

Linux For System Administrators

Duration: 5 Days (8 hours)

Module 1 – Introduction to Linux

What is Linux
Distributions
Shell environment
CLI basics
GNOME environment (functions)

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
cp – mv command
Links

Module 3 – User and Group Account Management

User Accounts
Management
Passwords
Restricted Shells and Accounts
The root Account
Group Management
File Permissions and Ownership

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

Module 6 – RAID and LVM

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

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)

Module 9 – Package Installers

Package Installers
Yum/Dnf
Zipper
APT

Module 10 – System Startup and Shutdown

Understanding the Boot Process
The Grand Unified Boot Loader
GRUB Configuration Files
System Configuration Files in /etc
The init Process
Upstart
Systemd
Systemctl services
Managing units through systemd
Shutting down/Rebooting the System

Module 11 – Backup and Recovery Methods

Tar
Compression: gzip, bzip and xz and Backups
dd
rsync

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 – Understanding Logs and NTP

Local System Security
Systemd and rsyslog
Logger cmd
Log update
Log rotate
Managing system time
configuring NTP

Module 15 – Basic Troubleshoot and System Rescue

Troubleshooting Overview
Things to Check: Networking
Boot Process Failures –
Password breaking
Filesystem Corruption and Recovery
System Rescue and Recovery