



# Intro to Linux Workshop

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Spring 2019  
UWB ACM



# Workshop Goals:

- Familiarize you with an industry standard tool
- Introduce you to the values of the Libre Software Movement
- Enable your success in UWB curriculum
- Encourage use of UWB Linux resources

Background



# What Is Linux?



## Three Tips for New Users:

1. Don't Panic.
2. When in doubt, read the documentation.
3. There is no such thing as a stupid question.



# What is Linux *Actually*?

- Part of an Operating System
- Used in a “Distribution”
- Maintained by a team
- The vast majority of web servers
- Steam OS
- Android (Cell Phones)



# What is FLOSS?

- Free Libre Open Source Software
- Unrestricted access. No Paid licenses or subscriptions
- Access to source code
- Widespread volunteer effort

Read about Open Source software and the Four Essential Freedoms here: <https://www.gnu.org/philosophy/free-sw.html>



# Accessing and Using Linux

- Live Booting
- Dual Boot
- Virtual Machine
- Main install
- SSH into a server



# Where to go for more help

- Man pages
- Distribution wikis
- Tutors at the Linux lab
- Linux Users
- Presentation Slides
- Stack Overflow (as needed)



Usage





# Terminal Basics

## ANATOMY OF A SHELL COMMAND

```
$ command --flag argument
```

```
$ command -f argument
```

## MANUAL PAGES

```
$ man command
```

## PERMISSIONS

```
$ su
```

```
$ sudo command --flag argument
```



# Simple commands

- `echo`
  - Echoes standard input to standard output
- `ls`, `pwd`, `cd`
  - Basic file system navigation
- `mkdir`, `touch`
  - Directory and file creation



# Simple commands (continued)

- `nano, vim, emacs`
  - Text editors in the command-line interface (CLI)
- `cat`
  - Print file contents to standard output
- `apt, apt-get`
  - Installs new software on your machine
- `which`
  - Determines if software is installed



# Git

- Use apt to install git
- Use git to download this presentation

( its here -> <https://gitlab.com/whom/linux-workshop-fall-2018> )

( and here! -> <https://github.com/UWB-ACM/Linux-Crash-Course> )

Try It Out





# Lets Get Started!

- Boot int your machine
- Install g++, default-jdk, default-jre
  - `$ sudo apt-get install g++`
  - `$ sudo apt-get install default-jdk`
  - `$ sudo apt-get install default-jre`
- Make sure it installed
  - `$ which g++`
  - `$ which javac`
  - `$ which java`



# Let's Do Stuff!

- `$ pwd`
- `$ ls`
  - `$ ls /tmp`
  - `$ ls /`
  - `$ ls ~`
- `$ echo "Hello, World!"`
- `$ man echo`
  - Use `j` to scroll down
  - Use `q` to exit out of the man page





# Lets Hello, World!

- Open nano
  - `$ nano Hello.java`
- Write hello world in java
  - Ctrl + X to save and close the file in nano
- Compile and run java hello in the terminal
  - `$ javac Hello.java`
  - `$ java Hello`



# Lets Git!

- Check if git is installed
  - `$ which git`
  - `$ sudo apt-get install git`
- Clone the workshop repository
  - `$ git clone`  
`https://github.com/UWB-ACM/Linux-Crash-Course`



# Hello, World! 2: Electric Boogaloo!

- Find our newly-cloned repository
  - `$ ls`
- Change directory to the Git repo(sitory)
  - `$ cd Linux-Crash-Course`
- Edit hello.cpp to include your name
  - Use the same text editor you used for the Java file
- Compile and run
  - `$ g++ hello.cpp`
  - `$ ls`
  - `$ ./a.out`



# Introducing the Linux Lab!

- SSH and SCP allow us to securely use another computer to work and share files
- Linux Lab has set up remote machines for students to use via SSH and SCP



# Let's Linux Lab!

## Steps:

1. SCP code over to your machine of choice (or a randomly selected one)

```
$ scp hello.cpp NETID@uw1-320-lab.uwb.edu:~
```

2. SSH into the machine you were pointed to (check your prompt for the machine number and replace XX with the number)

```
$ ssh NETID@uw1-320-XX.uwb.edu
```

3. Recompile, retest



# In Conclusion

- Linux Lab in person tutors
- LFNW, SeaGL, ToorCamp
- Shout out to the UWB ACM!