

# Linux Server for Enterprise Environment

Looking to boost your knowledge of Linux abilities as a system administrator? This course, Advanced Network and System Administration, introduces you to a deeper level of network and system administration. By the end of this course, you'll know how to really drive the most value out of your Linux server systems by providing more advanced network services and keeping your systems online and performing well.

This course is focused on:

- System Administration
- Server Administration
- Linux Server Security
- Server Management and Monitoring
- Server Tuning Troubleshooting

## Course Objectives

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- Advanced SSH Service with 2FA and AD Authentication
- Firewall (Firewalld) & Fail2ban
- Linux FTP Server Configure
- Samba Server with AD Authentication
- Storage Server Administration (iSCSI)
- Primary DNS Server Configure
- Secondary DNS (Slave) Server Configure
- Building Web Server using Apache, Nginx with PHP & MySQL
- Mail Server (Postfix, Dovecot, Webmail)
- Monitoring Linux Server using LibreNMS

## Target Audience

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- Linux system administrator
- Linux system Engineer
- Server monitoring Administrator
- Technical support Engineer

## Course Pre-Requisites

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- Basic Knowledge of Networking
- Linux System Administration Knowledge

## Course Duration

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- 36 Hours
- 18 Classes
- 2 Hours per Class

# Details Course Outlines

## Lesson-01

### Advanced SSH (Secure Shell) Service

- Introduction to Secure Shell (SSH)?
- SSH Server and Client Concepts
- Access Remote Server with SSH and Putty
- Secure copy (SFTP) using 'scp'
- Change default SSH port
- SSH Keys (Public and Private) Concept
- Configuring SSH Key-based Authentication
- Customizing SSH configuration files
- Restricting SSH logins
- SSH using 2FA Authentication
- SSH using Active Directory Authentication

## Lesson-02

### Linux Firewall (Firewalld)

- Network Firewall concepts
- Understanding Linux application firewall
- Install and configure 'firewalld' services
- Manage 'firewalld' with GUI, **firewall-cmd**
- Understanding 'firewalld' Zones
- Allow and deny by services & ports
- Limiting Network Communication
- Configure Port Forwarding
- Direct Interface and Rich Rules
- Design DMZ Network using Firewallld

## Lesson-03

### Linux FTP Server Configure

- Introduction to FTP Server
- How FTP Server Works
- Install and Configure FTP Server (vsFTPD)
- Access FTP using WinSCP
- Disable Anonymous login
- Authentication based FTP Server
- User restriction in FTP Server
- Advanced Configuration of FTP
- Install and configure secure FTP (SFTP)
- Enable Admin Account for FTP upload

## Lesson-04

### Samba Server with AD Authentication

- Concept of File and Block Based Storage system
- Introduction to NFS and CIFS
- Preparing Directories and Samba Users
- Samba User and Group Administration
- Explore Samba Configuration files
- Configure Samba Public Access
- Configure Samba Secure Access
- Configure Windows Client (Win 10/11)
- Accessing Network Storage with SMB
- Configure samba using AD Authentication

## Lesson-05

### Storage Server Administration (iSCSI)

- Storage concept (DAS/SAN/NAS)
- Introduction to iSCSI
- iSCSI Target Overview
- Required packages and services for iSCSI target
- Preparing disk for iSCSI target
- iSCSI Target Configuration
- iSCSI Initiator Introduction
- Configure iSCSI initiator on Windows & Linux
- Accessing iSCSI Storage (Windows & Linux Client)

## Lesson-06

### Primary DNS Server Configure

- The Domain Name System
- How DNS Server works
- Install and Configure BIND DNS Server
- Install & Configure Forwarder DNS Server
- Install & Recursive DNS Server
- Working with Authoritative DNS Server
- DNS Resource Record Types
- Forward zone and Reverse zone details
- DNS Lookup Utilities (nslookup, dig, host)
- Configure and Testing DNS Client
- DNS Server Debugging/ Troubleshooting

## Lesson-07

### Secondary DNS (Slave) Server Configure

- Importance of 2nd (Slave) DNS Server
- How Secondary DNS Server works
- Install and Configure BIND as a 2nd DNS Server
- Modify Master DNS Server Zone Files
- Verify master and slave replication
- View master, slave DNS log files
- Verify Master, Slave DNS From Client
- DNS testing using DNS utilities (nslookup, dig, host)
- Using itoDNS to check health and configuration
- Troubleshooting and debugging 2nd (Slave) DNS

## Lesson-08

### Web Server using Apache & Nginx with PHP & MySQL

- Introduction to Web Server
- Apache HTTP vs NGINX Web Server
- DNS configuration for Web Server
- Install and configure Apache HTTPD
- Apache (httpd) Configuration files details
- Configure HTML Based Hosting
- Configure Apache and Nginx virtual hosting
- Install LAMP stack on Server (Linux, Apache, PHP & MySQL)
- Configure Name-based Virtual Hosting
- Install SSL Certificate on Web Server (Lets Encrypt)

## Lesson-09

### Mail Server (Postfix, Dovecot, Webmail)

- SMTP, POP3 and POP3 IMAP theory
- How the Email Systems Works
- MTA, MDA, MUA Concept
- DNS Configure and MX Concepts
- Install and Configure Postfix Mail Server
- Installing and configuring Dovecot
- Postfix, Dovecot with SSL/TLS
- Working with SPF, DKIM and DMARC
- Configure e-mail Client (Outlook/Thunderbird)
- Install and Configure Webmail (Roundcube)

## Lesson-10

### Server Management and Monitoring using LibreNMS

- Introduction to Network Management & Monitoring
- NMS Protocol and architectures
- Different types of NMS tools and its Applications
- Working with '**LibreNMS**' NMS tools
- **LibreNMS** features and its applications
- Required packages (PHP, MySQL, SNMP & httpd)
- **LibreNMS** installation and basic configuration
- Advanced Configuration of '**LibreNMS**'
- Client-Side configuration for '**LibreNMS**'
- Configure and monument '**LibreNMS**' Dashboard