

Warp Effect Manual - Version 1.2.0

This manual will help you to quickly create a warp effect for your project. The effect is made for Desktop applications and has not been tested on mobile devices. The effect was made with Unity 2017, Unity 2018.

1. Introduction

The Warp Effect has many settings you can change in the new editor. You can change the color, the transparency, front / rear light color and intensity, the warp speed and many more. Everything can be changed in one place with the new editor.

Definitions:

Shader Properties: [*RenderStarLayer2*]

New in version 1.2.0

This update comes with a new background distortion effect which you know from the EVE Online warp effect if you play the game. You can change the strength and frequency of the effect and you can select between different distortion normal maps included in the package. The effect is only visible inside the warp sphere or if you look through the warp sphere. It is no fullscreen image effect. The effect is only available in the WarpPrefabShaderStars, because the effect would influence the particle stars in the WarpPrefabParticleStars prefab.

The WarpPrefabParticleStars has a new cloud texture which rotate around the warp sphere to give it a more interesting look. The downside is, that it now uses Shader Model 4 (DirectX 10) but I think this is not a problem at these days.

This update include also a small bugfix which prevented the noise textures from being saved in the WarpPrefabParticleStars prefab.

2. How to use the Warp Effect

At first, place your spaceship or player vehicle into the scene. Next go to the Prefabs folder and drag the „WarpPrefabShaderStars“ or „WarpPrefabParticleStars“ as child into your vehicle. Place the Warp Effect so that your vehicel is in the center of the prefab. Scale the WarpPrefab so it fits your needs.

If you extend the WarpPrefab in your Hierarchy view, you will find a camera. This camera is the player camera (for example the camera inside the cockpit of a spaceship). If you have a spaceship with a camera you should delete this camera. If not, adjust it to how you want.

To enable or disable the effect, enable or disable the WarpSphereContainer in your script. You can find an example script in the Demo scene.

In the demo scenes you can activate the effect with the arrow up key, and deactivate it with the arrow down key. You can rotate the camera with the left / right arrow keys.

Important:

The Warp Effect must have its own layer. Create a new layer „WarpEffect“ or something like that and set the prefab and all child elements to this layer with the exception of your camera or vehicle. This is because the effect has two directional lights which only light up the warp effect at the front and at the end. The culling mask of these lights must be set to the layer you have created for the WarpEffect prefab to prevent these lights from lighting up the whole scene. Similarly, if you don't want that your scene lights light up the Warp Effect, disable the WarpLayer in the culling mask of the scene lights. There is no way in Unity to create a layer by code, so you must add the layer by yourself.

3. Settings

You have many different settings to change how the effects look. The biggest change in this update is the custom editor for the prefabs. In the last version you had to change everything in the shader settings. With this update you can change everything in the custom editor by selecting the prefab in the hierarchy. This makes it a lot easier for you to change the effect setting. Everything you need is in one place.

1. Main Color: The color of the effect. The transparency of this color defines the transparency of the effect. [*Color*]
2. Mix Color: This is a color which is mixed together with the Main Color. [*MixColor*]
3. Textures: You can change the textures if you want a different look.
4. Speed X / Speed Y: Defines the x and y motion speed of the distortion. [*SpeedX*] and [*SpeedY*]
5. Scale: The strength of the texture distortion. The higher the value the more waves will impact the warp textures. [*Scale*]
6. Tile X / Tile Y: Tiling size of the effect. [*TileX*] and [*TileY*]
7. Warp Speed: Simply defines how fast the effect is. [*WarpSpeed*]
8. Front and rear light: You can change the color and intensity of the lights to increase or decrease the glowing at the two ends of the warp bubble.

Additional settings for the WarpPrefabShaderStars

Background Distortion

- Normalmap: The normalmap defines the look of the distortion effect. You can try different normalmaps from the package or use your own. Try different Tilings to see how this change the effect. [*DistortionBumpMap*]
- Distortion Strength: The impact of the distortion. The higher the value the higher the distortion impact. [*BackgroundDistortionStrength*]
- Distortion Frequency: The number of distortions applied to the warp sphere. The higher the value the more distortion waves will impact the warp sphere. [*BackgroundDistortionFrequency*]

Stars Settings:

WarpPrefabShaderStars:

This warp prefab render the stars into the warp sphere. The speed of the stars depends on the warp speed you define in the editor.

1. Tiling X and Tiling Y: The tiling of the star textures.
2. Star Color: The color for the stars in each layer. [StarColorLayer1] and [StarColorLayer2]
3. Stars Speed Factor: This is a multiplier for each star layer to have slower and faster stars for a more realistic effect. [StarSpeedFactorLayer1] and [StarSpeedFactorLayer2]
4. Render Star Layer: You can switch each star layer on and off. I have added this so that you have the opportunity to switch each star layer on in your script with a delay. [*RenderStarLayer1*] and [*RenderStarLayer2*]

WarpPrefabParticleStars:

This warp prefab uses two particle effects for the stars. One for slower stars and one for fast moving stars. If you want, you can change this particle effects.

Values for a good result:

Speed X: 2

Speed Y: -4

Scale: 0.0035

Tile X: 25

Tile Y: 25

Warp Speed: 10

Feel free to play around with it.

4. Additional Effect

As an additional effect I have added a Warp Leave image effect to the asset. This can be used if you disable the warp to get a kind of distortion you may find familiar from some certain Sci-Fi movies. To use this effect, go to the Scripts folder and drag the LeaveWarpEffect script to your camera you are using for the Warp Effect, and then drag the LeaveWarpEffectMaterial into the Effect Material field in the Inspector. The prefab camera has the script attached already. The script has four values to change the effect behaviour. In your script create a reference to the LeaveWarpScript and drag the camera with the script attached into the inspector. Then you can call StartEffect() and StopEffect() methods from your script.

In the demo scenes you will find an example of how to start the effect by your script.

Values you can change:

1. Leave Warp Effect Magnitude: Defines how strong the effect will be.
2. X Speed: How fast the distortion is moving on the X axis
3. Y Speed: How fast the distortion is moving on the Y axis
4. Effect Time Factor: Defines how long the effect is running. The smaller the value, the longer the effect will run.

5. Shader Properties:

This is a list of all shader properties you can access by your scripts.

StarWarpShader:

_Color
_MixColor
_MainTex1
_MainTex2
_MainTex3
_NoiseTex
_DistortionBumpMap (new)
_DistortionStrength (new)
_BackgroundDistortionFrequency (new)
_SpeedX

_SpeedY
_Scale
_TileX
_TileY
_WarpSpeed
_StarTexLayer1
_StarTexLayer2
_StarColorLayer1
_StarSpeedFactorLayer1
_RenderStarLayer1 (0 = off, 1 = on)
_StarColorLayer2
_StarSpeedFactorLayer2
_RenderStarLayer2 (0 = off, 1 = on)

WarpShader:

_Color
_MixColor
_MainTex1
_MainTex2
_MainTex3
_CloudTex (new)
_NoiseTex
_SpeedX
_SpeedY
_Scale
_TileX
_TileY
_WarpSpeed

Tip:

Try to change environment lighting from skybox to color in the lighting settings if possible. This could give you a better result. You can change the settings in your script as long as the warp is active and then change it back to what it was before. The demo scenes use these settings.

If you have any questions or suggestions, feel free to contact me at dirk.jacobasch@outlook.com