

Torque Game Builder – Static Sprites Tutorial

Introduction

In this tutorial, you'll learn how to set up and use static sprites in Torque Game Builder (TGB). In case you don't know what I mean when I say 'sprite', a sprite is a two-dimensional graphic image. In general, sprites can be animated or not, but a 'static' sprite is one that is not animated. Another term we'll be using a lot in this tutorial is 'image map', which refers to an image file. As far as file types go, Torque can use '.jpg' (or '.jpeg') and '.png' image maps.

To prepare for this tutorial, run Torque Game Builder and create a new project by choosing *New Project...* from the file menu. Name the new project "Sprites" and use the *Empty Game* project template. This creates a new folder called *Sprites* in your *TorqueGameBuilder/Games* folder.

We'll need to add a couple images to the *Sprites* project for this tutorial. When you're building your own game you'll create whatever images you need, but for now we're just going to copy a couple files from the *TGB* project supplied with TGB. Open your file browser and browse to the *TorqueGameBuilder/Games/TGB/data/images* folder. Copy the files named *ship* and *asteroids*. Paste them into the *TorqueGameBuilder/Games/Sprites/data/images* folder. This *data/images* folder is the standard place for any image files used in a project so in your own games this is where you will put the graphics you create.

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Loading A Basic Image File

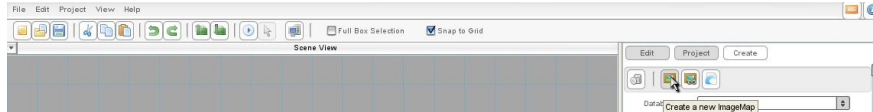


Figure 1

Back in Torque Game Builder, click the *Create* tab on the right side of the screen. To load one of the images that you just put into your project, click the *Create a new ImageMap* button under that tab (as shown in Figure 1). The *Choose Your Image File* dialog will appear.

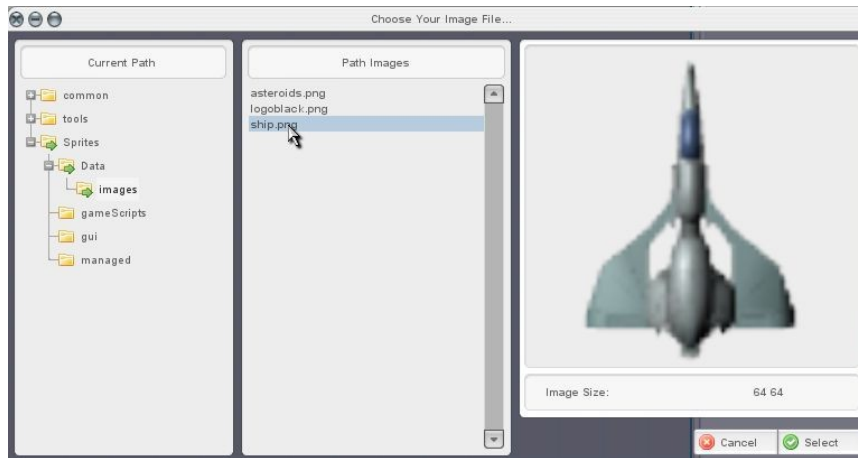


Figure 2

In the *Current Path* section you can locate your file's folder... in this case we want *Sprites/Data/images*. In the *Path* section you can choose your actual file. We'll start with *ship.png*, so click that (as shown in Figure 2). You'll see a preview of the ship on the right. To move to step two of this process, click the *Select* button. You will see the *Image Builder* dialog, which contains basic options for your image (as shown in Figure 3).

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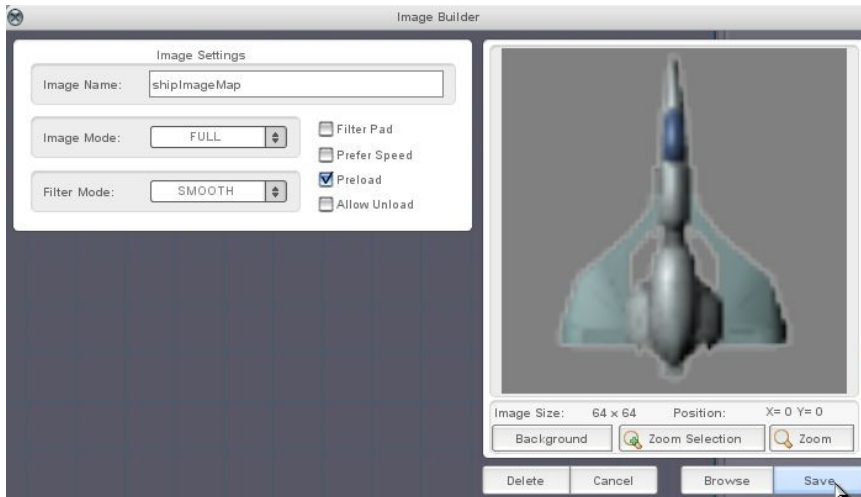


Figure 3

We'll explore the various options in this dialog later. For now, just click *Save*.

Using A Static Sprite

Now that you've loaded your image file as a sprite, you'll see it as an option in the *Static Sprites* section of the *Create* tab. Putting it into your game couldn't be easier: just click, hold, and drag the image from the *Create* tab into the *Scene View*. When you do, you'll see your sprite with a selection box around it, and a set of widget buttons above it (as shown in Figure 4).

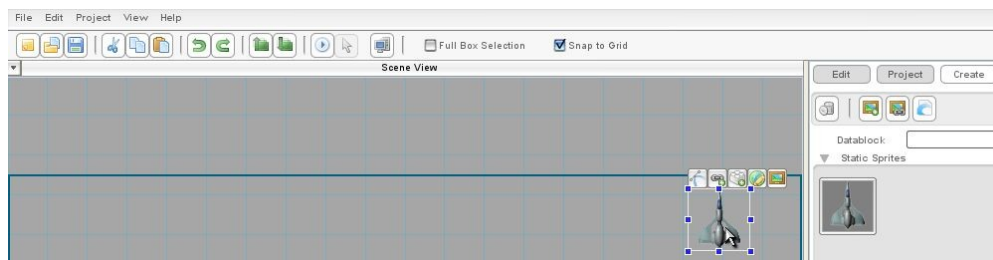


Figure 4

To see your game as it would currently look, you can hit the *Play Level* button (looks like a little arrow pointing to the right) in the TGB taskbar. Since we haven't saved our project yet, you will be prompted to do so. Enter "Level 1" as the filename, and click *Save File*. You will now see what we have built so far, with the default Torque Game Builder background. Not too exciting, yet. When you are done, press the stop button in the *Level Control* box.

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Static Sprite And Scene Object Properties

Now that the ship is inserted into our level, let's check out some of the properties of the sprite and how to edit them. To do this, select the ship sprite by clicking on it, then select the *Edit* tab on the right side of TGB (figure 5). In this tab, you will see many sections, each filled with properties of the currently selected object. You can click on the arrows to the left of the section names in order to expand or hide these properties. For now, we'll be checking out the *Static Sprite* and *Scene Object* properties, so open those sections and collapse all the other ones (as shown in Figure 5).



Figure 5

All a static sprite really consists of is an image map, so that is the only property available in the *Static Sprite* section. Changing the *Image Map* property changes the graphic of your sprite. We don't have any other image maps loaded, so let's not play with that for now.

The *Scene Object* section is a little more interesting. A *Scene Object* is the basic Torque Game Builder class for anything that is seen in your game, including static sprites. The properties shown in the *Edit* tab will cause real-time changes to the selected object, so if you change the *Position X* property to, say, "40" and press Enter, the ship will move (figure 5). Go ahead and try this now. Now drag the ship back towards the center. You'll see the *Position* properties change as you do this. We're going to go through all the *Scene Object* properties now. If you would like to, experiment with each one by changing it in the *Edit* tab and seeing what happens. If you want to use the *Play Level* button to see how your changes will actually look when the game is running, you must save the level first or your changes be lost!

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Position (X and Y): Defines the screen location of the object. These properties can also be changed by dragging the object with the mouse.

Size (Width and Height): Defines the size of the object. These properties can also be changed by clicking and dragging the handles (small blue squares) on the selection-box that surrounds the object.

Rotation: Defines the angle of the object. You can also rotate the object by holding the *alt* key and dragging the object's handles.

Auto Rotation: Defines the object's in-game rotation in degrees per second. You can only see the effects of this when your game is actually running.

Flip Horizontal: Flips the object's image from left-to-right.

Flip Vertical: Flips the object's image from top-to-bottom.

Layer: Defines the object's screen layer. Higher numbers are further from the camera. For example, if you had a graphic of the ground under your ship, you'd want to set the ground's layer to a higher number than the ship. To see this in action, you can create another ship overlapping the first and increase its layer number.

Group: Defines the object's game group. This can be used to group the various objects in your game, especially for working with collisions. For example, you might want a 'player' group, an 'enemy' group, and a 'power-up' group. This is a somewhat advanced property, so don't worry if you don't totally grasp it.

Forward/Back: These buttons move an object up and down within its layer. This is similar to the *Layer* property, but only affects the draw order of objects that are in the same layer.

Visible: Defines whether or not the object is visible. When this is unchecked, your object is invisible.

Lifetime: Defines how many seconds of gameplay until an object is automatically deleted from a level. A value of zero means the object will never be deleted. You can only see the effects of this when your game is actually running.

Cell Mode Image Maps

A 'cell' image map is a single image file that contains multiple pictures. An example of this is the *asteroids* file that you copied into the *images* folder at the beginning of this tutorial. Let's check it out! Go back to the *Create* tab, and press the *Create a new Imagemap* button. Choose the *asteroids* file, and press *Select*. The *Image Builder* dialog comes up (as shown in *Figure 6*).

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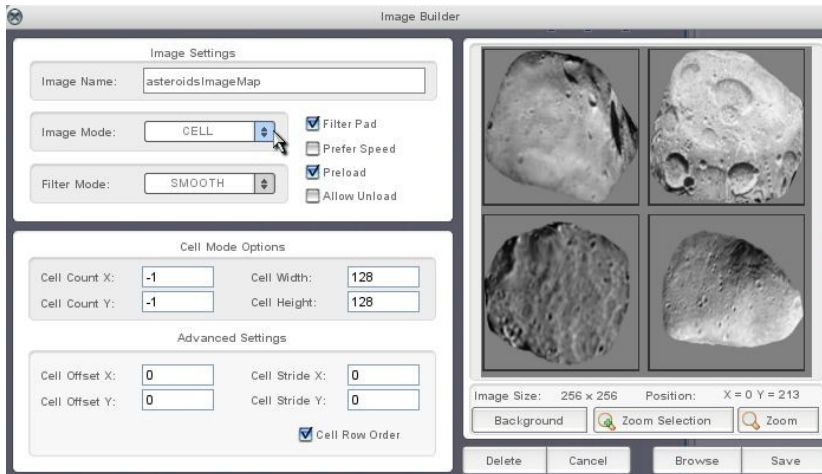


Figure 6

You can see in the preview screen that this image has 4 different asteroids in it. What we need to do now is divide it into 4 separate 'cells'. To do this, simply change the *ImageMap* dropdown to *CELL* (figure 6). The preview now shows you the asteroids divided into separate cells. We'll talk about more of the options in this dialog in the next section. For now, just click *Save*.

You can now see one of the asteroids in the *Static Sprites* section of the *Create* tab. Under the asteroid, you can see a label that says "1/4". This means that you are currently viewing cell 1 of 4. If you click on the "1/4" label underneath the asteroid image, it will move to the next cell. You can drag the visible asteroid into your game just like you would any other static sprite. Go ahead and drag one of each asteroid type into the *Scene View* (as shown in Figure 7).

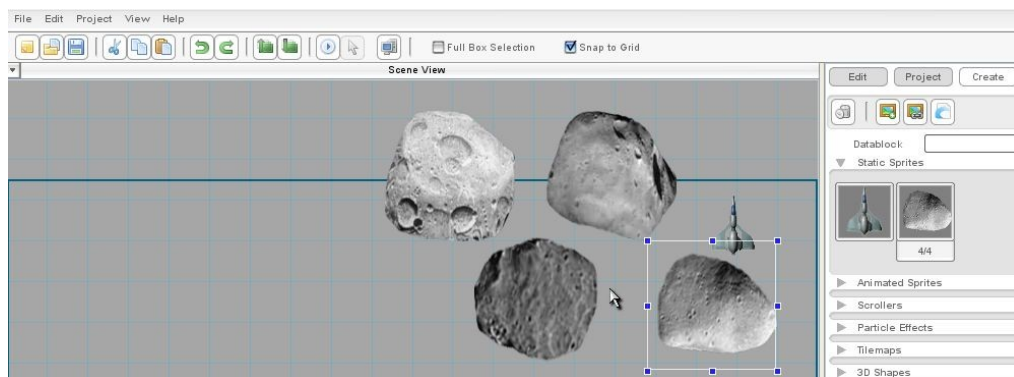


Figure 7

For information on building a cell mode image like this one, check out the [Image Map reference](#).

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The Image Builder Dialog

Time to take a look back at the *Image Builder*. To open the *Image Builder* for any of your sprites, you can double-click on its image in the *Create* tab. We're going to use the *asteroids* image as an example, so double click on that. You'll see the *Image Builder* dialog come up with all the *asteroids*' current settings, just like when you originally loaded it.

Let's begin with the preview image on the right. Under it are 3 buttons: *Background*, *Zoom Selection*, and *Zoom*. We'll go through all of them, now. Again, feel free to experiment with each.

Background: brings up a dialog that lets you change the color of the image background and the color of the borders around each cell.

Zoom Selection: lets you zoom in on an individual cell. First click *Zoom Selection*, then click on the cell you want to zoom into. Click *Zoom Out* when done.

Zoom: lets you zoom in on the image map as a whole. First click *Zoom* then click the area of the image you want to zoom in on.

Under these buttons, there is another row of buttons. They work as follows:

Delete: deletes the image map from your project.

Cancel: leaves the Image Builder.

Browse: takes you to the *Choose Your Image File* dialog.

Save: saves your changes.

Now let's take a quick look at the *Image Settings* section. The *Image Name* is the name that Torque Game Builder will use to refer to this image. It is almost always best to use the default, which is the image filename with "ImageMap" added to the end. We have already looked at 2 of the 3 image mode choices, *FULL* (use the whole image) and *CELL* (divide the image into cells). The remaining choice in the *Image Mode* dropdown is *KEY*, which is another way to have multiple images in one file. Key mode is explained in detail in the Image Maps reference, but basically it is a way to divide your image using a background color. The *Filter Mode* dropdown lets you choose whether or not to smooth your image when it is sized. For an example, use *Zoom Selection* to zoom in on one of the asteroids, then change *Filter Mode* to *NONE*. You will see the difference very clearly if you look at the edge of the asteroid.

Adjacent to the *Image Mode* and *Filter Mode* dropdowns there are 4 checkboxes. *Filter Pad* is used to make sure that cell based images don't bleed into each other. You will probably want this on any time you have *Image Mode* set to *CELL*. The other 3 checkboxes, *Prefer Speed*,

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Preload, and *Allow Unload*, are used for memory management and are beyond the scope of this tutorial. You can read about these properties in the *Image Maps* reference.

The final section in the *Image Builder* is the *Cell Mode Options*. These properties define how Torque Game Builder divides up the cells of an image. They are explained in full detail in the *Image Maps* reference, but for now we'll just take a quick look at *Cell Height* and *Cell Width*. These two properties define the size (in pixels) of each cell. To see an example of how this works, change both the values to 64. Now there are 16 cells, each half as big as the original 4 (as shown in *Figure 8*).

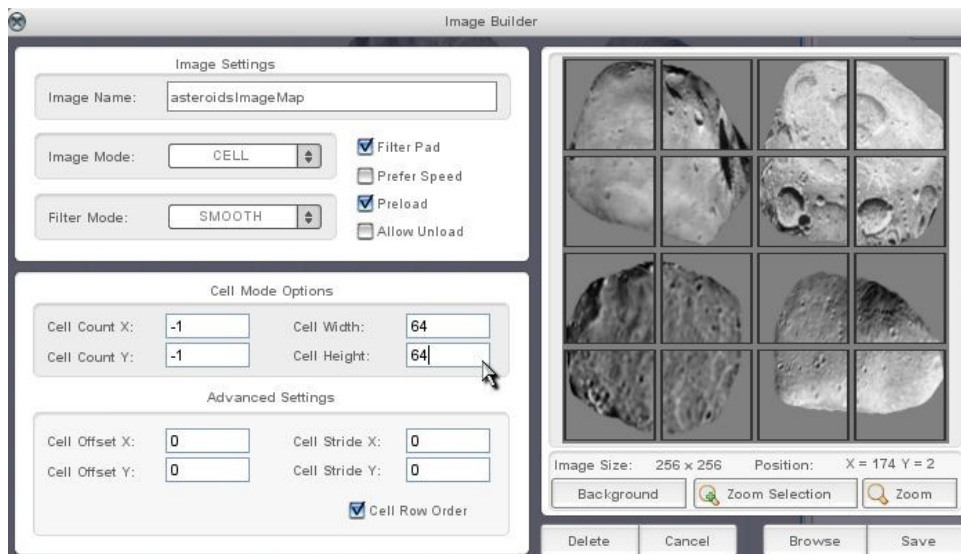


Figure 8

Conclusion

You now know the basics of using static sprites in Torque Game Builder. Experimenting with what you learned here will give you a more broad understanding of how to best use static sprites in your game. If you want to know more about image maps in general, read the 'Image Maps' reference. The Garage Games forums and TDN will also help you find answers to any further questions you may have. Enjoy!