

L-0 Linux CLI and Bash Shell Scripting

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Duration: 3 days	
Pre-requisites	
Mandatory	Preferable
Usage of a modern OS (Windows / *nix / Mac), at least one programming or scripting language.	Diploma / degree in B Sc / Engg.
<i>Below is the Outline TOC (Table Of Contents) document: it presents the (approximate) Day-wise Coverage.</i>	

Day 1

Part I : Introduction

Module 1 :: Introduction to the LINUX OS

The Birth of Linux: Linus Torvalds' historic post

Linux - A Descriptive note

Linux System Architecture

The various layers - the kernel, the shell, applications; philosophy of the LINUX OS

User and Kernel Modes

The GNU project and the GNU GPL license

Part II : Linux Fundamentals – the CLI

Module 2 :: File System Concepts

Filesystem Basics

Partitions

Filesystems

Mounting and Unmounting

Pathnames

Full Pathnames

Relative Pathnames

Changing Directories : The cd command

Listing Files

Using the ls Command with Options

Finding Files

The find Command Expressions

25+ examples of Linux find command – search files from command line

Viewing Files

cat. More, less
Head and Tail

Module 3 :: File Management

Creating files
Creating directories
File Permissions
 Understanding the permission model
 Changing permissions with chmod
 Side effects
Renaming files
Copying Files
Removing files & directories

Linking Files
 Concept
 Directory Files & Inodes
 Hard Links
 Symbolic Links

Day 2

Module 4 :: Redirecting, Filtering and Piping

Introduction
Redirecting Input & Output
 Using the >, >>, <, 2> symbols
Pipelines

Filters
 Using wc
 Using sort

Using the grep command
 Regular expressions
 Finding patterns

Module 5 :: Executing Processes

Process Environment
Creating a Process
Grouping shell commands
Background Processing
Job Control
 Suspending a job
 jobs command
 Placing a job in the foreground
 Placing a job in the background

- The kill command
- Using the ps command
- Setting priority with the nice command
- Making a process sleep
- Making a process wait

Module 6 :: Scheduling execution of jobs

- The cron daemon
- Using crontab
 - The cron format specification
- Managing cron jobs

Lab Session:

Participants will work hands-on, on the topics covered during the day's theory session plus on any additional assignment(s) suggested by the instructor.

Part III : Linux Scripting with awk and bash

Module 7 :: Basics of awk scripting

- Introduction
- Program Structure
- Using awk
- Expressions & Variables
- Comparison Operators
- Logical Operations with awk
- More examples

Lab Session:

Participants will work hands-on, on the topics covered during the day's theory session plus on any additional assignment(s) suggested by the instructor.

Day 3

Module 8 :: Shell Scripting with the bash shell

- Introduction
- Creating shell scripts
- Executing Korn shell commands
- The shell environment
- Shell variables
- Global variables – the export command
- Flow Control
 - Conditional statements
 - The while loop
 - The until loop
 - The for loop
- Relational Operators

- Quoting on the shell
- Shell conditional operators (-a, -e, -f,)
- Signal Trapping on the shell
- Boolean Operators

- Using the for loop effectively
 - Examples

- HERE Documents

- More "real- world" shell scripts
 - Code walk- throughs
 - Debugging shell scripts

Lab Session:

Participants will work hands-on, on the topics covered during the day's theory session plus on any additional assignment(s) suggested by the instructor.

[OPTIONAL / TIME-PERMITTING]

Module 9 :: System Information (/proc)

- What is /proc ?
- A Map of /proc
 - Individual Process Information
 - Hardware Information
 - Memory Information (meminfo)
