

Brief Introduction to POV-Ray

POV-Ray is powerful, yet free, ray-tracing software that can produce beautiful three-dimensional images. The syntax can be intimidating, but with practice one can fairly quickly begin producing some nice images. Look at some of the examples from my website <http://www.ms.uky.edu/~lee/visual> click on POV-Ray Examples, and study them to see what the instructions are doing.

Download the software from the website www.povray.org and install it—I suspect you will need administrative privileges on your machine to do so. It is available for Windows, Mac, and Linux. After POV-Ray is installed and started up, do the following to render a test scene:

1. Go to my website above, select “POV-Ray Examples”, and then select “Source file” under “Sphere”. Select and copy the contents of this file.
2. Within POV-Ray select “File”—“New File”. Then select “Edit”—“Paste”.
3. Select “File”—“Save” to save the file somewhere on your computer.
4. Select your desired picture size, such as [512x384, AA 0.3] from the pulldown menu (Windows version) or under “Edit”—“Settings”—“Output” (Mac version).
5. Select “Render”—“Start Rendering (Go!)” (Windows version) or “Render”—“Render” (Mac version). to create the picture. If all goes well, you should see a resulting image. The program will save this image on your computer somewhere.

We’ll discuss animations later if people are interested. Study the various examples, and in particular pay attention to the possibilities of making unions, intersections, and differences of objects. Try to figure out how the instructions work, and try tweaking them for different effects.

You will notice various “textures” used. You can find the texture files (like colors.inc, glass.inc, golds.inc, metals.inc, stones.inc, and woods.inc) in the “include” folder within the POV-Ray folder. To save you the trouble of hunting through these, here are some pre-defined textures:

1. Glass: T_Glass1, T_Glass2, T_Glass3, T_Glass4, T_Old_Glass, T_Winebottle_Glass, T_Ruby_Glass, T_Green_Glass, T_Dark_Green_Glass, T_Yellow_Glass, T_Orange_Glass, T_Vicksbottle_Glass.
2. Stone: T_Stone1 through T_Stone44.
3. Wood: T_Wood1 through T_Wood35.

4. Metal: T_Brass_1A through T_Brass_5E, and similarly for Copper, Chrome, Silver, and Gold.