

# Gene's OpenGL experiments (GOGL)

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## 1 Introduction

My experiments while learning OpenGL. Probably of most use to me, the guy learning OpenGL.

## 2 Setup

Mesa version 4.0.3 is installed on Plague, but I installed it at least a year ago, & I'm not sure I did it right. Also, there's a newer release of Mesa, version 5.0.1. So I downloaded that from Mesa's page on Source Forge, to which I was directed by Mesa's home page<sup>1</sup>.

It seems that the `MesaLib-5.0.1.tar.*` file is the library, but GLUT & other nearly necessary things are in the corresponding `MesaDemos-5.0.1.tar.*` file, so I downloaded both. They unpack into the same directory, `./Mesa-5.0.1`.

Mesa uses `./configure`, but to install into the standard OpenGL location, you must use `--prefix=/usr`; otherwise, `./configure` defaults to `/usr/local`. So I ran `./configure --prefix=/usr`.

Then `make`. Then `su` to root to run `make install`, but first I removed the old installation (`/usr/local/include/GL/`, some libraries in `/usr/local/lib/`, & `/usr/include/GL/`).

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<sup>1</sup><http://www.mesa3d.org/>

Then “make check” failed. Seems that it is looking for the Mesa libraries in `/home/local/Mesa-5.0.1/`. Truth be told, I accidentally unpacked it into that directory. I moved it to `/home/local/src/Mesa-5.0.1` after the `make`. It uses shared libraries & `libtool`, which probably explain the problem. So start over:

1. `make clean`
2. “`export LDFLAGS=-lstdc++; ./configure --prefix=/usr`”. The Mesa installation instructions on their web site suggested the `LDFLAGS` part.
3. `make`
4. `make install`
5. `make check`

The “make check” fails because `libGLU` requires the C++ runtime, which it ain’t bein’ linked with. That’s what the `LDFLAGS=` was supposed to fix according to the Mesa installation instructions.

I got the first link error to go away (temporarily) to copying the entire link command (which was huge) into a file, changing the “`gcc`” to “`g++`”, removing all the `-L...` arguments that mentioned “`stdc++`”, & removing a `/usr/.../libstdc++.so`. Basically, I removed all references to “`stdc++`”. That single link, which I ran outside of `make`, worked, but when I ran “make check” again, it failed for the same reason. So I finally settled on “make -k check” in the hopes of compiling & linking what it can.

It finished after about ten minutes. Don’t know what it built. I can’t find any executables, though I didn’t look very deep into the directories. So I think it installed the libraries, but I can’t find demos to see if it works. That’s one reason to have my own test & demo programs. They start simpler so it’s easier to find errors.

So I tried my own test/demo programs, which is what `GOGL` is. I get the same link error. It’s a problem in `libGLU`, but you have to link with `libGLU`. It’s a problem with C++ libraries, & the fact that Silocon Graphic’s `GLU` is written in C++ makes me suspect you always have to link it with the C++ compiler. In a worst case, it means your programs would have to be C++, which is lame, lame, lame!

## References