



Openpath Education Syllabus Booklet

**Job Oriented**

# **Linux Training on Industrial Implementation by Industrial Experts**

**Basic • Intermediate • Advanced & Customized Course Available**

## Dear Linux Lovers, Greetings from Open Path!



Open Path prides to provide the Industrial training program for the fresh BCA, BE, B.Tech, MCA, and diploma holders. During this program Open Path allows

trainee to work on the LIVE INDUSTRIAL PROJECT, which is very helpful to trainee for the future prospects. Training program basically insists upon developing the student's ability to think dynamically and to widespread the logical ideas. Our institute helps the students to cope up with the future technological requirements.

Established in 1995, the R&D division of Open Path is providing innovative IT solutions on Linux platform . Open Path has been providing professional opensource and networking solutions to reputed companies within Delhi and NCR over last 20 years.

Open Path is backed by a team of highly trained and competent IT experts with innovative ideas and dynamic actions.

We provide you with the state of the art infrastructure so that you can practice and further enhance your skills. Practicing on your own would provide you with the necessary confidence that is required to meet the challenging demands of the job world.

## About Open Path

OPEN PATH is India's only institute who provides industrial training in Linux by Corporate Trainers.

OPEN PATH provides training on real time Industrial Ready Solutions.

## Course Highlights

- Job Oriented
- Live Projects
- Onsite Training
- Helps in Placement
- Training by Industrial Experts
- Weekend & regular batches are available

## Our corporate clients include

- Ethical Hacking Techniques
- Configuring Linux Mail Server
- Installation of Linux Os
- Monitoring Server Performance
- Basic, Essential and Advance Command
- Advanced MRTG
- Linux Software RAID/LVM Partitions
- Linux Networking
- Remote Disk Access With NFS
- Simple Network Troubleshooting
- Configuring NIS Domain
- The Linux Boot Process
- Controlling Web Usage With Squid
- Configuring A Linux DHCP Server
- Basic MySQL Configuration
- Configuring Samba
- Linux VPN Configuration
- Samba Security & Troubleshooting
- Codes, Scripts & Configurations
- Linux Firewalls Using iptables
- Shell Scripting / Programming
- Configuring a Linux FTP server
- Server Clustering



# Mastering Linux

Semester - I

Fees  
15,000

Prerequisite  
Basic  
Knowledge  
of Linux

Duration  
120 Hrs

Batches  
Weekend /  
Regular



## Linux Essentials:

Understanding OS structure, Understanding Step by step linux boot process in detail, Basic, Essential and Advanced commands, User and Group management, Understanding linux permissions, Understanding and managing services on linux, Understanding and managing Shell variables, Network essentials (network configuration, basic and advanced commands), Network troubleshooting, Configure linux as a router, Understanding /etc/fstab (in detail)

## Managing Network:

Understanding remote login to linux servers or machine, Learn about file on remote server, How to setup, configure and use FTP server, Troubleshooting of FTP server, How to setup, configure and use telnet on linux, How to setup, configure and use SSH server, Troubleshooting of SSH server, How to setup, configure and use VNC server, How to setup, use DHCP server, Troubleshooting of DHCP server

## DNS Server:

DNS Concepts, Understanding root server, TLDs, SOA, Domain, subdomain, Registrar, Hosting Techniques, Configure DNS server, chroot, cache DNS, Forwarders, Secondary DNS, Dynamic DNS, Troubleshooting of DNS server, DNS Security

## Proxy server and Network security:

Understanding the use of Gateway, configuration and troubleshooting of gateway, Understanding the use of proxy server (Squid Server) in industry, How to setup, configure and use Squid as a proxy server, Troubleshooting of Squid server, How to setup, configure Transparent proxy server, How to implement Content Filtering on proxy server, Concept of DoS/DDoS/Spoofing/MITMA/Concept of Virus/Worm/Phishing/Spyware/Sniffing/Trojan Horse/PopUp etc

## Enterprise Mail Server:

Understanding Mailing System, Mail Server Basics, Understanding of Mail components, Understanding Mail Server Features, Understanding Email Header, Build an Enterprise Mail Server (sendmail, postfix), Implementation on popular MTA like Sendmail/Qmail/Postfix, Integration with ANTIVIRUS/ANTISPAM, Understanding the concept RBL/PBL (integration with Mail Server)

## Web Server:

How to setup, implement Apache server, Understanding Apache Server Basics, Understanding Webserver Concepts,

Understanding Virtual Hosts, How to create and install SSL Certificates, How to implement Apache Web Login Authentication with password, Building Apache with mod\_ssl, Web hosting techniques, Build and manage a LAMP Server, Apache Web Server Security and Hardening Tips, Apache Server Tweaks and Tips and Tricks, Troubleshooting of Apache server

## Setting up Linux File Server:

How to setup, implement File Server (Samba Server) on linux, Implement samba server as a backup server, Understanding user, group management on samba server, Understanding veto files, Backup, restore files and folder, Mounting samba share with windows OS, Understanding backup tools, Samba-swat (control panel), Secure fileserver with firewall (IPTABLES), Understanding samba security, Troubleshooting of Samba server

## Security/Firewall:

Linux Security (Firewall/Service Level Security/Tips and Tricks), Gateway Management, IPtables / PAM / TCP Wrappers, Network Monitoring Tools-MRTG / NTOP / WireSHARK / Nagios / Snort etc, Server Hardening, tweaking, Security Audit

## Opensource Firewall:

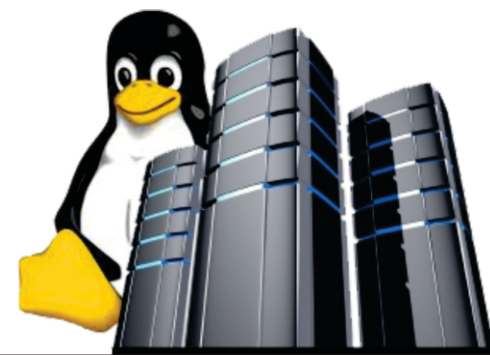
Opensource Firewall, ENDIAN Firewall, Understanding Zones, Routing, Proxy, Backup, Restore, Open VPN, IDS, Control Panel

## NAS: Network Area Storage :

Concept of NAS and SAN, Iscsi Initiator, NFS, CIFS, Fuser Concepts, Free NAS, Openfiler

## Linux Partitioning: LVM & RAID

Create Physical Volumes, Create a new volume group, Add New Hard Drive to Volume Group, Create logical volume, Resizing a Logical Volume, Extend Volume Group Size, Extend File System, Remove Logical Volume, Backing up a Logical Volume, Create New Snapshot, Mount New Snapshot, Copy Snapshot and Delete Logical Volume, Description of RAID and its various levels



# Mastering Linux

Semester - II

**Fees**  
15,000

**Prerequisite**  
Good Knowledge of Linux

**Duration**  
120 Hrs

**Batches**  
Weekend / Regular



## Clustering and Load Balancing :4 Sessions

Two node linux cluster using HA(High Availability), Heartbeat, Using DRBD cluster, NAS, Gluster FS, Iscsi Initiator, Load Balancing for Apache , MySQL etc..

## Open Ldap:5 Sessions

Concept of OpenLdap, Schemas,Attributes, Build a OpenLdap Server, Introduction to directory services, Describes how to build and configure Open Ldap, Configuration and Installation of LAM (Ldap Account Manager), Php LdapAdmin

## Single Sign On (SSO): Centralized Authentication Using OpenLDAP

### Integrating LDAP with Samba

Configure Samba-2: Installation of sambaldap tool,Configure PAM, NSS files for ldap samba,Authentication, Advantages of using a directory service, Add and Login windows client with Domain, ssh with ldap user.

### Integrating LDAP with Squid

Configure squid with openldap Authentication, Check ldap user with different acl.,

### Integrating LDAP with FTP

Authenticate Ldap user on FTP server

### Integrating LDAP with SVN

Configure SVN with Ldap, Authenticate Ldap user on SVN server.

## Backup & Restore OpenLdap server

Take backup of OpenLdap server,Restore backup of OpenLdap server

## Samba 4.0 Domains as a replacement Of Windows Active Directory Server: 2 Sessions

A replacement of Windows Active Directory Server, Samba 4.0 Configuration,Samba shares, Security, Domain Controller,Roaming profile, , Logon Scripts, Network Drives, Group Policies, Backup and restore.

## CentralizedBackup: Bacula: 3 Sessions

Installation and Configuration of bacula directory, configuration of bacula storage, bacula clients, how to create backup jobs, how to define scheduling, file sets, Jobs, backup, how to verify and restoring data, Configure Email for JOB Alerts, configuration of Control Panel.

## Server Monitoring: Nagios: 2 Sessions

Installation and configuration of Nagios server. Implementation of how to monitor remotely Linux hosts (using NRPE and SSH) and Windows hosts (using NSClient++). Commonly used Nagios check commands are described, with clear examples.

Explain Nagios configuration files, Individual configuration objects, group configuration objects, and advanced configuration objects with clear examples.

Describe the Nagios Web interface and security.

## Log Server, Log Analyser: 1 Session

Build a syslog Server, Centralised Log Monitoring system, MailAlert, Easy diagnosis.

## Monitoring Tools: 4 Sessions

Logwatch,Tripwire, MRTG, SARG, AWSTAT, NTOP, WireSHARK, SNORT

## Chat and OPEN VPN SERVER: 2 Sessions

Building a chat server, IM messenger, Server/client setup, OPEN VPN, Understanding VPN Concept Site2siteVPN, Server/client VPN, Build an Open VPN server

## MYSQL SERVER : 2 Sessions

Understanding MySQL Server basics, Cracking MySQL root password, Backup of Databases, Restore Databases, SQL Queries,Frontend PHPMYADMIN, MySQL replication (Master to Master, Master to Slave ), Connectivity with PHP

## ZIMBRA MAILSERVER: 3 Sessions

Installation of Zimbra, Understanding of ZCS, Zimbra Desktop, Mail relaying through remote HOST, SMTP AUTH, Mail Archiving, Distribution List, Antivirus, Anti Spam, Global Address Book, SSL Certificates, Brief Case, RBL,SBL Integration, zmpov commands, Mail and user Migration from Microsoft exchange or sendmail, Creating bulk users, Mail backup and restore, Calendar sharing, fetchmail,bug fixing and troubleshooting tips and tricks.

## HAProxy: 2 Session

Introduction to HAProxy,Proxying,SSL,Monitoring,High availability,Load balancing,Stickiness,Sampling and converting information,Maps,ACLs and conditions,Content switching,Stick-tables,Formatted strings,HTTP rewriting and redirection,Server protection,Logging,Statistics,Advanced features,Management,System-specific capabilities,Scripting



### Security Audit/Server hardening and Server patching:2 Sessions

Security Audit by various method, 30 security Tips, screening by external tools, NMAP, Finding Vulnerabilities, Counter measures and patching, Server hardening and tuning .

### WHM Control panel / CentOS panel: 4 sessions

Concept of WHM and Cpanel,Create a new cPanel account in WHM, cPanel accounts, account's password, disk quota, list of all the accounts over their disk quotas, change an account's bandwidth limit, reset an account to its package's

bandwidth,view bandwidth usage by Account, suspend/unsuspend accounts, modify an account, terminate and permanently delete an account, manage Feature Lists, manage account packages, How to view the raw logs for an account in WHM, inactive account, view a list of the accounts, search for accounts, list all the parked domains and subdomains, How to perform actions on multiple accounts at once, How to manage Reseller Accounts, How to change an account's owner, How to copy a hosting account from another server to your WHM server using SSH, Backup/Restore an account.Migration Accnts from another WHM, Security cphulk, MailControl, queue monitoring.

# Mastering Messaging Server

Semester - III

Fees  
15,000

Prerequisite  
Good Knowledge of Linux

Duration  
72 Hrs

Batches  
Weekend / Regular



### Messaging Fundamentals

Mail Server Basics, About JUNK or SPAM Mails, Concepts of DNS(MX) Mail Exchanger, Understanding Email Routing, Mailing Components like MTA, MDA, MUA, SMTP-AUTH, OPEN-REALY, SMART-HOST, TRANSPORT, FORWARDING, MASQUERADING etc. Understanding Mailing features: Disclaimer, Autoresponder, MailQuota, Types of Email Accounts, Global Address Book, Distribution List etc. Understanding Email Header: Email Tracing, Message ID, TO, CC, BCC, X Parameters, Spam Score Etc. Understanding Mailbox: MDIR, MBOX

### Sendmail Server

Mail Relaying through remote host /SMTP Auth / Mailer Table / Access Rules / Mail Archiving / Virtual Table / Aliases / Intigration with Antivirus / Anti Spam / LDAP as Global Address Book / Managing Control Pannel / SSL / TLS Certificates / Domain Masque Reading / Procmail / Auto Responder / Webmail / RBI SBL database integration for control SPAM.

### Postfix Server

Mail relaying through remote host / SMTP Auth / Mailer table / Access rules / Mail Archiving / Virtual table / Aliases / Integration with antivirus / Anti Spam / LDAP as Global Address Book / managing Control Panel / SSL / TLS Certificates / Domain Masquerading / Procmail / Autoresponder / Webmail / RBI SBL database integration for control SPAM.

### ZIMBRA Server

Mail Relaying through remote host / SMTP AUTH / transport map / Mail Archiving with individual users / Virtual Table / account aliases / mail forwarding / Integration with antivirus /

Anti Spam / LDAP as Global Address Book / SSL / TLS Certificates / Domain Masquerading / Breifcase feature / many types of theme / Auto responder / mail filter / Backlist & whitelist Address / RBL SBL database integration o control SPAM.

### LIVE Implementation

Administration of WHM / Cpanel, work on live domain, Examples of Scenario, Mail server Tweaks, Tips & Tricks.

DOVECOT SERVER (POP / IMPA Server) in depth.,SPAM ASSASSIN SPAM control tool in depth.TOOLS, Fetchmail / CRON / PROCMail / MailScanner / ClamAV / Spam Assassin / Usermin / Webmin etc.



# Mastering Web Server

**Fees**  
15,000

**Prerequisite**  
Good Knowledge of Linux

**Duration**  
30 Hrs



**Batches**  
Weekend / Regular

In depth knowledge of web technologies ( Understanding DNS, Build a DNS Server, Build A LAMP Server, Control Panel, MySQL Server)

Web hosting techniques ( Domain Name Registration, Webhosting, Understanding FTP, System Health checks and Tuning, Apache Server

(Understanding Apache server, Multiple Virtual Hosting, .htaccess,.htpasswd, mod\_ssl, ssl certificates, Log watch, AW state, Performance Tuning etc..)

Tomcat/Java (Installation/maintenance of Tomcat and Java)

nginx (Nginx (pronounced engine-x) is a free, open-source, high-performance HTTP server and reverse proxy, as well as an IMAP/POP3 proxy server)

Whm/cpanel ( Most used Control panel, Training on Live panel to maintain WHM) Load balancing, Clustering ( for APACHE, MYSQL)

SVN ( Apache Subversion (often abbreviated SVN, after the command name svn) is a software versioning and revision control system )

Jboss ( Installing and running an instance of Red Hat JBoss Enterprise Application Platform, Configuring multiple instances, Configuring JBoss web connectors, Deploying applications, Configuring web properties for deployed applications, Configuring logging, Configuring access control, Configuring Java™ Virtual Machine (JVM) properties, Removing unnecessary services, Configuring XA and non-XA data sources.

# Mastering Shell Scripting

**Fees**  
15,000

**Prerequisite**  
Good Knowledge of Linux

**Duration**  
30 Hrs



**Batches**  
Weekend / Regular

This course provides fundamentals of Unix/Linux operating system and shell. It gives student in-depth understanding of shell as command line tool and shell as a programming language. Students understand the power of shell, its various features, basic commands and utilities like grep, find, sed, awk etc. Students learn shell scripting from basic. The course is designed practical oriented with lot of practice examples. This course serves for the fresher's who are new to Linux and for the students who are already working in Linux environment to become more effective and productive in their jobs. It is suitable for System administrators, testers and developers of Linux/Unix.

**At the end of the course Student will be able to**

- Work on any Linux platform with confidence
- Write effective scripts for their day to day jobs
- Understand and use most of the Linux features and commands
- Will be able to do Basic System administration

Shell Basics (Types of shells, Shell functionality Environment) Writing first script(Writing script & executing basic script, Debugging script, Making interactive scripts, Variables (default variables), Mathematical expressions) Conditional statements(If-else-elif, Test command, Logical operators-AND,OR,NOT, case –esac, Loops, While, For, Until, Break & continue) Command line arguments( Positional parameters, Set & shift, IFS, Break & continue) Functions & file manipulations (Processing file line by line, Functions) Regular Expression & Filters (What is regular expression, Grep, cut ,sort commands Grep patterns) SED & AWK Processes (Concept of process in Unix, Background processes, Scheduling processes -At, batch & Cron) Misc (rapping signals, String substitutions / manipulations)

# Mastering AWS (Amazon Web Services)

**Fees**  
15,000

**Prerequisite**  
Good Knowledge of Linux

**Duration**  
30 Hrs

**Batches**  
Weekend / Regular



Openpath provides AWS Training to meet industrial requirement, helps our students for placement in good corporates and MNCs. Openpath provides Best Amazon Web Services Training in DELHI-NCR. We train on practical knowledge and full job assistance with basic as well as advanced level Amazon Web Services training courses. Training is 100% practical and taught by industrial experts.

## Section 1: Introduction To The Course

- Introduction, Overview
- The history of AWS so far

## Section 3: Identity Access Management (IAM)

- IAM 101
- IAM Lab

## Section 4: AWS Object Storage and CDN - S3, Glacier and CloudFront

- Create an S3 Bucket (Lab)
- Version Control (Lab)
- Lifecycle Management & Glacier (Lab)
- CloudFront
- Create a CDN (Lab)
- S3 - Security & Encryption
- Storage Gateway
- Import/Export

## Section 5: EC2 - The Backbone of AWS

- In this lecture we introduce the key concepts and components behind Amazon's flagship product, EC2.
- Let's get our hands dirty! Launch an EC2 Instance.
- How to use Putty (Windows Users Only)
- Security Groups Basics
- Volumes and Snapshots
- Create an AMI
- Load Balancers & Health Checks
- Cloudwatch EC2
- The AWS Command Line & EC2
- Using IAM roles with EC2
- Autoscaling 101
- Lambda - Concepts

## Section 7: Databases on AWS

- Databases 101
- Launching an RDS Instance
- Backups, Multi-AZ & Read Replicas
- DynamoDB
- DynamoDB
- RedShift
- ElastiCache
- Aurora

## Section 8: VPC

- Build your own custom VPC
- Network Address Translation (NAT)
- ELB's & VPCs

## Section 9: Application Services

- SQS
- SWF
- SNS

## Section 10: The Real World - Creating a fault tolerant PHP Site

- Setting Up EC2
- Automation & Setting Up Our AMI
- Configuring Auto Scaling & Load Testing
- CloudFormation!
- Want to be a real Solutions Architect?

## Topic Covers

- Ec2
- VPC
- SES
- VOLUME

# Mastering Zimbra Server

**Fees**  
15,000

**Prerequisite**  
Good Knowledge of Linux

**Duration**  
30 Hrs



**Batches**  
Weekend / Regular

## Agenda – Class 1

- Overview of Zimbra and Zimbra Architectural
- Installing Zimbra Collaboration
- Using the Zimbra Administration Console

## Agenda – Class 3

- User restriction to cretain domain
- recipient restriction (DL Restriction)
- Set bulk password
- Grep mailbox Quota
- Grep mailbox password
- Set zimbra mail Signature

## Agenda – Class 5

- Zimbar to zimbra migration
- zimbra x vresion to y version migration
- zimbra migration by ImapSync
- Disable Pop3 download Zimbra
- DL Migration Details
- Sssl issue of no login via password
- Renew Self-singed SSL certificate
- Find Zimbra mailbox ID
- Log Analyze

## Agenda – Class 2

- CLI Utility
- Zimbra Provisioning
- Creation E-mail id's and DL by CLI
- Grep Members from DL
- zimbra space clean scripts
- Grep LDAP Password, MySql
- Zimbra mail Archiving

## Agenda – Class 4

- Create SPF & DKIM & Update into DNS
- Disabled junk folder for particular mailbox
- Zimbra Grep mailbox folder
- Zimbra get Forwarding & hidden forwarding
- Disable Antivirus
- Set zimbra catchall
- MTP Error Codes
- GAL Integration





# Mastering Shell Scripting

**Fees**  
15,000

**Prerequisite**  
Good  
Knowledge  
of Linux

**Duration**  
30 Hrs

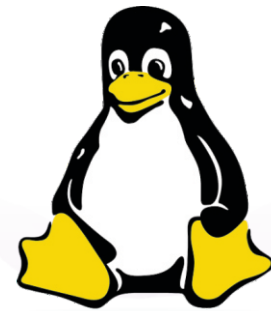


**Batches**  
Weekend /  
Regular

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- Will be able to do Basic System administration
- Will be able to do Basic System administration



Shell Basics (Types of shells, Shell functionality Environment) Writing first script(Writing script & executing basic script, Debugging script, Making interactive scripts, Variables (default variables), Mathematical expressions) Conditional statements(If-else-elif, Test command,Logical operators-AND,OR,NOT, case –esac,Loops, While,For, Until, Break & continue) Command line arguments( Positional parameters, Set & shift, IFS, Break & continue) Functions & file manipulations (Processing file line by line,Functions) Regular Expression & Filters (What is regular expression, Grep,cut ,sort commands Grep patterns) SED & AWK Processes (Concept of process in Unix, Background processes, Scheduling processes -At, batch & Cron) Misc (rapping signals, String substitutions / manipulations)



# Our Assistance

We also provide live training videos to our students so that you can revise any time when you needed.

## Learning Resources for Life

We provide  
Class Videos



Taught By  
Industrial Experts



Re-researched  
Study Material



Live Project



Weekend and  
Regular Batches



Money Back  
Guarantee



Help in  
Placement



All Days  
Batches



Re-researched  
Study Material



Subscribe to  
OPEN PATH YouTube  
channel for Linux  
Tips & real life solution  
video



Join us  
& get connected  
with latest events,  
pictures, exam dates  
and more.



Visit Our Website for  
More Information.



# Registration Form

Name :  
Father's Name :  
Date of Birth :  
Email ID :  
Mobile No. :  
Address :

## Courses Intrested In

- Patching Course
- Mastering Linux - I
- Mastering Linux - II
- Mastering Shell Scripting
- Mastering AWS
- Mastering Messaging Server
- Mastering Web Server
- Mastering Zimbra Server
- Mastering Linux Security

## Fee Details:

- Registraion Fees:
- Total Fees:

## Course Timing:

- Regular (Monday to Friday)
- Weekend ( Satarday & Sunday)
- Sunday Only





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