# 灯光实现

Unity3d 5.4 以前 ：

1. half4 Lighting<Name> (SurfaceOutput s, half3 lightDir, half atten); This is used in forward rendering path for light models that are not view direction dependent (e.g. diffuse).
2. half4 Lighting<Name> (SurfaceOutput s, half3 lightDir, half3 viewDir, half atten); This is used in forward rendering path for light models that are view direction dependent.
3. half4 Lighting<Name>\_PrePass (SurfaceOutput s, half4 light); This is used in deferred lighting path.

Unity3d 5.5 以后 ：

half4 Lighting<Name> (SurfaceOutput s, UnityGI gi)

half4 Lighting<Name> (SurfaceOutput s, half3 viewDir, UnityGI gi);

half4 Lighting<Name>\_Deferred (SurfaceOutput s, UnityGI gi, out half4 outDiffuseOcclusion, out half4 outSpecSmoothness, out half4 outNormal)

half4 Lighting<Name>\_PrePass (SurfaceOutput s, half4 light)

在 unitylightingcommon.cginc 里可以看到。

struct UnityGI

{

UnityLight light;

#ifdef DIRLIGHTMAP\_SEPARATE

#ifdef LIGHTMAP\_ON

UnityLight light2;

#endif

#ifdef DYNAMICLIGHTMAP\_ON

UnityLight light3;

#endif

#endif

UnityIndirect indirect;

};

#pragma surface surf Simple

Simple : 为灯光的入口函数 。

half4 LightingSimple (SurfaceOutput s, half3 lightDir, half3 viewDir, half atten)

lightDir : 为 灯光的 方向 。

viewDir : 为观察角 方向。

Atten: 为灯光的衰减 。

漫反射颜色= Dot (L,N) \* 灯光的颜色

(E –L) dot N == H dot N

镜面反射颜色== 镜面反射 \* 灯光的颜色 \* 衰减值