Unix Fundamentals

This document provides the curriculum outline of the Knowledge, Skills and Abilities that a unix administrator can be expected to demonstrate.

Duration: 5 Days

Hands-On Format: This hands-on class is approximately 80/20 lab to lecture ratio, combining engaging lecture, demos, group activities and discussions with comprehensive machine-based practical programming labs and project work.

Lab: Koenig DC

Module 1 – Introduction to the Unix Operating System

A brief history of UNIX
The UNIX kernel
The UNIX file system
Getting started navigating the file system
The file system structure
Directories and files
Pathnames
Navigating the file system

Module 2 – Basic commands

Command line syntax
Basic file handling commands
Basic Directory handling commands
Filename wildcard characters

Module 3 – Redirection and Pipes

Input redirection
Output redirection
Pipes

Module 4 – Introduction to the Vi editor

Overview of the vi editor
Basic functions
Switching to input mode
Other useful commands
Exercises: Using the vi editor

Module 5 – Searching and replacing text

Searching and replacing text using the vi editor
Using regular expressions (regex)
Using sed for search and replace
Searching for text with grep, egrep and fgrep

Module 6 – Recalling and editing commands

Overview
The bash shell
The korn shell

Module 7 – File permission and access control

Users and user groups
File access permissions
Changing file attributes
Switching users and user groups
Linking files

Module 8 – Filtering Text

Overview
The cut command
An introduction to awk
The nl command

Module 9 – Processes

What is a process?
Monitoring processes
Killing processes
Background processes
Job Control
Grouping commands

Module 10 – The user environment

Customising the .profile or .bash_profile
Customising the .kshrc or .bashrc

Module 11 – More basic commands

The find command
Using xargs command
The locate command
The df command
The cut command
The sort command
Finding duplicate content
The finger and pinky commands

Module 12 – Getting started with shell script

What is a shell script?
Development guidelines
Creating and editing shell scripts
Naming and storing shell scripts
Executing shell scripts

Module 13 – Using variables

Environment variables
Local variables
Assigning values to variables
Assessing variable values
Using quotes
Delimiting variable names
Echo control sequences

Module 14 – Integer arithmetic

Using the expr command
Using the (( )) notation

Module 15 – Handling runtime data

The read command
Command line arguments

Module 16 – Conditional execution

The if statement
The test command

Module 17 – Additional Korn, Bash and Posix Syntax

Other test notations
Default and substitute variables
Exit status codes

Module 18 – Loop constructs

The while loop
The until loop
The for loop
The while true and until false loops
Loop control commands

Module 19 – Multi branch decisions

The case statement
Menu driven applications

Module 20 – Functions

What is a function?
Syntax
Examples
Creating a Function Library

Module 21 – Interrupt Handling

Interrupt signals
Trapping interrupts

Module 22 – Additional Features and Facilities

The exec commands
The includes notation
More about loops
Arrays
Here Documents