



Linux Insight

Course Code - LA011

Our Curriculum

This course begins with the very basic foundations of Unix/Linux lineage and proceeds to explore the various structures of a Linux system, its' default file system hierarchy and usage of the bash shell interface at a Power User Level.

Perspective

The participants need to have a background of having worked at the desktop level on any Operating System , and conversant with computer fundamentals.

Prospects

At the point of exit one would have had a thorough exposure to the fundamentals of Linux OS and a good grasp of its' basic structures including the file system, logical use of the default shell, BASH in a meaningful way.

Course Contents

Unix & Linux : Background and Perspective

- Bell Labs Inheritance
- The BSD and other off-shoots
- GNU/GPL & Minix Projects
- Linux Development Model
- Commonalities and Differences
- Main Features of the Linux Kernel

Linux Installation : A step-by-step Guidance

- Device Identification under Linux
- Partitioning Scheme & Tools
- Local Installation
- Types of Installation : Workstation & Server Classes
- Package Selection
- Installation Process

An Introduction to BASH Shell

- The Essential Features
- Setting Environment Variables
- Bash Related Configuration Files

Introducing the Graphical User Interface

- The Underlying Infrastructure : X Window System
- X Server Topology
- The X Clients : KDE & GNOME Desktops
- Exploring the X Applications

The Vi Editor

- The Three Modes of Operation
- Moving back & forth
- Deletions and Undoing Changes
- Inserting & Modifying Text Inputs
- Making Changes Globally

Login Shell & Help-line

- Class of Users, their Identities & Privileges
- Virtual Consoles & their importance
- Executing shell commands
- Man, Info, & FAQ Pages

Linux File System & its' Structure

- Basic Structure : Inode
- Features of the default Ext3 File System
- The Single-rooted Hierarchy & its' contents
- Exploring the directories

Basic Shell Commands

- Listing/Copying files & Directories
- Viewing Text Files
- Pipes & Compound Commands
- Regular Expressions
- Hard Links and Symbolic Links
- Disk/Memory Usage
- The Linux Processes & related commands



Linux System Administrator

Course Code – LA211

Our Curriculum

This module is structured to cover the essential features of administering a Linux system. It begins with the traditional Unix-like style tools as implemented under Linux and further explores various Linux-specific tools & configurations of System Administration. The entire range of topics are vividly presented through systematic, logical, and structured methodologies which combine theory and practice in a meaningful manner.

Perspective

The participants should have gone through our First Level Course, viz., LA-011 or possess the equivalent knowledge base with a clear understanding of the fundamentals of Linux OS, its' default file system, and be able to manipulate & use the Bash shell in a logical manner.

Prospects

At the point of exit one would have had a thorough exposure to all essential aspects of fruitfully administering a Linux system. Further they would have taken the few first steps towards configuring a network of Linux systems. In short they would be Next Level Linux Professionals.

Course Contents

Administration of Users :

- Unix-style of User Policies
- User Creation & maintenance
- Creation & Administering Groups
- Password Creation & Ageing Policy
- Group Administrator Policies
- Co-administrator through Sudoers

File Access Permissions

- Significance of Unix-style permissions
- The meaning of read,write, & execute levels
- The extra bits of permissions :suid,sgid,stickybit
- Extended Attributes
- Enabling Access Control Lists (ACL's)

User Quotas

- Creating the quota file
- Enabling Quota for specific users
- Checking the quota

Job Scheduling through at and cron daemons

Archiving, Backup & Application Management

- The time-tested Unix tar utility
- Compressing files using gzip, bzip2 tools
- Installation of applications through RPM Utility

Printer Administration

- Implementing Common Unix Printing System (CUPS)
- Exploring the configuration files

Understanding the Linux Boot Process

- BIOS Initialisation
- Kernel Initialisation
- Starting of the init process
- The grub.conf, inittab ,& fstab files : A Study
- Run Levels & service initialisation scripts

Advanced File System Management

- Configuring LVM2 in Linux
- RAID Implementation & Configuration of Software RAID in Linux

Linux Networking Environment

- Configuration of Network Card
- Testing the network & connectivity on the LAN
- Network Tools
- The telnet, ftp, & ssh client programs

Advanced Installation Methodologies

- Preparing for Network Installation
- Automating Installation using Kickstart
- Lab Exercise



Linux Network Servers

Course Code - LA311

Our Curriculum

This module is structured to cover the complete setup and exploration of configuration files of various utilities such as use of Linux as a DNS, DHCP servers. Further it thoroughly expands into the domain of file and print sharing, and user authentication under homogeneous environment through NFS/NIS & through Samba setup in an environment having a mix of Linux & Windows systems. It further exposes the participant into the domain of web server Apache, Squid Proxy & mail servers Sendmail and Postfix. The entire range of topics are vividly presented through systematic, logical, and structured methodologies which combine theory and practice in a meaningful manner.

Perspective

The participants should have gone through our First & Next Level Courses, viz., LA-011 & LA-211 or possess equivalent knowledge base with a clear understanding of the essentials of administering a Linux box and have sufficient exposure.

Prospects

At the point of exit one would have had a thorough exposure to all essential aspects of setting up and maintaining Linux Network servers. In short they would be Next Level Linux Network Professionals.

Course Contents

Domain Name Server

The Basic Concepts & Toplogy
The BIND Package
Configuration Files
Create and maintain Zones
Setup & Testing DNS
Slave Server Setup
Subdomain Delegation

APACHE

Implementation
Server Configuration
Configuration of Virtual Hosts
User authentication, host authentication
Security through htaccess
Configuring SSL for viewing secure/encrypted pages

Dynamic Host Control Protocol

The Client Process
The Server process

SQUID

Exploring the configuration file
Simple Squid access permissions
Fine-tuned access permissions :ACL's
Configuring clients to use proxy mode

Dynamic DNS

Generating TSIG (Transaction Signature) keys
BIND Dynamic Updates
Client-side configurations
DDNS Updates

SAMBA

Samba Server Configuration
Setting up file/print sharing
Samba client utilities : smbclient, smbmount

Network File System (N F S)

The Client-Server Architecture
Portmapper Service
Configuring the client
Configuring the server
NFS Utilities : nfsstat & showmount, Autofs

SENDMAIL

Mail Transfer Agent (M T A)
Mail Server Configuration File
Setting up Procmail
Multiple mail servers setup

Network Information Service (NIS)

NIS Client Utilities
ypbind, ypcat, ypwhich, yppasswd authconfig
NIS Server Utilities ypinit, ypserv
Configuring NIS Slave Server

POSTFIX

Comparative Merits
Mail Server Configuration Files



Linux Academy - Securing & Optimizing Linux OS

Course Code: LA411

Our Curriculum

This module is structured to cover various aspects of securing a Linux system through multi-layered approach by using several tools and utilities. It broadly explores the concept of cryptography, the all important Pluggable Authentication Module (PAM), Configuring a firewall using the IP Tables utility, Using Kerberos Authentication Mechanism to secure the services, and set up relating to VSFTP, OpenSSH, & Syslog environments to secure a Linux box. The entire range of topics are vividly presented through systematic, logical, and structured methodologies which combine theory and practice in a meaningful manner.

Perspective

The participants should have gone through our three Courses, viz., LA-011, LA-211 and LA-311. In the alternative they must possess equivalent knowledge base with a clear understanding of the essentials of administering a Linux box and have sufficient practical exposure to configuring & maintaining a Linux system as well as Network servers.

Prospects

At the point of exit one would have had a thorough exposure to all essential aspects of security related topics in a thoroughly professional manner and get to know the various methodologies and utilities on a practical plane. In short they would be Next Level Linux Security Professionals.

Course Contents

Security :

An Overview
Physical & Logical Security

Pluggable Authentication Module

Underlying Algorithms
Configuration Files
User Restriction
Time & Resource Limitations

Xinetd & TCP Wrappers

The Configuration files
Securing the system

Setting up Very Secure FTP

The Configuration files
Creating ftp users
Restricting Users

Configuring Firewall through IP Tables

Essential Concepts
Net Filter Components
Implementation of Firewall Rules

Open SSH Server

Cryptography Essentials
Symetric & Asymmetric Keys
Configuration File

Syslog Server

File System Analysis
Analysing Log Files

Kerberos Authentication

The Set up
Configuration Files
User Authentication
Services Authentication

The Process of Kernel Compilation

Kernel Components
Kernel Modules & the Concept of Dynamic Loading
Purpose
Requisite Packages
Running the compilation