Fake Fog

CODYDREAM

Guide and Documentation

Pages

New in the 2.0 version

This new version there two new Full screen shaders are introduced.
There are SS fog
 and SSG fog.

(*SS fogs in action
In this picture)
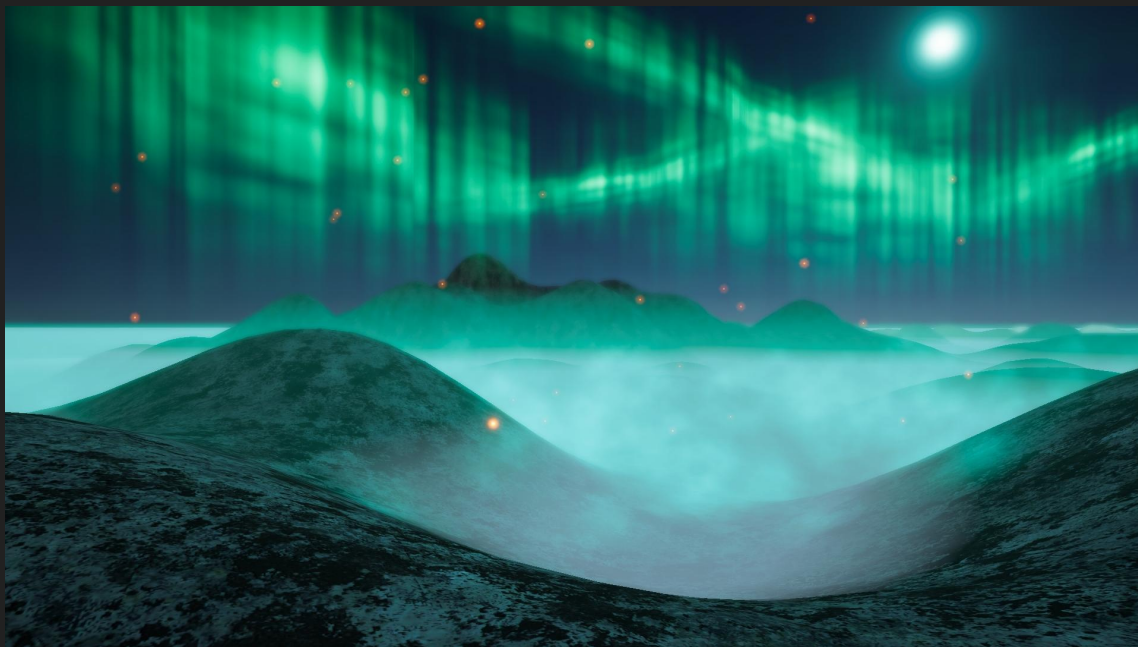
How to Setup SS fogs

You have to add two full screen materials to urp renderer
Which is being used by render pipeline asset
(do this or demo scene of ss fogs won't work)

Materials are located in materials folder

There is example renderer asset in the package and if you want you can add it to render pipeline asset instead of doing what mentioned above

Learn more about SS fogs

SS mean screen space and SSG mean Screen Space Ground.
These shaders are live on Screen Space so they doesn't cost performance for more Mist.

SS Fog is for distance fog and SSG fog for ground fog for things like valleys .

You can use SS fog for ground fog instead of SSG fog but we recommend using SSG fog for ground fog

More about SS fogs

We recommend using unity fog combined with Our SS fog for better results . Our fog Does not fully cover the distance objects . So you have to depend on the context. if you want to hide distance objects use unity fog.

*Note - You don't need same amount of SS Fog density for unity fog , just fraction of SS Fog is enough for unity fog

Why SS fogs

Unity Fog doesn't cover the skybox with fog. So if player can see the skybox middle part , there is hard and weird edges appear where scene objects are affected by the fog but not the sky box . SS fog solve this

Also unity fog does not able to do scene wide ground fog . That is where our Fog solution come in clutch.

Also our ground fog support to go inside it and it won't break the immersion that we are in the fog. That way unable to archive with previous fog or unity fog

Limitations of SS fogs

We provide a straightforward explanation of our solution without over-promising.
 There is some limitations .
Such as :-
-Not supporting noises to make fog more natural . all fog is consistent currently
-Not supporting Local fog (even it supported local fog amount will be limited because shader graph does not support arrays for input. Also fog shapes will be limited)

Why not Discard previous fog

It is true that new Fog is more performant and more good with flexible . But it lacks some features of Previous Fog solution. So it is best to use All of the solutions Combined.

So use God rays particles , advance ground fog planes and SS fog and SSG fog and unity fog for better results .

Supporting

This is mainly for unity urp
Made in unity 2022 LTS.
Unity 6 Will work (not tested)

This can be used for HDRP too (not tested).
Also for Built in Render pipeline (not sure).
*for that try setting shaders targets HDRP and Built in

*note if you see Pink Objects , Set Rendering pipeline to URP (Tutorial)

Demo scene

Key Features

- Multilayered Ground Fog
- Fog Ring
  *Note for best visuals apply unity default Fog too.
  *If you are modifying the fog , be careful stacking fog layers , it cause Overdraw
  * this scene good for low end hardware

Advance Demo scene

Key Features

This scene include
- God rays particle system
- Multilayered Terrain Fog (advance fog)
- Fog ring (advance fog)
- Wind Particle systems

See more details

What is new in Advance fog

It has a vertex shader to simulate fog uneven Height
Also it has Fading to simulate fog disappear when camera
Is near the fog

Why use Terrain for Advance fog instead of Quad

Advance fog shader needs vertex for displacement
.Since unity urp does not support tessellation , we need a
High poly mesh . Having high poly mesh that cover entire
scene is bad. Unity terrain support tessellation so we use that
Instead of a high poly mesh

God Rays (particle system)

Since we are not doing real volumetric fog , we can not accurately simulate light beams , so we use unity particle system to approximate light beams . (fake fog and fake god rays are good for performance wide)

Wind (particle systems)

Wind adds some nice touch for the scene

Note

- Using particle systems give load on cpu , if you are familiar with unity VFX , you can use that to implement these effects

Advance Night Demo

Key Features

This scene include
- Rain Particle system
- Aurora
- Things included in Advance Demo Scene

See more details

Aurora
A little bit of touch to sky to make it beautiful

Rain Particle system
This particle system help to create atmosphere .
For use it simple put it on the scene at a reasonable highest (rain drops only fall for some seconds). Also there is a flash effect when rain drop hit a collider
Again if you want use VFX instead of particle system for the rain

Additional Tool

There is a tool for creating fog ring instead of manually
Putting quads.
It is located under "tools/ place objects in circle "
To use that
Set the center (ex :- player or camera)
Set the object (fog quad)
Set the circle radius and objects amount
And click place objects
*note adjust offset to break the seamless of object placement
　　*note click Delete All spawn objects to delete spawned objects

Limitations

Transparent Fog when stacked become a problem because
It do a thing called "Overdraw" .
So Don't Stack too much transparent fogs
Usually 2 to 3 fog quads are enough

Unity terrain does not automatically give the amount of
Vertexes , you have to do manual terrain highest
adjustments to make it have more vertex (this is good and
bad , good is you can apply slight variation for height of
terrain to make fog more natural where can build up
higher , bad is sometimes fog can seen unnatural)

Additional note

This assets pack already using our **Low Poly Stylized Nature pack** Aurora shader . so if you are using that asset pack too with the project consider deleting this asset pack shader and material and use Low Poly stylized Nature pack shaders and materials to avoid any confusions and misleads

Patch Introduction: Decal Projector Reflection System

This patch introduces a new, experimental Decal Projector system designed to simulate reflections for static real-time rendering environments. This feature provides developers with a streamlined tool to create artist-driven reflections, effectively filling the visual gap left by the absence of a physically accurate ray-tracing pipeline.

While the system is designed to accelerate this classic technique, it requires manual configuration and is best suited for specific use cases, such as window reflections or localized ambient lighting. This tool simplifies the initial setup of a complex technique; however, the final aesthetic and performance optimization remain the responsibility of the developer.

# Decal Projector Reflection System

To use this system, follow these steps:

1. **Placement:** Create a new Gameobject and place it at the center of the desired reflection source (e.g., a window). Orient the Gameobject's forward (blue arrow) axis to align with the intended direction of the light.
2. **Configuration:** Navigate to the context menu and select the "Spawn Decal" action. Prior to spawning, configure the necessary settings within the component editor to match your scene's requirements.
3. **Refinement:** Adjust the spawned decals to achieve the desired effect.

Tips for Refinement

- **Size & Falloff:** To simulate light scattering, increase the decal size and exponentially decrease its strength over each successive "bounce."
- **Angle:** Adjust the fade angle to control how the projection behaves on oblique surfaces.
- **Positioning:** Manipulate the projector's position along its forward axis to prevent overlapping artifacts and optimize the projection's appearance.

fake reflection in action
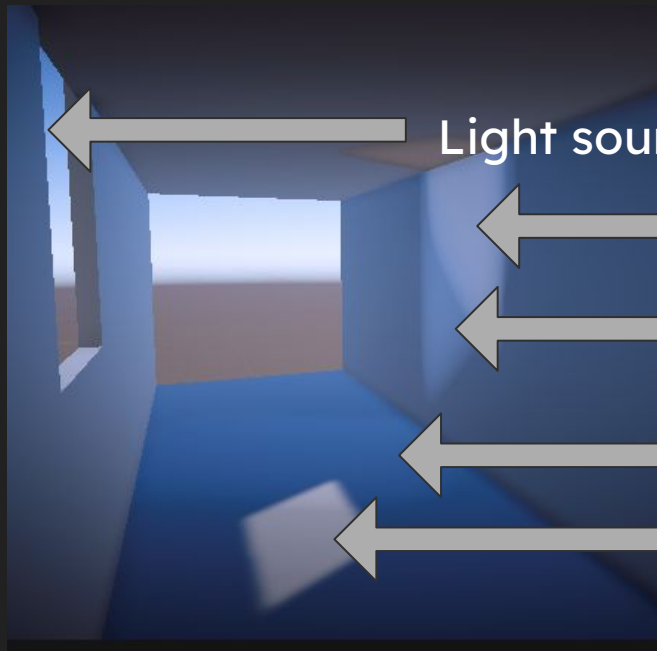
Overall 3 bounces of light

Light source

Fake Reflection

Fake Reflection

Fake Reflection(subtle)

Actuall light cast

Future Expectations

To expand the functionality of SS fogs
To Use VFX instead of particle systems
To integrate more tools to work with this
To ensure this package work with more unity versions and another pipelines
And to add more features ...

Thanks for using Cody Dreams product

We value your feedback and are here to help!