Installing Panda3D for Windows

This is a step-by-step guide for installing and using Panda3D on Windows machines. It was tested using Windows 10, but should work on Windows 11 as well. Any version numbers listed are the most recent at the time of writing this guide, if more recent versions have been released it is recommended to use those. This guide will walk you through setting it up with Visual Studio Code, however you are able to use any python editor you prefer (you will just have to set it up yourself.

There are 5 steps to this guide:

1. Download Panda3D
2. Install VS Code
3. (Optional) Install Python
4. Create First Project
5. (Optional) Full Autocomplete Functionality

**Step 1: Download Panda3D**

There are multiple ways to install panda3D (pip, github, website), this guide will walk you through installing it using the installer available on their website.

* Go to: <https://www.panda3d.org/>
* Click “Get the SDK”
* Click “Installer for Windows (64-bit)”
* The installer should begin downloading, after finishing, launch it
* Your antivirus may flag the file as potentially dangerous, you will have to allow it to run
* In the setup window, there are a few important changes:
  + Strongly advised to leave the install location as the default (in testing, changing this caused it to not work)
  + When it asks which components you would like to install, it is recommended to change it from “Auto” to “Full”. At minimum, click on “Python Modules” and select the bindings for the version of Python you will be using. This guide will later recommend installing Python 3.11 (or whatever the latest version is at the time). You are able to leave it on auto and install it, but some functionality, like proper error checking and autocomplete, may be limited

**Step 2: Install VS Code**

This tutorial will use Visual Studio Code, you may use any code editor you prefer, but you will have to set it up yourself.

* Go to: <https://code.visualstudio.com/>
* Click “Download for Windows”
* The installer should begin downloading, after finishing, launch it
* Proceed through the installer

**Step 3: (Optional) Install Python**

This step is optional as the Panda3D install comes with Python 3.7. When using this version of python in VS Code, it wrongly marks many lines as errors, so this error checking will likely have to be turned off. Installing the latest version of python should fix this issue.

* Go to <https://www.python.org/downloads/>
* Click “Download Python 3.11.2” (or whatever the latest version is)
* The installer should begin downloading, after finishing, launch it
* If you wish to run python from the command line (as this tutorial later recommends), you will have to select “Add python.exe to PATH” and after installing click “Disable path length limit”

**Step 4: Create first project**

* Launch VS Code
* In the top left, click “File” then “New File…”
* Enter a file name ending in .py (for example: “Panda3DTest.py”)
* Choose the location you would like to keep your projects
* On the left side, click Extensions (Ctrl + Shift + X)
* Search Python and install the extension named “Python” that is verified by Microsoft
* Click on Explorer on the Left side (Ctrl + Shift + E)
* Paste the following code into the .py file to test (This is the sample from the Panda3D Manual):

**from** **math** **import** pi, sin, cos

**from** **direct.showbase.ShowBase** **import** ShowBase

**from** **direct.task** **import** Task

**from** **direct.actor.Actor** **import** Actor

**from** **direct.interval.IntervalGlobal** **import** Sequence

**from** **panda3d.core** **import** Point3

**class** **MyApp**(ShowBase):

**def** \_\_init\_\_(self):

ShowBase.\_\_init\_\_(self)

*# Disable the camera trackball controls.*

self.disableMouse()

*# Load the environment model.*

self.scene = self.loader.loadModel("models/environment")

*# Reparent the model to render.*

self.scene.reparentTo(self.render)

*# Apply scale and position transforms on the model.*

self.scene.setScale(0.25, 0.25, 0.25)

self.scene.setPos(-8, 42, 0)

*# Add the spinCameraTask procedure to the task manager.*

self.taskMgr.add(self.spinCameraTask, "SpinCameraTask")

*# Load and transform the panda actor.*

self.pandaActor = Actor("models/panda-model",

{"walk": "models/panda-walk4"})

self.pandaActor.setScale(0.005, 0.005, 0.005)

self.pandaActor.reparentTo(self.render)

*# Loop its animation.*

self.pandaActor.loop("walk")

*# Create the four lerp intervals needed for the panda to*

*# walk back and forth.*

posInterval1 = self.pandaActor.posInterval(13,

Point3(0, -10, 0),

startPos=Point3(0, 10, 0))

posInterval2 = self.pandaActor.posInterval(13,

Point3(0, 10, 0),

startPos=Point3(0, -10, 0))

hprInterval1 = self.pandaActor.hprInterval(3,

Point3(180, 0, 0),

startHpr=Point3(0, 0, 0))

hprInterval2 = self.pandaActor.hprInterval(3,

Point3(0, 0, 0),

startHpr=Point3(180, 0, 0))

*# Create and play the sequence that coordinates the intervals.*

self.pandaPace = Sequence(posInterval1, hprInterval1,

posInterval2, hprInterval2,

name="pandaPace")

self.pandaPace.loop()

*# Define a procedure to move the camera.*

**def** spinCameraTask(self, task):

angleDegrees = task.time \* 6.0

angleRadians = angleDegrees \* (pi / 180.0)

self.camera.setPos(20 \* sin(angleRadians), -20 \* cos(angleRadians), 3)

self.camera.setHpr(angleDegrees, 0, 0)

**return** Task.cont

app = MyApp()

app.run()

* In the bottom right, ensure it is running Python 3.11.2 (or whatever the latest version of python you installed is
* Click “Run Python File” (start button in top right)
* You should see a window pop up that has a panda walking back and forth across a clearing

If it doesnt work, here are some possible troubleshooting steps:

* Ensure that when downloading Panda3D you installed the correct bindings for the version of python you are using (See Step 1)
* Ensure that in the bar on the bottom of VS Code it says “Python” and the version you are using. If it doesn’t, click on the language it is using and select Python, and click on the version it is using and select the correct interpreter

**Step 5: (Optional) Additional Autocomplete Functionality**

While Panda3D is completly functional at this point, you can add additional functionality to make it slightly easier to develop programs. For example, if you type in:

**from** **panda3d.bullet** **import** b

There will be no prompt with suggested completions to this line. It is possible to have it recommend a list of everything you could complete this line with, if you want this, you will have to do the following (note that you will have had to install python separately and added to your system path variable. See Step 3):

* Open the command prompt: (Win + R, type cmd, then enter)
* Paste in the following command and hit enter: python -m pip install --upgrade types-panda3d
* Paste in the following command and hit enter: pip show types-panda3d
* The first command will install type stubs for Panda3D (information about what is included in a module). This will give VS Code the information that it needs to make autocomplete suggestions. The second command provides information about what was just installed.
* Scroll down until you see “Location:” and copy the path (e.g.”C:\Users\person\AppData\Local\Programs\Python\Python311\Lib\site-packages”)
* In VS Code, open settings (bottom left or Ctrl + ,)
* Search for “Extra Path” in settings
* Click on Pylance (Left side of settings page, Extensions > Pylance)
* You should see a setting that says “Python > Analysis: Extra Paths”
* Click add item, paste the location you copied, and click okay.
* Return to your python file and type in the following code to test if it works (copying and pasting may not work):

**from** **panda3d.bullet** **import** b

You should now see a list of autocomplete suggestions