

CLOVR SDK- Unity Plugin Developer Guidelines Ver. 1.3

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Introduction

CLOVR is a mobile app that enables you to have virtual reality experience for any existing non-VR PC game. As long as you can run the game on your PC, you can enjoy it in VR with CLOVR.

CLOVR uses GPU image retargeting and advanced encoding technology to transform PC games (without VR support) into VR-ready gaming content. It also uses multithreading to improve the performance of the data transformations.

The final visual is then converted into a stereoscopic format to mimic VR content. This content is then visual casted onto your phone via WiFi.

Hardware Requirement

Mobile Hardware Requirement

OS	Android 5.0+ or iOS 10+
Processor	Quad-core 1.8Ghz and above
RAM	Minimum 2GB; recommended 3GB and above

PC Hardware Requirement

- MINIMUM
 - OS Windows 8.1 or Windows 7
 - Processor i5-2500 equivalent or greater
 - RAM 4GB RAM or more
 - Video Card NVidia GeForce GTX 650 or AMD Radeon 7750
 - Connection 2.4Ghz WiFi router or USB 2.0 cable
- RECOMMENDED
 - OS Windows 10
 - Processor i5-4590 equivalent or greater
 - RAM 8GB RAM or more
 - Video Card NVidia GeForce GTX970 or AMD Radeon 290
 - Connection 5Ghz WiFi router or USB 3.0 cable

Note If you are using laptop with NVIDIA/AMD video card, make sure everything runs on the dedicated video card and not the integrated Intel HD Graphics.*

Prerequisite

Desktop Server App installation:

1. Download the CLOVR server app [here](#).
2. Run the app and login to your account.
3. Add your games into CLOVR.

Mobile App installation:

1. Download the CLOVR app. [Android](#) | [iOS](#)
2. Run the app and sync CLOVR to your desktop.
3. Enter the verification code.
4. Click on desired game to launch it in VR.

Unity plugin package:

Download the CLOVR Unity plugin package from unity asset store.

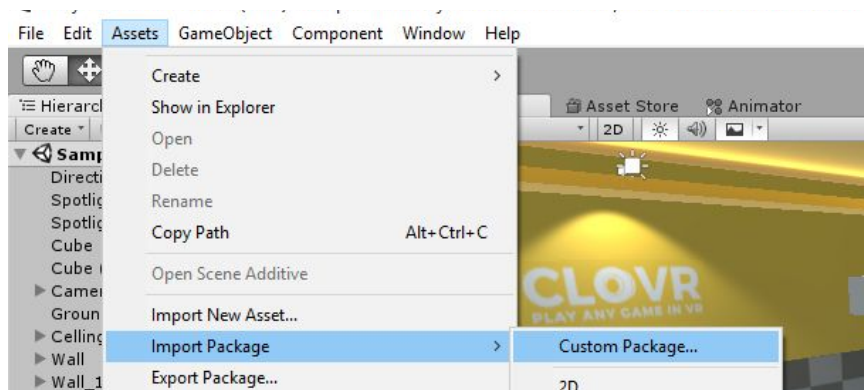
Getting Started

Important Note

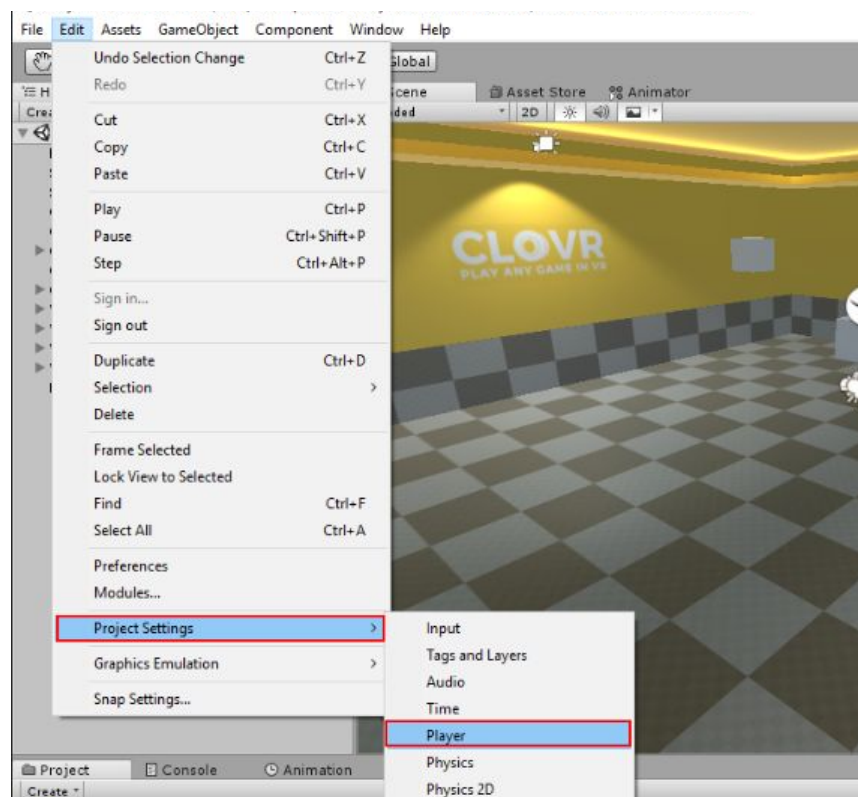
- CLOVR SDK unity plugin only support **Unity 2018.1.0 (2 May 2018) and above.**

Import CLOVR SDK Unity Plugin

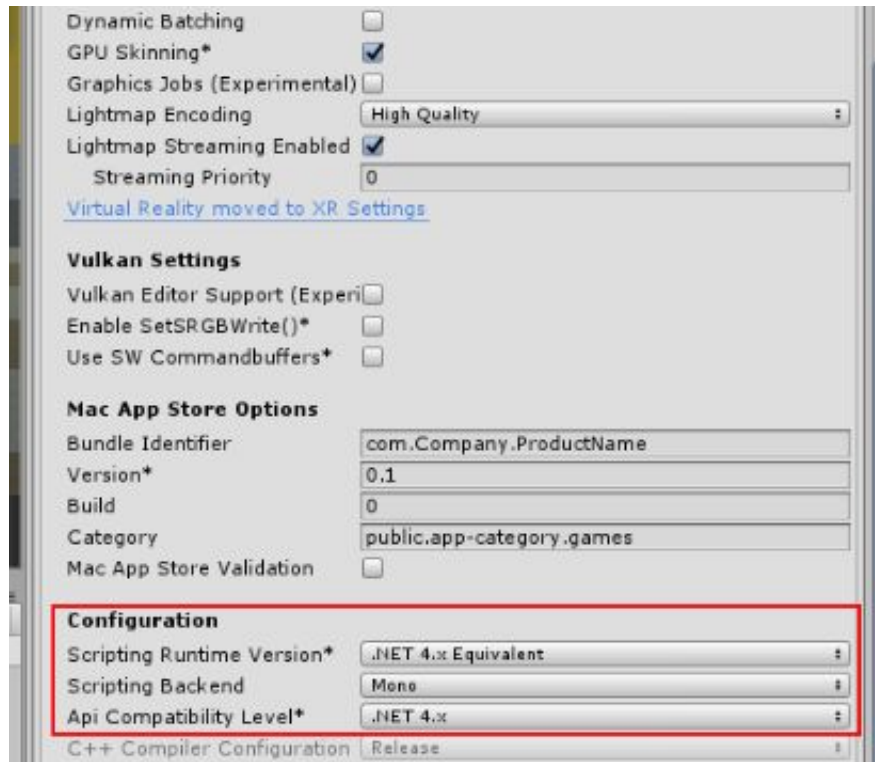
1. Open Unity Editor and create a new project.
2. Import CLOVR SDK plugin package from local storage or Unity Asset Store into the project.



3. Navigate to project player setting

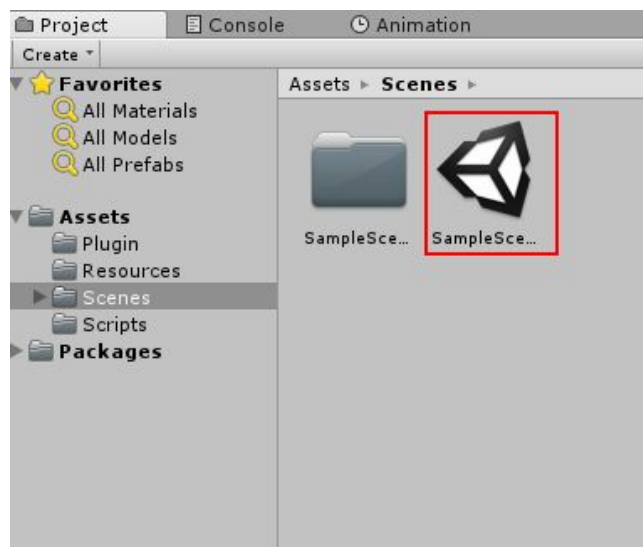


4. Configure project settings to support .NET 4.X equivalent



How to run demo scene:

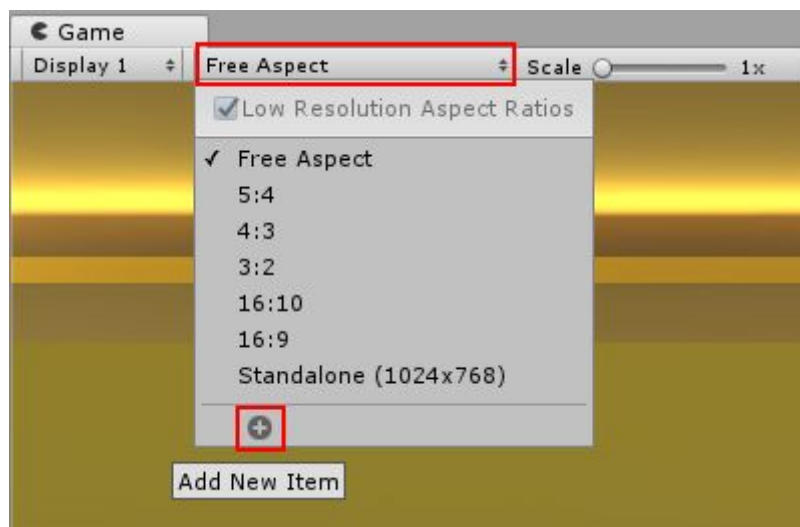
1. After importing the package, open SampleScene in Asset/Scenes.

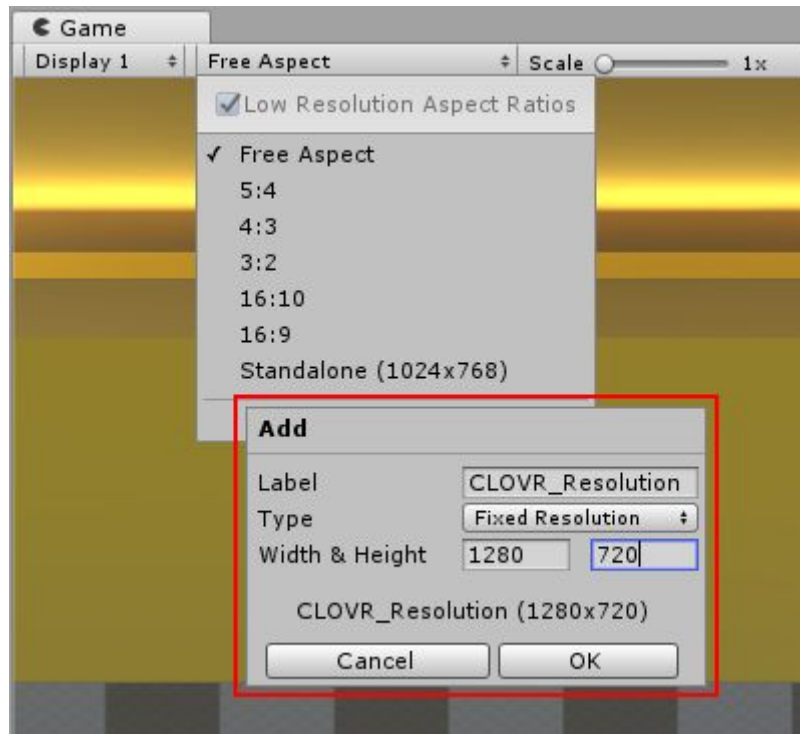


2. Set game view screen resolution.

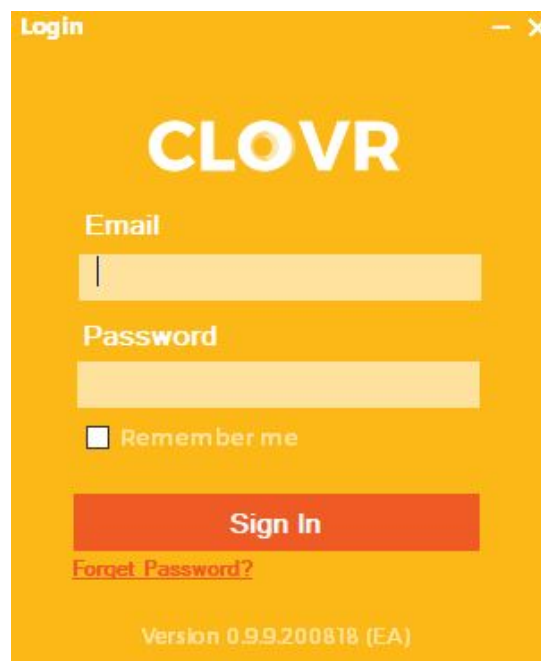
****Must set to CLOVR_Resolution(1280x720).**

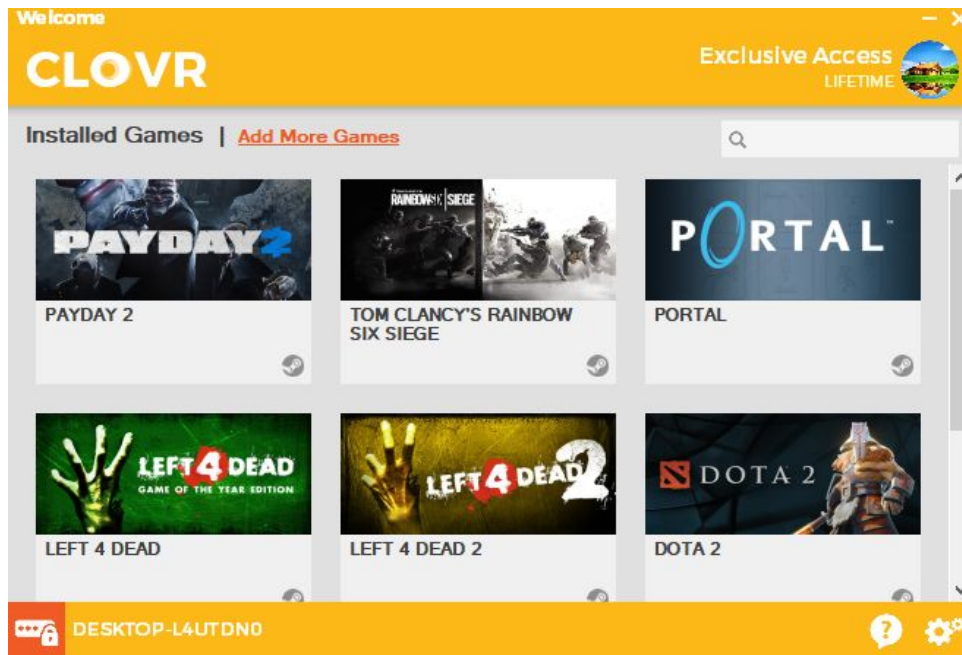
****If CLOVR_Resoultion(1280x720) do not exist, you can follow steps below to create.**





3. Open CLOVR Server application on pc and login.

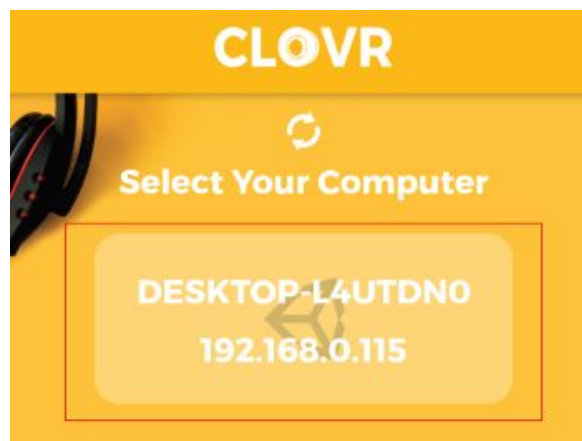




4. Click Play in Unity.



5. Open CLOVR client application on mobile. Make sure your PC is connected to your Mobile phone via WIFI. You can connect thru "hotspot" or "WIFI router". In order to have optimal experience please read [CLOVR SETUP](#).
****must have unity icon in the rectangle.**



CLOVR Configuration in Unity New Scene

****Make sure your unity project support .NET 4.X equivalent.**

1. Add CLOVR_Plugin.dll and Newtonsoft.Json.dll to Assets/Plugin folder.
2. Create a new scene.
3. Create new script named as CLOVRManager.cs.

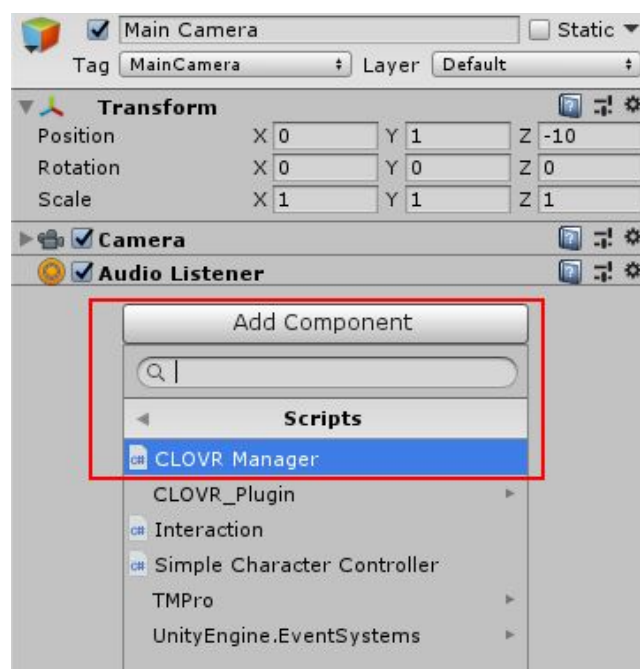
```
using CLOVR_Plugin;

public class CLOVRManager : CLOVRBehaviour
{
    void Start()
    {
        Initialize();
    }

    void Update()
    {
        CLOVRUpdate();

        //code your logic here
    }
}
```

4. Add CLOVRManager.cs script into Main Camera.



5. Set the value for *inter-lens* distance and *canvas* (**refer to step 6).



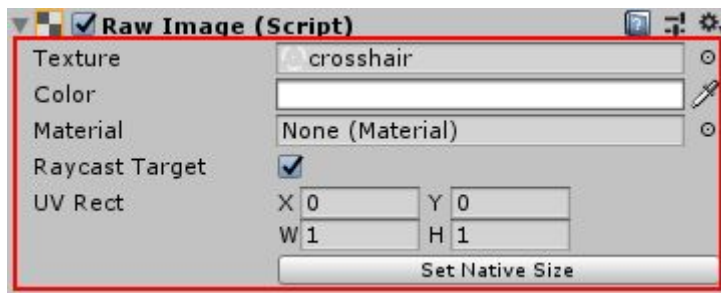
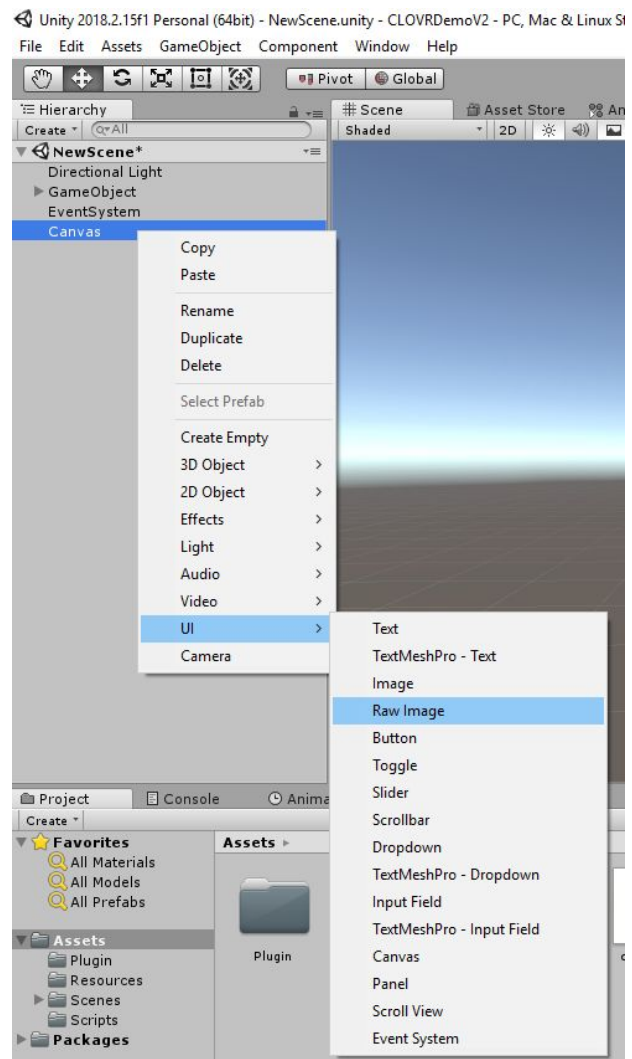
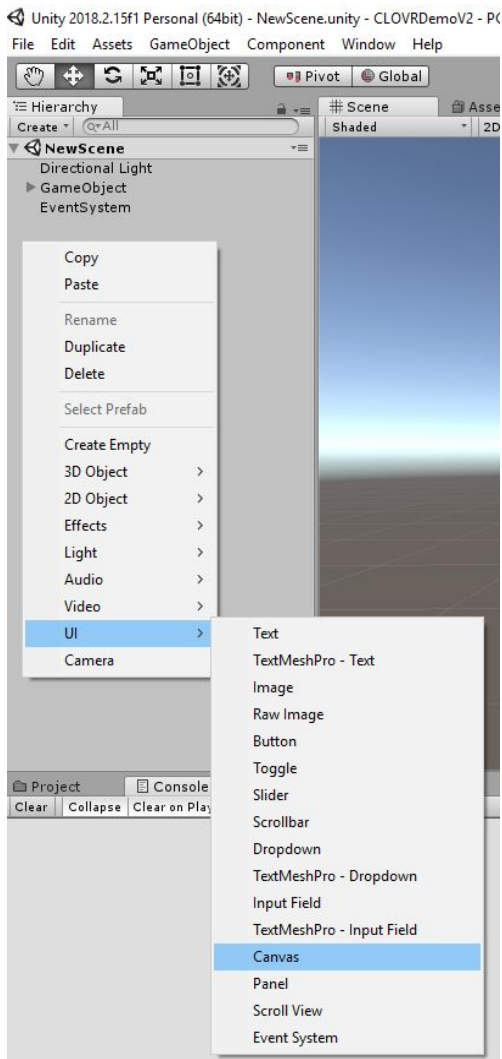
Inter-lens distance

- Virtual distance between the generated stereo camera. It's depend on the virtual world scale. E.g if the world scale in unity is small, the inter-lens distance value should reduce.

Canvas

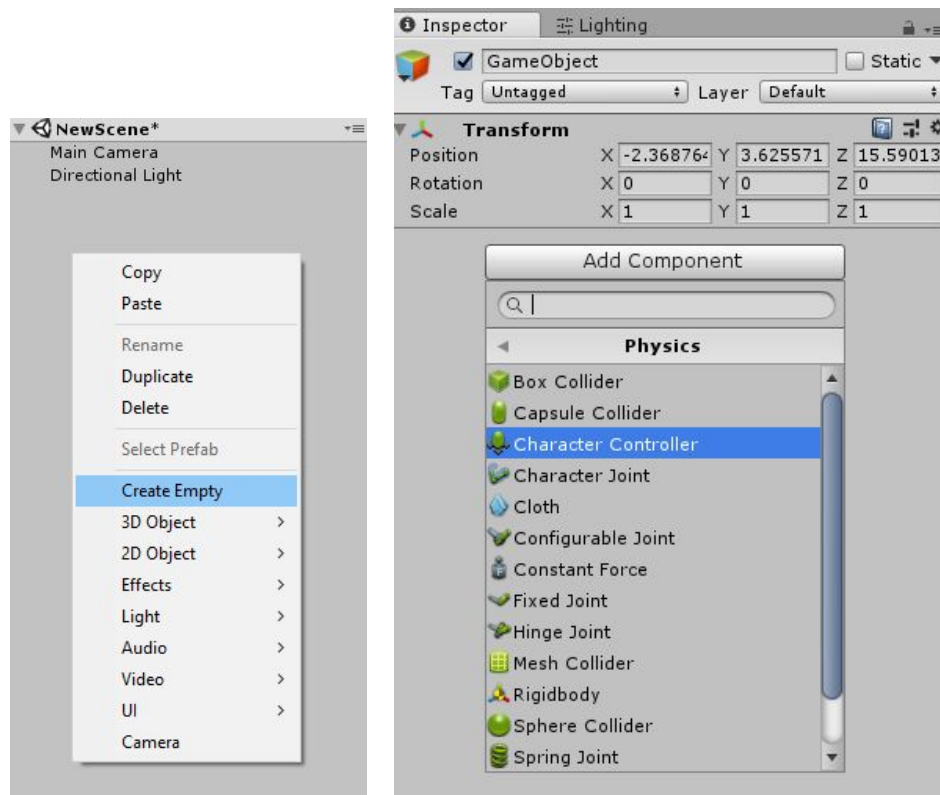
- Preallocated in-game UI canvas

6. Create canvas for crosshair and set your crosshair texture.

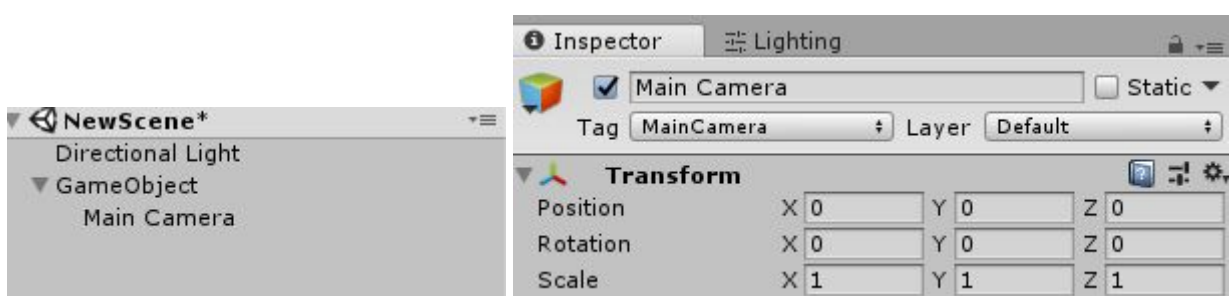


Optional : Character Control

1. For character movement, create an empty gameobject and add character controller.



2. Drag Main Camera into gameobject that you have created for character controller and set the Main Camera position to 0,0,0.



3. Add character movement script that you have created to the gameobject.

CLOVR API

Device Status:

CLOVRDeviceManager.DeviceStatus - boolean - returns client connection status.

Device Motion Sensors:

GYROSCOPE		
CLOVRSensorManager.GetGyroValue	values[0]	Rate of rotation around the x axis.
	values[1]	Rate of rotation around the y axis.
	values[2]	Rate of rotation around the z axis.

ACCELEROMETER		
CLOVRSensorManager.GetAccelValue	values[0]	Acceleration force along the x axis (including gravity).
	values[1]	Acceleration force along the y axis (including gravity).
	values[2]	Acceleration force along the z axis (including gravity).

Example :

```
void Update()
{
    transform.rotation = transform.rotation * Quaternion.Euler(CLOVRSensorManager.GetGyroValue[1],
    -CLOVRSensorManager.GetGyroValue[0], 0);
}
```

TROUBLESHOOTING

A. Connectivity

- Ensure phone and PC are on the same network (WiFi).
- If using tethered connection, make sure USB cables and ports are functional.
- USB tethering may require you to update Windows USB drivers from your phone's manufacturer. Otherwise, the connection might fail or be slower.
- If you are using WiFi network, please make sure your signal is strong enough.
- We strongly recommend users to use 5Ghz band WiFi for CLOVR to ensure the best output performance.

B. Black screen \ crash issue

- If you are using laptop with NVIDIA/AMD video card, make sure everything runs on the dedicated video card and not the integrated Intel HD Graphics.
- Make sure that your GPU drivers are up to date. This includes your integrated graphics.
- Currently CLOVR captures the entire screen, therefore please make sure the game is running under "Borderless Fullscreen" mode.

C. Black screen \ Screen fuzzy issue (with Unity)

- Turn off your firewall to allow unity cast the connection to CLOVR.
- Check Unity game view resolution. (Refer [Resolution preset](#))

D. Other recommendations

For best results, you will need to adjust the quality settings to match your setup. Here are some suggestions:

- Decrease CLOVR's image quality scale in the settings section.
- Connect your mobile device via USB Tethering or 5Ghz AC band wifi.

Support

If your problems still persist, feel free to contact our support team feedback page [Here](#) or join the [Discord](#) support group.