



使用 URP 新功能打造 移动头显上的高品质 内容体验

2023

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主要内容

- **URP 简介**
- **URP 新功能介绍与使用**
 - TAA
 - Decals and Decal Layer
 - Adaptive Probe Volumes
 - Clear Coat
 - LOD Cross-Fade
- **Unity XR 简介**
- **Unity XR 新功能介绍与使用**
 - **XR Interaction Toolkit 2.3**
 - Poke Interactor
 - Gaze Interactors and Snap Volumes
 - Device Simulator
 - **New features coming soon**
 - Forward+ for XR
 - Foveated Rendering for VR



URP 简介



What is URP?

Universal Render Pipeline (URP) 是一种可扩展的多平台渲染管线，构建于Unity可编程渲染管线(SRP)技术之上。

源代码可在Github可以获得：

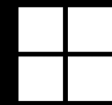
<https://github.com/Unity-Technologies/Graphics>



Reach

URP supports over 20 platforms and a multitude of different games and art styles.

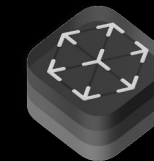
iOS



PS5

PS4

SERIES X|S



androidtv

tvOS





A render pipeline for them all

-> FORWARD

为所有支持平台提供简化的材质和照明工作流程

-> DEFERRED

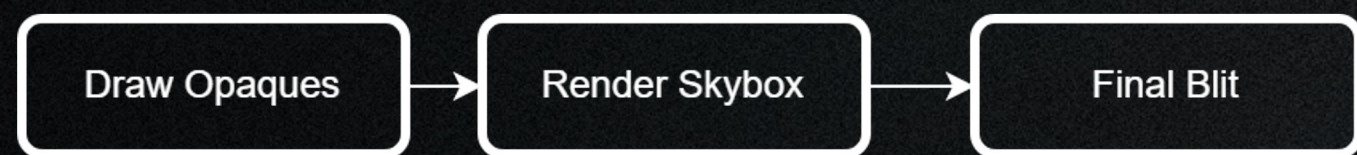
针对移动设备进行了优化，并且对实时光照的数量进行扩展，同时保持与前向渲染器的视觉对等；

-> 2D

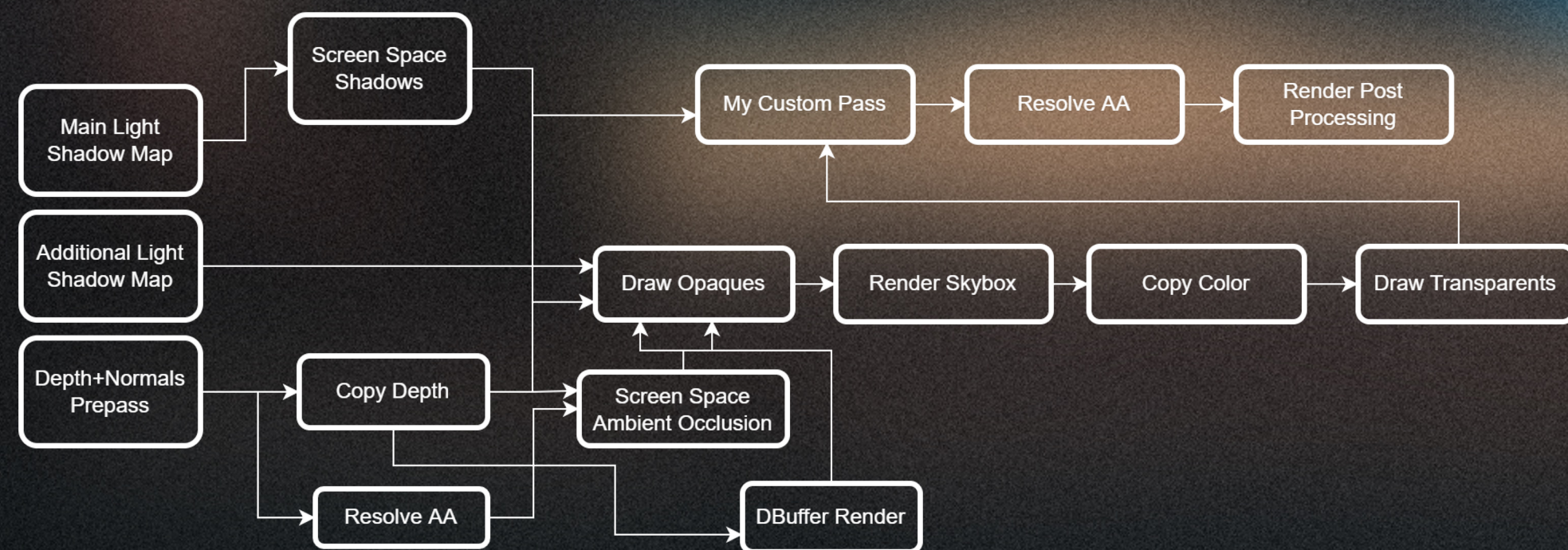
为2D游戏提供出色的实时光影效果，使创作者能构建丰富而美丽的2D世界。



可扩展的渲染管线



在最精简的配置中，URP 运行 3D 游戏所需的最低限度。



可以扩展URP 以牺牲性能为代价来提高保真度，从而充分利用目标平台。



Lost in Random



PS4 PS5 XBOX ONE SERIES X|S NINTENDO SWITCH

LEGO BUILDERS' JOURNEY



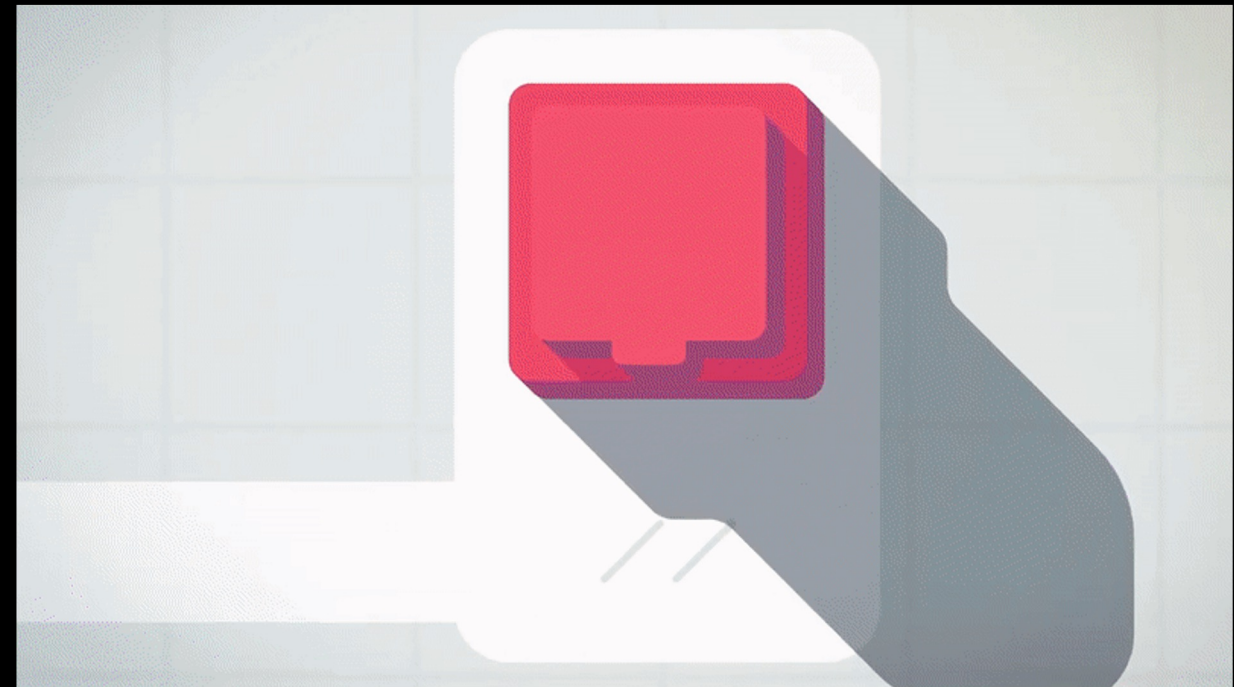
iOS NINTENDO SWITCH

CIRCUIT SUPERSTARS



PS4 PS5 XBOX ONE SERIES X|S NINTENDO SWITCH

Mini Motorways



iOS



URP 新功能介绍与使用



Decals and Decal Layer

1. Decals Renderer Feature 、 Decals Projector (贴画投影) 、 Decal Shader Graph (贴画着色器)
2. Screen Space & Dbuffer
3. GPU Instancing & ECS-subset system
4. Decal Layer 贴花层支持
5. Plan to support on transparent objects (透明表面贴花支持计划)



没有贴花的示例场景



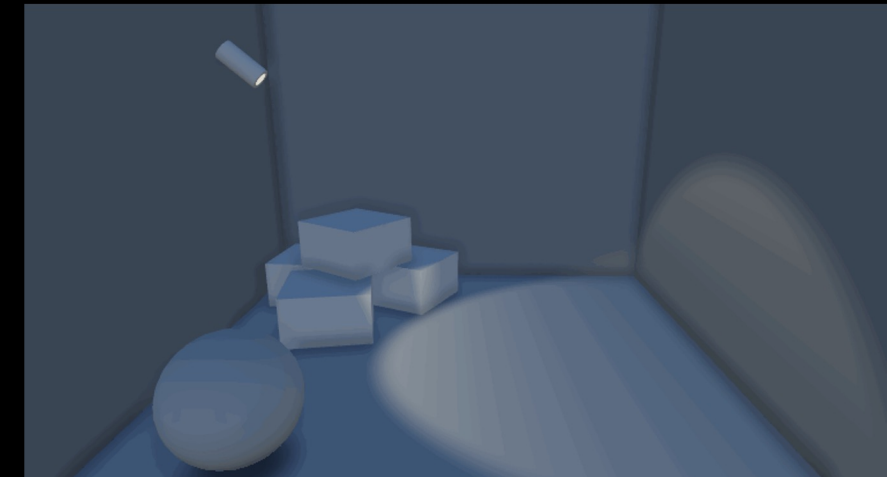
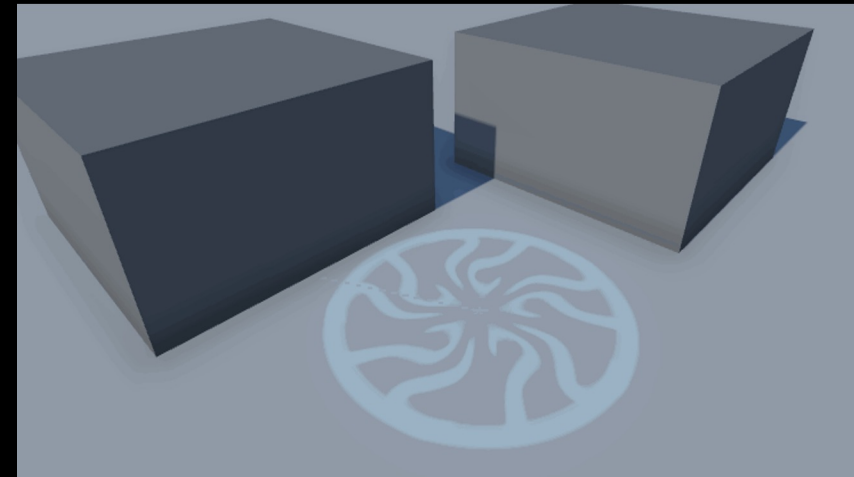
带有贴花的示例场景。贴花遮挡了材质之间的接缝并添加了艺术细节



Decals and Decal Layer

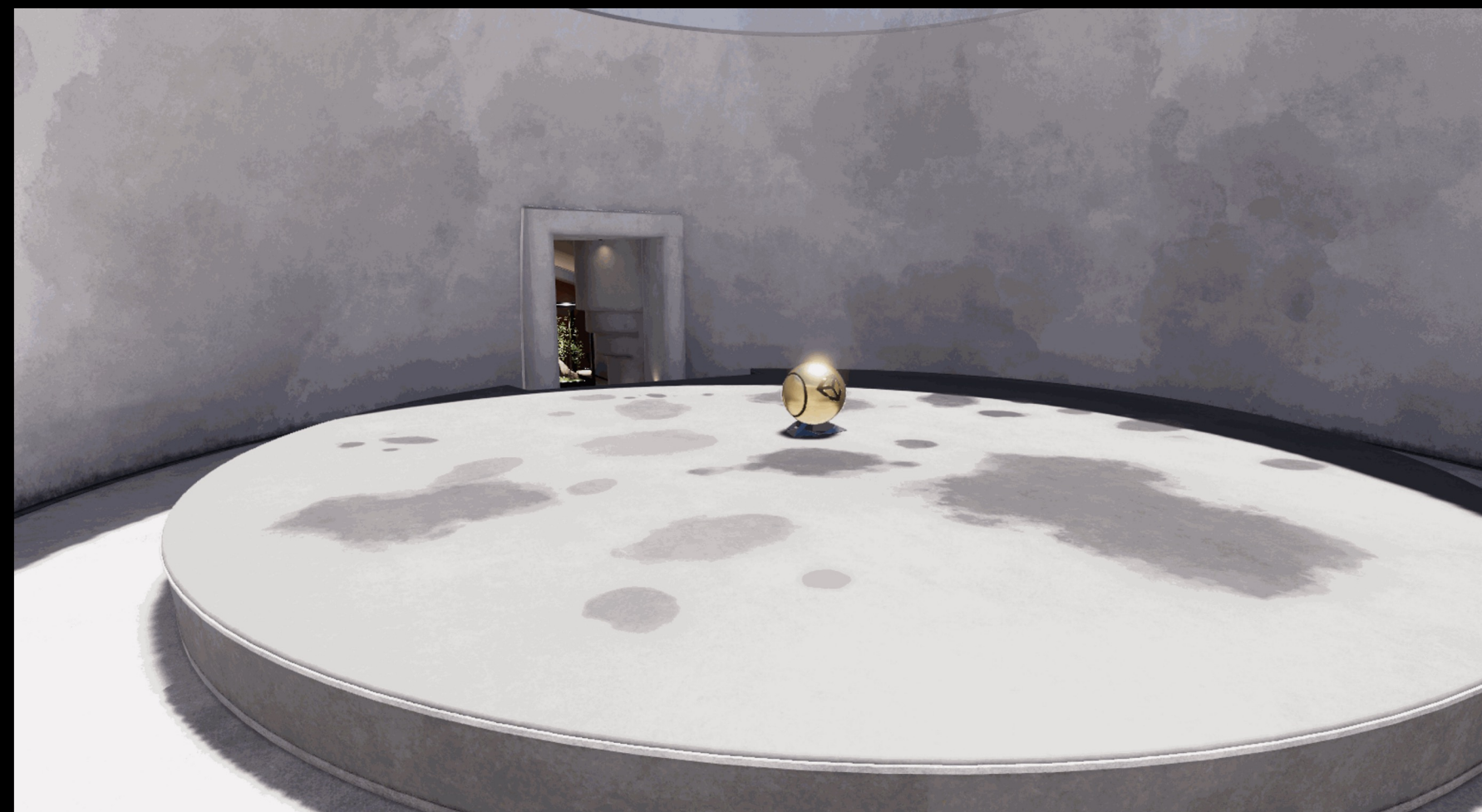
1. Decals Renderer Feature 、 Decals Projector (贴画投影) 、 Decal Shader Graph (贴画着色器)
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Decals and Decal Layer

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- Hierarchy**
- AVP_Photostudio_Quest*
 - 3D PHOTOSTUDIO Hangar
 - 3D PHOTOSTUDIO Props
 - 3D PHOTOSTUDIO Scaffolding
 - 3D PHOTOSTUDIO Automotive
 - Car
 - Car_Exterior
 - Car_Tire
 - Car_Steering
 - Car_Seat
 - Car_Hood
 - Car_Interior
 - Car_Exterior_Lights
 - Car_Seat
 - Car_Door
 - Car_Door
 - Car_Baggage
 - Car_Holes
 - Reflection Probe Car_Interior
 - SpotLight_Interior_Mixed
 - 3D REFLECTIONS
 - 3D LIGHTS
 - 3D COLLISION
 - 3D CONTROLLER VR
 - 3D DECAL
 - Decals
 - Decal_Ground_Collapsed
 - Decal_Ground_Large_Cracks
 - Decal_Ground_Patch2
 - Decal_Paint_Cup_Mark
 - Decal_Paint_Cup_Mark_Yellow
 - Decal_Paint_Drips
 - Decal_Paint_Drops
 - Decal_Paint_Shoes
 - Decal_Paint_Splatter
 - Ground_Patch1
 - Decal Projector1
 - Decal Projector2
 - Complete XR Origin Set Up

Scene | **Game**

Pivot | Local

2D | 20 | [Icons]

Inspector | **Lighting**

Experimental Packages In Use | Layers | Layout

AVP_Universal Render Pipeline Asset_Renderer (Universal Renderer Data) | Open

Filtering

- Opaque Layer Mask: Everything
- Transparent Layer Mask: Everything

Rendering

- Rendering Path: Forward
- Depth Priming Mode: Disabled
- Depth Texture Mode: After Opaques

RenderPass

- Native RenderPass:

Shadows

- Transparent Receive Shadows:

Post-processing

- Enabled:
- Data: PostProcessData (Post Process Data)

Overrides

- Stencil:

Compatibility

- Intermediate Texture: Always

Renderer Features

No Renderer Features added

Add Renderer Feature

Project | **Console**

Assets > ArchVizPRO_Photostudio_Quest > 3D URP

- AVP_Photostudio_LightingSettings
- AVP_Photostudio_LightmapParameters
- AVP_Showcase_LightingSettings
- AVP_UniversalRenderPipelineAsset
- AVP_UniversalRenderPipelineAsset_Renderer
- AVP_UniversalRenderPipelineGlobalSettings

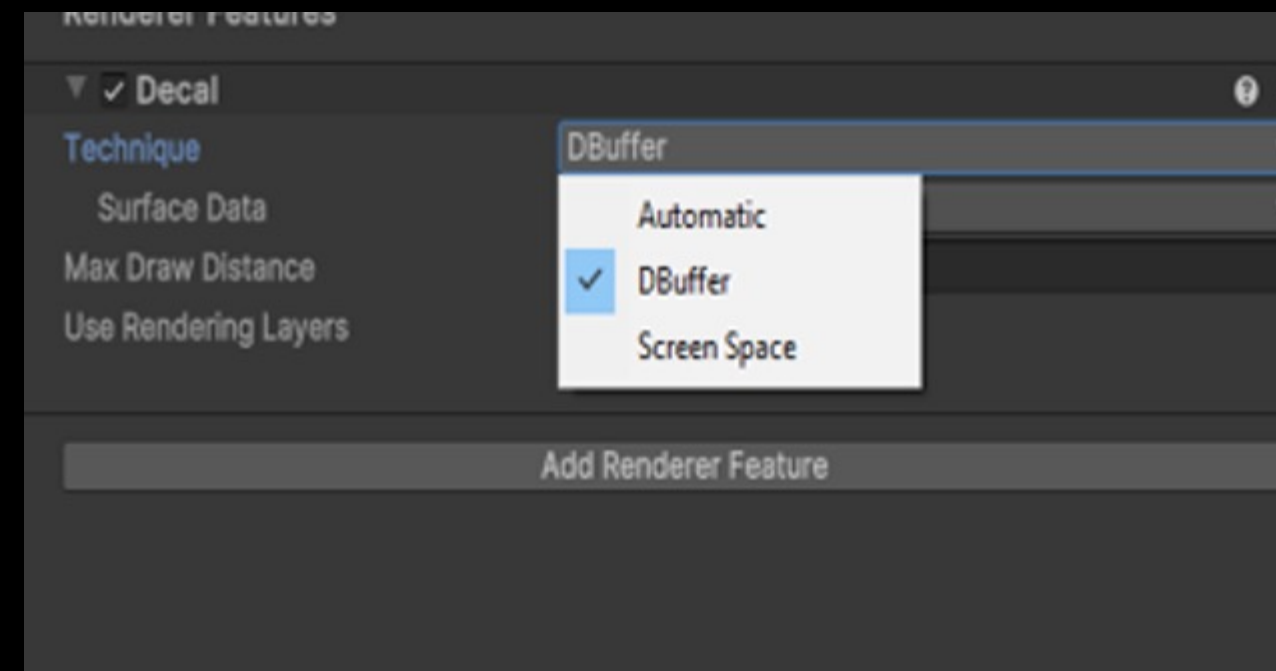
Assets/ArchVizPRO_Photostudio_Quest/3D URP/AVP_UniversalRenderPipelineAsset_Renderer.asset

Asset Labels

AssetBundle: None



1. Decals Renderer Feature 、 Decals Projector (贴画投影) 、 Decal Shader Graph (贴画着色器)
2. **Screen Space & Dbuffer**
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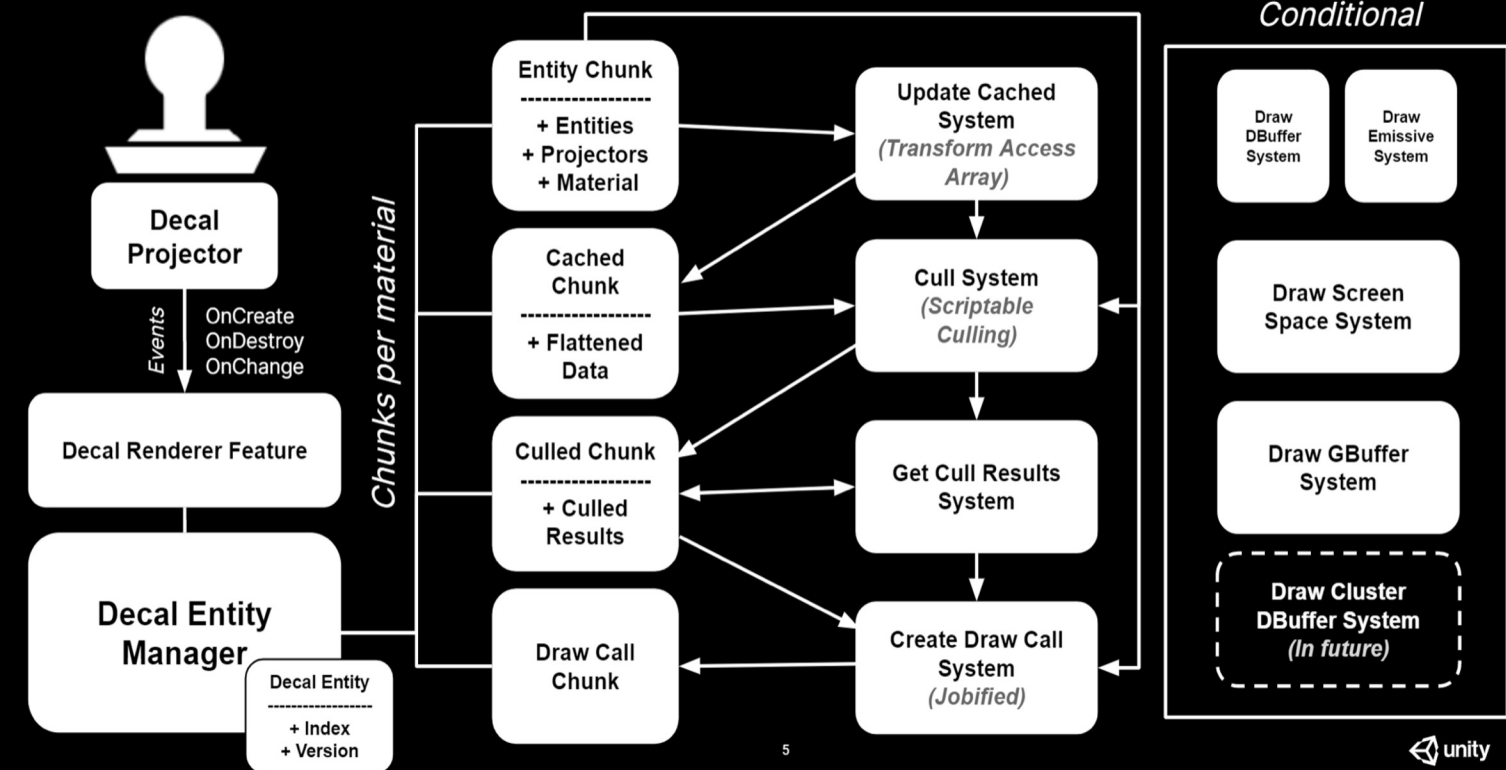


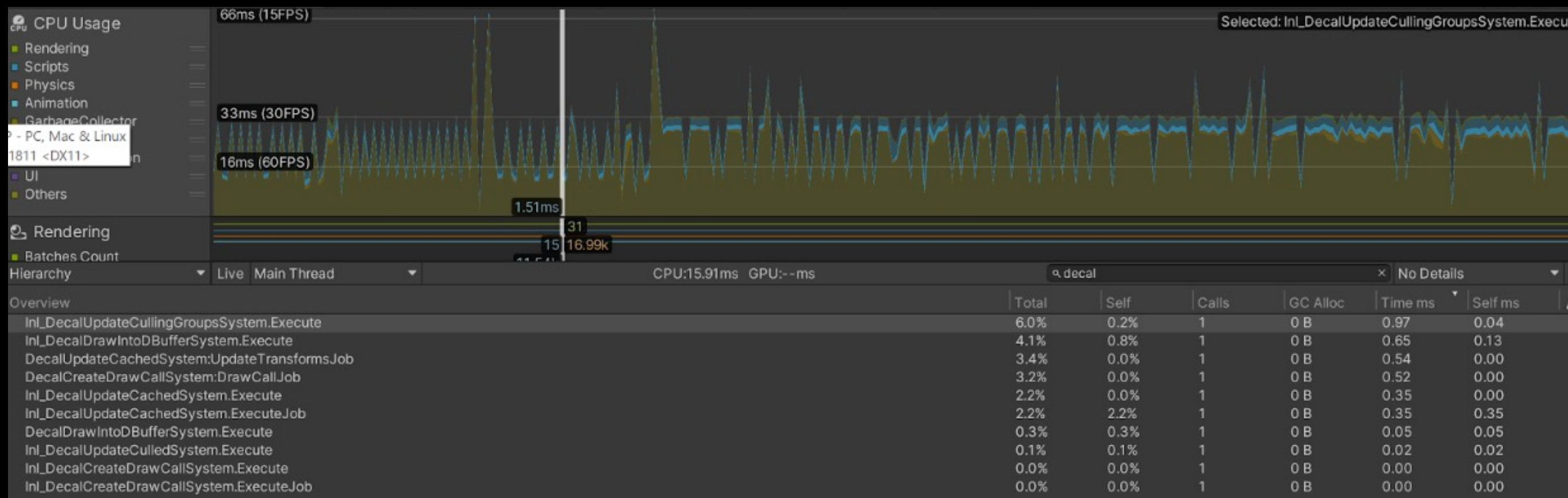


Decals and Decal Layer

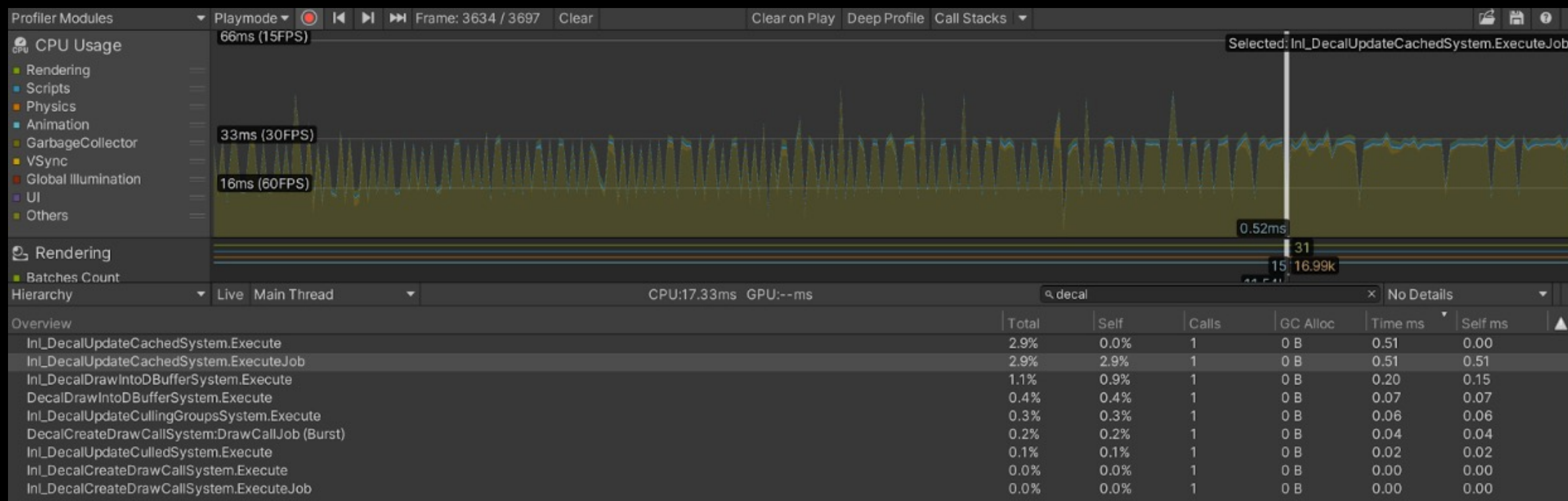
1. Decals Renderer Feature、Decals Projector (贴画投影)、Decal Shader Graph (贴画着色器)
2. Screen Space & Dbuffer
3. GPU Instancing & ECS-subset system
4. Decal Layer 贴花层支持
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Decals - ECS-subset System



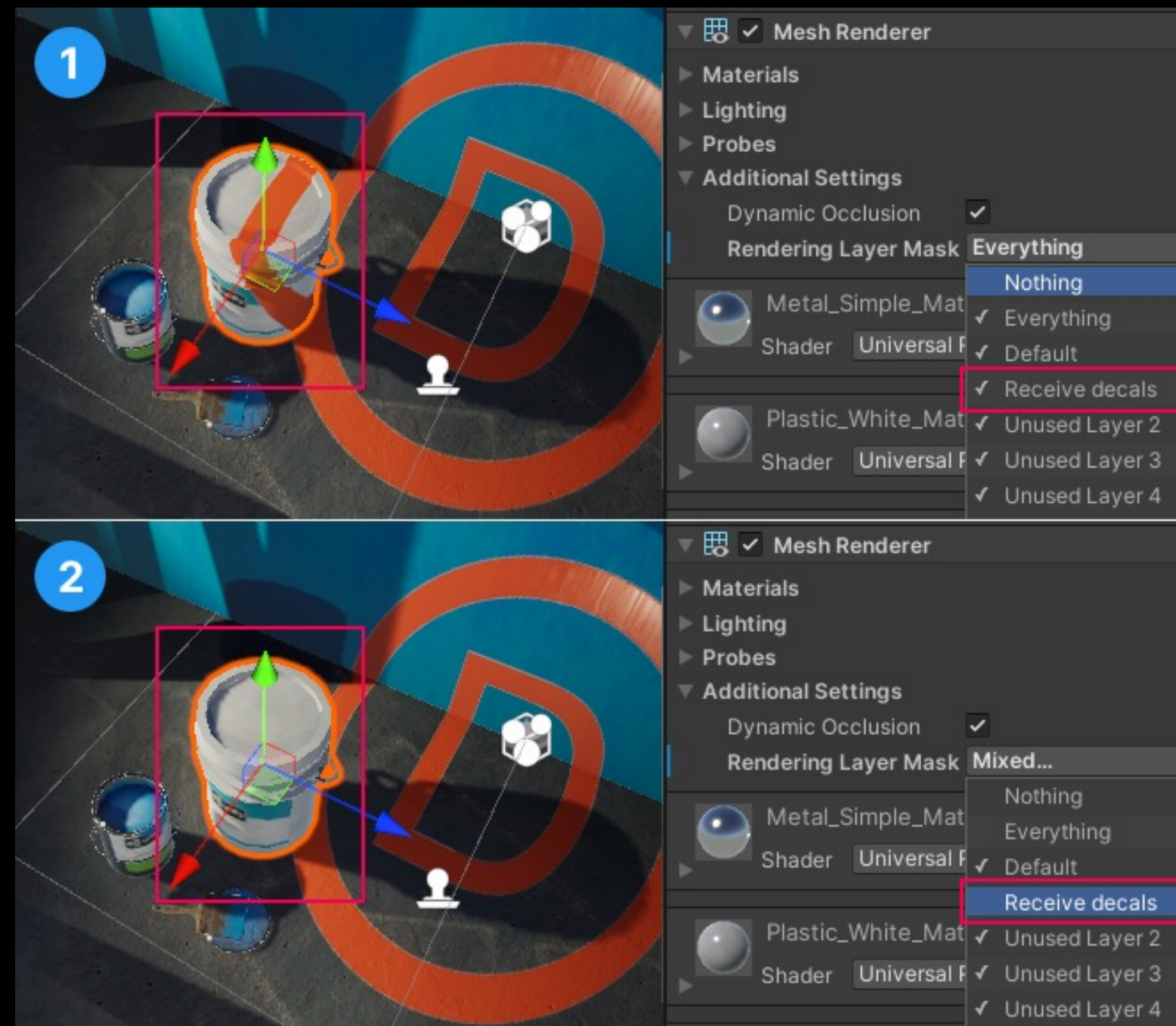


在场景中创建了
10000 个贴花，使用
Burst 前后性能的对比





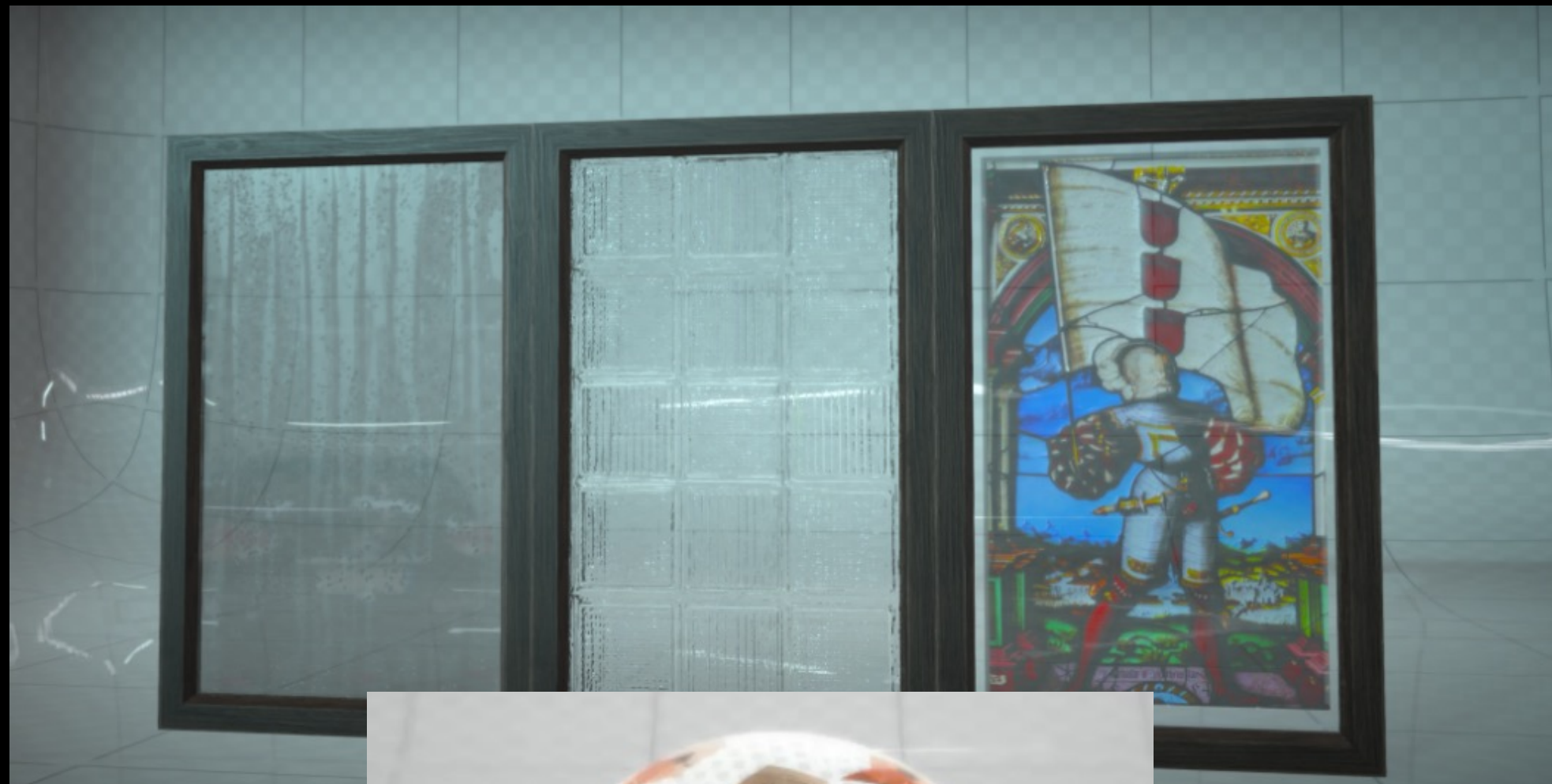
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Temporal anti-aliasing

-> 基于 motion vectors

运动矢量存储帧之间的屏幕空间运动。

-> 类似于 MSAA

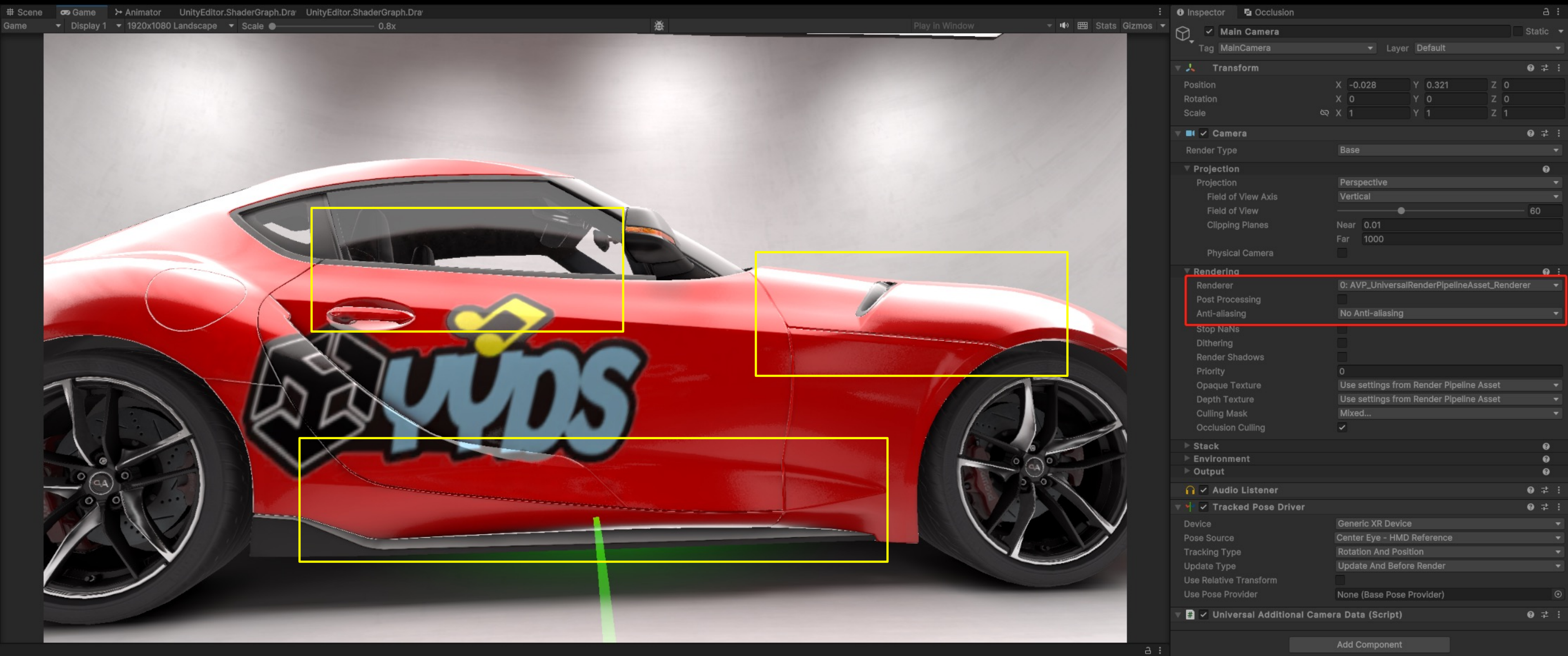
TAA 不是在帧内进行超级采样，而是重用先前帧中的样本。

-> 高质量

鉴于额外的样本，抗锯齿的质量高于其他后置过滤器



TAA in URP



此图使用了 Unity 资源商店中的 ArchVizPRO Photostudio 资源。



真实场景中的汽车



图片来源于网络：

<http://mt.sohu.com/20170723/n503491631.shtml>



Hierarchy

- AVP_Photosudio_Quest*
 - 3D PHOTOSTUDIO Hangar
 - 3D PHOTOSTUDIO Props
 - 3D PHOTOSTUDIO Scaffolding
 - 3D PHOTOSTUDIO Automotive
 - 3D REFLECTIONS
 - Reflection Probe Hangar
 - Reflection Probe Studio_Ceiling
 - Reflection Probe Limbo
 - Reflection Probe Studio1
 - Reflection Probe Studio2
 - Reflection Probe Studio3
 - Reflection Probe Wheels
 - Reflection Probe Wheels
 - Reflection Probe Wheels
 - Reflection Probe Wheels
 - 3D LIGHTS
 - 3D COLLISION
 - 3D CONTROLLER VR
 - Teleport_Origin
 - Teleport_Origin
 - Teleport_Origin
 - Teleport_Origin
 - Teleport_Origin
 - VR_CONTROLLER
 - XR Rig
 - Camera Offset
 - Main Camera
 - LeftHand Controller
 - RightHand Controller
 - XR Interaction Manager
 - 3D DECAL
 - Decal Projector1
 - Decal Projector2

Inspector

Main Camera

Tag: MainCamera | Layer: Default

Transform

Position: X -0.028, Y 0.321, Z 0
 Rotation: X 0, Y 0, Z 0
 Scale: X 1, Y 1, Z 1

Camera

Render Type: Base

Projection

Projection: Perspective
 Field of View Axis: Vertical
 Field of View: [Slider]
 Clipping Planes: Near 0.01, Far 1000
 Physical Camera:

Rendering

Renderer: 0: AVP_UniversalRenderPipelineAsset_Renderer
 Post Processing:
 Anti-aliasing: No Anti-aliasing
 Stop NaNs:
 Dithering:
 Render Shadows:
 Priority: 0
 Opaque Texture: Use settings from Render Pipeline Asset
 Depth Texture: Use settings from Render Pipeline Asset
 Culling Mask: Mixed...
 Occlusion Culling:

Stack

Environment

Output

Audio Listener

Tracked Pose Driver

Device: Generic XR Device
 Pose Source: Center Eye - HMD Reference
 Tracking Type: Rotation And Position
 Update Type: Update And Before Render
 Use Relative Transform:
 Use Pose Provider: None (Base Pose Provider)

Universal Additional Camera Data (Script)

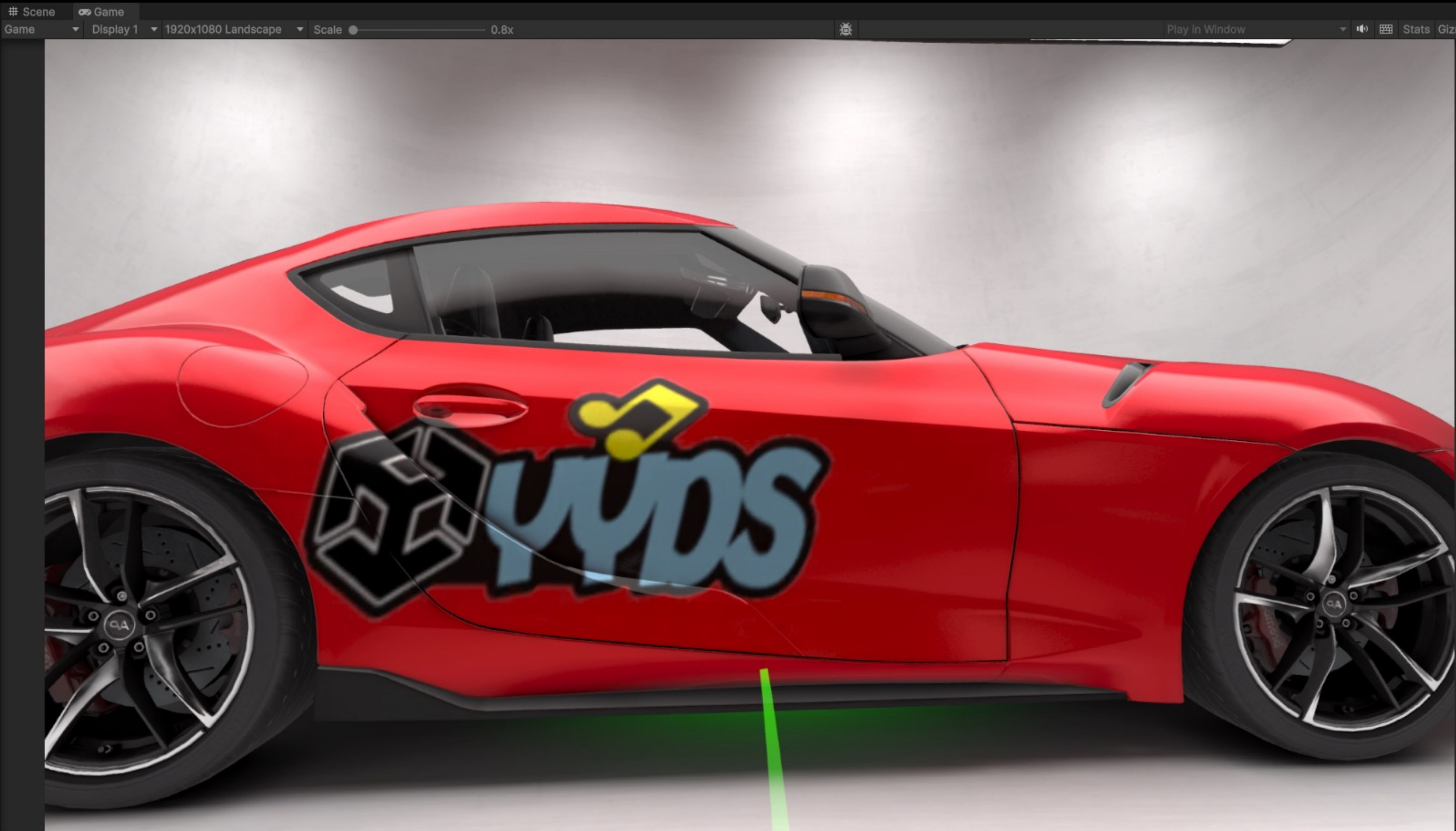
Add Component

Project

- Assets
 - Umbrella
 - Videocamera
 - Work_Hand_Light
 - Work_Light
 - 3D PREFAB
 - 3D SCENE
 - AVP_Photosudio_Quest
 - 3D SCRIPT
 - FirstPersion
 - Utilities
 - 3D SHADER
 - Car_Paint
 - Graphs
 - Subgraphs
 - 3D TEXTURES
 - Cookies
 - Dust_Particle
 - Logo
 - UI
 - Velvet_Rim
 - 3D URP

Assets > ArchVizPRO_Photosudio_Quest > 3D URP >

- AVP_Photosudio_LightingSettings
- AVP_Photosudio_LightmapParameters
- AVP_Showcase_LightingSettings
- AVP_UniversalRenderPipelineAsset
- AVP_UniversalRenderPipelineAsset_Renderer
- AVP_UniversalRenderPipelineGlobalSettings



Inspector

Main Camera

Tag: MainCamera Layer: Default

Transform

Position	X	-0.028	Y	0.321	Z	0
Rotation	X	0	Y	0	Z	0
Scale	X	1	Y	1	Z	1

Camera

Render Type: Base

Projection

Projection: Perspective

Field of View Axis: Vertical

Field of View: 60

Clipping Planes: Near 0.01, Far 1000

Physical Camera:

Rendering

Renderer: 0: AVP_UniversalRenderPipelineAsset_Renderer

Post Processing:

Anti-aliasing: Temporal Anti-aliasing (TAA)

Quality: Low

Contrast Adaptive Sharpening: 0.754

Stop NaNs:

Dithering:

Render Shadows:

Priority: 0

Opaque Texture: Use settings from Render Pipeline Asset

Depth Texture: Use settings from Render Pipeline Asset

Culling Mask: Mixed...

Occlusion Culling:

Stack

Environment

Output

Audio Listener:

Tracked Pose Driver

Device: Generic XR Device

Pose Source: Center Eye - HMD Reference

Tracking Type: Rotation And Position

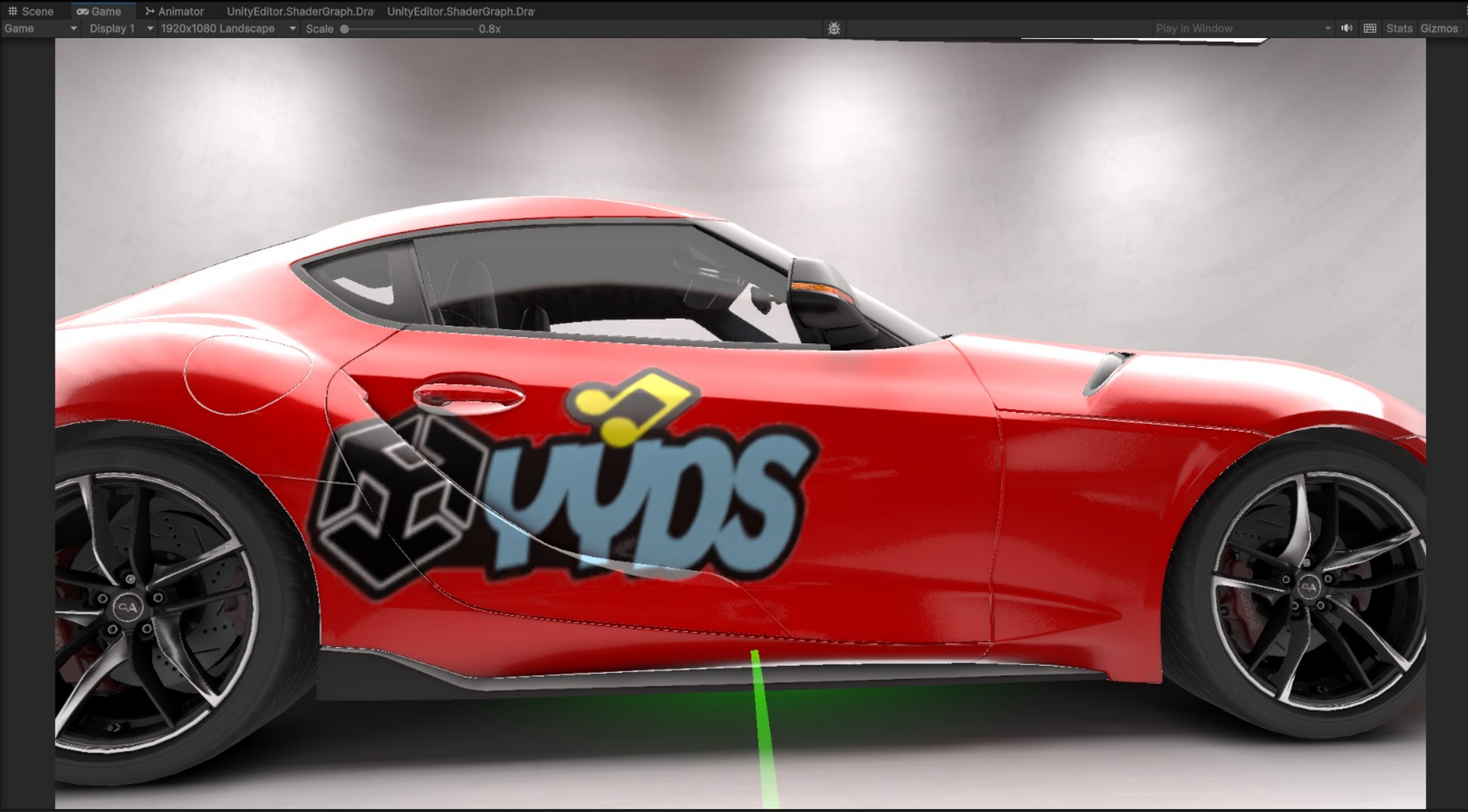
Update Type: Update And Before Render

Use Relative Transform:

Use Pose Provider: None (Base Pose Provider)

Universal Additional Camera Data (Script)

TAA ON



Inspector Panel for Main Camera:

- Tag: MainCamera
- Layer: Default
- Transform: Position (X: -0.028, Y: 0.321, Z: 0), Rotation (X: 0, Y: 0, Z: 0), Scale (X: 1, Y: 1, Z: 1)
- Camera: Render Type: Base
- Projection: Projection: Perspective, Field of View Axis: Vertical, Field of View: 60, Clipping Planes: Near 0.01, Far 1000
- Rendering: **Renderer: 0: AVP_UniversalRenderPipelineAsset_Renderer**, **Anti-aliasing: No Anti-aliasing** (highlighted with a red box), Stop NaNs, Dithering, Render Shadows, Priority: 0, Opaque Texture: Use settings from Render Pipeline Asset, Depth Texture: Use settings from Render Pipeline Asset, Culling Mask: Mixed..., Occlusion Culling:
- Stack, Environment, Output
- Audio Listener
- Tracked Pose Driver: Device: Generic XR Device, Pose Source: Center Eye - HMD Reference, Tracking Type: Rotation And Position, Update Type: Update And Before Render, Use Relative Transform: , Use Pose Provider: None (Base Pose Provider)
- Universal Additional Camera Data (Script)

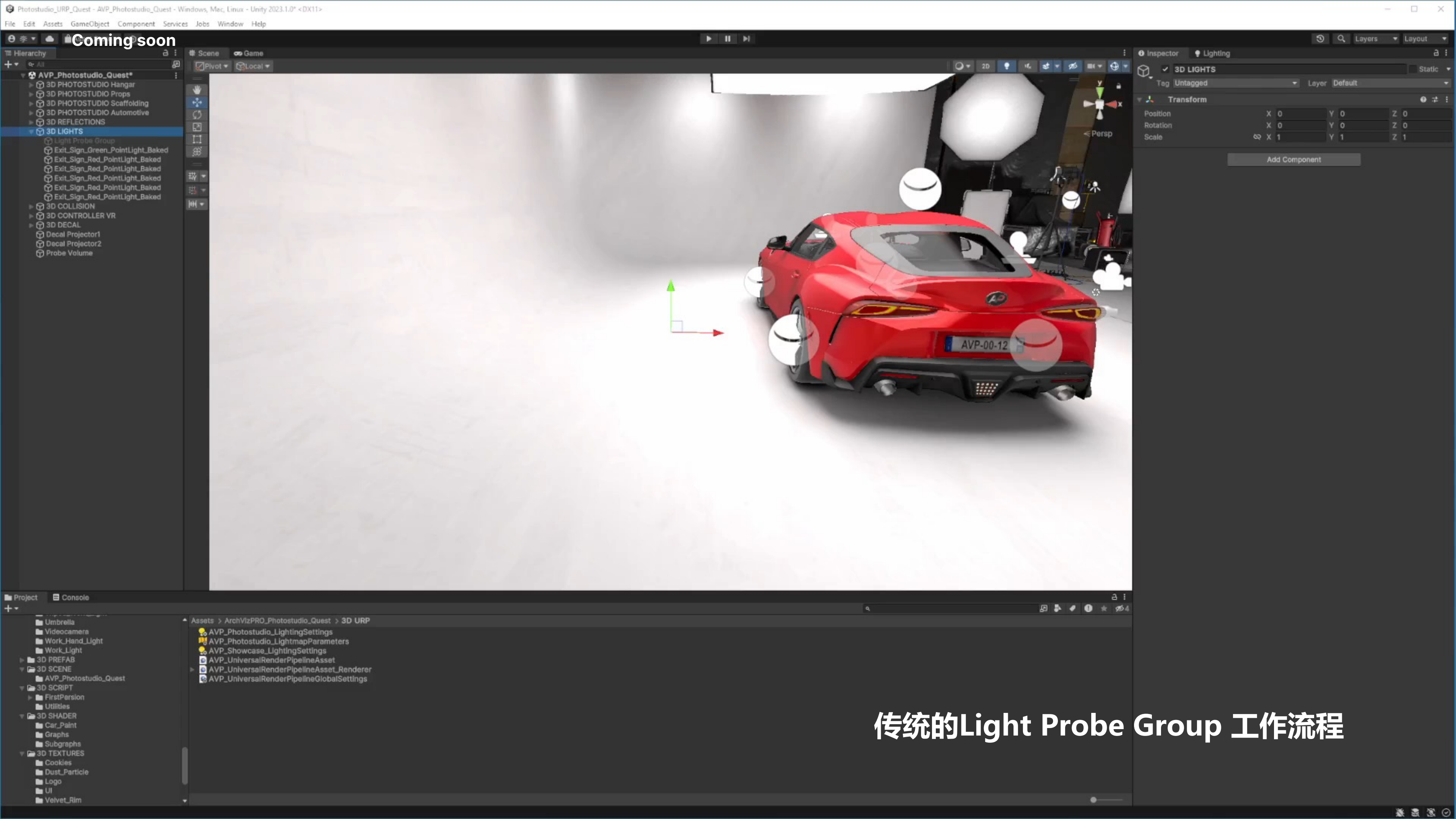
Add Component

TAA OFF



URP Adaptive Probe Volumes

≡
y
z x
≪ Persp



Coming soon

传统的Light Probe Group 工作流程

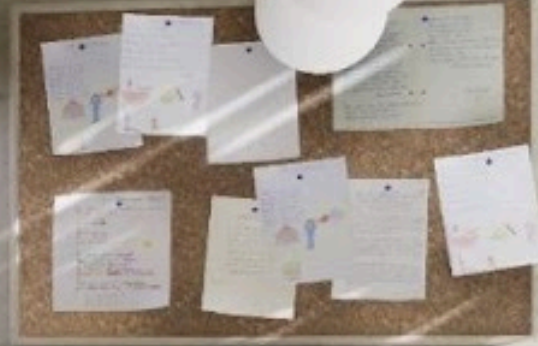


m Mika
un chat
papa
roman

une amie
samedi
il y a
la classe

Jeudi 13 septembre
ma li
na si
na sa

Ee Ff Gg
m. Nr Oo Pp Qq
Uu Vv Ww Xx Yy





Light Probe Group



APV

Clear Coat

1. Clear Coat 清漆效果是 URP 10.0中的一个新功能；
2. 反光非常强，并且遵循菲涅尔效果；
3. 选择Universal Render Pipeline > Complex Lit shader 中开启Clear Coat 功能；





Inspector Occlusion

Clear Coat (Material) Shader Universal Render Pipeline/Complex Lit

Surface Options

- Workflow Mode: Metallic
- Surface Type: Opaque
- Render Face: Front
- Alpha Clipping:
- Receive Shadows:

Surface Inputs

- Base Map:
- Metallic Map:
- Smoothness:
- Source: Metallic Alpha
- Normal Map:
- Height Map:
- Occlusion Map:
- Clear Coat:
- Mask:
- Smoothness:
- Emission:
- Emission Map:
- Tiling: X 1, Y 1
- Offset: X 0, Y 0

Detail Inputs

- Mask:
- Base Map:
- Normal Map:
- Tiling: X 1, Y 1
- Offset: X 0, Y 0

Advanced Options

Project Console

Assets

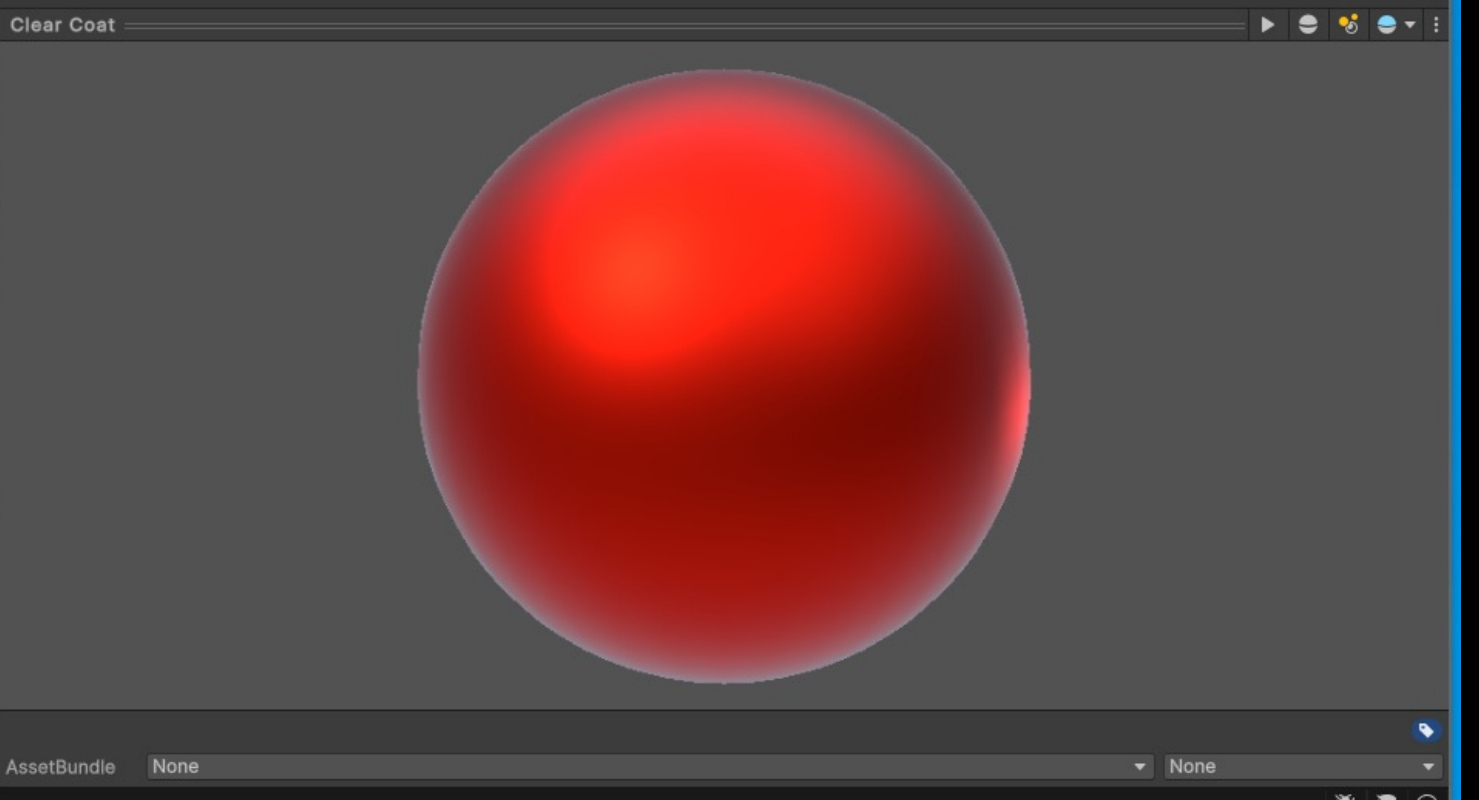
- ArchVizPRO_Photostudio_Quest
- ArchVizPRO_VR
- Car Paint - beffio
 - _Car Paint Lite
 - Resources
 - LensFlareCar
 - Materials
 - Models
 - Prefabs
 - Scripts
 - Shaders
 - Textures
 - CarPaintTextures
 - ConcreteTextures
 - Effects
 - HDRIMaps
 - LensFlare
 - SoiltTexture

- Scenes
- CarPaintBaked

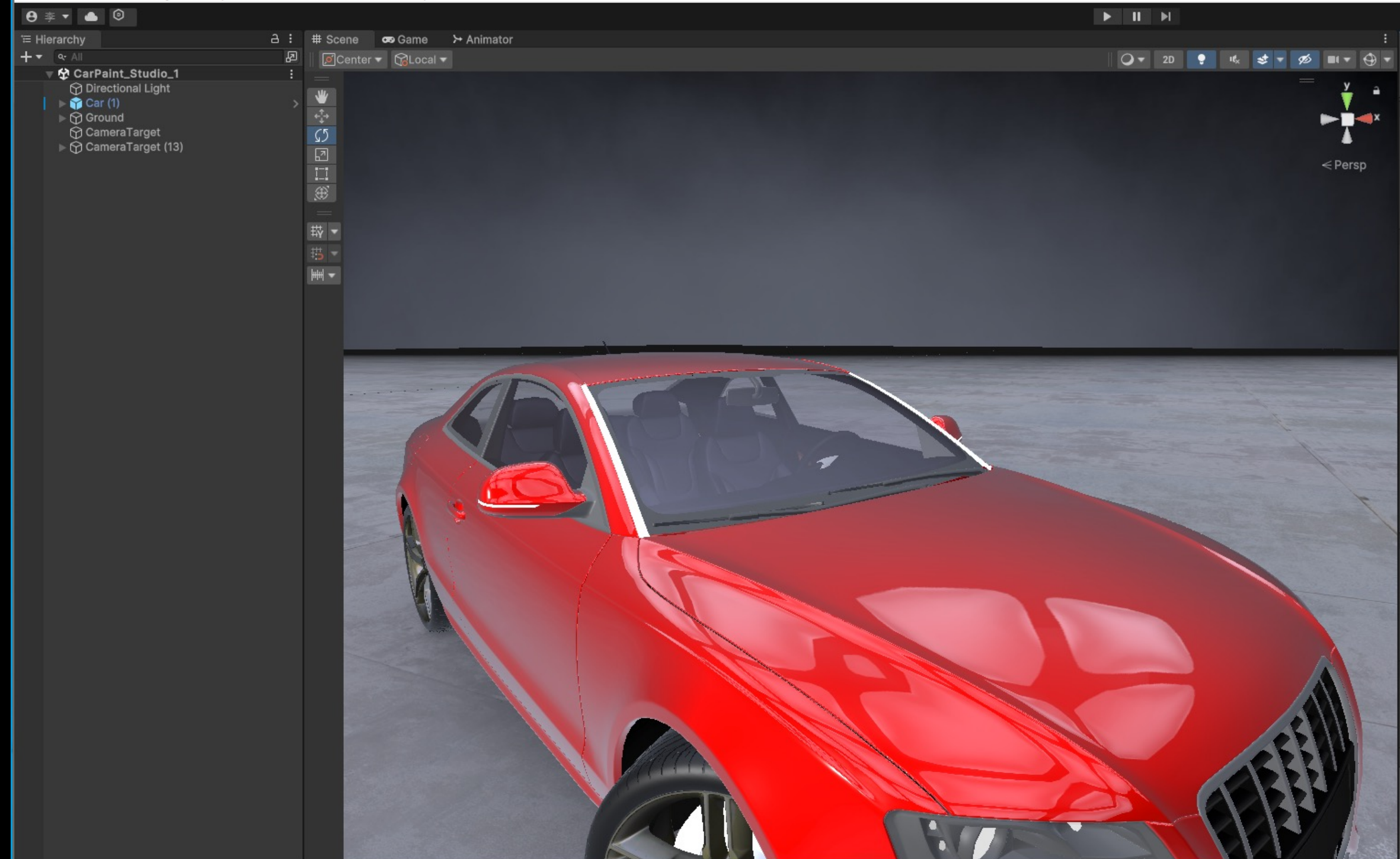
Assets

- ArchVizPRO_Photostudio_Quest
- ArchVizPRO_VR
- Car Paint - beffio
- Editor
- Standard Assets
- StreamingAssets
- XR
- XRI
- Clear Coat
- Decal
- Decal 1
- New Material
- Readme
- Unity YYDS
- VFXDefaultResources
- 杨栋老师叫你学Unity

Assets/Clear Coat.mat



Clear Coat OFF



Inspector Occlusion

Clear Coat (Material)

Shader Universal Render Pipeline/Complex Lit

Surface Options

- Workflow Mode: Metallic
- Surface Type: Opaque
- Render Face: Front
- Alpha Clipping:
- Receive Shadows:

Surface Inputs

- Base Map:
- Metallic Map:
- Smoothness:
- Source: Metallic Alpha
- Normal Map:
- Height Map:
- Occlusion Map:
- Clear Coat:
- Mask:
- Smoothness:

Emission

- Emission Map:

Tiling

X	1	Y	1
X	0	Y	0

Offset

X	0	Y	0
---	---	---	---

Detail Inputs

- Mask:
- Base Map:
- Normal Map:

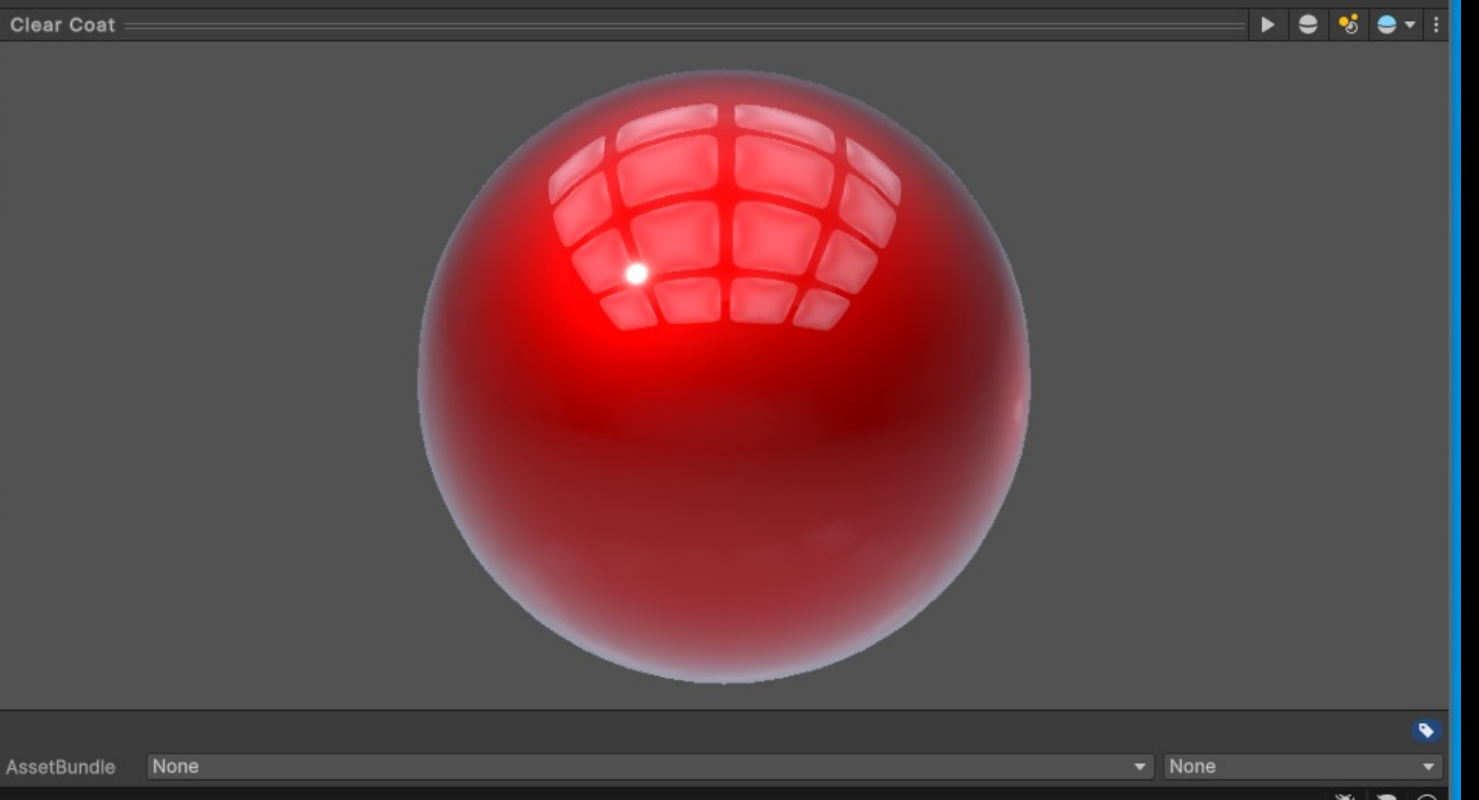
Tiling

X	1	Y	1
X	0	Y	0

Offset

X	0	Y	0
---	---	---	---

Advanced Options



Project Console

Assets

- ArchVizPRO_Photostudio_Quest
- ArchVizPRO_VR
- Car Paint - beffio
 - _Car Paint Lite
 - Resources
 - LensFlareCar
 - Materials
 - Models
 - Prefabs
 - Scripts
 - Shaders
 - Textures
 - CarPaintTextures
 - ConcreteTextures
 - Effects
 - HDRIMaps
 - LensFlare
 - SoiltTexture

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- ArchVizPRO_VR
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- Unity YYDS
- VFXDefaultResources
- 杨栋老师叫你学Unity

Assets/Clear Coat.mat

Clear Coat ON





LOD Cross-Fade

LOD 是一种减少渲染远距离Mesh网格所需的 GPU 成本的技术。

根据距离相机的远近来显示不同细节程度的模型，距离渐近时，显示细节程度较高的模型，距离渐远时，显示细节程度较低的模型，从而节省性能的开销。





LOD Cross-Fade

LOD Cross-Fade (细节层次淡入淡出) : 根据对象到相机的距离在当前网格LOD和下一个LOD之间执行更平滑的过度混合。从而避免出现模型切换时的弹出感 (LOD popping)

LOD Cross-Fade 分为两种模式 : 分别是Time-Based Fading和Distance-based Fading

可以在Unity 2022.2中的URP14.0及以上版本中进行体验



1: LOD cross-fade off.
2: LOD cross-fade on.



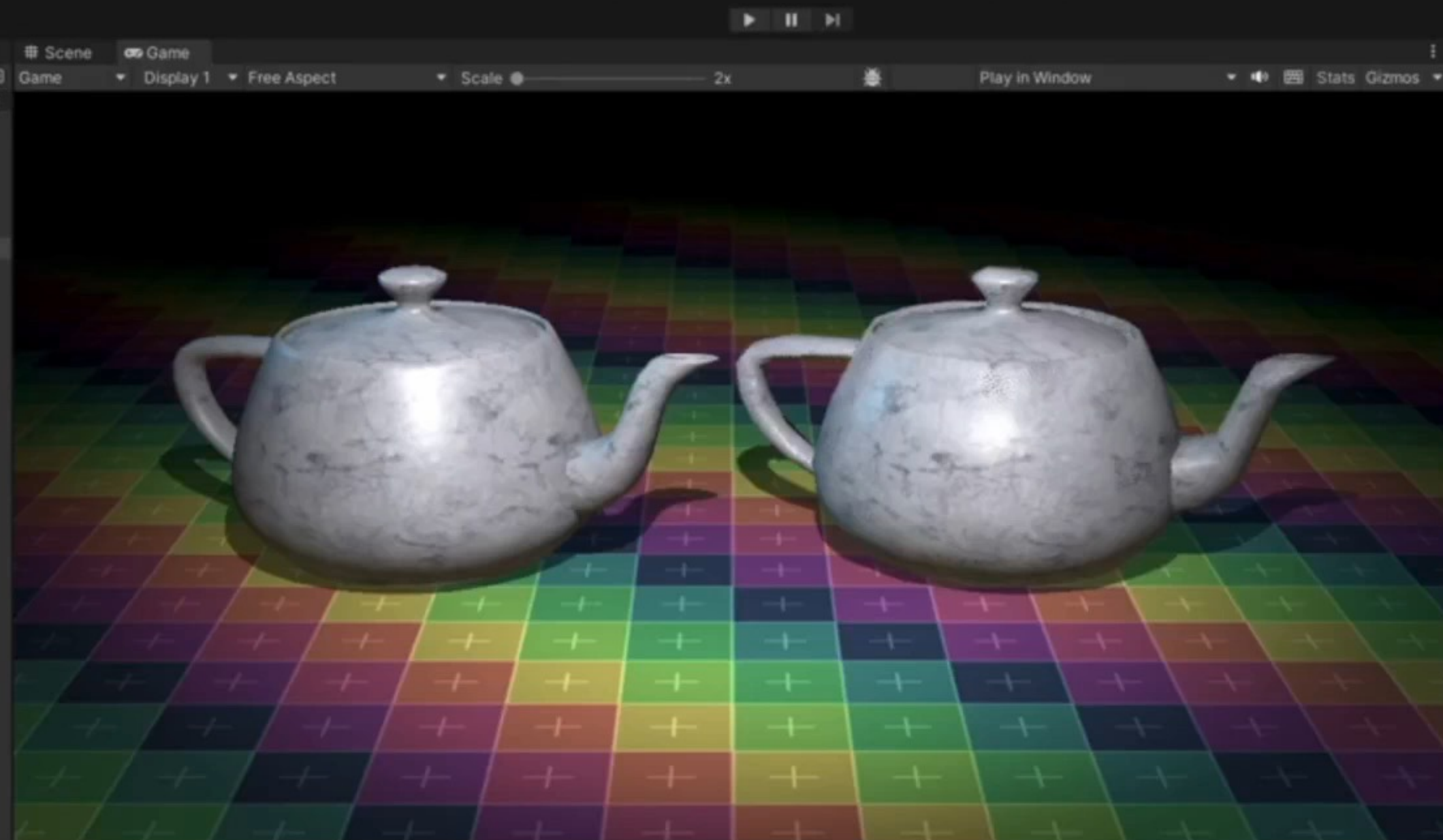
LOD Cross Fade off



LOD Cross Fade on

Hierarchy

- Close*
 - Camera Pivot
 - Light Pivot
 - Light Pivot
 - Point Light
 - Plane
 - Objects
 - LOD
 - LOD XF



Inspector

LOD

Tag Untagged Layer Default

Transform

Position X -0.95 Y 0 Z 0

Rotation X 0 Y 200 Z 0

Scale X 1 Y 1 Z 1

LOD Group

Fade Mode None

LOD 0 100% LOD 1 75% Culled 3%

100%

Recalculate Bounds Recalculate Lightmap Scale

Object Size 1.963967 Reset Object Size

LOD 0 3218 Triangles - 1 Sub Mesh(es)

Transition (% Screen Size) 75 Set to Camera 2.27 m

Renderers

0 (Mesh Renderer) 3218 Tris. 1 Sub Mesh(es)

LOD 1 472 Triangles (14.67% LOD0) - 1 Sub Mesh(es)

Transition (% Screen Size) 3 Set to Camera 56.69 m

Renderers

1 (Mesh Renderer) 472 Tris 1 Sub Mesh(es)

Add Component

Project Console

Assets

- ambientCG
- Scenes
- Test
- URP

ambiantCG Scenes Test URP



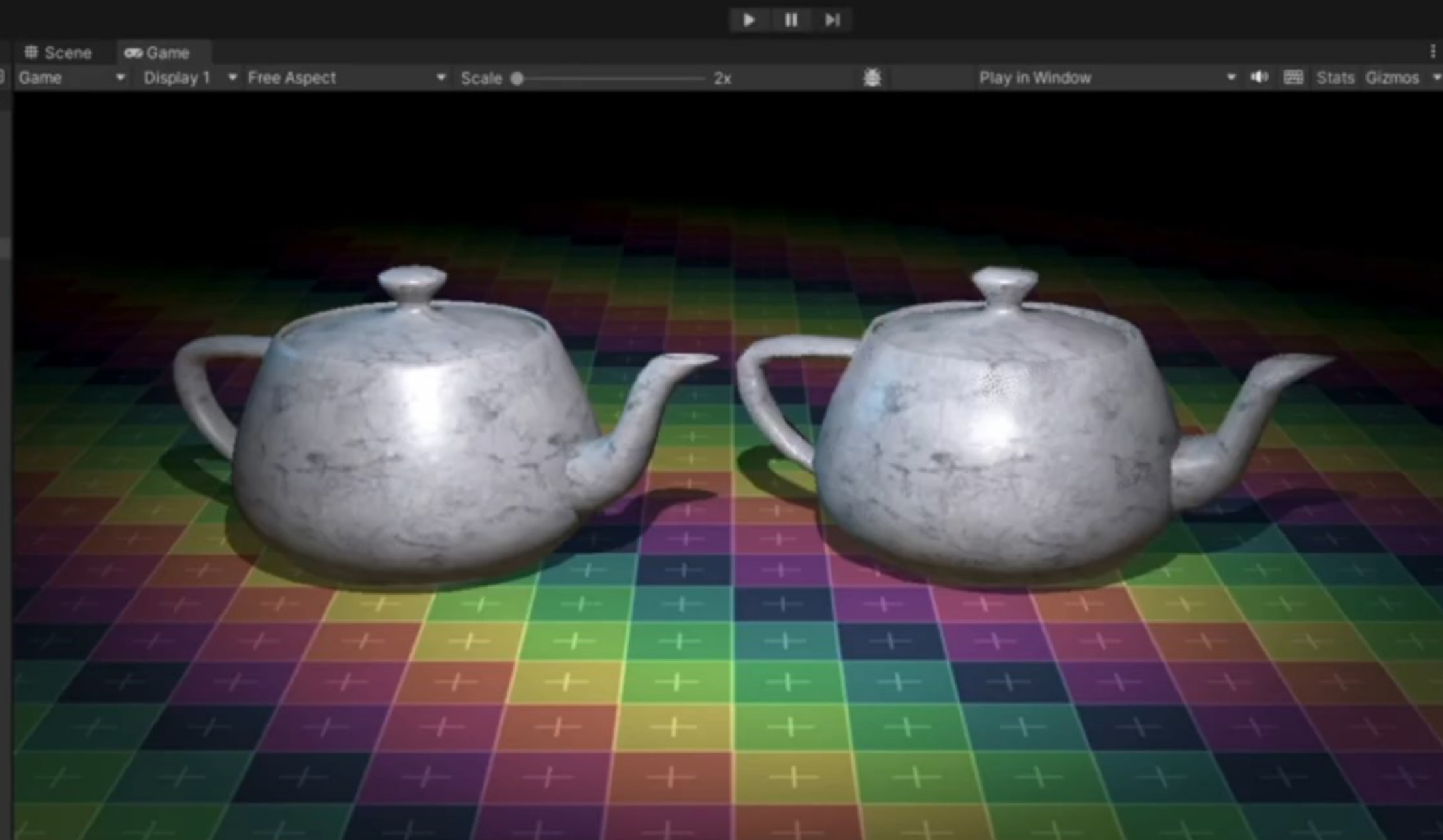
另外我们也可以使用名为 `CrossFadeAnmiationDuration` 的变量从脚本更改此淡化的持续时间。默认时间的设置为0.5秒；

The screenshot shows the Unity Documentation page for the `LODGroup.crossFadeAnimationDuration` property. The page is in Chinese and includes the following elements:

- Header:** Unity Documentation, Version: 2021.3
- Navigation:** 脚本 API (Script API) with sub-categories: UnityEngine, UnityEditor, Unity, and Other.
- Property Name:** `LODGroup.crossFadeAnimationDuration`
- Signature:** `public static float crossFadeAnimationDuration ;`
- Section:** 描述 (Description)
- Description Text:** 交叉淡入淡出动画持续时间（以秒为单位）。如果它设置为零或负值，则抛出 `ArgumentException`。另请参阅: [animateCrossFading](#)。
- Feedback:** Did you find this page useful? Please give it a rating: (5 stars), [Report a problem on this page](#)
- Footer:** Copyright © 2022 Unity Technologies. Publication 2021.3

Hierarchy

- Close*
 - Camera Pivot
 - Light Pivot
 - Light Pivot
 - Point Light
 - Plane
 - Objects
 - LOD
 - LOD XF



Inspector

LOD

Tag Untagged Layer Default

Transform

Position X -0.95 Y 0 Z 0

Rotation X 0 Y 200 Z 0

Scale X 1 Y 1 Z 1

LOD Group

Fade Mode None

LOD 0 100% LOD 1 75% Culled 3%

100%

Recalculate Bounds Recalculate Lightmap Scale

Object Size 1.963967 Reset Object Size

LOD 0 3218 Triangles - 1 Sub Mesh(es)

Transition (% Screen Size) 75 Set to Camera 2.27 m

Renderers

0 (Mesh Renderer) 3218 Tris. 1 Sub Mesh(es)

LOD 1 472 Triangles (14.67% LOD0) - 1 Sub Mesh(es)

Transition (% Screen Size) 3 Set to Camera 56.69 m

Renderers

1 (Mesh Renderer) 472 Tris 1 Sub Mesh(es)

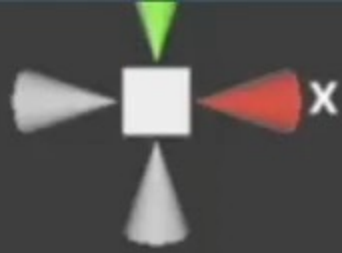
Add Component

Project Console

Assets

- ambientCG
- Scenes
- Test
- URP


ambiantCG Scenes Test URP



← Back

▼ Rendering

Renderer List

= 0  URP_Renderer (Universal Renderer Data)



Default



Depth Texture



Opaque Texture



Opaque Downsampling

2x Bilinear



Terrain Holes



▼ Quality

HDR



Anti Aliasing (MSAA)

Disabled



Render Scale



1

Upscaling Filter

Automatic



LOD Cross Fade



LOD Cross Fade Dithering Type

Blue Noise



▼ Lighting

Main Light

Per Pixel



Cast Shadows



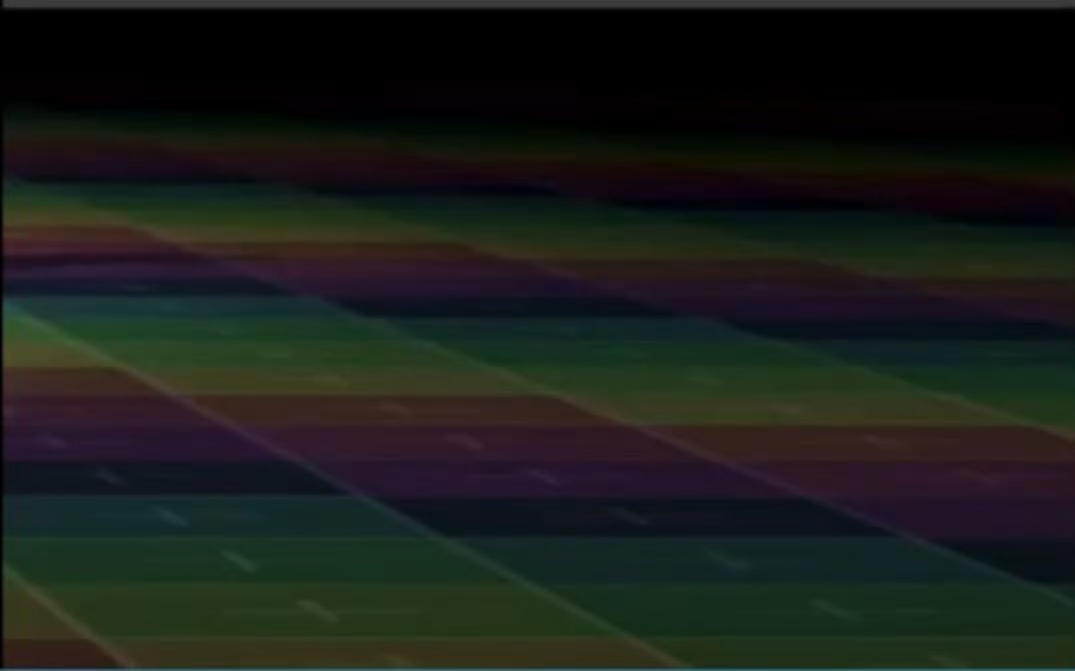
Shadow Resolution

2048



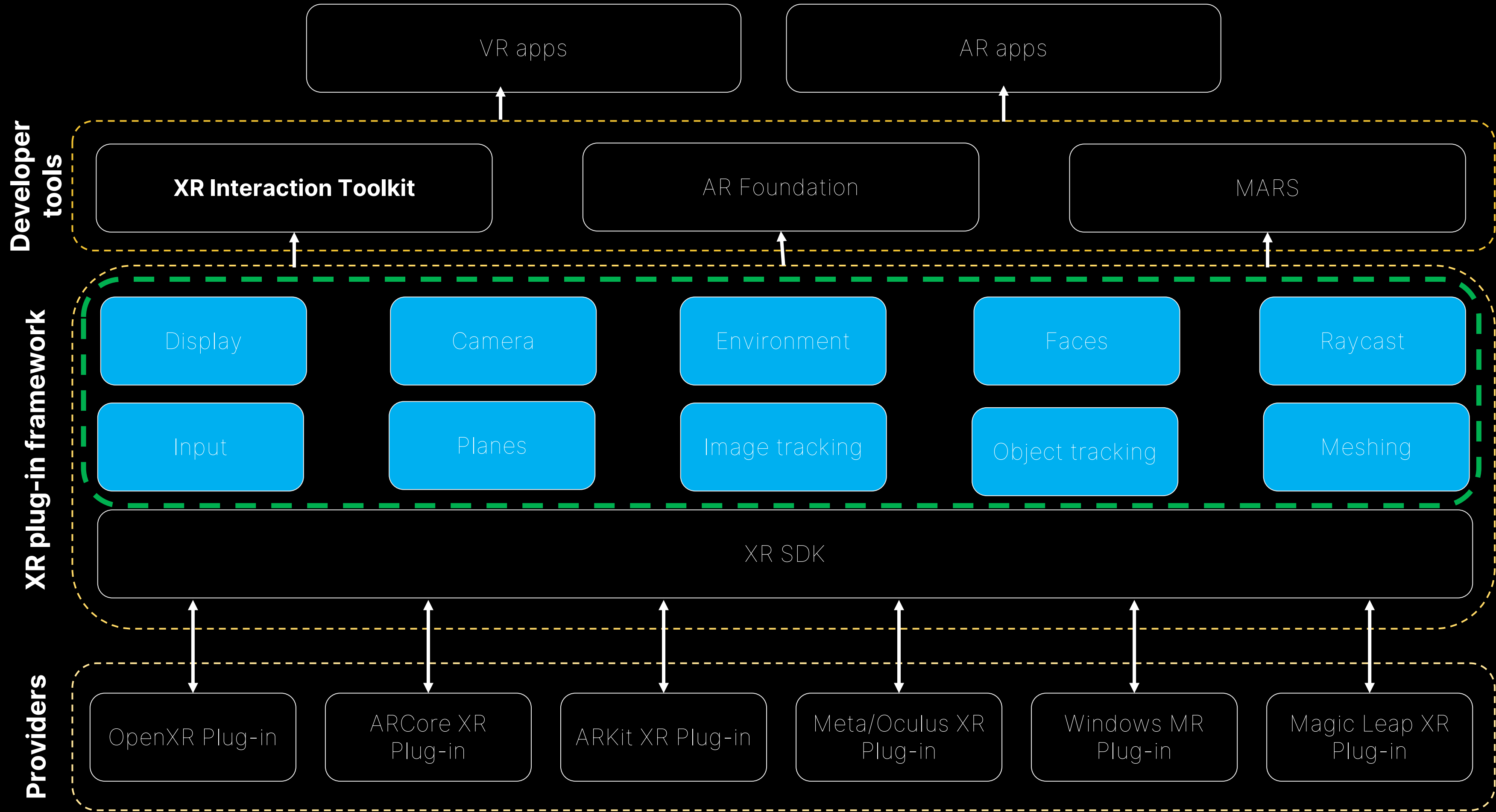
Additional Lights

Per Pixel





Unity XR 介绍



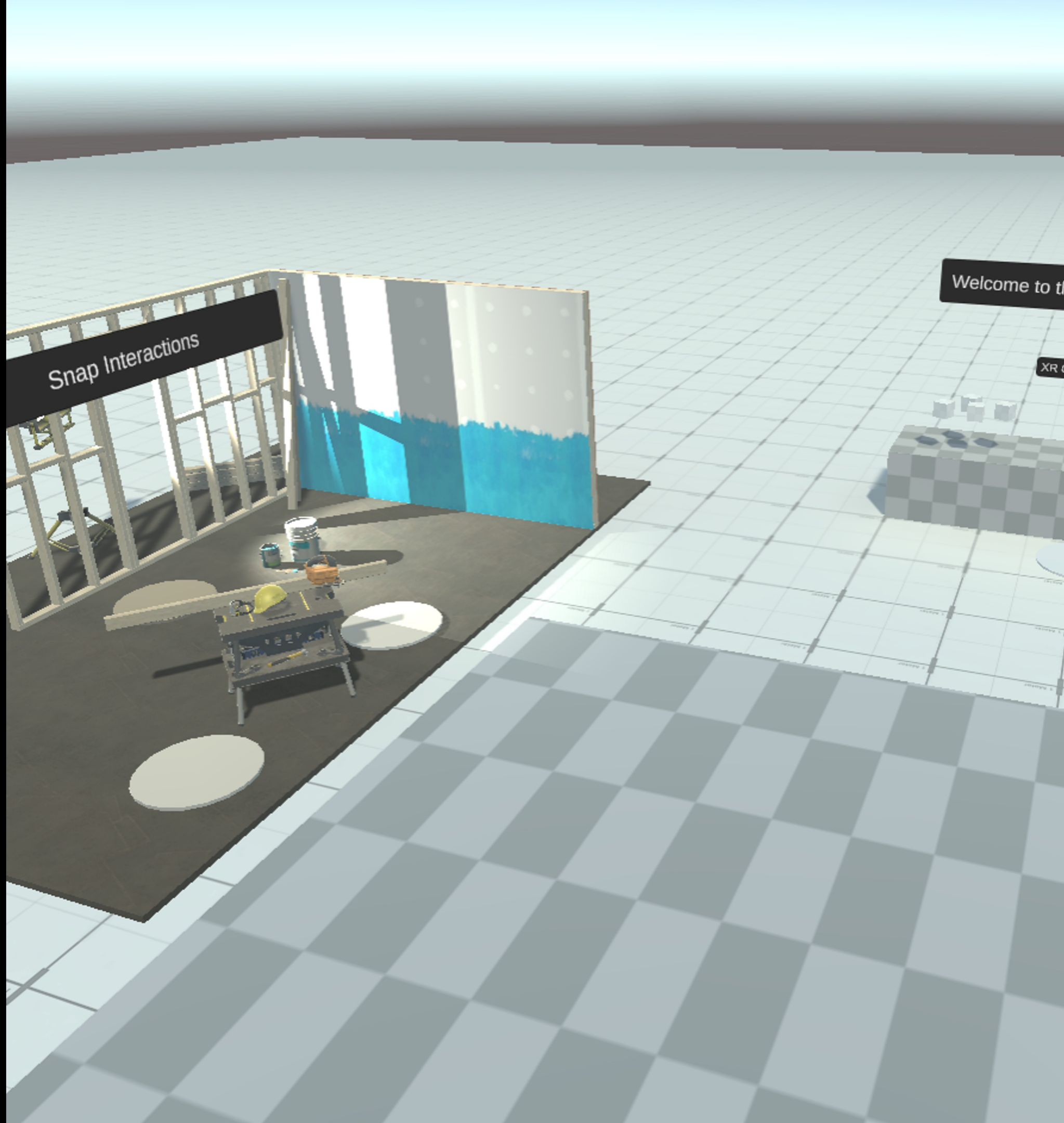
支持所有 VR/AR/MR 主流平台





XR Interaction Toolkit

向任何AR或VR应用程序添加交互性





对象交互 (AR/VR)

VR: 悬停、
选取、抓取、
投掷和旋转

AR: 点击、
拖动、缩放



对象放置 (AR)

AR 中内容
创作, 3D
对象场景中
放置于缩放

支持注释,
展示 AR 对
象信息和互
动



UI 交互 (AR/VR)

控制器与
UI 画布的
基本交互



移动功能(VR)

区域传送

定点传送

快速转向

连续转向

连续移动



眼动追踪

手部追踪

设备模拟器
(XR Device
Simulator)
的提升





XR Interaction Toolkit

新功能介绍与使用

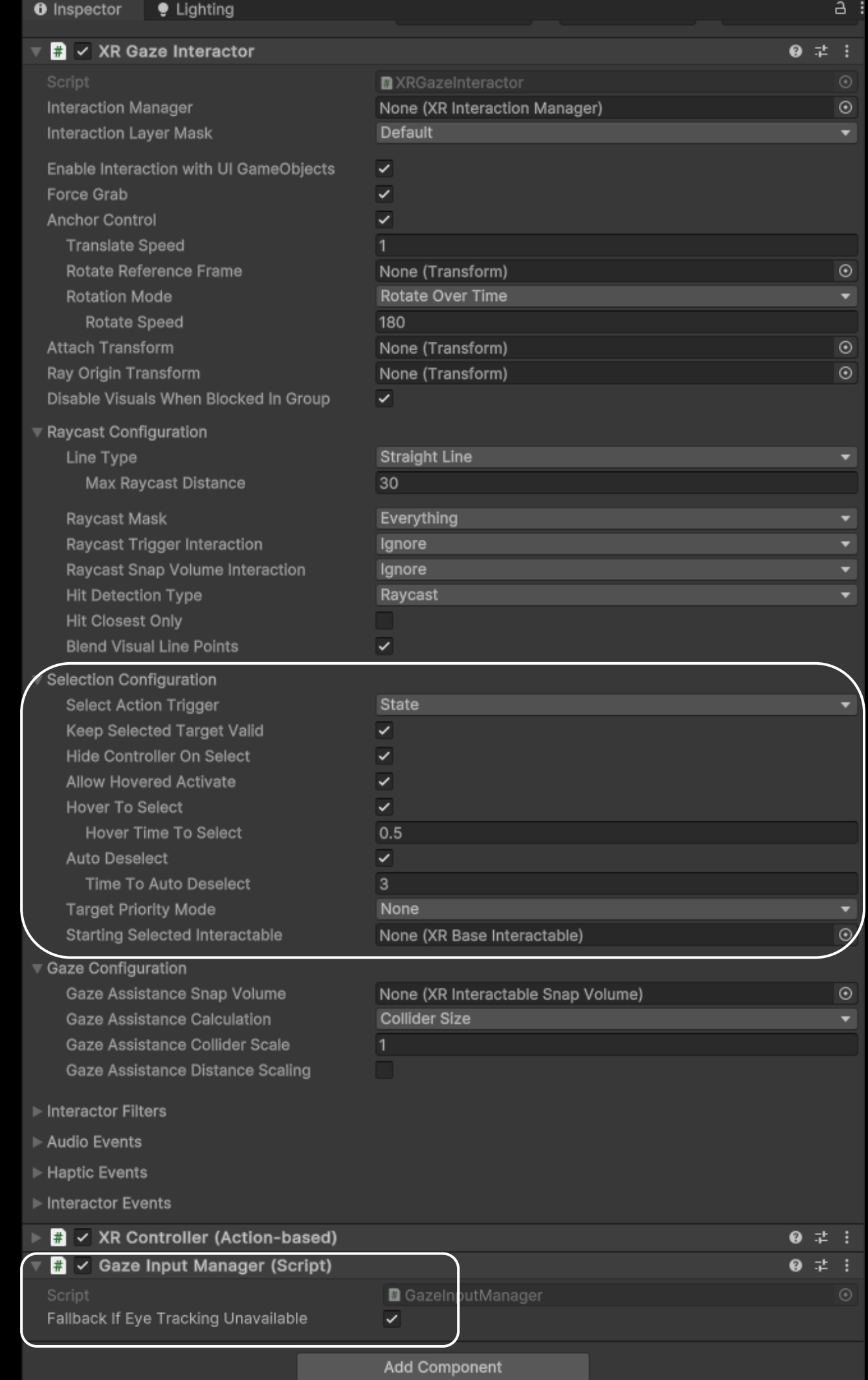


注视交互



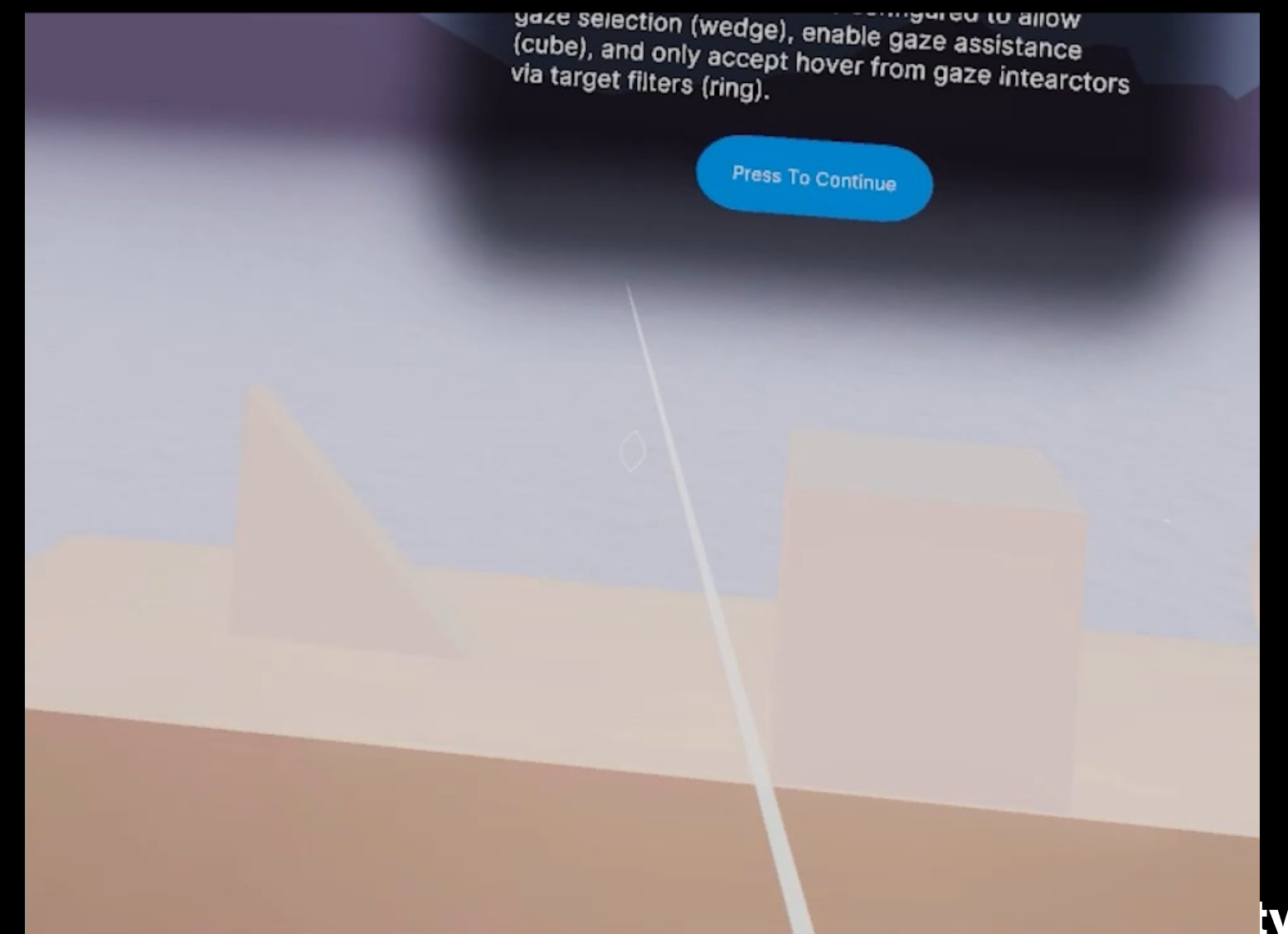
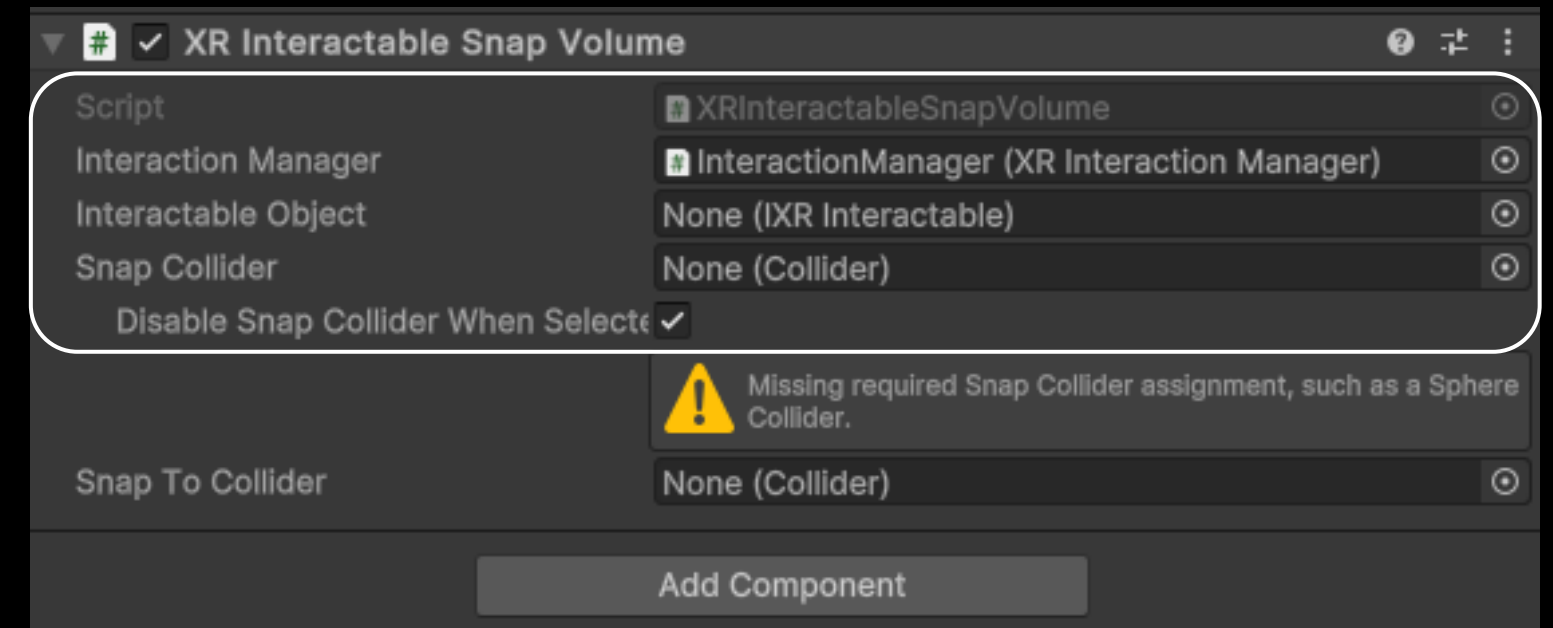
XR Gaze Interactor

1. XR Gaze Interactor (XR 凝视交互器)，由眼睛注视或头部注视姿势驱动。通过停留在可交互对象（3D 或 UI 组件）上进行交互；
2. 如果未找到有效的眼动追踪设备，凝视可以回退到头部追踪以支持所需的凝视功能；



XR Interactable Snap Volume

使 XR 射线交互器能够在视觉上捕捉到关联的可交互对象的组件。该组件需要一个作为触发器的Collider，该组件是对XR Gaze Interactor 凝视交互器的补充。



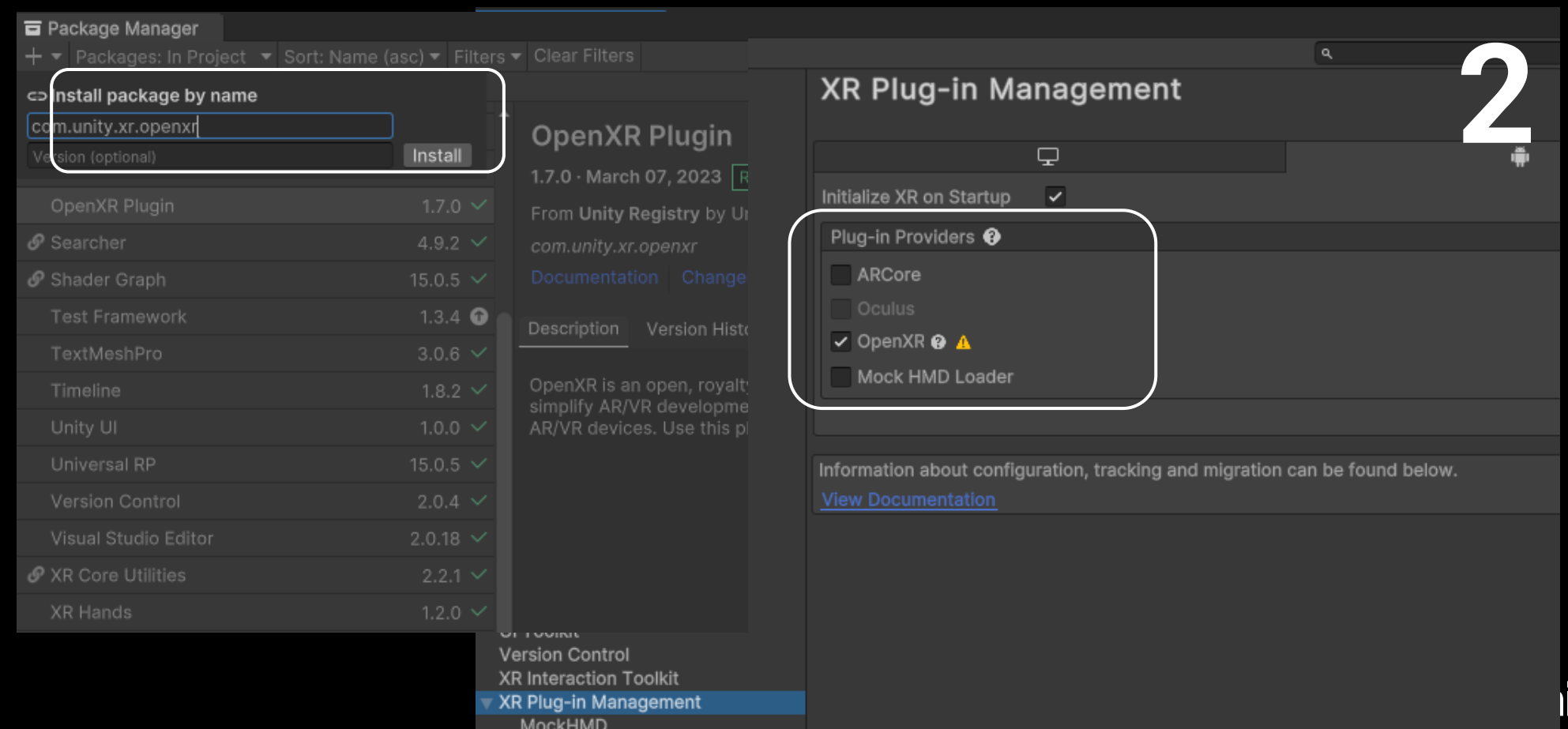
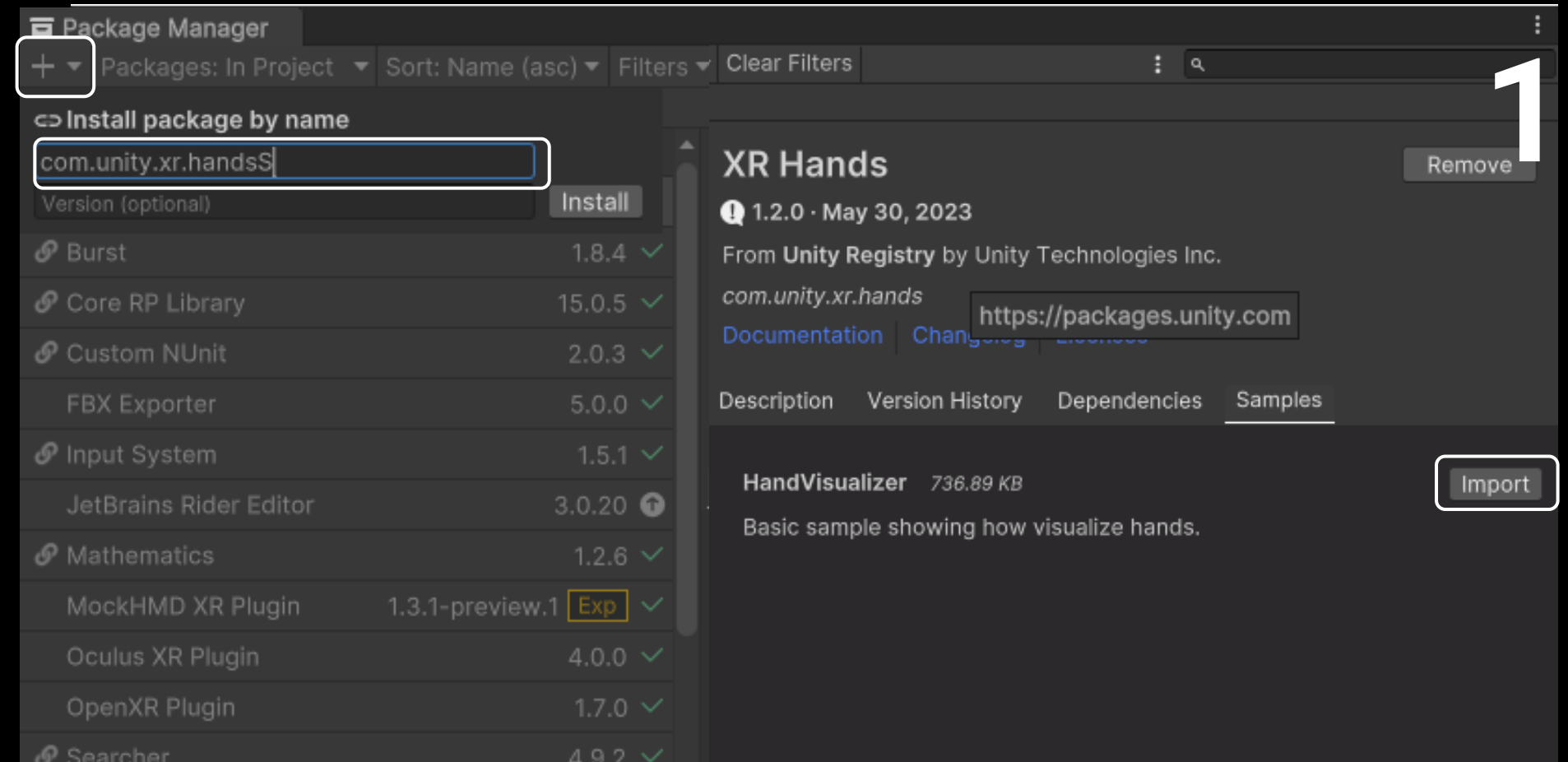


手部追踪



Unity XR Hands Setup 1

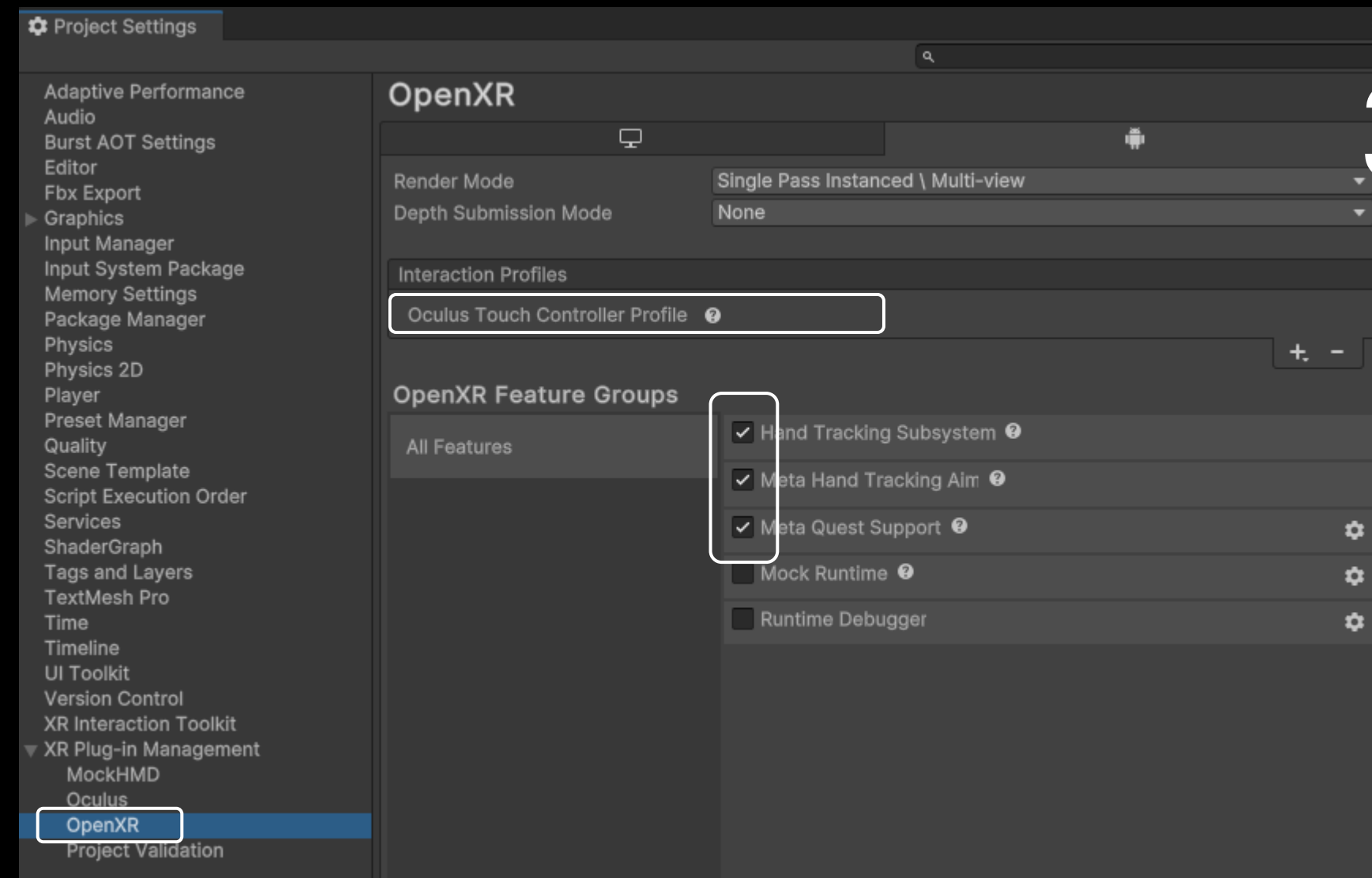
1. 在Package Manager中安装 XR Hands (Unity 2021.2+) , 并导入 XR Hands 示例 HandVisualizer ;
2. 要在设备上使用 XR Hands , 必须至少在XR Plug-in Management 下安装一个特定硬件的provider 插件包 , 在Edit > Project Settings > XR Plug-in Management 下启用OpenXR provider 插件包 ;





Unity XR Hands Setup 2

3. 在Edit > Project Settings > XR Plug-in Management > OpenXR
下勾选OpenXR Feature Groups中的Hand Tracking Subsystem ;
- 启用Meta Quest Support (仅在 Android 选项卡中可用) 和 Meta Hand Tracking Aim。
 - 然后在同一窗口中添加一个交互配置文件，例如Oculus Touch Controller Profile，以获得控制器支持。





XR 设备 模拟器



XR Device Simulator

1.在Package Manager > XR Interaction Toolkit Package, 在 Samples处导入XR Device Simulator;

The screenshot shows the Unity Package Manager interface. On the left, a list of packages is displayed under the 'Services' category. The 'XR Interaction Toolkit' package is selected, and its details are shown on the right. The 'Samples' tab is active, and the 'XR Device Simulator' sample is highlighted with a white box. A large white number '1' is overlaid on the right side of the interface.

Package Name	Version
Sequences	2.1.0
Shader Graph	15.0.5
Splines	2.2.1
Sysroot Base	2.0.6
Sysroot Linux x64	2.0.5
System Metrics Mail	1.0.2
Terrain Tools	5.1.0
Test Framework	1.3.4
TextMeshPro	3.0.6
Timeline	1.8.2
Toolchain Linux x64	2.0.5
Toolchain MacOS Linux x64	2.0.5
Toolchain Win Linux x64	2.0.5
Tutorial Authoring Tools	1.2.2
Tutorial Framework	3.1.3
Unity Denoising	1.0.0
Unity Distribution Portal	2.2.5
Unity Logging	1.0.0-pre.37
Unity Physics	1.0.0-pre.65
Unity Profiling Core API	1.0.2
Unity Transport	1.3.4
Unity UI	1.0.0
Universal RP	15.0.5
User Generated Content	1.0.0-pre.10
User Reporting	2.0.6

XR Interaction Toolkit
2.3.2 · May 05, 2023 Release
From Unity Registry by Unity Technologies Inc.
com.unity.xr.interaction.toolkit
[Documentation](#) [Changelog](#) [Licenses](#)

Description Version History Dependencies Samples

Starter Assets 1.62 MB ✓ Reimport
Assets to streamline setup of behaviors, including a default set of input actions and presets for use with XR Interaction Toolkit behaviors that use the Input System.

XR Device Simulator 654.26 KB ✓ Reimport
Assets related to the simulation of XR HMD and controllers.

Tunneling Vignette 142.68 KB ✓ Reimport
Assets to let users set up and configure tunneling vignette effects as a comfort mode option.

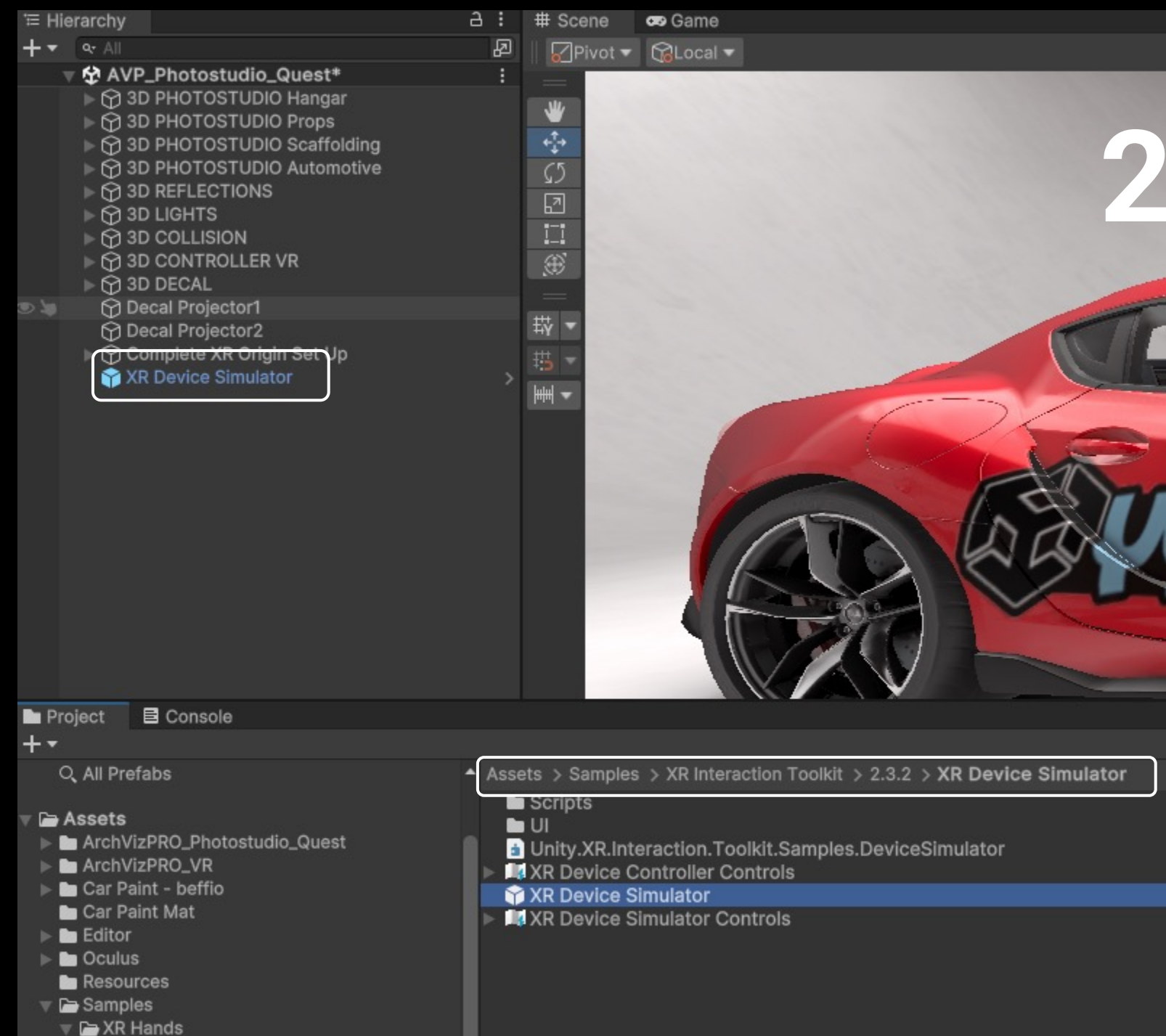
Meta Gaze Adapter 15.24 KB ✓ Reimport
This sample provides an example to get eye tracking working with the Meta Quest Pro and the XRI Gaze Interactor.

Hands Interaction Demo 1.63 MB ✓ Reimport
Sample scene and other assets for hand-tracking integration with the XR Interaction Toolkit.



XR Device Simulator

2. 将Assets>Samples>XR Interaction Toolkit>2.3.2>XR Device Simulator 拖入到Unity Hierarchy面板中，点击Play；



- Hierarchy
- Case
 - Case
 - Notebook
 - Softbox_Ceiling_Quest
 - Electrical_Wire_Quest
 - Tape_Quest
 - Power_Extension_5_Quest
 - Power_Extension_5_Quest
 - Power_Extension_3_Quest
 - Cable_Extension_Quest
 - Cable_Extension_Quest
 - Paint_Tools_Quest
 - Paint_Tools_Quest
 - Camera_lib_Quest
 - Work_Light_Quest
 - Stage_Lights_Structure_Quest
 - Light_Diffuser_Quest
 - Light_Diffuser_Quest
 - Ring_Light_Quest
 - Tripod_Work_Light_Quest
 - Tripod_Work_Light_Quest
 - Tripod_Work_Light_Quest
 - Tripod_Work_Light_Quest
 - Umbrella_Quest
 - Photo_Camera_NoLens_Quest
 - Photo_Camera_NoLens_Quest
 - Tripod_Photocamera_Tail_Quest
 - Tripod_Photocamera_Short_Quest
 - Tripod_Notebook_Quest
 - Case_Tarp_Cages_Quest
 - Case_Tarp_Cages_Quest
 - Case_Tarp_Cages_Quest
 - Case_Tarp_Cages_Quest
 - Tripod_Spotlight_Quest
 - Tripod_Spotlight_Quest
 - Softbox_Quest
 - Softbox2_Quest
 - 3D PHOTOSTUDIO Scaffolding
 - 3D PHOTOSTUDIO Automotive
 - 3D REFLECTIONS
 - 3D LIGHTS
 - 3D COLLISION
 - 3D CONTROLLER VR
 - 3D DECAL
 - Decal Projector1
 - Decal Projector2



Inspector

Complete XR Origin Set Up

Tag Untagged Layer Default

Transform

Position	X 5	Y 0	Z 0
Rotation	X 0	Y 0	Z 0
Scale	X 1	Y 1	Z 1

Add Component

- Project Console
- All Prefabs
- Assets
 - ArchVizPRO_Photostudio_Quest
 - 3D DECALS
 - 3D MATERIALS
 - 3D MODEL
 - 3D PREFAB
 - 3D SCENE
 - 3D SCRIPT
 - 3D SHADER
 - 3D TEXTURES
 - 3D URP
 - ArchVizPRO_VR
 - Car Paint - befflo
 - Car Paint Mat
 - Editor
 - Samples
 - XR Interaction Toolkit
 - 2.3.2
 - Hands Interaction Demo
 - Meta Gaze Adapter
 - Starter Assets
 - Tunnelling Vignette
 - XR Device Simulator
 - Scripts
 - UI
 - Standard Assets
 - XR
 - XRI

- Assets > Samples > XR Interaction Toolkit > 2.3.2 > XR Device Simulator >
- Scripts
 - UI
 - Unity.XR.Interaction.Toolkit.Samples.DeviceSimulator
 - XR Device Controller Controls
 - XR Device Simulator
 - XR Device Simulator Controls



VR 开发实战课程：

<https://learn.u3d.cn/campus/course/VR-Development-with-Visual-Scripting/introduction>

VR 开发实战课程

为 Unity 初级开发者量身打造 - 18 小时元宇宙探索之旅



The image is a collage of screenshots from the Unity Chinese Classroom website, showcasing various URP (Universal Render Pipeline) tutorial pages. The main focus is on a detailed tutorial page titled "URP系列教程-手把手教你在URP中实现镜头光晕效果" (URP Series Tutorial - Step-by-step guide to implementing lens flare effects in URP). This page includes a progress indicator showing 9% completion, a "Continue Tutorial" button, and a list of chapters: 1. 前言 (Introduction), 2. Lens Flare的组成 (Composition of Lens Flare), 3. 素材准备与添加Lens Flare (SRP) 组件 (Material preparation and adding Lens Flare (SRP) components), 4. Lens Flare (SRP) 组件的属性介绍 (Introduction to Lens Flare (SRP) component properties), 5. 创建Lens Flare (SRP) Data (Creating Lens Flare (SRP) Data), 6. 创建Lens Flare Element (Core Circle) (Creating Lens Flare Element (Core Circle)), and 7. 创建Lens Flare Element (Shimmer) (Creating Lens Flare Element (Shimmer)).

Other screenshots show progress trackers for various URP tutorials, such as "URP系列教程-如何使用Global Volume的Bloom效果" and "URP系列教程-如何使用Global Volume的Vignette效果". These trackers display a list of chapters and the user's current progress through them. The website's navigation bar at the top includes links for "Unity 中文课堂", "首页", "免费课", "新手课", "开发者社区", "Unity集训营", and "中国官网".



Unity+XR+Arduino学...

群号: 457149871



扫一扫二维码, 入群聊。



Unity URP学习交流群

群号: 1085557897



扫一扫二维码, 入群聊。



Unity 数字人交流群

群号: 296041238



扫一扫二维码, 入群聊。



Thank you

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