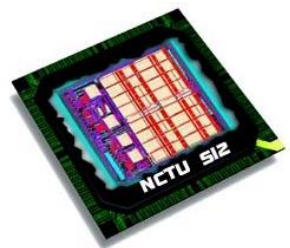


# Lec00 Environment Setting

Lecturer : Hsi-Hao Huang

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

2021 spring



# Environment



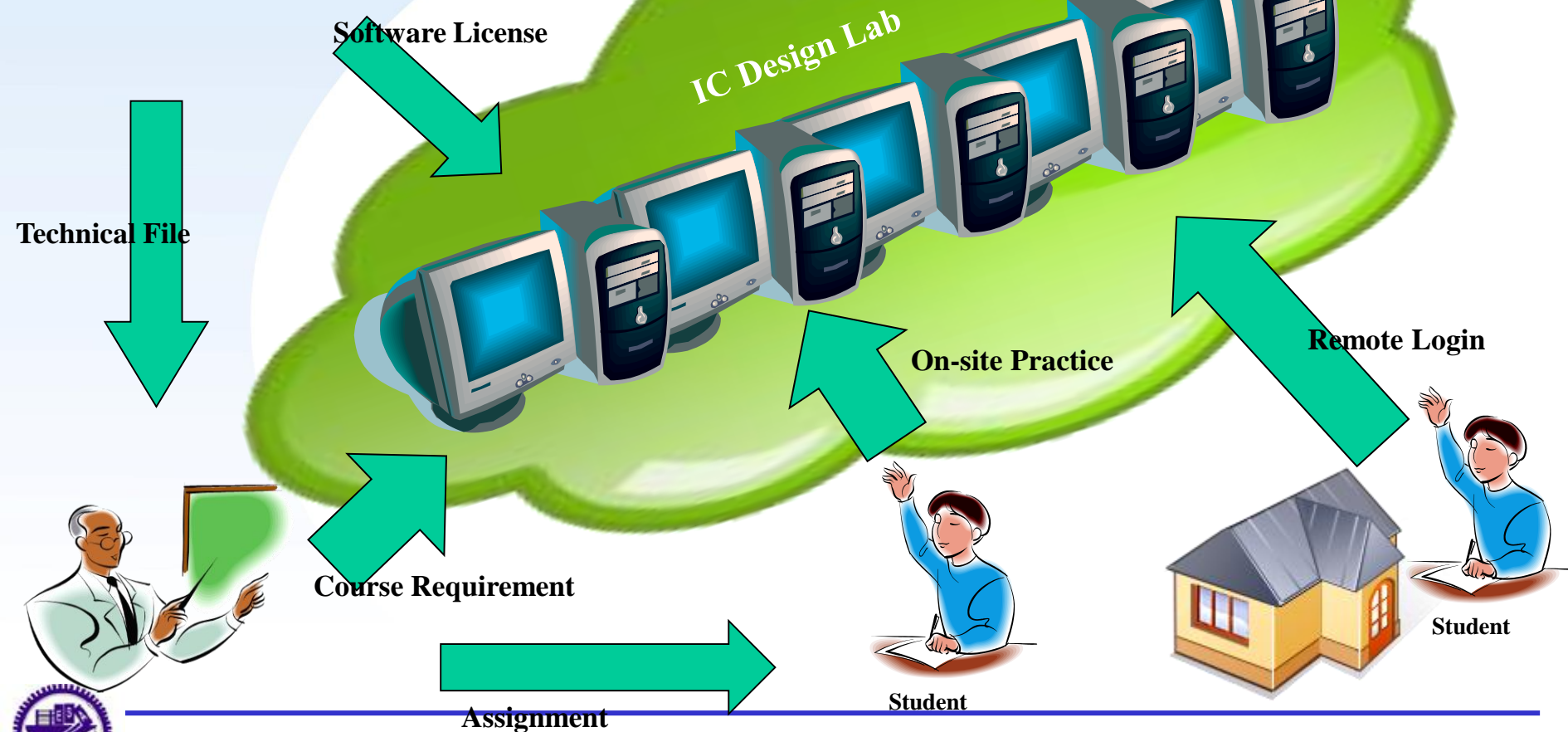
NAR Labs 國家實驗研究院

台灣半導體研究中心

Taiwan Semiconductor Research Institute



NCTU



ICLAB NCTU Institute of Electronics

# Work Station

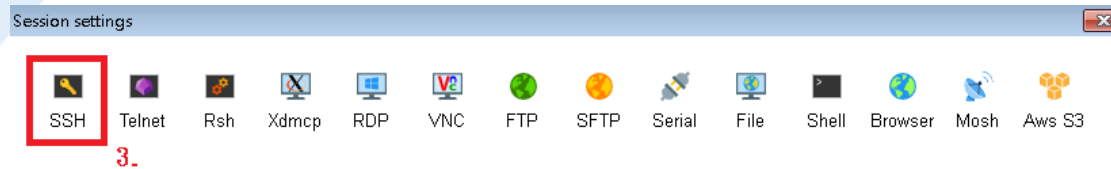
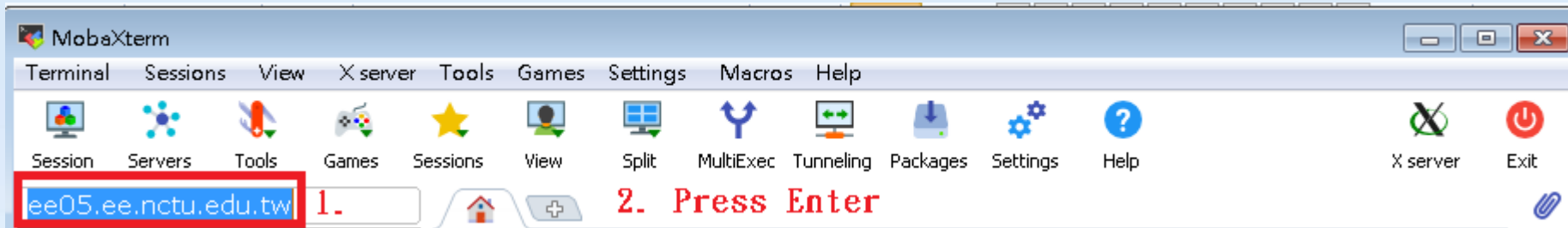
- ✓ **Use SSH to connect**
  - port = 22
- ✓ **ee??.ee.nctu.edu.tw (?? = 01~06)**
- ✓ **linux??.ee.nctu.edu.tw (?? = 01~35)**
- ✓ **Access**
  - Mobaxterm (Recommended)

Appendix:

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



# Mobaxterm



Choose a session type...



4.



# Mobaxterm

## ✓ Default with X11 Forwarding

The screenshot shows the 'Session settings' dialog box in Mobaxterm. The 'SSH' tab is selected. Under 'Basic SSH settings', the 'Remote host' field is empty, 'Specify username' is unchecked, and the 'Port' is set to 22. The 'Advanced SSH settings' tab is also visible, showing 'X11-Forwarding' and 'Compression' checked, 'Remote environment' set to 'Interactive shell', 'Execute command' empty, 'SSH-browser type' set to 'SFTP protocol', 'Use private key' unchecked, and 'Execute macro at session start' set to '<none>'. There are 'OK' and 'Cancel' buttons at the bottom.

Session settings

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

Basic SSH settings

Remote host \*  ☐ Specify username  Port 22

Advanced SSH settings Terminal settings Network settings Bookmark settings

☒ X11-Forwarding ☒ Compression Remote environment: Interactive shell

Execute command:  ☐ Do not exit after command ends

SSH-browser type: SFTP protocol ☐ Follow SSH path (experimental)

☐ Use private key  ☐ Adapt locales on remote server

Execute macro at session start: <none>

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

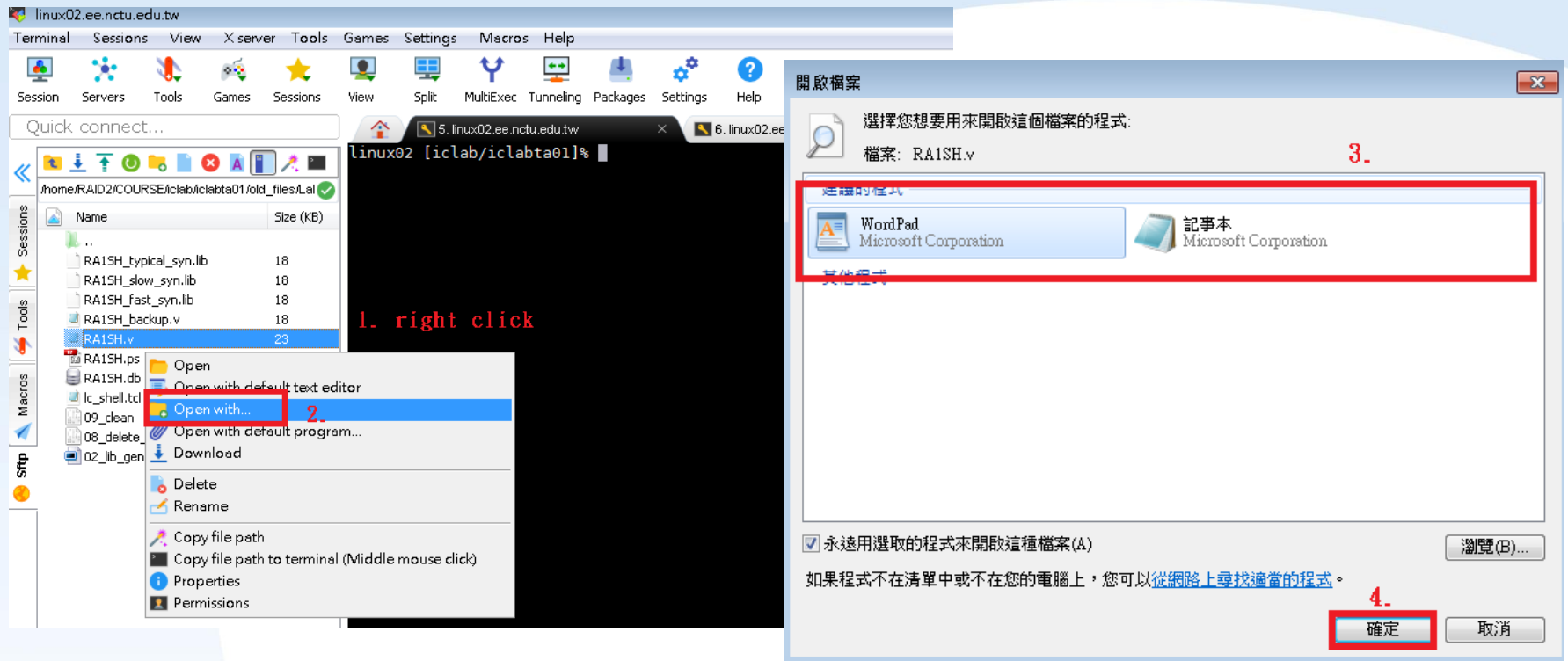
## ✓ Download files, use your own editor and re-upload

- 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**

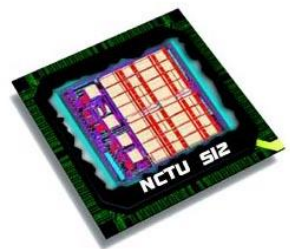


# Appendix

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



# Notepad++



# Text Editor – notepad++



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

more languages

## 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++
#include <GPL.h>
#include <free_software.h>

void notepad4ever()
{
    while (true)
    {
        Notepad++;
    }
}
```

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.

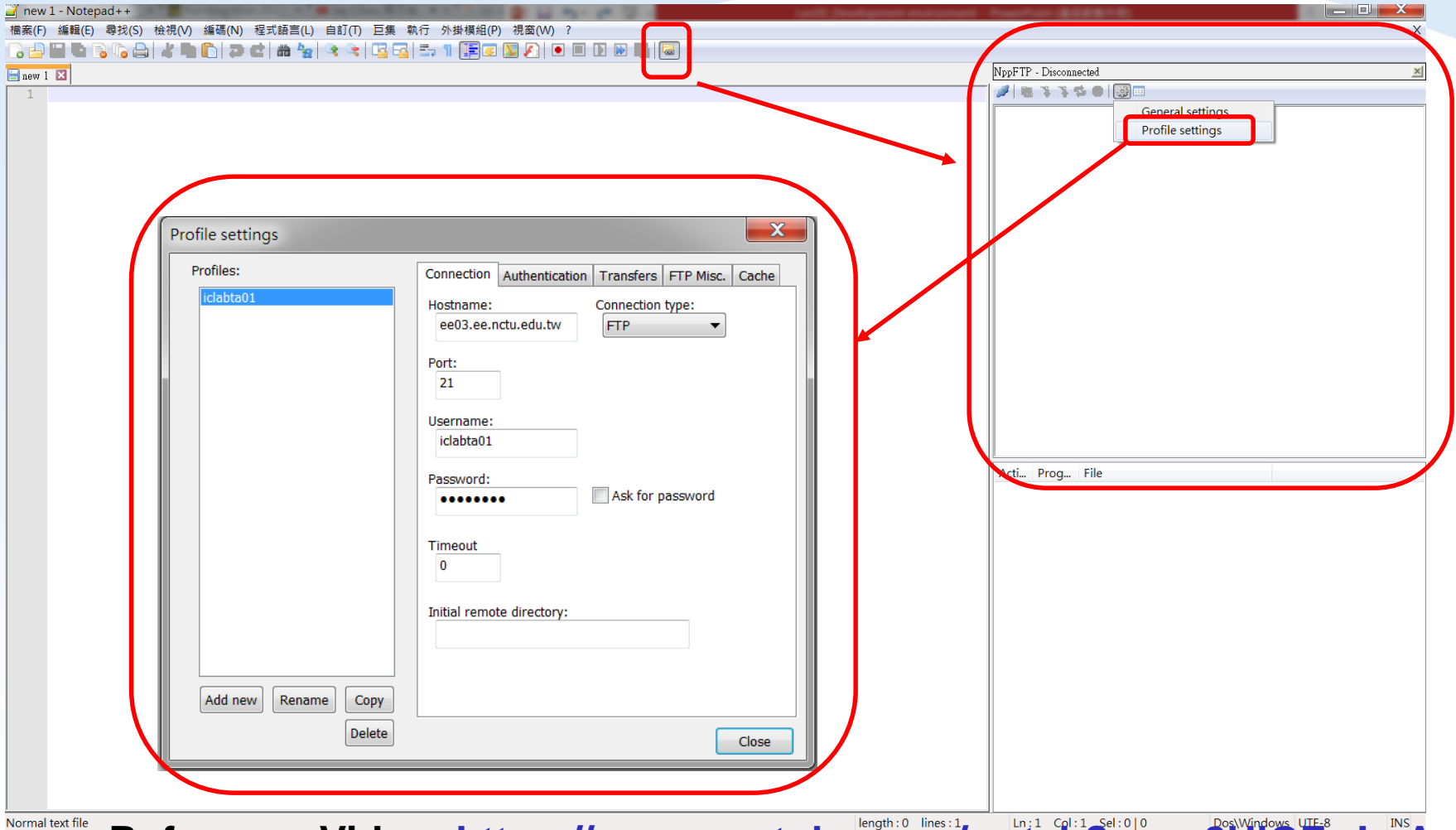
Copyright © Don Ho 2015  
HTML • CSS

Website kindly donated by [ecreate](#)





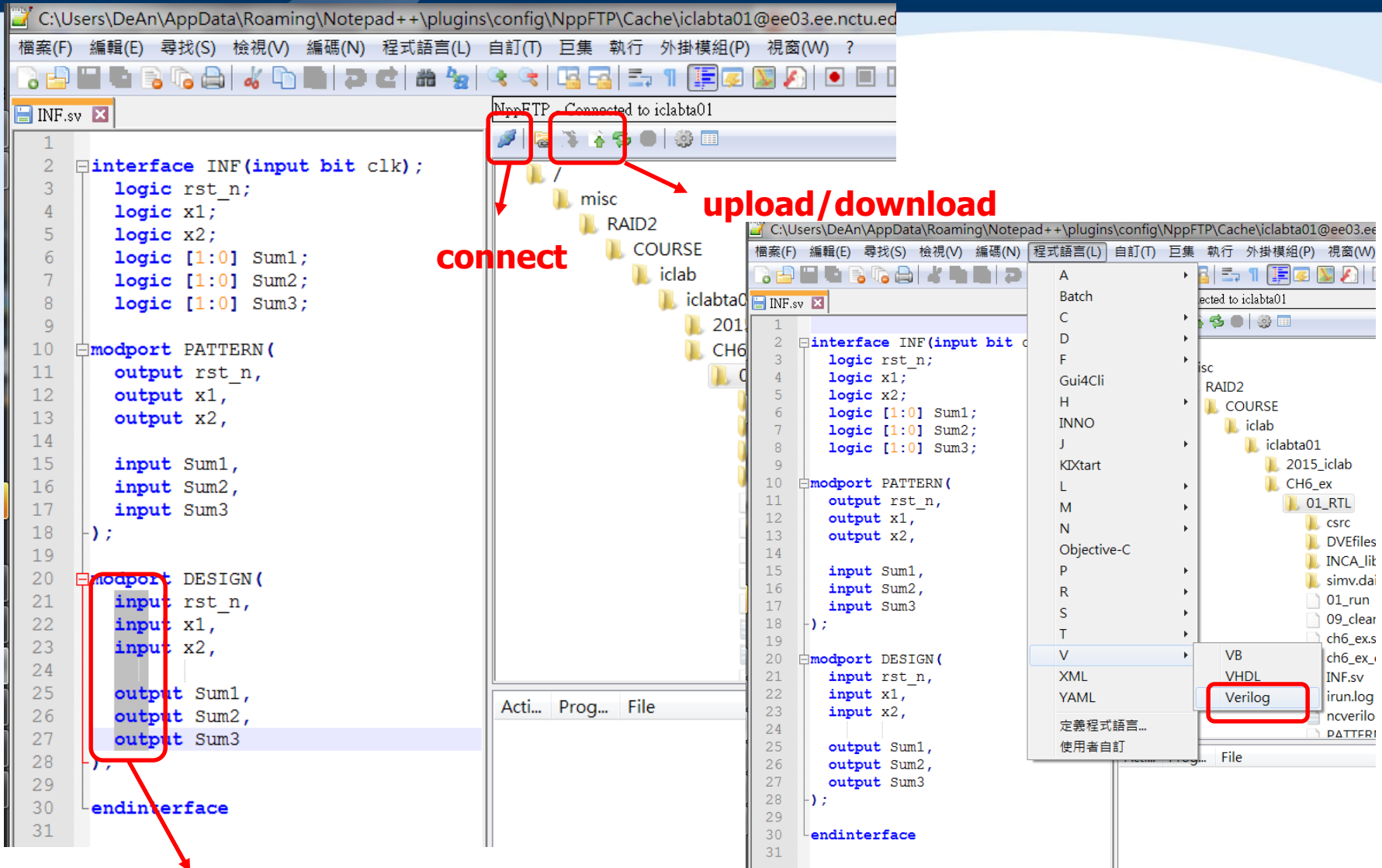
# Text Editor – notepad++ setting



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



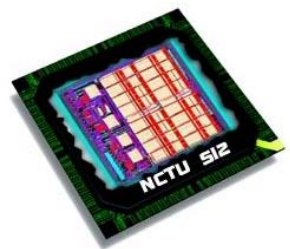
## Text Editor – notepad++



## Edit multi line: Alt + left mouse button

**ICLAB NCTU Institute of Electronics**

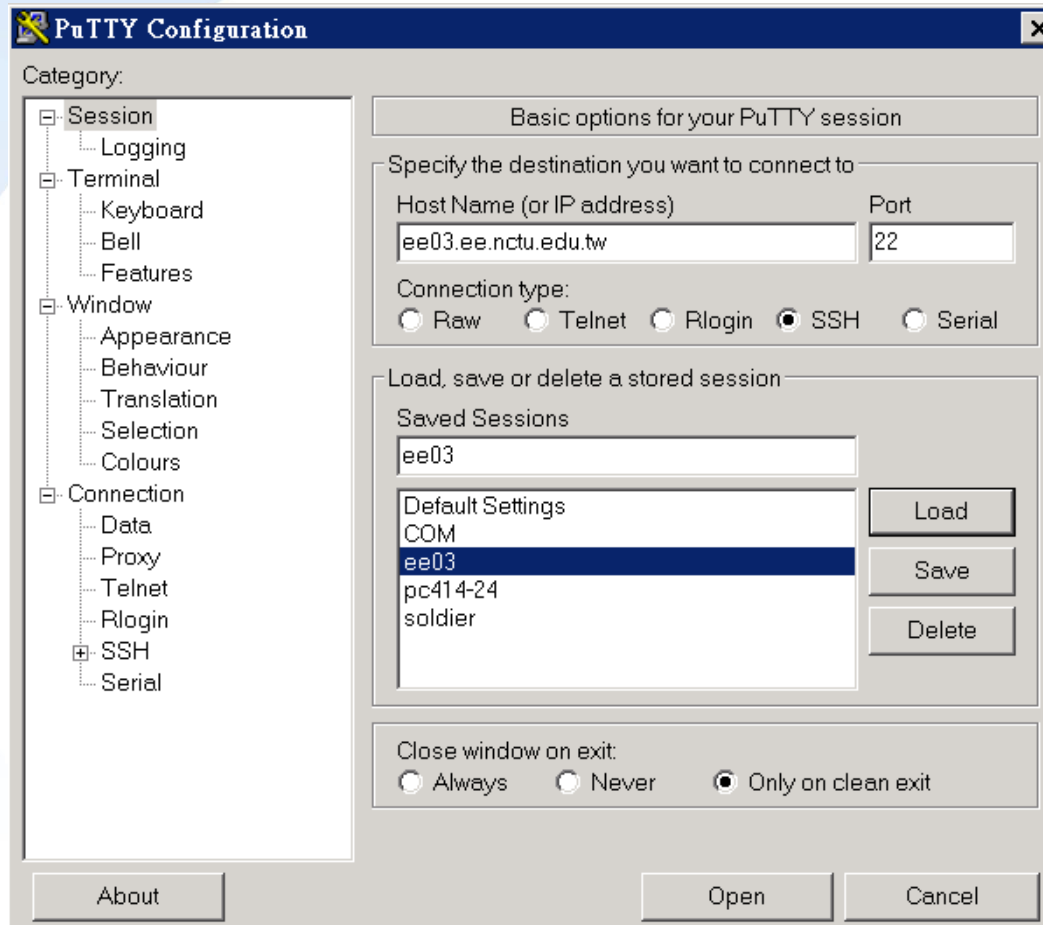
# Putty & Xming



# Putty & Xming

## ✓ Software

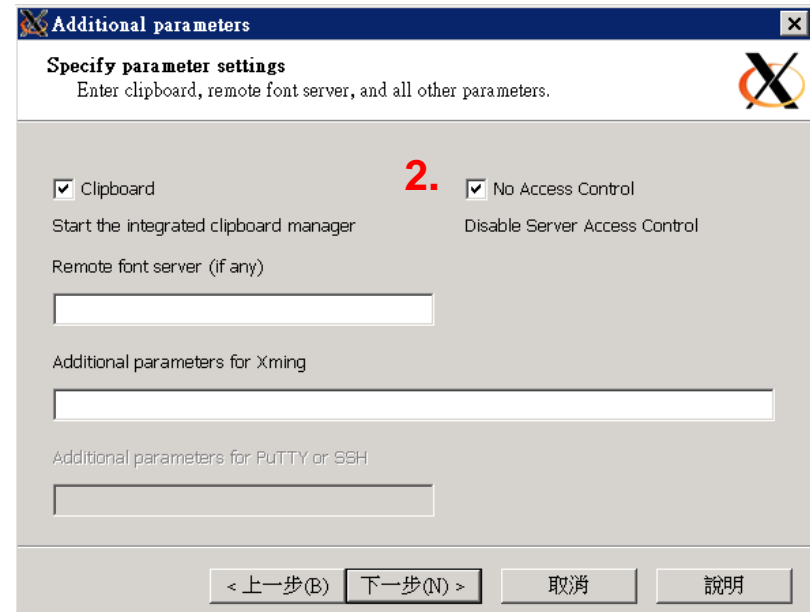
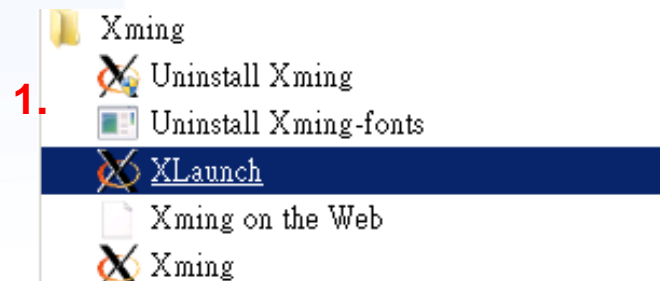
- Putty for connecting work station



# Putty & Xming

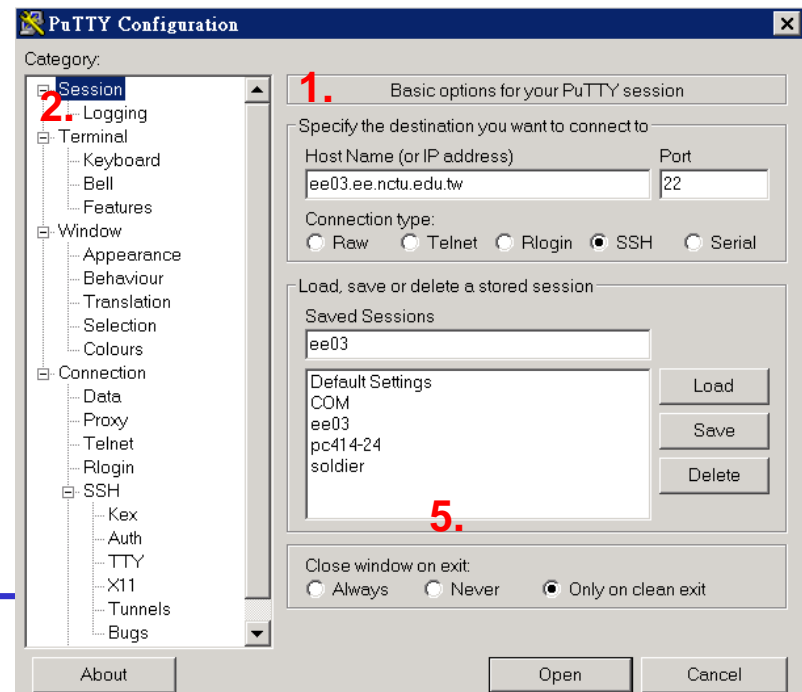
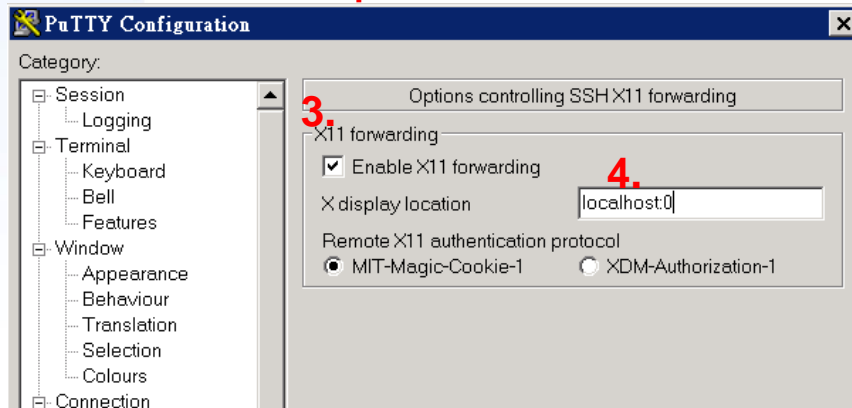
## ✓ Software

- 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



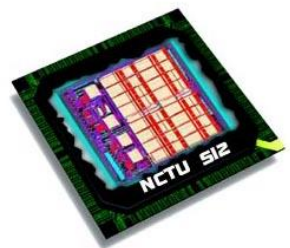
# Putty & Xming

- ✓ 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



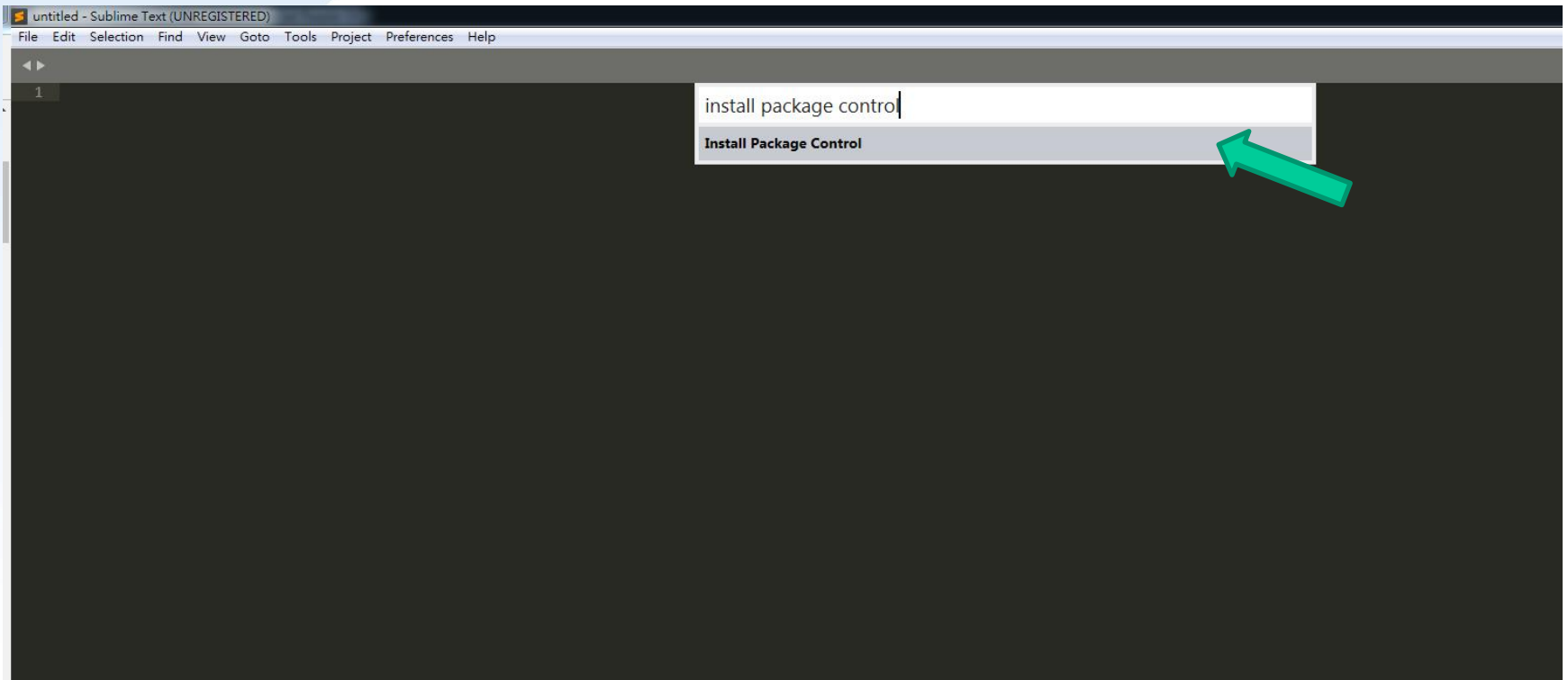
# Step 1 Install Basic Plugin





# Install Package Control

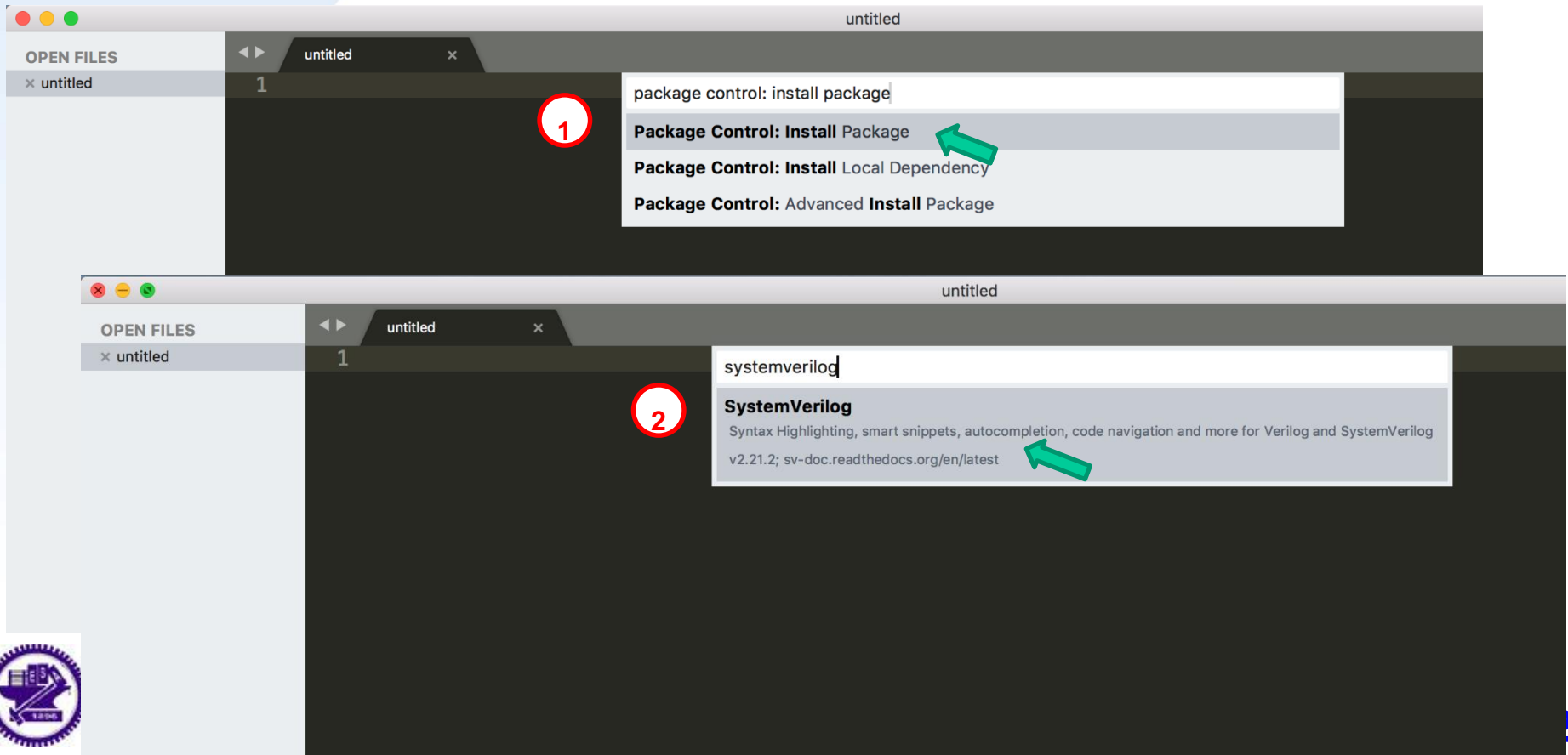
- ✓ For Mac User, Please the following “Ctrl” would be command
- ✓ (Open Command Palette (Ctrl + shift + p) → Type “install package control” → click



# Install SystemVerilog Plugin

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

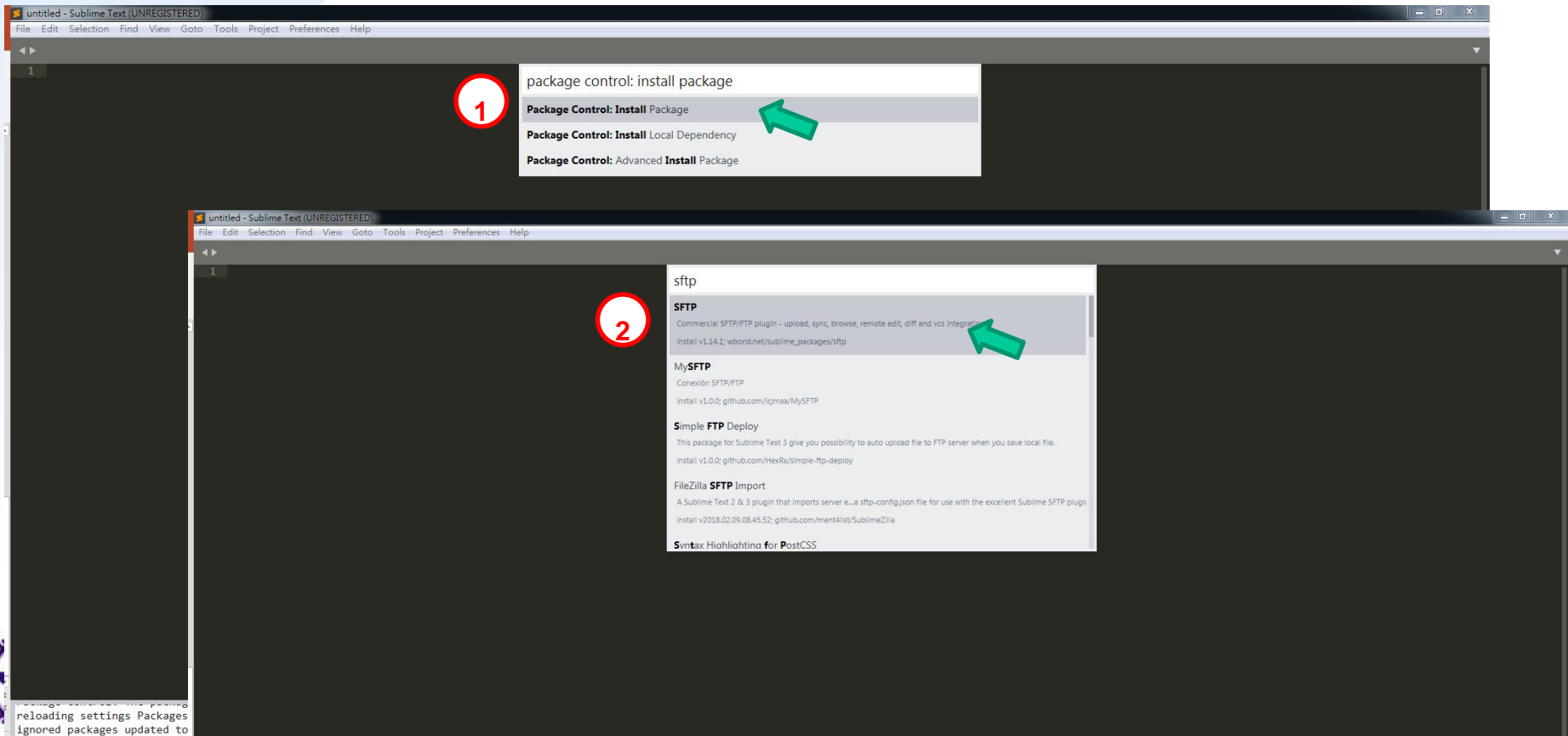
② Type“ SystemVerilog ” → click



# Install SFTP Plugin

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

② Type “ SFTP ” → click

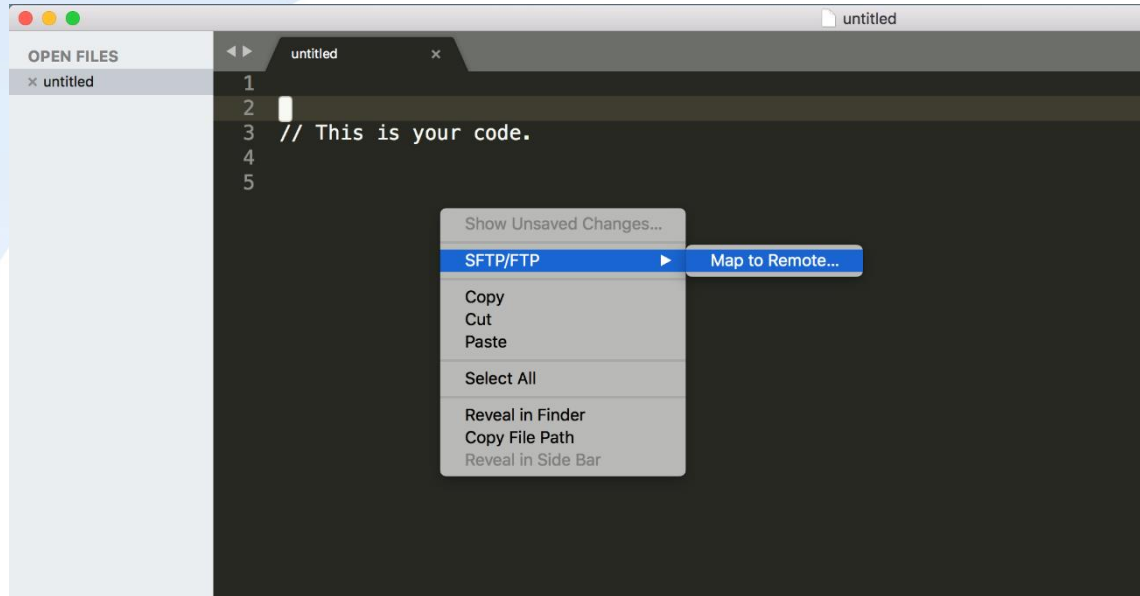


## **Step 2 Using SFTP Plugin to synchronize the remote file**



# 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 obey 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 image shows a code editor with a context menu open over a file. The menu is titled 'SFTP/FTP' and contains several options. The 'Download Folder' option is highlighted in blue. A green callout box with a red border points to this option, containing the text 'Force to download the whole folder to the local host'.

```
14 "confirm_sync": true,  
15 "confirm": true,  
16  
17 "host":  
18 "user":  
19 // "pas  
20 // "por  
21  
22 "remote  
23 "ignore  
24 " \\  
25 "sf  
26 " \\  
27 1,  
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,
```

Context Menu Options:

- Show Unsaved Changes...
- SFTP/FTP
- 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**
- 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...

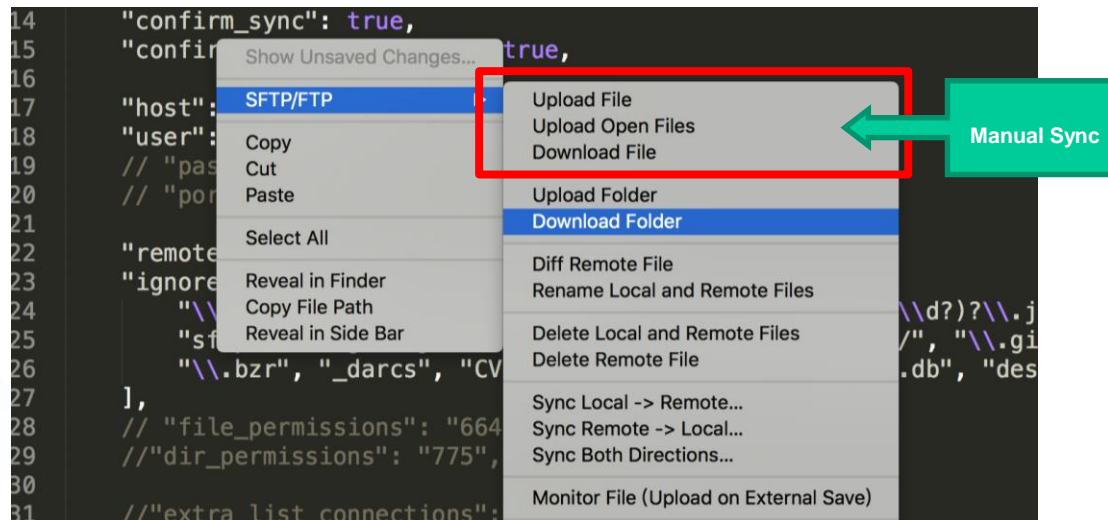
Force to download the whole folder to the local host

# 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)**

