

1. python 필수 패키지 설치 (1)

```
[root@LinuxDBServer centos]# yum update
```

```
Loaded plugins: fastestmirror
```

```
Determining fastest mirrors
```

```
* base: mirror.navercorp.com
```

```
* extras: mirror.kakao.com
```

```
* updates: mirror.kakao.com
```

```
... ..
```

```
Dependencies Resolved
```

```
=====
```

Package	Arch	Version	Repository
---------	------	---------	------------

```
=====
```

```
Installing:
```

kernel	x86_64	3.10.0-957.10.1.el7	updates 48 M
--------	--------	---------------------	--------------

```
Updating:
```

NetworkManager	x86_64	1:1.12.0-10.el7_6	updates 1.7 M
NetworkManager-libnm	x86_64	1:1.12.0-10.el7_6	updates 1.4 M
NetworkManager-team	x86_64	1:1.12.0-10.el7_6	updates 159 k
NetworkManager-tui	x86_64	1:1.12.0-10.el7_6	updates 239 k
NetworkManager-wifi	x86_64	1:1.12.0-10.el7_6	updates 187 k
bind-libs-lite	x86_64	32:9.9.4-73.el7_6	updates 741 k

```
... ..
```

systemd	x86_64	219-62.el7_6.5	updates 5.1 M
systemd-libs	x86_64	219-62.el7_6.5	updates 407 k
systemd-sysv	x86_64	219-62.el7_6.5	updates 84 k
tuned	noarch	2.10.0-6.el7_6.3	updates 254 k
tzdata	noarch	2018i-1.el7	updates 490 k
util-linux	x86_64	2.23.2-59.el7_6.1	updates 2.0 M
xfsprogs	x86_64	4.5.0-19.el7_6	updates 897 k

```
Transaction Summary
```

```
=====
```

```
Install 1 Package
```

```
Upgrade 60 Packages
```

Total download size: 122 M

... ..

Complete!

2. python 필수 패키지 설치 (2)

```
[root@LinuxDBServer centos]# yum groupinstall 'development tools' -y
```

Loaded plugins: fastestmirror

There is no installed groups file.

Maybe run: yum groups mark convert (see man yum)

Loading mirror speeds from cached hostfile

* base: mirror.navercorp.com

* extras: mirror.kakao.com

* updates: mirror.kakao.com

... ..

Dependencies Resolved

... ..

Transaction Summary

=====

Install 26 Packages (+77 Dependent packages)

Total download size: 109 M

Installed size: 287 M

... ..

Installed:

autoconf.noarch 0:2.69-11.el7

automake.noarch 0:1.13.4-3.el7

bison.x86_64 0:3.0.4-2.el7

byacc.x86_64 0:1.9.20130304-3.el7

... ..

redhat-rpm-config.noarch 0:9.1.0-87.el7.centos

rpm-build.x86_64 0:4.11.3-35.el7

```
rpm-sign.x86_64 0:4.11.3-35.el7
subversion.x86_64 0:1.7.14-14.el7
swig.x86_64 0:2.0.10-5.el7
systemtap.x86_64 0:3.3-3.el7
```

Dependency Installed:

```
apr.x86_64 0:1.4.8-3.el7_4.1
apr-util.x86_64 0:1.5.2-6.el7
avahi-libs.x86_64 0:0.6.31-19.el7
boost-date-time.x86_64 0:1.53.0-27.el7
boost-system.x86_64 0:1.53.0-27.el7
boost-thread.x86_64 0:1.53.0-27.el7
bzip2.x86_64 0:1.0.6-13.el7
... ..
subversion-libs.x86_64 0:1.7.14-14.el7
systemtap-client.x86_64 0:3.3-3.el7
systemtap-devel.x86_64 0:3.3-3.el7
systemtap-runtime.x86_64 0:3.3-3.el7
trousers.x86_64 0:0.3.14-2.el7
unzip.x86_64 0:6.0-19.el7
zip.x86_64 0:3.0-11.el7
```

Complete!

3. python 필수 패키지 설치 (3)

```
[root@LinuxDBServer centos]# yum install -y openssl-devel zlib-devel sqlite-devel
```

Loaded plugins: fastestmirror

Loading mirror speeds from cached hostfile

* base: mirror.navercorp.com

* extras: mirror.kakao.com

* updates: mirror.kakao.com

... ..

Dependencies Resolved

=====

Package	Arch	Version	Repository	Size
=====				
Installing:				
openssl-devel	x86_64	1:1.0.2k-16.el7_6.1	updates	1.5 M
sqlite-devel	x86_64	3.7.17-8.el7	base	104 k
zlib-devel	x86_64	1.2.7-18.el7	base	50 k
Installing for dependencies:				
keyutils-libs-devel	x86_64	1.5.8-3.el7	base	37 k
krb5-devel	x86_64	1.15.1-37.el7_6	updates	271 k
libcom_err-devel	x86_64	1.42.9-13.el7	base	31 k
libkadm5	x86_64	1.15.1-37.el7_6	updates	178 k
libselenium-devel	x86_64	2.5-14.1.el7	base	187 k
libsepol-devel	x86_64	2.5-10.el7	base	77 k
libverto-devel	x86_64	0.2.5-4.el7	base	12 k
pcre-devel	x86_64	8.32-17.el7	base	480 k

Transaction Summary

=====

Install 3 Packages (+8 Dependent packages)

Total download size: 2.9 M

Installed size: 6.4 M

... ..

Running transaction

... ..

Installed:

openssl-devel.x86_64 1:1.0.2k-16.el7_6.1 sqlite-devel.x86_64 0:3.7.17-8.el7
zlib-devel.x86_64 0:1.2.7-18.el7

Dependency Installed:

keyutils-libs-devel.x86_64 0:1.5.8-3.el7 krb5-devel.x86_64 0:1.15.1-37.el7_6
libcom_err-devel.x86_64 0:1.42.9-13.el7 libkadm5.x86_64 0:1.15.1-37.el7_6
libselenium-devel.x86_64 0:2.5-14.1.el7 libsepol-devel.x86_64 0:2.5-10.el7
libverto-devel.x86_64 0:0.2.5-4.el7 pcre-devel.x86_64 0:8.32-17.el7

Complete!

4. python 3 패키지 다운로드 및 압축 해제

```
[root@LinuxDBServer centos]# yum install -y wget
```

Loaded plugins: fastestmirror

Loading mirror speeds from cached hostfile

* base: mirror.navercorp.com

* extras: mirror.kakao.com

* updates: mirror.kakao.com

... ..

Dependencies Resolved

```
=====
Package                Arch                Version            Repository          Size
=====
```

Installing:

```
wget                x86_64            1.14-18.el7        base                547 k
```

Transaction Summary

```
=====
```

Install 1 Package

Total download size: 547 k

Installed size: 2.0 M

... ..

Installed:

wget.x86_64 0:1.14-18.el7

Complete!

```
[root@LinuxDBServer centos]# wget https://www.python.org/ftp/python/3.6.8/Python-3.6.8.tgz
```

```
Resolving www.python.org (www.python.org)... 151.101.76.223, 2a04:4e42:12::223
Connecting to www.python.org (www.python.org)|151.101.76.223|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 23010188 (22M) [application/octet-stream]
Saving to: 'Python-3.6.8.tgz'
```

```
100% [=====>] 23,010,188 1.21MB/s in 3m 1s
```

```
(124 KB/s) - 'Python-3.6.8.tgz' saved [23010188/23010188]
```

```
[root@LinuxDBServer centos]# tar -zxf Python-3.6.8.tgz
```

```
[root@LinuxDBServer centos]#
```

```
[root@LinuxDBServer centos]# cd Python-3.6.8
```

```
[root@LinuxDBServer centos]#
```

5. python 3 설치 옵션 설정 후 컴파일 및 설치

```
[root@LinuxDBServer Python-3.6.8]# ./configure --prefix=/usr/local/python3 --enable-shared --enable-optimizations --enable-loadable-sqlite-extensions
```

```
checking build system type... x86_64-pc-linux-gnu
checking host system type... x86_64-pc-linux-gnu
checking for python3.6... no
checking for python3... no
checking for python... python
checking for --enable-universalsdk... no
checking for --with-universal-archs... no
... ..
checking for a sed that does not truncate output... /bin/sed
checking for --with-cxx-main=<compiler>... no
checking for g++... no
```

configure:

By default, distutils will build C++ extension modules with "g++".

If this is not intended, then set CXX on the configure command line.

checking for the platform triplet based on compiler characteristics... x86_64-linux-gnu

checking for -Wl,--no-as-needed... yes

checking for egrep... /bin/grep -E

checking for ANSI C header files... yes

checking for sys/types.h... yes

... ..

configure: creating ./config.status

config.status: creating Makefile.pre

config.status: creating Modules/Setup.config

config.status: creating Misc/python.pc

config.status: creating Misc/python-config.sh

config.status: creating Modules/ld_so_aix

config.status: creating pyconfig.h

creating Modules/Setup

creating Modules/Setup.local

creating Makefile

[root@LinuxDBServer Python-3.6.8]# **make -j 2 && make install**

Building with support for profile generation:

make clean

make[1]: Entering directory `/root/Python-3.6.8'

find . -depth -name '__pycache__' -exec rm -rf {} ';'

... ..

find: 'build': No such file or directory

rm -f pybuilddir.txt

rm -f Lib/lib2to3/*Grammar*.pickle

rm -f Programs/_testembed Programs/_freeze_importlib

find build -type f -a ! -name '*.gc??' -exec rm -f {} ';'

find: 'build': No such file or directory

make[1]: [clean] Error 1 (ignored)

... ..

```
make[1]: Entering directory `/root/Python-3.6.8'
: # FIXME: can't run for a cross build
LD_LIBRARY_PATH=/root/Python-3.6.8 ./python -m test.regrtest --pgo || true
Run tests sequentially
0:00:00 load avg: 1.35 [ 1/407] test_grammar
0:00:00 load avg: 1.35 [ 2/407] test_opcodes
0:00:00 load avg: 1.35 [ 3/407] test_dict
0:00:00 load avg: 1.33 [ 4/407] test_builtin
0:00:00 load avg: 1.33 [ 5/407] test_exceptions
0:00:01 load avg: 1.33 [ 6/407] test_types
0:00:01 load avg: 1.33 [ 7/407] test_unittest
0:00:03 load avg: 1.33 [ 8/407] test_doctest
0:00:05 load avg: 1.33 [ 9/407] test_doctest2
... ..
0:06:10 load avg: 0.64 [173/407] test_imaplib -- test_idle skipped
0:06:20 load avg: 0.63 [174/407] test_imghdr
0:06:20 load avg: 0.63 [175/407] test_imp
0:06:21 load avg: 0.63 [176/407] test_import
0:06:21 load avg: 0.63 [177/407] test_importlib
0:06:23 load avg: 0.63 [178/407] test_index
0:06:24 load avg: 0.63 [179/407] test_inspect
0:06:25 load avg: 0.63 [180/407] test_int
0:06:25 load avg: 0.63 [181/407] test_int_literal
0:06:25 load avg: 0.63 [182/407] test_io
... ..
Looking in links: /tmp/tmpxe6_zxrk
Collecting setuptools
Collecting pip
Installing collected packages: setuptools, pip
Successfully installed pip-18.1 setuptools-40.6.2
```


6. python 3 환경변수 설정 및 시스템 적용

```
[root@LinuxDBServer Python-3.6.8]# vi /etc/profile
```

```
PY36=/usr/local/python3
```

```
export LD_LIBRARY_PATH=$PY36/lib:$LD_LIBRARY_PATH
```

```
export PATH=$PY36/bin:$PATH
```

```
[root@LinuxDBServer Python-3.6.8]# source /etc/profile
```

```
[root@LinuxDBServer Python-3.6.8]#
```

7. python 3 실행 확인

```
[root@LinuxDBServer Python-3.6.8]# python3
```

```
Python 3.6.8 (default, Mar  1 2019, 10:58:21)
```

```
[GCC 4.8.5 20150623 (Red Hat 4.8.5-36)] on linux
```

```
Type "help", "copyright", "credits" or "license" for more information.
```

```
>>> quit()
```

```
[root@LinuxDBServer Python-3.6.8]#
```

8. python 3 기본 라이브러리 업그레이드

```
[root@LinuxDBServer Python-3.6.8]# pip3 install --upgrade pip
```

```
Collecting pip
```

```
  Downloading
```

```
https://files.pythonhosted.org/packages/d8/f3/413bab4ff08e1fc4828dfc59996d721917df8e8583  
ea85385d51125dceff/pip-19.0.3-py2.py3-none-any.whl (1.4MB)
```

```
100% |██████████████████████████████████████████████████████████████████████████████| 1.4MB 22.1MB/s
```

```
Installing collected packages: pip
```

```
Found existing installation: pip 18.1
```

Successfully uninstalled pip-18.1

```
[root@LinuxDBServer Python-3.6.8]#
```

Collecting setuptools

<https://files.pythonhosted.org/packages/d1/6a/4b2fced2ea0868810e92d519dacac1ddc64a2e53ba9e3422c3b62b378a6/setuptools-40.8.0-py2.py3-none-any.whl> (575kB)

Installing collected packages: setuptools

Uninstalling setuptools-40.6.2:

Successfully installed setuptools-40.8.0

9. python 3 용 주피터 노트북 설치 및 실행

Collecting jupyter

<https://files.pythonhosted.org/packages/83/df/0f5dd132200728a86190397e1ea87cd76244e42d39ec5e88efd25b2abd7e/jupyter-1.0.0-py2.py3-none-any.whl>

Downloading

<https://files.pythonhosted.org/packages/30/9a/a008c7b1183fac9e52066d80a379b3c64eab535bd9d86cdc29a0b766fd82/ipywidgets-7.4.2-py2.py3-none-any.whl> (111kB)

Collecting jupyter-console (from jupyter)

Downloading

https://files.pythonhosted.org/packages/cb/ee/6374ae8c21b7d0847f9c3722dcdfac986b8e54fa9ad9ea66e1eb6320d2b8/jupyter_console-6.0.0-py2.py3-none-any.whl

Collecting notebook (from jupyter)

Downloading

<https://files.pythonhosted.org/packages/0a/d8/4e9521354ed3d730ba6d8a5af440b66c73245ef46be706e51bead71afc21/notebook-5.7.6-py2.py3-none-any.whl> (9.0MB)

... ..

Installing collected packages: ipython-genutils, six, decorator, traitlets, pyrsistent, attrs, jsonschema, jupyter-core, nbformat, tornado, pickleshare, parso, jedi, pygments, wcwidth, prompt-toolkit, backcall, ptyprocess, pexpect, ipython, python-dateutil, pyzmq, jupyter-client, ipykernel, MarkupSafe, jinja2, Send2Trash, terminado, mistune, entrypoints, webencodings, bleach, pandocfilters, testpath, defusedxml, nbconvert, prometheus-client, notebook, widgetsnbextension, ipywidgets, jupyter-console, qtconsole, jupyter

Running setup.py install for pyrsistent ... done

Running setup.py install for tornado ... done

Running setup.py install for backcall ... done

Running setup.py install for pandocfilters ... done

Running setup.py install for prometheus-client ... done

Successfully installed MarkupSafe-1.1.1 Send2Trash-1.5.0 attrs-19.1.0 backcall-0.1.0 bleach-3.1.0 decorator-4.4.0 defusedxml-0.5.0 entrypoints-0.3 ipykernel-5.1.0 ipython-7.3.0 ipython-genutils-0.2.0 ipywidgets-7.4.2 jedi-0.13.3 jinja2-2.10 jsonschema-3.0.1 jupyter-1.0.0 jupyter-client-5.2.4 jupyter-console-6.0.0 jupyter-core-4.4.0 mistune-0.8.4 nbconvert-5.4.1 nbformat-4.4.0 notebook-5.7.6 pandocfilters-1.4.2 parso-0.3.4 pexpect-4.6.0 pickleshare-0.7.5 prometheus-client-0.6.0 prompt-toolkit-2.0.9 ptyprocess-0.6.0 pygments-2.3.1 pyrsistent-0.14.11 python-dateutil-2.8.0 pyzmq-18.0.1 qtconsole-4.4.3 six-1.12.0 terminado-0.8.1 testpath-0.4.2 tornado-6.0.1 traitlets-4.3.2 wcwidth-0.1.7 webencodings-0.5.1 widgetsnbextension-3.4.2

[root@LinuxDBServer Python-3.6.8]# **logout**

[centos@LinuxDBServer Python-3.6.8]\$

[centos@LinuxDBServer Python-3.6.8]\$ **jupyter-notebook --ip=주소**

[NotebookApp] Writing notebook server cookie secret to

```
/run/user/1000/jupyter/notebook_cookie_secret
[NotebookApp] Serving notebooks from local directory: /home/centos
[NotebookApp] The Jupyter Notebook is running at:
[NotebookApp]
http://192.168.120.129:8888/?token=dc6b83e802066bc1c54dc9973a48e709d05c6525b27f4590
[NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).
[W NotebookApp] No web browser found: could not locate runnable browser.
[C NotebookApp]
```

To access the notebook, open this file in a browser:

file:///run/user/1000/jupyter/nbserver-83527-open.html

Or copy and paste one of these URLs:

http://192.168.120.129:8888/?token=dc6b83e802066bc1c54dc9973a48e709d05c6525b27f4590

10. 주피터 노트북을 위한 방화벽 설정

```
[root@LinuxDBServer Python-3.6.8]# vi /etc/firewalld/zones/public.xml
```

```
<?xml version="1.0" encoding="utf-8"?>
<zone>
<short>Public</short>
<description>For use in public areas. You do not trust the other computers on networks to not
harm your computer. Only selected incoming connections are accepted.</description>
<service name="ssh"/>
<service name="dhcpv6-client"/>
<port protocol="tcp" port="3306"/>
<port protocol="tcp" port="1521"/>
<port protocol="tcp" port="8080"/>
<port protocol="tcp" port="8888"/>
</zone>
```

11. python 3 가상환경 생성

```
[centos@LinuxDBServer Python-3.6.8]$ python3 -m venv py36
```

```
[centos@LinuxDBServer Python-3.6.8]$
```

```
[centos@LinuxDBServer Python-3.6.8]$ cd py36/bin
```

```
[centos@LinuxDBServer Python-3.6.8]$
```

```
[centos@LinuxDBServer bin]$ source activate
```

```
(py36) [centos@LinuxDBServer bin]$
```

```
(py36) [centos@LinuxDBServer bin]$ pip3 list
```

Package	Version
---------	---------

pip	18.1
------------	-------------

setuptools	40.6.2
-------------------	---------------

You are using pip version 18.1, however version 19.0.3 is available.

You should consider upgrading via the 'pip install --upgrade pip' command.

```
(py36) [centos@LinuxDBServer bin]$
```

```
(py36) [centos@LinuxDBServer bin]$ deactivate
```

```
[centos@LinuxDBServer bin]$
```