Using VsCode on Grace (with MacOS)

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1 SSH Setup

To set SSH up on VsCode, first install the Remote - SSH exension from Microsoft via the Extensions: Marketplace. Next, you will have to generate your key pair. The instructions can be found on the YCRC SSH docs. For completeness, I state how I set up my configuration on my MacOS machine. The documentation is copied from the YCRC SSH documentation. Open your terminal and type:

```
ssh-keygen
```

Your terminal should respond:

```
Generating public/private rsa key pair.
Enter file in which to save the key (/home/yourusername/.ssh/id_rsa):
```

Press Enter to accept the default value.[1] Your terminal should respond:

```
Enter passphrase (empty for no passphrase):
```

Enter a secure password. The response will be:

```
Enter same passphrase again:
```

Next, upload your public SSH key on the cluster. Run the following command in terminal to copy the contents of your public SSH key[2]

```
cat ~/.ssh/id_rsa.pub
```

Next, head to the SSH key uploader and paste the contents.

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[1] If you have already created an SSH key, chances are the id_rsa name is already in use and you will want to rename it. For example, I had my GitHub key using my id_rsa ssh-key so I named mine id_rsa_grace.

[2] Replace id_rsa.pub with the name of your ssh key if you did not use the default name.

2 Connecting to Grace

To make connecting to Grace more simply, we will modify our ssh configuration file. Open your terminal and head to your ssh-directory.

```
cd ~/.ssh
```

Open your config file (in the editor of your choice) located at `/.ssh/config`.[3] A simple way to do this is to run

```
vim config
```

from the current directory. Paste the following contents into the file[4]

```
# ENSURE THIS POINTS TO YOUR SSH KEY THAT YOU UPLOADED TO GRACE
IdentityFile ~/.ssh/id_rsa_grace

# Uncomment the ForwardX11 options line to enable X11 Forwarding by default
# (no -Y necessary)
# On a Mac you still need xquartz installed

Host *.ycrc.yale.edu grace
    User cpsc424_rp862          # REPLACE THIS WITH YOUR YOUR NET ID
    ForwardX11 yes
    # To re-use your connections with multi-factor authentication
    # Uncomment the two lines below
    ControlMaster auto
    ControlPath ~/.ssh/tmp/%h_%p_%r

Host grace
    HostName %h.ycrc.yale.edu
```

Now, in VsCode, hit `Shift + Command + P` to open the command palette and enter `Remote-SSH: Connect to Host`. You will be presented with the option 'grace' in the list of options. Select it and a new window will open up prompting you for the password to your ssh key. Your visual studio code now can edit files on Grace.

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[3]Create the file if it does not exist.

[4]It is VERY important you point to the right `IdentityFile` and replace the `User` with your `cpsc424_YOURNETID`.