

Nahian@Ubuntu: ~\$ sudo apt update

Nahian@Ubuntu: ~\$ sudo apt install -y git python3-pip python3-matplotlib python3-pandas \mahimahi
cmake g++ make libboost-all-dev libpcap-dev \libgoogle-glog-dev libprotobuf-dev protobuf-compiler
\libcurl4-openssl-dev python3-dev python-is-python3

Nahian@Ubuntu: ~\$ git clone https://github.com/StanfordSNR/pantheon.git

Nahian@Ubuntu: ~\$ cd pantheon

Nahian@Ubuntu: ~/pantheon\$ sudo apt-get update

Nahian@Ubuntu: ~/pantheon\$ wget https://www.python.org/ftp/python/2.7.18/Python-2.7.18.tgz

Nahian@Ubuntu: ~/pantheon\$ tar xzf Python-2.7.18.tgz

Nahian@Ubuntu: ~/pantheon\$ cd Python-2.7.18

Nahian@Ubuntu:~/pantheon/Python-2.7.18\$ sudo apt install -y build-essential libssl-dev zlib1g-dev
libbz2-dev \libreadline-dev libsqlite3-dev wget curl llvm libncurses5-dev libncursesw5-dev \xz-utils tk-
dev libffi-dev

Nahian@Ubuntu:~/pantheon/Python-2.7.18\$./configure --prefix=/usr/local/python2.7

Nahian@Ubuntu:~/pantheon/Python-2.7.18\$ make -j\$(nproc)

Nahian@Ubuntu:~/pantheon/Python-2.7.18\$ sudo make altinstall

Nahian@Ubuntu:~/pantheon/Python-2.7.18\$ echo 'export PATH="/usr/local/python2.7/bin:\$PATH"' >>
~/.bashrc

Nahian@Ubuntu:~/pantheon/Python-2.7.18\$ source ~/.bashrc

Nahian@Ubuntu:~/pantheon/Python-2.7.18\$ cd ~

Nahian@Ubuntu:~/pantheon\$ curl https://bootstrap.pypa.io/pip/2.7/get-pip.py -o get-pip.py

Nahian@Ubuntu:~/pantheon\$ python2.7 get-pip.py

Nahian@Ubuntu:~/pantheon\$ sudo ln -s /home/Nahian/.local/bin/pip /usr/local/bin/pip2.7

Nahian@Ubuntu:~/pantheon\$ sudo add-apt-repository universe

Nahian@Ubuntu:~/pantheon\$ sudo apt update

Nahian@Ubuntu:~/pantheon\$ sudo apt install -y make build-essential libssl-dev zlib1g-dev \libbz2-dev
libreadline-dev libsqlite3-dev wget curl llvm \libncursesw5-dev xz-utils tk-dev libxml2-dev libxmlsec1-dev
libffi-dev liblzma-dev

Nahian@Ubuntu:~/pantheon\$ curl https://pyenv.run | bash

Nahian@Ubuntu:~/pantheon\$ echo -e '\n# Pyenv setup' >> ~/.bashrc

Nahian@Ubuntu:~/pantheon\$ echo 'export PATH="\$HOME/.pyenv/bin:\$PATH"' >> ~/.bashrc

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Nahian@Ubuntu:~/pantheon$ echo 'eval "$(pyenv init -)"' >> ~/.bashrc
Nahian@Ubuntu:~/pantheon$ echo 'eval "$(pyenv virtualenv-init -)"' >> ~/.bashrc
Nahian@Ubuntu:~/pantheon$ source ~/.bashrc
Nahian@Ubuntu:~/pantheon$ pyenv install 2.7.18
Nahian@Ubuntu:~/pantheon$ pyenv local 2.7.18
Nahian@Ubuntu:~/pantheon$ python2.7 -m pip install pyyaml
Nahian@Ubuntu:~/pantheon$ python src/experiments/setup.py --install-deps --all
Nahian@Ubuntu:~/pantheon$ python src/experiments/setup.py --setup --all
Nahian@Ubuntu:~/pantheon$ ls /usr/include/python2.7/pyconfig.h
Nahian@Ubuntu:~/pantheon$ sudo apt install \build-essential \autoconf \automake \libtool \pkg-config \libprotobuf-dev \protobuf-compiler \libcurl4-openssl-dev \libncurses5-dev \apache2-dev \libssl-dev \libboost-dev \libboost-system-dev \libboost-filesystem-dev \libboost-program-options-dev \libboost-thread-dev \iproute2 \net-tools
Nahian@Ubuntu:~/pantheon$ sudo apt install -y libapache2-mod-php apache2-dev
Nahian@Ubuntu:~/pantheon$ git clone https://github.com/ravinet/mahimahi.git
Nahian@Ubuntu:~/pantheon$ cd mahimahi
Nahian@Ubuntu:~/pantheon/mahimahi$ ./autogen.sh
Nahian@Ubuntu:~/pantheon/mahimahi$ ./configure
Nahian@Ubuntu:~/pantheon/mahimahi$ make -j$(nproc)
Nahian@Ubuntu:~/pantheon/mahimahi$ sudo make install
Nahian@Ubuntu:~/pantheon/mahimahi$ cd ~/pantheon
Nahian@Ubuntu:~/pantheon$ git submodule update --init --recursive
Nahian@Ubuntu:~/pantheon$ export PYTHONPATH=$(pwd)/src/helpers
Nahian@Ubuntu:~/pantheon$ source ~/.bashrc
Nahian@Ubuntu:~/pantheon$ python2.7 src/experiments/setup.py --schemes "cubic bbr vegas"
Nahian@Ubuntu:~/pantheon$ mm-delay 10 echo "Mahimahi is working"
Nahian@Ubuntu:~/pantheon$ PYTHONPATH=$src python2.7 src/experiments/test.py local --schemes "cubic bbr vegas" --runtime 60 --data-dir results/minimal_test
Nahian@Ubuntu:~/pantheon$ PYTHONPATH=$src python2.7 src/experiments/test.py local \--schemes "cubic bbr vegas" \--uplink-trace emulated/const48.tr \--downlink-trace emulated/const48.tr \--runtime 60 \--data-dir results/low_latency \--prepend-mm-cmds "mm-delay 10"
```

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Nahian@Ubuntu:~/pantheon$ PYTHONPATH=$src python2.7 src/experiments/test.py local \--schemes  
"cubic bbr vegas" \--uplink-trace emulated/const1.tr \--downlink-trace emulated/const1.tr \--runtime 60  
\--data-dir results/high_latency \--prepend-mm-cmds "mm-delay 200"
```

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Nahian@Ubuntu:~/pantheon$ pip install matplotlib pandas numpy
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Nahian@Ubuntu:~/pantheon$ PYTHONPATH=$src python2.7 src/analysis/analyze.py --data-dir  
results/graphs
```