



Linux Administration

SUMMARY

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Linux Distributions: An Introduction



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



- The boot process
- Bootstrapping the System
- **GRUB**
- **LILO**
- After Loading
- **INIT** - The first process
- BSD boot system
- System V boot system
- Boot Administration
- X-based Interfaces



- Introduction
- The **INIT** process
- Signals
- **kill** command
- **nice** and **renice** commands
- **ps** command
 - ▶ Examples
- **pstree** command
- **top** command
 - ▶ Example
- Explanation of **ps** and **top** output
- X-based Interfaces

The Filesystem



- Introduction
- Types of filesystems
- The organization of the file tree
 - ▶ Filesystem Hierarchy Standard (FHS)
 - ▶ / (root) view
- Mounting and Unmounting
 - ▶ **mount** command
 - ▶ **umount** command
 - ▶ **/etc/fstab** file
- **fsck** command
- Making a filesystem
- Tools for all filesystems
- Other tools for the **ext2** filesystem
- X-based Interfaces
- Appendix - File types

Managing Users



- Introduction
- The **/etc/passwd** file
- The **/etc/group** file
- **/etc/passwd** vs **/etc/shadow**
- The **/etc/shadow** file
- Adding a User
 - ▶ Creating a user by hand
 - ▶ The **useradd** command
 - ▶ X-based Interfaces
- Initial environment: **/etc/skel**
- Setting disk quotas
- Changing user properties
- Disabling a user temporarily
- Removing a user

Syslog and Log files



- Introduction
- The `/var/log` directory
- Log files: an example
- Syslog: the system event logger
- **syslogd**: the log daemon
- The file `/etc/syslog.conf`
- Logging policies
- Log Rotation
- cron and the log rotation
- **logrotate**: the tool for logs management
- **logger** and log libraries
- **klogd**: the Linux Kernel Logger
- X-based front-ends

The Linux Kernel



- Introduction
- The Linux Kernel numbering system
- Kernel function
- Why to configure the Kernel
- The Kernel source tree
- The `.config` file
- Kernel configuration interfaces
 - ▶ `make config`
 - ▶ `make menuconfig`
 - ▶ `make xconfig`
- Building the Kernel
- Kernel patches
- New built modules



- Introduction
- Connections, IP Addresses and Host Names
- External name service - DNS
- The Ethernet Interface
- Dynamic IP Address - A PPP Connection
- ARP - Address resolution protocol
- RARP - Reverse ARP
- DHCP - Dynamic Host Configuration Protocol
- Routing
- Network Commands
- X-based Interfaces



- Introduction
- Security and NFS
- Server-side NFS
 - ▶ The `/etc/exports` file
 - ▶ Common export options
 - ▶ `exportfs` command
 - ▶ `nfsd` daemon
- Client-side NFS
 - ▶ `mount` command
 - ▶ `umount` command
- Automatic mounting
 - ▶ `automount`
 - ▶ `amd`
- `nfsstat`
- X-based Interfaces



- The Linux Printing System
- lpd: the line printer daemon
- The print Environment
- The print Commands
- Access Permissions
- The file `/etc/printcap`
- Software utility
- Configuration Tools
- X-based Interfaces
 - ▶ Printool
 - ▶ Webmin
 - ▶ Apsfilter

SAMBA - Files and Printers sharing between Windows and *NIX



- What is SAMBA
- The Samba Daemons
- Starting the Samba service
- `/etc/samba/smb.conf`: the Samba configuration file
- Home access and file sharing
- Sharing a Linux disk with Windows machines
- Configuration checks and service status
- Passwords and Encryption
- Sharing a Windows disk with Linux machines
- Sharing a Linux printer with Windows machines
- Sharing a Windows printer with Linux machines
- Backups with `smbtar`
- X-based Interfaces



- Introduction
- The Delivery Agent
- The Access Agent
- Mail Download
- The Transport Agent
- Sendmail
- Sendmail Configuration
- The sendmail macros
- Address Masquerading
- Anti-Spam Features
- Postfix
- Postfix Configuration files
- X-based Interfaces



- Introduction
- **inetd** daemon
 - ▶ Configuring **inetd**
- **xinetd** daemon
 - ▶ Configuring **xinetd**
- Remote login server
 - ▶ **in.rlogind** daemon
 - ▶ **in.telnetd** daemon
 - ▶ **in.rshd** daemon
- SSH : The secure shell
 - ▶ **sshd** daemon
 - ▶ **ssh** client
 - ▶ **sftp** client
- X-Based Interface

Security : an introduction



- Introduction
- How security is compromise
- Security power tools
 - ▶ **nmap** (X-based Interface), **ndiff**, **SAINT** (X-based Interface), **Nessus**, **crack**, **tcpd**, **COPS**, **tripwire**, **PortSentry** (X-based Interface)
- **ptrace** : a kernel *exploit* example
- Cryptographic security tools
 - ▶ **Kerberos**, **PGP**, **SSH**, **OPIE**
- Firewalls
 - ▶ IP tables

Web Hosting



- Introduction
- **HTTP** Server installation
 - ▶ Installing **Apache**
 - ▶ Configuring **Apache**
 - ▶ X-based Interface
- **Caching and Proxy** ServQuick start: **Quick start**
 - ▶ X-based Interface
- Anonymous **FTP** Server
 - ▶ **ftpd** daemons