Unity Virtual Camera & Face Capture Apps Startup Guide

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Unity Virtual Camera & Unity Face Capture – Startup Guide

This documentation explains how to Install and set up the Unity Editor to use the Unity Virtual Camera and Unity Face Capture apps and discover their features through simple tutorials.

Before you start

1. If you are new to Unity, create your Unity ID and install Unity.
2. In all cases, Get and install the Live Capture package and apps.

> **Note:** Don't hesitate to provide your feedback to actively help us improve the Live Capture package, apps, and samples.

Tutorials

Once you have installed and opened the project, you can follow any of these tutorials:

TOPIC	TASK/TUTORIAL	DURATION
Virtual Camera	Discovering the Virtual Camera App	15 min.
Face Capture	Discovering the Face Capture App	5 min.

Additional documentation

For more information on the Live Capture package, the Virtual Camera app and the Face Capture app, see the Live Capture package documentation.

Starting up with Unity

If you are new to Unity, you might first need to create your Unity ID, get a license, and install all required Unity software components.

Requirements

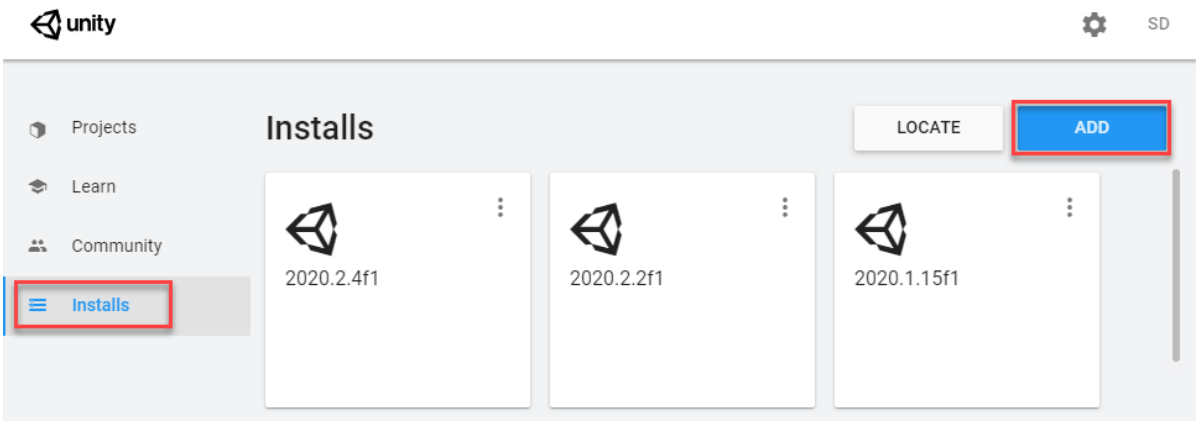
1. Create a Unity ID.
2. Obtain the Unity license associated with your usage:
    - Personal / Plus / Pro license, OR
    - Trial license (contact your sales representative).

Install the Unity Hub:

1. Open the Unity Hub download page.
2. Select **Download Unity Hub**.
3. Execute the downloaded file and follow the installation instructions.

Install the Unity Editor:

1. Open the Unity Hub and log in with your Unity ID.
2. In the left pane, select **Installs**.
3. Use the **Add** button to install **Unity Editor 2020.3.16f1** or a later version.



Once you're done

You can **install the Live Capture package and apps**.

Installing the Live Capture package and apps

To get ready with the tutorials available in this documentation, you need to:

1. Install the Unity Virtual Camera and Unity Face Capture apps on your mobile device.
2. Create a new Unity HDRP project to get the best app experience with high quality sample content (required for the Virtual Camera tutorials).
3. Install the Live Capture package required to let the apps interface with the Unity Editor.
4. Prepare your Unity Editor environment for layout adjustments and base connectivity setup.

Requirements

Unity Editor	**Unity Editor 2020.3.16f1** or later version. See how to install Unity.
Platform	Windows or macOS.
Network	• Your mobile devices and your Unity Editor workstation must have access to the **same network**. • You must **disable** any active **VPNs**. • On Windows 10, set your **Wi-Fi** network to **Private**. • Your **firewall** must allow your Unity Editor program to get **inbound connections** from external apps of your local network. *(See the Live Capture package documentation if you experience app-server connectivity issues.)*

I - Install the apps on your mobile device

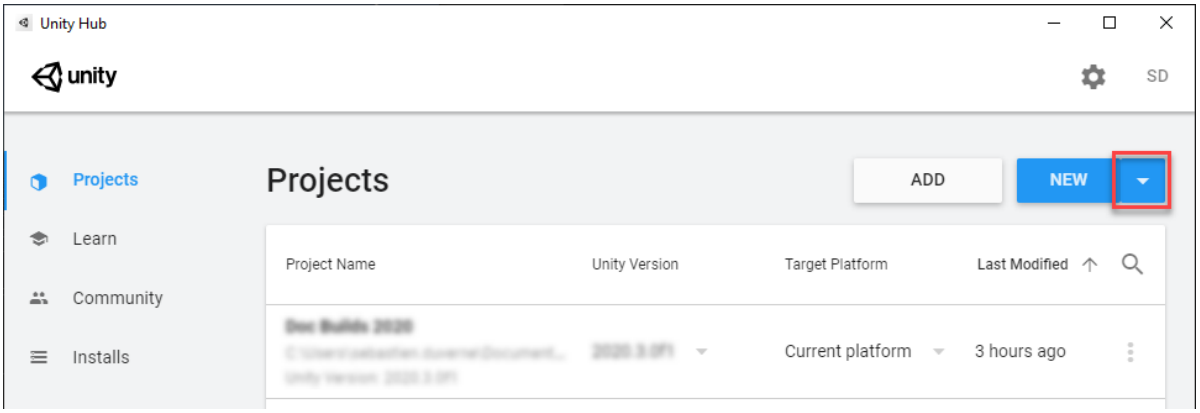
Important: Before you install an app, verify if your mobile device supports it.

APP NAME	DEVICE REQUIREMENTS	GET THE APP
Unity Virtual Camera	iPad or iPhone with: • iOS 14.5 or higher • ARKit capabilities (implied with the required iOS version)	Download on the App Store
Unity Face Capture	iPhone or iPad with: • iOS 14.6 or higher • ARKit *face tracking* capabilities*	Download on the App Store

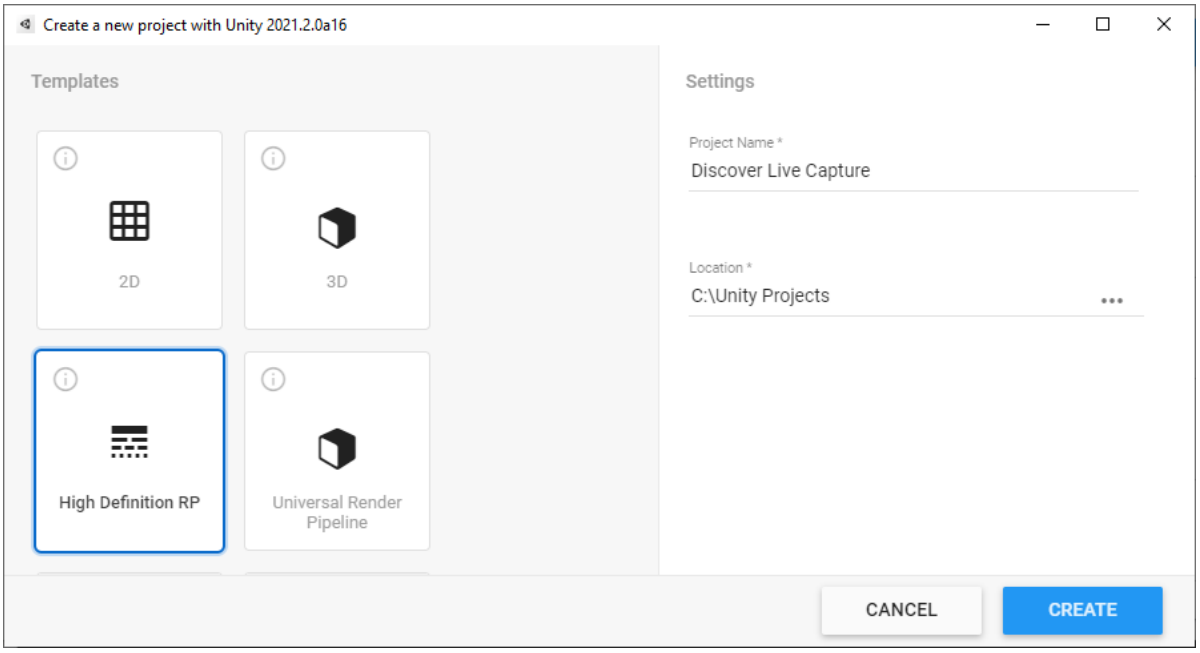
* Device supporting Face ID **or** device with an A12 Bionic chip.

II - Create a new Unity HDRP project

1. In the Unity Hub, use the drop down beside the **New** button and select the required Unity Editor version to create your project with.

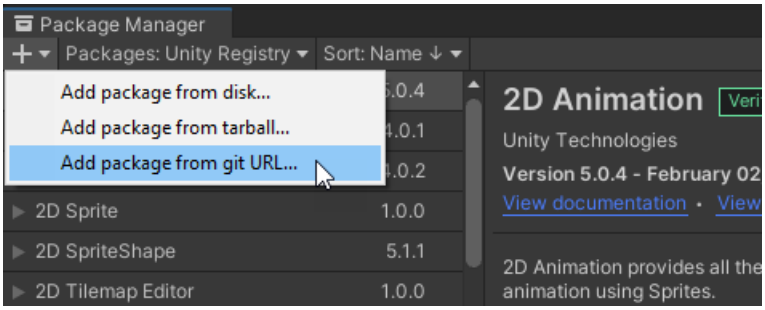


2. Select the **High Definition RP** template, name your project and click on **Create**.

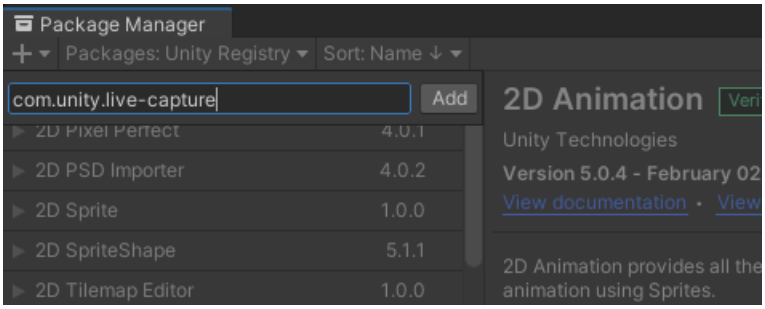


III - Install the Live Capture package

1. From the Editor main menu, select **Window > Package Manager**.
2. In the Package Manager window, select the **+** (plus) sign at the top of the package list.
3. Select **Add package from git URL**.



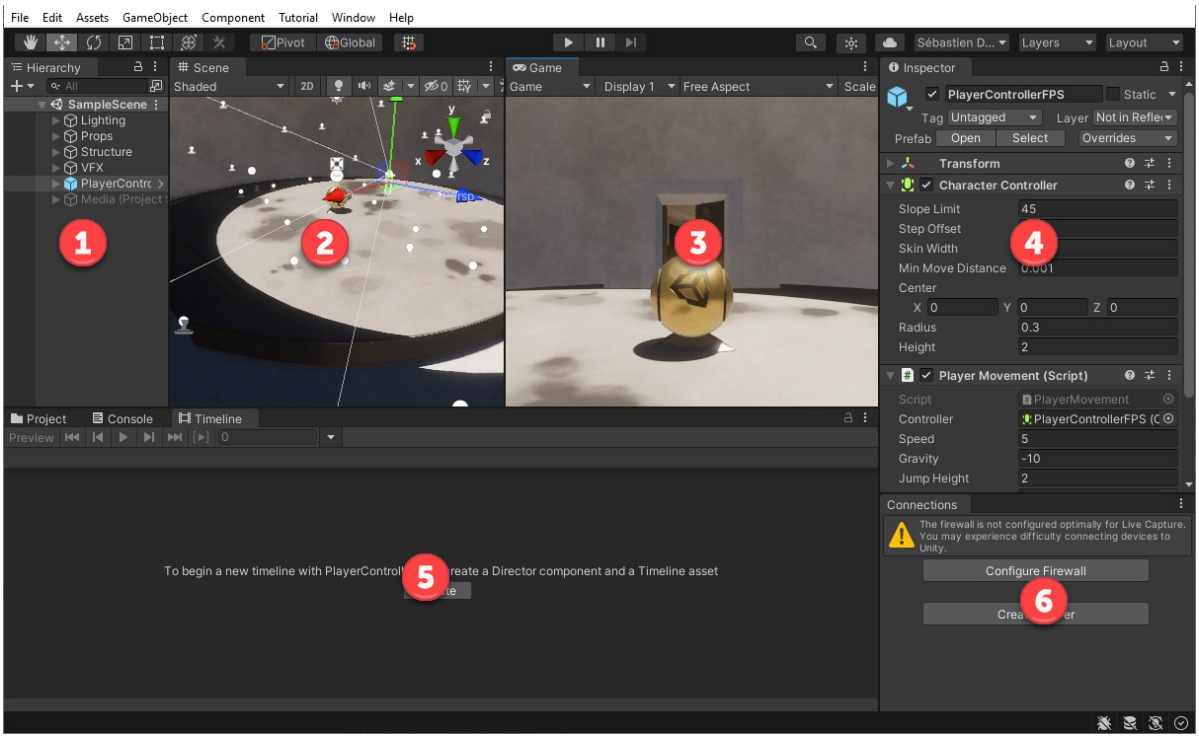
4. Type `com.unity.live-capture` and click on **Add**.



Unity downloads and imports the package into your project.

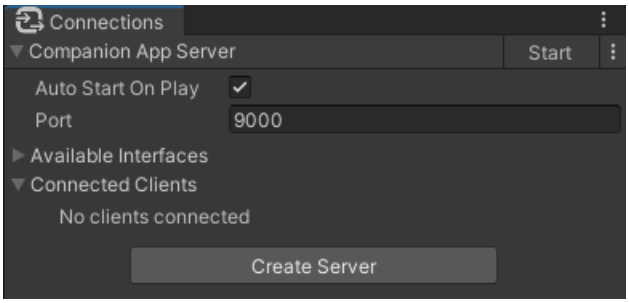
IV - Prepare your Unity Editor environment

1. From the Editor menu, open the following windows:
    - **Window > Sequencing > Timeline**
    - **Window > Live Capture > Connections**
2. Reorganize your layout to ensure that you have the following windows in view:
   (1) Hierarchy, **(2)** Scene view, **(3)** Game view, **(4)** Inspector, **(5)** Timeline, and **(6)** Connections.



(Suggested layout)

3. Set up your firewall to allow the apps to connect to Unity through your local network:
    - If you're using a *Windows workstation*: click on **Configure Firewall** to let Unity automatically create the proper firewall rules.
    - If you're using a *macOS workstation*, you need to manually perform the configuration.
4. In the Connections window, click on **Create Server** and select **Companion app Server**.



Once you're done

You can **start with the proposed tutorials**.

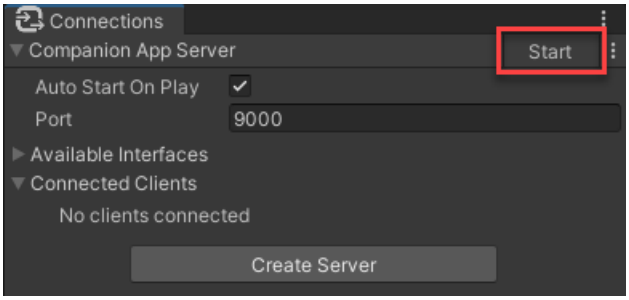
Discovering the Virtual Camera App

(Duration ~15 min.)

Note: To get the sample content used in this tutorial if you don't have it, you must create your project from the High Definition RP template.

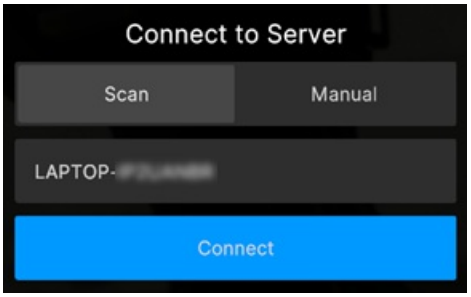
I - Start the server and connect the app

1. In Unity, in the Connections window, click the **Start** button to start the server.

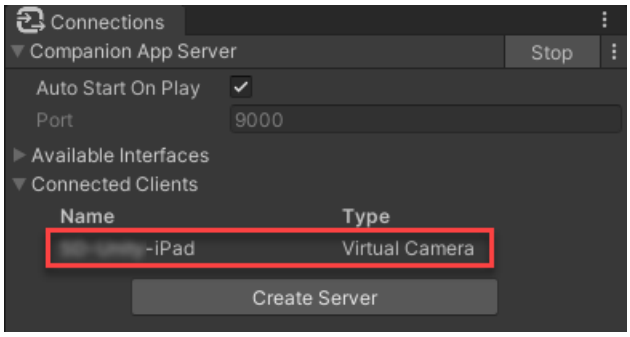


2. On your mobile device, open the Unity Virtual Camera app.

Notice that the app should have automatically detected your Unity Editor workstation.



3. Tap the **Connect** button.
   In the Unity Editor, in the Connections window, you should see your mobile device name under **Connected Clients**.

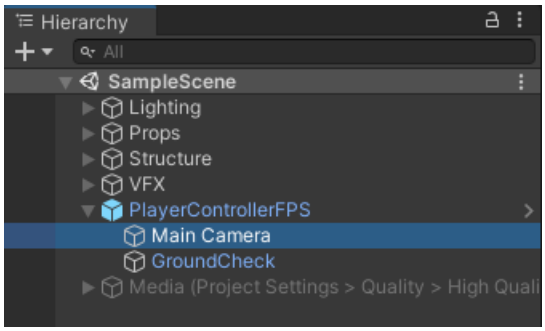


II - Set up the Scene for recording Virtual Camera takes

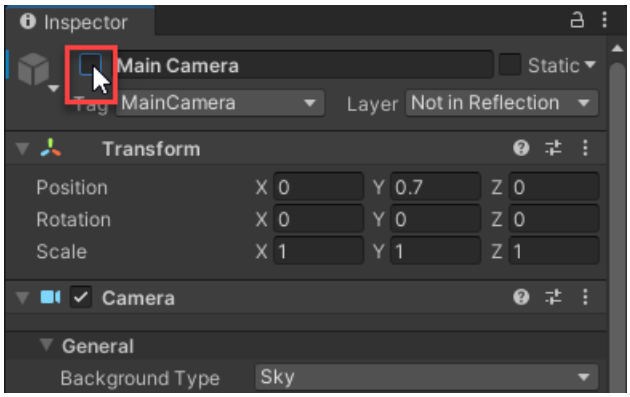
1. In the Unity Editor, make sure to have the HDRP Sample Scene loaded.
   If not, in the Project window, in the Assets/Scenes folder, open the SampleScene file.

2. Disable the current camera of the HDRP sample:

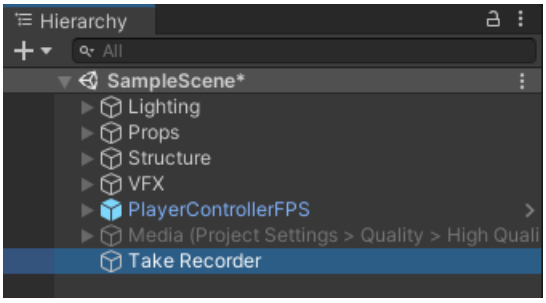
   a. In the Hierarchy, select the **PlayerControllerFPS > Main Camera** GameObject.



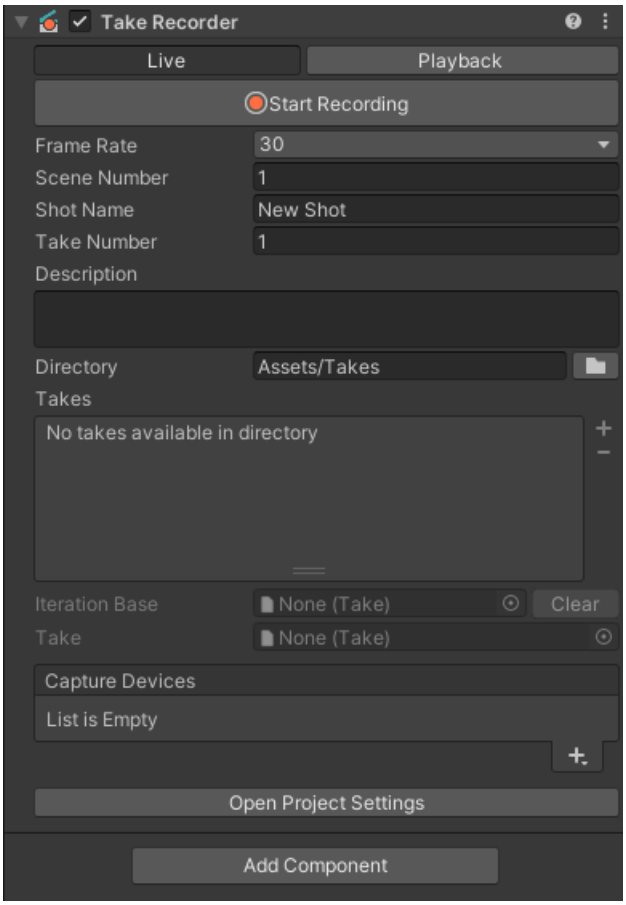
   b. In the Inspector, deselect the checkbox beside the GameObject name.



3. Set up the Take Recorder:
   In the Hierarchy, right-click in the current Scene and select **Live Capture > Take Recorder**.

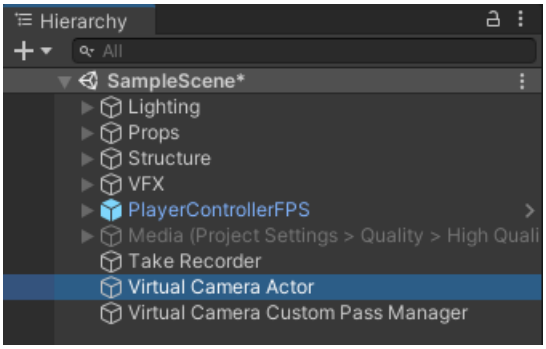


In the Inspector, notice the Take Recorder component: it is the centerpiece of the Live Capture take system.



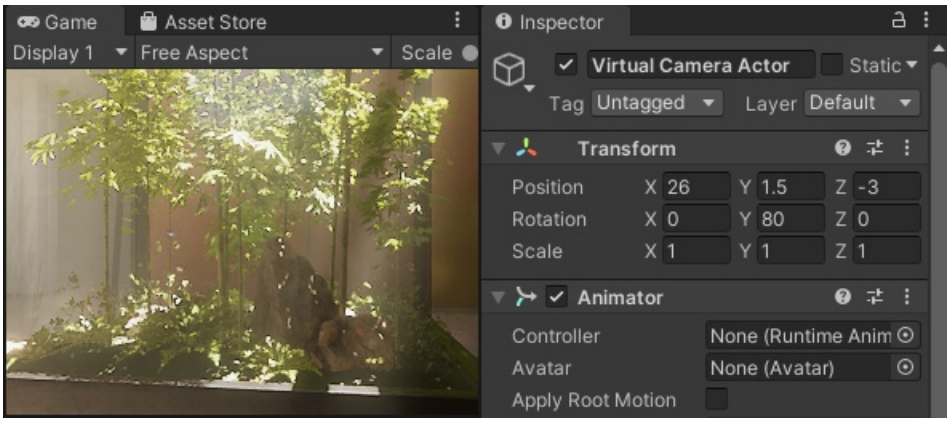
4. Create a Camera Actor:

   a. In the Hierarchy, right-click in the current Scene and select **Live Capture > Camera > Virtual Camera Actor**.



b. Select the **Virtual Camera Actor** GameObject and in the Inspector, edit its Transform to place it, for example, in front of the butterfly vivarium:

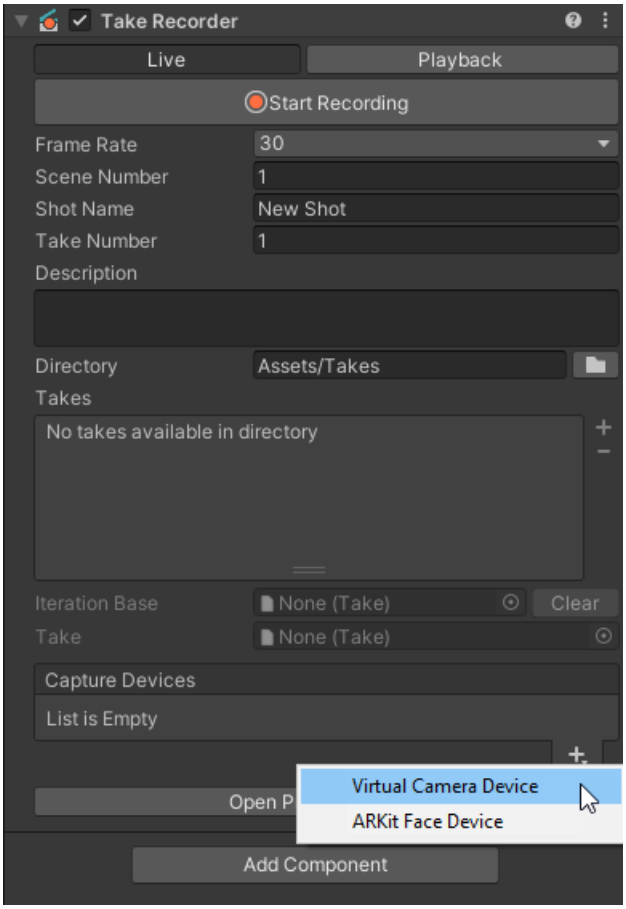
POSITION	**X = 26**	**Y = 1.5**	**Z = -3**
Rotation	X = 0	Y = 80	Z = 0



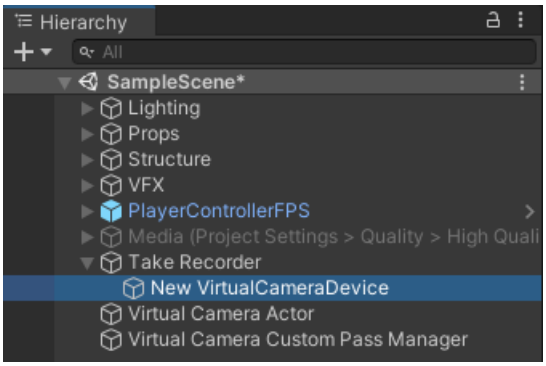
5. Create a Camera Device

   a. In the Hierarchy, select the **Take Recorder** Game Object.

   b. In the Inspector, in the **Take Recorder** component, under **Capture Devices**, click on the **+** (plus) button and select **Virtual Camera Device**.



c. In the Hierarchy, select the **New Virtual Camera Device** GameObject.

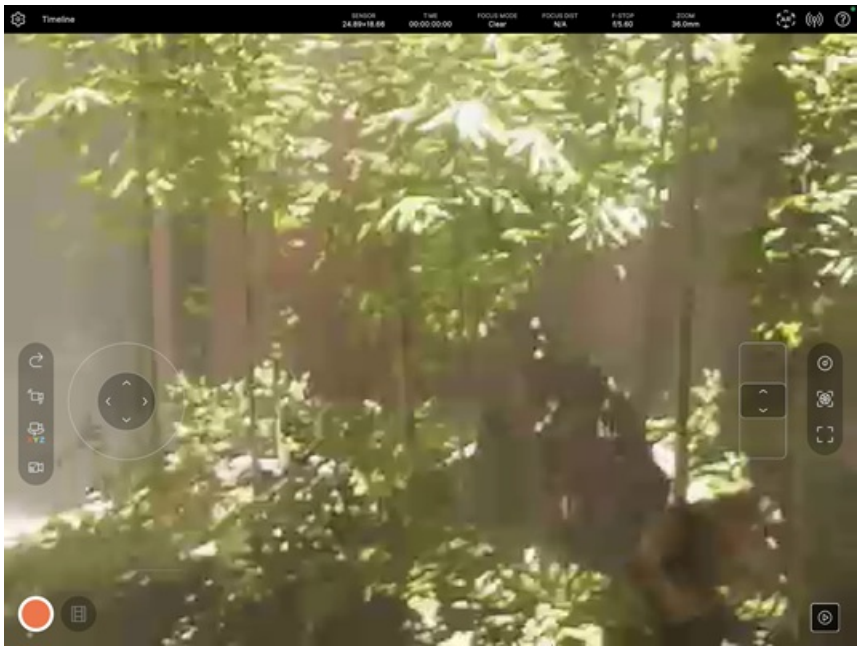


d. In the Inspector, use the **Client Device** drop-down to select your connected mobile device.

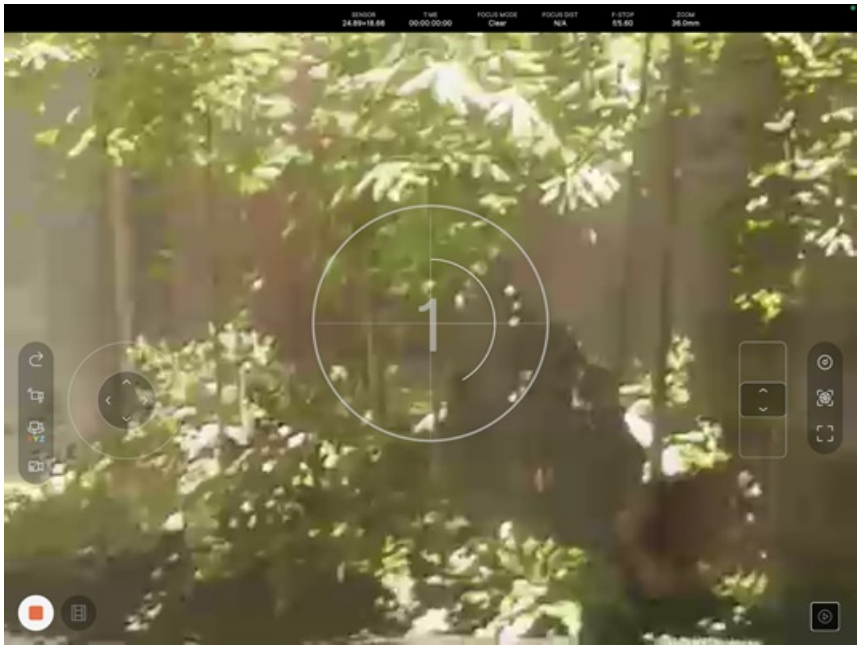
6. Save the Scene.

III - Record your first take

1. Move your mobile device around to frame something in the current Scene.
   Notice that you get the same view synchronized in the Game view and on your mobile device.



2. On your mobile device, press the Record button at the bottom left of the screen.
   A countdown of 3 seconds starts to prepare yourself for the recording.

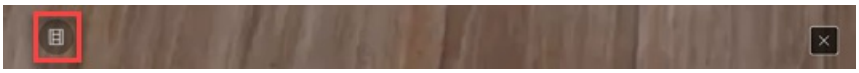


3. Make some camera movements during the recording, then press the Record button again to stop the recording.

IV - Play back your recorded take

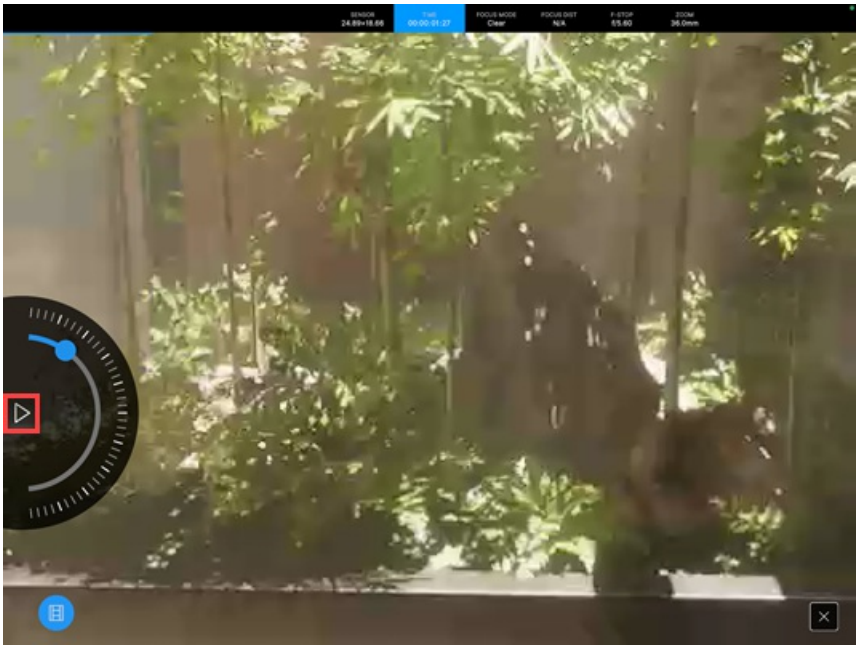
1. On your mobile device, press the Playback button at the bottom right.

2. Press on the Timeline button at the bottom left.



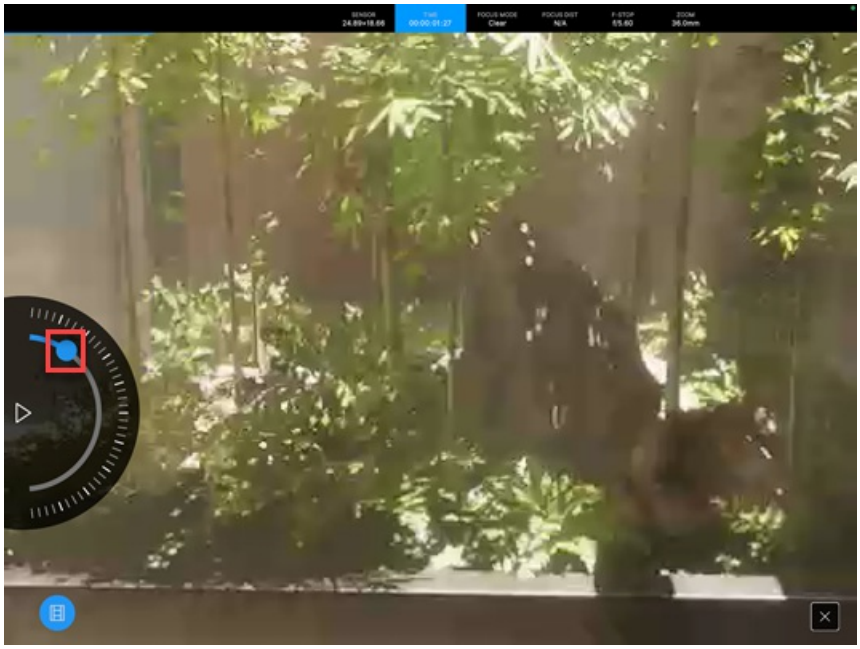
Notice that your mobile device and your Game View now show the first frame of your recorded shot. In this mode, you cannot record through the app.

3. Press the Play button at the left.



Your recorded take starts playing back on your device as well as in the Game view, and automatically stops at the end of the take.

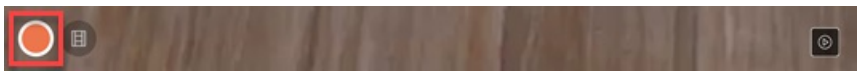
4. Use the blue cursor to freely scrub back and forth through your take.



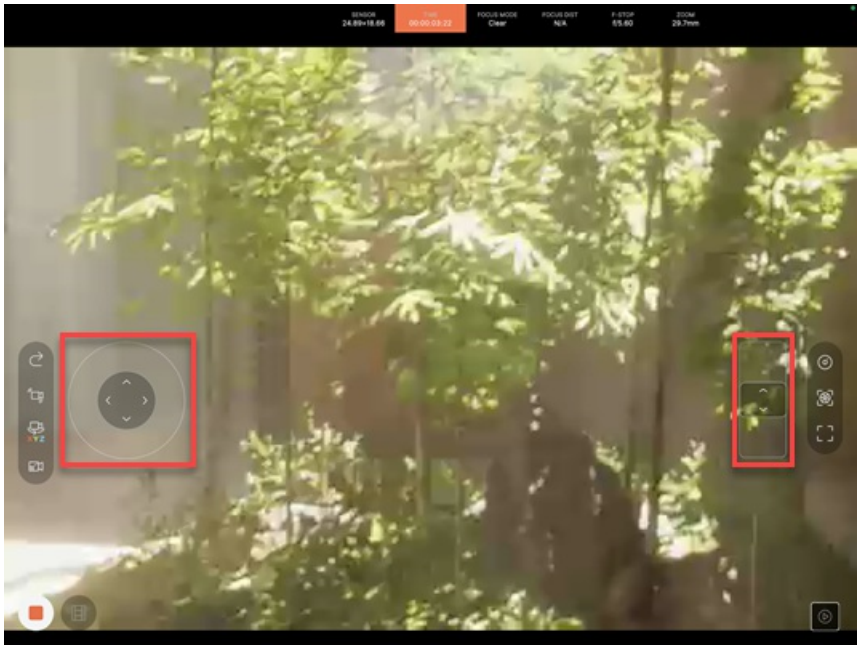
V - Record a second take

1. On your mobile device, press the **X** button at the bottom right to exit the Playback mode.

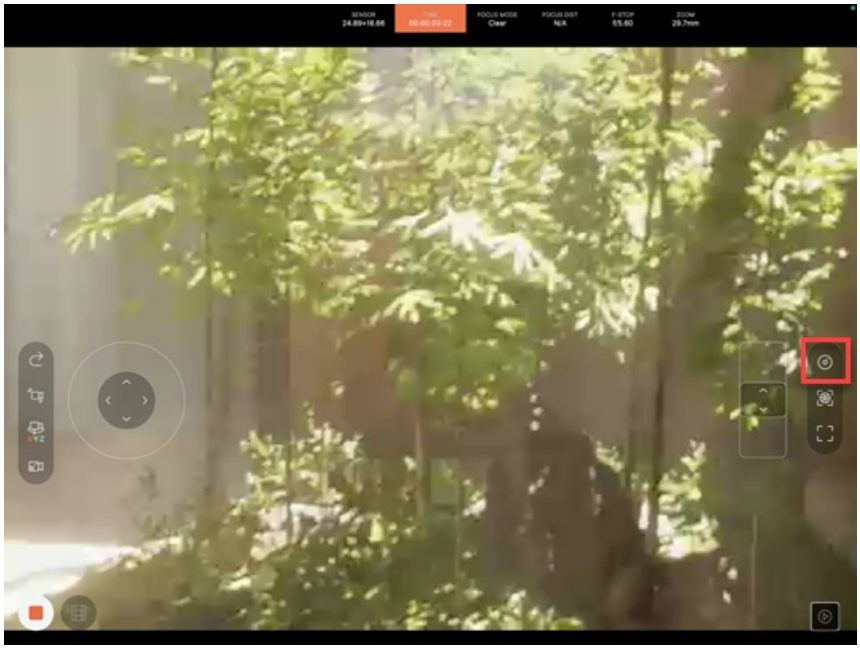
2. Press the Record button to start the recording of your second shot.

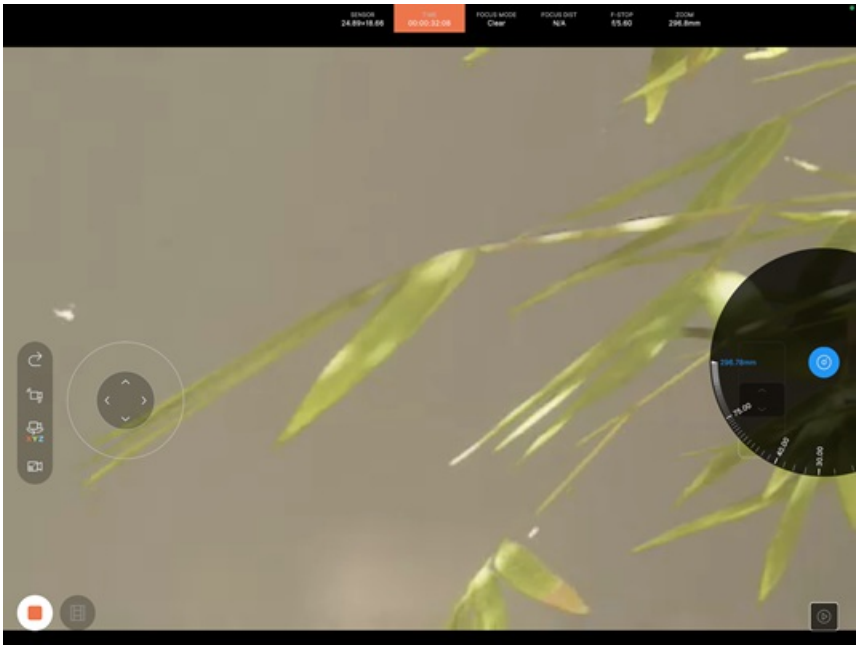


3. During the recording, try out the joystick controls to change the camera position in the horizontal plane and the vertical axis.



4. Also try out the zoom control.

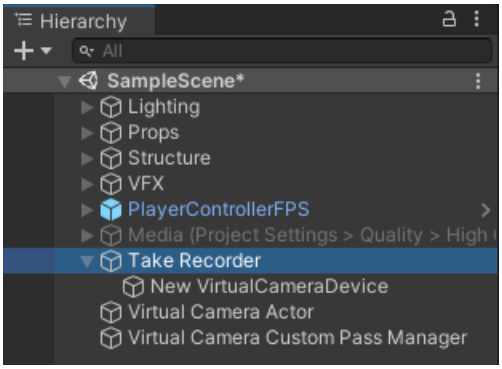




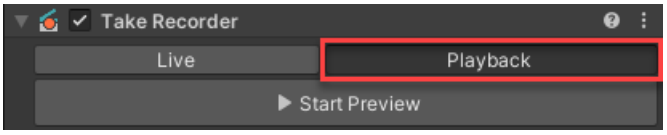
5. Press the Record button to stop the recording.

VI - Review your list of recorded takes

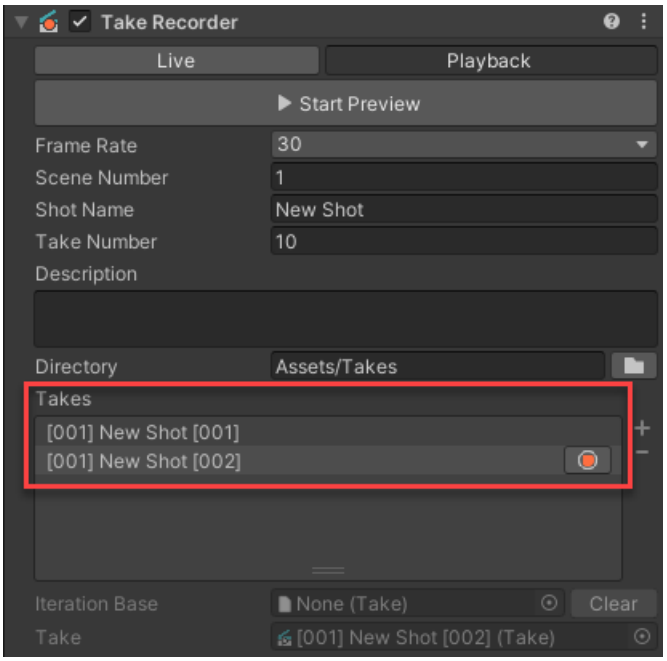
1. In the Hierarchy, select the **Take Recorder** GameObject.



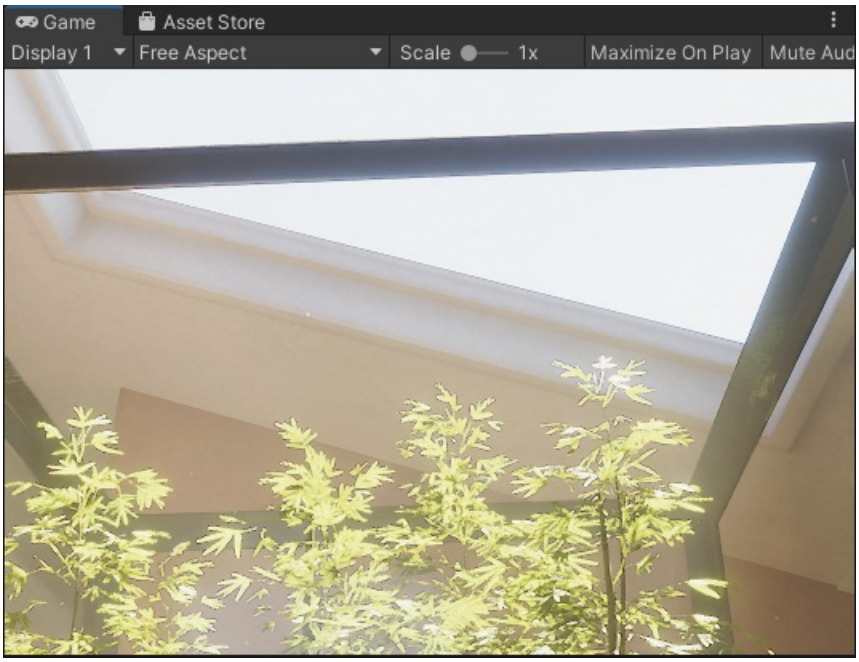
2. In the Inspector, in the **Take Recorder** component, click on **Playback**.

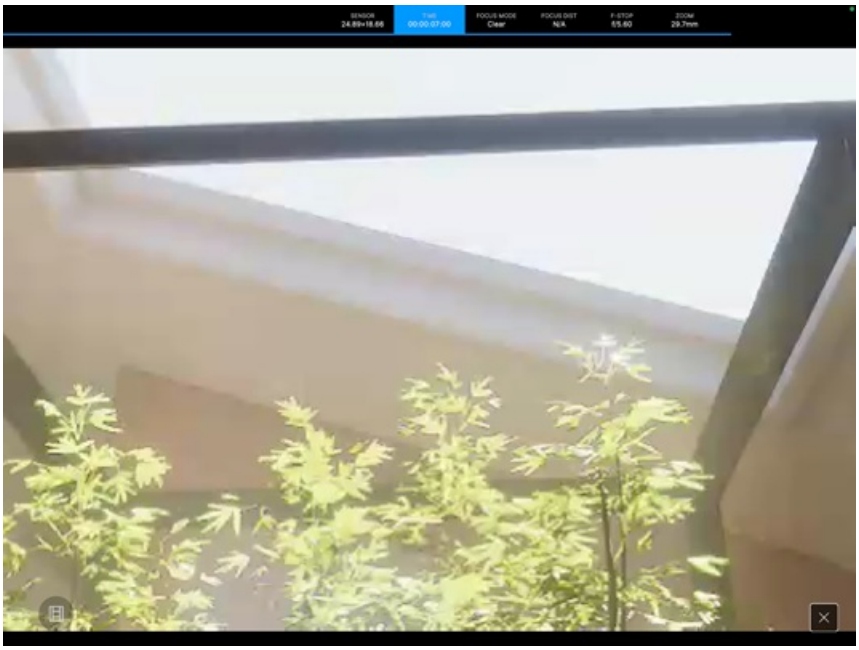


3. In the Inspector, in the **Takes** list, notice the two items **[001] New Shot [001]** and **[001] New Shot [002]**, which correspond to the two takes you recorded.



4. Select the shot you want to play back and click on **Start Preview**.
   Notice that the selected take plays in both the Unity Editor and the mobile app.

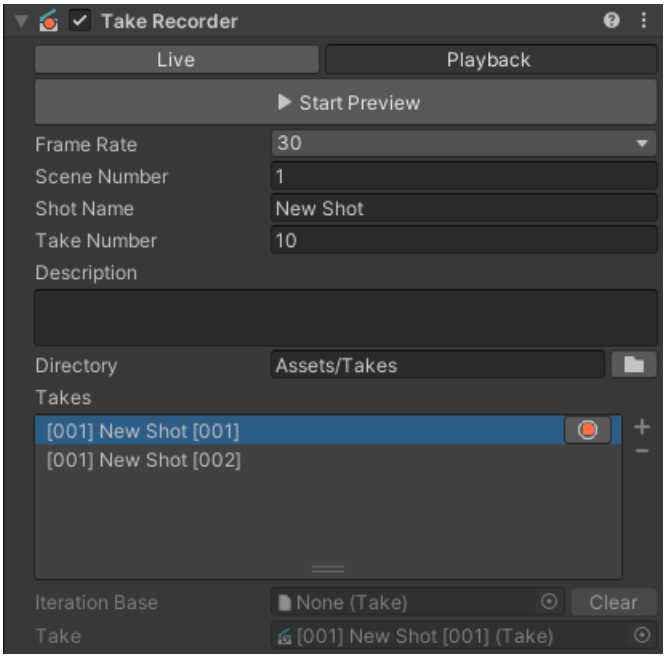




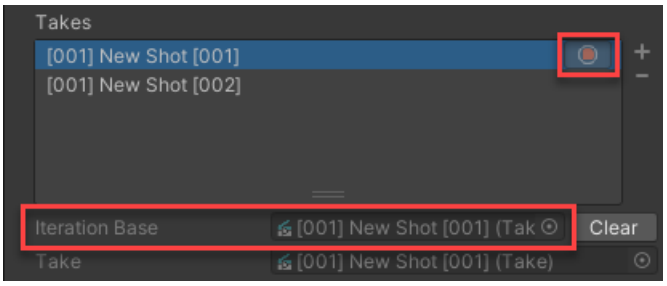
VII - Iterate on a recorded take:

1. Set the Take to use as the iteration base:

   a. In Unity, in the Inspector, in the list of Takes, select the first shot you recorded: **[001] New Shot [001]**.

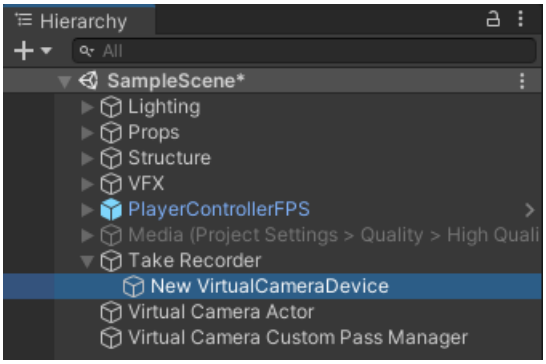


   b. Click on the red button at its right.
   Notice that the button is now grayed out and that the **Iteration Base** field now references this take as the one to iterate on.

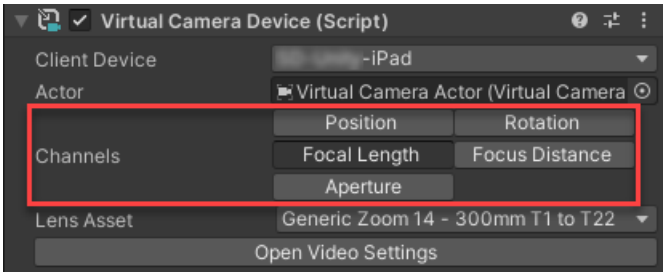


2. Select the camera channels to edit in the iteration:

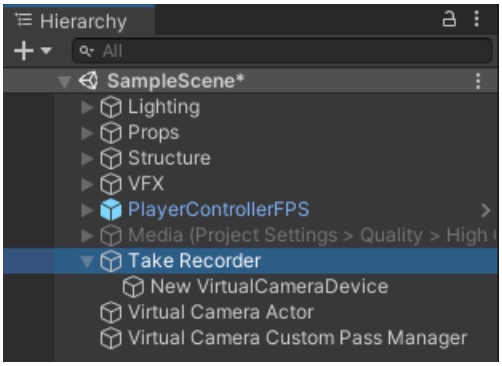
   a. In the Hierarchy, select the **New VirtualCameraDevice** GameObject (child of the **Take Recorder** GameObject).



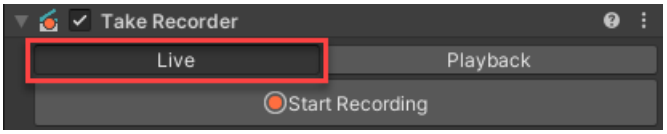
   b. In the Inspector, in the **Virtual Camera Device** component, in the **Channels** section, disable all channels except **Focal Length**.



   c. In the Hierarchy, select the **Take Recorder** GameObject.



d. In the Inspector, make sure that the Take Recorder is in **Live** mode.



Notice that the camera view no longer moves but that you can still zoom in and out through the focal length control of the app.

3. Record your iteration take:

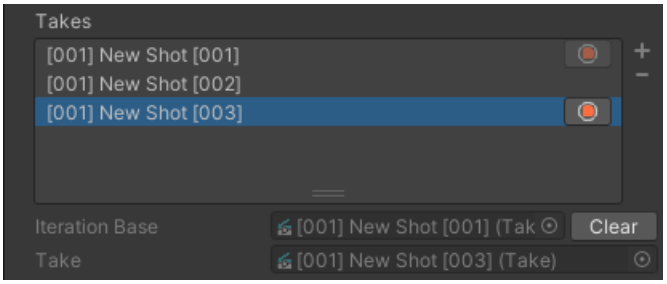
   a. From your mobile device, launch a new recording.

   Notice that the camera view follows the movements you previously recorded in **[001] New Shot [001]**.

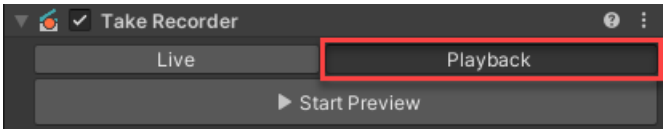
   b. Try some zoom in and out before the recording automatically stops according to the actual duration of **[001] New Shot [001]**.

4. Play back the recorded take:

   a. In Unity, in the **Take Recorder component**, notice the new recorded take **[001] New Shot [003]** in the list of **Takes**.



   b. Click on the **Playback** button.



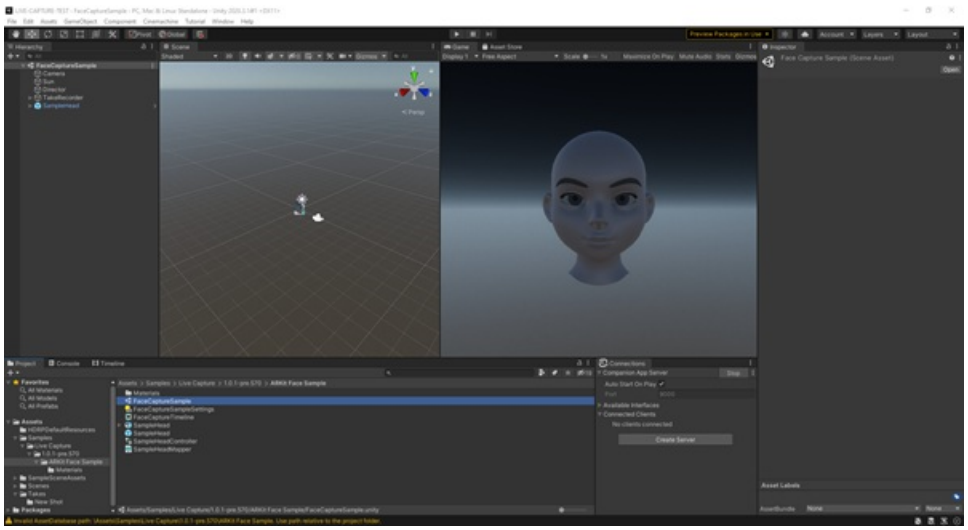
   c. Click on **Start Preview** to see the recorded result of your take iteration.
   The take named **[001] New Shot [003]** includes the camera movements you recorded through **[001] New Shot [001]** and the focal length changes you just recorded on top of it.

Discovering the Face Capture App

(Duration ~5 min.)

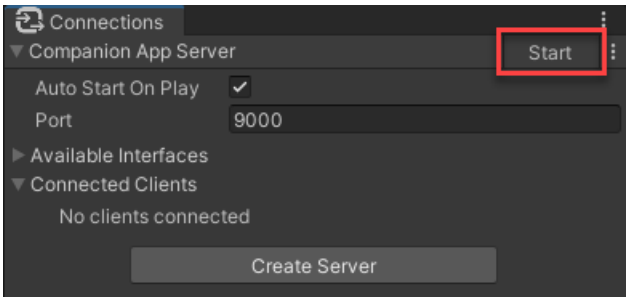
I - Get and set up the Face Capture Sample Scene

1. From the Unity Editor main menu, select **Window > Package Manager**.
2. Search and select **Live Capture** in the package list.
3. In the right pane, expand the **Samples** section, and beside **ARKit Face Sample**, click on **Import**.
4. In the Project window, in the Assets/Samples/Live Capture/.../ARKit Face Sample folder, open the FaceCaptureSample file.



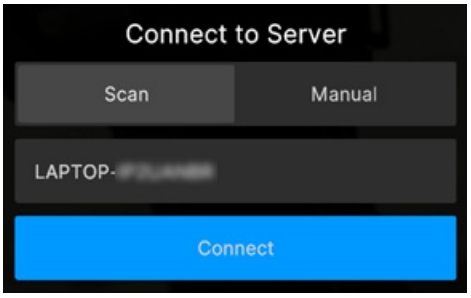
II - Start the server and connect the app

1. In the Unity Editor, in the Connections window, click the **Start** button to start the server.

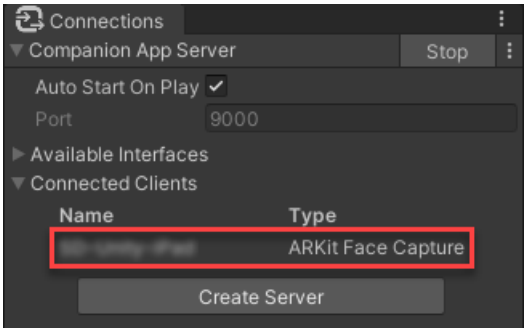


2. On your mobile device, open the Unity Face Capture app.

Notice that the app should have automatically detected your Unity Editor workstation.

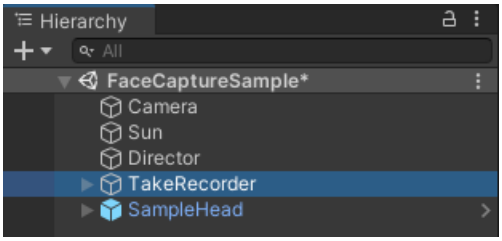


3. Tap the **Connect** button.
   In the Unity Editor, in the Connections window, you should see your mobile device name under **Connected Clients**.

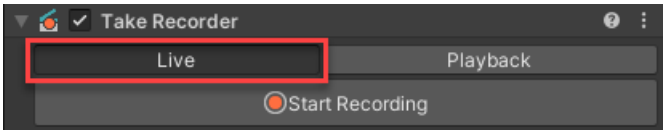


III - Preview and record face movements

1. In the Unity Editor, in the Hierarchy, select the **Take Recorder** GameObject.

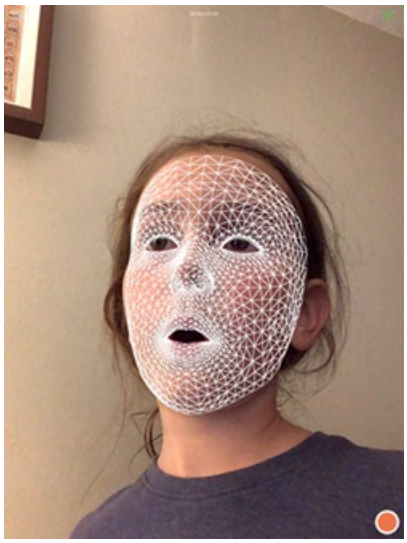
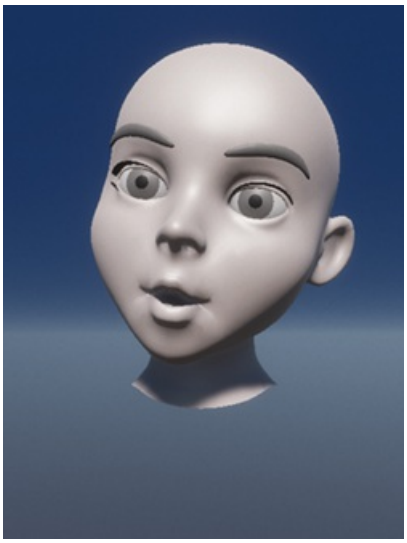


2. In the Inspector, in the **Take Recorder** component, click on **Live**.



3. On your mobile device, frame your face on the screen and try out face movements.

Notice that you get the same face movements on the character head in Unity Editor's Game view.

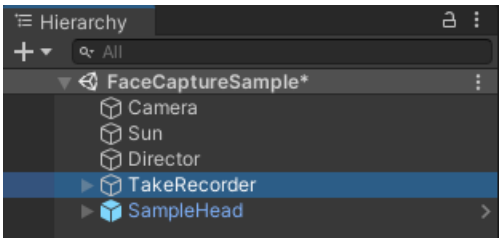
APP SCREEN	UNITY EDITOR'S GAME VIEW
	

4. Press the Record button at the bottom right.

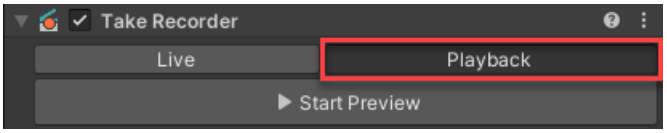
5. Make some face movements during the recording, then press the Record button again to stop the recording.

IV - Play back your recorded take

1. In the Unity Editor, in the Hierarchy, select the **Take Recorder** GameObject.



2. In the Inspector, in the **Take Recorder** component, click on **Playback**.



Notice that your Game View now shows the first frame of your recorded shot on the character head. In this mode, you cannot record through the app.

3. Click on **Start Preview**.
   Your recorded take starts playing back in the Game view, and automatically stops at the end of the take.