Steps to Setup Jupyter Notebook Without VPN

You should only use this method if JupyterHub via the VPN is not possible. These are the instructions to run a Jupyter notebook from a GPU node in the *Vaughan* cluster.

Summary of Steps in This Document:

- Log in to the Vector cluster and start a Jupyter server using the Slurm job scheduler.
- Create an 'SSH tunnel' between your local computer and the Vector cluster so that you can…
- Access Jupyter, running on the Vector cluster, using the web interface in your browser.

1. Use the Windows PowerShell or MacOS/Linux Terminal to tunnel into the cluster via ssh using the command (**Note:** Replace **username** here with your own Vector username.

```
ssh <username>@v.vectorinstitute.ai
```

2. Start an interactive session with the Slurm job scheduler

```
srun --gres=gpu:1 --mem=32G --partition=t4v2 --pty bash
```

3. Install the Python kernels required to run the various notebooks in the GitHub repository.

```
cd
/projects/aieng/diffusion_bootcamp/env/diffusion-models-bootcamp-z7DAirMd-
py3.9
source bin/activate
ipython kernel install --user --name=diffusion_models
deactivate
```

4. Activate the `diffusion_models` environment that we've pre-compiled in a public folder on the cluster.

```
cd
/projects/aieng/diffusion_bootcamp/env/diffusion-models-bootcamp-z7DAirMd-
py3.9
source bin/activate
```

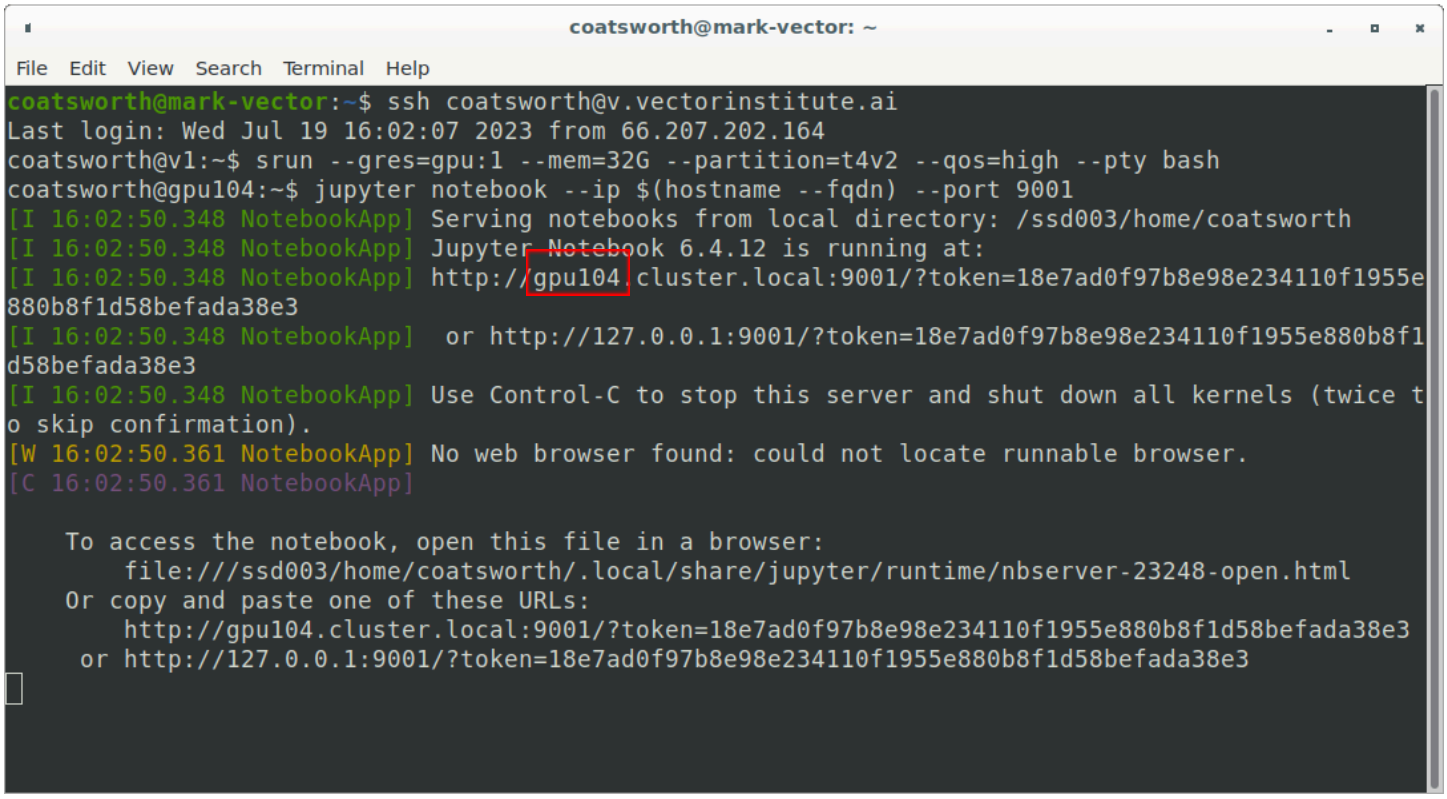
5. Start a Jupyter session.

```
# Select a port number
JUPYTER_PORT=9001

# Browse to the root folder of the project repository
cd ~/diffusion_models_bootcamp

# This example uses port 9001, but change this if that port is already in use
# If so, replace all 9001s in this document with your chosen number.
jupyter notebook --ip $(hostname --fqdn) --port $JUPYTER_PORT
```

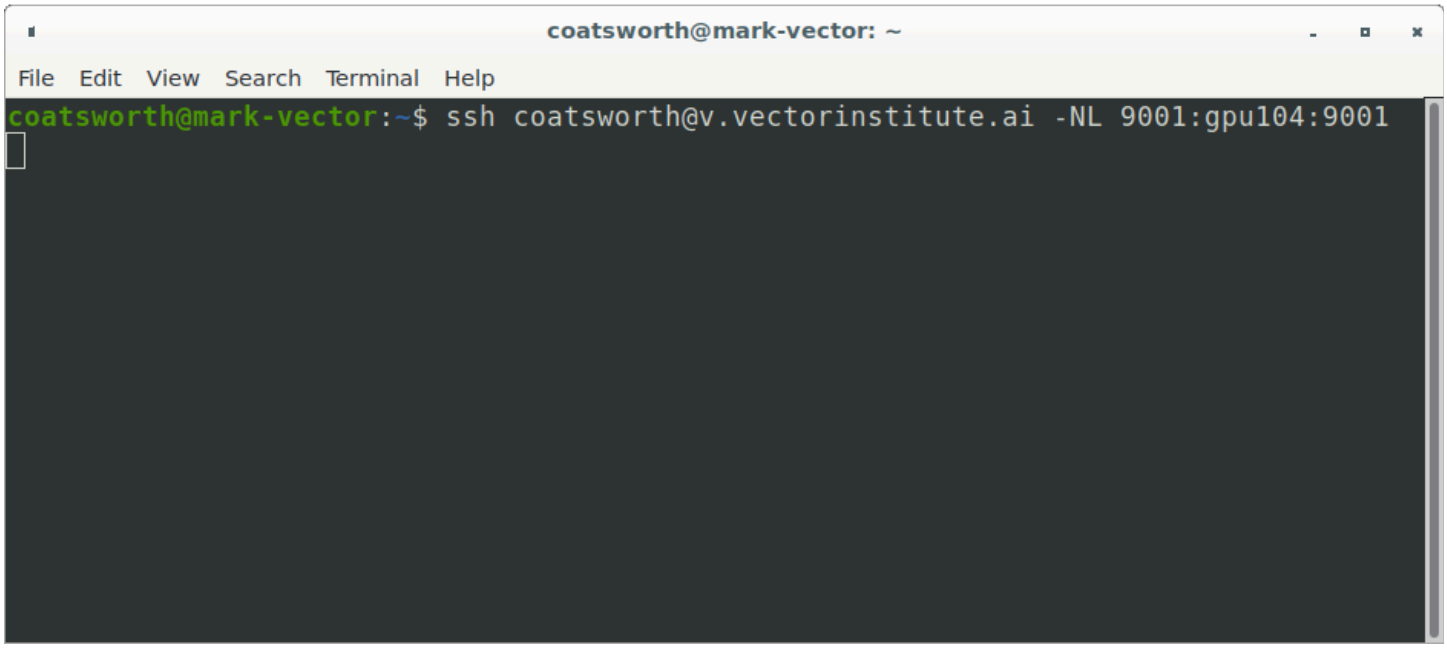
5. Once the Jupyer notebook starts, it will display a url starting with **http://gpu###**. This means that everything is working! But there are still a couple more steps before you can connect.



5. **From your local PowerShell or Terminal,** create an SSH tunnel to the Jupyter notebook (in this example, my job was scheduled on node **gpu104**). You need to change **gpu###** to the compute node your job is scheduled on. You also need to ensure that you are connecting to the correct port. In my case, Jupyter is running with port **9001.** Again, be sure to replace **<username>** with your own Vector username.

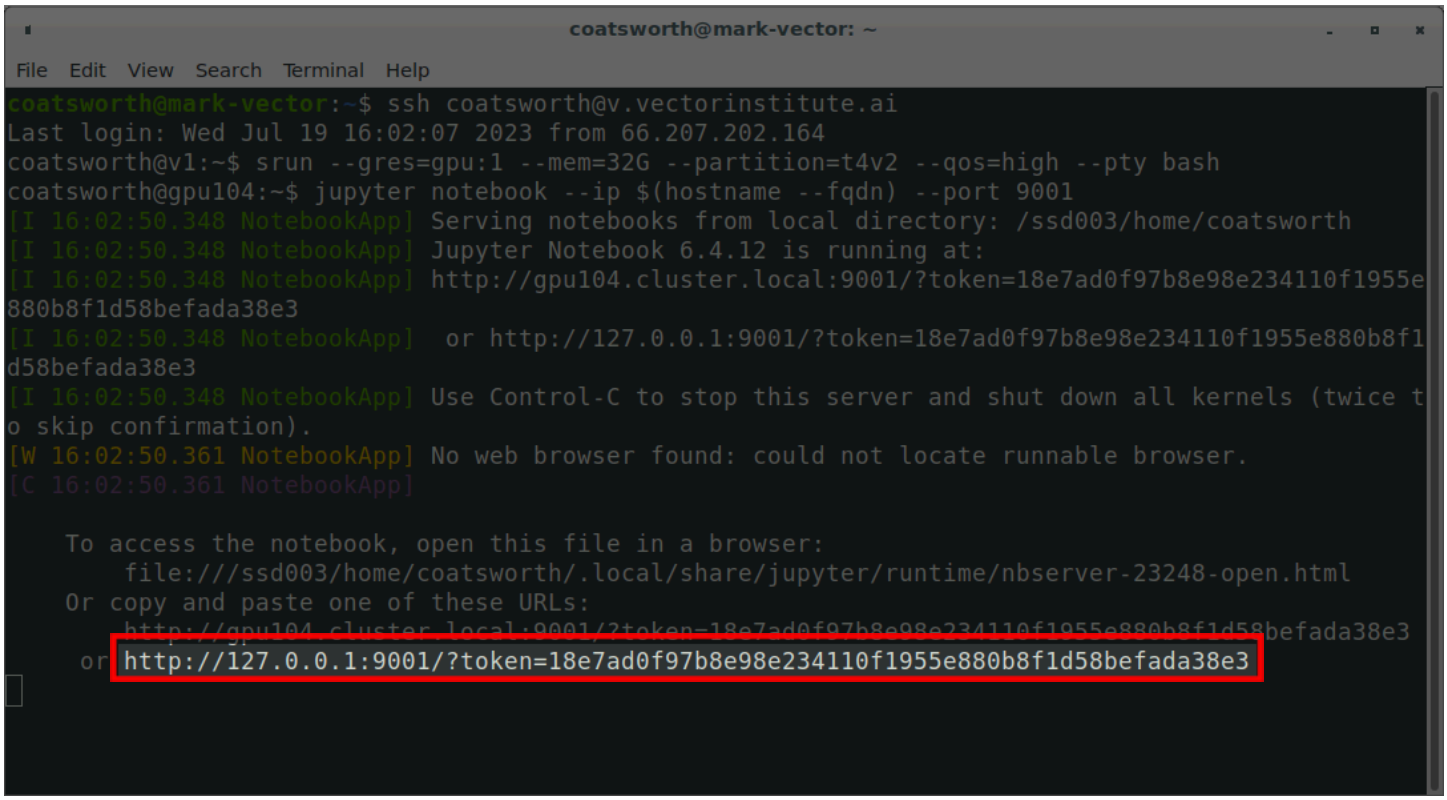
```
ssh <username>@v.vectorinstitute.ai -L 9001:gpu###:9001
```

Important: Note that I opened a new, local Terminal window in order to create the tunnel between my own computer and the Vector cluster.



Note that the shell running this command will appear to log in like a regular ssh session. This indicates the command has worked! You should be able to access the jupyter notebook on the specified port.

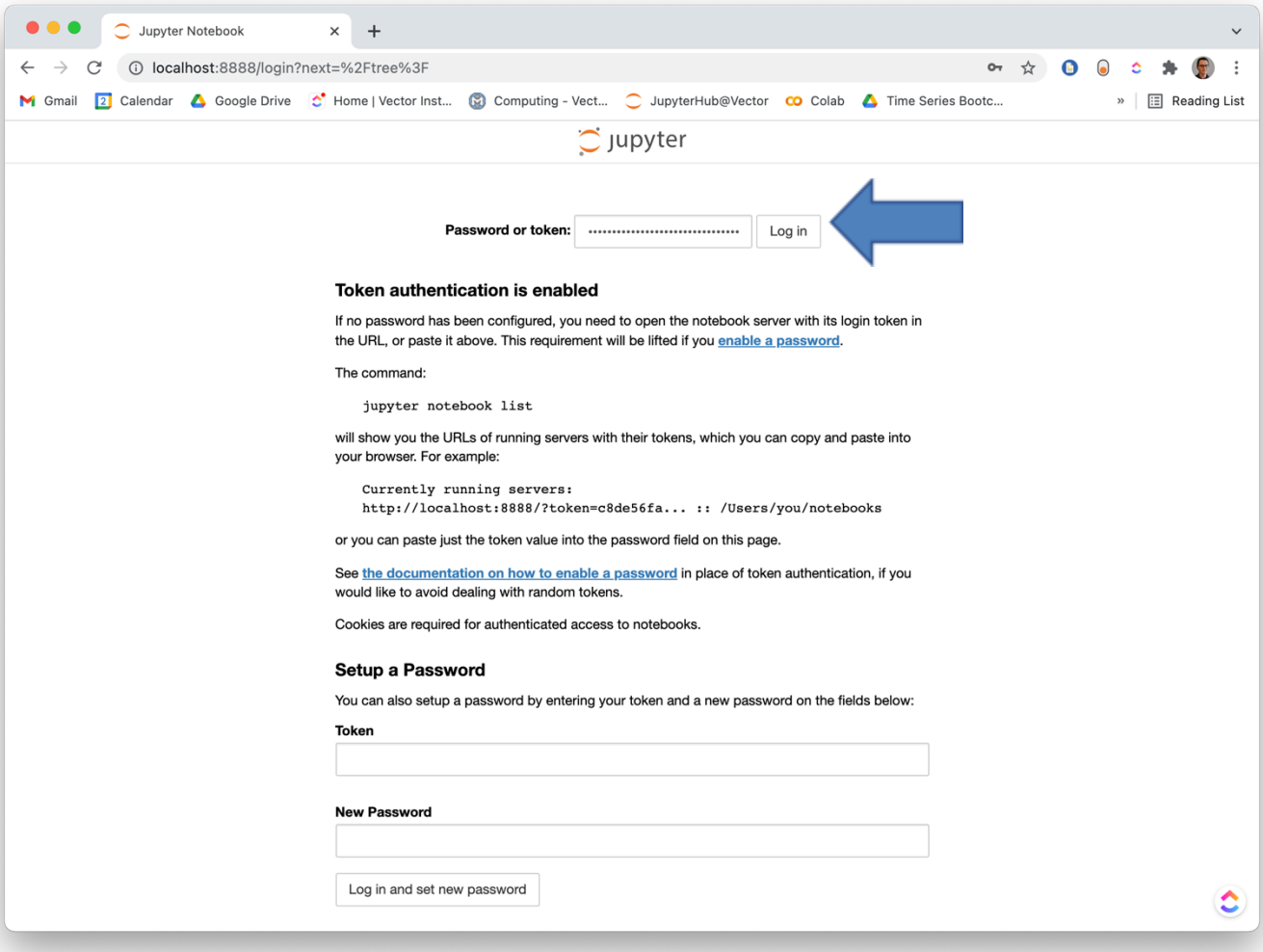
6. Lastly, take the URL provided beginning with http://127.0.0.1:



For example, the following is my personalized URL. **Yours will be different.**

http://127.0.0.1:9001/?token=18e7ad0f97b8e98e234110f1955e880b8f1d58befada38e3

When you paste this link in your browser, you will be brought to the Jupyter login page. You may need to paste your token again in the **Password or token** field and click the **Log in** button.



When you are brought to the main Jupyter notebook screen, congratulations, you are all ready to get started with the bootcamp!

7. When you're done with the Jupyter notebook, please shut it down and end the Slurm job in order to free up resources for other users of the Vector cluster. You need to do this from the Vector cluster command line (not on your local machine) in the window where your notebook is running. First press **Ctrl+C** to close the notebook, then run the **exit** command to end the Slurm job: