



# Linux Administration

## Linux Distributions: An Introduction

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## Summary



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- What is a Linux Distribution
  - Why many Distributions
  - Famous Distributions
  - Installation and Configuration
  - Packages and Source Code
  - Distribution Choice

## What is a Linux Distribution

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- Linux is a Unix-like Kernel developed by Linus Torvalds in 1991
- Linux is free software published under the GNU General Public License
- Putting together Linux, the GNU tools and other programs, we can obtain a complete OS (Kernel+Applications)
- An Operating System needs installation and configuration tools
- A distribution is a set of Kernel, Programs and Installation/Configuration tools

## Why many Distributions

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- Many people are interested in Linux business
- Some distributions are focused on the experienced user, others on the newbie
- Some distributions contain server applications, others software for desktop and workstations
- Some commercial distributions offer technical assistance and customer service
- Some distributions contain the last versions of the packages, others only very tested software
- The installation procedures vary greatly among the different distributions

## Famous Distributions

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- **Red Hat Linux** - A popular distribution for business applications, servers and desktop systems. It provides remote upgrade tools and user-friendly interfaces
- **Debian GNU/Linux** - A distribution for advanced users. Entirely free software, it provides tested and secure software with remote upgrade tools
- **Slackware Linux** - the most UNIX-like distribution. It contains secure software and spartan configuration interfaces. Often the configuration files must be edited for the configuration setup

## Famous Distributions (2)

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- **Made in Linux** - An Italian Distribution. It offers installation tools and many configuration tools translated into Italian
- **Mandrake Linux** - The easy-to-use distribution. It is designed for the unexperienced user and provides many user interfaces to setup the system
- **United Linux** - Four Linux Vendors (SuSE Linux, SCO Unix (ex-Caldera), Turbolinux and Conectiva) have adopted a common way to design the installation and configuration tools for their Linux distributions. They provide four different distributions with the same configuration tools

## Famous Distributions (3)



- **Yellow Dog** - A distribution for PowerPC machines. It is mainly intended to provide an optimized Linux distribution for Machintosh machines
- Others supported architectures: Alpha, Sparc...
- At this moment many others distributions are available, with different aim and features
- Only few vendors or programmers can mantain a complete distribution
- Many distributions dissappear in few months

## Installation and Configuration



- The distributions have the same configuration files. The files can be edited and modified to setup the system
- The distributions have different installation and configuration tools

Distribution	Tool	Use
Red Hat	Printtool	Printer Configuration
Mandrake	Drakconf	System setup
Slackware	Apsfilter	Printer Configuration
SuSE	Yast	System setup
Debian	Dselect	Package Management
All distributions	Webmin	System setup

## Packages and source code



- All the distributions can compile and install source code packages. (Example: linux-2.4.20.tar.gz)
- The distributions have different package systems and programs for binaries installation

Distribution	Tool	Package
Red Hat	rpm -i	.rpm
Mandrake	rpm -i	.rpm
Slackware	installpkg	.tgz
SuSE	rpm -i	.rpm
Debian	dpkg -i	.deb

## Packages and source code (2)



- RPM (Red Hat Package Manager): a useful package system. It contains binaries, documentation (man pages), configuration files and the rules to install the software in the right directory
- It's used by Red Hat, Mandrake, SuSE and others distributions
- You can install RPM packages from different distributions
- It's not the only one: Debian provides .deb packages that have the same function but are designed for the Debian distribution (the directories can change in the different distributions, so we can have different installation rules)

## Packages and source code (3)



- With the same aim Slackware provides the .tgz binary packages
- Binary packages can be made from the source code
- Different tools exist to convert a RPM package into another package format (**rpm2tgz**)
- All the distributions can compile source code. Configuration files, documentation and compile rules are provided in the tar.gz source package
- You can extract it and compile the source code

```
tar xvfz my_package.tar.gz
cd my_package
configure && make
make install (as root)
```

## Distribution choice



The distributions can have different uses

Use Example	Distribution
Desktop	Mandrake, SuSE, Yellow Dog, Debian
Workstation	Red Hat, Slackware, Debian
File Server	Red Hat (+IBM DB2), Slackware(+PostgreSQL)

## Reference

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- “UNIX System Administration Handbook Third Edition” by Evi Nemeth, Garth Snyder, Scott Seebass, Trent R. Hein
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