Warp Effect Manual - Version 1.6.0

This manual will help you to quickly create a warp effect for your project. The effect is made for Desktop applications. In a test on an iPhone 8 the effect runs at 60 FPS so that it could be possible to use the effect in a mobile project too. **The Warp Effect is not tested on VR devices.** The effect was made with Unity 2017 - Unity 2019.

1. Introduction

The Warp Effect has many settings you can change in the editor. You can change the color, the transparency, emission texture, emission color, the warp speed and many more. Everything can be changed in one place with the editor.

Definitions:

Shader Properties: *[_RenderStarLayer2]*

New in version 1.6.0

IMPORTANT: Before you importing a new version, please backup your project.

- New option to add or multiply emission maps togesther.
- 5 new prefabs ready to use in your project.
- Prefab with the new experimental function.
- New textures.
- Experimental emission map distortion

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 „WarpEffectPrefab" as a child into your spaceship. Place the Warp Effect so that your spaceship is in the center of the prefab. Scale the WarpEffectPrefab so it fits your needs. You can also use one of the example prefabs in the example folder.

If you extend the WarpEffectPrefab 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 scene 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.

3. Settings

You have many different settings to change how the effects look. You can change everything in the custom editor by selecting the prefab in the hierarchy. This makes it 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.
    [_SpeedY] 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. Main Texture 1 Rotation Speed / Main Texture 2 Rotation Speed / Main Texture 3 Rotation Speed:
    This properties define how fast the textures rotate clockwise or counter-clockwise.
    [_MainTexRotationSpeed1], [_MainTexRotationSpeed2] and [_MainTexRotationSpeed3]

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 Frequence: The number of distortions applied to the warp sphere. The higher the value the more distortion waves will impact the warp sphere.
  [_BackgroundDistortionFrequence]

Emission Maps

- You can assign two different emission maps to light up the warp effect. Try different combinations of textures to get the effect you want.
  [_EmissionMap_01] and [_EmissionMap_02]

- Emission Color: The emission color is a HDR color. The color defines how bright the effect is.
  [_EmisisonColor]

- Emission Map 1 Rotation Speed / Emission Map 2 Rotation Speed:
  This properties define how fast the emission maps rotating clockwise or counter-clockwise.
  [_EmissionMapRotationSpeed_01] and [_EmissionMapRotationSpeed_02]

- Emisison Map Mode: You can select Add or Multiply to define how emission maps are merged.
  [_MultiplyEmissionMaps] **(new)**

- Emission Map Distortion: Enable or disable an experimental emission map distortion.
  [_EmissionMapDistortion] **(new)**

Stars:

- Tiling X and Tiling Y: The tiling of the star textures.

- Star Color: The color for the stars in each layer.
  [_StarColorLayer1] and [_StarColorLayer2]

- 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]

- Render Star Layer: You can switch each star layer on or off. I have added this so that you have the opportunity to switch each star layer on or off in your scripts with a delay.
  [_RenderStarLayer1] and [_RenderStarLayer2]

- Brightness: The brightness of the stars in the star layer. The higher the value, the brighter the stars are. The brightness can be changed individually for each star layer.
  [_StarTexLayer1Brightness] and [_StarTexLayer2Brightness]

- *Star Speed Factor: Defines how fast the stars are moving across the warp sphere.*
  [_StarSpeedFactorLayer1] and [_StarSpeedFactorLayer2]

- Start Position: The start position where the star layer renders from. 0 is the center of the warp sphere and 0.5 is the front of the warp sphere.
  [_StarsStartPosLayer1] and [_StarsStartPosLayer2]

- *End Position:* The end position where the star layer stop rendering. 0 is the end of the warp sphere and 0.5 is the center of the warp sphere.
  [_StarsEndPosLayer1] and [_StarsEndPosLayer2]

- Star Rotation Speed Factor: This property defines how fast the stars rotating around the warp sphere.
  [_StarLayerRotationSpeed1] and [_StarLayerRotationSpeed2]

4. Addional Effect

As an addional 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 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 smaler the value, the longer the effect will run.

If these effect is not working please check that „Directly to Camera Target" is disabled in your Post Processing Layer. It is enabled by default in the new version of the Post Processing Stack.

5. Shader Properties:

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

StarWarpShader:

_Color
_MixColor
_MainTex1
_MainTexRotationSpeed1
_MainTex2
_MainTexRotationSpeed2
_MainTex3
_MainTexRotationSpeed3
_NoiseTex
_EmissionMap_01
_EmissionMapRotationSpeed_01
_EmissionMap_02
_EmissionMapRotationSpeed_02
_EmisisonColor
_MultiplyEmissionMaps **(new)**
_EmissionMapDistortion **(new)**
_DistortionBumpMap
_DistortionStrength
_BackgroundDistortionFrequence
_SpeedX
_SpeedY
_Scale
_TileX
_TileY
_WarpSpeed
_StarTexLayer1
_StarTexLayer2
_StarColorLayer1
_StarTexLayer1Brightness
_StarTexLayer2Brightness
_StarsStartPosLayer1
_StarsStartPosLayer2
_StarsEndPosLayer1
_StarsEndPosLayer2
_StarSpeedFactorLayer1
_StarLayerRotationSpeed1
_RenderStarLayer1 (0 = off, 1 = on)

_StarColorLayer2
_StarSpeedFactorLayer2
_StarLayerRotationSpeed2
_RenderStarLayer2 (0 = off, 1 = on)

Tip:
Try to use different combinations of textures for warp and emission. You can also use warp textures for emission and vis versa. Also try different tilings for the textures. A negative tiling changes the movement direction. This will give you a lot of different effects. You should use linear color space and post processing effects for better results.

If you have any questions or suggestions, feel free to contact me at
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