LECTURE NOTES IN CIS300

YUZHE TANG

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SECTION 1: BASH

REFERENCES

- "Basic UNIX commands" [link]
- "Bash Guide for Beginners" [link]
- "Advanced Bash-Scripting Guide" [link]

GETTING STARTED

Access Shell terminal in your computer

- Option 1: Web terminal
  - [http://www.webminal.org/terminal/]
- Option 2: Setting up Ubuntu through VirtualBox
  - TA will talk about this.

LECTURE 2: FILES & DIRECTORIES

DIRECTORIES

- List files and directories: `ls`
  - `ls ~`, `ls .`, `ls`
  - `ls /`
  - `ls -al`
- Enter a directory: `cd`
  - `cd`, `cd ~`, `cd ..`
  - `cd /`
- Print the current pathname: `pwd`
- Create a directory: `mkdir`
  - `mkdir dir_a`

BASIC FILE MANAGEMENT

- Create a file: `touch`
  - `touch file_a`
- Move a file (change file name): `mv`
  - `mv file_a file_b`
- Copy a file: `cp`
  - `cp file_a file_b`
- Remove a file: `rm`
  - `rm file_a`

BASIC FILE MANAGEMENT (2)

- Show the content of a file: `cat`, `more`
  - `cat file_a`
  - `more file_a`: use `q` to quit, `/` to search
  - Write text to a file: `echo >>`
    - `echo "Alice Bob" >> file_a`
    - `echo "Alice" >> file_b`,
      `echo "Alice" >> file_c`
- Show the count of lines/words/chars a file: `wc`
  - `wc file_a`
- Show difference between files: `diff`
  - `diff file_a file_b`

EXERCISE 2.1

1. Run command `ls -a /`. Copy and paste (C&P) the printout on BB.
2. Run command `cat file_b`. C&P printout on BB.
3. Create a directory `dir_b` under `dir_a` and enter it. C&P the commands on BB.
4. Create a text file named `file_d.txt` and put there the following string: `Charlie is a student`. Run `cat file_d.txt`.
   - C&P the list of commands and their printout on BB

LECTURE 3: FILE PERMISSION

REFERENCES

- Understanding linux file permissions [link]

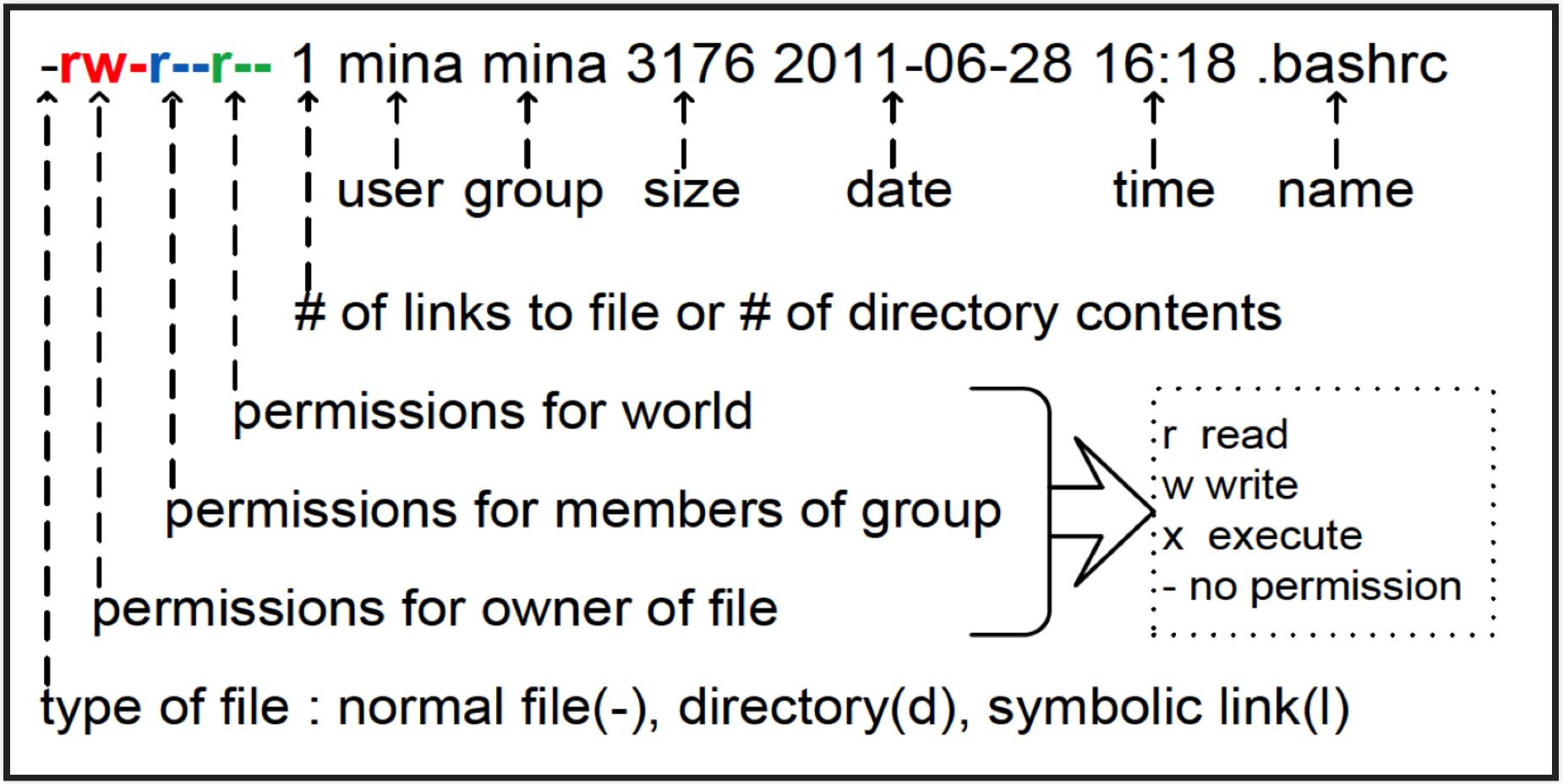
BASIC CONCEPT

- file permission: access right, or file mode
  - permission controls the ability of a *user* to take *actions* on a *file*
  - user: owner, group, all users
    - group: group of users and files.
  - type: read, write, execute

VIEWING PERMISSION

`ls -l`

- owner and group
- permissions
  - users: owner (`u`), group (`g`), others (`o`), all users (`a`)
  - type: read (`r`), write (`w`), execute (`x`)


-rw-r--r-- 1 mina mina 3176 2011-06-28 16:18 .bashrc
user group size date time name
# of links to file or # of directory contents
permissions for world
permissions for members of group
permissions for owner of file
r read
w write
x execute
- no permission
type of file : normal file(-), directory(d), symbolic link(l)

ls -al

CHANGING PERMISSION

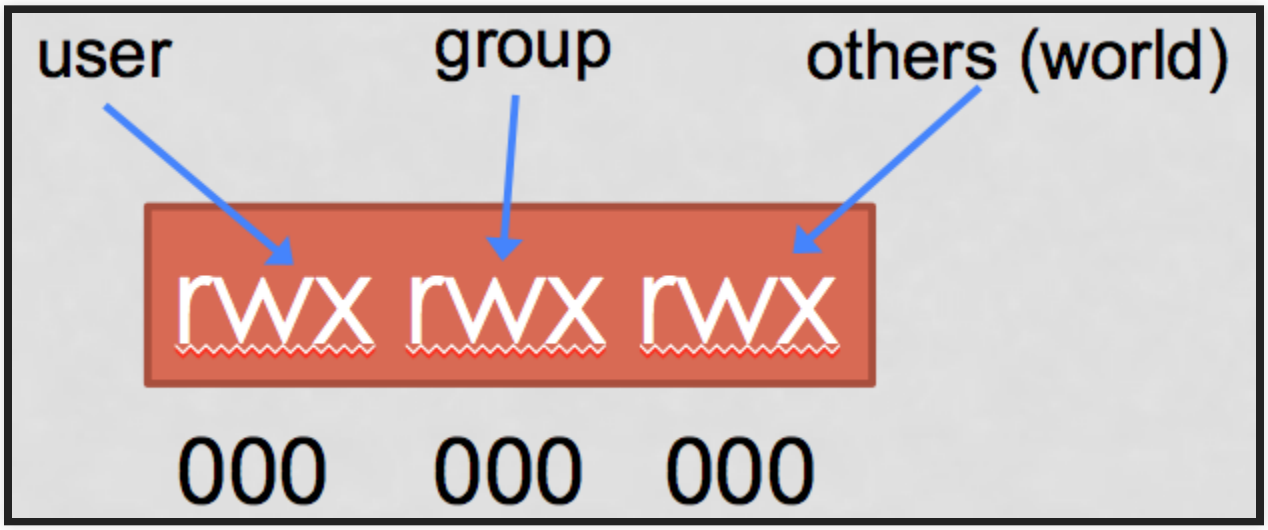
- `chmod`: change mode
  - add +:
    - `chmod a+wx file_a`: add write/execute permission to all users
    - `chmod g+r file_a`: add read permission to group users
  - assign/copy =:
    - `chmod g=rw file_a`: assign read/write permission to group
    - `chmod g=u file_a`: copy owner permission to group permission

CHANGING PERMISSION (2)

Options	Definitions
u	Owner
g	Group
o	Other
a	All (same as ugo)
x	Execute
w	Write
r	Read
+	Add permission
-	Remove permission
=	Set permission

CHANGING PERMISSION: NUMERIC MODE (3)

- `chmod 777 file_a;chmod a+rwx file_a`
  - `chmod 666 file_a;chmod a=rw file_a`
  - `chmod 000 file_a;chmod a-rwx file_a`



CHANGE OWNERSHIP

- `chown owner:group filename`
  - `chown user1:staff file_a`

EXERCISE 3.1

1. Run command `chmod o-r file_a; cat file_a`. C&P the printout on BB.
2. Design the command to make a file read-only to group. C&P your command on BB.
3. Design the command to make a file read-only to all users. C&P your command on BB.
4. Conver the following two commands to numeric mode: `chmod a-rwx file_a; chmod o+x file_a`. C&P your command on BB.