

Course Description: This course equips participants with the necessary tools to insure the well being of a LINUX system. Lab sessions include the installation, troubleshooting, backup and recovery and administrative maintenance of a LINUX system.

Who Should Attend: The course is intended for those people who will be responsible for the operation and management of a Linux system.

Prerequisites: Participants are expected to have completed the course entitled Introduction to UNIX or have equivalent experience.

Benefits of Attendance: Upon completion of this course, students will be able to:

- Carry out startup and shutdown procedures
- Perform system administration tasks including adding and deleting users, adding devices, partitioning the disk, and other administrative functions
- Use the administrator files and commands in the /etc directory
- Manage disk space and file- systems
- Provide user guidance
- Backup and restore all or parts of the system
- Monitor system performance
- Establish and maintain network connectivity

Course Outline:

Introduction To Linux

History Of Unix
Contemporary Products
Advantages Of Linux
Components Of The Linux Environment
Important Parts Of The Kernel
Shells With Linux
Major Linux Services
Organization Of The Linux Filesystem
Responsibilities Of A System Administrator
Getting Help
Exercises

What You Should Already Know

Beginning Linux Topics
Shell Variables
The PATH Variable
Exporting Variables
The Command Line
The PS2 Variable
Command History
Command Substitution
Cut, Paste
Expand, Fmt, Unexpand
Head, Tail, NL, Od
Wc, Split
Pr, Tac, Tr
Xargs, Join
Sed
Directory Manipulation Commands
File Manipulation Commands - Cp
File Manipulation Commands - Mv
File Manipulation Commands - Rm, Touch
Using Filename Expansion Characters
Special I/O Files
Standard I/O Files
Pipes
Process Management
Ps, Pstree
Top
Signals
Job Control
Nice, Renice
Regular Expressions
Shells
Shell Variables
Shell Aliases
Functions
Startup Files
Key Mappings
Writing Shell Scripts

Executing Your Script
A Script's Environment
Exit Status
Programming The Shell

System Startup And Shutdown

Introduction To The Boot Process
Stages Of The Boot Process
Linux System Runlevels
Linux System Initialization Scripts (/Etc/Init.D)
Suse Linux's Runlevel Service Tool
Suse Linux's Runlevel Service Tool
The Chkconfig Command
X Windows
Shutting Down The System
Exercises

System Security

Important System Files... /Etc/Passwd
Important System Files ... /Etc/Shadow
Important System Files... /Etc/Group
The Superuser (Root) Account
The Su Command
How To Use The Su Command
The Whoami And Id Commands
The Who Command
File And Directory Permissions
Types Of Permissions
Changing Permissions
The Octal Mode
Special File Permissions ... Suid And Sgid
Special File Permissions ... Sticky Bit
Adminstrating Ownership
Exercises

Adding Users

Manually Creating A User Account
The Chsh Command
Additional Commands
Adding A User
Deleting A User
Exercises

Software Package Administration

RPM
Standard Commands And Options
Installing Packages

Naming Conventions For RPM Packages
Installing A Package
Upgrading Packages
Uninstalling Packages
Querying Packages
Verifying Packages
Installing Packages Through Yast Control Center
Exercises

Linux System Processes

Linux Process Components
Linux Process Creation
The Ps (Process Status) Command
The Top (Top Jobs) Command
The Kill Command
The At Command
How To Execute The At Command
Scheduling Tasks Using Cron
The Crontab File Format
Creating A Cron Entry
Exercises

Kernel Configuration

Overview Of The Linux Kernel
Configuring The Linux Kernel
Configuration Options
Building And Installing The Kernel
Building The Kernel
Installing A New Kernel
Configuring Your Boot Manager
Troubleshooting The New Kernel
Troubleshooting And Recovery
Exercises

Disk Management

Disk Drive Geometry
Introduction To Partitions
Devices And Drivers
Linux Standard Naming Conventions
Partitioning A Disk
Using Fdisk
The Mke2fs Command
The E2fsck Command
Introduction To Mounting File Systems
Mount Options
Mounting A File System
Exercises

Backup And Restore

Backup Devices And Media

Backup Strategies
Example Of A Backup Strategy
The Pax Command
The Mkisofs Command
The Cdrecord Utility
The Tar Command
The Cpio Command
Exercises

Printing

Overview Of Printing
Printer Configuration
Print Commands
CUPS
Exercises

Network Basics

Network Terminology
LAN Topology
Network Transmission Media
Network Access Methods
Network Hardware
Standards And Protocols
Packets
The ISO/OSI Model
TCP/IP Network Model
Network Configuration
Exercises

Unix Network Applications

The Extended Internet Services Daemon
Ftp
Vsftpd
The Telnet Command
Simple Telnet Session
The R* Commands
Trusted Hosts
Sendmail
Filesystems
Network File System
/Etc/Exports
NIS
Exercises

The Network File System (Nfs)

Introduction To Nfs
The NFS Server
TCP Wrappers
The NFS Client
Configuring The NFS Environment
Exercises

Naming Services

Naming Services Overview
The Domain Name Service (DNS)

Installing A DNS Server
Configuring A DNS Server Using Yast2 Dns-Server
The NIS+ Environment
The NIS Environment
NIS Servers And Clients
NIS Components
Installing The Software
Configuring A NIS Master Server
Configuring An NIS Client
Configuring An NIS Slave Server
Name Service Switch
Configuration File
Exercises

Installation Of Suse Linux

Optimization Of Usage
Server Installation
The Installation Process
Getting Started
Installation
Partitioning
Boot Loader And Network Configuration