General Lab Guidelines for SC2005 - Operating Systems

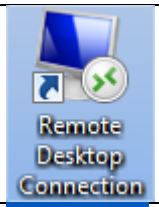
Lab sessions overview

1. **Sign on the attendance sheet**
2. **Free Seating**
3. **Please backup your work regularly to external drive/ email etc.**

Basically you need to remote access to one of the 40 Linux machines to compile/run your code

There are a total of 4 lab sessions :
Lab 1 : Experiment 1 on Nachos Threads
Lab 2 : Experiment 2 on CPU Scheduling
Lab 3 : Experiment 3 on Process Synchronization
Lab 4 : Experiment 4 on Virtual Memory

Software needed

1	**Remote Desktop Connection**		To connect to your Linux workspace
2	**winscp**		For file transfer between PC and remote Linux machine

Linux Account

Username : **NTU email account ID**
(If your email account is ntu123@e.ntu.edu.sg,
your username will be **NTU123**
!!! (Username must be **UPPERCASE**)

Password : **Welcome2SWL** (Case Sensitive)

Please **CHANGE** your password during your first Lab
Issue **yppasswd** command within Linux environment

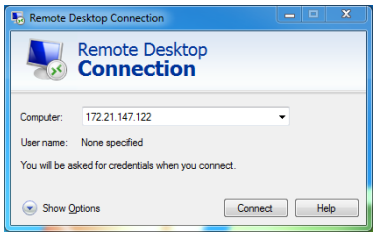
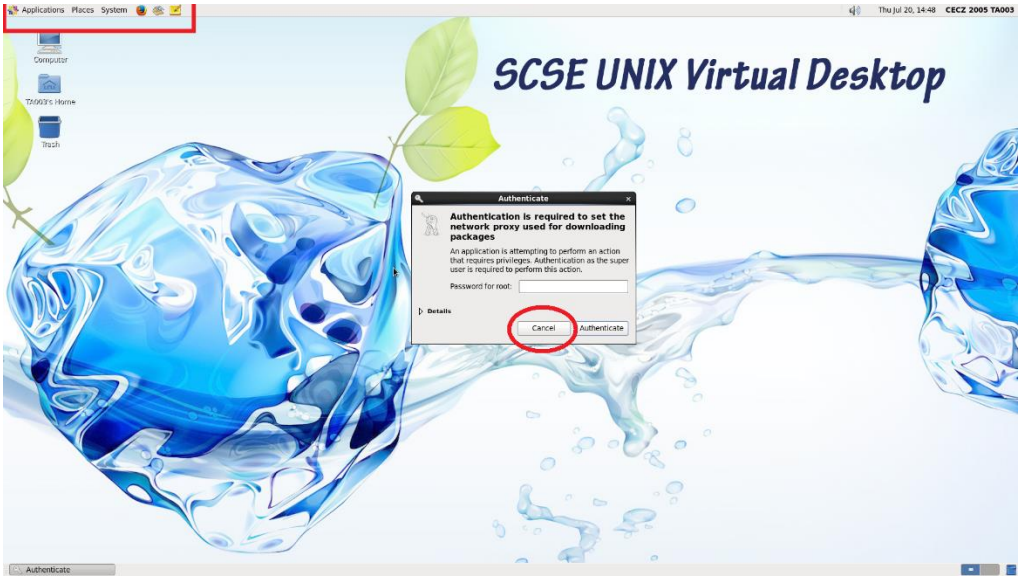
To reset your password (If you forget your password)

1. Send an email to askgchia@ntu.edu.sg stating your group number; you must use your **NTU email account** to send so that we could verify your identity.
2. Or approach the technician with your matriculation card during Lab

Your password will be reset to "**Welcome2SWL**"

Free Access

Other than the free access slots allocated, please proceed to **Software-Projects Lab (N4-B1b-11)** for free access.

Linux Env **Login Info**	1. **Take note of the IP address assigned to your PC** (The assigned IP address is labelled on the PC) Alternatively, refer to "SC2005 PC IP Assignment" section below and copy the corresponding IP address. It is advisable to use the assigned IP address to reduced traffic congestion. 2. **Launch "Remote Desktop Connection" program and use the assigned IP address to connect**  3. **Please wait for the Linux desktop to fully load, you should see the menu bar. Please click "Cancel" on the [Authenticate] windows**  4. **Launch "Terminal"** (For you to run command and compile codes) From Menu Bar, "Applications" -- "System Tools" -- "Terminal" 5. **Follow your Lab manual to complete your lab** 6. **IMPORTANT !!, Please select "System" "Log Out xxxxx" from the menu bar** when you have completed your lab work. Failure to do so might cause future login issue.
Remote Access from other Lab	1. Launch **"Remote Desktop Connection"** program and use any of the 40 IP addresses from **172.21.147.121** to **172.21.147.160**. **For load balancing purpose**, please use a random IP, preferably to use your Lab attendance number as reference. 2. Continue your work (similar to lab)
Remote Access from Home	To remote access from home, you need to 1. use **VPN** to connect to NTU (**only If you are outside NTU**) https://ntuvpn.ntu.edu.sg/dana-na/auth/url_eaI381e5zwvVzivW/welcome.cgi 2. Launch **"Remote Desktop Connection"** program and use any of the 40 IP addresses from **172.21.147.121** to **172.21.147.160**. **For load balancing purpose**, please use a random IP, preferably to use your Lab attendance number as reference. 3. Continue your work (similar to lab)

Common command	make ---------- to compile your code make clean ----- to delete all the already compiled object files ./nachos --------- to run your compiled nachos code ./nachos -d ----- to run your compiled nachos code with detail output ./nachos -d > file.txt --- to run your compiled code and output the result to a file name file.txt yppasswd ------ to change your account password

SC2005 PC IP Assignment

Please choose the IP address corresponding to the PC which you are using

PC Number	IP address to use		PC Number	IP address to use
PC1	172.21.147.121		PC21	172.21.147.141
PC2	172.21.147.122		PC22	172.21.147.142
PC3	172.21.147.123		PC23	172.21.147.143
PC4	172.21.147.124		PC24	172.21.147.144
PC5	172.21.147.125		PC25	172.21.147.145
PC6	172.21.147.126		PC26	172.21.147.146
PC7	172.21.147.127		PC27	172.21.147.147
PC8	172.21.147.128		PC28	172.21.147.148
PC9	172.21.147.129		PC29	172.21.147.149
PC10	172.21.147.130		PC30	172.21.147.150
PC11	172.21.147.131		PC31	172.21.147.151
PC12	172.21.147.132		PC32	172.21.147.152
PC13	172.21.147.133		PC33	172.21.147.153
PC14	172.21.147.134		PC34	172.21.147.154
PC15	172.21.147.135		PC35	172.21.147.155
PC16	172.21.147.136		PC36	172.21.147.156
PC17	172.21.147.137		PC37	172.21.147.157
PC18	172.21.147.138		PC38	172.21.147.158
PC19	172.21.147.139		PC39	172.21.147.159
PC20	172.21.147.140		PC40	172.21.147.160

Optional

Optional

For information only

Alternative method to access your Linux environment

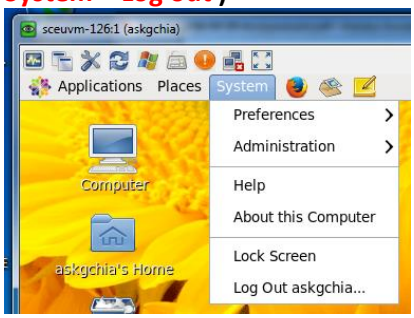
You do not need to use this if you are using "Remote Desktop Connection" to connect to the Linux workspace

1. Refer to "**CE-CZ2005 PC IP Assignment**" section above **and copy the corresponding IP address**
   It is advisable to use the IP address corresponding to the PC number which you are using to connect to the remote Linux machine.
2. Execute **"putty"** program
3. **Paste the IP address** into **putty,** leave the port as **22,** connection type is **SSH** and **click open, select "Yes"** when prompted
4. Login using
   Username : **NTU email account ID**
   (if your email address is ntu123@e.ntu.edu.sg, your username will be **NTU123**
   !!! (Username must be **UPPERCASE**)
   Password : **Welcome2SWL** (Case sensitive)

If you are comfortable with command line mode, you can do all your labs using command mode, it will be much faster and you do not need VNC (You do not need step 5 onwards)

Step 5 onwards allows you to connect to the remote Linux machine in graphical mode.

5. Type the following command in **putty** to start vncserver for GUI connection
   vncserver -geometry 1600x900
6. **!!Take note** on the display number that appear after issuing vncserver command (eg sceuvm-121**:1**, you will need it later in step 10, the **:1** is the display number)
7. **Choose a VNC password**, you need to retype password again to confirm, if you need to change your VNC password later, you could issue "vncpasswd" command
8. **Run "UltraVNC viewer"** (on desktop)
   Use the IP address from **step 1** and display number from **step 8** to connect
   Eg. 172.21.147.125:1
9. Use the password in **step 9** when prompted
10. Continue your lab, you can only compile/run your code in "Terminal" (To open Terminal : select Applications, System Tools and finally Terminal)
11. **IMPORTANT !!**
    You need to **logout** your remote GUI session when you finish your lab **(Select System – Log out)**



common VNC command

vncpasswd ------ to change your VNC password

vncserver -geometry 1600x900 --- to start a VNC session with display size of 1600x900

vncserver -list ---- to list currently running VNC session