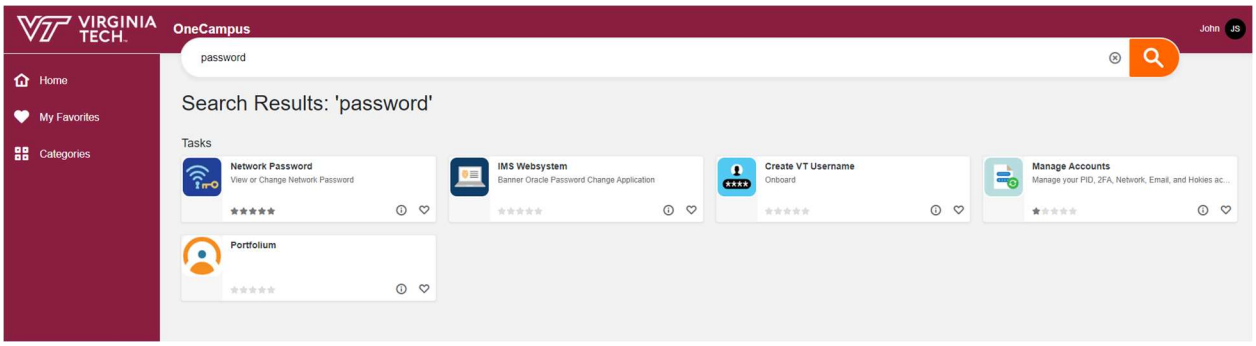
VT ARC - Quick Setup Guide

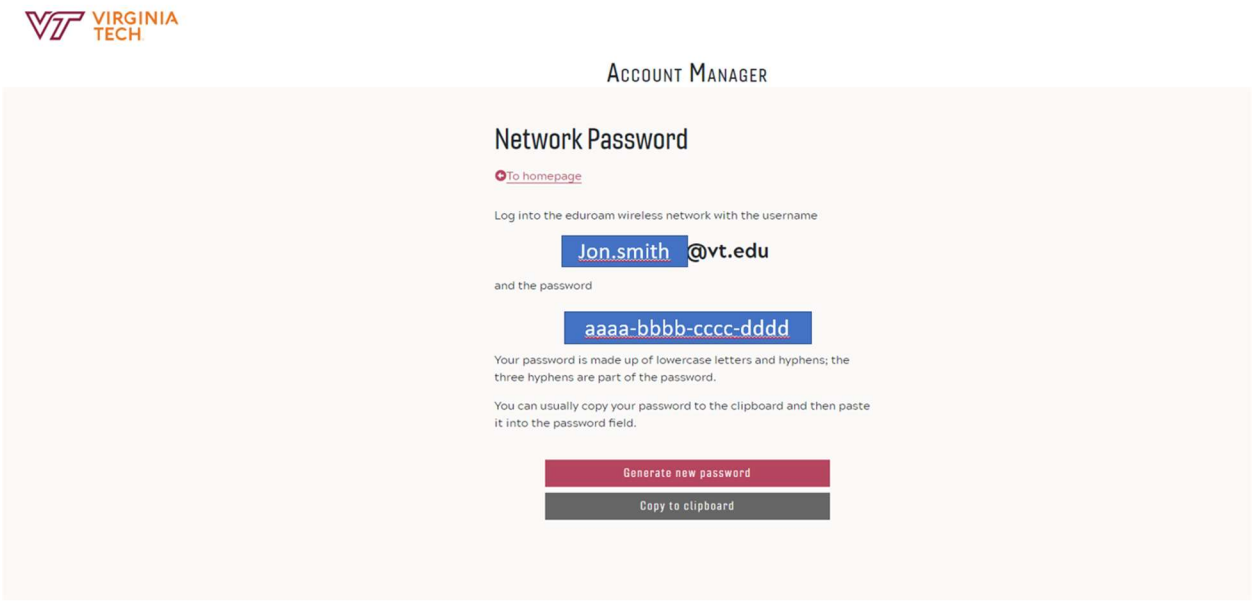
Transcribed by John Smutny for ARC on 03/23/2023 for ECE6524 Deep Learning

Contents

1. Find your VT VPN Username and Password

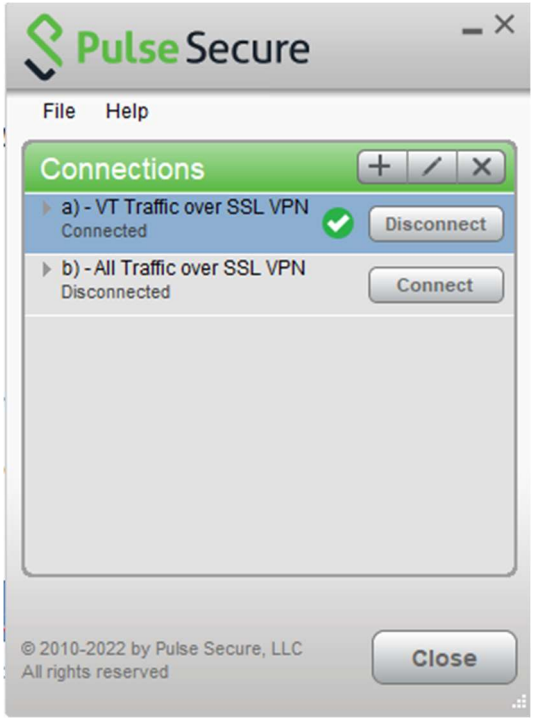
a. Original Instructions:
   i. *View, Change, or Reset Network Password* section here: https://4help.vt.edu/sp?id=kb_article_view&sysparm_article=KB0010084&sys_kb_id=a88e3dd11b1da5100aac64ea234bcb7e&spa=1#networkchange
b. Go to OneCampus: https://onecampus.vt.edu/
   i. Search for '*password*' and choose *Network Account*
   ii. Record your Username and 16-character password





2. Connect to the VT VPN

a. Original Instructions:
   i. https://4help.vt.edu/sp?id=kb_article&sysparm_article=KB0012678&sys_kb_id=7948d9731b4755d0098aea04604bcbe7&spa=1#2factorAuthentication
b. Install the *Pulse Secure* program
   i. Follow the provided instructions for your Operating System:
      1. Linux: https://4help.vt.edu/sp?id=kb_article&sysparm_article=KB0012678&sys_kb_id=7948d9731b4755d0098aea04604bcbe7&spa=1#2factorAuthentication
      2. Windows: https://4help.vt.edu/sp?id=kb_article_view&sysparm_article=KB0010740&sys_kb_id=0f0ddb391b99ad100aac64ea234bcbe3&spa=1
      3. MAC: https://4help.vt.edu/sp?id=kb_article&sysparm_article=KB0012672&sys_kb_id=1265117b1b0755d0098aea04604bcb3a&spa=1
c. Open the *Pulse Secure* program
   i. Connect to either VPN
      1. **VT Traffic over SSL VPN** - only VT related computer traffic is set through VT's VPN
      2. **All Traffic over SSL VPN** - configures your computer to send ALL web traffic through VT's VPN
   ii. Complete dual authentication

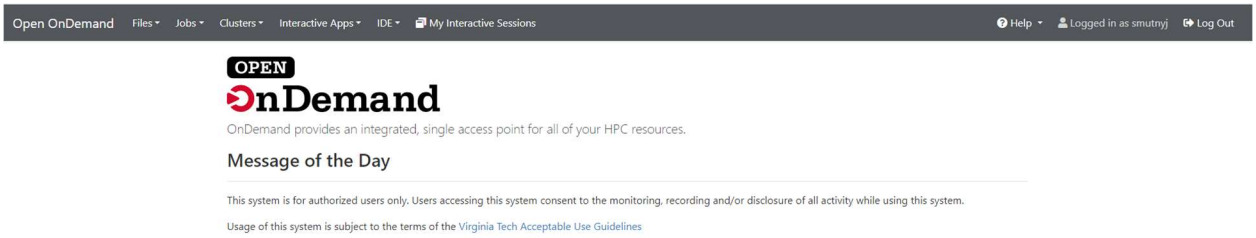


The first time you do this, you have to enter the password from OneCampus/NetworkAccount. If you check the checkbox to *Save Settings* it will remember your Username and password.

iii. Complete the double authentication by entering ONE of the provided options…
    1. *Push* = Get a push notification
    2. *Phone* = Get a phone call
    3. *Sms1* = Get a text code
    4. *Passcode* = Provide a passcode from the Duo Mobile app.

3. Connect to the ARC (must be connected to the VT VPN)

a. Link: https://ood.arc.vt.edu/pun/sys/dashboard



NOTE

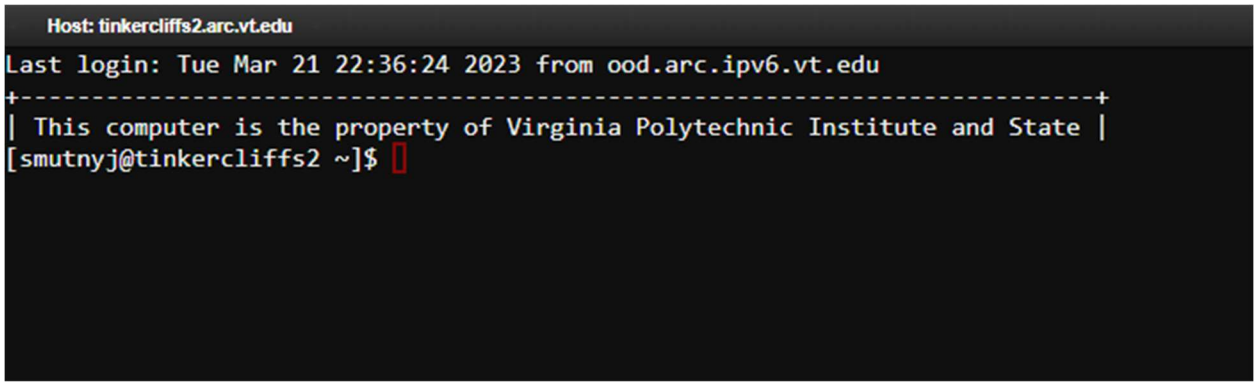
If you only want to use system defaults then continue to step 5. The list of available and default programs are found here:

- https://www.docs.arc.vt.edu/software/02installed.html
- Each subsequent link describes software that runs on nodes that you choose when making your ARC instance in Step 5.

4. Create your custom environment

a. ** NOTE ** This step requires you to enter Linux commands. Provided are the list of commands you HAVE to run and then additional commands to install more software.

b. From the ARC Dashboard; Go to '*Clusters -> TinkerCliffs Shell Access*'



c. Commands you **HAVE TO** run:

i. Enter the following commands ONE AT A TIME to create an environment called ***mypy3***

1. If you wish to name it differently, then replace ***mypy3*** with a name of your choice.
2. If you wish to have a different python version that python3.8, specify it now.

```
module load Anaconda3/2020.11
conda create -n mypy3 python=3.8 pip
source activate mypy3
conda install ipykernel
pip install plotly kaleido
```

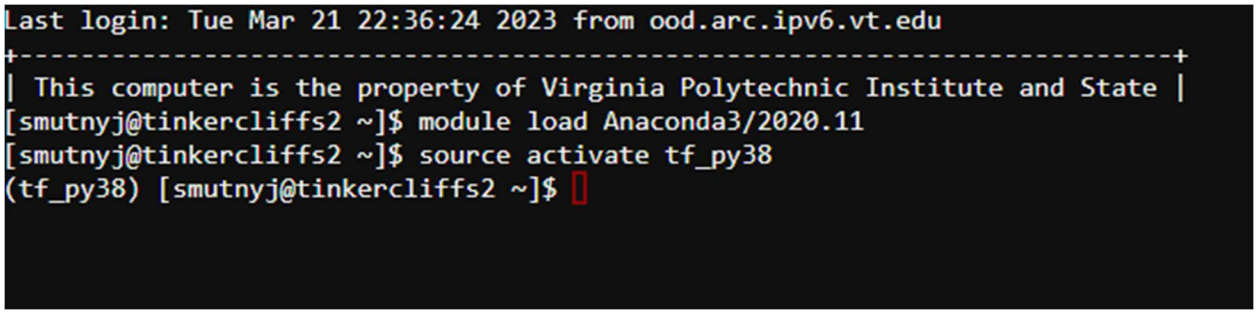
ii. Enter the following command to connect an *ipykernel* to your environment to be run in a JupyterNotebook. This lets you switch the JupyterNotebook to use the packages/software and the versions that YOU want.

```
(tf_py38) [smutnyj@tinkercliffs2 ~]$ python -m ipykernel install --name <your env name> --display-name "Python <your env name>" --user
```

d. Commands that are optional
    i. Use the following to install additional software packages to your environment. A full list of software is shown at the following link or any software that is traditionally supported by Anaconda3: https://www.docs.arc.vt.edu/software/02installed.html
    ii. Commands that the author used…
        1. *conda install tensorflow keras numpy pandas graphviz pydot matplotlib*
        2. *pip install opencv-python*

** NOTE **

If you want to access your created environment again, you must load the Anaconda3 module and activate your environment like so for the *tf_py38* environment

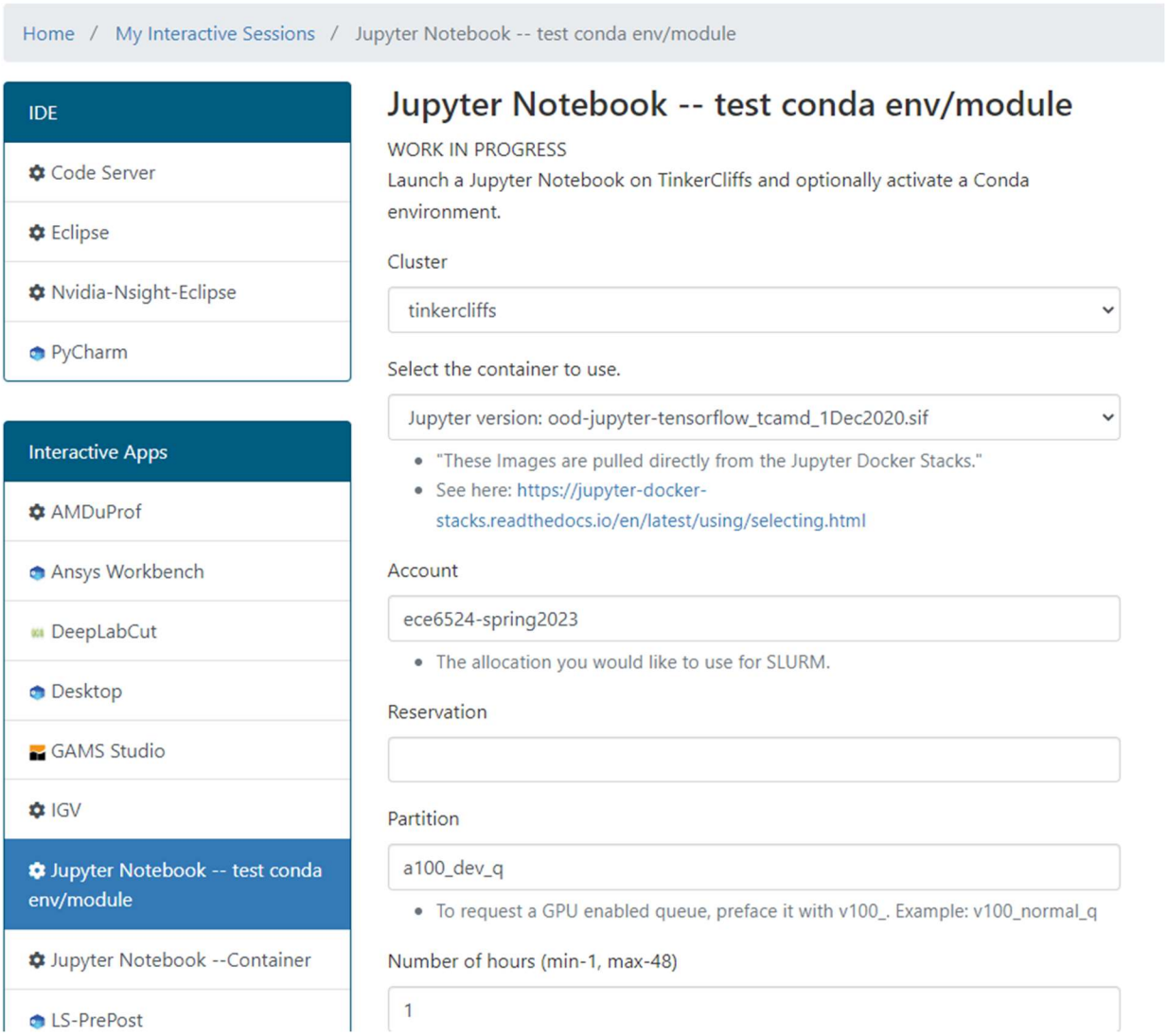


** NOTE **

Step 5 creates your ARC instance that will allow you to start programming with more advanced resources. The items you input are very important. It is up to you to understand what you can and cannot input based on the *Interactive Session* that you are trying to use.

5. Create your own ARC instance

a. (JupyterNotebook – test conda env/module)
b. From the ARC dashboard; click *Interactive Apps -> Jupyter Notebook – test conda env/module*



c. Enter the following information for your instance.
   i. Link1: https://www.docs.arc.vt.edu/resources/compute/00tinkercliffs.html

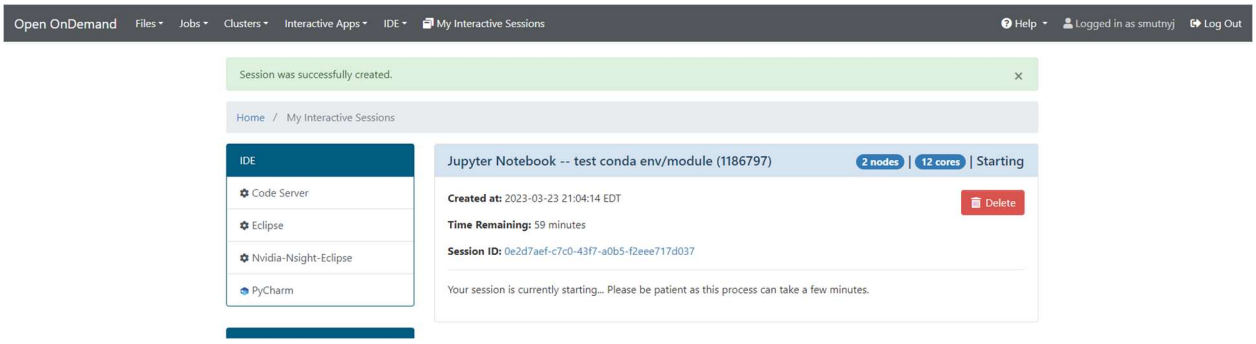
Item	**Setting that the author chooses**	**Comments**
Cluster	*Tinkercliffs*	*choose the one you made your env with in the shell*
Container	*Jupyter version: ood-jupyter-tensorflow_tcamd_1Dec2020.sif*	*Choose the one that includes the base software package you need (tensorflow, pyTorch, scipy).* *I cannot guarantee that you can run tensorflow in a pyTorch container even if you install tensorflow in your environment.*
Account	*Ece6524-spring2023*	
Reservation		*Leave blank unless needed*
Partition	*See link 1*	*This item is CRITICAL. The partition you select will determine what hardware you can use and how long the instance lasts. Also it decides how long you wait for your ARC instance to be made.*
Number of hours	*#*	*Depends on your Partition*
Number of nodes	*#*	*Depends on your Partition. Unless you have computer-to-computer application. You only need one.*
Number of cores per node	*#*	*Depends on your Partition.*
Number of GPUs per node	*#*	*Depends on your Partition*
Default directory to start notebooks		*Leave blank unless needed*
PYTHONUSERBASE		*Leave blank unless you KNOW WHAT YOU ARE DOING*
Required Modules	*Anaconda3/2020.11*	*You **MUST** enter this to run a custom environment.*

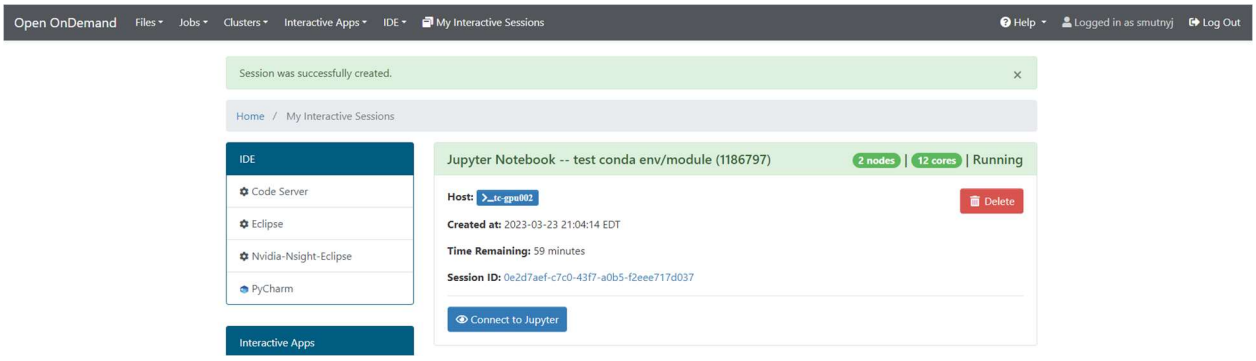
d. Click *Launch*

6. Access your JupyterNotebook instance

a. Wait until your ARC resources are dedicated to the instance (should take ~30 seconds. If it takes more than 2 minutes then your settings in step 5b were incorrect)

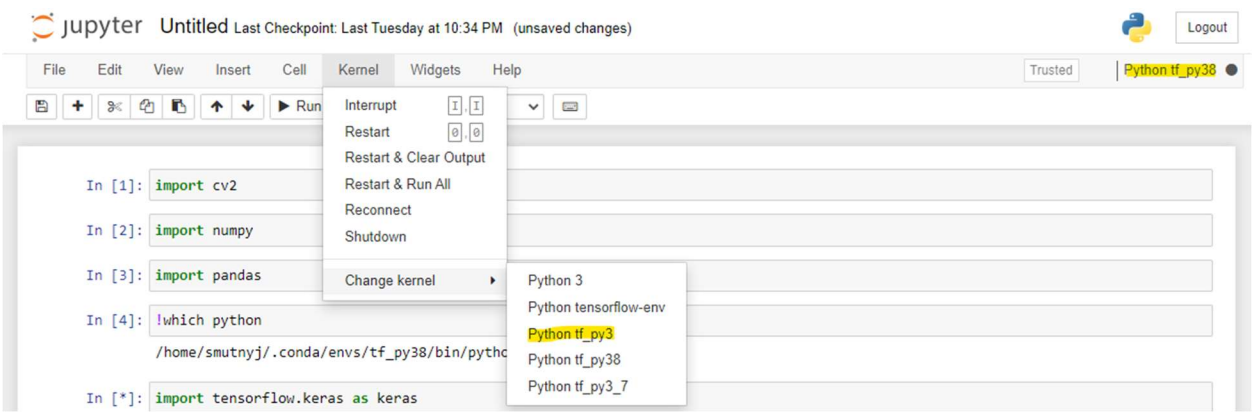
b. Click *Connect to Jupyter* when its ready.





c. In your Jupyter Notebook; switch to your custom environment.

   i. Go to *Kernel -> Change kernel -> Select your environment name*



DONE

Go back to the TinkerCliffs shell to install more packages 😊