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Unity 动态

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Unity 学习资源

Unity 中文课堂：learn.u3d.cn

问答社区： unity.cn/ask

技术专栏： unity.cn/articles

中文文档： docs.unity.cn

资源商店： assetstore.unity.com

Unity 集训营： unity.cn./university

产品交流QQ群

Plastic SCM：825450743

游戏云： 550832645

Instant Game：628540768

URP 通用渲染管线： 1085557897

Unity 性能分析工具：1029672930

Unity 官方网站：unity.cn

unity

Unity HDRP材质应用详解

讲师：杨栋

unity

PPT下载

链接：https://pan.baidu.com/s/1CIHyF5jG2llfuMVC2YNQFA

提取码：2021

HDRP支持的平台

- ✓ Windows 和 Windows Store, 支持 DirectX 11 或 DirectX 12，以及 Shader Model 5.0
- ✓ Google Stadia
- ✓ Sony
  - ✓ PlayStation 4
  - ✓ PlayStation 5
- ✓ Microsoft
  - ✓ Xbox One
  - ✓ Xbox Series X 和 Xbox Series S
- ✓ 使用 Metal graphics 的 MacOS (最低版本 10.13)
- ✓ 使用 Vulkan 的 Linux 和 Windows 平台
- ✓ 支持实时光线追踪功能 **


HDRP学习资料
Generative Art — Made with Unity
unity

https://github.com/Unity-Technologies/FontainebleauDemo

Made with unity


https://github.com/Unity-Technologies/SpaceshipDemo

内置HDRP模板（Unity 2020.2版本及以上）

The Heretic: Digital Human

Unity Technologies

★★★★☆ 4 | 23 Reviews

FREE

Download

Add to List | Share

The Heretic: VFX Character

Unity Technologies

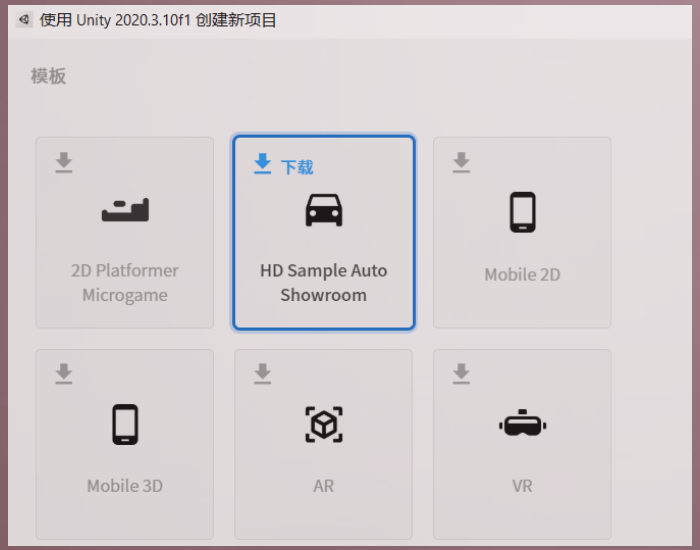
★★★★★ 5 | 3 Reviews

FREE

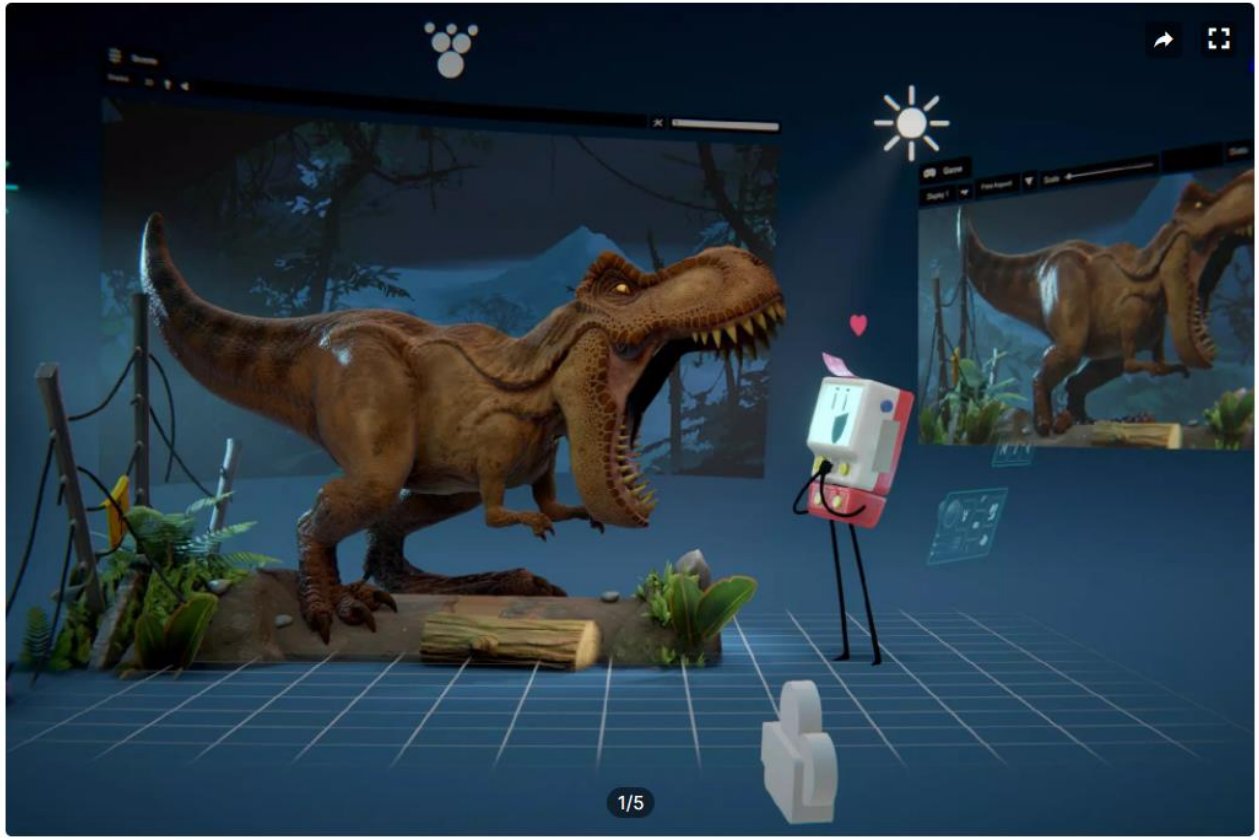
Download

Add to List | Share

内置汽车项目HDRP模板



最新影视动画HDRP模板项目



Cinematic Studio Sample

Unity Technologies ★★★★★ 5 | 5 Reviews

FREE

Open in Unity

HIBIKI_entertainment
★★★★★ 9 days ago

Increadible asset for those in cinematics

This asset is deeply involved and showcases a full production for animation, cinematics and audio. it's beautifully put together and shows gives a lo...
Read more reviews

License agreement	Standard Unity Asset Store EULA
License type	Extension Asset
File size	192.3 MB
Latest version	1.0
Latest release date	May 3, 2021
Supported Unity versions	2020.3.0 or higher

炼金实验室场景 https://github.com/Unity-Technologies/VRAlchemyLab

- 适用于游戏类项目
- 卡通风格
- Unity 2019.3.6 及以上版本
- HDRP 7.3.1 及以上版本

Unity中文课堂 HDRP相关课程

《Windup》实时渲染动画全流程技术美术高级课

高级 • 1,200 分钟

价格：¥3999

Windup

Unity HDRP室外场景打光流程分享(下篇)-白天和

中级 • 120 分钟

价格：免费

杨栋

Unity HDRP室外场景打光流程分享(上篇)-UE4场

中级 • 120 分钟

价格：免费

杨栋

Unity影视化实时渲染案例课之《异教徒》艺术效

高级 • 180 分钟

价格：¥299

Unity官方

视频

栋哥带你学Unity实时光追系列

中级 • 120 分钟

价格：免费

杨栋

Unity高清渲染管线HDRP入门

初级 • 180 分钟

价格：¥99

xiao霖

视频

Unity引擎影视动画入门课程

初级 • 290 分钟

价格：¥99

逸宁

视频

Unity 2020.2 - HDRP最新模板项目 (全方位讲解)

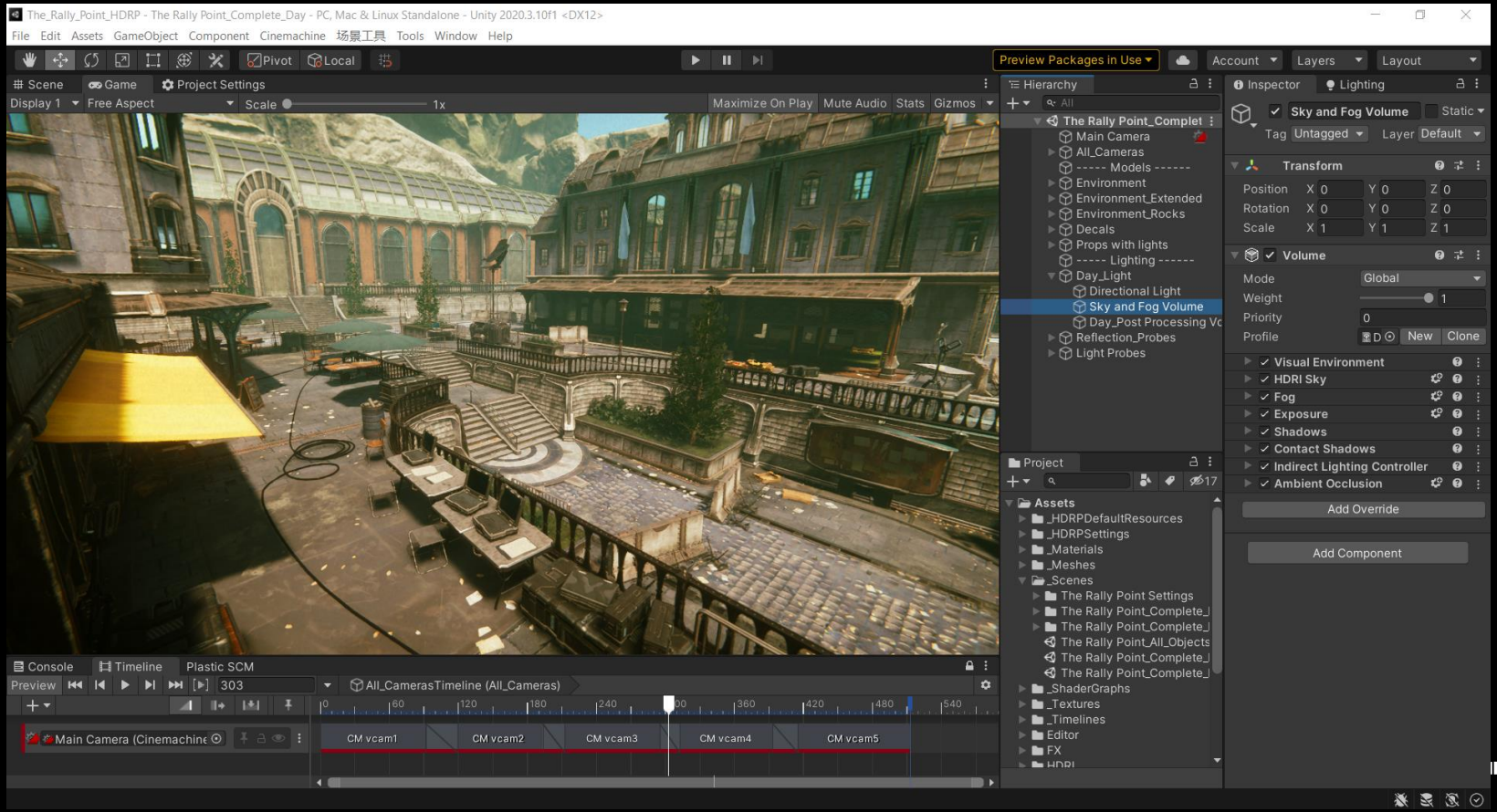
初级 • 60 分钟

价格：免费

杨栋

https://learn.u3d.cn/tutorial/unity-hdrp-outdoor-lighting-part1

https://learn.u3d.cn/tutorial/unity-hdrp-outdoor-lighting-part2



https://assetstore.unity.com/packages/3d/environments/urban/archvizpro-interior-vol-7-155448

Home > 3D > Environments > Urban > ArchVizPRO Interior Vol.7

ArchVizPRO Interior Vol.7

ArchVizPRO

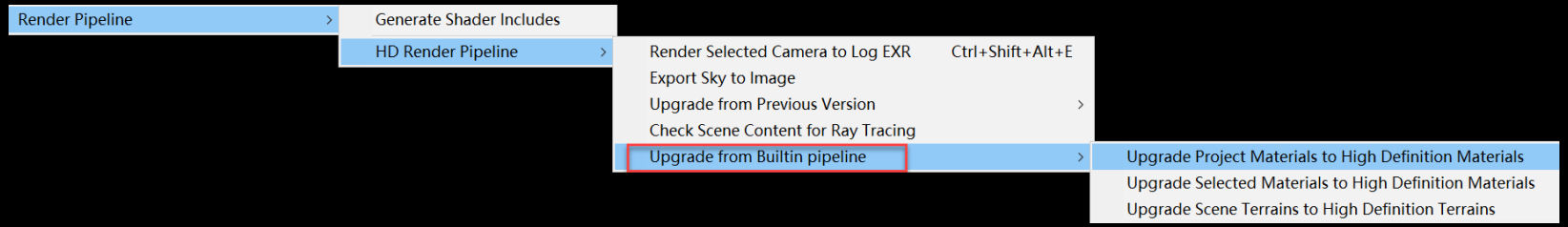
★★★★★ 5 | 5 Reviews

示例工程

unity


Generative Art — Made with Unity
内置渲染管线材质 转 HDRP材质
unity

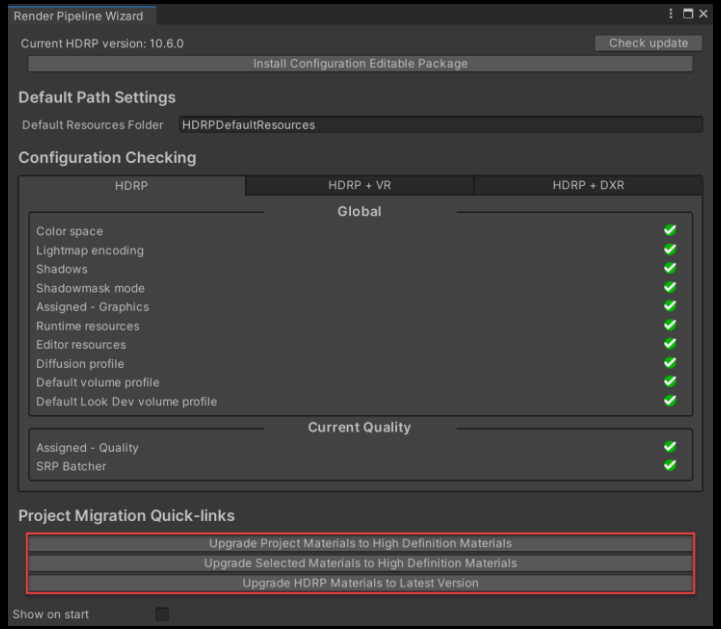
内置 (Builtin) 渲染管线材质 转 HDRP材质



- 内置渲染管线的Standard 标准材质可自动转 HDRP Lit

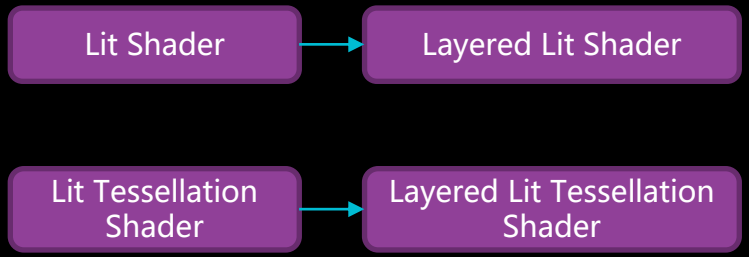
```
static readonly string Standard = "Standard";
static readonly string Standard_Spec = "Standard (Specular setup)";
static readonly string Standard_Rough = "Autodesk Interactive";
```

- 自定义手写Shader需要手动转（手写 / 使用Shader Graph）
- URP管线的Lit Shader目前无法自动转成HDRP Lit

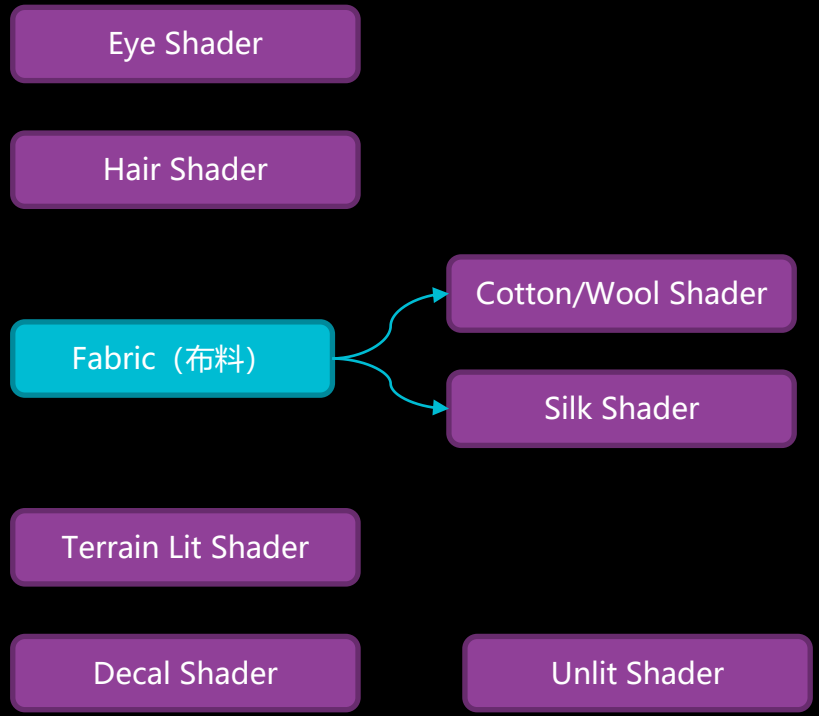



Generative Art — Made with Unity
HDRP材质分类
unity

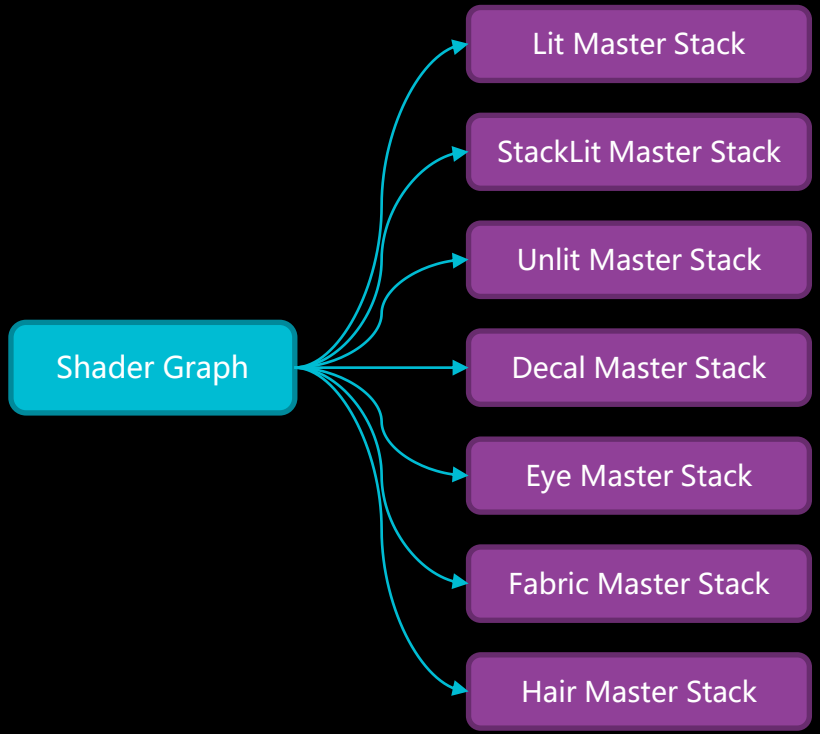
常用着色器



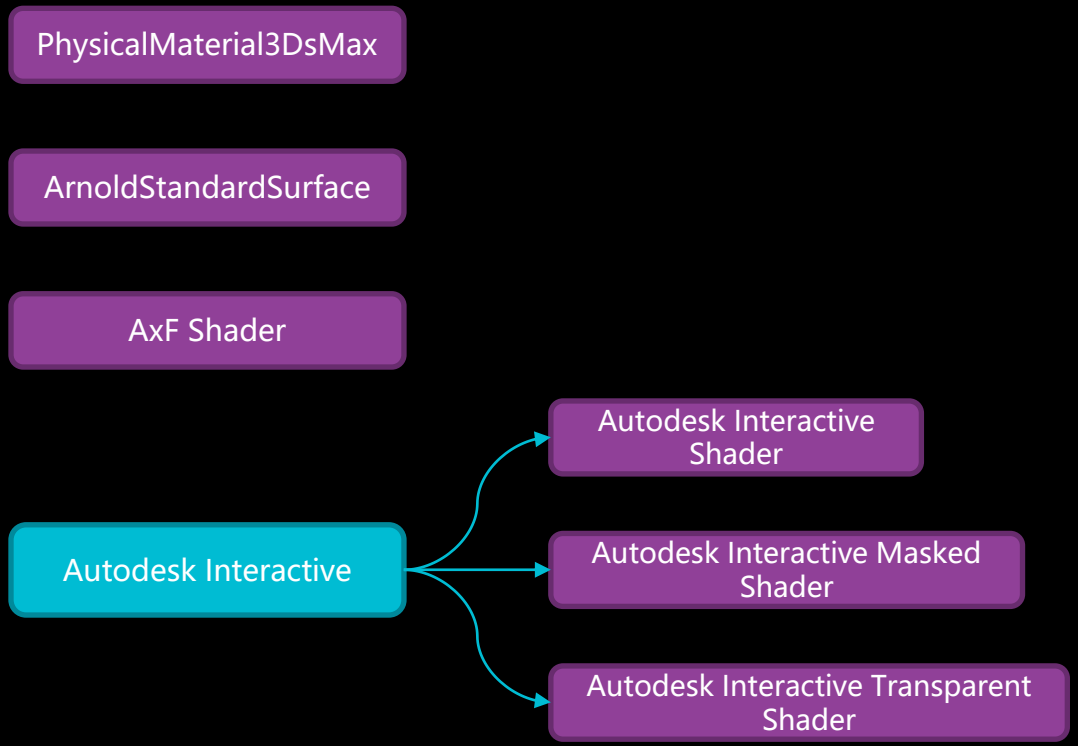
专用着色器



Shader Graph 中用于制作自定义着色器的 HDRP Master Stack



行业着色器

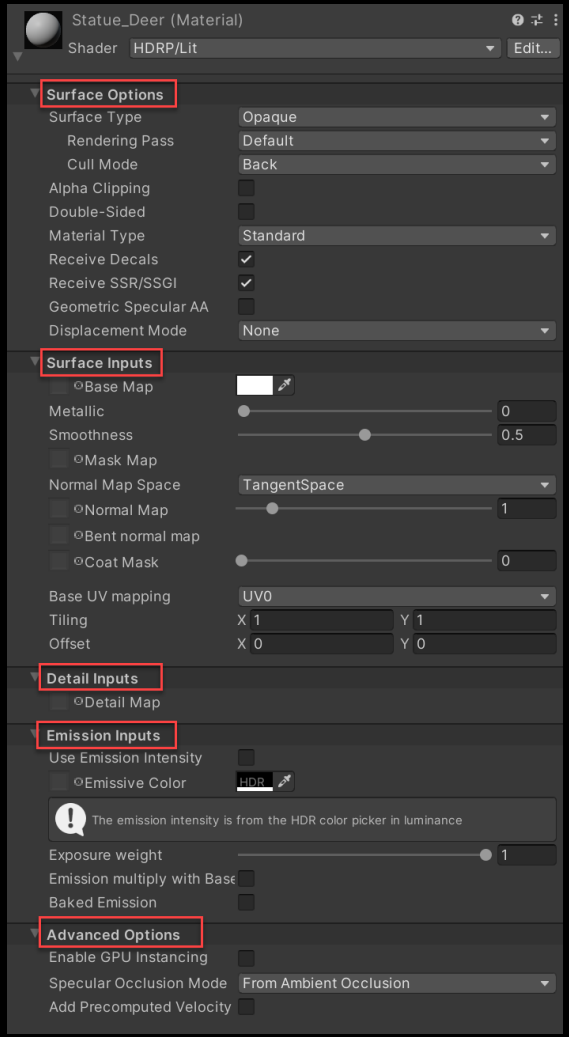

PhysicalMaterial3DsMax
ArnoldStandardSurface
AxF Shader
Autodesk Interactive
Autodesk Interactive Shader
Autodesk Interactive Masked Shader
Autodesk Interactive Transparent Shader

HDRP Lit 着色器

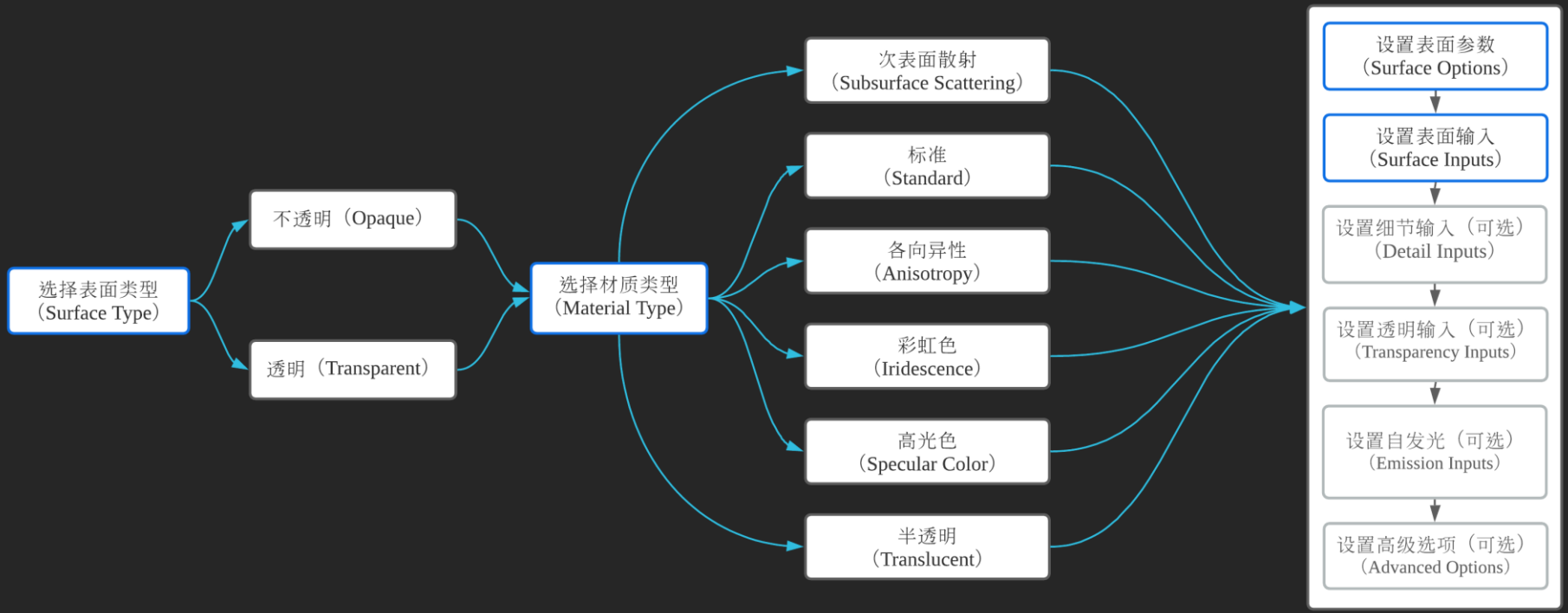
常见材质的制作

unity

Lit Shader

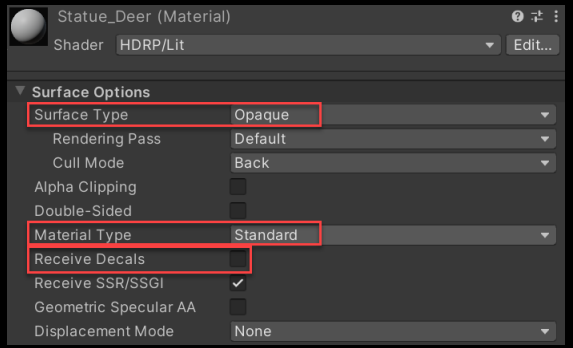

Statue_Deer (Material)
Shader
HDRP/Lit
Edit...
Surface Options
Surface Type
Opaque
Rendering Pass
Default
Cull Mode
Back
Alpha Clipping
Double-Sided
Material Type
Standard
Receive Decals
Receive SSR/SSGI
Geometric Specular AA
Displacement Mode
None
Surface Inputs
Base Map
Metallic
0
Smoothness
0.5
Mask Map
Normal Map Space
TangentSpace
Normal Map
1
Bent normal map
Coat Mask
0
Base UV mapping
UV0
Tiling
X 1
Y 1
Offset
X 0
Y 0
Detail Inputs
Detail Map
Emission Inputs
Use Emission Intensity
Emissive Color
HDR
The emission intensity is from the HDR color picker in luminance
Exposure weight
1
Emission multiply with Base
Baked Emission
Advanced Options
Enable GPU Instancing
Specular Occlusion Mode
From Ambient Occlusion
Add Precomputed Velocity

HDRP材质制作工作流

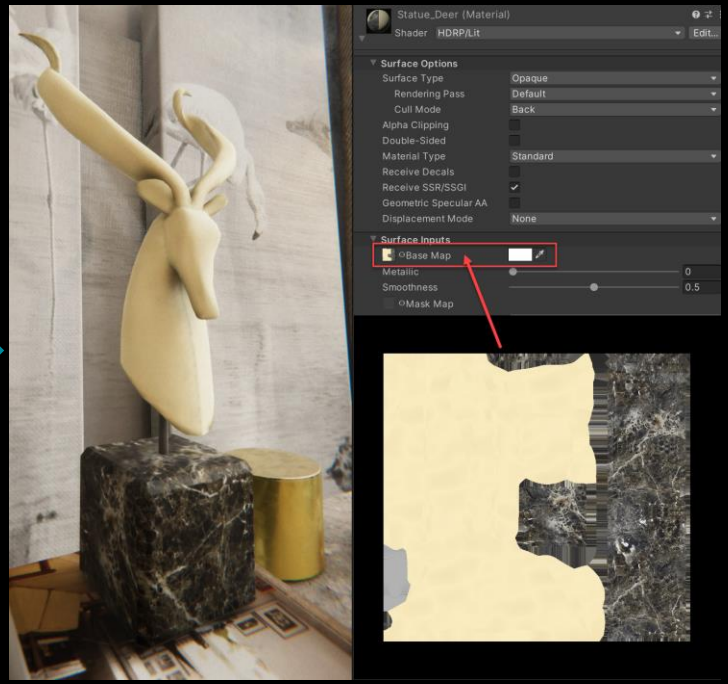


金属 + 大理石 - 使用Mask Map控制金属度和光滑度

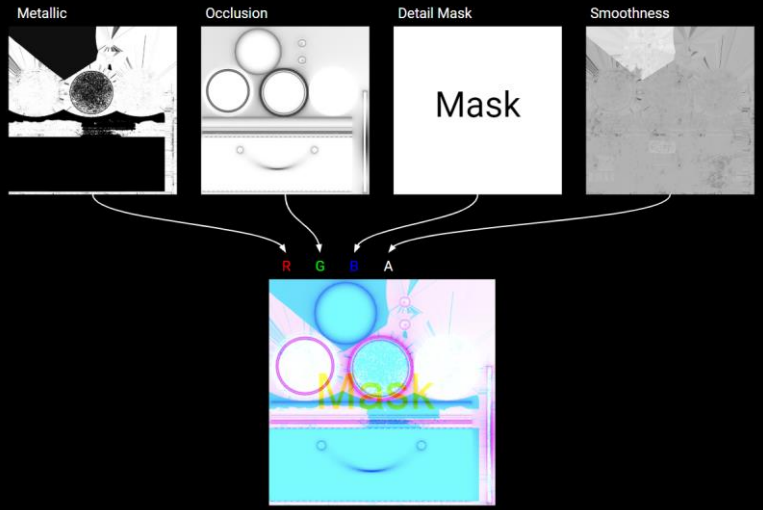
1. 基础设置



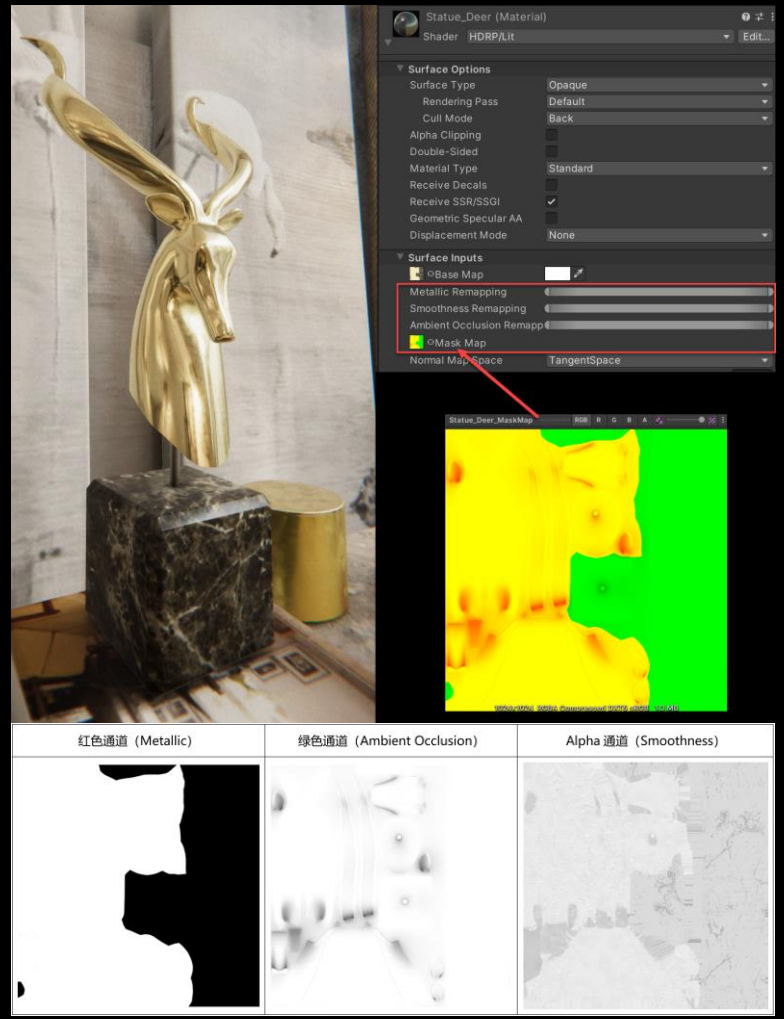
2. Base Map



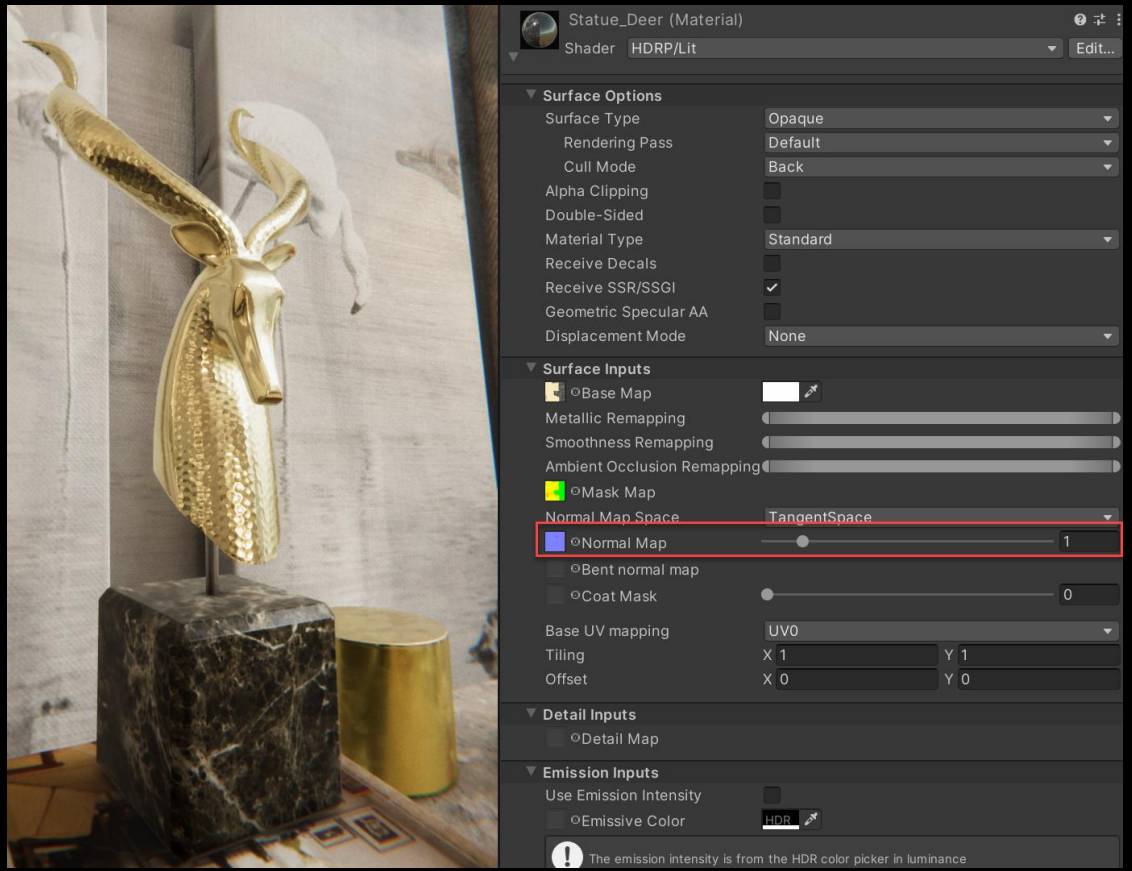
3. Mask Map



颜色通道	贴图（都为灰度图：纯黑色代表0，纯白色代表1）
红色	金属度（Metallic）
绿色	环境光遮蔽（Ambient Occlusion）
蓝色	细节贴图遮罩（Detail Map Mask）
Alpha	平滑度（Smoothness）

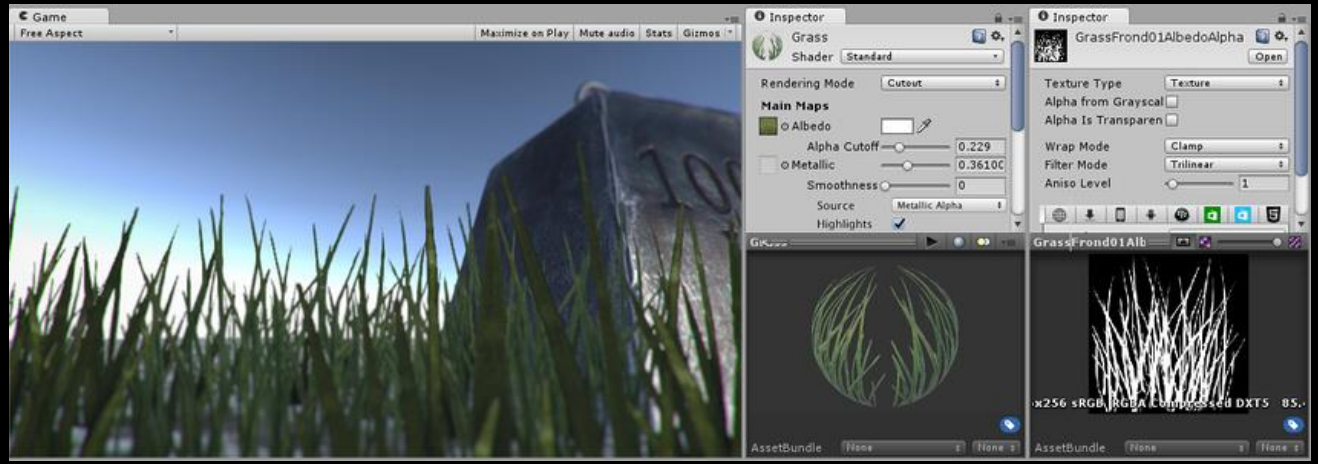


4. Normal Map

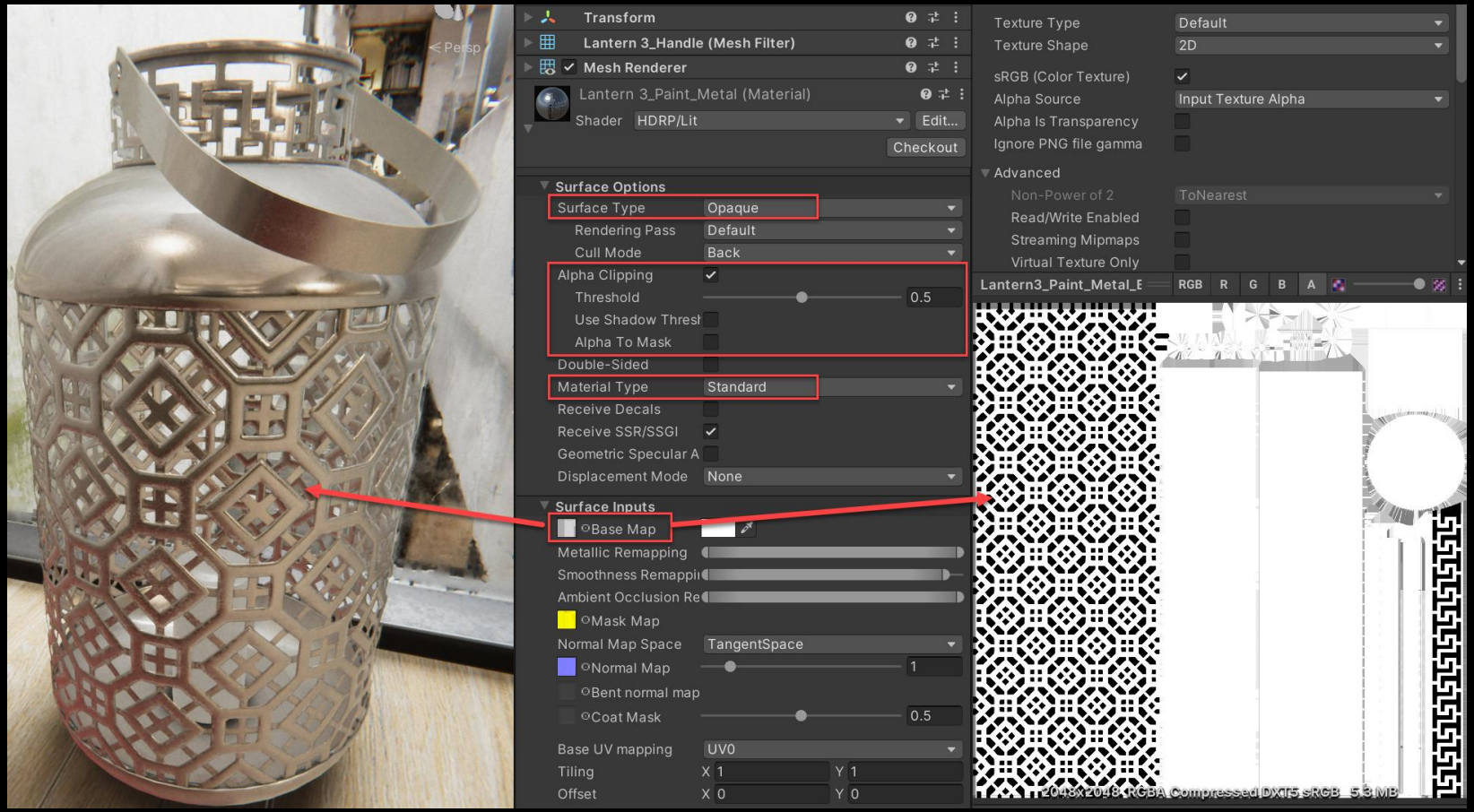

Statue_Deer (Material)
Shader
HDRP/Lit
Edit...
Surface Options
Surface Type
Opaque
Rendering Pass
Default
Cull Mode
Back
Alpha Clipping
Double-Sided
Material Type
Standard
Receive Decals
Receive SSR/SSGI
Geometric Specular AA
Displacement Mode
None
Surface Inputs
Base Map
Metallic Remapping
Smoothness Remapping
Ambient Occlusion Remapping
Mask Map
Normal Map Space
TangentSpace
Normal Map
1
Bent normal map
Coat Mask
0
Base UV mapping
UV0
Tiling
X 1
Y 1
Offset
X 0
Y 0
Detail Inputs
Detail Map
Emission Inputs
Use Emission Intensity
Emissive Color
HDR
The emission intensity is from the HDR color picker in luminance

金属 + Alpha Clipping

内置渲染管线 标准材质的 Coutout 渲染模式



Lit 着色器的 Alpha Clipping



大理石

- 使用Coat Mask

Tag Untagged Layer

Transform

Tribecca_Coffe Table (Mesh Filter)

Mesh Renderer

Tribecca_Coffe Table (Material)

Shader HDRP/Lit Edit...

Surface Options

Surface Type Opaque

Rendering Pass Default

Cull Mode Back

Alpha Clipping

Double-Sided

Material Type Standard

Receive Decals

Receive SSR/SSGI

Geometric Specular AA

Screen space variance 0.1

Threshold 0.2

Displacement Mode None

Surface Inputs

Base Map

Metallic Remapping

Smoothness Remapping

Ambient Occlusion Remapping

Mask Map

Normal Map Space TangentSpace

Normal Map 0

Bent normal map

Coat Mask 0.5

Base UV mapping UV0

Tiling X 1 Y 1

Offset X 0 Y 0

Detail Inputs

Detail Map

Emission Inputs

Use Emission Intensity

Emissive Color HDR

The emission intensity is from the HDR color picker in luminance

Exposure weight 1

Emission multiply with Base

Baked Emission

Tag Untagged Layer

Transform

Tribecca_Coffe Table (Mesh Filter)

Mesh Renderer

Tribecca_Coffe Table (Material)

Shader HDRP/Lit Edit...

Surface Options

Surface Type: Opaque
Rendering Pass: Default
Cull Mode: Back
Alpha Clipping
Double-Sided
Material Type: Standard
Receive Decals
Receive SSR/SSGI
Geometric Specular AA
Screen space variance: 0.1
Threshold: 0.2
Displacement Mode: None

Surface Inputs

Base Map
Metallic Remapping
Smoothness Remapping
Ambient Occlusion Remapping
Mask Map
Normal Map Space: TangentSpace
Normal Map: 0
Bent normal map
Coat Mask: 1
Base UV mapping: UV0
Tiling: X 1 Y 1
Offset: X 0 Y 0

Detail Inputs

Detail Map

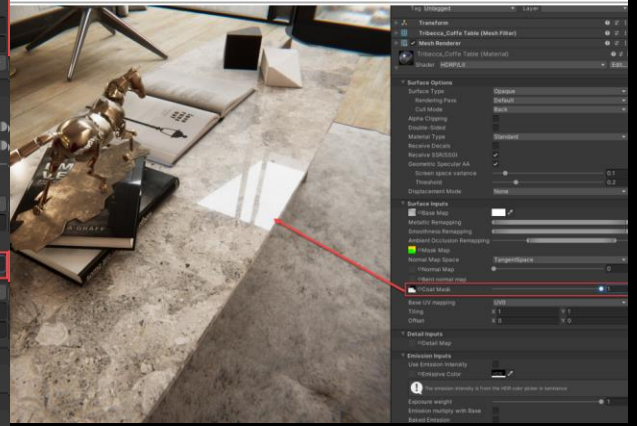
Emission Inputs

Use Emission Intensity
Emissive Color HDR

The emission intensity is from the HDR color picker in luminance

Exposure weight: 1
Emission multiply with Base
Baked Emission

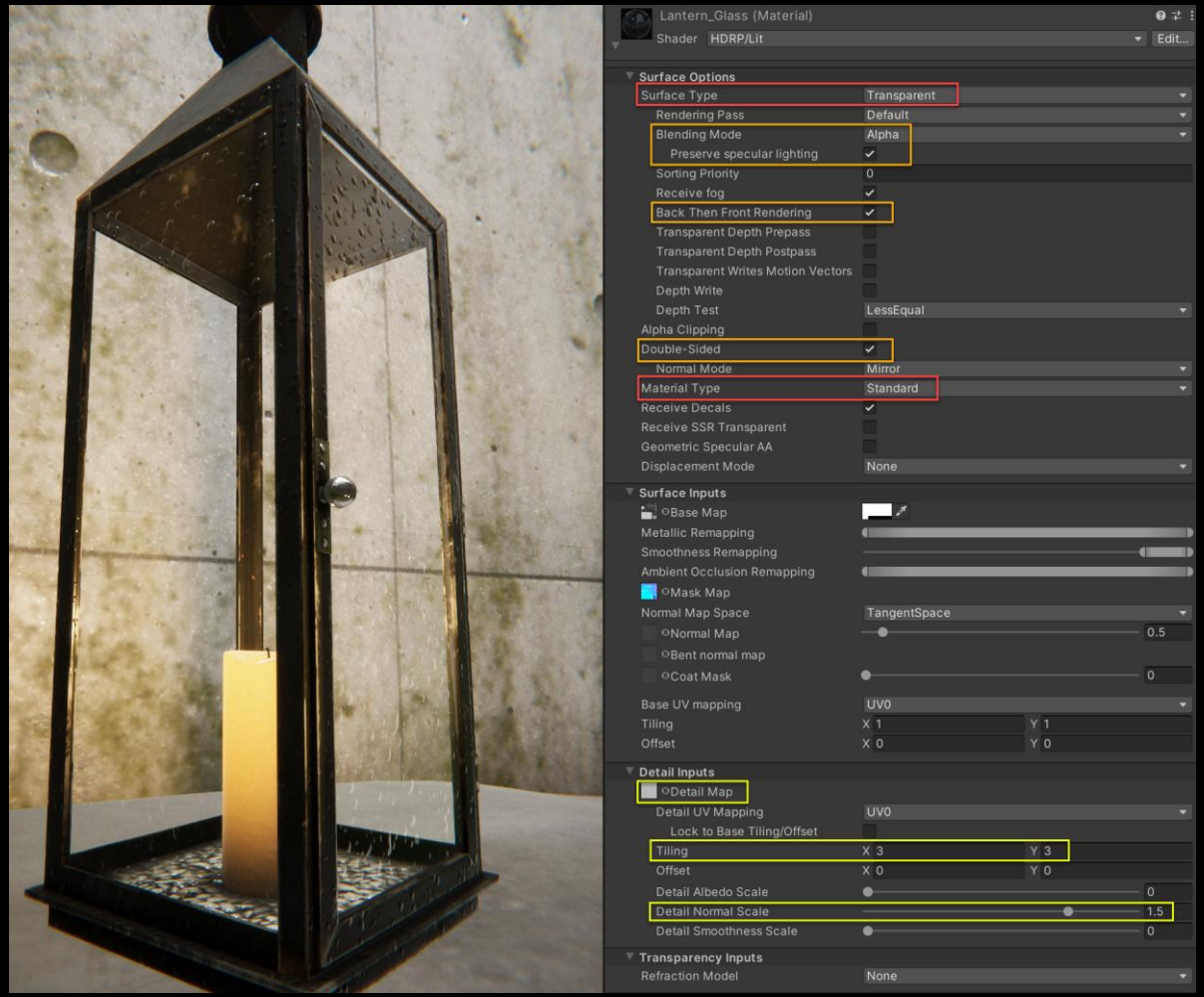
Coat Mask 数值 = 1（完全的清漆效果）



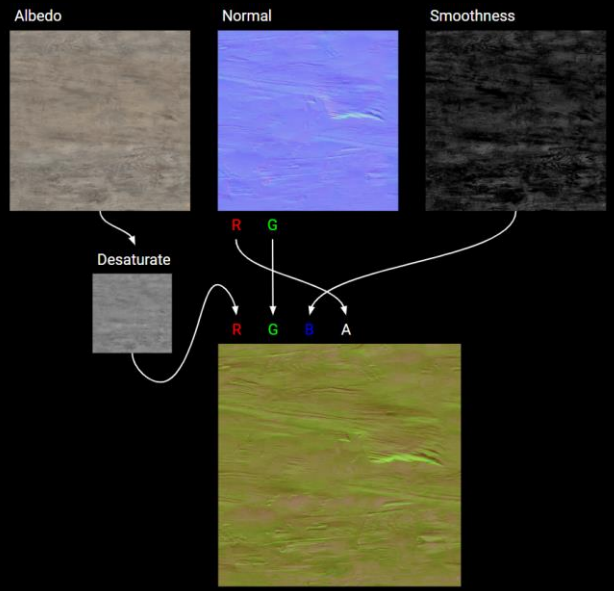
普通玻璃

+

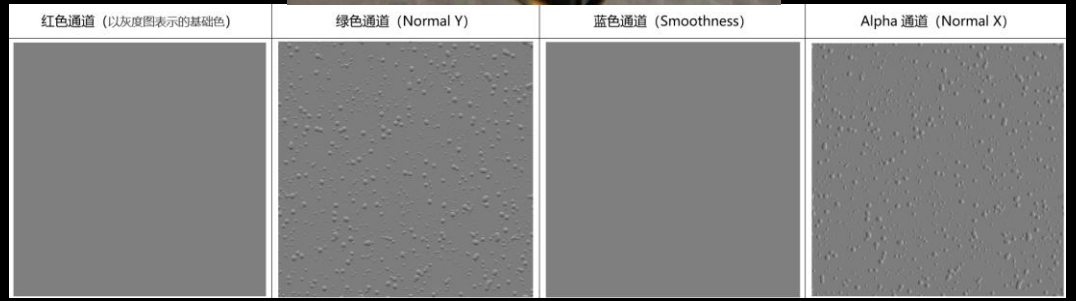
Detail Map（细节贴图）



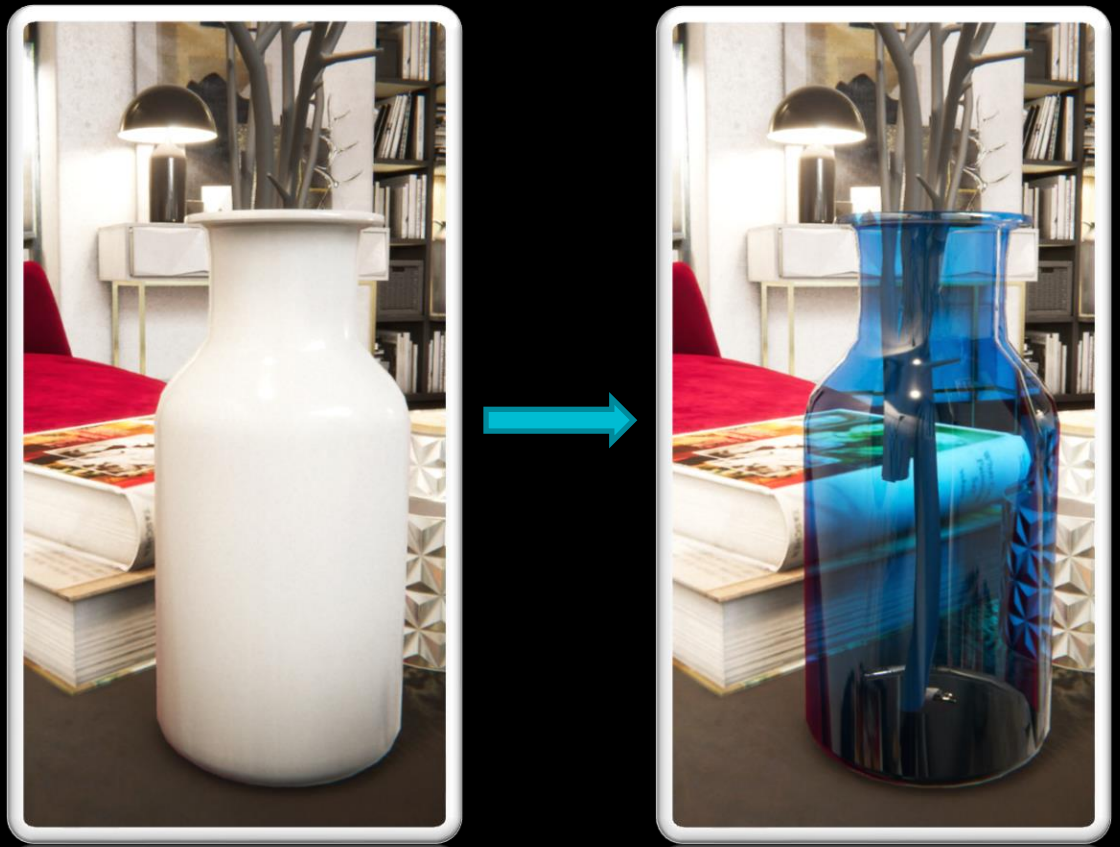
Detail Map（细节贴图）



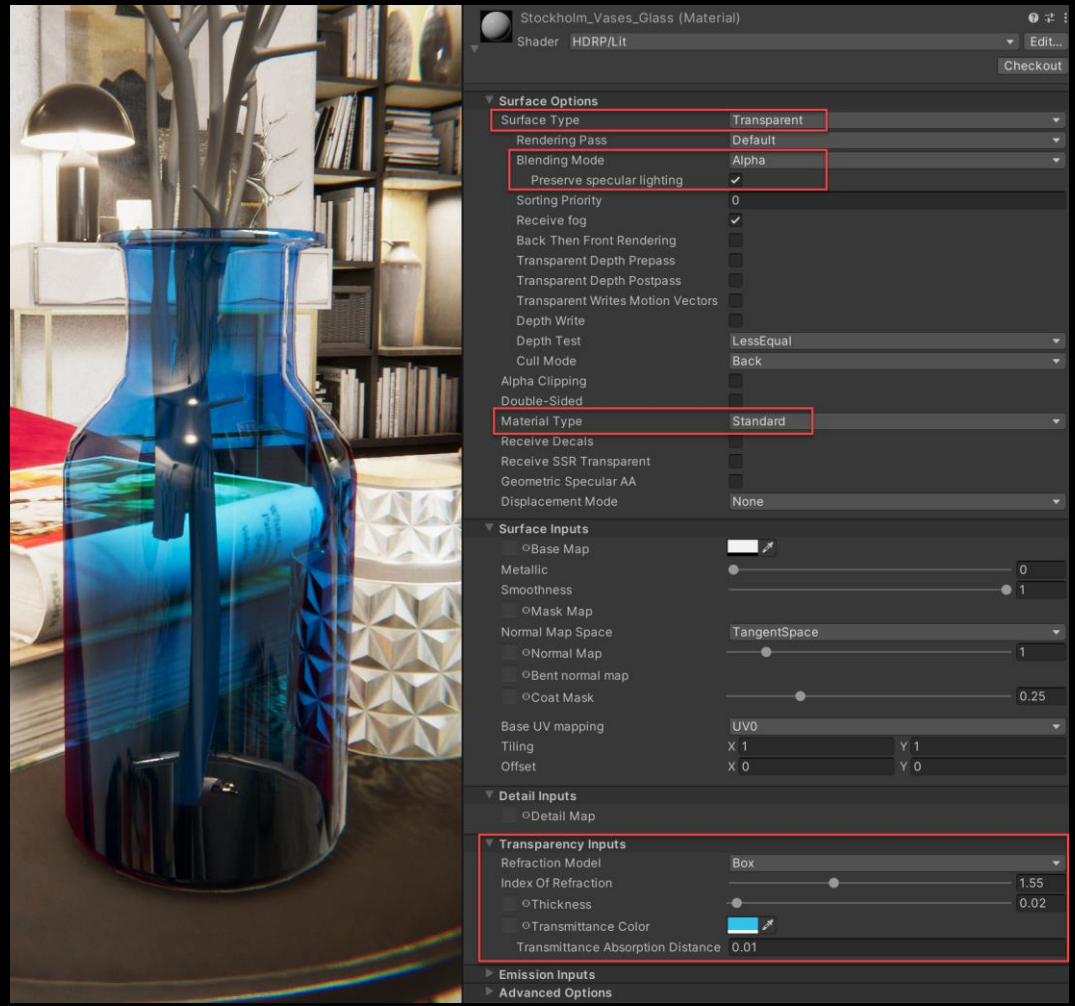
颜色通道	贴图（都为灰度图：纯黑色代表0，纯白色代表1）
红色	去饱和度以后的贴图
绿色	Normal Y
蓝色	平滑度（Smoothness）
Alpha	Normal X



玻璃 + 折射



带折射玻璃的参数设置


Stockholm_Vases_Glass (Material)
Shader HDRP/Lit
Edit...
Checkout
Surface Options
Surface Type Transparent
Rendering Pass Default
Blending Mode Alpha
Preserve specular lighting
Sorting Priority 0
Receive fog
Back Then Front Rendering
Transparent Depth Prepass
Transparent Depth Postpass
Transparent Writes Motion Vectors
Depth Write
Depth Test LessEqual
Cull Mode Back
Alpha Clipping
Double-Sided
Material Type Standard
Receive Decals
Receive SSR Transparent
Geometric Specular AA
Displacement Mode None
Surface Inputs
Base Map
Metallic 0
Smoothness 1
Mask Map
Normal Map Space TangentSpace
Normal Map 1
Bent normal map
Coat Mask 0.25
Base UV mapping UV0
Tiling X 1 Y 1
Offset X 0 Y 0
Detail Inputs
Detail Map
Transparency Inputs
Refraction Model Box
Index Of Refraction 1.55
Thickness 0.02
Transmittance Color
Transmittance Absorption Distance 0.01
Emission Inputs
Advanced Options

Thickness = 0.02

Transmittance Absorption Distance = 0.02

Thickness = 0.02

Transmittance Absorption Distance = 0.01

Thickness = 0.02

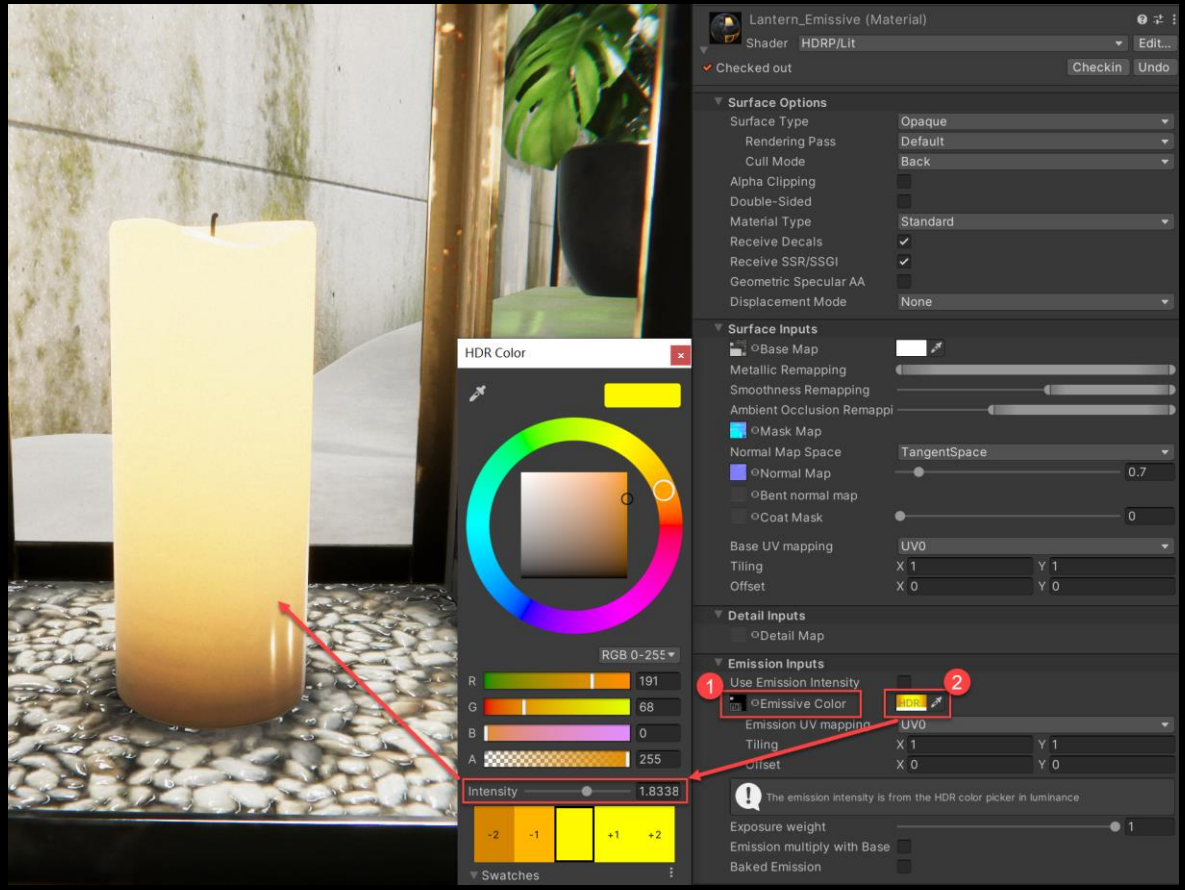
Transmittance Absorption Distance = 0.002

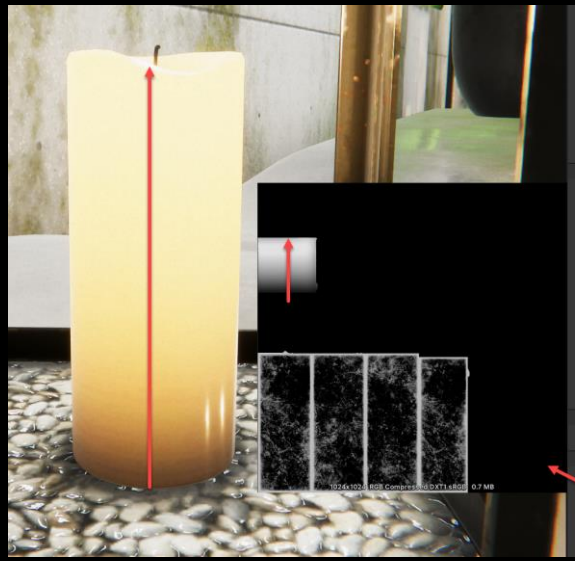
蜡烛

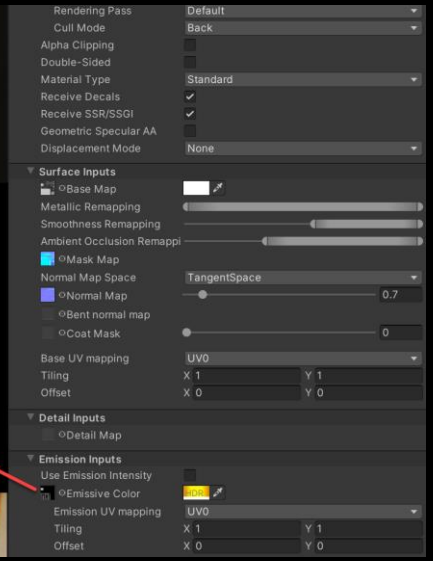
两种实现方式：

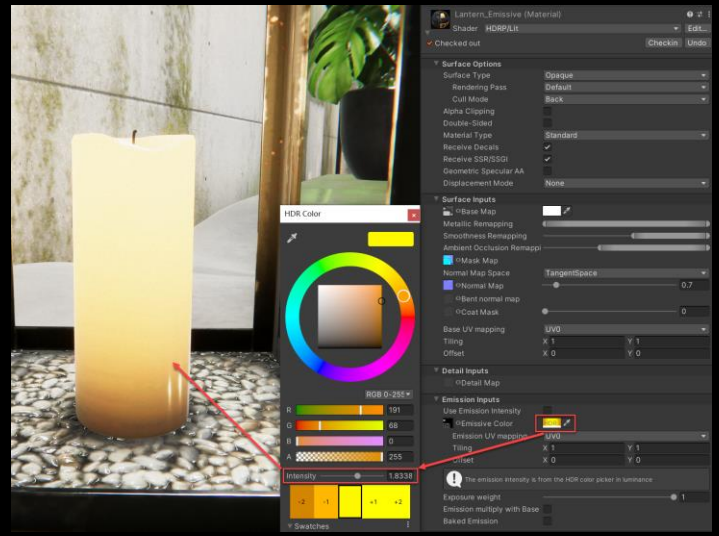
1. 自发光
2. 半透明或者次表面散射

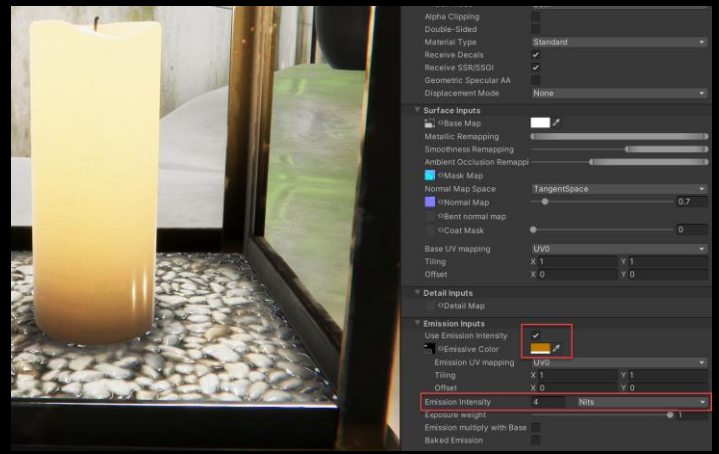
自发光实现方式：



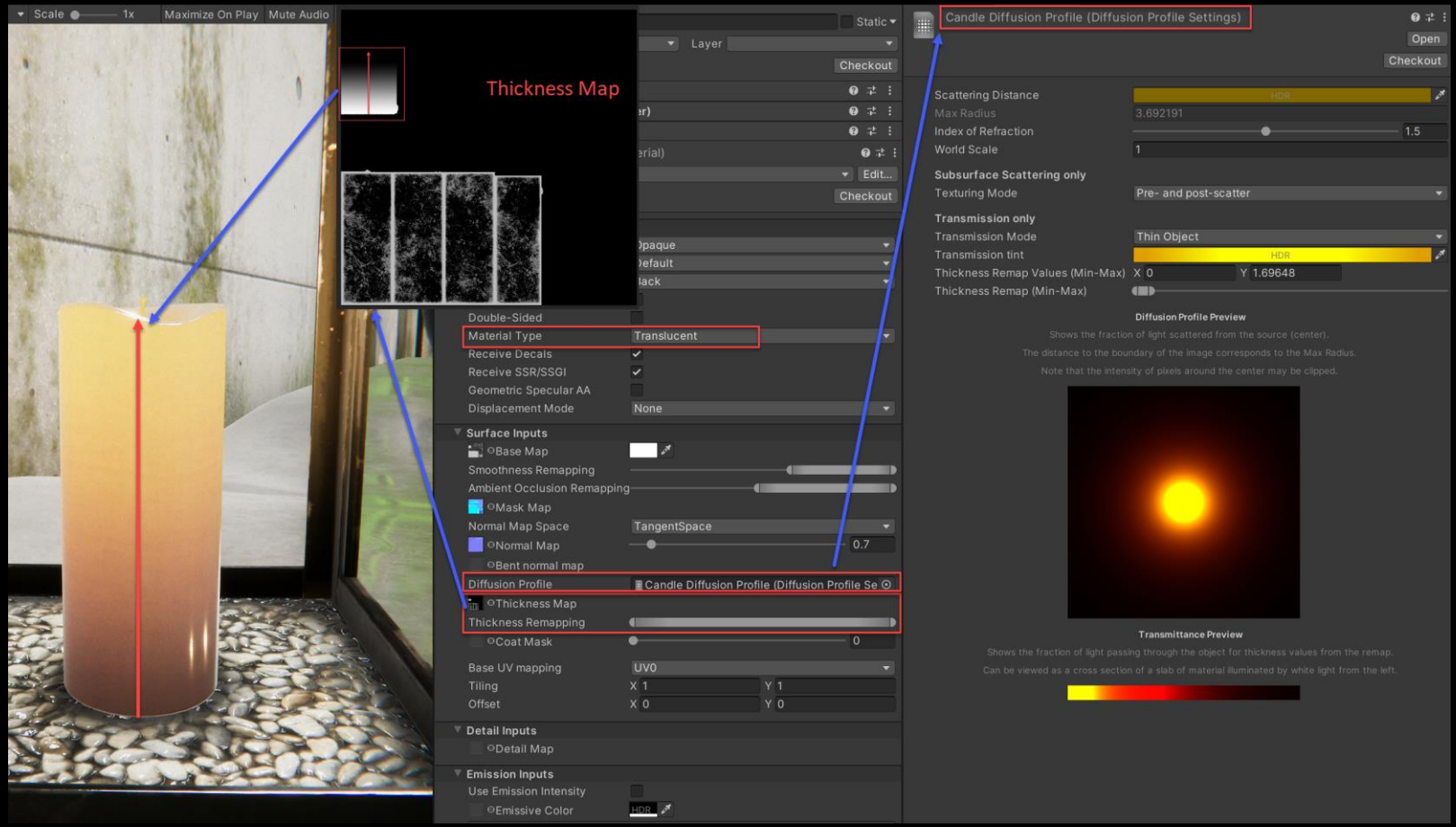



Rendering Pass
Default
Cull Mode
Back
Alpha Clipping
Double-Sided
Material Type
Standard
Receive Decals
Receive SSR/SSGI
Geometric Specular AA
Displacement Mode
None
Surface Inputs
Base Map
Metallic Remapping
Smoothness Remapping
Ambient Occlusion Remappi
Mask Map
Normal Map Space
TangentSpace
Normal Map
0.7
Bent normal map
Coat Mask
0
Base UV mapping
UV0
Tiling
X 1
Y 1
Offset
X 0
Y 0
Detail Inputs
Detail Map
Emission Inputs
Use Emission Intensity
Emissive Color
HDR
Emission UV mapping
UV0
Tiling
X 1
Y 1
Offset
X 0
Y 0


Lantern_Emissive (Material)
Shader
HDRP/Lit
Checked out
Checkin
Undo
Surface Options
Surface Type
Opaque
Rendering Pass
Default
Cull Mode
Back
Material Type
Standard
Surface Inputs
Emission Inputs
Use Emission Intensity
Emissive Color
Emission UV mapping
UV0
HDR Color
Intensity
1.8338
Swatches

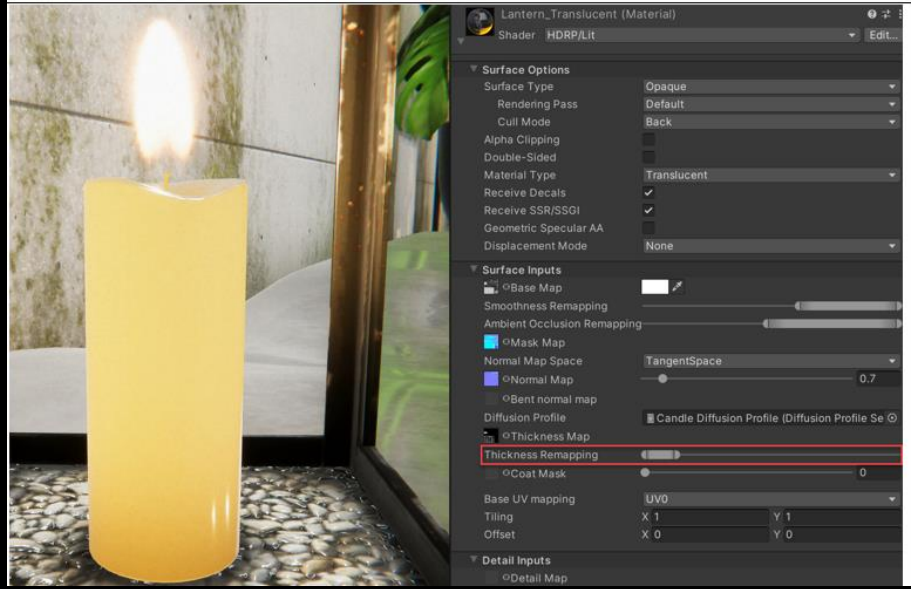

Material Type
Standard
Surface Inputs
Normal Map Space
TangentSpace
Emission Inputs
Use Emission Intensity
Emissive Color
Emission UV mapping
UV0
Emission Intensity
4
Nits
Exposure weight
Emission multiply with Base
Baked Emission

半透明/此表面散射 实现方式：



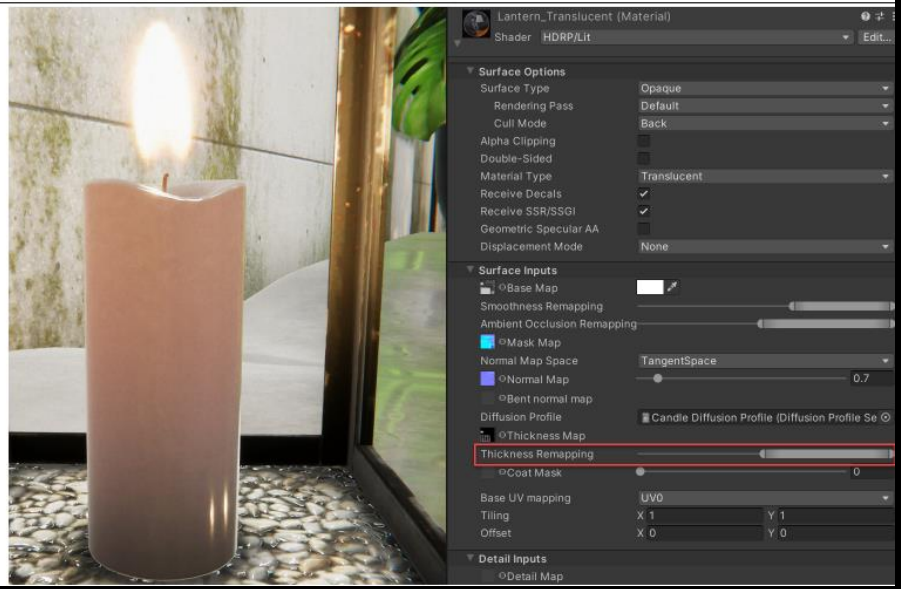
Thickness Remapping 整体往左，也就是让蜡烛的厚度整体变小。

这会让蜡烛底部也会变亮。

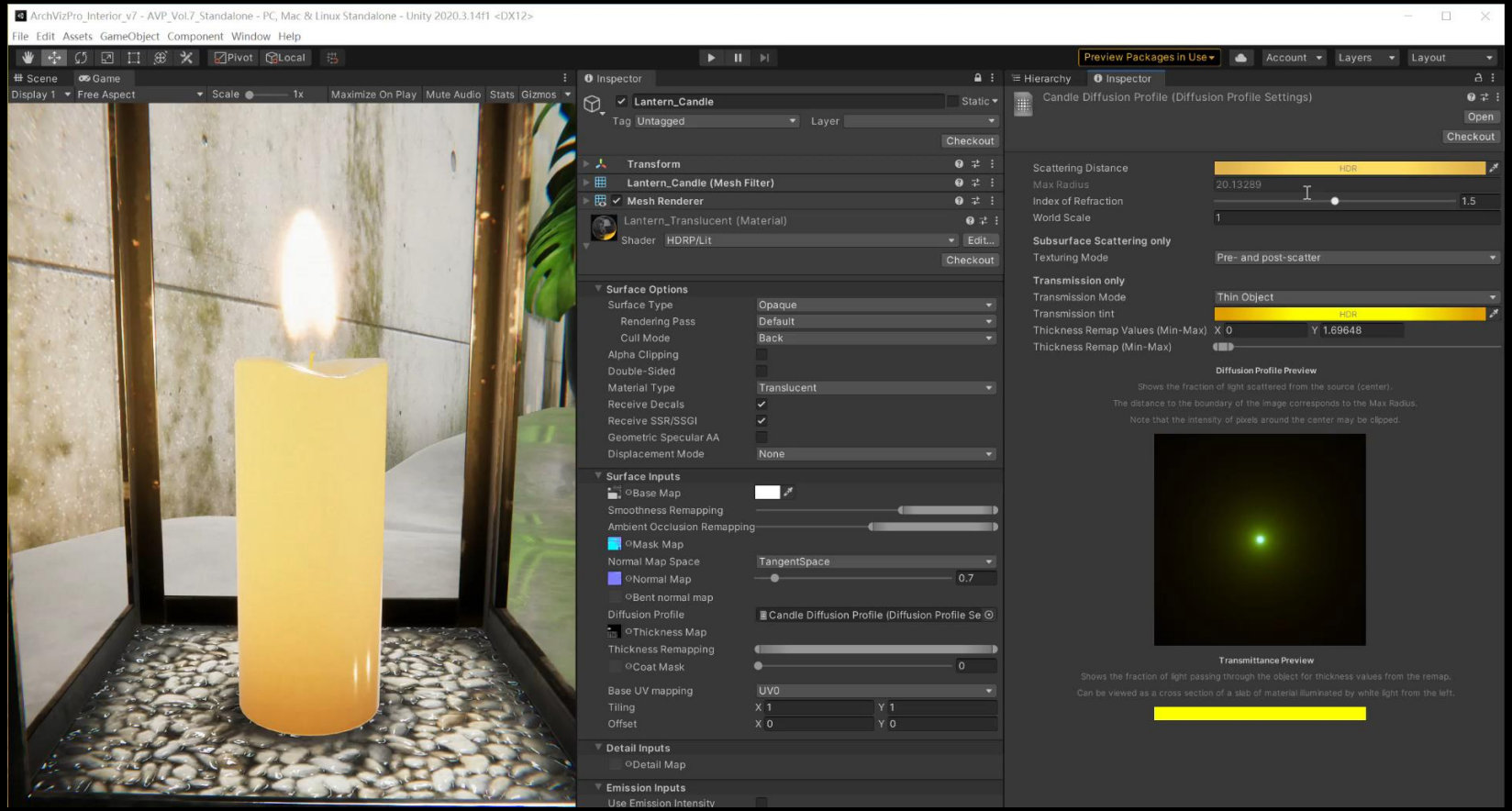


Thickness Remapping 整体往右，也就是让蜡烛的厚度整体变大。

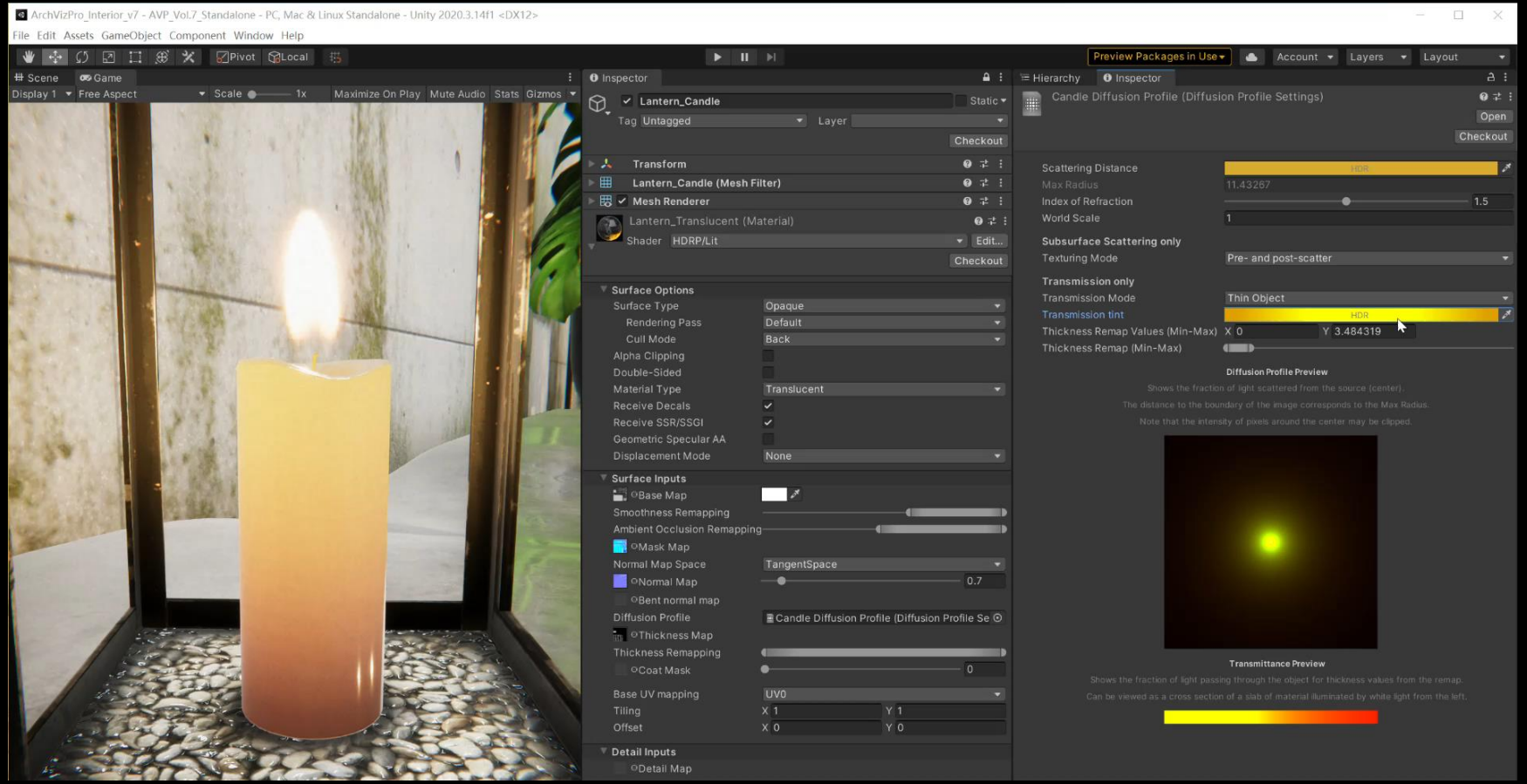
这会让蜡烛顶部也会变暗。



通过Scattering Distance控制光线射入蜡烛的深度



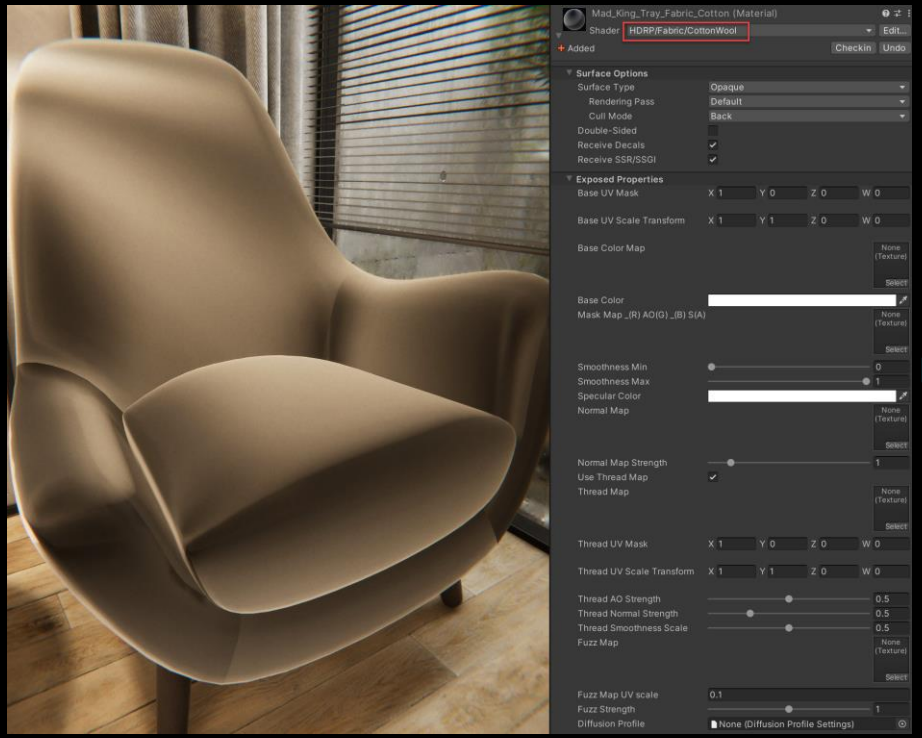
Transmission tint 控制进入物体光线的着色



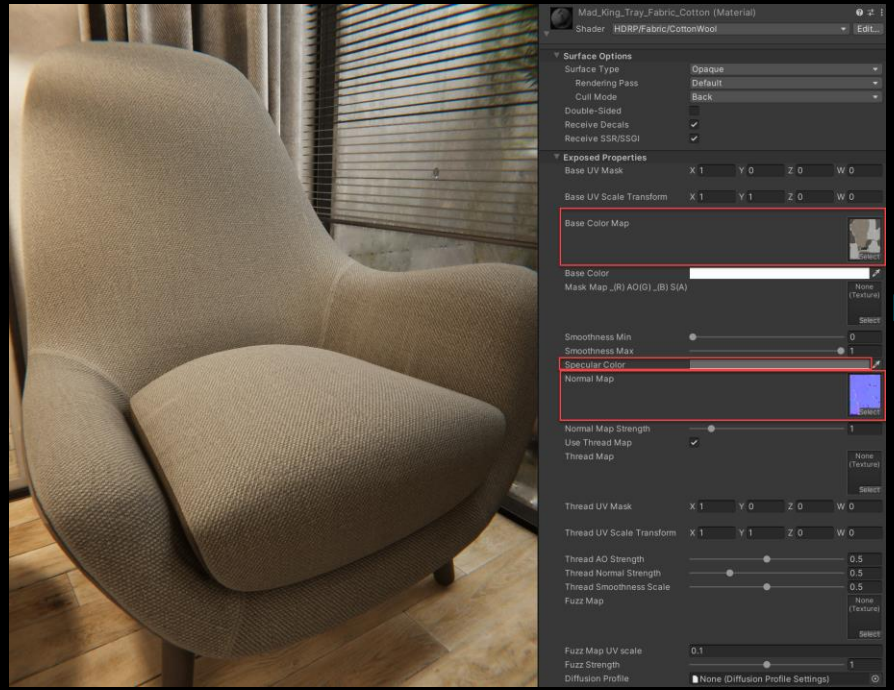

专用着色器
眼睛，布料，贴花
Generative Art – Made with Unity
unity

布料 (棉/毛)

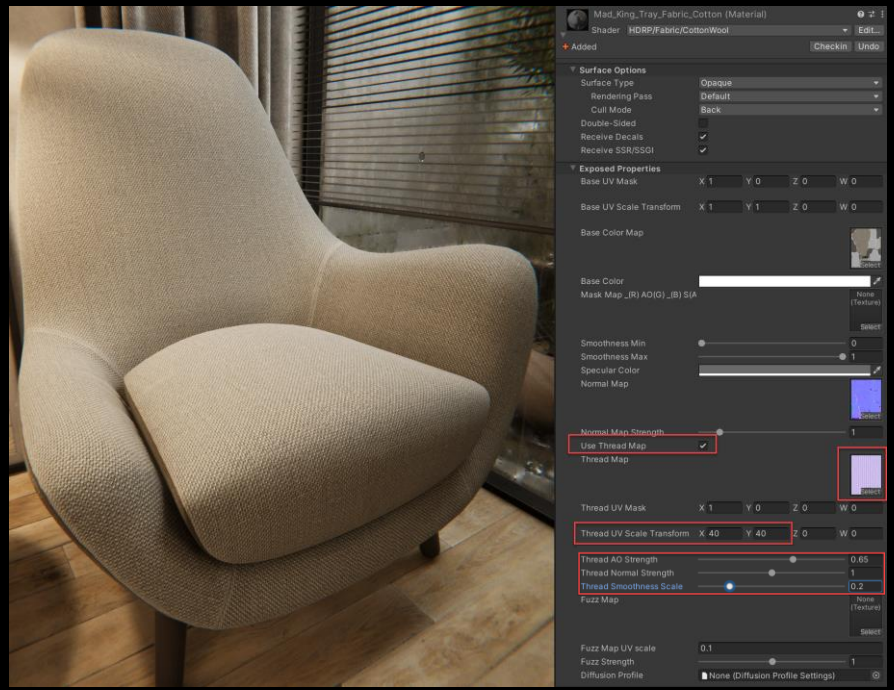
1. 选择 HDRP/Fabric/CottonWool



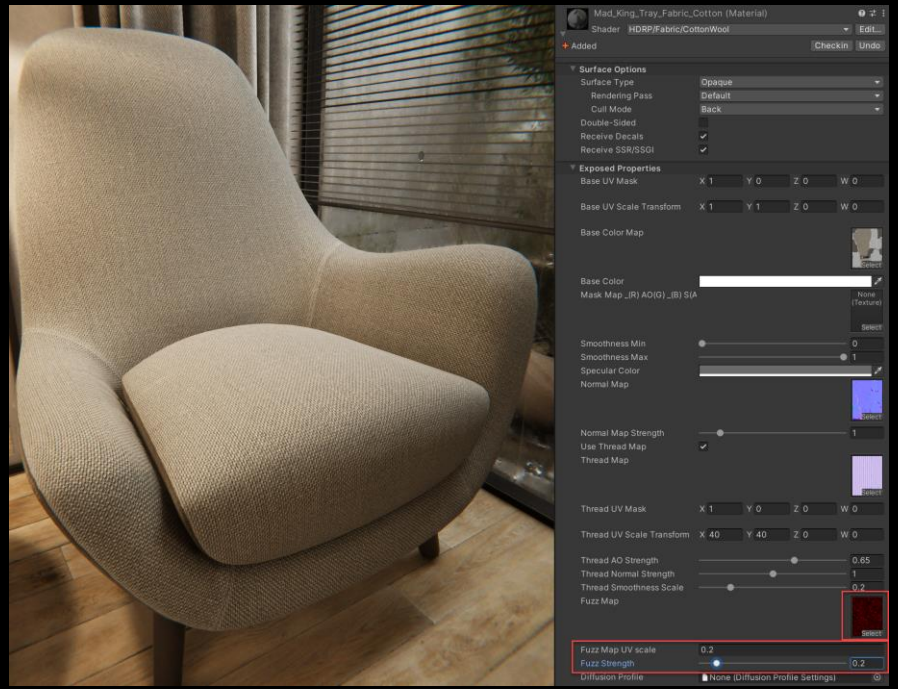
2. 关联 Base Color Map 和 Normal Map，调整 Specular Color



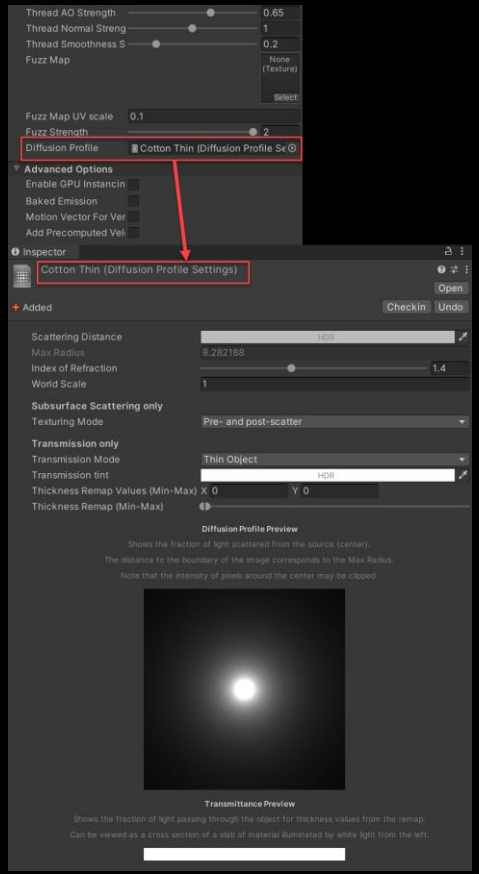
3. 关联 Thread Map 并调节相关参数



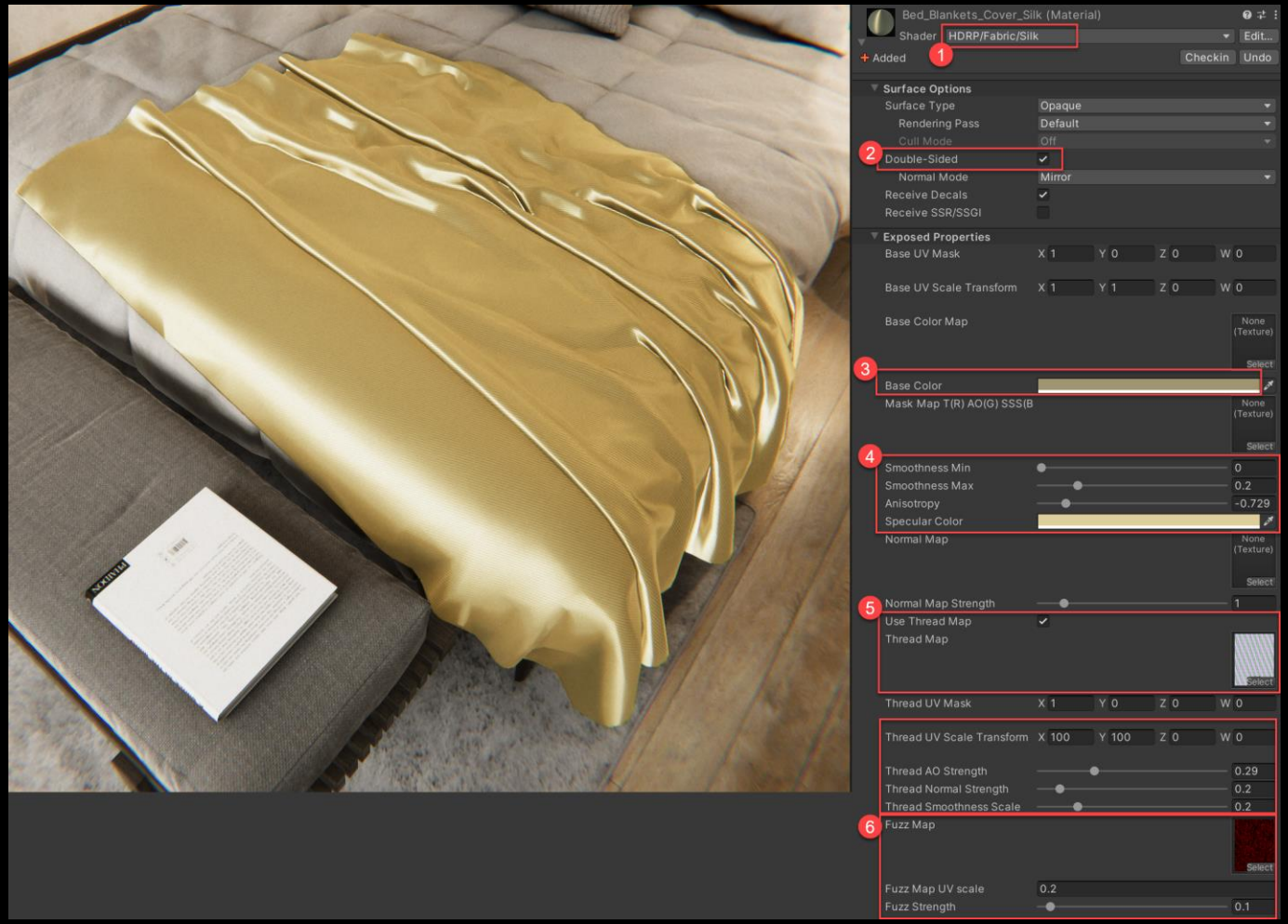
4. 关联 Fuzz Map 并调整相关参数



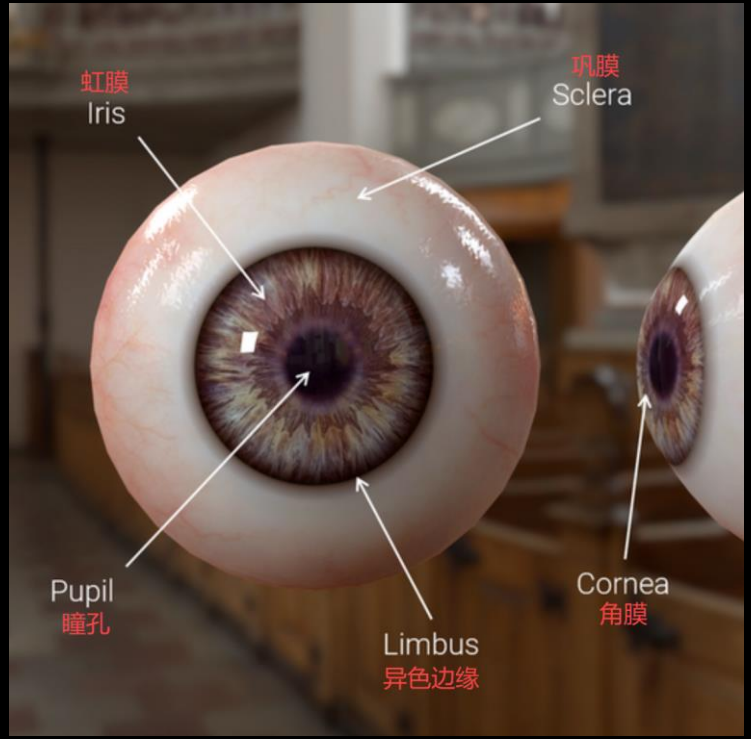
5. （可选）关联 Diffusion Profile



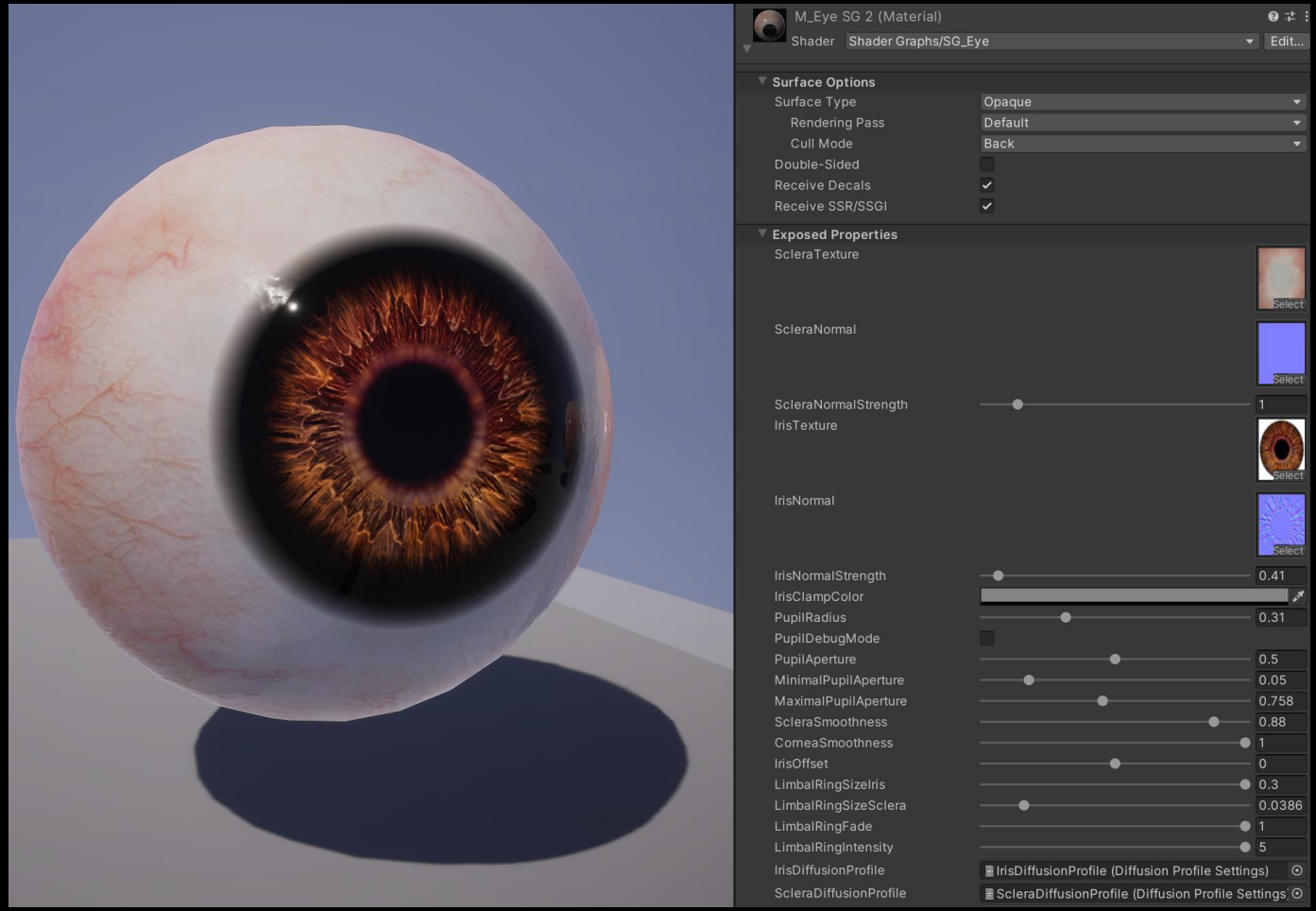
布料 (丝)


Bed_Blankets_Cover_Silk (Material)
Shader
HDRP/Fabric/Silk
Edit...
Added
Checkin
Undo
1
Surface Options
Surface Type
Opaque
Rendering Pass
Default
Cull Mode
Off
2
Double-Sided
Normal Mode
Mirror
Receive Decals
Receive SSR/SSGI
Exposed Properties
Base UV Mask
X 1 Y 0 Z 0 W 0
Base UV Scale Transform
X 1 Y 1 Z 0 W 0
Base Color Map
None (Texture)
Select
3
Base Color
Mask Map T(R) AO(G) SSS(B
None (Texture)
Select
4
Smoothness Min
0
Smoothness Max
0.2
Anisotropy
-0.729
Specular Color
Normal Map
None (Texture)
Select
5
Normal Map Strength
1
Use Thread Map
Thread Map
Select
Thread UV Mask
X 1 Y 0 Z 0 W 0
Thread UV Scale Transform
X 100 Y 100 Z 0 W 0
Thread AO Strength
0.29
Thread Normal Strength
0.2
Thread Smoothness Scale
0.2
6
Fuzz Map
Select
Fuzz Map UV scale
0.2
Fuzz Strength
0.1

眼球

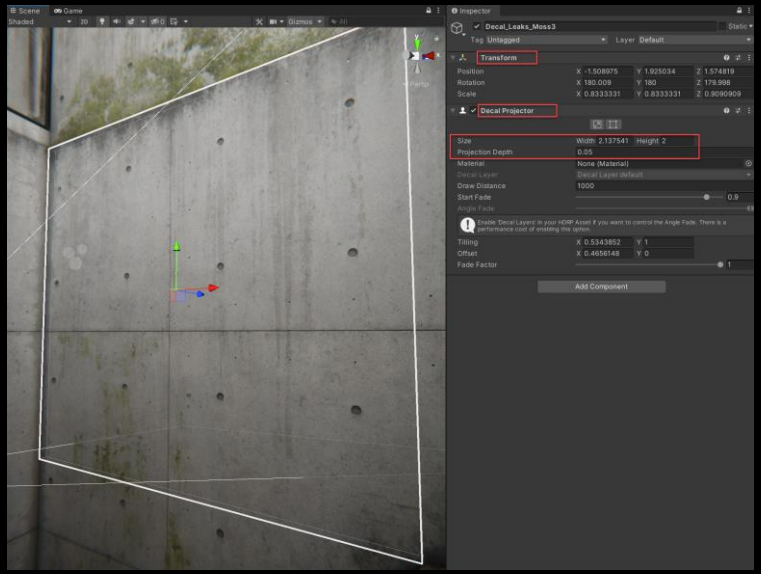


- **虹膜（Iris）**是围绕着**瞳孔**，形状扁平且颜色丰富的环状物。它处于**角膜**之下。
- **角膜（Cornea）**是位于**虹膜**之上的透明晶状体。它会反射光线，也会把光进行聚焦折射入**瞳孔**。
- **瞳孔（Pupil）**是在**虹膜**上的开孔。它可以让光线进入眼睛到达视网膜。
- **异色边缘（Limbus）**又叫**异色环（Limbus Ring）**。它是处于**角膜**和**巩膜**之间的一圈暗色边缘。
- **巩膜（Sclera）**是眼球外层不透明的那部分。

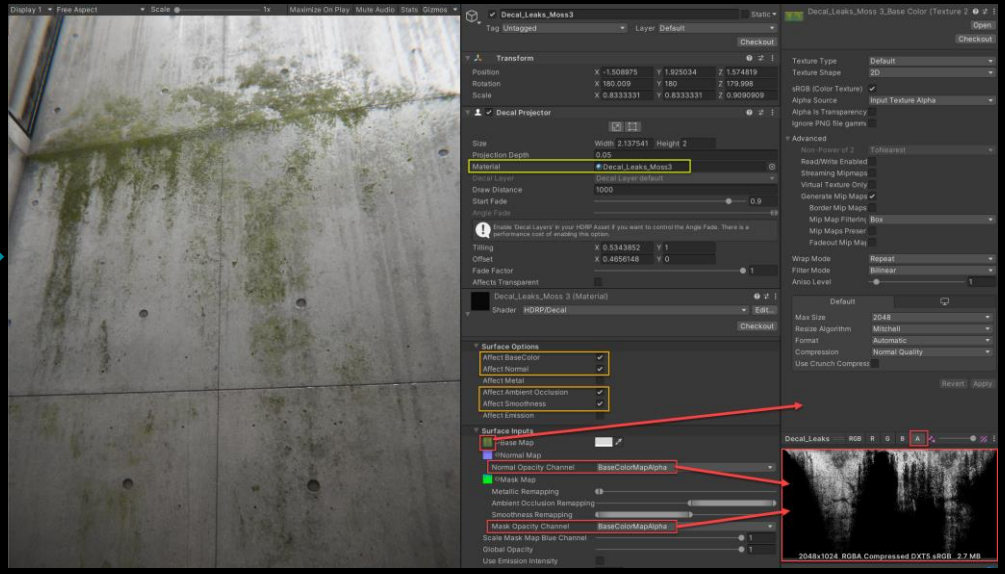

M_Eye SG 2 (Material)
Shader
Shader Graphs/SG_Eye
Edit...
Surface Options
Surface Type
Opaque
Rendering Pass
Default
Cull Mode
Back
Double-Sided
Receive Decals
Receive SSR/SSGI
Exposed Properties
ScleraTexture
Select
ScleraNormal
Select
ScleraNormalStrength
1
IrisTexture
Select
IrisNormal
Select
IrisNormalStrength
0.41
IrisClampColor
PupilRadius
0.31
PupilDebugMode
PupilAperture
0.5
MinimalPupilAperture
0.05
MaximalPupilAperture
0.758
ScleraSmoothness
0.88
CorneaSmoothness
1
IrisOffset
0
LimbalRingSizeIris
0.3
LimbalRingSizeSclera
0.0386
LimbalRingFade
1
LimbalRingIntensity
5
IrisDiffusionProfile
IrisDiffusionProfile (Diffusion Profile Settings)
ScleraDiffusionProfile
ScleraDiffusionProfile (Diffusion Profile Settings)

贴花（Decal）

1. 添加 Decal Projector 组件



2. 关联 Decal 材质到 Decal Projector 组件




HDRP材质库
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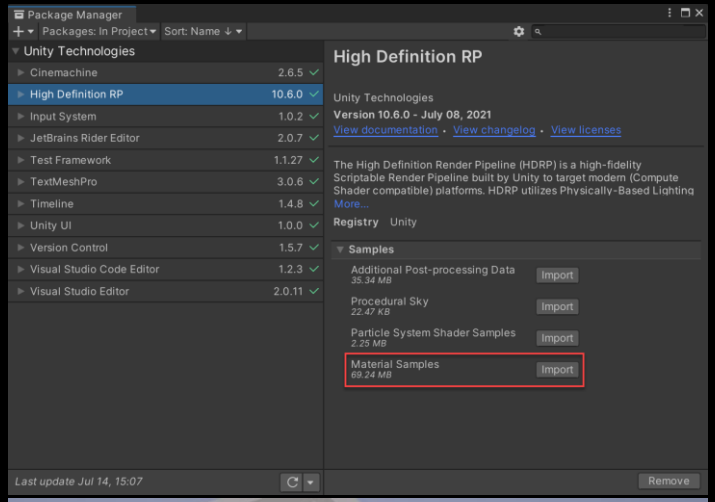
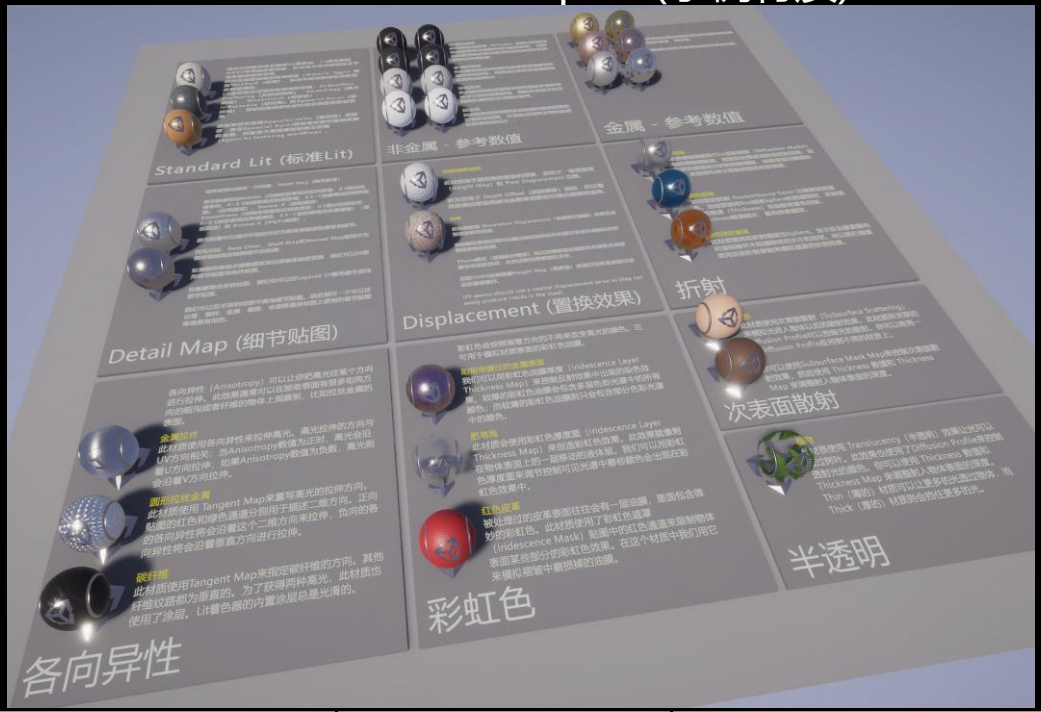
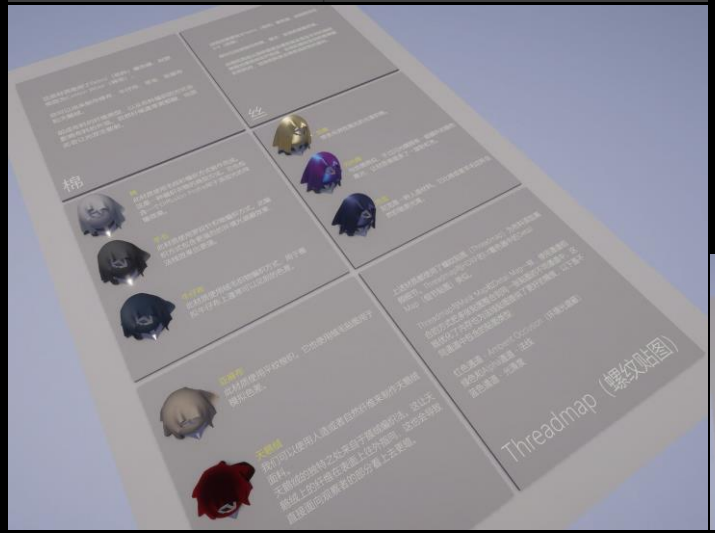
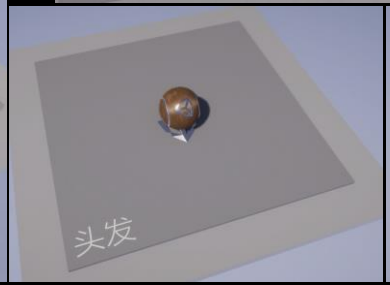
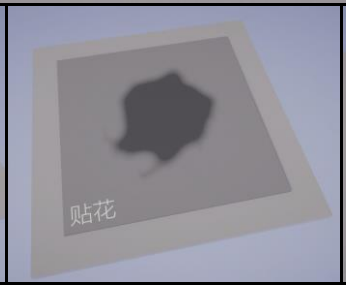
HDRP Material Samples (示例材质)





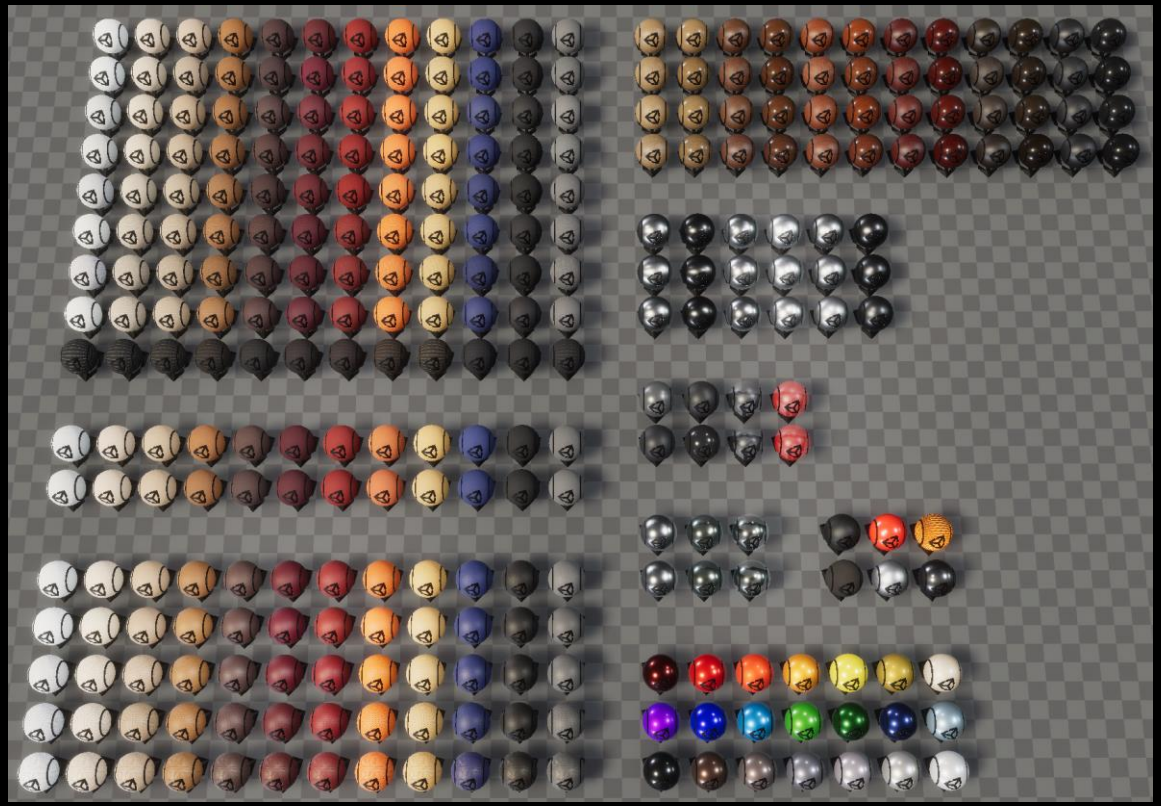






Measured Material Library (HDRP)

https://github.com/Unity-Technologies/MeasuredMaterialLibraryHDRP



- 塑料
- 织物
- 皮革
- 木材
- 金属
- 橡胶
- 碳纤维
- 镜子
- 车漆

共300个写实类型的材质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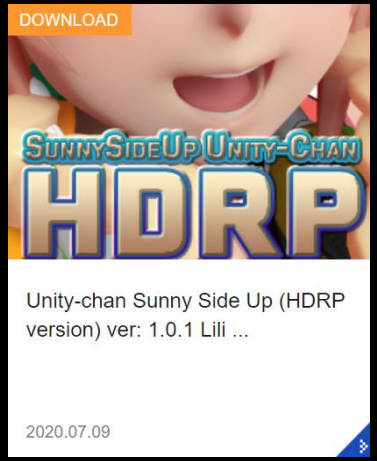
不仅仅是写实风格
卡通风格
unity

https://unity-chan.com



Unity官方技术分享频道

Unity Connect App

Unity 微信公众号

Unity B站


谢谢
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