

How to Install Vulkan APIs for UE4

New Paths, New Possibilities

Just as parallelism and multithreaded programming paved the way for the performance strides of multicore CPUs, Vulkan APIs are poised to forge a future of multithreaded, cross-platform GPU programming, and high-performance rendering, regardless of the target device.

The heir apparent to OpenGL, Vulkan gives developers greater control over threading and memory management, and more direct access to the GPU than predecessor APIs, which means more versatility for addressing an array of target platforms. The only costs are a relatively up-to-date processor, and bit more development work up front.

What You'll Need

The minimum requirement for developing with Vulkan APIs on Intel Graphics GPUs is a processor from the 6th Generation Intel® Processor Family (introduced in August, 2015) running 64-bit Windows 7, 8.1 or 10. Intel also offers a 64-bit Windows 10-only driver for 6th-, 7th- or 8th-generation processors. Vulkan drivers are now included with Intel® HD Graphics drivers, which helps simplify the setup process a bit.

These instructions require:

- An account with [Epic Games](#)
- A Windows PC with Unity Engine 4 and Microsoft Visual Studio pre-installed. To install UE4, visit the [Unreal Engine download page](#). For Visual Studio, navigate to the [Visual Studio download page](#).
- An account on [github](#)

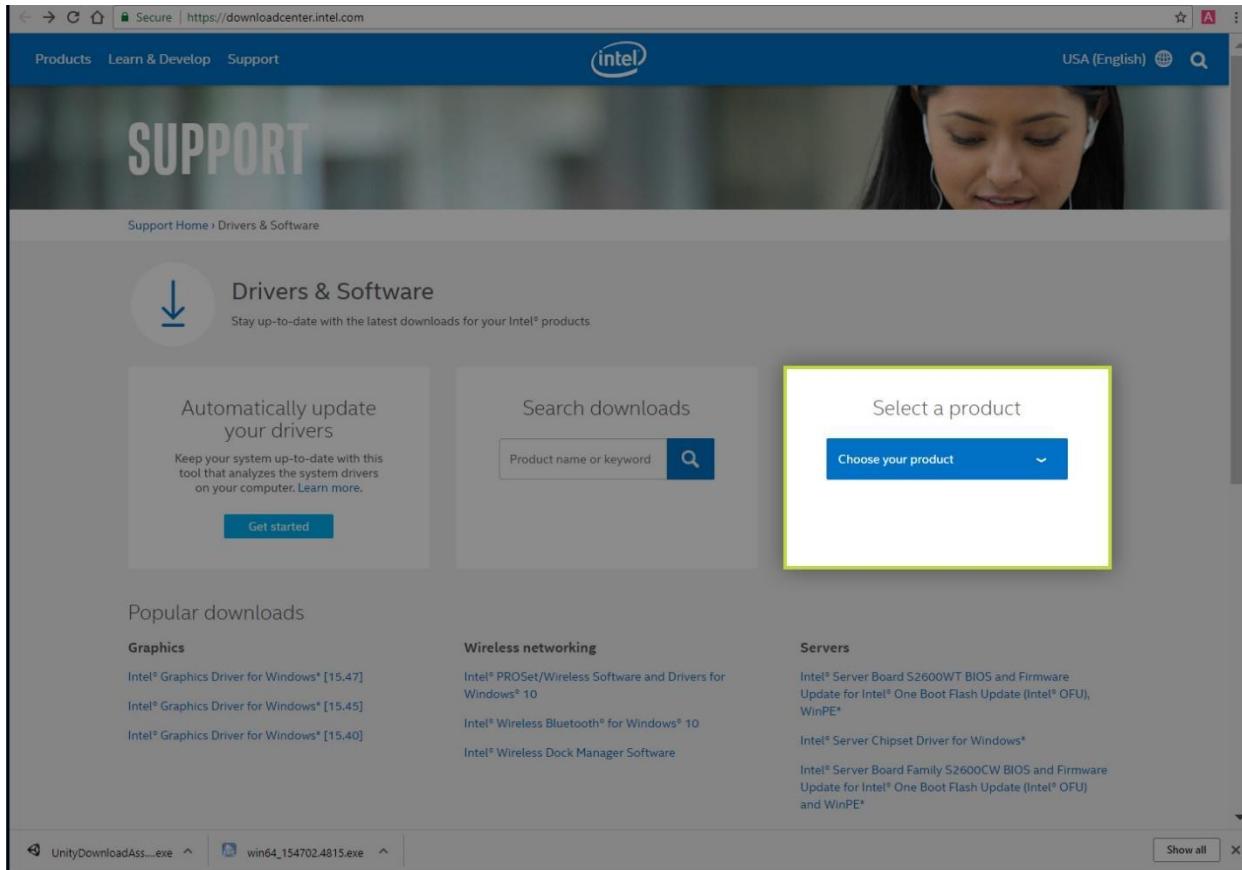
Using UE4 with Vulkan APIs requires that the engine be rebuilt, and this must be done *after* the Vulkan SDK has been downloaded, and installed. Rebuilding the Unreal Engine requires the engine source-code, which is freely available on github to

registered users who have linked their git account with [Epic Games](#). All required steps are covered here.

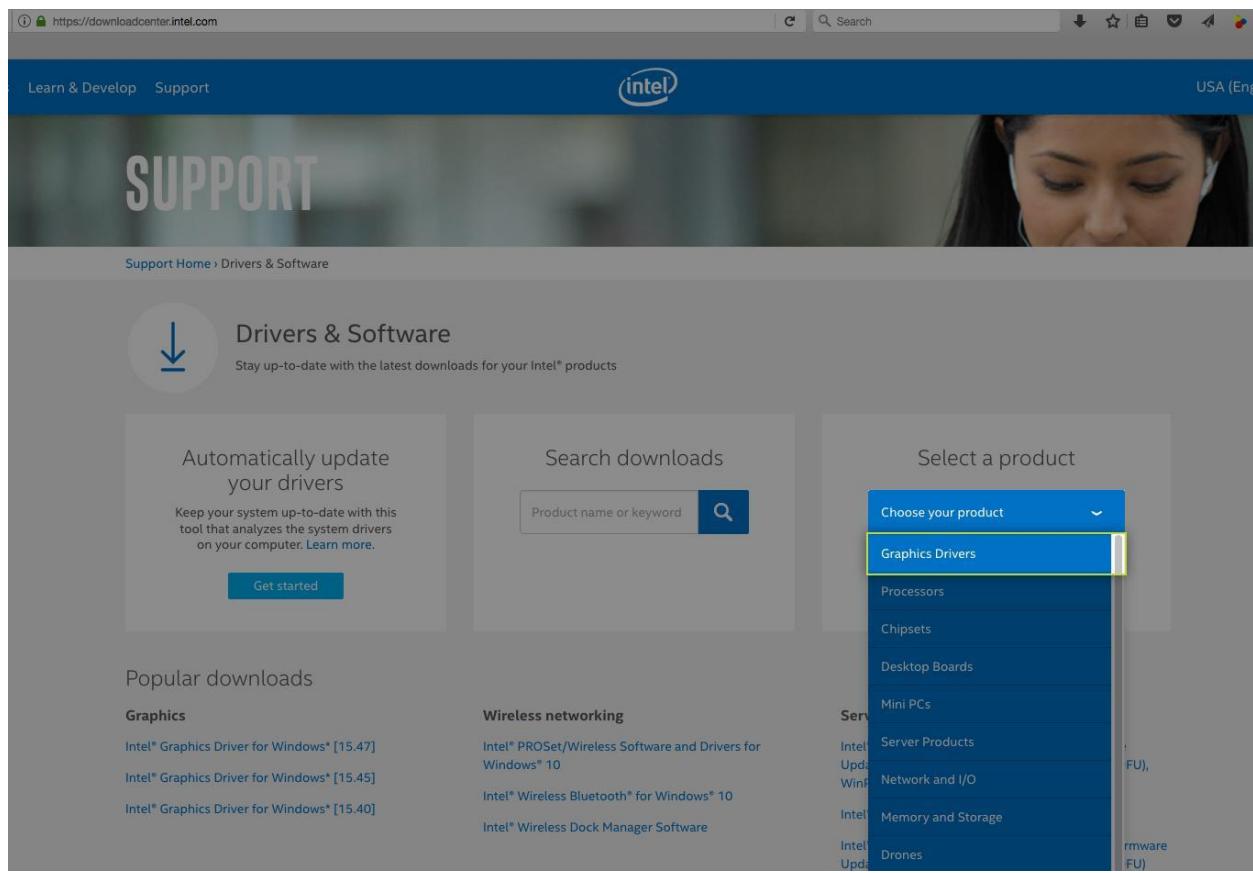
These instructions are for setting up a development host with Intel® HD Graphics.

Part One: Download Intel® Graphics Driver

1. Visit the [Intel Download Center](#).

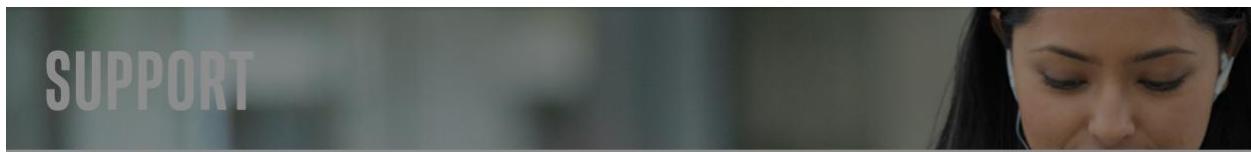


2. Select “Graphics Drivers” from the “Select a Product” drop-down menu.



The screenshot shows the Intel Support website at <https://downloadcenter.intel.com>. The page is titled 'SUPPORT' and features a large image of a woman wearing headphones. The 'Drivers & Software' section is highlighted. On the left, there's a 'Get started' button for updating drivers. In the center, there's a search bar for 'Product name or keyword'. On the right, a dropdown menu titled 'Choose your product' is open, showing options like 'Graphics Drivers' (which is selected), 'Processors', 'Chipsets', 'Desktop Boards', 'Mini PCs', 'Server Products', 'Network and I/O', 'Memory and Storage', and 'Drones'. The 'Graphics Drivers' option is highlighted with a yellow bar.

3. Select the required driver based on the development host.



Support Home > Drivers & Software > Search downloads



Downloads for Graphics Drivers

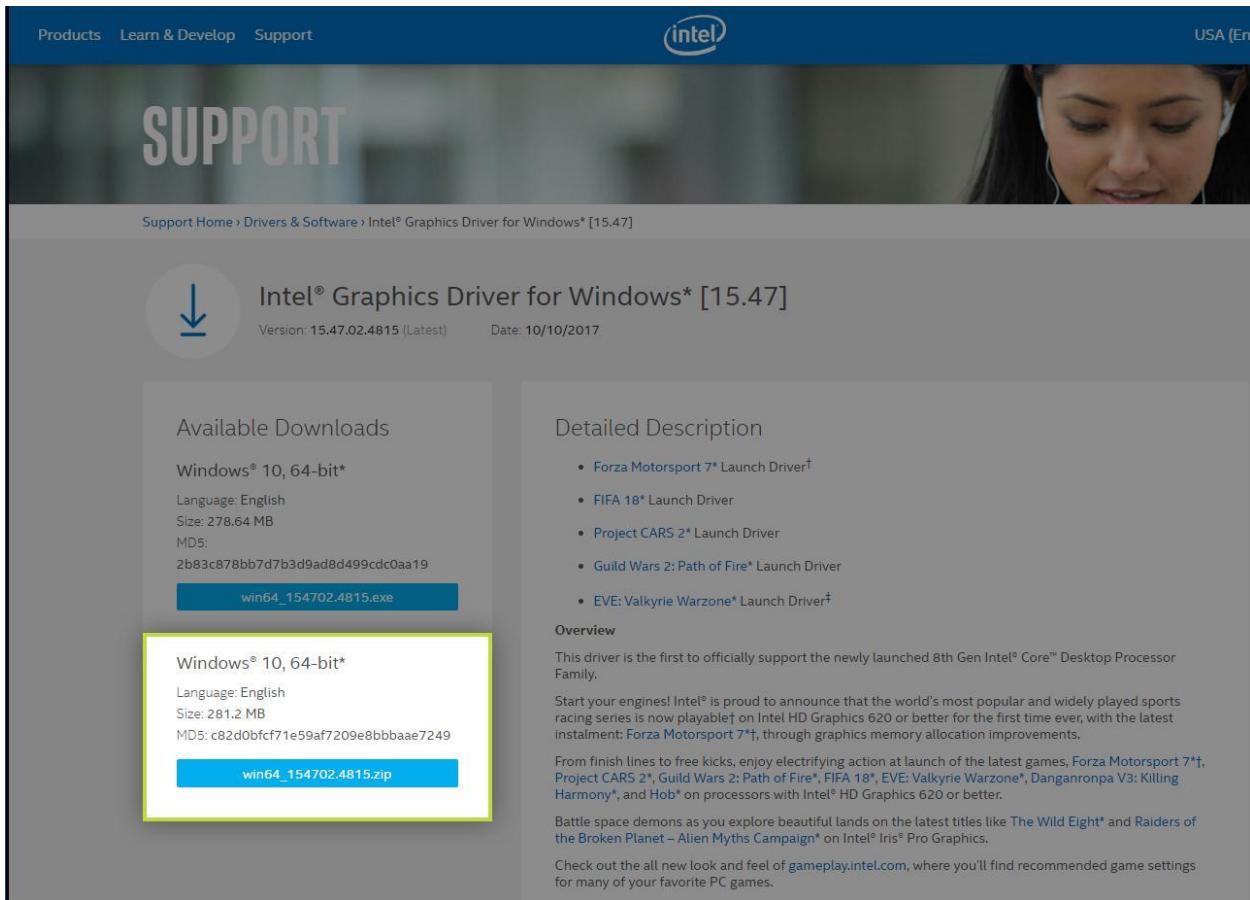
Additional selections available...

Any Download Type (261)

Any Operating System (261)

Description	Type	OS	Version	Date
Intel® Graphics Driver for Windows® [15.45] This download installs the Intel® Graphics Driver for Apollo Lake and 6th Gen.	Drivers	Windows® 10, 64-bit* Windows 8.1, 64-bit* Windows 7, 64-bit*	15.45.21.4821 Latest	10/17/2017
Intel® Graphics Driver for Windows® [15.47] This download installs the Intel® Graphics Driver for Apollo Lake, 6th, 7th, and 8th Gen.	Drivers	Windows® 10, 64-bit*	15.47.02.4815 Latest	10/10/2017
Intel® Graphics Driver for Windows® [15.40] This download installs the Intel® Graphics Driver for Braswell, 4th and 5th Gen.	Drivers	Windows® 10, 32-bit* Windows® 10, 64-bit* Windows 8.1, 32-bit* 3 more	15.40.36.4703 Latest	6/23/2017
Intel® Graphics Driver for Windows® [15.33] This download record installs Intel® Graphics Driver version 15.33.45.4653 for Windows 7*, Windows 8.1*, and Windows® 10.	Drivers	Windows® 10, 32-bit* Windows® 10, 64-bit* Windows 8.1, 32-bit*	15.33.45.4653 Latest	5/23/2017

4. Download the .ZIP version of the driver.



Products Learn & Develop Support  USA (En)

SUPPORT

Support Home > Drivers & Software > Intel® Graphics Driver for Windows* [15.47]

 Intel® Graphics Driver for Windows* [15.47]

Version: 15.47.02.4815 (Latest) Date: 10/10/2017

Available Downloads

Windows® 10, 64-bit*

Language: English
Size: 278.64 MB
MD5: 2b83c878bb7d7b3d9ad8d499cdc0aa19

[win64_154702.4815.exe](#)

Windows® 10, 64-bit*

Language: English
Size: 281.2 MB
MD5: c82d0bfcf71e59af7209e8bbbaae7249

[win64_154702.4815.zip](#)

Detailed Description

- Forza Motorsport 7* Launch Driver†
- FIFA 18* Launch Driver
- Project CARS 2* Launch Driver
- Guild Wars 2: Path of Fire* Launch Driver
- EVE: Valkyrie Warzone* Launch Driver†

Overview

This driver is the first to officially support the newly launched 8th Gen Intel® Core™ Desktop Processor Family.

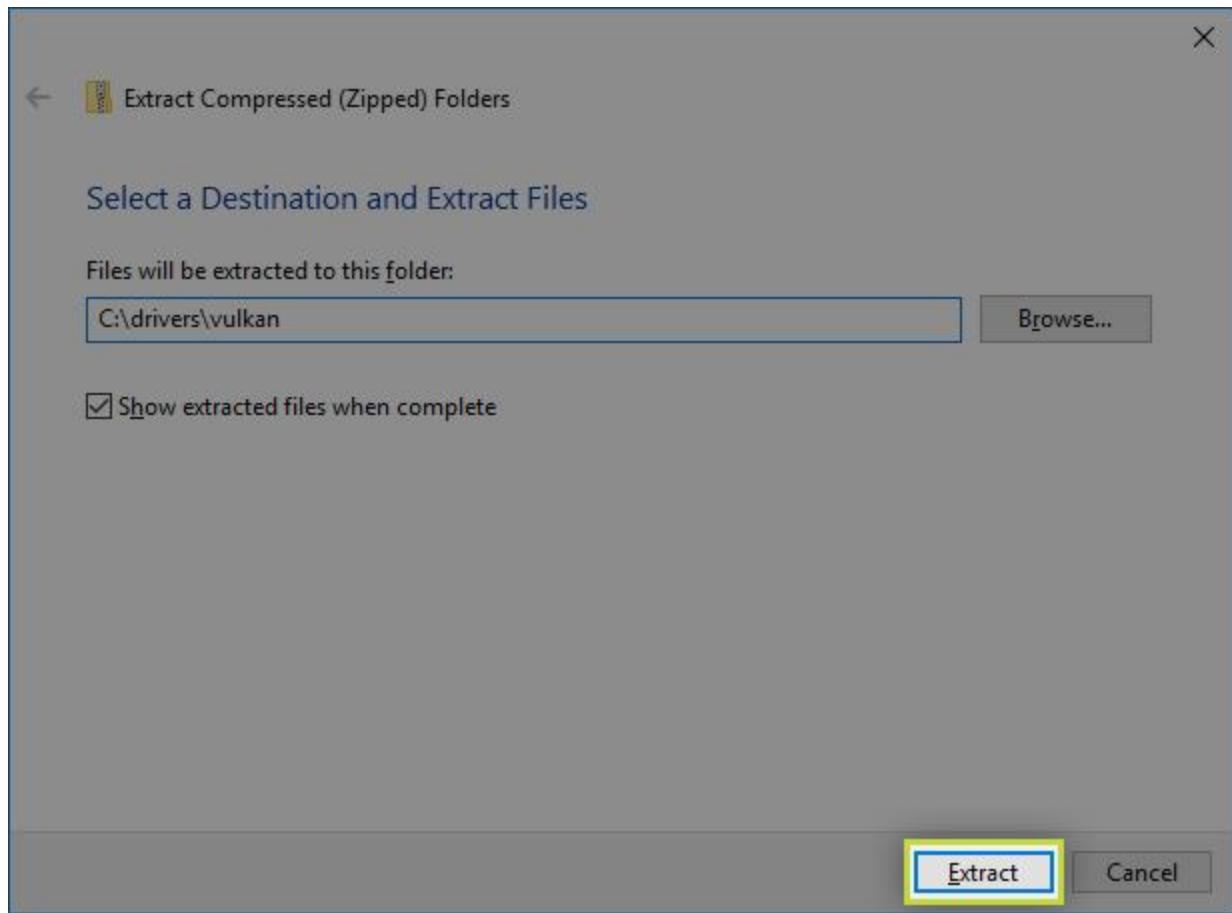
Start your engines! Intel® is proud to announce that the world's most popular and widely played sports racing series is now playable† on Intel HD Graphics 620 or better for the first time ever, with the latest installment: Forza Motorsport 7†, through graphics memory allocation improvements.

From finish lines to free kicks, enjoy electrifying action at launch of the latest games, Forza Motorsport 7†, Project CARS 2*, Guild Wars 2: Path of Fire*, FIFA 18*, EVE: Valkyrie Warzone*, Danganronpa V3: Killing Harmony*, and Hob* on processors with Intel® HD Graphics 620 or better.

Battle space demons as you explore beautiful lands on the latest titles like The Wild Eight* and Raiders of the Broken Planet – Alien Myths Campaign* on Intel® Iris® Pro Graphics.

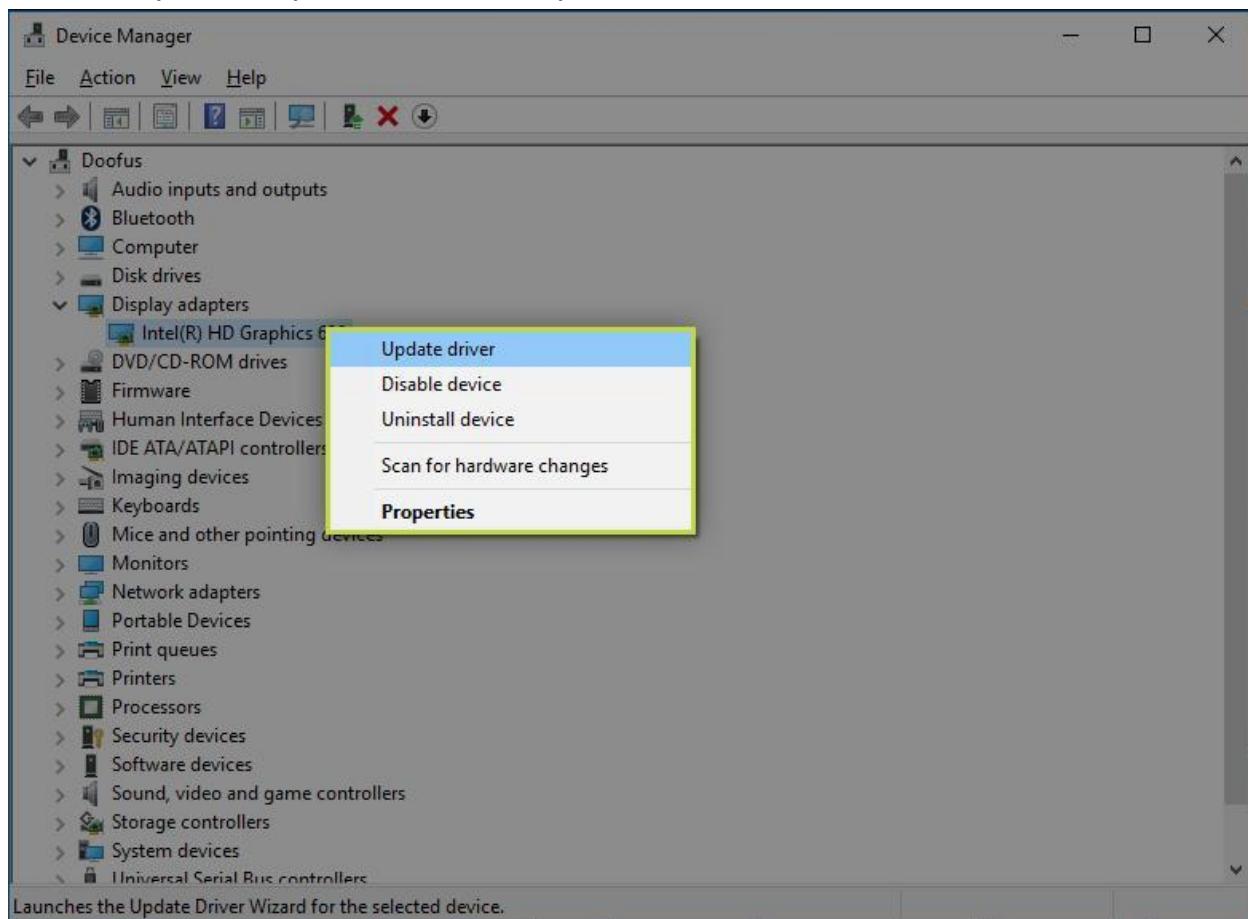
Check out the all new look and feel of [gameplay.intel.com](#), where you'll find recommended game settings for many of your favorite PC games.

5. Extract all files from the .ZIP and create a memorable destination folder.

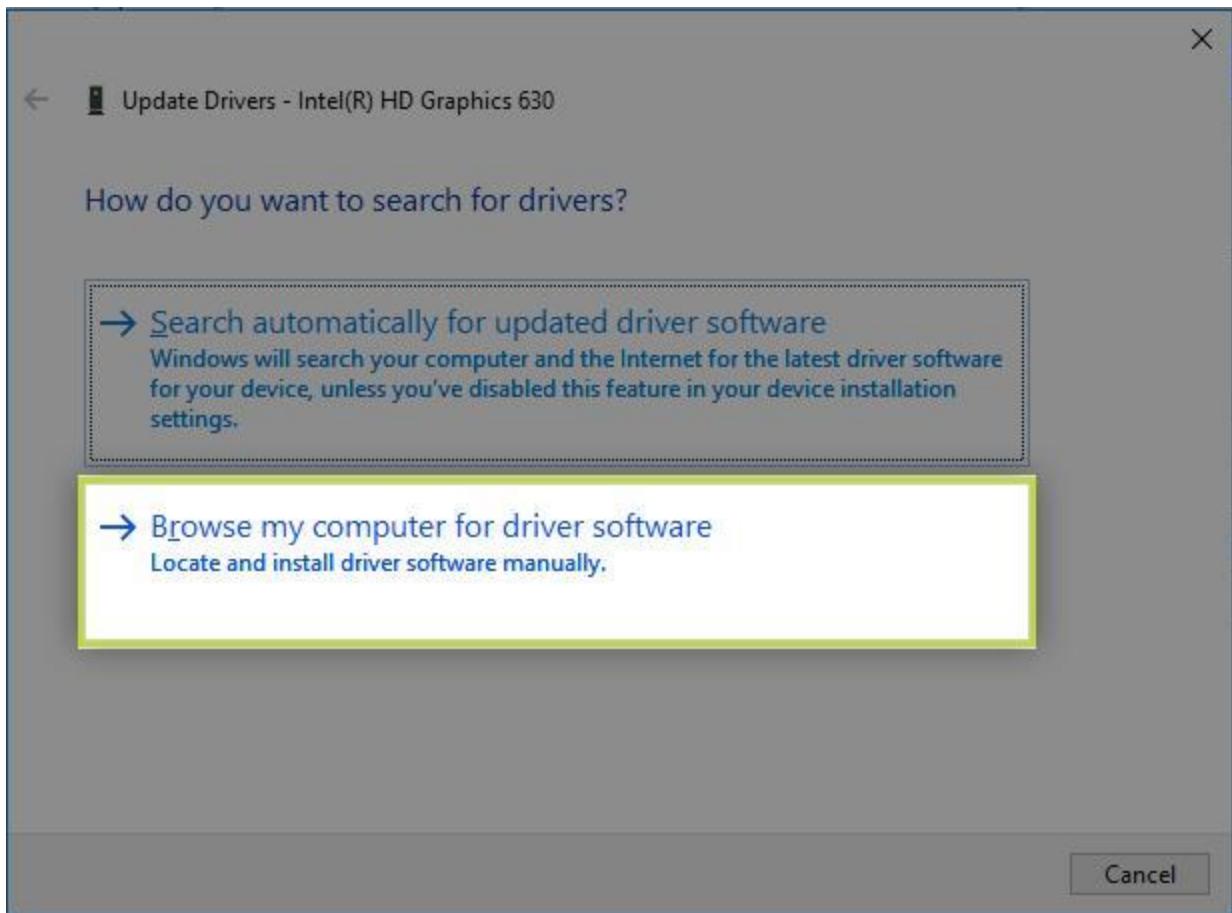


Part Two: Update Graphics in Windows

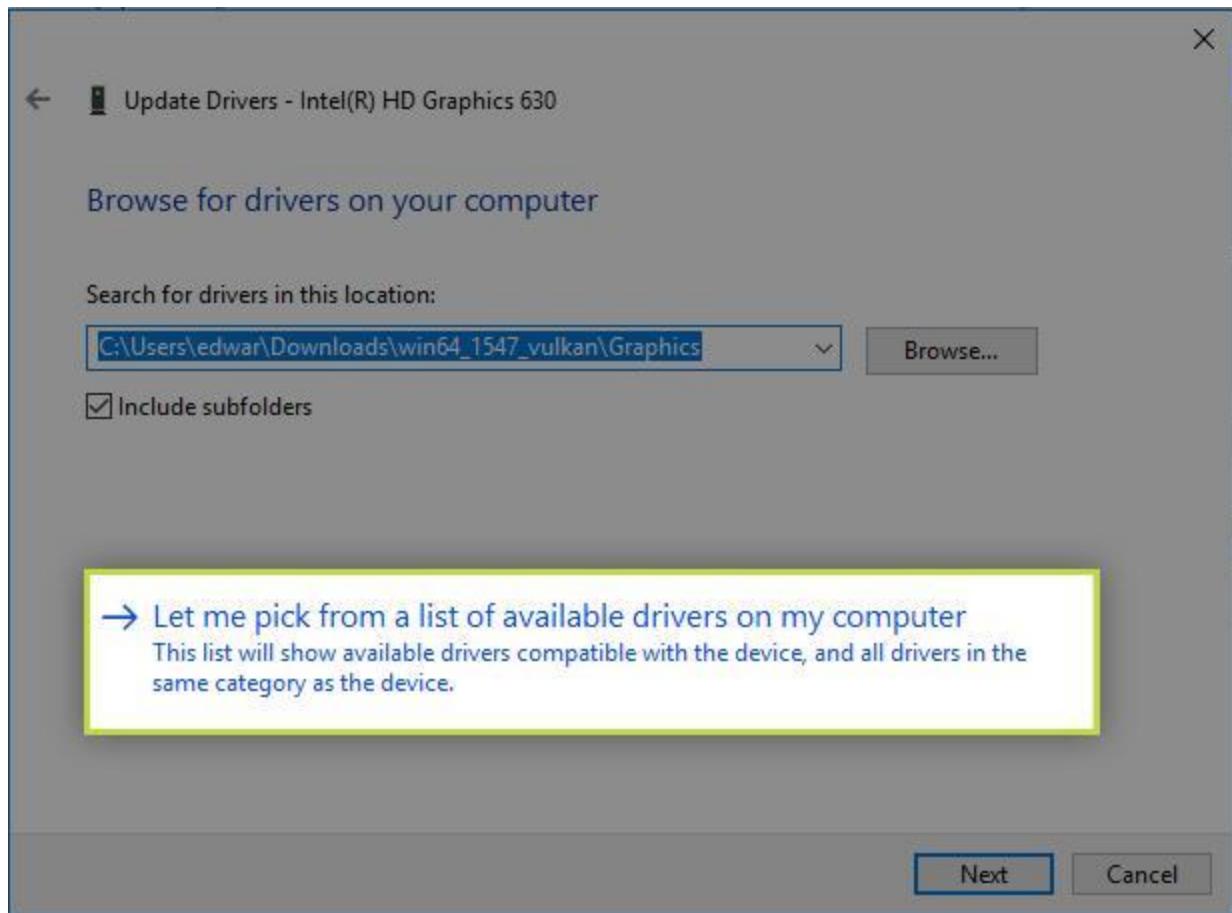
6. In Device Manager, expand “Display adapters,” right-click on the Intel® HD Graphics adapter, and select “Update driver.”



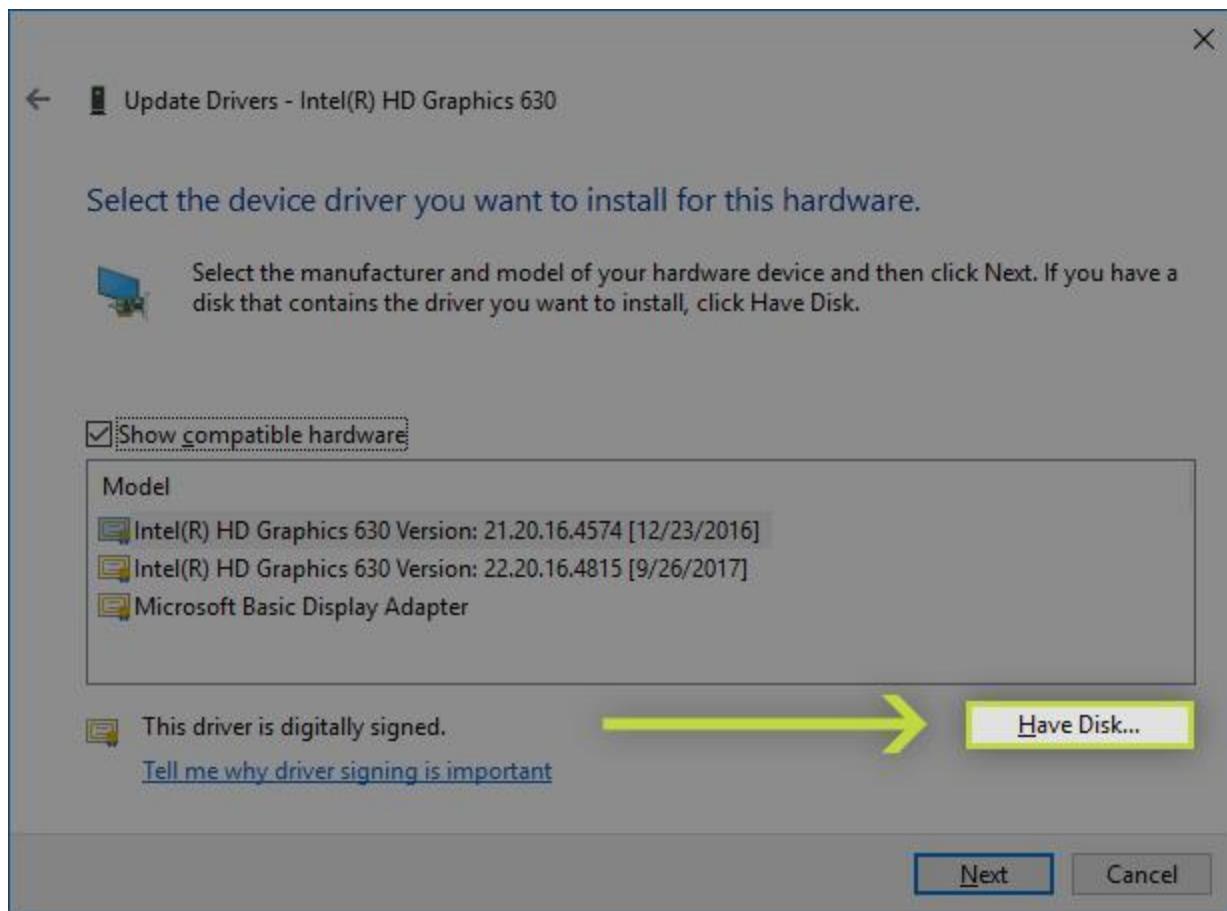
7. Select “Browse my computer...” in the “Update Drivers” screen.



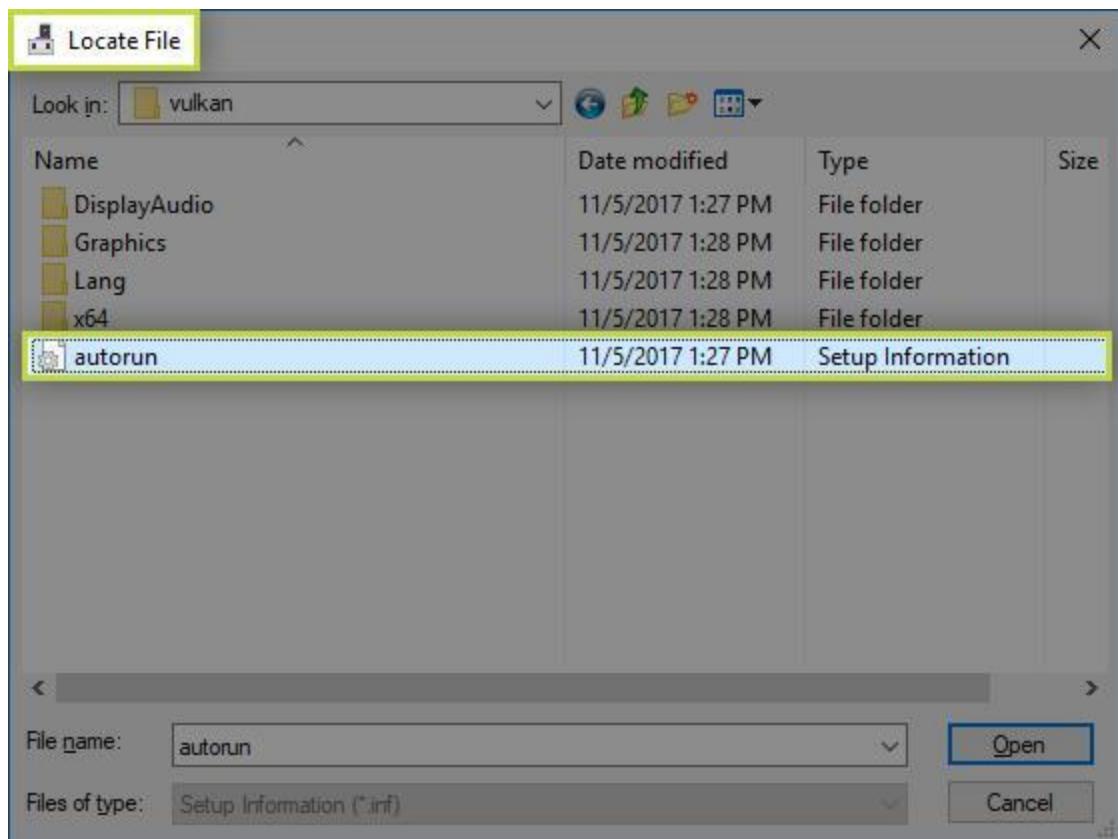
8. Select "Let me pick..."



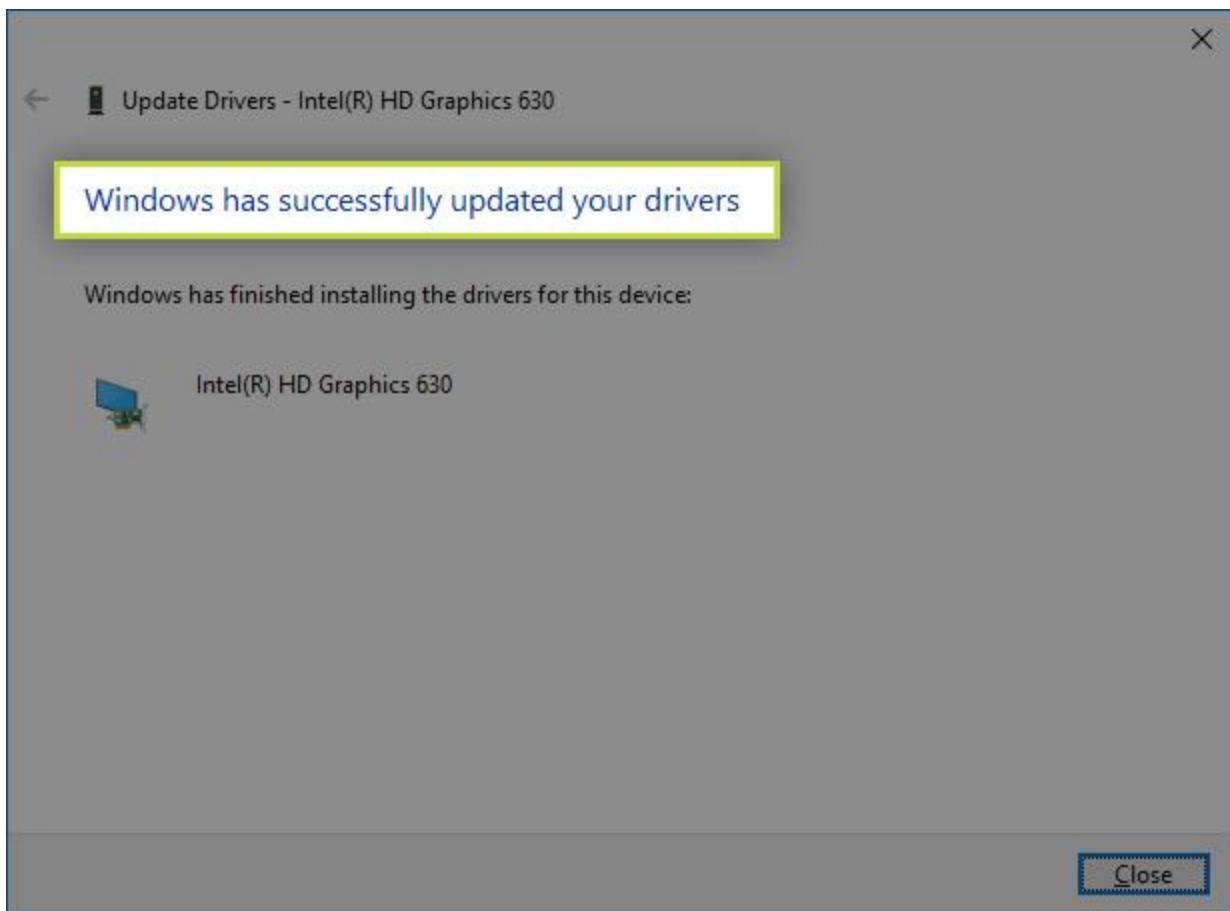
9. Select “Have Disk...”



10. Navigate to the folder containing the files unzipped in Step 5.

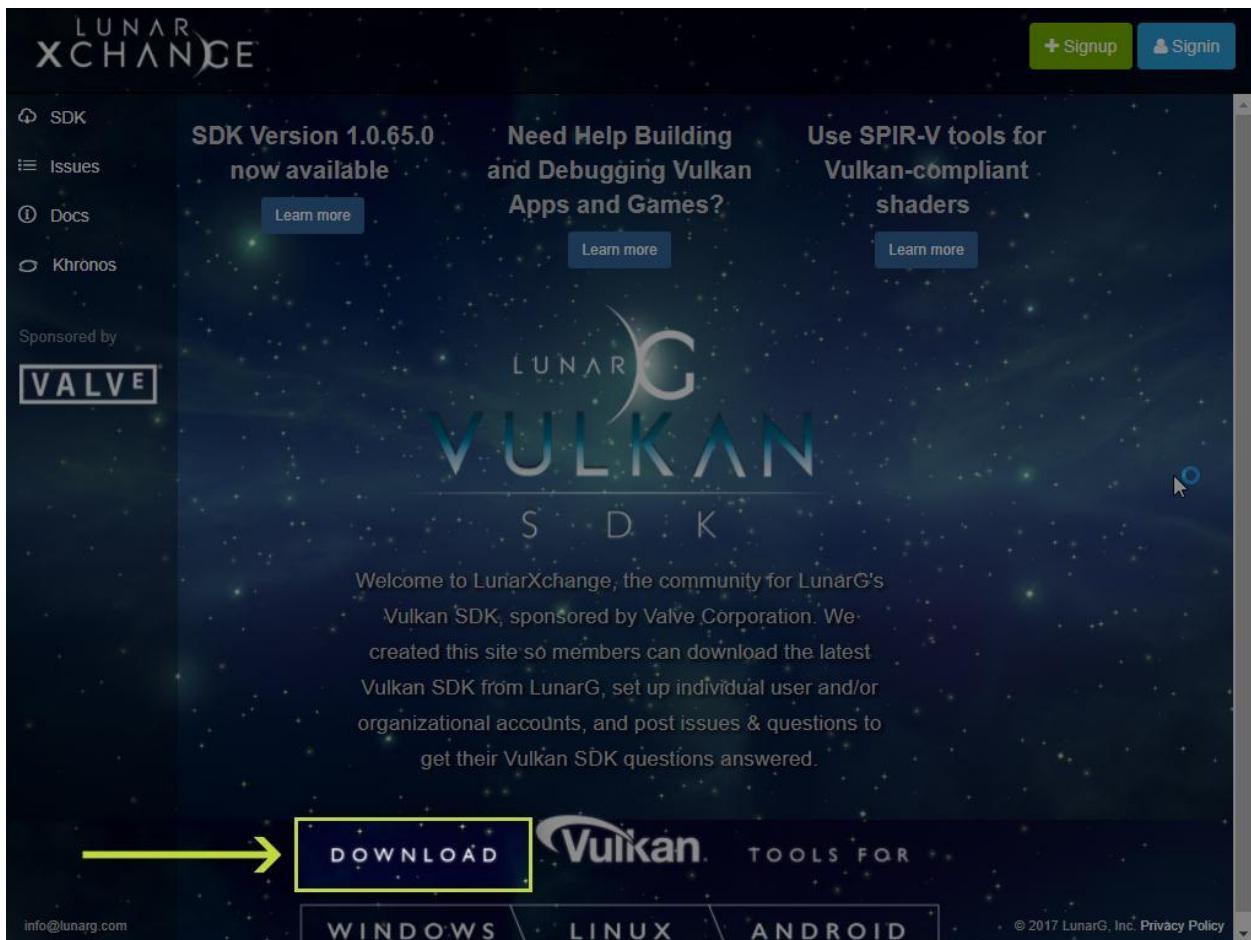


11. If successful, a message like the one below will appear:



Part Three: Configure UE4 for Vulkan

12. Download and install the [Vulkan SDK](#).



LUNAR
XCHANGE

SDK License Issues Docs KhroneS Sponsored by VALVE

Windows

Version / Released File / SHA 256

1.0.65.0 02-Nov-2017	VulkanSDK-1.0.65.0-Installer.exe (173MB) 742de80f89da8db1623ffa207faeb1b12fb83da25232d05db3cf3f7ee355d974
1.0.61.1 20-Sep-2017	VulkanSDK-1.0.61.1-Installer.exe (173MB) 22a1746444391cb44351fea4473f8559dd457514df07cfcfa4bb0a3b7d92a4
1.0.61.0 13-Sep-2017	VulkanSDK-1.0.61.0-Installer.exe (173MB) 1a48eb08048880ede81f7d04bbb6b33a941beff45f8fc0f754bf4043e6412
1.0.57.0 10-Aug-2017	VulkanSDK-1.0.57.0-Installer.exe (171MB) 02527213db6348b1ad6359d3909737983489e8ddfb2d5128425e4795e4f11
1.0.54.0 12-Jul-2017	VulkanSDK-1.0.54.0-Installer.exe (155MB) 7165802ffac941514cd4bcf7c5242b7c0836b95e50d839b8b0c48b9c88a
1.0.51.0 15-Jun-2017	VulkanSDK-1.0.51.0-Installer.exe (152MB) 905a9a9fed37ca1963067c9df8a5214feaba7aa3e010910797bf6575b735
1.0.49.0 18-May-2017	VulkanSDK-1.0.49.0-Installer.exe (151MB) 02a32d58a800c314525531294029e003c55f789c208720152bf1572a0b5
1.0.46.0 06-Apr-2017	VulkanSDK-1.0.46.0-Installer.exe (148MB) a0810232e8ca5ebdb877fe29877od8e47df71087d0a2832e7017c2234e38549
1.0.42.2 29-Mar-2017	VulkanSDK-1.0.42.2-Installer.exe (148MB) 87b28ac980fa8e334fbcc799bc7a43449345d114f6e2e7e2e8af20fa8c9f8
1.0.39.1 27-Jan-2017	VulkanSDK-1.0.39.1-Installer.exe (129MB) e878bfa879d45e3cdcf978de4f060c3eb023d928f8ba94c79215a5a64b6967
1.0.39.0 20-Jan-2017	VulkanSDK-1.0.39.0-Installer.exe (129MB) 0a531ad82a017060a410231a3816b600c08114d10fb56fa1314e65007d8421

Linux

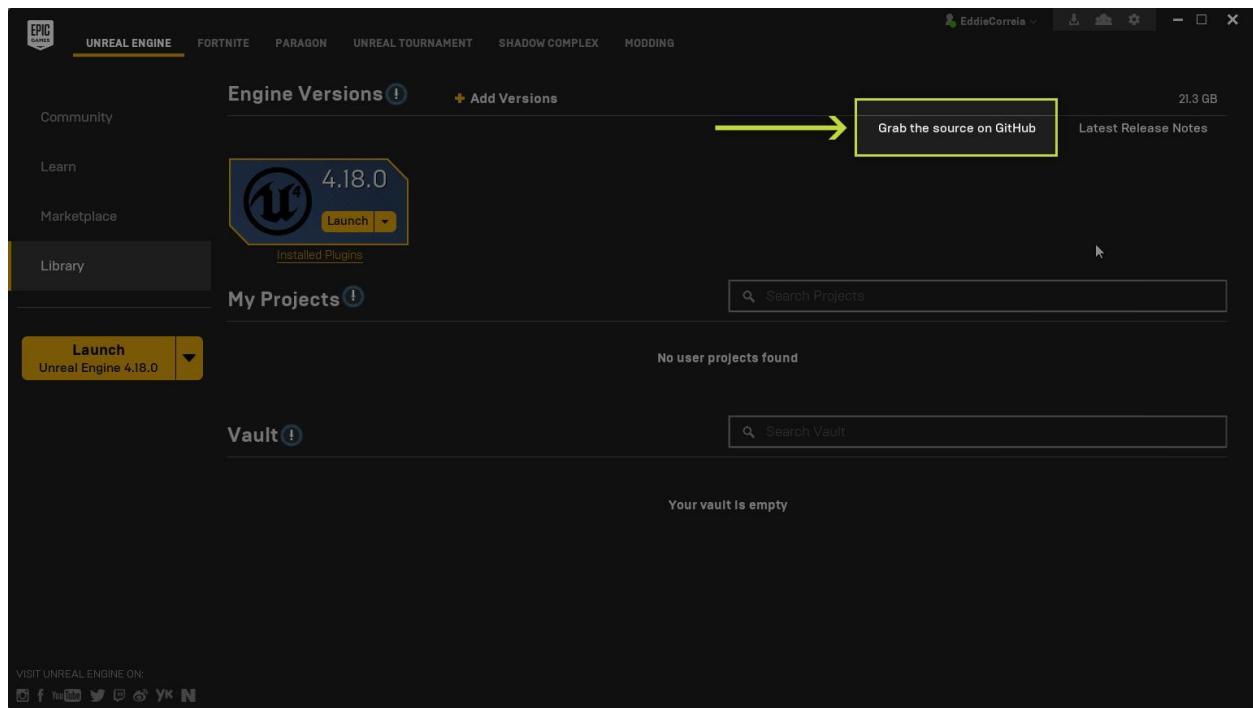
Important Linux Info

Version / Released File / SHA 256

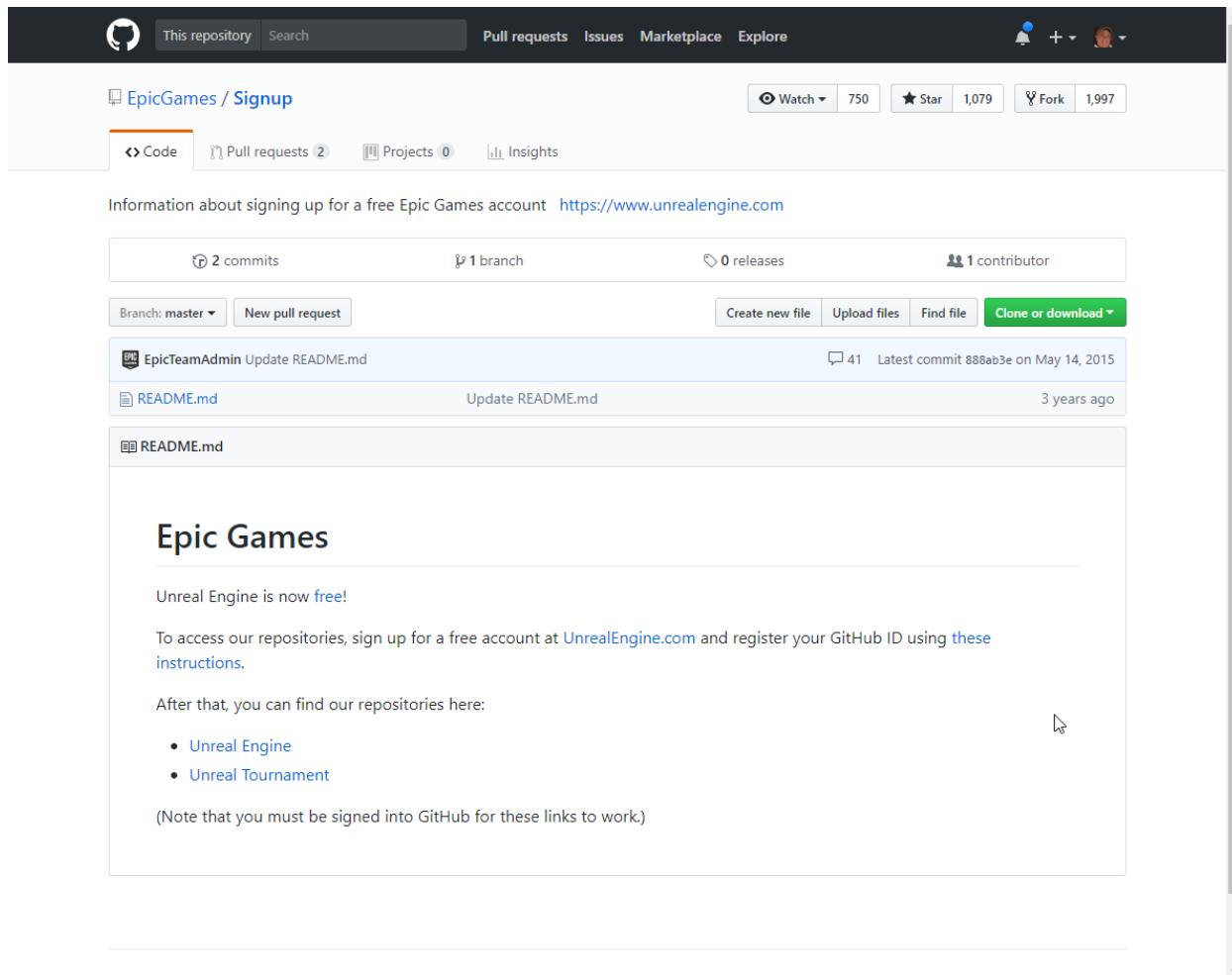
1.0.65.0 02-Nov-2017	vulkansdk-linux-x86_64-1.0.65.0.run (24MB) 7a6506261078e4b46a503e89e0cce3cd0c73cf3443b177bdb5c71143bd458
1.0.61.1 20-Sep-2017	vulkansdk-linux-x86_64-1.0.61.1.run (20MB) 0dce8ec27ce74b153483db3cfb210cf074d37c5f637515e1ad5841101e051c79
1.0.61.0 13-Sep-2017	vulkansdk-linux-x86_64-1.0.61.0.run (20MB) 4481112b0a2c1293028b0063438d8acoda3ac4e20e40db30300d5addfd5ea387
1.0.57.0 10-Aug-2017	vulkansdk-linux-x86_64-1.0.57.0.run (19MB) 532b246335d23764c8729fa3bf4032d87568a8aee8d19e9830663cb87abcf107
1.0.54.0 12-Jul-2017	vulkansdk-linux-x86_64-1.0.54.0.run (18MB) c3d05e4a3054f9cf83db0b5d2ab2eaaed53e395ab003920ada628228247e87c
1.0.51.0 15-Jun-2017	vulkansdk-linux-x86_64-1.0.51.0.run (18MB) c353e92f21ad850a81c399e15fca922a38c2de4f0770e56300a21ac204ec1e
1.0.49.0 18-May-2017	vulkansdk-linux-x86_64-1.0.49.0.run (17MB) a276ee02e5bce4b59af183a6f0fcbe8d01babda87daa5838014b9862b0f92b
1.0.46.0 06-Apr-2017	vulkansdk-linux-x86_64-1.0.46.0.run (16MB) 08f18005fe2ae7b6352c7105421778917137d3938082dd42ecb813b8c5b32c
1.0.42.2 29-Mar-2017	vulkansdk-linux-x86_64-1.0.42.2.run (20MB) 02d672849cce8d925ed006db2bd0192ab7fc3508a274f98811f6f89bcde14acc
1.0.39.1 27-Jan-2017	vulkansdk-linux-x86_64-1.0.39.1.run (16MB) 32d21e089f802a0b348ed900931968479726fd091217ba8f8832ea42fa9142
1.0.39.0 20-Jan-2017	vulkansdk-linux-x86_64-1.0.39.0.run (16MB) 102ca0eca353fec35756d7819cc73c30fcbe856da0f530e2498531eaba

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13. If you're not already logged into github, log in now. Then open the Unreal Engine Launcher and click "Get the source code on [github](#)" (UE4 source is free to registered users who have linked their github account with Epic Games, which we'll cover next).



Clicking the “Grab the source” link brings you to the github page, as pictured below:



Information about signing up for a free Epic Games account <https://www.unrealengine.com>

2 commits 1 branch 0 releases 1 contributor

Branch: master ▾ New pull request Create new file Upload files Find file Clone or download ▾

EpicTeamAdmin Update README.md 41 Latest commit 888ab3e on May 14, 2015

README.md Update README.md 3 years ago

README.md

Epic Games

Unreal Engine is now **free!**

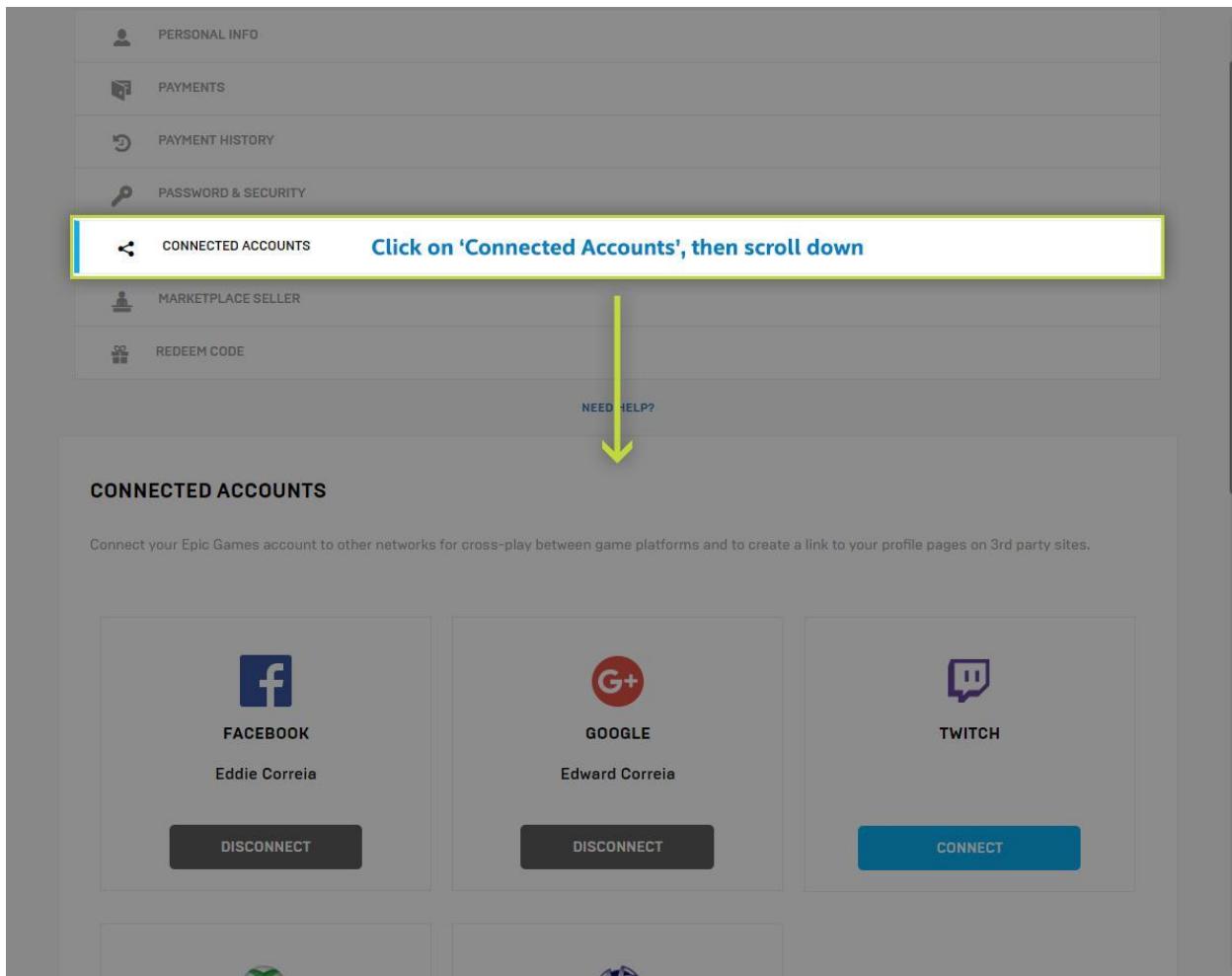
To access our repositories, sign up for a free account at UnrealEngine.com and register your GitHub ID using [these instructions](#).

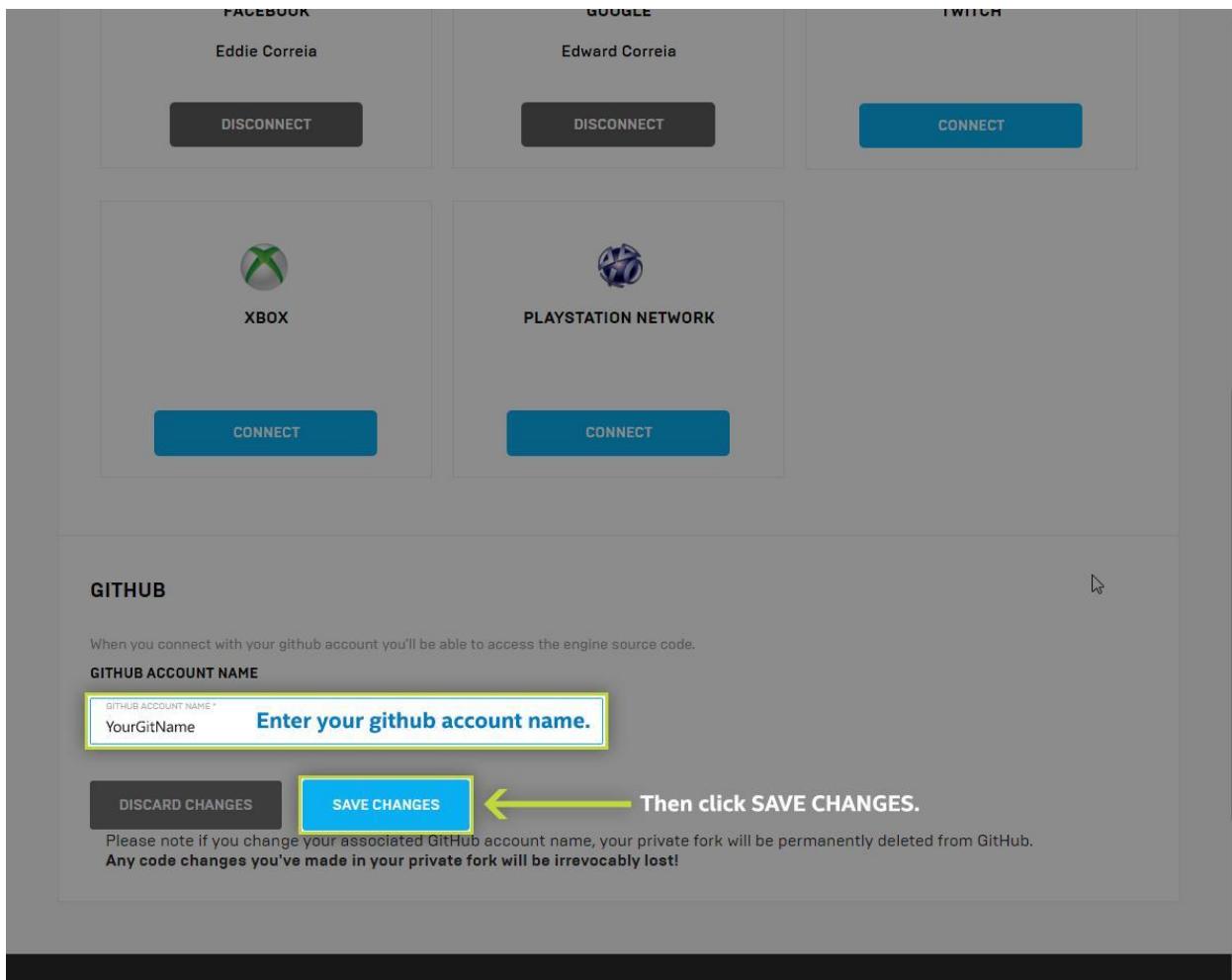
After that, you can find our repositories here:

- [Unreal Engine](#)
- [Unreal Tournament](#)

(Note that you must be signed into GitHub for these links to work.)

13a. Open your [Epic Games Dashboard](#) and link your Epic and github accounts:





14. Shortly after linking the accounts, a confirmation will arrive in your email inbox. Return to the Epic Games github page, and look for an invitation to join:

EpicTeamAdmin invited you to join the Epic Games organization 31 minutes ago. [View invitation](#)

Epic Games [①](#)

United States [http://epicgames.com](#)

Repositories 2 People 1,103

Search repositories... Type: All Language: All

ThirdParty
Modifications to third party software used by UE4

● C ★ 43 60 Updated on Sep 28

Signup
Information about signing up for a free Epic Games account

★ 1,079 1,997 Updated on Oct 6, 2015

Top languages

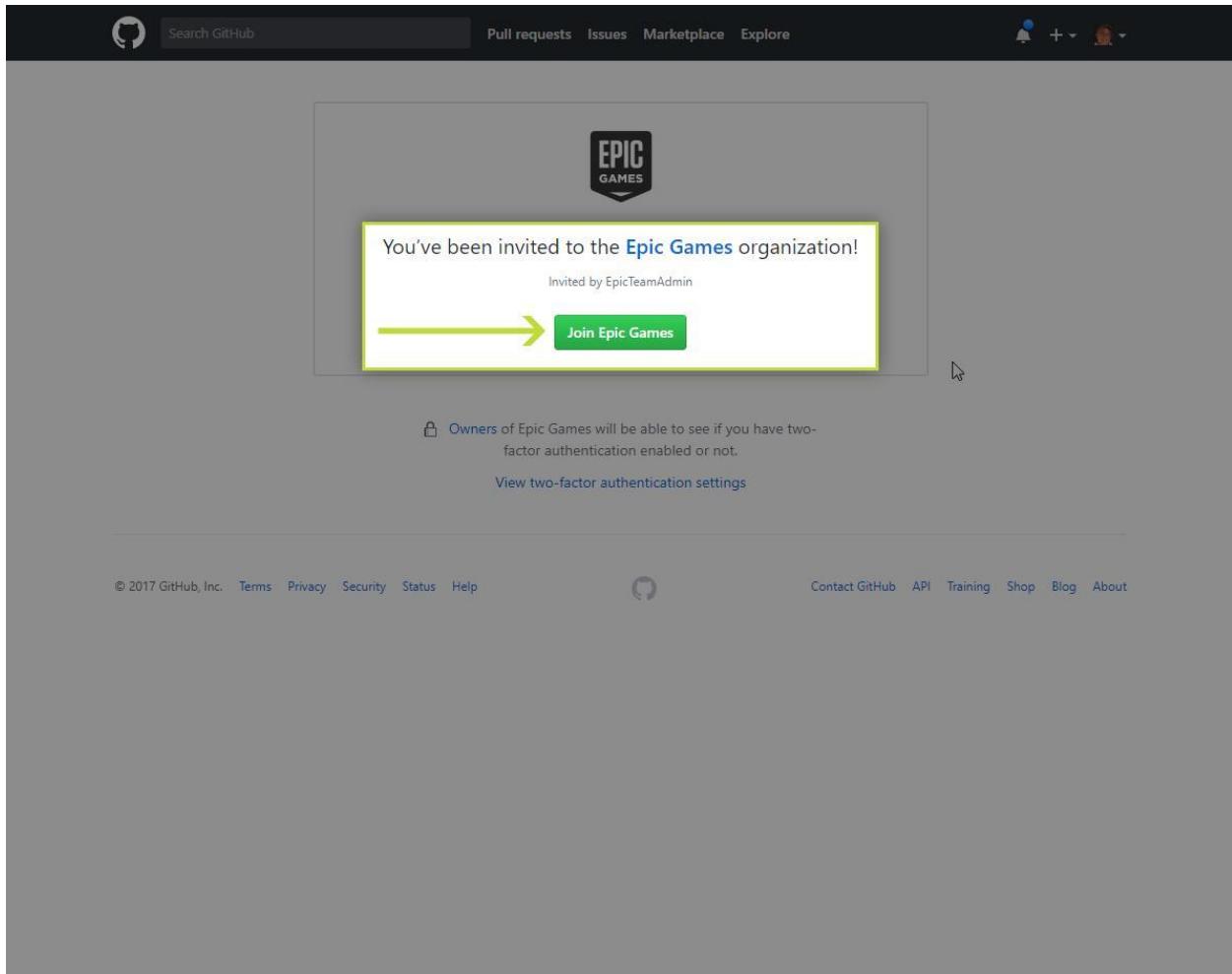
● C

People 1,103

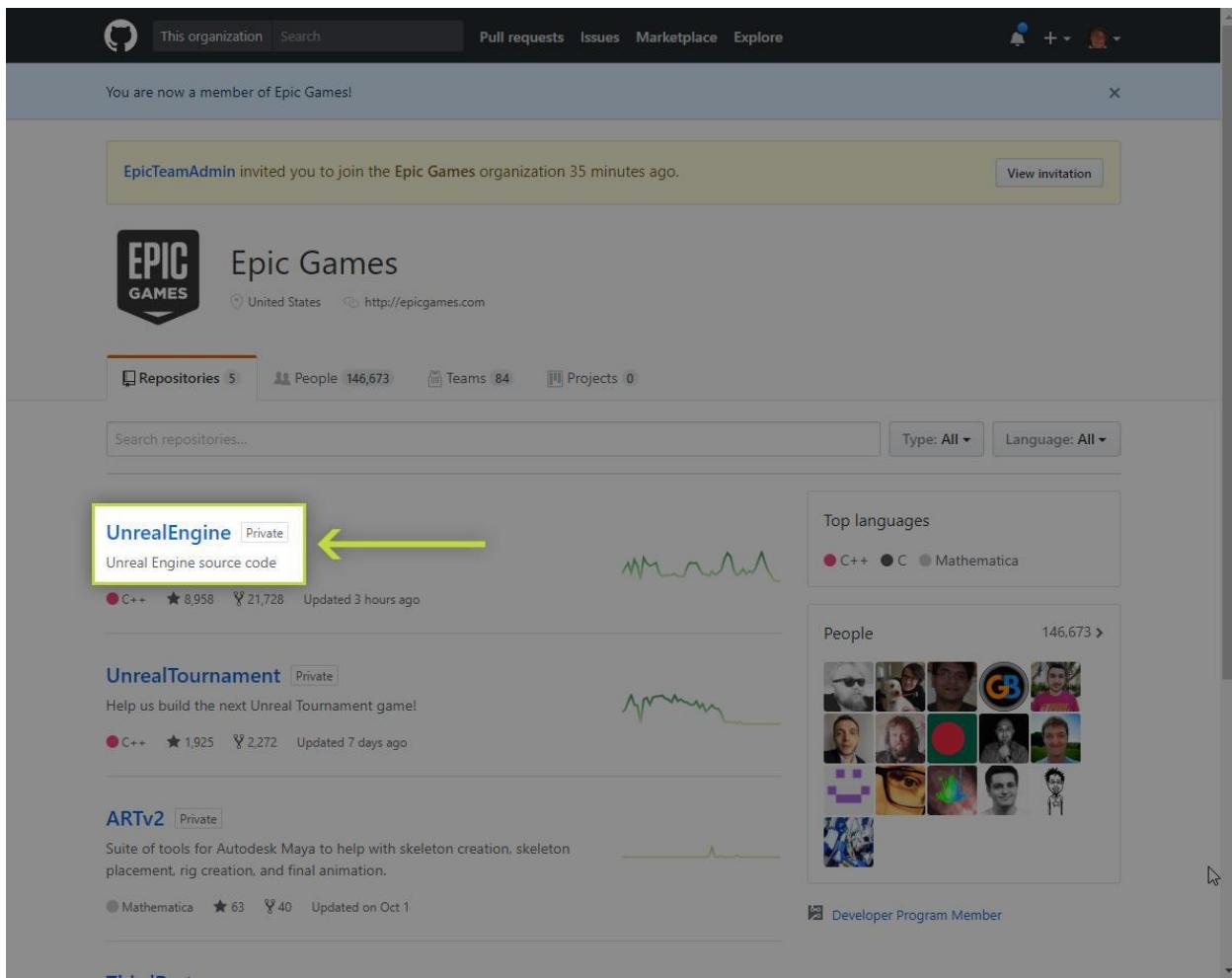
Developer Program Member

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Clicking “View invitation” brings you to the page pictured below. Click “Join Epic Games.”



15. This returns you to the Epic Games github page, where UE4 repositories will now be available. Click "UnrealEngine" to continue.



You are now a member of Epic Games!

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Epic Games

United States <http://epicgames.com>

Repositories 5 People 146,673 Teams 84 Projects 0

Search repositories... Type: All Language: All

UnrealEngine Private

Unreal Engine source code

Unreal Engine source code

Help us build the next Unreal Tournament game!

UnrealTournament Private

UnrealTournament

ARTv2 Private

Suite of tools for Autodesk Maya to help with skeleton creation, skeleton placement, rig creation, and final animation.

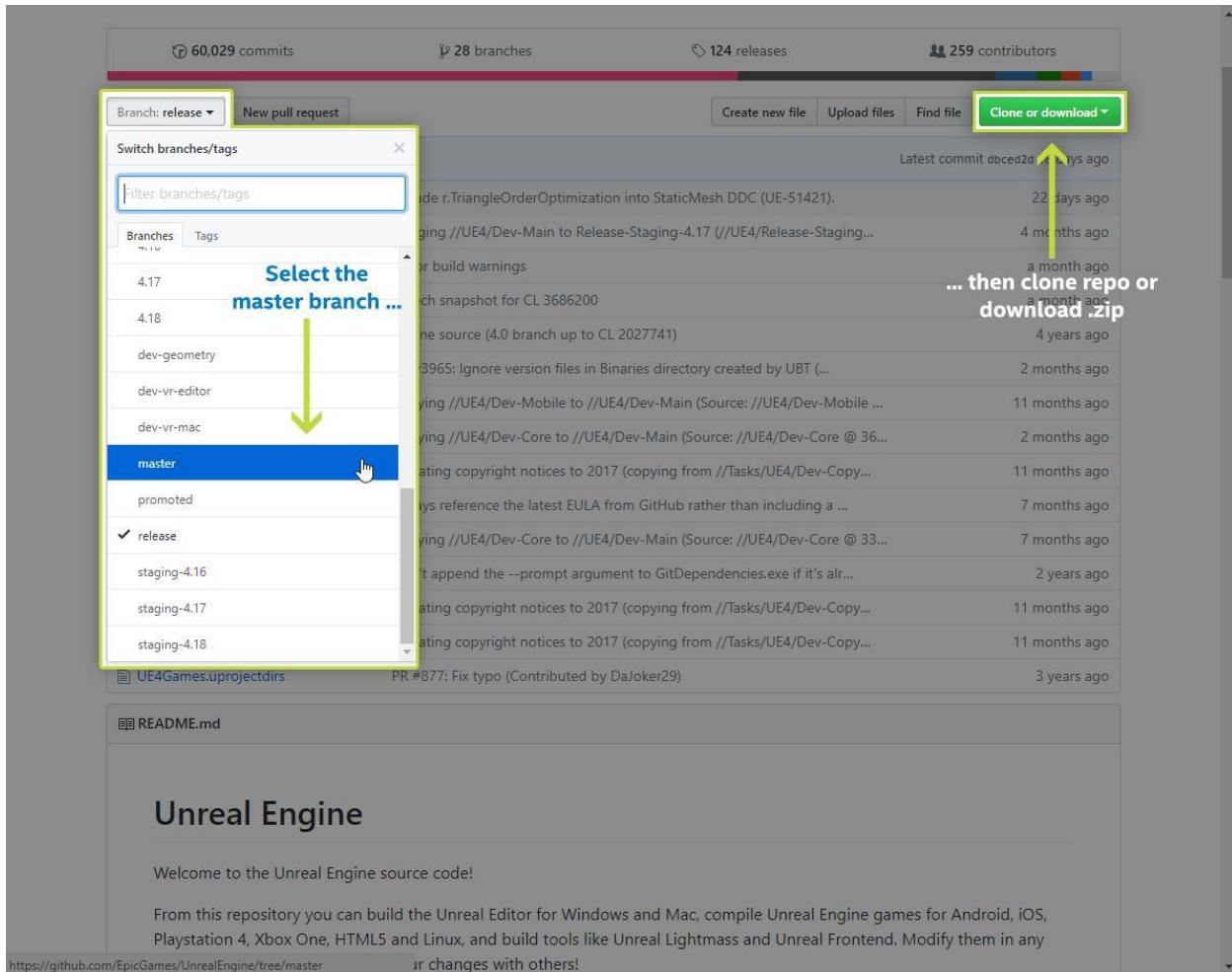
Top languages

C++ C Mathematica

People 146,673

Developer Program Member

16. Select the “master” branch from the “Branch:” button. Then hit the “Clone or download” button.

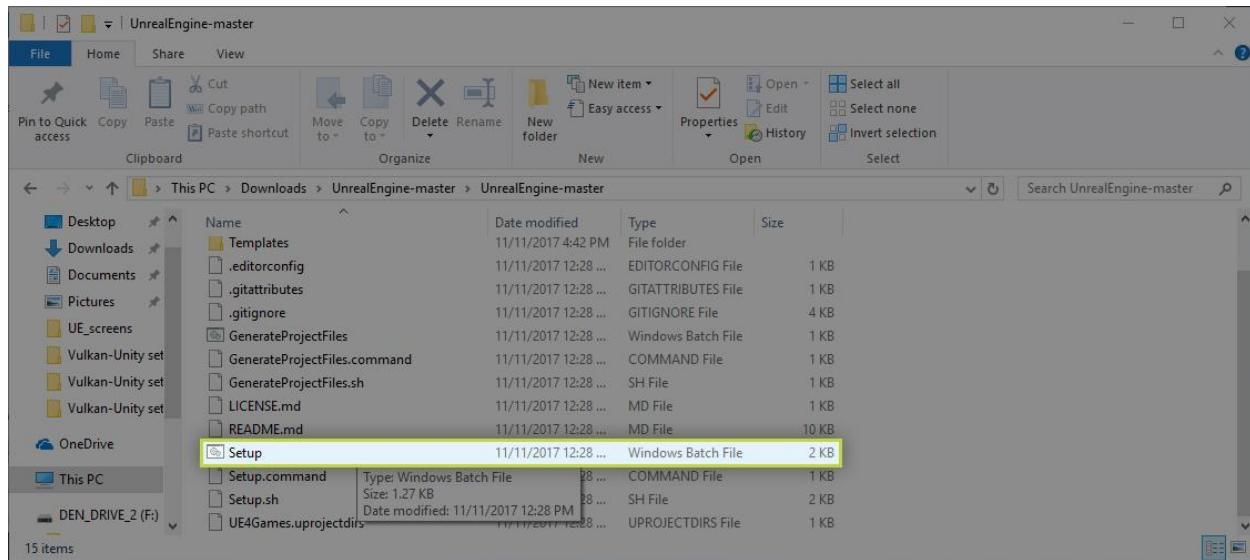


Important:

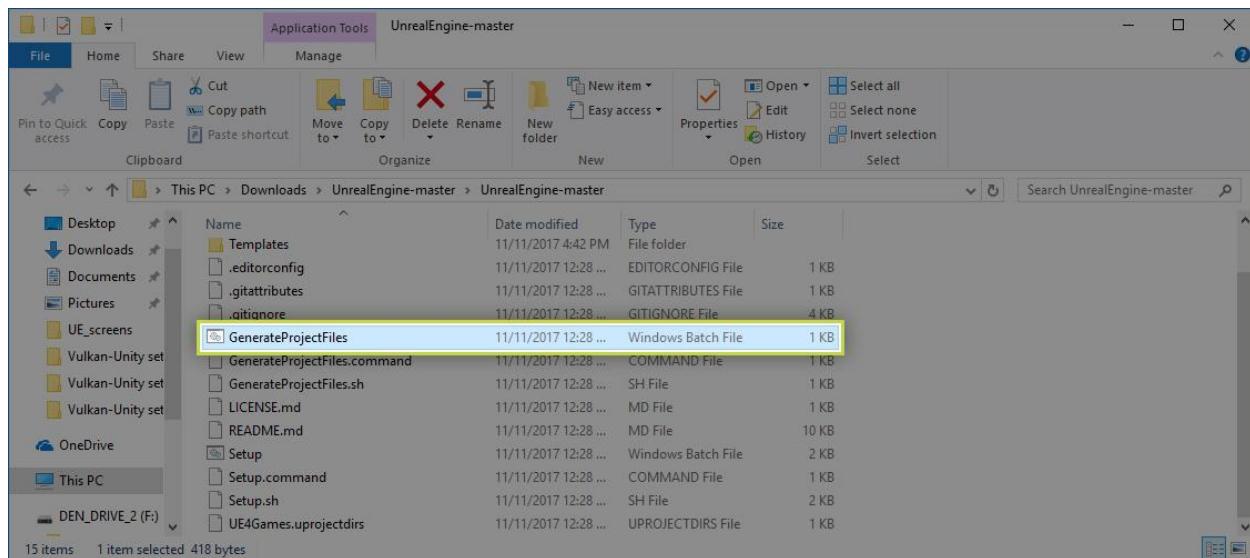
If you don't intend to return engine changes to the community, download the .Zip file. If you do, then fork the master branch, clone it to your hard drive, and proceed from there.

Extract the .Zip (or clone the repo) to a suitable location on your hard drive.

17. When the file download has finished, open the new directory and run "Setup.bat," and wait for it to finish (this takes a while).



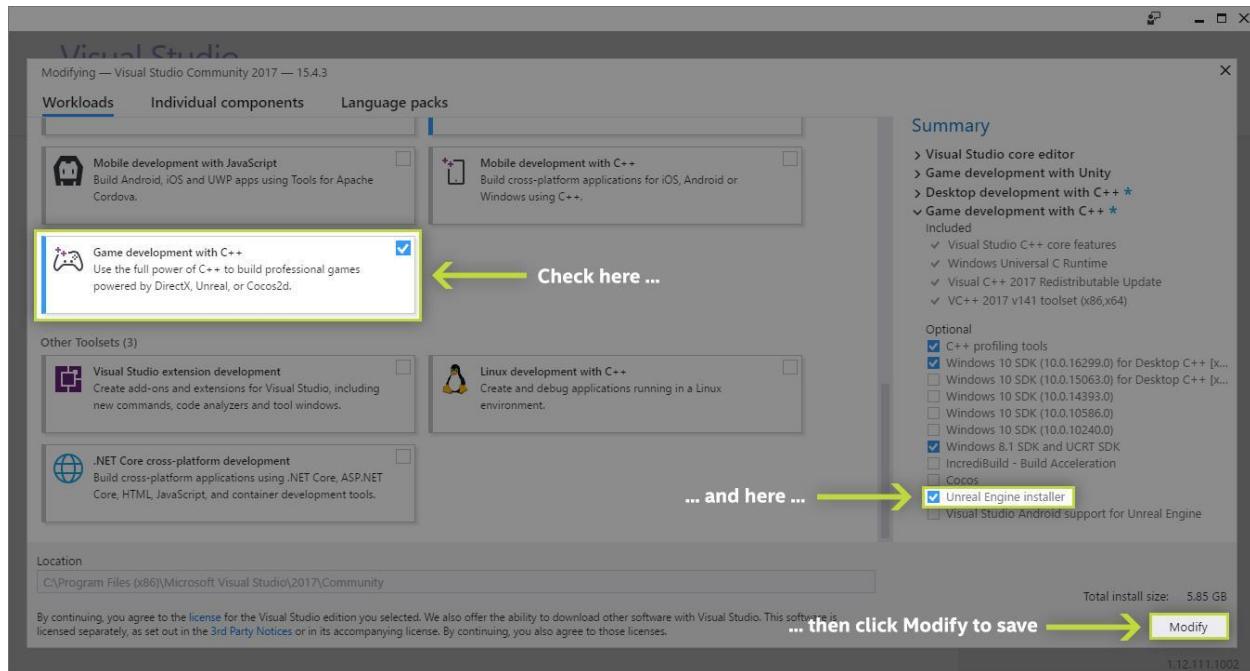
18. In the same directory, run “GenerateProjectFiles.bat” to create the “UE4.sln” project:



Note: On some systems, it might be necessary to activate certain Visual Studio features to enable the “GenerateProjectFiles” script to do its job.

If it fails the first time, open Visual Studio and do the following:

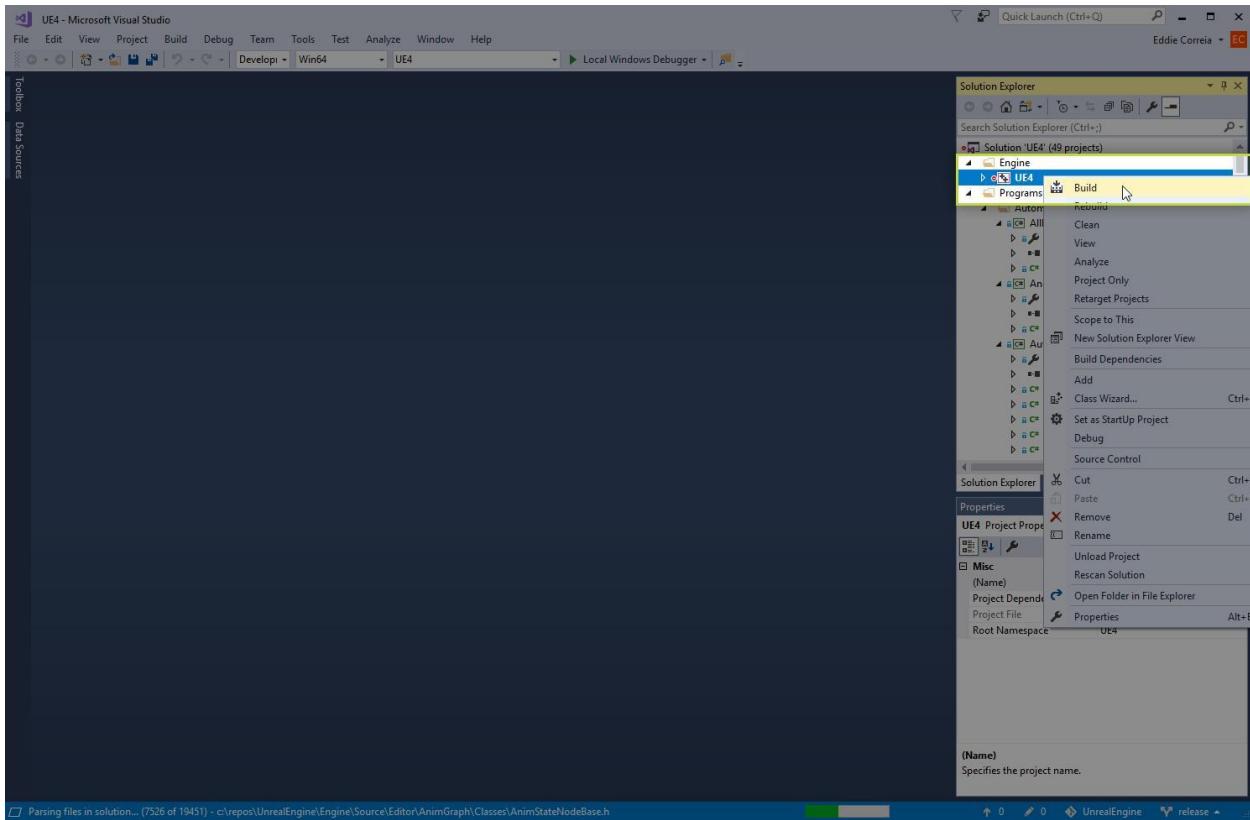
- a. Select Tools> “Tools and Features... ”
- b. In the list of features, check “Game development with C++”
- c. In the right-hand panel, check “Unreal Engine Installer”
- d. Click “Modify” to save changes
- e. Run “GenerateProjectFiles” again



19. Double-click the “UE4.sln” file to open the project in Visual Studio:

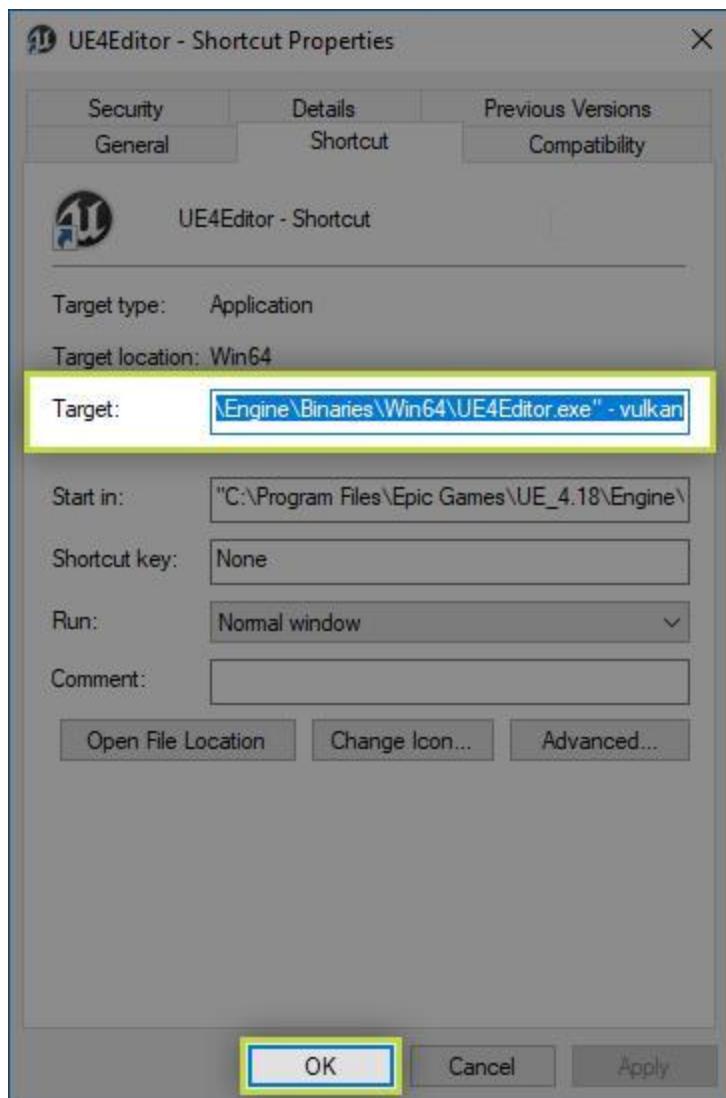
Name	Date modified	Type	Size
.vs	11/12/2017 12:23 PM	File folder	
Engine	11/12/2017 12:23 PM	File folder	
FeaturePacks	11/12/2017 11:39 AM	File folder	
Samples	11/12/2017 11:24 AM	File folder	
Templates	11/12/2017 11:24 AM	File folder	
.editorconfig	11/12/2017 11:21 AM	EDITORCONFIG File	1 KB
.gitattributes	11/12/2017 11:21 AM	GITATTRIBUTES File	1 KB
.gitignore	11/12/2017 11:21 AM	GITIGNORE File	4 KB
.gitconfig	11/12/2017 11:36 AM	TGITCONFIG File	1 KB
GenerateProjectFiles	11/12/2017 11:24 AM	Windows Batch File	1 KB
GenerateProjectFiles.command	11/12/2017 11:24 AM	COMMAND File	1 KB
GenerateProjectFiles.sh	11/12/2017 11:24 AM	SH File	1 KB
LICENSE	11/12/2017 11:24 AM	MD File	1 KB
README	11/12/2017 11:24 AM	MD File	10 KB
Setup	11/12/2017 11:24 AM	Windows Batch File	2 KB
Setup.command	11/12/2017 11:24 AM	COMMAND File	1 KB
Setup.sh	11/12/2017 11:24 AM	SH File	2 KB
UE4.sln	11/12/2017 12:32 PM	Visual Studio Solu...	484 KB
UE4Games.uprojectdirs	11/12/2017 11:24 AM	UPROJECTDIRS File	1 KB

20. In VS Solution Explorer, right-click the UE4 project, and select Build.



21. Once the build completes successfully, set up a shortcut for the UE4 Editor that puts it in "Vulkan mode" using these steps:

- Go to "C:\<installation_dir>\Engine\Binaries\Win64\
- Create a shortcut for the file "UE4Editor.exe"
- Set the shortcut Target to:
"C:\<installation_dir>\Engine\Binaries\Win64\UE4Editor.exe" -vulkan



Your UE4 projects will now build using Vulkan APIs whenever you start from that shortcut.