

Analisis Data Geofisika 1

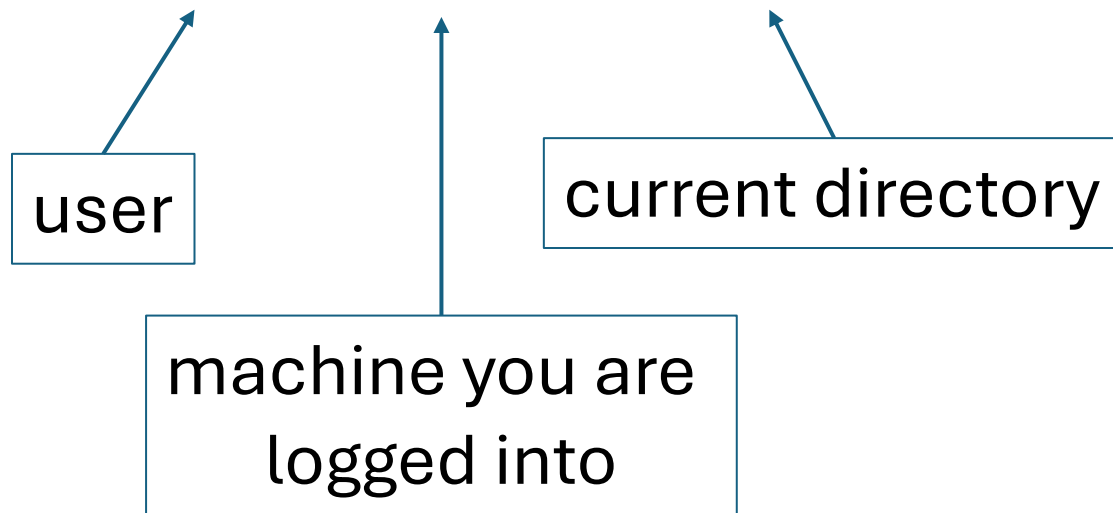
SCGF603501 - Seismic Processing using Seismic Unix

Introduction to Linux

- Command prompt

When you login to a system you will be presented with what is referred to as a command prompt.

Example: `user@hostname: ~$`



Introduction to Linux

- Basic File System Functionality

pwd - Print name of current Working Directory.

```
vandanu@computer: ~$ pwd  
/home/vandanu
```

cd - Change Directory. Changes the current working directory.

```
vandanu@computer: ~$ cd Devito/devito-env  
vandanu@computer: ~/Devito/devito-env$
```

Introduction to Linux

- Basic File System Functionality

which - Which is a command used to locate executables.

```
vandanu@computer: ~$ which suxwigb  
/mnt/d/SU/bin/suxwigb
```

ls - Displays a listing of files and directories.

useful flags: -l, -a

```
vandanu@computer: ~$ ls  
Devito    SeisElastic2D_1.1    SeisUnix    devito_project  
las_converter
```

...(cont.)

Introduction to Linux

- Basic File System Functionality

```
vandanu@computer: ~$ ls -l
```

```
total 20
```

```
drwxr-xr-x 5 vandanu vandanu 4096 Aug 14 15:08 Devito
drwxr-xr-x 7 vandanu vandanu 4096 Aug 25 08:46 SeisElastic2D_1.1
drwxr-xr-x 8 vandanu vandanu 4096 Feb 28 15:38 SeisUnix
drwxr-xr-x 3 vandanu vandanu 4096 Aug 14 14:21 devito_project
drwxr-xr-x 5 vandanu vandanu 4096 Mar  8 23:55 las_converter
```

```
vandanu@computer: ~$ ls -a
```

```
.bash_logout      .bashrc           .config           .gmt
.landscape         .local            .profile          .vscode-server
Devito             SeisUnix          las_converter
```

Introduction to Linux

- Basic File System Functionality

mkdir - Creates a new empty directory.

```
vandanu@computer: ~$ mkdir test
```

```
vandanu@computer: ~$ ls
```

```
test
```

cp - Copy a file or directory.

useful flags: -r

```
vandanu@computer: ~$ cp -r test test_new
```

```
vandanu@computer: ~$ ls
```

```
test  test_new
```

Introduction to Linux

- Basic File System Functionality

mv - Moves or renames a file (actually the same operation in UNIX).

```
vandanu@computer: ~$ mv test_new test_rename
```

```
vandanu@computer: ~$ ls
```

```
test  test_rename
```

rm - Removes a file/directory.

useful flags: -r, -f

```
vandanu@computer: ~$ rm -r test_rename
```

```
vandanu@computer: ~$ ls
```

```
test
```

Introduction to Linux

- Basic File System Functionality

chmod - Change mode, is a command used to modify permissions on a file. If you would like to share your files with another user in your group, you can modify the permissions to grant read, write, or execute the file.

useful flags:

u	(User)
g	(Group)
o	(Other)
+	(Add permission)
-	(Remove permission)
r	(Read)
w	(Write)
x	(Execute)

```
vandanu@computer: ~$ ls -l
-rw-r--r-- 1 vandanu vandanu    32 Aug 28 01:28 test.txt
vandanu@computer: ~$ chmod g+rx test.txt
vandanu@computer: ~$ ls -l
-rw-rwxr-- 1 vandanu vandanu    32 Aug 28 01:28 test.txt
  └─┬─┬─┐
  user group other
```


Introduction to Linux

- Basic File System Functionality

chown - Change Owner, is a command used to modify the owner of a file. This usually can only be performed on a system where you have administrative rights and can switch files from one user to another.

chgrp - Change Group, is a command used to modify the group that can read a file. You can only switch group ownerships on a file that you are the owner of.

Introduction to Linux

- Basic File System Functionality

Relative Paths and Absolute Paths -> path which is relative to your current working directory, symbolized with single or double dot.

./ (current directory)

../ (one directory up)

Application Paths -> the shell searches directories in the path. Use echo to execute

```
vandanu@computer: ~$ echo $PATH
```

```
vandanu@computer: ~$ /usr/local/sbin:/usr/local/bin:/usr/sbin:  
/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:
```

Introduction to Linux

- Text editor

gedit - Graphical text editor with syntax highlighting for lots of languages (Python, Shell, C, Markdown, etc)

```
vandanu@computer: ~$ gedit
```

nano - Text-based editor and designed to emulate the functionality and ease-of-use of the UW Pico text editor.

```
vandanu@computer: ~$ nano
```

Introduction to Linux

- Building an application from source

apt - Linux software is mostly provided by a distribution. Software is arranged into packages and groups of packages. This is kind-a like an "app store", but everything is free and kept up to date by the distribution (On Ubuntu/Debian distributions, use apt)

```
vandanu@computer: ~$ apt-get python-numpy
```

--To install, remove, and change in system-level programs requires administrative (root) privileges. Therefore, use "sudo"

```
vandanu@computer: ~$ sudo apt install gedit
```

Introduction to Linux

- Unix help mechanism- Unix man pages

man - Every program on a Unix or Unix-like system has a system manual page, called a manpage, that gives a terse description of its usage.

```
vandanu@computer: ~$ man pwd
```

```
PWD(1)
```

```
User Commands
```

```
PWD(1)
```

```
NAME
```

```
pwd - print name of current/working directory
```

```
SYNOPSIS
```

```
pwd [OPTION]...
```

```
DESCRIPTION
```

```
Print the full filename of the current working directory.
```

Introduction to Linux

- File storage and performance across file systems

For the fastest performance speed, store your files in the WSL file system if you are working in a Linux command line (Ubuntu, OpenSUSE, etc). If you're working in a Windows command line (PowerShell, Command Prompt), store your files in the Windows file system.

-> Linux file system root directory: `/home/<user_name>/Project`

-> Windows file system root directory: `/mnt/c/Users/<user_name>/Project`

Introduction to Linux

[Task 1]

1. Download the data from the [drive](#)
2. Create a project folder for seismic processing (either in Linux or Windows file system) and check the permissions
3. Move/copy the data from the download path to the project folder
4. Extract the data

Linux
is user friendly



It's just very picky
about who its friends are

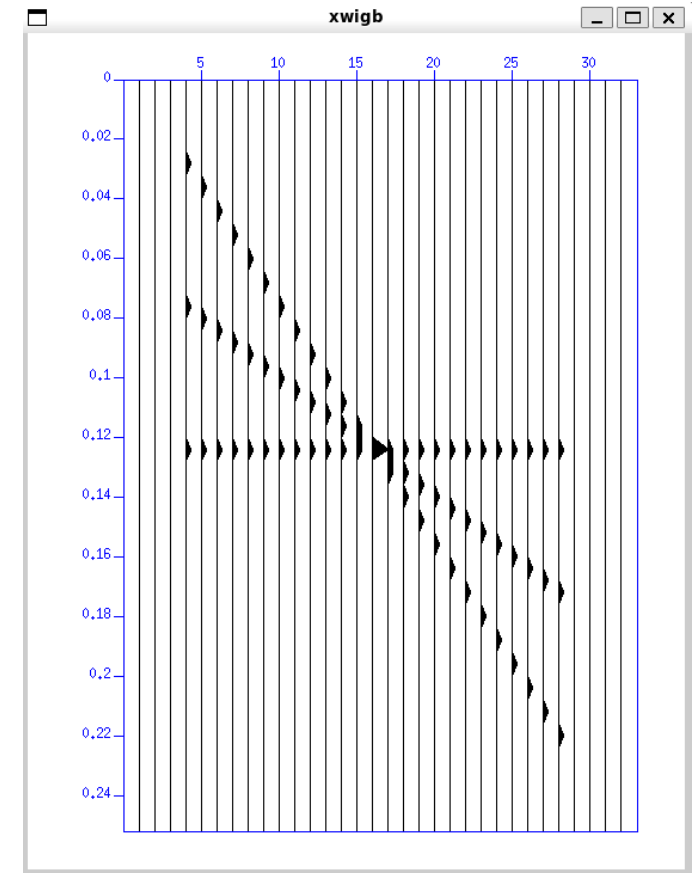
Getting started with Unix and SU

Any SU programs that has executables permissions and which appears on the users' PATH may be run by just simply write out on the commandlines.

```
$ suplane | suxwigb &
```



```
$ suplane | suxwigb title="suplane"
```



Getting started with Unix and SU

- Pipe, redirect in, redirect out, and run in background

Pipe "|", output from one program may be piped out to another program

```
$ suplane | suspecfx | suxwignb
```

Redirect out ">", writing output to the file

```
$ suplane > junk.su
```

Redirect in "<", reading input from the file

```
$ suxwignb < junk.su
```

Activity 1 - Viewing data

The dataset can be accessed [here](#), consisting of 2D land seismic data.

Our data is in SEG-Y format and need to be converted to SU format.

--> segyread

View the header.

--> surange

Examine the SU header!

**tips: type the program
to see manual page**

Activity 1 - Viewing data

- Wiggle traces

--> `suxwigb`

- Image plot

--> `suximage`

Select key header word to window on. See SU key with description [here](#)

--> `suwind`