

55187 Linux System Administration

Overview

This course is designed to provide students with the necessary skills and abilities to work as a professional Linux system administrator. The course covers how to administer, configure and upgrade Linux systems running one of the three major Linux distribution families: Red Hat, SUSE, Debian/Ubuntu, how to master the tools and concepts you'll need to efficiently build and manage an enterprise Linux infrastructure. It also covers how to use state-of-the-art system administration techniques in real-life scenarios via practical labs. This course prepares the user for the Linux Foundation Certified System Administrator (LFCS) exam, which is also a required component of the MCSA: Linux on Azure Certification.

Prerequisite Comments

- Knowledge of the basic components of Linux.
- Familiarity with text editors.
- Working knowledge of Bash scripting.

Target Audience

This course is intended for students with a basic knowledge of Linux and its most common utilities and text editors. For users with no prior experience we suggest the free 'Introduction to Linux' course available on edx.org.

Course Objectives

- Perform essential Linux commands such as installation, searches and manipulating files.
- Operate running Linux systems by managing the boot process, scheduling jobs, updating the system, monitoring system performance and managing security.
- Manage users and groups by adding/deleting/modifying, configuring LDAP and PAM, modifying user processes and resources.
- Ensure network performance via configuration, monitoring, tunnelling and routing of traffic.
- Configure services such as DNS, shares, SSH and SELinux/AppArmor as well as servers for DHCP and HTTP.
- Manage system storage by using partitions, logical volumes, physical volumes, ACLs, quotas and clustering.

Course Outline

[Register Online](#)

Schedule

Class Length: 4 Days

G2R = "Guaranteed to Run" OLL = "Online LIVE" ILT = "Instructor-Led-Training"					
12/11/18	G2R	2:00PM - 10:00PM	Lisbon, Portugal	OLL	EUR 2380

System Startup and Shutdown

Understanding the Boot Sequence
The Grand Unified Boot Loader
GRUB Configuration Files
System Configuration Files in /etc
The init Process
SysVinit Startup
chkconfig and service
Upstart
systemd
Shutting down/Rebooting the System
Lab 1: Chapter Labs

Linux Filetree System Layout

Data Distinctions
FHS Linux Standard Directory Tree
root (/) directory
/bin
/dev
/etc
/home
/lib and /lib64
/media
/mnt
/opt
/proc
/sys
/root
/sbin
/tmp
/usr
/var
/run
Lab 1: Chapter Labs

Kernel Services and Configuration

Kernel Overview
Kernel Configuration
sysctl
Kernel Modules
Module Utilities
Module Configuration
udev and Device Management
Lab 1: Chapter Labs

Partitioning and Formatting Disks

Common Disk Types
Disk Geometry
Partitioning
Naming Disk Devices
Sizing up partitions
Partition table editors
Lab 1: Chapter Labs

Linux Filesystems

Some Notes About Filesystems
Virtual Filesystem (VFS)
Filesystem Concepts
Disk and Filesystem Usage
Extended Attributes
ext4
XFS
btrfs
Creating and formatting filesystems
Checking and Repairing Filesystems
Mounting filesystems
Swap
Filesystem Quotas
Lab 1: Chapter Labs

RAID and LVM

RAID
RAID Levels
Software RAID Configuration
Logical Volume Management (LVM)
Volumes and Volume Groups
Working with Logical Volumes
Resizing Logical Volumes
LVM Snapshots
Lab 1: Chapter Labs

Processes

Programs and Processes
Process States
Execution Modes
Daemons
Creating Processes
Process Limits
Process Monitoring
Signals
niceness
Libraries
Lab 1: Installing and Configuring Windows 7

Package Management Systems

Software Packaging Concepts
RPM (Red Hat Package Manager)
DPKG (Debian Package)
Revision Control Systems
Lab 1: Chapter Labs

Package Installers

Package Installers
yum
zypper
APT
Lab 1: Chapter Labs

User and Group Account Management

User Accounts
Management
Passwords
Restricted Shells and Accounts
The root Account
Group Management
PAM (Pluggable Authentication Modules)
Authentication Process
Configuring PAM
LDAP Authentication
File Permissions and Ownership
SSH
Lab 1: Chapter Labs

Backup and Recovery Methods

Backup Basics
cpio
tar
Compression: gzip, bzip2 and xz and Backups
dd
rsync
dump and restore
mt
Backup Programs
Lab 1: Chapter Labs

Networking

IP Addresses
Hostnames
Configuring Network Interfaces
Routing
Name Resolution
Network Diagnostics
Lab 1: Chapter Labs

Firewalls

Firewalls
Interfaces
firewalld
Zones
Source Management
Service and Port Management
Lab 1: Chapter Labs

Local System Security

Local System Security
Creating a Security Policy
Updates and Security
Physical Security
Filesystem Security
Linux Security Modules
Lab 1: Chapter Labs

Basic Troubleshoot and System Rescue

Troubleshooting Overview
Things to Check: Networking
Boot Process Failures
Filesystem Corruption and Recovery
Virtual Consoles
Rescue Media and Troubleshooting
System Rescue and Recovery
Lab 1: Chapter Labs
