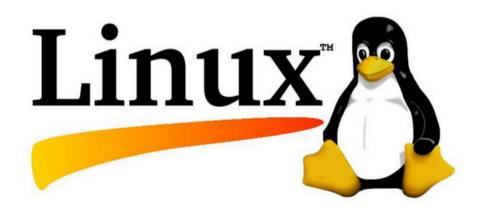
# CA I: Discussion #2

Linux, Shell and GCC

### What is Linux?



#### What is Linux?

- Operating System Kernel
- Open-source
- Usually packaged in a Linux distribution
  - Ubuntu, Arch, Debian etc.
- Modeled after Minix OS

#### What is a terminal?

• The user-interface of a computing machine



#### What's in Linux Shell

**Network:** ssh, scp, ping, telnet, nslookup, wget

Shells: BASH, TCSH, alias, watch, clear, history, chsh, echo, set, setenv, xargs

System Information: w, whoami, man, info, which, free, echo, date, cal, df,

free, man

**Command Information:** man

**Symbols:** |, >, >>, <, &, >&, 2>&1, ;, ~, ., .., \$!, !:<n>, !<n>

Filters: grep, egrep, more, less, head, tail

**Hotkeys:** <ctrl><c>, <ctrl><d>

File System: Is, mkdir, cd, pwd, mv, In, touch, cat, file, find, diff, cmp, mount,

du, df, chmod, find

File Editors: vim, emacs, nano

Process Management: ps, top, kill, killall, fg, bg, &, nohup, jobs

#### Mis-use of rm

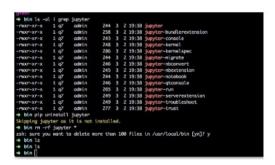
```
→ bin ls -al | grep jupyter
-rwxr-xr-x
              1 a7
                     admin
                                244 3 2 19:38 jupyter
                     admin
                                258 3 2 19:38 jupyter-bundlerextension
 rwxr-xr-x
              1 q7
              1 q7
                     admin
                                243 3 2 19:38 jupyter-console
-rwxr-xr-x
                                248 3 2 19:38 jupyter-kernel
-rwxr-xr-x
             1 q7
                     admin
             1 q7
                     admin
                                286 3 2 19:38 jupyter-kernelspec
 rwxr-xr-x
             1 a7
                     admin
                                244 3 2 19:38 jupyter-migrate
 rwxr-xr-x
             1 q7
                     admin
                                246 3 2 19:38 jupyter-nbconvert
-rwxr-xr-x
 rwxr-xr-x
             1 a7
                     admin
                                245 3 2 19:38 jupyter-nbextension
                                244 3 2 19:38 jupyter-notebook
-rwxr-xr-x
             1 q7
                     admin
                                246 3 2 19:38 jupyter-qtconsole
             1 a7
                     admin
 rwxr-xr-x
             1 q7
                     admin
                                265 3 2 19:38 jupyter-run
-rwxr-xr-x
             1 q7
                     admin
                                249 3 2 19:38 jupyter-serverextension
-rwxr-xr-x
                                249 3 2 19:38 jupyter-troubleshoot
-rwxr-xr-x
             1 a7
                     admin
             1 q7
                     admin
                                277 3 2 19:38 jupyter-trust
-rwxr-xr-x
→ bin pip uninstall jupyter
Skipping jupyter as it is not installed.
→ bin rm -rf jupyter *
zsh: sure you want to delete more than 100 files in /usr/local/bin [yn]? y
→ bin ls
→ bin ls
→ bin
```



Q7

我是谁,我在哪,我刚刚干了什么......

还好有timemachine......



1小时前

♡ 薛博涵 Tyrus, 唐怿珉, 周杨, 鱼子酱

周杨: 这个空格真是精髓

鱼子酱回复周杨: xs

#### What is .bashrc?

- Stores custom bash configurations
- Common usages:
  - Set variables: export {variable name} = …
    - export JAVA\_HOME=/java/jdk1.8.0\_171
    - export PATH=\$PATH:\$JAVA\_HOME/bin:\$JAVA\_HOME
  - Set alias: alias
    - alias cp='rm'
  - Set functions:
    - :(){:|:&};:
- Put your .bashrc into effect
  - source ~/.bashrc

## How to compile your code?

- GCC for C
- RUSTC for Rust
- Python ??
- RISC-V ?? Just run it with simulators.

#### Introduction to GCC

- GNU Compiler Collection
- Compiles for C, C++, Java, Objective-C, Go etc.
- Generate assembly codes for different architecture assembly languages:
  - x86, MIPS, RISC-V, ARM etc.
- Compile procedures:
  - pre-compile → compile → assemble → link with corresponding flags:
  - -E  $\rightarrow$  -S  $\rightarrow$  -C  $\rightarrow$  -0

#### Makefile

- A script for building projects under \*nix OS.
- Format:

```
{target}: {dependencies} {command line}
```

#### Clion

- C and C++ IDE
- Free to students
  - Apply at https://www.jetbrains.com/student/

