



# Linux Learning Centre

Linux Learning Centre was founded in the year 1999 as a training school dedicated to the promotion and development of Linux OS. LLC is the first of its kind in the entire Asian subcontinent to start offering training and consultancy exclusively on Linux platform. Initially promoted by Institute for Specialised Education, Linux Learning Centre started offering education on the open source platform to the masses when Linux technologies were available with only a handful of self-taught professionals.

At Linux Learning Centre, we impart education on Linux, open source and open source based value added applications. Initially founded with the encouragement of the local open source users, LLC today has a global patronage attracting Linux learning aspirants from 6 continents. LLC has also imparted onsite training across the country and overseas to corporate and research centres. Linux Learning Centre has till date delivered Linux education to participants from more than 37 countries from 6 continents.

Linux Learning Centre keeps abreast with the latest innovative developments in the open source community, bringing the latest technology in to the class room. At LLC, our engineers always crave to implement the latest release versions - be it the bash shell or a Beowulf Cluster.

LLC has learning programmes on OS administration, security, internals, programming, RDBMS, Perl & PHP Scripting on Linux. Linux Learning Centre is a Red Hat Training Partner. LLC is a channel for RHCE & RHCSS Red Hat Certifications, the most respected OS certifications in the world. LLC has in its rolls certified professionals who deliver Red Hat Linux training

leading to Red Hat Certification

In short, Linux Learning Centre is - **The Gateway to the World of Linux.**

## Linux Learning Centre

H.O. & Corporate Training Centre

# 635, 6th Main Road

Hanumanthnagar

Bangalore 560019, INDIA

Tel: +91-80-22428538 / 26610999

TelFax: +91-80-26600839

Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main

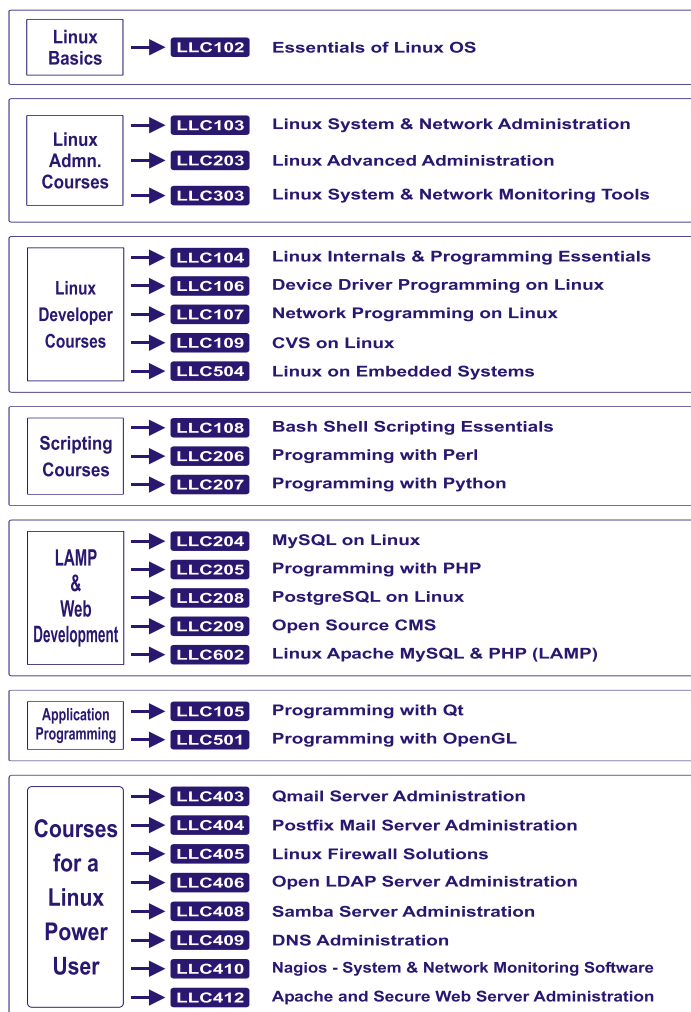
Banashankari 2nd Stage

Bangalore-560070

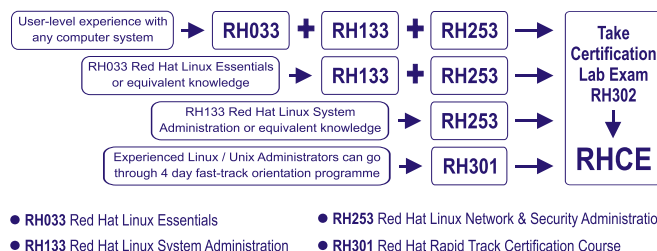
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)

[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)



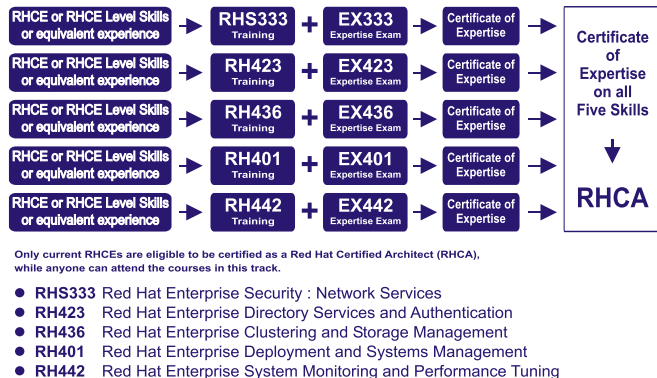
### RHCE Certification Track



### Red Hat Certified Security Specialist - RHCSS Certification Track



### Red Hat Certified Architect Certification Track



Linux Learning Centre also offers onsite training for Linux migration and Certification. The onsite training can be customised as per group requirements with topics drawn and integrated from various courses. Such projects have already been undertaken by LLC at various MNCs, PSUs, Govt. Research Centres both in India and abroad. All programmes and schedules are announced and regularly updated on our website.



## Linux Learning Centre

H.O. & Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

### Essentials of Linux OS

#### Course Overview

LLC102 Essentials of Linux OS is for people new to Linux and who want to achieve maximum productivity at home or at workplace using Linux Command-line Utilities and Desktop-based office application suites for common office productivity tasks.

The course covers the methods of using Linux Shell and the desktop GUI interface (KDE & GNOME) and office productivity applications for traditional desktop tasks such as word processing, spreadsheet creation, internet access and demonstrates the ability to comfortably share work across platforms. The course is offered on the latest version of Red Hat Linux.

#### Pre-Requisites

User-level experience with any computer system, use of mouse, use of menus, use of any desktop or window-based application on any operating system.

#### Target Audience

Anyone who is beginning to explore the Linux OS from basics for the purpose of using the system for learning to use the bash shell utilities and exploring the desktop for better productivity.

#### Course Material

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference book for Linux Desktop Usage.

#### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

#### Course Duration

Two Days: 10 am - 5.30 pm

#### Course Fee

Rs.3,000/- (plus 10.3% service tax)

#### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "**Linux Learning Centre Private Limited**". The registration can be forwarded along with the payment by hand or by courier.

#### Course Outline

- Introduction to Linux
  - GNU Project / GPL Licensing
  - Evolution of Linux & Development Model
  - Bash Shell Essentials
  - Device Identities in Linux
  - Partitioning Schemes
- Linux Installation & Configuration :
  - Workstation & Server Classes
- The Graphical User Interface
  - X Window System
    - Basic Structure
    - Invoking the Graphical User Interface
- Configure and customize your Linux desktop
- An Overview of GNOME/KDE Desktop/Applications
- An Overview of OpenOffice Suite
  - Exploring Word Processor, Spreadsheet & Presentation Modules
- Linux File System
  - Ext2 / Ext3 Features
  - Directory Structure & Contents
- Basic Shell utilities /commands
  - Directory / File Operations
  - System/Process/Disk Status Indicators
  - Installing applications using RPM
  - Getting Help : man, info pages, On-Line Manuals
- Exploring the default text editor : vi
- Configure an Internet connection
- Access the Internet using a web browser
  - Using Firefox
- Configure email accounts using kmail



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Linux System & Network Administration

### **Course Overview**

LLC103 Linux System & Network Administration Course is an intensive course designed to rapidly train on skills required for Administering a Linux Server. This course gets a person to advanced levels of Linux Administration. It provides training from fundamental concepts relating to User Administration with live demonstrations and emphasis on administration through shell commands.

The course is offered on the latest version of Red Hat Linux.

### **Pre-Requisites**

The attendees for this course require to possess the knowledge base covered in LLC102 or must have any such compatible level on their own before enrolling themselves for this course.

### **Target Audience**

This course is for - Administrators who wish to migrate to Linux from any other multiuser OS and gain a thorough understanding of Linux Administration and who are already well-versed in basics of Linux Operating System.

This course is also for one who is targetting Red Hat Certification - RHCE to be followed by RH300 - Red Hat Rapid Track Certification Course.

### **Course Material**

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference book for Linux Administration.

### **Post Training Support**

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### **Course Duration**

Four Days: 10 am - 5.30 pm

### **Course Fee**

Rs. 6,000/- (plus 10.3% service tax)

### **Mode of Payment**

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### **Course Outline**

- User Administration
  - Essentials : Concept of users & groups
  - User Account Management
  - Password Management
  - Group Management
  - Configuring a co-administrator
    - the sudo utility
- File / Directory Access Control Mechanisms
  - Default Permissions & umask setting
  - Exploring suid/sgid/sticky bits
  - The Extended Attributes
  - File System ACL 's
- Exploring Critical Configuration files - grub.conf, inittab, fstab
- Service initializing scripts
- Task Schedulers
  - at, cron & anacron daemons
- Disk Quotas
  - Assigning user quotas
- Printer Management using CUPS
  - Configuring a printer
- Linux Networking Environment
  - Networking features of Linux
  - Configuring a NIC
  - Mittool
  - Setting Gateway
  - IP Forwarding
- Basic Network Client Services
  - telnet, ftp & SSH Services
- Basic Concepts of DNS
  - Implementation of BIND
  - forward & reverse lookup
  - DNS Client Commands
  - DNS Slave Configuration
- DHCP - Server / Client setup
- NFS - Network File System
  - RPC portmapper
  - autofs implementation
- NIS - Network Information System
  - ypserver / yp client
  - Slave Server Configuration
- Apache Web Server
  - Basic Configuration
  - Name & IP Based Virtual Hosting
  - Restriction through htaccess
  - Authentication through SSL
- Samba Server
  - File & Print Service
  - Authentication through samba
  - smbmount, smbclient services
- Sendmail - Mail Server
  - Configuring mail service
  - SMTP Server, POP3 / IMAP Server Setup (Dovecot )
- An Overview of Postfix mail server
  - Configuration
- Proxy Server - Squid
  - ACL for restricting access
  - User Authentication
- Working with GUI tools
  - Default applications
  - Webmin Utility



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

### Linux Advanced Administration

#### **Course Overview**

LLC203 Linux Advanced Administration is a compilation of advanced topics required by a Linux Administrator. The course is with live demonstrations of Linux High Availability Server, modifying and recompiling the Kernel, understanding Squid server, Samba as PDC, and Tomcat. Emphasis is given to configuration through shell commands. This course is offered on compatible versions of Linux OS.

#### **Pre-Requisites**

Must have undergone LLC103 Linux System & Network Administration course **or** have a thorough knowledge of Linux Networking capabilities and good administration skills.

#### **Target Audience**

This course is for Linux Administrators who wish to learn advanced skills on Linux System & Networking features. Candidates who complete this course will be able to setup all advanced servers as are covered in this course.

#### **Course Material**

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference book.

#### **Post Training Support**

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

#### **Course Duration**

Two Days : 10 am - 5.30 pm

#### **Course Fee**

Rs. 5,000/- (plus 10.3% service tax)

#### **Mode of Payment**

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "**Linux Learning Centre Private Limited**". The registration can be forwarded along with the payment by hand or by courier.

#### **Course Outline**

- Samba Primary Domain Controllers
  - Samba PDC Configuration
  - Authentication for Windows Clients
  - Profiles For Windows Clients
  - Logon Scripts
  - Home Directory
- Clusters in Linux
  - Types and Terminology
  - High Availability Cluster
  - Cluster using Heartbeat
  - IP Takeover
  - Service Takeover
  - Resource Takeover
  - Linux Virtual Server
  - Ipv6 Configuration
- Introduction to Kernel Concepts
  - Types of Kernels
  - Updating Modules
  - Patching the Kernel
  - Kernel Compiling Methods
  - Compilation Process
  - Booting with Modified Kernel
- RPM Management
  - Advanced Options
  - Conversion from Source to Binary
- Web Proxy Server
  - Squid with Password Authentication
  - Danse Guardian - Content Filtering
  - Squid Monitoring
  - sarg - Squid Analysis & Report Generator
  - Transparent Proxy
- Tomcat with Apache Server
  - Jakarta Tomcat
  - Tomcat Configuration
  - Configure Apache Connector
  - Create Tomcat Admin



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Linux System & Network Monitoring Tools

### Course Overview

Linux has gained considerable momentum as the operating system of choice for deploying network services such as web, ftp, email, and file sharing. Linux System & Network Monitoring Tools Course provides training in these network services monitoring. This course is offered on compatible versions of Linux OS.

### Prerequisites:

LLC103 / RH301 / RHCE certification or equivalent work experience is required for this course.

### Target Audience

The audience for this course include System and network administrators, consultants, and other IT professionals responsible for the server security planning, implementation, and maintenance of network servers. IT Managers who benchmark Network Monitoring tools for their Organisation.

### Course Material

The courseware includes comprehensive collection of material useful as a course guide and further as a reference book.

### Post Training Support

Candidates can clarify any doubts about the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Two Days : 10 am - 5.30 pm

### Course Fee

Rs. 5,000/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "**Linux Learning Centre Private Limited**". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Monitoring System and Services
  - Terminology
  - Host and Network Security
  - Network Monitoring Utilities
  - System Monitoring Utilities
- Nagios The Network Monitor
  - Nagios Dependencies
  - Installing of Nagios
  - Nagios Configuration
  - Object Configuration
  - CGI Configuration
  - External Commands
- Multi Router Traffic Grapher
  - SNMP and MRTG Terminology
  - MRTG Installation and Configuration
  - MRTG and Linux MIBs
  - CPU And Memory Monitoring MIB
  - TCP/IP Monitoring MIB
  - Target Parameters
- Network Intrusion Prevention System
  - Overview of Snort Rules
  - Configuration of Snort
  - Snort GUI Configuration
  - Snort with MySQL
  - Snort Logging
- Network Based Utilities
  - Wireshark
    - Protocol Analyzer
    - Packet Sniffing
    - Generate Datastream
  - Nmap
    - Port Scanner
    - Nmap Front End
  - tcpdump
    - Console Based Packet Analyzing
  - Webalizer
    - Web Log Analyzer
- System Monitoring Utilities
  - System Snapshot Generation
  - System Statistics Tools
  - Logwatch and Logrotate Concepts
- Zenoss Basics



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Linux Internals & Programming Essentials

### Course Overview

LLC104 Linux Internals & Programming Essentials course takes an insight in to the Linux Kernel, understanding its features and subsystem architecture. It further explores the features of the file system, memory management, process management, system calls, IPCs and network implementations.

### Pre-Requisites

Experienced C programmers with UNIX or Linux workstation power user skills who want to begin developing applications on Linux.

### Target Audience

This course is for programmers who are new to the linux environment and want to learn about the kernel level features of the operating system. This course also helps programmers who are further intending to learn embedded and real time programming on linux.

### Course Material

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference book for Linux System and Basic Kernel Programming.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Three Days: 10 am - 5.30 pm

### Course Fee

Rs. 4,600/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "**Linux Learning Centre Private Limited**". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Introduction to Kernel
  - History of Linux
  - Types of Kernel
  - The Linux kernel
  - Kernel Architecture
- The Boot Process
  - BIOS Level
  - Boot Loader
  - Setup, startup\_32 functions
  - The start\_kernel() function
- Kernel Recompilation
  - Importance of make files
  - Procedure to recompile the kernel
- Implementing System Calls
  - System Calls Defined
  - System Calls and APIs
  - System Call Table
  - Unistd.h and entry.S files
  - Implementing a new system call
- The File System
  - Virtual File system & its role
  - VFS data structures super\_block, inode, file & dentry
  - Files associated with a process
  - System Calls
  - Lab Exercisers
- Process management
  - Process Defined
  - Process Descriptor Structures in the kernel
  - Process States
  - Process Scheduling
  - Process Creation
  - System calls related to process management
- Inter Process Communication
  - Pipes, Fifo's, signals
  - System-V IPC's
    - Message queues
    - Shared memory
    - Semaphores
- Sockets
  - An Overview
  - System calls related to TCP and UDP sockets
- Memory Management
  - Defining and Creating secondary memory areas
  - Responsibilities of Memory Management Module
  - Memory allocation & deallocation system calls
    - malloc, calloc, alloca, free
  - Demand Paging defined
  - Process Organization in Memory
  - Address Translation and page fault handling
  - Memory allocation strategies
    - Buddy System Algorithm
    - Slab Allocator
  - Swapping Memory Areas
  - Memory Mapping
- Programming & Debugging Tools
  - strace: tracing system calls
  - Tools used to detect memory access error and Memory leakage in Linux : mtrace
  - Using gdb and ddd utilities



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: info@linuxlearningcentre.com  
www.linuxlearningcentre.com

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Programming with Qt

### Course Overview

Qt is a multiplatform C++ application development framework. It has become the emerging standard development environment for IT professionals who want to write a single source-tree, port it to multiple platforms with a simple recompile, integrate it easily with Motif and ActiveX, make it database-capable, globalize it, give it a native look and feel, and run it at native speed. After completion you will have: A knowledge of the capabilities & limitations of Qt; A knowledge of multi platform development using Qt; Experience programming with Qt.

### Pre-Requisites

Very good knowledge of the C++ programming language. Awareness of atleast on UI toolkit is a plus, but not required, Should be comfortable using a GNU/Linux distribution. Knowledge of OpenGL would be a plus (only for learning the Qt/OpenGL module)

### Target Audience

Programmers developing applications for desktops, embedded devices and/or targeting multiple platforms - Windows, Unix and Mac will greatly benefit from this training.

### Course Material

The courseware includes a comprehensive guide with examples.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Five Days: 10 am - 5.30 pm

### Course Fee

Rs. 15,000/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Introduction to Qt: Survey of GUI toolkits
  - Technical and product history of Qt, Trolltech.
  - Dual-license of Qt
- Installation
  - Getting Qt sources: Compiling and installing Qt
  - "Hello World" program in Qt
- Introduction to Signals and Slots
  - Making a connection: Breaking a connection: Creating signals & slots
- Introduction to UI programming in Qt
  - The QWidget class: The QMainWindow class: Qt Designer
  - User actions: QAction/QPushButton/QMenu/QToolBar Exercise: Text Editor
- Containers, Types, and Macros.
  - QList: QMap: QStack: Iterating containers
- Common Widgets
  - QPushButton, QCheckBox, QRadioButton, QToolButton
  - QLabel: QLineEdit, QSpinBox: QGroupBox
  - QSlider, QProgressBar
- Common Dialogs
  - QFileDialog: QInputDialog: QColorDialog:
  - QMessageBox: QProgressDialog
- Custom Widgets
  - Form Widgets: Custom controls
- Layouts
  - Vertical & Horizontal layouts
  - Grid layouts: Form layouts: Custom layouts
- Drawing and Printing (Arthur Framework)
  - Drawing framework: QPainter, QPaintDevice, QPaintEngine Helper classes: QRect, QPoint, QPen, QBrush, QGradient & QPainterPath
  - Drawing on widgets
  - Drawing on pixmaps
  - Printing
  - Transformations: QMatrix, QTransform
- Handling Events in Qt
  - Event model in Qt (QEvent and subclasses, QObject::event() method)
  - Event handlers in Qt (paintEvent, mousePressEvent, mouseReleaseEvent etc)
  - Event filters
  - Signal/Slot internals (QMetaObject and friends)
- The Model-View Framework (Interview)
  - Introduction to MVC Design Pattern
  - QAbstractItemModel - Qt's Model class
  - QAbstractItemView - Qt's View class
  - QAbstractItemDelegate - Qt's Delegate class
- OModelIndex - Qt's data pointer into model
  - Built in models: QDirModel, QStringListModel, QFileSystemModel
  - Built in views: QListView, QTreeView, QColumnView, QTableView
  - Built in item views: QListWidget, QTreeWidget, QTableWidget
  - Writing custom models and views
- Graphics View Framework
  - QGraphicsScene, QGraphicsView and QGraphicsItem
  - OTS Items: QGraphicsLineItem, QGraphicsRectItem, QGraphicsEllipseItem etc
  - Custom items
  - Transformations and Interactive graphics
- Files, Streams
  - IO Device framework: QFileDevice
  - Built in IO Devices: QFile, QBuffer
  - Stream classes: QTextStream and QDataStream
  - Buffer classes: QByteArray, QString
- Help System (Qt 4.4 module)
  - How to create compressed help files in Qt
  - Using compressed help files in Qt assistant
  - Showing help in your applications using QHelpEngine and friends
- Multimedia (Phonon)
  - How to play audio and video files in Qt
- HTML Rendering (WebKit)
  - Introduction to WebKit project
  - QWebView - the Browser control in Qt
- Making your applications scriptable (QScript)
  - Basic concepts: What does a scriptable application mean
  - Evaluating scripts using QScriptEngine
  - Accessing Qt/C++ objects in the script environment
  - Accessing variables in the script within Qt/C++
  - Designing objects for scriptability
- XML
  - DOM and SAX
  - Parsing XML files
  - Authoring XML files
- OpenGL
  - The QGLWidget class
  - Using OpenGL in graphics view
  - Using OpenGL in your widgets
- Doing Things in Parallel. (Threads and QProcess)
  - QThread, QMutex and QSemaphore
  - QProcess
- Plugin system
  - QPlugin and friend classes
  - Creating Qt Designer plugins
  - Architecting applications to allow extensions via plugins
    - How to load and use plugins
    - Using QLibrary to dynamically load libraries
- Networking
  - Understanding QAbstractSocket
  - TCP/IP communication using QTcpSocket and QTcpServer UDP communication using QUdpSocket
  - FTP / HTTP Transactions
- Introduction to Third-Party Libraries
  - Qt - Graphing Library
  - GCF - Components Framework Library (similar to Microsoft's COM and KParts)



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: info@linuxlearningcentre.com  
www.linuxlearningcentre.com

#### Training & Certification

Programmes at LLC  
LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Device Driver Programming

### Course Overview

LLC106: Device Driver Programming on Linux course takes an insight into the Linux kernel and the way it manages devices. In this course we will be looking at the services offered by the Linux Kernel for device drivers, and also look at how to program character, block and network devices.

### Pre-Requisites

Considerable knowledge of Linux System Programming concepts like signals, processes, file operations, system calls and sockets or LLC104: Linux Internals & Programming Essentials Course.

### Target Audience

This course is designed for C programmers who are familiar with Linux System Programming.

### Course Material

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference book for Linux Device Driver Programming.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Four Days: 10 am - 5.30 pm

### Course Fee

Rs. 6,000/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- An introduction to device drivers
  - Role of the Device Drivers
  - Splitting the kernel
  - Classes of devices and modules
  - Kernel Architecture or Model
- Module Basics
  - Introduction to Modules & Device Drivers
  - Modules Defined
  - Types of Modules in the kernel
  - Writing Your first kernel module
  - Module Related Commands
  - Kernel Module vs Applications
  - User space vs Kernel space
  - Statically linked vs Dynamically linked drivers/modules
  - Exporting symbols from modules
  - The kernel symbol table
  - Concurrency in the kernel
  - Module Parameters
  - Version dependency
  - Lab exercises
- OS Services And Data Structures
  - Atomic functions, Bit Operations
  - Linked List, Memory barriers
  - Semaphores
  - Basic memory Management
  - Time intervals in the kernel
  - Delaying execution, Kernel timers
  - The *proc* file system
- Character Device Drivers
  - Registering a character device driver
  - File operations
  - The file structure
  - devfs / lseek / ioctl
  - Blocking, non blocking & asynchronous operations
- Hardware and Interrupt Handling
  - Using IO Ports
  - Installing & implementing an interrupt handler
  - Tasklets and Bottom halves
  - Task queues
- Block Device Drivers
  - Handling requests
  - Ram Disk Driver
- Network Drivers
  - The *net\_device* structure in detail
  - Packet transmission
  - Packet reception
  - Simulating a network device
  - Exploring the rtl8139 network card



## Linux Learning Centre

H.O. & Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Network Programming on Linux

### Course Overview

LLC107 Network Programming on Linux course takes an insight in to the Linux networking. Emphasis is given to topics such as interprocess communication, socket programming, signals and threads.

### Pre-Requisites

Considerable knowledge of Networking concepts such as packet switching, circuit switching LAN/WAN/MAN. Knowledge of C/C++ programming makes the understanding more effective.

### Target Audience

This program targets the programmers intending to build their career over Linux network / socket programming. The program also provides an effective migration for non-Unix professionals.

### Course Material

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference book for socket programming.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Three Days: 10 am - 5.30 pm

### Course Fee

Rs. 4,600/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Networks
  - Introduction
  - Layering Principles
  - OSI, TCP Models
  - TCP, IP, UDP
  - TCP (ARP, RARP, ICMP)
  - IP (Classes, Datagram formats, IP routing, v4 v5 v6)
  - ICMP (Error Reporting, Correction, icmp format)
- Processes & Signals
  - Processes & Process Environment
  - System calls related to Process Management
  - Daemons
  - Signals
- Interprocess Communication
  - An overview
  - Pipes
  - FIFO's
  - Message Queues
  - Semaphores
  - Shared Memory
    - Relevant examples on client-server model
- Sockets
  - Outline of Linux domain Sockets
  - Sockaddr structure
  - Elementary Socket System Calls
  - Advanced Socket System Calls
  - Socket Options
  - TCP/UDP Client/Server examples
  - Session Byte order
  - IP addr conversion routines I & II
- Server Application Design
  - Interactive Servers
  - Concurrent Servers
  - Select System Call
  - Telnet, Netstat, TFTP & POP3
- Broadcasting
- Multicasting
- Threading
  - Essentials of threads
  - Basic thread functions
  - Communication b/w threads
  - Synchronization b/w threads
  - Mutual Exclusion b/w threads
  - Multithreaded concurrent Server



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

Programmes at LLC  
LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Bash Shell Scripting Essentials

### Course Overview

In the course LLC108, the participants gain a solid basic understanding of shell constructs and concepts. They learn to create their own shell scripts, understand existing scripts, and adapt these to new requirements.

### Pre-Requisites

Good understanding of the main commands and user application in Linux and the Linux system administration.

### Target Audience

This course is intended for software developers, administrators, and other users who want to acquire basic shell programming skills.

### Course Material

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference book for socket programming.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Two Days: 10 am - 5.30 pm

### Course Fee

Rs. 3,000/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "**Linux Learning Centre Private Limited**". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Introduction
  - Shells
  - Types of Unix Shells
  - Advantages of Shell Scripts
- Bash Basics
  - Initialization Files
  - Login Shells, Non-Login Shells
  - Aliases, Variables
  - Working with Variables
  - Important Internal Bash Variables
  - Command History
  - Input and Output Channels
  - Redirection to Files
  - The here Operator
  - Feeding Output to Another Process
  - Duplicating the Output with tee
  - Types of Commands
  - Quoting
  - Substitution and Expansion
  - Variable Substitution
  - Filename Expansion (File Globbing)
  - Command & Arithmetic Substitution
  - Command-Line Interpretation
  - Command Separators
- Basic Script Elements 1 (Input, Output)
  - Program Flow Charts
  - General Considerations
  - Producing Output From a Script
  - Reading User Input
  - Simple Operation with Variables
  - Basic Strings Operation
  - Arithmetic Operations
  - Regular Expressions
- Basic Script Elements 2 (Control Structures)
  - Simple Branching With if
    - Short Form of if
  - Multiple Branch with case
  - Iterations and Loops
    - Looping with while and until
    - Processing a List with for
  - Exiting From a Loops
    - Exiting from the Current Loop
      - Iteration with continue
    - Exiting from the Loop with break
- Advanced Scripting Techniques
  - Reading input with read
  - Shell Functions
  - Reading Options with getopt
  - Signal Handling with trap
  - Implementing Simple Menus with select
  - Dialog Boxes with dialog
    - Yes/No Box (yesno)
  - Message Box (msgbox)
  - Input Box (input box)
  - Text Box (text box)
  - Menu Box (menu)
  - Check List Box (checklist)
  - Radio List Box (radiolist)
  - progress Meter Box (gauge)
- Useful utilities for Shell Scripts
  - cat, cut, date, grep, egrep, sed, test, tr, awk
- Special Variable Substitution Operators for Bash
- Debugging Shell Scripts
- Sample Scripts



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## LLC109

## LINUX LEARNING CENTRE

### CVS on Linux

#### Course Overview

LLC109 CVS is an advanced Linux Administration task. Primarily this is a course designed for both system administrators and programmers to maintain version control of the projects. SVN is an advanced form of CVS. This course is offered on compatible versions of Linux OS.

#### Pre-Requisites

Must have undergone LLC103 Linux System & Network Administration course **or** have a thorough knowledge of Linux Networking capabilities with administration skills and programmers having Linux usage knowledge.

#### Target Audience

This course is for Linux Administrators who wish to learn advanced skills on Linux System & Networking features and for programmers who wish to understand Project Management. Candidates who complete this course will be able to setup CVS Service.

#### Course Material

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference book for socket programming.

#### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

#### Course Duration

Two Days: 10 am - 5.30 pm

#### Course Fee

Rs. 4,600/- (plus 10.3% service tax)

#### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "**Linux Learning Centre Private Limited**". The registration can be forwarded along with the payment by hand or by courier.

#### Course Outline

- Introduction to Concurrent Version System (CVS)
  - Architecture Overview
  - Various features of Concurrent Version
  - CVS Installation & Configuration
    - Server Setup
    - Client Setup
  - Importing Projects to CVS Servers
    - Repository
  - CVS Server Administration
  - Checkin, Checkout, Updates, Review Changes, Conflict Mgt
  - CVS User Maintenance Commands
    - Comparisons with previous versions
    - Tagging, Branching & Merging Operations
    - Concurrent properties
  - CVS using GUI tools
  - Advanced Concepts
  - Access permissions & privileges
- 
- Introduction to Subversion (SVN)
  - Architecture Overview
  - Various features of Concurrent Version
  - SVN Installation & Configuration
    - Server Setup
    - Client Setup
  - Importing Projects to SVN Servers
    - Repository
  - SVN Server Administration
  - Checkin, Checkout, Updates, Review Changes, Conflict Mgt
  - SVN User Maintenance Commands
    - Comparisons with previous versions
    - Tagging, Branching & Merging Operations
    - Concurrent properties
  - SVN using GUI tools
  - Advanced Concepts
  - Mailing hooks with log
  - Access permissions & privileges



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

### MySQL on Linux

#### Course Overview

Linux has gained considerable momentum as the operating system of choice for deploying Database Servers for Intranets and Internet Portals. This course offers sufficient knowledge to build and host a database server on Linux using MySQL as RDBMS. This course is offered on compatible versions of Red Hat Linux.

#### Pre-Requisites

The participants should have a conceptual understanding of RDBMS and fair knowledge of SQL commands.

#### Target Audience

The audience for this course include Database Administrators, Web Developers and programmers.

#### Course Material

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference book for Basic Database Administration & PHP scripting.

#### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

#### Course Duration

Two Days: 10 am - 5.30 pm

#### Course Fee

Rs. 3,000/- (plus 10.3% service tax)

#### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "**Linux Learning Centre Private Limited**". The registration can be forwarded along with the payment by hand or by courier.

#### Course Outline

- Database Terminology
  - DBMS and RDBMS
  - Tables and Databases
  - Primary Key and Foreign Key
  - Unique Keys
  - Structured Query Language
  - SQL as DDL, DML and DCL
- MySQL Database Server
  - Features of MySQL
  - MySQL Data Directory
  - Logging and Log Files
  - Installation of MySQL Server
- MySQL Database Design
  - Data Definition Language
  - Columns and Datatypes
  - Primary and Foreign Keys
  - Unique Keys and NOT NULL
  - Auto Increment Values
  - Table, View & Database Creation
- MySQL Queries
  - Data Manipulation Language
  - INSERT Records to Table
  - UPDATE Records of Table
  - DELETE Records from Table
  - Relationships Between Tables
  - Inner Joins and Natural Joins
  - Left Joins and Right Joins
  - Locking the Tables
- Optimizing Tables and Queries
  - Indexes in MySQL
  - Setting Indexes to Existing Tables
  - Non Unique Indexes
  - MySQL Functions
  - MySQL Cursors
- MySQL User Management
  - MySQL Users and Privileges
  - Local and Remote users
  - user() Function
  - Access Rights with MySQL
  - SQL GRANT Statement
  - Granting Multiple Privileges
  - Setting Password for Users
  - Revoking Privileges
  - Display Privileges for Tables & Users
- MySQL Storage Engines
  - MyISAM, InnoDB, HEAP Tables
  - Features of InnoDB and MyISAM
  - Repairing Tables by isamchk
  - myisamchk
- MySQL Server Backup & Replication
  - Backup Principles
  - mysqldump and mysqlhotcopy
  - Transfers to Database or Server
  - Backup by Direct Copying
  - Recovering Databases and Tables
  - Setting Multiple MySQL Servers
  - MySQL Server Replication
  - MySQL Triggers
- API based MySQL Server
  - Basics of Standard APIs
  - Overview of Using PHP API
  - PHPMyAdmin



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

**LLC Satellite Centre**  
# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

### Training & Certification

#### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Programming with PHP

### Course Overview

Linux has gained considerable momentum as the operating system of choice for deploying a web servers for Intranets and Internet Portals. This course offers sufficient knowledge to build and host a web server on Linux with PHP-Server side scripting language & Apache web server. This course is offered on compatible versions of Red Hat Linux.

### Pre-Requisites

The participants should have a conceptual understanding of HTML & fair knowledge of using any scripting languages.

### Target Audience

The audience for this course include Web Developers and programmers.

### Course Material

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference book for Basic Database Administration & PHP scripting.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Two Days: 10 am - 5.30 pm

### Course Fee

Rs. 3,000/- ((plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "**Linux Learning Centre Private Limited**". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- PHP Overview
  - Introduction to PHP
  - Insider Serve Side Web Scripting
  - Comparison with dynamic content alternatives like (Perl, CGI, ASP, JSP, Servlets , CGI, etc)
  - Three Tier Architecture
  - PHP installation and configuration (configuration with Apache Web Server and MySQL)
- PHP Programming Options
- Taking User inputs from Forms via PHP
  - Create a basic PHP Script
  - Taking user input
  - Pass PHP variables via the URL
  - Using the form GET and POST method
  - Obtaining data from forms through variables
  - Calling pages from themselves using forms
- Storing Data in Arrays using PHP
  - Indexing and Initialising arrays
  - One-dimensional and Multi-dimensional arrays
  - Array-related functions
- PHP Functions
  - Purpose of functions
  - Built-in functions
  - Declaring functions
  - Arguments to functions
  - Scope (global vs local) and Recursion
- Objects in PHP
  - Object basics
  - Inheritance
  - Classes
  - Constructor functions
  - Accessing instance data and functions
- Using Cookies with PHP
  - Cookie properties
  - Setting, Retrieving, and Expiring/Deleting cookies
  - Using cookies and Security Issues
- Session Management in PHP
  - What is a session?
  - Dependencies on the php.ini file
  - Understanding PHP session variables
  - Create a PHP session variable
  - Register and modify PHP session variables
  - PHP Sessions and databases
- Image Generation and Manipulation using PHP
  - Installing PHP with image support
  - Create, Resize, Modify and Delete images
  - Drawing basic geometric shapes
  - Basic examples
- Generating PDF files using PHP
  - Installing PHP with PDF support
  - Creating PDF files
  - Setting PDF based content
- Handling Databases with PHP
  - PHP's database APIs
  - Error-handling strategies
  - Connection/disconnection, log in/log out
  - Including common access functions
  - Doing simple SQL queries via PHP
  - Building HTML tables using SQL Queries



## Linux Learning Centre

H.O. & Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

### Programming with Perl

#### **Course Overview**

Linux has gained considerable momentum as the operating system of choice for writing Perl scripts for various purposes like System Administration & web designing . This course offers sufficient knowledge to write Perl scripts to automate Administrative tasks. A brief explanation of Perl language and modules will be given with suitable examples. This course is offered on compatible version of Red Hat Linux.

#### **Pre-Requisites**

The participants should have usage knowledge of Linux and a fair knowledge of using any scripting language or must have undergone LLC102 & LLC108 courses.

#### **Target Audience**

The Audience for this course includes System Administrators & Programmers.

#### **Course Material**

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference book for Programmers.

#### **Post Training Support**

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

#### **Course Duration**

Two Days: 10 am - 5.30 pm

#### **Course Fee**

Rs. 3,000/- (plus 10.3% service tax)

#### **Mode of Payment**

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

#### **Course Outline**

- Introduction
  - What is Perl ?
  - Why Perl ?
  - Getting and Installing Perl
  - Perl as an Interpreter
  - Writing our first Perl program
  - Executing a Perl Program
- Perl Programming Options
  - Scalar Variables, Print function, Number Strings and Assignments
  - Working with Lists, Arrays and Hashes.
  - Conditional Statements - if-elseif, else & unless
  - Conditional Loops - foreach, while, until, do....while and do ...until
  - References and Typeglobs
- Pattern Matching with Regular Expressions.
  - String Interpolation
  - Where Regular Expressions Occur
  - Elements of Regular Expressions
  - More Advanced Pattern matching Expressions
  - Extracting Matched Text
  - Matching more than once
- Subroutines
  - Difference between Subroutines & Functions
  - Declaring and Calling Subroutines
  - Passing Parameters
  - Prototypes
  - Returning Values from Subroutines
  - Reference to Subroutines
- Working with Files and I/O
  - Creating Filehandles
  - Reading from Files
  - Writing from Files
  - Opening Pipes
  - Manipulating files and Directories.
- Standard Perl Modules.
  - Modules and Packages
  - Package and Lexical Variables
  - Loading Module - Using do, require & use
  - Special Hash %INC and Special Array @INC
  - Installing Modules
  - Finding out what Modules are Installed
  - Exploring some of the Modules
- Using Perl for Administration
  - User Administration
  - Implementing Disk Quotas
  - Executing a Remote Command
  - Remote Backup
  - Automating FTP
  - Getting DNS Address
- Debugging Perl Scripts.
  - Syntax Error Checklist
  - Diagnostic Modules
  - Using Perl Debugger



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Programming with Python

### Course Overview

Linux has gained considerable momentum as the operating system of choice for writing Python scripts for various purposes like automation tasks, text parsing and application development. This course offers sufficient knowledge to understand and write Python programs. A brief explanation of Python modules will be given with suitable examples to explain the scalability of the language and the scope of implementation of Python. This course is offered on compatible version of Red Hat Linux.

### Pre-Requisites

The participants should have usage knowledge of Linux and a fair knowledge of using any programming language or must have undergone LLC102 & LLC206 courses.

### Target Audience

The audience for this course includes programmers who want to learn the language and using it to start developing applications.

### Course Material

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference book for Programmers.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Two Days: 10 am - 5.30 pm

### Course Fee

Rs. 3,000/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "**Linux Learning Centre Private Limited**". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Introduction to Python
  - A Brief history
  - The Uses and scope of python
  - Getting and installing Python
- The Python Interpreter
  - Using the interpreter
  - The other IDE's available
- The Language
  - Basic I/O operations
  - Assignment operators
  - Basic data types
  - Code blocks and indentations
  - Conditional statements
  - Iterations
  - Some built-in functions
  - Using exceptions
  - Functions
  - File Operations
- Object Oriented Principles
  - Creating classes
  - Creating instances
  - Inheritance
  - Polymorphism
  - Metaclasses
- Modules
  - Extending the language with the help of modules
  - Creating modules
  - Accessing attributes and importing specific module names from packages
  - Use of the os module
  - Use of the re module for pattern matching using regular expressions
  - Use of the thread module for creating threads
  - Using the socket module for opening sockets
  - Using some client side network protocol modules like HTTP and FTP
- Debugging and Optimizing
  - Debugging
  - The warnings module
  - The profile module
  - Optimizing loops and I/O



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

Programmes at LLC  
LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## PostgreSQL on Linux

### Course Overview

PostgreSQL on Linux is an intensive two-day course for a variety of IT professionals that provides two days of instruction and hands-on lab activities on PostgreSQL Database, an object-relational database powered by PostgreSQL.

### Pre-Requisites

The participants should have a conceptual understanding of RDBMS and fair knowledge of SQL commands.

### Target Audience

The audience for this course include Database Administrators, Web Developers and programmers.

### Duration

Two Days: 10 am - 5.30 pm

### Course Fee

Rs. 3,000/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Database Terminology
  - DBMS and RDBMS
  - Relational Databases
  - Structured Query Language
  - SQL as DDL,DML and DCL
- Installation and configuration
  - Features of PostgreSQL
  - Installation
  - Creating the PostgreSQL User
  - Configuration
  - Initialization
  - Starting the Server
- PostgreSQL Basic Queries
  - Create and Drop Tables
  - Adding Data with INSERT
  - Viewing Data with SELECT
  - Removing Data with DELETE
  - Modifying Data with UPDATE
  - Sorting Data with ORDER BY
- PostgreSQL Database Design
  - Columns and Datatypes
  - Primary Keys and Foreign Keys
  - Unique key and NOT NULL
  - Auto Increment Values
  - Table, View & Database Creation
- PostgreSQL Database Queries
  - NULL and DEFAULT
  - AND/OR Usage
  - Range of Values
  - LIKE Comparison
  - CASE Clause
  - Distinct Rows
  - Functions and Operators
  - SET, SHOW, and RESET
  - Using GROUP BY, HAVING
- Joining Tables
  - Creating Joined Tables
  - Three- and Four-Table Joins
  - Choosing a Join Key
  - One-to-Many Joins
  - Unjoined Tables
  - Table Aliases and Self-joins
- Managing database privileges
  - Temporary Tables
  - ALTER TABLE
  - Assigning users to roles
  - Understanding role access
  - GRANT and REVOKE
  - Views
  - Rules
  - LISTEN and NOTIFY
- Functions and Triggers
  - Functions
  - SQL Functions
  - PL/PGSQL Functions
  - Triggers
- Importing and Exporting Data
  - Using COPY
  - COPY File Format
  - DELIMITERS
  - COPY Without Files
- Advance Administration
  - Creating Users
  - Backup and Restore
  - Server Start-up and Shutdown
  - Performance Monitoring
  - System Tables
  - PostgreSQL logging
- API Based PostgreSQL Server
  - Basic of Standards APIs
  - Overview of Using PHP API
  - PHPpgAdmin
  - Application Integration to PostgreSQL



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

### Joomla CMS

#### Course Overview

Web content management' (WCM) system is a CMS designed to simplify the publication of Web content to Web sites, in particular allowing content creators to submit content without requiring technical knowledge of HTML or the uploading of files.

#### Pre-Requisites

Word processor (MSOffice or OpenOffice) knowledge compulsory. Previous Web Development Experience not compulsory. Basic understanding of HTML and simple database concepts would be helpful.

#### Target Audience

IT professionals who will be responsible for developing & maintaining simple to complex websites.

#### Duration

Two Days: 10 am - 5.30 pm

#### Course Fee

Rs. 5,000/- (plus 10.3% service tax)

#### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "**Linux Learning Centre Private Limited**". The registration can be forwarded along with the payment by hand or by courier.

#### Course Outline

- DataGlobal Configuration
  - Site settings
  - Content
    - Linked Titles ; Read More Link
    - Item Rating/Voting; Author Names
    - Created Date & Time
    - Modified Date, Time Hits
    - Icons
    - Table of Contents
    - Content Item Navigation
  - Server
  - Default Metadata
  - Mail
  - Caching
  - Statistics
  - SEO
  - wysiwyg editors
- Advanced Media manager
  - Creating image directories/folders
  - Uploading and deleting images
  - Modifying images/resizing
- Module Positions & site layout Template Manager
  - Installing templates
  - Setting the default template
  - Using multiple templates
- Trash manager - permanently deleting menu and content items User administration
  - creating users
  - editing users
  - setting access levels
  - blocking users
  - deleting users
- Components
  - Configuring and installing components
  - Sef (search engine friendly) component administration
  - JCE Text Editor configuration.
  - Rsform and philaform (form components)
  - Mass mail
  - Web links
  - Banner manager ; Guestbook
- Site Modules
  - Installing Modules
  - Module Order
  - Custom Modules
  - Component modules
  - Access Level
  - Parameters
- Site Mambots
  - Installing Mambots
  - Parameters
- Menus
  - Creating new menus
  - Creating menu items
  - Configuring menu items
  - User only menus
  - Menus does and dont's
- Site Content
  - Creating, and editing content items/pages
  - Static Content Pages
  - Publishing and unpublishing content/pages
  - Setting access levels for content/pages
  - Inserting images into pages
  - Content/page parameters
  - Meta tag and meta keyword information
  - Adding menu links
  - Frontpage manager
  - Newsflash items
  - Inserting a Google maps



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

Programmes at LLC  
LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Qmail Server Administration

### Course Overview

LLC403 is a rapid track course on Qmail server administration covering integration with MySQL database and security based applications. The course addresses the advanced configuration of Qmail and courier imap

### Pre-Requisites

Participants must have at least entry to mid-level administration knowledge, with good exposure to mail server concepts. Working knowledge on Linux or Unix OS is essential.

### Scope of the course

Given the fact that the topics under discussion are very extensive in nature, the scope of this course is limited to the depth of skills that can be delivered in two days so as to cover the course outline effectively to the understanding of the average audience.

### Course Material

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference for a mail administrator.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Two Days: 10 am - 5.30 pm

### Course Fee

Rs. 5,000/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Mail Service Terminology
  - Mail Transport Agent
  - Mail User Agent
  - Mail Access Agent
  - Mail Delivery Agent
  - SMTP, IMAP and POP3
  - Mail Delivery Process
- Role of Qmail Mail Server
  - Qmail Architecture
  - Features of Qmail
  - Mail Store Format
  - Message Queues & Queue tools
  - Qmail Configuration Files
  - ucspi-tcp and daemontools
- Qmail Mail Server Configuration
  - Qmail MTA Configuration
  - Configuration of Aliases
  - Canonical Maps in Qmail
  - Qmail-users
  - Procmail Configuration
  - Transport Layer Security (TLS)
  - Autoresponder
- Qmail in Multiple Domain
  - Multiple MTA Setup
  - Virtual Domains
  - Limiting Mail ID Numbers
  - Fetchmail Configuration
  - Relaying through MTA
- MySQL with Qmail Server
  - SASL Overview
  - SASL Libraries MySQL
  - Need of SMTP AUTH
  - SMTP AUTH with MySQL
  - MySQL for Storing Aliases
- IMAP Server Configuration
  - Courier IMAP Configuration
  - IMAP with MySQL
  - Transport Layer Security (TLS)
  - Squirrel Mail
- Securing EMail from Attacks
  - Setting up User Quota
  - User Based Restrictions
  - Host Based Restrictions
  - Clamav Antivirus
  - Qmail Scanner
  - Usage of Spamasassin
- Qmail Server Monitoring
  - Qmail Log Files
  - ISOQ Logs
  - Qmail-MRTG
- Qmail Server Utilities
  - Vqadmin
  - Vpopmail
  - Qmailadmin
  - Maildrop
  - Ezmlm Mailer



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

Programmes at LLC  
LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Postfix Mail Server Administration

### Course Overview

LLC404 is a rapid track course on mail server administration covering integration with MySQL database and security based applications. The course addresses the advanced configuration of Postfix mail server.

### Pre-Requisites

Participants must have at least entry to mid-level administration knowledge, with good exposure to mail server concepts. Working knowledge on Linux or Unix OS is essential.

### Scope of the course

Given the fact that the topics under discussion are very extensive in nature, the scope of this course is limited to the depth of skills that can be delivered in four days so as to cover the course outline effectively to the understanding of the average audience.

### Course Material

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference for a mail administrator.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Four Days: 10 am - 5.30 pm

### Course Fee

Rs. 9,600/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- The role of Postfix Mail Server
  - Postfix Architecture
  - Mail Delivery Process
  - Utility Programs
  - Lookup Tables
- Configuration of Postfix Mail Server
  - Single/Multi MTA Configuration
  - Message Queues and Queue tools
  - Aliases and Canonical Maps
  - Transport Layer Security (TLS)
- MySQL with Postfix Mail Server
  - SASL and MySQL
  - SMTP AUTH with MySQL
  - MySQL for Storing Aliases
- IMAP Server Configuration
  - Dovecot Configuration
  - IMAP with MySQL
  - Transport Layer Security (TLS)
- Securing EMails from Attacks
  - User Quota
  - Client and User Restrictions
  - Clamav Antivirus and Amavis
  - Procmail & Spamasassin
- Hosting Multiple Domains
  - Virtual Domain Configuration
  - Virtual Domain with MySQL
  - Fetchmail Configuration
  - Catchall Accounts
- Relaying through MTA
  - Inbound Mail Gateway
  - Outbound Mail Gateway
  - Transport Maps
  - Exclusive SMTP and IMAP Servers
- EMail Content Filtering
  - Content Checking Actions
  - Mail Header Checking
  - Mail Body Checking
- Mail Server Utilities
  - postfixadmin
  - mailman
  - squirrelmail
  - Auto-reply



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Linux FireWall Solutions

### Course Overview

LLC405 begins with basic overview of network security and exploring into the world of Advanced Firewalling . The course LLC 405 enables you to : Configure and Maintain intermediate devices to restrict communication between the networks • To implement firewall rules to translate source and destination IP addresses using the concept of NAT.

### Pre-Requisites

The course is open to anyone who knows basic Linux Operating System knowledge, routing concepts and TCP/IP packet structure. LLC 103 or equivalent knowledge is recommended as pre-requisite.

### Scope of the course

The Network Administrators who design, implement and maintain intermediate devices to secure communication between networks.

### Course Material

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference for Routers & FireWalls

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Two Days: 10 am - 5.30 pm

### Course Fee

Rs. 5,000/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Firewall using Linux OS
  - Firewall Concepts
  - Proxy Vs Firewall
  - Router Vs Firewall
  - Public and Private IP addresses
- Routing Concepts
  - Gateways
  - IP Forwarding
  - Communication Between Networks
  - Network Address Translation
- Implementing Firewall Using iptables
  - iptables Features
  - Installation of iptables
  - iptables Rule Constructs
  - Tables and Chains
- Restricting the Packets
  - filter table
  - Adding and Inserting Rules
  - Listing and Saving filter Rules
  - INPUT, OUTPUT and FORWARD Chains
- Advanced Filtering Through iptables
  - Protocol, port Filtering
  - Layer2 Restrictions
  - Generating icmp Messages with REJECT
  - TCPMSS
- NAT Using iptables
  - Source NAT
  - MASQUERADE
  - Destination NAT
- Port Forwarding and REDIRECT
  - Mangle Table Implementation
  - Marking the Packets
  - Co-existing of Rules in Multiple Tables
  - TTL,TOS Restrictions
- Logging and Optimization
  - Syslog and iptables
  - iptables Logging
  - Applying Log Limit
  - Resetting iptables Counters
- User Defined Chains
  - Creating of User Defined Chains
  - Linking UDC with Built-in Chains
  - Managing User Defined Chains



## Linux Learning Centre

H.O. & Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Open LDAP Server Administration

### Course Overview

LLC406 Open LDAP Server Administration is an intensive course that provides four days of instruction and labs on cross-platform integration of Open LDAP services to provide authentication or information services across the enterprise

### Pre-Requisites

RHCE Level knowledge is essential for the participants to aim at higher level skills.

### Scope of the course

The Network Administrators who need to provide enterprise-wide authentication or who desire training in the management of LDAP based directory services and customization of Linux authentication. The Network Administrators who have completed RHCE Certification and look towards higher level Linux skills.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Four Days: 10 am - 5.30 pm

### Course Fee

Rs. 9,600/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Introduction to Directory Services
  - What is a Directory?
  - LDAP: Models, Schema, and Attributes
  - Object Classes
- The LDAP Naming Model
  - Directory Information Trees & Distinguished Names
  - Naming Suffixes
  - Planning the Directory Hierarchy
- OpenLDAP Directory Server: Basic Configuration
  - Installation OpenLDAP Directory Server
  - LDIF
  - Logging and Indexing
- OpenLDAP Directory Server: Authentication and Security
  - Configuring TLS Security
  - Using Access Control Lists
  - slapadd
- Searching and Modifying the LDAP Directory
  - Searching the Directory
  - Updating the Directory
  - Graphical LDAP Client Utilities
- Linux User Authentication with NSS and PAM
  - Understanding Authentication and Authorization
  - Name Service Switch (NSS)
  - Advanced PAM Configuration
- Centralized User Authentication with LDAP
  - Central Account Management with LDAP
  - Migrate Existing Data into an LDAP Server
  - LDAP User Authentication
  - autoifs with LDAP Integration
- Kerberos and LDAP
  - Introduction to Kerberos
  - Configuring the KDC and Clients
  - Configuring LDAP to Support Kerberos
- Directory Replication
  - Replication in LDAP
  - Master and Slave Configuration
  - Planning for Directory Server Availability
- Authenticating Windows Clients
  - Windows Networking Overview
  - Configuring a Samba PDC Using LDAP
- Windows Domain Authentication and Linux Clients
  - Active Directory Servers
  - Linux as a Client
  - Active Directory and Linux Clients



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Samba Server Administration

### Course Overview

Interoperability between Linux and Microsoft family Operating system is achieved by Samba. The course LLC 408 enables you to : Configure and maintain Samba server •To share various resources • Delegate Samba as an authentication server for Windows clients • Integrate Samba with LDAP • Understand Samba tools.

### Pre-Requisites

Though the course is open to anyone who knows basic networking concepts including IP addressing and Services. LLC 103 or RH253 is recommended as pre-requisite. LDAP knowledge is desirable.

### Scope of the course

The Network Administrators who look towards integrating Linux and Windows Operating systems. After completing this course participant is able to manage resources in a multi-platform environment.

### Course Material

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference for multi-platform environment.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Two Days: 10 am - 5.30 pm

### Course Fee

Rs. 5,000/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Samba Server
  - Installation of Samba Server
  - Configuration Files
  - Adding Samba Users
  - smbd and nmbd Daemons
- Exploring Samba Configuration files
  - smbpasswd, smbusers and smb.conf
  - Global Sections and Share Section in smb.conf
  - File and Print Services
  - Testing of smb.conf and testparm
- Configuring Samba Server For Resource Sharing
  - Discussion of Default Shares
  - Sharing of Directories
  - Sharing of Selected Printers
  - Home Directory Share Issues
- Configuring Samba Clients
  - Using smbclient and CIFS with mount
  - Sending Print jobs From a Windows Machine
  - Utilities for Samba Statistics
  - Accessing A Windows Share From Linux Machine
- Samba Server Security
  - IP Based Security
  - Share level Security
  - Security for Users and Groups
  - write list and create mask
- Unix/Windows Filesystem issues
  - Changing Default File and Directory Permissions
  - Links and Hidden files
  - Forcing the Attributes Like User
- Samba Configuration Through Web Browser
  - Samba Web Administration Tool
  - xinetd and swat
  - swat configuration
  - swat Restrictions
- Samba Authentication Server Terminology
  - netbios Name and Workgroup
  - WINS and Browsers
  - Local, Domain and Preferred Master Browsers
  - OS level
- Samba Primary Domain Controllers
  - Samba as Authentication Server for Windows Clients
  - Samba Server For Storing Windows Profiles
  - Samba Storing Logon Scripts of Windows Users
  - Home Directory mapping
- LDAP and Samba Servers
  - Samba Authenticating from LDAP Server
  - LDAP Schema For Samba Servers
  - Samba Commands Adding Users to LDAP Server



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

Programmes at LLC  
LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## DNS Administration

### *Course Overview*

LLC409 is a rapid track course on DNS server administration covering Master, Slave DNS Server, Sub Domain Delegation, Split DNS Server, RND, TSIG, DNS Security & Dynamic DNS. This course is essential to every network administrator who works in an enterprise environment.

### *Pre-Requisites*

Participants must have a good knowledge of Linux administration and networking related concepts. LLC103 / RH253 is recommended as pre-requisite

### *Scope of the course*

Given the fact that the topics under discussion are very extensive in nature, the scope of this course is limited to the depth of skills that can be delivered in two days so as to cover the course outline effectively to the understanding of the average audience.

### *Course Material*

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference for a DNS administration.

### *Post Training Support*

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### *Course Duration*

Two Days: 10 am - 5.30 pm

### *Course Fee*

Rs. 5,000/- (plus 10.3% service tax)

### *Mode of Payment*

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### *Course Outline*

- DNS Terminology
  - DNS Server Roles
  - Primary and Slave DNS Servers
  - Caching Name Servers
  - DNS Forwarders
  - Root DNS Servers
  - Subdomain Delegation
  - DNS Query Types
- Bind Configuration
  - Master DNS Server
  - Resource Records
  - Forward Lookup Database
  - Reverse Lookup Database
  - Mail Server Support
- Slave Server Configuration
  - Replication Parameters
  - Master/ Slave Replication
  - IP Based Security
  - TSIG Security
- Subdomain Configuration
  - Subdomain Delegation
  - Recursive Queries
  - Iterative Queries
  - DNS Forwarders
  - ACL with Subdomains
- DNS Server Logging
  - Channeling and Logging
  - Log Categories
  - IXFR/AXFR Logs
  - Logging DNS Queries
- Split DNS Configuration
  - Split DNS Topology
  - DNS Views
  - Views and ACLs
  - Match-Clients
- DNS Server Security
  - Restricting Queries
  - Restricting Replication
  - Access Control Lists
  - DNS Chrooting
- Remote Name Daemon Controller
  - RND Configuration
  - RND Key Generation
  - Configuring Controls
  - RND Clients
- Dynamic DNS Configuration
  - DNS Server for Dynamic Update
  - DHCP Server for Dynamic Update
  - Shared Key Generation
  - DDNS Client Configuration



## Linux Learning Centre

H.O. & Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Nagios - System & Network Monitoring Software

### Course Overview

LLC is a rapid track course on Nagios Network Monitoring Tool. The course covers advanced topics like email notifications, remote plugin executors, NSClient++, Nagios plugin development and event handlers. This course is essential to every network administrator who works in an enterprise environment.

### Pre-Requisites

Participants must have a good knowledge of Linux administration and networking related concepts. Those who do not have the above concepts are advised to attend LLC103 or RH253 courses.

### Scope of the course

Given the fact that the topics under discussion are very extensive in nature, the scope of this course is limited to the depth of skills that can be delivered in two days so as to cover the course outline effectively to the understanding of the average audience. All experiments are limited to the demonstration only.

### Course Material

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference for a Nagios administration.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Two Days: 10 am - 5.30 pm

### Course Fee

Rs. 9,600/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "**Linux Learning Centre Private Limited**". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Monitoring Services
  - Terminology
  - Network Security
  - Network Monitoring Tools
  - System Requirements
- Nagios Terminology
  - Host Checks & Service Checks
  - Hostgroups
  - Contacts
  - Contactgroup
  - Notifications
  - State types - SOFT, HARD
  - Time periods
  - Event Handlers
  - Addons & Plugins
- Nagios Installation and Configuration
  - Nagios Dependencies
  - Installing of Nagios
  - Nagios Configuration
  - Object Configuration
  - CGI Configuration
  - Authentication Using httpasswd
- Network Monitoring Using Nagios
  - Monitoring Network Devices
  - Publicly Enabled Service (HTTP, FTP etc.)
  - Hostgroup Configuration
  - Servicegroup Configuration
  - Check Scheduling
  - Event Handlers
  - Runtime Modification of Nagios Parameters
- Notifications & Logging
  - Sending Notification via E-mail
  - Scheduling the Notification
  - Host and Service Dependencies
  - Network Diagram by Nagios
  - Flapping Service Detection
  - Volatile Services
- Nagios Remote Plugin Executor
  - Installation and Configuration of NRPE
  - Monitoring Local Resource from Remote Nagios Server
  - check\_nrpe plugin
  - Xinetd Modification for NRPE
- Nagios Plugins
  - Basic Plugins using Shellscrips
  - Defining Nagios Commands
  - Plugin Return Codes
  - Text Output from the Plugin
- NSClient ++
  - Installation of NSClient++
  - check\_nt plugin
  - check\_nt definition
  - Monitoring Local Process of windows



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Apache and Secure Web Server Administration

### Course Overview

LLC is a rapid track course on Nagios Network Monitoring Tool. The course covers advanced topics like email notifications, remote plugin executors, NSClient++, Nagios plugin development and event handlers. This course is essential to every network administrator who works in an enterprise environment.

### Pre-Requisites

Linux Network and Security Administration skills or equivalent experience. Creating web pages using HTML. Some experience with Perl or Python or shell scripting/programming is recommended but not required.

### Scope of the course

Given the fact that the topics under discussion are very extensive in nature, the scope of this course is limited to the depth of skills that can be delivered in two days so as to cover the course outline effectively to the understanding of the average audience. All experiments are limited to the demonstration only.

### Course Material

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference for a Nagios administration.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Four Days: 10 am - 5.30 pm

### Course Fee

Rs. 9,600/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Introduction and Basic Apache Configuration
  - httpd overview: Client/server topology, Transactional overview
  - History of web servers: NCSA, Apache evolution, The Apache Organization
  - Apache today: usage, extensibility, ccess model, Red Hat's Apache packages
  - Basic configuration: configuration files and options, basic daemon control
- Apache Virtual Hosts:
  - Understanding Virtual hosts: IP-based, name-based
  - Configuration directives and Syntax checking
  - Using Apache to serve Virtually hosted web servers
  - Web server log files: formats, configuration, use and analysis
  - Serve MIME types
- CGI and Server Side Includes:
  - Definition, Mechanics, limitations, common CGI languages
  - Basic CGI requirements
  - Useful CGI tasks
  - SSI: similarities to CGI,.shtml implementation, Xbitack directive
  - CGI security: suEXEC
- Database backends
  - Available Databases
  - Postgres: installation, administration
  - Query and insert with SQL
  - Implementations of query and insert in CGI
  - Perl CGI.pm; DBD/DBI.pm
- Apache customization through modules
  - Concepts; mod\_perl; mod\_php; mod\_status; mod\_usertrack; mod\_rewrite; other modules
- Security and authentication
  - Basic access control by host/domain/network
  - Apache security strategies
  - Authentication scenarios
- Advanced Security with SSL
  - Basic Cryptography and SSL concepts
  - SSL Certificates
  - Obtaining a website certificate
  - Implementing SSL with Apache



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Programming with OpenGL

### Course Overview

This course is tailor made for the wannabe 3D graphics enthusiast. The course initiates a person with 3D programming using OpenGL and provides a foundation of OpenGL concepts using which you can begin exploring the capabilities of OpenGL and write 3D enabled applications. At the end of the course you would be able to create 3D scenes, orient objects in the scene, place lights in the scene, apply texture and use transparent objects in the scene. The course has a hands on approach to teaching OpenGL in that the participants will take part in designing and implementing a C++ library on top of OpenGL to help create simple 3D scenes.

### Pre-Requisites

Sound knowledge of C and C++. Knowledge of Qt, (LLC105) would be a plus point.

Basic knowledge of Trigonometry, Matrices and Algebra and other related math domains.

### Target Audience

The course is targeted at developers who have not worked or worked little on 3D programming libraries. This course is a must for developers interested in learning about OpenGL and getting started with 3D Programming.

### Course Material

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference book for Programmers.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Three Days: 10 am - 5.30 pm

### Course Fee

Rs. 12,000/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Introduction
- Getting Started with OpenGL
  - What is OpenGL
  - Materials provided in the course
  - Your First OpenGL Program
    - The QGLWidget Class
    - The initializeGL() method
    - The paintGL() method
    - The resizeGL() method
- OpenGL Command Syntax
  - Function Naming Convention
  - Constants, Datatypes & Macro naming conventions
- OpenGL as a State Machine
- Libraries related to OpenGL
- Animations in OpenGL
- Drawing Objects
  - Describing a Solid Object: Geometry & Topology
  - OpenGL Primitives
    - Primitive Types
    - Polygon construction rules
  - Solid Object Examples
    - Cube
    - Cone
    - Cylinder
  - Drawing solid objects using GLUT Library
- Coordinate Transformations
  - Types of transformations
    - Translation
    - Scaling
    - Rotation
  - Matrix Representation of Transformations
    - Vertex Matrix
    - Translation Matrix
    - Scaling Matrix
    - Rotation Matrix
  - Composition of transformation matrices
  - Understanding transformations in OpenGL
    - Eye Coordinates
    - Viewing Transformations
    - Modeling Transformations
      - The Model View duality
    - Projection Transformations
    - Viewport Transformations
  - Specifying Transformations in OpenGL
  - Atom Example
- Camera Manipulation
  - Viewing in 3D
    - Projection
    - Parallel Projection Math
    - Perspective Projection Math
  - Model View Duality
    - Atom Example Improved
  - Parallel and Perspective Projections.
- Lights, Color, Materials, depth test
  - Representation of a color in OpenGL
  - Specifying Color in OpenGL
  - Shading
    - The Color Cube
  - Colors in the Real World
  - Light Concepts and Categories
    - Ambient Light
    - Diffuse Light
    - Specular Light
  - Materials Concepts
  - Surface Normals.
  - OpenGL Lights and Materials.
  - Spot Lights
  - Drawing Curved Surfaces
  - The glColorMaterial() function
- Texture Mapping
  - Specifying the texture
  - Indicate how the texture is to be applied to each pixel.
  - Enable texture mapping.
  - Draw the scene, supplying both texture & geometric coordinates.
- XModel: Simple C++ wrapper for OpenGL
- OpenGL Based Toolkits
  - Open Inventor
  - OpenSG
  - VTK



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Linux on Embedded Systems

### Course Overview

Linux on Embedded systems course takes an insight into the building, installing and using the Linux Kernel and Root File system on an embedded platform (ARM 9). It further explores the procedure to setup cross compiling environment, write kernel modules and application programs for a target board.

### Pre-Requisites

Experienced C programmers and Linux or UNIX prower users who want to start developing applications or drivers on Linux embedded platform.

### Scope of the course

This course is for embedded programmers who wish to understand the development environment of Linux and for Linux system programmers who wish to understand the embedded perspective of development on Linux.

### Course Material

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference for multi-platform environment.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Four Days: 10 am - 5.30 pm

### Course Fee

Rs. 7,500/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Introduction
  - Intro to the Linux kernel
  - Intro to embedded systems
  - Intro to the target board (Atmel - AT91RM9200)
- Getting Started
  - Installing Sources, Patching
  - Installing the GCC toolchain
  - Cross Compiling Environment
  - Minicom
- Boot Process
  - The Boot Loader
  - Kernel Image
  - Root File system
  - User space system initialization scripts
- The Root Filesystem
  - Creating a new root filesystem
  - Busybox
  - A Small Application example
  - Flashing the new root filesystem
  - Kernel Recompilation
  - Importance of the Makefile
  - Compilation procedure
  - Flashing the new kernel
- Kernel Modules
  - Introduction to Kernel Modules
  - Writing a simple module for the target
  - A simple Character driver example
- Interrupt Handling
  - Installing & implementing an interrupt handler
  - Tasklets and Bottom halves
  - A simple character driver with interrupts
- Services on Board
  - Compiling and setting up services
  - An example service
- Debugging Tools
  - GDB for application programs
  - Kernel Debugging



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

Programmes at LLC  
LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Linux Apache MySQL & PHP (LAMP)

### Course Overview

Linux has gained considerable momentum as the operation system of choice for deploying the Database Servers for intranet and internet web portals. This course offers sufficient knowledge to build and host Database server on linux using MySQL as RDBMS and PHP as scripting language. This course is offered on compatible versions on RedHat Linux.

### Pre-Requisites

The participants should have a conceptual understanding of any OS basics, RDBMS and fair knowledge of SQL commands and HTML coding

### Target Audience

The audience for this course include Database Administrators, Web Application Developers and programmers

### Course Material

The courseware includes a comprehensive collection of material useful as a course guide and further as a reference material.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Six Days: 10 am - 5.30 pm

### Course Fee

Rs. 9,600/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "**Linux Learning Centre Private Limited**". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Linux Operating System
    - Features of Linux OS
    - Linux Applications
    - Device Identities
    - Overview of Filesystem
    - Files and Directories
    - LAMP Overview
  - Linux OS Commands
    - Bash User Interface
    - File Operations
    - Directory Operations
    - Process Related Commands
    - Disk Usage and Free Space
    - Vi Text Editor
    - RedHat Package Manager
    - Installation of Softwares
  - Linux Advanced Services
    - Mounting the Devices
    - User Related Commands
    - Network Related Commands
    - IP Address and Virtual IP
    - FTP, SSH and Scp Clients
    - Transfer of Files by GFTP
    - DNS Server Configuration
  - Apache Web Server
    - Apache Web Server
    - IP Based Virtual Hosting
    - Name Based Virtual Hosting
    - User Based Security
    - Host Based Security
  - Tomcat with Apache Server
    - Jakarta Tomcat
    - Tomcat Configuration
    - Configure Apache Connector
    - Create Tomcat Admin
- Plus complete contents of**
- LLC204: MySQL on Linux
  - LLC205: Programming with PHP



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

**LLC Satellite Centre**  
# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

### Training & Certification

Programmes at LLC  
LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Red Hat Linux Essentials

### Course Overview

For persons who have no command-line experience in Linux or UNIX and want to develop skills for using and customizing their own Red Hat Linux workstation.

### Pre-Requisites

User-level experience with any computer system, including: use of mouse, use of menus and use of any graphical user interface.

### Target Audience

IT professionals who want to build user-level skills before learning Linux System and Network Administration.

### Course Material

The official courseware from Red Hat will be provided during the training.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Duration

Four Days: 10 am - 5.30 pm

### Course Fee

Rs. 6,000/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Linux Usage Basics
  - Starting X from the Console
  - Changing your Password
  - The root User
  - Elevating your Privileges
- Running Commands and Getting Help
  - Reading Usage Summaries
  - man, info and whatis Commands
- Browsing the Filesystem
  - Linux File Hierarchy Concepts
  - Current Working Directory File & Directory Names
  - Absolute and Relative Pathnames
  - Create, remove, change, list, copy, move Files and Directories
  - Using Nautilus
  - Determining File Content, Viewing Files
- Using the bash Shell
  - bash Introduction History and Features
  - Command Line Shortcuts and Editing Tricks
  - Command Line Expansion
  - gnome-terminal
- Standard I/O and Pipes
  - Standard Input and Output, Pipes To Connect Processes
  - Overwriting vs Appending
  - Redirecting Both Standard Output and Error
- Text Processing Tools
  - Tools for Extracting, Analysing and Manipulating Text
  - Special Characters for Matching Text
- Basic System Configuration
  - Configuring Date and Time
  - Configuring Printers, Network
  - System Logs
- vi and vim
  - Opening, Modifying, Saving Files and Undoing Changes
  - Using Command Mode
  - Visual Mode
  - Splitting the Screen
  - Configuring vi and vim
- Configuring the bash Shell
  - bash Variables, Environment Variables and Aliases
  - Configuration and Information Variables
  - Variable Expansion, Protecting Against Variable Expansion
  - Types of Shells, bash Startup and Exit Scripts
  - Using Variables in Shell Scripts
- Finding and Processing Files
  - The locate and find Commands, Basic find Examples
  - find and Logical Operators, find & Permissions
  - find and Numeric Criteria, find & Access Times
  - Executing Commands with find and Gnome Search Tool
- Network Applications
  - Firefox, Evolution, E-mail Clients and Web Browsers
  - Email, Encryption, and Digital Signatures
  - The Gaim Messaging System
  - Encrypted Communications with ssh and scp
  - telnet and the "r" services, FTP Clients
  - Connecting to Windows Disk Shares
  - File Transfer with Nautilus
  - Network Diagnostic Tools
- Managing Users, Groups, and Permissions
  - The Linux Security Model
  - Users and Groups, Permission Types
  - Examining & Changing Permissions
  - Changing Permissions Using Nautilus
- Advanced Topics in Users, Groups & Permissions
  - System Users and Groups
  - The /etc/passwd, /etc/shadow, and /etc/group files
  - Changing Your Identity
  - User Information Commands
  - Default Permissions, Special Permissions
- The Linux Filesystem In-Depth
  - Partitions, Filesystems and Checking Free Space
  - cp, mv, rm, and inodes
  - Symbolic Links and Hard Links
  - The Seven Fundamental Filetypes
  - Mounting CDs, DVDs, USB Media, & Floppy Disks
  - Creating, Inspecting, & Extracting Files From File Archives
  - Compression Utilities, Compressing Archives
- Investigating and Managing Processes
  - Process States, Viewing Processes and Nice Values
  - Sending Signals to Processes, Terminating
  - Foreground and Background Process
  - at, crontab Listing and Scheduling Jobs
- Essential System Administration Tools
  - Installation
  - Managing Services, Managing Packages
  - Securing the System.



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Email Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Red Hat Linux System Administration

### Course Overview

For users of Linux (or UNIX) who want to start building skills in systems administration on Red Hat Enterprise Linux, to a level where they can attach and configure a workstation on an existing network. This 4 day course provides intensive hands-on training on Red Hat Enterprise Linux 5.

### Pre-Requisites

RH033 Red Hat Linux Essentials or equivalent experience with Red Hat Linux.

### Target Audience

Linux or UNIX users, who understand the basics of Red Hat Linux, that desire further technical training to begin the process of becoming a system administrator.

### Course Material

The official courseware from Red Hat will be provided during the training.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Duration

Four Days: 10 am - 5.30 pm

### Course Fee

Rs. 6,000/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- System Initialization
  - Boot Sequence
  - Boot Loader Components
  - GRUB and grub.conf
  - Kernel Initialization
  - init Initialization
  - Run levels; /etc/rc.d/rc.sysinit, /etc/rc.d/rc
  - System V run levels; - /Etc/rc.d/rc.local
  - Controlling Services
- Package Management
  - RPM Package Manager
  - Installing and Removing Software
  - Updating a Kernel RPM: rpm Queries, rpm Verification
  - About yum; using yum
  - Searching packages/files
  - Configuring Additional Repositories
  - Creating a private repository
  - Red Hat Network Server; Entitlements
  - Red Hat Network Client
- Kernel Services
  - Kernel Modules, Kernel Images & Variants
  - Managing the initrd image
  - Accessing Drivers through /dev
  - Kernel Configuration with /proc
  - sysctl: Persistent Kernel Configuration
  - Monitoring Processes and Resources
- System Services
  - Network Time Protocol: syslog Configuration
  - Xorg Server Configuration; Remote X Sessions
  - Virtual Network Computing: SSH: Secure Shell
  - System crontab Files: Daily Cron Jobs; CUPS
- User Administration
  - Adding a New User Account; User Private Groups
  - Group Administration; Modifying/Deleting Accounts
  - Password Aging Policies
  - Switching Accounts, sudo
  - Network Users
  - Authentication Configuration; NIS Client Configuration
  - LDAP Client Configuration; File Ownership
  - Linux File Permissions; SUID / SGID Executables
  - The Sticky Bit; The SGID Directories
  - Default File Permissions; Access Control Lists (ACLs)
  - SELinux, SELinux Targeted Policy, Management
- Filesystem Management
  - Device Recognition; Disk Partitioning
  - Managing Partitions; Making Filesystem
  - Filesystem Labels; tune2fs
  - Mount Points and /etc/fstab: Mounting Filesystems
  - Handling Swap Files and Partitions
  - Mounting NFS Filesystems; Automounter
- Advanced Filesystem Management
  - Configuring the Quota System
  - Software RAID Configuration & Recovery
  - Creating & Resizing Logical Volumes
  - Archiving tools: tar, dump/restore, rsync
- Network Configuration
  - Network Interfaces; IPv4 Addresses; Device Aliases
  - Routing table; Default gateway; Verify IP connectivity
  - Defining Local Host Name; Verify DNS Connectivity
  - Network Configuration Utilities
  - Transparent Dynamic Configuration
  - Ipv6: Dynamic & Static Interface Configuration
  - New and Modified Utilities
- Installation
  - Boot Media, Accessing Installer, Installation Method
  - Configuring File System; Advanced Partitioning
  - Starting Kickstart Installation
  - Kickstart: %pre, %post
- Virtualization with Xen
  - Hardware Considerations; Preparing Domain-0
  - Virtual Resources; Domain-U Configuration
  - Domain Management with xm
  - Activating Domains on boot
- Troubleshooting
  - Method of Fault Analysis; Gathering Data
  - Order of the Boot Process
  - Filesystem Corruption & Recovery
  - Recovery Run-levels; Rescue Environment



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Red Hat Linux Networking & Security Administration

### Course Overview

For Linux- and/or UNIX- systems administrators who want to build skills at configuring common network services and security administration using Red Hat Linux.

### Pre-Requisites

RH133 Red Hat Linux System Administration or equivalent experience with Red Hat Linux. LAN/WAN fundamentals or equivalent; Internetworking with TCP/IP or equivalent.

### Target Audience

Linux or UNIX system administrators who already have some real world experience with Red Hat Linux systems administration and want a first course in networking services and security.

### Course Material

The official courseware from Red Hat will be provided during the training.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Duration

Four Days: 10 am - 5.30 pm

### Course Fee

Rs. 6,000/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- System Performance and Security
  - Security Policy; Response Strategies
  - Fault Analysis; Hypothesis and Gathering Data
  - Filesystem Analysis; Typical Problematic Permissions
  - Monitoring & Managing Processes; Log File Analysis
- System Service Access Controls
  - System Initializations and service management
  - Xinetd managed service; host pattern Access control
  - tcp\_wrappers configuration; Daemon Specification
  - Client Specification; macro definitions
  - SELinux targeted policy, management & file types
- Network Resource Access Controls
  - IPv6: Dynamic and static interface configuration
  - Netfilter tables and chains; Basic chain operation
  - Match arguments; connection tracking
  - Network address translation (NAT); DNAT; SNAT
  - IPv6 & IPv6 tables
- Organizing Networked Systems
  - Host name resolution; The stub resolver
  - DNS Specific resolvers; Trace DNS Query with dig
  - Forward & Reverse Lookups; SOA Lookups
  - Exploring DNS with host; Transitioning to the server
  - Service profile: DNS; Access Control profile: Bind
  - Address match list; Access control list (ACL)
  - Allowing queries, recursion, transfers
  - Slave Zone and Master Zone Declaration
  - Remote Name Daemon Control (rndc)
  - Delegating Subdomains & DHCP Overview
- Network File Sharing Services
  - File Transfer Protocol; Network File Service-
  - Samba services; Configuring file & directory sharing
  - Printing to the samba server; Authentication methods
  - Samba client tool: smbclient, nmblookup, mounts
- Web Services
  - Apache Overview
  - Apache Configuration
  - Apache Access Configuration
  - Apache Encrypted Web Servers
  - Squid Web Proxy Server
- Electronic Mail Services
  - Essential E-mail Operation
  - Simple mail transport protocols
  - Sendmail & Sendmail Configuration
  - Postfix & postfix Configuration
  - Procmail & Procmail Configuration
  - Dovecot Configuration
  - Pop & Imap Operation
- Securing Data
  - Fundamentals of Encryption Protocols
  - Symmetric & Asymmetric Encryption I - II
  - Generation of Digital Certificates (SSL)
  - OpenSSH Server
  - OpenSSH Client
- Account Management
  - User Accounts & Accounts Information
  - Name Service Switch (NSS)
  - Pluggable Authentication Modules (pam)
  - PAM Operations
  - Network Authentication
  - Password Policy & Security
  - Utilities and Authentication
  - PAM Troubleshooting



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## RH301

## LINUX LEARNING CENTRE

### Red Hat Rapid Track Certification Course

#### Course Overview

RH301 Red Hat Rapid Track Certification Course is a 4 Day intensive course which delivers the ability to: Install and configure Red Hat Linux • understand limitations of hardware • configure basic networking and file systems • configure the X Window System • configure basic security • set up common network (IP) services • carry out basic diagnostics and troubleshooting • perform essential Red Hat Linux system / network administration.

This course is offered on the current version of Red Hat Linux on which RH302 is being offered.

#### Pre-Requisites

Must have undergone LLC103+LLC203+LLC303 courses **or** must have a thorough knowledge of administering Linux / Unix Server. Participants arriving without a large portion of these prerequisites will make less than optimal progress in the training and will be unlikely to pass the certification exam.

#### Target Audience

UNIX or Linux system administrators who have significant real-world experience with UNIX or Linux systems administration. This course is also for one who has completed LLC103+LLC203+LLC303 courses and need a RHCE Exam orientation.

This course is also for one who has completed LLC103+LLC203+LLC303 courses and need an orientation to take Red Hat Certification Exam - RHCE.

#### Course Material

Official Red Hat Training kit will be provided to the candidates.

#### Post Training Assistance

Candidates can have hands-on sessions, mock tests and assignments to prepare themselves for the RHCE Exam for a nominal fee. These sessions must be booked in advance and are subject to availability.

#### Course Duration

Four Days: 10 am - 5.30 pm

#### Course Fee

Rs. 9,600/- (plus 10.3% service tax)

#### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

#### Course Outline

##### • Essentials

Essential initial topics in system administration, including editors, switching accounts, adding users, using cron, and managing network connections

##### • Kernel Services

- The Linux kernel: variants and modules
- The /proc filesystem and the sysctl command
- Accessing devices using udev
- Exploring hardware

##### • Filesystem Management

- Creating filesystems
- Making filesystem mounts persistent across reboots
- Managing swap space

##### • User Administration

- Modifying and deleting user accounts
- Password aging
- Group administration
- Creating group directories
- Setting disk quotas

##### • Local Security

- Setting up a host-based firewall
- Using access control lists
- The SELinux security layer
- Managing suid and sgid executables
- Controlling access to superuser authority using sudo

##### • Advanced Partitioning

- Understanding and implementing Software RAID
- Understanding Logical Volume Management
- Creating and resizing logical volumes

##### • Installation

- The interactive Anaconda installer
- Kickstart: a hands-free method of installation

##### • System Initialization

- Understanding the boot procedure
- Configuring the GRUB boot loader
- The Initial RAM Disk
- Understanding run levels
- Controlling services

##### • RPM, YUM, RHN

- RPM: The Red Hat Package Manager
- The YUM installer
- Using the Red Hat Network

##### • System Administration Topics

- Configuring the X Server
- The CUPS printing system
- cron and the superuser: the system-wide crontab file
- cron and system reboots: the anacron system
- Authentication Configuration: Pluggable Authentication Modules

##### • Network Configuration

- Understanding network addresses
- Using OpenSSH for network communications
- Using VNC for network communications
- Network Authentication

##### • Network Security

- Protecting services using TCP Wrappers
- Protecting the system using a packet filtering host-based firewall

##### • Network File Sharing Services

- Setting up an NFS server
- Setting up an FTP server
- The Samba Server: networking with Windows systems

##### • Network Infrastructure

- Creating a private repository
- NTP: Coordinating time
- Configuring a DHCP server
- Configuring a DNS server

##### • HTTP Service

- Configuring the Apache web server
- Configuring the Squid web proxy cache

##### • Mail Service

- Understanding e-mail delivery
- Using sendmail and postfix
- Dovecot: an IMAP and POP server

##### • Troubleshooting

- A method for fault analysis
- Things to check
- Understanding recovery run levels
- Using the rescue environment



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

Programmes at LLC  
LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Red Hat Enterprise Security: Network Services

### Course Overview

Red Hat Linux has gained considerable momentum as the operating system of choice for deploying network services such as web, ftp, email, and file sharing. RHS333 curriculum provides training in deploying these services and on the essential elements of securing them.

### Pre-Requisites

RHCE Level Knowledge is recommended for the participant to aim at the higher level certifications.

### Scope of the course

The Network Administrators who is responsible to implement and secure various Server applications. The Network Administrators who have completed RHCE Certification and look towards higher level Linux Certifications.

### Course Material

The official courseware from Red Hat will be provided during the training.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Four Days: 10 am - 5.30 pm

### Course Fee

Rs. 9,600/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- The Threat Model and Protection Methods
  - Internet threat model & the attacker's plan
  - System security and service availability
  - An overview of protection mechanisms
- Basic Service Security
  - SELinux
  - Host-based access control
  - Firewalls using Netfilter and iptables
  - xinetd and service limits
- Cryptography
  - Overview of cryptographic techniques
  - Management of SSL certificates
  - Using GnuPG
- Logging and NTP
  - Time synchronization with NTP
  - Logging: syslog and its weaknesses
  - Protecting log servers
- BIND and DNS Security
  - BIND vulnerabilities
  - DNS Security: attacks on DNS
  - Access control lists
  - Transaction signatures
  - Restricting zone transfers & recursive queries
  - DNS Topologies
  - Bogus servers and blackholes
  - Views
  - Monitoring and logging
  - Dynamic DNS security
- Network Authentication: RPC, NIS & Kerberos
  - Vulnerabilities
  - Network-managed users & account management
  - RPC and NIS security issues
  - Improving NIS security
  - Using Kerberos authentication
  - Debugging Kerberized Services
  - Kerberos Cross-Realm Trust
  - Kerberos Encryption
- Network File System
  - Overview of NFS versions 2, 3, and 4
  - Security in NFS versions 2 and 3
  - Improvements in security in NFS4
  - Troubleshooting NFS4
  - Client-side mount options
- OpenSSH
  - Vulnerabilities
  - Server configuration and the SSH protocols
  - Authentication and access control
  - Client-side security
  - Protecting private keys
  - Port-forwarding and X11-forwarding issues
- Electronic Mail with Sendmail
  - Vulnerabilities
  - Server topologies
  - Email encryption
  - Access control and STARTTLS
  - Anti-spam mechanisms
- Postfix
  - Vulnerabilities
  - Security and Postfix design
  - Configuring SASL/TLS
- FTP
  - Vulnerabilities
  - The FTP protocol and FTP servers
  - Logging
  - Anonymous FTP
  - Access control
- Apache security
  - Vulnerabilities
  - Access control
  - Authentication: files, passwords, Kerberos
  - Security implications of common configuration options
  - CGI security
  - Server side includes
  - suEXEC
- Intrusion Detection and Recovery
  - Intrusion risks
  - Security policy
  - Detecting possible intrusions
  - Monitoring network traffic and open ports
  - Detecting modified files
  - Investigating & verifying detected intrusions
  - Recovering from, reporting, and documenting intrusions



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Red Hat Enterprise Directory Services and Authentication

### Course Overview

RH423 Red Hat Enterprise Directory Services and Authentication is an intensive course that provides four days of instruction and labs on cross-platform integration of directory services to provide authentication or information service across the enterprise using the Red Hat Directory Server.

### Pre-Requisites

RH423 requires RHCE-level skills. The RHCE certificate on Red Hat Linux 7.1 or later is recommended but not required. Prerequisite skills can be shown by passing the RHCE Exam in either RH302 or by taking RH253 Red Hat Linux Networking and Security Administration or by possessing comparable skills and knowledge.

### Scope of the course

RH423 is aimed at senior Red Hat Enterprise Linux system administrators and other IT professionals who need to provide enterprise-wide authentication or information services or who desire training in the management of LDAP-based directory services and customization of Linux authentication using the Red Hat Directory Server.

### Course Material

The official courseware from Red Hat will be provided during the training.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Four Days: 10 am - 5.30 pm

### Course Fee

Rs. 9,600/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Introduction to Directory Services
  - What is a directory?
  - LDAP: models, schema, and attributes
  - Object classes
  - LDIF
- The LDAP Naming Model
  - Directory information trees & Distinguished Names
  - X.500 and "Internet" naming suffixes
  - Planning the directory hierarchy
- Red Hat Directory Server: Basic Configuration
  - Installation & setup of Red Hat Directory Server
  - Using the Red Hat Console
  - Using logging to monitor Red Hat Directory Server activity
  - Backing up and restoring the directory
  - Basic performance tuning with indexes
- Red Hat Directory Server: Authentication & Security
  - Configuring TLS security
  - Using access control instructions (ACI's)
  - ACI's and the Red Hat Console
- Searching and Modifying the LDAP Directory
  - Using command line utilities to search the directory
  - Search filter syntax
  - Updating the directory
  - Using graphical LDAP client utilities
- Linux User Authentication with NSS and PAM
  - Understanding authentication & authorization
  - Name service switch (NSS)
  - Advanced pluggable authentication modules (PAM) configuration
- Centralized User Authentication with LDAP
  - Central account management with LDAP
  - Using migration scripts to migrate existing data into an LDAP server
  - LDAP user authentication
- Kerberos and LDAP
  - Introduction to Kerberos
  - Configuring the Kerberos key distribution center (KDC) and clients
  - Configuring LDAP to support Kerberos
  - Access control with Simple Authentication and Security Layer (SASL)
- Directory Referrals and Replication
  - Referrals and replication
  - Single master configuration
  - Multiple master configuration
  - Planning for directory server availability
- Authenticating Windows Clients
  - Windows networking overview
  - Configuring a Samba primary domain controller (PDC) using LDAP
- Windows Domain Authentication & Linux Clients
  - Active Directory servers
  - Linux as a client
  - Active Directory and NSS
  - OpenLDAP
  - Winbind



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

### Training & Certification

#### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Red Hat Enterprise SELinux Policy Administration

### Course Overview

RHS429 introduces advanced system administrators, security administrators, and applications programmers to SELinux policy writing. Participants in this course will learn how SELinux works; how to manage SELinux; and how to write an SELinux policy. This class culminates in a major project to scope out and then write policies for previously unprotected services.

### Pre-Requisites

RHS429 requires RHCE-level skills. Prerequisite skills can be shown by passing the RHCE Exam in either RH302 or by taking RH253 or by possessing comparable skills and knowledge. SELinux information as taught in RH133 or RH301 is sufficient.

### Scope of the course

RHS429 is designed for computer security specialists and other system administrators responsible for setting and implementing security policies on a Linux computer. Applications programmers also may consider taking the course to understand how to provide a set of SELinux policies for third party applications.

### Course Material

The official courseware from Red Hat will be provided during the training.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Four Days: 10 am - 5.30 pm

### Course Fee

Rs. 9,600/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Introduction to SELinux
  - Traditional DAC System
  - SELinux System and History
  - What SELinux Can Do and Cannot Do
  - Architecture, User Identity and Role
  - Domain / Type, Sensitivities and Categories
  - Security Context
  - What is an SELinux Policy
  - Targeted Policy; Where is the policy?
  - Policy Booleans; Security Context Information
  - Using Security Context Information
  - Access Control Example
  - Archiving tar, star, rsync; Get and Set Extended Attributes
- Using SELinux
  - Controlling SELinux; File Contexts
  - Relabel files; Relabel a filesystem
  - Mount options for SELinux
- The Red Hat Targeted Policy
  - Protected Services
  - Identifying & Toggling Protected Services
  - Apache; Apache Security Contexts
  - Web Content
  - Special Configuration Booleans for Apache
  - NIS Client; NIS Client Contexts
  - Some other Services; Contexts
  - File Context for Special Directory Trees
  - Troubleshooting; denied messages, Example
  - SELinux Logging; Identify a Problem
- Introduction to Policies
  - Installing the source RPM
  - Compiling, Loading the Monolithic Policy
  - Loading Policy Modules
  - Policy Type Enforcement Module Syntax
  - Object Classes; Domain Transition
- Policy Utilities
  - seaudit Introduction
  - seaudit Demo: Monitor Logs & Query Policy
  - Seaudit\_report, apol
  - apol DemoPolicy Components, Rules & Analysis
  - Interference of Policies with Services
  - Breakage of Services by Policies
  - checkpolicy, sesearch, sestatus, audit2allow, audit2why, sealert, avcstat, seinfo, semanage & module
- User and Role Security
  - Role-based Access Control
  - Multi Category Security; Defining SecAdmin
  - MLS; The strict Policy; General Identification
  - User Identification, `system_u`, `users_u` & `root`
  - How users are Declared; Role Identification
  - How roles are Declared
  - Roles in use in Transitions; Role Dominance
- Anatomy of a Policy
  - Policy Macros; Type Enforcement
  - Type Attributes; Type Aliases
  - Type Transitions for Objects
  - When and How do Files get Labeled?
  - Restorecond
  - Customizable Types
- Manipulating Policies
  - Installing & Compiling Policies
  - The Policy Language; Access vector
  - SELinux logs, Security Identifiers-SIDs
  - Filesystem Labeling Behavior
  - Statements: `fs_use` and `genfs_contexts`
  - Context on network objects; Booleans
  - Examples: `allow`, `auditallow`, `neverallow`, `dontaudit`, `can_exec`, `macros` and `Enableaudit`
- Project
  - Best practices; Overview of changes
  - Create File Contexts
  - Create File Types
  - Create File Typealiases
  - Edit or Create Network Contexts
  - Edit Domains
  - Create Domains
  - Create Macros



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## RH401

## LINUX LEARNING CENTRE

### Red Hat Enterprise Deployment and Systems Management

#### Course Overview

RH401 is designed to train people with RHCE level competency on skills required to deploy and manage Red Hat systems to enterprise standards of reliability, availability, scalability and manageability.

#### Pre-Requisites

RH401 requires RHCE-level skills. The RHCE certificate on 7.1 or higher is recommended but not required. Prerequisite skills can be evidenced by passing the RHCE Exam in either RH302, RH300, or by taking RH253 or comparable skills and knowledge.

Note: Persons should not enroll in RH401 without meeting the above prerequisites. All prospective course participants who do not possess RHCE certification are strongly advised

#### Scope of the course

RH401 is aimed at senior Red Hat Enterprise Linux system administrators and other IT professionals working in enterprise environments and mission-critical systems.

#### Course Material

The official courseware from Red Hat will be provided during the training.

#### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

#### Course Duration

Four Days: 10 am - 5.30 pm

#### Course Fee

Rs. 30,000/- (plus service tax)

#### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

#### Course Outline

- Essential System Management
  - System management tasks
  - Standardization, centralization, and scalability
  - Provisioning and automation
  - Red Hat tools for system management
- Installing a Red Hat Network Satellite Server
  - Features and advantages of the RHN
  - Satellite Server
  - Types of RHN Satellite Servers
  - RHN Satellite Server hardware requirements
  - Understanding software channels
  - Installing an RHN Satellite Server
  - Populating an RHN Satellite Server
  - Troubleshooting an RHN Satellite Server installation
- Building RPMs
  - Building open source software
  - Using RPM macros
  - Writing custom spec files
  - Using rpmbuild to create and sign RPMs
  - Guidelines for custom RPMs
- Use of CVS to Manage Configuration Files
  - Basics of CVS for system administrators
  - Creating local and remote repository access
  - Structuring a CVS project
  - Using CVS to track, log, and reverse configuration changes
- Managing the Red Hat Network Satellite Server
  - Preparing a client to use an RHN Satellite Server
  - Creating and managing custom channels
- Red Hat Network Management and Provisioning
  - Types of RHN service
  - Elements of a deployment system
  - Use of custom channels in a deployment system
  - Using configuration channels to maintain system configuration
  - Automating installations through kickstart
- Red Hat Network Proxy Server
  - Hosted RHN versus Proxy Server
  - Proxy Server software and hardware requirements
  - Installing RHN Proxy Server
  - Configuring clients to use a RHN Proxy Server
- Monitoring Systems with RHN
  - RHN monitoring architecture
  - RHN monitoring components
  - Probes and notifications
- Network Kernel Crash Dumps and netdump
  - Saving crash signatures over the network
  - Saving crash dumps over the network
  - Configuring netdump servers
  - Configuring netdump clients
- DHCP and PXE boot
  - DHCP server design and configuration
  - Preboot Execution Environment
  - Setup PXE and PXELINUX
  - Kickstart and DHCP
- Xen Technology Preview
  - Understanding virtualization
  - Xen terminology
  - Hardware requirements
  - Xen tools
  - Creating and bootstrapping a domain
  - Accessing and monitoring a domain
  - The art of Xen security

**Note:**The Xen Technology Preview will be taught using Fedora Core 5. As of this writing, the Xen virtualization system is not available in Red Hat Enterprise Linux.



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Red Hat Enterprise Clustering & Storage Management

### **Course Overview**

RH436 Red Hat Enterprise Storage Management provides intensive hands-on experience with the emerging Shared Storage technology delivered by Red Hat Global File System

### **Pre-Requisites**

Participants in RH436 should already be familiar with Red Hat Enterprise Linux. Recommended minimum competency level is completion of the RHCE or equivalent knowledge.

### **Scope of the course**

RH436 is aimed at senior Red Hat Enterprise Linux system administrators and other IT professionals working in enterprise environments and mission-critical systems.

### **Course Material**

The official courseware from Red Hat will be provided during the training.

### **Post Training Support**

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### **Course Duration**

Four Days: 10 am - 5.30 pm

### **Course Fee**

Rs. 30,000/- (plus service tax)

### **Mode of Payment**

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "**Linux Learning Centre Private Limited**". The registration can be forwarded along with the payment by hand or by courier.

### **Course Outline**

- Review Red Hat Enterprise Linux Storage Management Technologies
- Data Storage Design: Data Sharing
  - Analyze Storage Dynamics
  - SNIA Shared Storage Model(SSM)
  - Volume Management + File System Management = Data Management
- Cluster Suite Overview
  - Define Cluster Suite Implementation in the SSM
  - Explain Cluster Suite Configuration
  - Implement Cluster Suite; HA NFS
- Global File System(GFS) Overview
  - Define GFS Implementation in the SSM
  - Explain GFS Configuration
  - Explain Pools and Distributed Storage
  - Introduce Fencing
  - Explain Fencing Procedures
  - Implement Fencing Methods
- Describe GFS Management
  - Describe GFS journals
  - Explain GFS Modification
  - Single/Redundant GFS Lockmanagers(SLM/RLM)
  - Increasing Data Storage Capacity
- Modify the On-line GFS Environment: Managing Data Capacity
- Monitor GFS
- Implement GFS modifications
- Migrating Cluster Suite NFS from DAS to GFS
- Re-visit Cluster Suite using GFS



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Red Hat Enterprise System Monitoring and Performance Tuning

### Course Overview

RH442 Red Hat Enterprise System Monitoring and Performance Tuning is an advanced 4-day hands-on lab course covering system architecture, performance characteristics, monitoring, benchmarking, and network performance tuning.

### Pre-Requisites

Participants in RH442 should already be familiar with Red Hat Enterprise Linux. Recommended minimum competency level is completion of the RHCE or equivalent knowledge.

### Scope of the course

RH442 is designed to teach the methodology of performance tuning and capacity planning for Red Hat Enterprise Linux. This class will cover: a discussion of system architecture with an emphasis on understanding the implications of system architecture on system performance, methods for testing the effects of performance adjustments (benchmarking), open source benchmarking utilities, methods for analyzing system performance and networking performance, tuning configurations for specific application loads. Where possible, emphasis will be placed on using tools that are provided as part of Red Hat Enterprise Linux and Red Hat Network.

### Course Material

The official courseware from Red Hat will be provided during the training.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Four Days: 10 am - 5.30 pm

### Course Fee

Rs. 30,000/- (plus service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Architecture
  - Overview of system components and architecture as they related to system performance.
  - Performance characteristics of current standard PC hardware.
  - Translating manufacturers' hardware specifications into useful information.
- Monitoring
  - Using standard monitoring tools effectively
  - Gathering and analyzing trend information
- SNMP
  - Basics of SNMP
  - Using SNMP to gather performance related data
  - Graphing SNMP based information with MRTG
- Benchmarking
  - Using open source benchmarking utilities
  - Benchmarking systems as a holistic entity
  - Application/resource specific benchmarking utilities
- Tuning
  - Using /proc to tune operating system characteristics
    - Module level tuning
    - modinfo
    - tuning device drivers (NIC?s SCSI, etc.)
  - Network performance tuning
  - Application performance tuning considerations
  - Tuning for specific configurations
    - Evaluating ext3 performance
    - Tuning for SMB/CIFS servers
    - Tuning for compute servers
    - Tuning for file servers
    - Tuning to tune for database servers



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

### Training & Certification

#### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## RH142

## LINUX LEARNING CENTRE

### Linux Troubleshooting Techniques and Tools

#### Course Overview

Troubleshooting is both an art and a science, an instinct (typically informed by experience) and a technique. In RH142 Linux Troubleshooting Techniques and Tools, participants will learn techniques for troubleshooting a Linux system and will learn to use a variety of troubleshooting tools available on Red Hat Enterprise Linux.

RH142 Linux Troubleshooting Techniques and Tools is a 4 day class designed to help participants learn (or improve) their troubleshooting skills using tools available in Red Hat Enterprise Linux. Labs will offer a range of problems from RHCT level and allow participants to extend their knowledge and techniques.

Participants will have the opportunity to debug live systems, exercising their new troubleshooting skills on a working system so that they can start to develop troubleshooting experience.

#### Pre-Requisites

Has equivalent system administration knowledge under Red Hat Enterprise Linux. This knowledge includes: installation, service management (using service and chkconfig, for example), basic system monitoring (using ps and top, and perhaps meminfo and the /proc filesystem), filesystem management (using fdisk and mkfs), and basic troubleshooting (including managing log files & perhaps the use of hardware probing tools such as ethtool and lspci).

#### Scope of the course

A Red Hat Enterprise Linux system administrator who can identify, diagnose, and resolve problems on a Red Hat Enterprise Linux system, and who can take preventative action to avoid problems.

#### Course Material

The official courseware from Red Hat will be provided during the training.

#### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

#### Course Duration

Four Days: 10 am - 5.30 pm

#### Course Fee

Rs. 6,000/- (plus 10.3% service tax)

#### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

#### Course Outline

- Troubleshooting Techniques
  - An introduction to troubleshooting methods, best practices, and tools.
- Troubleshooting Boot Issues
  - Working with advanced GRUB features;
  - rescue and GRUB CDs;
  - advanced ext2/ext3 filesystem repair;
  - rescuing RAID and LVM volumes.
- Local Configuration
  - Tools to identify configuration problems.
- Hardware
  - Preempting hardware failures (looking for the signs);
  - protecting against hardware failures;
  - redundant configurations;
  - tools to help identify hardware failures and intermittent problems.
- Applications
  - An overview of tools and techniques for troubleshooting applications. Some common application problems and how to solve them.
- Network
  - Manual configuration of network cards, troubleshooting advanced setups (bonded interfaces, virtual interfaces);
  - connectivity issues;
  - network diagnostic tools.
- Security
  - Working effectively with (and not against) security tools, including SELinux, SSL, & authentication.
- Red Hat Resources and Reporting Problems
  - Support options;
  - Knowledgebase;
  - certified training;
  - initiating support calls;
  - TAM support;
  - developer support;
  - bugzillas;
  - support workflow;
  - diagnostic and information-gathering tools.



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Red Hat Enterprise Linux Virtualization

### Course Overview

Virtualization--the ability for a single system to act as multiple systems--is becoming a key technology in the data center. Virtualization permits more efficient allocation of hardware resources, keeping costs in control while maintaining the security that comes with placing key applications in separate computer silos.

The RH184 Red Hat Enterprise Linux Virtualization course teaches system administrators how to deploy virtualized versions of Red Hat Enterprise Linux, thus taking greater advantage of hardware and other resources.

### Pre-Requisites

Has system administration knowledge under Red Hat Enterprise Linux equivalent to RH133, or RHCT certification.  
Has taken RH133; or: Holds a current RHCT certification;

### Scope of the course

Linux system administrators who understand how to install and configure a Red Hat Enterprise Linux system and who wish to learn to install, configure, and manage Red Hat Enterprise Linux 5 in a virtualized environment.

### Course Material

The official courseware from Red Hat will be provided during the training.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Two Days: 10 am - 5.30 pm

### Course Fee

Rs. 5,000/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "**Linux Learning Centre Private Limited**". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Introduction to Virtualization
  - What is virtualization?
  - Why is virtualization important?
  - Types of virtualization
  - Basic architecture of Xen virtualization
- Basic Paravirtualized Domain Installation
  - Preparing for domain installation
  - Basic installs using virt-manager
  - Configuring domains to automatically start at boot
- Virtual Machine Management
  - Using generic libvirt-based utilities
  - Using native Xen utilities
- Advanced Installation and Configuration
  - Syntax of Xen domain configuration files
  - Virtual Block Devices and types of block storage
  - Xen and bridged networking
  - Manual and command-line domain installation
- Live Migration
  - Live migration of Xen paravirtualized domains
  - Advanced configuration of xend
  - Live migration issues
- Troubleshooting
  - Differences from a standard environment
  - Viewing hypervisor log messages and log files
  - Accessing domain virtual block devices
  - Common issues
- Hardware-assisted Virtualization
  - Fully-virtualized vs. paravirtualized domains
  - Installing unmodified OSES



## Linux Learning Centre

H.O. & Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## Red Hat Certification Lab Exam

The Red Hat Certified Engineer (RHCE) Exam stands apart from many other certification programs in the IT sector because of its emphasis on hands-on testing of actual skills in Red Hat Linux installation, configuration, debugging, and setup of key networking services.

### Exam Description

Prospective enrollees in RH302 should consider taking one or more of Red Hat's RHCE courses in preparation for the exam. Candidates are also advised that real-world system administration experience is an important aspect of preparation for the exam, and will enhance the success rate in the examination.

### Certificate Validity

The validity period for all RHCEs is now officially pegged to the release of the Enterprise product commercially available at the time certification was earned, and certification shall be current until after one (1) major release of the Enterprise product. All RHCEs earned on RHEL5.0 will remain current until the release of Red Hat Enterprise Linux 7.0. Validity and current status of an RHCE certificate will continue to be verified at Certification Central.

### Exam Requirements:

The certification exam consists of one part conducted in a single day session. The exam is performance-based, meaning that candidates must perform tasks on a live system, rather than answering questions about how one might perform those tasks.

The RHCE Exam consist of one section lasting 3.5 hours.

In order to pass the Red Hat Certified Engineer exam, candidates must meet all of the following requirements:

70 percent or more on the RHCT-level skills.

70 percent or more on the RHCE-level skills.

These last two requirements enable RHCEs to demonstrate that they possess both RHCT-level and RHCE-level skills, as well as enabling a person who only has RHCT level skills to earn RHCT if they pass the required competencies.

**Duration:** One Day, Single Session of 3.5 hours (Schedule announced on [www.linuxlearningcentre.com](http://www.linuxlearningcentre.com))

**Examination Fee:** Please call or email us for mode of payment and the current fee.

Candidates will be emailed exam results within seven working days after the exam.



## Linux Learning Centre

H.O. & Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

Training & Certification  
Programmes at LLC  
LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## RHCSS

## LINUX LEARNING CENTRE

### Expertise Exams

#### Red Hat Certified Security Specialist (RHCSS)

##### **Overview**

*Red Hat Certified Security Specialist (RHCSS) is a security certification that proves advanced skills in using Red Hat Enterprise Linux, SELinux, and Red Hat Directory Server to meet the security requirements of today's enterprise environment.*

##### **Expertise Exams**

*Current RHCEs will obtain RHCSS certification upon successfully passing all three Expertise Exams:*

*EX333 Red Hat Enterprise Security: Network Services*

*EX423 Enterprise Directory Services and Authentication*

*EX429 SELinux Policy Administration*

#### Red Hat Certified Architect (RHCA) Certification

##### **Overview**

*Red Hat Certified Architect (RHCA) is a capstone certification to Red Hat Certified Engineer (RHCE), the most recognized, acclaimed, and mature certifications in the Linux space.*

##### **Expertise Exams**

*Current RHCEs will obtain RHCA certification upon successfully passing all five Expertise Exams.*

*EX333 Red Hat Enterprise Security: Network Services Expertise Exam*

*EX401 Red Hat Enterprise Deployment, Virtualization, and Systems Management Expertise Exam*

*EX423 Red Hat Enterprise Directory Services and Authentication Expertise Exam*

*EX436 Red Hat Enterprise Clustering and Storage Management Expertise Exam*

*EX442 Red Hat Enterprise System Monitoring & Performance Tuning Expertise Exam*

**Duration:** One Day, Single Session (Schedule announced on [www.linuxlearningcentre.com](http://www.linuxlearningcentre.com))

**Examination Fee:** Please call or email for mode of payment and the current fee

Candidates will be emailed exam results within seven working days after the exam.



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

Programmes at LLC  
LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Qmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## SUSE Linux Enterprise Server Fundamentals

### Course Overview

This course is the first in the CLP curriculum developed for SUSE Enterprise Server. This course guides students who have no experience with Linux through the main concepts of open source software and Linux using the SUSE Linux Enterprise Server. Students will learn the concepts of Open Source and Linux as well as the fundamental knowledge necessary to administer SUSE Linux Enterprise Server. These fundamental tasks are prerequisites to SUSE Linux Enterprise Server Administration (Course 3072). These tasks are also essential and prerequisite to learning the skills of an entry level Linux administrator or help desk technician in an enterprise environment.

### Scope of the course

Based on SUSE Linux Enterprise Server , you will understand key Open Source concepts and will be able to carry out fundamental administration tasks such as: Installing SUSE Linux Enterprise Server and knowing where to find help when having problems. Understanding the basic concepts of bash and the file system Managing users and permissions

### Course Material

The official courseware from Novell will be provided during the training.

### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

### Course Duration

Two Days: 10 am - 5.30 pm

### Course Fee

Rs. 3,000/- (plus 10.3% service tax)

### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

### Course Outline

- Understand the Linux Story
  - The History of Linux
    - The Historical Development of UNIX
    - The Development of Linux
    - The Software Differences Between SUSE Linux & SLES
  - Understand the Multiuser Environment
  - Perform a Simple Installation of SLES
    - Pre-Installation Requirements and Guidelines
    - Installation Options, Basic Installation, Configuration
- Use the Linux Desktop
  - Overview of the Linux Desktop
  - Use the GNOME Desktop Environment
    - Log In, Log Out and Shutdown
    - Identify GNOME Desktop Components
    - Use the GNOME File Manager (Nautilus)
  - Access the Command Line Interface From the Desktop
- Administer Linux with YaST
  - Get to Know YaST
  - Understand the Role of SuSEconfig
  - Manage the Network Configuration Information from YaST
  - Install Software Packages, Manage Installation Sources
- Locate and Use Help Resources
  - Access and Use man Pages & info Pages
  - Access Release Notes, White Papers, Manuals, & Howtos
- Manage Directories and Files
  - Understand the File System Hierarchy Standard (FHS)
    - The Hierarchical Structure of the File System
    - FHS (Filesystem Hierarchy Standard)
    - Identify File Types in the Linux System
  - Change Directories and List Directory Contents
  - Create and View Files
  - Work with Files and Directories
  - Find Files on Linux
  - Search File Content - grep, Regular Expressions
- Work With the Linux Shell and Command Line
  - Get to Know the Command Shells
    - Types of Shells, bash Configuration Files, Completion of Commands and File Names
  - Execute Commands at the Command Line
    - History Function, Switch to User root,
  - Get to Know Common Command Line Tasks
    - Variables, Aliases
  - Understand Command Syntax and Special Characters
    - Character Encoding, Name Expansion with Search Patterns
    - Prevent the Shell from Interpreting Special Characters
  - Use Piping and Redirection
- Use Linux Text Editors
  - Get to Know Linux Text Editors
  - Use the Editor vi to Edit Files
- Manage User, Groups, and Permissions
  - Manage User & Group Accounts Administration With YaST
  - Describe Basic Linux User Security Features
  - Manage User & Group Accounts From the Command Line
  - Manage File Permissions and Ownership
    - chmod, chown and chgrp,
    - Configure Special File Permissions
  - Ensure File System Security
    - The Basic Rule for User Write & Read Access
    - Special File Permissions Affect Security of the System
- APPENDIX A - Use the KDE Desktop Environment
  - Install the KDE Desktop Environment
    - Install KDE during the Installation of SLES
    - Install KDE after the Installation of SLES
  - Log In, Log Out and Shutdown
  - Identify KDE Desktop Components
    - The Desktop, The KDE Control Panel (Kicker)
    - The KDE Menu, Virtual Desktops
  - Manage Icons in the KDE Environment
    - Desktop, Kicker, KDE Menu
  - Use the Konqueror File Manager
- APPENDIX B - Network Components and Architecture
  - Network Types
  - Client/Server and Peer-to-Peer Computing
  - Network Topology
  - Elements of a Network
  - TCP/IP Layer Model



## Linux Learning Centre

H.O. & Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

#### Training & Certification

##### Programmes at LLC

LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Gmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## SUSE3072

## LINUX LEARNING CENTRE

### SUSE Linux Enterprise Server Administration

#### **Course Overview**

Building on initial experience with Linux, the SUSE Linux Enterprise Server Administration (Course 3072) teaches students basic SUSE Linux Enterprise Server administration skills. Attendees will learn how to install and configure SUSE Linux Enterprise Server, and how to manage system initialization and processes. Among the topics covered in this course are Posix ACLs, network configuration, printing, and remote access.

#### **Scope of the course**

Based on SUSE Linux Enterprise Server, you will gain familiarity with the core elements of Linux system administration, including how to install and configure SUSE Linux Enterprise Server, as well as how to configure networking, backup, printing, remote access, and how to perform various other common tasks that are part of day-to-day Linux administration.

#### **Course Material**

The official courseware from Novell will be provided during the training.

#### **Post Training Support**

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

#### **Course Duration**

Four Days: 10 am - 5.30 pm

#### **Course Fee**

Rs. 6,000/- (plus 10.3% service tax)

#### **Mode of Payment**

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "**Linux Learning Centre Private Limited**". The registration can be forwarded along with the payment by hand or by courier.

#### **Course Outline**

- Section 1: Install SUSE Linux Enterprise Server
  - Perform a SLES Installation
  - Configure the SLES Installation
  - Troubleshoot the Installation Process
- Section 2: Administer the Linux File System
  - Select a Linux File System
  - Configure Linux File System Partitions
  - Manage Linux File Systems
  - Logical Volume Manager (LVM) and Software RAID
  - Set Up and Configure Disk Quotas
- Section 3: Administer User Access and Security
  - Configure User Authentication with PAM
  - Manage & Secure the Linux User Environment
  - Use Access Control Lists (ACLs) for Advanced Access Control
- Section 4: Configure the Network Manually
  - Understand Linux Network Terms
  - Set Up Network Interfaces With the ip Tool
  - Set Up Routing With the ip Tool
  - Test the Network Connection With Command Line Tools
  - Configure Host Name and Name Resolution
  - Use the NetworkManager to Configure the Network
- Section 5: Administer Linux Processes & Services
  - View and Manage Processes
  - Schedule Jobs
- Section 6: Monitor SUSE Linux Enterprise Server
  - Monitor a SUSE Linux Enterprise Server System
  - Use System Logging Services
  - Monitor Login Activity
- Section 7: Configure System Initialization
  - Describe the Linux Load Procedure
  - GRUB (Grand Unified Bootloader)
  - Manage Runlevels
- Section 8: Manage Software for SUSE Linux Enterprise Server
  - Manage RPM Software Packages
  - Verify and Update Software Library Access
- Section 9: Manage Backup and Recovery
  - Develop a Backup Strategy
  - Backup Files with YaST
  - Create Backups with tar
  - Work with Magnetic Tapes
  - Copy Data with dd
  - Mirror Directories with rsync
  - Automate Data Backups with cron
- Section 10: Manage Printing
  - Configure Local Printing
  - Manage Print Jobs and Queues Understand how CUPS Works
  - Configure and Manage a Print Server
  - Use the Web Interface to Manage a CUPS Server
- Section 11: Configure Remote Access
  - Provide Secure Remote Access With OpenSSH
  - Enable Remote Administration With YaST



## Linux Learning Centre

H.O.& Corporate Training Centre  
# 635, 6th Main Road  
Hanumanthnagar  
Bangalore 560019, INDIA  
Tel: +91-80-22428538 / 26610999  
TelFax: +91-80-26600839  
Cell: +91-9845057731 / 9449857731

### LLC Satellite Centre

# 1291, 24th Cross, 30th Main  
Banashankari 2nd Stage  
Bangalore-560070  
Tel: +91-80- 26712928

Email: [info@linuxlearningcentre.com](mailto:info@linuxlearningcentre.com)  
[www.linuxlearningcentre.com](http://www.linuxlearningcentre.com)

### Training & Certification

Programmes at LLC  
LLC102: Essentials of Linux OS  
LLC103: Linux System & Network Administration  
LLC203: Linux Advanced Administration  
LLC303: Linux System & Network Monitoring Tools  
LLC104: Linux Internals & Programming Essentials  
LLC105: Programming with Qt  
LLC106: Device Driver Programming on Linux  
LLC107: Network Programming on Linux  
LLC108: Bash Shell Scripting Essentials  
LLC109: CVS on Linux  
LLC204: MySQL on Linux  
LLC205: Programming with PHP  
LLC206: Programming with Perl  
LLC207: Programming with Python  
LLC208: PostgreSQL on Linux  
LLC209: Joomla CMS  
LLC403: Gmail Server Administration  
LLC404: Postfix Mail Server Administration  
LLC405: Linux Firewall Solutions  
LLC406: Open LDAP Server Administration  
LLC408: Samba Server Administration  
LLC409: DNS Administration  
LLC410: Nagios - System & Network Monitoring Software  
LLC412: Apache & Secure Web Server Administration  
LLC501: Programming with OpenGL  
LLC504: Linux on Embedded Systems  
LLC602: Linux Apache MySQL & PHP (LAMP)  
RH033: Red Hat Linux Essentials  
RH133: Red Hat Linux System Administration  
RH253: Red Hat Linux Network & Security Administration  
RH301: Red Hat Rapid Track Certification Course  
RHS333: Red Hat Enterprise Security : Network Services  
RH423: Red Hat Enterprise Directory Services & Authentication  
RHS429: Red Hat Enterprise SELinux Policy Administration  
RH401: Red Hat Enterprise Deployment & Systems Management  
RH436: Red Hat Enterprise Clustering & Storage Management  
RH442: Red Hat Enterprise System Monitoring & Performance Tuning  
RH142: Linux Troubleshooting Techniques & Tools  
RH184: Red Hat Enterprise Linux Virtualization  
SUSE3071: SUSE Linux Enterprise Server Fundamentals  
SUSE3072: SUSE Linux Enterprise Server Administration  
SUSE3073: SUSE Linux Enterprise Server Advanced Administration

## SUSE3073

## LINUX LEARNING CENTRE

### SUSE Linux Enterprise Server Advanced Administration

#### Course Overview

This course gives students a deeper understanding of how SUSE Linux Enterprise Server works. Students will learn how to make their work and their servers more efficient and productive as well as how to turn Linux into a productive system.

This is the last course to prepare for the Novell CLP certification. It is recommended that students have either attended the previous courses SUSE Linux Enterprise Server Fundamentals (Course 3071) and SUSE Linux Enterprise Server Administration (Course 3072) or have a gained a comparable knowledge.

#### Scope of the course

Based on SUSE Linux Enterprise Server, students will learn the following: Virtualization with XEN, Configuration of a Web Application Server, Configuration of Samba Shell Scripting & System Health Check and Performance Tuning.

#### Course Material

The official courseware from Novell will be provided during the training.

#### Post Training Support

Candidates can clarify any doubts on the topics covered in the course over email for a period of 30 days after the conclusion of the course.

#### Course Duration

Four Days: 10 am - 5.30 pm

#### Course Fee

Rs. 6,000/- (plus 10.3% service tax)

#### Mode of Payment

The course fee has to be paid completely in advance by cash / Credit-Debit Card / Cheque / Demand Draft payable in Bangalore City in favour of "Linux Learning Centre Private Limited". The registration can be forwarded along with the payment by hand or by courier.

#### Course Outline

- Section 1: Manage Virtualization with Xen
  - Understand the Concept of Virtualization
  - Understand How Xen Works
  - Install Xen
  - Manage Xen Domains with YaST
  - Manage Xen Domains at the Command Line
  - Understand Xen Networking
  - Migrate a Guest Domain
- Section 2: Configure a Web Application Server
  - Understand Samba
  - Configure a Simple File Server
  - Configure User Authentication
  - Use Samba's Client Tools
  - Use Samba as a Domain Controller
  - Configure Samba as Print Server
- Section 3: Configure and Use Samba
  - Understand Samba
  - Configure a Simple File Server
  - Use Samba's Client Tools
  - Configure User Authentication
  - Configure Virtual File Servers
  - Use Samba as a Domain Controller
  - Integrate Samba in a Windows Domain
  - Configure Samba as Printer Server
- Section 4: Enable Fundamental Network Services
  - Enable the Extended Internet Daemon (xinetd)
  - Enable a FTP Server
  - Configure Time on SUSE Linux Enterprise Server 10
  - Configure NFS (Network File System)
- Section 5: Create Shell Scripts
  - Understand the Course Project
  - Use Basic Script Elements
  - Understand Variables and Command Substitution
  - Use Control Structures
  - Use Arithmetic Operators
  - Read User Input
  - Use Arrays
  - Finalize the Course Project
  - Use Advanced Scripting Techniques
  - Learn About Useful Commands in Shell Scripts
- Section 6: Compile Software from Source
  - Understand the Basics of C Programming
  - Understand the Concept of Shared Libraries
  - Understand the GNU Build Tool Chain
  - Perform a Standard Build Process
- Section 7: Perform a Health Check and Performance Tuning
  - Find Performance Bottlenecks
  - Reduce System and Memory Load
  - Optimize the Storage System
  - Tune the Network Performance
  - Use Powertweak
- Section 8: Manage Hardware Components
  - Describe the Differences Between Devices and Interfaces
  - Describe How Device Drivers Work
  - Describe How Device Drivers Are Loaded
  - Describe the sysfs File System
  - Describe How udev Works
  - Add New Hardware to the System
  - Use the hwup Command
  - Manage the Kernel
  - Obtain Hardware Configuration Information from YaST