

College: J D Women's College	Subject: Operating System
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Multiprocessing Operating System

Notes on Lecture – 4

User Management in Unix

There are three types of accounts on a Unix system –

Root account

This is also called **superuser** and would have complete and unfettered control of the system. A superuser can run any commands without any restriction. This user should be assumed as a system administrator.

System accounts

System accounts are those needed for the operation of system-specific components for example mail accounts and the **sshd** accounts. These accounts are usually needed for some specific function on your system, and any modifications to them could adversely affect the system.

User accounts

User accounts provide interactive access to the system for users and groups of users. General users are typically assigned to these accounts and usually have limited access to critical system files and directories.

Unix supports a concept of *Group Account* which logically groups a number of accounts. Every account would be a part of another group account. A Unix group plays important role in handling file permissions and process management.

Managing Users and Groups

There are four main user administration files –

/etc/passwd – Keeps the user account and password information. This file holds the majority of information about accounts on the Unix system.

/etc/shadow – Holds the encrypted password of the corresponding account. Not all the systems support this file.

/etc/group – This file contains the group information for each account.

/etc/gshadow – This file contains secure group account information.

Check all the above files using the **cat** command.

Directory management in Unix

A directory is a file the solo job of which is to store the file names and the related information. All the files, whether ordinary, special, or directory, are contained in directories.

Unix uses a hierarchical structure for organizing files and directories. This structure is often referred to as a directory tree. The tree has a single root node, the slash character (/), and all other directories are contained below it.

Home Directory

The directory in which you find yourself when you first login is called your home directory.

You will be doing much of your work in your home directory and subdirectories that you'll be creating to organize your files.

In this chapter, we will discuss in detail about file management in Unix. All data in Unix is organized into files. All files are organized into directories. These directories are organized into a tree-like structure called the filesystem.

When you work with Unix, one way or another, you spend most of your time working with files. This tutorial will help you understand how to create and remove files, copy and rename them, create links to them, etc.

In Unix, there are three basic types of files –

Ordinary Files – An ordinary file is a file on the system that contains data, text, or program instructions. In this tutorial, you look at working with ordinary files.

Directories – Directories store both special and ordinary files. For users familiar with Windows or Mac OS, Unix directories are equivalent to folders.

Special Files – Some special files provide access to hardware such as hard drives, CD-ROM drives, modems, and Ethernet adapters. Other special files are similar to aliases or shortcuts and enable you to access a single file using different names.

File permission and access modes in Unix

File ownership is an important component of Unix that provides a secure method for storing files. Every file in Unix has the following attributes –

Owner permissions – The owner's permissions determine what actions the owner of the file can perform on the file.

Group permissions – The group's permissions determine what actions a user, who is a member of the group that a file belongs to, can perform on the file.

Other (world) permissions – The permissions for others indicate what action all other users can perform on the file.