

# **Quickstart Guide: Using Python Virtual Environments (venv)**

**Version 1.1 | September 2025 | Prepared by Tiffany Smith**

[Maintained by IT Security Team]

# Introduction

This Quickstart guide was prepared by the IT team to help employees use **Python** safely and consistently. While **Python** is a powerful tool, installing **packages** without a **virtual environment** (shortened to “**venv**”) can cause conflicts that affect other projects or even company systems.

By following this guide, you’ll learn how to create a safe “workspace” for each project. This reduces errors, improves collaboration, and ensures company data remains secure.

## Purpose

This guide shows employees how to safely run **Python** scripts by using **virtual environments** (**venv**). A **virtual environment** keeps your project’s tools and libraries separate so that one project doesn’t accidentally affect or break another.

In concept, a **venv** functions much like a toolbox for a particular project. Instead of keeping all tools for all uses in one place, the **venv** ensures each project is paired with its specific, applicable toolbox.

## When to Use This Guide

- Use a **virtual environment (venv)** whenever you:
  - a. Need to run a **Python** script for work.
  - b. Install new **Python packages** for a project.

- c. Work on multiple projects that might use different versions of the same **package**.

## Setting Up Your Python VENV

### Step 1: Create a Virtual Environment

Go to your project folder in the terminal, then run:

```
bash

python3 -m venv venv
```

This creates a folder named **venv** that holds your project's "toolbox."

### Step 2: Turn On the Environment

Before running scripts, activate the environment:

**Mac/Linux:**

```
bash

source venv/bin/activate
```

**Windows (PowerShell)**

```
powershell

.\venv\Scripts\Activate
```

If successful, you'll see (**venv**) appear at the start of your command line.

### Step 3: Install Packages

While the environment is active, install **packages** like this:

```
bash

pip install pandas
```

Everything stays inside the project's toolbox — not on your computer as a whole.

### Step 4: Turn Off the Environment

When you're done, type:

```
bash

deactivate
```

This safely closes the toolbox.

## Best Practices

- Specify “python3” when calling **Python** to run a script and avoid using “python” on its own. This calls the correct version of **Python** which ensures project stability.
- Setup only one environment per project to avoid software conflicts.
- Never email or upload your **venv** folder. **Python** has a built-in way to share **venv**'s!
  - Instead, share your requirements file with:

```
bash
```

```
pip freeze > requirements.txt
```

- Colleagues can then re-create your **venv** setup using:

```
bash
```

```
pip install -r requirements.txt
```

## Troubleshooting (Common Fixes)

- **Command not found: python3:**
  - Python isn't installed or isn't on your PATH. Contact IT.

```
python3 app.py  
zsh: command not found: python3
```

- **No module named venv:**
  - Ask IT to install the Python **venv** package.

```
python3 -m venv myenv  
ModuleNotFoundError: No module named 'venv'
```

- **Still not working?**
  - Check if (**venv**) is at the start of your command line.

- For Linux/Mac: source **venv**/bin/activate
- Windows (Command Prompt): **venv**\Scripts\activate.bat
- Windows (PowerShell): **venv**\Scripts\Activate.ps1
- Try activating again with the correct command for your OS

## Glossary (Plain Language)

**Python:** A programming language designed to be easy to read and use.

**Virtual environment (venv):** A private copy of Python + tools for one project.

**Package:** A ready-made set of Python code that adds features (like Excel add-ins).

**bash:** A common terminal (command-line tool) used on Mac and Linux.

**PowerShell:** The Windows version of a terminal (command-line tool).

**requirements.txt:** A simple text file listing all the packages your project uses.

## Revision History

**V1.0 (August 2025) - Initial version**

**V1.1 (September 2025) - Revised for clarity, error screenshots added**