

Linux for Developers - Course content
Module - 1 Introduction
Introduction - Unix/Linux - Linux Distros
Opensource - Basics
Operating system / Shell - Basics
Comparing Linux/Windows
Module 2 - Download, Install and Configure
What is Virtual Box?
Downloading and Installing Oracle VirtualBox
Creating First Virtual Machine
Linux Installation (CentOS7 - Recommended)
User Interface - CLI and GUI
Virtual Machine Management
Accessing Linux Servers through console
Module 3 - System Access and File System
Executing commands
Basic commands in Linux like hostname, ip, cat, vim, echo, touch, date, mkdir, uname, cal, bc
Linux Filesystem hierarchy
Absolute and Relative Paths / hidden files, folders
PATH variable understanding
Locating binaries using which command
File System Navigation Commands (cd, ls and pwd) - cd .. Cd - cd ~
Creating Files and Directories / rm rmdir rm -rf
Accessing man pages for commands and man page understanding
Redirection standard outputs and standard error messages, tee command
Using bash scripting - demo
Exercise / Homework
Module 4 - Linux Fundamentals
Linux Command Syntax - find and locate command

TAB Completion and Up Arrow Keys
Fileglobbing, using Pipes ()
File Maintenance Commands (cp, rm, mv, mkdir, rmdir)
File Display Commands (cat, less, more, head, tail)
cut - Text Processors Commands
awk, sed - Text Processors Commands
grep/egrep - Text Processors Commands
sort/uniq - Text Processors Commands
wc - Text Processors Commands
Compress and uncompress (tar, gzip, gunzip)
Understanding system details through dmidecode
System Maintenance through reboot, shutdown, init commands
Using bash scripting - demo
Exercise / Homework
Module 5 - Users and Groups
User Creation - useradd, usermod, userdel
Password Managing - chage, passwd
Groups - Primary/Secondary
Adding users in group vice versa.
Adding users in group vice versa.
Monitoring users using who, w, last, id
User Creation Templates
Login sequence
Managing privileged tasks through su and sudoers
Using bash scripting - demo
Exercise / Homework
Module 6 - Controlling and Accessing File Permissions
Managing File permissions - r,w,x
Understanding of rwx in terms of files and folders
Managing file permissions through numerics like 777 / alphabets like ugo

Managing permissions through chmod, Managing ownership through chown, chgrp
Managing default file permissions through umask
Special permissions: setUID, setGID, Stickybit
Managing extended permissions through ACL
Using bash scripting - demo
Exercise / Homework
Module 7 - Process Management
Understanding about a process
Managing and Killing a process
Monitoring process activities using top, vmstat, nohup etc.,
Managing foreground and background processes using bg, fg nice
Influencing Process Scheduling using Nice and Priority values
Adjusting Tuning Profiles
Using bash scripting - demo
Exercise/Homework
Module 8 - Network Management
Validating network configurations
configuring network from the command line
Editing network configuration files
Configuring hostnames and Name Resolutions
Networking commands like ping, traceroute, netstat, ss, wget, curl
Using bash scripting - demo
Exercise / Homework
Module 10 - Access NAS (Network-Attached Storage)
Manage Network-Attached Storage with NFS
Manage File sharing with Samba/CIFS
Module 11 - Package Management using yum/dnf
Installing Updating software packages using rpm
Understanding of repositories
Installing updating software packages using yum/dnf

Getting information about installed packages (eg., gcc, vcpkg)
Enabling Yum Software Repositories
Source install (make, config & install)
Exercise / Homework
Module 12 - Storage Administration
Storage basics
Linux native partitions, filesystem preparation, Mounting
Persistent Mounting through fstab
Managing Swap partitions
Managing file links - soft, hard links
Using bash scripting - demo
Exercise / Homework
Module 14 - Analyzing through Logs
Describing system log architecture
Reviewing syslog files
Reviewing system Journaling
Maintaining Accurate timings - NTP
Exercise / Homework
Module 16 - Booting Process
Booting - Introduction
Identify Automatically Started System Process
Select the Boot Target
Reset the Root Password
Repair File System Issues at Boot
Exercise / Homework
Module 17 - Application Development in Linux
An overview of compiler ecosystem
gcc, versions and features
How to develop a simple application (non-web), compile it and run it
Debug application using gdb

How to look at call stack, variables etc. for efficient debugging

Exercise / Homework