

Usage Experience, Creating a Room

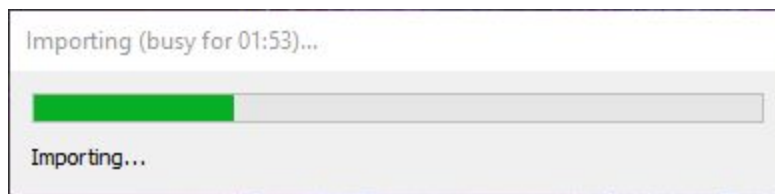
Project

For my intro project I decided to recreate Scales Room 115, otherwise known as the Discrete Room. I will build the room in both Unity and Unreal Engine 4, and be comparing them from a beginner's/new user's perspective.

Unity

Initial Startup

As expected, Unity takes a while to start up, but it does not use a large portion of the CPU to do so. Google Chrome takes more computing power with three tabs and a fourth tab playing music. Unity also gives an approximate busy time/wait time for it to initialize or load a project.



Once the project is open, the usage of computing power varies based on what you are doing, but does not usually peak 15% unless loading a complex texture or mesh.

The user interface is a lot to look at. It seems like a professional interface more than a beginner's interface. Clicking and learning could get you only so far.

Creating a Project & General Usage

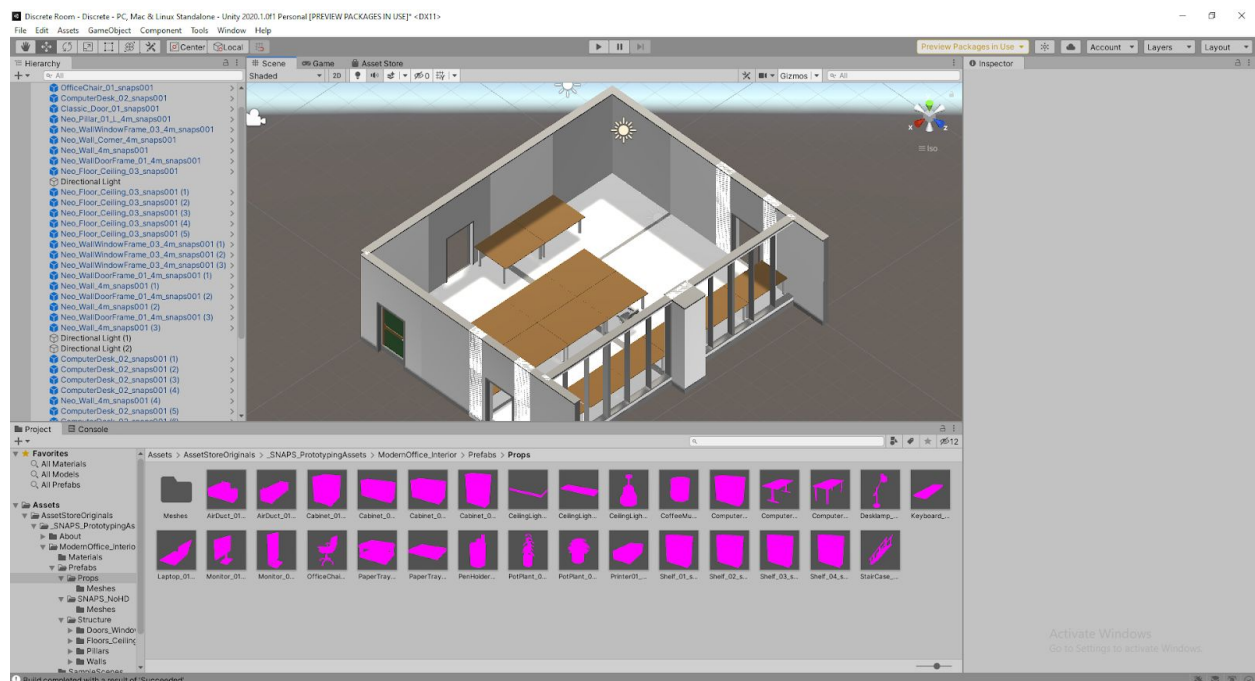
The Unity user interface is not very intuitive for a beginner, much less someone who has never used an editor of any kind before. It is professional looking, with the assumption that you've read the documentation and know what everything is and where it is located.

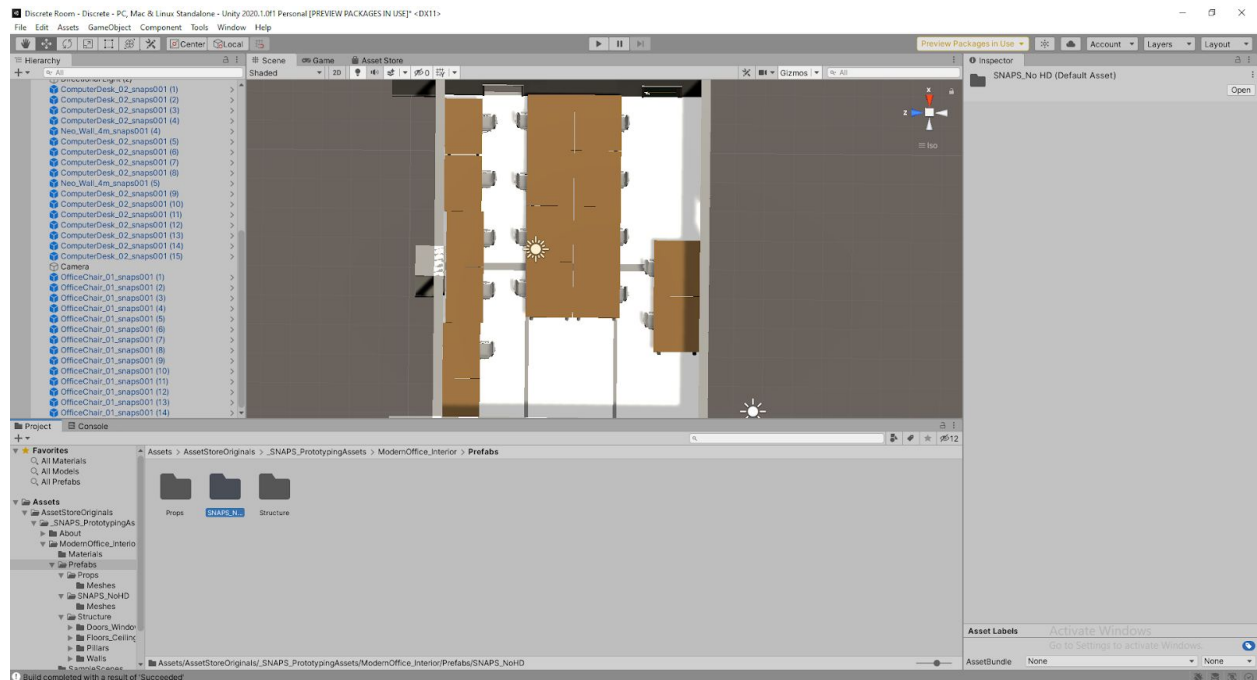
Camera navigation is difficult. Adding assets is a semi easy process. Unity offers an asset store tab, although they have moved the asset store to a website, so it is easier to just have the website saved as a shortcut so you can avoid having to click through the Unity menus only to open up a new browser instance. Compared to UE, there are much more free assets available on the assets store for Unity, but this could just be due to a more saturated market.

The actual creation of an environment is simple and resembles UE up to a point. Where UE has buttons available for different transformation tools, all of Unity's transformations of an object requires inputting values into a details section. Unity offers a more clean lines visual of the environment as well.

Building and Running the project is a bit more difficult. When run, the project automatically attaches the view to the main default camera with no movement capabilities. You have to add a FirstPersonCharacter asset to the project in order to have navigation. I ran into a problem here though, as the script that Unity provides comes with errors, and if used, will prevent the project from building and running. I was able to work around this by following a tutorial online that showed how to make a FPC out of a capsule and camera combination.

I would not recommend Unity to someone just starting out, but it requires a lot less computing power than Unreal Engine 4 does.





Unreal Editor 4

Initial Startup

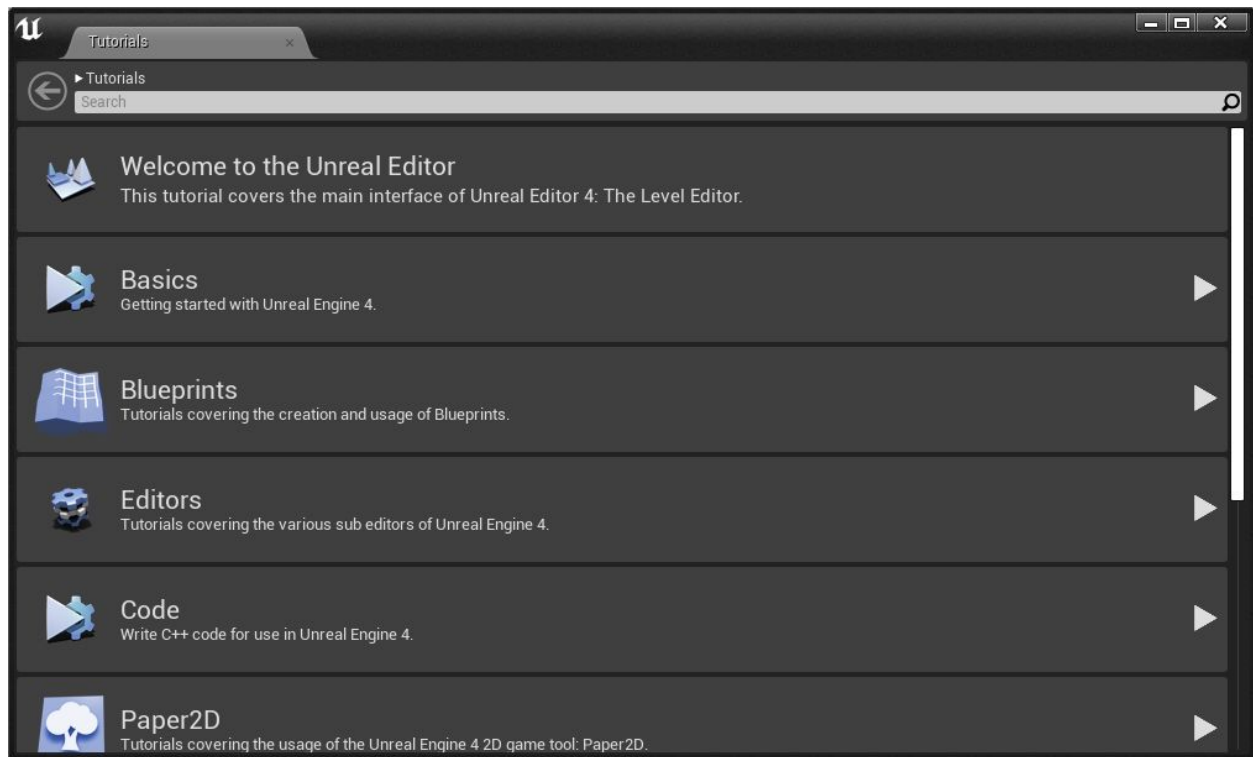
Unreal Engine offers different types of projects and templates when opened. Upon creation of a project, it immediately becomes apparent that UE requires more computing power than Unity does. The first attempt to create a project with real time ray tracing enabled resulted in the initialization process jamming at 45% and going no further. Attempt number 2 to create a project without ray tracing led to uncompromised initialization. The task managers report of CPU usage was quite high during initialization and the compiling of shaders (peaking at around 70%), but settled back down to a range between 0.8% and 5% once it all compiled.

UE immediately offered a tour of the tools it has, and the user interface is much more understandable and simplified in comparison to Unity. UE also explains how to navigate the viewport, whereas Unity assumed previous knowledge, or assumed users have read the documentation.

Creating a Project & General Usage

Unreal Engine 4 is much easier to use for beginners. It's easy to understand user interface makes locating the necessary tools very easy. The tutorial explains each tool and offers more

instruction if desired.



Changing views is made very simple in UE, with the use of a flying camera that is activated by holding right click, and navigating with WASD.as

The starter package of materials did not offer the materials I wanted right off the bat, but additional items are available through either the Epic Games Unreal Editor website, or directly in the Epic Games Launcher.

Acquiring free packages is simple and there are numerous options available for purchase as well. Dragging and dropping items and materials is a very easy process. I used the closest items available that resemble the items and furniture in the Discrete Room that were in the store for free. One could conceivably find closer matched textures and meshes within the store with monetary cost, but my goal was to run it entirely free.

Building and Running the creation is relatively simple in UE. You just press the very large build button, and then play. UE has built in methods of navigation already available.

- Paper airplane - basically a flying camera, same controls as viewing
- First Person Character - WASD navigation and camera panning remains the same, but your view is anchored to approximately eye level
- VR - same controls as FPC, but this allows for the materials physics to take effect

The image shows the Unreal Engine 4 interface. At the top is a menu bar with File, Edit, Window, and Help. Below it is a toolbar with icons for Save Current, Source Control, Modes, Content, Marketplace, Settings, DataSmith, Blueprints, Cinematics, Build, Play, and Launch. The left sidebar contains a 'Class Browser' with a search bar and a list of classes: Empty Actor, Empty Character, Empty Pawn, Point Light, Player Start, Cube, Sphere, Cylinder, Cone, Plane, Box Trigger, and Sphere Trigger. Below this is a 'Content Browser' with an 'Add New' button and a list of content types: Shape_Cone, Shape_Cube, Shape_Cylinder, Shape_Narrow_Gravel, Shape_Sphere, Shape_Plane_90, Shape_Plane_180, Shape_Plane, Shape_Sphere, Shape_Sphere_Torus, Shape_Trim, Shape_Trim_90_In, Shape_Trim_90_Out, Shape_Trim_Pyramid, Shape_Tube, Shape_Wedge, Shape_Wedge_A, Shape_Wedge_B, and Shape_Wedge_Capsule. The central 3D viewport shows a scene with a large conference table, chairs, and a screen displaying the Unreal logo. The right sidebar contains a 'World Outliner' with a search bar and a list of objects: PlayerStarts, ExponentialHeightFog, Floor_400x401, PostProcessVolume, Shape_Pipe, Shape_Plane, Shape_Plane2, Shape_Plane3, Shape_Plane4, Shape_Plane5, SM_Classic_Cuboard, and 81 actors. Below this is a 'Details' panel with a search bar and a list of properties: ExponentialHeightFog, PostProcessVolume, Shape_Pipe, Shape_Plane, Shape_Plane2, Shape_Plane3, Shape_Plane4, Shape_Plane5, SM_Classic_Cuboard, and 81 actors. At the bottom right, there is a 'Performance' panel showing 'Active Windows' and 'Performance' statistics.

