File System Administration

This chapter describes administration tasks for the NFS and Samba shared file systems.

**Note**

The information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Managing File Systems](#).



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## Chapter 23 Oracle Cluster File System Version 2

This chapter describes how to configure and use the Oracle Cluster File System Version 2 (OCFS2) file system.



### Note

The information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Managing File Systems](#).

You can also find more information about OCFS2 at <https://oss.oracle.com/projects/ocfs2/documentation/>.





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# Part IV Authentication and Security

This section contains the following chapters:

- [Chapter 24, \*Authentication Configuration\*](#) describes how to configure various authentication methods that Oracle Linux can use, including NIS, LDAP, Kerberos, and Winbind, and how you can configure the System Security Services Daemon feature to provide centralized identity and authentication management.
  - [Chapter 25, \*Local Account Configuration\*](#) describes how to configure and manage local user and group accounts.
  - [Chapter 26, \*System Security Administration\*](#) describes the subsystems that you can use to administer system security, including SELinux, the Netfilter firewall, TCP Wrappers, chroot jails, auditing, system logging, and process accounting.
  - [Chapter 27, \*OpenSSH Configuration\*](#) describes how to configure OpenSSH to support secure communication between networked systems.
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## Chapter 24 Authentication Configuration

This chapter describes how to configure various authentication methods that Oracle Linux can use, including NIS, LDAP, Kerberos, and Winbind, and how you can configure the System Security Services Daemon feature to provide centralized identity and authentication management.



### Note

The information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Setting Up System Accounts and Authentication](#).



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## Chapter 25 Local Account Configuration

This chapter describes how to configure and manage local user and group accounts.

**Note**

The information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Setting Up System Accounts and Authentication](#).





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## Chapter 26 System Security Administration

This chapter describes the subsystems that you can use to administer system security, including SELinux, the Netfilter firewall, TCP Wrappers, chroot jails, auditing, system logging, and process accounting.



### Note

The information in this chapter has been migrated to separate and more updated documentation. See the following corresponding documentation:

- For security topics, see [Oracle® Linux 7: Security Guide](#).
- For information about setting up user accounts and authentication, see [Oracle® Linux 7: Setting Up System Accounts and Authentication](#).
- For information about SELinux, see [Oracle® Linux: Administering SELinux](#).



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## Chapter 27 OpenSSH Configuration

This chapter describes how to configure OpenSSH to support secure communication between networked systems.



### Note

The information in this chapter has been migrated to a separate and more updated documentation. See [Oracle® Linux: Connecting to Remote Systems With OpenSSH](#).



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# Part V Virtualization

This section contains the following chapters:

- [Chapter 28, \*Linux Containers\*](#) describes how to use Linux Containers (LXC) to isolate applications and entire operating system images from the other processes that are running on a host system.
- [Chapter 29, \*Using KVM With Oracle Linux\*](#) describes how to use an Oracle Linux system as a hypervisor with Kernel-based Virtual Machine (KVM) and provides information on installing virtualization packages.



## Note

Information about using the Docker engine to manage containers and images under Oracle Linux is provided in [Oracle® Linux: Oracle Container Runtime for Docker User's Guide](#).

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## Chapter 28 Linux Containers

This chapter describes how to use Linux Containers (LXC) to isolate applications and entire operating system images from the other processes that are running on a host system.

**Note**

The information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux 7: Working With LXC](#).

For information about how to use the Docker Engine to create application containers, see the [Oracle Container Runtime for Docker User's Guide](#).



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## Chapter 29 Using KVM With Oracle Linux

This chapter describes the Kernel-based Virtual Machine (KVM) feature.

**Note**

The information in this chapter has been migrated to separate and more updated documentation. See [Oracle® Linux: KVM User's Guide](#).

