Unity2D & Sprites

A whole new world

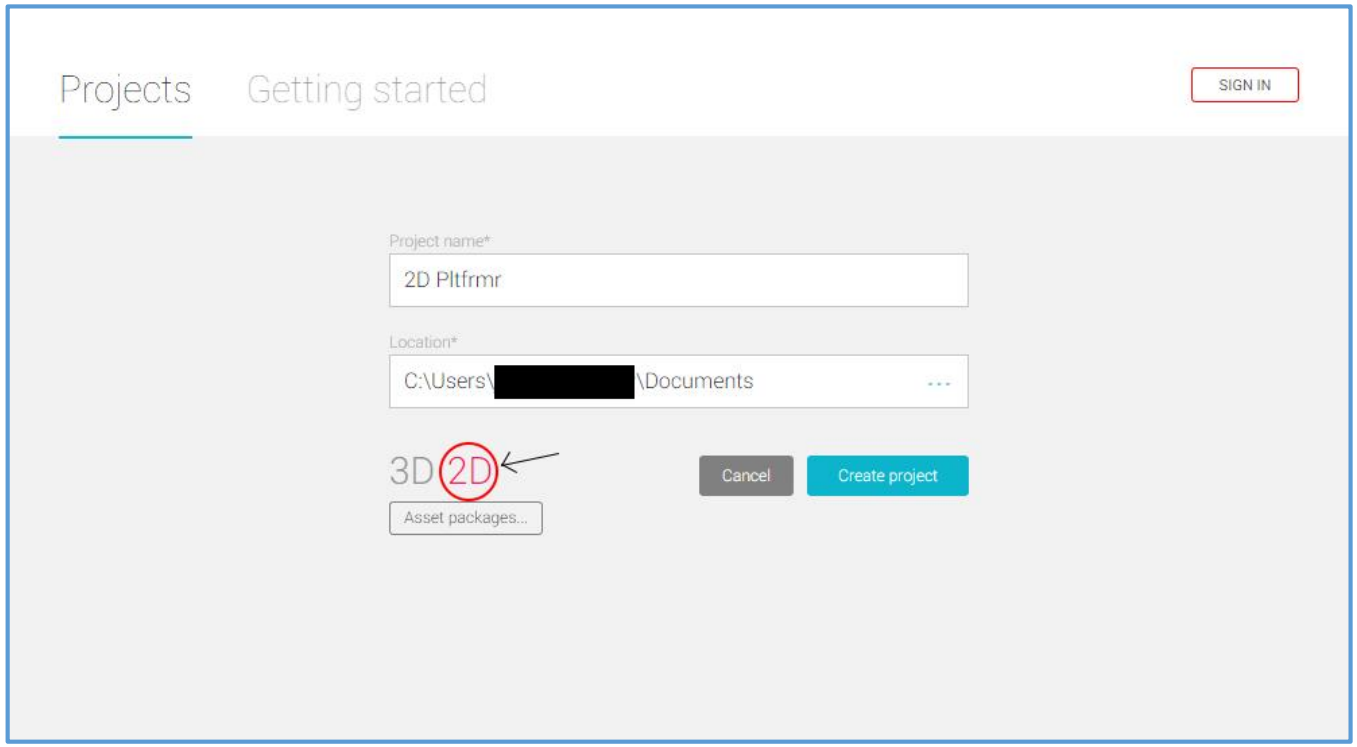
CONTENTS

SETTING THE STAGE/SCENE

The first step, as with any Unity project, is to create the project and your first scene.

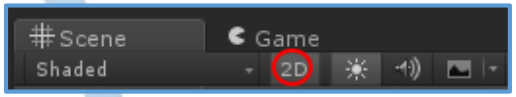
This is where developing a 2D game in Unity begins to differ from 3D game projects in Unity. We need to make slight changes to how we setup out project.

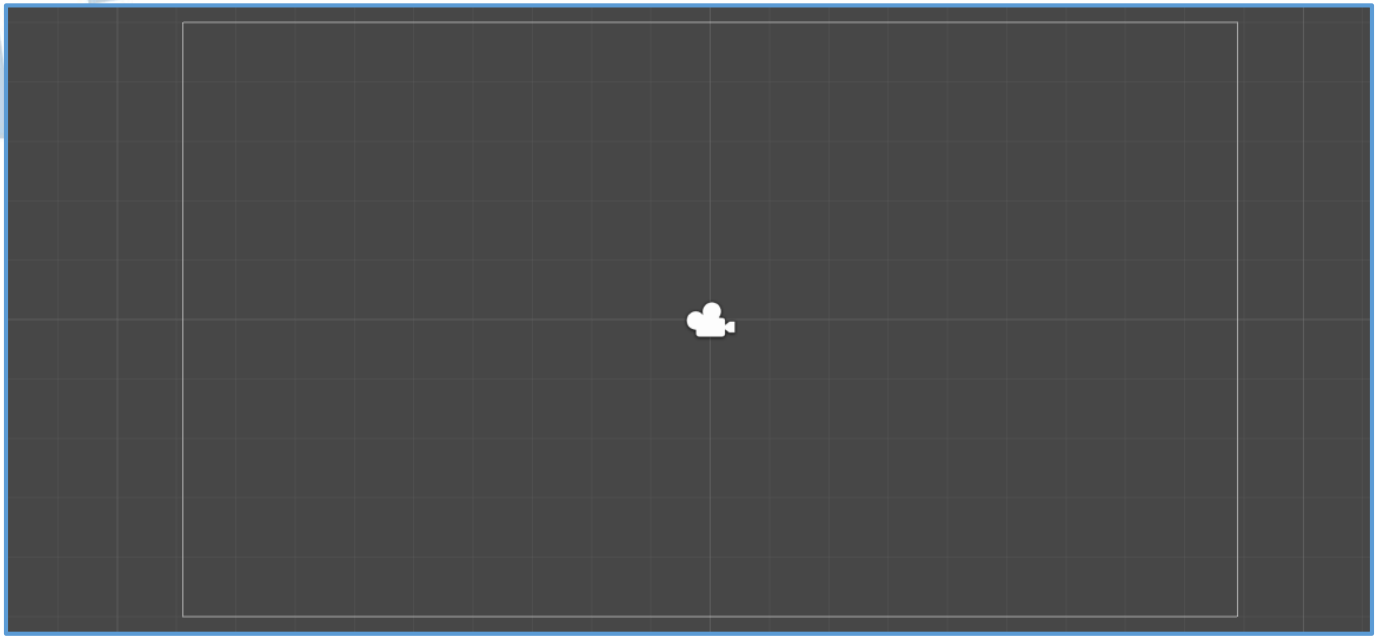
1. Create a new Unity Project.
2. Give your project a descriptive name, such as '2D Platformer'.
3. Change the type of project from '3D' to '2D' by clicking on the '2D' label that's on-screen.



Exploring what's different

With our project and scene set up, we can begin to see what is different.



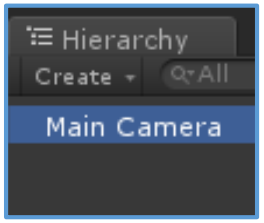


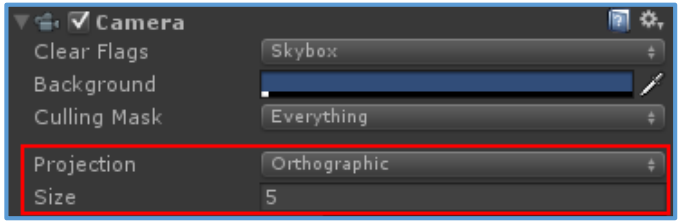
The View

The scene view has now lost all perspective. All objects are placed and moved around as if placing paper cut-outs onto a table.

The Scene

The scene that was created for us doesn't have a light in it, like a 3D project would. 2D games can often do without any lighting, so they are left out by default. You can still add lights if you'd like.



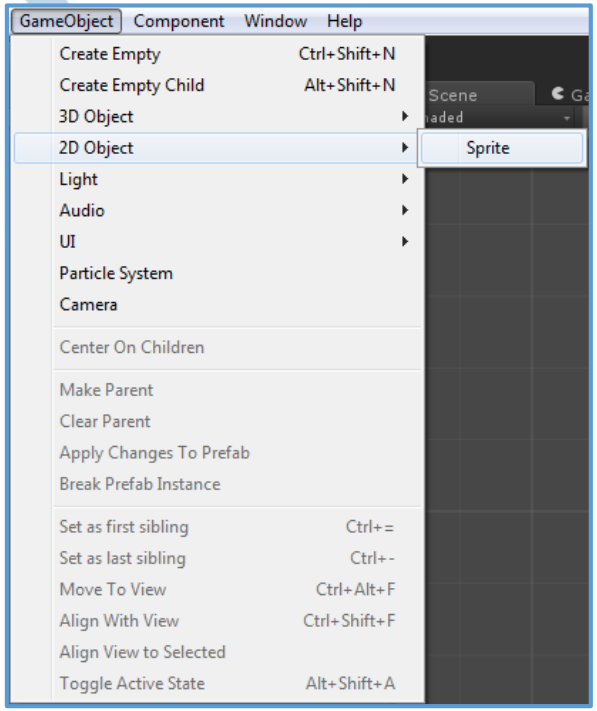


Sprites

You can continue creating 3D game objects in your 2D game and that will continue to work fine. However, Unity provides 2D objects that you can create for your 2D games!

Well… They provide one. Sprites!

A Sprite is a 2D image with some extra properties to set it apart from any other image.



Distinguishing Features

When you create a sprite, a typical Game Object is created. It has the usual Transform component, for position, rotating and scaling your object.

It has one new component we haven't seen before.

Sprite Renderer

As the name suggests, this component is for displaying a sprite on the screen.

There are some handy features to be found!

Color

We can add a colour tint to our image. Perhaps we can have a flash of red on our character when they take damage.

Flip

Rather than drawing a bunch more sprites for our characters facing left, right, up and down, the Sprite Renderer allows us to flip our sprites in any of those 4 directions.

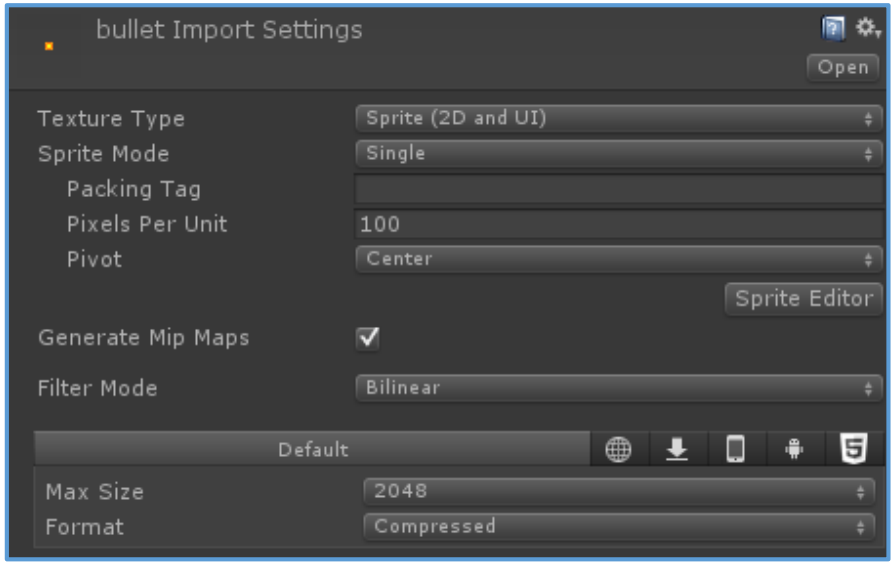
Sorting Layer and Order

Since everything is flat in 2D, we need to decide what sprites should appear in front of others. We can use Sorting Layers to group sprites together, such as having the background, middle ground and background sprites all together. Within each layer, we can use Order in Layer to bring different objects to the front, such as our main character or a door on a building.

Creating a Sprite

Usually, if you import an image into Unity, it will come up as being a “Texture”, which is essentially just a plain old image.

Now that we have a 2D project, importing an image will automatically make it a sprite!



Sprite Mode

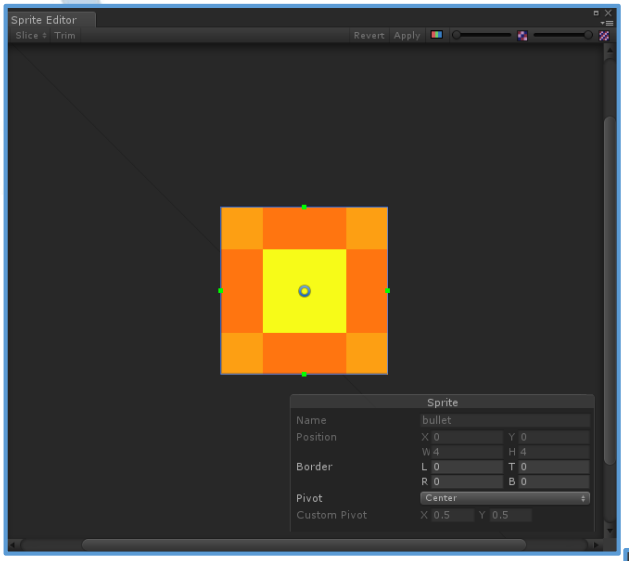
If you happen to have a bunch of smaller images packed together, you can switch this options from ‘Single’ to ‘Multiple’, then slice it up using the Sprite Editor. Multiple sprites packed together are known as a ‘Sprite Sheet’.

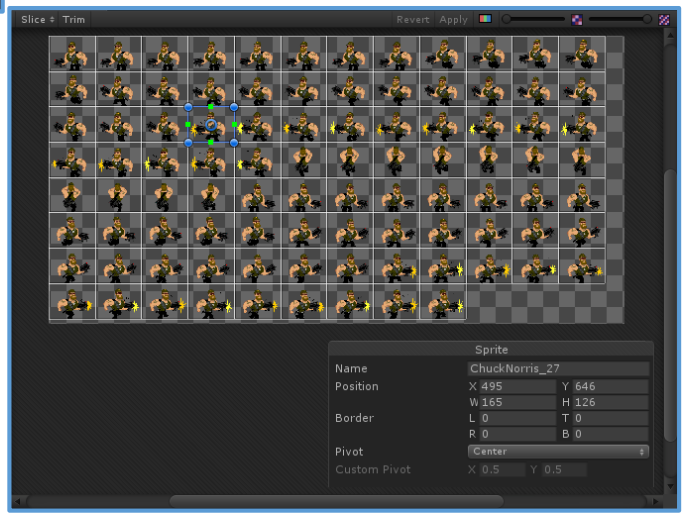
Sprite Editor

The sprite editor is a tool for editing sprites!

You can crop your sprites, choose the point that your sprite will rotate around and slice them up into smaller images.

If you have a character that you'll be controlling in your game, you may want to move the Pivot down to your character's feet (or equivalent). Moving characters around is much easier when their pivot is at the feet.





Adding Sprites to your Game

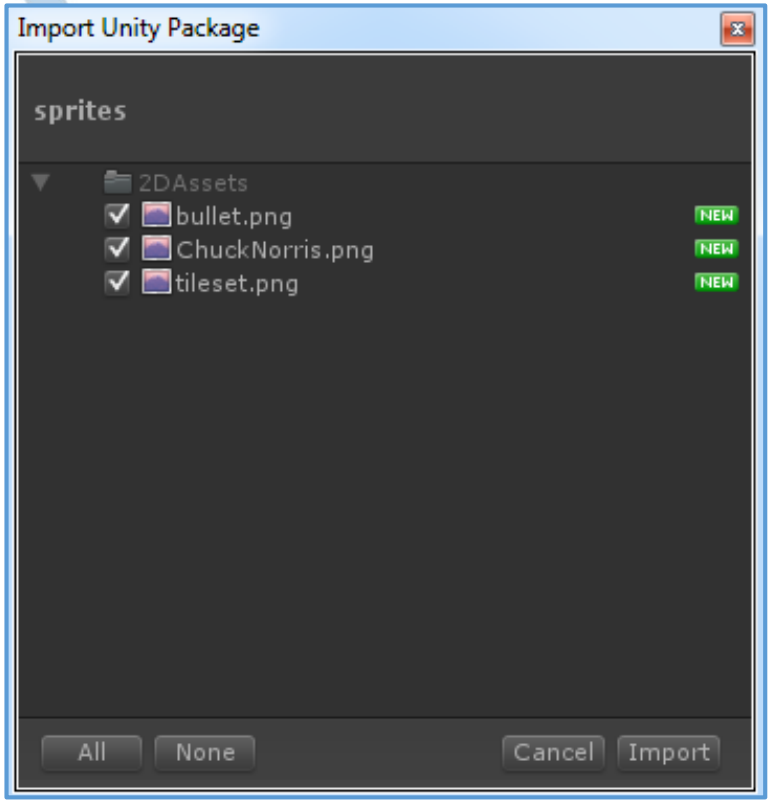
Your teacher will provide you with a package of ready-made sprites for you to add to your project.

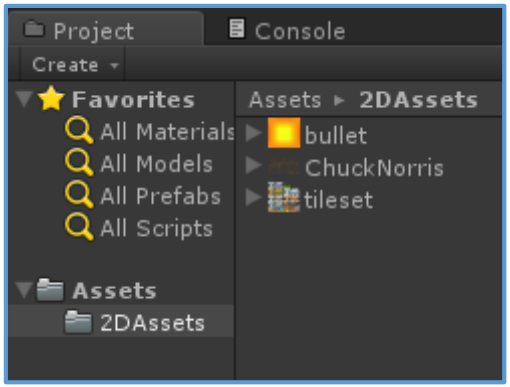
4. Drag-and-drop the sprites unity package into your project.
5. Click the Import button.

You will now have 3 images imported into your project as single sprites.

However, two of them are actually collections of images that should be collections of sprites.

We will need to change some of their settings next.





6. Select the HeroSprites image in the Assets folder.
7. Change its Sprite Mode from Single to Multiple and click Apply.

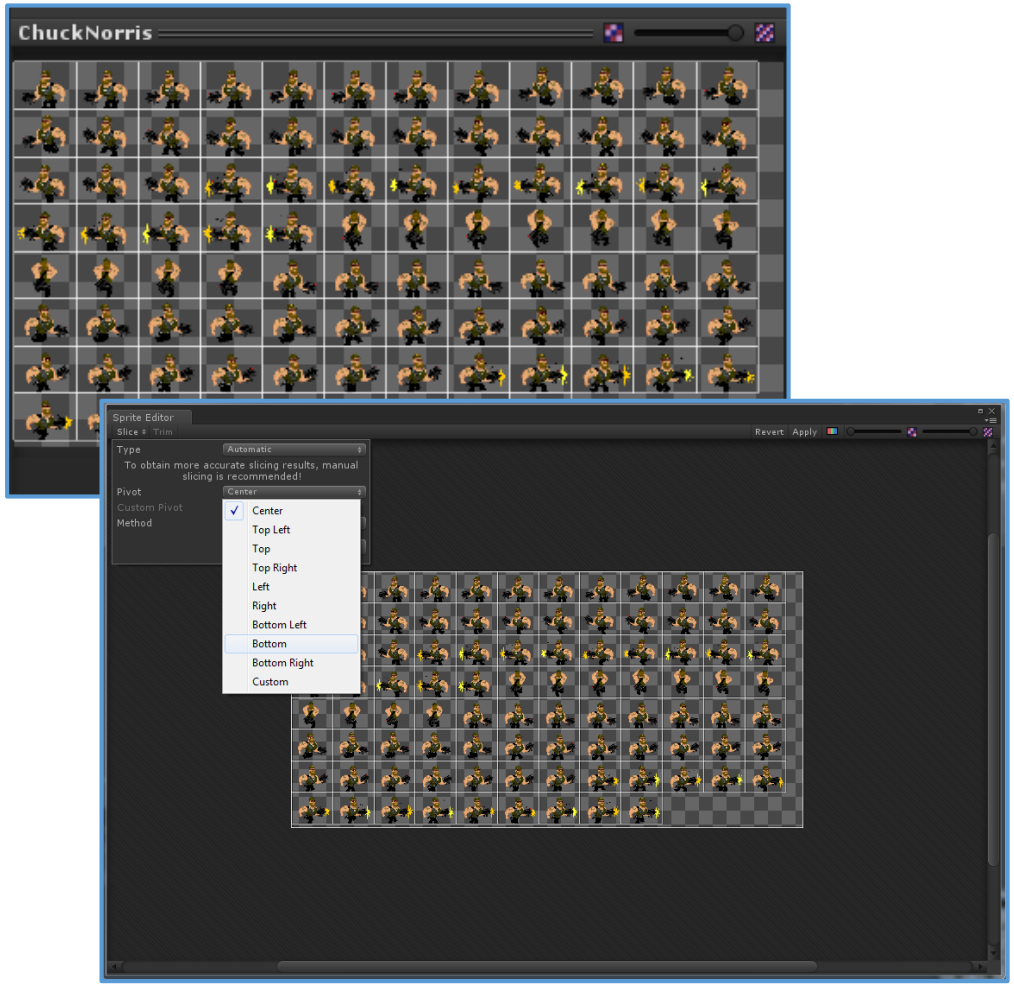
In many cases, Unity can be very clever and split up our image for us. As it did in this case!

However, we want to make a slight adjustment to these sprites before continuing.

8. With the HeroSprites image selected, click the Sprite Editor button.
9. Click on the Slice button in the top-left corner of the window.
    a. Open the Pivot dropdown and click Bottom.
    b. Change type to Grid by Cell Size
    c. Size for the image is
        i. X: 108
        ii. Y: 135
    d. Click the Slice button at the bottom of the box.
10. Click Apply in the top-right.
11. Close the Sprite Editor.

One more to go.

12. Select the tileset image in the Assets folder.
13. Change its Sprite Mode to also split the images.
    a. Size for the image is
        i. X: 64
        ii. Y: 64

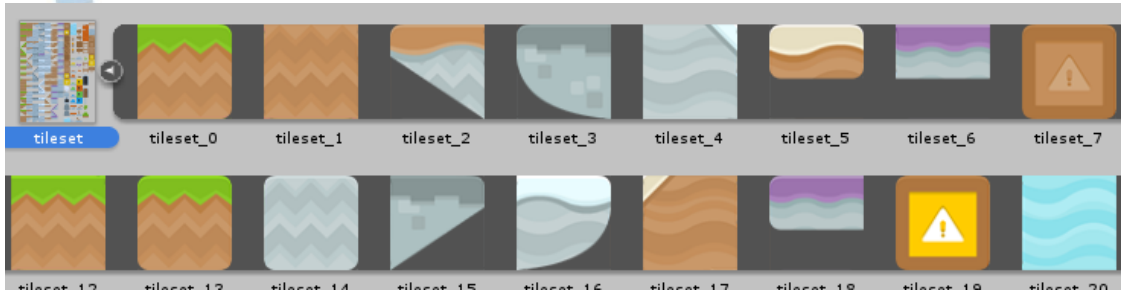


These tiles can be left as they are, since Unity managed to slice up the image once again!

Placing Sprites into a Level

All that remains is to start placing your new sprites into your level.

14. Click a drag the bullet sprite from your Assets folder into the scene.



As with other assets, sprites can be clicked and dragged into your scene. Like any other Game Object, it can be moved, rotated and resized.

When we have multiple sprites, however, we can't just drag the sprite sheet into the scene, because which sprite should appear?

If we wished to have an animating sprite, this would be a different story, but for our purposes, we just want 1 sprite from each sprite sheet.

15. Click the arrow next to the ChuckNorris sprite sheet.
16. Choose one of the sprites from the sprite sheet and drag-and-drop it into the scene.
17. Repeat steps 17 and 18 for the tileset sprite sheet.