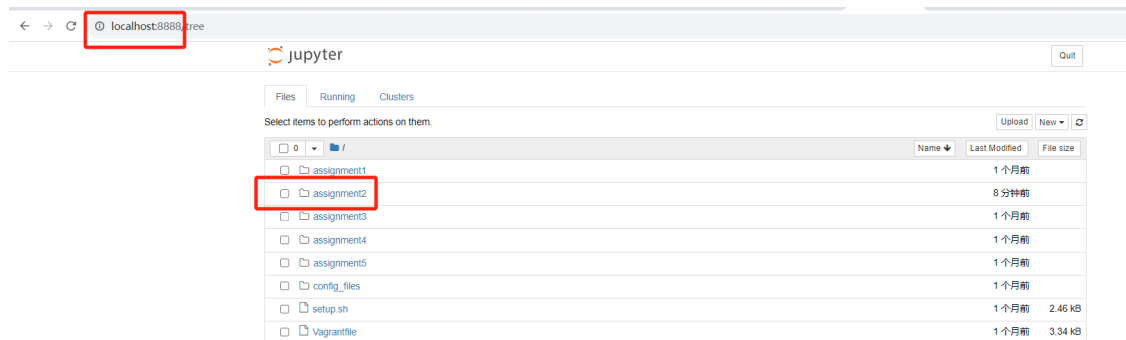


实验2 jupyter环境使用

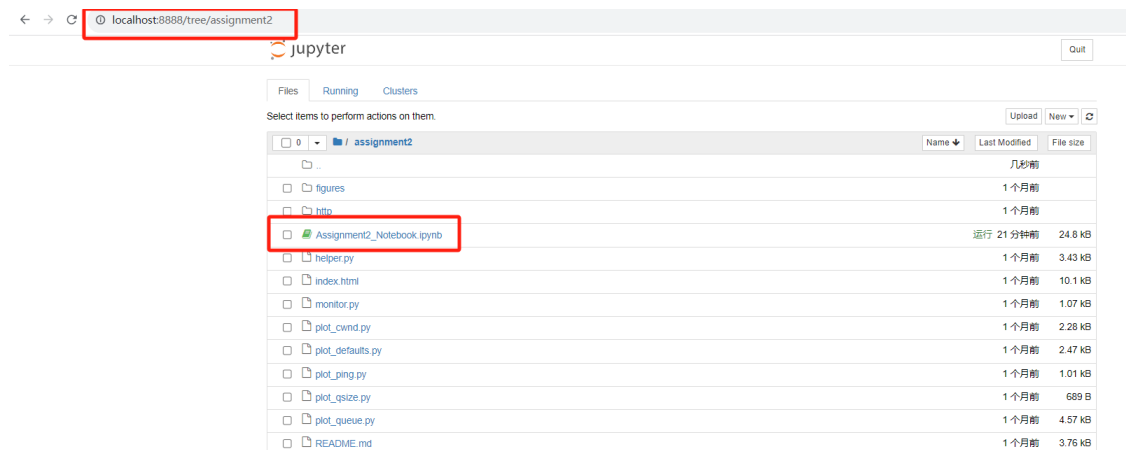
1.启动 Jupyter Notebook 服务器

在虚拟机中，运行命令 `sudo jupyter notebook &`。这会在后台启动一个新的 Jupyter notebook服务器。它虽然是在后台运行，但有时会打印消息到终端。每次收到消息时都可以按 `Enter` 来获取 `shell`提示返回。要关闭notebook，请运行 `fg`，然后按 `Control-C` 两次（一次获取确认消息，另一次跳过确认）。

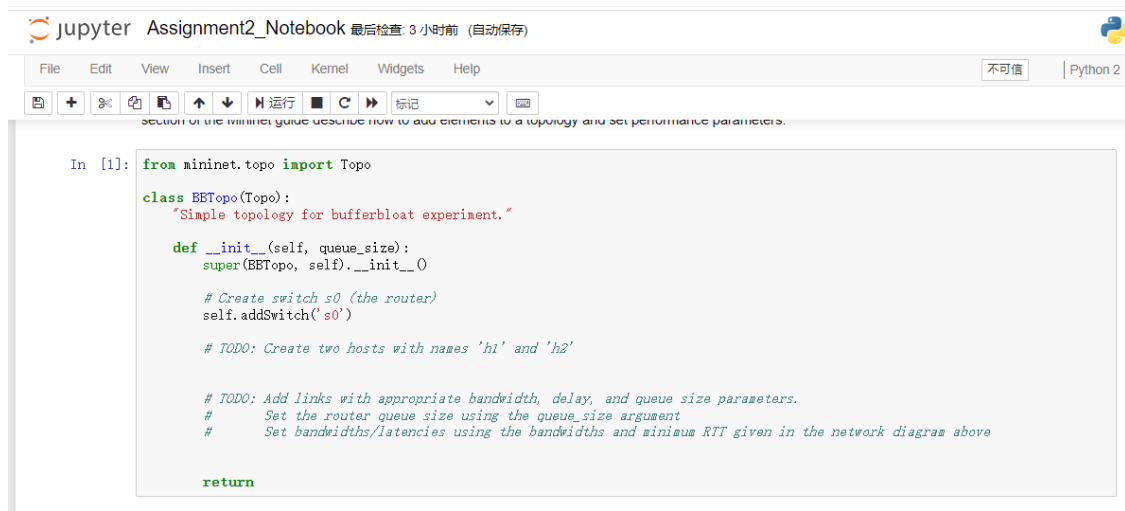
当笔记本电脑运行时，在主机上打开浏览器并在地址栏中输入 `localhost:8888`。这应该会带你到 Jupyter notebook文件选择窗口。Jupyter notebook实际上在vagrant VM的8888端口上运行，但你可以通过你的主机访问它浏览器，因为端口正在虚拟机和主机之间转发。



在文件选择窗口中，进入 `assignment2` 目录，然后打开 `Assignment2_Notebook.ipynb`。这将打开一个带有说明的笔记本完成剩余的作业。从上到下浏览本笔记本并完成标记为“TODO”的部分。



在代码框中输入 `shift+enter` 即可运行代码：



The screenshot shows a Jupyter Notebook window titled "Assignment2_Notebook 最后检查 3 小时前 (自动保存)". The interface includes a menu bar (File, Edit, View, Insert, Cell, Kernel, Widgets, Help) and a toolbar with icons for file operations and execution. The main area displays a code cell with the following Python code:

```
In [1]: from mininet.topo import Topo

class BBTopo(Topo):
    "Simple topology for bufferbloat experiment."

    def __init__(self, queue_size):
        super(BBTopo, self).__init__()

        # Create switch s0 (the router)
        self.addSwitch('s0')

        # TODO: Create two hosts with names 'h1' and 'h2'

        # TODO: Add links with appropriate bandwidth, delay, and queue size parameters.
        # Set the router queue size using the queue_size argument
        # Set bandwidths/latencies using the bandwidths and minimum RTT given in the network diagram above

    return
```

请记住在关闭**notebook**或者网页之前“**Save and Checkpoint**”（从“**File**”菜单）

2.报错解决

pip报错: `sudo: pip: command not found`

```
# get pip
curl -O "https://bootstrap.pypa.io/pip/2.7/get-pip.py" | tac | tac
| grep -qs foo
sudo python get-pip.py
rm -f get-pip.py

# Install old version of tornado before installing jupyter
sudo pip install tornado==4.5.3
sudo pip install jupyter
sudo pip install tzupdate==1.5.0
sudo apt-get install -y gccgo-go

# Set correct permissions for bash scripts
find /vagrant -name "*.sh" | xargs chmod -v 744# If the repository
was pulled from windows, convert line breaks to unix-style
sudo apt-get install -y dos2unix
printf "Using dos2unix to convert files to Unix format if
necessary..."
find /vagrant -name "*" -type f | xargs dos2unix -q

# Assignment 2
sudo pip install mininet
sudo pip install nbconvert
sudo pip install numpy
sudo pip install matplotlib
sudo apt-get install -y mininet
sudo apt-get install -y python-numpy
sudo apt-get install -y python-matplotlib
```

如果还有其他环境的报错，参考COS461-Public\assignments\Vagrantfile文件进行相应的配置(在初始化虚拟机时没有成功配置好相应的模块，在本次实验中就需要手动配置)

jupyter报错: `jupyter command 'jupyter-notebook' not found`

```
sudo pip install --upgrade pip

sudo pip install ipywidgets

sudo apt-get install nodejs-legacy npm
sudo pip install widgetsnbextension
sudo jupyter nbextension enable --py widgetsnbextension

sudo pip install jupyter

jupyter notebook
```

tips: 由于实验2的代码基于python2，如果选择使用本地的anaconda运行，就需要在本地中配置python2和mininet的环境。

3. 若遇到 comm 的版本问题，请用 `sudo pip install ipywidgets==7.5.1` 命令

```
vagrant@cos461:/vagrant$ sudo pip install jupyter==1.0.0
DEPRECATION: Python 2.7 reached the end of its life on January 1st, 2020. Please upgrade your Python as Python 2.7 is no longer maintained. pip 21.0 will drop support for Python 2.7 in January 2021. More details about Python 2 support in pip can be found at https://pip.pypa.io/en/latest/development/release-process/#python-2-support pip 21.0 will remove support for this functionality.
WARNING: The directory '/home/vagrant/.cache/pip' or its parent directory is not owned or is not writable by the current user. The cache has been disabled. Check the permissions and owner of that directory. If executing pip with sudo, you may want sudo's -H flag.
Collecting jupyter==1.0.0
  Downloading jupyter-1.0.0-py2.py3-none-any.whl (2.7 kB)
Collecting ipywidgets
  Downloading ipywidgets-7.8.4-py2.py3-none-any.whl (124 kB)
    |#####| 124 kB 261 kB/s
Collecting jupyter-console
  Downloading jupyter_console-5.2.0-py2.py3-none-any.whl (20 kB)
Collecting notebook
  Downloading notebook-5.7.16-py2.py3-none-any.whl (9.6 MB)
    |#####| 9.6 MB 33.9 MB/s
Requirement already satisfied: nbconvert in /usr/local/lib/python2.7/site-packages (from jupyter==1.0.0) (5.6.1)
Collecting qtconsole
  Downloading qtconsole-4.7.7-py2.py3-none-any.whl (118 kB)
    |#####| 118 kB 6.4 MB/s
Collecting ipykernel
  Downloading ipykernel-4.10.1-py2-none-any.whl (109 kB)
    |#####| 109 kB 10.0 MB/s
ERROR: Could not find a version that satisfies the requirement comm>=0.1.3 (from ipywidgets->jupyter==1.0.0) (from versions: 0.0.1)
ERROR: No matching distribution found for comm>=0.1.3 (from ipywidgets->jupyter==1.0.0)
vagrant@cos461:/vagrant$ comm --version
comm (GNU coreutils) 8.21
Copyright (C) 2013 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>.
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.

Written by Richard M. Stallman and David MacKenzie.
vagrant@cos461:/vagrant$ sudo pip install ipywidgets==7.5.1
```

4. 若在执行 `sudo jupyter notebook` 时

报错 `Jupyter command 'jupyter-notebook' not found.`

请用 `sudo pip install "notebook<6.0" "ipykernel<6.0"` 指令

重装 `jupyter`

请把assignment2放到此位置，本次实验需要用到实验一中所创立的虚拟机。

Data (D:) > network > assignment1 > COS461-Public > assignments				
名称	修改日期	类型	大小	
assignment1	2024/9/21 20:55	文件夹		
assignment2	2024/10/8 10:34	文件夹		
assignment3	2024/10/8 10:34	文件夹		
assignment4	2024/10/8 10:34	文件夹		
assignment5	2024/10/8 10:34	文件夹		
config_files	2024/9/21 20:55	文件夹		
setup.sh	2024/9/21 20:55	Shell Script	3 KB	
Vagrantfile	2024/9/21 20:55	文件	4 KB	