HDRP Asset :

**Frame Settings** : frame settings is located at the camera. We could change it at runtime to find the balance with the QUALITY and PERFORMANCE.

Volumes : It allows us to partition our scene or world into different areas and override every effects that we use with the volume, from volumetric cloud, fog to postprocessing

* Volumes : basically it’s a monobehaviour attached to the gameObject. When the camera comes in the radius it look into the volume profile it attached to and override the values. Volume component has

1. Mode : Local or global
2. Blend Distance : the distance in which the blending between the volume happen
3. Weight : weight of the volume. How much it need to be affected
4. Priority : priority of the volume
5. Profile : the object that contain the volume data

* Volume profile is a scriptable object which contain the detail of the volumes. Each volume profile comes with default value. But we could override them by clicking on the Add Override button under the component

1. Global volume
2. Sky and Fog Global Volume
3. Box Volume
4. Sphere Volume
5. Convex Mesh Volume
6. Custom pass Volume

Above mentioned are some of the volumes that we could create from the ‘ GameObject > Volume ’ menu

Render Pipeline Settings :

* HDRP Asset:

This asset control the global rendering settings and create an instance of the render pipeline. Unity only build the features that are included in the Assets. It’s also same in the case of the shaders also. If we want to tweak the rendering settings then we have to use the frame settings.

1. Color buffer Format : HDRP uses R16G16B16 instead of it’s 11 version. Even though it use high memory it avoid the banding effect. This colour is also required for the Alpha-Out.
2. Lit Shader Mode : Forward, Deferred, Both. Both allow camera to choose. And also in Deferred mode it use forward in advanced shader like fabric hair etc.
3. Mutisampling AA Quality : The sample count for the AA.
4. Motin vector : Unity uses motion vector for calculating the motion blur and SS Reflection. If we disable this unity use a low quality SSR.
5. Runtime Debug Display : If we disable this option then there won’t be any debug display in runtime.
6. Rumtime AOV API :
7. Terrain Hole :
8. Transperance Backface : To enable transparent Backface
9. Transparent Depth Prepass :
10. Transparent Depth Postpass :
11. Custom pass :
12. Custom buffer Format : If we experience banding issues due to custom passes, we could change it to either 11 bit if we don’t need alpha or 16 if we need alpha.
13. Realtime raytracing :
14. Visual effect raytracing :
15. Support Raytracing mode :
16. LOD Bias :
17. Maximum LOD Level :

* Decals

1. Enable
2. Draw Distance : distance from the camera at which unity draw decales
3. Atlas width, Height : This atlas stores all decals that project onto transparent surfaces
4. Metal and AO properties : enabling this allow decales to affect by metallic and AO. But has Performace impact.
5. Max Clustered Decals on Screen : list of decals that HDRP uses when it renders transparent Game Objects.
6. Layers : enable this to choose which layers need to affect by the Decals

* Dynamic Resolution

1. Enable :
2. -Enable DLSS : Nvidias upscaling algorithm. In order to avail this option we need to import the NVIDIA Package from the package manager.
3. --Mode : Balanced , MaxPerformance , MaxQuality , Ultra Prtformance.
4. --Injection point : Before Post , After Depth of Field , After Post process.
5. --Use Optimal Settings : automatically choose the sharpness and screen percentage.
6. –Sharpness :
7. -Dynamic resolution type : Software and Hardware. Software render it to a render target and rescales to viewport. Hardware treat render target upuntil backbuffer.
8. -Upscale filter :
9. Catmull-Rom : A bicubic upsample with 4 taps
10. Contrast Adaptive Sharpen : its not recommended for screen resolutions less than 50%. It uses FidelityFX (CAS) AMD.
11. FidelityFX Super Resolution 1.0 AMD.
12. Use Mip Bias : for texture sampling. Improve quality but affect performance.
13. Minimum Screen Persentage :
14. Maximum Screen Percentage :
15. Force Screen Percentage :
16. Forced screen Percentage :
17. Low Res transparency Min Threshold :
18. Ray Tracing half Resolution Threshold :