

CA I: Discussion #2

Linux, Shell and GCC

-- 杨之杰

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: ls, mkdir, cd, pwd, mv, ln, touch, cat, file, find, diff, cmp, mount, du, df, chmod, find **rm**

File Editors: vim, emacs, nano

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

Mis-use of rm



Q7

我是谁，我在哪，我刚刚干了什么.....

还好有timemachine..... 🤖

```
gtest
➔ bin ls -al | grep jupyter
-rwxr-xr-x 1 q7 admin 244 3 2 19:38 jupyter
-rwxr-xr-x 1 q7 admin 258 3 2 19:38 jupyter-bundlerextension
-rwxr-xr-x 1 q7 admin 243 3 2 19:38 jupyter-console
-rwxr-xr-x 1 q7 admin 248 3 2 19:38 jupyter-kernel
-rwxr-xr-x 1 q7 admin 286 3 2 19:38 jupyter-kernelspec
-rwxr-xr-x 1 q7 admin 244 3 2 19:38 jupyter-migrate
-rwxr-xr-x 1 q7 admin 246 3 2 19:38 jupyter-nbconvert
-rwxr-xr-x 1 q7 admin 245 3 2 19:38 jupyter-nbextension
-rwxr-xr-x 1 q7 admin 244 3 2 19:38 jupyter-notebook
-rwxr-xr-x 1 q7 admin 246 3 2 19:38 jupyter-qtconsole
-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 1 q7 admin 249 3 2 19:38 jupyter-troubleshoot
-rwxr-xr-x 1 q7 admin 277 3 2 19:38 jupyter-trust
➔ 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
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```

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1小时前

♡ 薛博涵 Tyrus, 唐恽珉, 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 → -S → -c → -o

See <https://gcc.gnu.org/onlinedocs/gcc/index.html> for more details.

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/>

