

CMSC5716 Tutorial

VR in Unity

Setup Tutorial

Unity

- Well-known game engine
- Multiplatform support
 - Windows
 - iOS/Android
 - PS4/PSV/XBoxOne/WiiU/3Ds
- Download
 - <https://unity3d.com/>

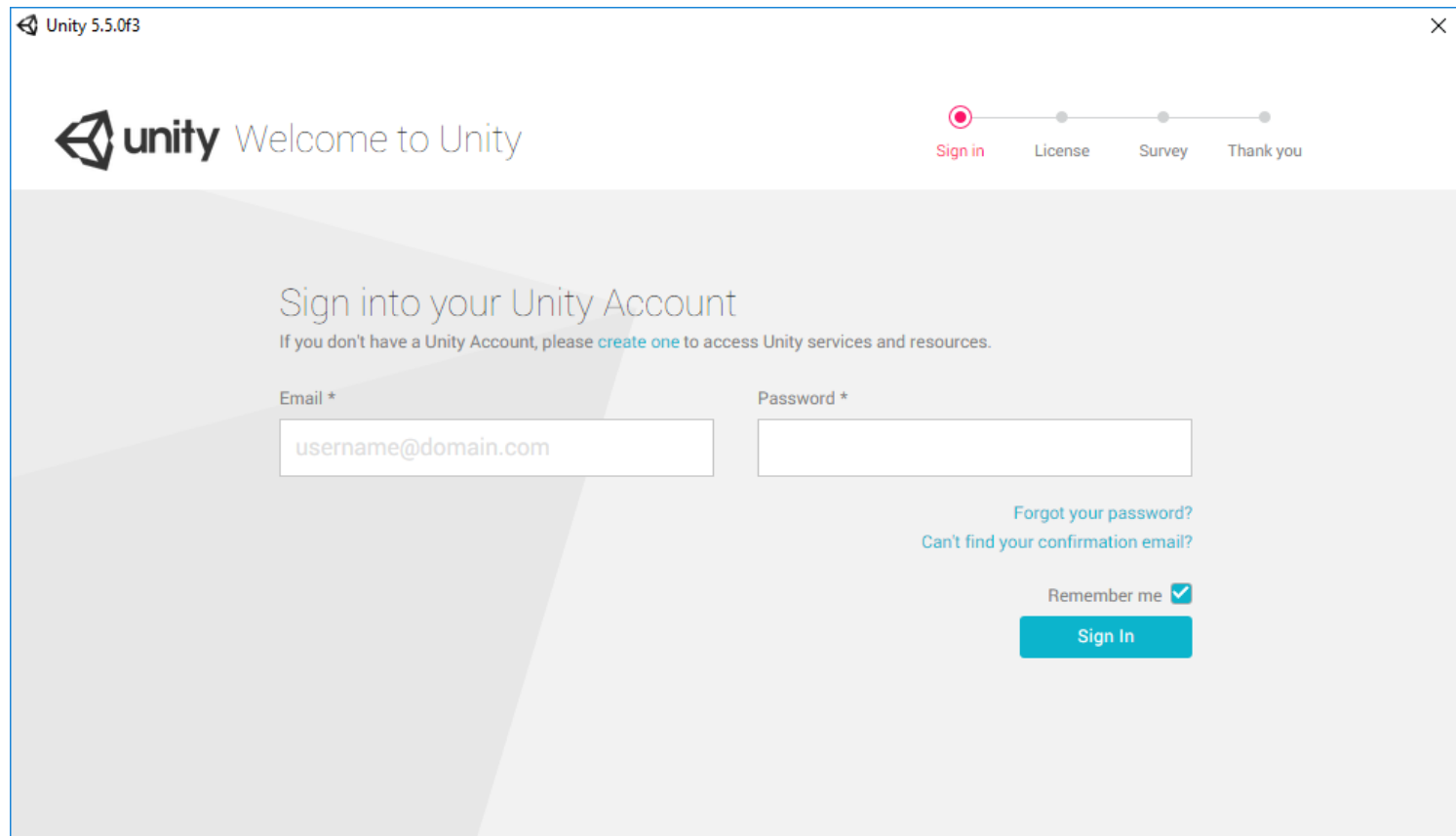


Requirement

- Unity 5.3 or higher to support VR
- Google VR SDK (For Google Cardboard)
 - <https://developers.google.com/vr/unity/>
- Oculus Runtime (For Oculus Rift)
 - <https://developer3.oculus.com/downloads/>
- SteamVR (For HTC Vive)
 - <https://www.vive.com/hk/setup/> or
 - Install it in steam (<http://store.steampowered.com/>)

Start the Unity

- Create/Use your account



The screenshot shows the Unity 5.5.0f3 login window. At the top left, it says "Unity 5.5.0f3" with a close button (X) at the top right. Below the title bar, the Unity logo and "Welcome to Unity" are on the left. On the right, there is a progress bar with four steps: "Sign in" (active, highlighted with a red circle), "License", "Survey", and "Thank you". The main content area has the heading "Sign into your Unity Account" and a subtext: "If you don't have a Unity Account, please [create one](#) to access Unity services and resources." Below this are two input fields: "Email *" with the placeholder "username@domain.com" and "Password *". To the right of the password field are two links: "Forgot your password?" and "Can't find your confirmation email?". At the bottom right, there is a "Remember me" checkbox which is checked, and a blue "Sign In" button.

Unity 5.5.0f3

unity Welcome to Unity

Sign in License Survey Thank you

Sign into your Unity Account

If you don't have a Unity Account, please [create one](#) to access Unity services and resources.

Email *
username@domain.com

Password *

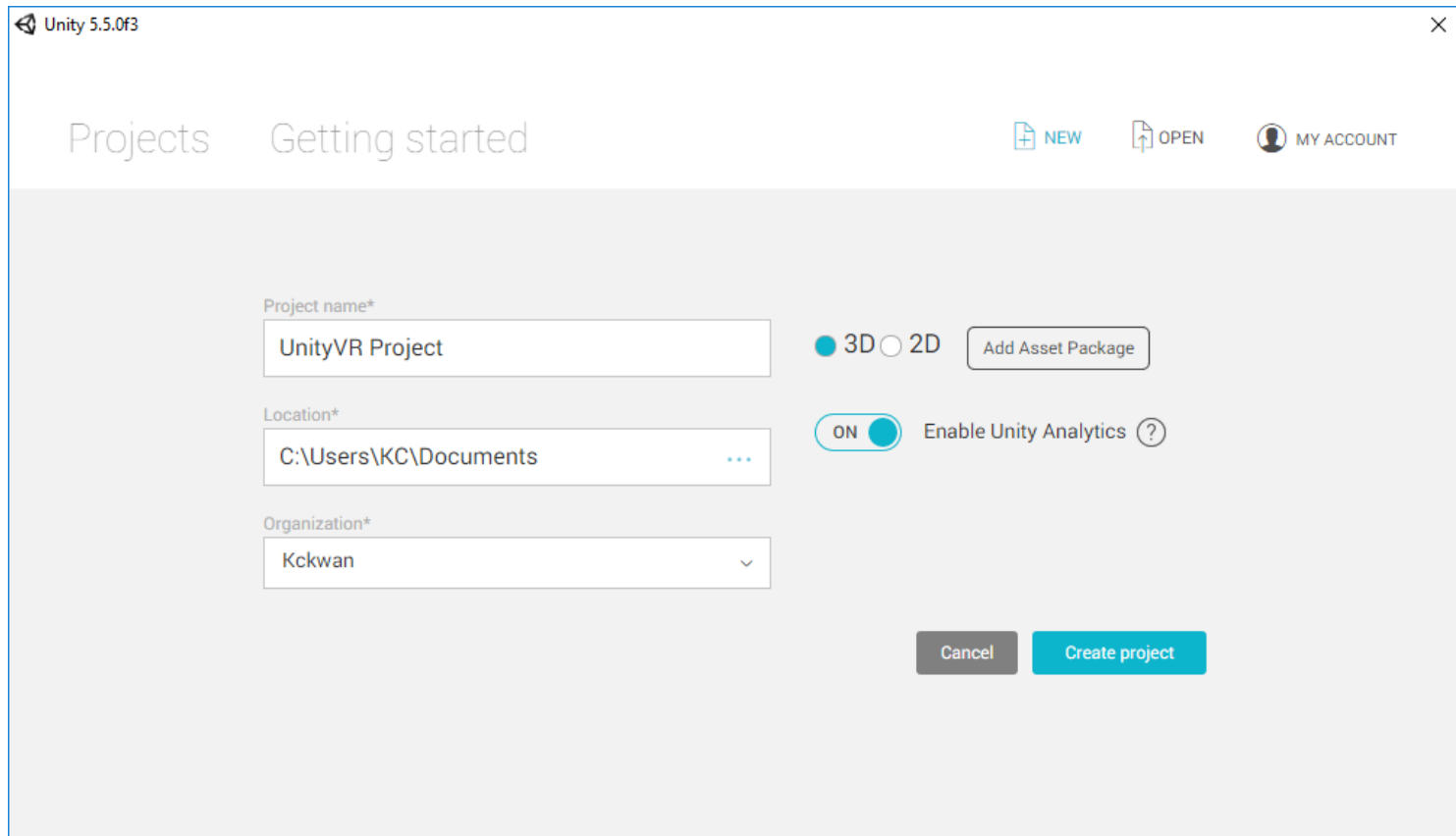
[Forgot your password?](#)
[Can't find your confirmation email?](#)

Remember me ☒

Sign In

Create a 3D Project

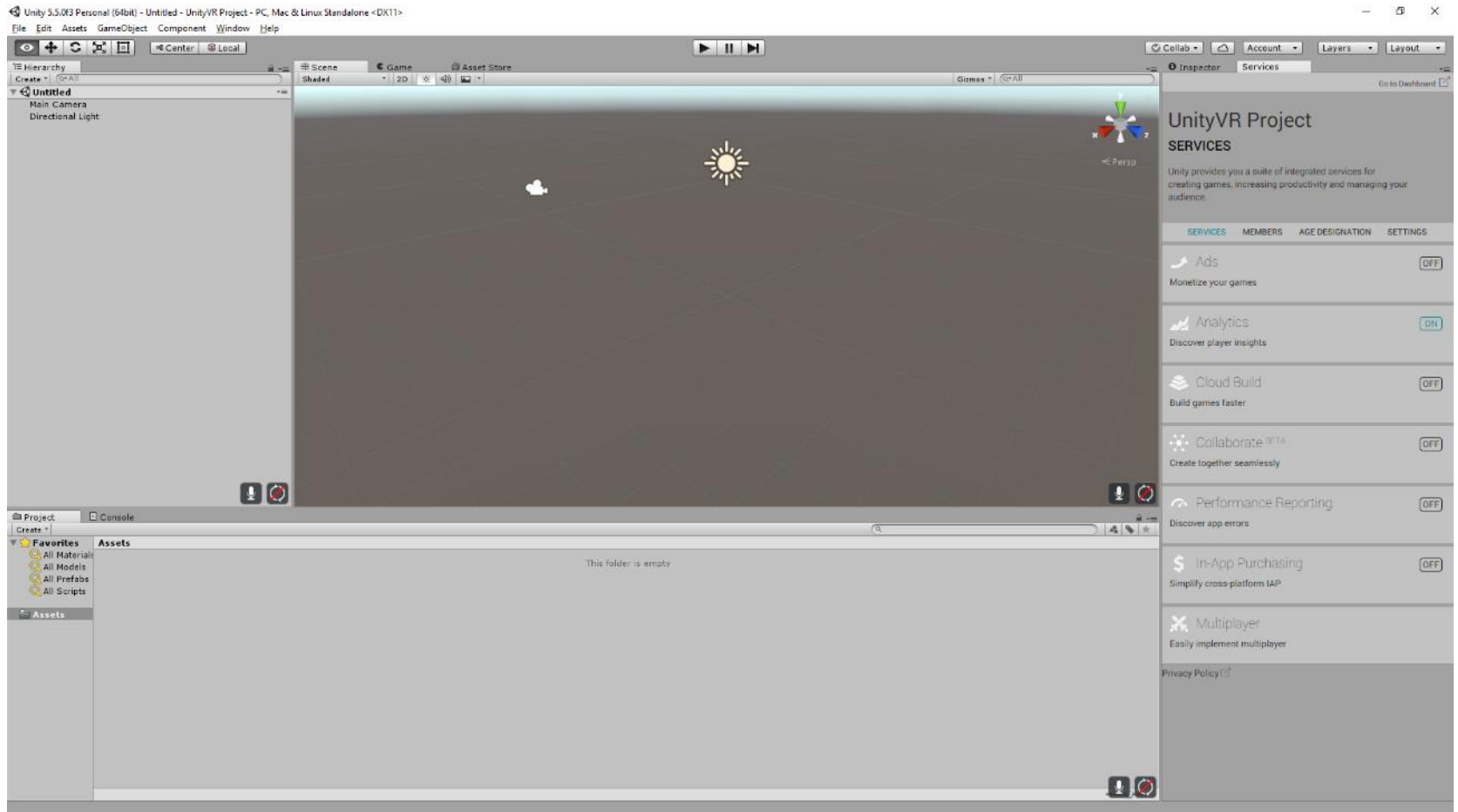
- Select “3D”



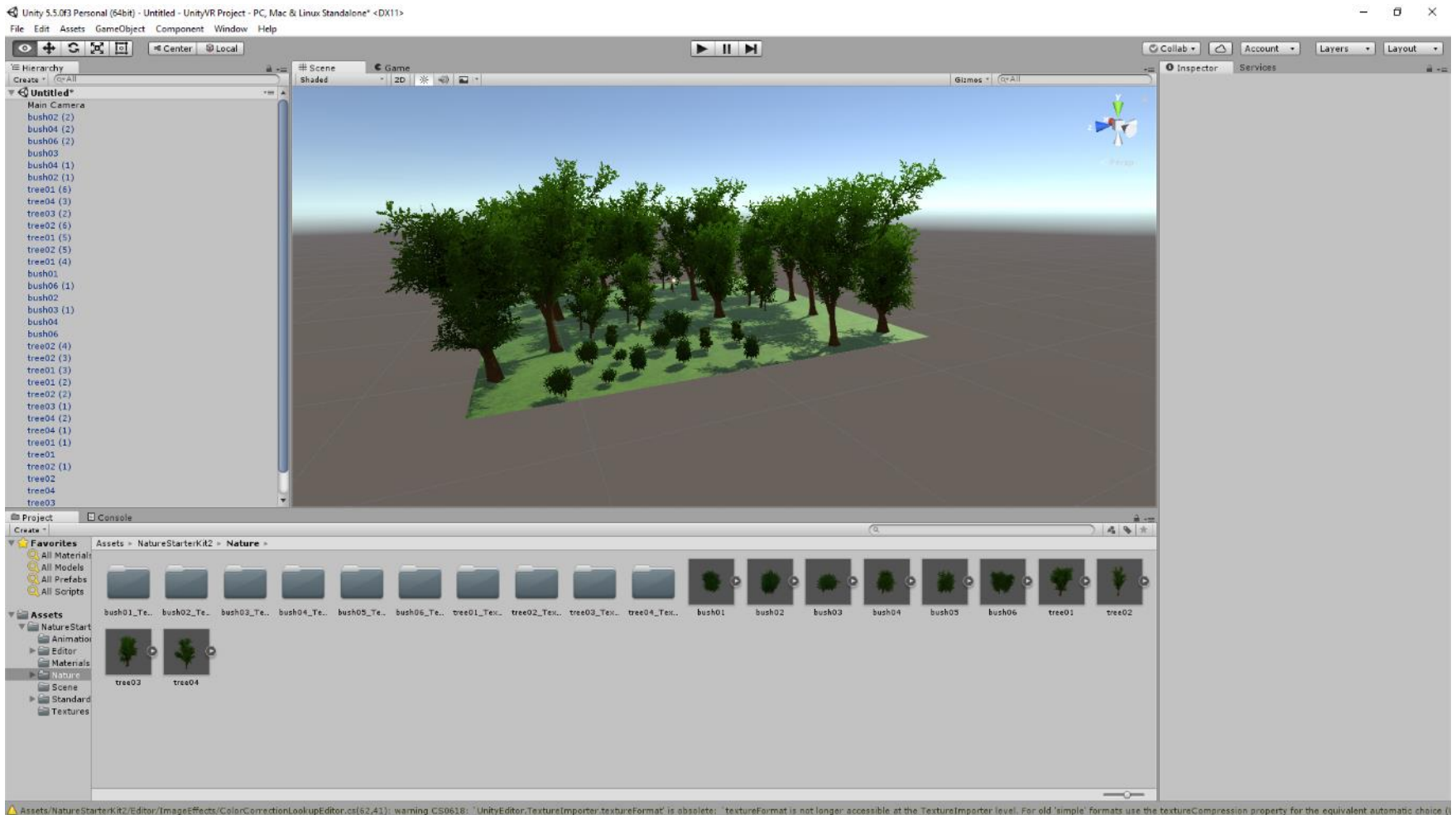
The screenshot shows the Unity 5.5.0f3 'Create New Project' dialog box. The window title is 'Unity 5.5.0f3'. The top navigation bar includes 'Projects' and 'Getting started' tabs, and buttons for 'NEW', 'OPEN', and 'MY ACCOUNT'. The main form contains the following fields and controls:

- Project name***: A text input field containing 'UnityVR Project'.
- Location***: A text input field containing 'C:\Users\KC\Documents' with a dropdown arrow on the right.
- Organization***: A dropdown menu showing 'Kckwan'.
- 3D/2D Selection**: Radio buttons for '3D' (selected) and '2D'.
- Add Asset Package**: A button next to the 3D/2D selection.
- Enable Unity Analytics**: A toggle switch set to 'ON' with a help icon (?) next to it.
- Buttons**: 'Cancel' and 'Create project' buttons at the bottom right.

Unity Editor



Build your own content

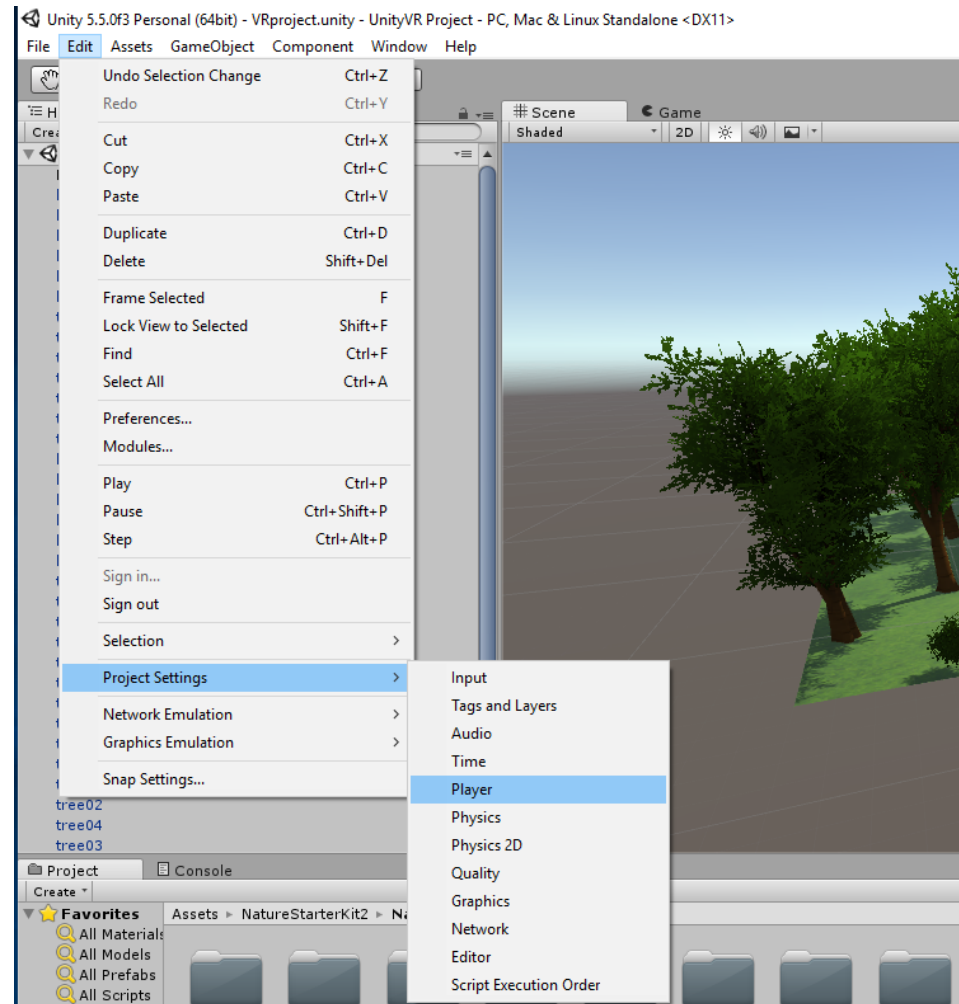


Enable VR for Oculus

or GearVR

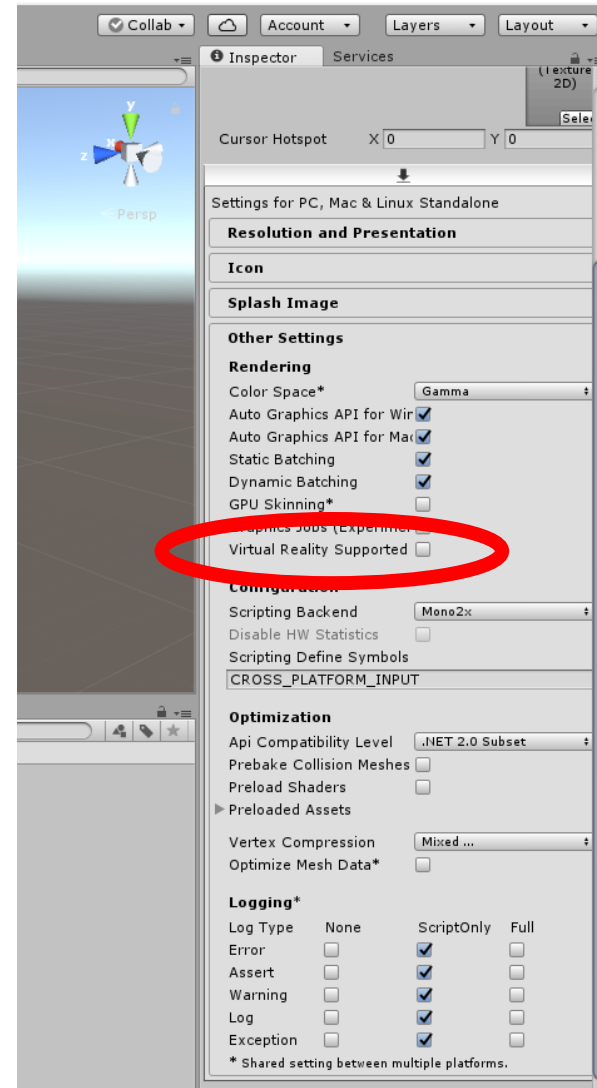
Enable VR Support for Oculus(I)

- Menu >
Edit >
Project Settings >
Player



Enable VR Support for Oculus (II)

- Inspector >
Other Settings>
Virtual Reality Supported
- Enjoy VR with your device
by starting the game



Enable VR for Google Cardboard

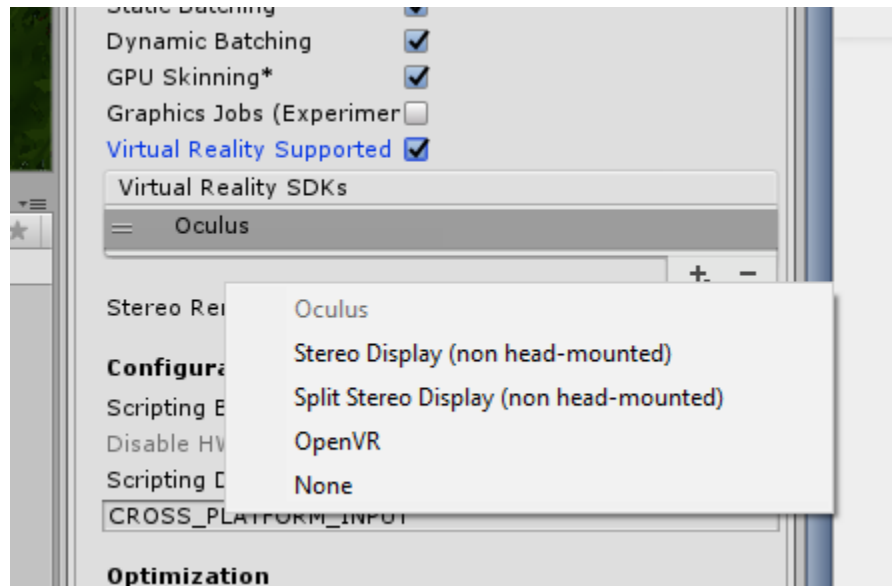
or DayDream

Unity Technical Preview

- You need correct version of Unity to support Cardboard
 - Unity Technical Preview
 - <https://unity3d.com/partners/google/daydream>

Enable VR for Cardboard

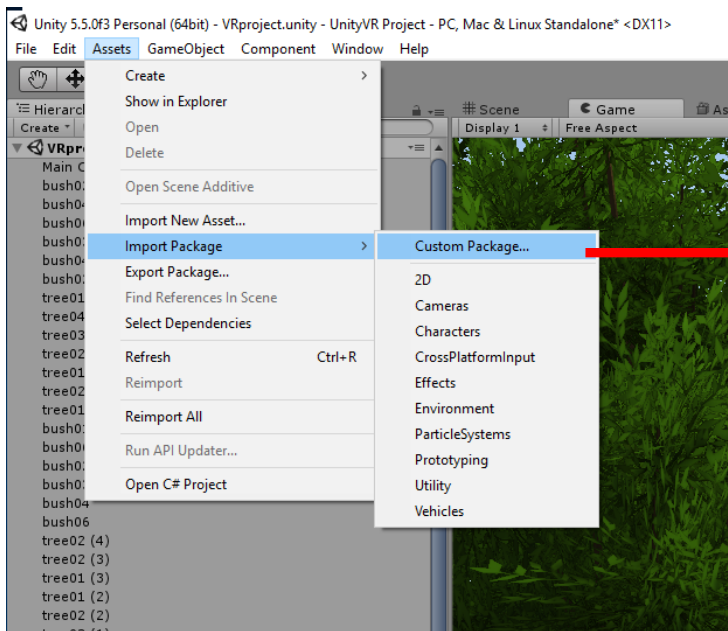
- Similar to oculus, and you can select your device



- Unity provides oculus package only
 - How about google cardboard

Import other SDK

- Need to import VR unity package from SDK
 - Assets > import Package > Custom Package



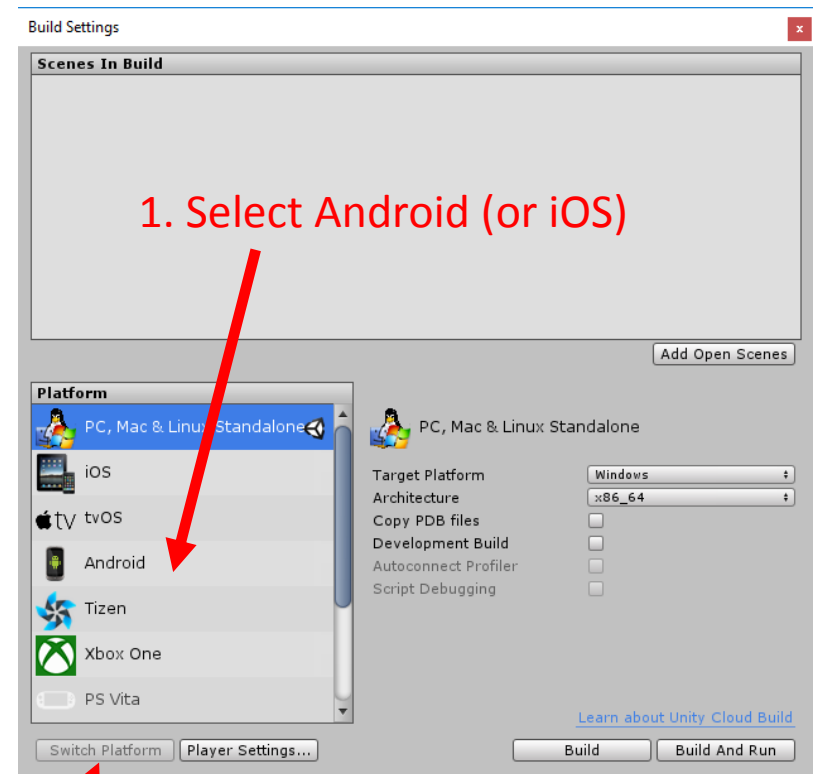
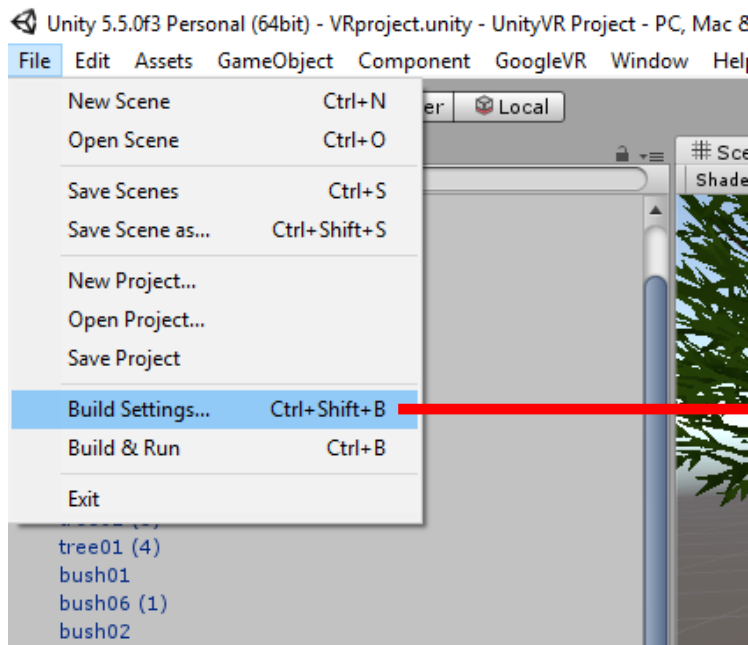
Then select the
package in
downloaded SDK



GoogleVRForUnit
y.unitypackage

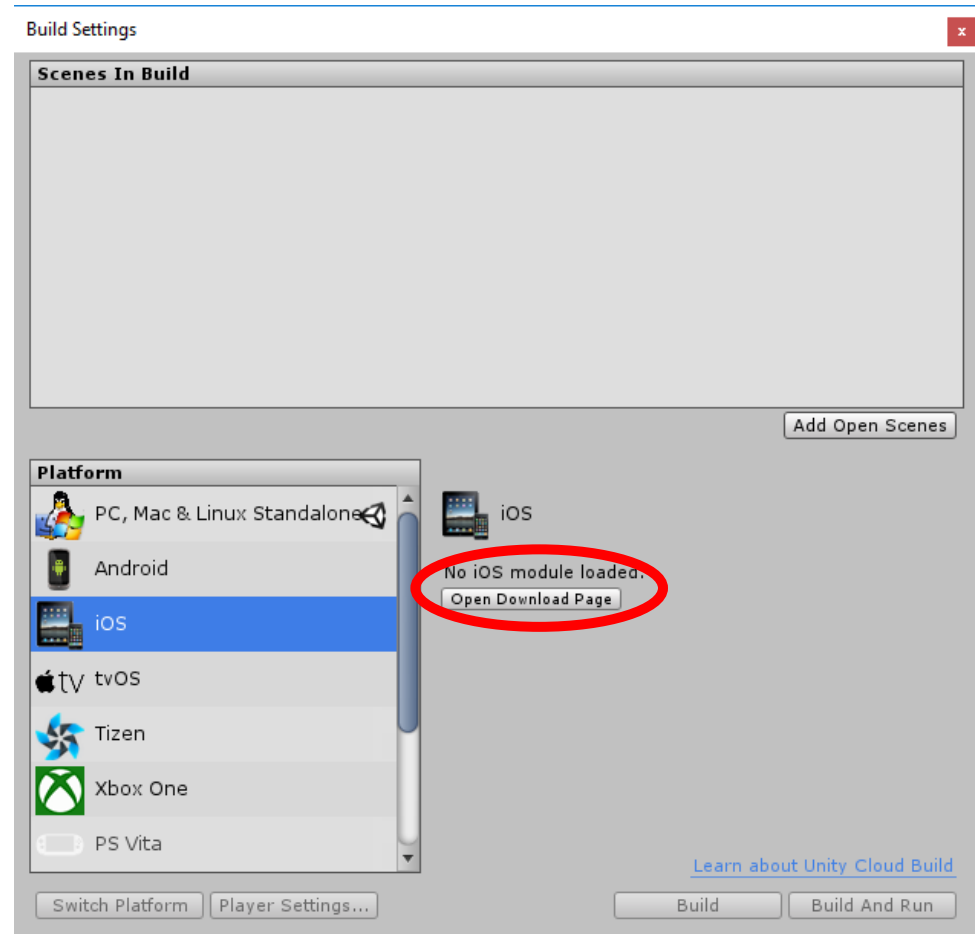
Change the Platform

- File > Build Settings



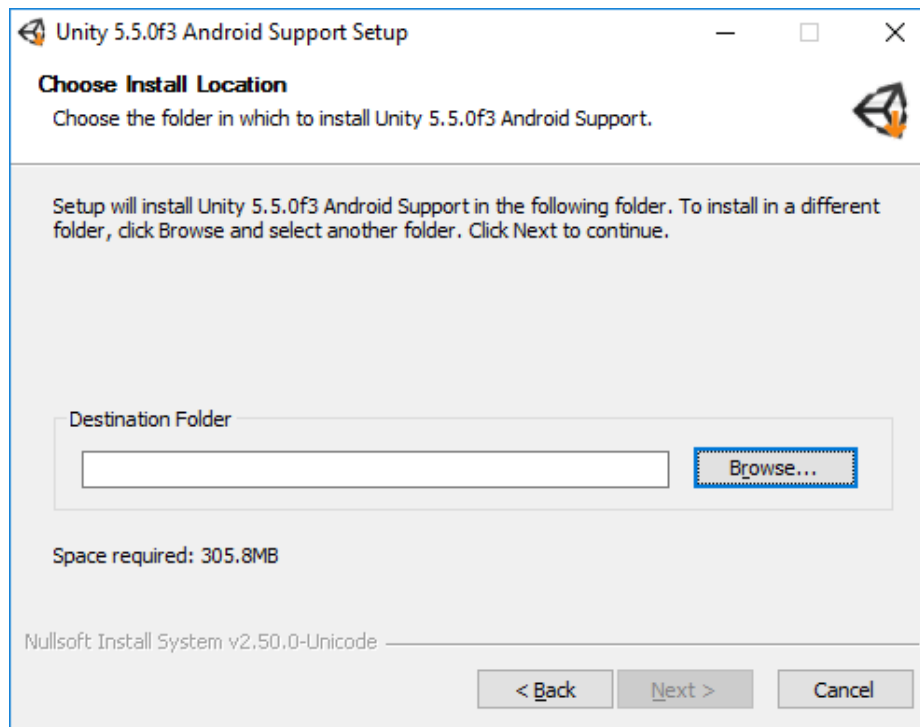
Install the Platform Module

- To select platform, you may need to first install the platform module
- Check “Open Download Page”



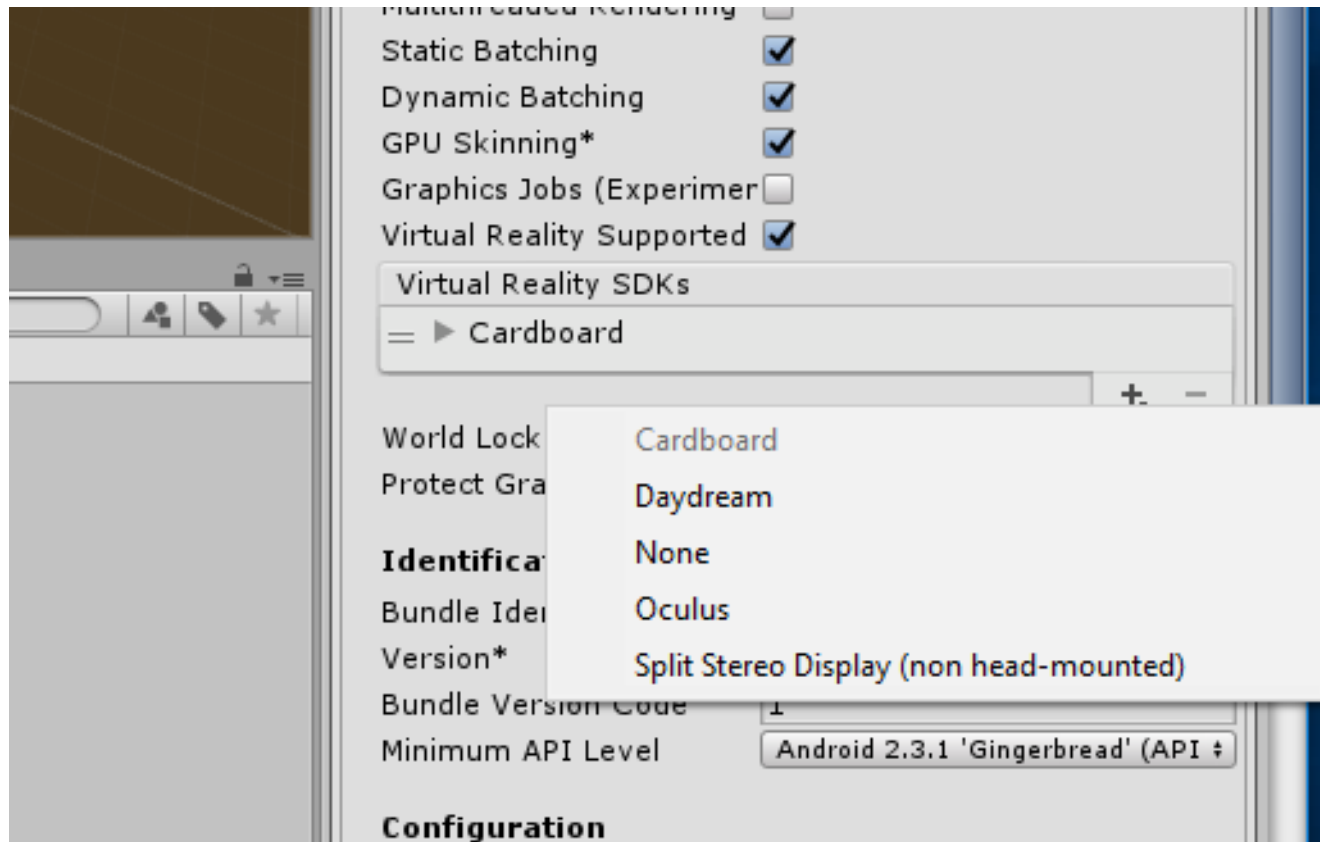
Install the Module

- Run the downloaded file
- Select the your Unity path
 - E.g. C:\Program Files\Unity\



After switch to Android

- You can select cardboard now

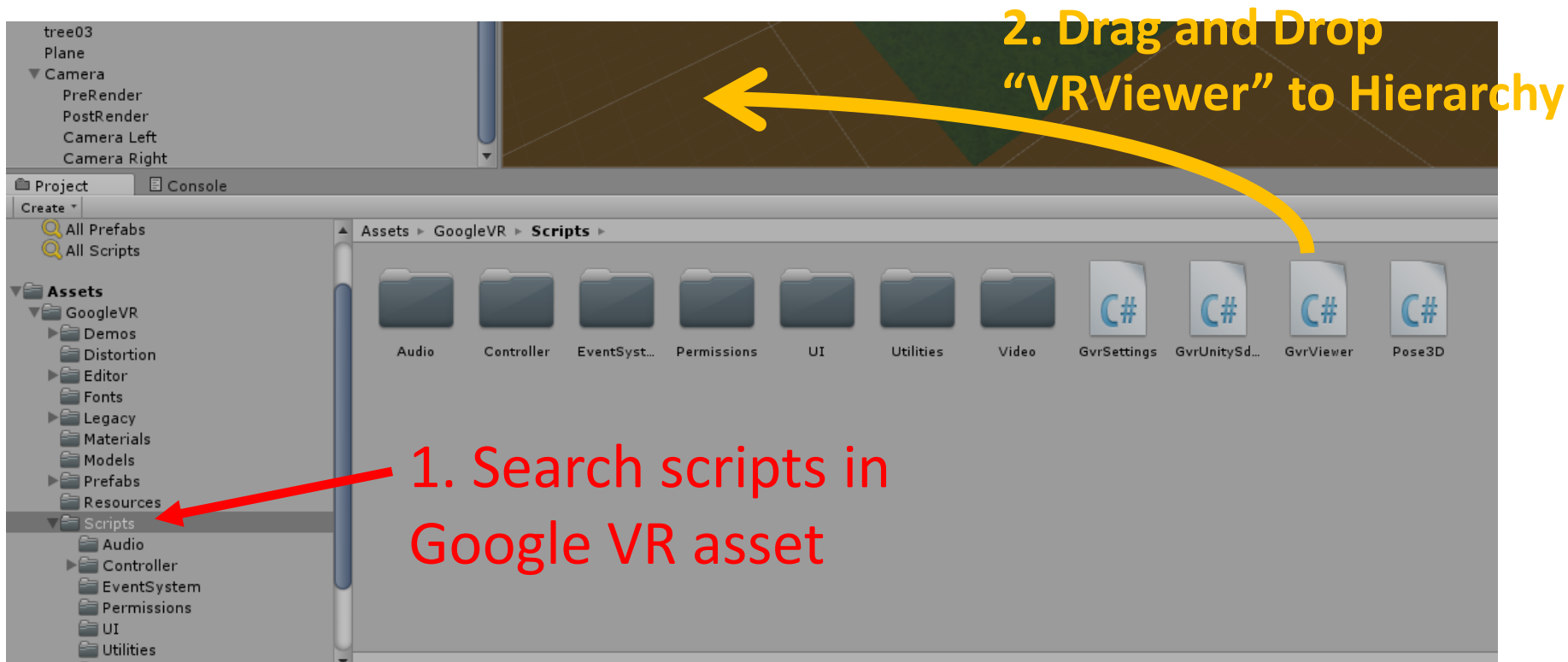


Testing the VR

- Two methods:
 - In Unity viewer
 - On real device

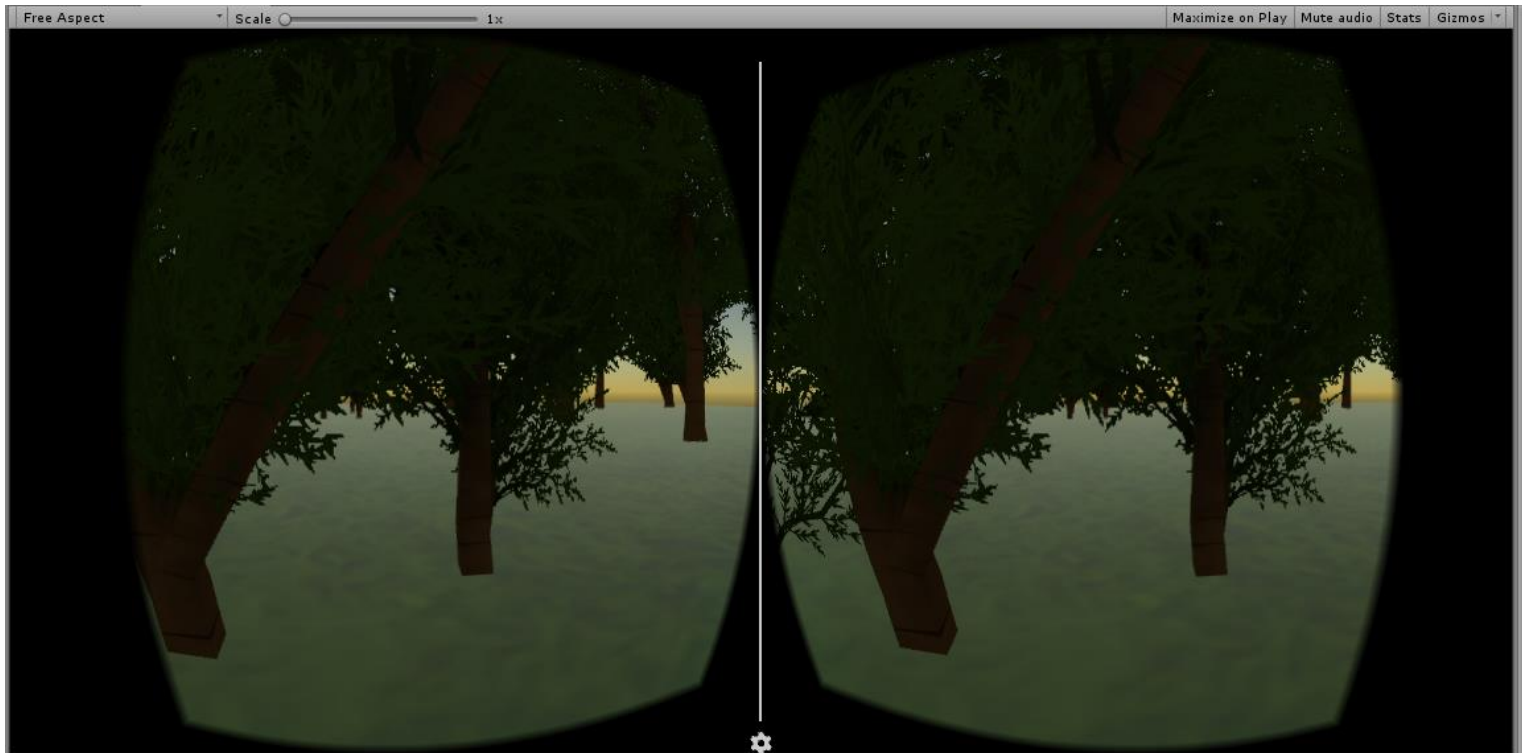
In Unity Viewer

- Drag and drop the asset GoogleVR>Scripts>GvrViewer to any object in hierarchy



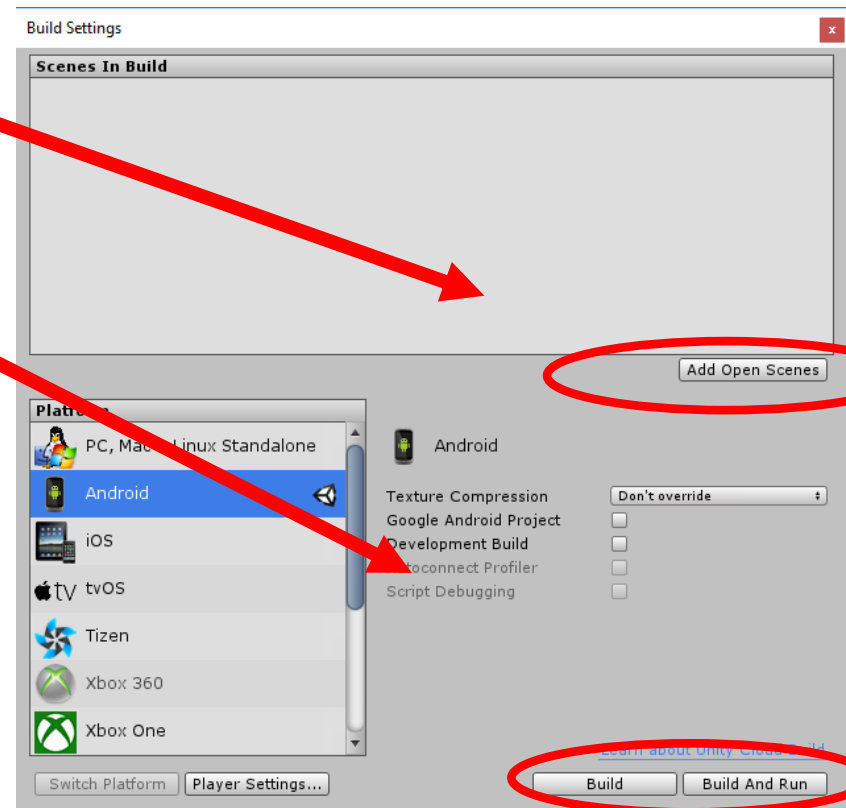
Testing VR in Viewer

- Run the scene
 - Alt + Mouse = Simulating turning head



On Real Device

- Connect your Android via USB cable
- Add current scenes to the package in build setting
- Click “Build and Run”



Notes

- Remember to change in player setting
 - The bundle identifier
 - Minimum API to 4.4 or upper

Identification	
Bundle Identifier	com.cmssc.vrdemo
Version*	1.0
Bundle Version Code	1
Minimum API Level	Android 4.4 'Kit Kat' (API level 19)
Configuration	
Scripting Backend	Mono2x
Disable HW Statistics	<input type="checkbox"/>
Device Filter	FAT (ARMv7+x86)
Install Location	Prefer External
Internet Access	Auto
Write Access	Internal Only

Build Requirements

- Android Phone in Debugger Mode
- Android SDK
- Java Development Kit
- Reference:
 - Debugger mode
<https://www.kingoapp.com/root-tutorials/how-to-enable-usb-debugging-mode-on-android.htm>
 - Build Android game
<https://unity3d.com/learn/tutorials/topics/mobile-touch/building-your-unity-game-android-device-testing>

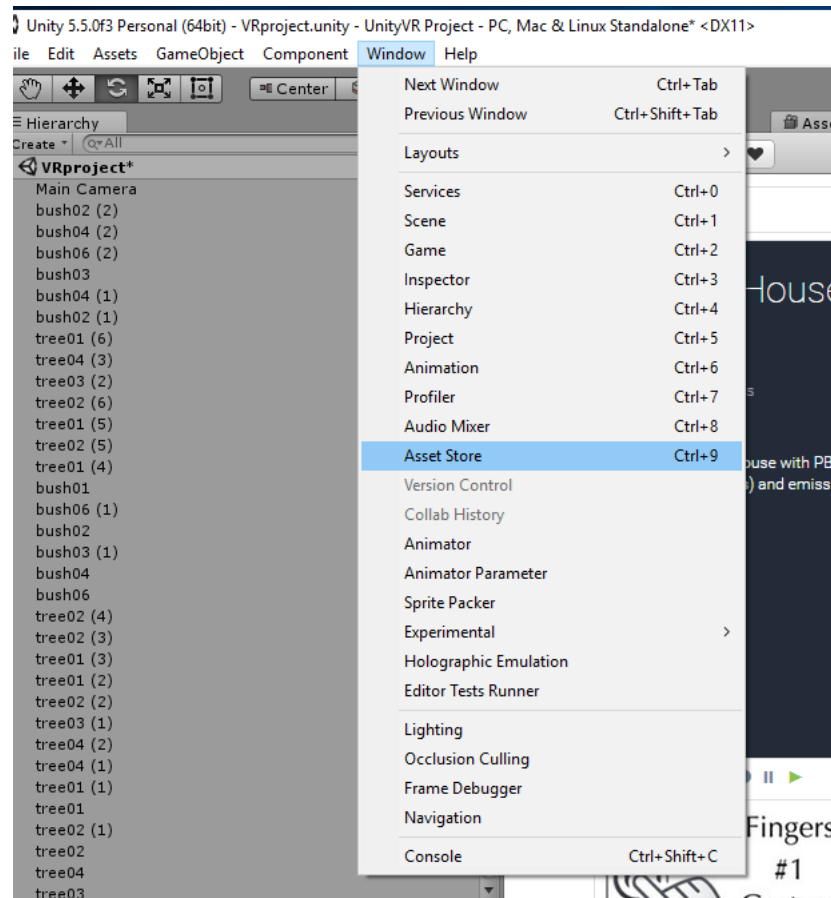
Done



Enable VR for Vive

Enable VR Support for Vive (I)

- Go to asset store



Search VR Plugin

Search "SteamVR" here



The screenshot shows a VR plugin marketplace interface. At the top right, there is a search bar with a magnifying glass icon, a 'Filters' button, and a close button. Below the search bar, a large banner for 'BIG ORCHESTRA MUSIC COLLECTION' is displayed. The banner features the text 'POWERFUL, EPIC, ACTION AND ADVENTURE TRACKS!' and 'BIG ORCHESTRA MUSIC COLLECTION' in large, bold, 3D letters. Below the title, it lists features: '- OVER 30 HIGH QUALITY TRACKS', '- 7 DIFFERENT MUSIC PACKS', and '- MP3 & LOOPED WAV'. A '24 hour sale' badge is visible in the bottom right corner of the banner. To the left of the banner, there is a sidebar with the following text: 'Big Orchestral Music Bundle', 'Audio/Music/Orchestral', 'Muz Station Productions', '★★★★★ (13)', '25% OFF', '\$15 \$20', 'Upgrade to Mega Game Music Collection', '2GB+ of HQ music for all games!', 'Over 80 different tracks (+Loops)!', 'Big Orchestral Music Bundle', 'Great library of high quality powerful, epic, cinematic action and adventure tracks!', 'Promote your projects, games or videos with this HQ music!'. To the right of the banner, there is a sidebar with a list of categories: Home, 3D Models, Animation, Applications, Audio, Complete Projects, Editor Extensions, Particle Systems, Scripting, Services, Shaders, Textures & Materials, and Unity Essentials. Below the banner, there is a row of four small preview cards: 'Fingers #1', a target icon, a white and red segmented arm, and 'TALLEST TOWERS'. A 'NEW' badge is visible in the bottom right corner of the interface.

Big Orchestral Music Bundle
Audio/Music/Orchestral
Muz Station Productions
★★★★★ (13)
25% OFF
\$15 \$20
Upgrade to Mega Game Music Collection
2GB+ of HQ music for all games!
Over 80 different tracks (+Loops)!

Big Orchestral Music Bundle
Great library of high quality powerful, epic, cinematic action and adventure tracks!
Promote your projects, games or videos with this HQ music!

POWERFUL, EPIC, ACTION AND ADVENTURE TRACKS!

BIG ORCHESTRA MUSIC COLLECTION

- OVER 30 HIGH QUALITY TRACKS
- 7 DIFFERENT MUSIC PACKS
- MP3 & LOOPED WAV

24 hour sale

24 hour sale

Home
3D Models
Animation
Applications
Audio
Complete Projects
Editor Extensions
Particle Systems
Scripting
Services
Shaders
Textures & Materials
Unity Essentials

Fingers #1
TALLEST TOWERS
NEW

SteamVR Plugin

- Download and import the plugin



The image shows the SteamVR Plugin page on the Steam platform. The left sidebar contains the plugin's details, and the main area features a large blue banner with the SteamVR logo and text.

SteamVR Plugin
Scripting
Valve Corporation
★★★★★ (1566)
Free
[Download](#)  

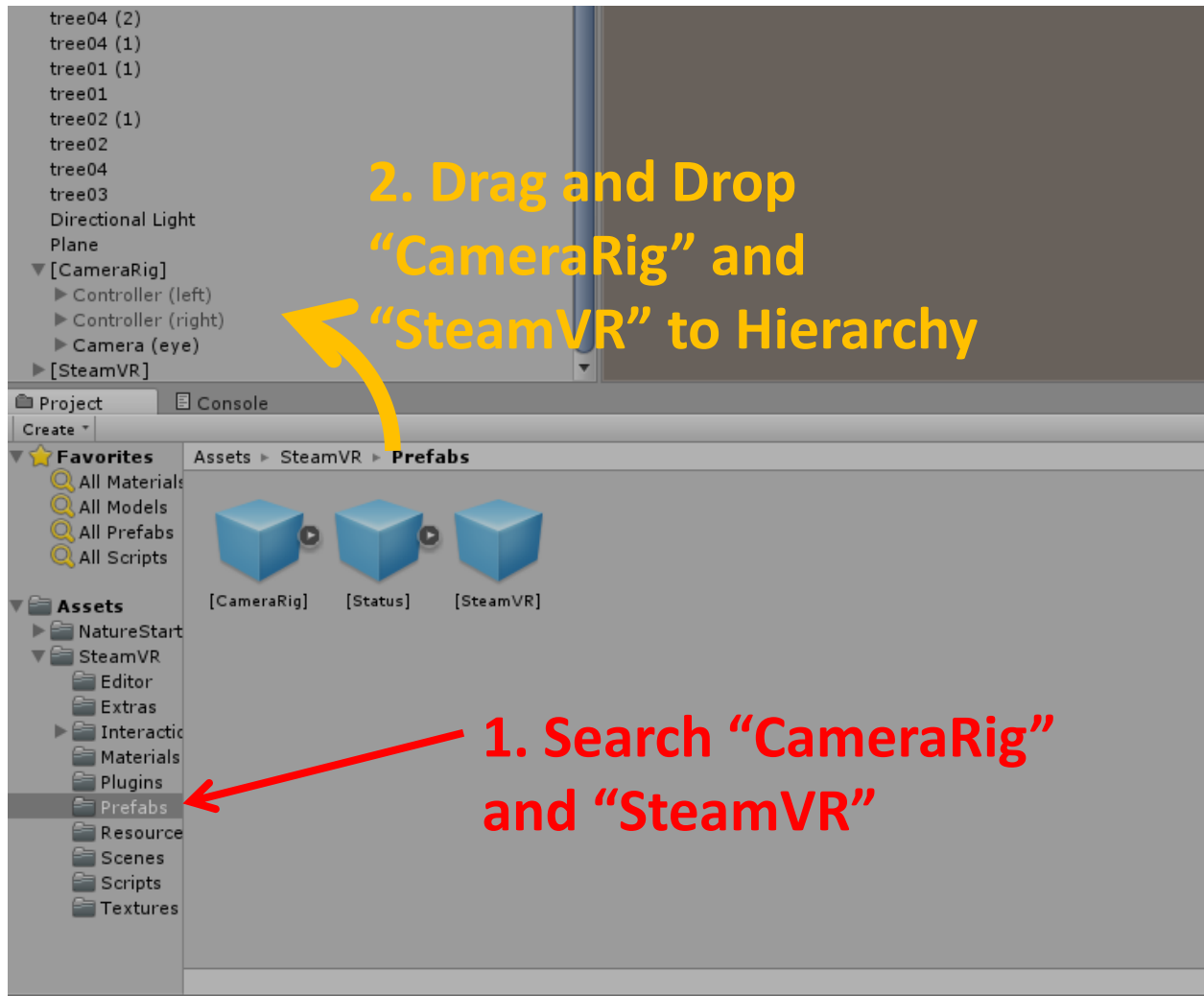
    

ATTN: When upgrading from an older version, it is best to first delete the SteamVR folder in your project, and then import the package. You may also want to delete any "openvr_api" files in your Plugins folder and its subfolders before importing the new package.

The SteamVR SDK allows developers to target a single interface that will work with all

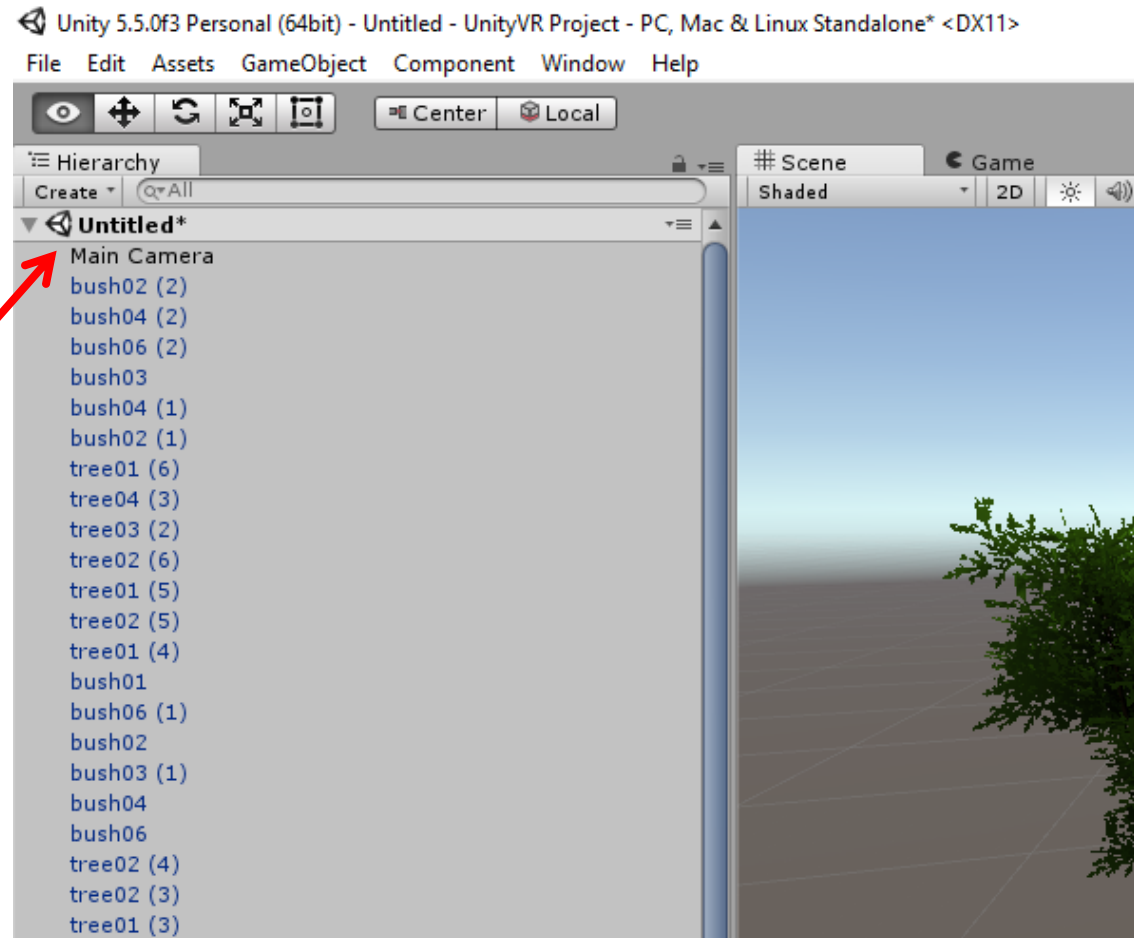

Steam® VR
VR ESSENTIALS

Add the plugin in Game



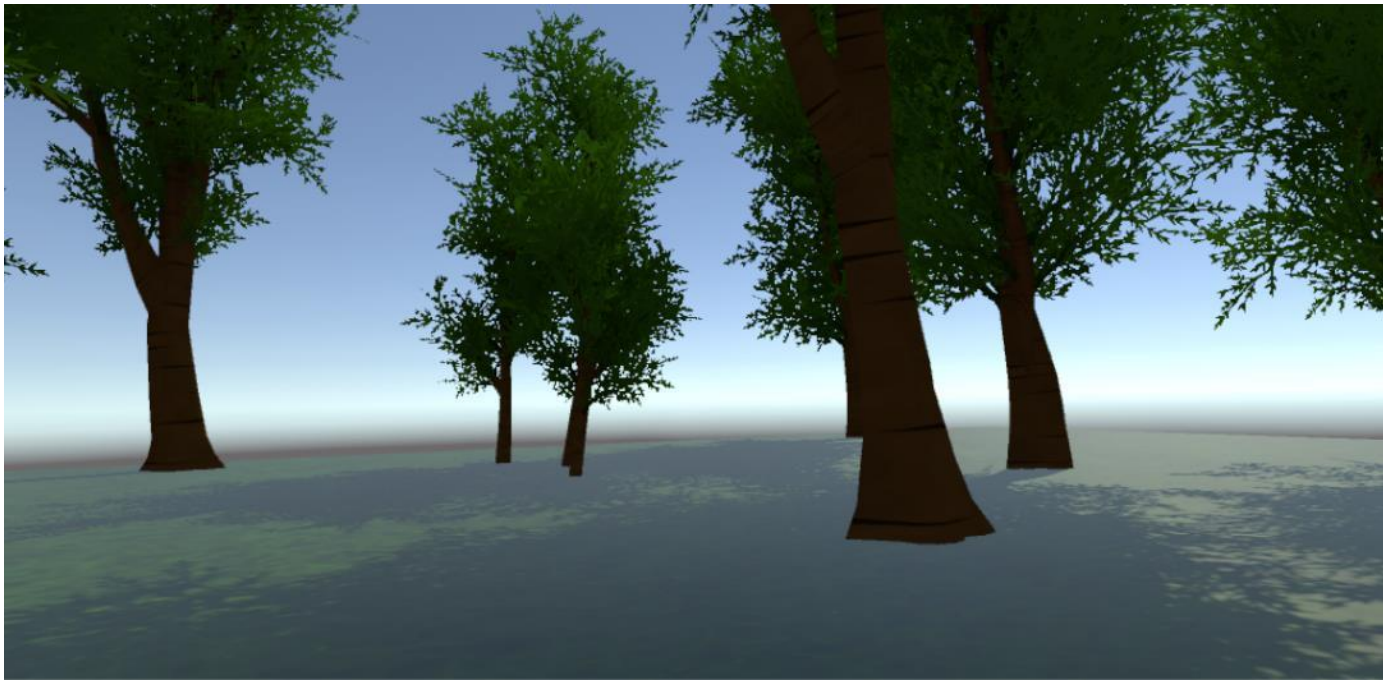
Delete the Main Camera

Delete it



Enjoy VR

- Start the game and you will see your content in Vive



Reference

- Unity VR Tutorial
 - <https://unity3d.com/learn/tutorials/topics/virtual-reality>
- HTC Vive Tutorial
 - <https://www.raywenderlich.com/149239/htc-vive-tutorial-unity>
- Google Cardboard
 - <https://developers.google.com/vr/unity/guide>