Maya Plug-ins

How to Get Started with Maya Plug-ins

Part 1- Setting up the build environment and Compile a C++ code in Eclipse (Linux)

What you need!

First you need to make sure that you have a '**devkit**'. it comes with maya, so you don't have it make sure you have it. On my computer is located at: */usr/autodesk/maya2012-x64/devkit*

This folder includes a lot of important materials which helps you to develop tools for Maya. The most important thing in the 'devkit' is that it includes a directory that includes more than 600 C++ source pluging codes that makes it an important asset for the developer. You can look at the some of the plugins and see how is done and get help from it.

Next important thing included in the plug-ins folder is a code called '**buildconfig**' which is required for making a and building the C++ source code.

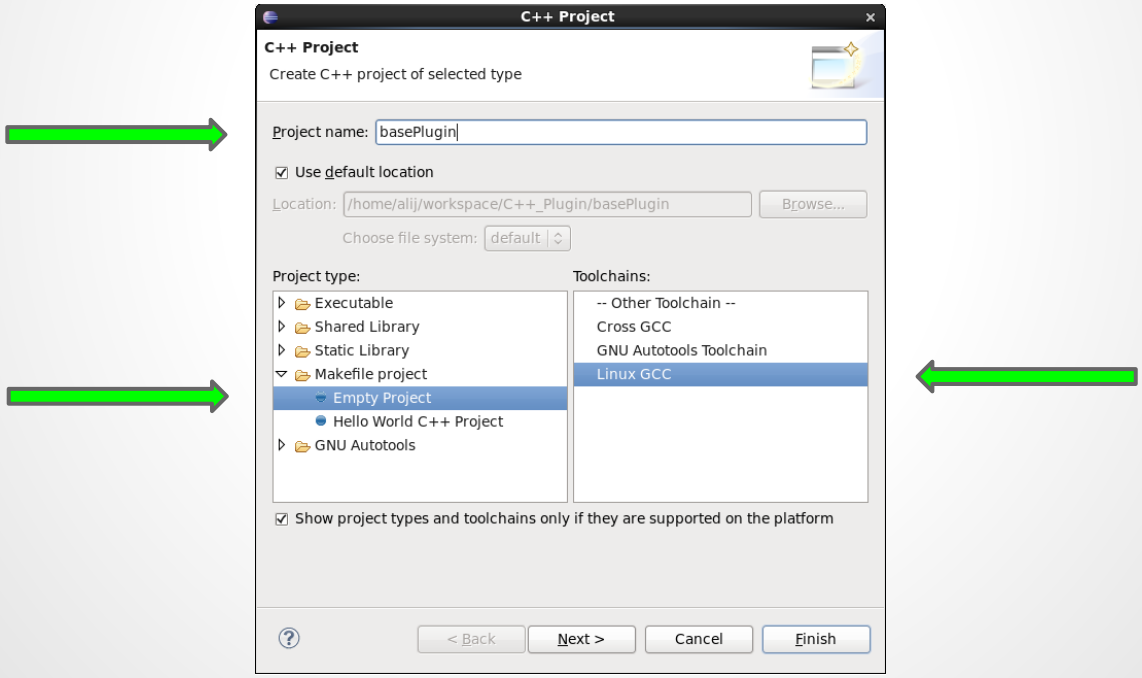
You also need to make sure that you have the '**gcc**' and '**gcc-c++**' installed on your computer. That is a compiler for our code. If you are installing them, Make sure you install the version 4.1.2. It is not a big deal because there is a work around it, but that is a version that 'buildconfig' uses to build the source code. If you already have a different version of 'gcc' installed, don't worry, I'll show you how to use it. To find see what is the version of your 'gcc', in your terminal type: **gcc --version**

Next thing we need is an editor for writing and compiling the code. I use '**eclipse**' but you can use anything else you are comfortable with, you could use terminal to do all this too. Go to eclipse website and download the **Eclipse IDE for C/C++ Developers.**

Set it up!

Lets set up our environment:

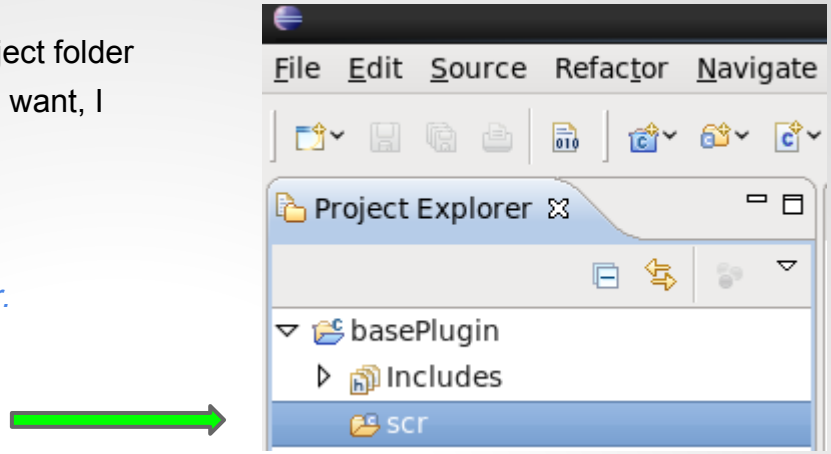
Open eclipse and go File --> New --> C++ Project. That will open up the dialog box (images below) that you can choose from variety of project types.



From the 'MakeFile project' select the 'Empty Project', form the 'toolchains' select the 'Linux Gcc' and give it the project name and click Finish.

In the '**Project Explorer**' tab, right click on your project folder and create a '**source folder**'. Name it whatever you want, I usually call it '**scr**'.

** If you are not see the 'Project Explorer' tab,*
go to Window -- > Show View -- > Project Exploerer.



From '**devkit/plug-ins**' copy the '**buildconfig**' file into your source folder, in my case in '**scr**'. If you have a different version of '**gcc**', double click on 'buildconfig' file and open it. Find the '**gccVersion**' in the file and replace the version to be the same as the version of the gcc on your system. After doing so you can close it.

Now we need a '**Makefile**' to be able to compile the C++ code and make a **.so** file which is a plugin version for Maya on Linux. Right click on source folder, scr, and go to New --> File and make new file, name it exactly '**Makefile**'.

In the file type the next code:

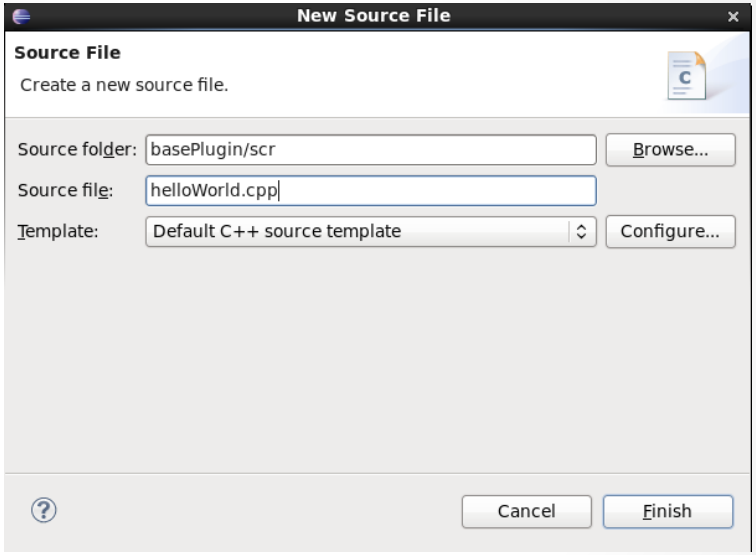
```
include buildconfig
%.so : %.cpp
	$(C++) -o $@ $(INCLUDES) $(C++FLAGS) $< $(LFLAGS) $(LIB)
clean:
	rm -f *.o *.so
```

Then save it and close it.

There are few more steps until we can actually build and create Maya plug-in:

Right click on the source folder, in my case 'scr', and go to New --> Source File. Name it whatever you want and make sure

you add '**.cpp**' at end of it, In my case is called **helloWorld.cpp.**



Click on finish, and save it.

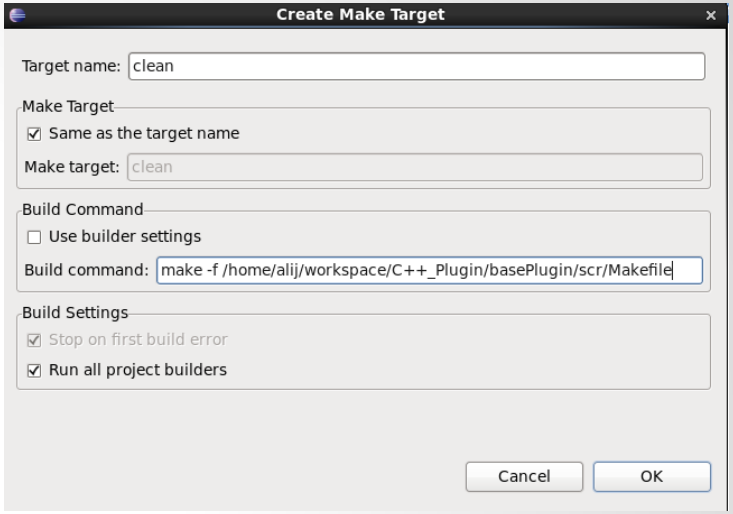
Now it is time to make targets, which means once you click on it, it'll build or delete the compiled file. Go to '**Make Target**' tab, if you don't have it go to Window --> Show View --> Make Target. Open the project folder and right click on source folder, in my case '**scr**', then click on new to make a new target.

Clean Target:

Name it '**clean**', or what ever make sense to you. Uncheck the **use Builder Settings,** and type the next line:

make -f /PATH/TO/YOUR/Makefile

and then click ok



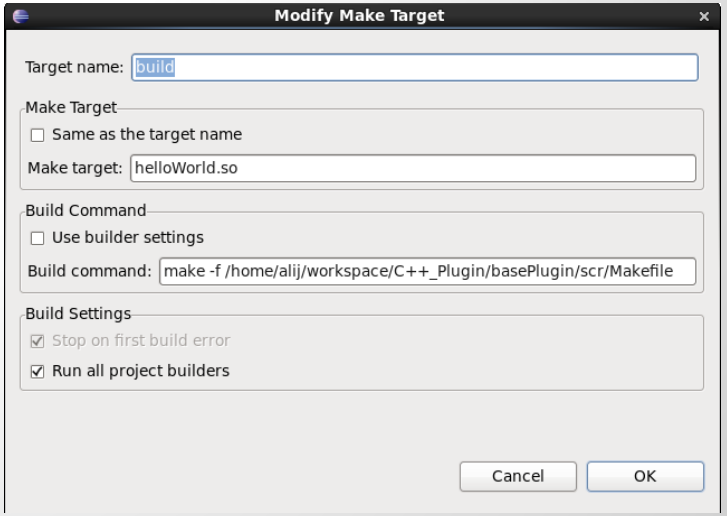
Build Target:

Name it '**Build**', or what ever make sense to you.

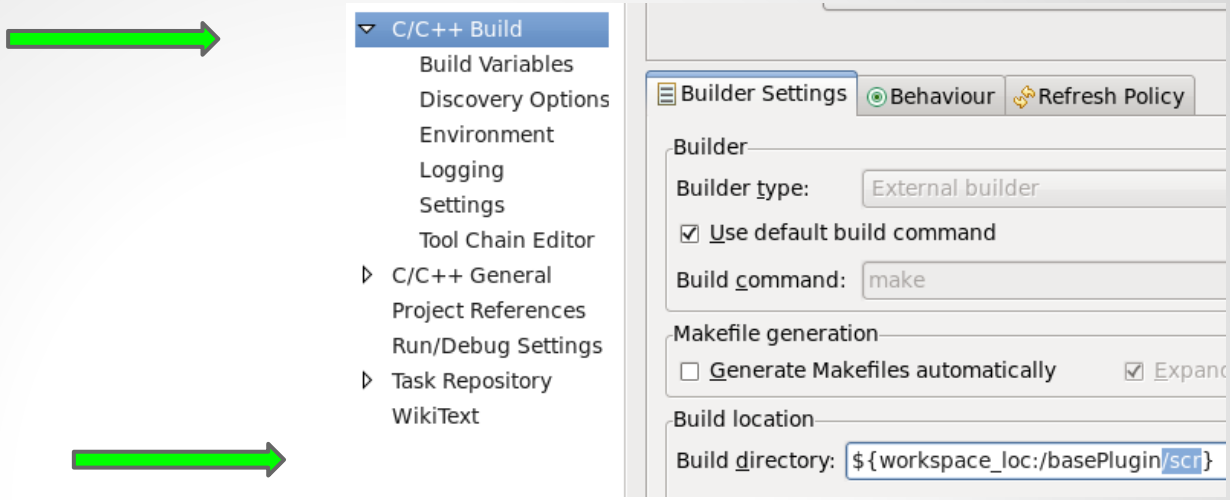
Uncheck the **use Builder Settings,** and type the next line:

make -f /PATH/TO/YOUR/Makefile

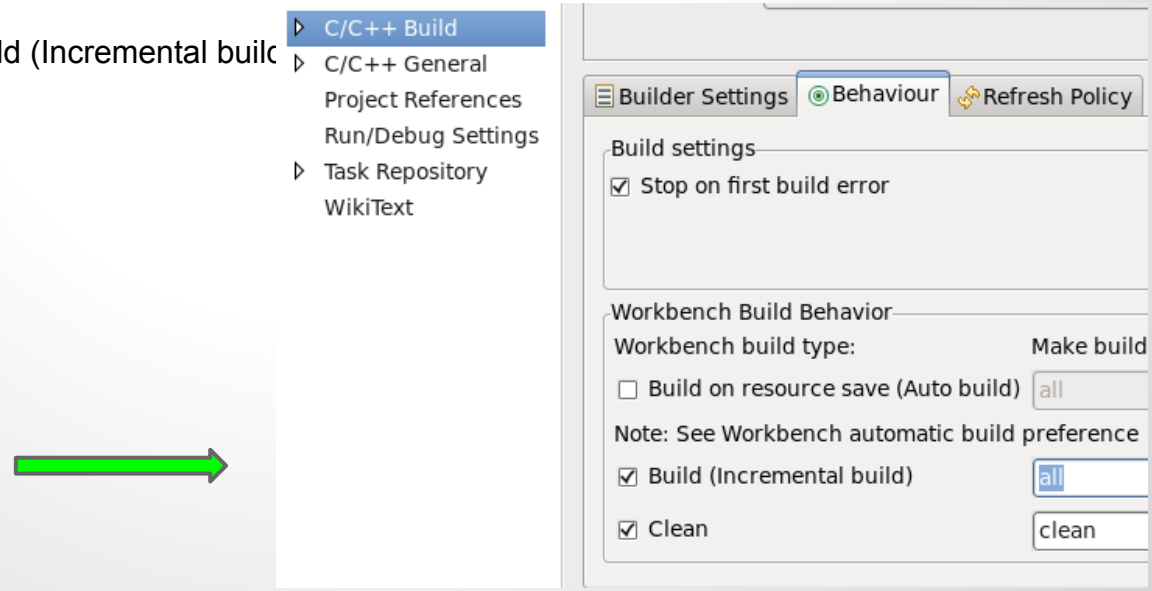
Uncheck the '**Same as the target name**' and put the name of the plugin , make sure you add '**.so**' to the name, that's what will be the plugin, eventually.and then click ok



Right click on your project folder in the Project Explorer tab and go to **Properties**. In the **C/C++ Build** section click on **Builder Setting** tab, and then add the name of the source folder, in my case **scr,** to the **build directory** section.



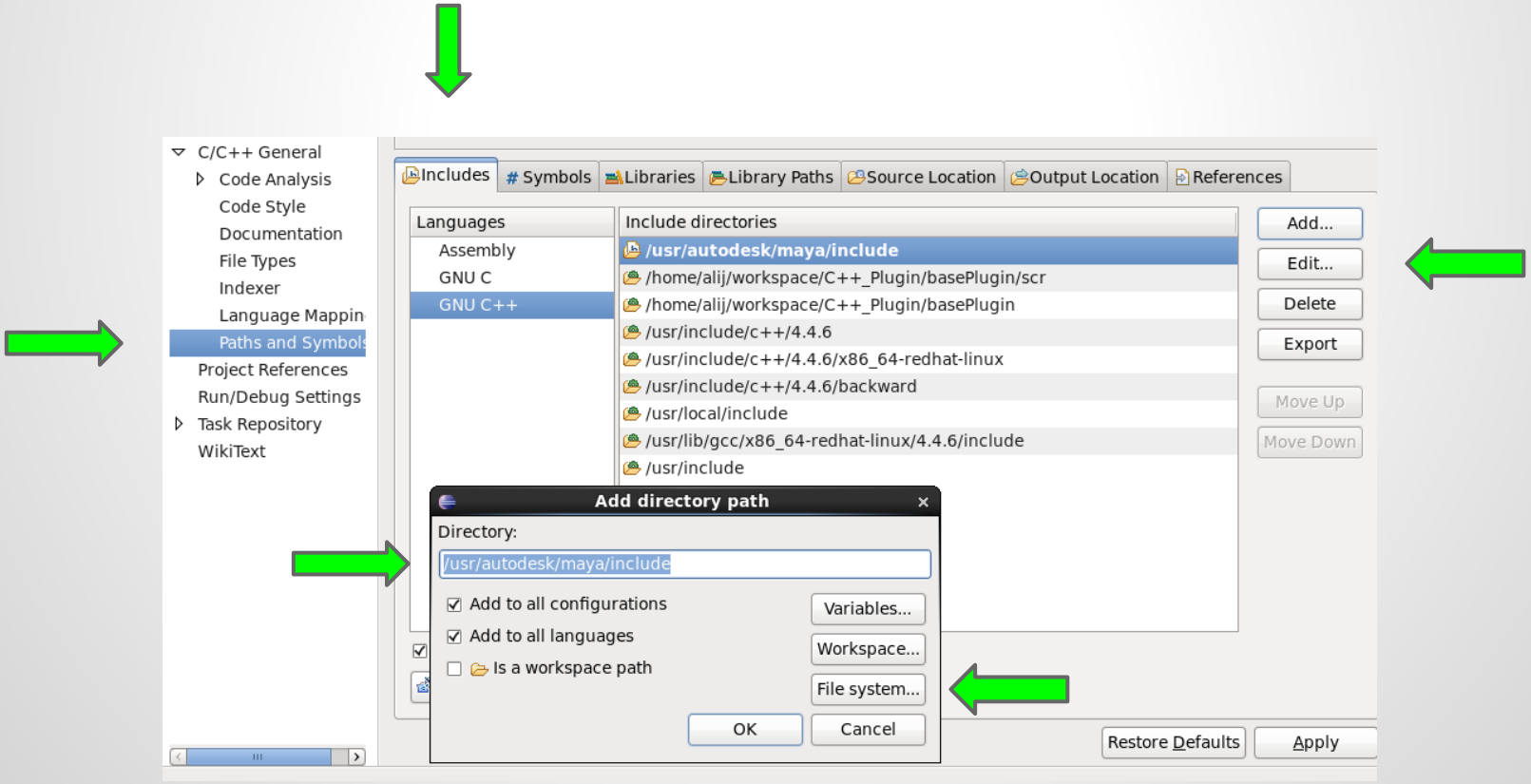
Then got to **Behaviour** tab. In the Build (Incremental build section **delete** '**all**'.



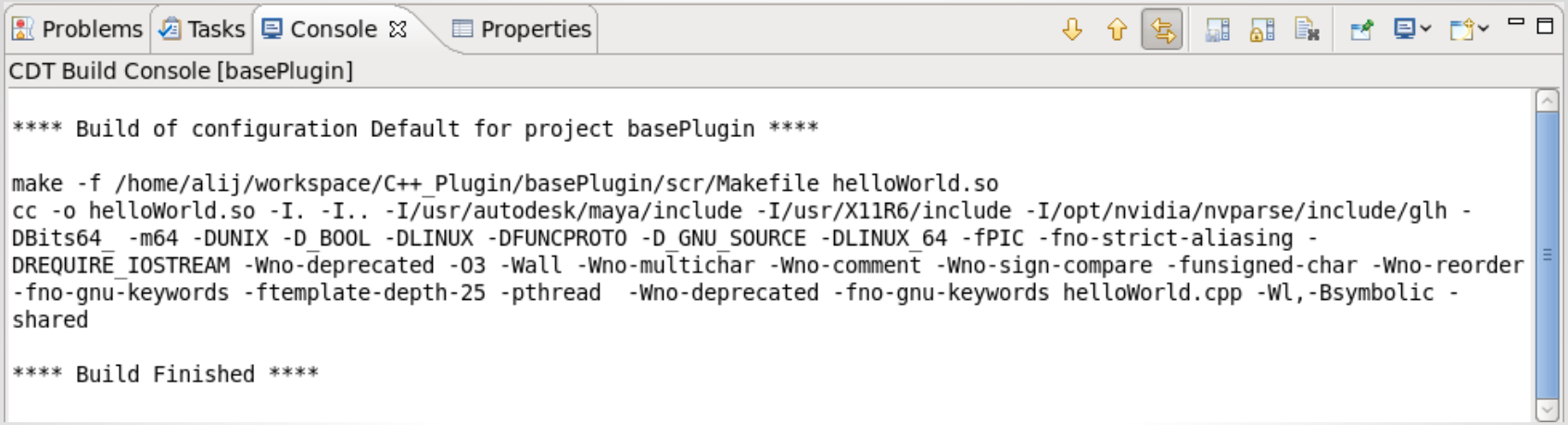
Don't close the Properties window,
There is more stuff to do.

This is a last step, hang in there.

While you are in the **Properties** tab, go to the **Path and Symbols** section. In the **Includes** tab, click on the **GNU C++** and then click on the **Add** button on left. That will open a window where you can add the path of Maya's API library. I would suggest that you check both **Add to all configuration** and **Add to all languages**. Then add the Maya's include path, in my case is */usr/autodesk/maya/include,* by typing out or click on **File system** and direct it to the Include directory. Click ok, and the apply all the settings in the Properties window and close it.



You are pretty much all set, Just double click on the **build**, in the Make Target tab, and you should get something like the image below in your Console tab.



Now if you take a look at your folder tree in your Project Explorer,

You should see the '**.so**' file is added to your folder.

Done :)