Oracle Linux 10

Installing and Managing Python

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Preface

Oracle Linux 10: 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.

Documentation License

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.
italic	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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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.

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About Python

Python is a high-level general purpose programming language that relies on an interpreter to fulfill scripted functions. On Oracle Linux 10, many system utilities, tools for data analysis and web applications rely on the presence of a Python runtime environment to function.

Python 2 is no longer maintained by the Python community; Python 2 is also not supported or available on Oracle Linux 10. Any existing Python 2 scripts must be migrated to Python 3 or run inside a container. For more information about running scripts inside containers, see Oracle Linux: Podman User's Guide.

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

> **Note:**
>
> Unversioned Python commands are aliased to Python 3.12 by default in Oracle Linux 10.
>
> For more information, see Installing Python.

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Installing Python

To install Python 3.12 on an Oracle Linux 10 system:

```
sudo dnf install python3
```

The `python3` command points to Python 3.12 if it's installed on the system. To verify that behavior, run the following command:

```
python3 --version
```

In Oracle Linux 10, all unversioned Python commands point to Python 3.12 and can't be configured to run on newer Python versions by using the `alternatives` command.

To optionally enable the unversioned `python` command, install the `python-unversioned-command` package:

```
sudo dnf install /usr/bin/python
```

> **Note:**
>
> Python 3.12 is maintained for the full lifespan of Oracle Linux 10.
>
> Application Stream packages, such as more recent versions of Python 3, have their own major version releases and have shorter maintenance lifespans. For more information, see Oracle Linux: Product Life Cycle Information.

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
```

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.

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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 3.12, run the following command:

```
sudo dnf search python3-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 `venv` Python module.

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 3

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

   ```
   sudo dnf install python3-pip python3-setuptools python3-pip-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 `pip` and `pip3` commands outside of a Python virtual environment applies changes system-wide, and that can impact compatibility with some installed packages in an Oracle Linux 10 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.