

FIT9137 Applied Session

Week 5

Topics:

- Linux Operating System (OS) Command Line
- Linux OS File System Structure

Covered Learning Outcomes:

- Describe basic concepts of computer hardware and software architectures;
- Explain the three major functions of an operating system (OS), namely, process management, memory management, and file management;

Instructions:

- This week's applied session requires a working prepared VM for the subject as instructed in Week 1 Workshop.
- One of the main purposes of an applied session is to build the learning community, create connections and include the learners. The other goal is to give and receive feedback from your peers and or your tutors.
- Form groups of 2 students (peers) to work through the exercises. If you meet a problem, try to solve it by asking direct questions to your peers. If the issue was not solved within peers, ask your tutor. If you did not get a chance to solve the problem during your applied session with your peer or tutor, jump into one of many consultation hours and ask any of the tutors to help you. Please visit the "Teaching Team and Unit Resources" tile in the FIT9137 Moodle site.

1 Linux Environment

Discuss, in groups of three students, the following OS concepts:

What is:

- **home directory** for a user
- **full** pathname
- **current** directory

1.1 Home Directory

Open a Linux Terminal Window and find out what is the name of your **home directory**, on the system you installed last week?

1.2 Pathname

- a) What is the **full** pathname of your home directory?
- b) Is there any other type of pathname?
- c) What is your current directory? How can you get the full path to your current directory?

Note: You can get a short description of a command by using the `what is` command.

Write down your answers.

2 Linux Command Line

2.1 Command's Manual

Most commands in Linux have documents in a special format that can be read and presented by a tool named `man`. Use the following command to explore the manual page of the command itself:

```
man man
```

You can search the man pages by entering `/` followed by the text you are searching for. To go to the next found occurrence of the searched word press `n` and to go backward press `N`.

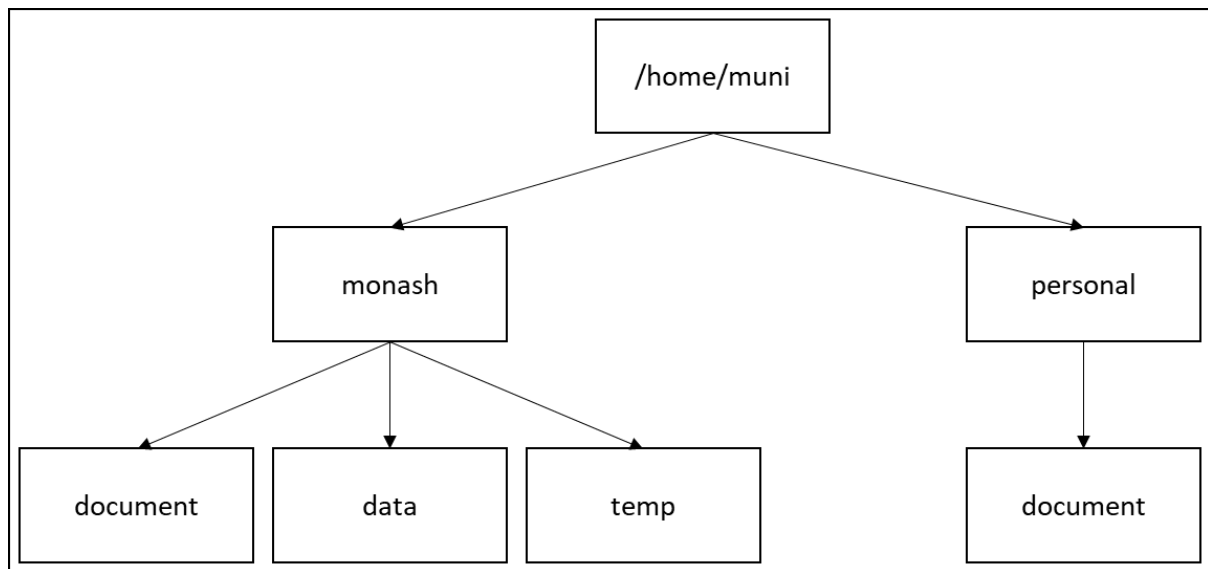
2.2 List Files

Explore the man page for the `ls` command. Write down and test the full commands to do the following (without changing your current directory):

- a) list in long format all the files and directories (top-level only) in your home directory
- b) list in long format all the files and directories (top-level only) in the `/usr/local` directory, sorted by time of last modification
- c) list all the files and directories in your home directory again, but this time include all levels, i.e. include all the files/directories in all the subdirectories and their sub-directories, using a single `ls` command

2.3 Files and Directories

The command to create a directory is `mkdir`, use `man mkdir` to learn more about the command. Create the following directory structure in your home directory (all names are directories):



Now look up and use commands to perform the following tasks (using only a single command for each and in order):

- change into the **~/monash/temp** directory. The special character **~**, called tilde, is a shortcut to the current user home directory.
- use a single **cd** command with a relative path to change into **~/personal/document**.
- copy the file **/etc/passwd** into the **~/monash/data** directory (**man cp**)
- change to your home directory. How many ways can you do this?
- use a single **rm** command to delete the **~/monash/temp** directory (**man rm**). What option do you need to use?

2.4 Wildcards

Do research on “Unix Wildcards”. Then write down, and test, commands that will do the following (using a single **ls** command for each while remaining in the home directory):

- list in long format all the files/directories in the **/etc** directory that begin with the letter **h**. What happens if there is a directory in **/etc** that begins with **h**?

Hint: look up the **-d** option for the **ls** command.

- list all the files/directories in the **/etc** directory that end with the letters **conf**

List only the names of the files/directories (i.e. not their contents).