

Target Based Augmented Reality with Unity



AM AIS

01

YOUR TASK

With Unity and Vuforia, we'll build an Augmented Reality application for Android phones. The application will show the user camera and add virtual 3D model to a target printed beforehand.

WHAT IS NEEDED

A computer with **Unity** installed.

Create a **Vuforia** account on their website.

<https://developer.vuforia.com/>

Once created, download their UnityPackage

<https://developer.vuforia.com/downloads/sdk>

Create also a license key for it

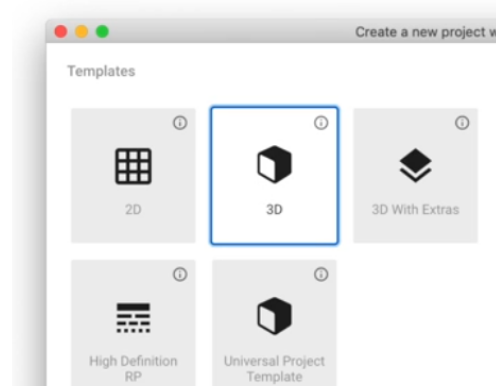
<https://developer.vuforia.com/vui/develop/licenses>

If all of this is ready, you also are ready to start!



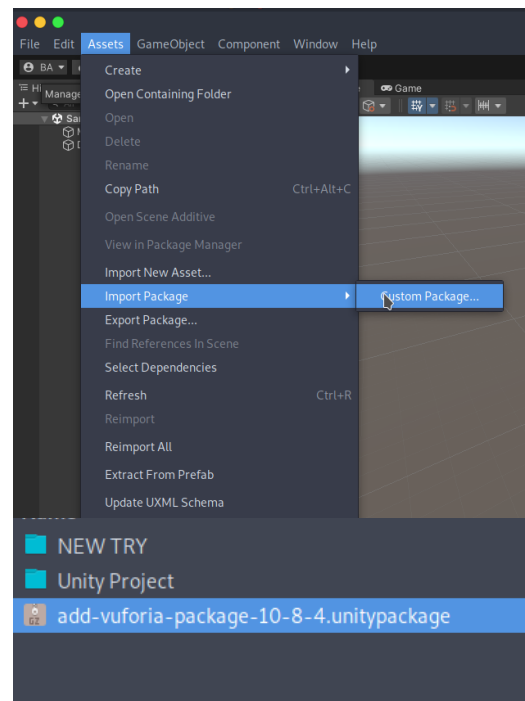
02 START A NEW PROJECT

Create a new 3D project in Unity.

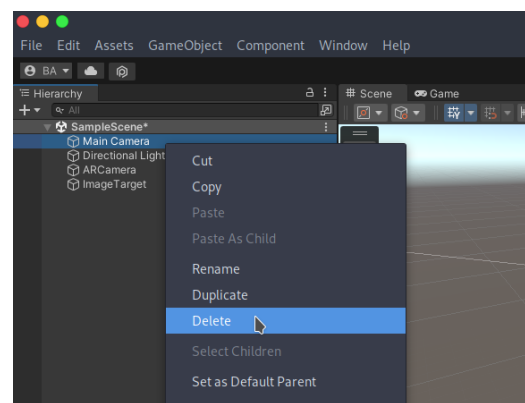


Add Vuforia to your project.

Asset -> Import Package -> Custom
import the **.unitypackage** downloaded
before.

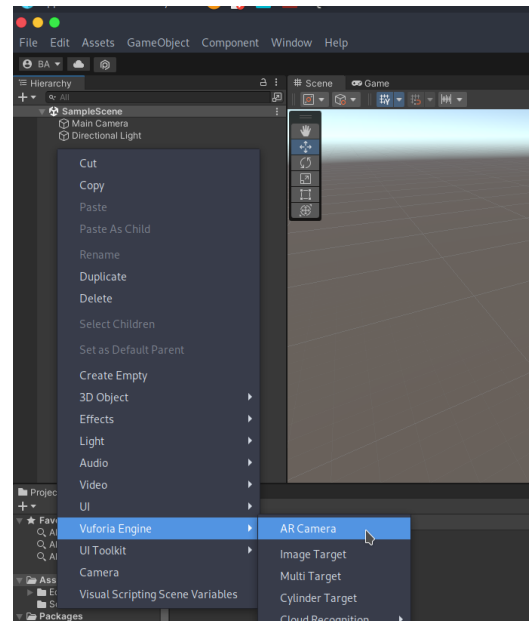


Delete the **Main Camera**.

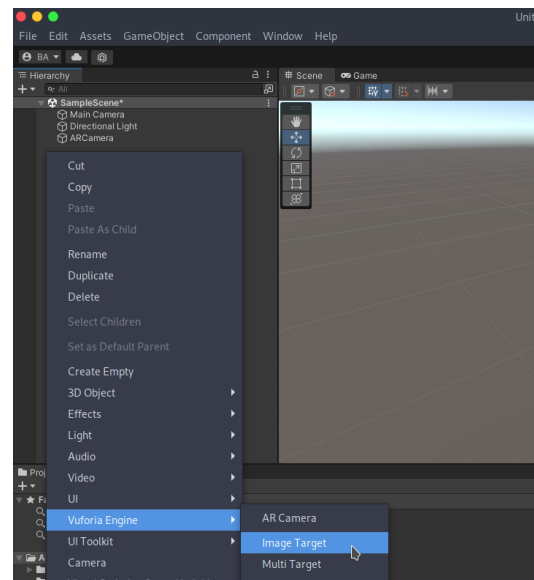


03 SETUP HIERARCHY

To add **Vuforia AR Camera** to the scene, do a right click in hierarchy and choose **Vuforia -> AR Camera**



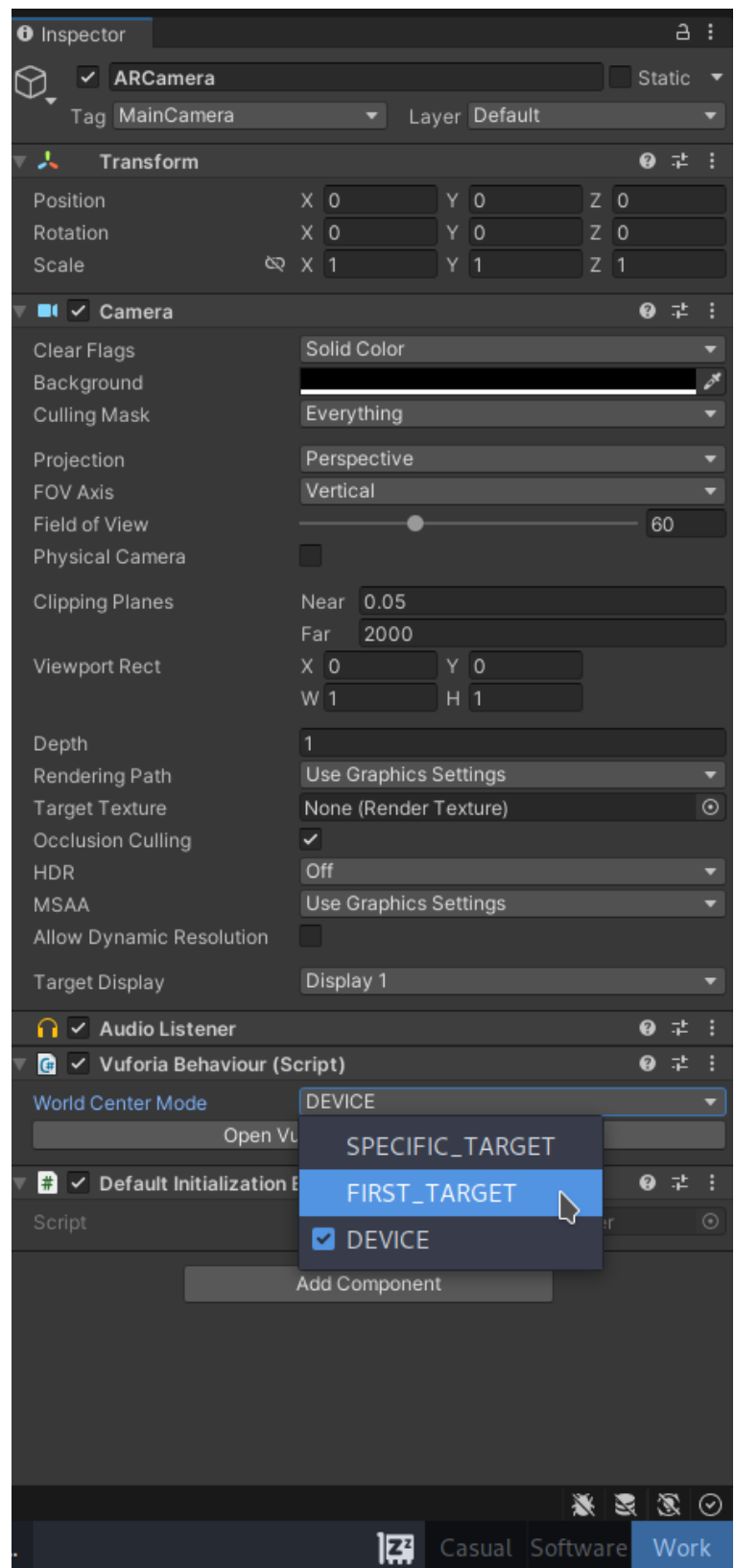
Do the same to add **Image Target**.



04 SETUP VUFORIA

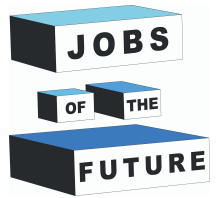
Select **AR Camera** in hierarchy and look in the inspector to change **World Center Mode** to **FIRST_TARGET**

Then, just under this setting, click **Open Vuforia Configuration**

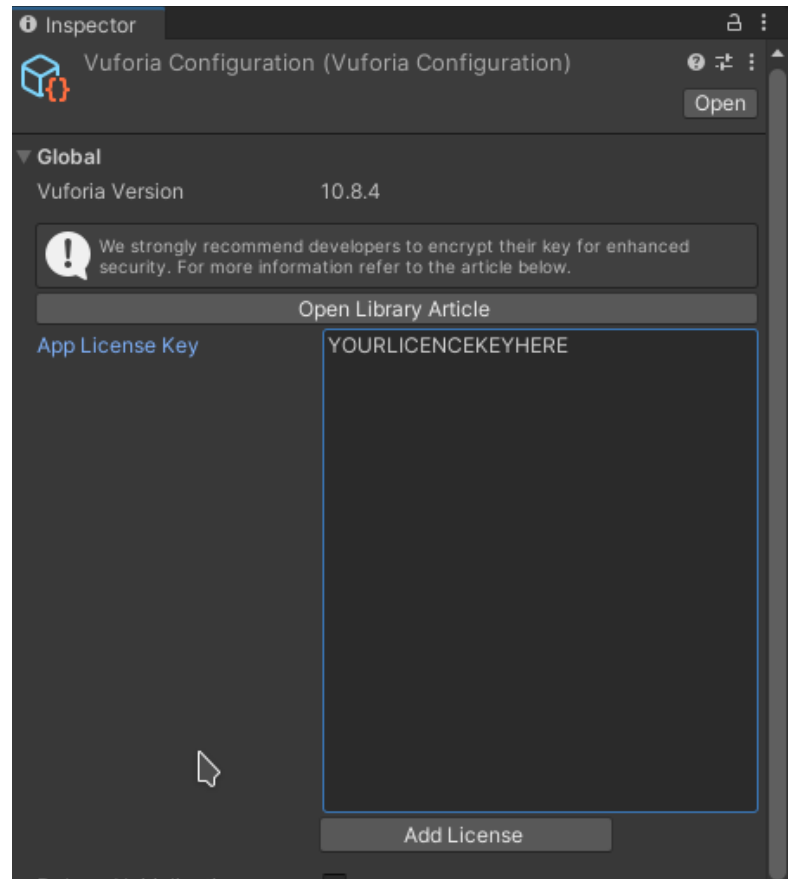


05

SETUP VUFORIA



Change **App License Key** by the key you created on Vuforia.



You're now set'up and ready to add your target.

06

ADD A TARGET

You'll now have to choose a picture as target. Vuforia will use it to recognise in the user's camera where it should show the 3D model.

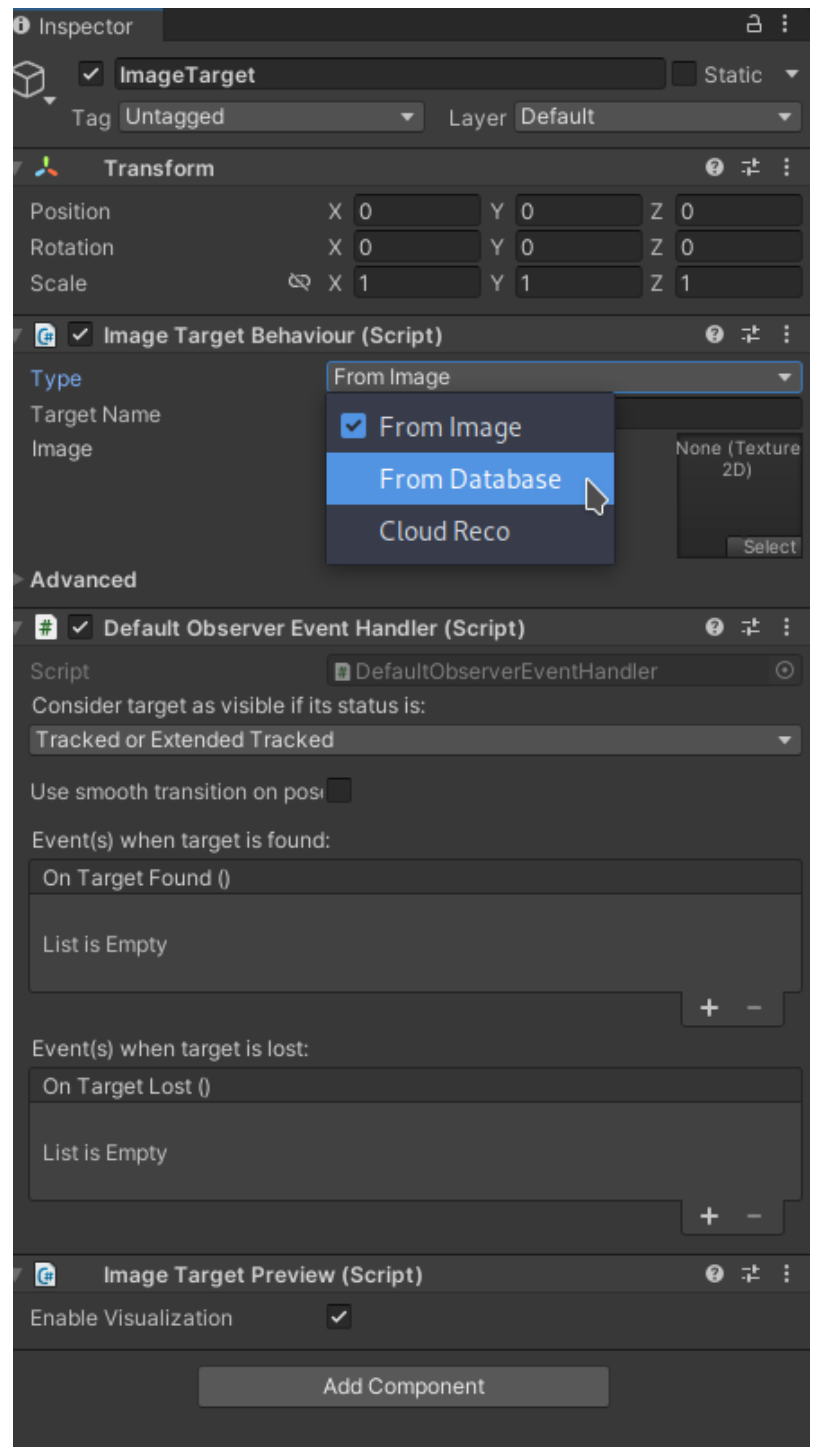
Because of this, Vuforia need a picture sufficiently recognizable.

Select **Image Target** in hierarchy and change its **Type** in the inspector by **From Database** and click import.

You can now zoom a lot to see the picture on the scene.

Print the picture.

You can change this picture by whatever you want, add the picture in your assets to use it. and select From Image instead.



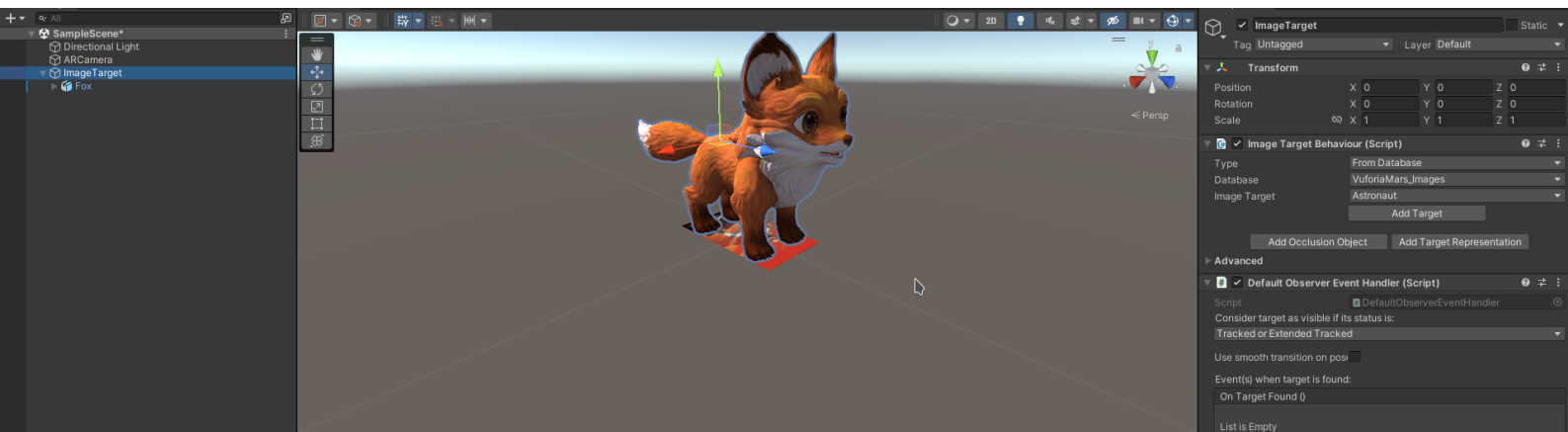
07 ADD A 3D MODEL

We need to add a 3D model to our scene. If you have any, add it to your asset and put it in your hierarchy inside Image Target.

If you don't have any, you can choose a free one directly on Unity Store <https://assetstore.unity.com/?category=3d&price=0-0>

Once you added one to your account, you can go back to Unity and open the **Package Manager** in the **Window Menu**. Select **My Assets**, download and import it.

Finally find the model in your assets and drag it in your hierarchy inside Image Target.

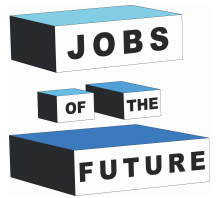


If your model is too big compared to the size of your target, you should size it down in the inspector to a reasonable size.

Your application is ready! No code needed, Vuforia will do all the calculation by itself. Let's export our app now.

08

BUILDING THE APP



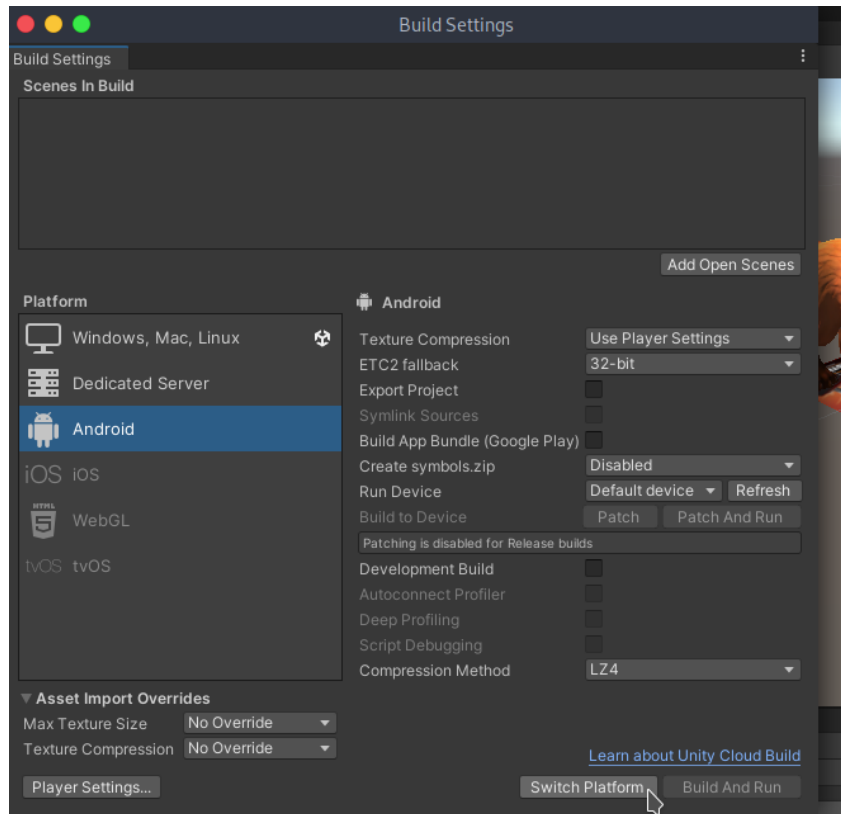
Menu -> Files -> Build Settings.

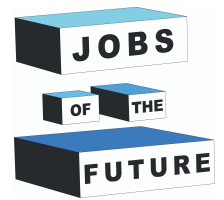
Select **Android** and click on **Switch Platform**.

Click on **player settings** and set the **Minimum API Level** to **Android 7.1**.

You can now click on **Build**.

You'll now have an **apk** file that you can install on your Android and try it out!





JOBS OF THE FUTURE

Augmented reality has already made its way into the world of tech and has several fields of application. You'll find augmented reality in many camera applications such as snapchat, instagram or messenger that will modify your face in real time but also more advanced ones such as the google glass project which consists in a pair of glasses that display information such as directions, weather, data and time. Pokemon Go is yet another successful application of AR in the game industry. In the medical field, AR is a promising technology especially in the domain of surgery where surgeons will be able to visualize indications regarding the operations to perform on a patient.

To conclude, AR is currently being applied in the military field, where soldiers can for example view information regarding the enemy's position, targets or simply data about the battleground in real time via tools similar to the google glasses.

AR is already an emerging field which promises to open many new job opportunities all around the globe.