

VR Project Setup

Creating Immersive Worlds, Fall 2018



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Make Sure You Are All Set Up

Before you begin, make sure you're working at a PC that is set up for VR. All of these various tutorials and guides assume you have working VR hardware.

HTC Vive Set Up

VIVE - Set up VIVE for Room-scale



Oculus Rift Set Up

Oculus rift CV1 Unboxing and Setup

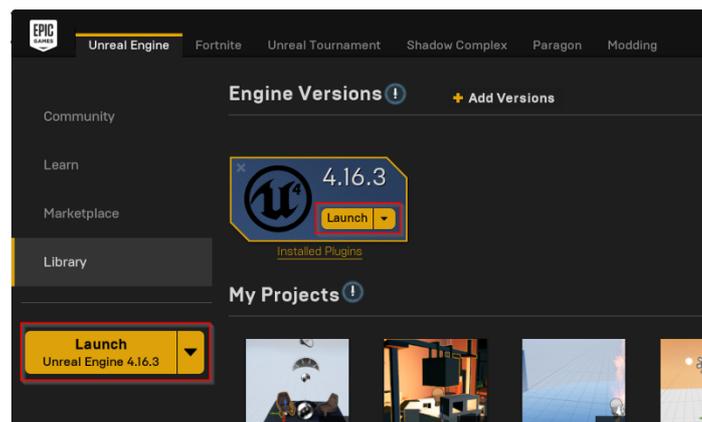


UE4 Project Introduction

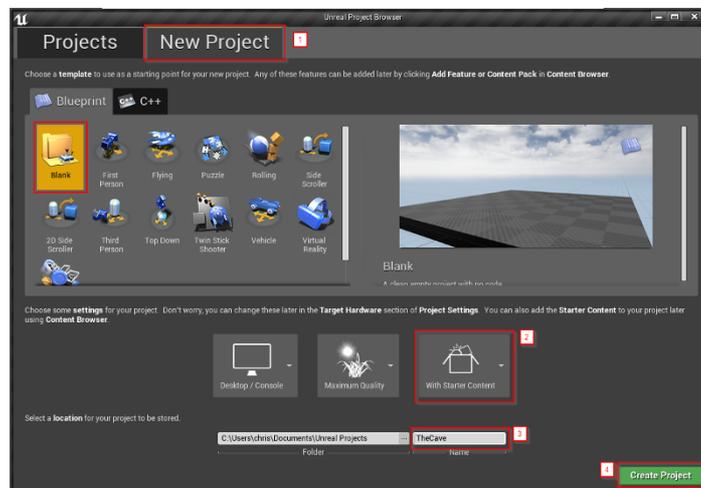
Projects in UE4 are, for the most part, a completely self-contained collection of files and directories on your hard disk, those files could be source code, 3D model files, sound files, materials, etc...

Ok, so let's create our project. If you're not opening a project directly, when you click to launch Unreal Engine, the first thing you'll see is the Project Browser, where you can open existing projects or create a new project.

To create a new project, or open an existing one, launch the Unreal Engine editor (in this case, I'm using version 4.16.3) by click on the **Launch** button under the Unreal Engine tab in the Launcher.



In the New Project tab, you'll notice two tabs, Blueprint and C++, along with a number of templates, for example, one for a side-scroller or a racing game. There's even a Virtual Reality template, which features things like teleporting with a motion controller or by using your gaze. We will do a deep dive into this template in a later video when we start scripting our interactions, but for now I'd like to keep this as generic as possible so that we keep our creative options open.



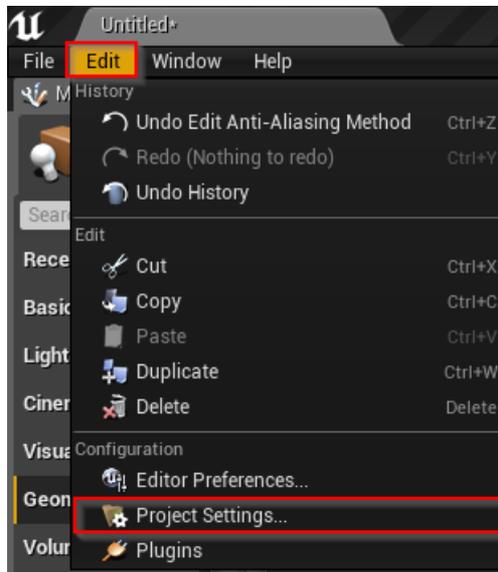
1. Select **Blank**
2. Keep the options for **Desktop/Console, Quality** and **Starter Content** as they are. We'll need the starter content at various points in time during our build, so keep that option selected.
3. Select a location for your project and a name—let's create a new directory and call it—The Cave
4. Click the **Create Project** Button

NOTE: You can also choose to start with any of the Blueprint Templates (e.g., the [VR Template](#)).

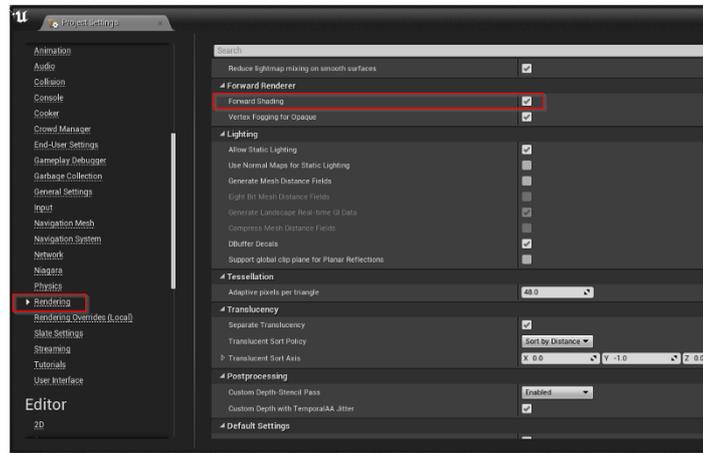
Setting Up Your Project for VR

Before we get started creating our VR world, we'll need to set up our project to make the best use of the available technology that we have. By default, Unreal Engine 4 uses a Deferred Renderer. A renderer is basically a collection of methods that take data about how our world should look, and sends that to our graphics processor. Deferred rendering is one way to do this, the other is called forward rendering. Forward Rendering provides a faster baseline, with faster rendering passes, which may lead to better performance on VR platforms. Not only is Forward Rendering faster, it also provides better anti-aliasing options than the Deferred Renderer, which may lead to better visuals.

First, go to the **Edit > Project Settings** to open your Project Settings



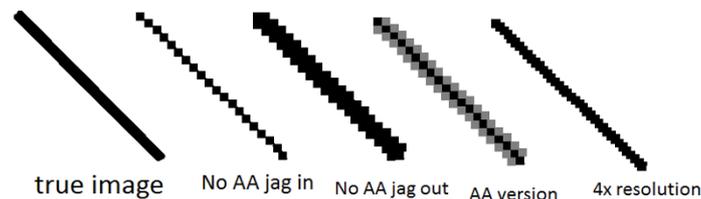
Next, select **Rendering** from the Engine settings menu and select **Forward shading**



We also want to change the Set the Anti-Aliasing method property to MSAA, which will reduce the amount of blur we see in our VR scenes.

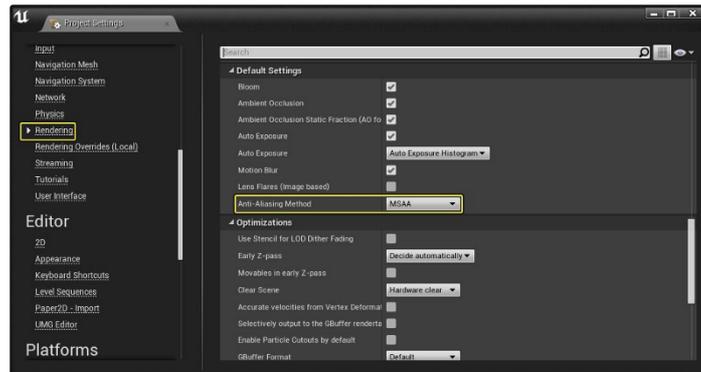
Under the **Default Settings** category change the Anti aliasing Method to MSAA.

*In computer graphics, **antialiasing** is a software technique for diminishing jaggies—stairstep-like lines that should be smooth. Jaggies occur because the output device, the monitor or printer, doesn't have a high enough resolution to represent a smooth line.*



There are 2 basic ways to achieve Anti-Aliasing:

- Increase the sample rate (used e.g. in MSAA, SSAA and custom modes like EQAA and CSAA)
- Blur the edges/contrasts (used e.g. in MLAA, FXAA and SMAA), also called Post-AA or Post-Processing.



Restart UE4 to apply the new forward renderer settings

