Getting Started with Python and Anaconda

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1 What is Anaconda?

The easiest way to start using Python for scientific computing and data science is by installing a Python distribution such as Anaconda. Anaconda is a freemium open source distribution of the Python and R programming languages for large-scale data processing, predictive analytics, and scientific computing. Anaconda includes all the scientific computing packages we are going to use in our tutorials such as NumPy, SciPy, Matplotlib, Pandas, etc.

2 Downloading Anaconda

The latest version of Anaconda is available for download from Continuum Analytics at: `https://www.anaconda.com/download`. Please make sure you download the latest version.

3 Installing Anaconda

3.1 Windows

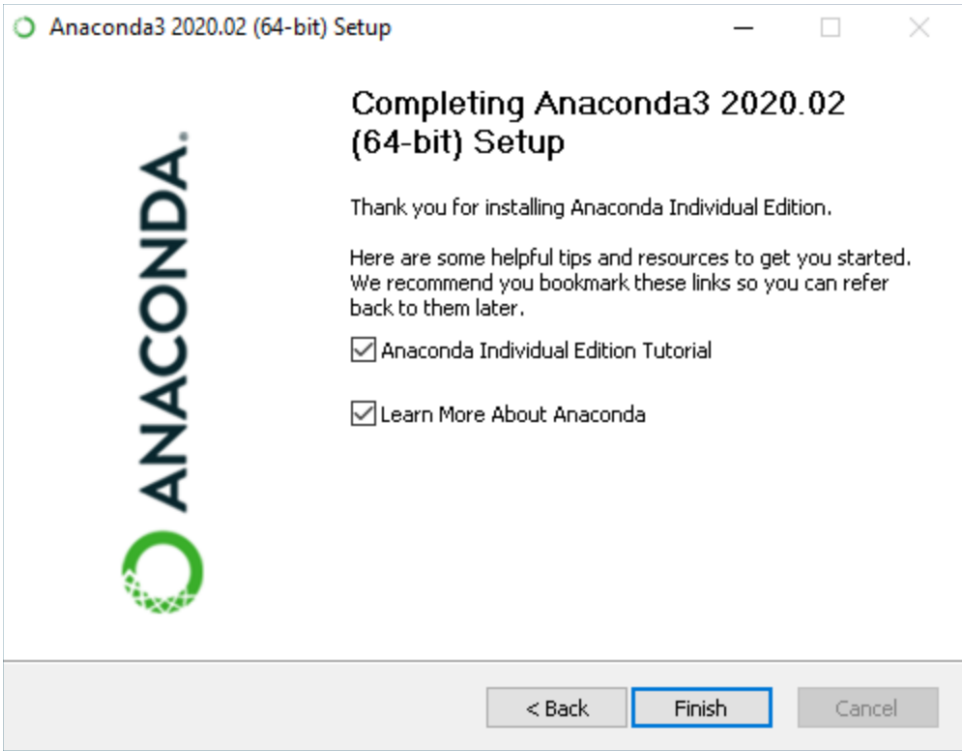
A detailed installation guide is available here: `https://docs.anaconda.com/anaconda/install/windows/`. Below are the main steps:

1. Double click the Anaconda installer and follow the steps to install to the default location.

   NOTE: Do not install as Administrator unless admin privileges are required.

2. If you choose a different installation path, please make sure it does not contain spaces or unicode characters.

3. After a successful installation you will see an output like this:

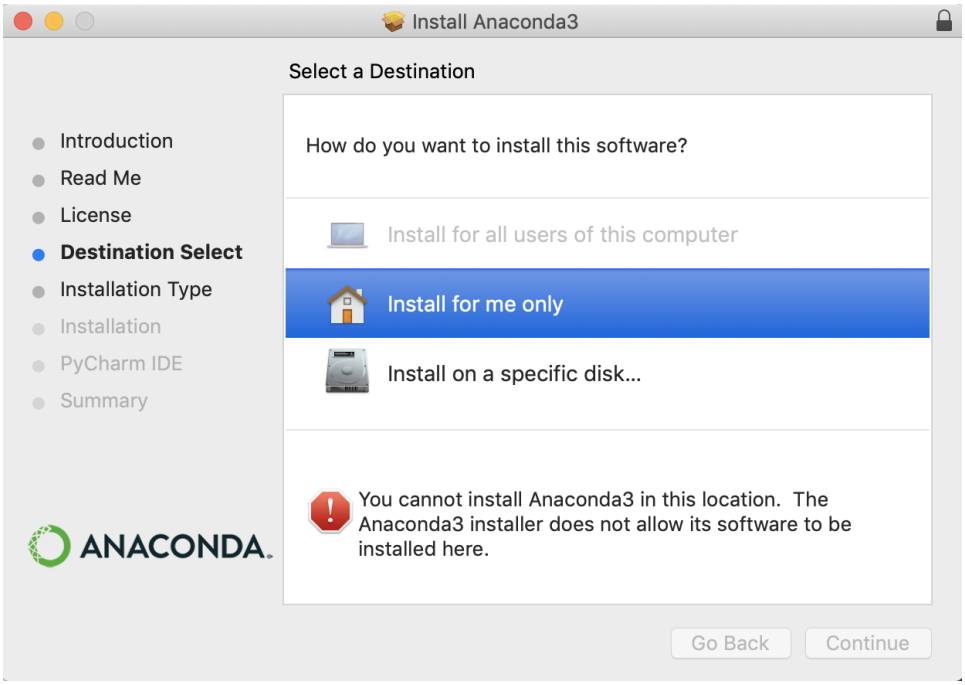


NOTE: If you encounter any issues during installation, please temporarily disable your anti-virus software during install, then immediately re-enable it. If you have installed for all users, uninstall Anaconda and re-install it for your user only and try again.

3.2 macOS

A detailed installation guide is available here: `https://docs.anaconda.com/anaconda/install/mac-os/`. Below are the main steps:

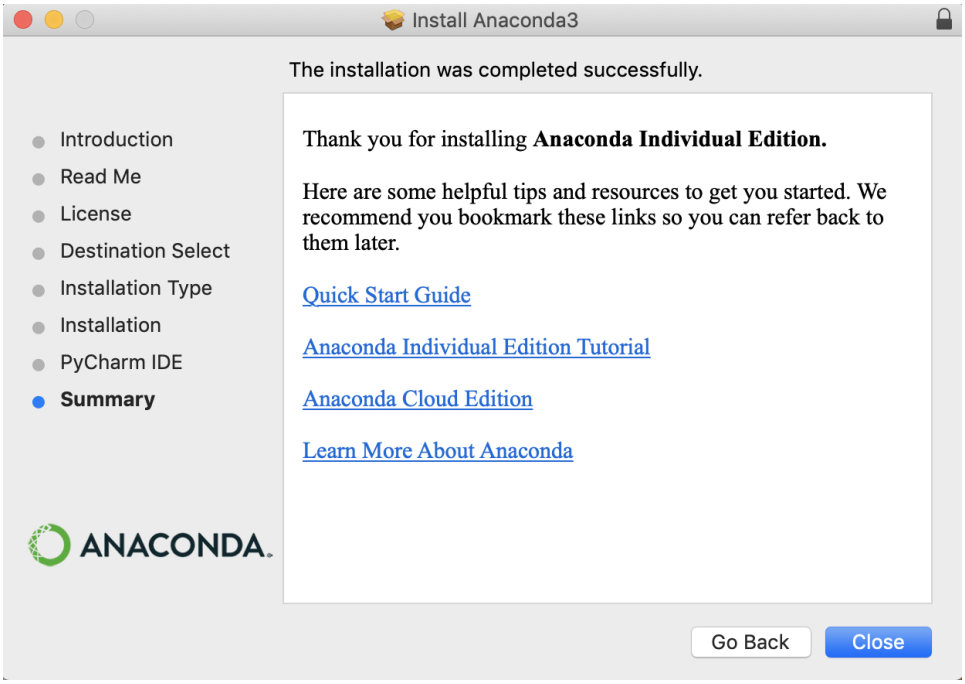
1. Download the Anaconda installer.
2. Double click the file. Answer the prompts on Introduction, Read Me, and License screens.
3. On Destination Select screen, you must select "Install for me only."



IMPORTANT: If you get the error message "You cannot install Anaconda in this location", reselect "Install for me only".

4. On "Installation Type" you may choose to install in another location. Standard install will put Anaconda in your home user directory.

5. Click the Install button. After a successful installation you will see output like this:



3.3 GNU/Linux

A detailed installation guide is available here: `https://docs.anaconda.com/anaconda/install/linux/`. Below are the main steps:

1. Download the Anaconda installer for Linux.
2. Open a terminal window and type the following:

   ```
   bash ~/Downloads/Anaconda3-2020.02-Linux-x86_64.sh
   ```

   NOTE: Replace ~ `/Downloads` with the actual path to the installation file.

   You should install Anaconda as a user unless root privileges are required.
3. Follow the prompts on the installer screens, and if unsure about any setting, simply accept the defaults, as they can all be changed later.

   The output of a successful installation will include the messages "Installation finished." and "Thank you for installing Anaconda!"
4. Finally, close and re-open your terminal window for the changes to take effect.

4 Install verification

After installation is complete, you can confirm that Anaconda is installed and working by launching Anaconda Navigator from the start menu (Windows), the Launchpad (macOS) or by opening a terminal window and entering the command

```
python
```

which will run the Python shell. If Anaconda is installed and working, the version information it displays when it starts up will include "Anaconda". You can use the command

```
quit()
```

to exit the Python shell.

5 Using Jupyter

During our tutorials, we will be using Jupyter Lab and notebooks as the main interface to interact with Python. Jupyter is included in Anaconda.

Jupyter Lab can be accessed either through the Anaconda Navigator or directly through the terminal of your OS.

From the Start menu (Windows) or Launchpad (macOS), click the Anaconda Navigator desktop app then select Jupyter Lab in the applications list.

To start the Jupyter Lab directly from the terminal, open a terminal session and type:

```
jupyter lab
```

6 Updating Anaconda

To update Anaconda open a terminal and type:

```
        conda update conda
```

to update Conda, the package manager itself, then update all packages by typing:

```
        conda update --all
```