

# Installing Python on Linux

## Overview

---

Throughout this document, we will:

1. Install Python 3.8.0
2. Create a virtual environment using this version of Python.
3. Inside this environment, install useful packages.

This approach works well and is straightforward to set up, but has its drawbacks. For those who feel more comfortable with the command line, we also provide instructions for a better solution involving a tool named `virtualenvwrapper`. In this portion, we will

1. Reset our environment to the default state.
2. Use Python 3.8.0's `pip` to install `virtualenvwrapper`
3. Use `virtualenvwrapper` to create a managed virtual environment.
4. Inside this environment, install useful packages.
5. Modify the shell startup script to activate this virtual environment.

Let's get started!

## Prerequisite

---

We assume that you have a basic familiarity with the command line.

## Install Python 3.8.0

---

On different Linux systems, there are a couple of different ways to install and manage packages. We'll cover `apt-get` here, as well as how you can install from source.

### Installing with `apt-get` (Ubuntu, Debian)

`apt-get` is Linux's Advanced Package Tool, and is very useful for installing, managing, upgrading, and removing packages on Debian, Ubuntu, and a few other Linux distributions. We'll use [Felix Krull's PPA](#) to install specific Python versions.

```
$ sudo add-apt-repository ppa:deadsnakes/ppa
$ sudo apt-get update
$ sudo apt-get install python3.8
$ sudo apt-get install python3.8-venv
```

On Debian, we'll just have to `sudo apt-get install python3` and hope for the best. Also note that this might install a different version of Python 3.8, but we won't worry about that here.

## Installing with `yum` (RedHat, CentOS)

Other Linux distributions use a different package manager, `yum`. We don't have any test devices with these Linux distributions, so you're on your own here. There is a reasonably good tutorial for CentOS [here](#).

## Other Linux package managers

The world of Linux distributions is unfathomably large. If you can pull off a Python 3.8 install on your distribution of choice, more power to you. However, we recommend building from source.

## Installing from source

Installing Python from source follows the same pattern as most other source installations.

First, download the source tarball (either [gzipped](#) or [XZ compressed](#)). Unzip the files and `cd` into the unzipped directory.

To build Python, just execute the usual commands:

```
$ ./configure
$ make
$ make test
$ sudo make install
```

*Note: If you want to install Python to a non-standard location, you can*

`./configure --prefix=/some/other/directory` in order to, say, not overwrite a system-installed Python, which might be useful for distributions like CentOS

## Credit

---

Much of this guide was based on a similar handout written by Sam Redmond.

