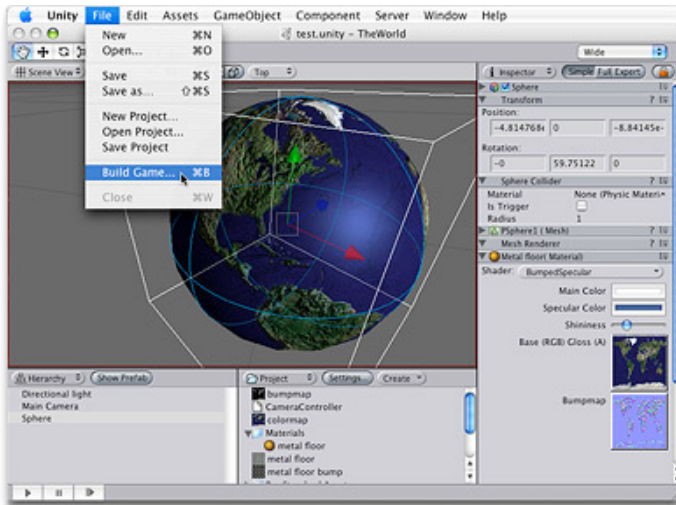


Introduction to the Unity Interface



This tutorial will introduce the Unity graphical user interface (GUI).

No prior knowledge of Unity is assumed.

Time to complete: 1 hour.

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1. Aims of this tutorial

If you are new to Unity this should be the first tutorial that you read. It will explain the key sections of the interface and describe how to create basic game objects and position them in 3D space.

To demonstrate the Unity interface essentials, we'll create a simple scene which will allow a character to walk around on a surface.

Note: any text that requires the user to take an **action** begins with a '-'.

2. Screen Layout

Before we start, let's make sure our screen layout is in **2 Split** mode.

- To ensure it is, select Window->Layouts->2 Split.

Your view is now split into 5 main regions:

1. **Scene View** - for placing game objects
2. **Game View** - this is how the game will look when run.
3. **Hierarchy View** - this is a list of all game objects currently in the scene.
4. **Project View** - this view shows all assets that are available for use (like a palette)
5. **Inspector View** - this shows the properties of the currently selected game object.

3. Finding game objects in 3D space

- Start Unity. We'll begin by creating a new project.
- Select File->New Project from the main menu and give the project a name such as "GUI Tutorial" and click Create Project. Unity will now import **assets** (e.g. audio, textures, 3D models) so they are available for use.

Once importing is complete you will be presented with your game world. At present the world only contains a Main Camera (this is default), you can see this listed as the only item in the Hierarchy view.

- If you can't see the camera in your Scene View, click on the Main Camera in the Hierarchy View, move your cursor so that it's **inside** the Scene View, then type F (**frame select**) on the keyboard. The Main Camera should now be at the centre of the Scene View. This technique can be used to find any game object.
- Any game object can be **selected** by either clicking on it in the Scene View or selecting it in the Hierarchy View. If you click on an object in the Scene View, you can confirm that you've selected the correct object as it will also be **highlighted** in the Hierarchy view.

4. Creating game objects

Let's add some game objects to our world.

- Select Game Object->Create Other->Plane, this will create a plane (a 2D surface) to allow our character to walk on.
- Add a cube to the game world by selecting Game Object->Create Other->Cube.
- Add a point light by selecting Game Object->Create Other->Point Light.

5. Navigating the Scene View

You can look around your 3D objects from any angle by using the following:

1. **Rotating** (Option+LMB)
2. **Panning** (Option+MMB)
3. **Zooming** (Option+RMB)

NB: The Option key is beside the Command key (the one with the Apple logo on it) on the Mac keyboard, L/M/R MB is Left/Middle/Right Mouse Button. It is recommended that you have a 3 button mouse.

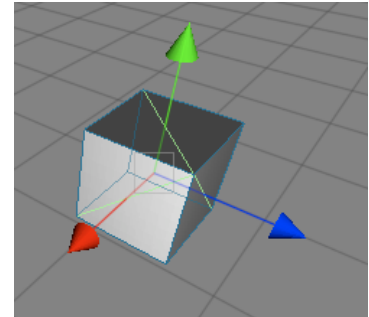
If you only have a one-button mouse, or are using a laptop, you can still navigate easily. Firstly, click on the **hand-shaped** tool in the upper left hand corner of the Unity GUI, then the following can be used:

1. **Rotating** (Option+LMB)
 2. **Panning** (LMB)
 3. **Zooming** (Command+LMB)
- Try this now.

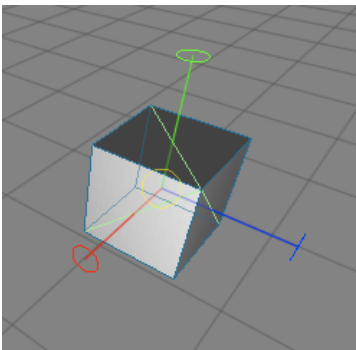
6. Moving game objects

You can position any game object in 3D space by using one of the following:

1. **Move** tool (W on the keyboard). Selecting any game object then typing W will display three arrowheads, one for each axis of 3D space. Red is the x-axis, green is the y-axis, blue is the z-axis, i.e. r,g,b, maps to x,y,z. To move an object, click the LMB on the arrowhead that represents the axis you want to move in and move the mouse as much as appropriate. As you drag the arrowheads notice the object's position values in the Inspector Panel change also. You can enter values directly into these boxes also (3 boxes, 1 each for x,y,z values).



You can also re-position a game object by firstly clicking on it, then move the camera to point towards the general direction of where the want the object to move to, then select Game Object->**Align with View**. The selected game object will move to where the camera now points.



2. **Rotate** tool (E on the keyboard). Selecting any game object then typing E will display the rotate tool. To rotate around an axis, click the LMB on the axis of choice then move the mouse to rotate the game object. As you rotate the object notice the object's rotation values in the Inspector Panel change also. You can enter values directly into these boxes also.

-Let's try a small exercise. Move the cube (move tool) so that it is outside of the Scene View. Use the Frame Select feature (click Cube in the Hierarchy View then press the F key) to find the cube again. Finally move the cube back so it's close to the plane.

- Move the point light so that it's above the cube and the plane.

7. Game View

The Game View shows how the game will look when run (complete with textures, lighting etc). If you cannot see your game world in the Game View, it's because your camera is not looking in the right direction.

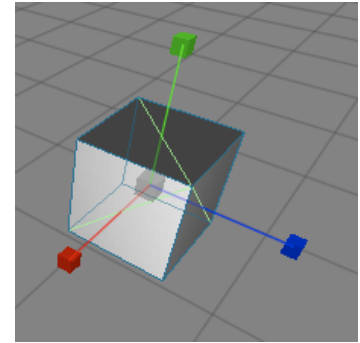
- Click on the Main Camera, you will notice an inverted yellow pyramid wireframe coming out from it. This is known as the camera's **viewport** (what it can see). If the viewport is not pointing in the direction of your game objects, navigate in the scene view so that you are looking at your game objects, select the Main Camera then select Game Object->**Align With View**. Your Game View should now match your Scene View.

You can also manually adjust your camera's settings by either using the move and rotate tools, or changing its transform values in the Inspector View.

You may also want to move your light to give better aesthetics.

8. Resizing game objects

To resize an object firstly select it then press R on the keyboard (resize or scale tool). You can visually scale an object by dragging the square block at the end of the each axis, or use the Inspector View to type a precise value in.



We'll now resize some objects in our game world.

- Select the plane and set its x and z scale values to 10 in the Inspector view (the first and third box, as the second box is for the y value).
- Select the cube, resize it along the y-axis visually (press R and drag the green square upwards). the cube should now look like a pillar.
- **Rename** the cube Pillar. Do this by selecting it in the Hierarchy View and pressing return to enter the new name. Remember it's best to ensure game objects begin with a **capital** letter.

9. Using Assets

Computer games are created from 3D models, textures, sound files, game code etc., these are called the game's **assets**. Unity comes with many assets shipped as standard assets (even more in the Pro version).

We'll now add a character to our game world from the built-in assets. In the Project View expand the Standard Assets folder, then expand Prefabs. A **prefab** is collection of game objects that have been pre-assembled into a logical grouping. You should see the First Person Controller (FPS Controller) inside the Prefabs folder.

- Drag the FPS Controller prefab into the Scene View. Notice how the Game View has changed, this is because the FPS Controller prefab comes with its own camera which takes precedent over the existing Main Camera. Make sure the FPS Controller is not caught in the plane, move it so that it is above the plane.
- Delete the Main Camera as we'll not need it now (Command+delete). The Game View is now what the player can see in-game.
- **Start** the game by clicking the Play button in the lower left hand side of the Unity GUI. Notice the screen stays the same, so you can see the game in the Scene View and the Game View. Use the cursor keys to move the character around (or W,S,A,D), the mouse to look around and space to jump.
- **Stop** the game at any time by clicking on the Play button again.

NB: By pressing the **space bar** while the mouse cursor is inside any of the views (Game View, Scene View etc), this makes that particular view expand to full screen. This is useful when making adjustments in the Scene View, or playing the game (Game View). Pressing space inside the full screen view returns to the previous layout mode. Note that this feature does not work if the game is currently running, either stop or pause the game first.

10. Adding Components

Game objects can have a number of components (or behaviours) attached to them. By clicking on any game object, you can see the attached components in the Inspector View (e.g. Transform, Box Collider).

- Click on Pillar and look at its components in the Inspector View.

Let's add another cube and add an extra component.

- Add another cube to the scene (Game Object->Create Other->Cube). Rename it PhysicsCube in the Hierarchy view.

Now we're going to add a Rigidbody component to this cube. The **Rigidbody** component allows the game object to behave as if it's in a world with gravity, i.e. the object will fall downwards until it hits a surface with a **collider** component attached.

- Making sure PhysicsCube is selected, select Component->Physics->Rigidbody. This adds the Rigidbody component to the currently selected game object. Notice that in the Inspector View the Rigidbody component has been added.
- Move PhysicsCube so that it is above Pillar but slightly offset (see Figure 1). We want to set the scene up so that when we press play, PhysicsCube will collide with Pillar and fall to the ground.
- Press Play, PhysicsCube should collide with Pillar and land on the plane.

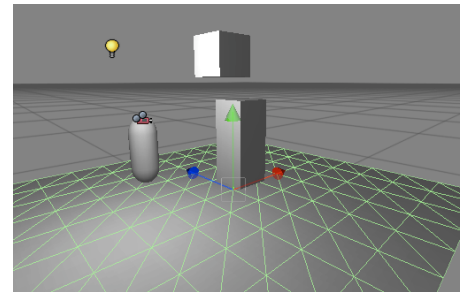


Figure 1 - demonstrating Rigidbody

11. Duplicate

Duplicating a game object is one of the most powerful features of Unity. When duplicating an object, all features and behaviours of the object are also copied. It's a very fast way to create complex scenes. We'll now add more PhysicsCubes to our scene.

- Click on PhysicsCube and press Command+D (or do this from the Edit menu). Notice an extra PhysicsCube entry has appeared in the Hierarchy menu, however you cannot see it as it has been created at the same position as the first PhysicsCube.
- Move the new PhysicsCube by selecting the move tool (W) and move it upwards (y-axis).
- Repeat this process so there are now 3 PhysicsCube game objects (see Figure 2).
- Run the game and all 3 PhysicsCube game objects should interact and behave naturally.

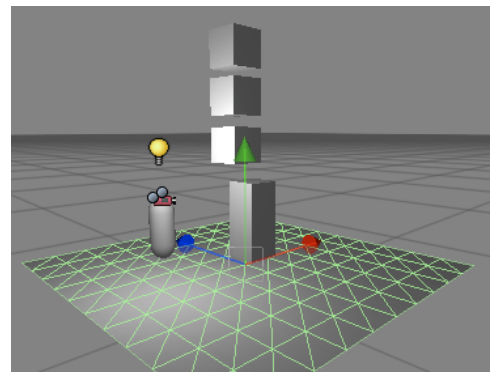


Figure 2 - using Duplicate.

This tutorial has introduced the fundamentals of the Unity GUI. You should now try the scripting tutorial to look beneath the surface of Unity.