



Augmented Reality

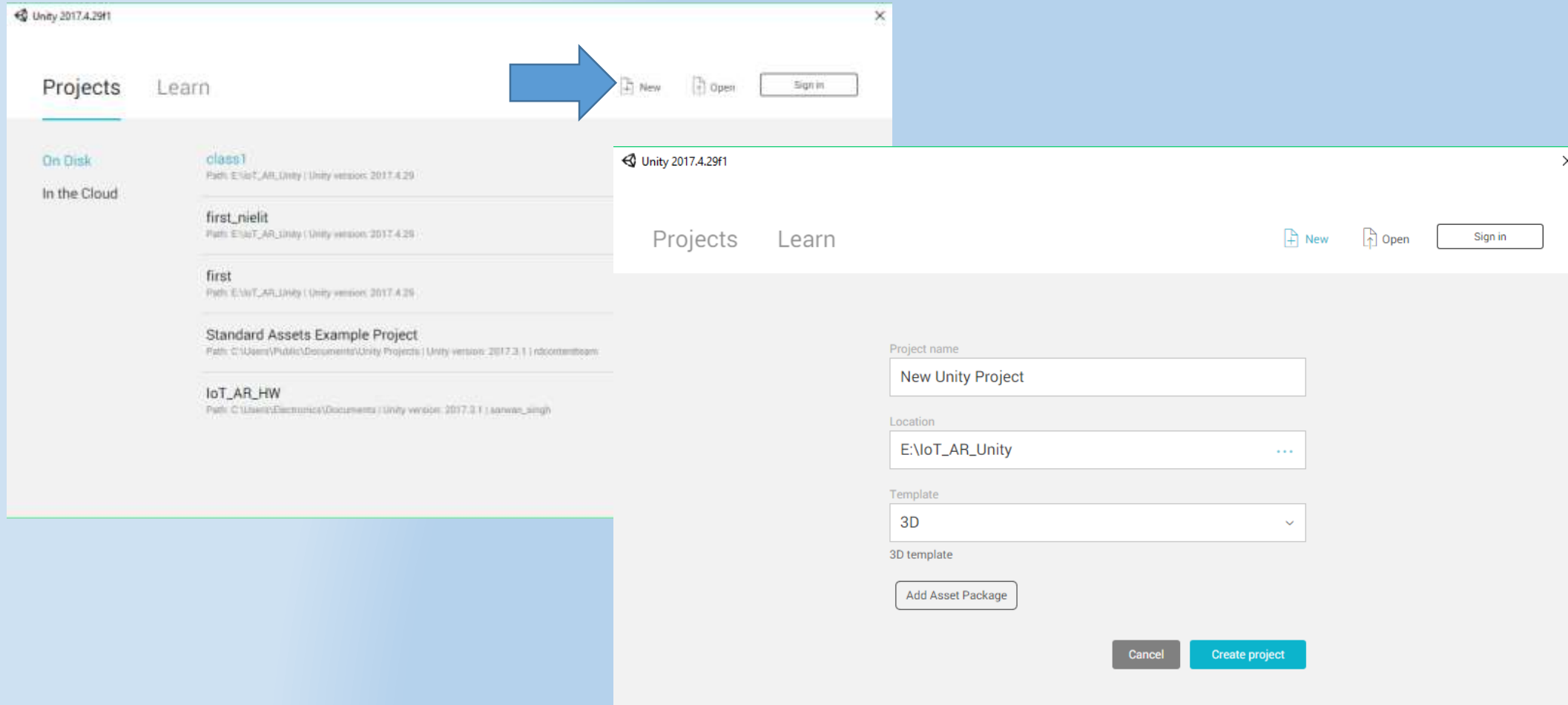
creating Apps with Unity

Dr. Sarwan Singh
NIELIT Chandigarh



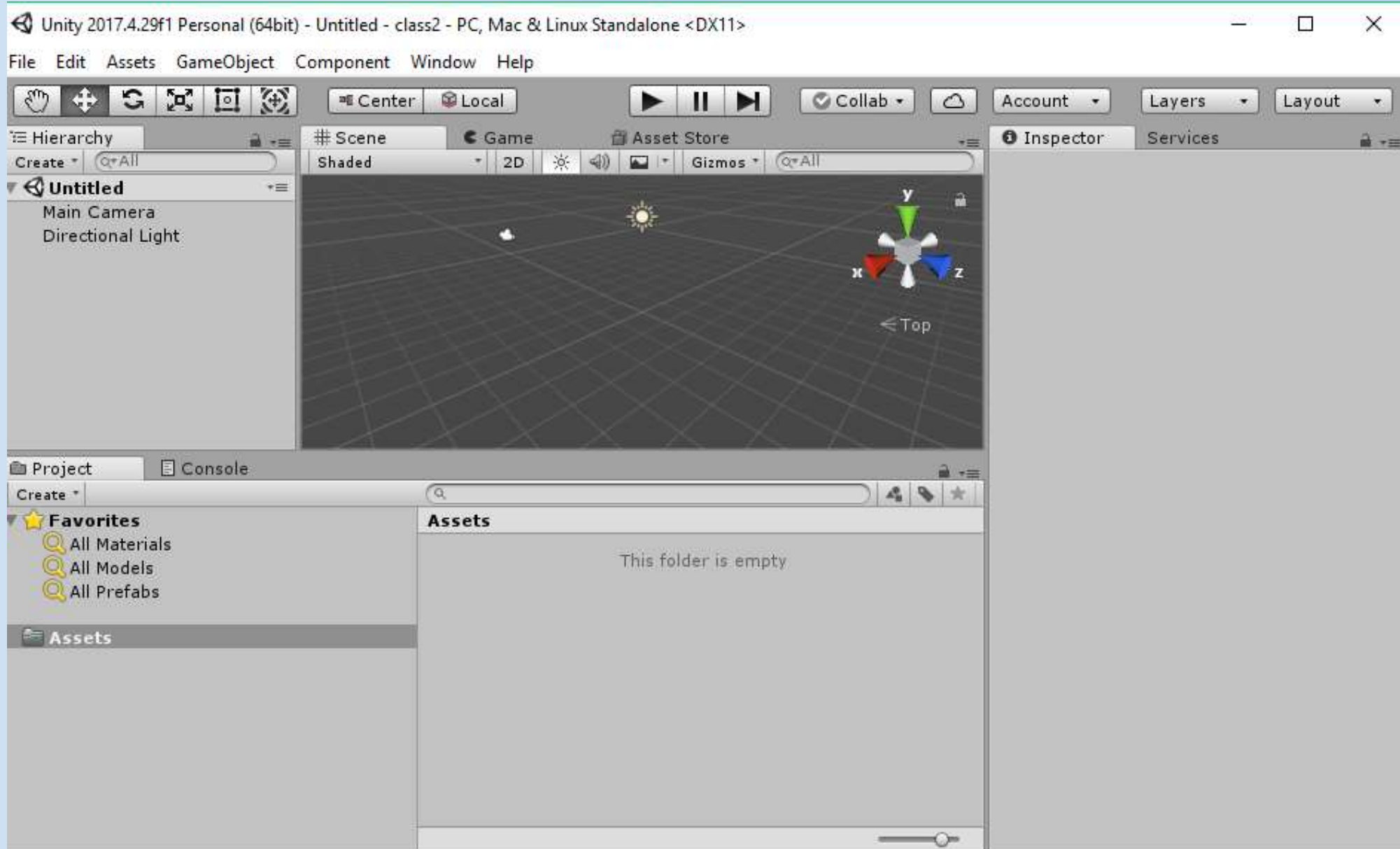


first app in Unity



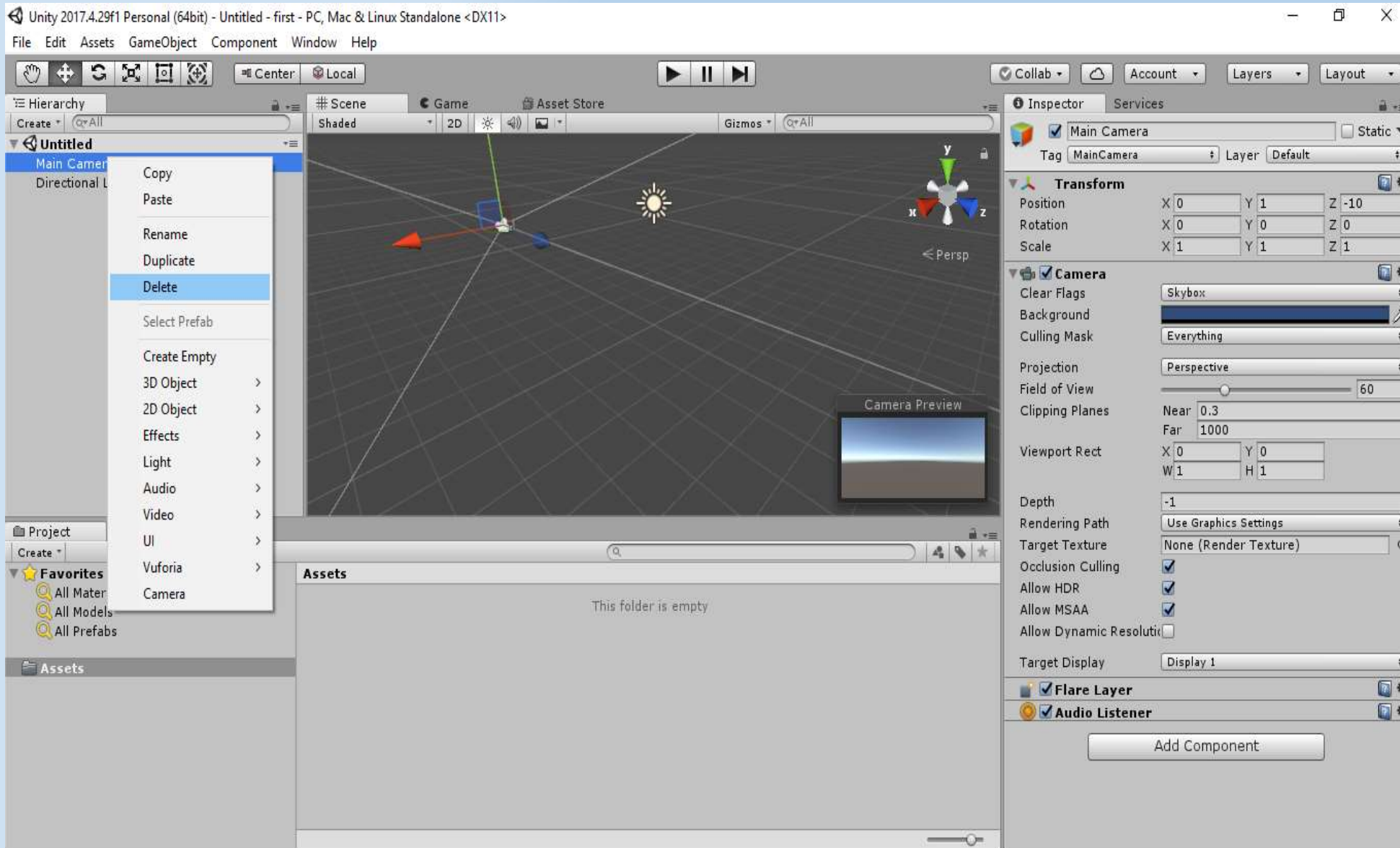


Opening Screen



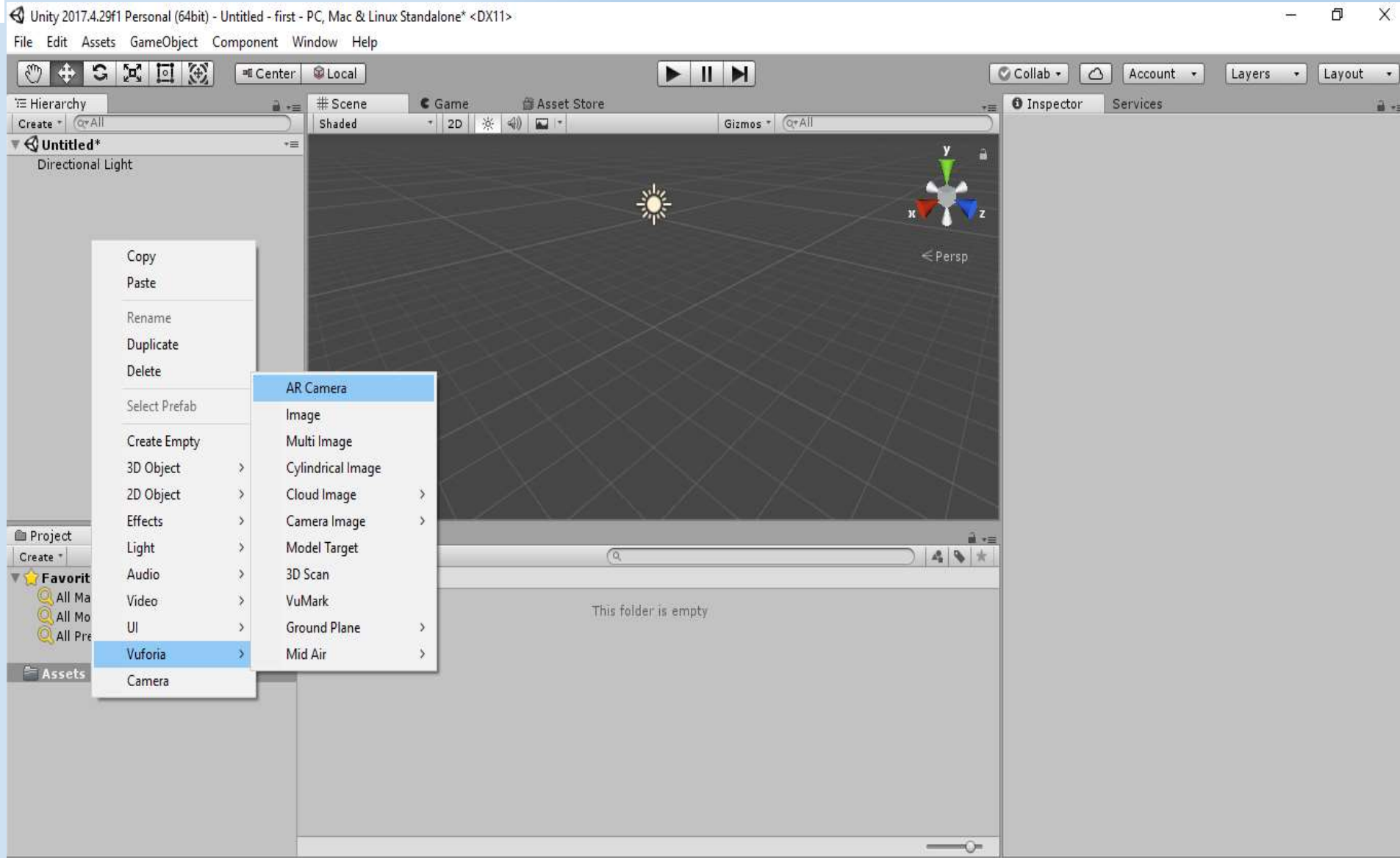


Delete Main Camera





Adding AR camera





Change Vuforia Behaviour (Script)



Change XR Settings

- Select android and click button switch platform
- change XR setting, tick Vuforia Augmented Reality

The screenshot shows the Unity 2017.4.29f1 Personal (64bit) interface. The Build Settings window is open, showing the Platform list on the left and the Target Platform settings on the right. The Platform list includes PC, Mac & Linux Standalone, Android, iOS, tvOS, Xbox One, PS Vita, PS4, and Universal Windows Platform. The Target Platform is set to Windows, and the Architecture is set to x86_64. The Inspector window on the right shows the Vuforia Augmented Reality settings, with the Virtual Reality Supported checkbox unchecked and the Vuforia Augmented Reality checkbox checked.

Unity 2017.4.29f1 Personal (64bit) - nielit.unity - first_nielit - PC, Mac & Linux Standalone* <DX11>

File Edit Assets GameObject Component Window Help

Build Settings

Scenes In Build

Platform

PC, Mac & Linux Standalone

Android

iOS

tvOS

Xbox One

PS Vita

PS4

Universal Windows Platform

Target Platform: Windows

Architecture: x86_64

Copy PDB files: ☐

Development Build: ☐

Autoconnect Profiler: ☐

Script Debugging: ☐

Scripts Only Build: ☐

Compression Method: Default

Learn about Unity Cloud-Build

Switch Platform Player Settings...

Build Build And Run

Inspector

Company Name: DefaultCompany

Product Name: first_nielit

Default Icon: None (Texture 2D) [Select]

Default Cursor: None (Texture 2D) [Select]

Cursor Hotspot: X 0 Y 0

Settings for PC, Mac & Linux Standalone

Resolution and Presentation

Icon

Splash Image

Other Settings

XR Settings

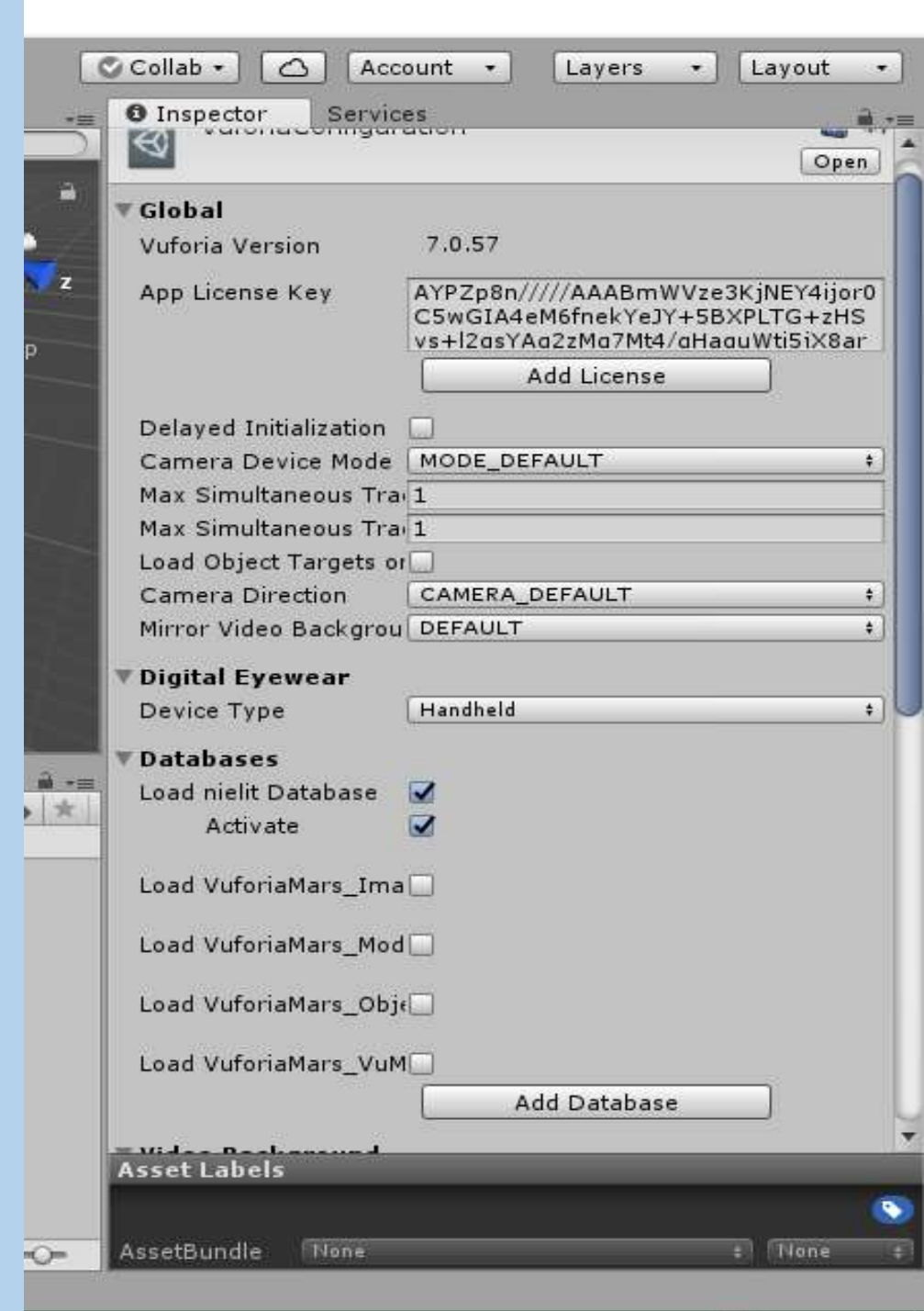
Virtual Reality Supported: ☐

Vuforia Augmented Reality: ☒



Open Vuforia configuration

- global and databases
- Add licence key and download database and save then reference.
- Download database and drop in assets window
- When prompted click import button





Downloading and adding Licence key

Screenshot of the Vuforia Developer Portal License Manager page.

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

Navigation: Home Pricing Downloads Library **Develop** Support

User: Hello sarwan | Log Out

License Manager Target Manager

License Manager

Create a license key for your application.

Get Development Key Buy Deployment Key

Search

Name	SSON ⓘ	Type	Status ▾	Date Modified
iot	N/A	Develop	Active	Jun 14, 2019
iotar	N/A	Develop	Active	Jun 14, 2019
ar test	N/A	Develop	Active	Apr 06, 2018
IoT_AR_HW	N/A	Develop	Active	Mar 15, 2018



Target manager > add database -> nielit

← → ↺

https://developer.vuforia.com/vui/develop/databases

☆

vuforia engine™
developer portal

Home Pricing Downloads Library Develop Support

Hello sarwan ▾ | Log Out

License Manager

Target Manager

Target Manager

Add Database

Use the Target Manager to create and manage databases and targets.

Search

Database	Type	Targets	Date Modified
1000	Device	5	Apr 18, 2018
demo	Device	3	Jun 18, 2019
dht11	Device	1	Jun 14, 2019
IOT_AR_HW	Device	5	Mar 26, 2018
jassipicture	Device	2	Apr 11, 2018

Download Database

1 of 1 active targets will be downloaded

Name:
nielit

Select a development platform:

☐ Android Studio, Xcode or Visual Studio

☒ Unity Editor

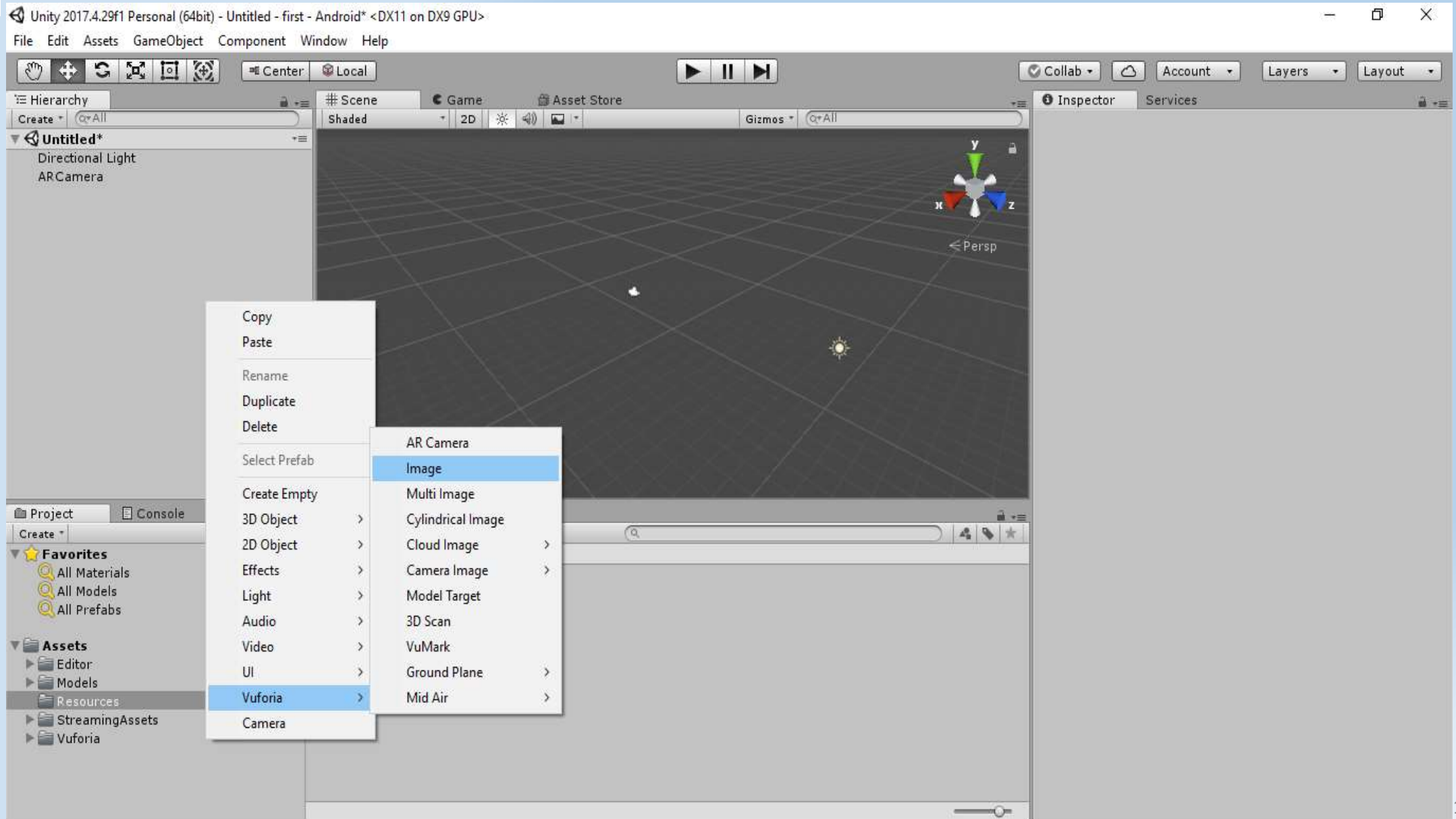
Cancel

Download

10



Add new Vuforia Image





Unity 2017.4.29f1 Personal (64bit) - Untitled - first - Android* <DX11 on DX9 GPU>

File Edit Assets GameObject Component Window Help

Unity 2017.4.29f1 Personal (64bit) - Untitled - first - Android* <DX11 on DX9 GPU>

File Edit Assets GameObject Component Window Help

Center Local

Hierarchy

- Untitled*
- Directional Light
- ARCamera
- ImageTarget

Scene

Shaded 2D Gizmos

Inspector

ImageTarget

Tag Untagged Layer Default

Transform

Position	X 0	Y 0	Z 0
Rotation	X 0	Y 0	Z 0
Scale	X 1	Y 1	Z 1

Image Target Behaviour (Script)

Script ImageTargetBehaviour

Type Predefined

Database --- EMPTY ---

Image Target

- EMPTY ---
- nielit
- VuforiaMars_Images

Advanced

Default Trackable Event Handler (Script)

Script DefaultTrackableEventHandler

Turn Off Behaviour (Script)

Script TurnOffBehaviour

Mesh Renderer

Lighting

Materials

Dynamic Occluded

(Mesh Filter)

Mesh

--- EMPTY ---Material

Project

Console

Assets

- Favorites
- All Materials
- All Models
- All Prefabs
- Assets
- Editor
- Models
- Resources
- StreamingAssets
- Vuforia

Assets Resources

VuforiaConfigu...



Unity 2017.4.29f1 Personal (64bit) - Untitled - first - Android* <DX11 on DX9 GPU>

File Edit Assets GameObject Component Window Help

Unity 2017.4.29f1 Personal (64bit) - Untitled - first - Android* <DX11 on DX9 GPU>

File Edit Assets GameObject Component Window Help

Collab Account Layers Layout

Hierarchy Scene Game Asset Store

Create All

Untitled*

- Directional Light
- ARCamera
- ImageTarget

Shaded 2D Gizmos All

Center Local

Position X 0 Y 0 Z 0

Rotation X 0 Y 0 Z 0

Scale X 5 Y 5 Z 5

Image Target Behaviour (Script)

Script ImageTargetBehaviour

Type Predefined

Database nielit

Image Target nielit

Add Target

Advanced

Default Trackable Event Handler (Script)

Script DefaultTrackableEventHandler

Turn Off Behaviour (Script)

Script TurnOffBehaviour

Mesh Renderer

Lighting

Materials

Dynamic Occluded

(Mesh Filter)

Mesh

nielitMaterial

Project Console

Create

Favorites

- All Materials
- All Models
- All Prefabs

Assets

- Editor
- Models
- Resources
- StreamingAssets
- Vuforia

Assets Resources

VuforiaConfigu...

Inspector Services

ImageTarget

Tag Untagged Layer Default

Static

Transform

Position X 0 Y 0 Z 0

Rotation X 0 Y 0 Z 0

Scale X 5 Y 5 Z 5

Image Target Behaviour (Script)

Script ImageTargetBehaviour

Type Predefined

Database nielit

Image Target nielit

Add Target

Advanced

Default Trackable Event Handler (Script)

Script DefaultTrackableEventHandler

Turn Off Behaviour (Script)

Script TurnOffBehaviour

Mesh Renderer

Lighting

Materials

Dynamic Occluded

(Mesh Filter)

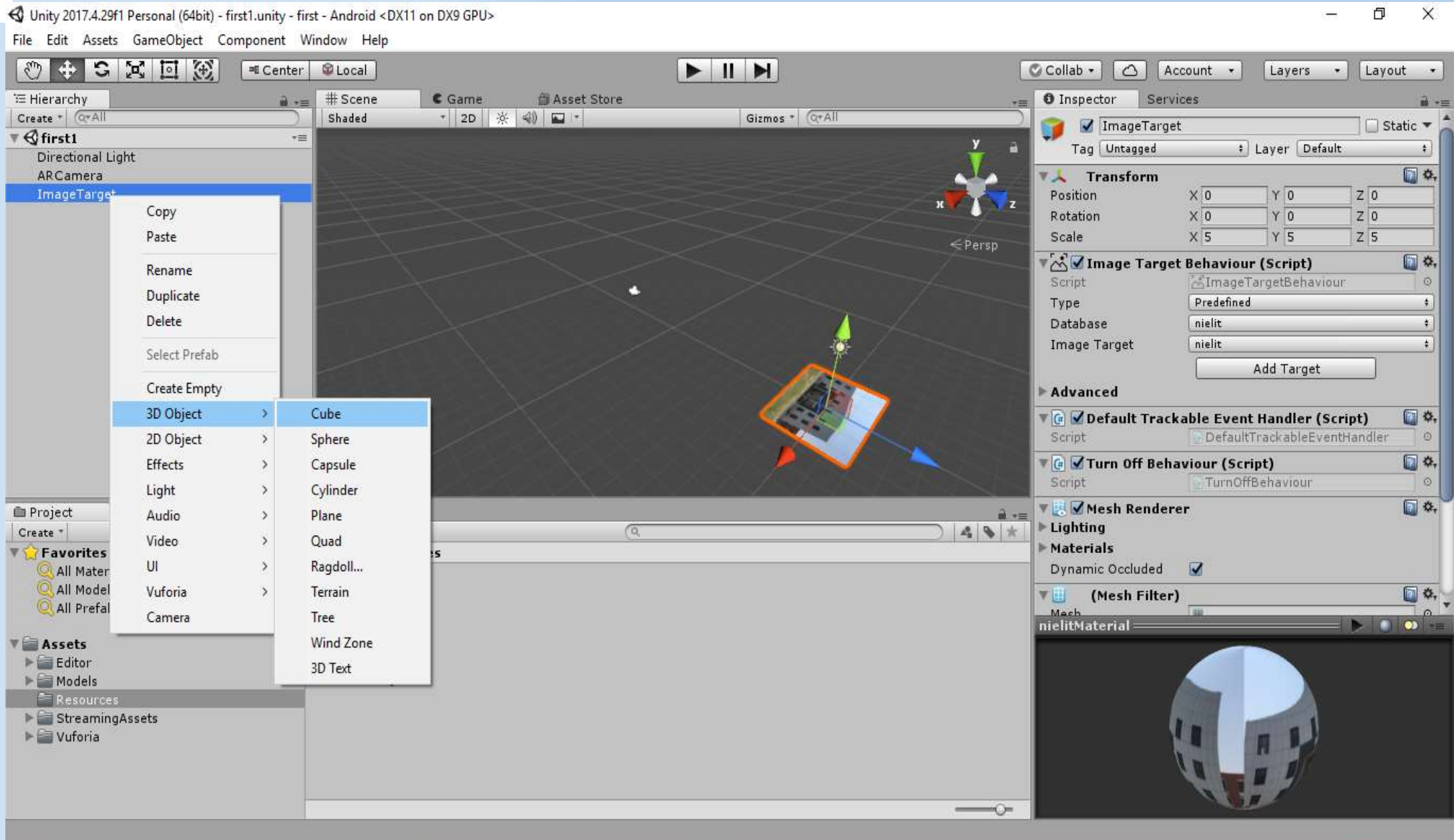
Mesh

nielitMaterial

nielitMaterial



Add 3D object to be displayed above the selected image





File>build settings

Unity 2017.4.29f1 Personal (64bit) - first1.unity - first - Android <DX11 on DX9 GPU>

File Edit Assets GameObject Component Window Help

Collab Account Layers Layout

Hierarchy Create All

first1

- Directional Light
- ARCamera
- ImageTarget
 - Cube

Project Console

Create

Favorites

- All Materials
- All Models
- All Prefabs

Assets

- Editor
- Models
- Resources
- StreamingAssets
- Vuforia

Build Settings

Scenes In Build

- ☒ first1 0

Add Open Scenes

Platform

- PC, Mac & Linux Standalone
- Android**
- iOS
- tvOS
- Xbox One
- PS Vita
- PS4 PS4
- Universal Windows Platform

Android

Texture Compression Don't override

ETC2 fallback 32-bit

Build System Gradle

Export Project

Build App Bundle (Google Play)

Development Build

Autoconnect Profiler

Script Debugging

Scripts Only Build

Compression Method Default

SDKs for App Stores

Xiaomi Mi Game Center Add

[Learn about Unity Cloud Build](#)

Switch Platform Player Settings...

Build Build And Run

Inspector Services

Cube

Tag Untagged Layer Default

Static

Transform

Position X 0 Y 0.128 Z 0

Rotation X 0 Y 0 Z 0

Scale X 0.3328816 Y 0.2325296 Z 0.3015074

Cube (Mesh Filter)

Mesh Cube

Box Collider

Edit Collider

Is Trigger

Material None (Physic Material)

Center X 0 Y 0 Z 0

Size X 1 Y 1 Z 1

Mesh Renderer

Lighting

Materials

Dynamic Occluded

Default-Material

Shader Standard

Add Component



Configuring SDKs

