

Oracle Linux 8

Installing and Managing Python



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Preface

[Oracle Linux 8: Installing and Managing Python](#) describes how to install and configure a Python runtime environment so that you can run applications and scripting tools that require a Python interpreter to function.

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Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

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Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

1

About Python

Python is a high-level general purpose programming language that relies on an interpreter to fulfill scripted functions. On Oracle Linux 8, many system utilities, tools for data analysis and web applications rely on the presence of a Python runtime environment to function.

Two incompatible versions of Python are available for installation on Oracle Linux 8. Python 2 is no longer maintained by the Python community and it's strongly recommended that any existing Python 2 scripts are migrated to Python 3.

You can read more information about creating Python scripts at <https://www.python.org/doc/>.



Note:

The `python` command isn't aliased by default in Oracle Linux 8. Specify the Python interpreter version with the `python2` and `python3` commands when you run Python scripts.

For more information, see [Installing Python](#).

2

Installing Python

This chapter describes how to install several versions of Python and switch between them on the same Oracle Linux system.

To install Python and prerequisites, use the package manager. Several versions of Python can be installed and used simultaneously on the same machine, such as Python 2.7 and Python 3.6. You can identify which versions of Python you have installed as follows:

```
python2 --version
```

```
python3 --version
```

The `python` command isn't aliased by default in Oracle Linux 8. Specify the Python interpreter version with the `python2` and `python3` commands when you run Python scripts.

If you need to alias the `python` command to fix compatibility problems with existing scripts and applications, you can set it manually. For example, to set Python 2 as the default interpreter version:

```
sudo alternatives --set python /usr/bin/python2
```

For more information about using the `python` command, see the `python(1)` manual page.



Note:

Python 3.6 is supported for the full lifespan of Oracle Linux 8.

Application Stream packages, such as Python 2.7 and more recent versions of Python 3, have their own major version releases and can have shorter support lifespans. For more information, see [Oracle Linux: Product Life Cycle Information](#).

Installing Python 2



Important:

Python 2 is no longer maintained by the Python community. We recommend that you migrate existing Python 2 scripts and applications to Python 3.

To learn about the `2to3` automated migration tool visit <https://docs.python.org/3/library/2to3.html>. See also the porting guide at <https://portingguide.readthedocs.io/en/latest/> for more in-depth information.

To install Python 2.7 on an Oracle Linux 8 system:

```
sudo dnf module install python27
```

Installing Python 3

To install Python 3.6 on an Oracle Linux 8 system:

```
sudo dnf module install python36
```

If the system is running Oracle Linux 8.4 or later, you can optionally also install Python 3.9:

```
sudo dnf module install python39
```

If the system is running Oracle Linux 8.8 or later, you can optionally also install Python 3.11:

```
sudo dnf install python3.11
```



Note:

The application streams for Python 3.11 or later don't need to be installed with the `dnf module` command to prevent conflicts with other Python application streams.

Several versions of Python 3 can be installed and used simultaneously on the same machine, and you can specify which installation you intend to use as follows:

```
python3.6 --version
```

```
python3.9 --version
```

```
python3.11 --version
```

The `python3` command is aliased to Python 3.6, so for newer versions of Python 3 you need to explicitly reference the correct binary.

Installing Extra Python Libraries

You can also install extra dependencies from the Oracle Linux yum server. For example, to install the `requests` library for the default runtime version of Python 3, you would install the `python3-requests` package:

```
sudo dnf install python3-requests
```

To install dependency packages for specific Python versions, add the runtime version to the package name. For example, to install the `requests` library for Python 3.11, run the following command:

```
sudo dnf install python3.11-requests
```

Dependencies that are installed in this way are available for any compatible Python installations on the same system. In addition, any matching packages can also be removed without also removing existing Python installations.

3

Installing Third-Party Packages

Before installing a third-party package, verify if you can install the Python library you need from the Oracle Linux yum server. For example, to check if the `requests` library has been provided for Python 3.11, run the following command:

```
sudo dnf search python3.11-requests
```

For more information about installing extra Python libraries from the Oracle Linux yum server, read [Installing Extra Python Libraries](#).

If you can't find a particular dependency on the Oracle Linux yum server, or if the script that you need to run requires a newer version of the dependency than the installed package already provides, you can optionally use the `pip` package manager to install it from a third-party source.

To ensure that the system remains supported, for each project you can install and run third-party packages in an isolated virtual environment created with the `virtualenv` and `venv` Python modules.

To learn more about installing third-party packages inside Python virtual environments, visit <https://packaging.python.org/guides/installing-using-pip-and-virtual-environments/>.

Installing Pip Libraries With Python 2

1. Install base packages for the `pip2` command and virtual environments:

```
sudo dnf install python-pip python-setuptools python-wheel python-virtualenv
```

2. Create a Python virtual environment. For example, the following command creates a Python 2 virtual environment named `example2`:

```
python2 -m virtualenv --system-site-packages example2
```

3. You can now activate the `example2` environment and begin installing third-party dependencies. For example, to install a newer version of the `requests` library for Python 2:

```
source example2/bin/activate
```

```
python2 -m pip install --user requests
```

NOT_SUPPORTED:

Using the `pip` or `pip2` commands outside of a Python virtual environment applies changes system-wide, and that can impact compatibility with some installed packages in an Oracle Linux 8 installation.

Add the `--user` flag to any `pip2 install` commands to ensure that dependency packages are only available to the current user.

4. To run compatible scripts with the third-party packages that have been installed, run them from within the same Python virtual environment.

Installing Pip Libraries With Python 3

1. Install base packages for the `pip3` command:

```
sudo dnf install python3-pip python3-setuptools python3-wheel
```

2. Create a Python virtual environment. For example, the following command creates a Python 3 virtual environment named `example3`:

```
python3 -m venv --system-site-packages example3
```

3. You can now activate the `example3` environment and begin installing third-party dependencies. For example, to install a newer version of the `requests` library for Python 3:

```
source example3/bin/activate
```

```
python3 -m pip install --user requests
```

NOT_SUPPORTED:

Using the `pip3` command outside of a Python virtual environment applies changes system-wide, and that can impact compatibility with some installed packages in an Oracle Linux 8 installation.

Add the `--user` flag to any `pip3 install` commands to ensure that dependency packages are only available to the current user.

4. To run compatible scripts with the third-party packages that have been installed, run them from within the same Python virtual environment.

Installing Pip Libraries With Versioned Python 3

You can also install third-party dependencies for newer releases of Python 3 by using versioned `pip` commands. For example, to install Pip libraries for Python 3.11, follow these instructions:

1. Install base packages for the `pip3.11` command:

```
sudo dnf install python3.11-pip python3.11-setuptools python3.11-wheel
```

2. Create a Python virtual environment. For example, the following command creates a Python 3.11 virtual environment named `example4`:

```
python3.11 -m venv --system-site-packages example4
```

3. You can now activate the `example4` environment and begin installing third-party dependencies. For example, to install a newer version of the `requests` library for Python 3.11:

```
source example4/bin/activate
```

```
python3.11 -m pip install --user requests
```

NOT_SUPPORTED:

Using the `pip3.11` command outside of a Python virtual environment applies changes system-wide.

Add the `--user` flag to any `pip3.11 install` commands to ensure that dependency packages are only available to the current user.

4. To run compatible scripts with the third-party packages that have been installed, run them from within the same Python virtual environment.