

Linux For System Administrators

Duration: 5 Days (8 hours)

Module 1 – System Startup and Shutdown

Understanding the Boot Sequence
The Grand Unified Boot Loader
GRUB Configuration Files
System Configuration Files in /etc
The init Process
SysVinit Startup
chkconfig and service
Upstart
systemd
Shutting down/Rebooting the System

Module 2 – Linux File tree System Layout

Data Distinctions
FHS Linux Standard Directory Tree
Root (/) directory
/bin
/dev
/etc
/home
/lib and /lib64
/media
/mnt
/opt
/proc
/sys
/tmp
/usr
/var
/run

Module 3 – Kernel Services and Configuration

Kernel Overview
Kernel Configuration
sysctl
Kernel Modules
Module Utilities
Module Configuration
Udev and Device Management

Module 4 – Partitioning and Formatting Disks

Common Disk Types
Disk Geometry
Partitioning
Naming Disk Devices
Sizing Up Partitions
Partition table editors

Module 5 – Linux Filesystems

Some Notes About Filesystems
Virtual Filesystem (VFS)
Filesystem Concepts

Disk and Filesystem Usage
Extended Attributes
ext4
XFS
btrfs
Creating and formatting filesystems
Creating and repairing filesystems
Swap
Filesystem Quotas

Module 6 – RAID and LVM

RAID
RAID Levels
Software RAID Configuration
Logical Volume Management (LVM)
Volumes and Volume Groups
Working with Logical Volumes
Resizing Logical Volumes
LVM Snapshots

Module 7 – Processes

Programs and Processes
Process States
Execution Modes
Daemons
Creating Processes
Process Limits
Process Monitoring
Signals
Niceness
Libraries

Module 8 – Package Management Systems

Software Packaging Concepts
RPM (Red Hat Package Manager)
DPKG (Debian Package)
Revision Control Systems

Module 9 – Package Installers

Package Installers
Yum
Zipper
APT

Module 10 – User and Group Account Management

User Accounts
Management
Passwords
Restricted Shells and Accounts
The root Account
Group Management
PAM (Pluggable Authentication Modules)
Authentication Process
Configuring PAM
LDAP Authentication
File Permissions and Ownership SSH

Module 11 – Backup and Recovery Methods

cpio
Tar
Compression: gzip, bzip and xz and Backups
dd
rsync
Dump and restore
Mt
Backup Programs

Module 12 – Networking

IP Addresses
Hostnames
Configuring Network Interfaces
Routing
Name Resolution
Network Diagnostics

Module 13 – Firewalls

Firewalls
Interfaces
firewalld
Zones
Source Management
Service and Port Management

Module 14 – Local System Security

Local System Security
Creating a Security Policy
Updates and Security
Physical Security
Filesystem Security
Linux Security Modules

Module 15 – Basic Troubleshoot and System Rescue

Troubleshooting Overview
Things to Check: Networking
Boot Process Failures
Filesystem Corruption and Recovery
Virtual Consoles
Rescue Media and Troubleshooting
System Rescue and Recovery