

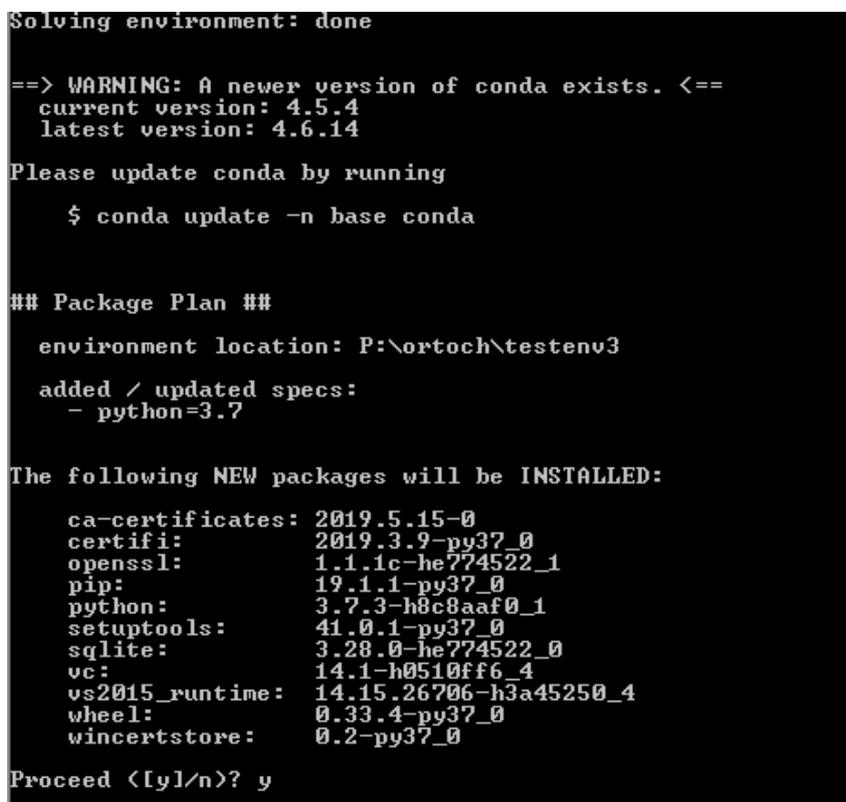
## Step-by-step guide to Python package install in virtual environments

1. Open Anaconda Prompt (to manage existing environments outside of command line, Anaconda Navigator can also be used) – You will be presented with the view  
<base> C:\Users\username>
2. To create a new environment within your user folder on the P drive (highly recommended) (change "ortoch" to your own username and "testenv3" to your own environment name):



```
Anaconda Prompt
(base) C:\Users\ortoch>conda create --prefix P:/ortoch/testenv3 python=3.7
```

The following will occur if successful:



```
Solving environment: done

==> WARNING: A newer version of conda exists. <==
current version: 4.5.4
latest version: 4.6.14

Please update conda by running

  $ conda update -n base conda

## Package Plan ##

environment location: P:\ortoch\testenv3

added / updated specs:
- python=3.7

The following NEW packages will be INSTALLED:

ca-certificates: 2019.5.15-0
certifi:         2019.3.9-py37_0
openssl:        1.1.1c-he774522_1
pip:            19.1.1-py37_0
python:         3.7.3-h8c8aaf0_1
setuptools:     41.0.1-py37_0
sqlite:         3.28.0-he774522_0
vc:             14.1-h0510ff6_4
vs2015_runtime: 14.15.26706-h3a45250_4
wheel:          0.33.4-py37_0
wincertstore:   0.2-py37_0

Proceed [y]/n)? y
```

3. 'y' to proceed with environment creation:
4. The following will occur if successful:

```
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
##
## To activate this environment, use
##
##   $ conda activate P:\ortoch\testenv3
##
## To deactivate an active environment, use
##
##   $ conda deactivate
```

5. You can check that the package is in the correct path by running `conda info --envs`
6. Activate the created environment as follows (replace `ortoch` with own username and `testenv3` with own environment name):

```
(base) C:\Users\ortoch>conda activate P:\ortoch\testenv3
```

7. Once activated, the path will now have your environment preceding the root, you can install a package by using: `'conda install packagename'`:

```
(P:\ortoch\testenv3) C:\Users\ortoch>conda install tensorflow
```

8. An example of the code that will appear if package installation is proceeding successfully; `'y'` to proceed:



```
## Package Plan ##
environment location: P:\ortoch\testenv3
added / updated specs:
- tensorflow

The following packages will be downloaded:

package                                     build                                     21.4 MB
-----
libknlml-2019.0.3                          h62dcd97_3                             128 KB
zlib-1.2.11                                 h62dcd97_3                             157.5 MB
mkl-2019.4                                  245                                     205 KB
tensorflow-estimator-1.13.0                py_0                                    44 KB
astor-0.7.1                                 py37_0                                  49 KB
numpy-1.16.4                                py37h19fb1c0_0                          9.4 MB
icc_rt-2019.0.0                             h0cc432a_1                              47 KB
mock-3.0.5                                  py37_0                                  138 KB
gast-0.2.2                                  py37_0                                  1.7 MB
intel-openmp-2019.4                         245                                     262 KB
werkzeug-0.15.4                             py_0                                    328 KB
mkl_random-1.0.2                            py37h343c172_0                          962 KB
h5py-2.9.0                                   py37h5e291fa_0                          136 KB
mkl_fft-1.0.12                              py37h14836fe_0                          132 KB
markdown-3.1.1                              py37_0                                  158 KB
absl-py-0.7.1                               py37_0                                  33 KB
keras-applications-1.0.8                   py_0                                    36 KB
keras-preprocessing-1.1.0                  py_1                                    7 KB
termcolor-1.1.0                             py37_1                                  947 KB
grpcio-1.16.1                               py37h351948d_1                          581 KB
protobuf-3.8.0                              py37h33f27b4_0                          22 KB
six-1.12.0                                  py37_0                                  14.0 MB
scipy-1.2.1                                 py37h29ff71c_0                          3.3 MB
tensorflow-1.13.1                           py37h33f27b4_0                          3 KB
_tflov_select-2.3.0                         nkl                                     4 KB
tensorflow-1.13.1                            nkl_py37h9463c59_0                      4.1 MB
numpy-base-1.16.4                          py37hc3f5095_0                          19.2 MB
hdf5-1.10.4                                  h7ebc959_0                              2.2 MB
libprotobuf-3.8.0                           h7bd577a_0                              141 KB
pyreadline-2.1                              py37_1                                  49.4 MB
tensorflow-base-1.13.1                     nkl_py37hcaf7020_0

Total:                                     286.6 MB

The following NEW packages will be INSTALLED:

_tflov_select: 2.3.0-nkl
absl-py: 0.7.1-py37_0
astor: 0.7.1-py37_0
blas: 1.0-mkl
gast: 0.2.2-py37_0
grpcio: 1.16.1-py37h351948d_1
h5py: 2.9.0-py37h5e291fa_0
hdf5: 1.10.4-h7ebc959_0
icc_rt: 2019.0.0-h0cc432a_1
intel-openmp: 2019.4-245
keras-applications: 1.0.8-py_0
keras-preprocessing: 1.1.0-py_1
libknlml: 2019.0.3-0
libprotobuf: 3.8.0-h7bd577a_0
markdown: 3.1.1-py37_0
mkl: 2019.4-245
mkl_fft: 1.0.12-py37h14836fe_0
mkl_random: 1.0.2-py37h343c172_0
mock: 3.0.5-py37_0
numpy: 1.16.4-py37h19fb1c0_0
numpy-base: 1.16.4-py37hc3f5095_0
protobuf: 3.8.0-py37h33f27b4_0
pyreadline: 2.1-py37_1
scipy: 1.2.1-py37h29ff71c_0
six: 1.12.0-py37_0
tensorflow: 1.13.1-py37h33f27b4_0
tensorflow-base: 1.13.1-mkl_py37h9463c59_0
tensorflow-estimator: 1.13.0-py_0
termcolor: 1.1.0-py37_1
werkzeug: 0.15.4-py_0
zlib: 1.2.11-h62dcd97_3

Proceed <(y/n)? y
```

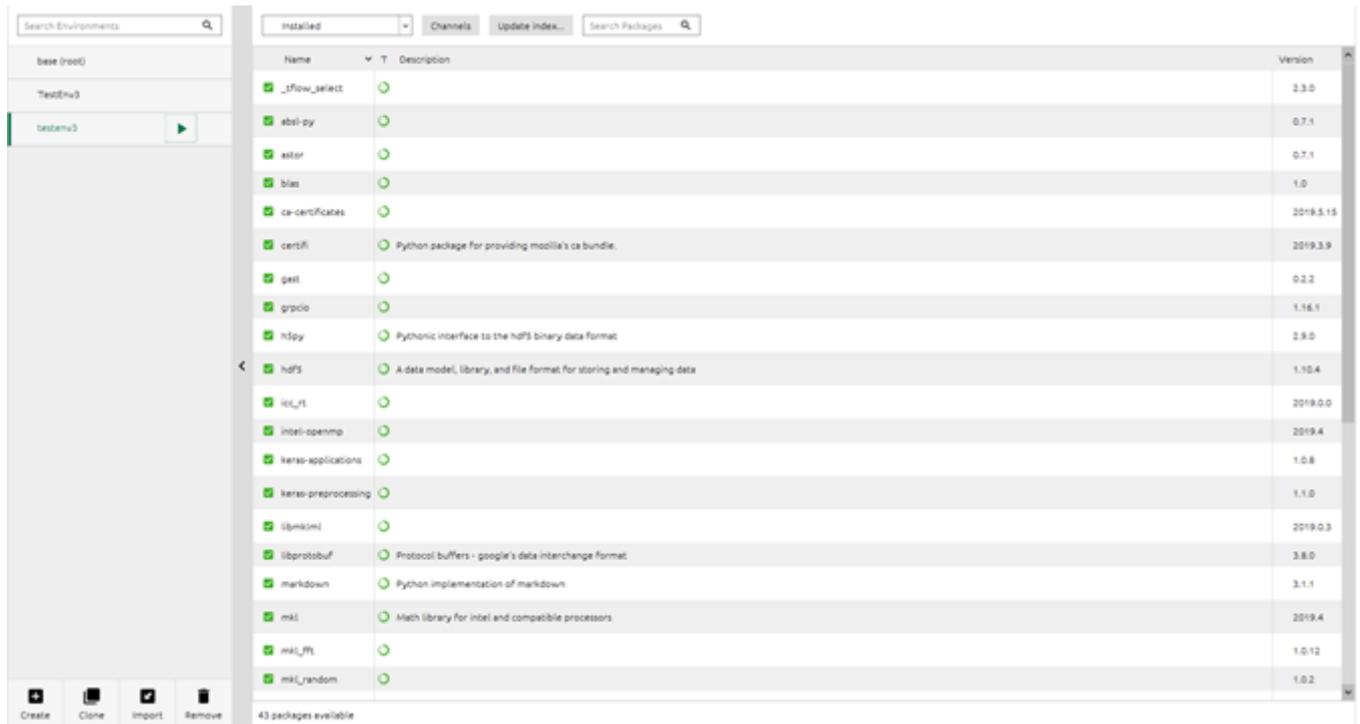
9. If appearing successful, before using an IDE such as Spyder/Jupyter Notebook to start a project, you can check libraries have been loaded correctly as follows in Anaconda Prompt:

```
python
>>> import tensorflow
```

If no errors return, the library is successfully installed.

10. You can also use Anaconda Navigator to view all packages in an environment – as shown here:

You can use Anaconda Navigator to install a number of other associated software, such as glueviz, Jupyterlab, Jupyter Notebook, orange3, qtconsole, rstudio (already installed on VDI but can be integrated into Python), spyder, and vscode



The screenshot shows the Anaconda Navigator interface. On the left, there is a sidebar with a search bar and a list of environments: 'base (root)', 'TestEnv3', and 'testenv3'. The 'testenv3' environment is selected. The main area displays a table of installed packages. At the top, there are tabs for 'Installed', 'Channels', and 'Update Index...', along with a search bar for packages. The table has columns for 'Name', 'Description', and 'Version'. Below the table, there are buttons for 'Create', 'Clone', 'Import', and 'Remove', and a note that '43 packages available'.

Name	Description	Version
_flow_select		2.3.0
abel-py		0.7.1
astor		0.7.1
bias		1.0
ca-certificates		2019.5.15
certifi	Python package for providing mozilla's ca bundle.	2019.3.9
git		0.2.2
grpcio		1.16.1
hdpy	Pythonic interface to the hdf5 binary data format	2.9.0
hdf5	A data model, library, and file format for storing and managing data	1.10.4
icc_rt		2019.0.0
intel-openmp		2019.4
keras-applications		1.0.8
keras-preprocessing		1.1.0
libkvm		2019.0.3
libprotobuf	Protocol buffers - google's data interchange format.	3.8.0
markdown	Python implementation of markdown.	3.1.1
mkl	Math library for intel and compatible processors	2019.4
mkl_fft		1.0.12
mkl_random		1.0.2