

Linux Distributions

The many ways of 'Running Linux'

Pieces of a system

- A kernel (Linux, BSD)
- An “init” system (Sys-v-init, init-ng)
- A package management system (apt, portage, ports, rpm)
- A “baselayout” (GNU toolchain, busybox)
- An installation system (Live-CD)
- A support system
- And more...

A Kernel

- The kernel is what we typically refer to as the “Operating System” itself.
 - Its what does the actual low level hardware communication, memory management etc.
- Examples: Linux, BSD
 - Linux is usually just Linux – highly configurable
 - Many flavors of BSD (OS X uses one called Darwin)

Package Management

- A package is an installable hunk. Usually an application or a library.
- *nix based systems tend to have a central 'repository' of packages.
- This allows you to browse and search packages locally and chose what to install.
- Very different from the Windows model of 'find it on the Internet and pray its not a virus'.
 - Packages are often signed to ensure authenticity and security by distribution.

Types of packages

- Binary packages
 - The package you download contains pre-compiled software which merely needs to be unpacked and placed in the file system.
- Source packages
 - Packages contain source code which must be compiled locally and then placed.

Package Dependencies

- Package management systems are responsible for ensuring that you're system has all of the required dependencies installed in order for a given package to function properly.
- E.g. Your music player application will depend on a music decoder being installed.

Package Meta-Files

- Every Package Management System does it differently but generally on your local system you maintain a database of metadata files which include
 - URLs to downloads of the actual packages they represent.
 - List of dependencies
 - Installation instructions and details

Common Package Mgmt Systems

- Apt
 - The debian based system of binary packages. Uses .deb package meta-files.
- RPM
 - Redhat package management files. Also binary based with .rpm type meta-files.
- Portage
 - Gentoo's source based system. Uses .ebuild files.

Baselayout

- The actual file system layout and tools is determined and organized by the distribution.
- Almost all distributions will follow the classic /usr, /etc, /home etc. pattern.

LiveCDs

- Most distributions provide LiveCDs.
- A LiveCD is a bootable CD-ROM or DVD.
- You put it in the computer and it loads an entire distribution straight from the CD, without touching your hard drive!
- Very useful for debugging problems, and doing initial system setups.

Wine



Winehq.org