Linux / Unix Tutorial

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Computer-aided VLSI System Design

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Outline

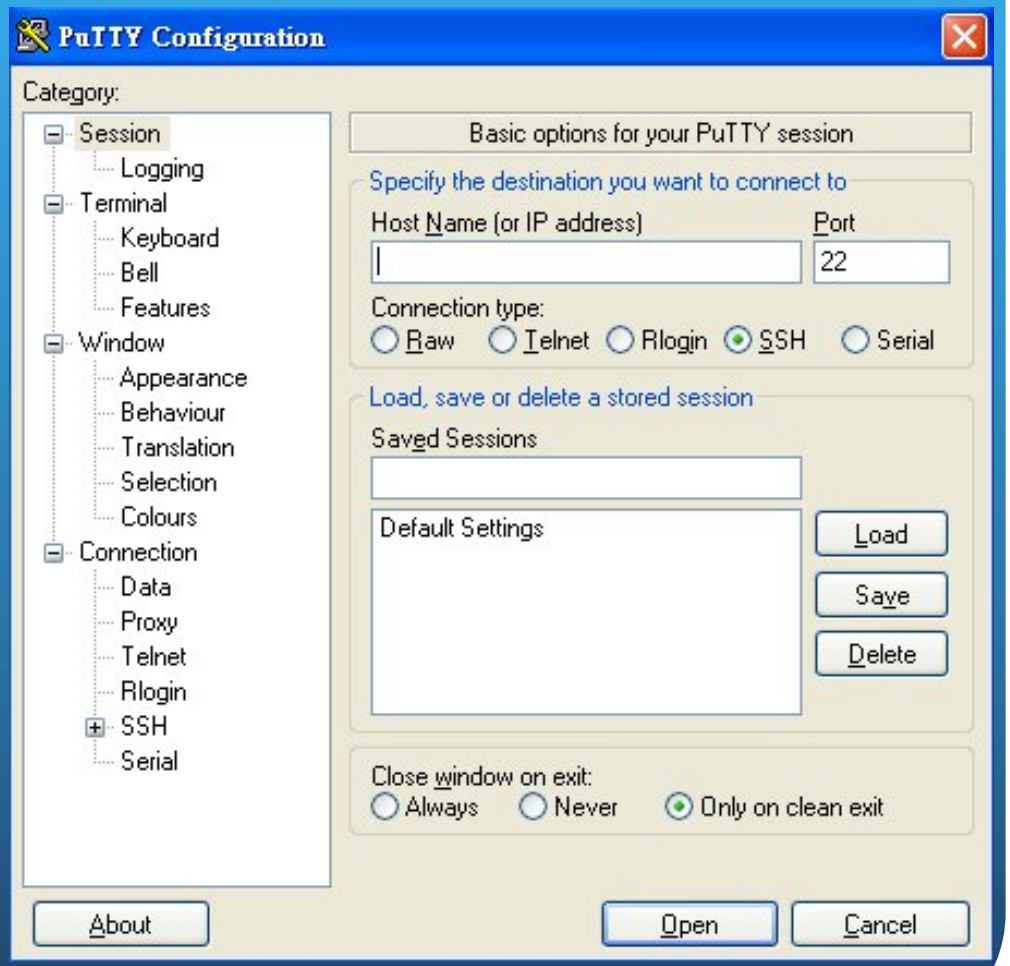
- Connecting software
- Basic commands
- File editors
- X serve

Outline

- Connecting software
  - Operating on Unix/Linux
  - File transfer
- Basic commands
- File editors
- X serve

Operating -- Putty

- Step 0
  - Select connecting type
    - SSH
- Step 1
  - Enter “Host name”
    - 140.112.20.70
  - Enter “Port” number
    - 22
- Step 2
  - Click “open”



Putty (con't)

- Login as: your account (ex: ABC)
- ABC@140.112.20.70's password : your password

Lab 231 workstation list

- Website:
  - http://cad.ee.ntu.edu.tw

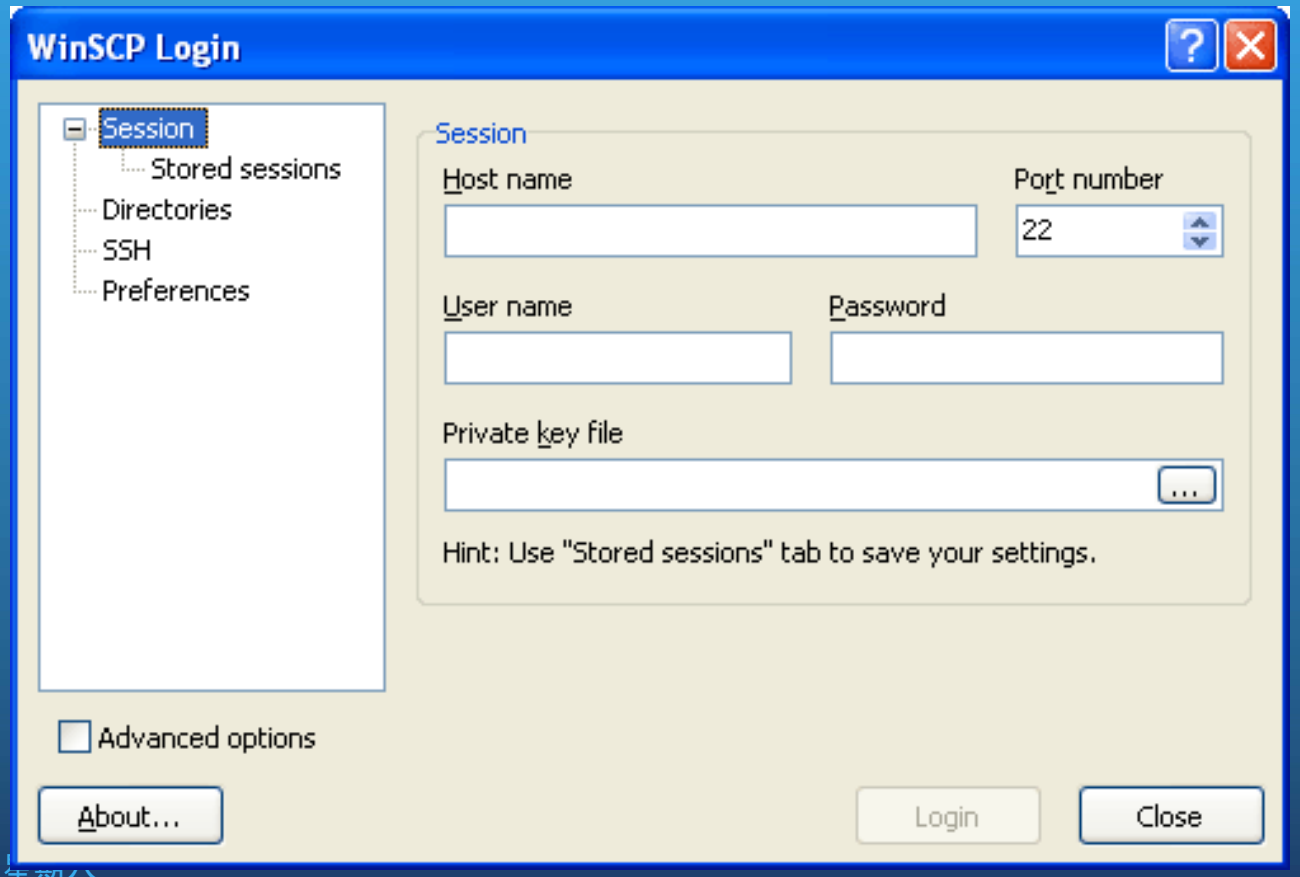
IP	NAME	TYPE	CPU	CPU CLOCK	MEMORY	OS
140.112.20.60	cad17	SUN Blade 2500	UltraSPARC	1.28 GHz*2	8 G	Solaris 9
140.112.20.61	cad18	SUN Blade 2500	UltraSPARC	1.28 GHz*2	8 G	Solaris 10
140.112.20.62	cad19	SUN Blade 2000	UltraSPARC	1.2 GHz * 2	8 G	Solaris 10
140.112.20.63	cad20	SUN Blade 2000	UltraSPARC	1.2 GHz * 2	8 G	Solaris 10
140.112.20.64	cad21	SUN Blade 2500	UltraSPARC	1.28 GHz * 2	8 G	Solaris 10
140.112.20.65	cad22	SUN Blade 2500	UltraSPARC	1.28 GHz * 2	8 G	Solaris 10
140.112.20.66	cad23	SUN Blade 2500	UltraSPARC	1.28 GHz * 2	8 G	Solaris 9
140.112.20.67	cad24	SUN Fire 280R	UltraSPARC	1.2 GHz * 2	4 G	Solaris 9
140.112.20.68	cad25	SUN Fire 280R	UltraSPARC	1.2 GHz * 2	4 G	Solaris 9
140.112.20.69	cad26	SUN Fire 280R	UltraSPARC	1.2 GHz * 2	4 G	Solaris 9
140.112.20.70	**cad27**	**IBM x260**	**Intel Xeon 64**	**3.2 GHz * 4**	**8 G**	**RHEL 4**
140.112.20.71	**cad28**	**IBM x260**	**Intel Xeon 64**	**3.2 GHz * 4**	**8 G**	**RHEL 4**
140.112.20.72	**cad29**	**IBM e336**	**Intel Xeon 64**	**3.2 GHz**	**5 G**	**RHEL 4**
140.112.20.74	cad31	SUN Blade 2000	UltraSPARC	1.015 GHz * 2	8 G	Solaris 10
140.112.20.75	cad32	SUN Blade 2000	UltraSPARC	1.015 GHz * 2	8 G	Solaris 8
140.112.20.76	cad33	SUN Blade 2000	UltraSPARC	1.2 GHz * 2	8 G	Solaris 9
140.112.20.77	**cad34**	**SUN V20z**	**AMD Opteron**	**2.2 GHz * 2**	**4 G**	**RHEL 4**
140.112.20.78	**cad35**	**SUN V20z**	**AMD Opteron**	**2.4 GHz * 2**	**4 G**	**RHEL 4**
140.112.20.79	**cad36**	**SUN V20z**	**AMD Opteron**	**2.4 GHz * 2**	**4 G**	**RHEL 4**
140.112.20.80	**cad37**	**SUN V20z**	**AMD Opteron**	**2.4 GHz * 2**	**4 G**	**RHEL 4**
140.112.20.81	**cad38**	**ACER Altos R700**	**Intel Xeon 32**	**3.0 GHz * 2**	**6 G**	**RHEL 4**
140.112.20.82	**cad39**	**SUN V20z**	**AMD Opteron**	**2.4 GHz * 2**	**4 G**	**RHEL 4**
140.112.20.83	**cad40**	**IBM e326**	**AMD Opteron**	**2.4 GHz * 2**	**4 G**	**RHEL 4**
140.112.20.84	**cad41**	**Fujitsu RX300 S4**	**Intel Xeon 64**	**2 GHz * 8**	**10 G**	**RHEL 4**
140.112.20.85	**cad42**	**Fujitsu RX300 S4**	**Intel Xeon 64**	**2 GHz * 8**	**10 G**	**RHEL 4**

Putty (con't)

- Reference
  - Official website
    - http://chiark.greened.org.uk/~sgtatham/putty/
  - Tutorial
    - http://www.ascc.sinica.edu.tw/putty
  - Software download
    - http://the.earth.li/~sgtatham/putty/latest/x86/putty.exe

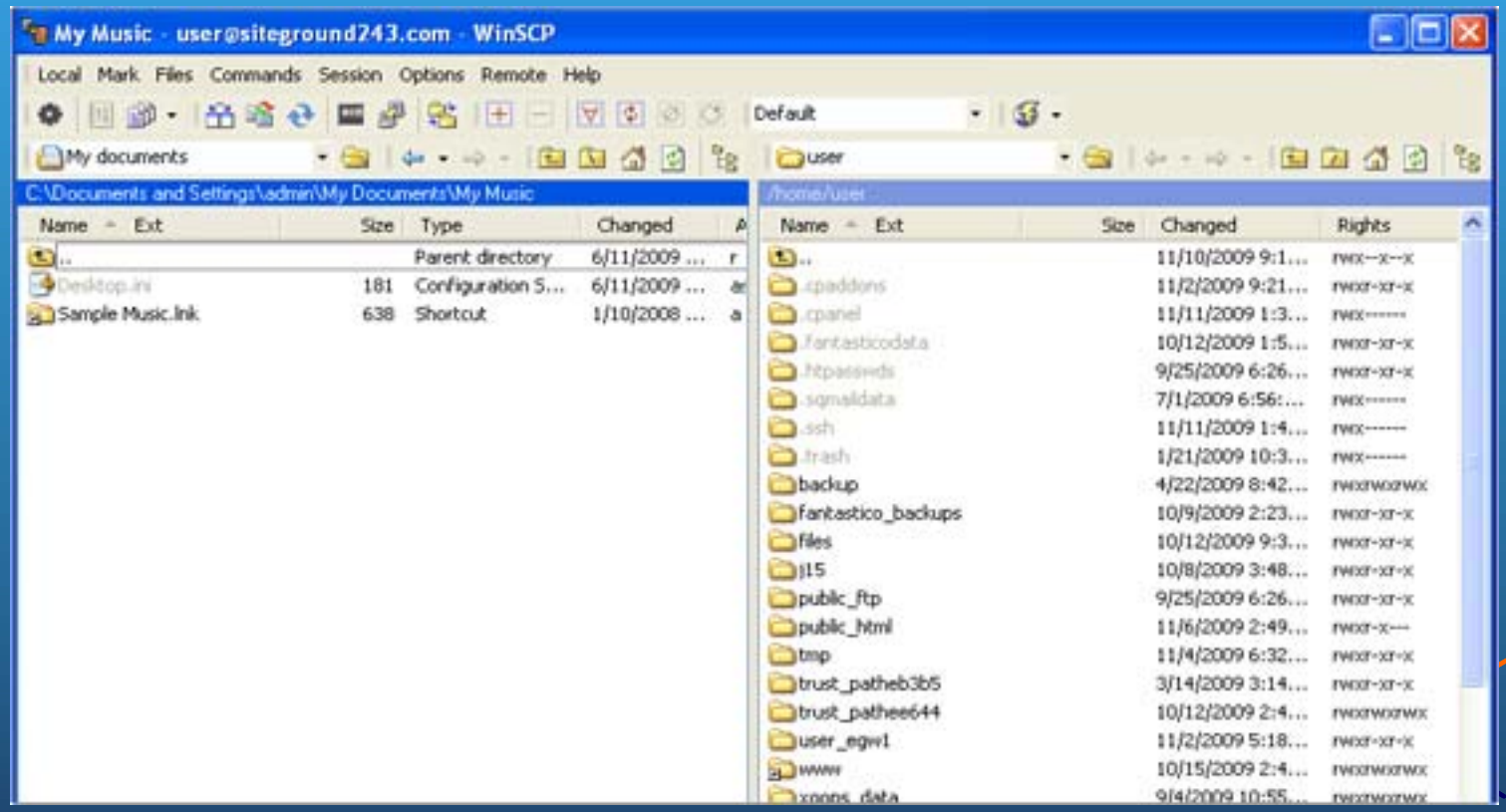
File transfer software-- WinSCP

- Initial setup like Putty and it is free !!



WinSCP (con't)

- Execution environment



WinSCP (con't)

- Reference
  - Official website
    - http://winscp.net/eng/docs/lang:cht
  - Tutorial
    - http://www.cc.gatech.edu/classes/AY2005/cs1371_fall/labs/etc/winSCP/winscp-tutorial/
    - http://www.siteground.com/tutorials/ssh/ssh_winscp.htm
  - Software download (Recommendation : "Portable version")
    - http://winscp.net/download/winscp428.zip

Connect to Lab 231 with sftp

- Because of conflict between C shell and sftp
- Before using sftp
  - ls –a (list all files)
  - cp .cshrc .cshrc.ori (save original file)
  - rm .cshrc (remove it)
- Use sftp
- After using sftp
  - cp .cshrc.ori .cshrc (resume original state)
  - source .cshrc

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Basic commands

- Files
  - ls : lists your files
  - ls –l : lists your files in long format
  - ls –a : lists all files, including the ones whose filename beginning in a dot
  - cp src-file dest-file : copy files
  - rm filename : delete this file
  - more filename : show the content of the file

Basic commands (con't)

- Directories
  - mkdir dirname : make a new directory
  - cd dirname : change directory
  - cd .. : go up on directory level from here
  - cd ~ : go to users' home directory
  - rm -r dirname : remove a dir

Basic commands (con't)

- Compress and Decompress files
  - Compress
    - # tar –cvf filename.tar finename
    - # gzip *.tar //save more space
      - * stand for all files whose filename extension are .tar
  - Decompress
    - gzip –d filename.tar.gz get filename.tar
    - tar –xvf filename.tar get filename
  - Get more information about parameters
    - man tar
    - man gzip

Basic commands (con't)

- Processes
  - ctrl – c : kill foreground process
  - ps : report processes and their pid numbers
  - kill pid# : kill the process with the pid#
- Logout
  - exit
- More options about command
  - man command-name : display on-line manual pages

Basic commands (con't)

- Reference
  - Chinese
    - http://boson4.phys.tku.edu.tw/UNIX/Unix%20Command/index_basic.htm
    - http://www.lib.cgu.edu.tw/instruction/basiccmd.html
    - http://larc.ee.nthu.edu.tw/~lmdenq/Unix.htm#%A4E%A1B%BF%E9%A5X%A4J%C2%E0%A6V
  - English
    - http://mally.stanford.edu/~sr/computing/basic-unix.html
    - http://www.math.utah.edu/lab/unix/unix-commands.html
    - http://www.computerhope.com/unix/overview.htm
    - http://sunsite.utk.edu/UNIX-help/quickref.html

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File editor -- vim

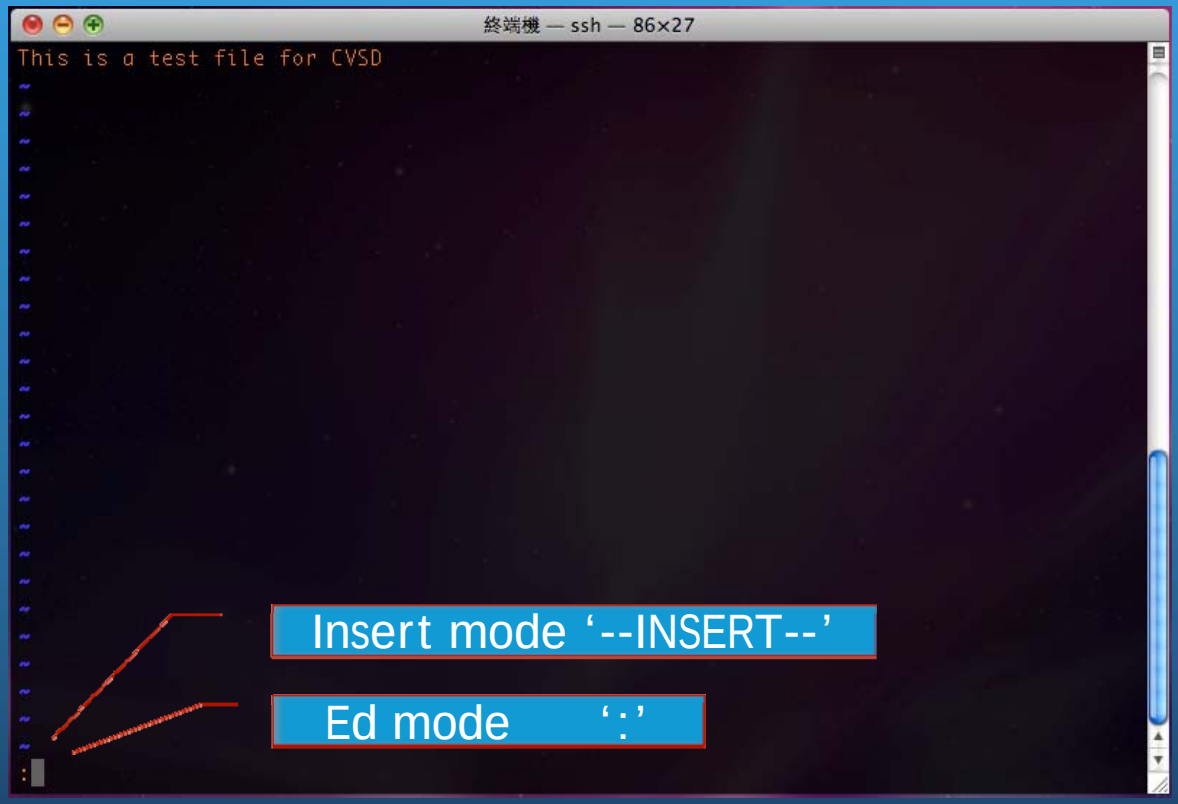
- VIM (Vi IMproved)
  - An extended version of the vi editor
  - Additional features designed to be helpful in editing program source code
  - Cross platform
  - Free and open source software

Vim (con't)

- Three major modes
  - common mode (c-mode)
    - all keystrokes are interpreted as commands
  - Insert mode (i-mode)
    - most keystrokes are inserted as text
  - Ed mode (e-mode)
    - open/new/save file and quit vim
- Change modes
  - i-mode <--------- c-mode ---------> e-mode
    (key: 'i') (key: ':')
  - i-mode ----------> c-mode <--------- e-mode
    (key: esc) (key: esc)

Vim (con't)

- vim test.txt



Vim – common mode

- Basic command
  - Key ‘i’ : enter insert-mode
  - Key ‘h’, ‘l’, ‘j’ and ‘k’ : left, right, down and up
  - Key ‘dw’ : delete the word the cursor is currently over
  - Key ‘d$’ : delete text from the cursor to the end of the line
    - | --------->
  - Key ‘d^’ : delete text to the start of line
    - <--------- |
  - Key ‘dd’ : delete the whole line
  - Key ‘u’ : undo

Vim – Ed mode

- Basic command (enter after ‘:’)
  - Key ‘w’ + enter : save a document
  - Key ‘w’ + newname + enter : save as a new file
  - Key ‘q’ + enter : quit without saving
    - If we have unsaved changes this will prompt us to save them before quitting
  - Key ‘wq’ + enter : save and quit at the same time (must save)
  - Key ‘x’ + enter : save and quit at the same time
  - Key ‘q! + enter : discard changes and quit

Vim (con't)

- Reference
  - Further command
    - $ vimtutor
  - Chinese
    - http://www.study-area.org/tips/vim/Vim-1.html#why
    - http://greenisland.csie.nctu.edu.tw/wp/category/comuter/vim/
  - English
    - http://www.linuxconfig.org/Vim_Tutorial
    - http://www.killianfaughnan.com/20081202/basic-vim-commands-tutorial/
    - http://blog.interlinked.org/tutorials/vim_tutorial.html
    - http://www.viemu.com/a_vi_vim_graphical_cheat_sheet_tutorial.html
    - http://blog.interlinked.org/tutorials/vim_tutorial.html

Other Editors

- emacs
  - It can do anything but give birth to a baby
  - http://homepage.mac.com/yenlung/WebWiki/EmacsNotes.html
- joe
  - first step : (ctrl + k) +h -- help command

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X serve -- Xming

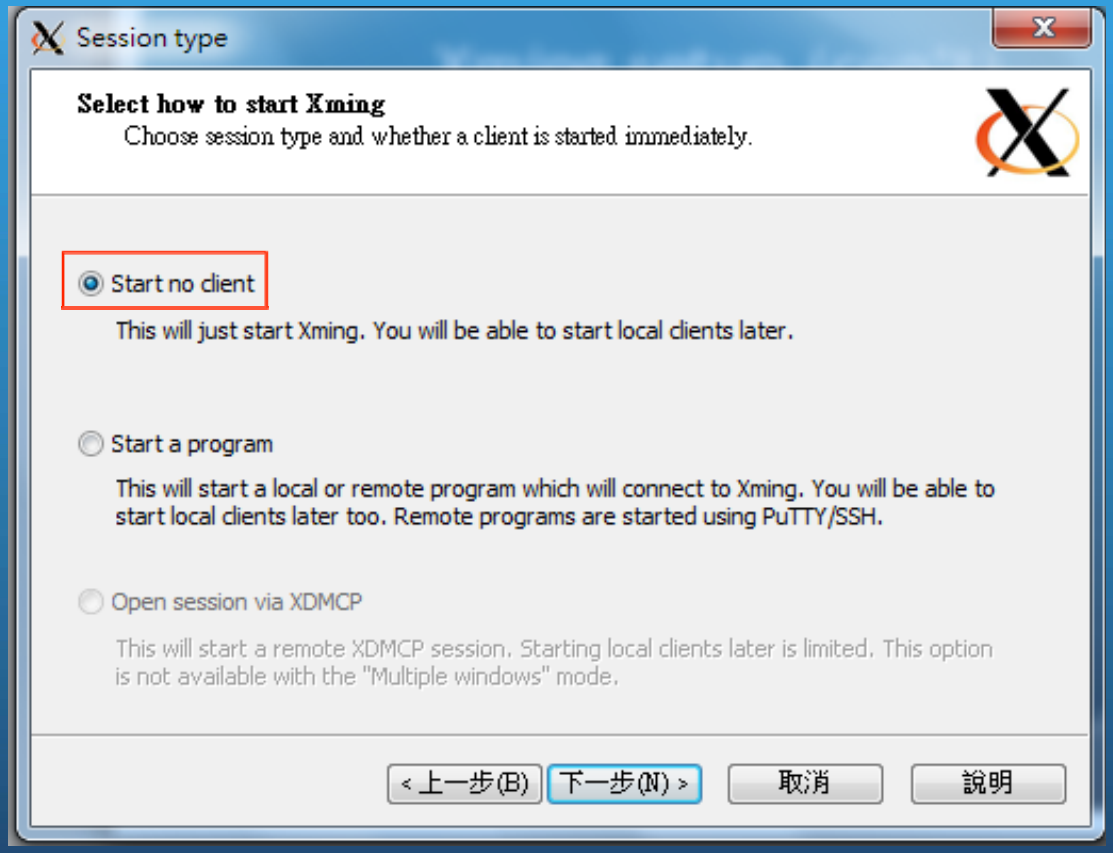
- Xming is a standalone open source X Server for Windows
- Programs that use a graphical user interface like Xvim require an X server on your home computer

Xming setup

- Xming folder ---> click “XLaunch”

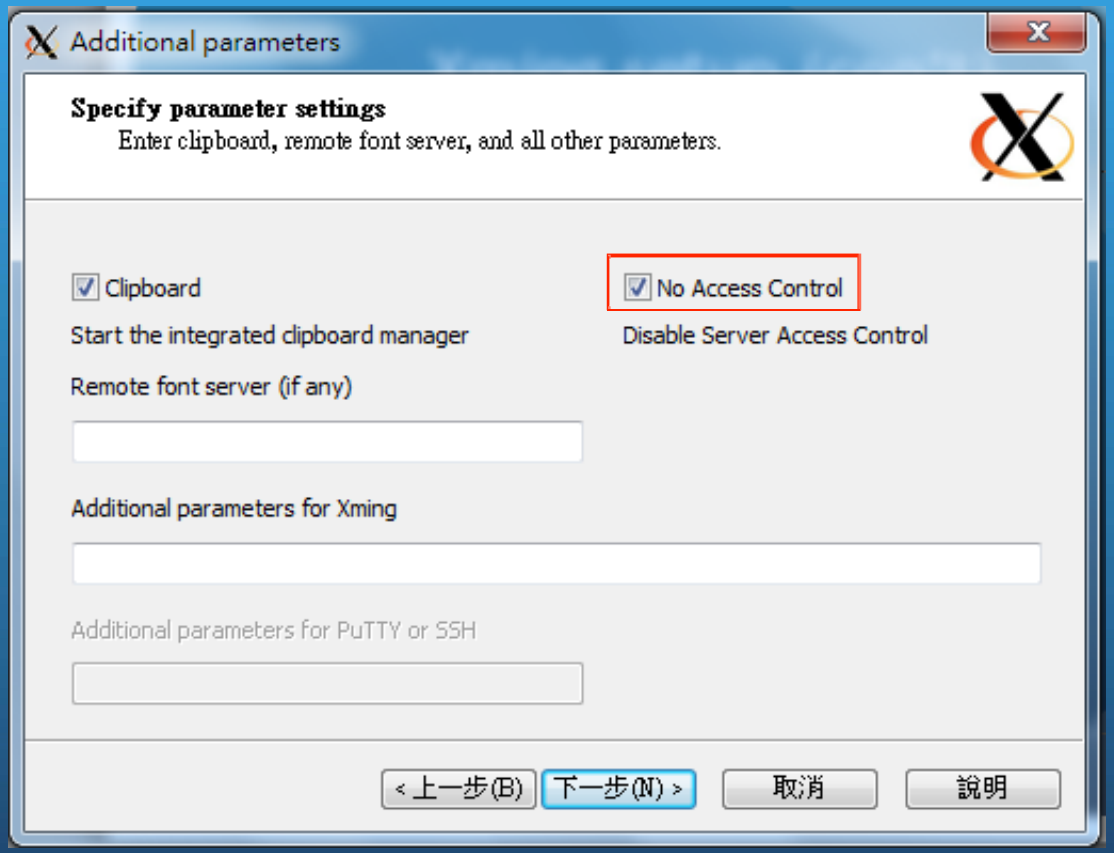
Xming setup (con't)

- Select "start no client"



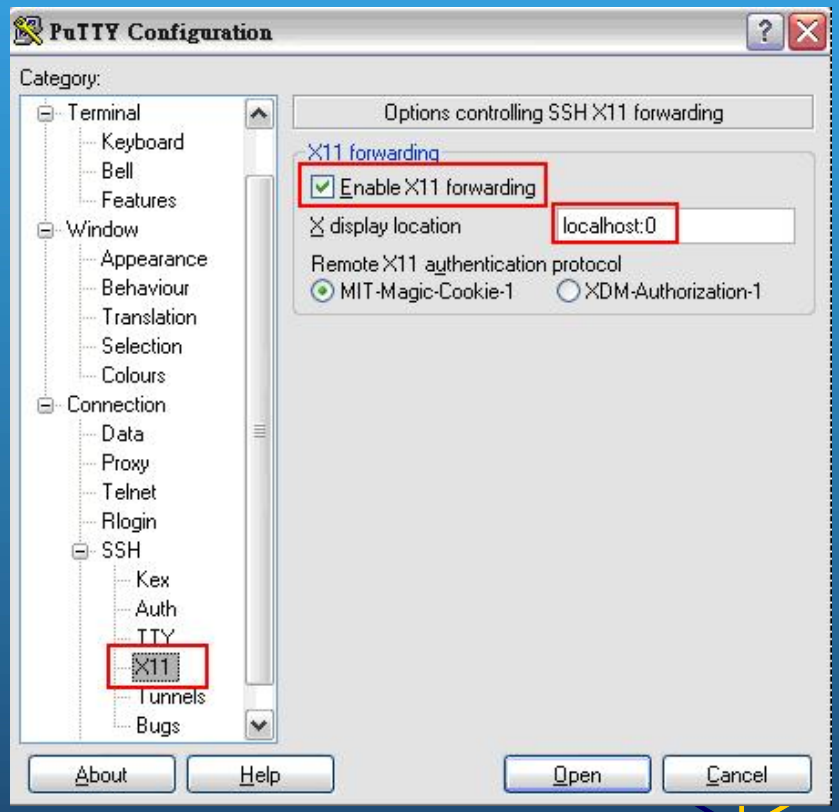
Xming setup (con't)

- Select "No Access Control"



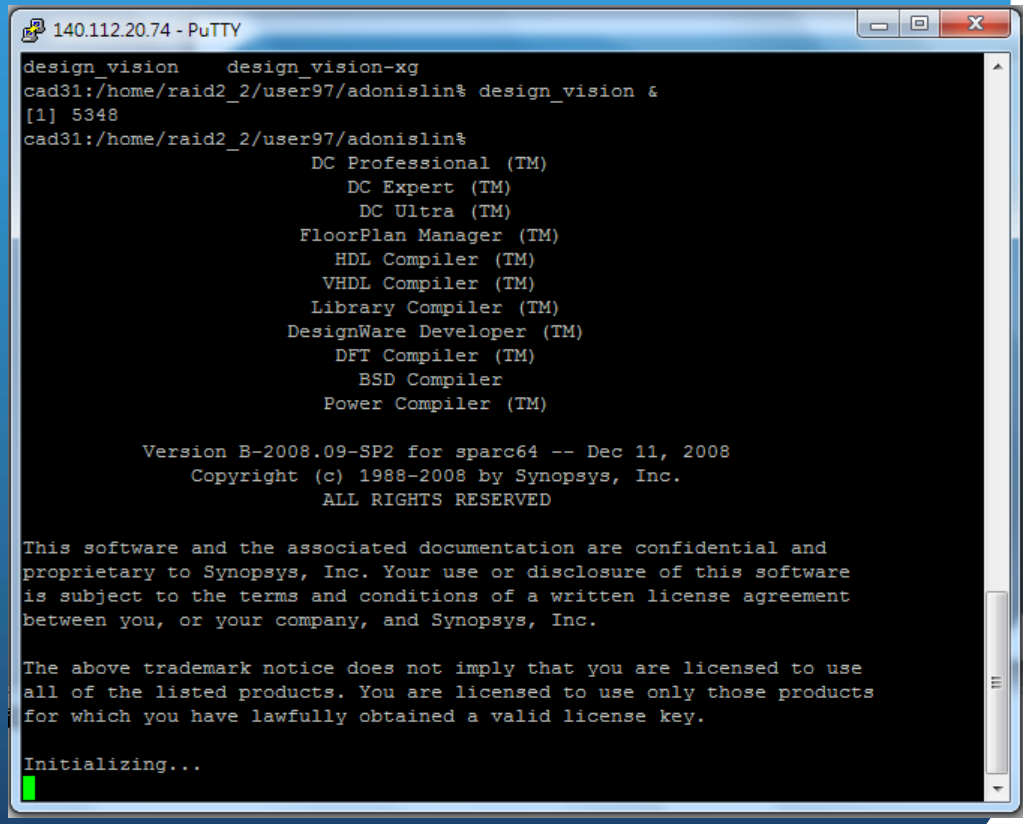
Putty setup

- Setup Putty before connecting (SSH -> X11)
  - Enable X11 forwarding
  - Select display location
    - Enter “localhost:0”



Putty setup (con't)

- If you have static ip
  - Enter "setenv DISPLAY your.ip.address.here:0.0"
- If you use NTU wireless
  - Do nothing
- Open programs with GUI
  - Ex: design_vision &
  - Ex: xclock &



X serve

- Reference
  - Download
    - http://sourceforge.net/projects/xming/
  - Tutorial
    - http://www.cs.nctu.edu.tw/help/xming.html
    - http://blog.jangmt.com/2009/11/xming.html
    - http://1337-tux.blogspot.com/2005/03/xming.html
    - https://sites.google.com/site/ykcycuee/tutorial/remote-access/xming
    - http://qiu.bioweb.hunter.cuny.edu/index.php?option=com_content&view=article&id=110

Thanks for your attention