

Here's how to get opengl up and running on a PC:

Minimum win95 OpenGL setup (for the latest OpenGL, go to next section):

1. Buy a book like this one:

[OpenGL Programming for Windows 95 and Windows NT](#)

(Includes CD with OpenGL for Windows 95)

Author: Ron Fosner

Publisher: Addison Wesley

or *The OpenGL SuperBible*

2. From one of those CDs, grab these essential files:

```
opengl32.dll glu32.dll
```

3. Put them under

```
Windows\system\
```

4. The corresponding opengl32.lib glu32.lib files go in

For Visual C++ 4.0:

```
msdev\lib\
```

For Visual C++ 5.0:

```
Program Files\DevStudio\Vc\lib\
```

5. The header files should be in:

For Visual C++ 4.0:

```
msdev\include\gl\gl.h  
msdev\include\gl\glu.h
```

For Visual C++ 5.0:

```
Program Files\DevStudio\Vc\include\gl\gl.h  
Program Files\DevStudio\Vc\include\gl\glu.h
```

Optional Complete OpenGL 1.1 setup:

1. For a newer MS opengl (the latest OpenGL 1.1), try downloading this:

<ftp://ftp.microsoft.com/Softlib/MSLFILES/Opengl95.exe>

Or check out SGI's MMX accelerated software opengl for windows at:

<http://www.cs.utah.edu/~narobins/opengl.html>

2. The essential files are

```
opengl32.dll glu32.dll
```

3. Put them under

```
Windows\system\
```

4. The corresponding opengl32.lib glu32.lib files go in:

For Visual C++ 4.0:

```
msdev\lib\
```

For Visual C++ 5.0:

```
Program Files\DevStudio\Vc\lib\
```

5. The header files go in:

For Visual C++ 4.0:

```
msdev\include\gl\gl.h  
msdev\include\gl\glu.h
```

For Visual C++ 5.0:

```
Program Files\DevStudio\Vc\include\gl\gl.h  
Program Files\DevStudio\Vc\include\gl\glu.h
```

Downloading glut:

1. Download glutdlls.zip from the appropriate link on:

<http://www.cs.utah.edu/~narobins/opengl.html>

2. Unzip glutdlls.zip

(use WinZip or pkUnZip or something like that, go to <http://www.altavista.com> and search for these)

There are 2 sets of files, one for MicroSoft's OpenGL (with 32 in filenames) and one for SGI's OpenGL (no 32).

3. Put these under

```
windows\system\glut32.dll
windows\system\glut.dll
```

For Visual C++ 4.0:

```
msdev\lib\glut32.lib
msdev\lib\glut.lib

msdev\include\gl\glut.h
```

For Visual C++ 5.0:

```
Program Files\DevStudio\Vc\lib\glut32.lib
Program Files\DevStudio\Vc\lib\glut.lib

Program Files\DevStudio\Vc\include\gl\glut.h
```

Building an OpenGL glut program in Visual C++ 4.0 or 5.0:

1. Download Ed Angel's book examples from

<ftp://ftp.aw.com/cseng/authors/angel/intcg/>

2. Start with gasket.c.
3. Make a new directory

```
gasket
```

4. Copy gasket.c into the gasket directory.
5. For Visual C++ 4.0, Start->Programs->MSDEV->Visual C++ 5.0, or
For Visual C++ 5.0, Start->Programs->Microsoft Visual C++ 5.0->Microsoft Visual C++ 5.0
6. In Visual C++ 4.0, New->Project Workspace, or
In Visual C++ 5.0, File->New, Select Projects tab
 1. Choose Console Application
 2. Name the project gasket and check that the directory path is correct
 3. Click OK
7. In Visual C++ 4.0, Insert->Files Into Project, or
In Visual C++ 5.0, Project->Add to Project->Files
 1. find, choose gasket.c
8. In Visual C++ 4.0, Build->Settings, or
In Visual C++ 5.0, Project->Settings
 1. In Visual C++ 5.0, make sure that the project name is selected on the left side, not the .c file.
 2. On the left side, choose **Settings For All Configurations**.
 3. Choose the Link tab

In the library field, click, press the <End> key, then type either of these:

for Microsoft's OpenGL:

```
opengl32.lib glu32.lib glut32.lib
```

or for SGI's OpenGL:

```
opengl.lib glu.lib glut.lib
```

Click OK

9. Go to the File View tab.
10. Click the + sign before gasket files, double-click on gasket.c. It will not build yet.

Making any of Ed Angel's examples build under win95

1. Remove this line which causes conflicts under windows and is not needed since glut.h will include GL/gl.h:

```
#include <GL/gl.h>
```

2. Find and comment out the line beginning with

```
long random()
```

3. Find random() and change to rand() instead.
4. Save the file (CTRL-S).
5. Build->Rebuild All.
 1. If using Visual C++ 5.0 and you get the message "There is no source file to build", go to Project->Settings, select the .c file, click on the General tab, deselect "Exclude File from Build", then click OK.
6. Ignore the warnings for now(something annoying like Warning: 'const double' to 'float', may lose information).

All this means is that in lines like

```
glColor3f(1.0, 0.0, 0.0);
```

1.0 is interpreted as type const double, while glColor3f takes parameters of type float. If you want to get rid of the warnings, just do this:

```
glColor3f(1.0f, 0.0f, 0.0f);
```

This forces constants to be interpreted as floats, not doubles.

7. As long as you don't get any errors you can now:
8. Build->Execute gasket.exe

To start creating your own OpenGL program such as maze2d

1. Make a new directory

```
maze2d
```

2. Copy gasket.c into the maze2d directory.
3. Rename gasket.c maze2d.c
4. For Visual C++ 4.0, Start->Programs->MSDEV->Visual C++ 5.0, or
For Visual C++ 5.0, Start->Programs->Microsoft Visual C++ 5.0->Microsoft Visual C++ 5.0
5. In Visual C++ 4.0, New->Project Workspace, or
In Visual C++ 5.0, File->New, Select Projects tab
 1. Choose Console Application
 2. Name the project maze2d and check the directory
6. In Visual C++ 4.0, Insert->Files Into Project or
In Visual C++ 5.0, Project->Add to Project->Files
 1. find, choose maze2d.c
7. In Visual C++ 4.0, Build->Settings or
In Visual C++ 5.0, Project->Settings
 1. Choose the Link tab (you may need to scroll tabs right with arrow in upper right)
 2. In the libraries field, click, press the <End> key, then type either of these:

for Microsoft's OpenGL:

```
opengl32.lib glu32.lib glut32.lib
```

or for SGI's OpenGL:

```
opengl.lib glu.lib glut.lib
```
8. Go to the File View tab (under class view).
 1. Click the + sign before maze2d files,
 2. double-click on maze2d.c.
9. Change all references to gasket to maze2d.
10. Add your name to the comments.
11. Go to the display() routine.
 1. Delete everything except glClear() at the beginning and glFlush() at the end. Add code in-between to create your maze.

It's that simple ;)

Getting rid of the console window

By default a console application will create a console window from which the application will be started. To get rid of this window, do the following. Note that error messages and output will be lost (unless redirected) if you get rid of the console window.

1. In Visual C++ 4.0, Build->Settings or
In Visual C++ 5.0, Project->Settings
2. Choose the Link tab
3. On the left side, choose **Settings For** either the Debug or the Release version, but not both. This allows you to edit Project Options.
4. In the Project Options field find:

```
/subsystem:console
```

change this to

```
/subsystem:windows /entry:mainCRTStartup
```

Thanks to Mark Kilgard and Jean-David Marrow. For more info see:

<http://reality.sgi.com/mjk/glut3/glut-faq.html#Q36>

Good luck, send email or call if you have trouble.