HYPERCARD

Version 2.0

DOCUMENTATION

Table of content

1. Introduction

1. Preamble

Thank you for purchasing **Hyper Card**!

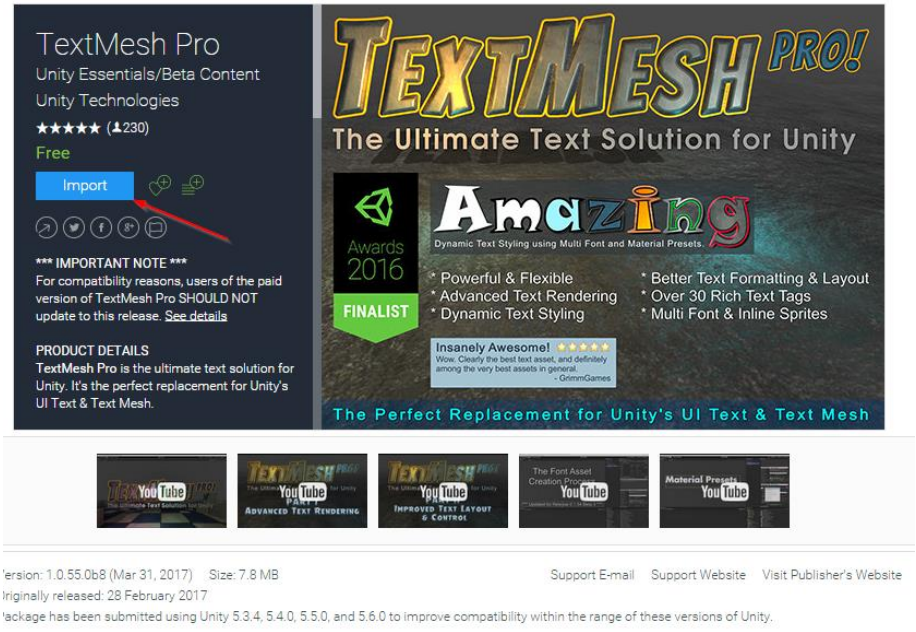
Hyper Card consists in several shaders and an Inspector GUI which help to create awesome playing cards. Inspired by famous games, Hyper Card brings endless customisation possibilities.

> Please note: **Hyper Card** requires one licence per developer.

Hyper Card support can be reach at: http://www.enixion.com

2. Requirements

Hyper Card requires **TextMeshPro** to display texts.



TextMeshPro is free. You can download it on Asset Store :

https://www.assetstore.unity3d.com/en/#!/content/84126

2. Patch notes

V 2.0

The source code has been completely redesigned and rewritten in this major release. **HyperCard 2.0 is not compatible with the previous version (1.x).** The numerous changes bring more flexibility of use and the performances are optimized. Most of the effects have been reworked, and the Custom Inspector has changed. Now, the back side of the playing card has the same options as the front side. The basic prefab has been redesigned, and SpriteRenderers are now used by default.

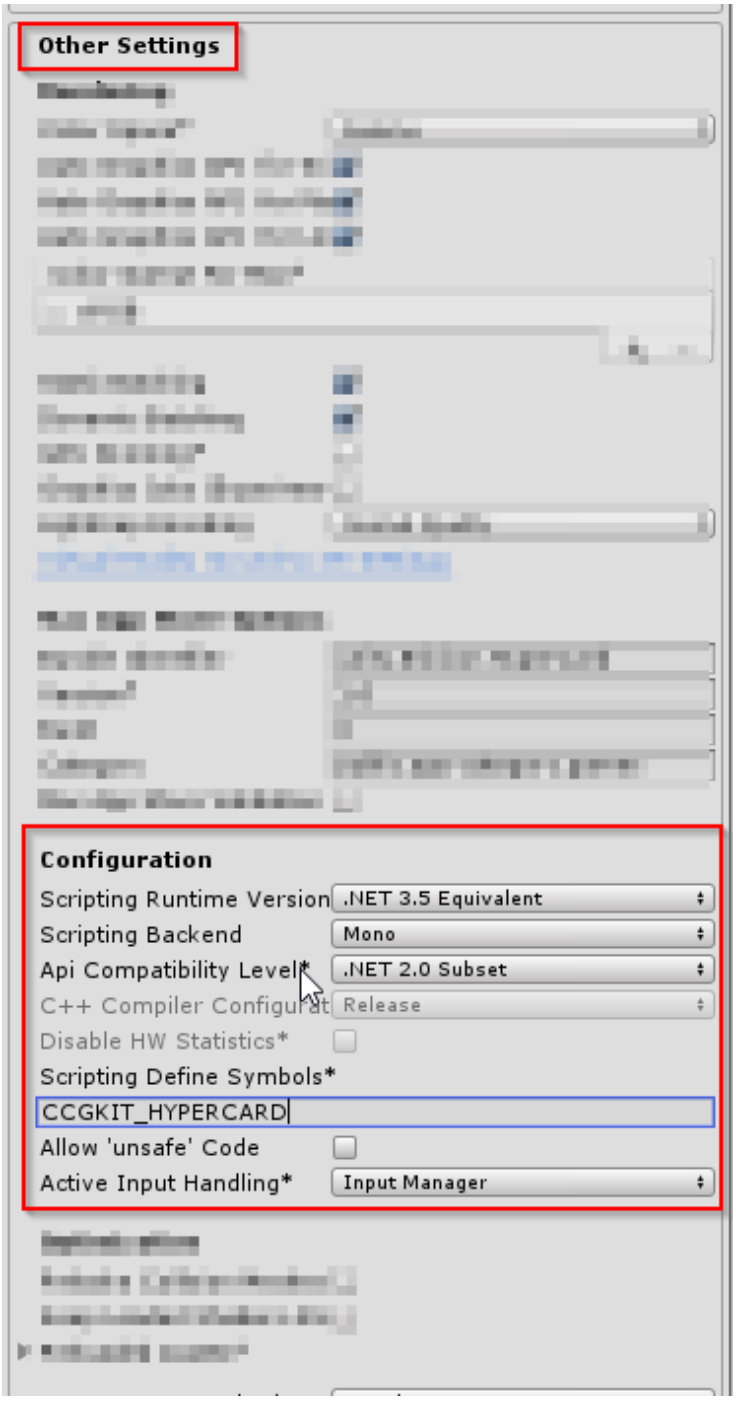
The Glitter FX is based on PolkaDot Noise algorithm (originally written in GLSL) by Brian Sharpe.

Integration with CCGKit (alpha !) :

After a conversation with one of my customers and David Pol from GameVanilla, I would then like to provide a complete integration with the excellent CCGKit.

Some classes have already been developed but the work is not finished.

To enable this feature, you must add the custom #defines "CCGKIT_HYPERCARD" in the "Players" parameters and put several methods in the CCGKit classes in "virtual".



V 1.5.1

- [Fix] Fixed an issue that breaks the reference to the materials when turning a scene object into a prefab.

  Thanks to David Pol from GameVanilla for his kind feedback.

V 1.5

- [New] Glitter effect.
- [Change] Watermark FX has been removed since you can define RenderQueue on custom sprite to render it under the text.
- [Change] Price and rarity settings have been removed since they can easily be made with custom sprites.
- [Improvement] New setting “Color” that affects the frame.
- [Improvement] Custom sprites now supports distortion.
- [Improvement] Custom sprites can be edited in the child hierarchy.
- [Fix] Stencil value was not updated on custom sprites.
- [Improvement] Outline has a Height parameter, useful for rectangular cards.
- [Improvement] The back of the card now supports an alpha mask.
- [Misc] Blend FX has been renamed to “Noise FX”

V 1.4.1

- [Fix] Standalone build issue.

V 1.4

- [New] Custom sprites support.
- [New] Added a "seed" parameter for procedural noise generation.
- [New] Canvas Mode + demos.
- [Change] Overlay FX has been removed since you can add custom sprites.
- [Improvement] Periodical FX : The effect has been slightly modified and now takes time intervals as parameters for the "Delay On" and "Delay off" options. A random value is selected in these intervals at each repetition of the effect. The variable names have been changed to be more consistent with the variables of other effects.
- [Improvement] Added new settings in Dissolve FX : "Alpha cut" and "Exposure"
- [Improvement] Added a key parameter on custom text objects.
- [Fix] Fixed margins on TextMeshPro gameObjects (prefab & demo scene).
- [Fix] Periodical FX : Texture now fades in as intended.
- [Fix] Periodical FX : Color alpha issue.
- [Misc] Outline node has been moved to "Visual effects".

V 1.3

- [New] Added a stencil setting to handle depth (Important for dissolve effect and text) / Removed the pass used to hide the text in the shader.
- [New] Outline system have been fully reworked. It does no longer a texture as an outline, but a procedurally generated noise map. It brings a ton of options too !
- [New] Dissolve effect does no longer require a texture and is based on a procedurally generated noise map.
- [New] Blend FX has been fully reworked and now supports tint, noise and distortion.
- [New] Added an opacity setting that affects the whole card.
- [New] Added the Watermark FX that allows to add an image under the text.
- [New] Custom TMP objects can be added and will be affect by Transparency and Stencil settings.
- [New] Since HyperCard now supports unlimited and custom TMP pro fields, "Price", "Description", "Title", "Life" and "Attack" are removed.
- [Bug] Fixed a bug with TextMeshPro and card transparency.
- [Fix] Editor window optimization.

Procedural noise generation is based on the excellent work of Lex-DRL, Ian McEwan, ijm under the MIT Licence.

V 1.2

- [New] Holographic FX & Cubemap support.
- [New] Card Blend FX: a new handy feature to add a texture over the whole card and tint it.
- Added “Attack” and “Life” properties.
- [Sprite sheets] Now supports black and white effect.
- [Editor] The name of processed textures is now a random Guid.
- [Editor GUI] Wordwrap for text areas.
- Minor fixes.

V 1.1

- [New] Sprite sheets support !
- [Performance] Title, description and price have now references.
- [Performance] Caching Renderer component which is faster than calling GetComponent<Renderer>().
- [Performance] Added a Disabled property to disabled computed effects on demand.
- [Edit Mode] Cards won’t become invisible anymore in edit mode after script recompilation.
- [Edit Mode] Show/hide TMP child objects (HideFlags on title, description and price).
- [Custom Inspector] On Unity Personal Edition (Free), the buttons were too light in comparison to the light gray background.
- [Misc] Price type changed from int to string.

Special thanks to Ilmari Oranen for his highly detailed feedback.

Artworks are commissioned to the artist Gregory Welter.

The sprite sheets included in the demo comes from a free package from UETools :

https://www.assetstore.unity3d.com/en/#!/content/23515

3. Features

The custom inspector allows you to modify the card properties and access most of the properties of the different shaders. Take your time to study the different options and possible combinations and don't hesitate to take inspiration from the different demos to get the special effect you want.

The documentation is not yet exhaustive but will be improved over time.

3. General settings

Stencil :

The stencil buffer is used to discard pixels and hide text for effects such as Dissolve.
To avoid depth issues and text overlapping when cards are on each others, a different stencil value should be set for each card. If you instantiate a card with a script, don’t forget to set a new Stencil value if needed.

Stencil must be a multiple of 2.

Seed :

The seed is useful for procedural noise generation.
(see: https://en.wikipedia.org/wiki/Random_seed)

Opacity [0-1] :

Allows to Change the opacity of the whole card.
Please note that opacity is currently not compatible with overlapping as it causes the top card to hide the text of the underlying card.

4. Side properties

4.1. Frame and artwork

Alpha Mask [texture2d] :

Defines the shape of the card and allows to discard transparent pixels.

Artwork Mask [texture2d] :

Defined the area of the artwork in the card shape.
Pixels outside the green area will be trimmed.
Only the green channel is still used.

Frame diffuse [texture2d] :

The diffuse color of the card frame.

Frame diffuse [color] :

The diffuse color will be multiplied by this value. (default : white)

Artwork [texture2d] :

The diffuse color will be multiplied by this value. (default : white)

Offset [float] :

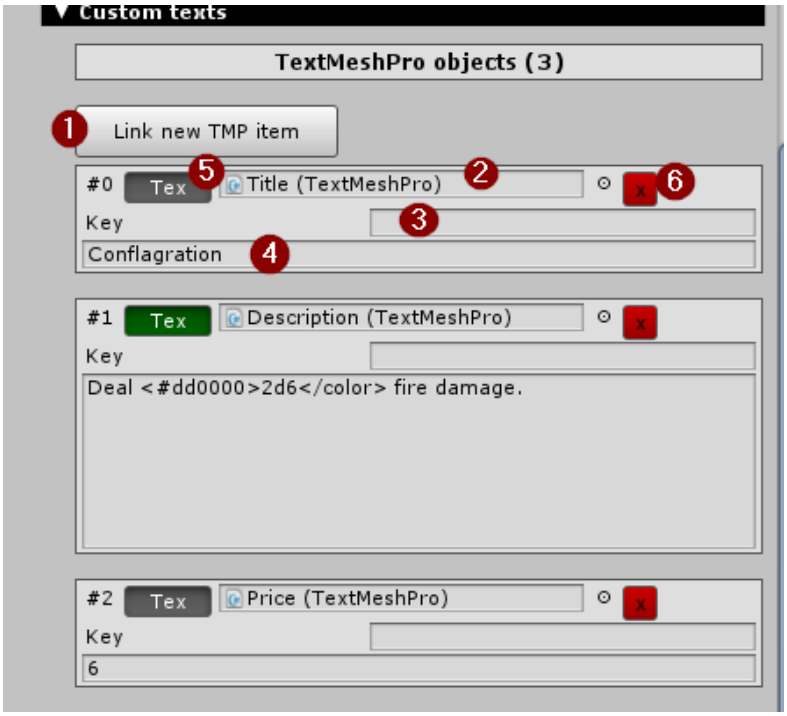
The offset defines the position of the artwork on the whole card.

Scale [float] :

The scale helps to ajust the ratio and size of the artwork.

4.2. Custom texts

Under this section, you will find a list of attached TextMeshPro GameObjects.
Before using this feature, please ensure to show all children by clicking on the “Show child objects” button in General Settings.



1. Link new TMP Item : this button allow to create a new item in the list and link an existing TextMeshPro GameObject in the children.

2. TextMeshPro script reference. Drag and drop and existing TextMeshPro GameObject from the child hierarchy to link it to the card.

3. Key [string] : (optional) Here, you can define a key to make it easier for you to access this object from your scripts.

4. Text value. You should always set the text values of your linked TextMeshPro GameObjects in this field or they will be overwritten. This field support TextMeshPro formatting tags.

5. “Tex” button allows to expand the text value area.

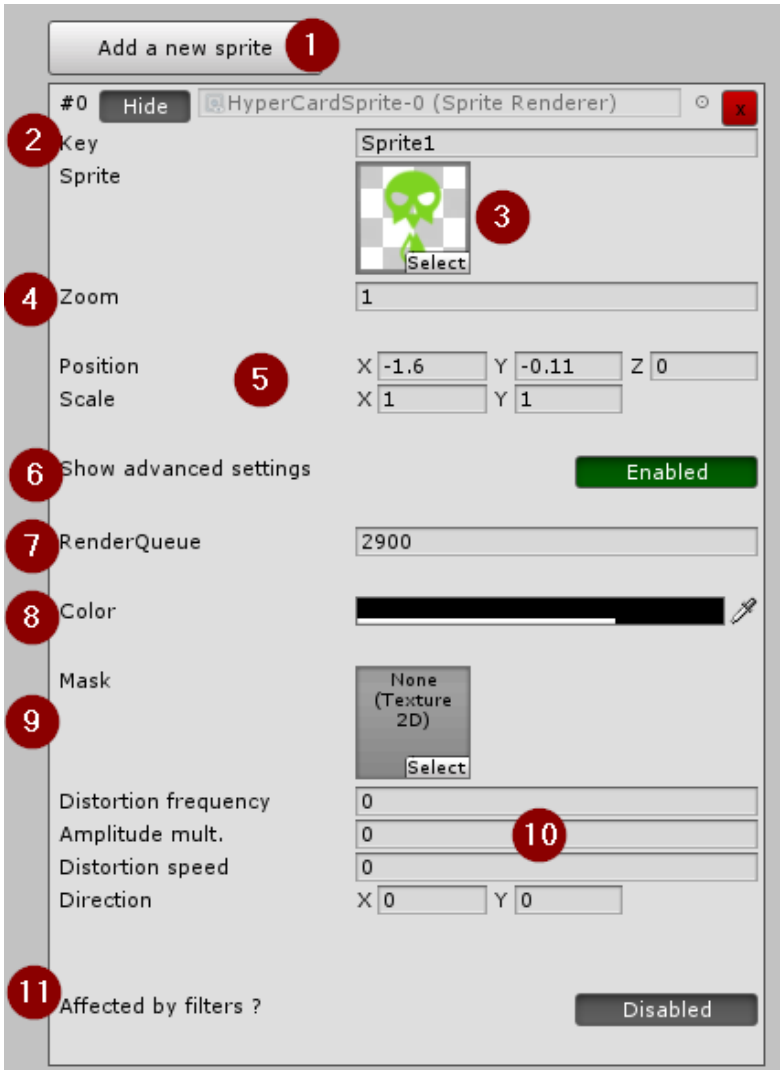
6. Remove the linked item from the list.
   It does not delete the GameObject in the hierarchy.

The back of the text objects is culled, so pixels are discarded when observing them from behind. This prevents the displaying of the text on the back side of the card.

4.3. Custom sprites

Under this section, you will find a list of attached HyperCard Sprites.
Before using this feature, please ensure to show all children by clicking on the “Show child objects” button in General Settings. This feature, introduced with the version 1.4 lets you add as many Sprites as you want depending on the card settings.

The demo scene shows some interesting examples.



1. “Add new sprite” : This button lets you add a new HyperCard Sprite linked to the card object.

2. Key [string] : (optional) Here, you can define a key to make it easier for you to access this object from your scripts.

3. The sprite texture [texture2d].

4. The zoom [float] value of the texture.
   The higher is the value, the more the texture will repeat.

5.

   The **position** of the sprite.
   The vector (0,0,0) is the center of the card. This parameter also lets you the possibility to tweak the Z offset of the sprite.

   The **scale** of the sprite (different from the zoom parameter).

6. "**Show advanced settings**" button lets you to hide/expand the rest of parameters.

7. The **RenderQueue** parameter is very interesting as it let you to choose whether the sprite is under the text or not. A value of 2900 will make the sprite to render under the text, a greater value than 3000 and the sprite will mask the text.

8. **Color**: the sprite pixel color value is multiplied by this value.

9. **Mask [texture2d]** : this texture allows to trim the sprite. Very useful for animated textures with distortion.

10. **Distortion settings:** frequency, amplitude multiplier, distortion speed and direction vector. Distortion allows the UV coordinates of the texture to be distorted to create motion effects. Very practical to animate life bars, give the impression that clothes or hair float in the wind.

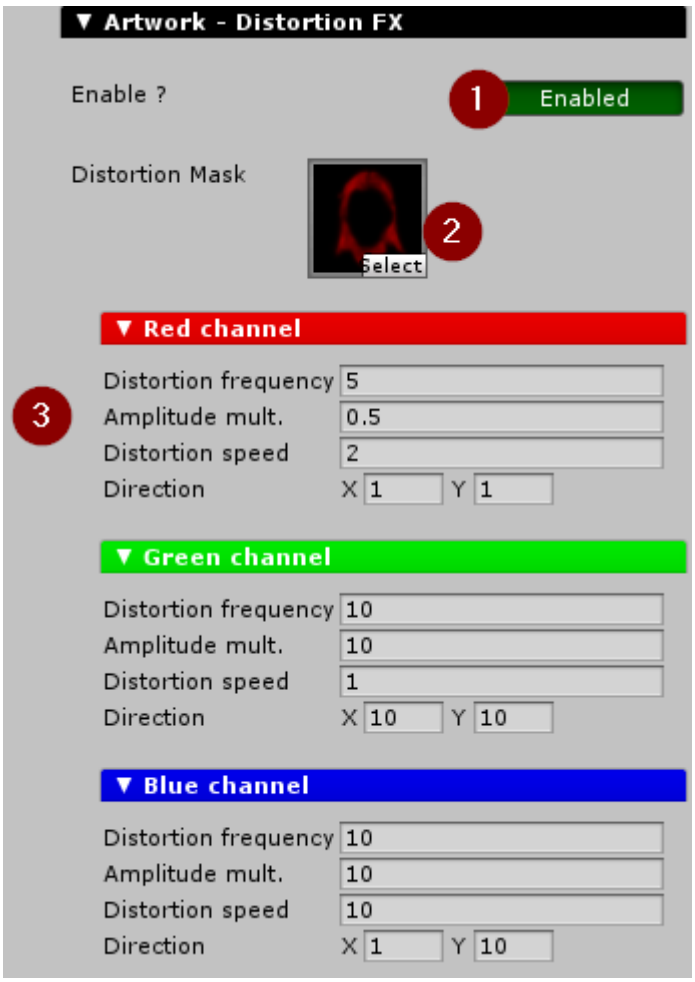
    See the "Distortion FX" section for details.

11. **"Affected by filter"** button defines whether the sprite is affected by filters settings (at bottom) or not. For the moment, there is one filter: the black & white effect.

4.4. Artwork – Distortion FX

Distortion allows the UV coordinates of the texture to be distorted to create motion effects. Very practical to animate life bars, give the impression that clothes or hair float in the wind.

Distortion FX affects only the artwork.



1. "Enabled" [yes/no] : Enable or disable this effect.

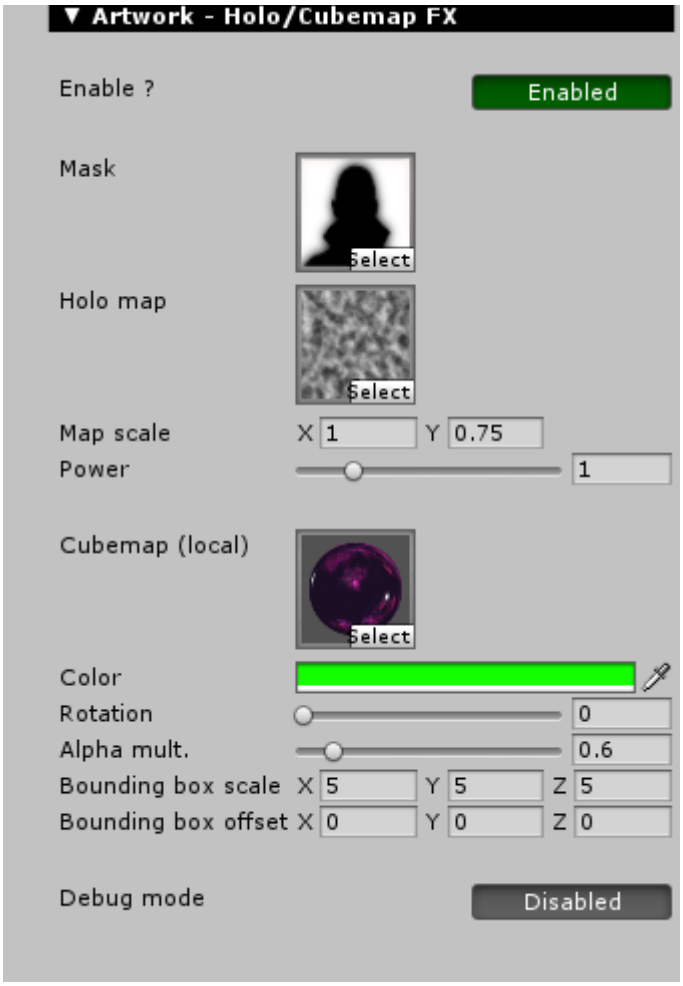
2. Distortion Mask [texture2d] : The distortion mask lets you use up to 3 channels (R, G, B) to create separate distortion effects.

3. Instead of getting the pixel of the current position, we apply a transformation on coordinates using a sin wave to get the pixel from another position.

   Distortion frequency [float] : The frequency of the curves.
   Amplitude multiplier [float] : The smaller is the value, the less harsh the effect will be.
   Distortion Speed [float] : Speed of the effect.
   Direction [float] : Let you tweak the direction of the effect.

4.5. Artwork – Holo/Cubemap FX

This effect lets you use a Cubemap as the background of the Artwork.



1. **"Enabled" [yes/no]** : Enable or disable this effect.

2. **Mask [texture2d]** : As for the other effects, the mask allows to hide this effect or to make it partially transparent.

3. **Holo Map [texture2d] :** this texture lets you create a prismatic-like effect.

4. **Map scale [vector2] :** the scale of the Holo Map texture.

5. **Power [float, 0-5] :** the strength of the effect.

6. **Cubemap (local)** : the cubemap to use for the effect.
   Tip : you can easily find some cubemaps on the Asset Store.

7. **Color** : The cubemap color will be multiplied by this value.

8. Rotation : lets you rotate the cubemap along the Y-axis.

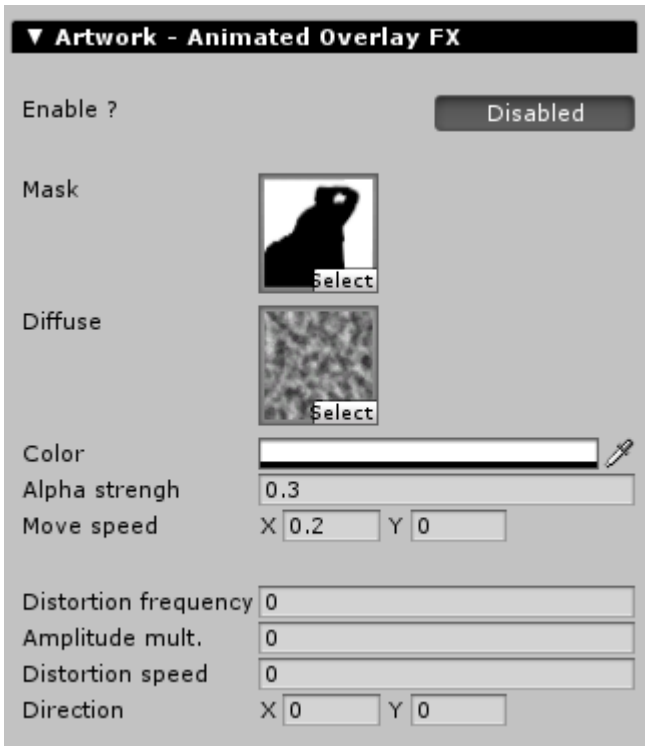
9. Alpha multiplier [float] : the Holo Mask texture color will be multiplied by this value.

10. Bounding box settings : you can consider the cubemap like a sphere centered on the card by default. You can tweak scale and offset parameters to make this sphere bigger (This increases the radius of the sphere and therefore the texture seems to be further away.) and to pitch it.

11. Debug Mode [yes/no] : this toggle button hides the artwork and associated effects to helps to visualize more clearly this effect.

4.6. Animated overlay FX

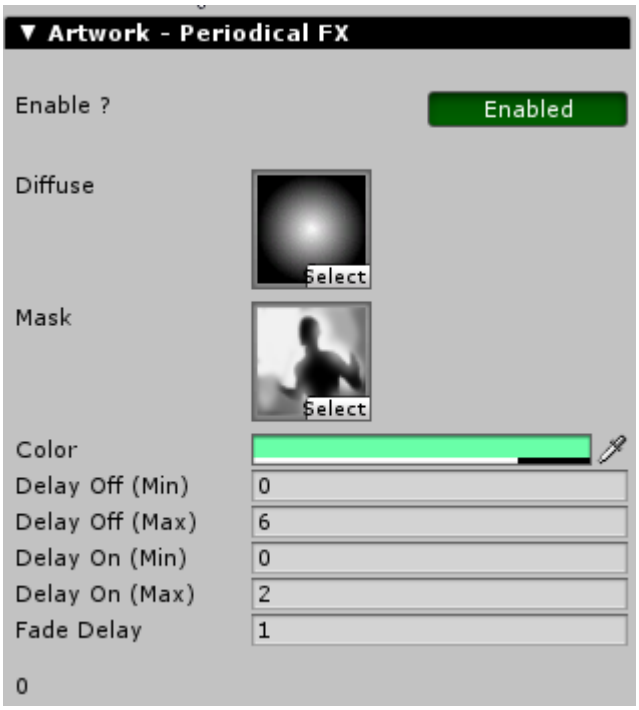
This effect allows you to make a texture scrolls over the artwork. Very useful for smoke effects.



1. **"Enabled" [yes/no]** : Enable or disable this effect.
2. **Mask [texture2d]** : As for the other effects, the mask allows to hide this effect or to make it partially transparent.
3. **Diffuse [texture2d]** : the texture that will scroll.
4. **Color** : The diffuse color will be multiplied by this value.
5. **Alpha strength [float]** : the Mask texture color will be multiplied by this value.
6. **Move speed [vector2]** : A vector that describes the direction and speed of scrolling.
7. **Distortion settings** : See the "Distortion FX" section for details.

4.7. Periodical FX

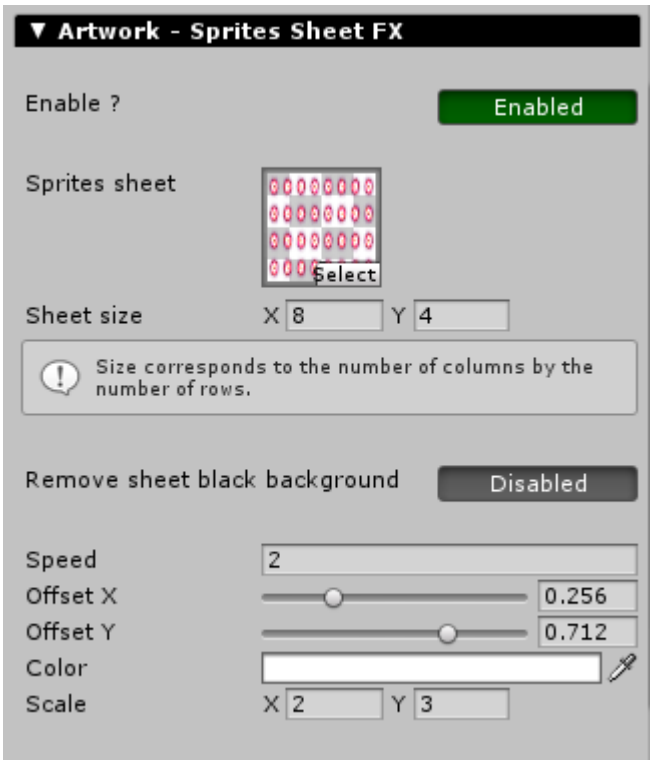
This effect allows you to periodically show or hide a texture.



1. **"Enabled" [yes/no]** : Enable or disable this effect.
2. **Diffuse [texture2d]** : the texture that will periodically appear.
3. **Mask [texture2d]** : As for the other effects, the mask allows to hide this effect or to make it partially transparent.
4. **Color** : The diffuse color will be multiplied by this value.
5. **Delay ON (min-max) [float, float]** : The duration during which the texture will be visible. A random value is generated between min and max.
6. **Delay OFF (min-max) [float, float]** : The duration during which the texture will be hidden. A random value is generated between min and max.
7. **Fade delay [float] :** the duration of the transition.

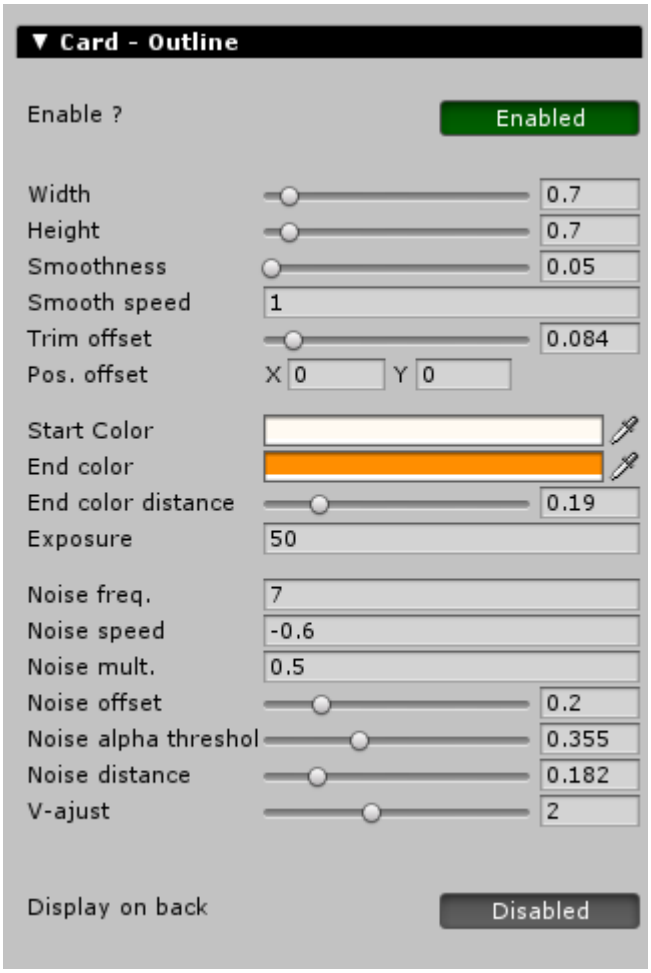
4.8. Sprite sheets FX

This effect allows you to display a sprite sheep animation on the card.



4.9. Outline

This effect displays an outline around the map. This outline is actually a rectangle in which a procedural noise scrolls, several parameters allow to remove the interior of this rectangle and soften the edges. It is possible to easily create fire effects or smoke.



1. **"Enabled" [yes/no]** : Enable or disable this effect.
2. **Width [float]** : width of the rectangle.
3. **Height [float]** : height of the rectangle.
4. **Smoothness [float]** : the higher is the value, the softer are the edges of the rectangle.
5. **Smooth speed [float]** : multiplies the smoothness value.
6. **Trim offset [float] :** The higher the value, the more the inner surface of the rectangle will be truncated.
7. **Pos. offset [vector2] :** allows to tweak the offset value of the rectangle.
8. **Start color / end color / end color distance** : lerps two color values to create a gradient diffuse color for the rectangle.

9. Exposure [float] : the color value is multiplied by this value.

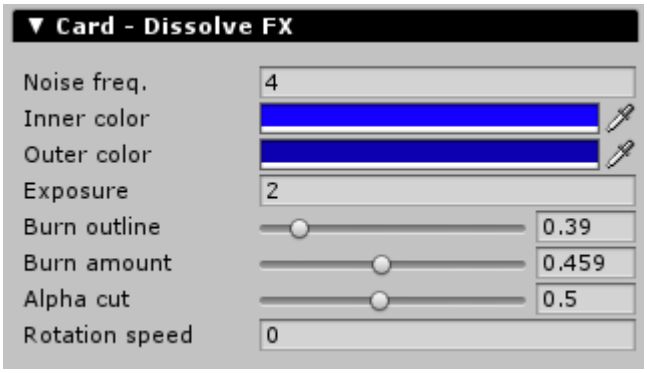
10. Noise parameters : allows you to set the way in which procedural noise is generated.

11. V-ajust [float] : reduces the noise effect on the vertical edges of the rectangle. It makes fire effects more natural.

12. "Display on back" [yes/no] : should the effect be display on card back ?

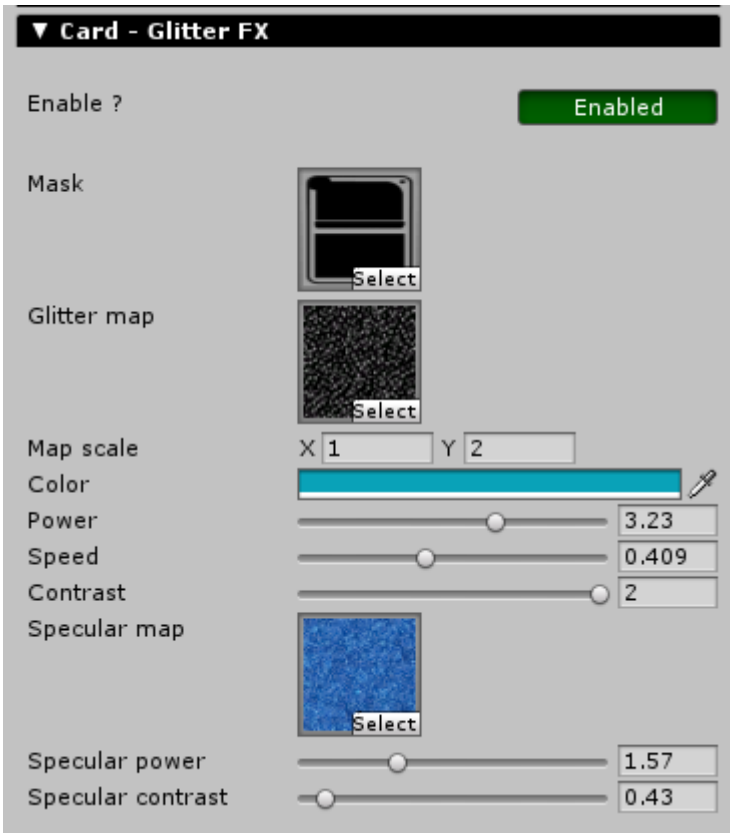
4.10. Dissolve FX

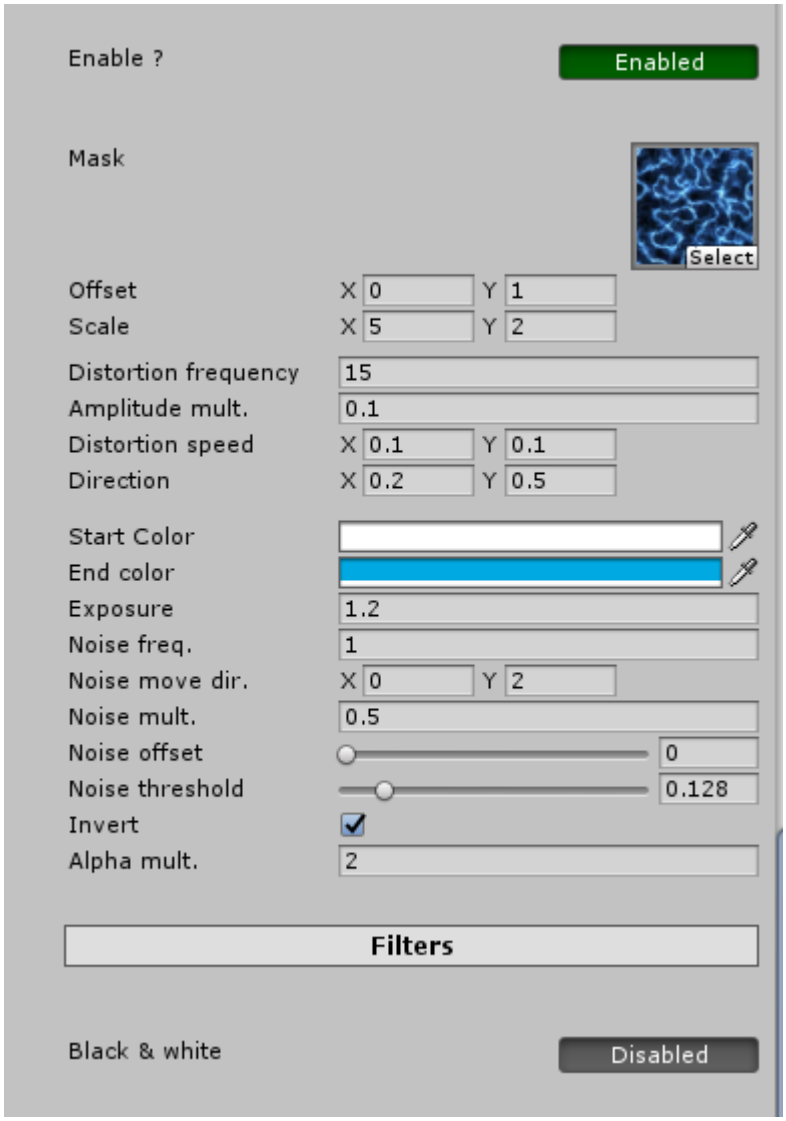
This classic effect allows a dissolving effect to be applied to the entire card.



4.11. Glitter FX

This effect creates flickers in the area delimited by the mask.





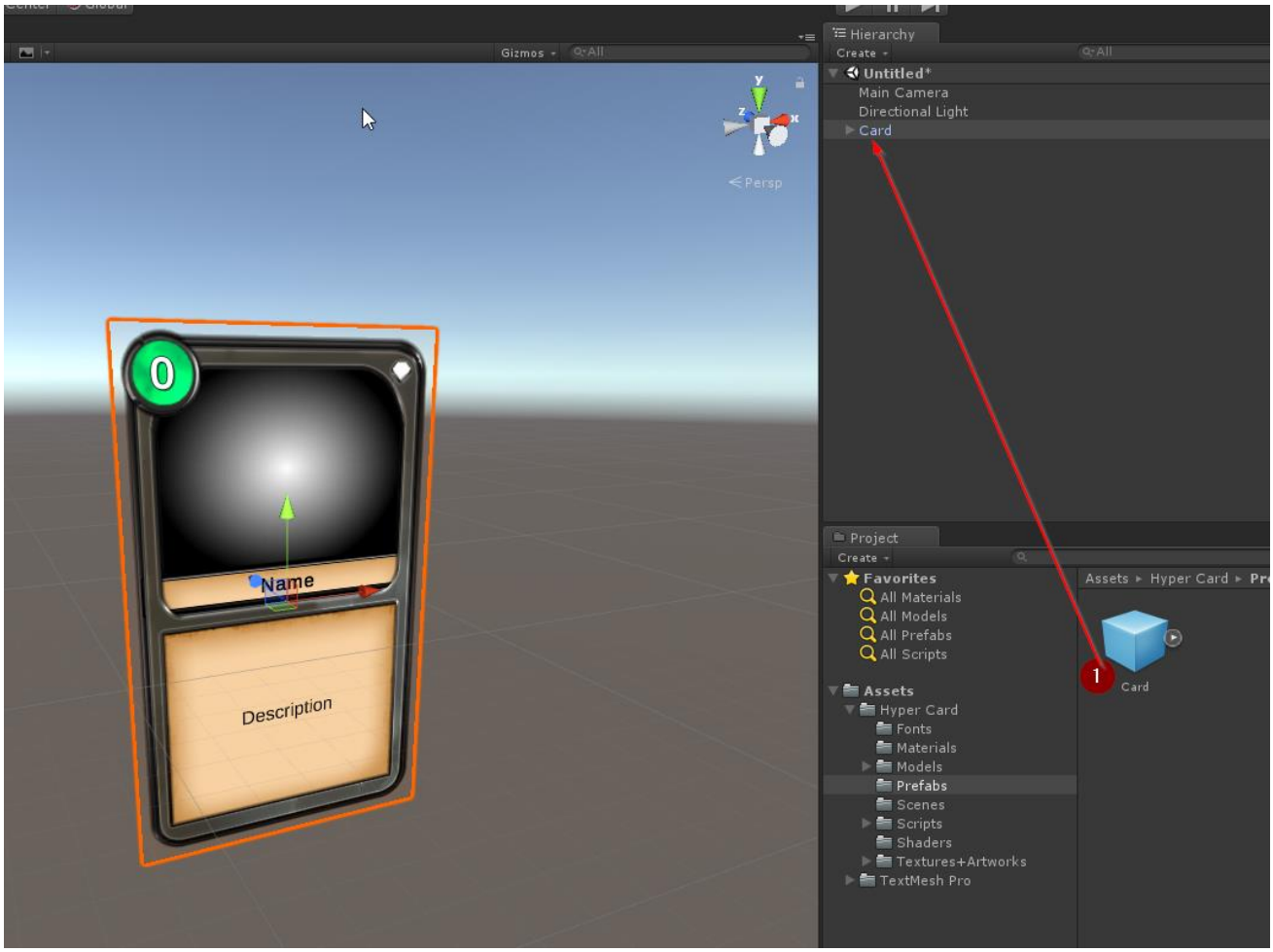
5. Filters

- **Black & white filter** : affects the whole card excepted the **outline**.

4. Getting started

1. How to create a card

Simply drag and drop the prefab from /HyperCard/Prefabs into the Hierarchy.



Now you can edit the properties of the card to suit your needs.

