Rainy 3D Objects | **Ciconia Studio**

[Online Documentation]

Overview

The shaders allow you to create realistic dripping raindrops on 3D objects, improving the visual of any rainy scenes in real time. Raindrops are generated automatically, and each raindrop falls at a random rate, preserving any visible repetition.
Move and rotate opaque or transparent objects where you want in your environment, the raindrops will always fall down.

Shaders:
- Rainy Objects Transparent
- Rainy Objects Opaque Lite
- Rainy Objects Opaque Pro (*coming soon*)

Features :
- Built-In and URP support.
- PBR Metallic Workflow.
- Mask map : Metallic, Ao, Height map and Smoothness channel-packed Textures.
- Height map support for both RP.
- Designed for static 3D objects
- Auto-generated Rain Drops.
- Full control over the appearance of the raindrops (Intensity, amount, size, speed, noise turbulence, normal intensity, smoothness).
- Random speed for each rain drip line.
- Rain drip lines are projected using world space coordinates.
- Full control over the drops left by the dripping raindrops (Intensity, amount, size, speed).
- Additional reflection control on the rain drops (Color tint, intensity, blur).

URP Package :
The package includes **Built-in** and **URP** shaders. The Wet Rainy 3D Objects Shaders v2020.1 package is only compatible with Unity 2019.4.0 or higher.
The package is set up to Built-In Render Pipeline by default.

HDRP Package :
The file includes **HDRP** shaders for Unity 2019.4 LTS and 2020.3 LTS
By default, the package is set up to be compatible for Unity 2019.4.x. If you are using Unity 2020.3.x, please follow the instructions in the readme file.

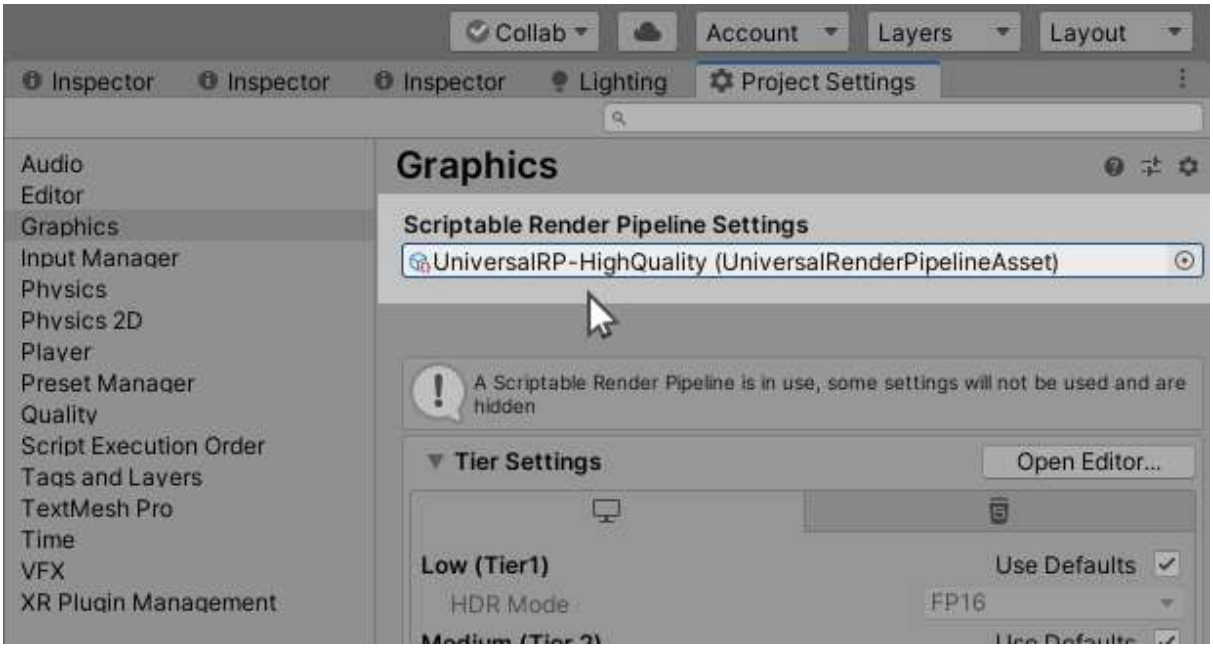
The package comes with a demo scene using 1k and 2k textures in .png format.

URP Setup

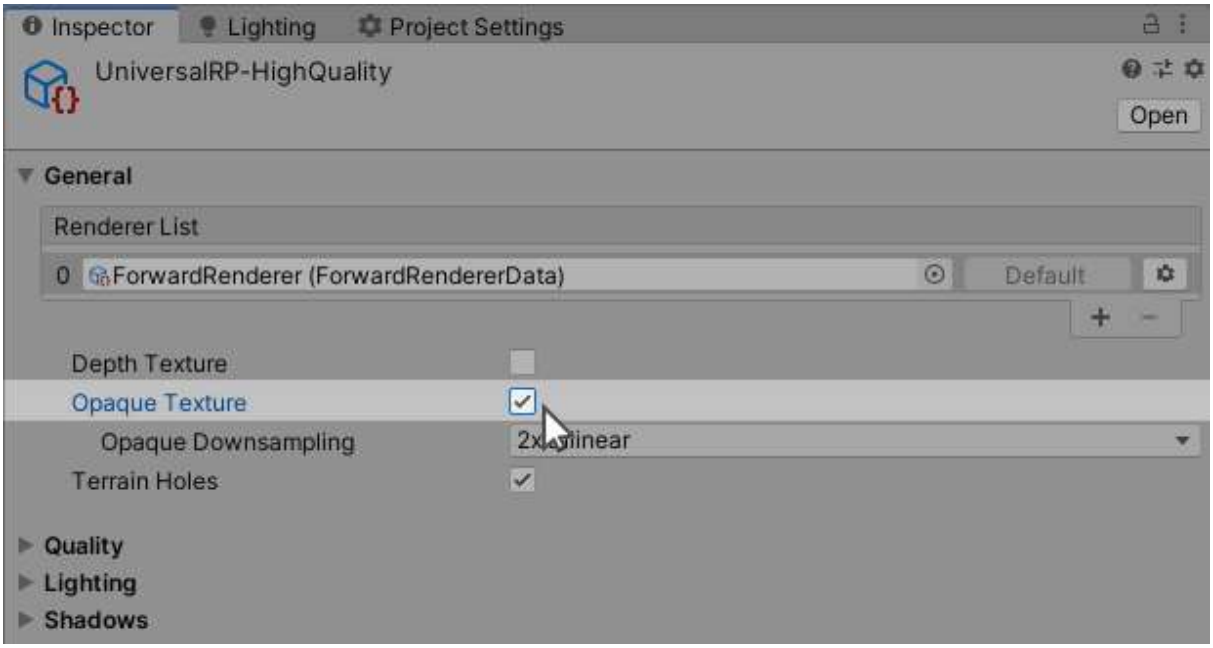
Support Unity versions
2019.4 LTS

First delete the Builtin folder and unpack the URP-Wet Rainy 3D Objects shaders.unitypackage. In order to use the Transparent version with the Universal Render Pipeline you will need to enable the Opaque Texture toggle in the pipeline asset inspector.

Go to Edit/Project Settings/Graphics.



Go to the UniversalRenderPipelineAsset's inspector and enable Opaque Texture.



Tutorials

Videos |

URP setup
[Tutorial]

Rainy Puddles
[Preview 1]
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Shader Properties

Main Properties | These properties affect all the maps selected in the Main Properties.

Global --> XY(TilingXY) - ZW(OffsetXY) – Controls the Tiling and the Offset of all maps contained in the main properties

Color – Specifies the RGB color of the model.

Invert Alpha – Inverts the alpha channel.

Base Color -->(Mask A) – Selects a color map. A Grayscale Map can be stored in the alpha channel.

Saturation – Controls the amount of saturate or desaturate of the Base Color map.

Brightness – Controls the amount of brightness of the Base Color Map.

Normal Map – Selects a normal map.

Normal Intensity – Controls the normal intensity.

Mask Map -->M(R) - Ao(G) - H(B) - S(A) – It's a channel-packed textures which store multiple maps in one. The Metallic in the red channel, the Ambient occlusion in the Green, the Height map in the Blue one and the smoothness in the Alpha channel.
Find more information about Unity Channel packed texture here.

Metallic – Controls the amount of metallic reflection.

Smoothness – Controls the amount of glossiness reflection.

Height Scale – Controls the height intensity.

Ao Intensity – Controls the intensity of ambient occlusion.

Emission Color – Specifies the HDR color for the emission.

Emission Map – Selects an emission map.

Intensity – Controls the emission intensity.

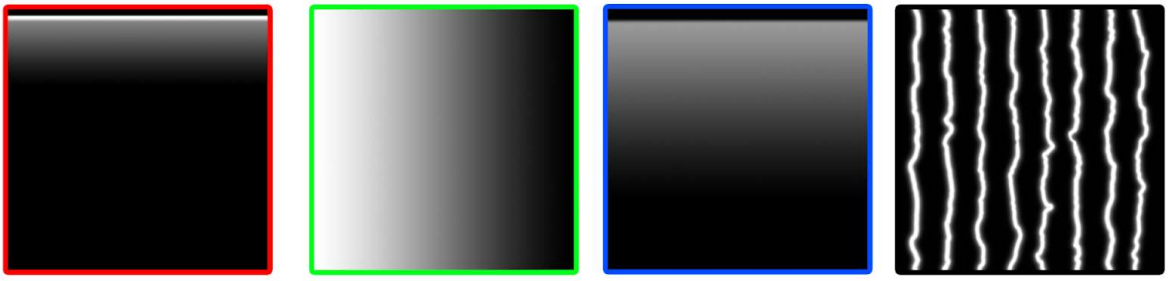
Rain Properties | These properties control the raindrops.

Gradient Tex --> DropLRamp(R) DropFade(G) DripLRamp(B) DripLMask(A) –
The Red(R) channel contains the gradient map used to create the drop of water which dripping down.

The Green(G) channel controls the animation of the raindrops, from left to right. White value means that the raindrops are 100% visible and gradually dissipate towards black(0%).

The Blue(B) channel stores the gradient map used to create a fade out delay for the drops created by the rain drip line.

The Alpha channel(A) stores the mask of the path that the raindrops will follow.



Red Channel | Green Channel | Blue Channel | Alpha Channel

Note that, three different Gradient Tex maps are included in the package (Ciconia Studio\Shaders_Shared Files\Textures\Rain).
These textures create a different flowing drop effect, due to their respective alpha texture.

Blending Mode – Switch the blending mode between Additive and Lighten

Normal Drop – Controls the Normal scale of the raindrops.

Smoothness Drop – Controls the glossiness of the raindrops.

___ Rain Drops ___ *Controls the raindrops*

Intensity – Controls the intensity of the raindrops.

Tiling – Controls the scale of the raindrops. The larger this value, the smaller the raindrop will be.

Splash Speed – Defines the speed of appearance of raindrops.

Size – Controls the size of each raindrop.

Falloff– Controls the falloff of the raindrops.

Noise Scale – Controls the turbulence of the raindrops.

Drop Top – *Affects only the raindrops projected on top of the mesh.*
Use BaseColor Alpha Mask – Enable this property to use the BaseColor alpha to mask the raindrops.

Intensity – Controls the intensity of the raindrops.

Drop Side – *Affects only the raindrops projected on the sides of the mesh.*

Enable – Enables or disables the raindrops.

Use BaseColor Alpha Mask – Enable this property to use the BaseColor alpha to mask the raindrops.

Intensity – Controls the intensity of the raindrops.

___ Rain Drip Line ___ *Controls dripping raindrops.*

Amount – Defines the amount of path lines used in the Alpha channel of the Gradient Tex. The Gradient Textures provided in the package have 8 Lines. That is why the default value is 8.
If you want to customize this channel, do not forget to indicate here the number of lines contained in your new map.

Use BaseColor Alpha Mask – Enable this property to use the BaseColor alpha to mask the raindrops.

Intensity – Controls the intensity of dripping raindrops.

Contrast– Controls the contrast of the dripping raindrops.

Tiling Horizontal – Controls the horizontal tiling of the dripping raindrops.

Tiling Vertical – Controls the vertical tiling of the dripping raindrops.

Speed – Controls the speed of the dripping raindrops.

Range Speed – Defines a speed variation between the slowest and the fastest water drops. This value represents the speed of the fastest dripping raindrop.
For example, if the value is set to 0.1, all the dripping raindrops are falling at the same speed. If the value is set to 0.5, the slowest dripping raindrop is falling at 0.1 speed and the fastest at 0.5. The random range between these two values, is defined by the Random Position below.

Random Position – Defines a random position for the dripping raindrops. Simply change the value to get different patterns.

Trail of drop – *Controls the drops left by the dripping raindrops.*

Enable – Turns the dripping line into water droplets

Contrast– Controls the contrast of dripping line or the water droplets, if "Trail of drop" is enabled

Tiling – Controls the tiling of the water droplets.

Speed – Controls the speed of the water droplets.
Note that the water droplets are moving in all direction. You can use a low value to simulate raindrop retraction.

Shrink – Controls the size of the water droplets.

Enable Random Mask– Enables or disables Random Mask.

Grow Mask– Controls the mask expansion. A low value decreases the white values, and will have the effect of randomly masking the dripping raindrops. Conversely, a larger value will cause more droplets to appear.
Note that this property is linked to the random position.

Enable Projection Grid– Enables to project the dripping raindrops on a grid.
This property was created to simulate a chaotic rain falling and dying quickly.

Reflection Properties | These properties control the additional reflections.

Color – Specifies the RGB color of the reflection.

Cubemap – Selects a cubemap.

Intensity – Controls the intensity of the reflection.

Blur – Specifies the amount of blur.

Reflected – Selects in which part of the mesh the reflection will be enabled.

Transparency Properties | These properties control the opacity of the model.

Use BaseColor Alpha – Enable this property to use as Transparent mask the map stored in the alpha channel of the BaseColor map.

Invert – Inverts the grayscale value of the map selected in the Transparent Mask slot.

Transparent Mask – Selects a grayscale transparent mask. The white value will be transparent.

Contrast – Controls the amount of contrast of the Transparent Mask.
The default value is 1.

Spread – Controls the diffusion amount of the Transparent Mask.
The default value is 0.5. This property is used to increase or decrease the white or black values.

Opacity – Controls the amount of transparency.

Refraction – Controls the amount of refraction. An opacity greater than zero is necessary for the refraction to be visible.

Fade – Controls the fade out. Use the fade property in combination with the opacity slider to create a more realistic window effect.

Note that this property can also be used to be able to see other objects using the same shader. As the opacity uses the Grab screen function, it cannot capture other objects that also use the same function. Thus, by using the Fade property, these objects will be visible in transparency as well.

Some differences with URP/HDRP.
For URP/HDRP, any transparent object located behind can only be visible by using the fade property. Transparent objects cannot be refracted.