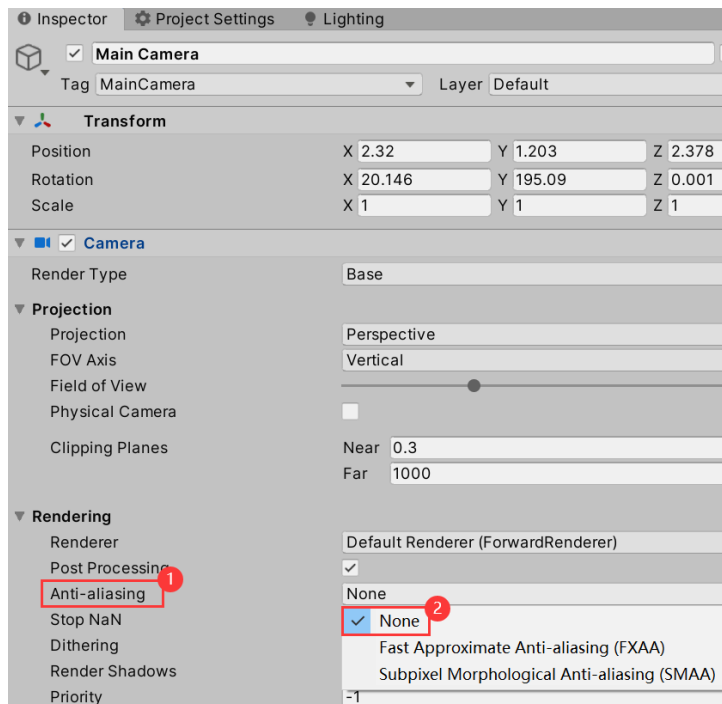
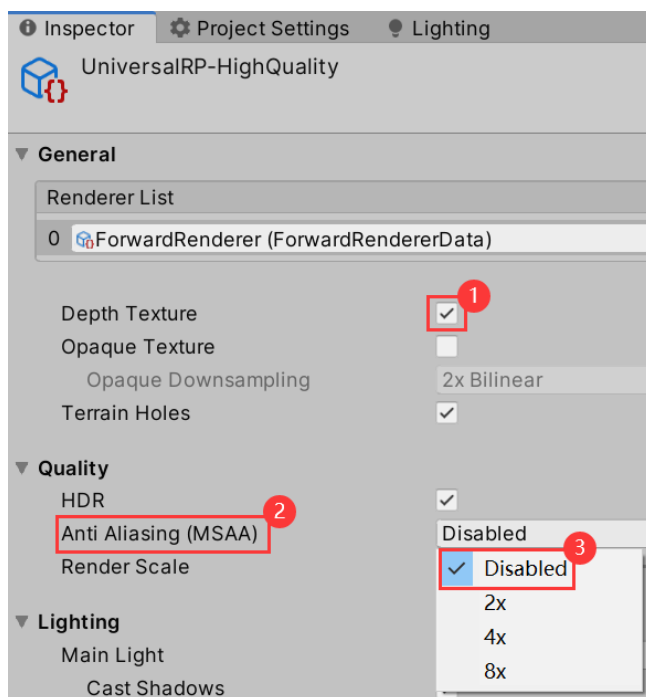


USAGE

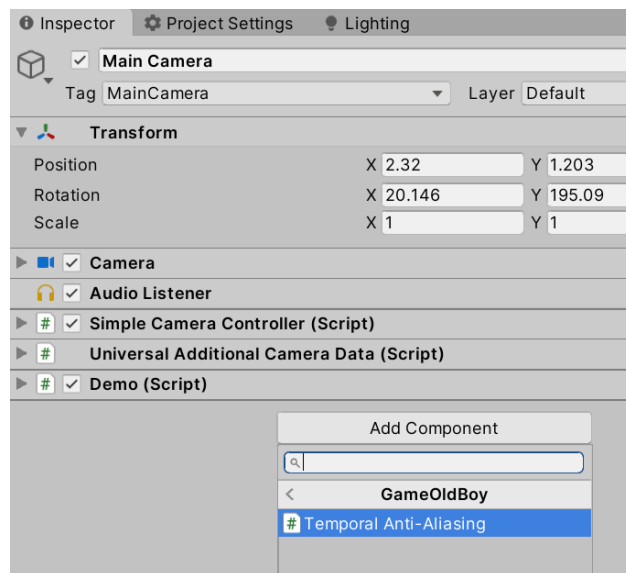
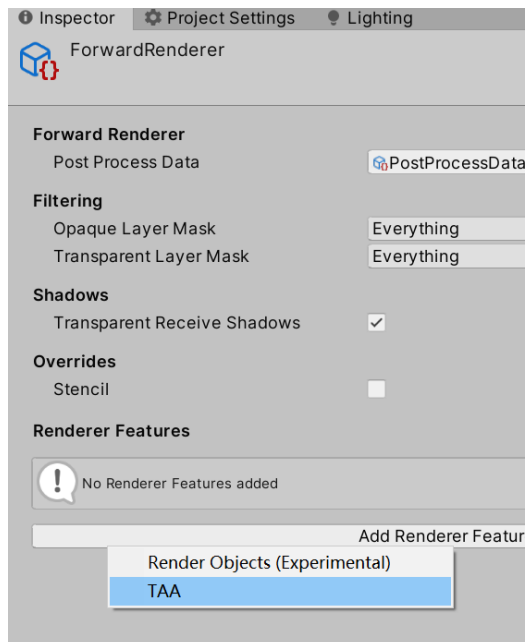
1. Create new URP project
2. Disable "Main Camera" anti-aliasing in the inspector



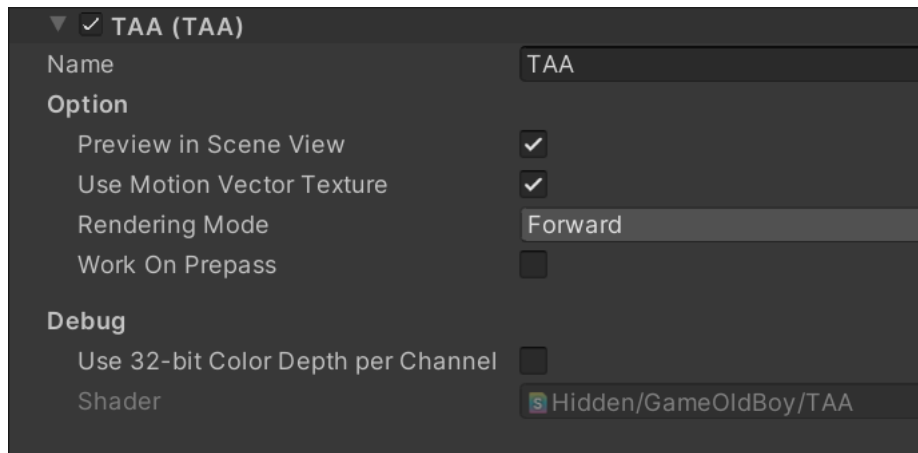
3. Disable "MSAA" in "Assets/Settings/UniversalRP-[High|Med|Low]Quality.asset"
4. Enable "Depth Texture"



5. Find "Assets/Settings/ForwardRenderer.asset"
6. Click "Add Renderer Feature" in the inspector
7. Select "TAA"
8. Add Component to the "Main Camera", select "Rendering/GameOldBoy/Temporal Anti-Aliasing"



TAA (Renderer Feature)



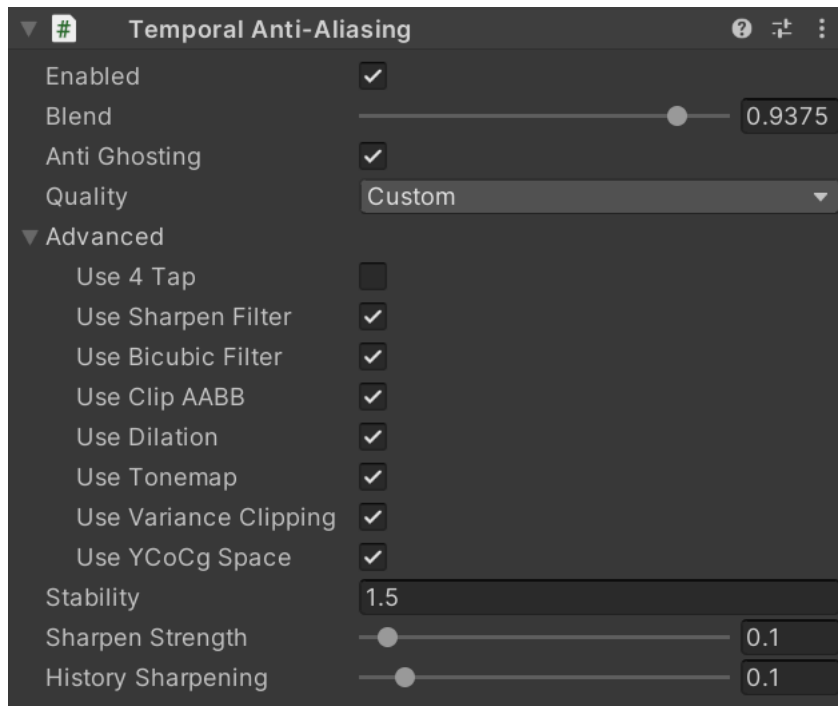
1. **Preview in Scene View:** Enable preview in the scene view, if disabled it will only effect in the game view.
2. **Use Motion Vector Texture:** Using motion vectors to reproject the previous frame gives a more stable result for objects in motion. **This feature requires Unity 2021.2 and URP 12!**
3. **Rendering Mode:** Choose a correct rendering path for Universal Renderer. Currently URP API can't get the rendering path without modifying the source code, you need to manually select the correct rendering path, such as the Deferred path. If the rendering path is not selected correctly, the anti-aliasing effect will be invalid. **This feature requires Unity 2021.2 and URP 12!**
4. **Work On Prepass:** Pass the TAA camera matrices to rendering prepasses. It can solve a series of rendering problems from prepass depth map and normal map, if you are using such as Decal, Screen Space Shadows, SSAO, etc., please turn on this option.
5. **Use 32-bit Color Depth per Channel:** Generate Render Texture using 32-bit per-channel floating point format, which will allow for better multi-frame blending, but it will incur more memory overhead. Helpful for screenshots, but not recommended to be enabled at runtime.

Disabled/Enabled



Use Motion Vector Texture

Temporal Anti-Aliasing (Camera component)



1. **Enabled:** Enable/Disable
2. **Blend:** Control the intensity of mixing current and history frames.
3. **Anti Ghosting:** Anti-Ghosting, disable helpful for screenshots.
4. **Quality:** Select the anti-aliasing quality preset, when selecting "Custom" you can freely adjust the advanced options.
5. **Use 4 Tap:** Anti-ghosting with only 4 samples. Disable will use 9 samples, loss of image quality to improve performance.
6. **Use Bicubic Filter:** Filtering history frame with Bicubic interpolation.
7. **Use Clip AAB:** Use color AAB clip instead of clamp, from [Temporal Reprojection Anti-Aliasing in INSIDE](#).
8. **Use Dilation:** When enabled, moving object edges will get better results.
9. **Use Tonemap:** Anti-highlight flicker.
10. **Use Variance Clipping:** Marco Salvi's Variance Clipping algorithm from [Nvidia, GDC 2016](#).
11. **Use YCoCg Space:** Anti-aliasing color calculation is performed in YCoCg space.
12. **Stability:** Image stability when Variance Clipping is enabled.
13. **Sharpen Strength:** Image sharpness when Sharpen Filter is enabled.
14. **History Sharpening:** History frame sharpness when Bicubic Filter is enabled. When value is larger camera moving will get a clearer image.

Disabled/Enabled



Use Sharpen Filter, Sharpen Strength = 2



Bicubic Filter, History Sharpening = 1



Use Dilation



Use Tonemap



Use Variance Clipping, Stability = 4



Use 4 Tap

Known Issues

1. URP 12.0.0 Motion Vector Texture Incorrect scaling.



This issue occurs when URP Render Scale is not equal to 1.

I found the bug in URP 12 in

"com.unity.render-

pipelines.universal@12.0.0/Shaders/CameraMotionVectors.shader"

at line 60 "half2 screenSize = _ScreenSize.zw;"

This code does not consider the effect of Render Scale.

Edit here to "half2 screenSize = rcp(_ScaledScreenParams.xy);" for fixing this issue.

2. Depth of Field flickering.

Depth of field may still have flickering problems at the moment. Because [URP does not currently support custom post-processing effects](#). This results in no one being able to modify the working order of post-processing, and the Depth Of Field effect needs to be applied to the screen image before TAA.

VIEW GEOMETRY	DEPTH OF FIELD	TEMPORAL ANTI-ALIASING (TAA)	MOTION BLUR	BLOOM	TONEMAPPER	USER INTERFACE	BACKBUFFER RESOLUTION
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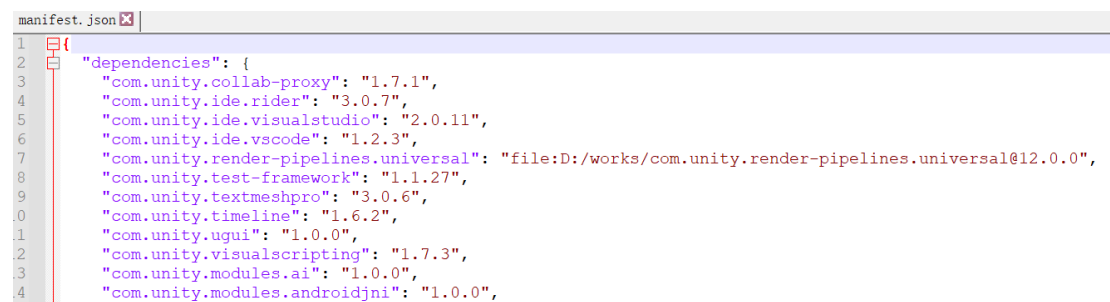
General post-processing order (left to right)

Depth of field flickering issue is currently unfixable.

Tips

How to edit Official URP package without being auto-reset.

Find the "Library/PackageCache" folder in the project, copy the "com.unity.render-pipelines.universal@12.0.0" folder to another location on your hard drive, then edit the "Packages/manifest.json" in "com.unity.render-pipelines.universal": "12.0.0", change "12.0.0" to "file:[folder location]", for example "file:D:/works/com.unity.render-pipelines.universal@12.0.0". Later editing of the URP package copy will not be reset.



```
manifest.json
1  {
2    "dependencies": {
3      "com.unity.collab-proxy": "1.7.1",
4      "com.unity.ide.rider": "3.0.7",
5      "com.unity.ide.visualstudio": "2.0.11",
6      "com.unity.ide.vscode": "1.2.3",
7      "com.unity.render-pipelines.universal": "file:D:/works/com.unity.render-pipelines.universal@12.0.0",
8      "com.unity.test-framework": "1.1.27",
9      "com.unity.textmeshpro": "3.0.6",
10     "com.unity.timeline": "1.6.2",
11     "com.unity.ugui": "1.0.0",
12     "com.unity.visualscripting": "1.7.3",
13     "com.unity.modules.ai": "1.0.0",
14     "com.unity.modules.androidjni": "1.0.0",
```

If you have any questions, Please contact chfreezer00@gmail.com