



UNIX

Lesson 01 : Introduction to UNIX Operating System
and Basic UNIX Commands

Lesson Objectives

In this lesson, you will learn:

- Operating System
 - Functions of Operating System
 - History of UNIX
 - Features of UNIX
 - UNIX System Architecture
- Basic UNIX Commands



Overview

An Operating System (OS) is the software that manages the sharing of the resources of a computer and provides programmers with an interface that is used to access those resources.

Functions of an Operating System

Following are some of the important functions of an OS:

- Process Management
- Main-Memory Management
- Secondary-Storage Management
- I/O System Management
- File Management
- Protection System
- Networking
- Command-Interpreter System

History

UNIX evolved at AT&T Bell Labs in the late sixties.

The writers of Unix are Ken Thomson, Rudd Canaday, Doug McIlroy, Joe Ossanna, and Dennis Ritchie.

It was originally written as OS for PDP-7 and later for PDP-11.

Liberal licensing: Various versions.

System V in 1983 - Unification of all variants.

Features

UNIX OS exhibits the following features:

- It is a simple User Interface.
- It is Multi-User and Multiprocessing System.
- It is a Time Sharing Operating System.
- It is written in "C" (HLL).
- It has a consistent file format - the Byte Stream.
- It is a hierarchical file system.
- It supports Languages such as FORTRAN, BASIC, PASCAL, Ada, COBOL, LISP, PROLOG, C, C++, and so on.

Services

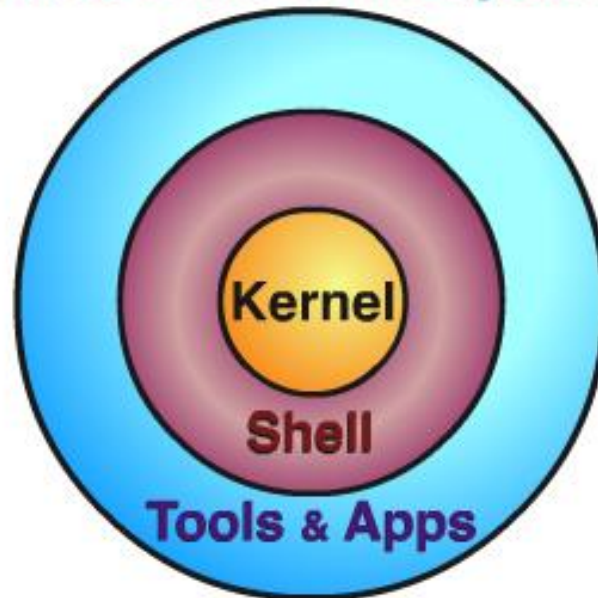
Services Provided by UNIX:

- Process Management:
 - It involves Creation, Termination, Suspension, and Communication between processes.
- File Management:
 - It involves aspects related to files like creation and deletion, file security, and so on.

UNIX System Architecture

Following is a pictorial representation of the UNIX system:

Parts of the UNIX System



Logging In and Out Commands

Logging In and Out:

- Logon name and password are required.
- Successful logon places user in home directory.

man Command

man command:

- The on line help provided by the **man** command includes brief description, options, and examples.
- Example:

```
$man <command>
```

cal Command

cal command:

- The **cal** command is used to display calendar from the year 1 to 9999.
- Example:

```
$cal 9 2001
```

- The above syntax can be used to print the calendar for the 9th month of the year 2001.

date Command

date command:

- The **date** command is used to see current date and time.
- Date can be displayed in different formats
- Example:

```
$ date
```

- **Output:** Fri Apr 6 11:14:46 IST 2001

```
$ date "+%T"           -- %t is used to display only time
```

- **Output:** 11:15:20

```
$ date "+ %d %h"       -- To display date and month name
```

- **Output:** 6 Apr

lp Command

lp command:

- The **lp** command is used for printing files.
 - Example:

```
$lp myfile.txt
```

```
$lp -n 10 myfile.txt
```

```
$lpq
```

```
$lprm -Pps99 11042
```

nl Command

nl command:

- The **nl** command is used to print file contents along with line numbers.
- Options:
 - -w : width of the number
 - -v : Indicate first line number
 - -i : increment line number by
- Example:

```
$ nl myfile.txt  
1 line one  
2 line two
```

tty Command

tty Command:

- Unix treats a terminal also as a file. In order to display the device name of a terminal, the **tty** (teletype) command is used.
- print the file name of the terminal connected to standard input
- Example: Using tty command

```
$ tty  
/dev/ttyp3
```

who Command

who Command:

- To list all users who are currently logged in
- Example:

```
$who
```

- **Output:**

ssdesh	ttyp0	Mar 29 09:00
root	tty01	Mar 29 10:32
root	tty03	Mar 29 10:37

\$who am I Command:

- To see the current user

Summary

In this lesson, you have learnt:

- UNIX is multi-user, multiprocessor, time sharing operating system.
- It uses hierarchical file system.
- The UNIX system is functionally organized at three levels: Kernel, shell, tools and applications.



Review Questions

Question 1: ____ controls system hardware.

Question 2: The kernel interacts with the machine hardware, and the shell interacts with the User.

- True / False

Question 3: ____ command displays details of all users currently logged in.

