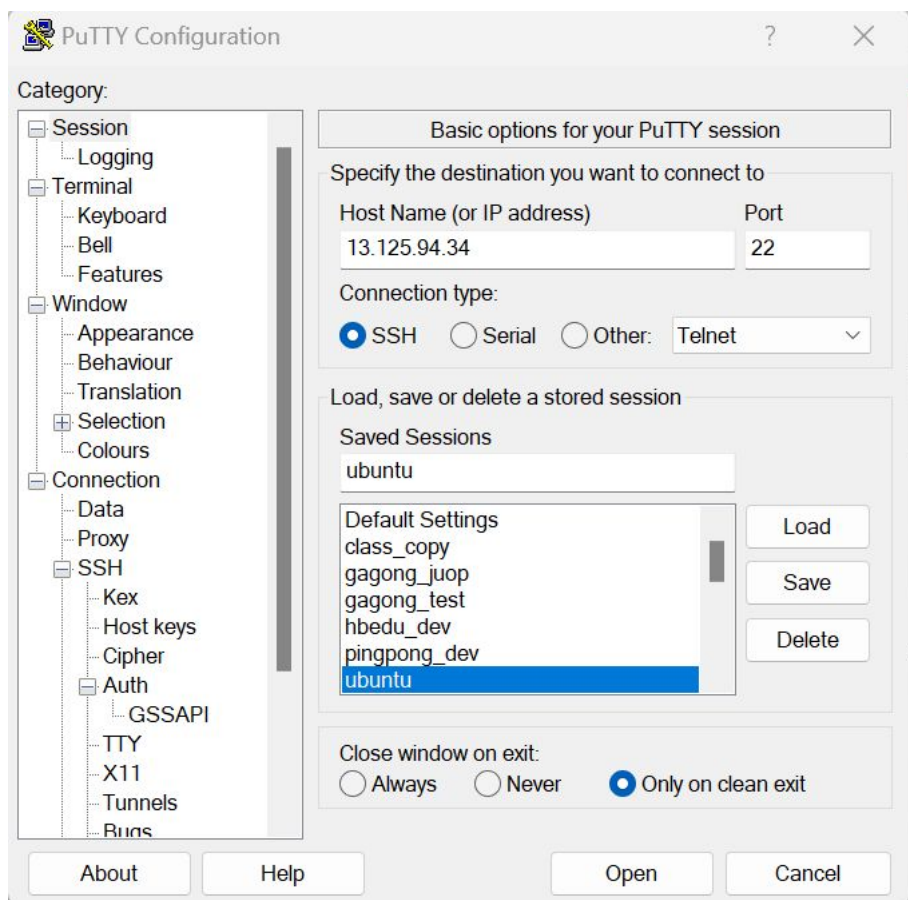


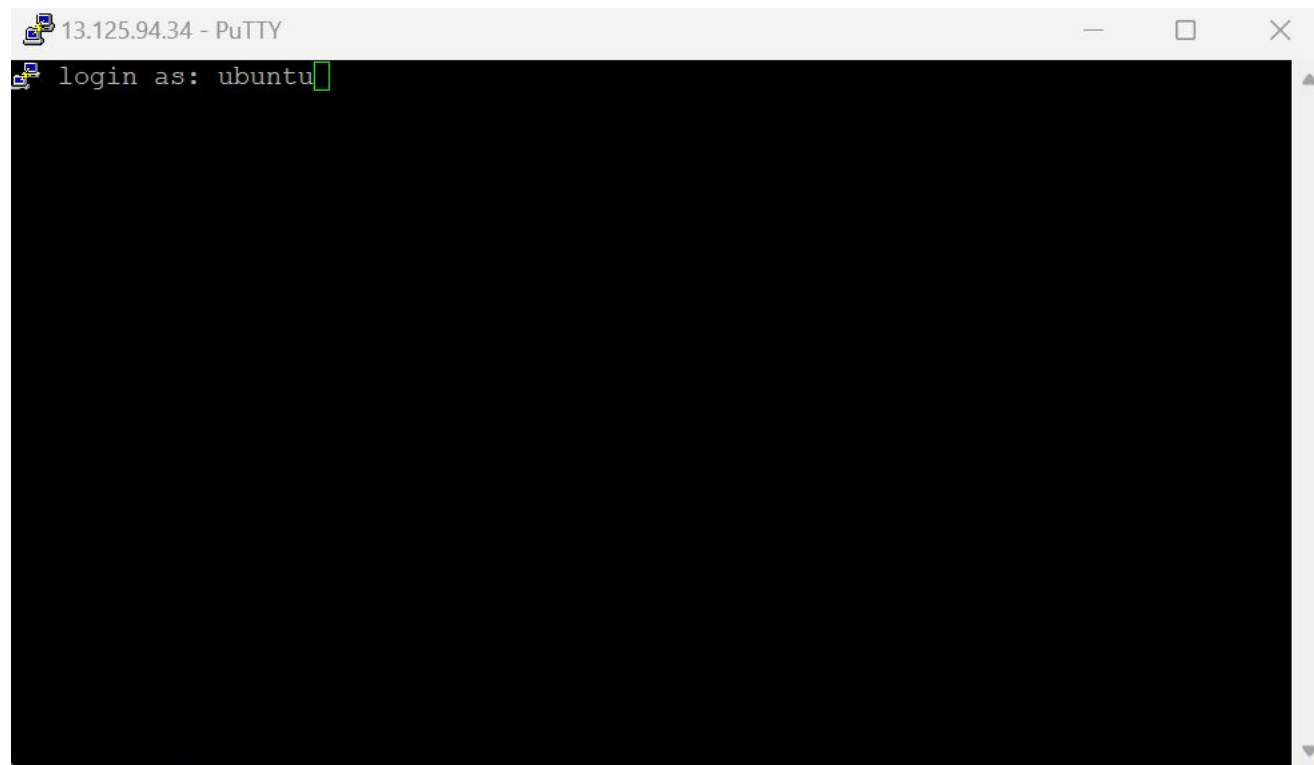
EC2 – JUPYTER

1. Putty 접근



1. ec2 퍼블릭 ip로 host name 에 등록
2. Connection-Auth-key 파일 등록

2. ec2 서버 접근



1. Login as : ubuntu 로
등록

3. ec2 apt 이용 위한 업데이트 실행

```
ubuntu@ip-172-31-15-248: ~  
System information as of Wed Aug 16 12:32:09 UTC 2023  
  
System load: 0.0078125      Processes:           102  
Usage of /: 5.5% of 28.89GB  Users logged in:    0  
Memory usage: 25%          IPv4 address for eth0: 172.31.15.248  
Swap usage: 0%  
  
Expanded Security Maintenance for Applications is not enabled.  
  
0 updates can be applied immediately.  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
The list of available updates is more than a week old.  
To check for new updates run: sudo apt update  
  
Last login: Wed Aug 16 12:30:36 2023 from 221.151.44.27  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
  
ubuntu@ip-172-31-15-248:~$ sudo apt-get update
```

1. sudo apt-get update
실행

4. apt-get 통한 python3 설치

```
ubuntu@ip-172-31-8-235: ~  
Get:30 http://ap-northeast-2.ec2.archive.ubuntu.com/ubuntu jammy-backports/multi  
ta [116 B]  
Get:31 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [657  
Get:32 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [153  
Get:33 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadat  
Get:34 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Package  
Get:35 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-e  
Get:36 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 c-n-f M  
Get:37 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages  
Get:38 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en  
Get:39 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Met  
Get:40 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Package  
Get:41 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-e  
Get:42 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 c-n-f M  
Fetched 26.5 MB in 5s (5427 kB/s)  
Reading package lists... Done  
ubuntu@ip-172-31-8-235:~$ sudo apt-get install python3  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
python3 is already the newest version (3.10.6-1~22.04).  
python3 set to manually installed.  
0 upgraded, 0 newly installed, 0 to remove and 109 not upgraded.  
ubuntu@ip-172-31-8-235:~$
```

1. sudo apt-get install
python3

5. 파이썬 관련 pip 설치 실행

```
ubuntu@ip-172-31-15-248: ~  
kB]  
Get:33 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadat  
a [11.2 kB]  
Get:34 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Package  
s [662 kB]  
Get:35 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-e  
n [105 kB]  
Get:36 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 c-n-f M  
etadata [536 B]  
Get:37 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages  
[770 kB]  
Get:38 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en  
[140 kB]  
Get:39 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Met  
adata [16.4 kB]  
Get:40 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Package  
s [36.5 kB]  
Get:41 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-e  
n [7060 B]  
Get:42 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 c-n-f M  
etadata [260 B]  
Fetched 26.5 MB in 5s (5472 kB/s)  
Reading package lists... Done  
ubuntu@ip-172-31-15-248:~$ sudo apt-get install python3-pip
```

1. `sudo apt-get -y install python3-pip`

6. pip3 활용하여 jupyter notebook 설치

```
ubuntu@ip-172-31-8-235: ~  
de  
Setting up build-essential (12.9ubuntu3) ...  
Setting up libpython3-dev:amd64 (3.10.6-1~22.04) ...  
Setting up python3-dev (3.10.6-1~22.04) ...  
Processing triggers for man-db (2.10.2-1) ...  
Processing triggers for libc-bin (2.35-0ubuntu3.1) ...  
Scanning processes...  
Scanning candidates...  
Scanning linux images...  
  
Running kernel seems to be up-to-date.  
  
Restarting services...  
systemctl restart multipathd.service packagekit.service  
Service restarts being deferred:  
systemctl restart networkd-dispatcher.service  
systemctl restart unattended-upgrades.service  
  
No containers need to be restarted.  
  
No user sessions are running outdated binaries.  
  
No VM guests are running outdated hypervisor (qemu) binaries on this host.  
ubuntu@ip-172-31-8-235:~$ sudo pip3 install jupyter
```

1. `sudo pip3 install jupyter`
2. 설치 후
3. `jupyter notebook`
`--generate-config`
4. 실행 시켜 해당 .py 파일 위치 확인

7. 주피터 환경 설정 추가

```
ubuntu@ip-172-31-8-235: ~/.jupyter
14.0 ipython-genutils-0.2.0 ipywidgets-8.1.0 isoduration-20.11.0 jedi-0.19.0 jso
n5-0.9.14 jsonschema-4.19.0 jsonschema-specifications-2023.7.1 jupyter-1.0.0 jup
yter-client-8.3.0 jupyter-console-6.6.3 jupyter-core-5.3.1 jupyter-events-0.7.0
jupyter-lsp-2.2.0 jupyter-server-2.7.1 jupyter-server-terminals-0.4.4 jupyterlab
-4.0.5 jupyterlab-pygments-0.2.2 jupyterlab-server-2.24.0 jupyterlab-widgets-3.0
.8 matplotlib-inline-0.1.6 mistune-3.0.1 nbclient-0.8.0 nbconvert-7.7.3 nbformat
-5.9.2 nest-asyncio-1.5.7 notebook-7.0.2 notebook-shim-0.2.3 overrides-7.4.0 pac
kaging-23.1 pandocfilters-1.5.0 parso-0.8.3 pickleshare-0.7.5 platformdirs-3.10.
0 prometheus-client-0.17.1 prompt-toolkit-3.0.39 psutil-5.9.5 pure-eval-0.2.2 py
cparser-2.21 pygments-2.16.1 python-dateutil-2.8.2 python-json-logger-2.0.7 pyzm
q-25.1.1 qtconsole-5.4.3 qtpy-2.3.1 referencing-0.30.2 requests-2.31.0 rfc3339-v
alidator-0.1.4 rfc3986-validator-0.1.1 rpds-py-0.9.2 send2trash-1.8.2 sniffio-1.
3.0 soupsieve-2.4.1 stack-data-0.6.2 terminado-0.17.1 tinycss2-1.2.1 tomli-2.0.1
tornado-6.3.3 traitlets-5.9.0 typing-extensions-4.7.1 uri-template-1.3.0 wcwidt
h-0.2.6 webcolors-1.13 webencodings-0.5.1 websocket-client-1.6.1 widgetsnbextens
ion-4.0.8
WARNING: Running pip as the 'root' user can result in broken permissions and con
flicting behaviour with the system package manager. It is recommended to use a v
irtual environment instead: https://pip.pypa.io/warnings/venv
ubuntu@ip-172-31-8-235:~$ jupyter notebook --generate-config
Writing default config to: /home/ubuntu/.jupyter/jupyter_notebook_config.py
ubuntu@ip-172-31-8-235:~$ ^C
ubuntu@ip-172-31-8-235:~$ cd /home/ubuntu/.jupyter/
ubuntu@ip-172-31-8-235:~/.jupyter$ vi jupyter_notebook_config.py
```

1. 파일 위치를 확인하여
2. Cd /home/Ubuntu/.jupyter 로 폴더 이동
3. vi jupyter_notebook_config.py 실행
4. vi 편집기 진입

8. 주피터 환경 설정 추가_2

```
ubuntu@ip-172-31-8-235: ~/jupyter
# Configuration file for notebook.

c = get_config()  #noqa
c.NotebookApp.allow_origin = '*' #allow all origins
c.NotebookApp.ip = '0.0.0.0' # listen on all IPs

#-----
# Application(SingletonConfigurable) configuration
#-----
## This is an application.

## The date format used by logging formatters for %(asctime)s
# Default: '%Y-%m-%d %H:%M:%S'
# c.Application.log_datefmt = '%Y-%m-%d %H:%M:%S'

## The Logging format template
# Default: '[%(name)s]%(highlevel)s %(message)s'
# c.Application.log_format = '[%(name)s]%(highlevel)s %(message)s'

## Set the log level by value or name.
# Choices: any of [0, 10, 20, 30, 40, 50, 'DEBUG', 'INFO', 'WARN', 'ERROR', 'CRITICAL']
-- INSERT --
```

1. i를 입력 후 4라인 부터 입력 시작
2. c.NotebookApp.allow_origin='*'
3. c.NotebookApp.ip='0.0.0.0'
4. 위 등록 후
5. esc키 누르고 : 입력 후
6. wq 로 저장 후 편집기 나옴

9. 주피터 암호 설정

```
ubuntu@ip-172-31-8-235: ~/jupyter
jupyter-lsp-2.2.0 jupyter-server-2.7.1 jupyter-server-terminals-0.4.4 jupyterlab
-4.0.5 jupyterlab-pygments-0.2.2 jupyterlab-server-2.24.0 jupyterlab-widgets-3.0
.8 matplotlib-inline-0.1.6 mistune-3.0.1 nbclient-0.8.0 nbconvert-7.7.3 nbformat
-5.9.2 nest-asyncio-1.5.7 notebook-7.0.2 notebook-shim-0.2.3 overrides-7.4.0 pac
kaging-23.1 pandocfilters-1.5.0 parso-0.8.3 pickleshare-0.7.5 platformdirs-3.10.
0 prometheus-client-0.17.1 prompt-toolkit-3.0.39 psutil-5.9.5 pure-eval-0.2.2 py
cparser-2.21 pygments-2.16.1 python-dateutil-2.8.2 python-json-logger-2.0.7 pyzm
q-25.1.1 qtconsole-5.4.3 qtpy-2.3.1 referencing-0.30.2 requests-2.31.0 rfc3339-v
alidator-0.1.4 rfc3986-validator-0.1.1 rpds-py-0.9.2 send2trash-1.8.2 sniffio-1.
3.0 soupsieve-2.4.1 stack-data-0.6.2 terminado-0.17.1 tinycss2-1.2.1 tomli-2.0.1
tornado-6.3.3 traitlets-5.9.0 typing-extensions-4.7.1 uri-template-1.3.0 wcwidt
h-0.2.6 webcolors-1.13 webencodings-0.5.1 websocket-client-1.6.1 widgetsnbextens
ion-4.0.8
WARNING: Running pip as the 'root' user can result in broken permissions and con
flicting behaviour with the system package manager. It is recommended to use a v
irtual environment instead: https://pip.pypa.io/warnings/venv
ubuntu@ip-172-31-8-235:~$ jupyter notebook --generate-config
Writing default config to: /home/ubuntu/.jupyter/jupyter_notebook_config.py
ubuntu@ip-172-31-8-235:~$ ^C
ubuntu@ip-172-31-8-235:~$ cd /home/ubuntu/.jupyter/
ubuntu@ip-172-31-8-235:~/jupyter$ vi jupyter_notebook_config.py
ubuntu@ip-172-31-8-235:~/jupyter$ jupyter notebook password
Enter password:
Verify password: 
```

1. jupyter notebook password
2. 비밀번호 입력 (재입력)

10. 주피터 실행

```
ubuntu@ip-172-31-8-235: ~/.jupyter
er_config.json
ubuntu@ip-172-31-8-235:~/.jupyter$ jupyter notebook
[I 2023-08-16 13:34:54.502 ServerApp] Package notebook took 0.0000s to import
[I 2023-08-16 13:34:54.514 ServerApp] Package jupyter_lsp took 0.0117s to import
[W 2023-08-16 13:34:54.514 ServerApp] A `jupyter_server_extension_points` function was not found in jupyter_lsp. Instead, a `jupyter_server_extension_paths` function was found and will be used for now. This function name will be deprecated in future releases of Jupyter Server.
[I 2023-08-16 13:34:54.530 ServerApp] Package jupyter_server_terminals took 0.0149s to import
[I 2023-08-16 13:34:54.531 ServerApp] Package jupyterlab took 0.0000s to import
[I 2023-08-16 13:34:54.586 ServerApp] Package notebook_shim took 0.0000s to import
[W 2023-08-16 13:34:54.586 ServerApp] A `jupyter_server_extension_points` function was not found in notebook_shim. Instead, a `jupyter_server_extension_paths` function was found and will be used for now. This function name will be deprecated in future releases of Jupyter Server.
[I 2023-08-16 13:34:54.587 ServerApp] jupyter_lsp | extension was successfully linked.
[I 2023-08-16 13:34:54.591 ServerApp] jupyter_server_terminals | extension was successfully linked.
[I 2023-08-16 13:34:54.597 ServerApp] jupyterlab | extension was successfully linked.
[W 2023-08-16 13:34:54.599 JupyterNotebookApp] 'allow_origin' has moved from Not
```

1. jupyter notebook
2. 브라우저에 ip로 접근 시도
예시) 3.39.228.99

11. 단. 회사망에 따른 포트 우회 필요

```
ubuntu@ip-172-31-8-235: ~/jupyter
[W 2023-08-16 13:34:54.937 ServerApp] No web browser found: Error('could not locate runnable browser').
[I 2023-08-16 13:34:54.956 ServerApp] Skipped non-installed server(s): bash-language-server, dockerfile-language-server-nodejs, javascript-typescript-langserver, jedi-language-server, julia-language-server, pyright, python-language-server, python-lsp-server, r-languageserver, sql-language-server, texlab, typescript-language-server, unified-language-server, vscode-css-languageserver-bin, vscode-html-languageserver-bin, vscode-json-languageserver-bin, yaml-language-server
[I 2023-08-16 13:37:00.415 ServerApp] 302 GET / (@221.151.44.27) 0.60ms
[I 2023-08-16 13:37:00.441 JupyterNotebookApp] 302 GET /tree? (@221.151.44.27) 0.68ms
^C[I 2023-08-16 13:38:00.611 ServerApp] interrupted
[I 2023-08-16 13:38:00.611 ServerApp] Serving notebooks from local directory: /home/ubuntu/.jupyter
0 active kernels
Jupyter Server 2.7.1 is running at:
http://ip-172-31-8-235:8888/tree
http://127.0.0.1:8888/tree
Shutdown this Jupyter server (y/[n])? y
[C 2023-08-16 13:38:02.398 ServerApp] Shutdown confirmed
[I 2023-08-16 13:38:02.398 ServerApp] Shutting down 5 extensions
ubuntu@ip-172-31-8-235:~/jupyter$ sudo iptables -A PREROUTING -t nat -i eth0 -p tcp --dport 80 -j REDIRECT --to-port 8080
```

sudo iptables -A PREROUTING -t nat -i eth0 -p tcp --dport 80 -j REDIRECT --to-port 8888

12. 부가 정보

1. 노트북 백그라운드 명령어 – `nohup jupyter notebook`
2. 백그라운드 죽이기
 - a. `ps -l | grep jupyter`
 - b. `kill -9 PID` (위에 나오는 숫자 입력)
- 3.