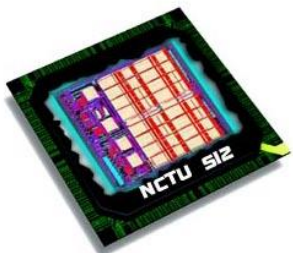


Lec00 Environment Setting

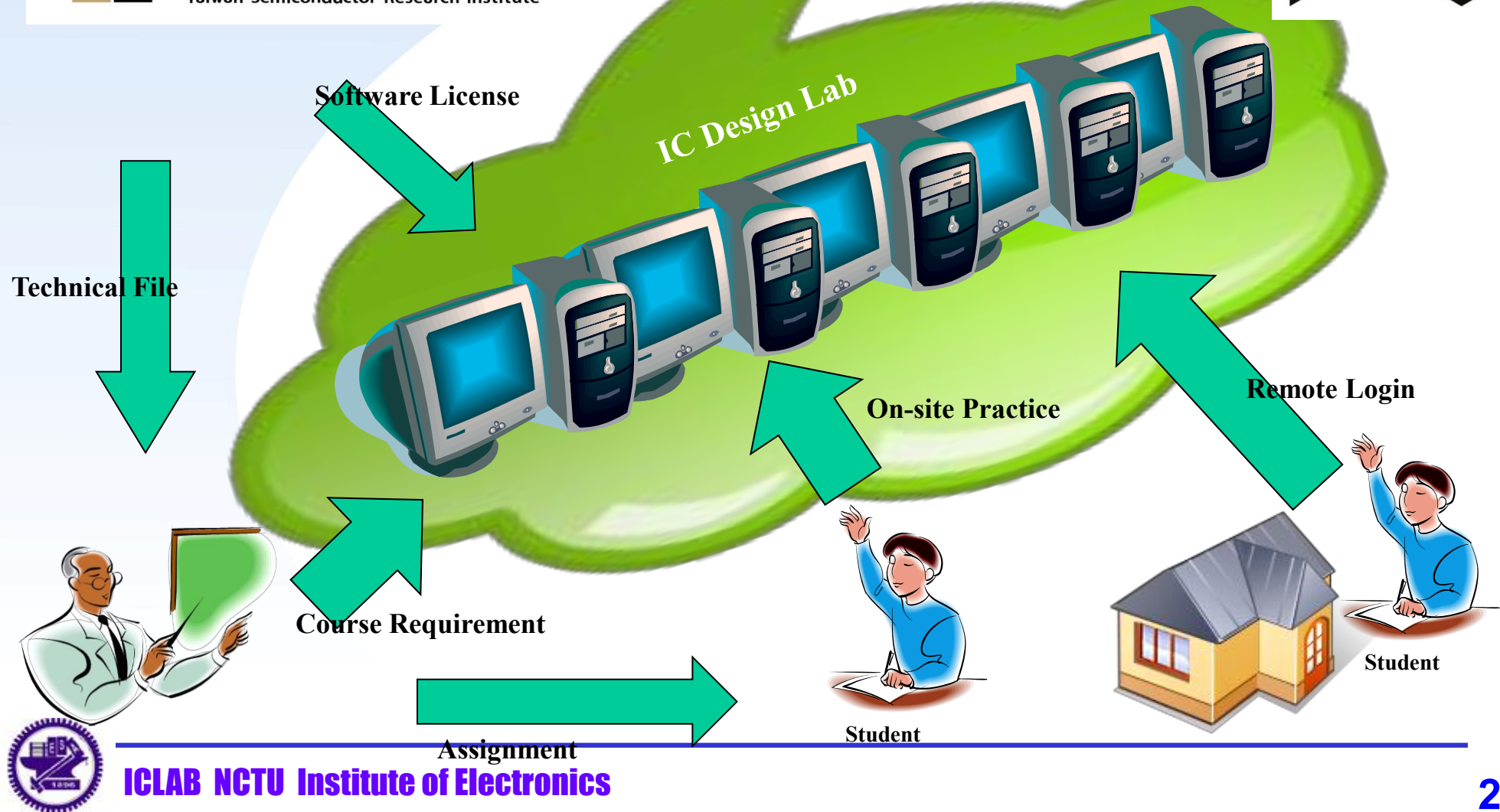
Lecturer : Hsi-Hao Huang

Courtesy of : Ping-Yuan Tsai, Li-Wei Liu

2023 spring



Environment



Work Station

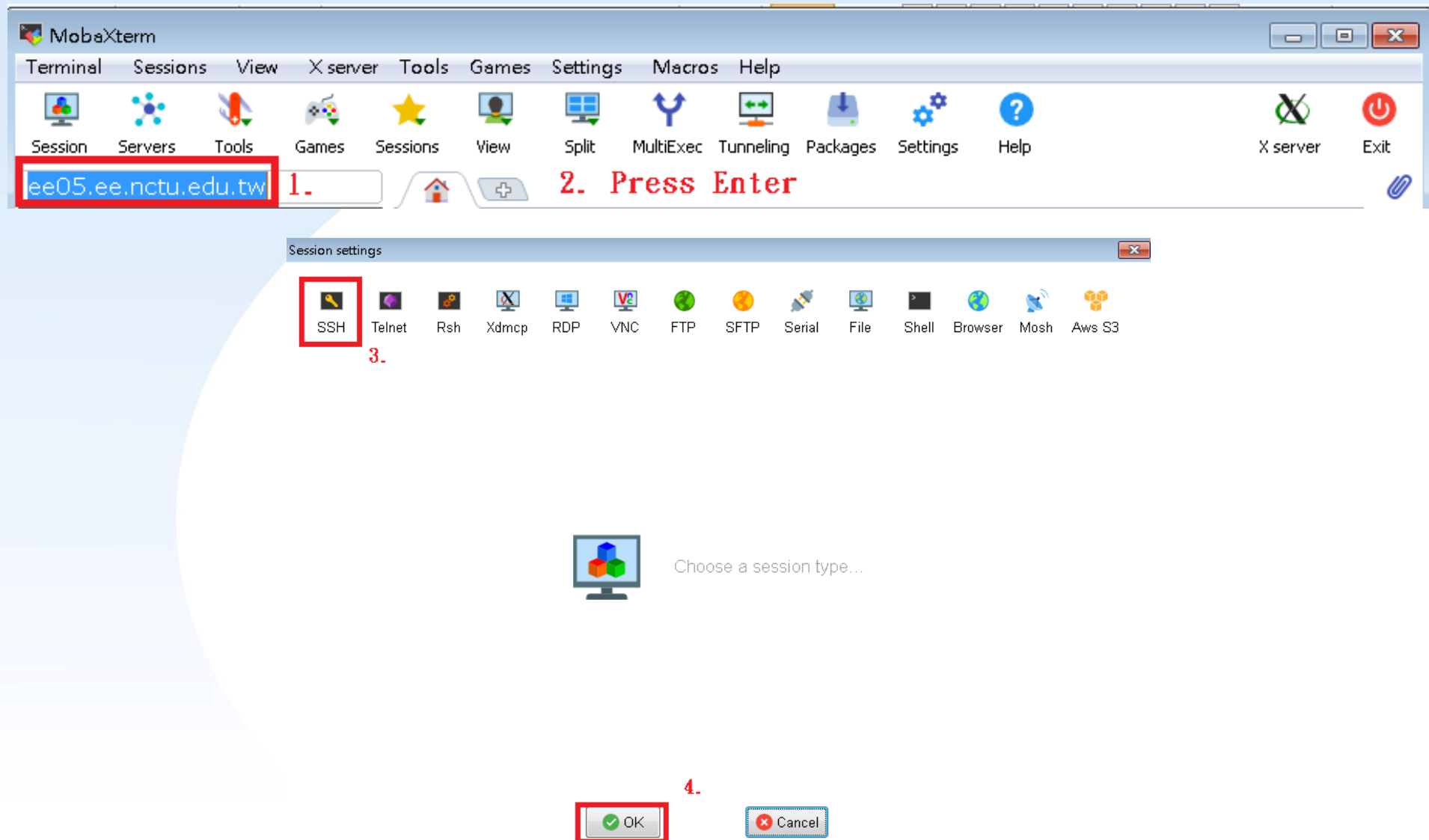
- ✓ **Use SSH to connect**
 - port = 415
- ✓ **ee??.ee.nctu.edu.tw (?? = 02~22)**
- ✓ **linux??.ee.nctu.edu.tw (?? = 02~32)**
- ✓ **Access**
 - Mobaxterm (Recommended)

Appendix:

- Putty + X-display software (Xwin-32, Xming) + FTP (Filezilla)
- Sublime



Mobaxterm



Mobaxterm

✓ Default with X11 Forwarding

Session settings

SSH Telnet Rsh Xdmcp RDP VNC FTP SFTP Serial File Shell Browser Mosh Aws S3 WSL

Basic SSH settings

Remote host * x07.ee.nctu.edu.tw ☒ Specify username iclab100 Port 415

Advanced SSH settings Terminal settings Network settings Bookmark settings

Secure Shell (SSH) session

OK Cancel

✓ Embedded sftp system



Linux : Basic Operations

- ✓ **>man COMMAND** //format and display the on-line manual pages
 - ex: man ln
- ✓ **>mkdir DIRECTORY** //make directory
 - e.g. mkdir -p /home/test
- ✓ **>cd DESTINATION** //change current directory
 - e.g. cd ../iclab08/Lab01/
 - e.g. cd (change to home directory)
- ✓ **>cp SOURCE DESTINATION** //copy files
 - e.g. cp ABC.v DEF.v
 - e.g. cp -rf Lab01/ Lab02/
- ✓ **>mv SOURCE DESTINATION** //move or rename files
 - e.g. mv ABC.v ../ABC.v
 - e.g. mv ABC.v DEF.v



Linux : Basic Operations

- ✓ **>rm FILE_NAME** //remove (delete) files
 - e.g. rm ABC.v
 - e.g. rm -rf Lab01/
- ✓ **>ls** //list directory contents
 - e.g. ls -l
 - or you can use *dir* as well.
- ✓ **>ln TARGET LINK_NAME** //make links between files
 - e.g. ln -s ~iclabt01/LIB/slow.db slow.db
- ✓ **>quota** //display disk usage and limits
 - e.g. quota



On-line Text Editor

✓ **vim / vi**

- vim [filename]
- e.g. vim test.v

✓ **gedit**

- gedit [filename] &
- gedit test.v &



On-line Text Editor – VIM

✓ Command mode

– Move cursor:

- [Page Down], [Page Up]
- [Home], [End]
- $\uparrow(k)\downarrow(j)\leftarrow(h)\rightarrow(l)$: move cursor
- G: cursor moves to last column
- nG: “n” is number. cursor moves to “n”th column
- gg: cursor moves to the first column. (=1G)
- n<Enter>: “n” is number. cursor moves down n columns.

– Search & Replace:

- /word: search for “word”
- n: search the next
- N: search the previous



On-line Text Editor – VIM

– Delete & Copy & Paste:

- [delete] or x: delete the character under the cursor.
- X: delete the character before the cursor.
- dd: delete a column where the cursor located at.
- ndd: “n” is number. delete “n” columns.
- yy: copy a column where the cursor located at.
- nyy: “n” is number. copy “n” columns.
- u: recover.
- . : repeat the previous action.
- [Shift]+v : select the column where the cursor located at.
- [Ctrl]+v+[Shift]+I : edit multi-line.



On-line Text Editor – VIM

✓ Insert mode:

- i : switch to insert mode before the current position.
- [Esc]: switch from the insert mode to the command mode

✓ Visual mode:

- :w : write the current buffer to disk.
- :q : closes current window.
- :wq : write the current buffer to disk and closes current window.
- :q! : closes current window forcibly.
- :set nu : display the column number.



Editor

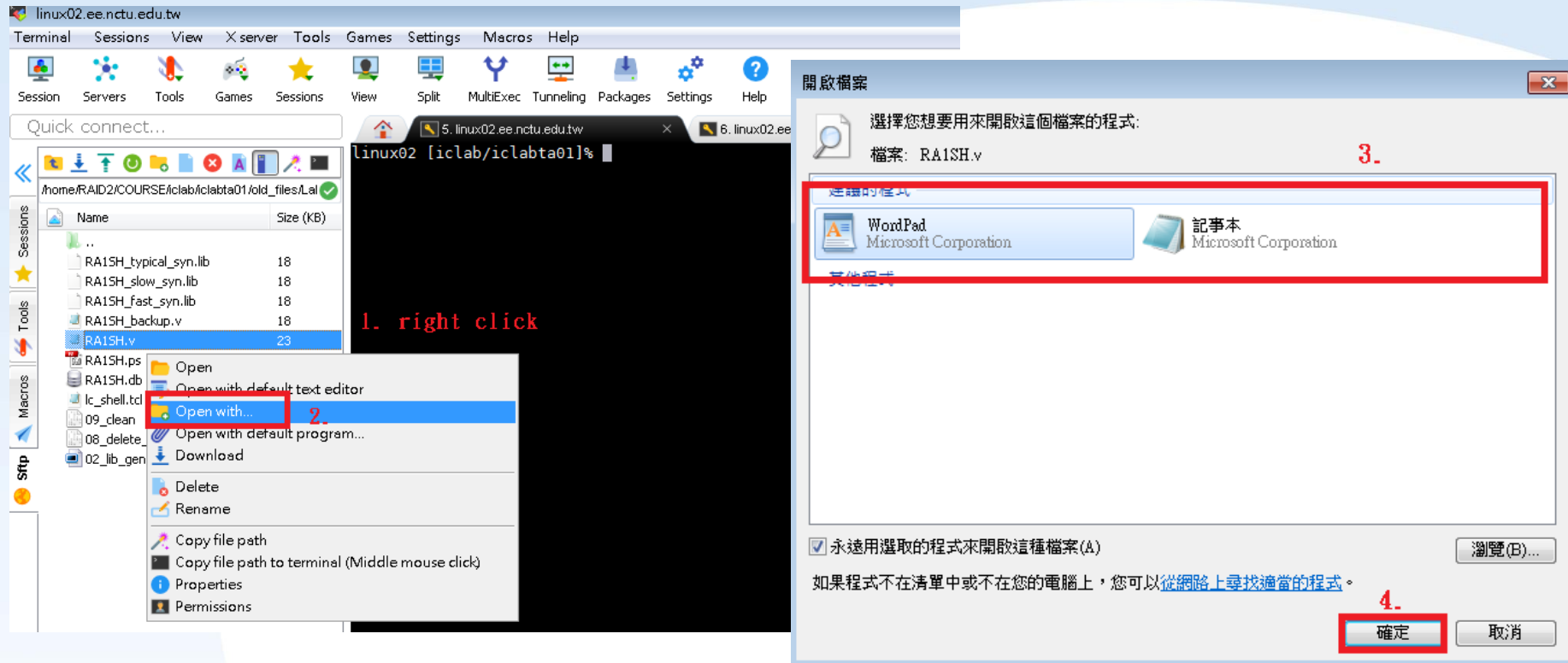
✓ Download files, use your own editor and re-upload

- Notepad++
- Visual Studio Code
- Sublime Text
- Wordpad...

※ MobaXterm will download files into local computer and open it



Editor



✓ Can choose any editor in your computer

✓ Always Remember to **BACKUP**

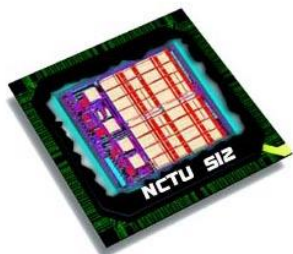


Appendix

- ✓ **Notepad ++**
- ✓ **Putty & Xming Setting**
(Alternative Login Software of Windows)
- ✓ **Sublime Editor**
(Recommended for Mac OS)



Notepad++



Text Editor – notepad++



<https://notepad-plus-plus.org/>

The screenshot shows the Notepad++ website with a sidebar on the left containing links: home, download, news, features, resources, contribute, donate, community, contributors, and links. A 'download' button is also present, indicating the current version is 6.8.3. The main content area is divided into 'News' and 'About' sections. The 'News' section lists several releases, with 'Notepad++ 6.8.3 released' highlighted by a red box. The 'About' section describes Notepad++ as a free source code editor and Notepad replacement, written in C++ using the Scintilla component. Below the 'About' section, there is a preview of a Notepad++ window editing a C++ file named 'notepad4ever.cpp'. The code in the window includes headers for GPL and free software, and defines a 'notepad4ever()' function that enters an infinite loop with a 'while (true)' statement and a 'Notepad++;' increment. At the bottom of the website, there are social media icons, a copyright notice for Don Ho 2015, and a donation acknowledgment to ecreate.

News

- Notepad++ 6.8.3 released
Sep 04 2015
- Notepad++ 6.8.2 released
Aug 20 2015
- Notepad++ 6.8.1 released
Aug 04 2015
- Notepad++ 6.8 released
Jul 21 2015
- Notepad++ Community
Jun 27 2015
- Notepad++ 6.7.9.2 released
Jun 23 2015
- Notepad++ 6.7.9.1 released
Jun 21 2015
- Notepad++ leaves
SourceForge
Jun 14 2015
- Notepad++ 6.7.9 released
Jun 12 2015
- Notepad++ 6.7.8.2 released
May 23 2015

[more news »](#)

About

Notepad++ is a free (as in "free speech" and also as in "free beer") source code editor and Notepad replacement that supports several languages. Running in the MS Windows environment, its use is governed by [GPL License](#).

Based on the powerful editing component [Scintilla](#), [Notepad++](#) is written in C++ and uses pure Win32 API and STL which ensures a higher execution speed and smaller program size. By optimizing as many routines as possible without losing user friendliness, [Notepad++](#) is trying to reduce the world carbon dioxide emissions. When using less CPU power, the PC can throttle down and reduce power consumption, resulting in a greener environment.

```
#D:\source\notepad4ever.cpp - Notepad++
1  #include <GPL.h>
2  #include <free_software.h>
3
4  void notepad4ever()
5  {
6      while (true)
7      {
8          Notepad++;
9      }
10
11
```

You're encouraged to [translate Notepad++](#) into your native language if there's not already a translation present in the [Binary Translations](#) page.

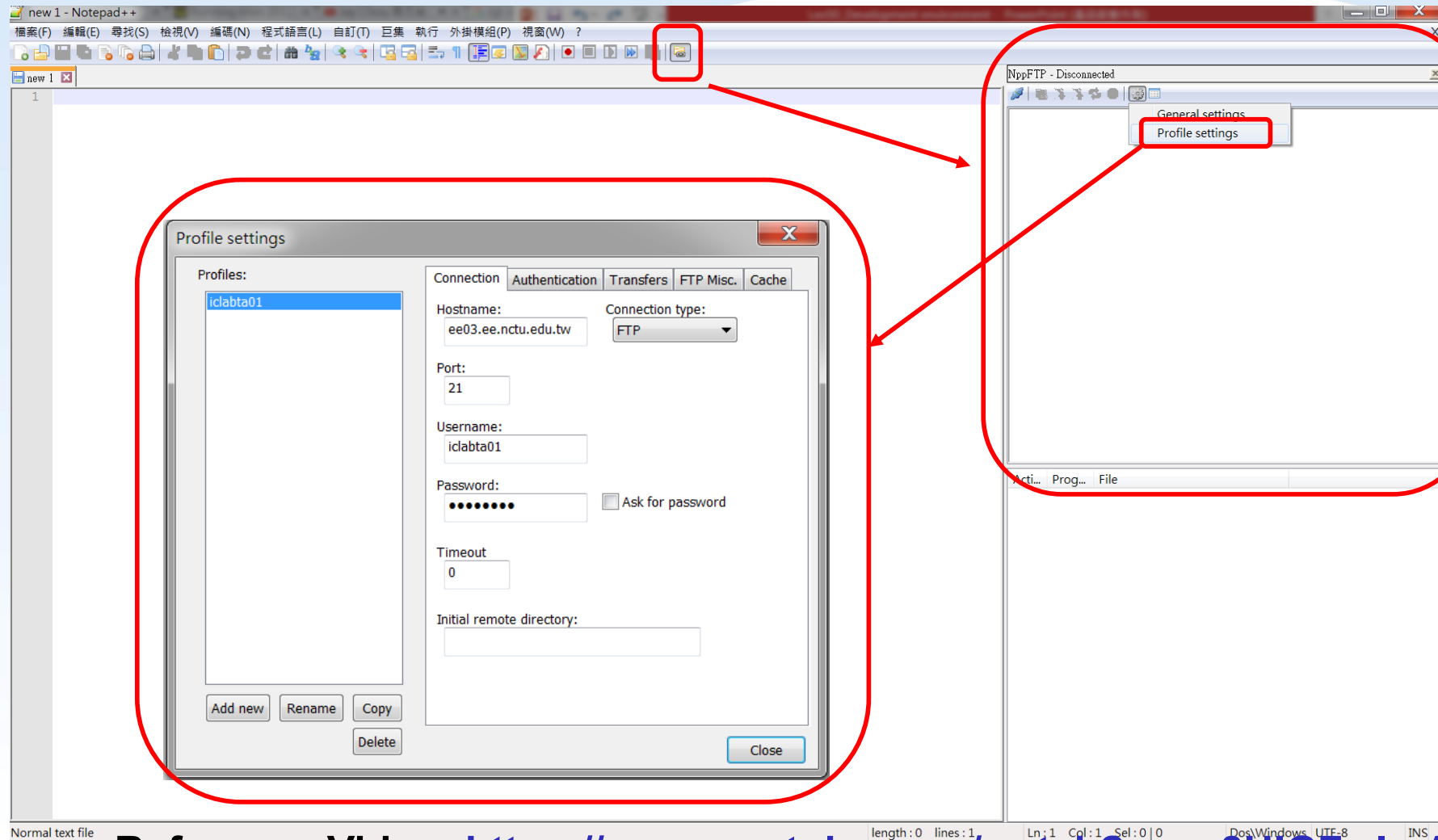
I hope you enjoy Notepad++ as much as I enjoy coding it.

Copyright © Don Ho 2015
HTML • CSS

Website kindly donated by [ecreate™](#)



Text Editor – notepad++ setting



Reference Video: <https://www.youtube.com/watch?v=cu8UIGFwImA>



Text Editor – notepad++

The screenshot displays the Notepad++ text editor with a Verilog file named `INF.sv` open. The code defines an `interface INF` and a `modport PATTERN`. A red box highlights the `modport DESIGN` section, with an arrow pointing to the text "Edit multi line: Alt + left mouse button".

Below the editor, a file explorer shows the directory structure. A red box highlights the `connect` button in the toolbar, with an arrow pointing to the text "connect". Another red box highlights the `upload/download` buttons, with an arrow pointing to the text "upload/download".

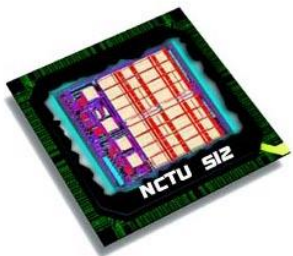
On the right, a context menu is open, showing the file type `Verilog` selected, with a red box around it.



Edit multi line: Alt + left mouse button

ICLAB NCTU Institute of Electronics

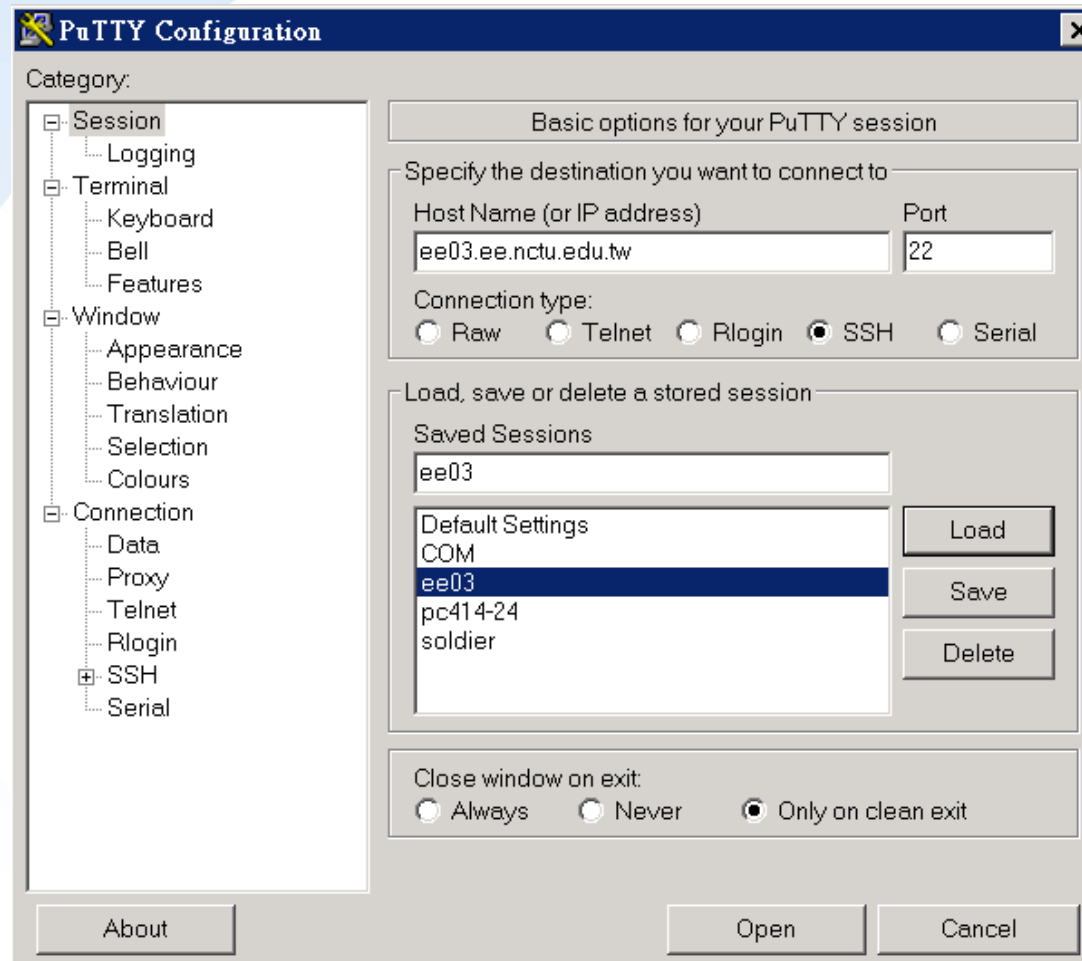
Putty & Xming



Putty & Xming

✓ Software

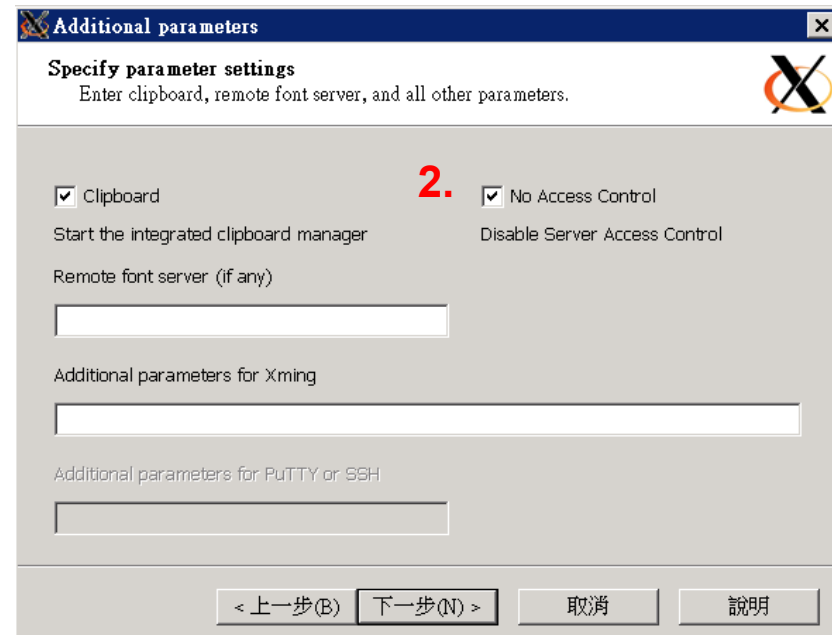
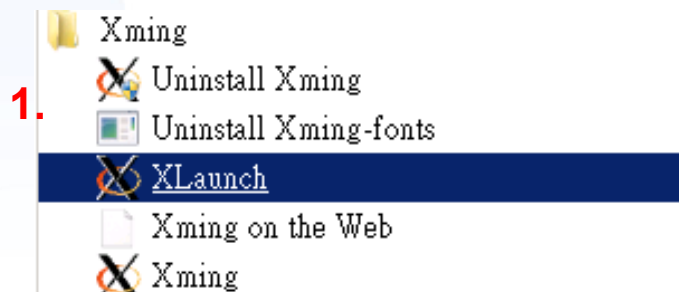
- Putty for connecting work station



Putty & Xming

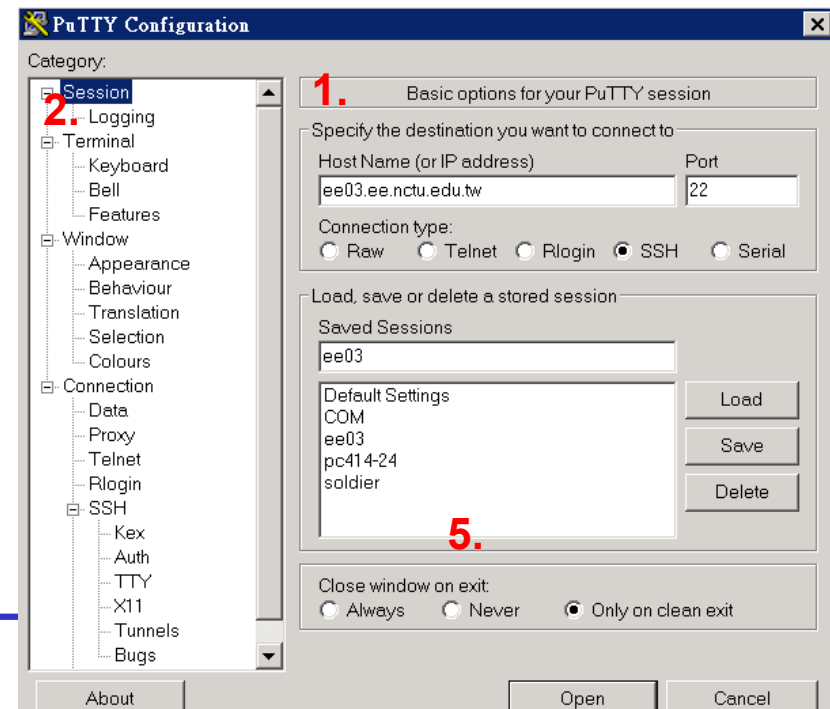
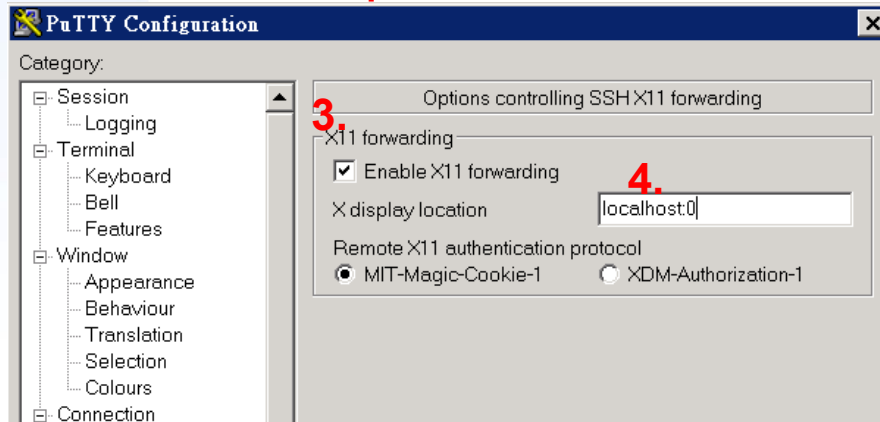
✓ Software

- Xming, Xwin-32 or other X viewer to display the GUI terminal to your computer
- Xming – Free Software
<http://sourceforge.net/projects/xming/>
<http://sourceforge.net/projects/xming/files/Xming-fonts/7.5.0.47/>
- 1. Execute **XLaunch**
2. **Check No Access Control**
3. Press **Next** or **Yes** for all other pages



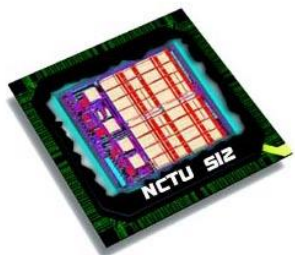
Putty & Xming

- ✓ Type `setenv DISPLAY 140.113.x.x:0` in work station to display the GUI interface onto your computer
- ✓ If you're using or your IP is floating, try the following flow
 - 1. Type Host Name IP Address
 - 2. Click Category: **Connection** -> **SSH** -> **X11**
 - 3. Check **Enable X11 forwarding**
 - 4. Fill in **Localhost:0**
 - 5. Click **Open**



Sublime

Courtesy of Chieh-Yu Lin

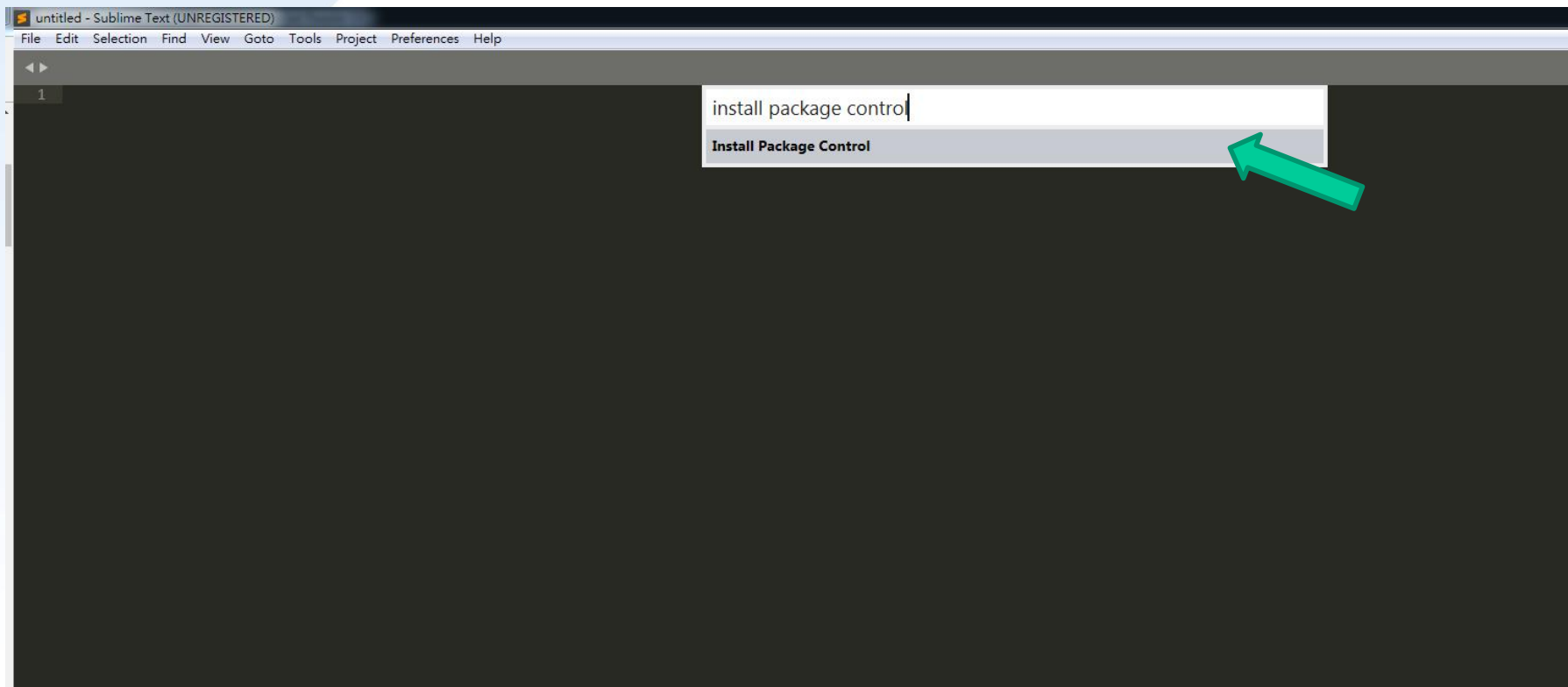


Step 1 Install Basic Plugin



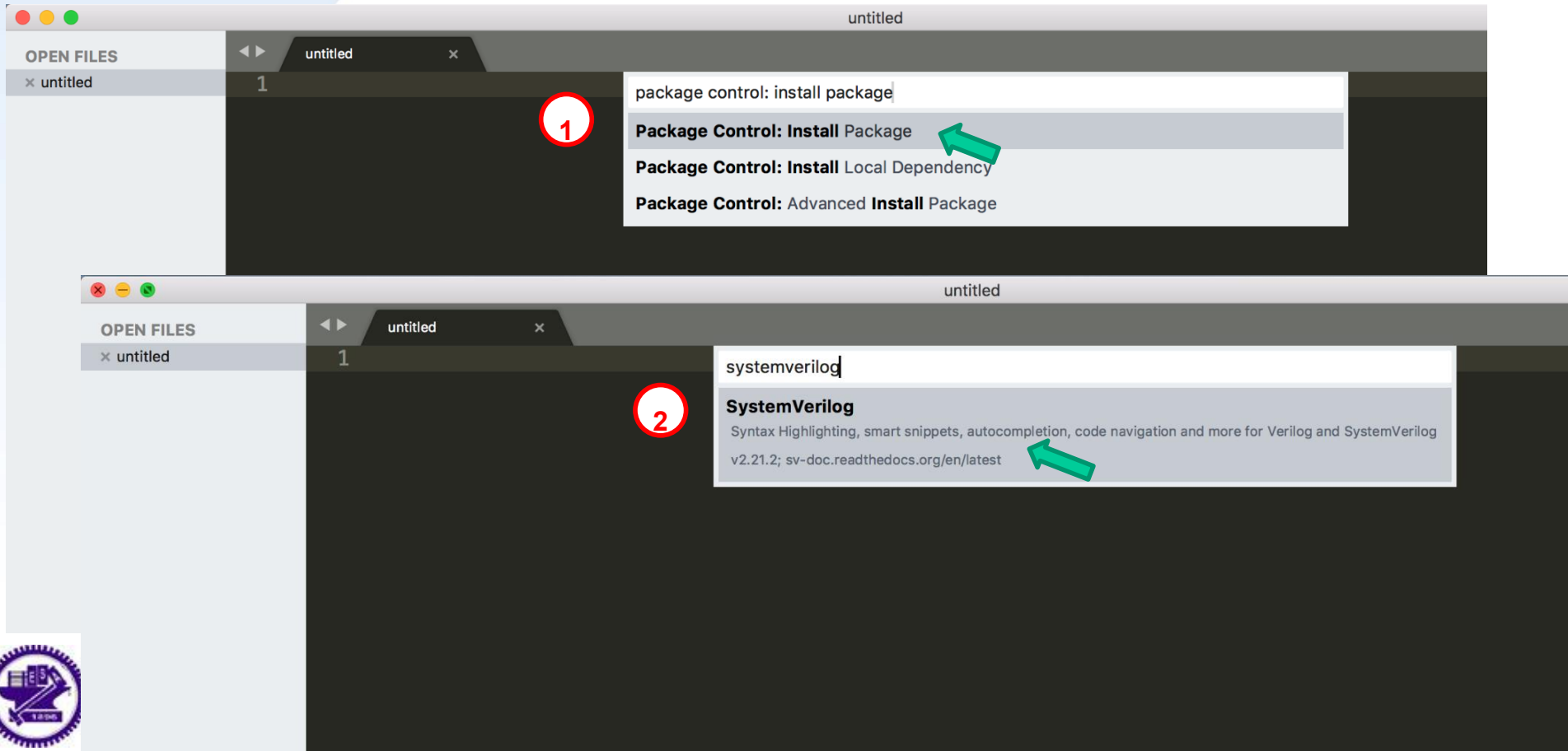
Install Package Control

- ✓ For Mac User, Please the following “Ctrl” would be command
- ✓ (Open Command Palette (Ctrl + shift + p) → Type “install package control” → click



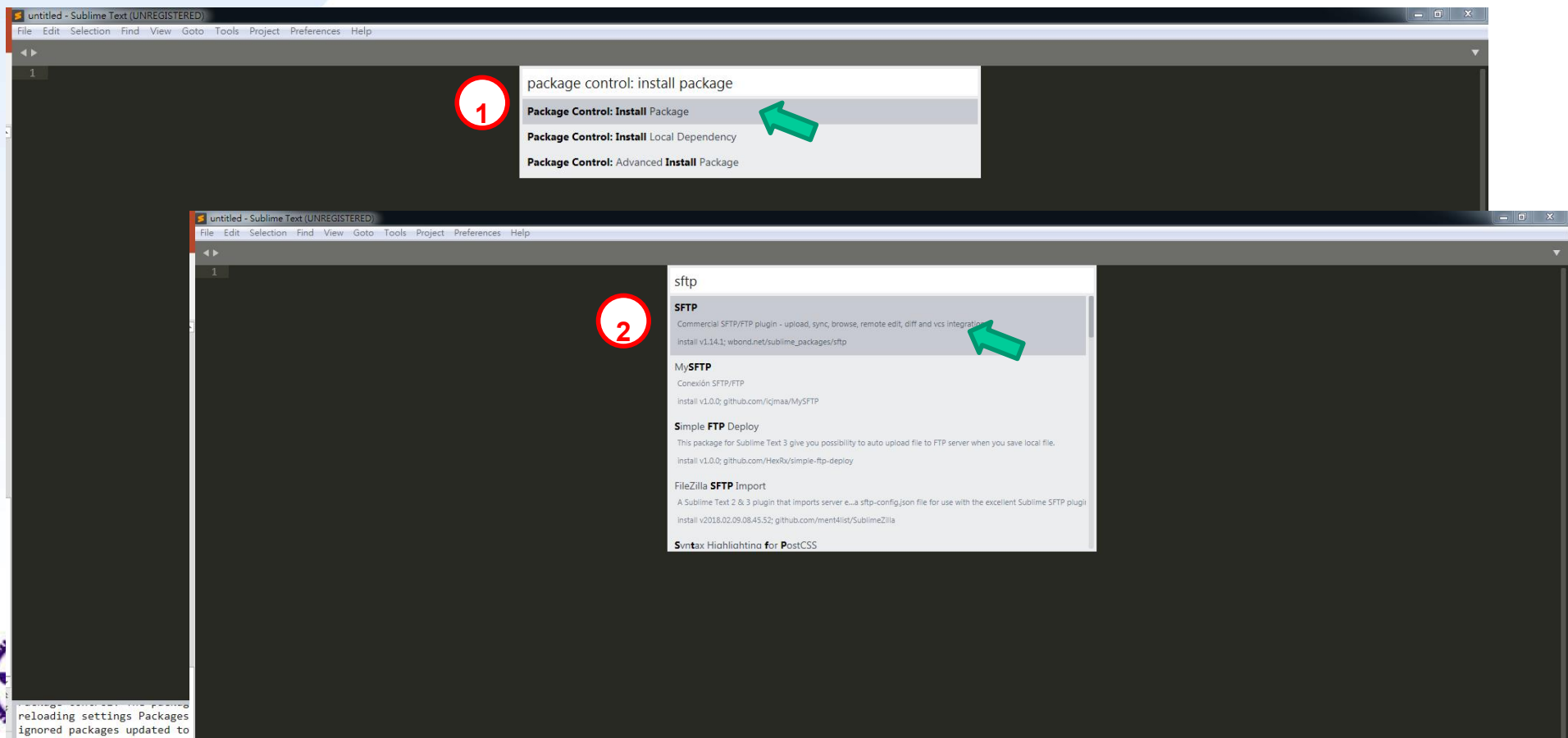
Install SystemVerilog Plugin

- ① Open Command Palette (Ctrl + shift + p) → Type “ Package Control: Install Package ” → click
- ② Type“ SystemVerilog ” → click



Install SFTP Plugin

- ① Open Command Palette (Ctrl + shift + p) → Type “ Package Control: Install Package ” → click
- ② Type “ SFTP ” → click

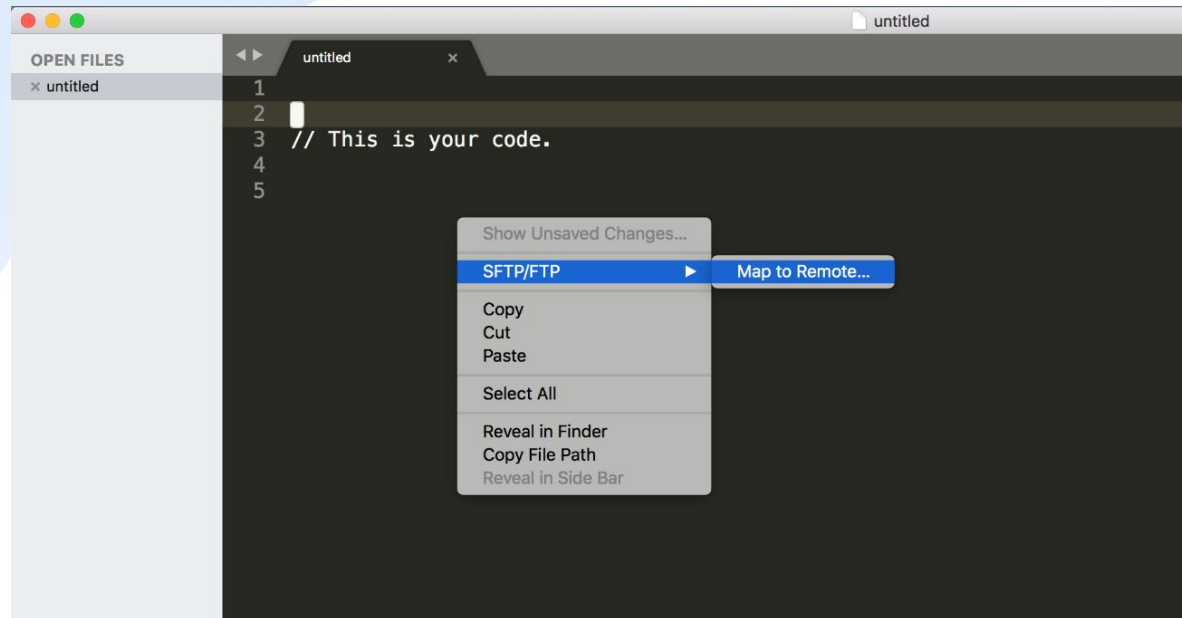


Step 2 Using SFTP Plugin to synchronize the remote file



Generate sftp-config.json

- ✓ **Method 1 :** Right Click → SFTP/FTP → Map to Remote , it would generate a new “sftp-config.js” in the same folder



- ✓ **Method 2 (Recommended) :** If you have already set your sftp-config.json, you just directly copy it into the synchronous folder, then modify the remote_path. Then You don't have to start from the blank sftp-config.json



Setting sftp-config.json

```
sftp-config.json x
1 {
2   // The tab key will cycle through the settings when first created
3   // Visit http://wbond.net/sublime_packages/sftp/settings for help
4
5   // sftp, ftp or ftps
6   "type": "sftp",
7
8   "save_before_upload": true,
9   "upload_on_save": true,
10  "sync_down_on_open": true,
11  "sync_skip_deletes": false,
12  "sync_same_age": true,
13  "confirm_downloads": true,
14  "confirm_sync": true,
15  "confirm_overwrite_newer": true,
16
17  "host": "linux?.ee.nctu.edu.tw",
18  "user": "clab?",
19  // "password": "password",
20  // "port": "22",
21
22  "remote_path": "Server Directory Path (Absolute Directory)",
23  "ignore_regexes": [
24    "\\sublime-(project|workspace)", "sftp-config(-alt\\d?)?\\.json",
25    "sftp-settings\\.json", "/venv/", "\\svn/", "\\hg/", "\\git/",
26    "\\bzip", "_darcs", "CVS", "\\DS_Store", "Thumbs\\.db", "desktop\\.ini"
27  ],
28  // "file_permissions": "664",
29  // "dir_permissions": "775",
30
31  // "extra_list_connections": 0,
32  "connect_timeout": 30,
33  // "keepalive": 120,
34  // "ftp_passive_mode": true,
35  // "ftp_exch_passive_host": false,
```

Upload to the server when saving the file

Open the file would automatically synchronize the latest file back to the local host.

Upload/download Folder

The screenshot shows a code editor with a configuration file. A context menu is open over the 'SFTP/FTP' option. The menu items are:

- Show Unsaved Changes...
- SFTP/FTP (selected)
- Copy
- Cut
- Paste
- Select All
- Reveal in Finder
- Copy File Path
- Reveal in Side Bar
- Upload File
- Upload Open Files
- Download File
- Upload Folder
- Download Folder (highlighted with a red box)
- Diff Remote File
- Rename Local and Remote Files
- Delete Local and Remote Files
- Delete Remote File
- Sync Local -> Remote...
- Sync Remote -> Local...
- Sync Both Directions...
- Monitor File (Upload on External Save)
- Browse Remote...
- Edit Remote Mapping...
- Add Alternate Remote Mapping...

A green callout box points to the 'Download Folder' option with the text: "Force to download the whole folder to the local host".

```
14 "confirm_sync": true,  
15 "confirm": true,  
16  
17 "host": SFTP/FTP  
18 "user":  
19 // "pas  
20 // "por  
21  
22 "remote  
23 "ignore  
24 " \\  
25 "sf  
26 " \\.b  
27 ],  
28 // "file_permissions": "664  
29 // "dir_permissions": "775",  
30  
31 // "extra_list_connections":  
32  
33 "connect_timeout": 30,  
34 // "keepalive": 120,  
35 // "ftp_passive_mode": true,
```

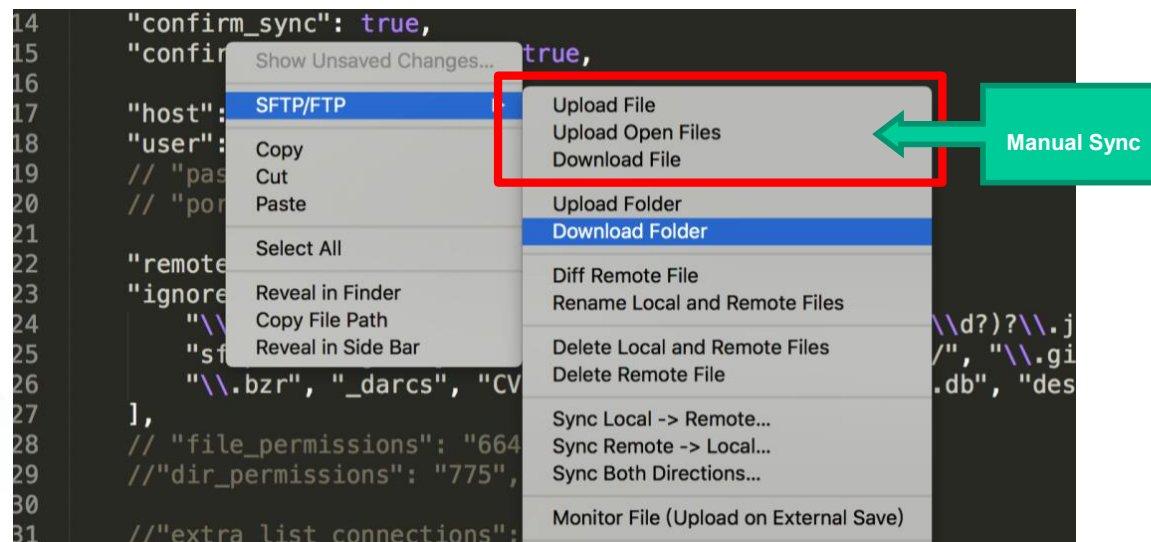


Sync Local and Remote File

✓ Automatic Sync :

- When you finish your design, Ctrl + s would save the file and automatically upload to the server
- When you open the file , it would automatically download the latest file to the local host (if **confirm_sync** is set **true**, it would have a query to sync)

✓ Manual Sync:



- ✓ **Author : 2018 Ping-Yuan Tsai (bubblegame@si2lab.org)**
- ✓ **Modified: 2019 Li-Wei Liu (willvegapunk.ee03@g2.nctu.edu.tw)**

