

VR guide

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What is VR with unreal engine > examples 😊

Unreal engine is **a game engine** developed by Epic Games, is a real-time 3D creation tool. It allow to create , interactive experiences, and immersive virtual worlds

Examples

- 1) Game and entertainment <https://www.unrealengine.com/en-US/industry/games>
- 2) Training <https://www.unrealengine.com/en-US/industry/training-simulation>
- 3) Architecture <https://www.unrealengine.com/en-US/architecture-solution>
- 4) Transportation <https://www.unrealengine.com/en-US/industry/automotive-transportation>
- 5) Events <https://www.unrealengine.com/en-US/industry/broadcast-live-events>
- 6) Television and movies <https://www.unrealengine.com/en-US/industry/film-television>
- 7) More <https://www.unrealengine.com/en-US/industry/more-uses>
- 8) Modelling in VR and 3D printing <https://www.youtube.com/watch?v=PViW68-hbTM>
- 9) Interaction with arduino <https://www.youtube.com/watch?v=3xbV4-DH3hY&list=PLq7fFmIXXY73S0H5xFqpCDMy2linmsYd4&index=46>
- 10) <https://www.youtube.com/watch?v=TWjtE5kUqHA>
- 11) from 3d scan to vr <https://www.youtube.com/watch?v=mZcLKcyHWDs>

Alternative to UE4(unreal engine 4)

1. Unity <https://unity.com/>
2. **3ds Max Design.-Autodesk**
3. Maya. Autodesk
4. Amazon Lumberyard.
5. CryEngine.
6. Blender.
7. GameMaker.
8. ARKit.

Preparation SET UP 1st time

1) Tool required

- Room or a space big enough to move
- [HTC Vive](#) set (from DDLab)
 - Visor
 - Controllers
 - Sensors
 - Connection cables
- Pc or laptop

If it's the first time that you use VR in your pc /laptop . if not go to step 6

2) Set up VIVE ROOM download setup vive from <https://www.vive.com/sea/setup/>

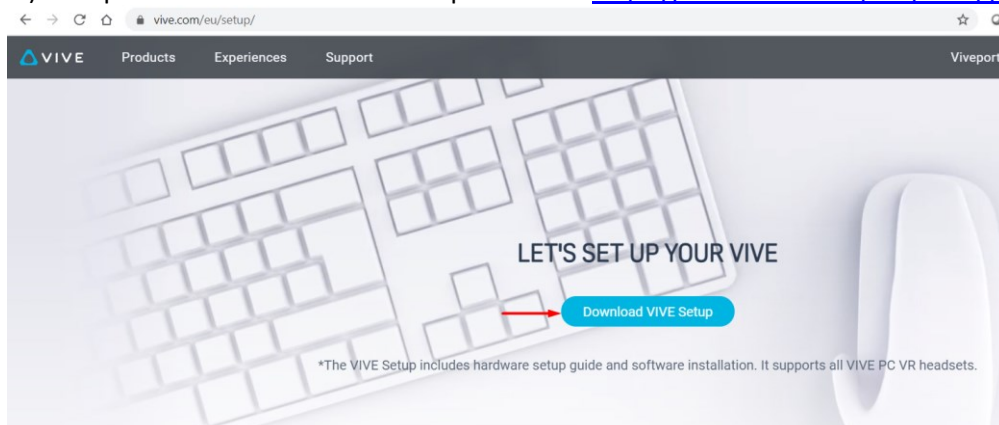


Figure 1 Vive set up



3)Download steam vr

<https://store.steampowered.com/app/250820/SteamVR/>

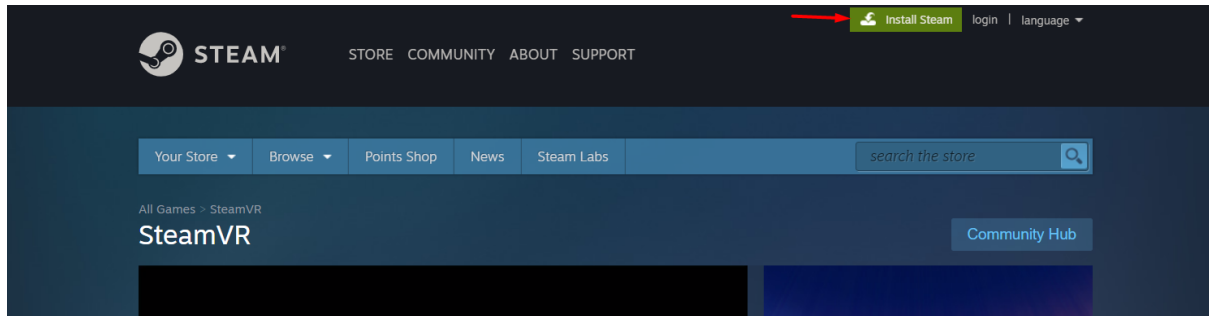


Figure 2 Down load steam vr

4) Create an account of Steam

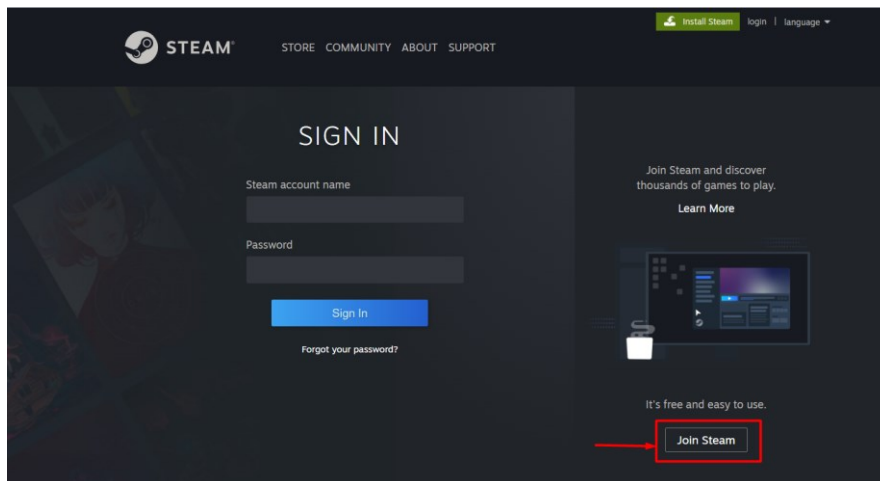


Figure 3 Join Stream



5)Download Unreal engine Epic Games Launcher

<https://www.unrealengine.com/en-US/>

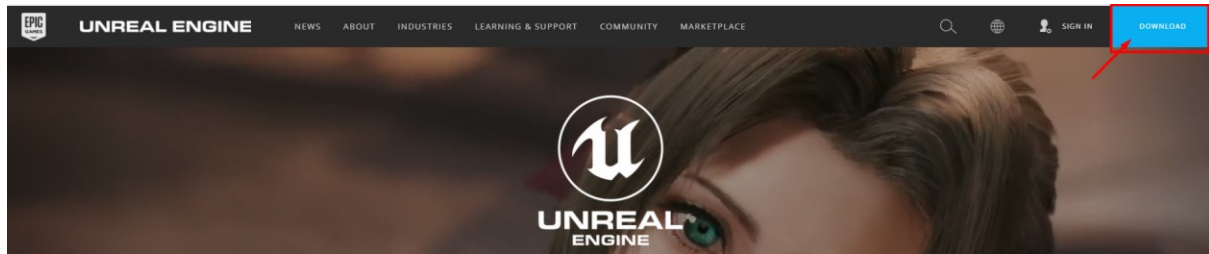


Figure 4 Download Unreal Engine UE4

STEP 6 Connect VR steam to PC

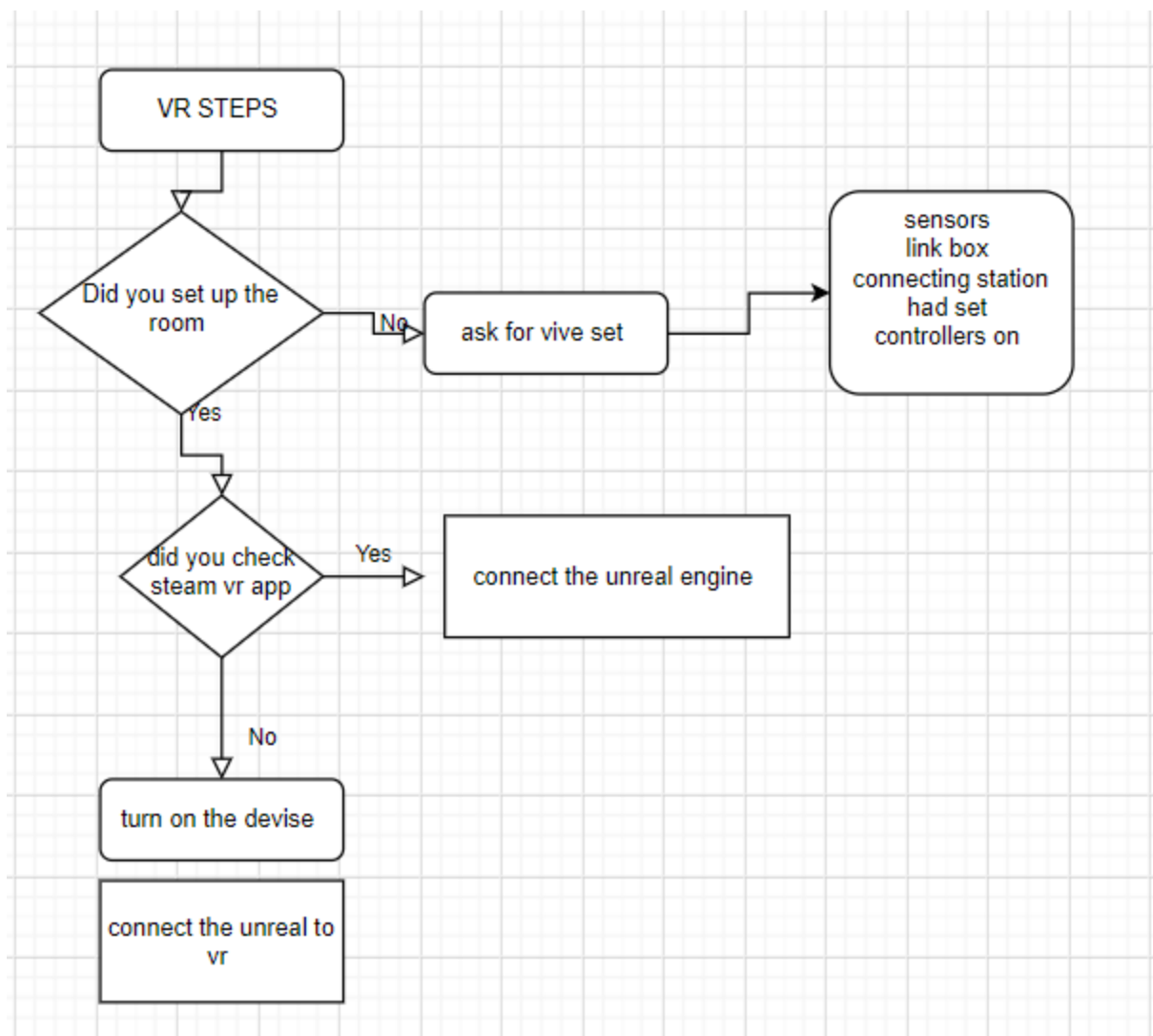


Figure 5 Flow chart how to set up VR

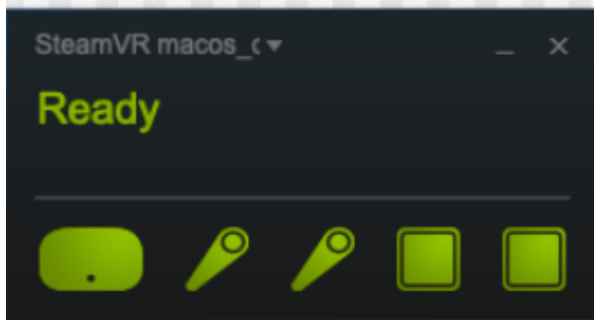


Figure 6 Ready steam vr mode

NOW YOU CAN START

Create a 1st VR project in UNREAL ENGINE UE4

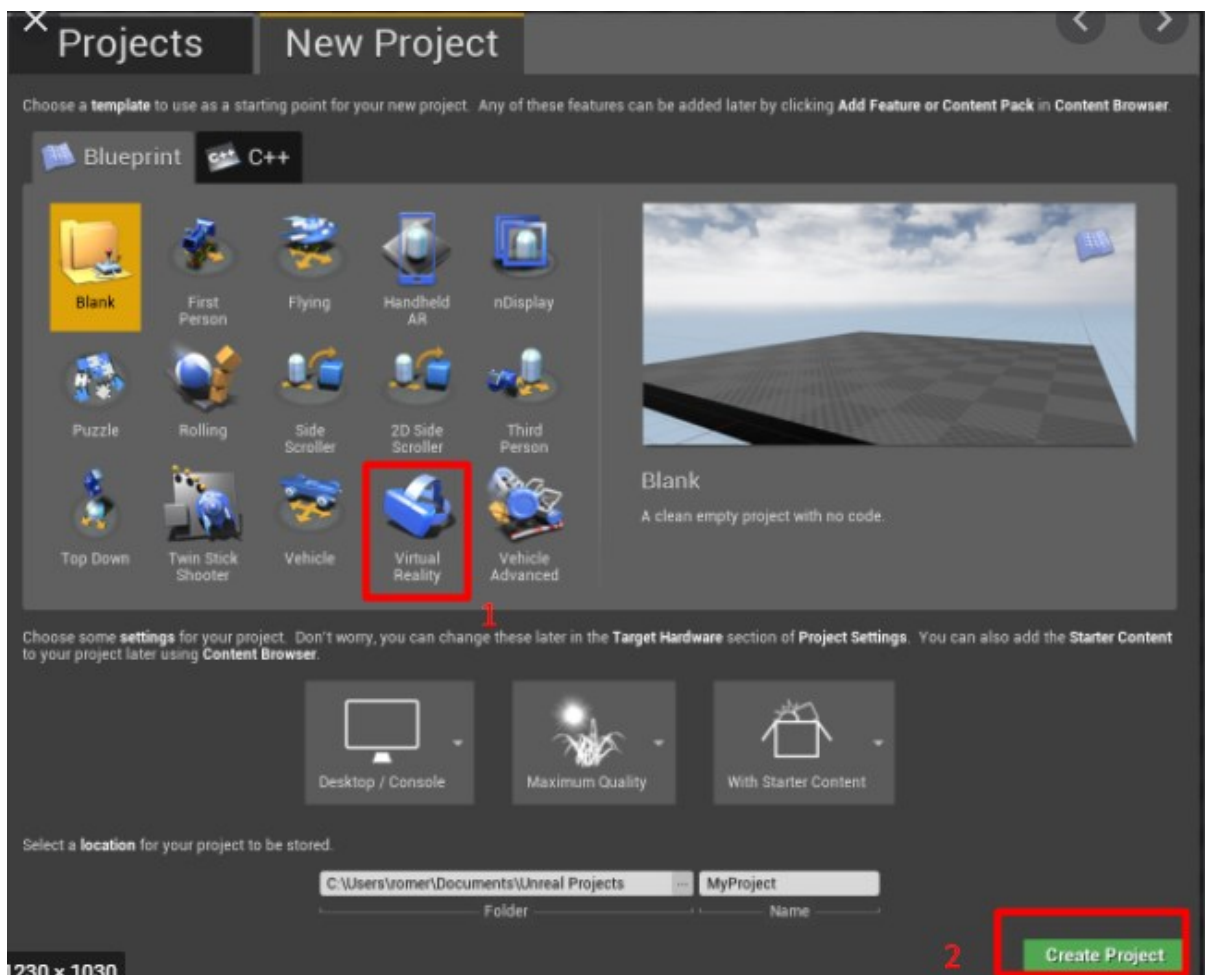


Figure 7 How to start a vr project

Intro of interface

What are maps? Maps are folder that contain each Blueprint code, textures , mash , text for your game

when to use vr mode

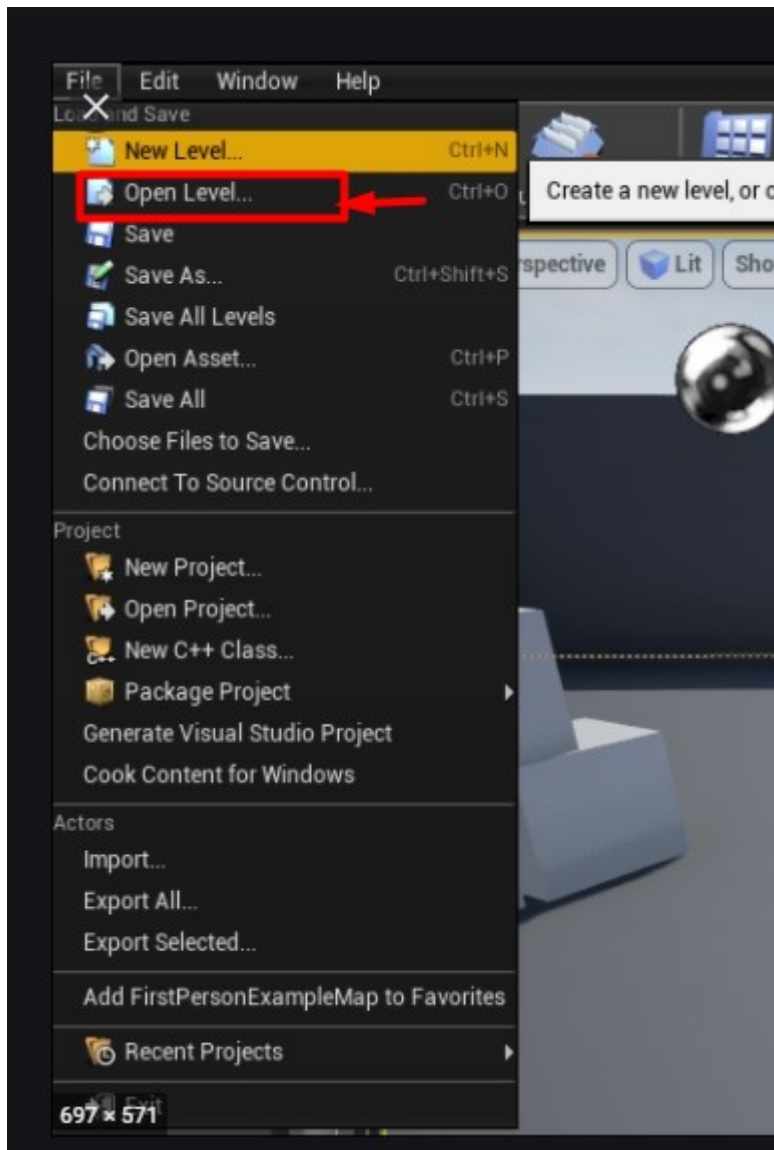


Figure 8 How to open a level

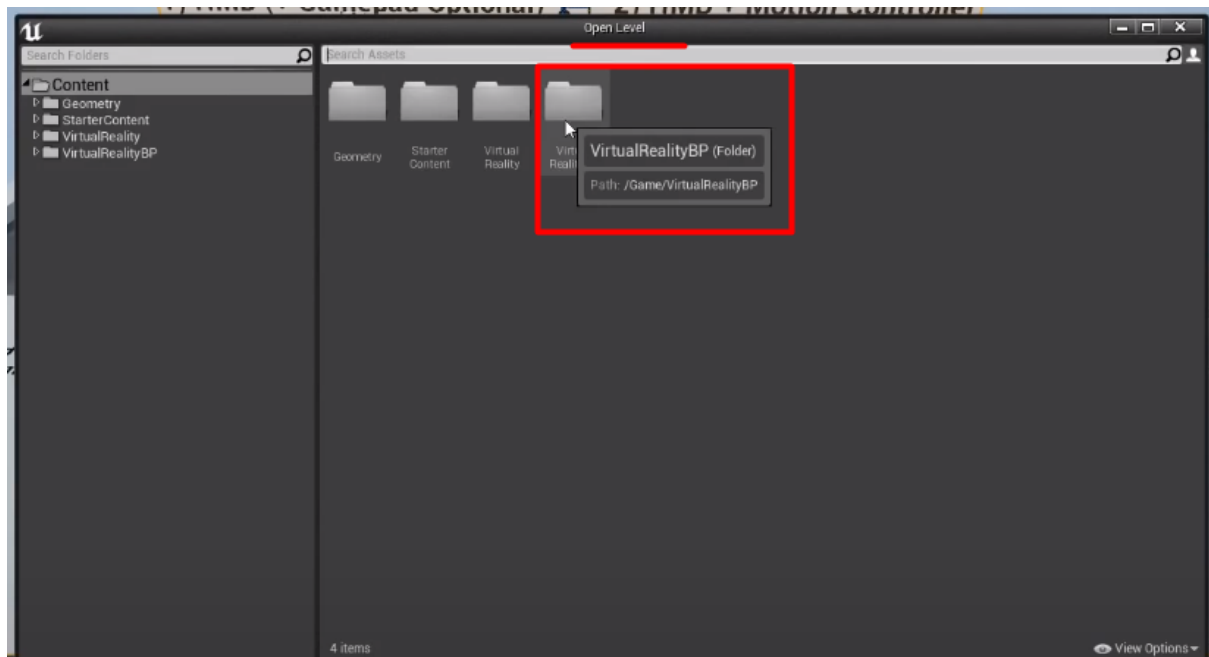


Figure 9 Steps how to open VR level

you can find both maps under **VirtualRealityBP/Maps/** in your Content Browser.

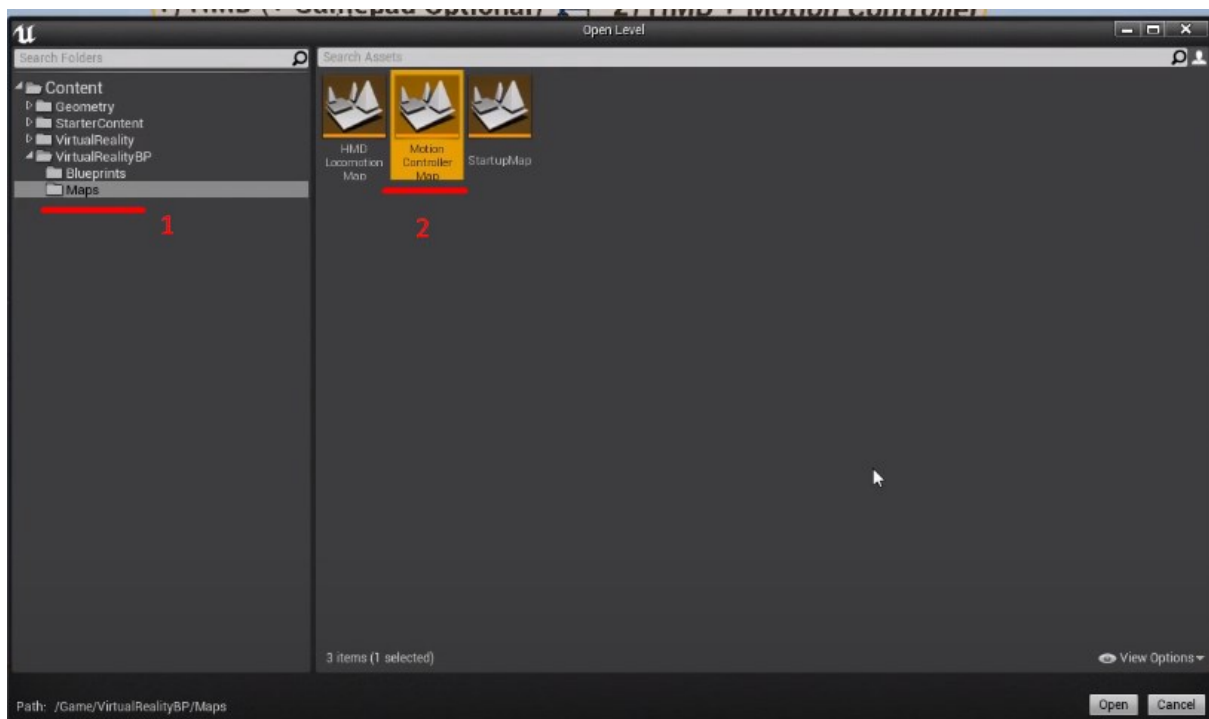


Figure 10 How to open VR level, motion controller

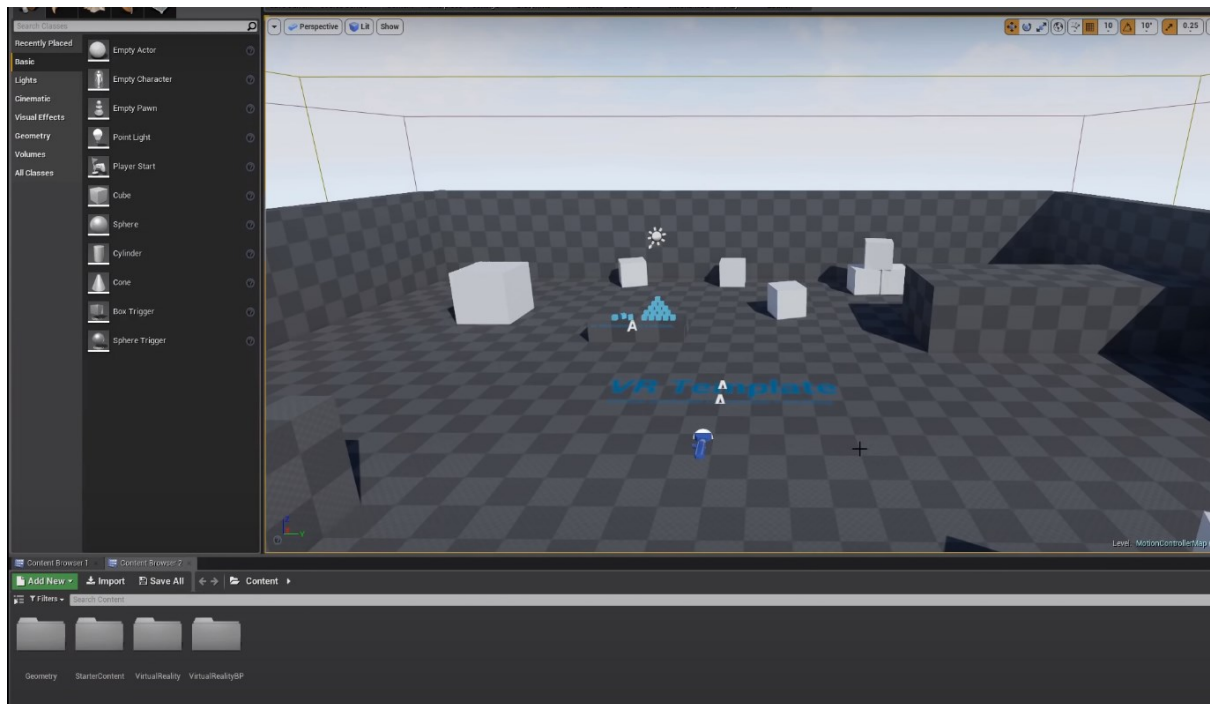


Figure 11 VR LEVEL

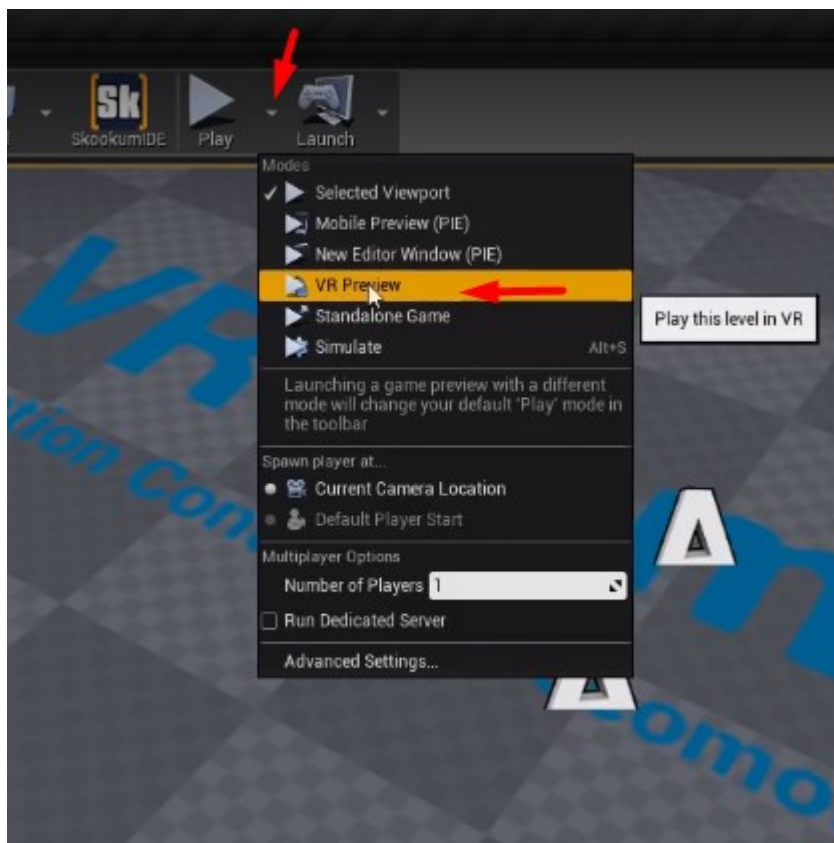


Figure 12 VR preview

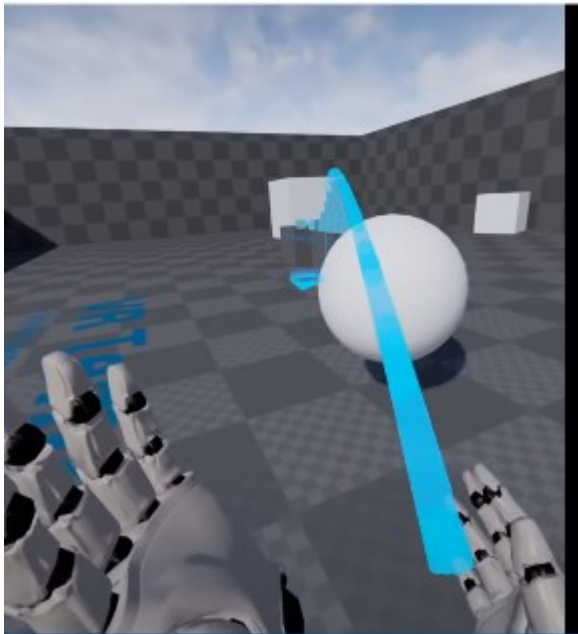


Figure 13 example of move in vr "blue beam"

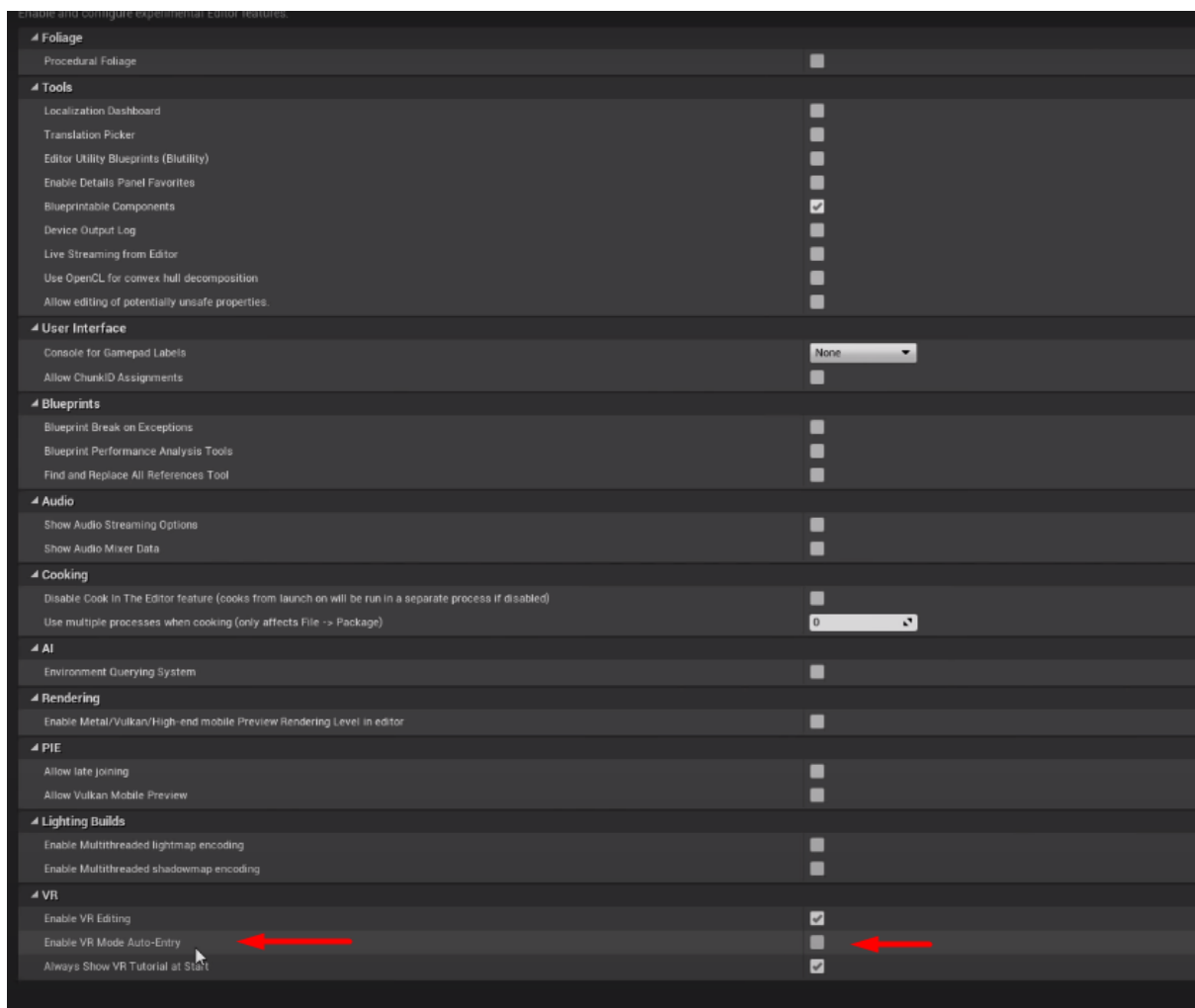


Figure 14 How to create auto entry Vr mode

Click Under **PREFERENCE EDITOR** to set the Auto entry mode VR
Auto entry allow to be automatically in VR mode as soon you connect the device on the Computer

Blueprint scripts examples

What is Blueprints scripts

The **Blueprints Visual Scripting** system in Unreal Engine is a complete gameplay scripting system based on the concept of using a **node-based interface** to create gameplay elements from within Unreal Editor. As with many common scripting languages, it is used to define **object-oriented (OO)** classes or objects in the engine. As you use UE4, you'll often find that objects defined using Blueprint are colloquially referred to as just **"Blueprints."**

Blueprint-specific markup available in **Unreal Engine's C++ implementation** enables programmers to create baseline systems

What each single node does? Nodes are objects such as events, function calls, flow control operations, variables, etc. that can be used in graphs to define the functionality of the particular graph and Blueprint that contains it.

When to use blueprints : when you want to create **a script to a functions like:**

- Blueprint Variables
- Set and Get an Actor Reference
- Events
- Nodes
- Array
- structure

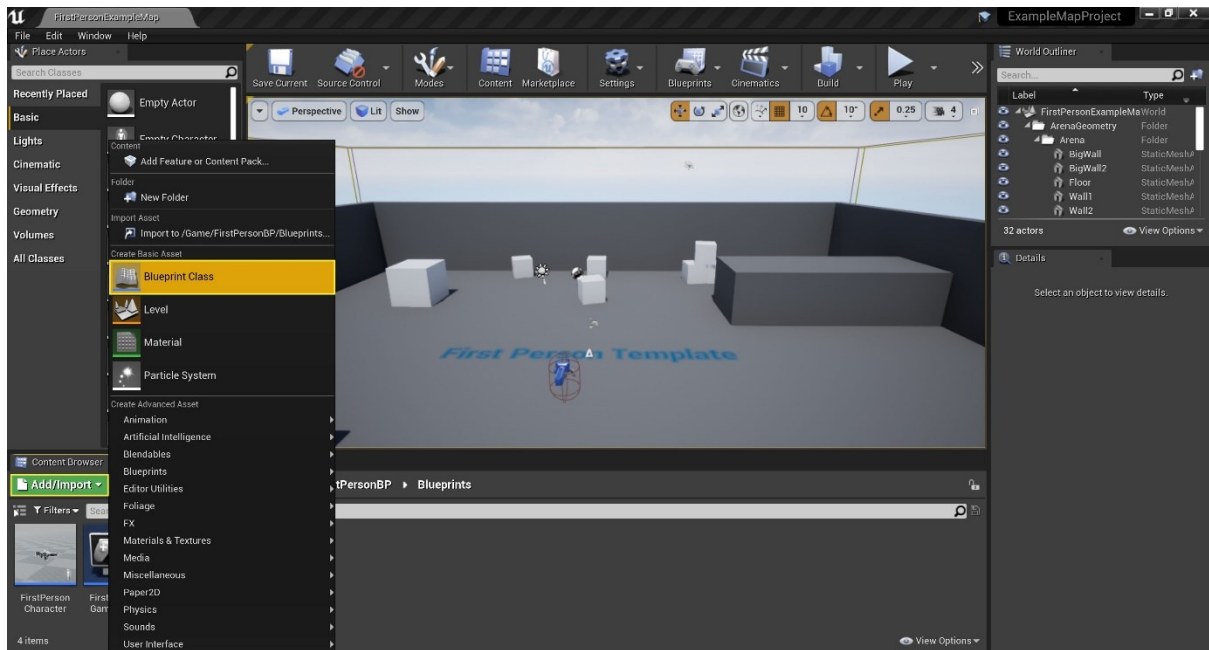


Figure 15 How to create a Blueprint class BP

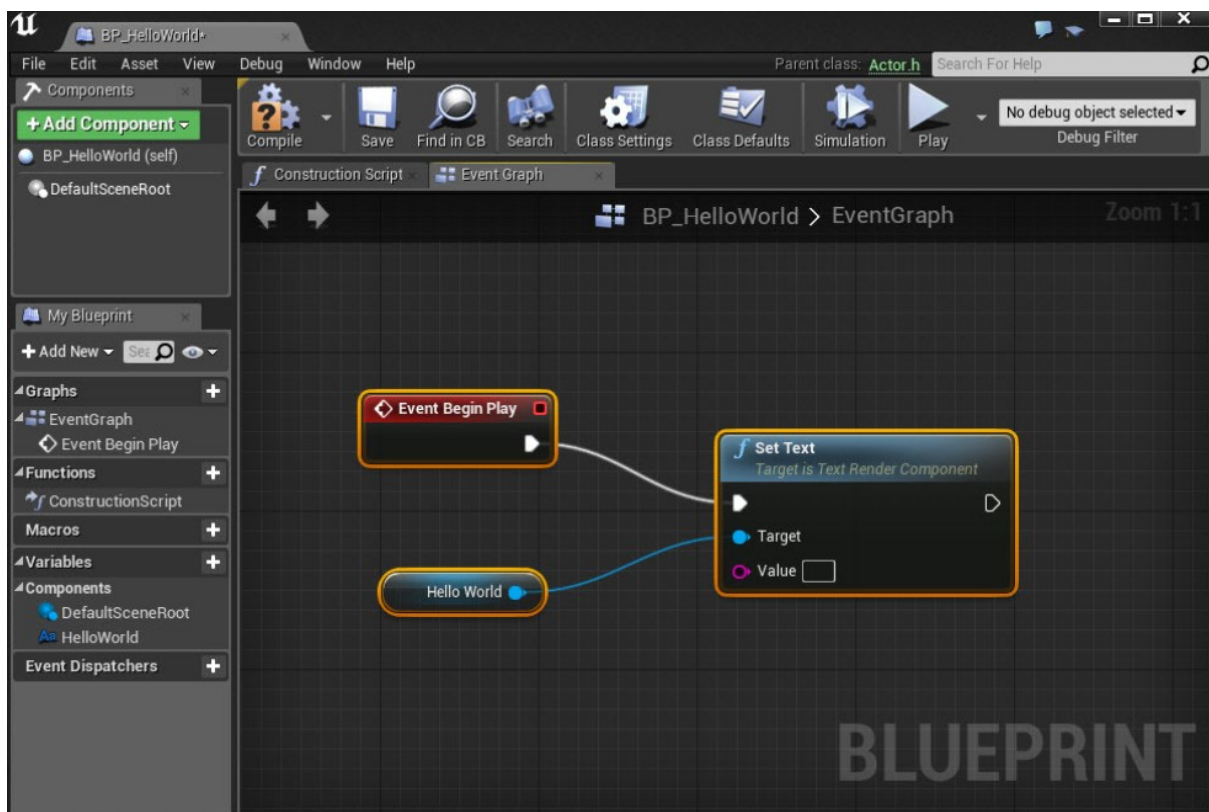


Figure 16 Example of blue print

<https://docs.unrealengine.com/en-US/Resources/ContentExamples/Blueprints/index.html>

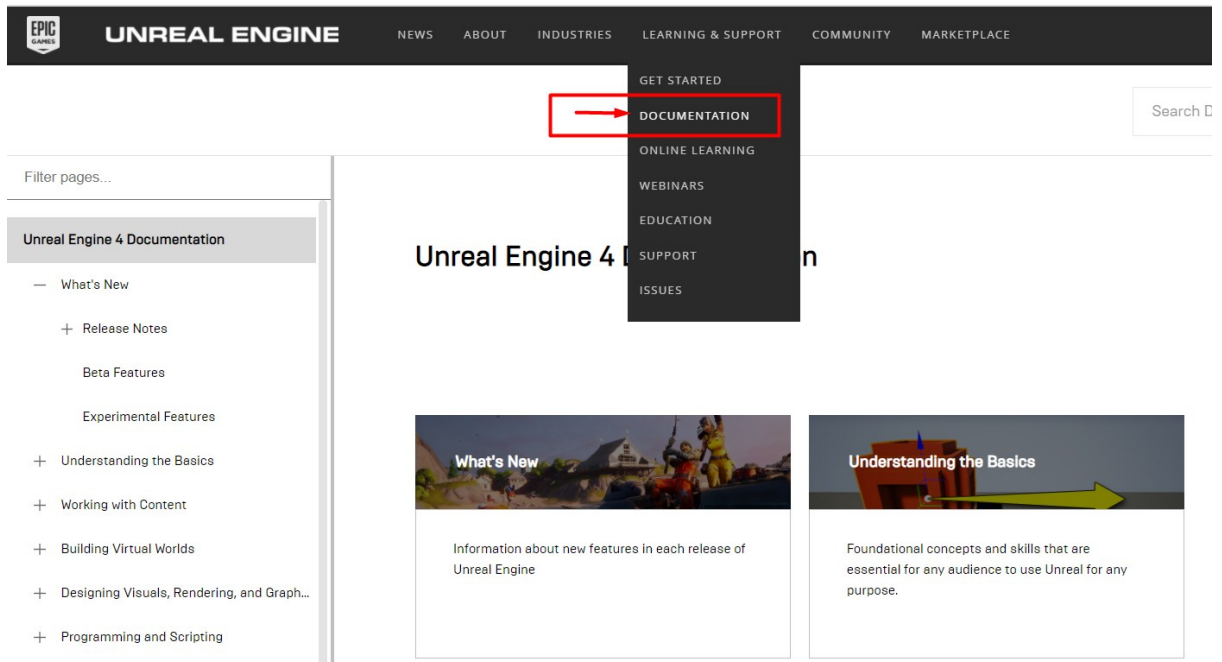


Figure 17 where to find other documentation

Learn more 😊

Optional plugins

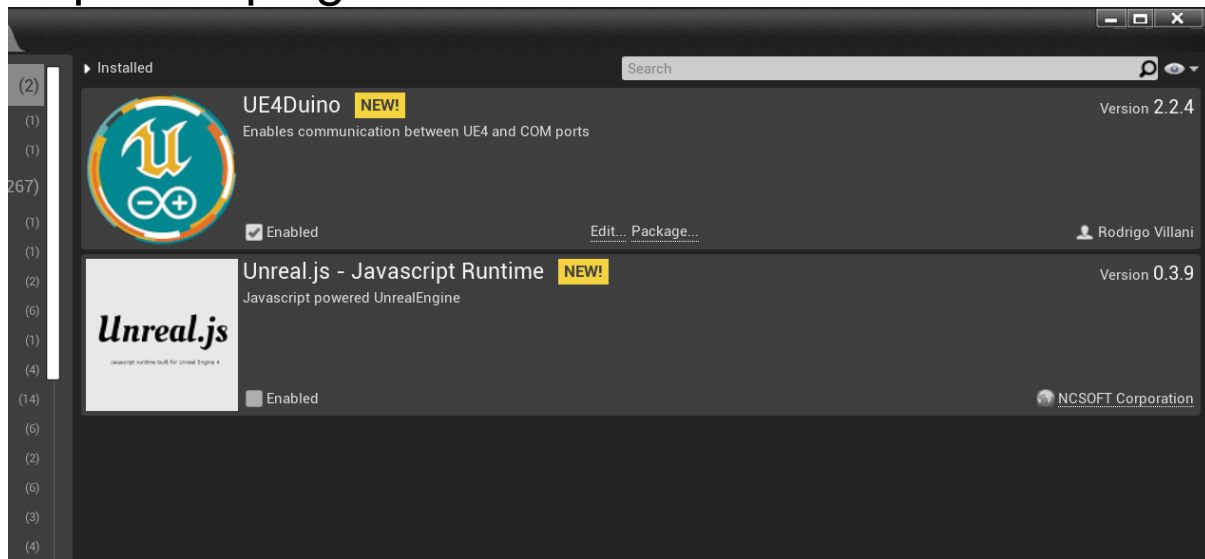


Figure 18 example of plugins

Using Unreal engine it is possible to add different plug-ins to allow interact with different software and engine.

Examples are the plug in with Arduino that allow to create interaction control in the real world and in the virtual world

Or you can use Unreal.JS if you feel more confident to write a code in Javascript.

There are many others that you can use and experiment with.

EXAMPLE :

How to install UE4Duino step by step

https://www.youtube.com/watch?v=XvfG56fa_Lk