# 3F03 Machine-Level Computer Programming

Linux environment and Linux command line

- TA: Bingzhou Zheng
- Office: ITB208
- Email: bingzhou.zheng@gmail.com

### How to access Linux Server from Windows OS

• 1. download Xming from:

http://sourceforge.net/project/showfiles.php? group\_id=156984&package\_id=175377

- 2. download Ssh from: <u>http://www.cas.mcmaster.ca/ssh/</u>
- 3. install Xming and Ssh on Windows

# **Configure Ssh**

• After installing, you will see three shortcuts to

*SSH Secure Shell Client SSH Secure File Transfer Client* Xming

- Launch Xming
- Launch SSH Secure Shell Client
- Click Edit on ssh secure shell
- Click Setting
- Click Tunneling on Settings
- Choose Tunneling X11 Connections option
- Click OK buttion

### Configure Ssh cont.

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### Access Linux Server cont.

- Click Quick Connect
- In Connect to Remote Host window input the server name, say mills ... input your user id click Connect buttion
- In Enter Password window

input your password

click OK buttion

### **Access Linux Server**

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his copy of SSH Secure Shell is a non-commercial version.		
his version Connect to Remote Host		
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User Name: Cancel		
Port Number: 22		
Authentication Method: <profile settings=""></profile>		
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### Access Linux Server cont.

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Password:		>	Cancel	

### Linux Command lines

## pwd

• Display the absolute path of the current working directory

### man

Shows you online manuals on Linux commands

example: man mkdir

### more

• Displays text one screen at a time

more test.c man ls | more

### ls

• Lists the contents of a directory example:

|s -|

Shows you huge amounts of information (permissions, owners, size, and when last modified.)

### ls -h

Show the size of files in K or M ...

### ls -a

Shows you all files, even files that are hidden (these files begin with a dot.)

# cd

- Changes the directory examples:
- . means the current working directory

.. means the father directory of the current working directory

cd ~	go to your home directory
cd	go to the father directory of the current working directory it is important that the space be between the cd and the
cd//	go to the father of the father directory of the current working dir
cd -	get back the directory you just left
cd/test	go to a directory by relative path
cd /nfs/u0/gra	ad/x go to a directory by absolute path
cd /	go to the root directory

# mkdir

• create a new directory

Example mkdir test

# rmdir

• Deletes a directory

Example rmdir test

But it cannot delete a dir containing files How? rm -r test

## touch

- Change file access and modification time
- But we can also use this command to create files

Example touch test.c touch test.asm

### rm

• Deletes a file or directory

### rm -f filename

Remove the file (whether write-protected or not) in a directory without prompting the user

### rm -r filename/dirname

Recursively remove directories and subdirectories in the argument list

### rm –rf filename/dirname

### ср

• Copies files from one location to another Example

#### cp file1.txt newdir

Copies the file1.txt in the current directory to the newdir directory.

#### cp ../log.txt ../../backup cp /xxx/yyy/log.txt /zzz/aaa/backup/log.bak

The files are identical however have different names.

#### cp \*.txt newdir

Copy all files ending in .txt into the newdir directory.

#### cp -r /home/hope/files/\* /home/hope/backup

Copies all the files, directories, and subdirectories in the files directory into the backup directory.

#### cp -f test.txt newdir

if an existing destination file cannot be opened, remove it and try again

### mv

 Renames a file or moves it from one directory to another directory

Example:

### mv myCPP.cpp newdir/

moves the file myfile.txt to the directory newdirectory

#### mv test1.c test2.c

rename a file

# File Permission Bits

- Control the right to read, write and execute
- Three types of users: owner, group Members, the others
- Permission bits format: rwx rwx rwx
- Examples: rwxr-xr-- : owner has the full right over the file, while the group members can read from the file and can run the file, but can not modify the file or delete the file. All the others except the owner and the owner's group members can only read from the file.
- Use chmod command to change the access permission setting

# chmod

• chmod --- change the file access permission. Only the owner or the privileged user can change it.

examples: chmod 755 trya.txt ---set as rwxr-xr-x. chmod u+r trya.txt ---allow the owner to read chmod --r trya.txt --- remove owner's read right

*chmod u+x, go-w* --- gives the owner the right to execute the file and remove the right to write to the file from group members and all other users

*chmod g=rwx trya.txt* ---give the group members full right *chmod –R 760 tmpA* ---change the permission of the directory tmpA and all the files under it to rwxrw----

(u--- owner, g---group, o---all other users, + --- add permissons, - --- remove permissions, = --- assign permissions, r --- read, w---write, x ---execute)

# wildcard

- **Is** \* ---will list all files in the working directory
- **Is \*.txt** ---will list all files ended with .txt in the working directory
- *Is try?.txt*---will list all files begin with "try" followed by exactly one character and ".txt" in the working directory

## Other special characters

- .. ----parent directory
- Examples: cd .. ----go to the directory that is one level up.
- . ---- current directory
- *Examples: cp /u0/staff/robert/UnixTutorial/trya.txt ./newfile.txt* --- copy the file trya.txt from /u0/.... to the current directory.
- ~ ----home directory
- / ----root directory

# Other commands you need know

clear Clears the screen

**env** Displays environment variables

Whoami print effective user id

### history and ! Mark

allows you to use words from previous command lines in the command line you are typing

Example:

history

history 8

!100

# Tab key can make your life easier

• use "*Tab*" *Key* to complete the name of the file or directory