Red Hat

# Red Hat Linux



Operating System For The Open Mind

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# Red Hat Linux

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Open Source Software (OSS):

- Source Code & Binary are freely available
- Given away or sold in package format
- Different types of licensing

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GNU General Public License (GPL):

- Package may be freely distributed or sold, but must always include source code and GNU GPL License

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Linux History:

- POSIX-compliant OS
- Linus Torvalds 1991
- Open Source Community

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Red Hat Linux:

- Introduced package-based distribution 1994
- Red Hat Package Manager (RPM)

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Red Hat:

- Red Hat Linux
- Technical Support
- Red Hat Network
- Embedded Technologies
- Professional Services
- Red Hat Certified Engineer
- Training

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Linux Components:

- hardware
- kernel
- shell
- application

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Linux Kernel:

- single file
- loaded into memory at bootup
- multiuser
- preemptive multitasking
- hardware support
- network connectivity
- protected memory

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Shells:

- interface between user and kernel
- interprets commands
- maintains environment
- interacts with filesystem

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Daemons:

- run in background

- request -> fork -> parent back to listen while child processes request

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Kudzu Tool:

- checks for new hardware upon bootup
- keeps database

  /etc/sysconfig/hwconf
- check serial devices *only* during install

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Device Drivers:

- file that interacts with hardware device
- loaded into memory upon bootup or when needed
- contains code that allows kernel and hardware to communicate
- usually in

  /dev

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Device Drivers:

- Two types:
  - block device files = hard disk
  - character device files = modem

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Run Levels:

- 7 standard runlevels
  - 0 = kill all process & power off
  - 1 = single user
  - 2 = networking & multiuser
  - 3 = boot into command line
  - 4 = not used
  - 5 = boot into graphical mode
  - 6 = shuts down all processes & reboots

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Run Levels:

- default runlevel found in

  /etc/inittab

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Linux Boot Process:

- BIOS checks memory & hardware, passes control to master boot record (MBR)

- LILO presents a prompt & then executes kernel

- kernel probes & initializes hardware, loads device drivers, mounts / filesystem read-only, executes /sbin/init

- init reads configuration file /etc/inittab to determine default runlevel, then executes /etc/rc.d/rc.sysinit which checks for filesystem errors

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Installation Methods:

- CD-ROM media
- NFS server
- FTP
- HTTP
- Local hard drive

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Boot Diskettes:

- boot.img contains most drivers needed
- pcmcia.img if PCMCIA devices are used for install
- can create boot diskettes

    dd if=boot.img of=/dev/fd0

    or use *rawrite* utility in DOS

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Installation Classes:

- Workstation - deletes only linux partitions
- Server - deletes all partitions
- Laptop - deletes only linux partitions
- Custom - you decide!
- Upgrade

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Partition Hard Drive:

- Many commercial utilities such as SystemCommander, Partition Magic, etc.
- During install, Disk Druid or FDISK
- Paper on multi-booting & partitioning:

  http://www.crazytrain.com/partition.html

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Partition Hard Drive:

- Should be minimum of 3 partitions:
  - <swap> = 1.5 to 2x RAM
  - /boot = 16MB
  - / = root fs depends upon class

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Filesystems:

/bin = user commands

/sbin = system commands

/root = superuser (su) home directory

/mnt = filesystem mount points

/boot = kernel + other files used during startup

/lost+found = used by *fsck* to store orphaned files

/lib = library files used by programs

/dev = device files

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Filesystems:

/etc = configuration files & directories

/var = variable files

/usr = files & directories for system users

/proc = virtual fs for system information

/tmp = scratch pad

/home = user home directories

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Mounting Filesystems:

- Control Panel, System, Disk Management

  those defined in /etc/fstab

- Command line

  mount -t type device mount_point

  mount -t vfat /dev/hda2 /mnt/MyMount

- Currently mounted filesystems

  /etc/mtab

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Repairing Filesystems:

- fsck repairs damaged filesystem
- fsck runs during bootup before mounting
- minor errors will be cleaned automatically
- major errors will cause system to boot into single user mode

  rerun fsck

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Adding Users:

- useradd thomas

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File Manager:

- GNU Midnight Commander (GMC)

  GMC will give familiar look of Windows Explorer

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Linux Tools:

- linuxconf
- Xconfigurator or x86config
- netcfg
- kernelcfg
- tksysv
- modemtool
- sndconfig

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Linux Tools:

- apacheconf
- bindconf
- printconf

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Red Hat Linux 7.1:

- 2.4.x kernel
  - large memory support - 64GB
  - improved SMP - up to 8 processors
  - improved VFS - single cache
  - increased file size - up to 16TB
  - increased device support
  - improved TCP/IP stack
  - USB support

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Red Hat Linux 7.1:

- Enhanced Security
  - OpenSSL 128-bit encryption
  - OpenSSH
  - IPTables, Netfilter
  - Shadow Utilities
  - Kerberos V
  - Pluggable Authentication Modules (PAM)
  - services off by default

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Red Hat Linux 7.1:

- Installation Program Enhancements
  - graphical kickstart configuration
  - firewall security
- XFree86 4.0.3
- GNOME 1.2
- KDE 2.1
- Netscape 4.76
- glibc 2.2.2

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http://www.redhat.com

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