

# VIImageProcessing

## user guide

Release 1.0

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## Introduction

Welcome to the documentation for the VIImageProcessing Asset for Unity! This asset provides a collection of powerful image editing tools to enhance and manipulate images within your Unity projects. It is GPU based real-time image editor for unity projects.

## Features

- Hue, Saturation, Brightness adjustment
- Color Temperature and Tint control
- Sharpness enhancement
- Cartoon, scratch Filter for stylized effects
- Blur effect
- Color Changer to modify specific colors
- RGB Channel manipulation for advanced color adjustments

## Installation

- [Download the asset](#) from the Unity Asset Store or your preferred source.
- Import the package into your Unity project using the following steps:
- Open Unity.
- Navigate to **Assets > Import Package > Custom Package**.
- Locate and select the downloaded package file.
- Click **Import**.

## Getting Started

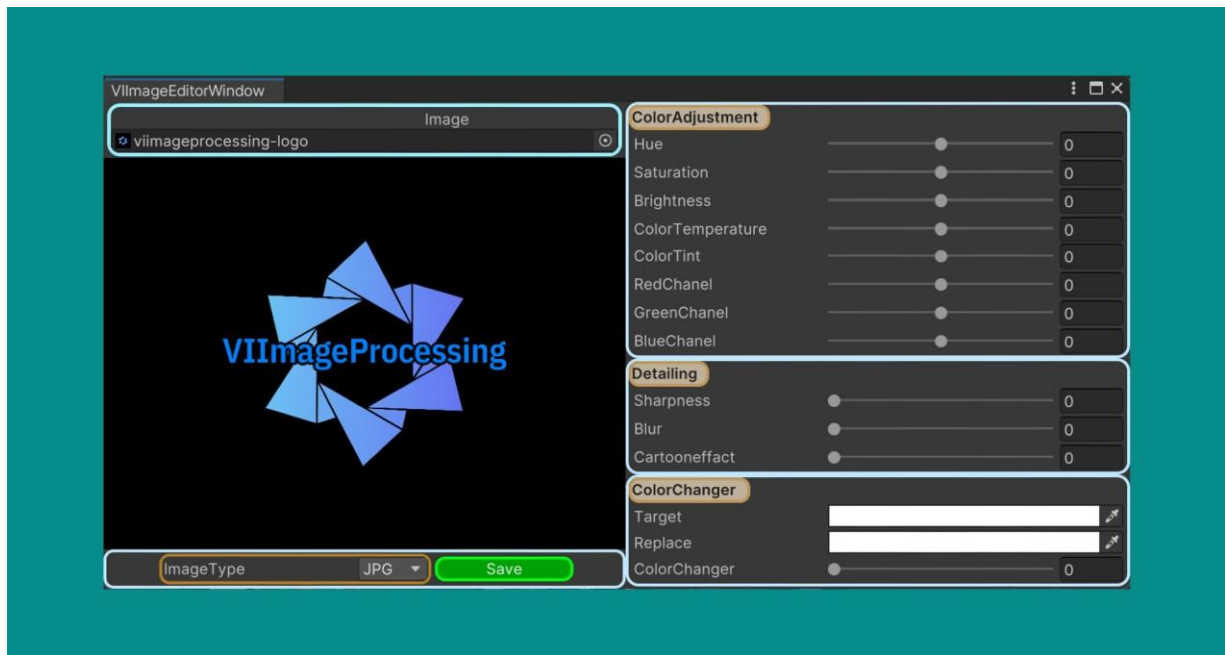
To get started with the VImageProcessing Asset, follow these steps:

- go to: “Tools->VImageProcessing->ImageEditor”

## Usage Instructions

### Using the Editor Tool

The Editor Tool provides a convenient way to apply image processing effects directly within the Unity Editor.



## Hue, Saturation, and Brightness Adjustment

The Hue, Saturation, and Brightness allow you to modify the colors and brightness of the selected image or texture.

## Color Temperature and Tint Control

Use the Color Temperature to warm or cool down the image. The Tint slider allows you to add a green or magenta tint.

## Sharpness Enhancement

The Sharpness controls the sharpness level of the image. Increase the value for sharper details.

## Cartoon Filter

Cartoon Filter apply a stylized cartoon effect to the image. Adjust the Value to control the intensity of the effect.

## Blur Effect

The Blur offers blurry Images. Choose the desired value and adjust the Strength of the blur effect.

## Color Changer

The Color Changer allows you to modify specific colors in the image. Select a color from the image, and use the Strength value to control the color intensity.

## RGB Channel Manipulation

Adjust the individual RGB channels to fine-tune the colors of the image. Use this feature for advanced color adjustments.

## Using the ImageProcessing Class

You can also utilize the Image Editor class in your scripts to perform image processing operations programmatically.

### Example Code:

```
using UnityEngine;
using VImageProcessing;

Unity Script | 0 references
public class MyImageEditorScript : MonoBehaviour
{
    public Texture2D sourceImage;
    public float hueValue = 50;
    public float saturation = 50;
    public float brightness = 50;

    Unity Message | 0 references
    private void Start()
    {
        RenderTexture editedImage = ImageProcessing.Hue(sourceImage,
            hueValue);
        editedImage = ImageProcessing.Hue(editedImage, saturation);
        editedImage = ImageProcessing.Hue(editedImage, brightness);
        // Use the editedImage as needed in your project.
    }
}
```

## Parameters and Properties

Here are the adjustable parameters and properties of the Image Processing Asset:

- Hue: [-100, 100]
- Saturation: [-100, 100]
- Brightness: [-100, 100]
- Color Temperature: [-100, 100]
- Tint: [-100, 100]
- Sharpness: [0, 100]
- Cartooneffect: [0, 100]

- Blur Strength: [0, 21]
- Color Changer Strength: [0, 100]
- Red Channel: [-100, 100]
- Green Channel: [-100, 100]
- Blue Channel: [-100, 100]

## API Reference

### ImageEditor Class Methods:

- **Hue(Texture2D source, float hueValue)**: Adjusts the hue of the input image.
- **Saturation(Texture2D source, float saturationValue)**: Adjusts the saturation of the input image.
- **Brightness(Texture2D source, float brightnessValue)**: Adjusts the brightness of the input image.
- **ColorTemperature(Texture2D source, float temperatureValue)**: Adjusts the color temperature of the input image.
- **Tint(Texture2D source, float tintValue)**: Adjusts the tint of the input image.
- **Sharpness(Texture2D source, float sharpnessValue)**: Enhances the sharpness of the input image.
- **CartoonFilter(Texture2D source, float cartoonStrength)**: Applies a cartoon effect to the input image.
- **Blur(Texture2D source, float blurStrength)**: Applies various blurring techniques to the input image.
- **ColorChanger(Texture2D source, Color targetColor, float colorChangeStrength)**: Changes specific colors in the input image.
- **RGBChannelAdjust(Texture2D source, float redChannelValue, float greenChannelValue, float blueChannelValue)**: Manipulates the RGB channels of the input image.

## Tips and Best Practices

- Avoid extreme adjustments as they may result in undesirable artifacts.
- Experiment with different combinations of effects to achieve the desired look.
- Always call function in FixedUpdate for best performance.

## Contact Information

For support or inquiries, please contact us at [vodedara272@rku.ac.in](mailto:vodedara272@rku.ac.in).