



# Lab 12-13

CPS592 – Visual Computing and Mixed Reality

# Objectives

- Create an AR project with Vuforia

# Download Vuforia samples

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SDK    Samples    Tools    Early Access

## Core Features

These samples show how to build apps using the following core features of Vuforia.

- Image Targets
- VuMark
- Object Recognition
- Cylinder Targets
- Multi Targets
- User Defined Targets
- Smart Terrain (Unity only)
- Cloud Recognition



### [Download for Android](#)

vuforia-samples-core-android-6-0-120.zip (33.69 MB)



### [Download for iOS](#)

vuforia-samples-core-ios-6-0-120.zip (40.24 MB)



### [Download for UWP](#)

vuforia-samples-core-uwp-6-0-114.zip (15.60 MB)



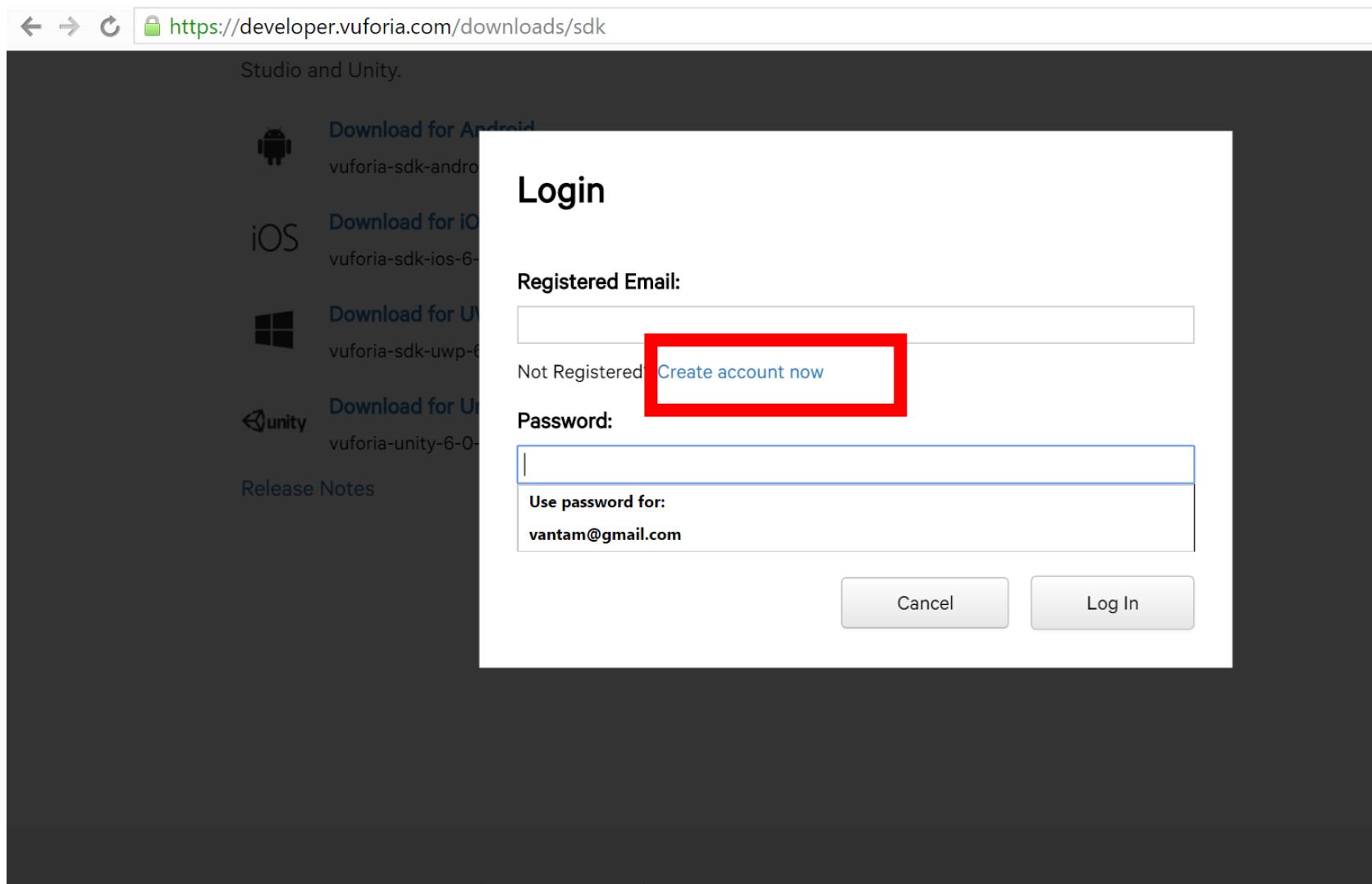
### [Download for Unity](#)

vuforia-samples-core-unity-6-0-120.zip (127.94 MB)

[Release Notes](#)

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

# Register Vuforia account



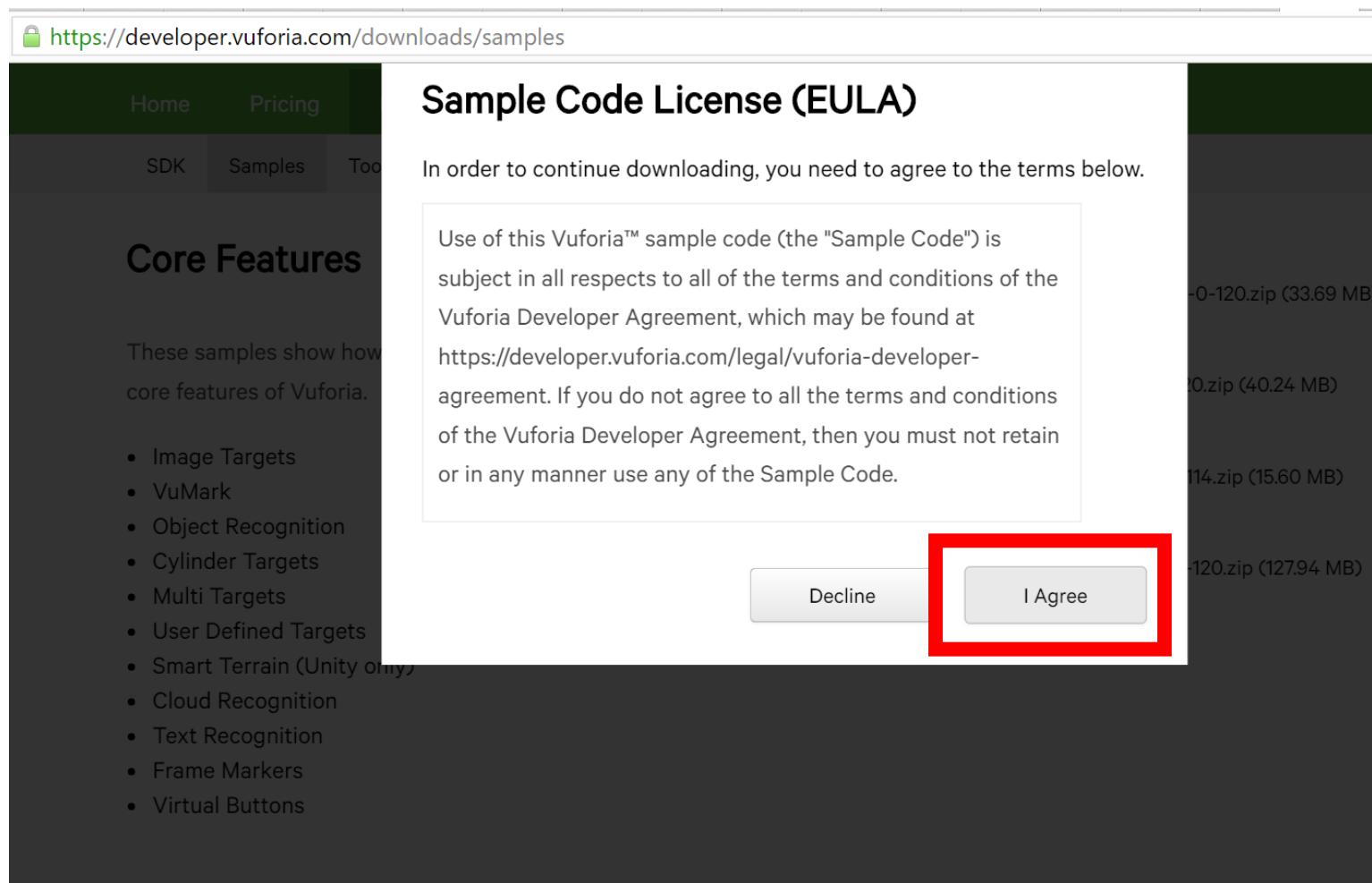
# Register Vuforia account

The screenshot shows a web browser window with the URL <https://developer.vuforia.com/user/register> in the address bar. The page content is a large block of text describing legal obligations, followed by an agreement checkbox and two buttons at the bottom.

(\$10,000), in which case You shall reimburse PTC for the cost and expense of PTC's auditors. In all instances where an underpayment is discovered, You shall promptly pay to PTC any such underpayment (plus accrued late payment charges), and without limiting any other rights or remedies to which PTC is entitled, failure to pay all amounts owed shall be grounds for termination in accordance with Section 12 hereof.

I agree to the Vuforia Developer Agreement

# Download Vuforia samples



# Unzip the sample file

- Unzip vuforia-samples-core-unity-6-0-120.zip
  - ImageTargets-6-0-120.unitypackage
  - VuforiaSamples-6-0-120.unitypackage

# Start Unity3D

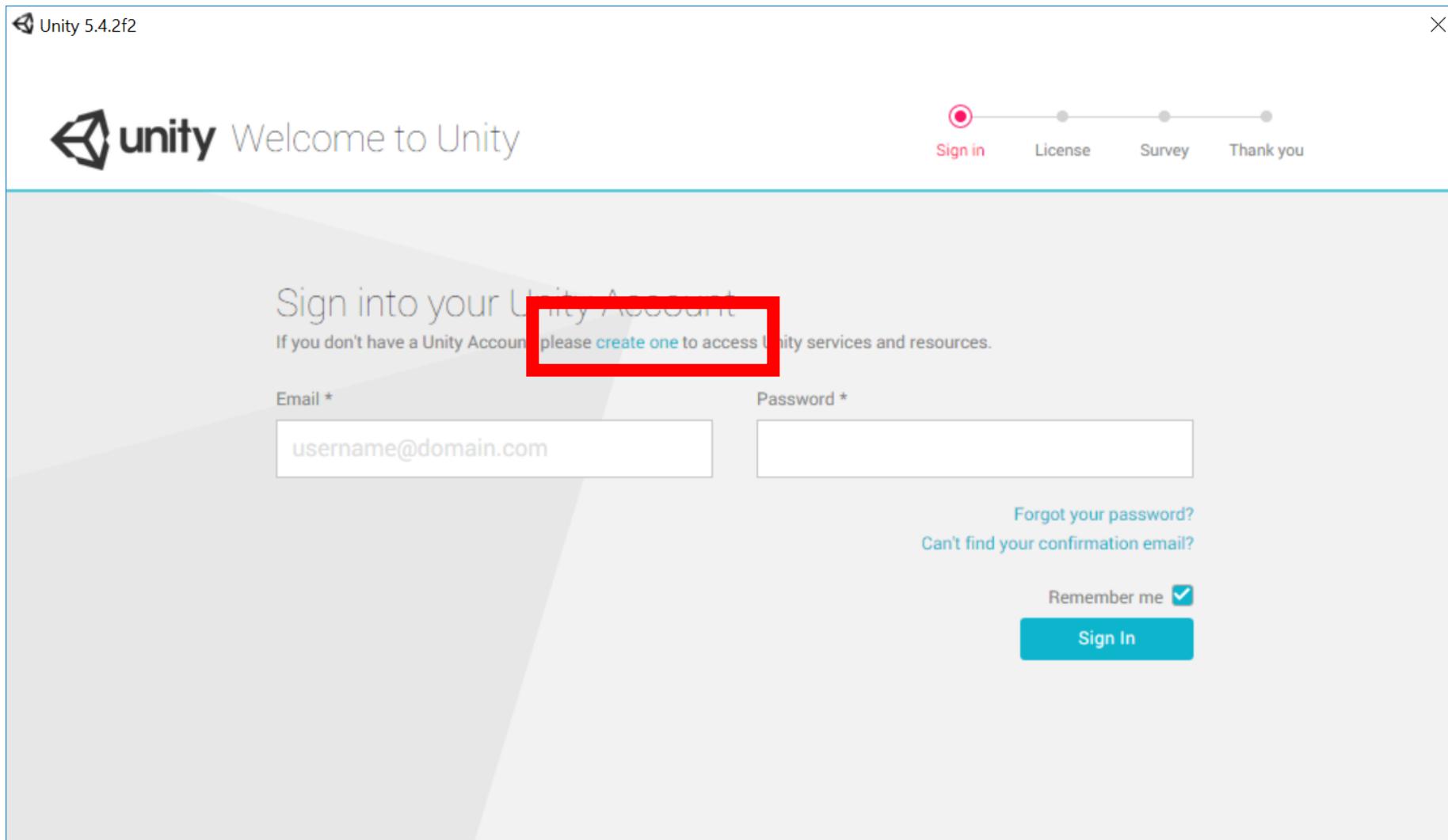


Unity

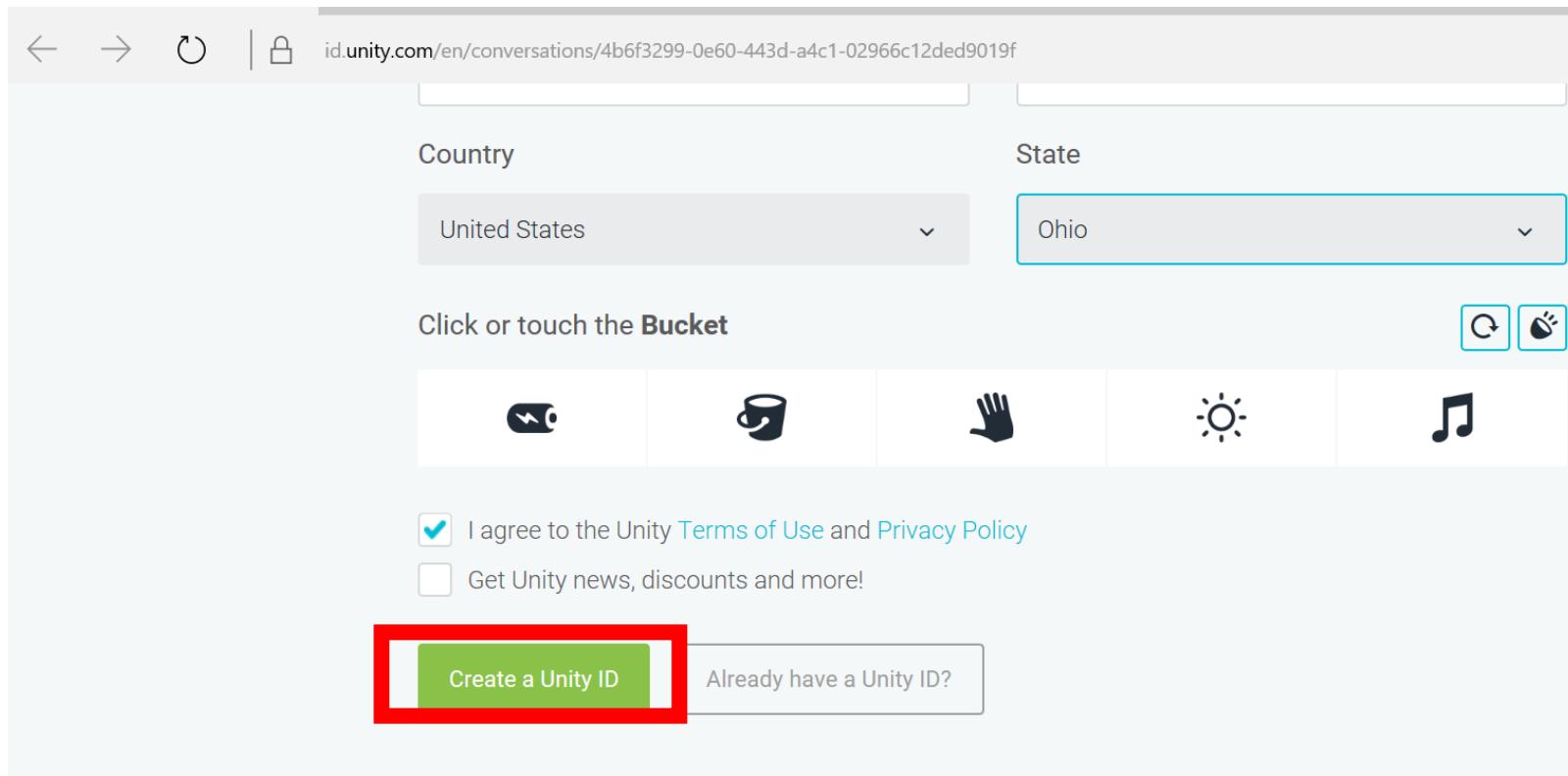
Desktop app



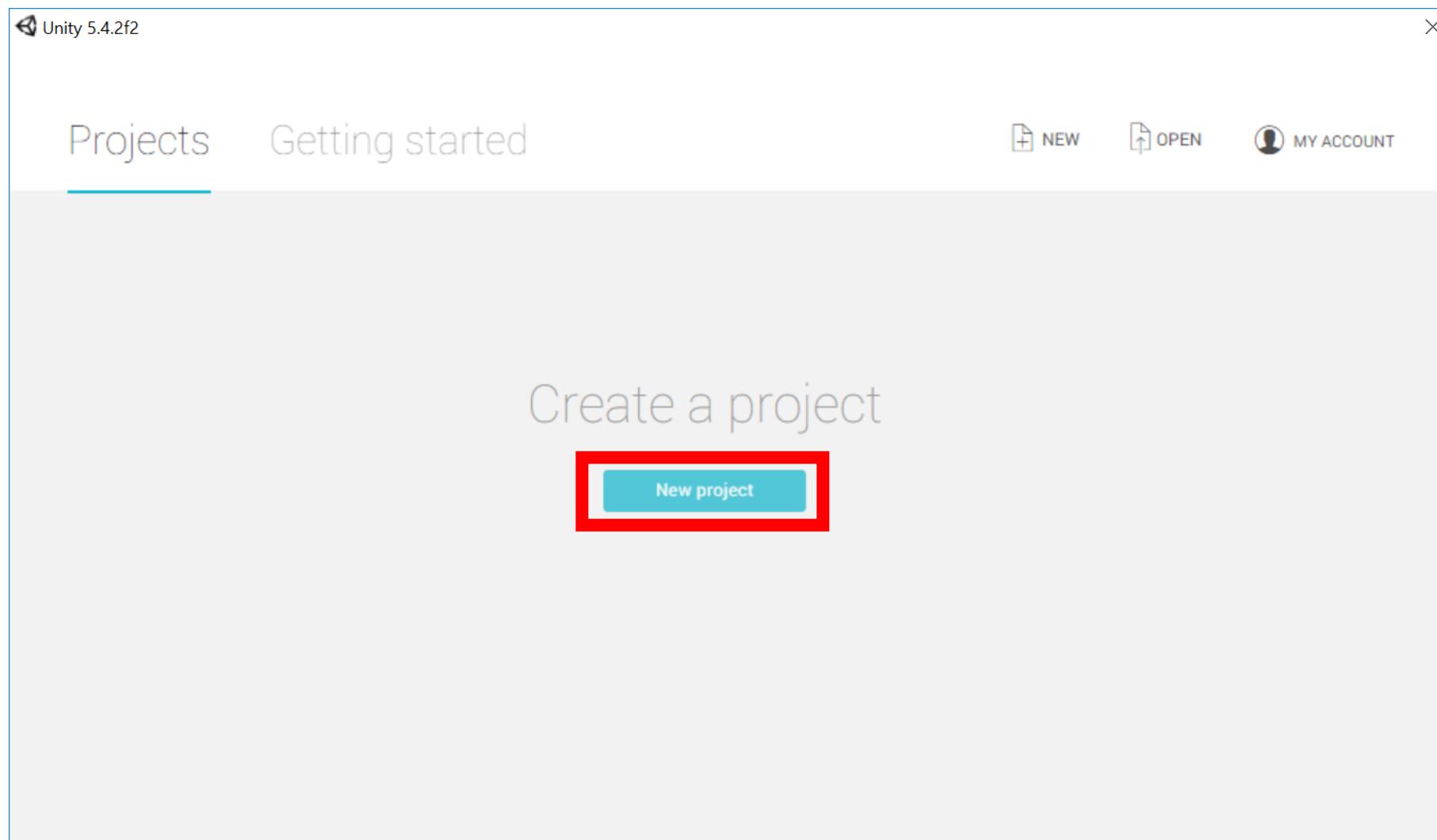
# Register Unity3D account



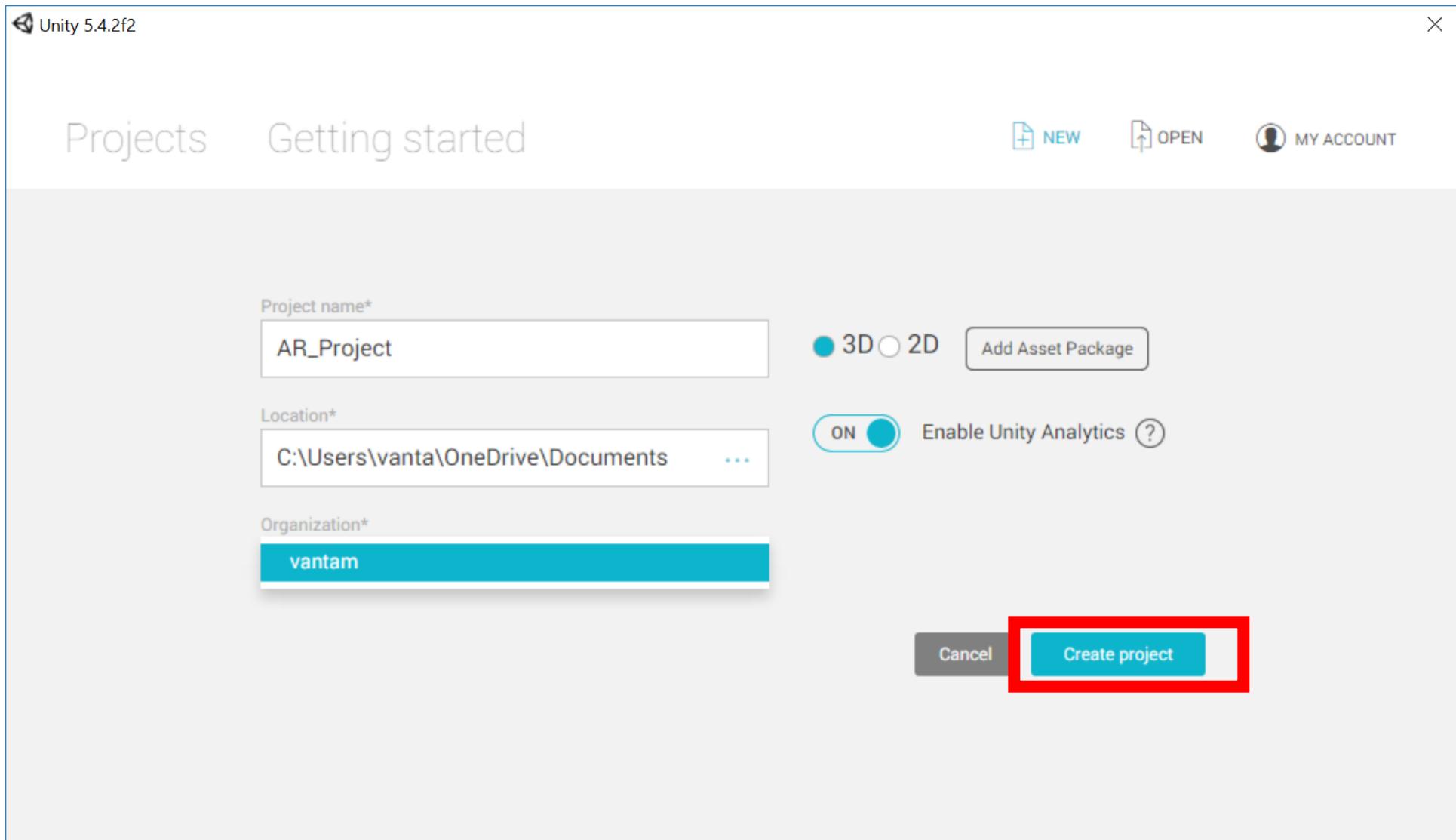
# Register Unity3D account



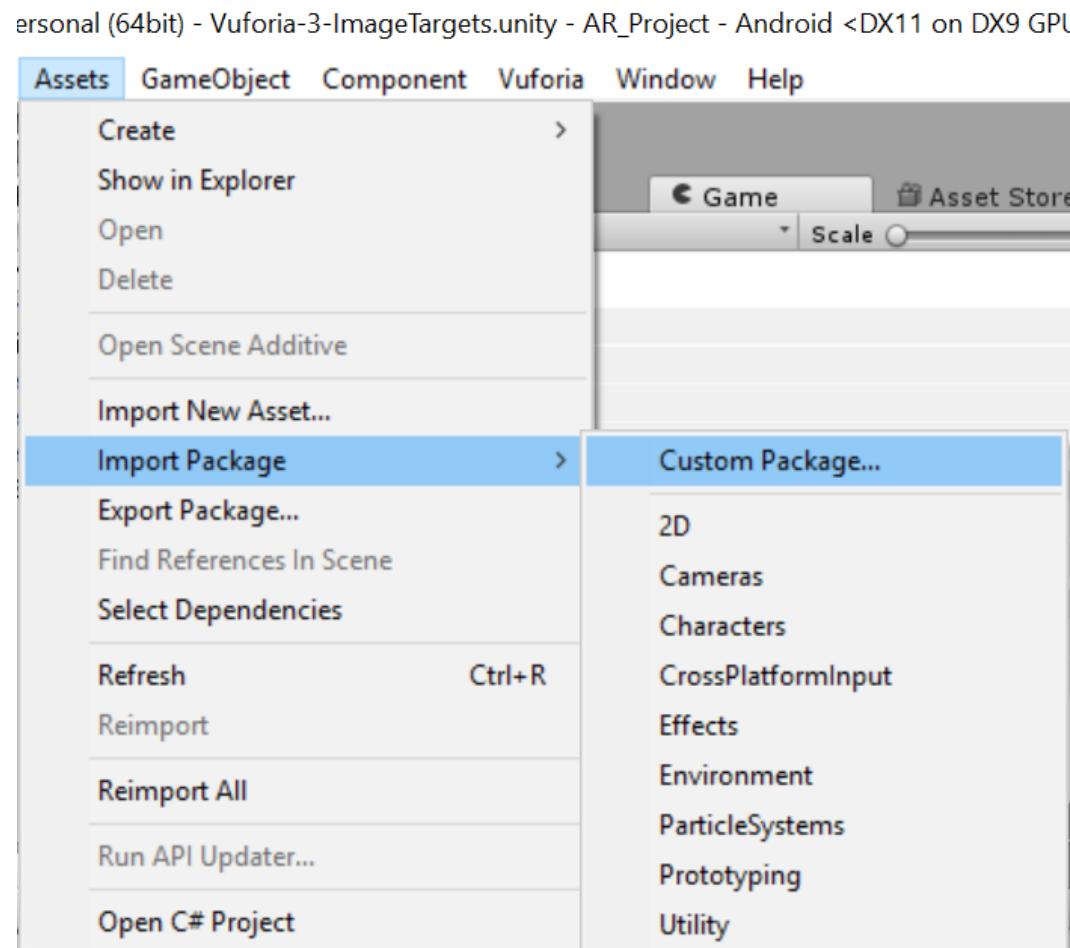
# Create a new Unity3D project



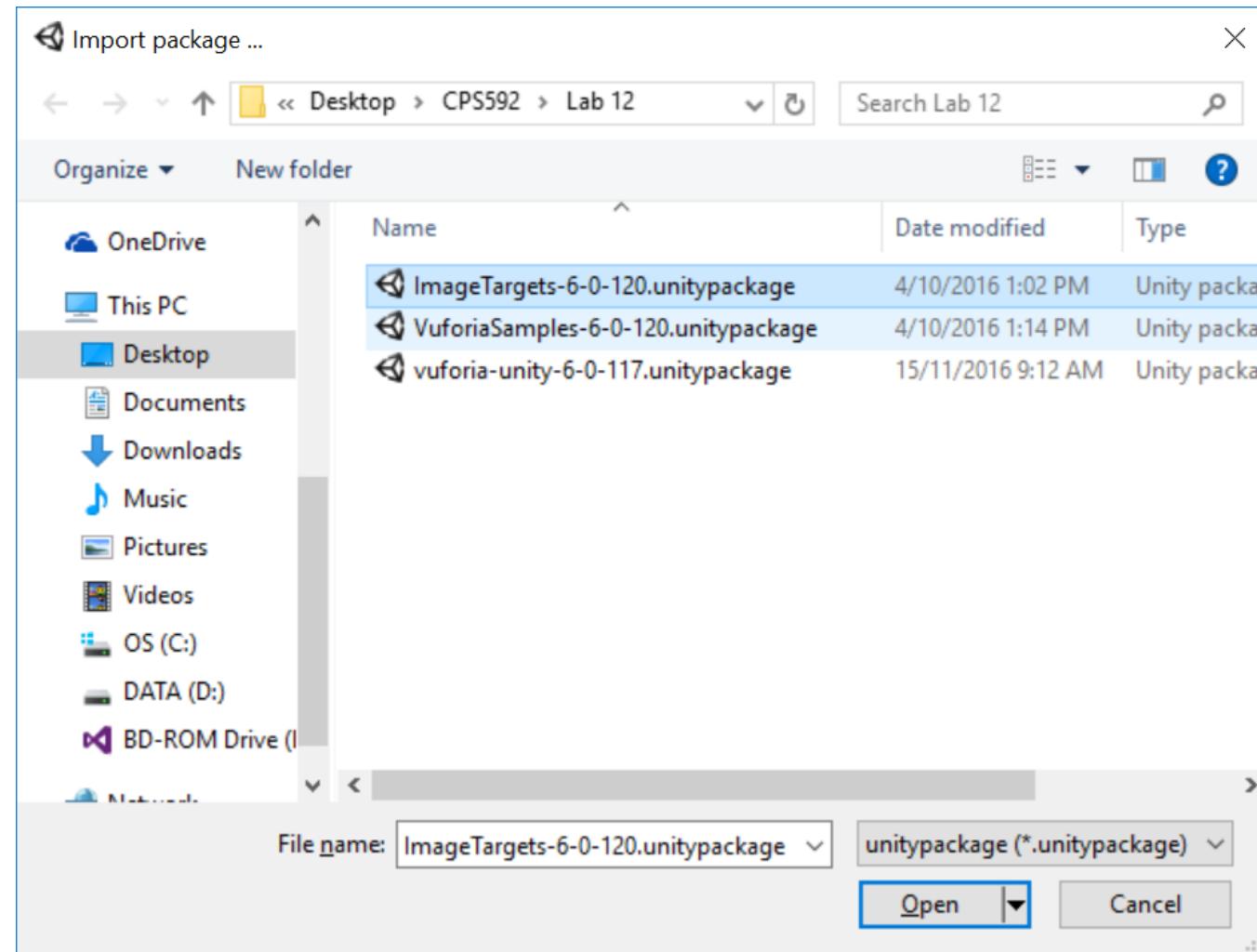
# Create a new Unity3D project



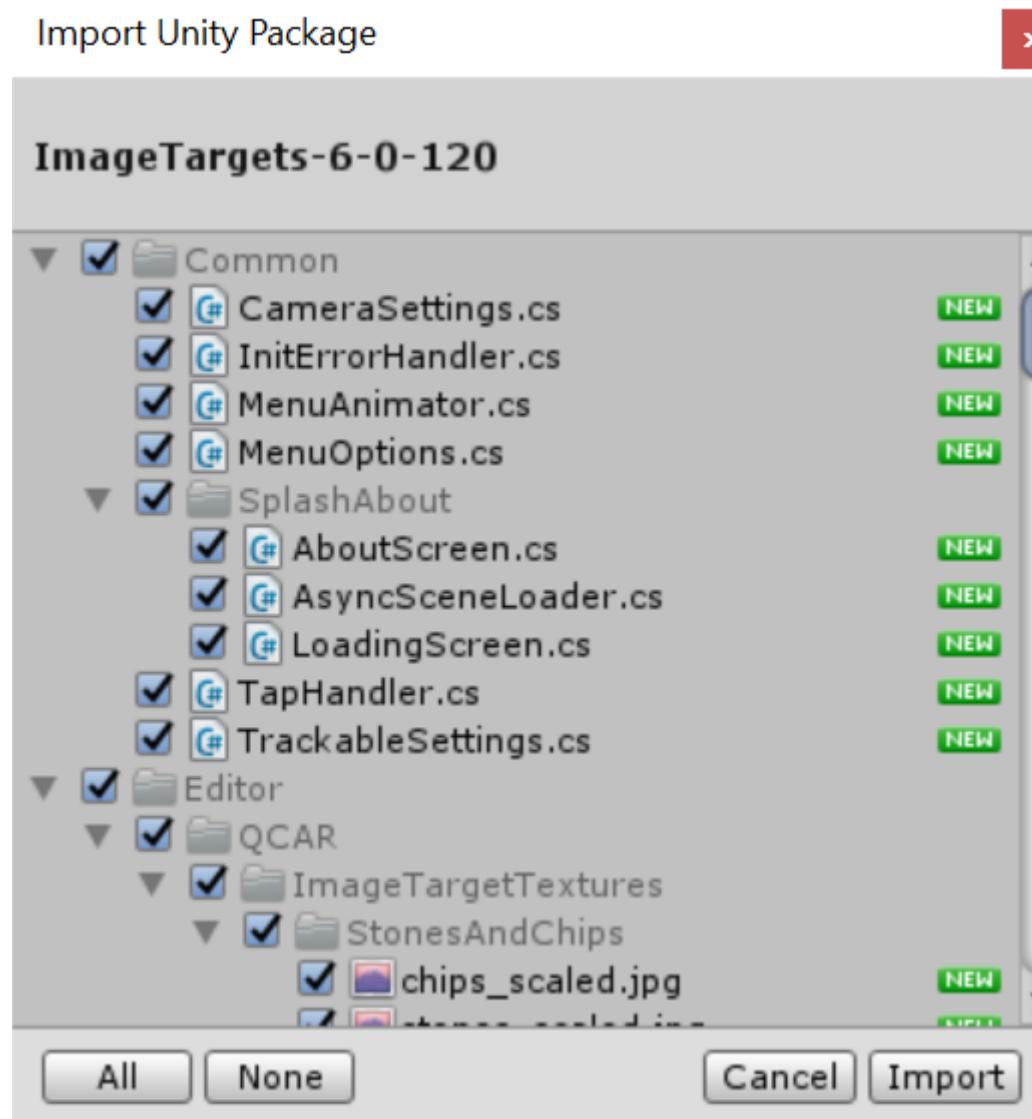
# Import ImageTargets



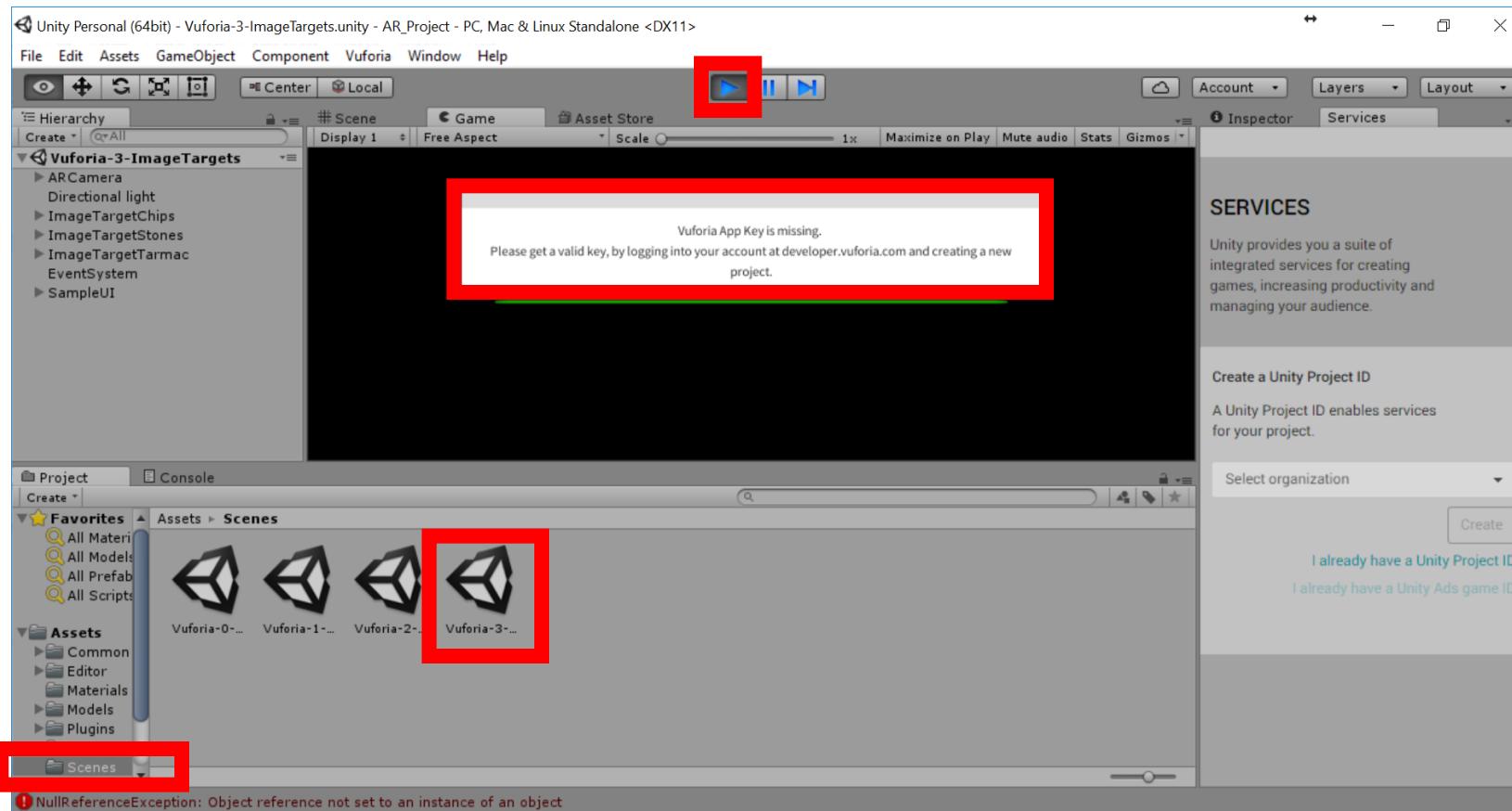
# Import ImageTargets



# Import ImageTargets



# Require Vuforia App Key

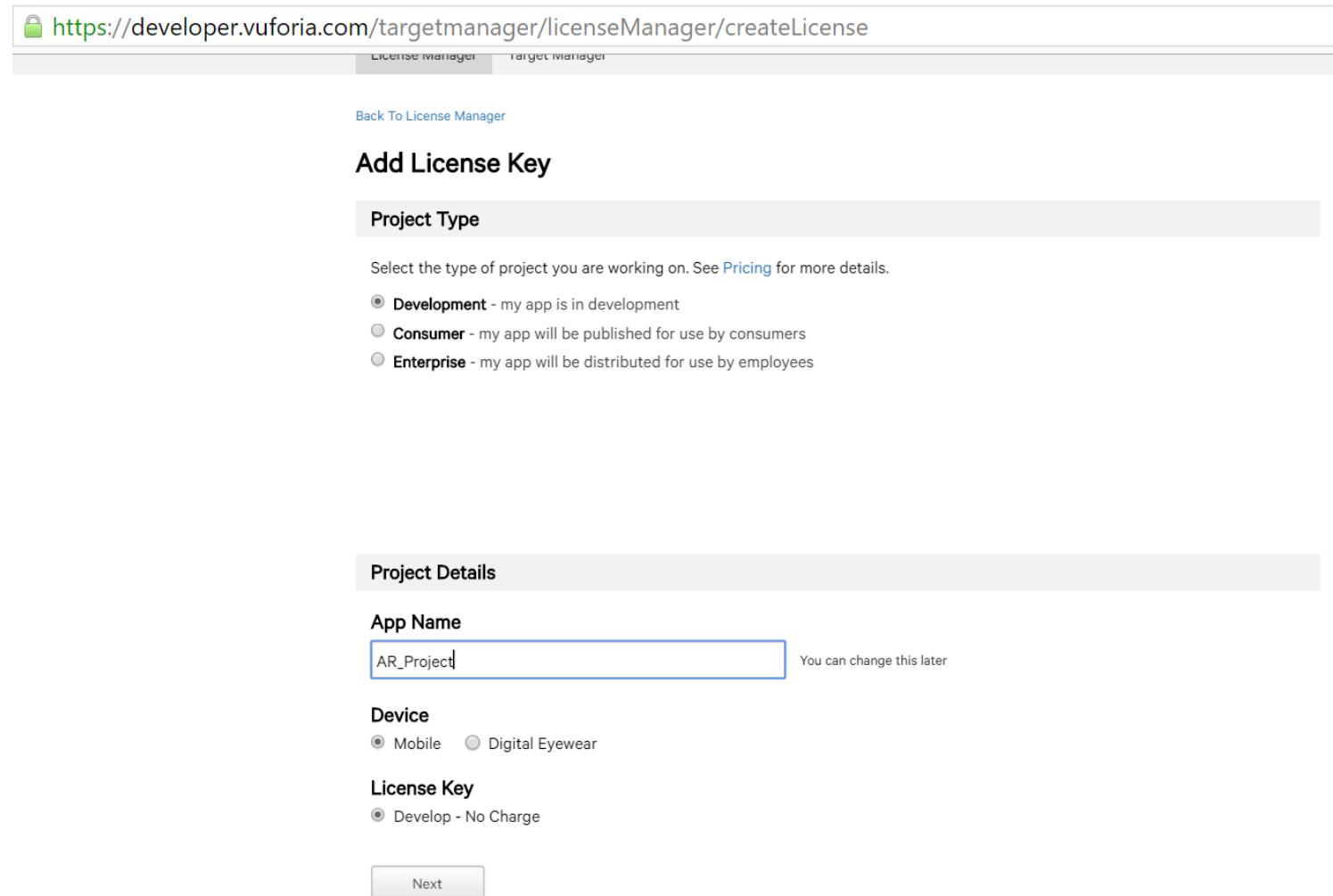


# Add License Key

The screenshot shows the Vuforia™ Developer Portal interface. At the top, there is a green header bar with the Vuforia logo and the text "vuforia™ Developer Portal". On the right side of the header, it says "Hello vantam" with a dropdown arrow and "Log Out". Below the header, there is a navigation menu with links: Home, Pricing, Downloads, Library, Develop (which is highlighted in green), and Support. Underneath the navigation menu, there are two buttons: "License Manager" (which is highlighted in grey) and "Target Manager". The main content area has a title "License Manager" and a sub-instruction "Create a license key for your application.". Below this, there is a button labeled "Add License Key". A table is displayed with the following data:

Name	Type	Status	Date Modified
Test123	Develop	Active	Jun 23, 2015 23:01

# Add License Key



The screenshot shows a web browser window with the URL <https://developer.vuforia.com/targetmanager/licenseManager/createLicense>. The page has a header with tabs for 'License Manager' and 'Target Manager'. Below the header, there is a 'Back To License Manager' link and a main title 'Add License Key'. A 'Project Type' section is highlighted with a grey background. It contains a sub-instruction: 'Select the type of project you are working on. See [Pricing](#) for more details.' followed by three radio button options: 'Development' (selected), 'Consumer', and 'Enterprise'. The 'Project Details' section is also highlighted with a grey background. It includes fields for 'App Name' (containing 'AR\_Project') with a note 'You can change this later', 'Device' (selected 'Mobile'), and 'License Key' (selected 'Develop - No Charge'). At the bottom is a 'Next' button.

https://developer.vuforia.com/targetmanager/licenseManager/createLicense

License Manager Target Manager

Back To License Manager

## Add License Key

### Project Type

Select the type of project you are working on. See [Pricing](#) for more details.

**Development** - my app is in development  
 **Consumer** - my app will be published for use by consumers  
 **Enterprise** - my app will be distributed for use by employees

### Project Details

**App Name**

AR\_Project You can change this later

**Device**

Mobile  Digital Eyewear

**License Key**

Develop - No Charge

Next

# Add License Key

The screenshot shows the Vuforia Developer Portal at the URL <https://developer.vuforia.com/targetmanager/licenseManager/summaryForFreePlan>. The page is titled "Confirm License Key". It displays project details: Project Type (Development), App Name (AR\_Project), Device (Mobile), and License Key (Develop). The license key summary includes: Price: No Charge, Reco Usage: 1000 per month, Cloud Targets: 1000, VuMark Templates: 1 active, and VuMarks: 100. A checkbox at the bottom indicates acceptance of the terms and conditions of the Vuforia Developer Agreement.

https://developer.vuforia.com/targetmanager/licenseManager/summaryForFreePlan

vuforia™ Developer Portal

Hello vantam | Log Out

Home Pricing Downloads Library Develop Support

License Manager Target Manager

Back To License Manager

### Confirm License Key

**Project Type**  
Development

**App Name**  
AR\_Project

**Device**  
Mobile

**License Key**  
Develop  
Price: No Charge  
Reco Usage: 1000 per month  
Cloud Targets: 1000  
VuMark Templates: 1 active  
VuMarks: 100

By clicking "Confirm" below, you acknowledge that this license key is subject to the terms and conditions of the [Vuforia Developer Agreement](#).

Cancel Confirm

# Copy License Key

https://developer.vuforia.com/targetmanager/licenseManager/licenseListingDetails

The screenshot shows the Vuforia Developer Portal interface. At the top, there's a navigation bar with links for Home, Pricing, Downloads, Library, Develop (which is highlighted in green), and Support. Below the navigation bar, there are two tabs: License Manager (selected) and Target Manager. The main content area shows the path License Manager > AR\_Project. Under the project name 'AR\_Project', there are two tabs: License Key (selected) and Usage. In the License Key tab, there's a section titled 'Please copy the license key below into your app' containing a large block of text (the license key) which is highlighted with a red box. Below this, there are details about the license: Device: Mobile, Type: Develop, Status: Active, and Created: Nov 15, 2016 12:35. There's also a History section showing 'License Created - Today 12:35'. The URL in the browser address bar is https://developer.vuforia.com/targetmanager/licenseManager/licenseListingDetails.

vuforia™ Developer Portal

Hello vantam | Log Out

Home Pricing Downloads Library Develop Support

License Manager Target Manager

License Manager > AR\_Project

**AR\_Project** Edit Name Delete License Key

License Key Usage

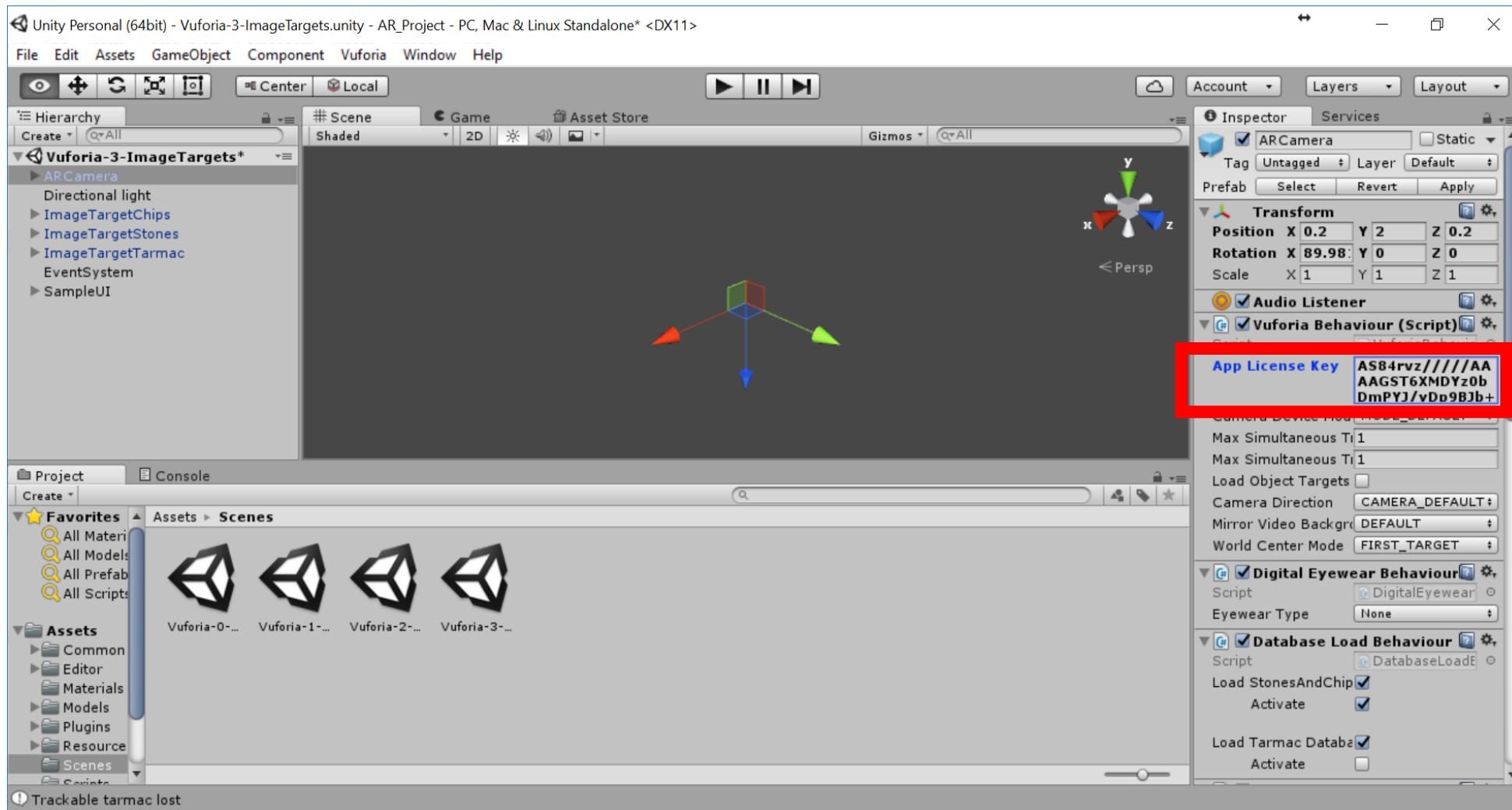
Please copy the license key below into your app

```
AS84rvz////AAAAGST6XMDYz0bDmPYJ/yDp9BJb+d+Xg0t8/Wqt
Gbyr7fxVkJAixfNrBj2iw5Zn9GrPrICEEKf2NUdzSicqg979q+82B
CNb4bItbcdIqIAqKV$jamGMINS4fzH4Vrwkm9e12nFTAXnlg9leY
vHkREWbi/6de+LiRXSSc1q2SriekBUTzsHXH8Vnh9R7sS0SogE9
MY/igsN3oDeAUryk+MAaEXH1NDmNWomJ8saUhyGKOHVKvr3gFIy4
8ff3TbkBisocRioQ9+HpDes29GNTwfy+8z1Mog2y6QajhXJA22/x
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j936HQQ0XrJdlzIA
```

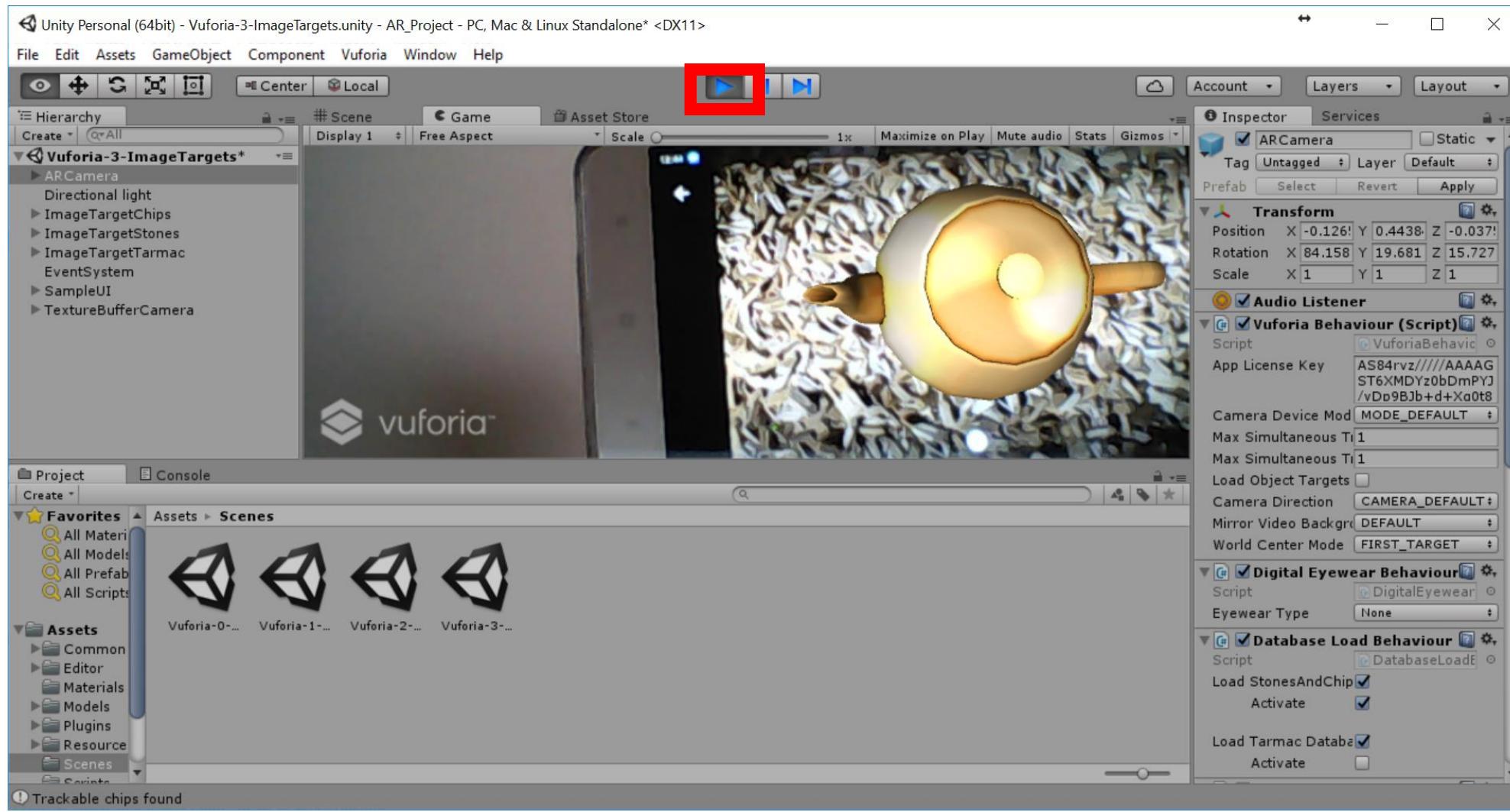
**Device:** Mobile  
**Type:** Develop  
**Status:** Active  
**Created:** Nov 15, 2016 12:35

**History:**  
License Created - Today 12:35

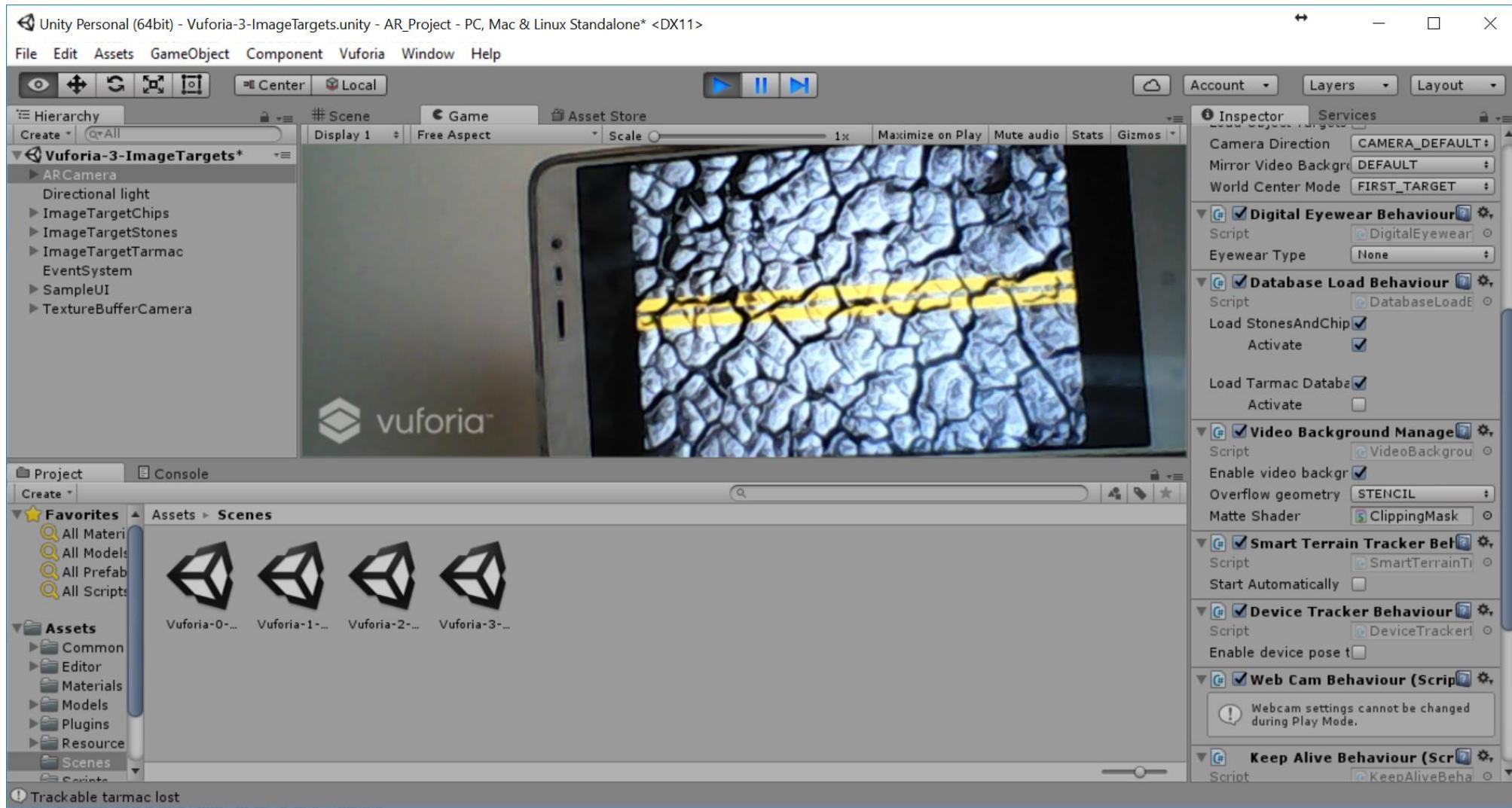
# Paste License Key



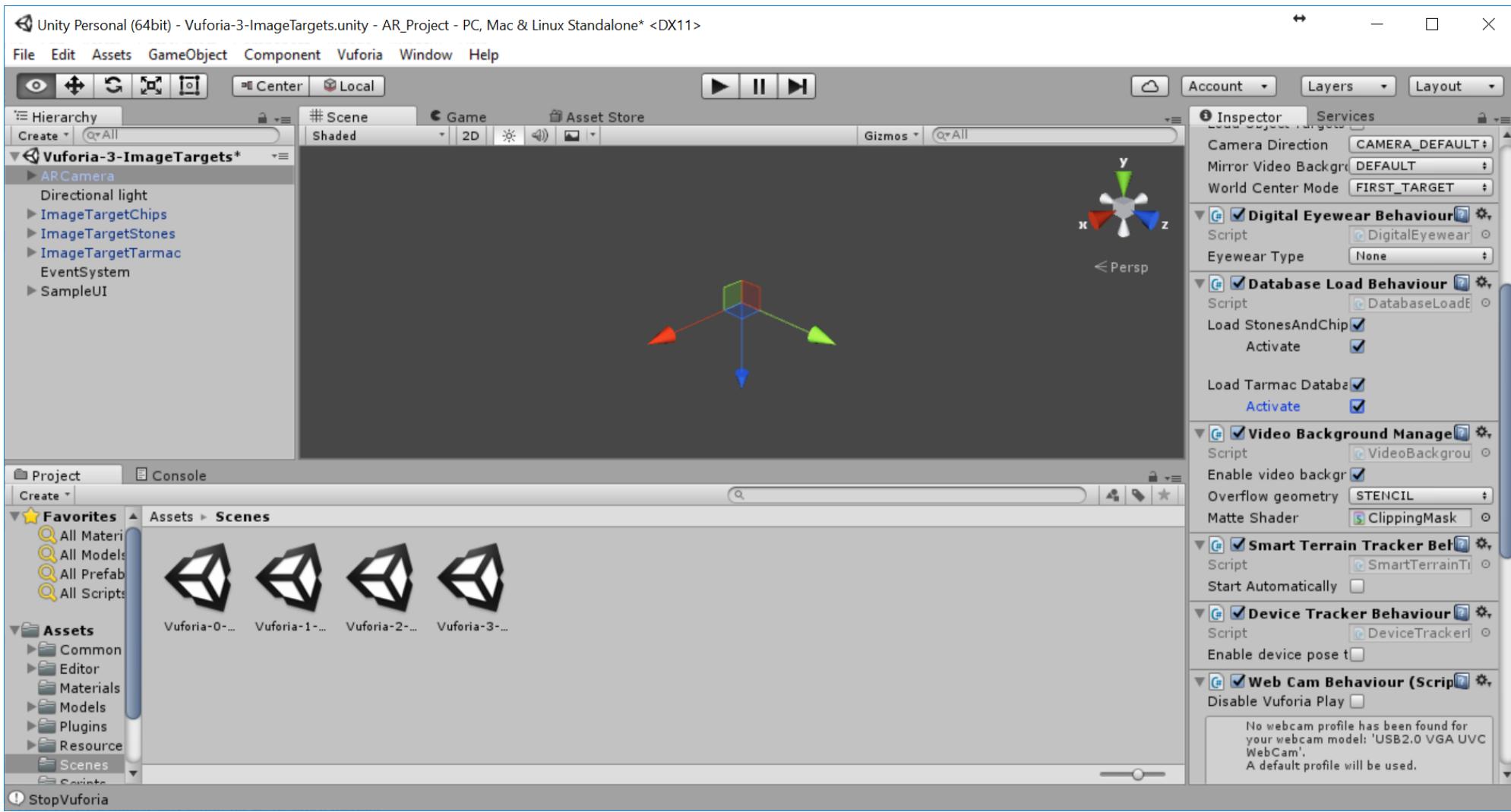
# Run the app



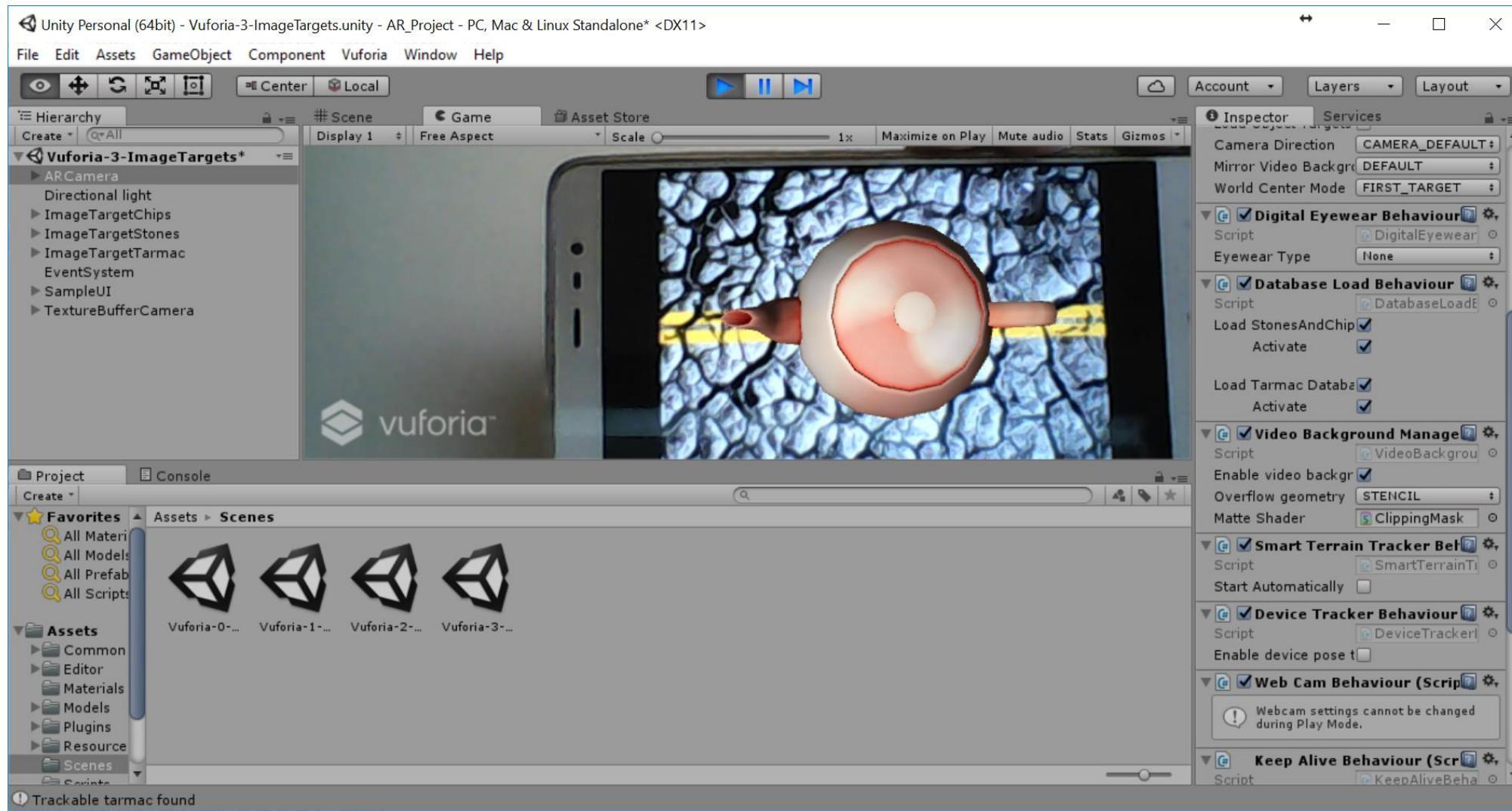
# Try different marker



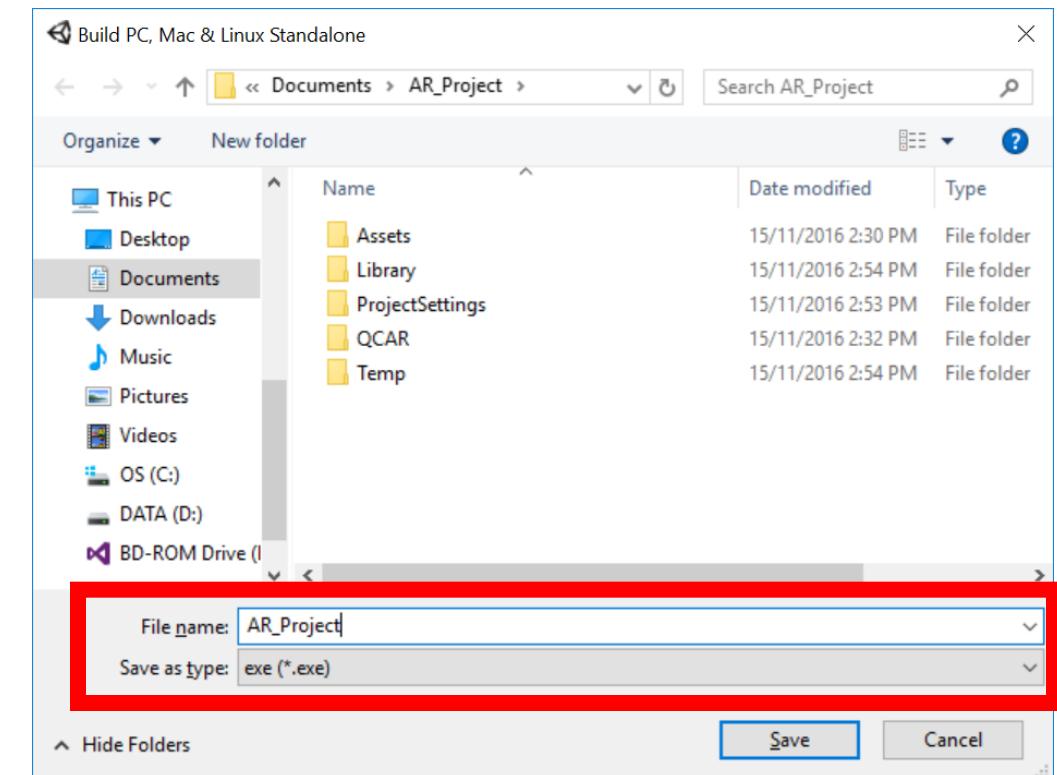
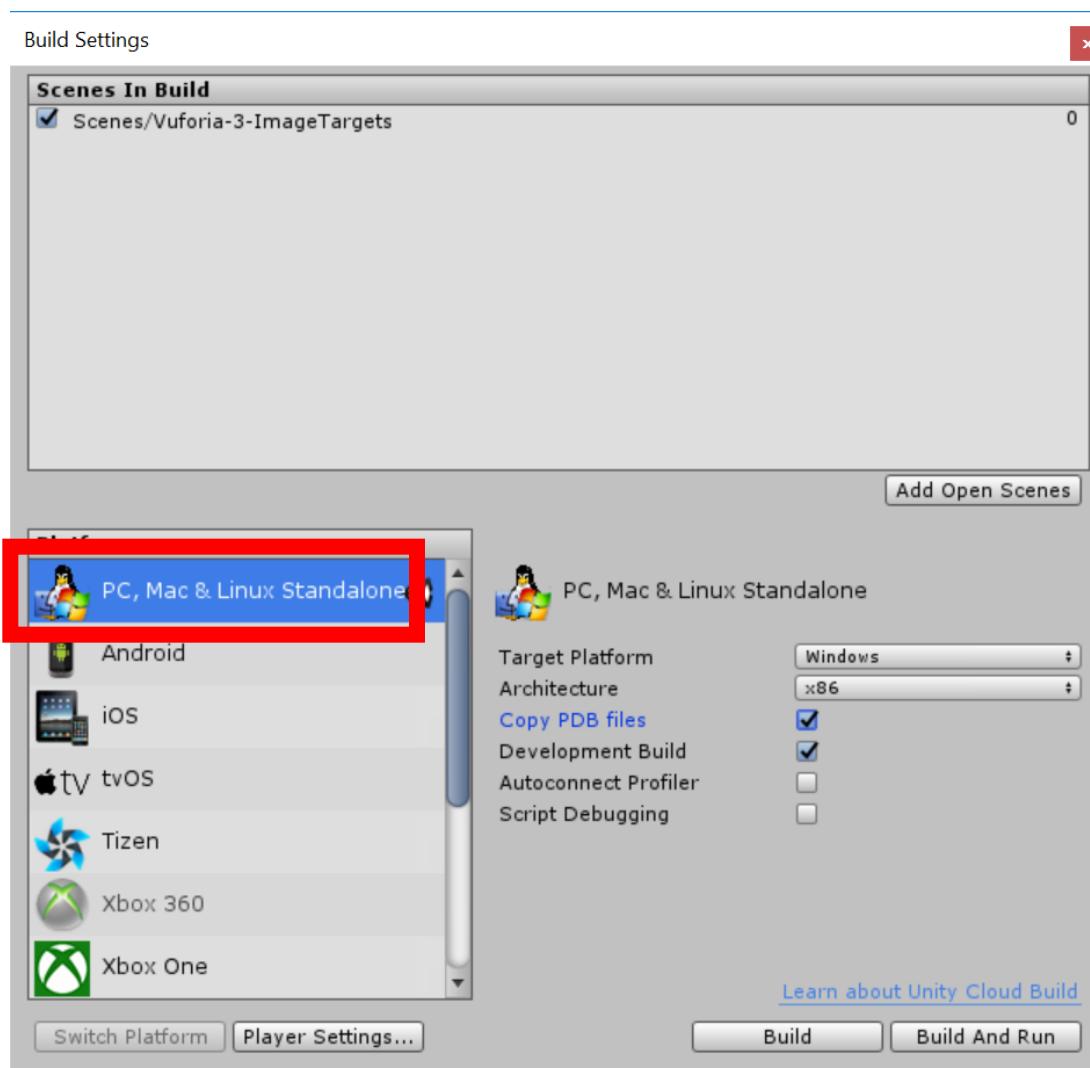
# Activate the marker



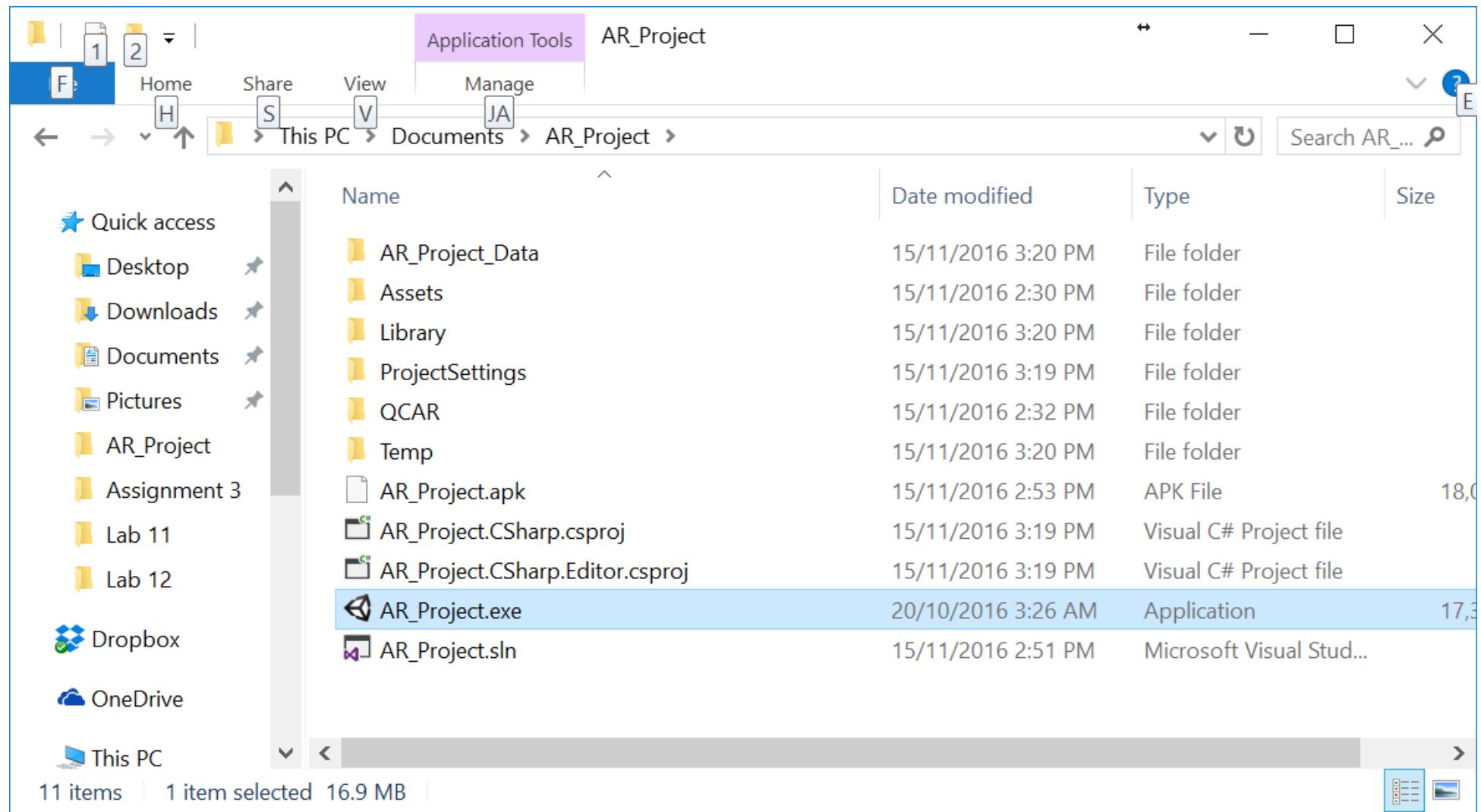
# Run the app



# How about building the app on Windows?

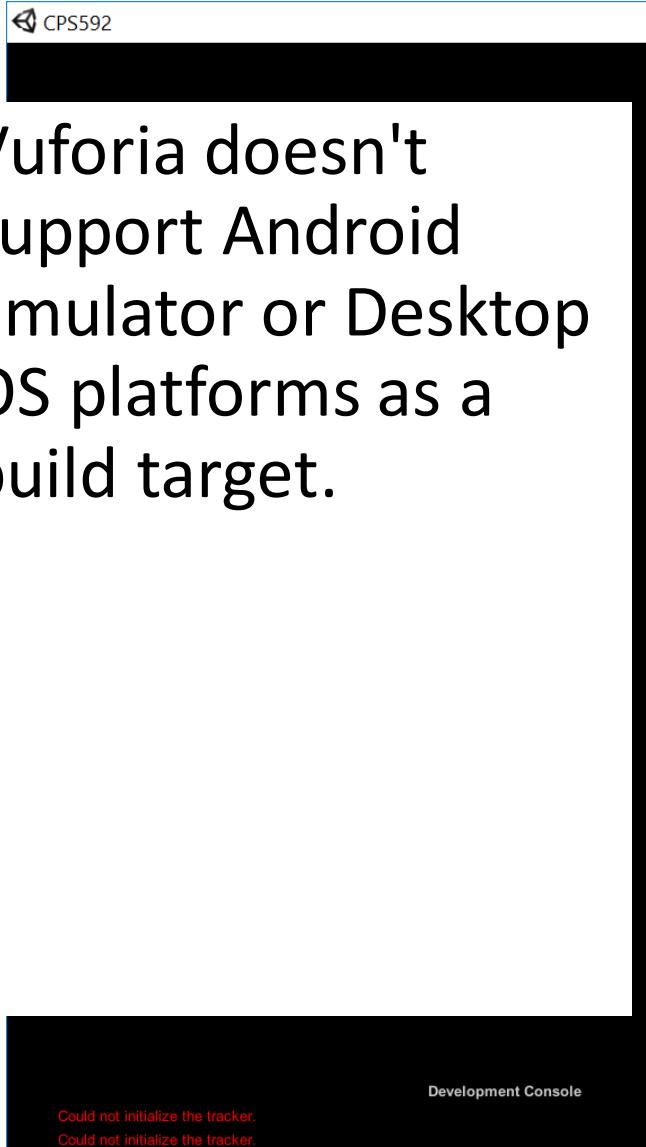


# Locate the built app on Windows



# Black Screen

- Vuforia doesn't support Android Emulator or Desktop OS platforms as a build target.



The screenshot shows a forum post from developer.vuforia.com. The title of the post is "Cameras not enabling in standalone". The post content states: "Vuforia doesn't support Android Emulator or Desktop OS platforms as a build target." A user named dm3d has responded to this post. The entire post area is highlighted with a red box.

Topic has a solution

Post Reply    Subscribe

Sort Posts ↑ 1 replies 2 Last post

Cameras not enabling in standalone

Vuforia doesn't support Android Emulator or Desktop OS platforms as a build target.

dm3d Offline

Joined: March 26, 2013

Posts: 2251

reply    quote

Top

Cameras not enabling in standalone

Topic solved

I've got Vuforia working in Editor just fine and I can even build an app to my mobile device (Android, Nexus 6) and it works as expected just as it did in the Editor. The problem that I'm having now is that when I try to build a standalone application for Windows my webcam never enables. This just leaves me looking at my camera's clear color.

zcheck Offline

Joined: September 19, 2016

Posts: 1

As a probably related side-note, I installed an android emulator for my PC and installed the APK to that VM (using the same APK that was confirmed to work on the Nexus 6) and it was having the same issue as Windows standalone.

1

Anyone got any hints for me on this one?

# Activate the developer mode on Android Phone/Tablet

1. Go to **Settings>>About** (On most Android Smartphone and tablet)

**OR**

Go to **Settings>> More/General tab>> About** (On Samsung Galaxy S3, Galaxy S4, Galaxy Note 8.0, Galaxy Tab 3 and other galaxy Smartphone and tablet having Android 4.2/4.3 Jelly Bean)

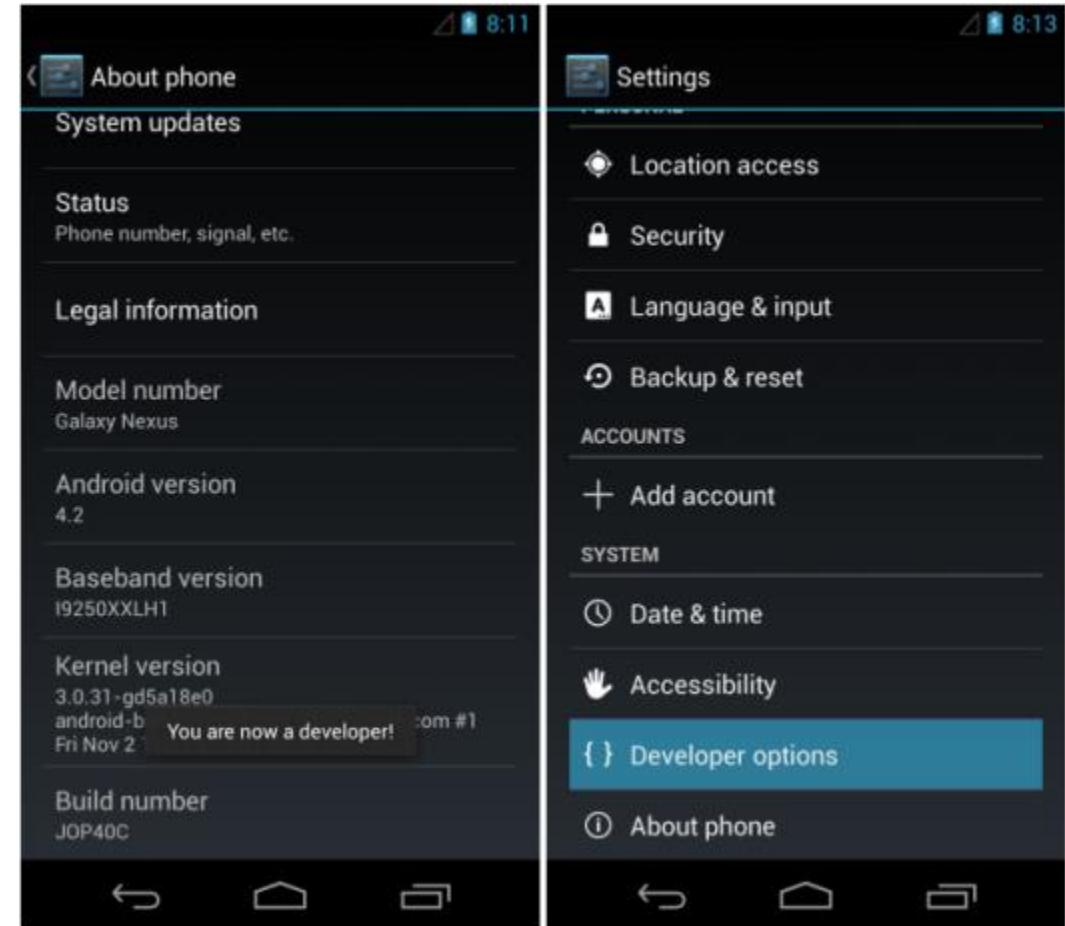
**OR**

Go to **Settings>> General>> About** (On Samsung Galaxy Note 2, Galaxy Note 3 and some other Galaxy devices having Android 4.3 Jelly Bean or 4.4 KitKat)

**OR**

Go to **Settings> About> Software Information> More** (On HTC One or other HTC devices having Android 4.2 Jelly Bean or higher)

2. Scroll onto **Build Number** and tap it **7 times** repeatedly. (After tapping the build number 5 times you'll see a message "*Press it two more times to be a developer!*" and after tapping 7 times you'll see message "*You are now a developer*" or "*Developer mode has been enabled*")



# Download Android SDK

**[https://dl.google.com/android/android-sdk\\_r24.4.1-windows.zip](https://dl.google.com/android/android-sdk_r24.4.1-windows.zip)**

The screenshot shows a web browser displaying the Android Studio developer website at <https://developer.android.com/studio/index.html#downloads>. The page is titled "Get just the command line tools". It provides instructions for users who do not need Android Studio and can download the basic Android command line tools. A table lists four download options: Windows, Mac OS X, Linux, and a "No installer" option which is highlighted with a red box. The "No installer" row contains the link [android-sdk\\_r24.4.1-windows.zip](https://dl.google.com/android/android-sdk_r24.4.1-windows.zip).

Platform	SDK tools package	Size	SHA-1 checksum
Windows	<a href="https://dl.google.com/android/android-sdk_r24.4.1-windows.zip">installer_r24.4.1-windows.exe</a>	144 MB (151659917 bytes)	f9b59d72413649d31e633207e31f
	<a href="https://dl.google.com/android/android-sdk_r24.4.1-windows.zip">android-sdk_r24.4.1-windows.zip</a> No installer	190 MB (199701062 bytes)	66b6a6433053c152b22bf8cab19c
Mac OS X	<a href="https://dl.google.com/android/android-sdk_r24.4.1-macosx.zip">android-sdk_r24.4.1-macosx.zip</a>	98 MB (102781947 bytes)	85a9ccb0b1f9e6f1f616335c5f07
Linux	<a href="https://dl.google.com/android/android-sdk_r24.4.1-linux.tgz">android-sdk_r24.4.1-linux.tgz</a>	311 MB (326412652 bytes)	725bb360f0f7d04eaccff5a2d57ab

See the [SDK tools release notes](#).

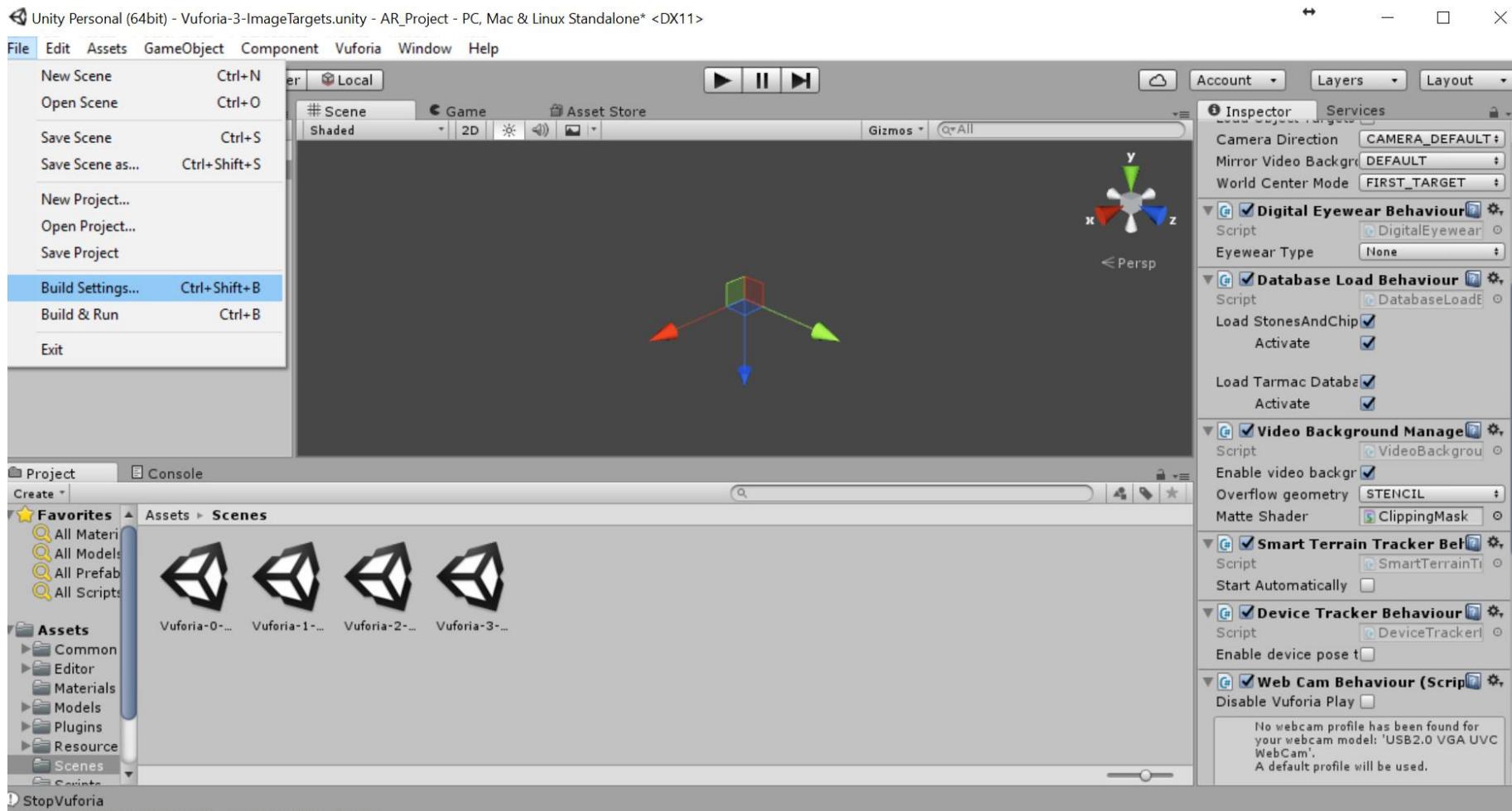
# Unzip Android SDK

- Unzip android-sdk\_r24.4.1-windows.zip

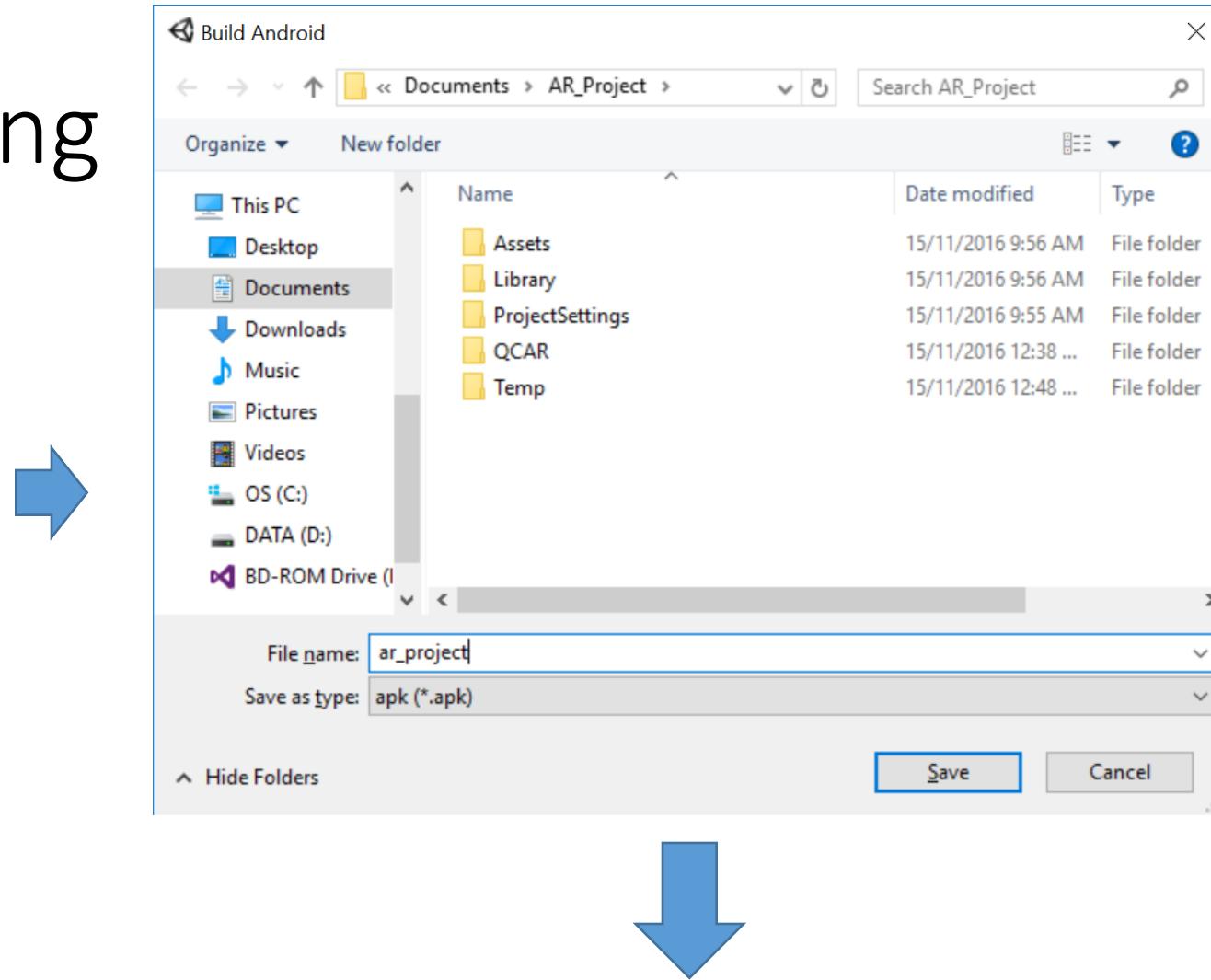
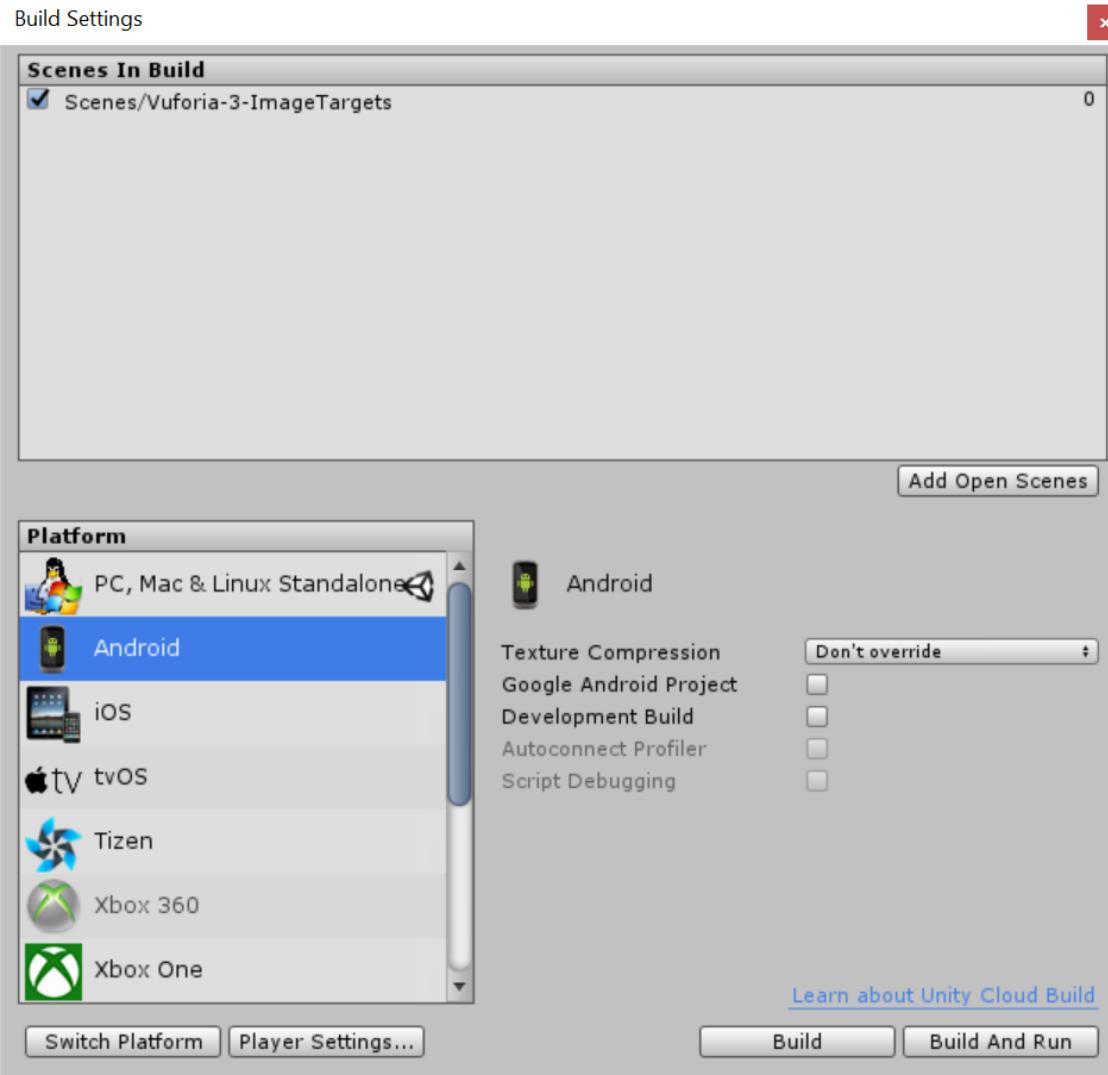
# Connect Android phone/tablet with laptop



# Choose the build setting

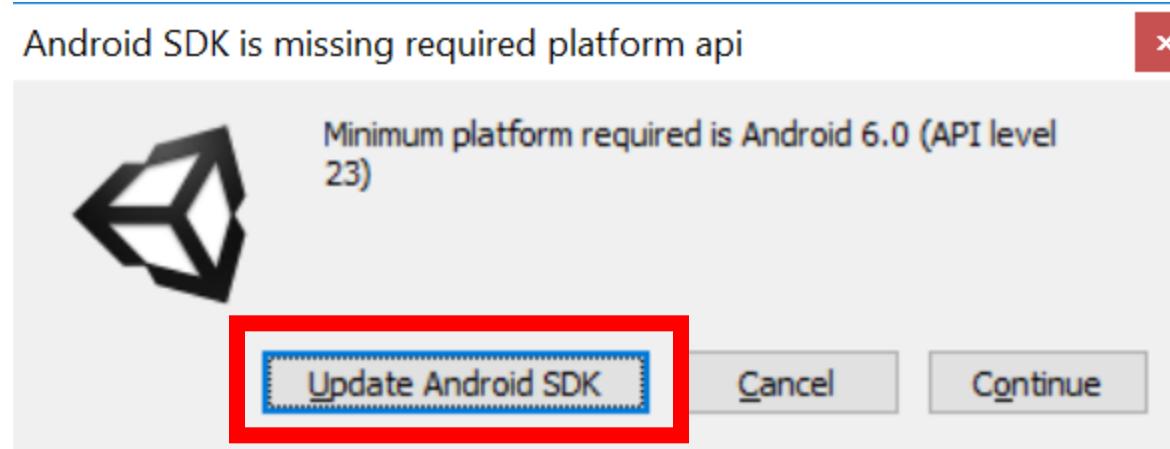
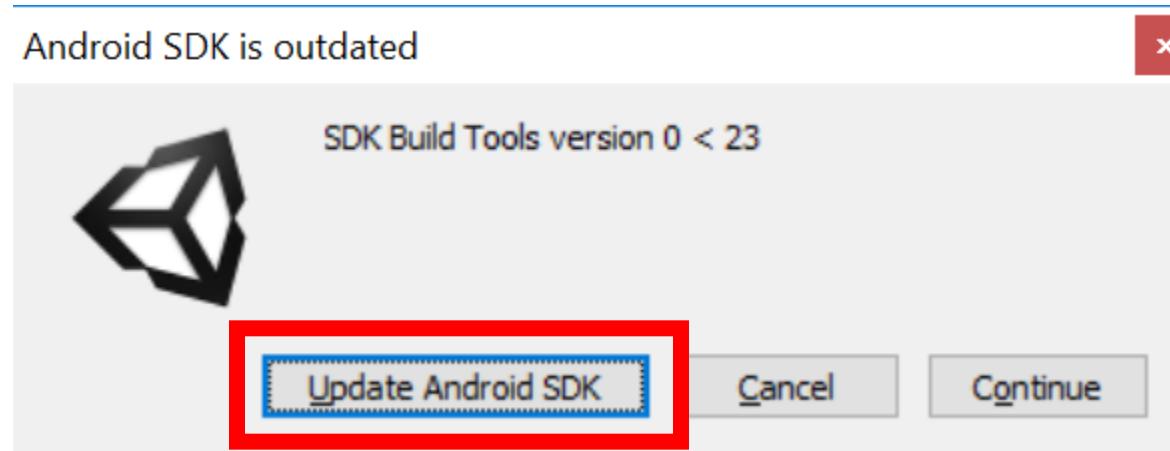


# Choose the build setting

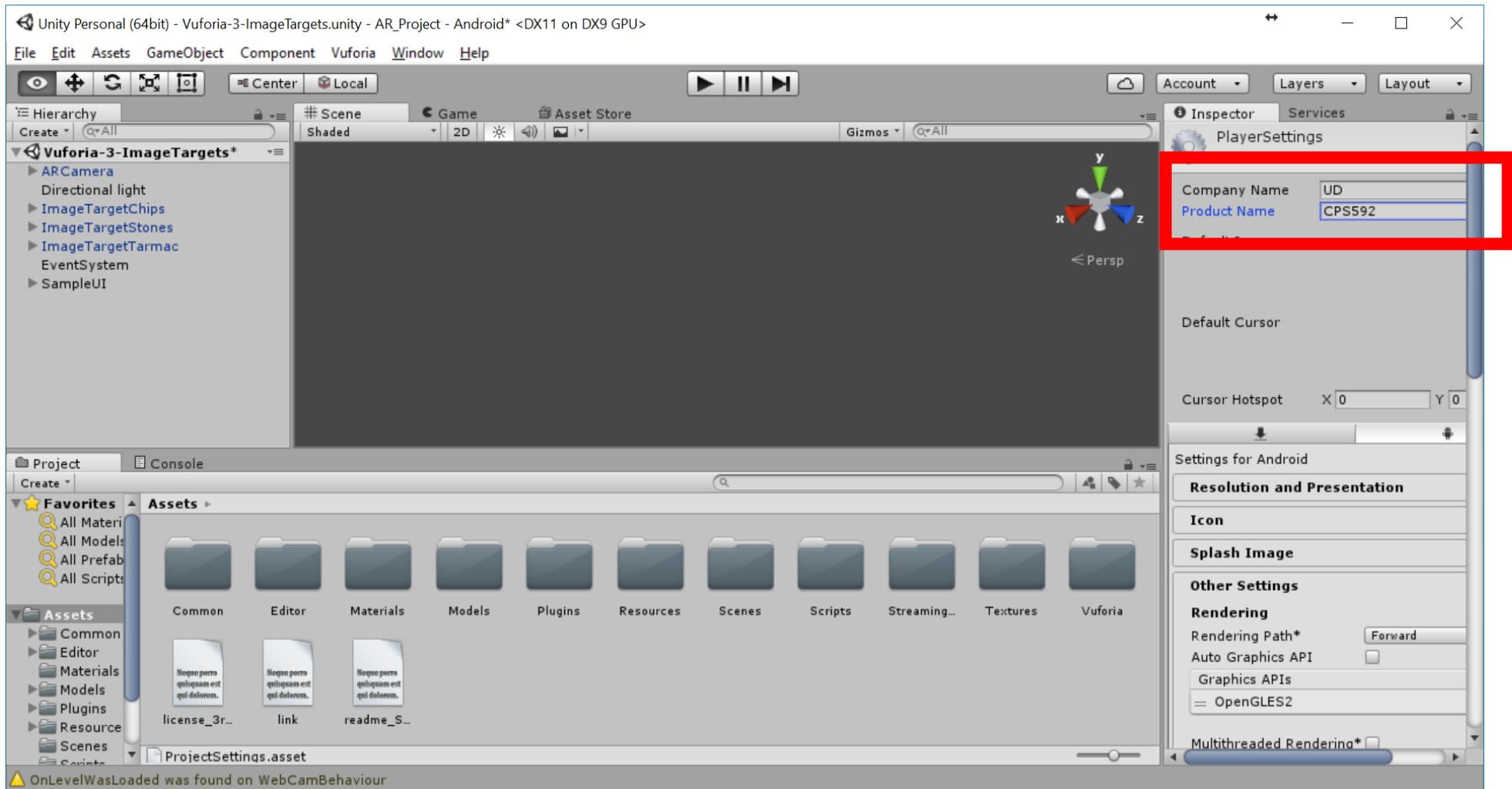


The next step is to point to the  
Android SDK folder

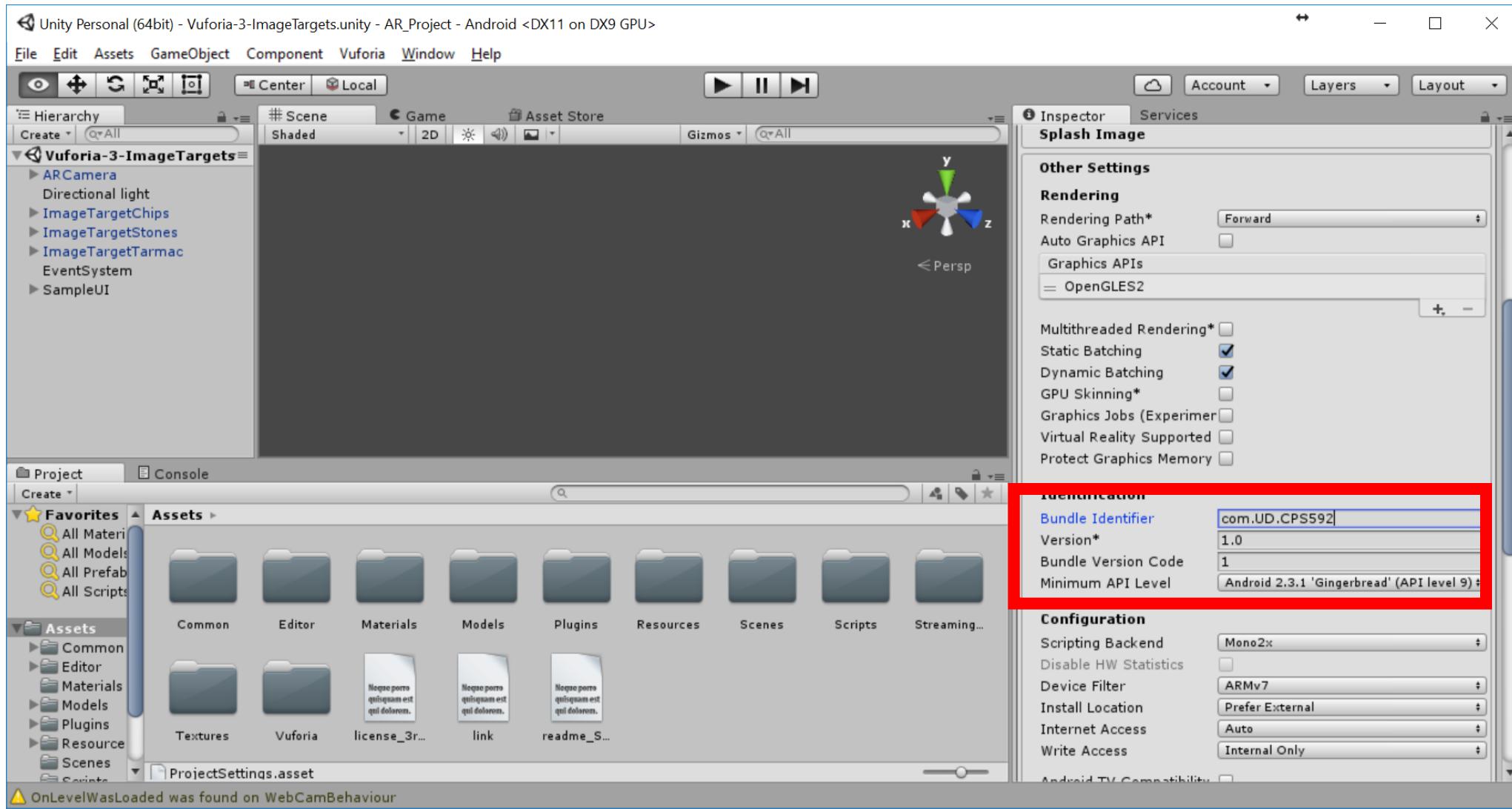
# Update Android SDK



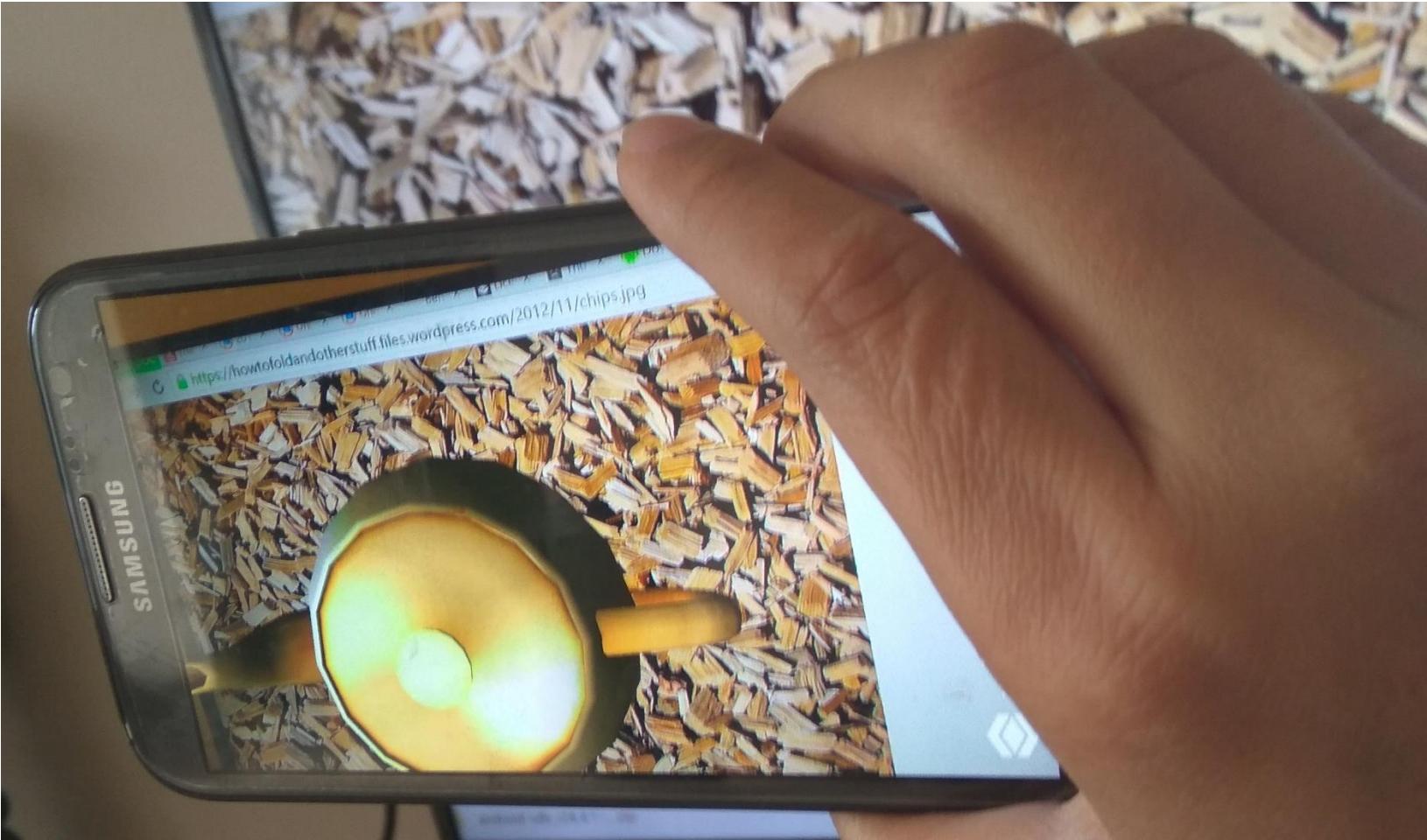
# Input Company Name and Product Name



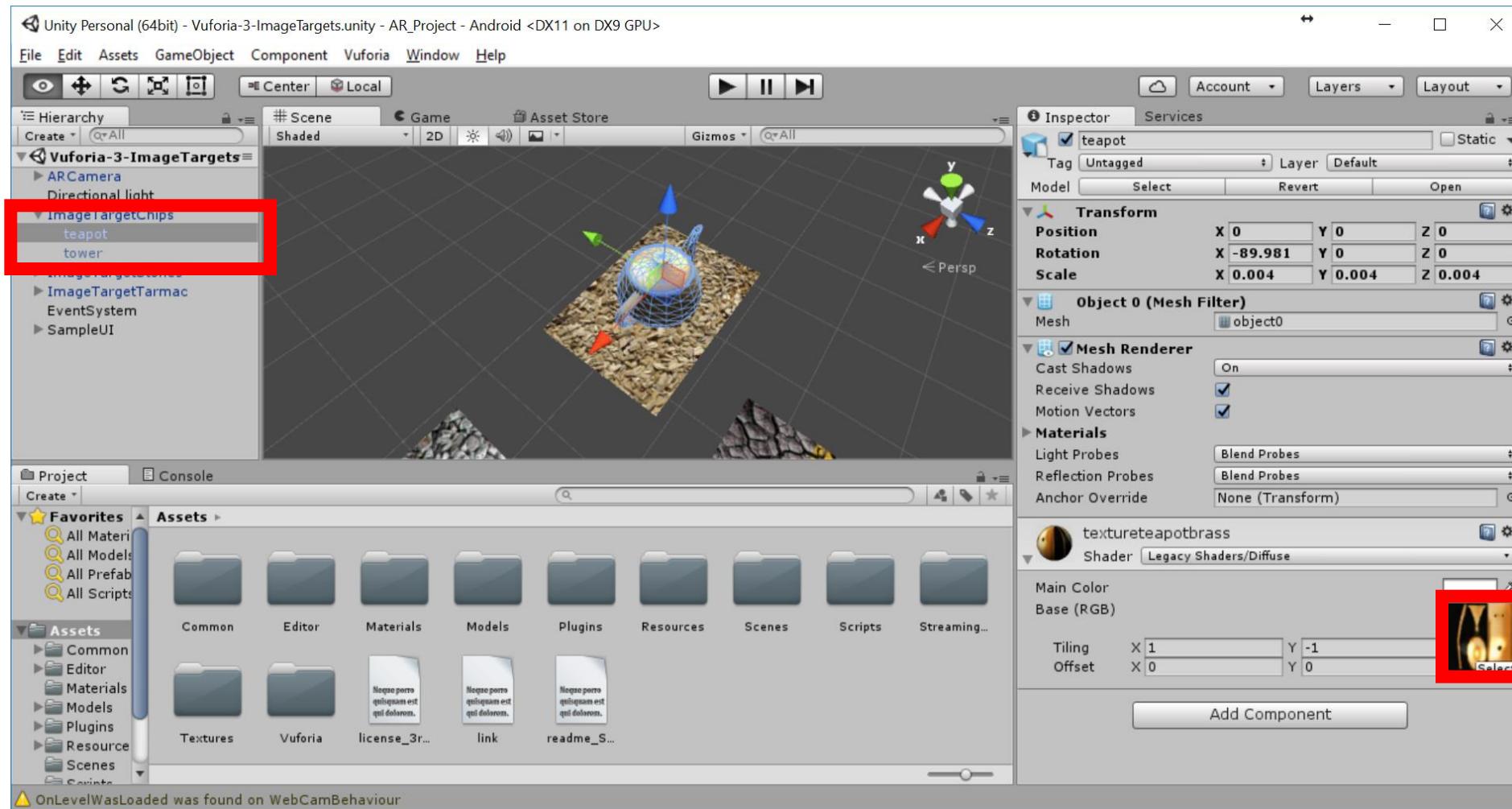
# Input Company Name and Product Name



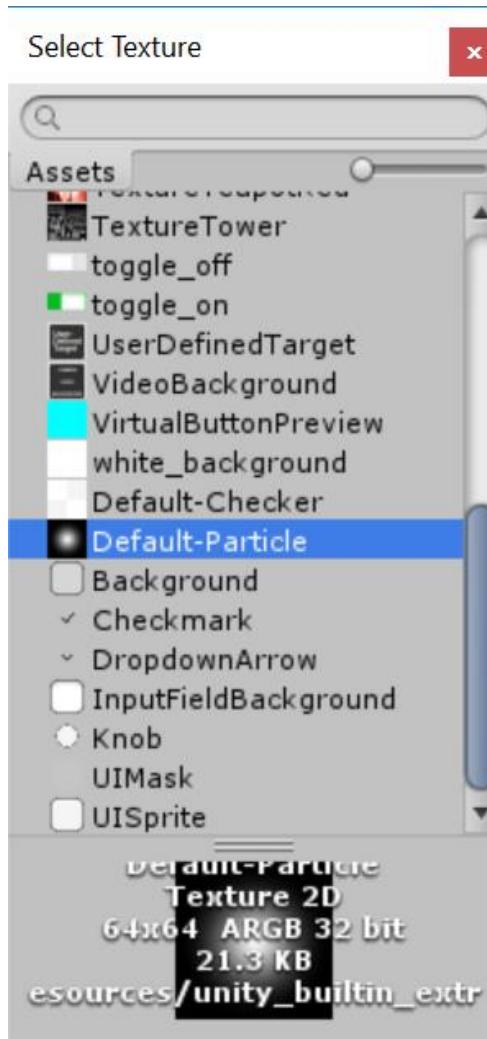
Build again and run the app on Android device



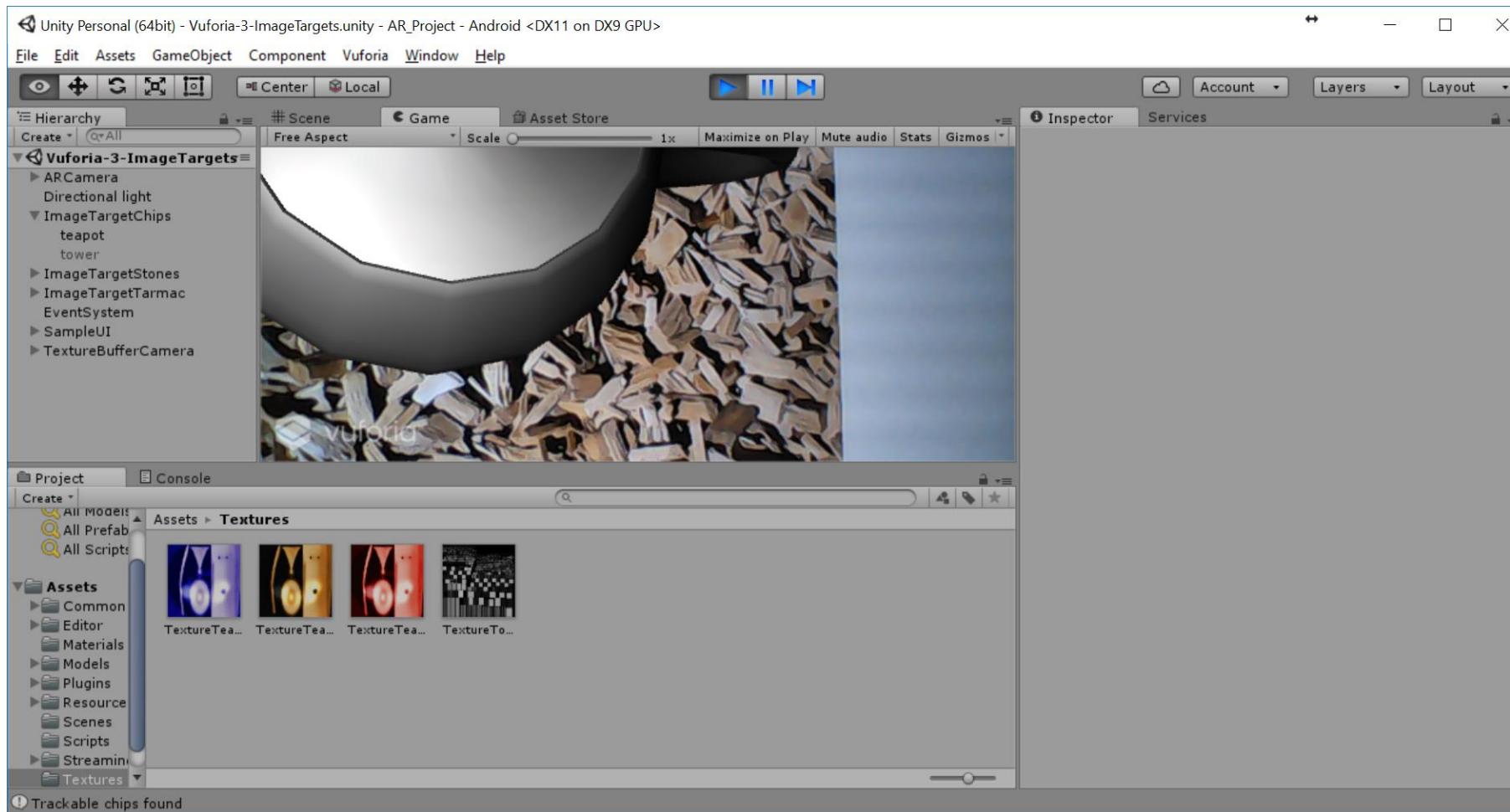
# Change the texture of the virtual object



# Change the texture of the virtual objects



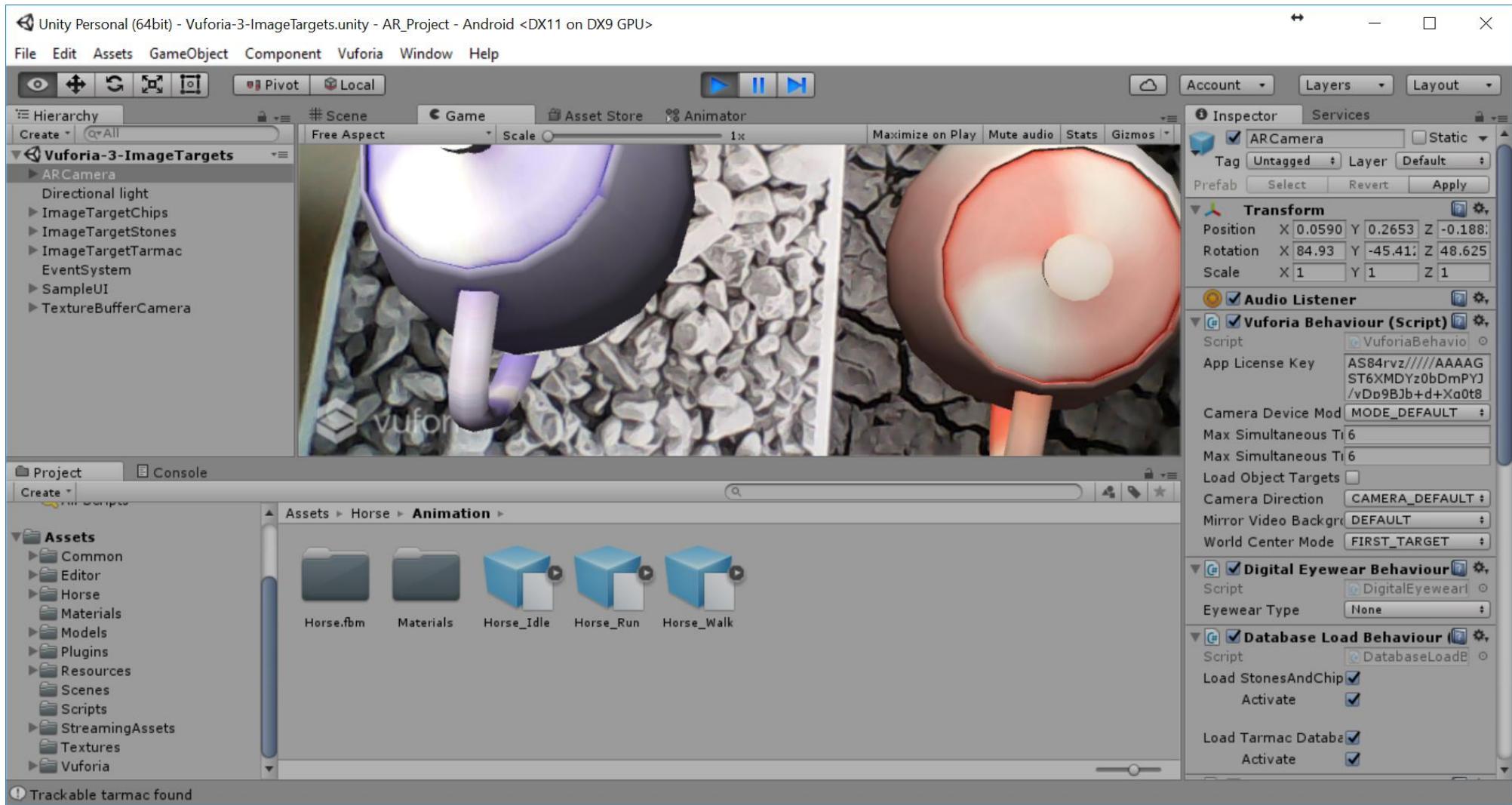
# Test the app



# How to track multiple markers (targets)?

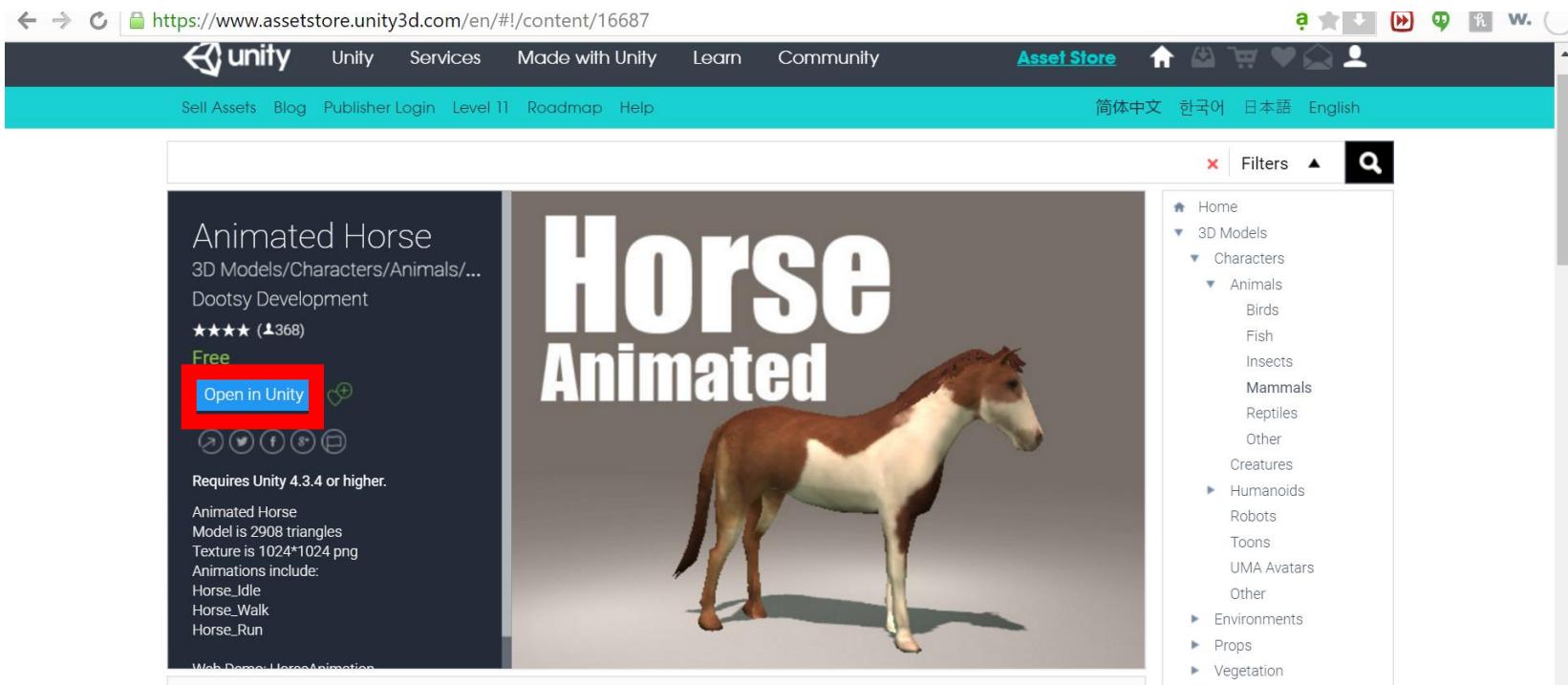


# Test the app

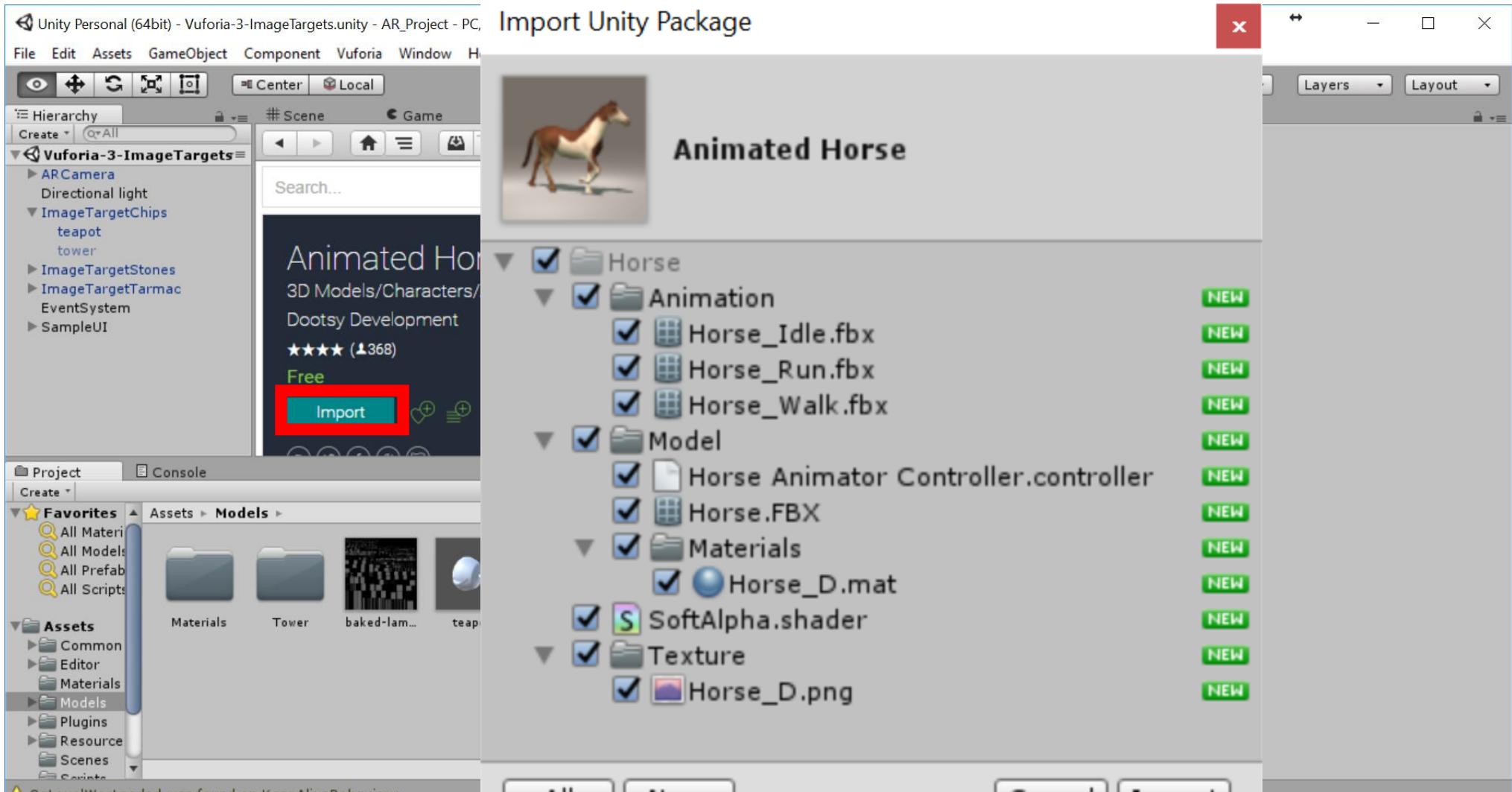


# Change the virtual object

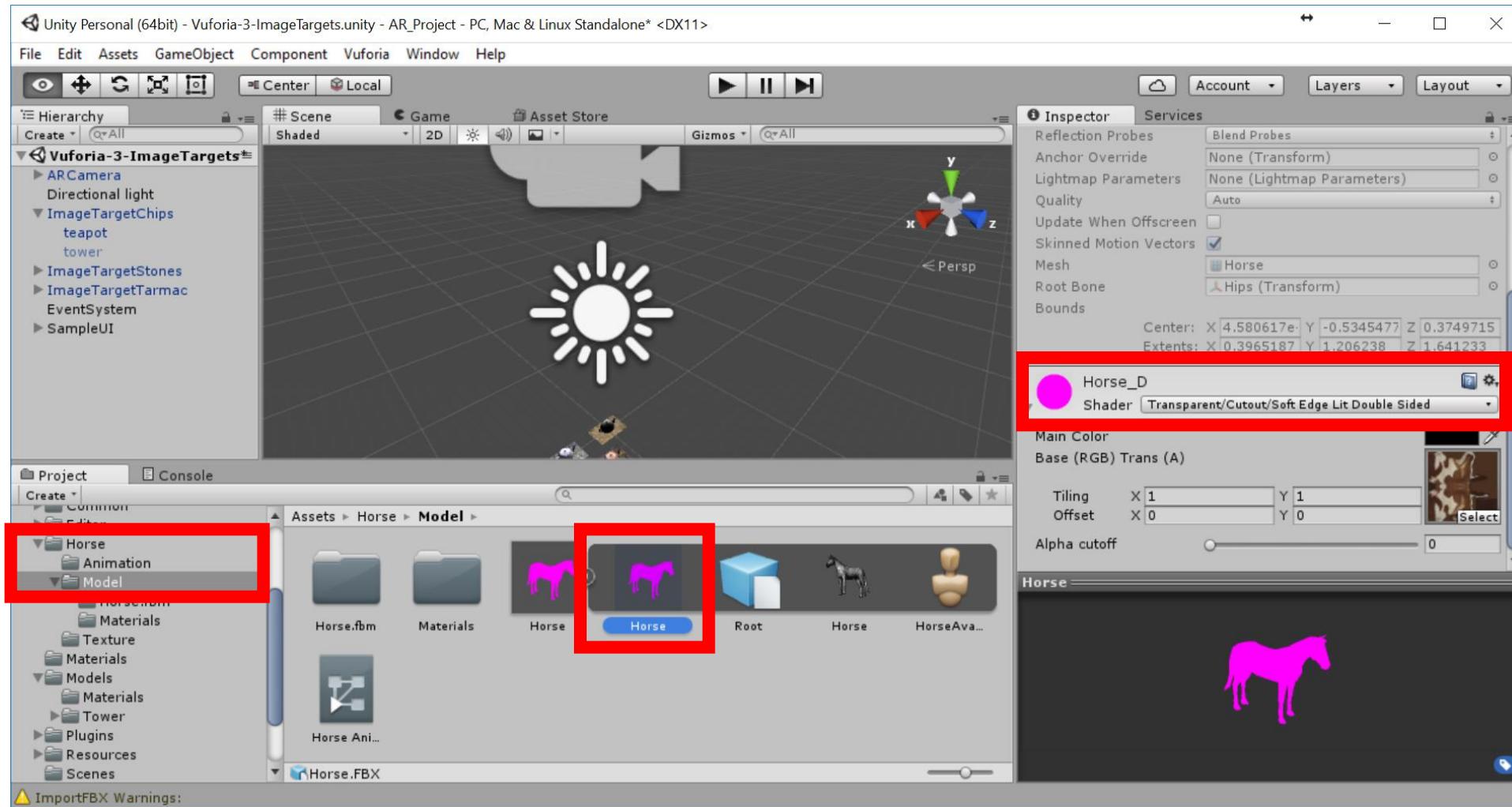
- Go to AssetStore of Unity3D
- <https://www.assetstore.unity3d.com/en/#!/content/16687>



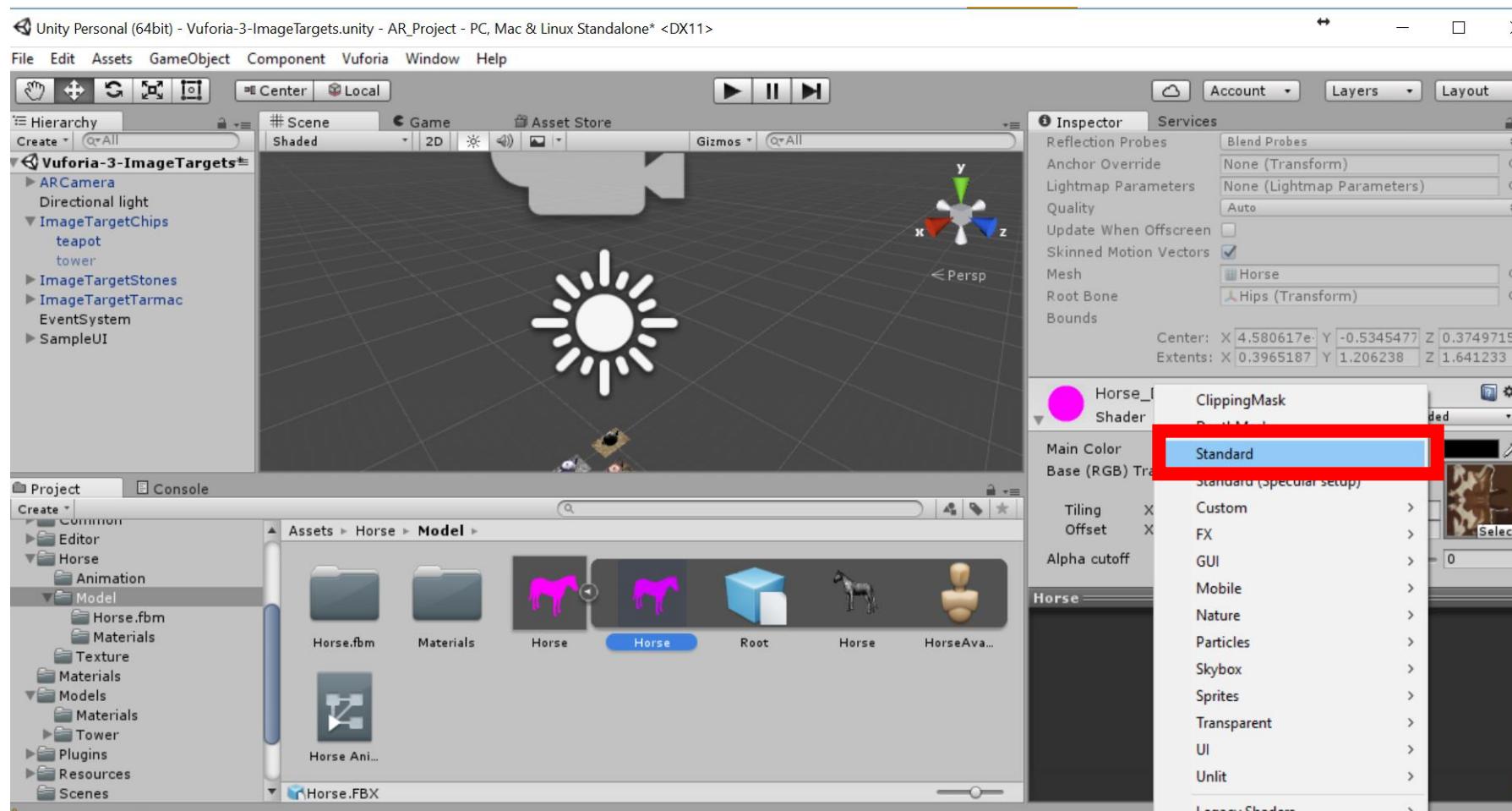
# Change the virtual object



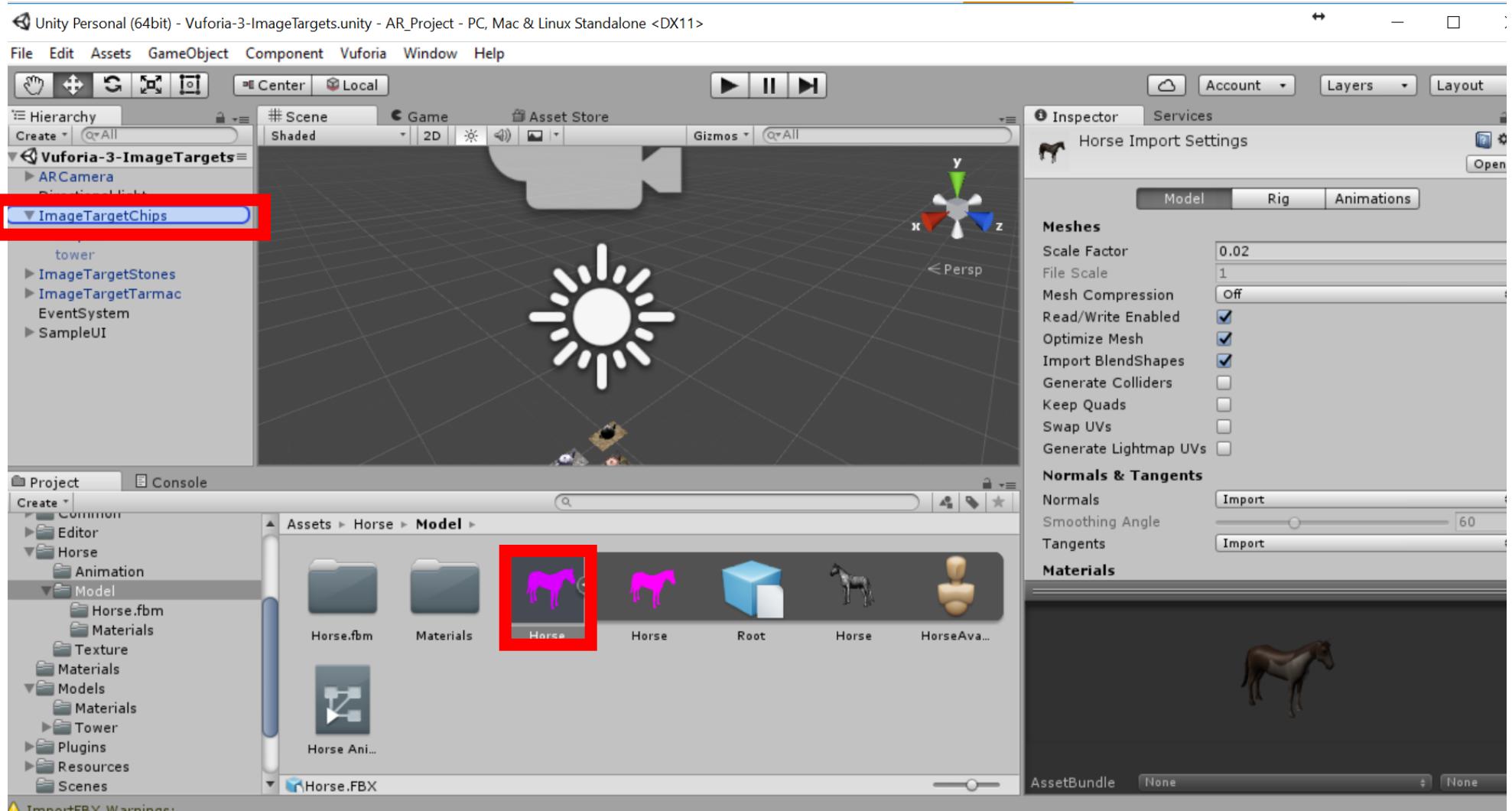
# Update the texture of the imported model



# Update the texture of the imported model

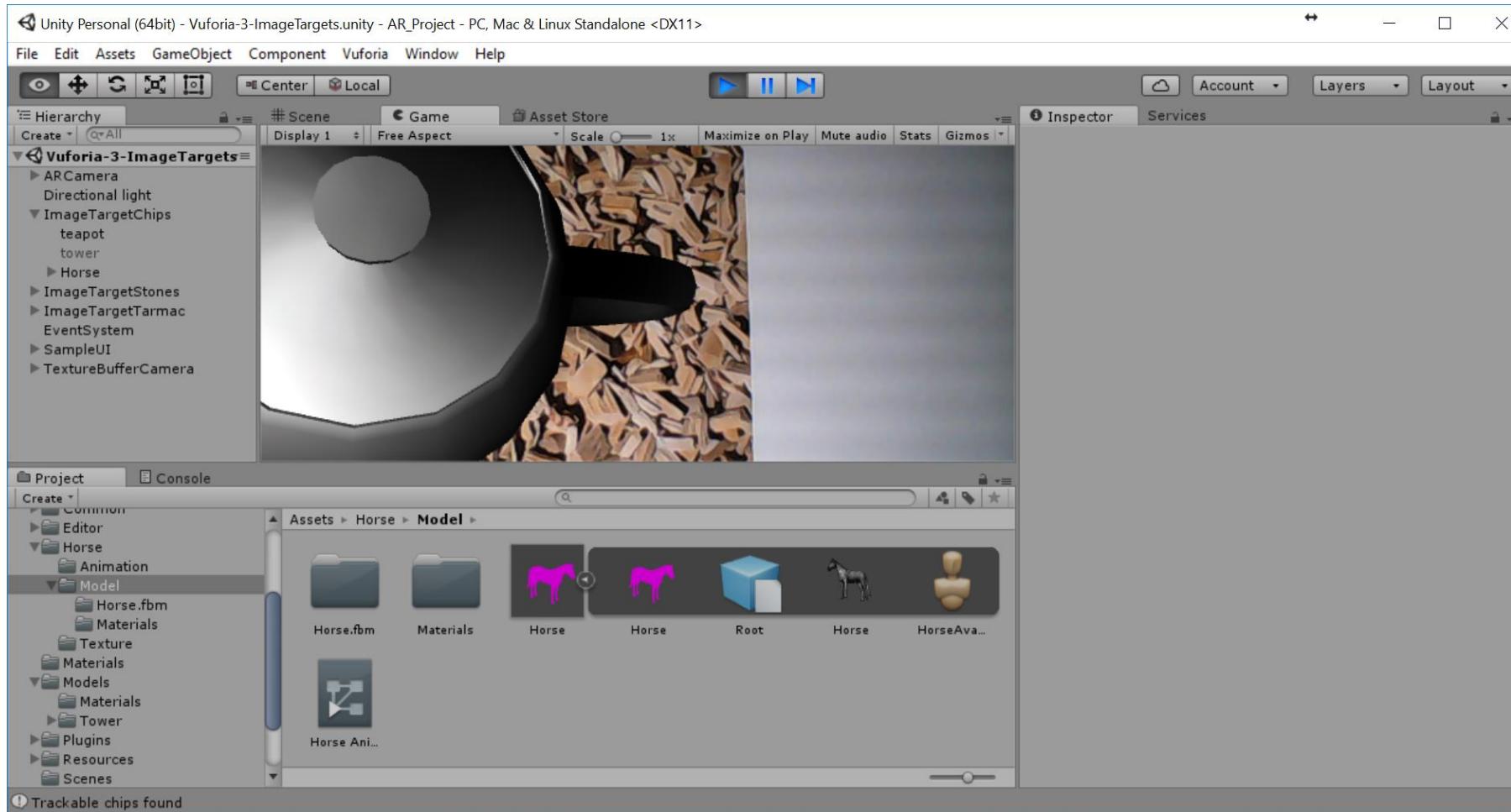


# Drag the imported model into the Unity3D scene

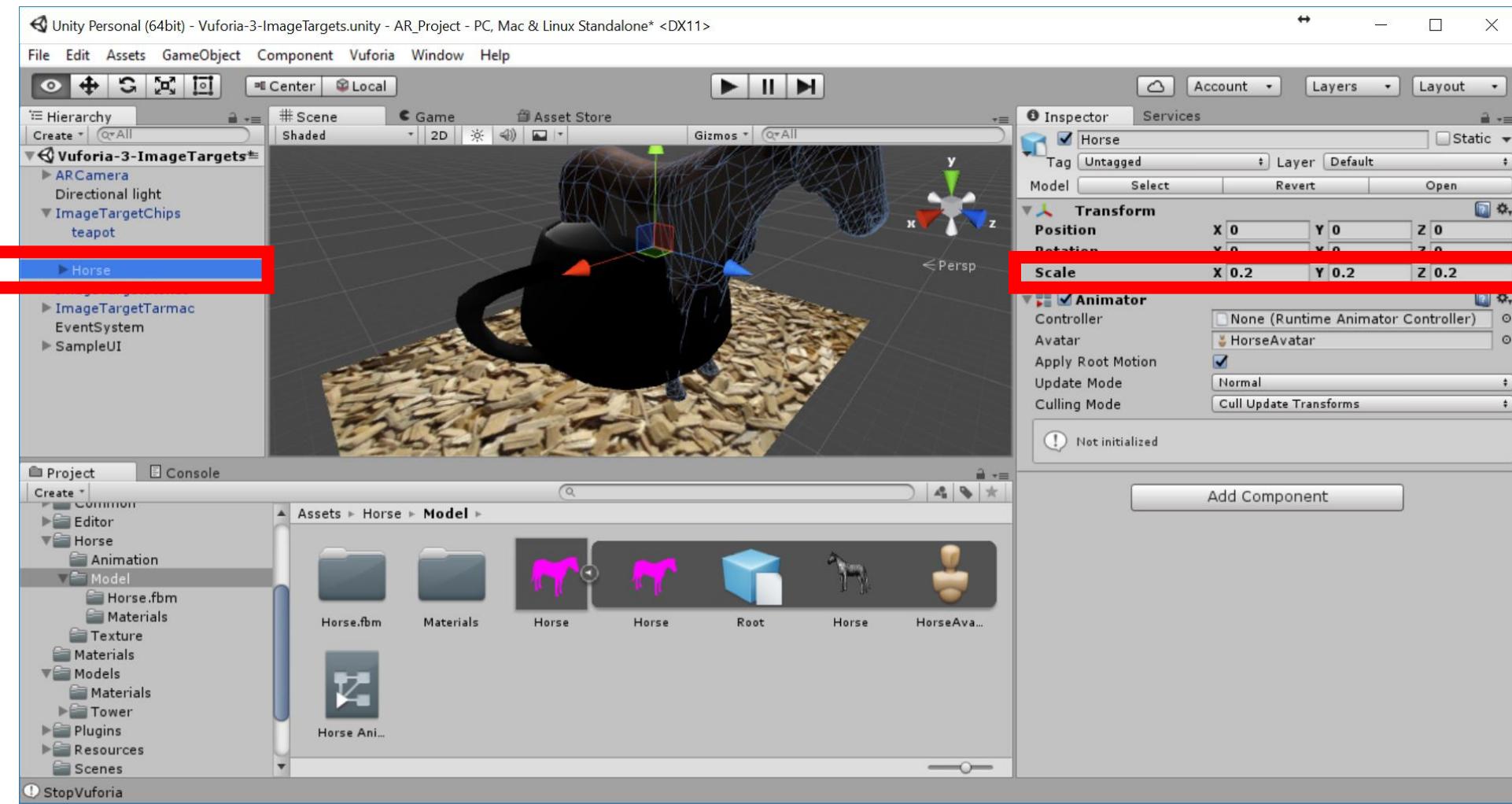


# Run the app

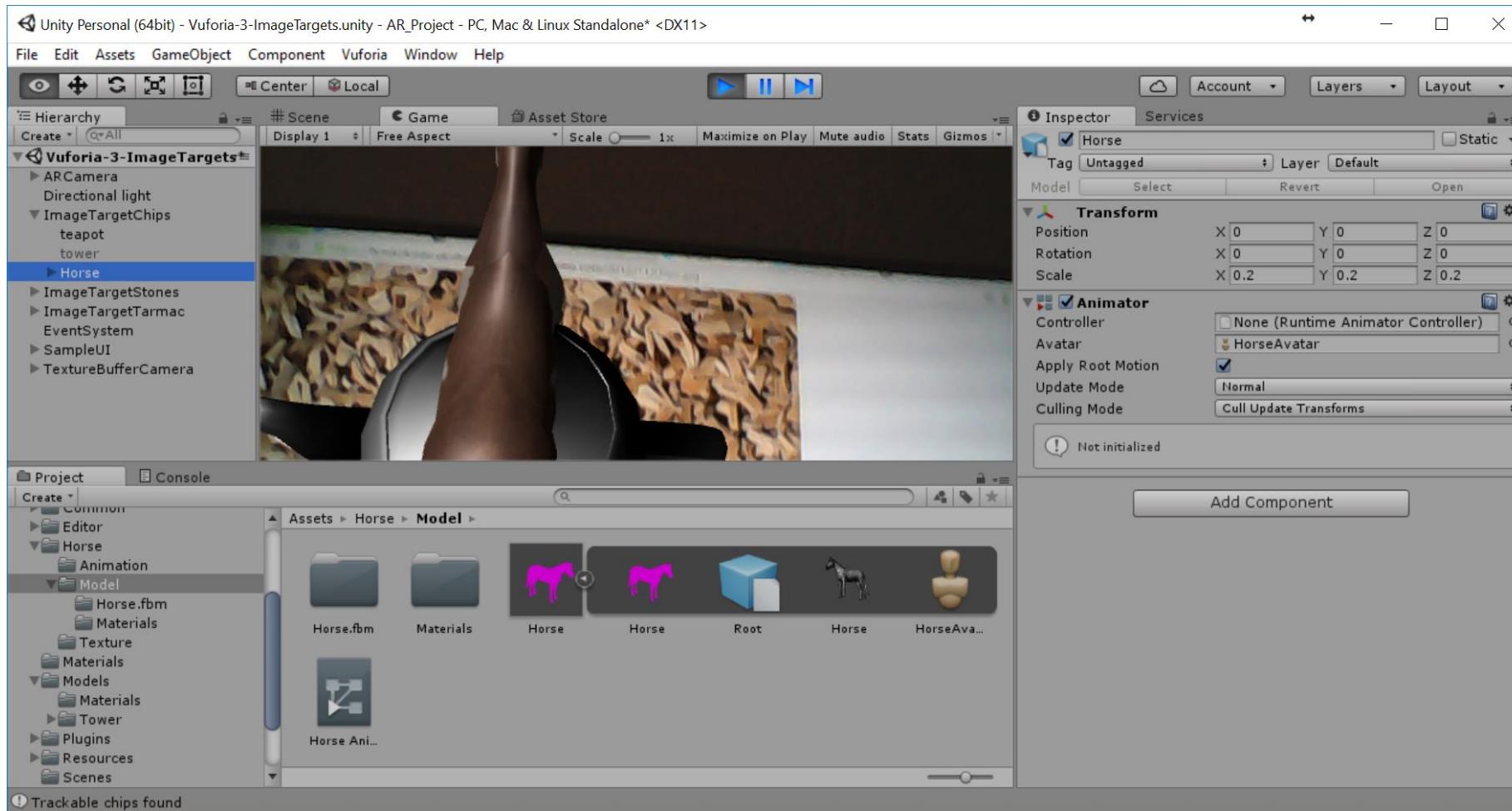
**THERE IS NO HORSE???**



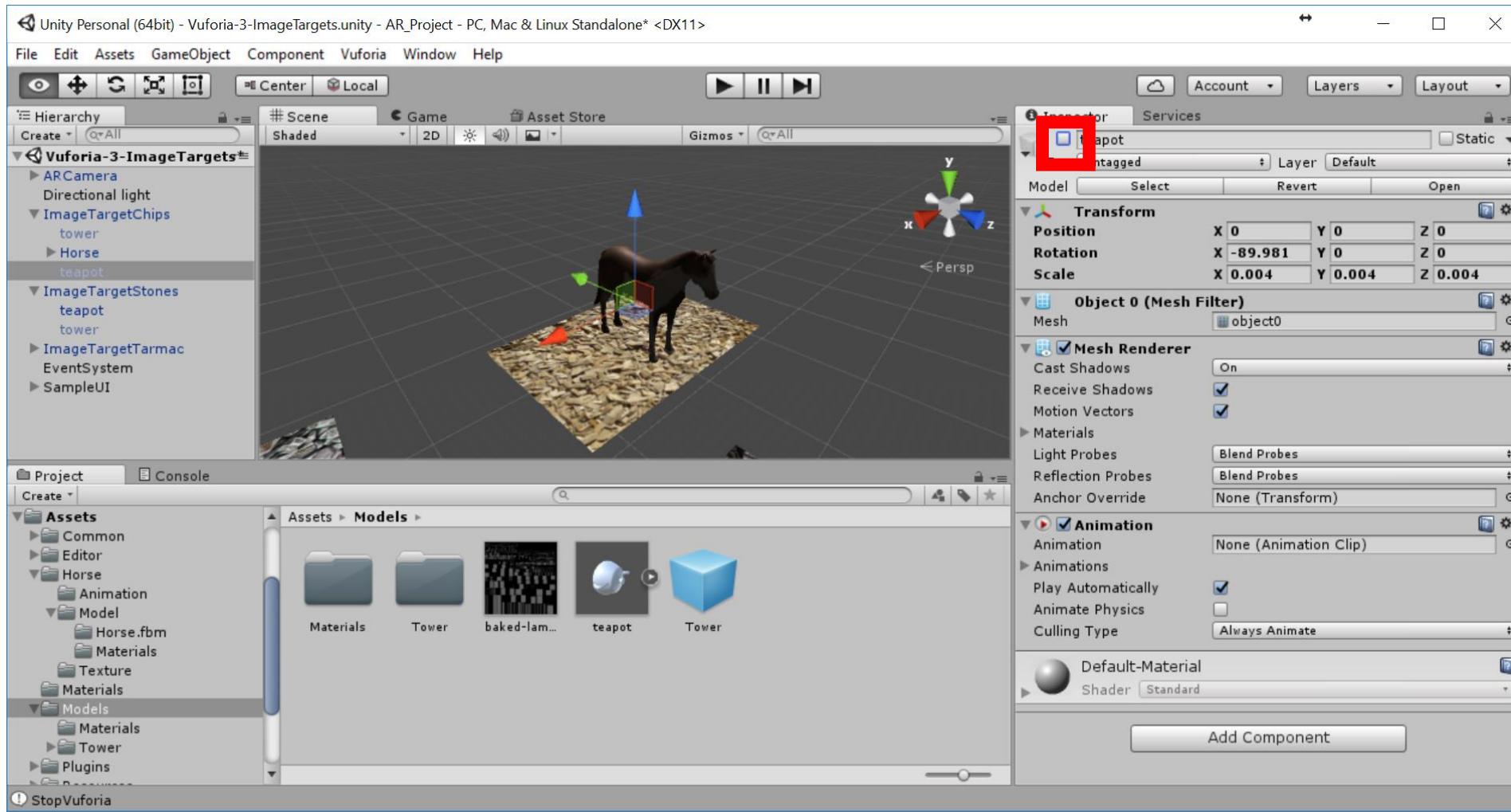
# Update the scale



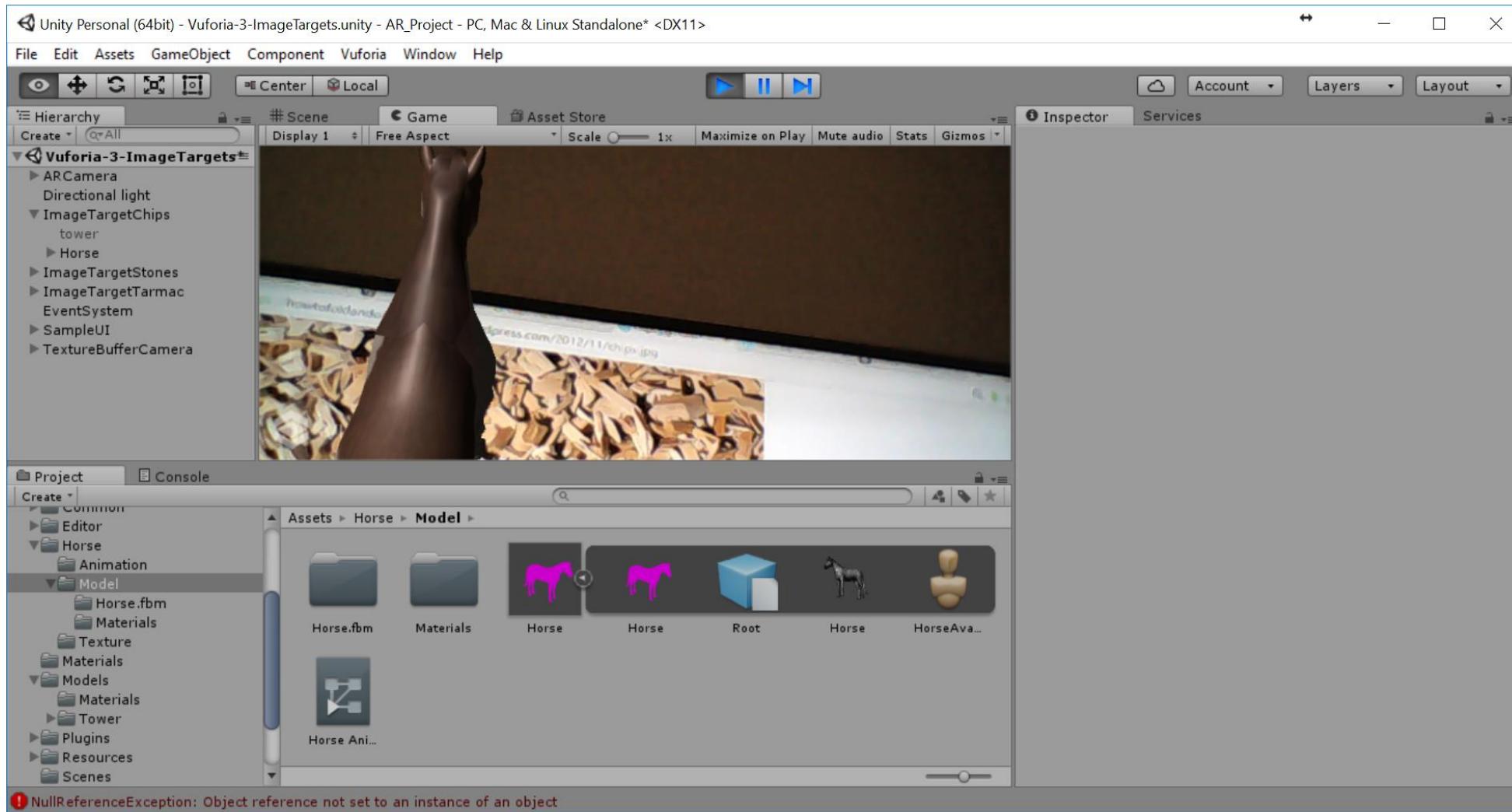
# Run the app again



# Disable the teapot

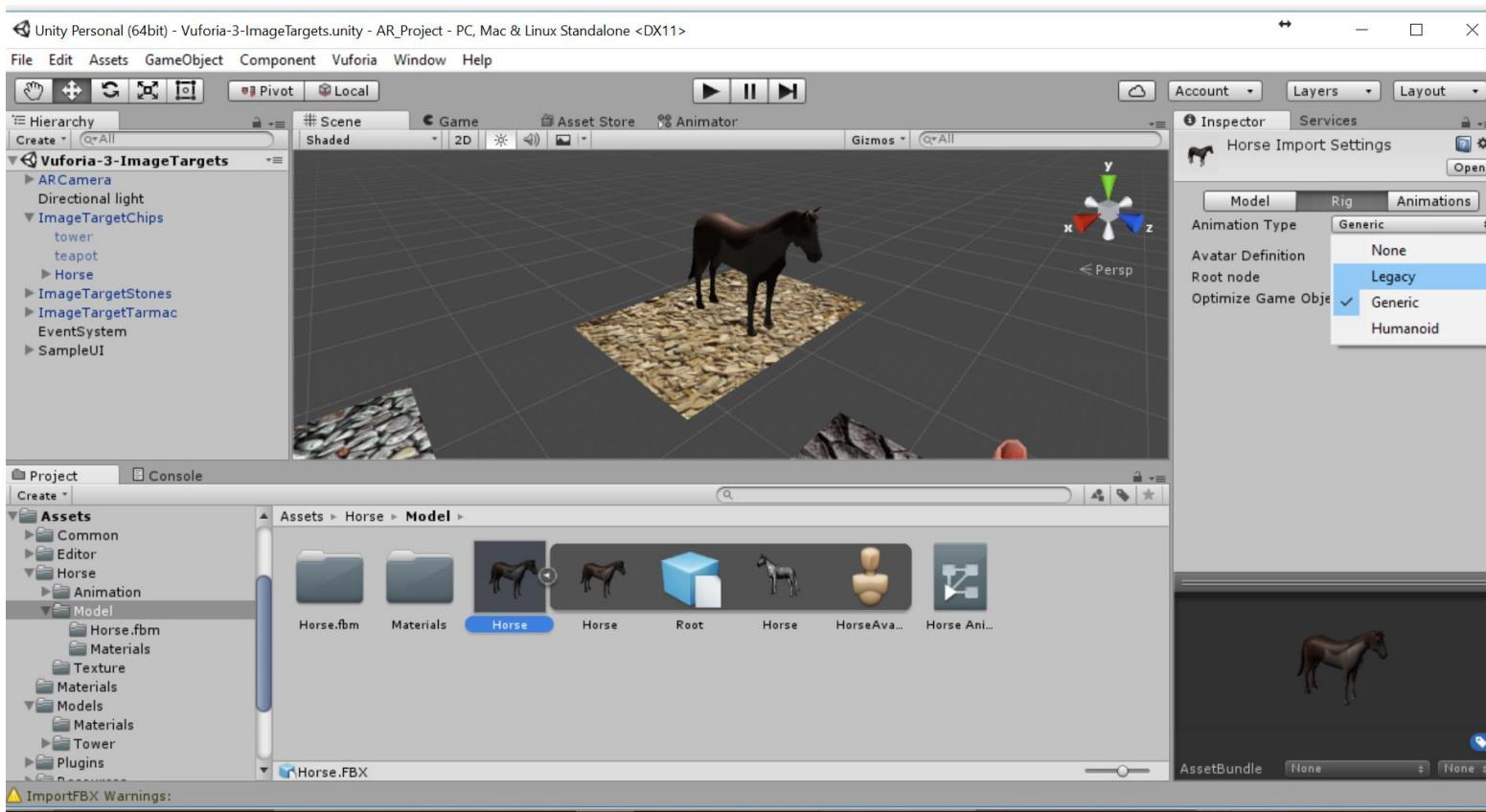


# Run the app again



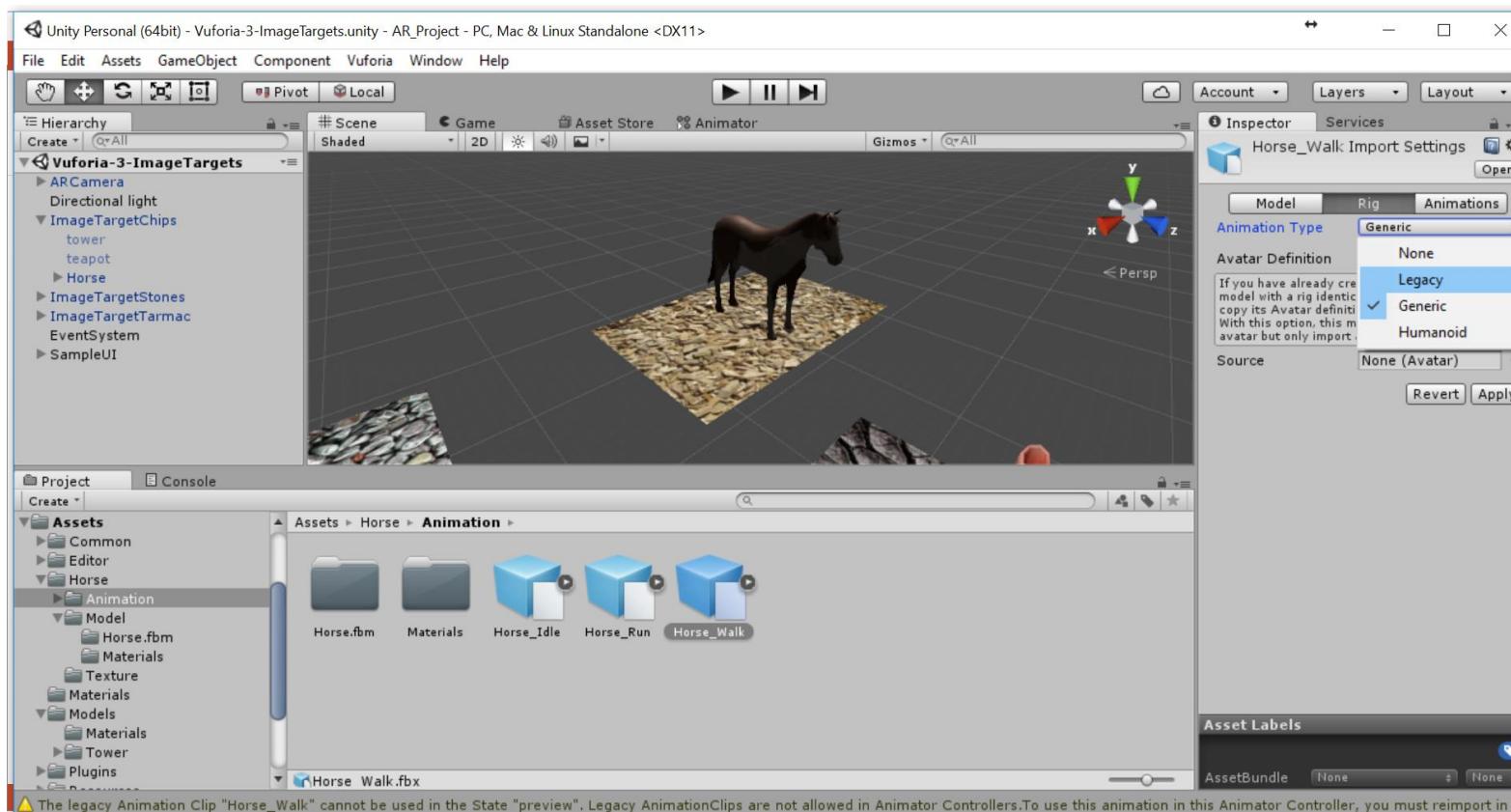
# Add animation

- In **Rig** tab, change the animation type from “Generic” to “Legacy”



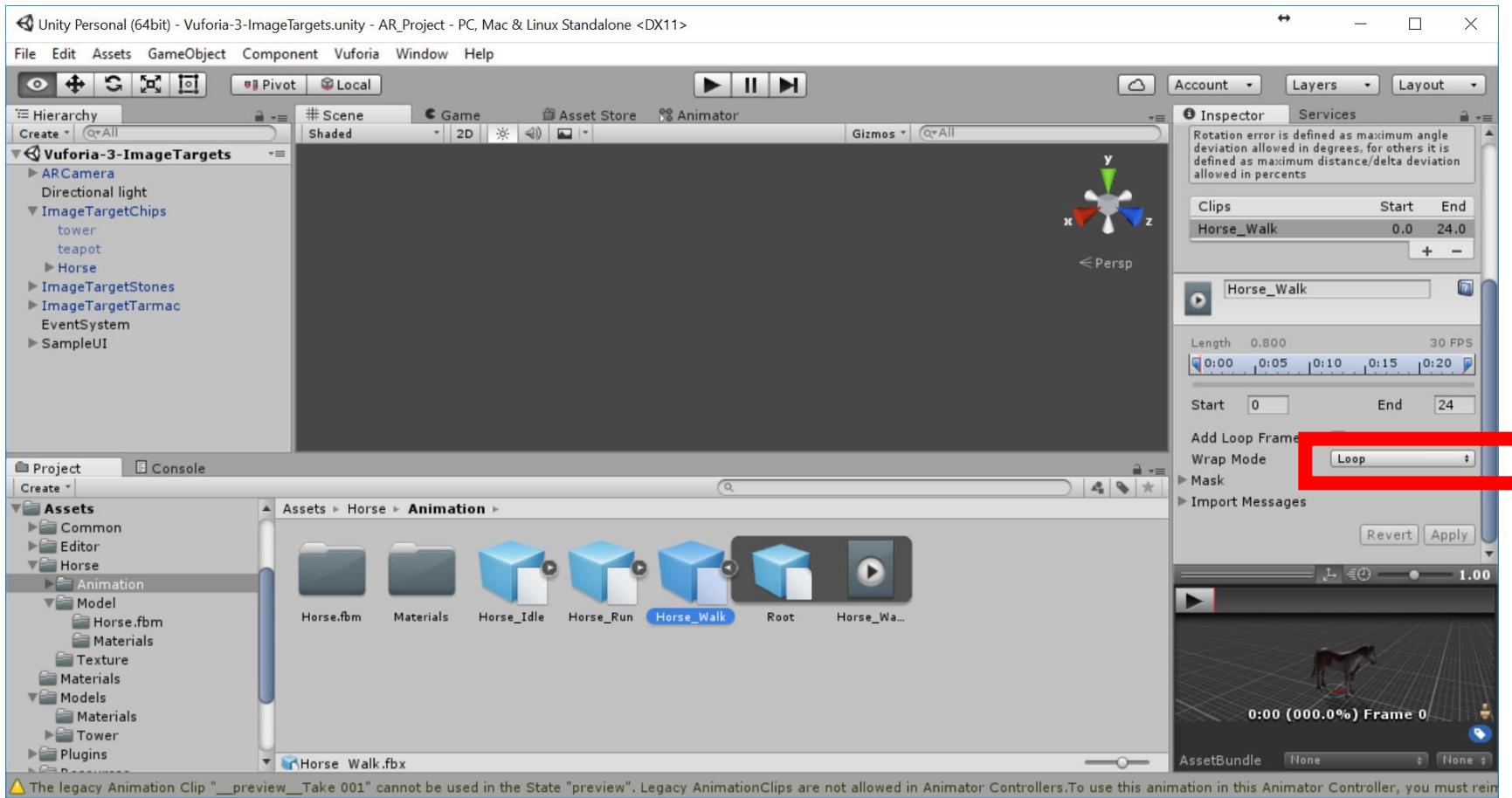
# Add animation

- Choose one animation in “Animation” folder and in **Rig tab**, change the animation type from “Generic” to “Legacy”



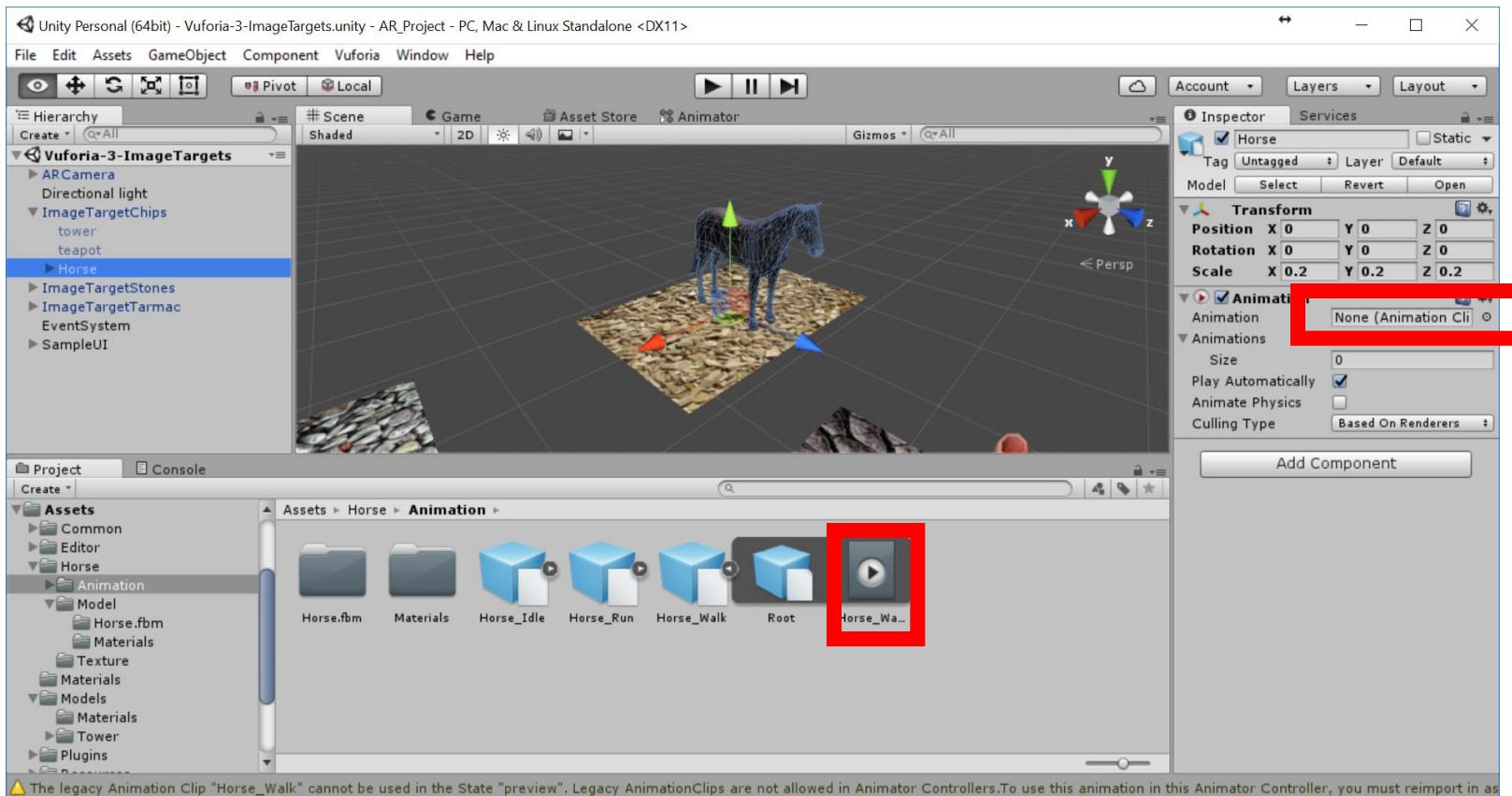
# Add animation

- Change the Wrap Mode to “Loop”



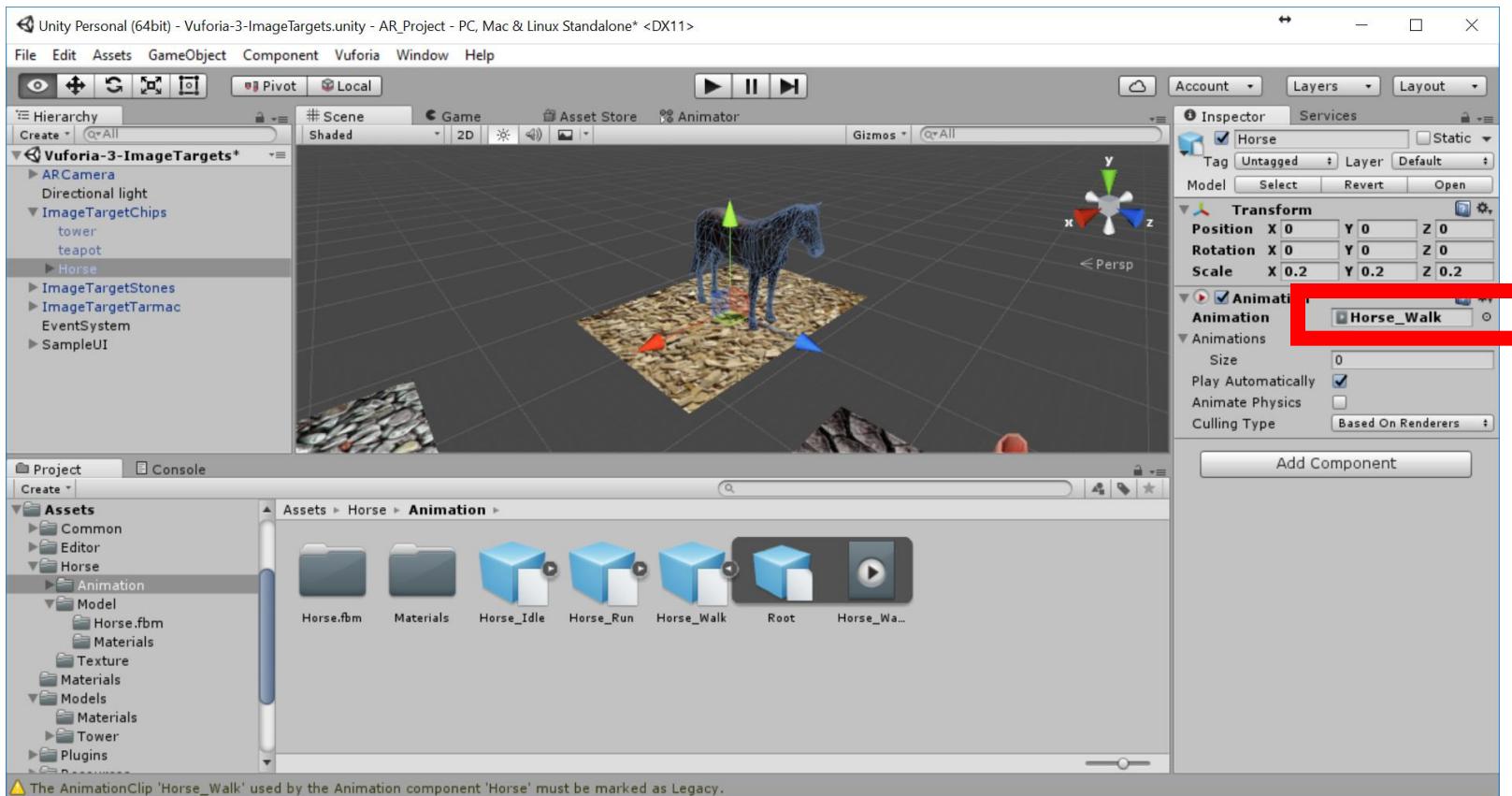
# Add animation

- Drag and drop Horse\_Walk to Animation

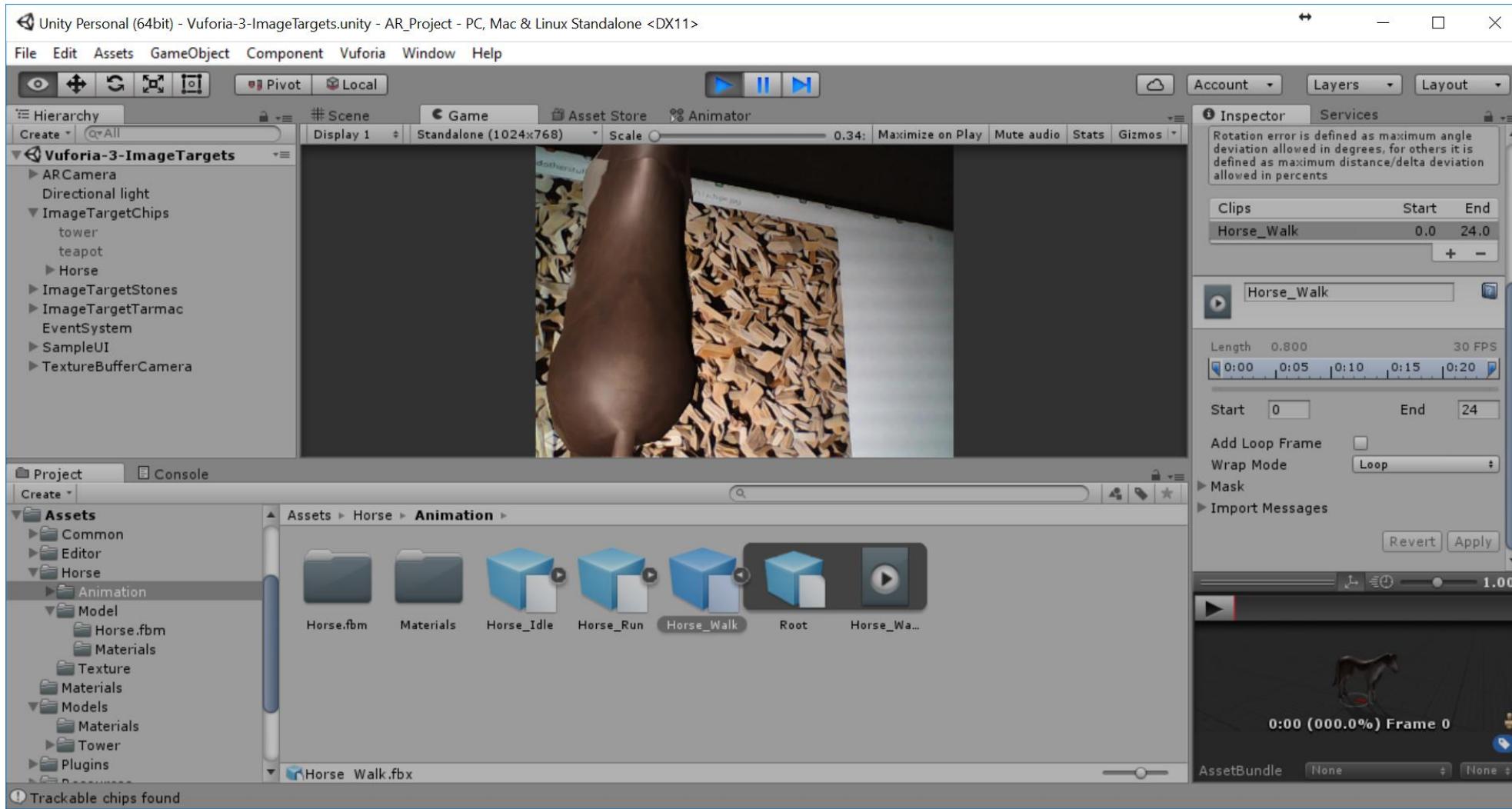


# Add animation

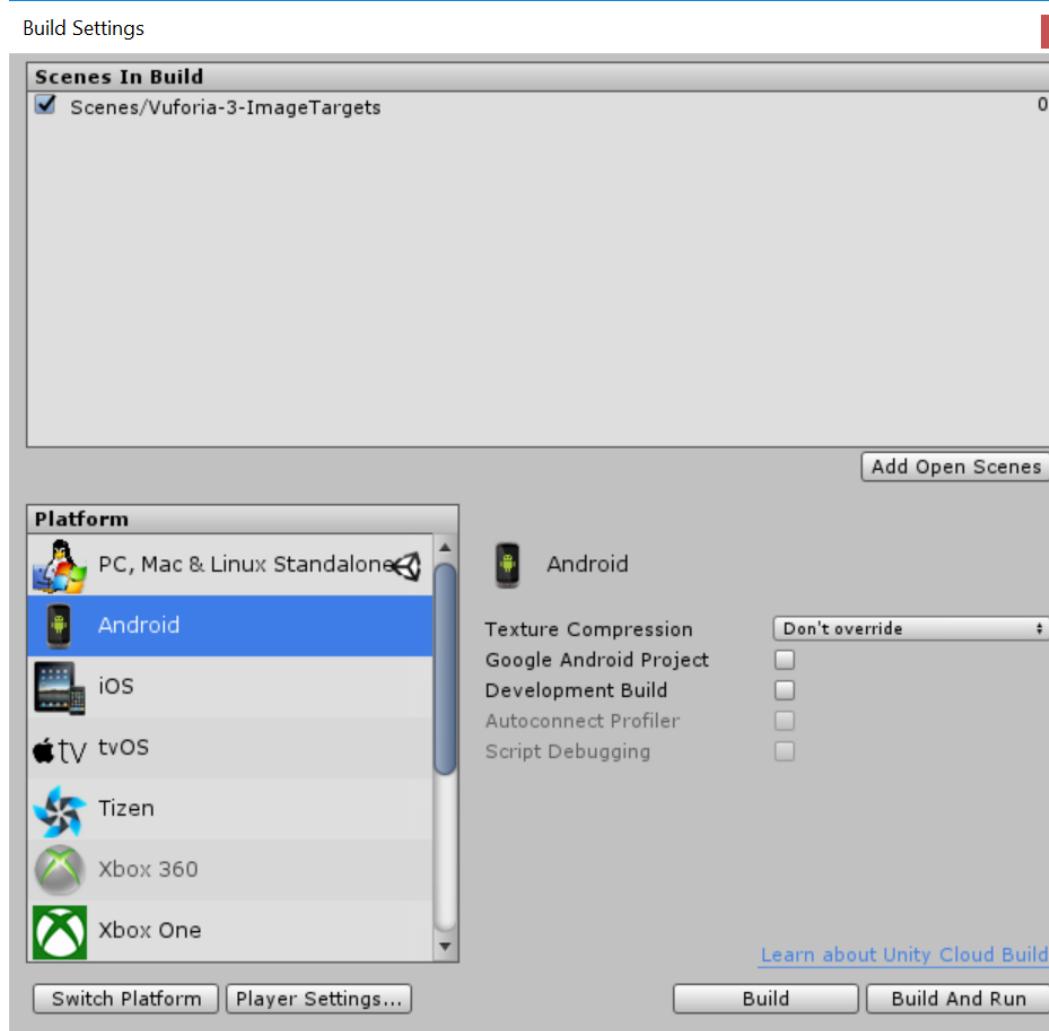
- Drag and drop Horse\_Walk to Animation



# Test the app



# Build the app on Android phone/tablet



# Run the app



# Q&A