VR Capture Plugin

Version 1.1

Created by RockVR

http://www.rockvr.com/vrcapture

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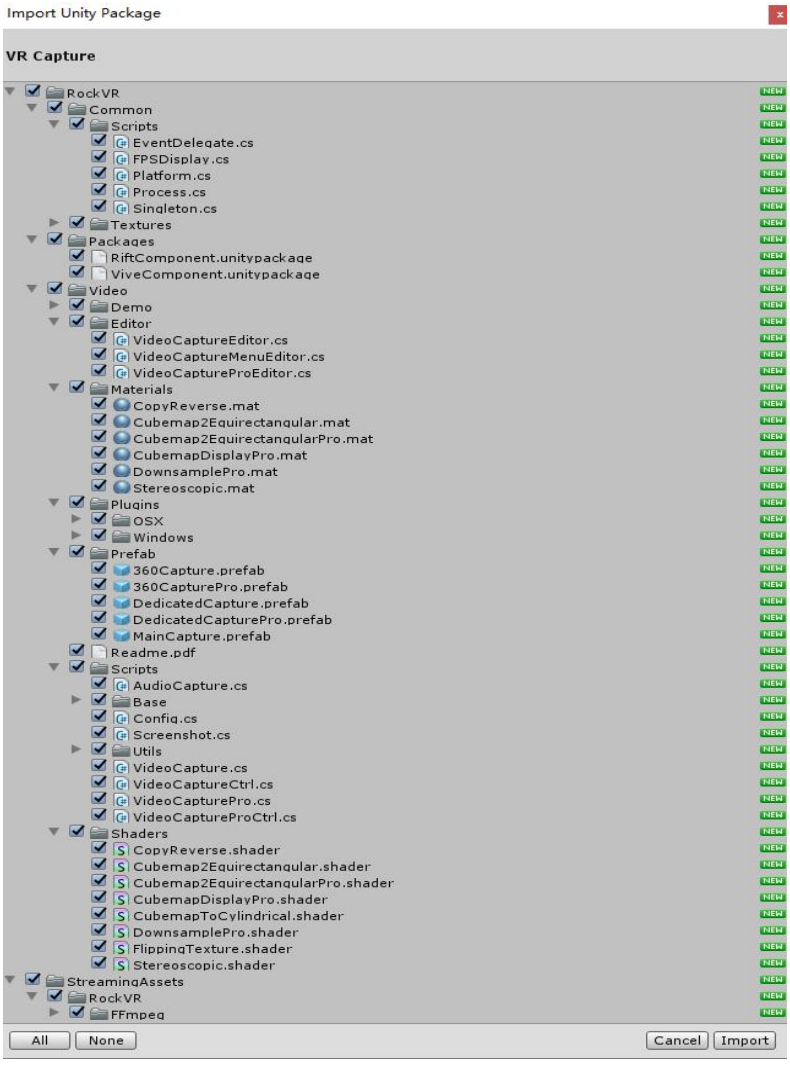
VR Capture Plugin

1 Introduction and Overview

VR Capture is a plugin that enables you, the Unity developer, to capture video and audio from your Unity application. It's great for recording video trailers, demos and in-app footage for your Unity-based game or app. It's fast, flexible and easy to use. When the video is recorded you decide how it's handled. Give your users complete freedom to share it, restrict it to playback from within your app, or anything in between.

VR Capture include *FFmpeg* build, it's a third party, open source, cross-platform tool that lets you easily convert video formats, and is bundled with VR Capture. You can learn more about *FFmpeg* through http://ffmpeg.org/.

When you import *VR Capture* plugin into your Unity project, the following assets will be added:



Module	Description
RockVR/Common/Scripts	Common scripts will be used by among all *RockVR* plugins, such as utility and helper functions.
RockVR /Video/Demo	Contains the scene file and all other assets for a fully functional demonstration of VR Capture.
RockVR /Video/Editor	Contains helper scripts and resources used in the Unity Editor and Inspector window.
RockVR /Video/Materials	Materials used for video processing, such panorama video stich.
RockVR /Video/Plugins	Contains the platform depend native library plugins.
RockVR /Video/Prefab	Contains useful prefabs can be dragged and dropped in to your scene.
RockVR /Video/Scripts	Contains the core vr capture logic scripts.
RockVR /Video/Shaders	Shaders work with materials for video processing.
RockVR/Packages	Contains the vive's interaction module rift's interaction module and sample demo, it can help you quickly understand how to use VR Capture plugin in the vive scene or in the vive scene.
StreamingAssets/RockVR/FFmpeg	Contains the FFmpeg binaries for Windows and Mac OSX. If you are only building for one target platform, you can exclude the file you don't need.

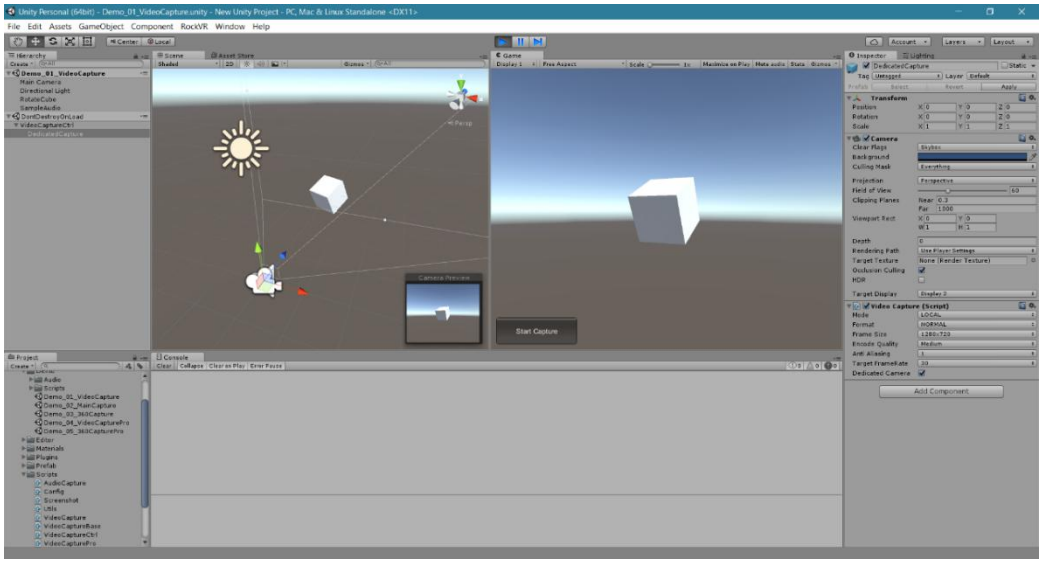
This guide covers integrating VR Capture into your own Unity project and provides a detailed explanation of how the package works under the hood.

If you have any questions, feedback or having issues, please contact us directly at *dev@rockvr.com*. We will respond to you as quickly as possible.

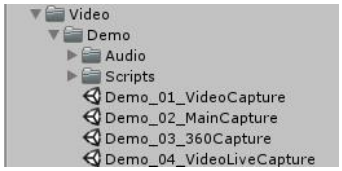
2. Quick Start Demo

VR Capture comes with several demos to help you to understand the functionality of plugin quickly. Start by creating a new project and importing all VR Capture package assets included demo scenes files.

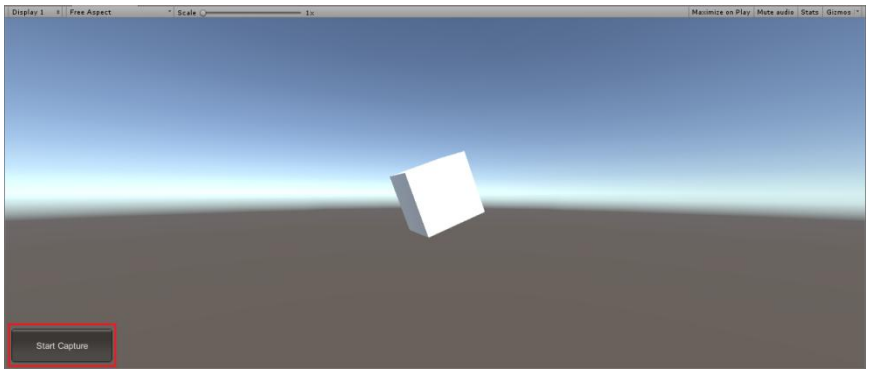
The first demo demonstrates basic video record functionality with a dedicated camera:



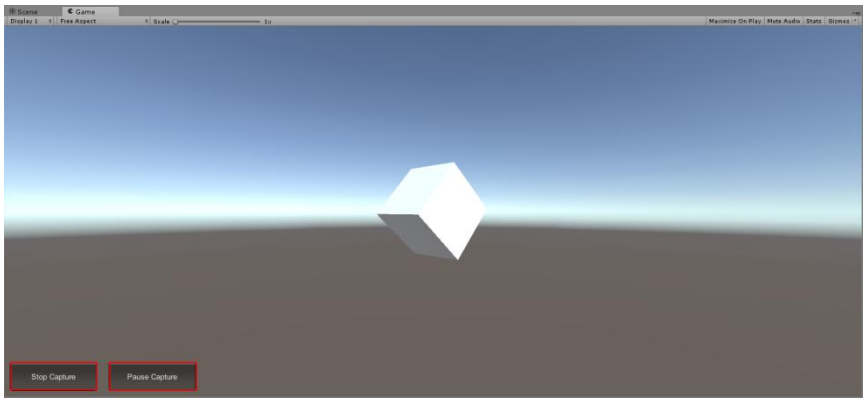
Step 1: Open the *Demo_01_VideoCapture* scene located in *Assets/RockVR/Video/Demo/*:



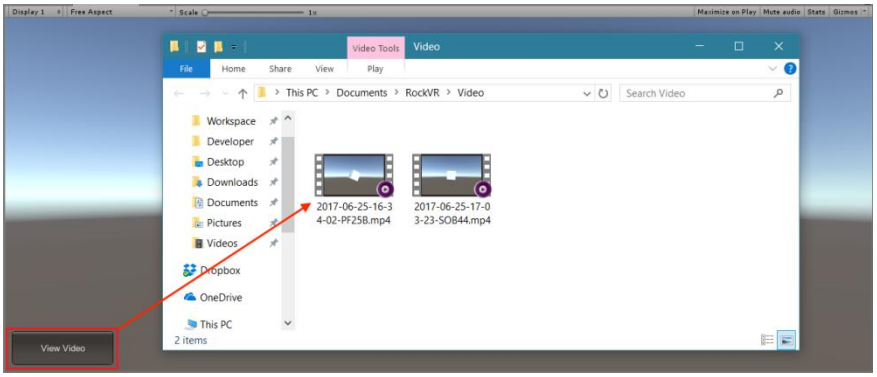
Step 2: Play in editor, click *Start Capture* button:



Step 3: Wait for a few seconds (depending upon how long you want to record), and then click *Stop Capture* button or *Pause Capture*:

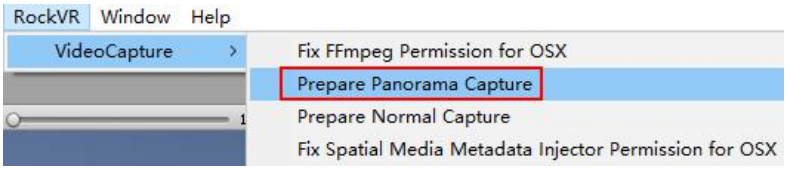


Step 4: Click the *View Video* button to check out the video you just recorded.



Note:

1. 360 video record does not support multi-camera record and requires running Offline Render mode during the recording session. This means it will move to the next frame until the current frame record succeeds. Before record start, please click *Prepare Panorama Capture* item in *VideoCapture* menu.
2. If you cannot generate video on OSX platform, this may due to program have no permission to run FFmpeg. To fix this, please click *Fix FFmpeg Permission for OSX* item in *VideoCapture* menu.
3. If you cannot open the *Spatial Media Metadata Injector*, please click *Fix Spatial Media Metadata Injector Permission for OSX* item in *VideoCapture* menu.



There are a few more demo you can try, *Demo_02_MainCapture* is recorded from your Main Camera *Demo_03_360Capture* is for recording 360 video and *Demo_04_VideoLiveCapture* is for live streaming. The setup process should be same.

3. Core Module

VideoCaptureCtrl - This module used to control and manage the *VideoCapture* and *AudioCapture* module which are used to generate desired videos.

VideoCapture - This core module used to gather texture frame from Unity and encode to the video files.

AudioCapture - This core module used to gather audio sample from Unity and encode to the audio files.

VideoCaptureCtrlPro - Available in Pro version, this work the same as *VideoCaptureCtrl*.

VideoCapturePro - Available in Pro version, this work the same as *VideoCapture* but with hardware acceleration enabled.

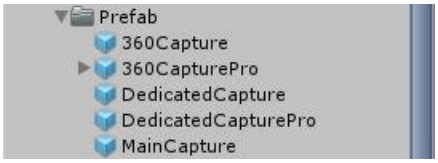
VideoPlayer - This core module used to play video.

4. Integration Guide

The integration process of *VR Capture* is easy:

Step 1: Attach the *VideoCapture.cs* script to a game object (or you can just create a new empty object) in your scene, this script will add a camera to capture the scene in your game.

In addition, you can just drag and drop preset prefab into your scene which are located in the *Assets/RockVR/Video/Prefab* folder:



DedicatedCapture - Is used to capture the different views with main camera.

MainCapture - Is used to capture the main camera's perspective, the original main camera should be replaced with this prefab.

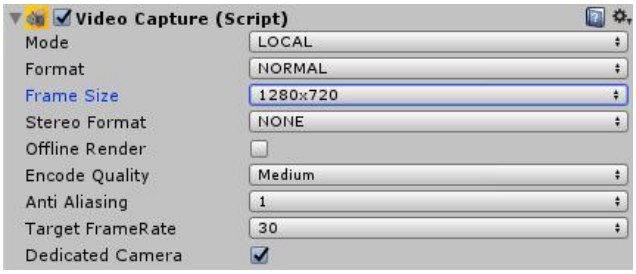
360Capture - Is used to capture 360 degree panorama video.

DedicatedCapturePro - Is the same as the *DedicatedCapture* but with high performance.

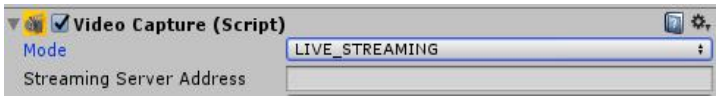
360CapturePro - Is the same as the *360Capture* but with high performance.

Step 2 (Optional): Configuring *VideoCapture* component's properties:

Common Properties:



Mode - You can set the mode as *Local* or *Live Streaming*, Local mode will record your video in the device while if you set *Live Streaming*, you need to fill out the remote rtmp server address.



Frame Size - Is the resolution of recorded video; the higher size, the better video quality. The higher quality costs more in terms of machine performance.

Available sizes are: 640x480, 720x480, 960x540, 1280x720, 1920x1080, 2048x1080, 3840x2160 and 4096x2160, 7680x4320.

Encode Quality - Lower quality will decrease the file size on disk and video bit rate.

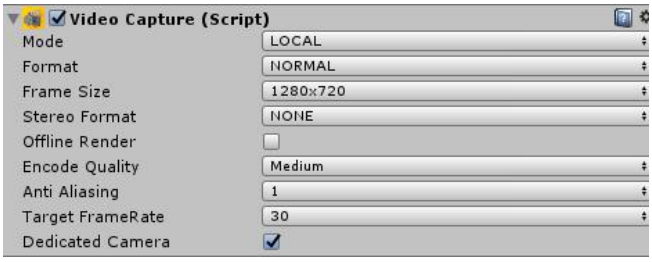
Available qualities are: Low (1000 bit/s), Medium (2500 bit/s) and High (5000 bit/s).

Anti-Aliasing - Set the anti-aliasing factor for frame captured, higher anti-aliasing will increase video quality.

Target Framerate - Set the target frame rate for recorded video. To avoid performance loss, use a lower target framerate.

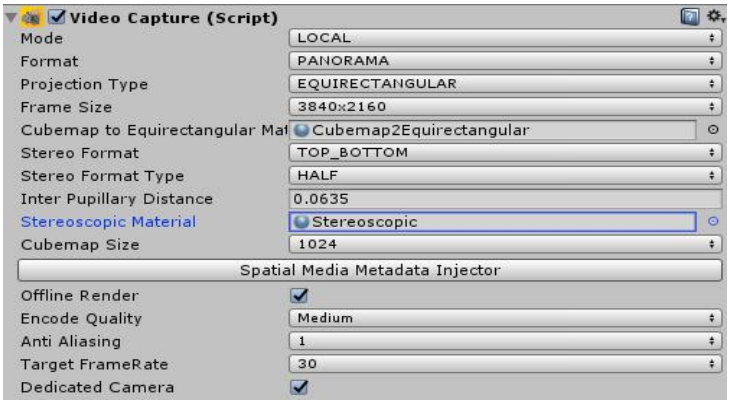
Dedicated Camera - Set the false for main camera, and true for individual camera.

Flat Video Properties:



Format Type - Set as *NORMAL* for flat video capture.

Stereo Video Properties:

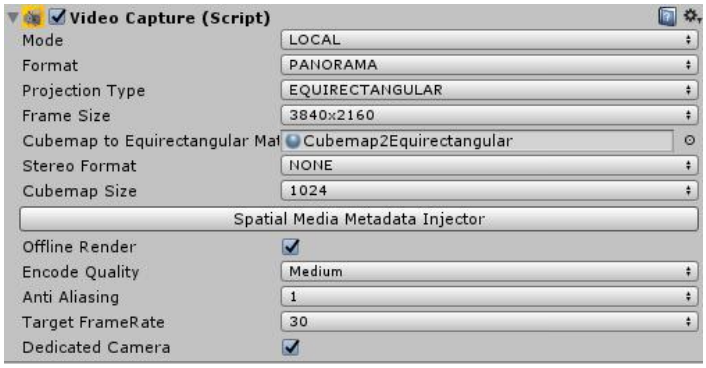


Format Type - Set as *NORMAL* for flat video capture.

Stereo Format - Set stereo format for video capture, *Top-Bottom* or *Left-Right.*

Spatial Media Metadata Injector - A tool for manipulating spatial media (spherical video and spatial audio) metadata in MP4 and MOV files. It can be used to inject spatial media metadata into a file or validate metadata in an existing file.

Panorama Video Properties:

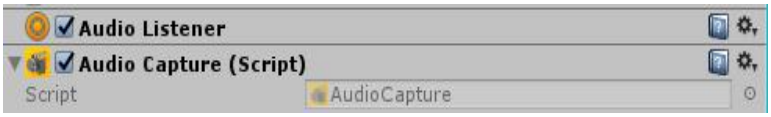


Format Type - Set as *PANORAMA* for 360 video capture, 360 video capture camera always use dedicated camera.

Projection Type - Currently you can choose *EQUIRECTANGULAR* or *CUBEMAP*, most video platform support equirectangular format, like Youtube, etc. However, cubemap format can reduce bitrate for generated video.

Cubemap Size - Square pixel size of frame captured by each direction camera. If use CUBEMAP type, *Frame Size* will not work, the size will be (3 x *Cubemap Size*) x (2 x *Cubemap Size*).

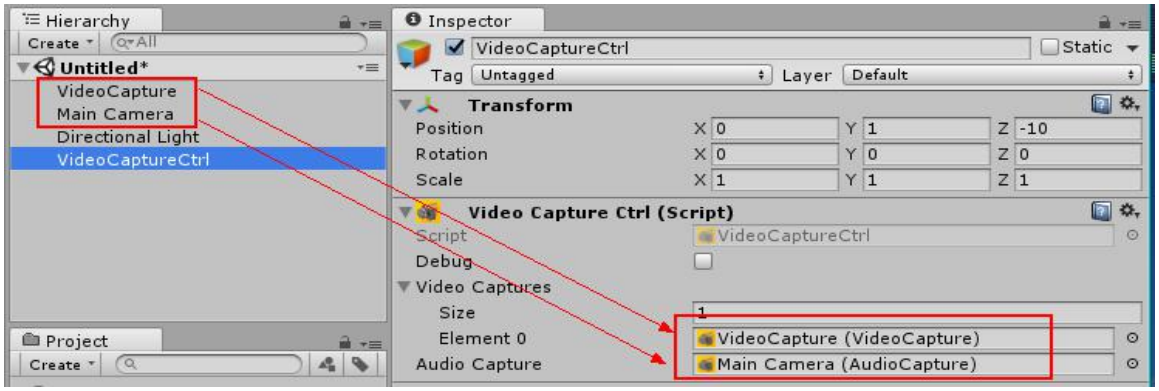
Step 3: Attach the *AudioCapture.cs* script to the Main Camera (which contains Audio Listener) to enable the audio record function:



Note: This step is not required in Pro version.

Step 4: Attach the *VideoCaptureCtrl.cs* script to a game object (or you can just create a new empty object) in your scene, this script is used to manager the work of video and audio processor, and merge video stream and audio stream into one video container file.

Drag *VideoCapture* and *AudioCapture* set in previous step into *VideoCaptureCtrl* properties (You can set multiple cameras):



Step 5: Enable the video capture function by code, *VideoCaptureCtrl* provide API to start or stop video recording, you can call those functions according to your requirements:

```
// Start video capture.
VideoCaptureCtrl.instance.StartCapture();

// Game logic...

// Stop video capture.
VideoCaptureCtrl.instance.StopCapture();
```

Enable the Video Play feature by code, *VideoPlayer* component provide API to set video files folder and play videos, you can call those functions according to your requirements:

```
// Set root folder.
VideoPlayer.instance.SetRootFolder();

// Turn to next video.
VideoPlayer.instance.NextVideo();

// Play capture video.
VideoPlayer.instance.PlayVideo();
```

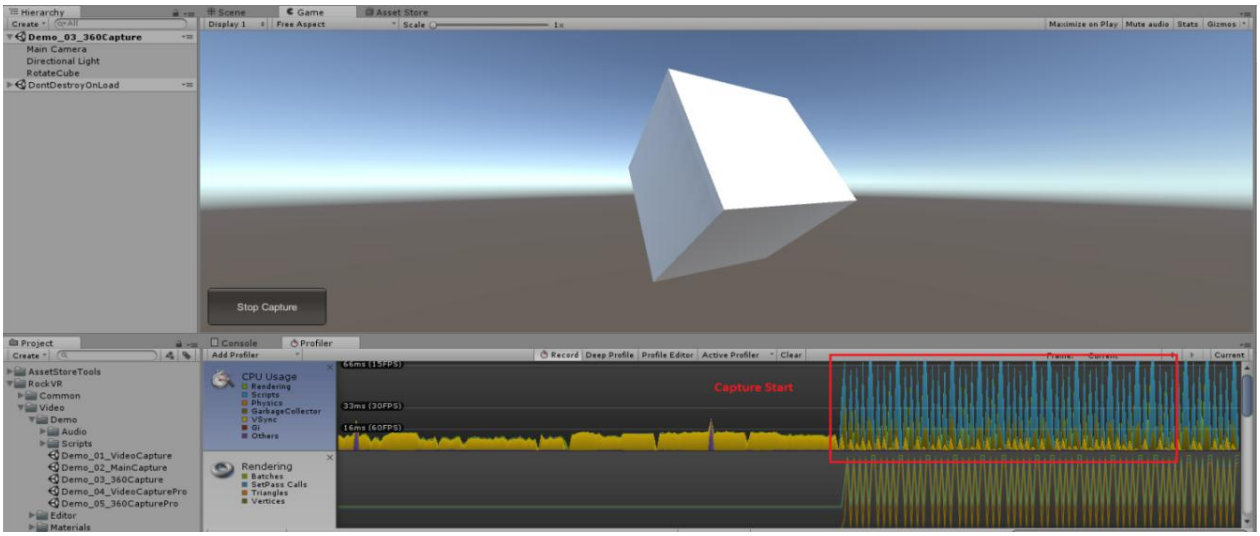
Default the video will be saved to user document folder, for more details and to modify please check *Config.cs*:

```
    /// <summary>
    /// Config setup for video recording path.
    /// </summary>
    public class PathConfig
    {
        public static string persistentDataPath = Application.persistentDataPath;
        public static string streamingAssetsPath = Application.streamingAssetsPath;
        public static string myDocumentsPath = Environment.GetFolderPath(
            Environment.SpecialFolder.MyDocuments);
        /// <summary>
        /// The video folder, save recorded video.
        /// </summary>
        public static string saveFolder
        {
            get
            {
#if (UNITY_ANDROID || UNITY_IOS) && !UNITY_EDITOR
                return persistentDataPath + "/RockVR/Video/";
#else
                return myDocumentsPath + "/RockVR/Video/";
#endif
            }
        }
```

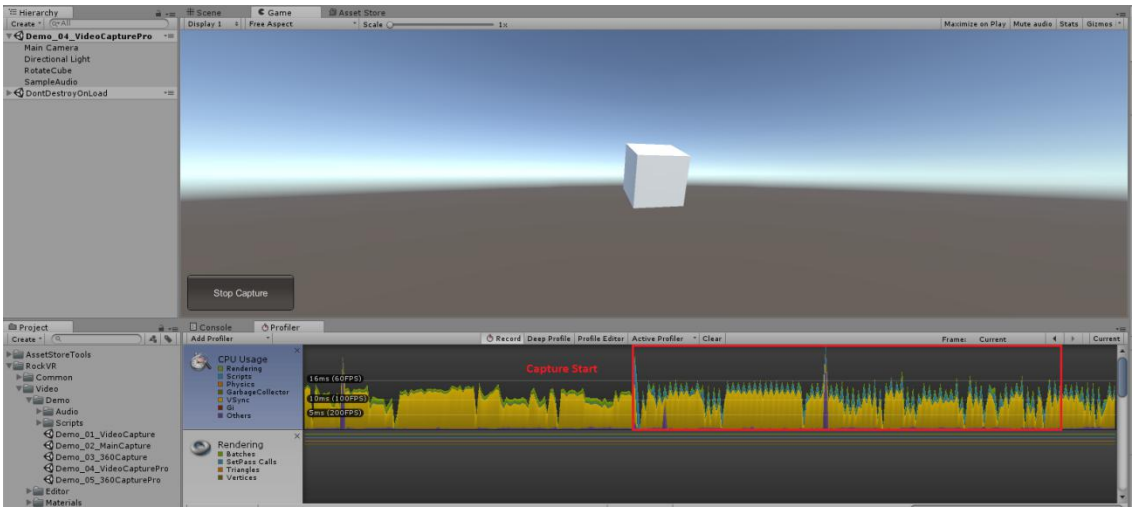
After all setup, you should be able to start capture your fantastic game!

Video Capture Pro setup is quite same as free version setup process, the *Pro* version will remove the *RockVR* watermark and enable hardware encode improvement. The *Pro* version can generate the 360 video in real time, the profiler windows between *Free* version and *Pro* version to capture 360 video:

360 Capture:



360 Capture Pro:



5. VR Capture Pro & Enterprise

Instead of *VR Capture Free* version, *RockVR* also provide Pro and Enterprise version.

You can purchase *Pro* version from asset store: http://u3d.as/Srt

For *Enterprise* version features, please contact us by email: dev@rockvr.com.

Feature	Free	Pro	Enterprise
Video Capture	√	√	√
Audio Capture	√	√	√
360 Video Capture	√	√	√
Live Streaming	√	√	√
Remove Watermark		√	√
High Performance Capture		√	√
Game Replay System			√
Server Side Rendering			√
All Platform Support (Desktop and Mobile)			√
Instant Share (Facebook, Youtube)			√

Known Issues:

1. Recording video in pro version by GPU encoder may fail due to hardware compatibility issue.

2. Recording stereo video from Main Camera may fail due to special screen size.

Note: Recommended the unity version is unity 5.6 or newer.

6. Feedback

If you have any feedback to *VR Capture* plugin, please email us directly, your suggestion will be very valuable to us. If you plan integrate a plugin into your game, please contact us by *dev@rockvr.com* and we will provide more help to let you share your awesome game more efficient.