

Course Description: Linux has risen in popularity because it is Open Source technology. This means that customers are no longer locked into any one particular vendor's software. The rise in popularity of Linux has resulted in various Linux distributions. SuSE Linux is now capturing an increasing market share of Linux users. With legions of developers contributing to Linux, it is safe to assume that Linux is here to stay and that Linux will only continue to grow in popularity.

This course is divided between lectures and hands-on exercises. If you are taking this course in a classroom setting, rest assured that your instructor is not only a Linux expert, but is ready and willing to answer any and all of your classroom questions.

Who Should Attend: This course is intended for programmers, end users, managers, and future system administrators.

Prerequisites: Students are required to have some familiarity with an operating system such as DOS or Windows.

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

- Understand the relationship between UNIX and LINUX.
- Log in and out of the system.
- Use the various components of the GNOME desktop.
- Perform work using terminal shell windows.
- Navigate through the file system.
- Get help using the on-line manual.
- Use the rich set of LINUX file management utilities.
- Edit files using the 'vi' editor.
- Use network utilities including ftp and telnet.
- Use the bash shell for a wide variety of functions.
- Write fundamental bash scripts.
- Kill processing through knowledge of the process tree.
- Launch and control jobs.
- Understand the role of the system administrator.
- Use the robust set of software tools.
- Use the Nautilus graphical shell.
- Launch applications graphically.

Course Outline:

An Introduction

Brief UNIX History
Linux + GNU
Commercialization of Linux
UNIX/Linux Time Line
GNU, FSF, and the GPL
Linux Advantages

Getting Started

Logging in to Linux
Working in Linux
The Gnome Display
Terminal Windows
Nautilus
Gnome Applications
Terminal Window Interface
Shell Command Lines
The man Command
Linux Architecture

The Linux Filesystem

Filesystems
Top Level Directories
Home Directories
Directory Commands
The /etc/passwd File
The /etc/group File
File and Directory Permissions
chmod
umask

Shell Fundamentals

Shell Functionality
Shell Variables
The PATH Variable
The Command Line
Command History
Command Substitution
Filename Expansion Characters
The Standard Output
The Standard Error
The Standard Input
Pipes
Aliases

Functions
Quoting
Control Sequences
Other Shell Features

File Manipulation Commands

cat
ls
cp
mv
ln
rm
wc
find
The vi Editor
vi Commands

Linux Filters

Perspective
grep
sort
head and tail
tr
cut
od
paste
split
uniq
xargs
sed
awk
more and less
tee
lp

Processes

What is a Process?
Properties of a Process
Process Creation
ps
Job Control
Signals
kill
nohup

Shell Programming

Shells
Scripting Rationale
Creating a bash Script
bash Startup Files
A Script's Environment
Exporting Variables
Exit Status
Programming the Shell
Parameter Passing
Operators
if
Arithmetic
Looping Constructs
Input and Output
Interrupts

Networking Applications

TCP/IP
Client/Server Model
Ports
DNS
NFS
ping
ftp
telnet
ssh

Software Tools

C Language and UNIX
Creating Programs in C
Creating a Library
Using the Library
Static vs. Shared Libraries
make
Revision Control
CVS
Other Languages

System Administration

Duties of the System Administrator
Bringing Up the System
Shutting Down the System

Adding Users
The /dev Directory
The find Command
Backing Up Files
cpio
tar
Filesystem Commands - mount
Filesystem Commands - df
Filesystem Commands - du
at and crontab
Managing Software

Using the Graphical Environment

The X Window System
A Picture of Several X Clients
XFree86! and Xorg
The GNOME Desktop Environment
Window Managers
Window Operations
Nautilus
The Linux File Manager
A Graphical Depiction of Nautilus
Launching Applications through Nautilus
Office Applications

Mail Systems

Mail Systems
mail Command
mail Customization
pine Command
Features of pine
Using pine
Main Menu in pine
Help in pine
Compose Message in pine
Message Index in pine
Folder List in pine
Address Book in pine
Setup in pine