UnrealENGINE4 Modding

# Hotkeys:

Ctrl + Alt and mouse over item interface element in the editor tells you more about it.

Alt + P goes into play mode

# Documentation:

Blueprint API Reference

List of all the nodes with some notes on what they do.

<https://docs.unrealengine.com/latest/INT/BlueprintAPI/index.html?utm_source=uelauncher&utm_medium=software&utm_campaign=learntab>

# Migrating content

Open project, select asset in Content Browser (CB) then right click and choose migrate; projects are here:

C:\Users\z3208498\Documents\Unreal Projects

Point the migration to the Content folder

# Renaming Project

Select Clone from the pulldown menu in the My Projects section of the Launcher

Project names can’t have spaces, underscores or any funny symbols (I had issues sharing a project that I had added assets to and they didn’t show up because the project name had spaces in it)

# Youtube Tutorials

## I have watched:

### Add Spline meshes procedurally

<https://www.youtube.com/watch?v=7YUxM0NDWRY>

Fun with Blueprints Spawn and Destroy

<https://www.youtube.com/watch?v=9-7SmkasS_A&list=PLZlv_N0_O1gaG5BW72It4chjhypxIO9ZB&index=2>

# Using Content Examples

<https://docs.unrealengine.com/latest/INT/Resources/ContentExamples/ExampleLevelOverview/index.html>

Access through MarketPlace in the UE4 launcher.

Downloaded content is saved here: C:\Users\z3208498\Documents\Unreal Projects

Launch engine and then navigate to File > Open level

SkeletalMesh'/Game/ExampleContent/AnimationDemo/Meshes/Owen.Owen'

## Import options

**start_icon.png**

**Content Import Reference**

* [**FBX Import Options Reference**](https://docs.unrealengine.com/latest/INT/Engine/Content/FBX/ImportOptions/index.html) - Explanations of the options available in the FBX Import Options dialog.
* [**FBX Best Practices**](https://docs.unrealengine.com/latest/INT/Engine/Content/FBX/BestPractices/index.html) - Tips, tricks, and best practices for working with the FBX content pipeline in Unreal Engine 4.

**content_icon.png**

**Content Import Guides**

* [**FBX Static Mesh Pipeline**](https://docs.unrealengine.com/latest/INT/Engine/Content/FBX/StaticMeshes/index.html) - Setting up, exporting, and importing Static Meshes using the FBX content pipeline.
* [**FBX Skeletal Mesh Pipeline**](https://docs.unrealengine.com/latest/INT/Engine/Content/FBX/SkeletalMeshes/index.html) - Setting up, exporting, and importing Skeletal Meshes using the FBX content pipeline.
* [**FBX Animation Pipeline**](https://docs.unrealengine.com/latest/INT/Engine/Content/FBX/Animations/index.html) - Setting up, exporting, and importing animations for Skeletal Meshes using the FBX content pipeline.
* [**FBX Morph Target Pipeline**](https://docs.unrealengine.com/latest/INT/Engine/Content/FBX/MorphTargets/index.html) - Creating and importing Morph Targets for Skeletal Meshes using the FBX content pipeline.
* [**FBX Material Pipeline**](https://docs.unrealengine.com/latest/INT/Engine/Content/FBX/Materials/index.html) - Guide to transferring basic materials and textures with meshes using the FBX content pipeline.

# Building for iPad

## Quality issues:

From: <https://answers.unrealengine.com/questions/47813/build-preview-on-android-not-showing-up-like-in-ed.html>

Since, i was able to figure out what was wrong. First make sure that you have a lightmass importance volume. Then it helps if your main light is set to static. All other lights needs to be set to static. Then make sure you rebuild ligthing, paths, etc before previewing.

For anyone else having this problem be sure to check the rendering section of the lights you have placed in the scene. It has a setting labeled "Actor Hidden in game" and by default it is checked. Meaning if the game is packaged or launched in any way the light will be set to hidden. Hope this helps.

From: <https://answers.unrealengine.com/questions/53244/no-skybox-reflectionillumination-on-metal.html>

Some other things to consider: 1) You'll need a lightmass importance volume that encompasses your scene. This will bake lighting much quicker! This is only needed if you are using any static lighting that will bake lights. It's not needed for Dynamic lighting 2) If you place a skylight in your scene this will soften the darkness on the shadows.

From: <https://answers.unrealengine.com/questions/120504/cooking-content-for-ios-on-pc.html>

I am curious as to why it's so slow to cook on the Mac? The usual cause of this was texture compression using high quality mode on Mac but low quality on Windows, but that was fixed in like 4.2 or 4.3 (where a setting was added to the Project Settings to control the compression level for PVRTC textures, defaulting to 0, the lowest).

PVR texture compression is like DTX1 … RL

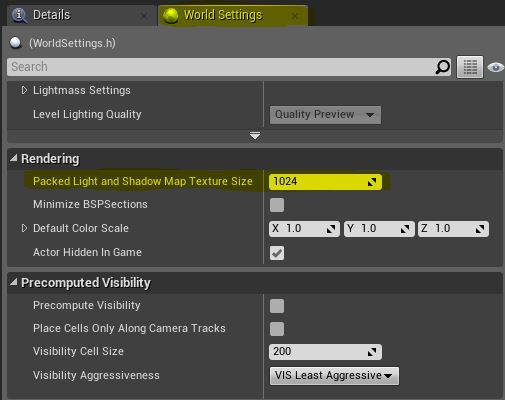
From: <https://answers.unrealengine.com/questions/123709/mobile-material-texture-resolution-problem.html>

Maybe it has also do with scaling of the texture coordinates.

From: <https://answers.unrealengine.com/questions/67381/why-lightmap-so-dirty-on-mobile.html>

This is a combination of low resolution lightmaps (which you fixed in later screenshots) and the mobile specific texture compression that is used called PVR texture compression. It has a much lower memory usage than the standard DXT1 but lower quality as well in some cases. There's not much we can do here, we have to use the texture formats supported by the hardware. Most games cover this up a bit by using diffuse textures.

Maybe you're building your lighting on too high resolution for the mobile device, so it downscales the lightmaps, which distorts them. You could try using lower settings.



From: <https://answers.unrealengine.com/questions/82540/better-pvr-compresion-for-lightmaps.html>

# Better pvr compresion for lightmaps?

|  |  |
| --- | --- |
| **0** | When using UE3 you can disable lightmap compression on mobile using .ini file. Default UE4 settings are compressing lighmaps and they look ugly. How can I disable this compression when cooking build? |

UnrealEngineEngineConfigBaseLightmass.ini

bCompressLightmaps change to False and you will have nice looking light maps as on the PC.

# Lightmaps

<https://docs.unrealengine.com/latest/INT/Engine/Content/Types/StaticMeshes/LightmapUnwrapping/index.html>

# Arduino

<https://www.youtube.com/watch?v=1t2wI9bc-xE> Unreal Engine 4 custom controller with Arduino UNO, This is a simple controller with 2 linear potentiometers connected to the Arduino analog ports and 2 digital buttons connected to the digital inputs. The communication is via serial port provided by a polling thread the keeps reading the data.

Unfortunately no more detail.

# UDP or TCP

Android controller via TC connection: <https://www.youtube.com/watch?v=bSVIWE45aJ0>

**Published on 19 Apr 2014**

This project is basically a UDK dll extension that connects to an Android application via TCP connection. Using sensor fusion the app can send the phone orientation and the touch state. This was made to integrate with Oculus Rift in order to decouple the body orientation from the head. Source Code:   
-- Application Code: [https://bitbucket.org/omigamedev/ue4\_...](https://www.youtube.com/redirect?q=https%3A%2F%2Fbitbucket.org%2Fomigamedev%2Fue4_droidpad_app&redir_token=06KdTw1-9GDtq2hSblSdgpgoDy58MTQxNTg1Nzk4M0AxNDE1NzcxNTgz)  
-- Unreal Code: [https://bitbucket.org/omigamedev/ue4\_...](https://bitbucket.org/omigamedev/ue4_droidpad)

<https://www.youtube.com/watch?v=9g6yPSHEXN8> TCP link via iphone … his commentary says just what we want to do.

# Character Modding

## Maya toolkit

<http://www.moddb.com/engines/unreal-engine-4/tutorials/ue4-animation-and-rigging-toolkit>

## Animating Objects:

<http://m.youtube.com/watch?v=k0Auo1WvsQc>

## MoCap data with Bipeds in 3ds Max

<https://www.youtube.com/watch?v=-Ww6lEkSIWI>

## attaching sockets

<https://www.youtube.com/watch?v=-xOoknUDGaE>

## Brekel Kinect

<http://brekel.com/brekel-kinect-pro-body/pro-bpdy-tutorials/>

<http://brekel.com/category/kinect/>

### system spec:

Windows 8 / 8.1 (USB stack of Windows 7 or below can’t handle bandwidth requirements of v2 sensor and is NOT supported)

USB 3.0 port, Intel and Renesas chipsets only! (others brands may or may not work)

DirectX 11 capable GPU (Intel HD4000, AMD Radeon HD6470M / HD6570, NVIDIA Geforce 610M or above)

4 GB or more RAM

Dual Core 3.1Ghz i7/i5 CPU or equivalent (slower should work but may drop frames)

1280×1024 screen (recommended: 1920×1080 or higher)

## Animation Retargeting UE4:

This is buried at minute 33:13 in an unreal twitch broadcast, gold!

Two skeletons can share animations through an intermediary rig.

<https://www.youtube.com/watch?v=ebbkosDR_Fk>

and a written tutorial here:

<https://docs.unrealengine.com/latest/INT/Engine/Animation/RetargetingDifferentSkeletons/index.html>

This video is Animation Retargeting System - Biped or CAT into UE4

He goes from a biped to a CAT setup because (I think) he’s going from mocap that works with a biped skeleton to a CAT that is the same as the UE4 rig (that he made to be the same).

<https://www.youtube.com/watch?v=2YB_pWGkUNI>

## Movement Animset Pro for UE4 - TUTORIAL 1 - Animation Graph

Here: <https://www.youtube.com/watch?v=bUQ83Szuh7E>

# Saving data

<http://m.youtube.com/watch?v=6l7uynUwm5M>

# Blueprint:

## Trigger skeletal animations:

<https://forums.unrealengine.com/showthread.php?954-Newbie-question-Triggering-animations-with-blueprints>

From:

Quote Originally Posted by **Slipsilk** [View Post](https://forums.unrealengine.com/showthread.php?p=161225#post161225)

*...  
  
We are looking for a simple way to play a premade animation via a trigger.   
...*

Hey,  
  
Use PlayAnimation on the SkeletalMesh, which contains the animation.  
Name:  playanimationblueprint.png
Views: 199
Size:  101.4 KB

Drag and drop the Skeletalmesh1 component into the graph view and choose “get” to provide the reference target for the animation.

# Skeletal Animations

## Physical Animations

From: <https://forums.unrealengine.com/showthread.php?49607-Tutorial-Pre-made-physics-simulation-in-UE4>

Physics animation in 3dsMax: Using Mass FX

<https://www.youtube.com/watch?v=iQ6HFdP8_C4#t=10>

and, try this:

I just wanted to ask if you had tried simply using the import Rigid animation option in UE4? I've used it successfully for simulating things like trains and traffic simulated outside UE4.  
Here's how to do it:  
1) Create a dummy in MAX, name it something if you'd like  
2) Select all your animated objects and link them to the dummy  
3) Select the objects and the parent dummy and Export Selected  
4) Set your export settings to bake the animation, etc just as you would for a skeletal animation and save your fbx  
5) import the FBX into UE4  
6) In the import options, select Skeletal Mesh, and in the advanced options, select Rigid Animation and import!

This should make a skeleton, etc and the animation assets for you. No need to use a skin modifier, etc!  
  
I haven't tried this with dynamics simulated objects, but I don't see any reason it shouldn't work.

It works well, RL.

# Recording footage:

How can i record player view gameplay using Matinee?

|  |  |
| --- | --- |
| **0**  **1** | Thus far Matinee has proven to be a good tool for cutscenes and flyby shots. However I would like to record the players main camera. I want to record a few shots of the gameplay for a demo. This means a live person will be playing. I could always use either my HD PVR or screen Capture but I was hoping for a built-in solution. I need the player main camera view to be recorded. Not Matinee new camera.  Tags:[matinee](https://answers.unrealengine.com/questions/topics/single/1213.html)[video](https://answers.unrealengine.com/questions/topics/single/17525.html)[gameplay](https://answers.unrealengine.com/questions/topics/single/2066.html)[record](https://answers.unrealengine.com/questions/topics/single/23564.html)[capture](https://answers.unrealengine.com/questions/topics/single/27602.html)  more ▼  asked **May 18 '14 at 6:34 AM**  [TobiasRipper gravatar image](https://answers.unrealengine.com/users/2176/tobiasripper.html)  [TobiasRipper](https://answers.unrealengine.com/users/2176/tobiasripper.html) **31** ● 23 ● 21 ● 26 |

**1 answer:****sort voted first ▼**

|  |  |
| --- | --- |
| **1** | If you create a director track in the matinee(no camera added) and set **no keyframes**, it records the player camera. Even the fade track affects the player view when you use it like that.  more ▼  answered **May 18 '14 at 6:39 AM**  [Jacky gravatar image](https://answers.unrealengine.com/users/189/jacky.html)  [Jacky ♦](https://answers.unrealengine.com/users/189/jacky.html) **6.6k** ● 272 ● 20 ● 104  [[TobiasRipper gravatar image](https://answers.unrealengine.com/users/2176/tobiasripper.html) TobiasRipper](https://answers.unrealengine.com/users/2176/tobiasripper.html)May 18 '14 at 9:01 AM  Thank you for a quick response. My main confusion is that when I go to the record button, the camera is positioned in the map origin as opposed to where the player camera is currently located. I need to be able to use the jump and walking controls and being able to be affected by gravity.  [[TobiasRipper gravatar image](https://answers.unrealengine.com/users/2176/tobiasripper.html) TobiasRipper](https://answers.unrealengine.com/users/2176/tobiasripper.html)May 18 '14 at 9:05 AM  Ah my apologies. I did not notice that In order to record a movie FILE\*\* I am not supposed to click record in Matinee but rather press make movie... after which I enter my desired settings and Matinee creates a new window within which the game-play can be seen. Thank you. |

# Textures

The import process doesn’t like Tiff files as images.

Jpegs are fine, RL

# IPad notes:

As for removing the joystick:

There is a simple tick box in Project Setting>Engine>Input "Always Show Touch Interface" - except it is unchecked so shouldn't be showing.

I can remove them by changing the Default modes, but can only change it to wasd and arrow keys to rotate the view, no mouse input.

Best solution i came up with was create a new first person project and migrate the HK level into it.

That brings back the blue character and gun with mouse movement. Just go into the MyCharacter Blueprint and in components hide the blue arms. Also hide the yellow ball in the MyProjectile blueprint.

I must have changed a setting early before I really knew what did what and can't seem to get back original settings. This hack should fix that though.

# Matinee

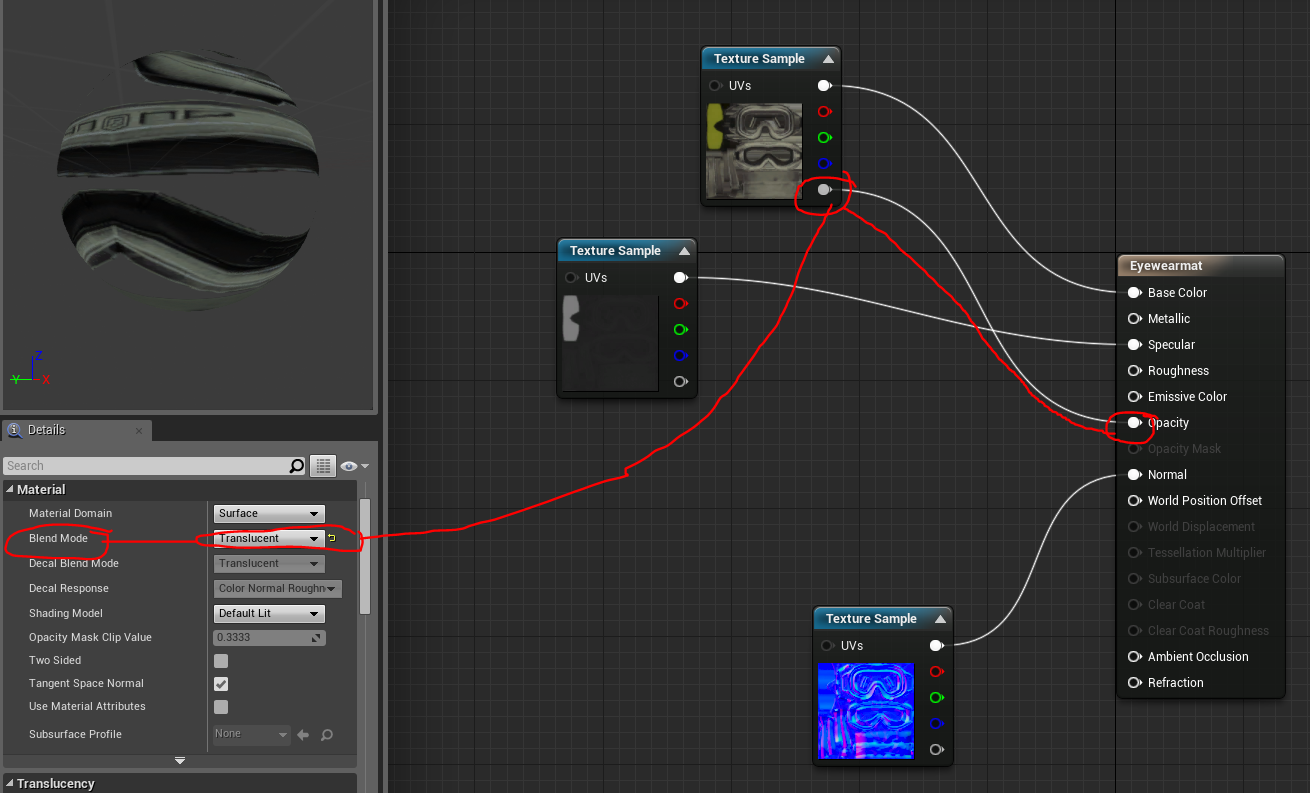
matinee tute that introduces camera effects and FOV:  
<https://docs.unrealengine.com/latest/INT/Engine/Matinee/HowTo/MHT_4/index.html>

does some blurring and saturation/contrast blending but can be extended pretty easily once you understand the initial setup of matinee.

# Materials

## Mixamo

If the transparent textures don’t show up in the material you have to set the blend mode to translucent and then the opacity channel is not greyed out any more; in the sample below the opacity was stored in the alpha of the texture … nice.



Would b

# Analytics:

Sid Newton and I would like to implement an analytics system in our UE4 work … capturing data relating to the interactions shown in this clip: https://www.youtube.com/watch?v=4Vd6HNPby6A&feature=youtu.be

The links below are in no particular order but seem to give some idea of what’s involved …

<https://forums.unrealengine.com/showthread.php?25587-Game-analytics-in-UE4> old, but talks about sending data to yourself

<https://answers.unrealengine.com/questions/109268/45-analytic-how-to.html?sort=oldest> regarding iOS

<https://docs.unrealengine.com/latest/INT/API/Runtime/Engine/FEngineAnalytics/index.html>

<https://docs.unrealengine.com/latest/INT/Gameplay/Analytics/index.html>

<https://docs.unrealengine.com/latest/INT/Gameplay/Analytics/Blueprints/index.html> (this looks promising)

<https://www.unrealengine.com/blog/measuring-success>

<https://forums.unrealengine.com/showthread.php?10051-Unreal-Engine-4-with-MySQL-database-connection>

https://forums.unrealtournament.com/showthread.php?5678-Is-there-a-stat-collecting-system-in-UE4-yet

We don’t know whether the best way is to use a service like swerve or apsalar … there is some talk about implement one’s own database.

Ideally we would create blueprints in UE4 that identified events and piped them via the internet to a database that (more ideally) had some way to graphically represent the data in various combinations and ways.

# Tutorial Recommendations for People Starting Out:

## Written Tutorials

The quick start guys here present information in written steps (good as a reminder document after you’ve watched the video tutorials on Youtube, link below):

Take a look at the “Unreal Editor Quick Start Guide” and “Artists Quick Start Guide”.

<https://docs.unrealengine.com/latest/INT/GettingStarted/index.html?utm_source=uelauncher&utm_medium=software&utm_campaign=learntab>

## Video Tutorials

This list of video tutorials on Youtube is comprehensive:

<https://www.youtube.com/playlist?list=PLZlv_N0_O1gaCL2XjKluO7N2Pmmw9pvhE>

Watch videos 1-23 to get the basics of navigation and level creation.

Videos 24 – 46 give good background on Blueprints, UE4’s visual scripting interface, and will give plenty of ideas regarding interactivity.

Videos 47 – 51 show specific examples in Blueprints to get you going straight away.

Videos 95 -97 introduce materials

Videos 145 – 151 go over the inventory system we use to collect and use items from the world.

## Modeling

### Units:

Units in 3ds Max should be Centimeters; one Unreal Unit is equal to one centimeter. In the customize menu set both the units and system units to 1 unit equals 1cm. Make sure you reset xform (utilities tab) if you scale an object up or down (then collapse the modifier stack).

### UVW unwrapping:

For correct lighting/shadowing models need to have a second UV channel that is unwrapped so that there are no overlapping coordinates; these tutorials are the best I’ve found on a topic that can be confusing for beginners:

Part 1: <https://www.youtube.com/watch?v=oYW0y8y2hk0>

Part 2: <https://www.youtube.com/watch?v=LDKUkqTKt80>

Part 3: <https://www.youtube.com/watch?v=LDKUkqTKt80>

Part 4: <https://www.youtube.com/watch?v=hjwxXh5VxeQ>

Part 5: <https://www.youtube.com/watch?v=ouHLM490rL4>

Part 6: <https://www.youtube.com/watch?v=furPjB6S-0w>

Part 7: <https://www.youtube.com/watch?v=hqGZ8M9b7EE>

Part 8: <https://www.youtube.com/watch?v=8t1QclNa7ns>

Part 9: <https://www.youtube.com/watch?v=iPcDyTb4ZhY>

Part 10: <https://www.youtube.com/watch?v=vCcx-0X--H0>

It’s very important to get this right, so it’s worthwhile to watch all of the videos above; this link explains why it’s so important

<https://docs.unrealengine.com/latest/INT/Engine/Content/Types/StaticMeshes/LightmapUnwrapping/index.html>

### Collision:

Setting up collision in 3ds Max is described here: <https://docs.unrealengine.com/latest/INT/Engine/Content/FBX/StaticMeshes/index.html#collision>

# Light Bleeding

I had light bleeding through a model that had 1cm wall thickness (HVAC tube).

World Settings > Lightmass > lightmass settings (expand) > Indirect lighting smoothness … set to 0.5.

Static lighting level scale didn’t do anything; and apparently increases build times significantly.

# Prefabs

In UE4 you create prefabs by dragging actors into a blueprint and positioning them there.

# Console commands

Use the tilde key to bring up the console: ~

Disableallscreenmessages

# Xbox360

## Wireless controller

From: <http://answers.microsoft.com/en-us/windows/forum/windows_7-gaming/xbox-360-wireless-receiver-wont-connect-to/0e141e88-64f4-4bbd-8dad-7eb12a22cab6>

hey thanks i got it to work! so relieved. heres how you do it:  
  
Right click on Computer   
Go to Properties   
Click on Device Manager   
Right click on the Unidentified Device   
Go to Properties   
Go to the Drive tab   
Click on Update Driver…   
Browse my computer for driver [software](http://www.sevenforums.com/)   
Let me pick from a list of [device drivers](http://www.sevenforums.com/) on my computer   
Microsoft Common Controller for Window Class   
Xbox 360 Wireless Receiver for [Windows Version](http://www.sevenforums.com/): 2.1.0.1349 [8/13/2009]   
Update Driver Warning   
Click Yes  
  
i cant believe it was that simple, you dont need to download any seperate driver or anything, just follow the steps.  
thanks

Access this article for a step by steps guide on how to set up and use your Xbox 360 Wireless Gaming Receiver for Windows:

[**http://support.xbox.com/support/en/us/nxe/kb.aspx?ID=933710&lcid=1033&category=hardware**](http://support.xbox.com/support/en/us/nxe/kb.aspx?ID=933710&lcid=1033&category=hardware)

**Unable to connect an Xbox 360 wireless accessory to your Windows-based computer using the Xbox 360 Wireless Gaming Receiver for Windows(Troubleshooting guide):**

[**http://support.xbox.com/support/en/us/nxe/kb.aspx?ID=933709&lcid=1033&category=hardware**](http://support.xbox.com/support/en/us/nxe/kb.aspx?ID=933709&lcid=1033&category=hardware)

**Follow these steps to connect an Xbox 360 Wireless Controller to your personal computer:**

To connect the controller to a computer that is running Windows XP SP2 or a later version of Windows, follow these steps:

1. Press and hold the **Xbox Guide** button until the controller turns on. The **Xbox Guide** button is the round button with the green "X" near the center   
    of the controller.   
2. Make sure that the Xbox 360 Wireless Gaming Receiver for Windows is plugged in to your computer.   
3. On the Xbox 360 Wireless Gaming Receiver for Windows, press and release the small round **Connect**button.   
4. On the controller, press and release the **Connect** button. The **Connect** button is the small button on the front edge of the controller, between the  
     left bumper button and the charging port.   
5. The Ring of Light on the controller spins and flashes one time, and the light on the Xbox 360 Wireless Gaming Receiver for Windows flashes. When the  
     controller is connected, the Ring of Light on the controller remains lit and indicates the position in which the controller is connected.

Refer the KB articles mentioned below for more information:

[**http://support.microsoft.com/kb/906947**](http://support.microsoft.com/kb/906947)[**http://support.microsoft.com/kb/906347**](http://support.microsoft.com/kb/906347)

If the problem persists, then please contact Xbox support for further assistance. Here’s the link:

[**http://www.xbox.com/en-GB/support/xbox360/**](http://www.xbox.com/en-GB/support/xbox360/)

## Gampad Input Setup

From: <https://answers.unrealengine.com/questions/161246/gamepad-controller-for-umg.html>

<https://answers.unrealengine.com/questions/125224/umg-45-gamepad-firing-hover-button-events.html>

video tute to get the UMG buttons working on the controller … might be a work around until they sort out direct UI button links to blueprints; but it looks to be a workable solution:

<https://www.youtube.com/watch?v=tCXuNu4RETs>

# Failed to open descriptor file

From: <https://answers.unrealengine.com/questions/44235/failed-to-open-descriptor-file.html>

Not sure if this is the sure fix for this, but if you have multiple editors open (this happens a lot on OSX because it won't close an open editor when opening a new project) you will get this error. Make sure all projects are closed before trying to open something else and the problem should go away. This worked for me.

# Royalties:

This is good news; from, <https://www.unrealengine.com/faq>

#### Are any revenue sources royalty-free?

No royalties are due on the following:

* Ancillary products, including t-shirts, CDs, plushies, action figures and books. The exception is items with embedded data or information, such as QR codes, that affect the operation of the product.
* Consulting and work-for-hire services using the engine. This applies to architects using the engine to create visualizations as well as consultants receiving a development fee.
* Linear media, including movies, animated films and cartoons distributed as video.
* Cabinet-based arcade games and amusement park rides.
* Truly free games and apps (with no associated revenue).

# Tilde

Opens the console … but (in a published build) only if the publishing settings were set to developer.

Advice from Josh

# Oculus Rift

## Setup

1. Install Runtime For Windows: <https://developer.oculus.com/downloads/> required reboot
2. Plug in Oculus; three USB’s, the connector that looks like a sound jack goes to the camera which mounts over your screen.
3. If no device is detected try unplugging the 3 USB’s and return the display mode to “Direct HMD Access from Apps” (step 5 below) … then reconnect.
4. Run Unreal
5. If unreal crashes on startup this might be because of graphics card incompatability (both my m18x and MSi’s do this); change the display mode to “extend desktop to the HMD” rather than the standard “Direct HMD Access from Apps”. These settings are in the Rift Display Mode.
6. In the Unreal editor open the console (tilde button) type “stereo on”.
7. Play in VR mode.