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Section I – Remote Access Setting

In these series of labs, we will learn how to use tools to design, analyze and verify “semi-custom” VLSI systems. These tools can be accessed through the UNIX machines installed in the UNIX lab at the EECS Department. However, since the number of machines is limited and classroom might not be always available, we often need remote access to the UNIX system from PC, Mac or Linux. This section will teach you how to set it.

Remote Access from PC

1. Download MobaXterm v10.9

<https://mobaxterm.mobatek.net/download-home-edition.html>

You can choose the installer as ‘exe’ to install it into your computer or just download the portable edition

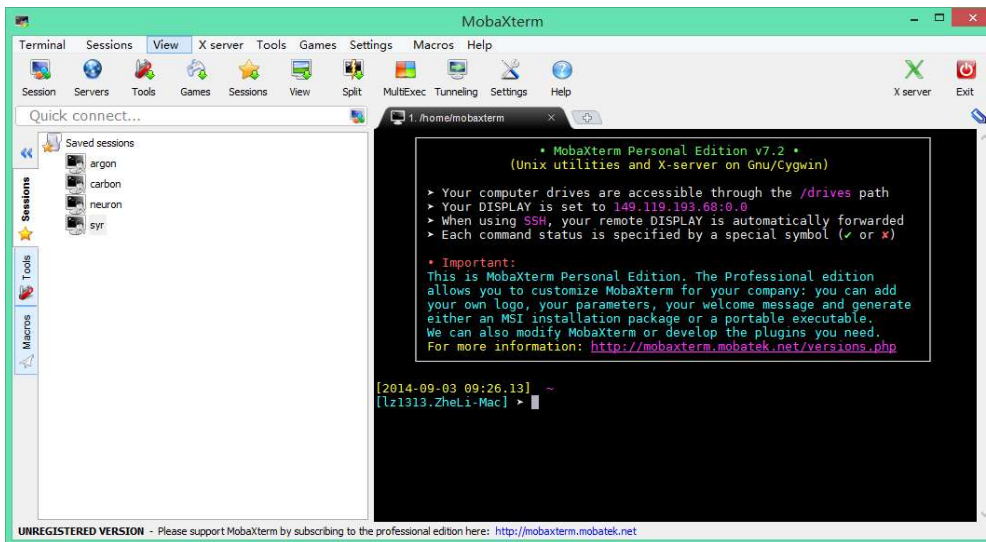
2. Configure MobaXterm

If you want to connect university server at home, you need to use SURA to access university’s network first.

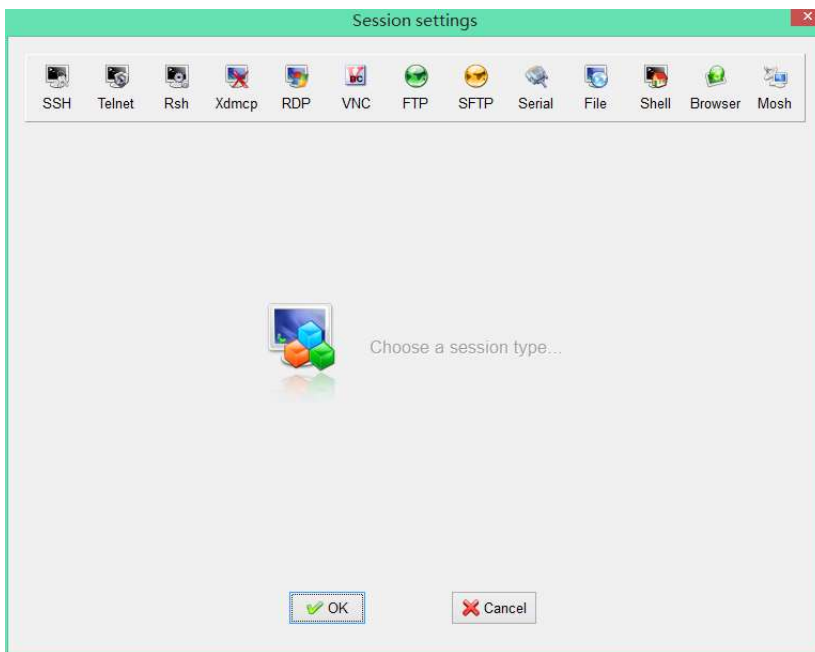
For SURA, please follow this link as reference

<https://its.syr.edu/infosec/SURA.html>

Run MobaXterm_Personal_10.9.exe if you download portable edition, or click the shortcut on desktop, a window as follow will show up.



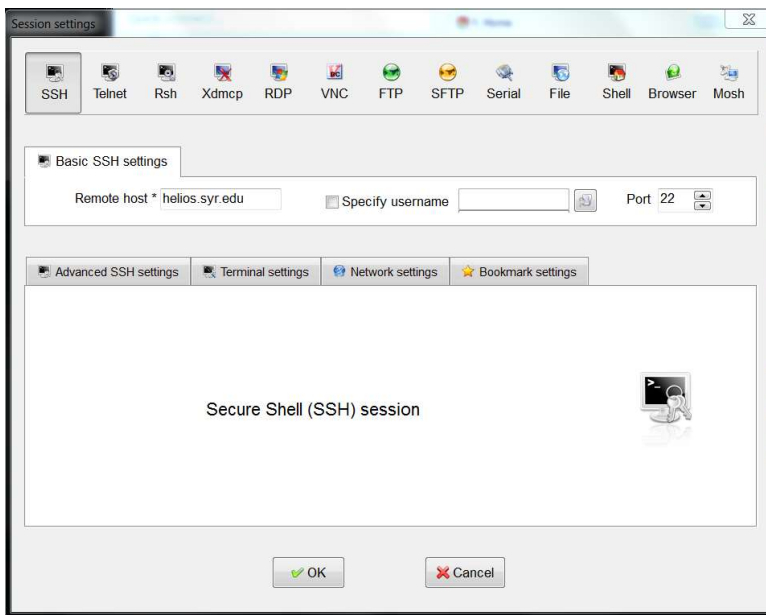
Click “Session” on the top left,



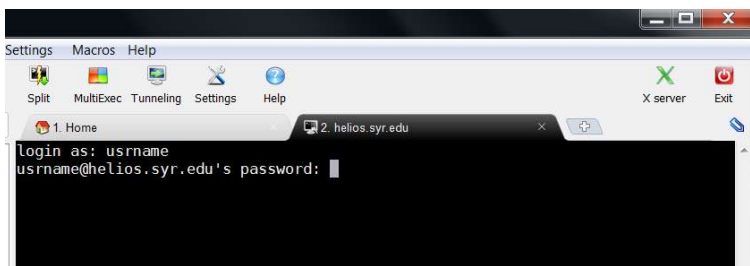
Click “SSH” on the top left, and enter university server address (*ecs-linux.syr.edu*) in the remote host blank, make sure the port number is 22. You can give the session a name, or just ignore it, the software will use host address as session name. The click OK.

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Lab0 – Remote Access and Basic Commands in Linux OS



Double click the session you just created in the left block. And enter your username and password on the right terminal. (Assuming the username is abcabc). You can specify your username by checking “Specify username”, so that the software will remember your credential after first login, and you don’t need to enter password every time. **The username and password are your netID (the same as you login Myslice), if not please contact ITS help@ecs.syr.edu to check your account.**



Remote Access from Sun workstations

Input your ECS username and password to log onto the workstation.

To open a new terminal, right click to your desktop, then choose **Hosts -> New Terminal**

Remote Access from Mac OS or Ubuntu

For Mac OS users, you can use X11 utility preinstall in your computer to ssh to our **ecs-linux.syr.edu** server. X11 has become obsolete on later Mac machines and you should use **Xquartz** instead. For the first time you use, you

can still open the X11 and it will give you a prompt and then take to the download site of Xquartz. Download Xquartz and install it.

<http://xquartz.macosforge.org/downloads/SL/XQuartz-2.7.7.dmg>

For Ubuntu users, you just open a terminal and you will be able to ssh to remote server, since the Ubuntu terminal already has X-utility and ssh-utility.

Type the following command [assuming your username is abc01]:

```
ssh -X ecs-linux.syr.edu -l abc01
```

Note: type uppercase X otherwise the X11 forwarding is not enabled and remote server will not forward display/UI to your local machine.

Then you will be prompted to type in your user password to log in.

Section II – Get Familiar with Linux OS and Cadence

Getting familiar with Linux OS

You need to be able to create and edit files/directories under Linux environment. Here are some exercises. If you are already familiar with Linux OS, you can skip this section and go to next section. In this section, the texts in ***bold italic*** are the commands that need to be typed in. For each command, a short description is provided.

1. ***pwd***

Find out your current directory. The returned value should be something like: /u0/users/4/username. This is your “home directory”. You will always be in this directory right after opening a Linux session. Sometimes your home directory is also denoted as “~”.

2. ***mkdir cse664***

Create a new directory called cse464 under your home directory

3. ***ls***

List all the files and directories under the current directory

4. ***cd cse664***

Enter cse464 directory

5. ***mkdir tutorial***

ls

cd tutorial [or cd ..]

pwd

“.” represents the current directory, “..” represents the parent directory.

6. ***rmdir tutorial***

delete the folder named “tutorial”

7. ***cd***

Using command ***cd*** without providing any directory name will send you back to your home directory. Using ***cd*** with ***..*** will send you to the upper directory

8. Create a file called `exercise.txt` and type in the following words:

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CSE664 tutorial

Feel free to use any text editing software that you are comfortable with. Some commonly used text edit include: `gedit`, `emacs`, `pico`, and `vi`. `gedit` is probably more user friendly because it has a GUI (graphical user interface). To invoke the tool, just type in the tool name or the tool name followed by your file name. For example:

`gedit exercise.txt`

or: **`gedit exercise.txt &`**

putting “&” at the end of a command gives you the control to the cursor after you open an application. Please try these two commands to see the difference.

9. **`rm exercise.txt`**

Delete the file you just created

10. **`cp source destination`**

Copy a file from one folder to another (from the source directory to the destination directory). Consider file name is `ex1.txt` in `~username/folder1`. To copy `ex1.txt` from `~username/folder1` to `~username/folder2`, do the

`cp ex1.txt ~username/folder2` [If Current directory is folder1]

or: **`cp ~username/folder1/ex1.txt .`** [If Current directory is folder2]

11. **`mv source destination`**

Move a file from one folder to another (from the source directory to the destination directory).

If we want to move `ex1.txt` from `folder1` to `folder2`, do the

`mv ex1.txt ~username/folder2/` [If Current directory is folder1]

12. **`tar -cvf`**

we can use this command to package multiple files onto one TAR file.

To generate a TAR file [Assuming your folder name for Lab1 is `yourname_lab1`], do the

`tar -cvf yourname_lab1.tar yourname_lab1`

Then you will get ***yourname_lab1.tar*** in your current directory

13. ***gzip***

ZIPPING the TAR file. The command is

gzip yourname_lab1.tar

Then you will get ***yourname_lab1.tar.gz*** in your current directory

14. ***gunzip*** and ***tar -xvf***

Decompress and Unpack using UNTAR and UNZIP

To UNZIPPING the ZIPPED (***yourname_lab1.tar.gz***) file, do the

gunzip yourname_lab1.tar.gz

Then you will get ***yourname_lab1.tar*** in your current directory

To get the final folder, you need keep UNTAR that file, do the

tar -xvf yourname_lab1.tar

Then you will get a folder named ***yourname_lab1*** in your current directory

15. ***unzip***

If the compressed file is in the format of ***.zip***, use unzip to extract the file.

16. ***quota -v***

Check ECS account quota

Getting started with Synopsys

This section, we will try to invoke Synopsys.

In your terminal window, connect to Synopsys servers by running the following script:

qsh

Run the following script to setup the Synopsys environment

syn

A new terminal will pop up. This is where you run the HSPICE from.