Lesson 8: Intro to the DMA Panda3D Framework

3D Game Programming With C++

Digital Media Academy (Summer 2011)

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Feel free to contact me with any questions.

This lesson will teach you how to import the DMA Panda3D framework into Eclipse, how to make copies of it, and get them running. From now on, all of your exercises will be done based on this framework.

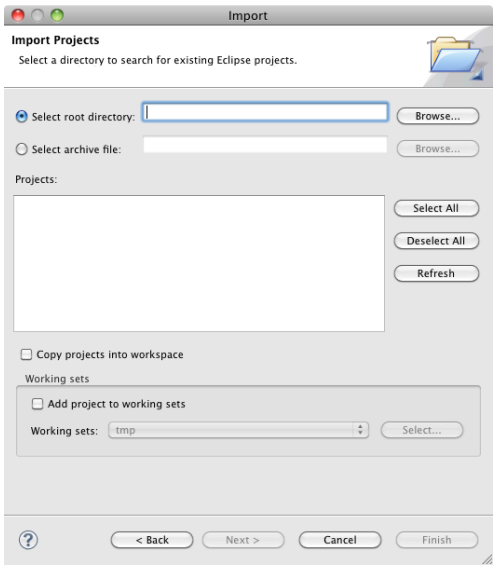
All the games that we will write in this class will use the DMA Panda3D Framework. Panda3D has a lot great features, but it is also really complicated! So, this framework is just a bunch of C++ code that wraps Panda3D and simplifies it, so we can get to the fun parts more quickly.

Before you code anything new, you must copy the DMA framework to a new project, so that you can play around with a separate copy and not mark up the original (you'll need the original for the other lessons). This will use Eclipse, but it will be different from how we used Eclipse in Lesson 1, so pay attention!

Importing the DMA Panda3D Framework into Eclipse

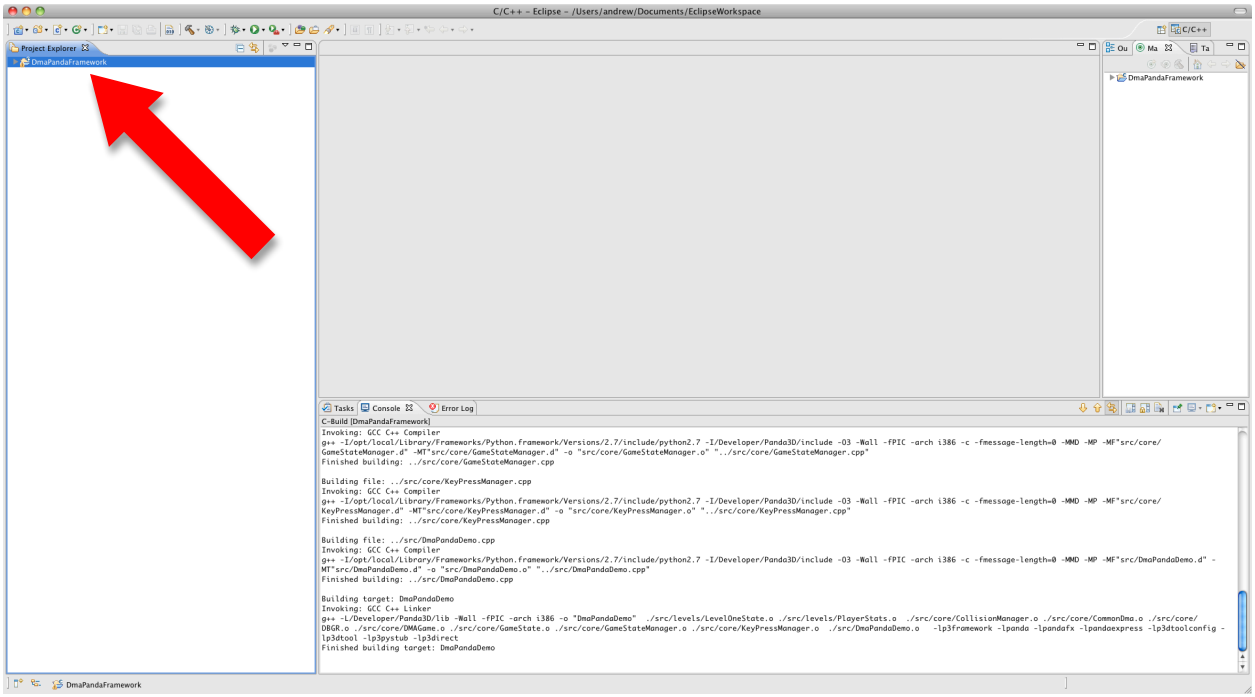
First, let's open up a blank DMA framework using Eclipse. Open Eclipse and go through these menus: File → Import → General → Existing Projects into Workspace

You will see a dialog box like this:



Click "Browse", navigate to the folder `DmaPandaFramework` and select it, then click "Open". The window should get filled out with project details. Then, **make sure you check the box on "Copy projects into workspace"**, then click "Finish".

The project will now appear in the Eclipse workspace, on the left:

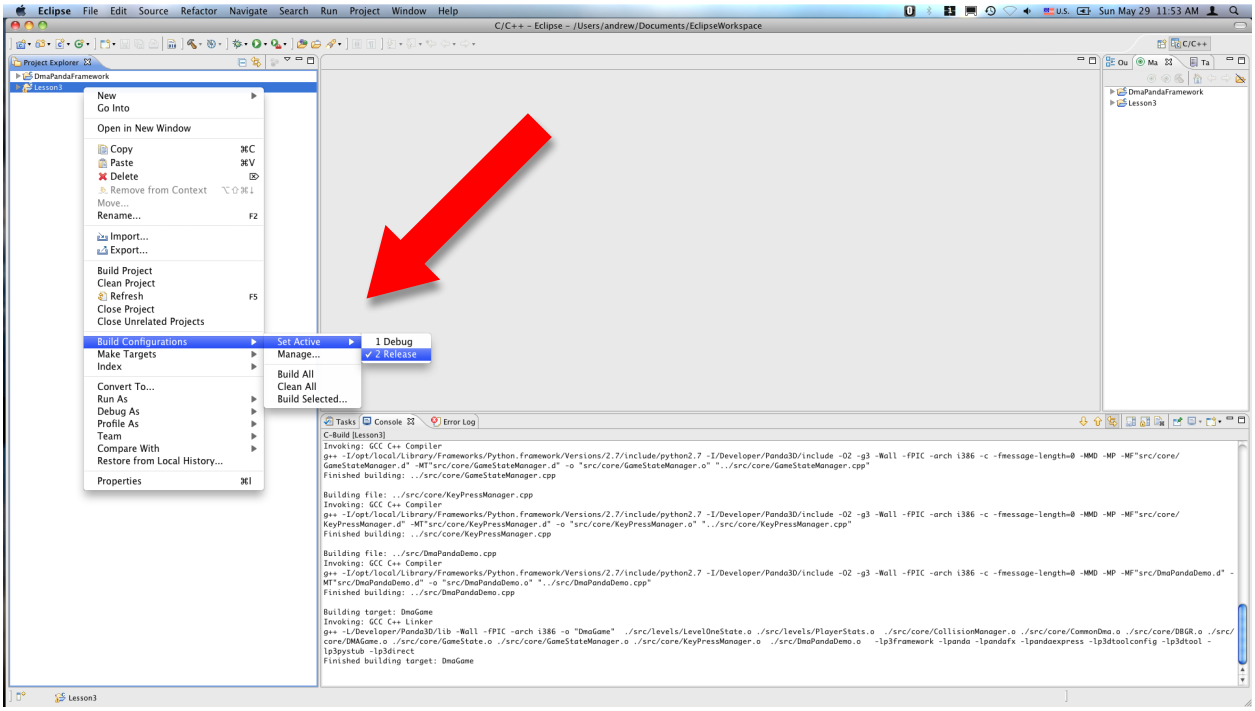


The framework is now imported!

Compiling the DMA Panda3D Framework

Let's see what the framework does before you get started adding your own features to the game. To do this, we need to compile and run the game. Fortunately, Eclipse automatically figures out how to compile all the code into an executable binary. But we still need to tell Eclipse how run that executable binary.

Let's compile the code. Right-click on your project name (`DmaPandaFramework`) and select Build Configuration → Set Active → Release, like this:



Side Note: More about compiling

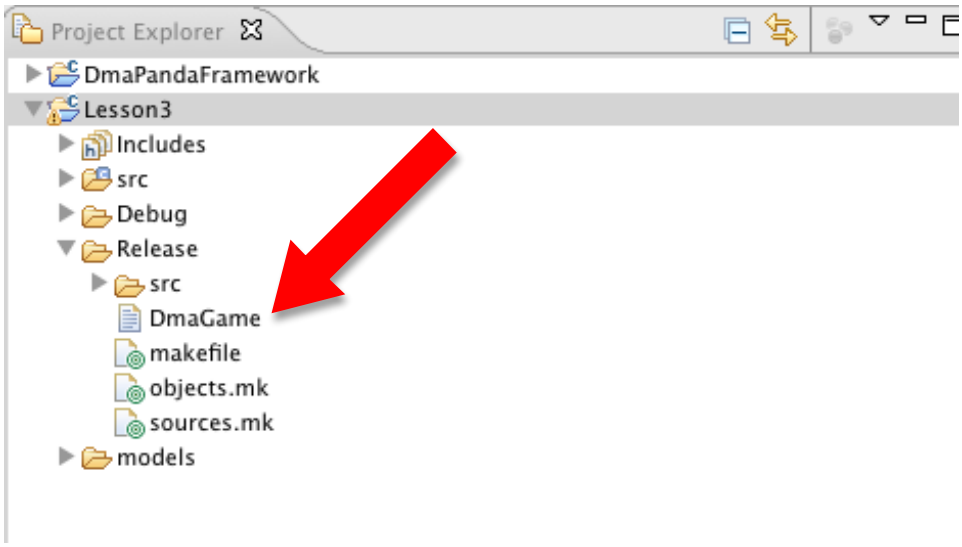
There are two ways to compile a program:

- Debug mode, which puts a lot of extra stuff into your binary for debugging your code, but makes your game run slower.
- Release mode, which is the final version of your game that you give to people.

For now, we will only use Release mode. The fancy features of Debug mode will be covered later.

Now that we set up the correct mode, right-click on your project again, and choose "Build Project." This will compile the game! You should see some activity under the "Console" tab at the bottom.

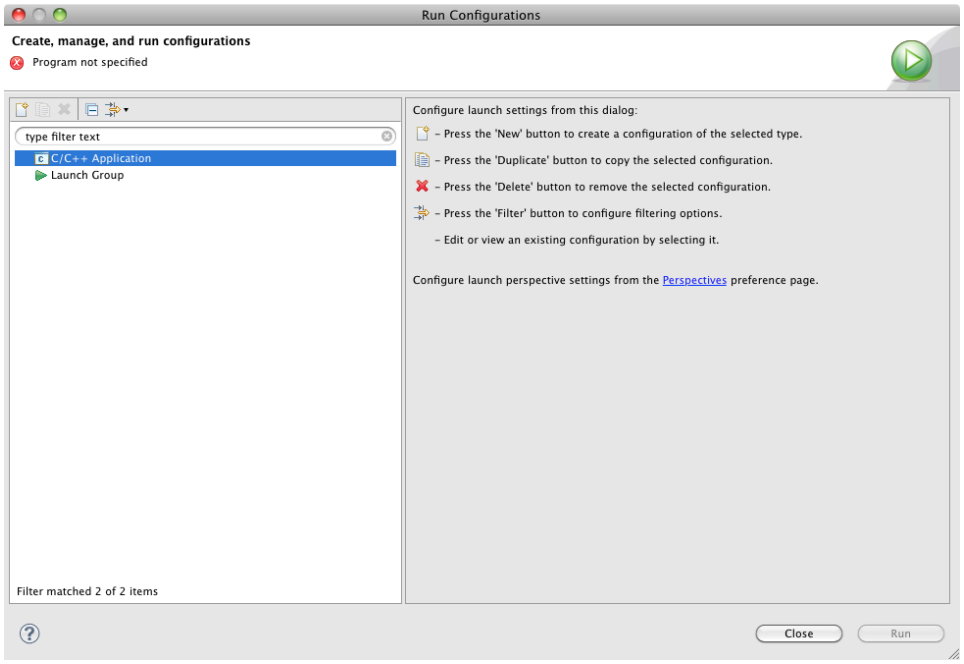
When the compiling is done, the resulting binary will be called `DmaGame` and should appear under the Release folder of your project. You'll have to expand the folders by clicking the arrows (▶) on their right until you see this in Project Explorer:



<u>IMPORTANT</u>: Every time you change your game code, you <u>have</u> to recompile, so that your changes appear in the binary!

<u>Caution:</u> If you do not see the binary, or if you get strange error messages (in red text) in the Console, **tell your instructor immediately** so they can fix them. Don't move to the next step until you get a binary!

Now that we got the compiling to work, we have to tell Eclipse how to find this executable binary to run the game. Click on the down arrow next to the green "Run" button ( ) and choose "Run Configurations." You will see a menu like this:



Highlight "C/C++ Application" by clicking on it, then click the "New" button above. In the window that appears on the right, you must fill out these fields:

- Name: this field should be automatically filled out, but if it's not, enter "DmaPandaFramework Release".

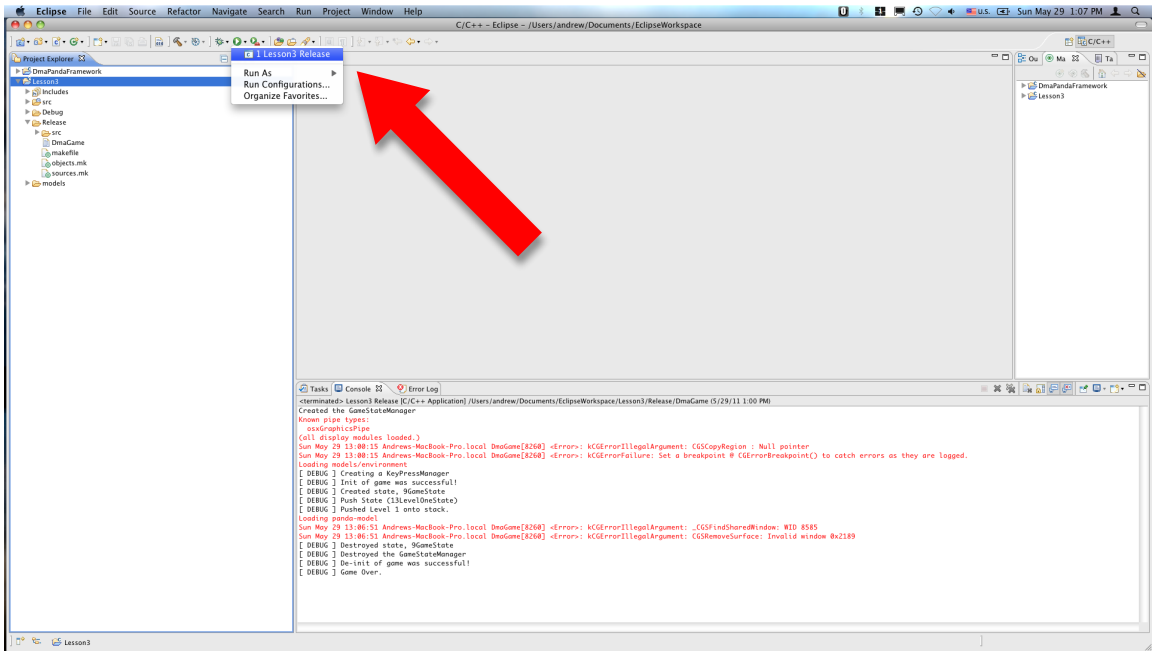
- Project: if this field is empty, click "Browse" next to it and select your project.

- C/C++ Application: This one is really important! Click "Browse" next to this field, then navigate to the "Release" folder inside your project folder. In it, select `DmaGame` (your binary). This will tell Eclipse to run this binary whenever you want to try your game in the Release mode.

When you're done filling out that info, click "Apply" and "Run". The game will launch and you should see a window like this:

As you can see, the game doesn't do anything except for set up the 3D world with a panda in it. It will be your job to make it do stuff! Exit the game by clicking on the red X button in the upper left.

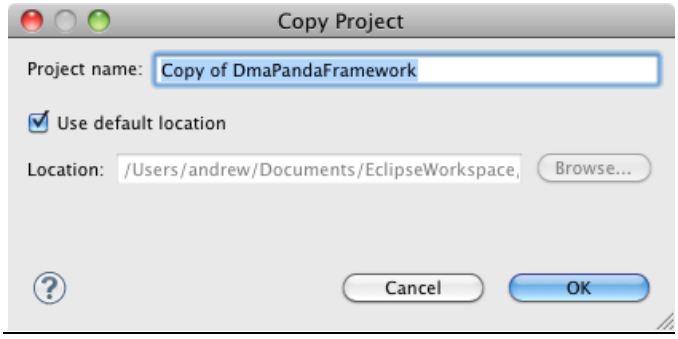
Now, you should see the run configuration that you just added under the Run button (), which you can now use to launch your game easily:



Copying the DMA Panda3D Framework to a new project

IMPORTANT: From now on, whenever you do a new exercise, copy the project "DmaPandaFramework" to a new project that has that exercise name (for example, `Exercise_9_1`). You will have to add a new Run Configuration as described above, but all the other properties should copy. This section tells you how to copy a project.

Click on the Show View button () in the bottom left corner and choose "Navigator". The Navigator will appear on the left side of the workspace (it will look very similar to Project Explorer). Inside it, right-click on "DmaPandaFramework" and choose "Copy". Then, right-click on the empty space under the folders and choose "Paste". A window like this should appear:



Give your project a specific name, like "Lesson8" (the new name can be anything you want, it is just to keep your projects separated and organized), then click "OK". Close Navigator by clicking the "X" next to its window title.

Now we have our own copy of the framework to play with! Make sure you **make a new copy for each exercise that you do from now on**.