

Tutorial for Server

1. Activate Account

~~Activate your account by login this link https://www.math.ust.hk/sys/linux_account, then your account will be activated after around 15mins.~~

Your need to make sure that you have connected to hkust WIFI to do all of the following steps. If you can not connect to the hkust wifi, then you can install hkust VPN with this instruction <https://itsc.ust.hk/services/cyber-security/vpn>.

2. Login the Server

For Mac user: just open your terminal

For Win10 user: use Win+R and type cmd to open the windows terminal.

The following figures are based on win10 terminal which is similar to Mac.

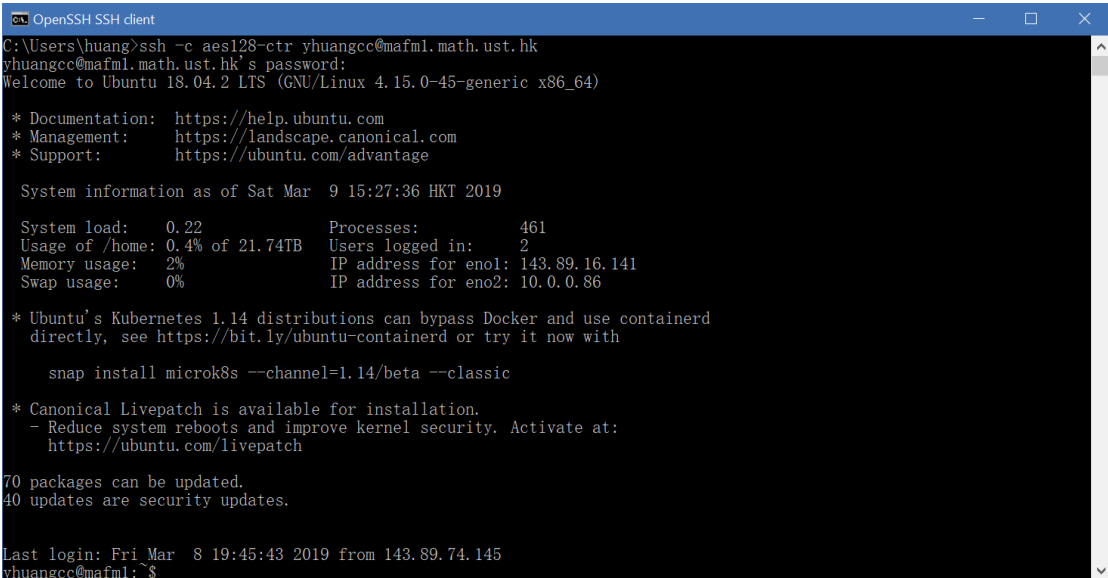
After opening the terminal, type

`ssh your_account@mafm1.math.ust.hk`

or

`ssh -c aes128-ctr your_account@mafm1.math.ust.hk`

then typing your password and waiting for about 1mins, you will be able to login successfully with the following figure.



```
OpenSSH SSH client
C:\Users\huang>ssh -c aes128-ctr yhuangcc@mafm1.math.ust.hk
yhuangcc@mafm1.math.ust.hk's password:
Welcome to Ubuntu 18.04.2 LTS (GNU/Linux 4.15.0-45-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Sat Mar  9 15:27:36 HKT 2019

System load:  0.22          Processes:    461
Usage of /home: 0.4% of 21.74TB  Users logged in:  2
Memory usage:  2%          IP address for eno1: 143.89.16.141
Swap usage:    0%          IP address for eno2: 10.0.0.86

 * Ubuntu's Kubernetes 1.14 distributions can bypass Docker and use containerd
   directly, see https://bit.ly/ubuntu-containerd or try it now with

   snap install microk8s --channel=1.14/beta --classic

 * Canonical Livepatch is available for installation.
   - Reduce system reboots and improve kernel security. Activate at:
   https://ubuntu.com/livepatch

70 packages can be updated.
40 updates are security updates.

Last login: Fri Mar  8 19:45:43 2019 from 143.89.74.145
yhuangcc@mafm1: $
```

3. Install Anaconda **Attention: If anaconda already exists, please ignore this step.**

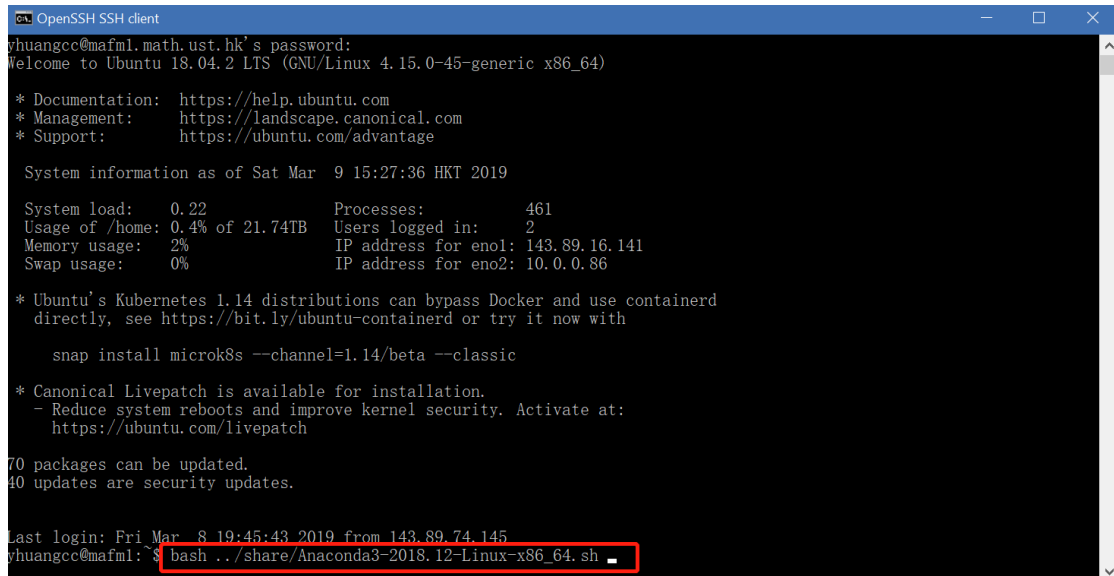
After login to the server, type

`bash ../share/Anaconda3-2018.12-Linux-x86_64.sh`

to install Anaconda like the following figure. (make sure to accept everything except the last

one which will ask you whether to install VScode)

Then after about 2mins, anaconda will be installed in your server.



```
OpenSSH SSH client
yhuangcc@mafml.math.ust.hk's password:
Welcome to Ubuntu 18.04.2 LTS (GNU/Linux 4.15.0-45-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Sat Mar  9 15:27:36 HKT 2019

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Usage of /home: 0.4% of 21.74TB  Users logged in:  2
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   snap install microk8s --channel=1.14/beta --classic

 * Canonical Livepatch is available for installation.
   - Reduce system reboots and improve kernel security. Activate at:
     https://ubuntu.com/livepatch

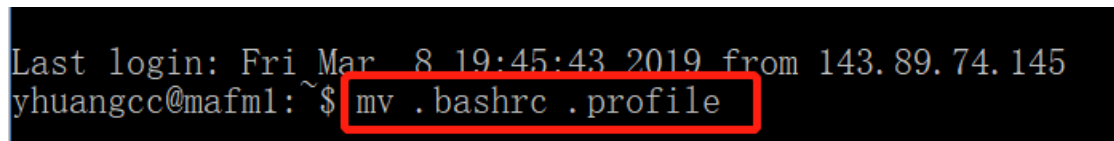
70 packages can be updated.
40 updates are security updates.

Last login: Fri Mar  8 19:45:43 2019 from 143.89.74.145
yhuangcc@mafml:~$ bash ../share/Anaconda3-2018.12-Linux-x86_64.sh
```

After installing the anaconda, type

`mv .bashrc .profile`

to tell the server anaconda's path



```
Last login: Fri Mar  8 19:45:43 2019 from 143.89.74.145
yhuangcc@mafml:~$ mv .bashrc .profile
```

Finally, type

`exit`

to close the server and login the server again to activate the anaconda.

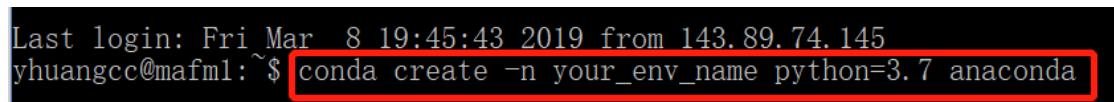
4. Create your own Anaconda Environment

When using anaconda, usually we need to create different python environment for our different experiments. So we shall know how to create the environment within anaconda.

Type

`conda create -n your_env_name python=3.7 anaconda9`

to create your anaconda environment with python version 3.7 and its name your_env_name (any name you like).



```
Last login: Fri Mar  8 19:45:43 2019 from 143.89.74.145
yhuangcc@mafml:~$ conda create -n your_env_name python=3.7 anaconda
```

After accepting everything, this environment will be installed in your server.

Whenever you want to use this environment, make sure to type

`source activate your_env_name`

to activate this environment.

```
Last login: Fri Mar  8 19:45:43 2019 from 143.89.74.145
yhuangcc@mafml:~$ source activate mafs6010u
(mafs6010u) yhuangcc@mafml:~$
```

Also you can see all environments within your anaconda by typing
`conda env list`

```
Last login: Fri Mar  8 19:45:43 2019 from 143.89.74.145
yhuangcc@mafml:~$ source activate mafs6010u
(mafs6010u) yhuangcc@mafml:~$ conda env list
# conda environments:
#
base                /home/yhuangcc/anaconda3
mafs6010u            * /home/yhuangcc/anaconda3/envs/mafs6010u
(mafs6010u) yhuangcc@mafml:~$
```

5. Open your jupyter notebook in server

In order to use this server conveniently, we will teach you how to use jupyter notebook in your local computer. If you are not familiar with jupyter notebook, you can refer to this tutorial <http://cs231n.github.io/ipython-tutorial/>. (jupyter notebook is the one of the best way to share your program and figures)

Typing

`jupyter notebook --no-browser`

to start jupyter notebook in server.

```
(mafs6010u) yhuangcc@mafml:~$ jupyter notebook --no-browser
[C 15:57:19.540 NotebookApp] JupyterLab extension loaded from /home/yhuangcc/anaconda3/envs/mafs6010u/lib/python3.7/site
-packages/jupyterlab
[C 15:57:19.540 NotebookApp] JupyterLab application directory is /home/yhuangcc/anaconda3/envs/mafs6010u/share/jupyter/l
ab
[C 15:57:19.541 NotebookApp] Serving notebooks from local directory: /home/yhuangcc
[C 15:57:19.541 NotebookApp] The Jupyter Notebook is running at:
[C 15:57:19.541 NotebookApp] http://localhost:8888/?token=2876b89a7223888fb94c2db718f35f541db895bed9c47446
[C 15:57:19.541 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).
[C 15:57:19.544 NotebookApp]

To access the notebook, open this file in a browser:
file:///home/yhuangcc/.local/share/jupyter/runtime/nbserver-7593-open.html
Or copy and paste one of these URLs:
http://localhost:8888/?token=2876b89a7223888fb94c2db718f35f541db895bed9c47446
```

Finally you start jupyter notebook in the server, but now you are not able to use it in your local computer, so next we will tell you how to connect your local computer to the server.

And remember this

```
To access the notebook, open this file in a browser:
file:///home/yhuangcc/.local/share/jupyter/runtime/nbserver-7593-open.html
Or copy and paste one of these URLs:
http://localhost:8888/?token=2876b89a7223888fb94c2db718f35f541db895bed9c47446
```

6. Connect your local computer to the server

Open **another** terminal and just type the following command (**here 8888 should all be changed to the return of your jupyter notebook in the following picture because different people will have different localhost ip address**)

```
To access the notebook, open this file in a browser:  
file:///home/yhuangcc/.local/share/jupyter/runtime/nbserver-7593-open.html  
Or copy and paste one of these URLs:  
http://localhost:8888/?token=2876b89a7223888fb94c2db718f35f541db895bed9c47446
```

```
ssh -c aes128-ctr -N -f -L localhost:8888:localhost:8888 yhuangcc@mafm1.math.ust.hk
```

or

```
ssh -N -f -L localhost:8888:localhost:8888 yhuangcc@mafm1.math.ust.hk
```

```
C:\Users\huang>ssh -c aes128-ctr -N -f -L localhost:8888:localhost:8888 yhuangcc@mafm1.math.ust.hk  
yhuangcc@mafm1.math.ust.hk s password:
```

with your password, if it returns nothing, it means your are successful.

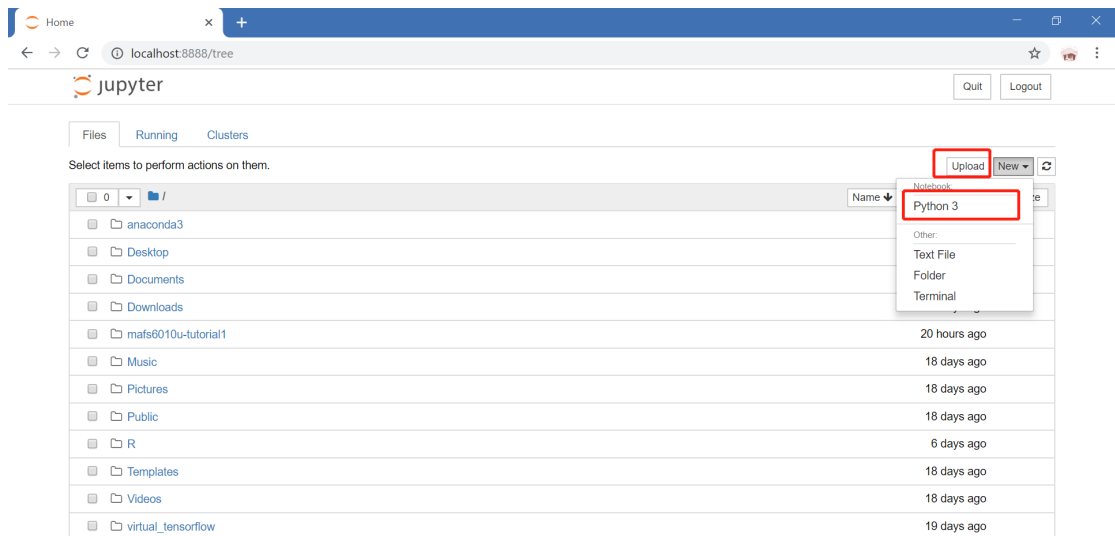
7. Open jupyter notebook in your local computer

After starting the jupyter notebook in the server and connecting to the server with your local computer, then finally you can use the jupyter notebook in your own computer. (your all experiments will be run in the server)

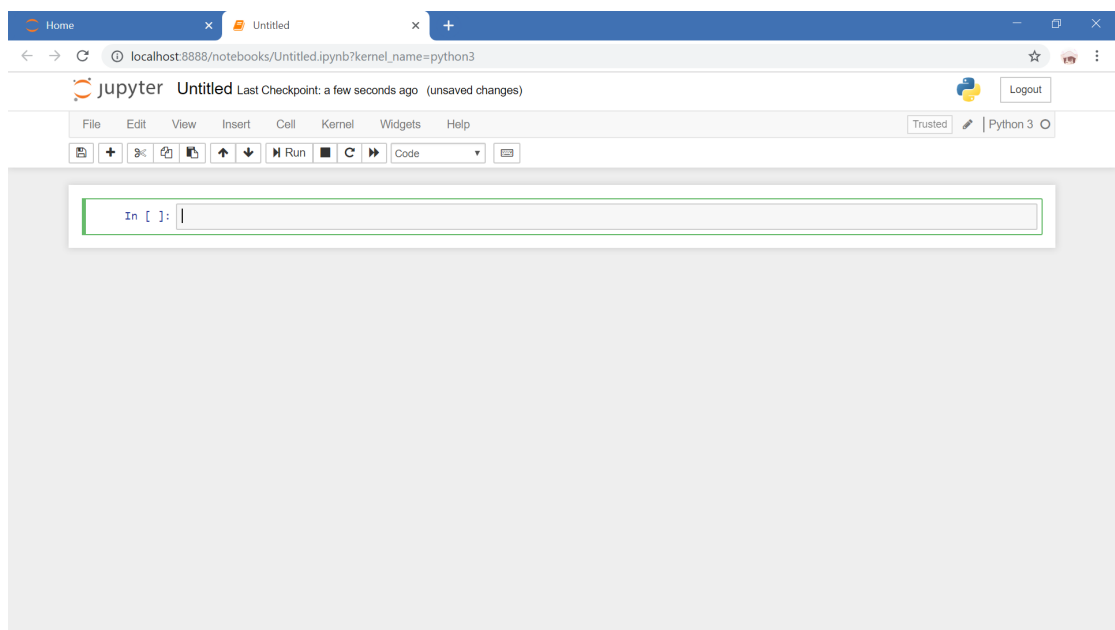
Just copy this line got in the step 5 in to your own computer's browser

```
To access the notebook, open this file in a browser:  
file:///home/yhuangcc/.local/share/jupyter/runtime/nbserver-7593-open.html  
Or copy and paste one of these URLs:  
http://localhost:8888/?token=2876b89a7223888fb94c2db718f35f541db895bed9c47446
```

Then you will get this



If you want to upload the file in your local computer to the server, just click upload.
If you want to new a jupyter notebook, just click New—Python 3



If you want to download the file from server to your local computer, just click File—Download as

