

Introduction to Unity 3D



Game Development Foundations

Last modified 06/11/15 by Sam Cartwright

Introduction to Unity3D



Contents

- What is Unity3D
- Games made with Unity
- Introduction to Unity's Interface
- Creating a Project

What is Unity3D

- An extremely popular, cross-platform game engine
 - Currently 21 platforms are supported!
- Very popular for independent (indie) development teams
- Also used by larger studios

Made with Unity 3D



Supported Platforms

- iOS
- Android
- Windows Phone 8
- Tizen
- Windows
- Mac
- Linux
- Web Player
- WebGL
- PS3
- PS4
- PSVita
- XBOX One
- XBOX 360
- Wii U
- Android TV
- Samsung SMART TV
- Oculus Rift
- Gear VR
- Microsoft Hololens
- Project Morpheus

About Unity3D

- Originally built only for OSX in 2005
- Unity has grown a lot in the past few years
- The growing list of supported platforms is one of its main advantages
- Current version is Unity 5.0, released March 3, 2015
- In Japan, Unity has its own mascot (called Yuniti-chan)



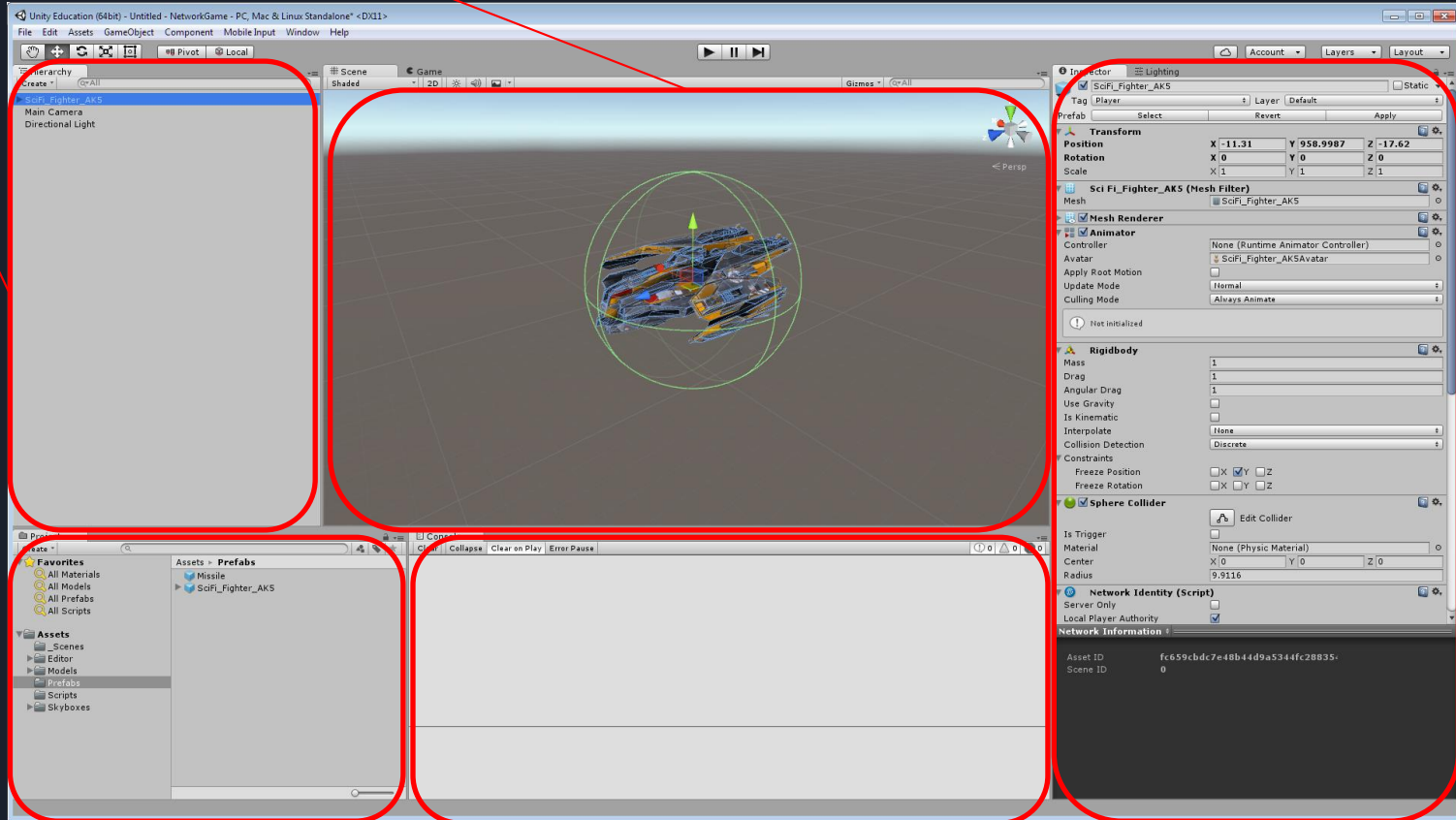
Unity's Interface

- The Unity interface has a few major sections
- Most of the time you will be using the interface to position objects in the game world to build a scene
- From now we will discuss the different parts of the interface

Scene

Inspector

Hierarchy

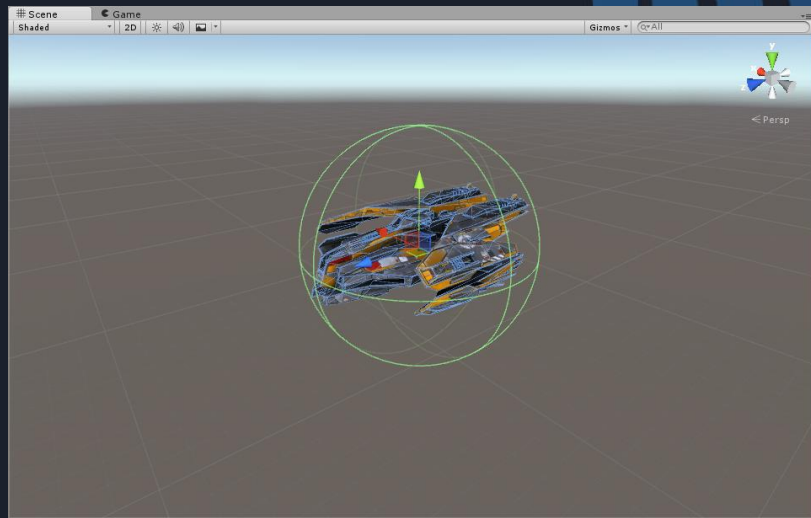


Project

Console

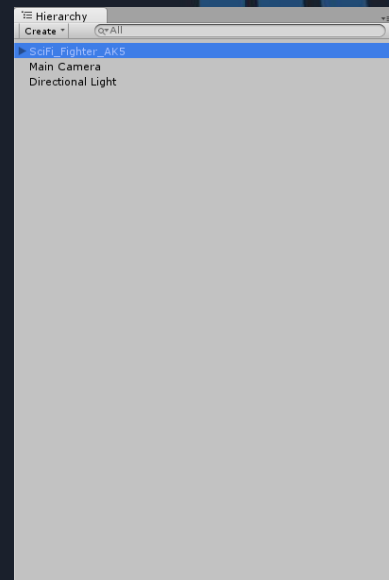
Unity Scene Window

- The central area in Unity
- Where you place and manipulate objects
- Use right mouse button + 'WASD' to fly around the scene
- You can select objects and move, rotate, scale and delete them
- You can split your project up into different scenes
 - Each level can be a different scene

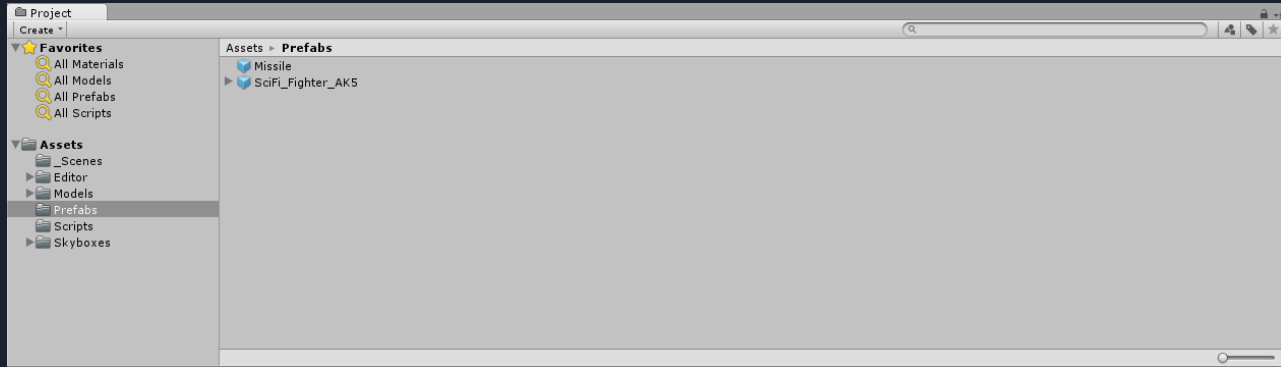


Unity Hierarchy

- Lists every object in your scene
- This list shows a hierarchy of objects
 - You can 'parent' one object to another
 - When you move / rotate / scale the parent, changes are applied to the child too
 - (think of a player holding a sword)
- Selecting objects in the hierarchy highlights them in the scene (and vice versa)

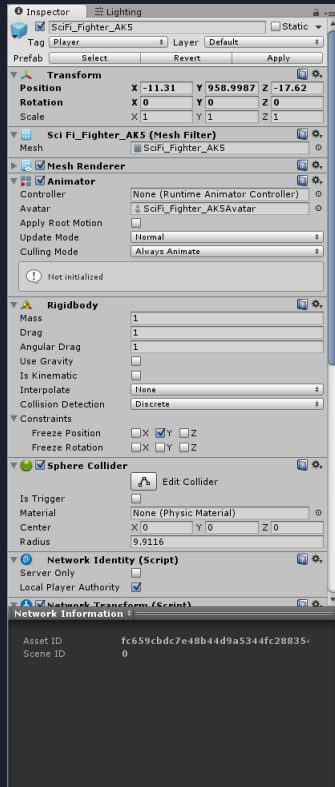


Unity Project



- Lists all the assets (files) your project.
- You can create and delete new assets such as
 - Meshes
 - Scripts
 - Prefabs
 - Textures
 - Materials
 - Animations

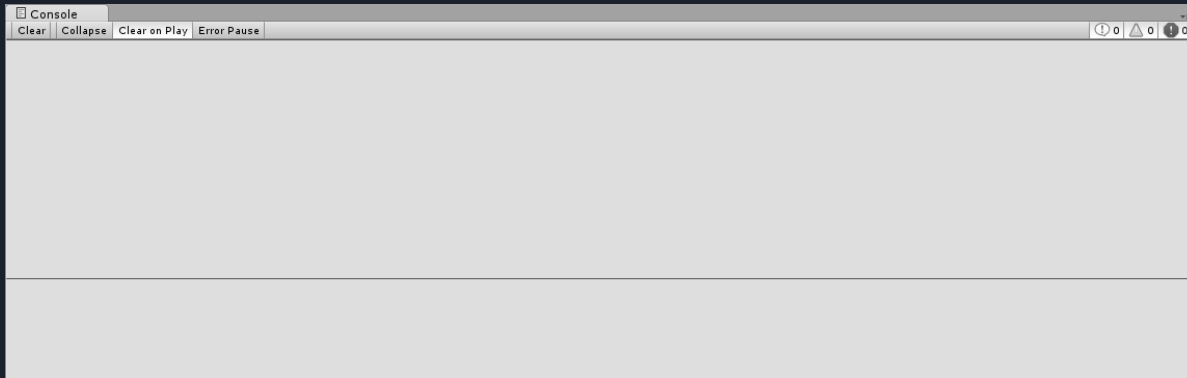
Unity Inspector



- Shows all the modifiable settings for the currently selected object
- You can add more components to an object, like
 - Colliders
 - Physics (Rigidbody)
 - Custom scripts
 - And many more

Unity Console

- A very useful window!
- Displays any errors in your game scripts
- Can also display debug information as your game runs



Everything is a GameObject

- All the entities that exist in a Unity scene are GameObjects
- When you manipulate or change something in a scene, you are changing a GameObject
- At its core, all a scene is, is a collection of GameObjects

Creating new GameObjects

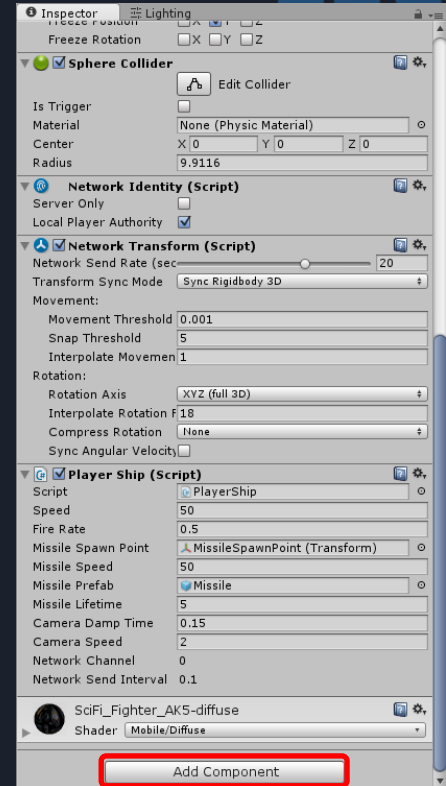
- Unity provides a few ways to make new GameObjects'
 - Via the GameObject menu on the toolbar, and
 - Via the 'Create' menu in the Hierarchy
- You can create empty GameObjects, or choose a ready-made object
 - These include primitives like spheres, cubes, planes, and a number of other types of objects
- Once you create a GameObject, it will appear in your scene
 - You can then modify it using the mouse or by editing its properties in the Inspector

Components

- Components add extra functionality to GameObjects
 - To render (draw) a GameObject, it needs a renderer component
 - To detect collisions, it needs a collider component
 - To be affected by gravity, it needs a rigidbody component
- If we want to add our own functionality, we can write a script and attach it as a component
 - This is how we could control the player using the keyboard

Adding Components to GameObjects

- You can view and modify a GameObject's components in the Inspector
- At the bottom of the Inspector is a button called 'Add Component'
 - This displays a list of components you can add to the GameObject



Summary

- Unity3D is a popular game engine
- It can be used to make games for many popular platforms
- To build games in unity, we create scenes consisting of GameObjects
- GameObjects have many properties we can edit
 - We can also add more functionality to GameObjects by adding Components

Extra Reading

- <http://unity3d.com/unity> - What is Unity? (Video)
- <http://unity3d.com/learn/tutorials/topics/interface-essentials> - Unity Interface & Essentials (Video)
- <http://docs.unity3d.com/Manual/UnityOverview.html> - Unity Manual: Unity Overview

References

- Unity - Game Engine. 2015. *Unity - Game Engine*. [ONLINE] Available at:<http://unity3d.com/>. [Accessed 21 September 2015].
- Unity - Showcase. 2015. *Unity - Showcase*. [ONLINE] Available at:<http://unity3d.com/showcase>. [Accessed 21 September 2015].
- Unity - Game engine, tools and multiplatform. 2015. *Unity - Game engine, tools and multiplatform*. [ONLINE] Available at: <http://unity3d.com/unity>. [Accessed 21 September 2015].