

Haworthia the Firework

Tutorial

Eigenmiao

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Haworthia the Firework is a free color editor. It is designed for generating a set of harmonious colors from color wheel or other places. You can share these colors with your friends, or apply them into your creative works. You can store your favorite color sets with boards into color depot of this software, and recover them in the next time. What's more, you could export the color sets or color depots into individual files, backup them anywhere, share them with your friends, or import them into other softwares (such as Adobe Photoshop, GIMP, Krita, Pencil 2D and Clip Studio Paint). Haworthia the Firework is written in PyQt5, and can perform well on Windows, Linux and other mainstream operating systems.



Haworthia the Firework

Generate Harmonious Colors Freely.

Features

- Free and open-sourced color editor.
- Creating a set of colors from wheel.
- Locating a set of colors from image.
- Deriving a board from color set.
- Attaching the color set into depot.
- Exporting color set file and import it into other image processors.
- ... and more!

Homepage

 <https://eigenmiao.com/firework/>

Repository

 <https://github.com/liujiacode/VioletPy>

Downloads

Preview Version

 Download the latest version of **Haworthia the Firework v2.4.9**.

Please select suitable download files from the table below according to your operation systems and preferred languages. For Windows users, if you don't know whether your system is 32 bit or 64 bit, please download the 32 bit edition file.

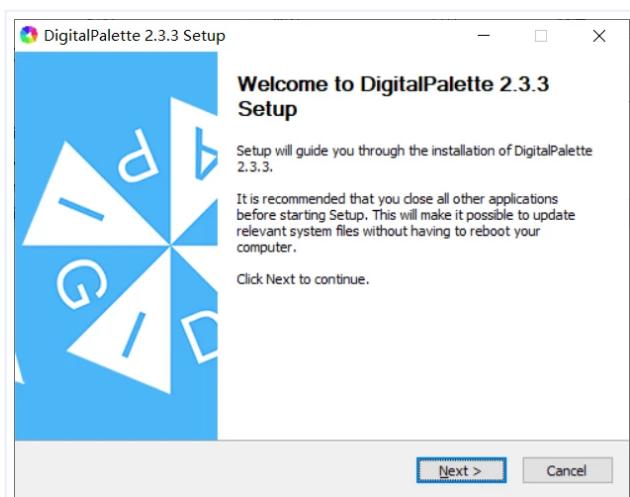
Operation System	Language	Installer	Archive	Check
Windows (64 Bit)	Chinese	EXE	ZIP	CODE
Windows (64 Bit)	English	EXE	ZIP	CODE
Windows (32 Bit)	Chinese	EXE	ZIP	CODE
Windows (32 Bit)	English	EXE	ZIP	CODE
—	—	—	—	—
Ubuntu (64 bit)	Chinese	DEB	TAR.GZ	CODE
Ubuntu (64 bit)	English	DEB	TAR.GZ	CODE
CentOS (64 bit)	Chinese	RPM	TAR.GZ	CODE
CentOS (64 bit)	English	RPM	TAR.GZ	CODE

Author

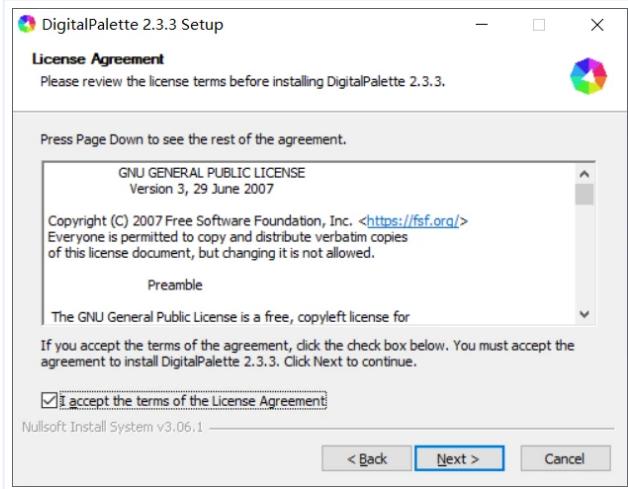
 Eigenmiao

Installation

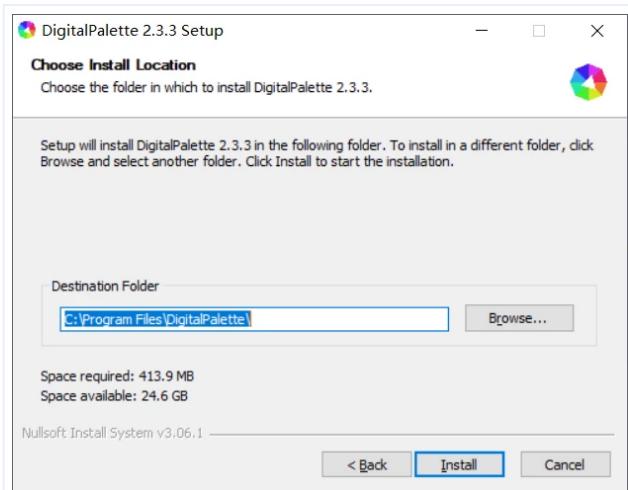
- 1 Double click the installer and click "Next".



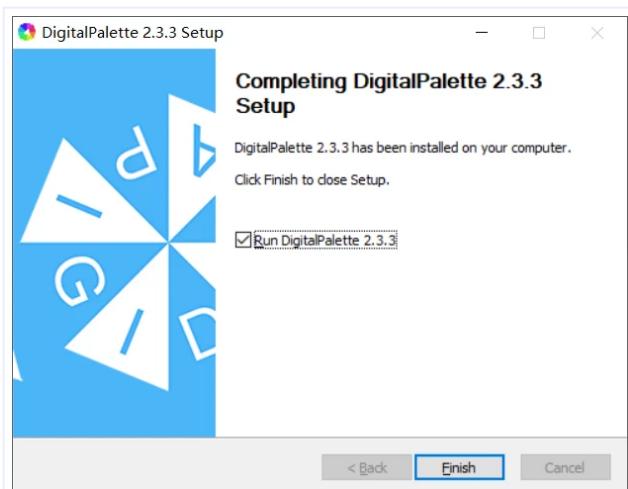
- 2 Read the License. Check "I accept the terms of the License Aggrement" if you agree with it, then click "Next".



- 3 Choose a directory and click "Install" to start the installation.



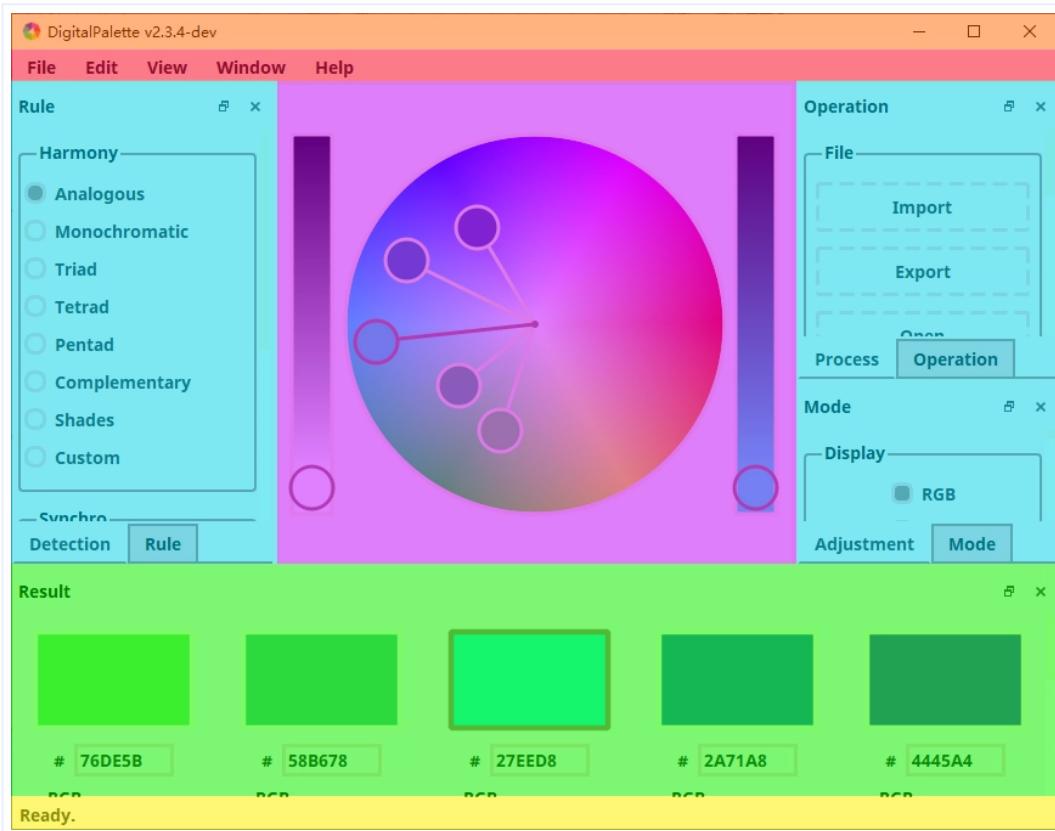
- 4 Click "Finish" to finish the installation and run Haworthia the Firework.



Interface Layout

The Interface layout of Haworthia the Firework is shown as below, which includes:

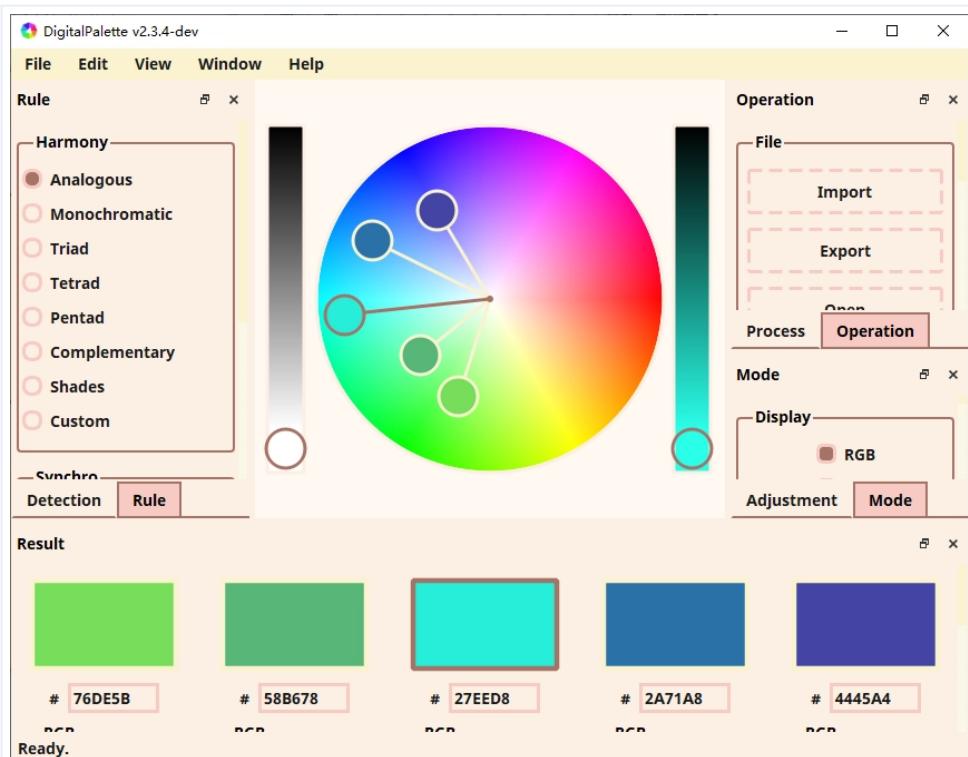
- Title bar (orange area), including the name of software (Haworthia the Firework) and current version (v2.3.4-dev).
- Menu bar (red area), including "File", "Edit", "View", "Window" and "Help" selections.
- Status bar (yellow area), providing the prompt information of the element around cursor.
- Work area (purple area), the main area for selecting and adjusting colors. It's functions include: creating a set of colors from wheel, locating a set of colors from image, deriving a board from color set and attaching the color set into depot.
- Result window (green area), checking and modifying the results of color set.
- Other windows (blue area), include "Rule" window (setting the harmony and synchronization rules for color set), "Detection" window (detecting the edge and channel of image), "Operation" window (operating files and views), "Process" window (processing a image, include extract, filter, snap, crop and zoom), "Mode" window (setting and modifying the display modes for color set result and board) and "Adjustment" window (adjusting a image, include position, size and colors).



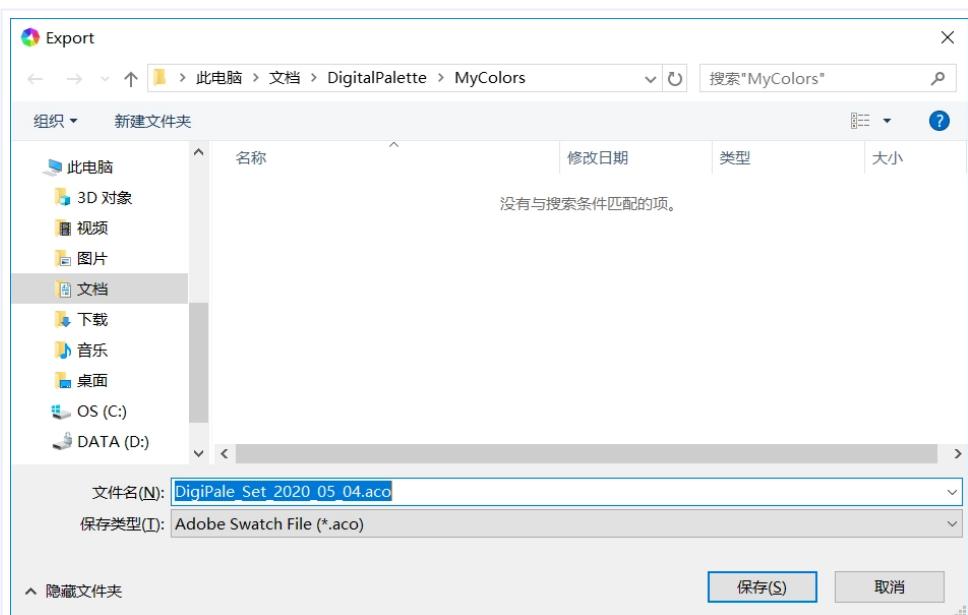
Quick Start

例 1：从色轮创建一组颜色

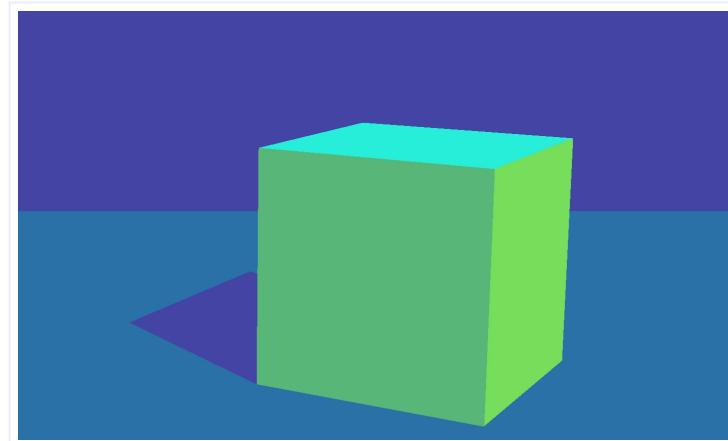
1. 打开 Haworthia the Firework。
2. 点击“View”菜单栏并选择“Wheel”（或快捷键 Ctrl+W），切换到色轮视图（默认视图）。在“Harmony”选择框，“Rule”窗口中，拖动色轮上的色块，选择一组合适的类似色。



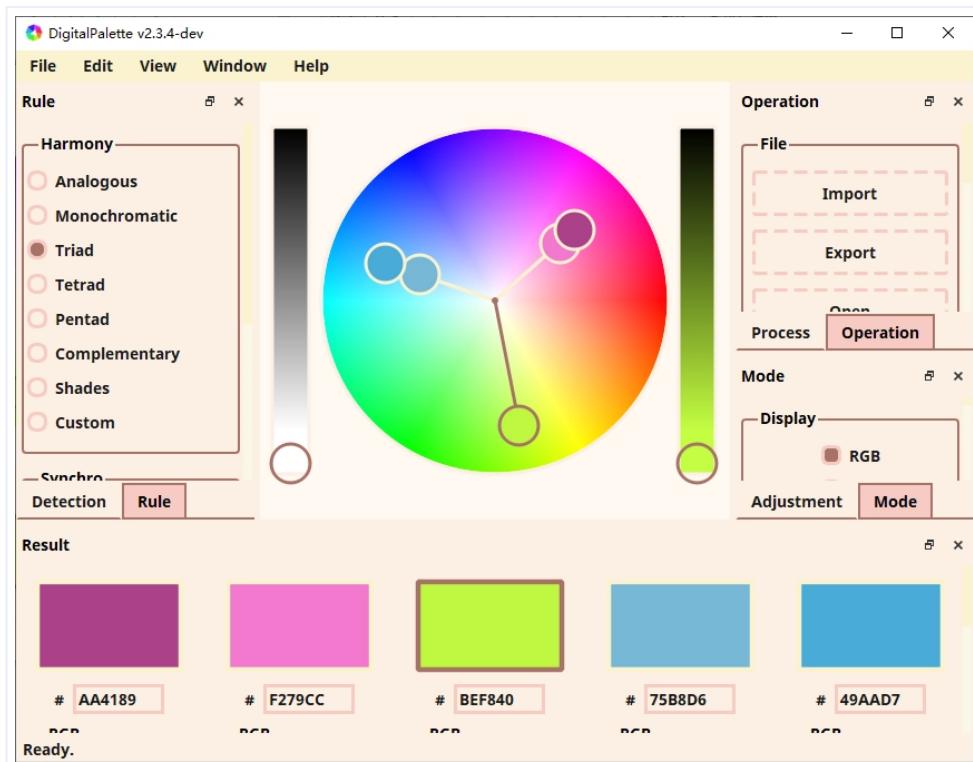
3. 点击“File”菜单栏中的“Export”，在“Operation”窗口中，导出这个颜色集为 Adobe swatch 文件（*.aco）。



- 4 Open Adobe Photoshop, GIMP or other image processors and importing the exported file above. Then color the image with this color board.

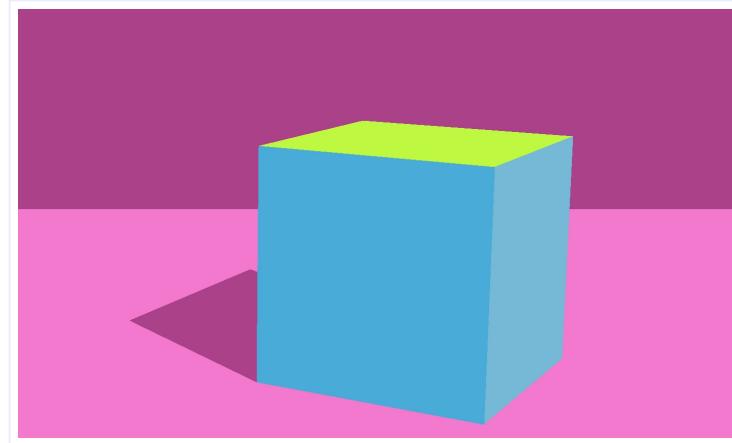


- 5 Return to Haworthia the Firework, and select "Triad" in "Harmony" selecting box, "rule" window. Then drag the tags on wheel, and selecting a set of suitable triad colors.



- 6 Color the image in the same way, and compare this image with the image above.





❖ Example 2: Locating a Set of Colors from Image

- 1 Open Haworthia the Firework.
- 2 Prepare a colorful image. The picture in example is created by Icyphantom and published on Minecraft community website licensed under Creative Commons Attribution-NonCommercial License 3.0 (CC BY-NC 3.0).

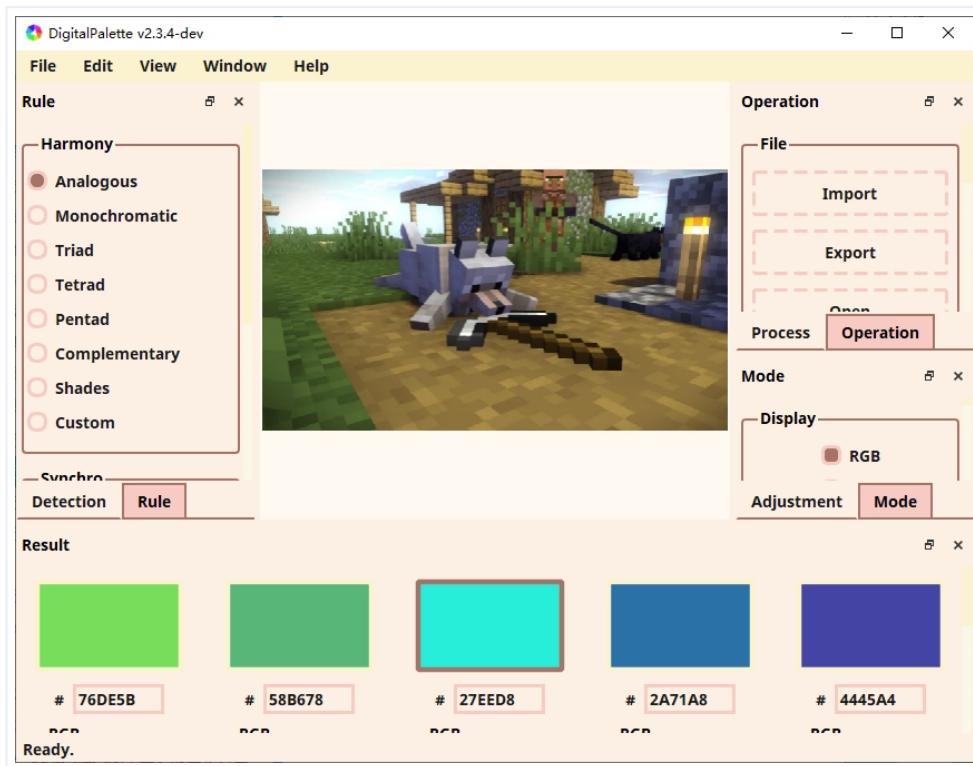


- 3 Click "View" in the menu bar and select "Image" in the drop-down list (or shortcut Ctrl+G), and switch to the image view.



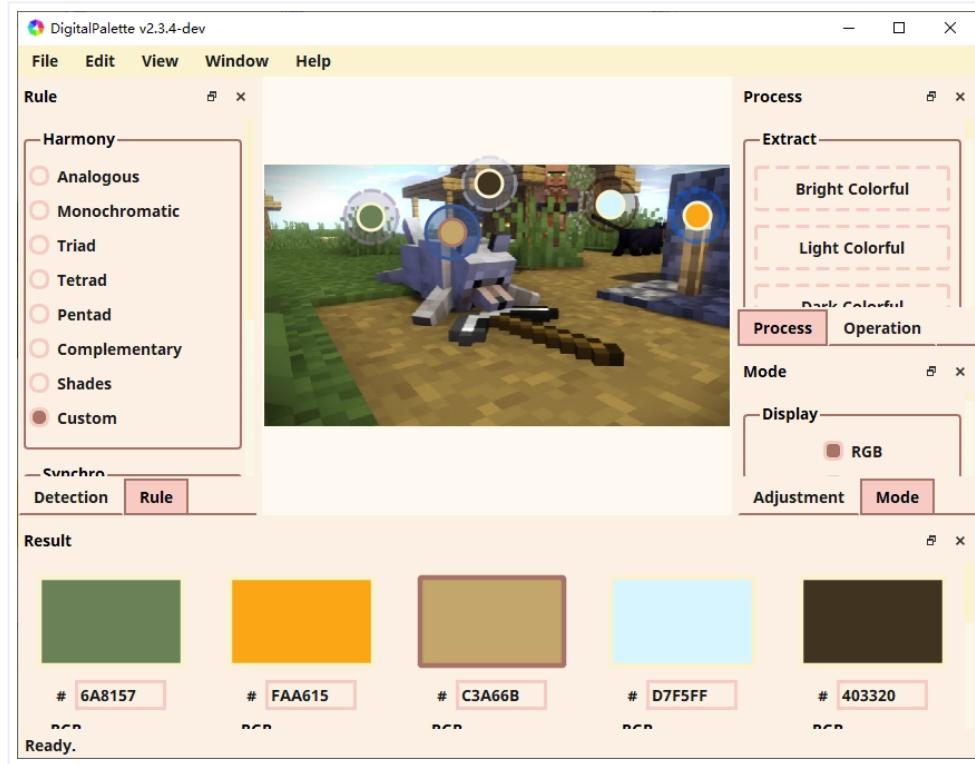


- 4 Double click the work area, and open the image downloaded above.

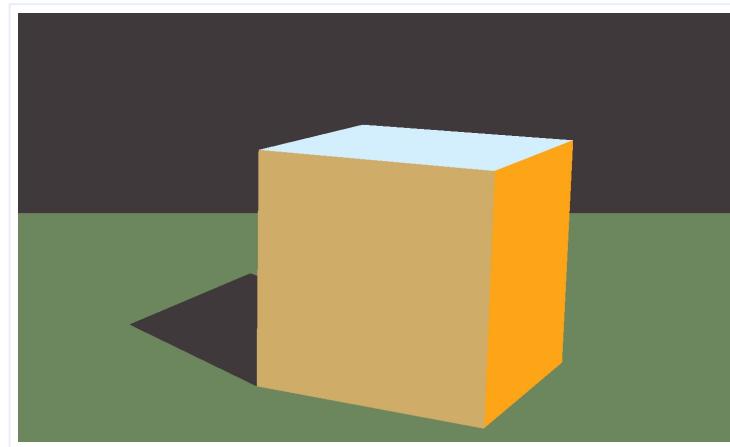


- 5 Press "Bright Colorful" in "Extract" button box, "Process" window. There are five tags appeared above the image, and the colors of these tags are corresponding to the the colors of the five squares in "Result" window, i.e. a set of colors extracted from the image. You could drag the tags as in color wheel in order to obtain colors at certain locations, if this color set don't satisfy.





- 6 Color another image with the colors obtained from this image.



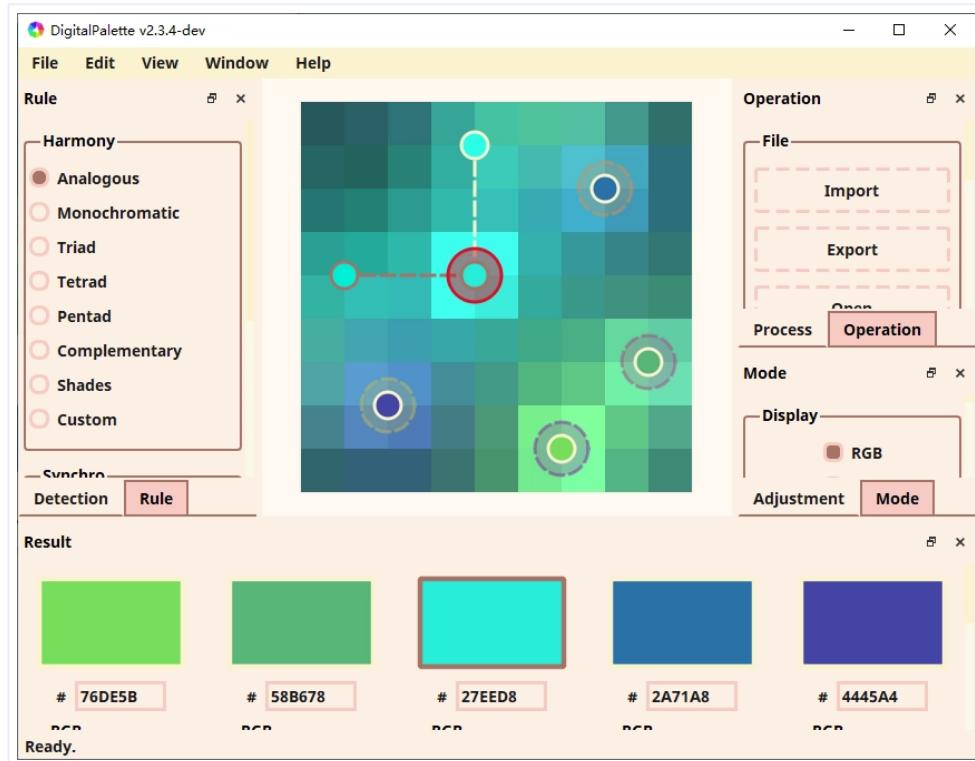
Example 3: Deriving a Board from Color Set

- 1 Open Haworthia the Firework.
- 2 creating a set of colors from wheel, or locating a set of colors from image.
- 3 Click "View" in the menu bar and select "Board" in the drop-down list (or shortcut **Ctrl+B**), and switch to the board view.



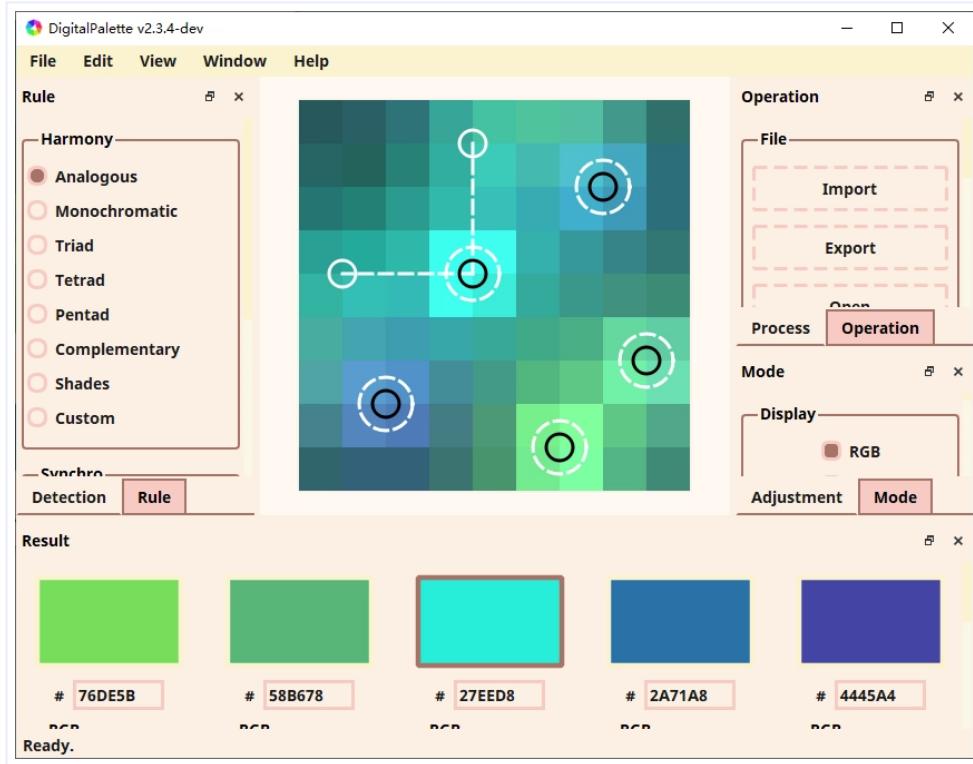


- 4 Drag the tags on board to adjust the control points and assistant points, and press Insert or Delete to add or delete the assistant points of current control point.

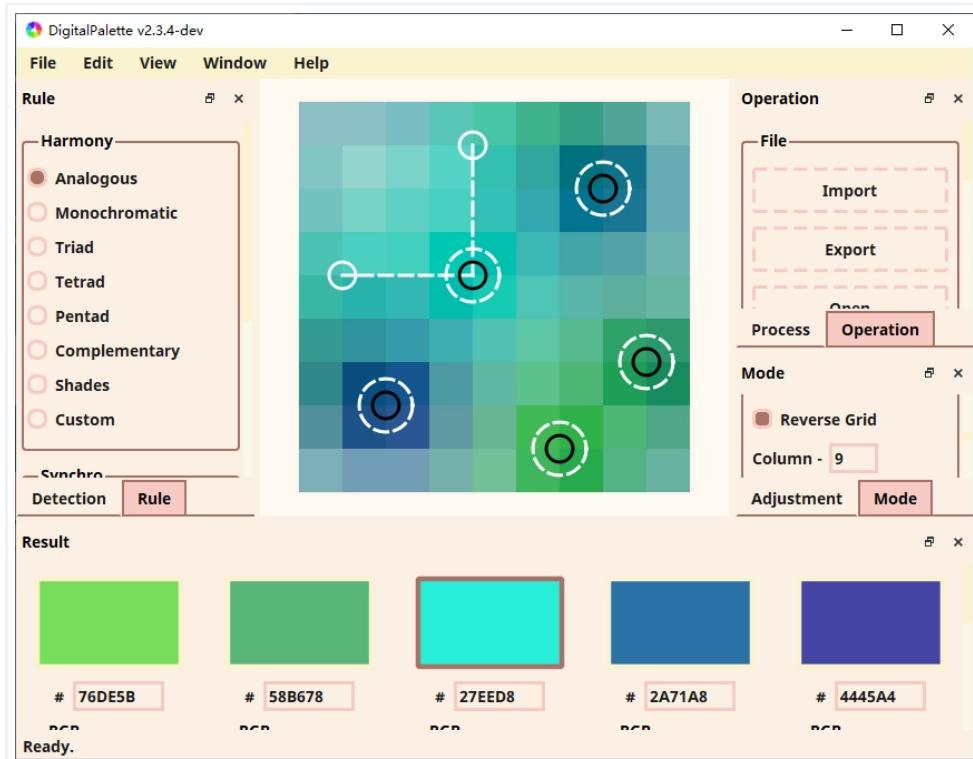


- 5 Press Space to hide the control points and assistant points, which makes it convenient for other software to directly absorb the colors in board.





- 6 Check the "Reverse Grid" in "Grid" setting box, "Mode" window, and the gradient colors will use white as intermediate colors.

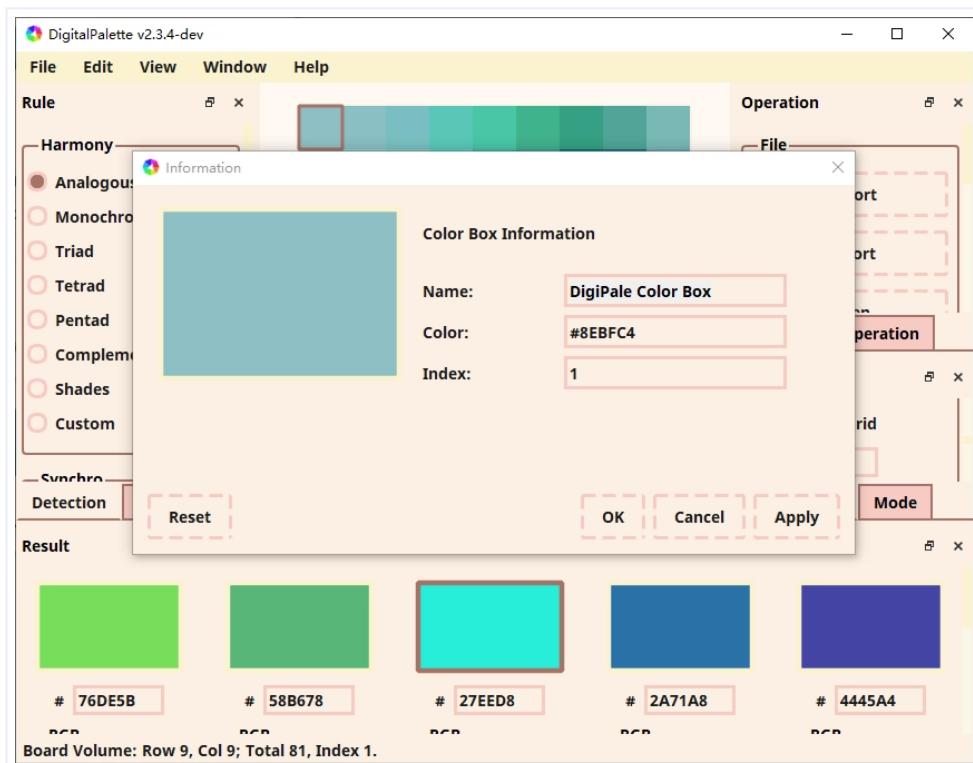


- 7 Press **Ctrl+Tab** and transform the dynamic board (the gradient colors can be modified by control points and assistant points dynamically) into a static board (each color box can be edited directly).

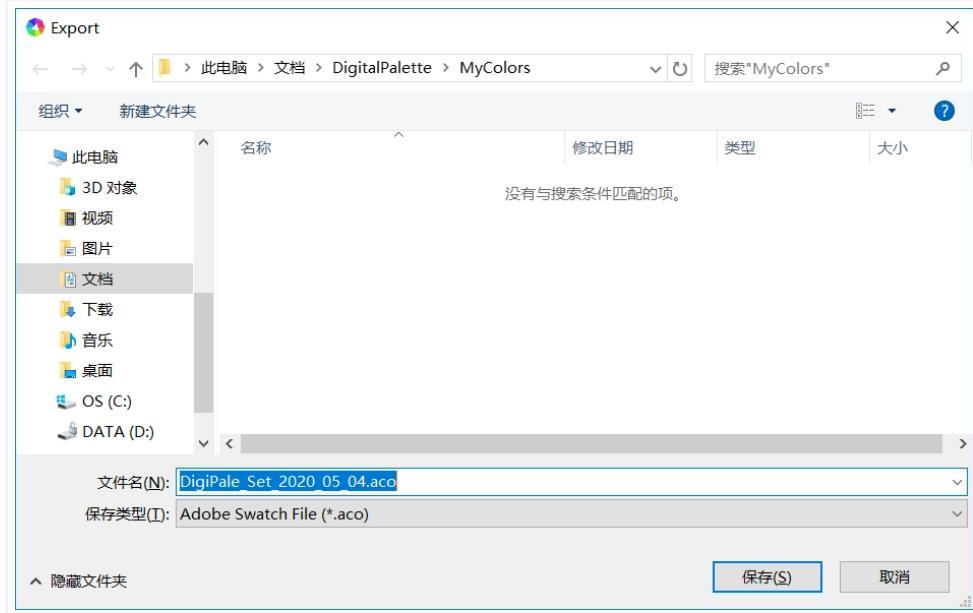




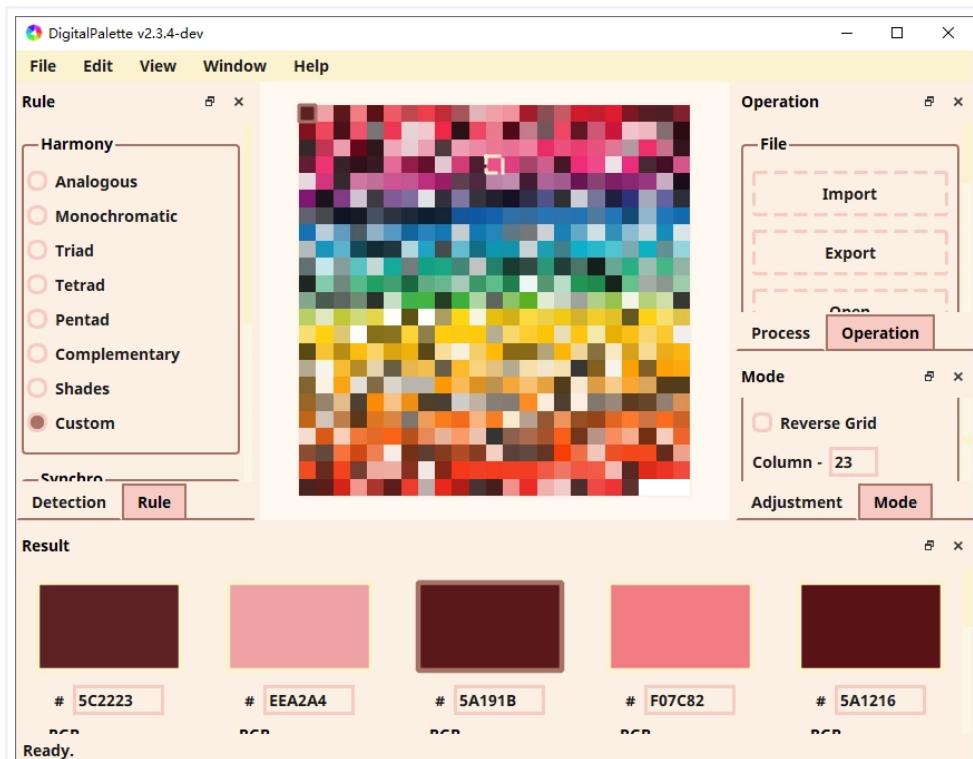
- 8 Right click a color box in board, and press "Insert", "Switch", "Delete" or "Detail" in the drop-down menu to modify the information of color box. For example, select "Detail" (or shortcut F) and modify the name ("VioletPy Color Box"), color ("#67BCD2") and index ("31) of coor box in the dialog. Click OK once modifying finished. Double click any color box (or shortcut I) to replace the color of activated square in "Result" window with the color of selected color box.



- 9 Click "Export" in "File" button box, "Operation" window, and export this color board as a Adobe swatch file (*.aco). Note that in Haworthia the Firework v2.3.3 or later, the export action will create two swatch files by default, where file without "_Grid.aco" extention (for example, "VioletPy_Set_2020_05_04.aco") only contains five colors of color set in "Result" window, and file with "_Grid.aco" extention ("VioletPy_Set_2020_05_04_Grid.aco" in this example) contains full gradient colors in board.

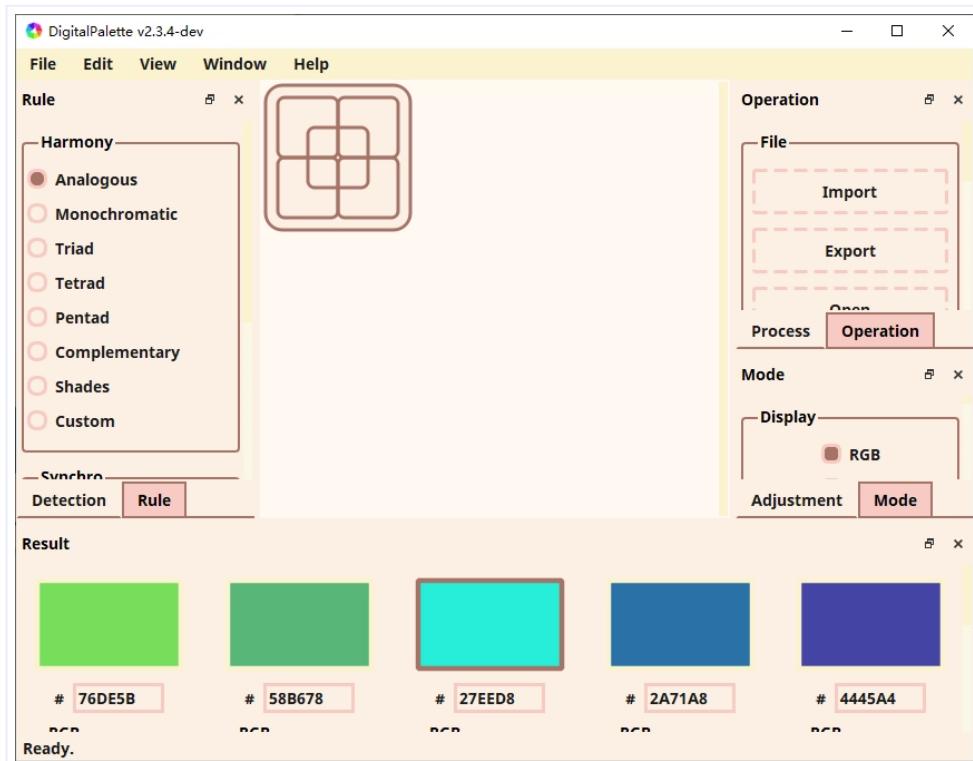


- 10 Click "Import" in "File" button box, "Operation" window and select file "chinese_colors.dps" in folder "User/Documents/VioletPy/MyColors/", and click OK to import a self-defined board. Please download this file from here if you didn't find this file. This self-defined board contains all Chinese Traditional Colors (reference: '色谱, 中科院科技情报编委会名词室, 科学出版社, 1957.').



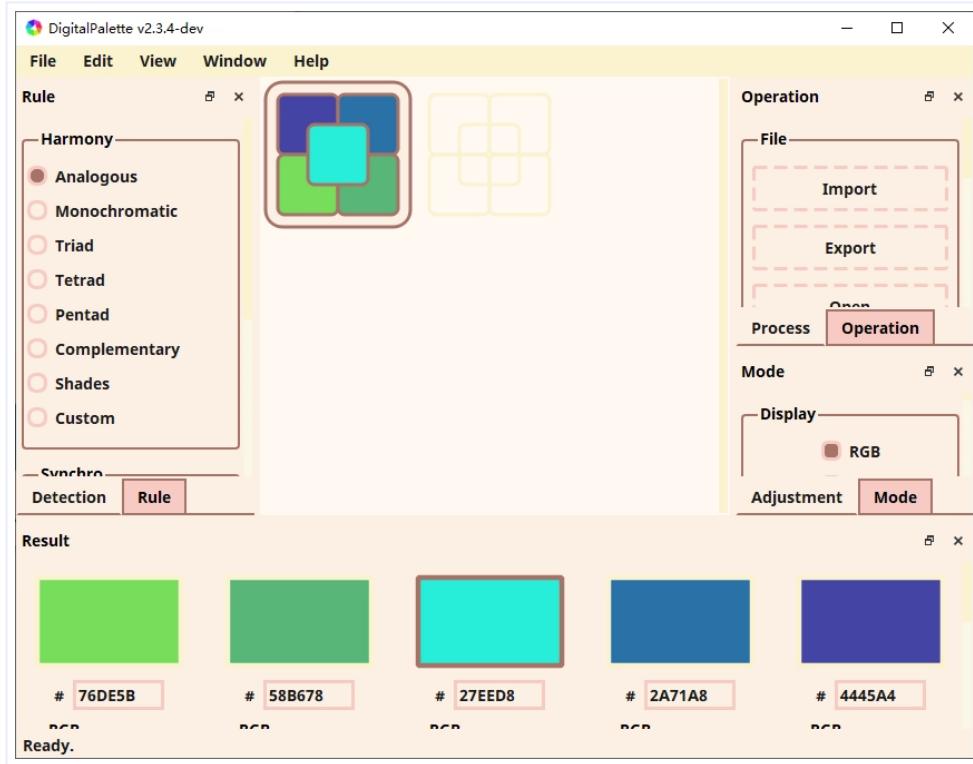
Example 4: Attaching the Color Set into Depot

- 1 Open Haworthia the Firework.
- 2 creating a set of colors from wheel, or locating a set of colors from image, and modify the gradient color in board.
- 3 Click "View" in the menu bar and select "Depot" in the drop-down list (or shortcut **Ctrl+D**), and switch to the depot view.

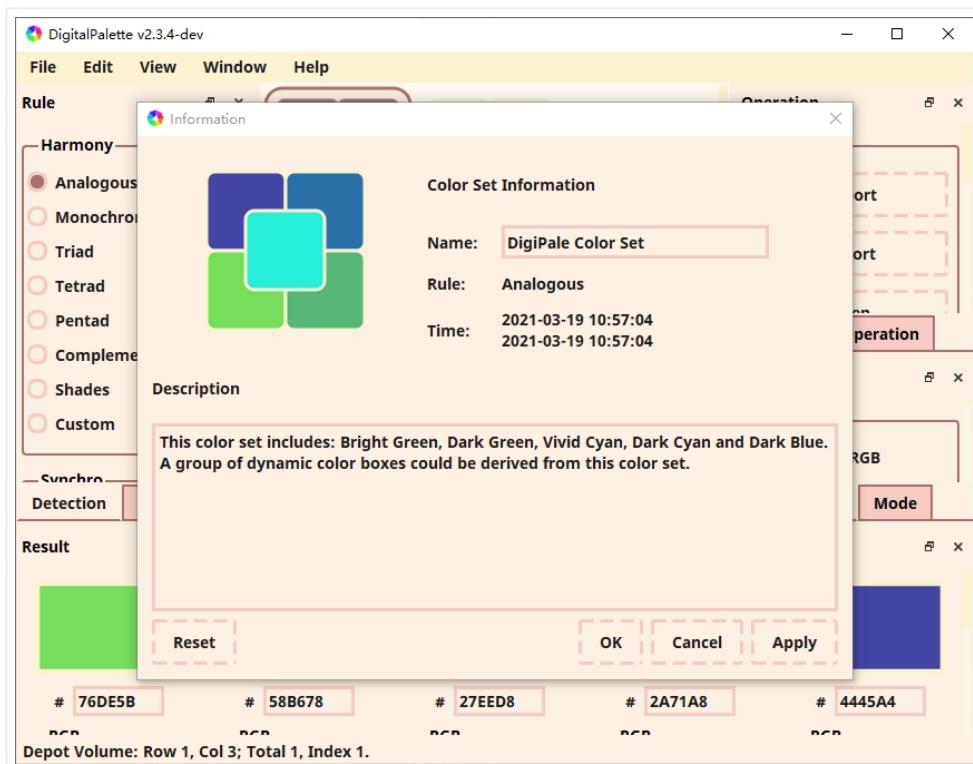


- 4 Double click the blank icon at upper left corner, and attach the created color set into depot.

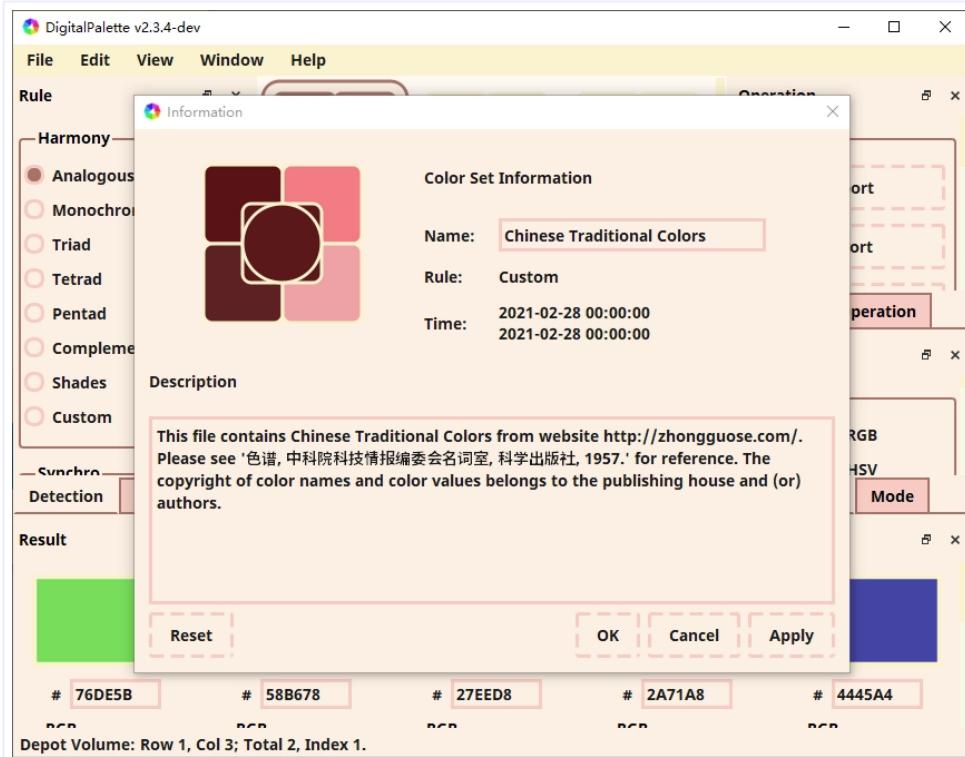




- 5 Right click the attached color set icon, and press "Import", "Export", "Delete", "Detail" or "Attach" in the drop-down menu to modify the information of color set. For example, select "Detail" (or shortcut F) and modify the name ("VioletPy Color Set") and description (none) of color set in the dialog, and check the harmony rule ("Analogous"), creating time (upper) and modifying time (lower) of color set. Click OK once modifying finished. Double click any color set (or shortcut I) to replace colors in "Result" window with colors of selected color set.



- 6 Drag the file "chinese_colors.dps" in folder "User/Documents/VioletPy/MyColors/" into Haworthia the Firework depot and keep this color board in it. Check the information of this color board in the same way. Please download this file from here if you didn't find this file. Note that color set with a static board will display with a circle in icon's middle.



Example 5: Coloring a Chart by Matplotlib with Haworthia the Firework

- 1 Matplotlib is a comprehensive library for creating static, animated, and interactive visualizations in Python. Codes below come from an example in Matplotlib official website and exhibit how to draw a horizontal bar chart with local colors. Then, we will generate more diversified colors from Haworthia the Firework and color this chart.

python

```

1 import numpy as np
2 import matplotlib.pyplot as plt
3
4
5 category_names = ['Strongly disagree', 'Disagree', 'Neither agree nor disagree']
6 results = {
7     'Question 1': [10, 15, 17, 32, 26],
8     'Question 2': [26, 22, 29, 10, 13],
9     'Question 3': [35, 37, 7, 2, 19],
10    'Question 4': [32, 11, 9, 15, 33],
11    'Question 5': [21, 29, 5, 5, 40],

```

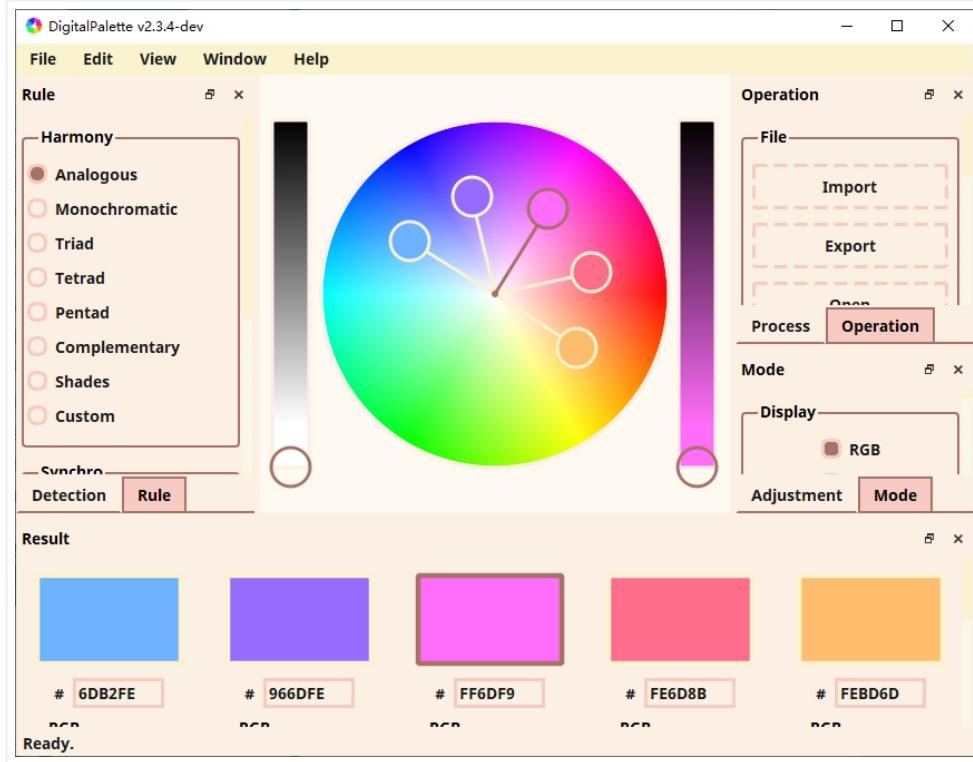
```

12     'Question 6': [8, 19, 5, 30, 38]
13 }
14
15
16 def survey(results, category_names):
17     """
18     Parameters
19     -----
20     results : dict
21         A mapping from question labels to a list of answers per category.
22         It is assumed all lists contain the same number of entries and that
23         it matches the length of *category_names*.
24     category_names : list of str
25         The category labels.
26     """
27     labels = list(results.keys())
28     data = np.array(list(results.values()))
29     data_cum = data.cumsum(axis=1)
30     category_colors = plt.get_cmap('RdYlGn')(np.linspace(0.15, 0.85, data.shape[1]))
31
32     fig, ax = plt.subplots(figsize=(9.2, 5))
33     ax.invert_yaxis()
34     ax.xaxis.set_visible(False)
35     ax.set_xlim(0, np.sum(data, axis=1).max())
36
37     for i, (colname, color) in enumerate(zip(category_names, category_colors)):
38         widths = data[:, i]
39         starts = data_cum[:, i] - widths
40         ax.barh(labels, widths, left=starts, height=0.5, label=colname, color=color)
41         xcenters = starts + widths / 2
42
43         text_color = 'white'
44         for y, (x, c) in enumerate(zip(xcenters, widths)):
45             ax.text(x, y, str(int(c)), ha='center', va='center', color=text_color)
46
47     ax.legend(ncol=len(category_names), bbox_to_anchor=(0, 1), loc='lower left')
48
49     return fig, ax
50
51
52 survey(results, category_names)
53 plt.show()

```

⌚ Coloring with Analogous Colors

- 1 Open Haworthia the Firework.
- 2 Create a set of analogous colors from wheel, and integrate their saturation (S) and brightness value (V) by using "Equal" synchro rule.



- 3 Press Shift+X and copy the hex codes of this color set, and paste them behind "category_colors = " as shown in below.

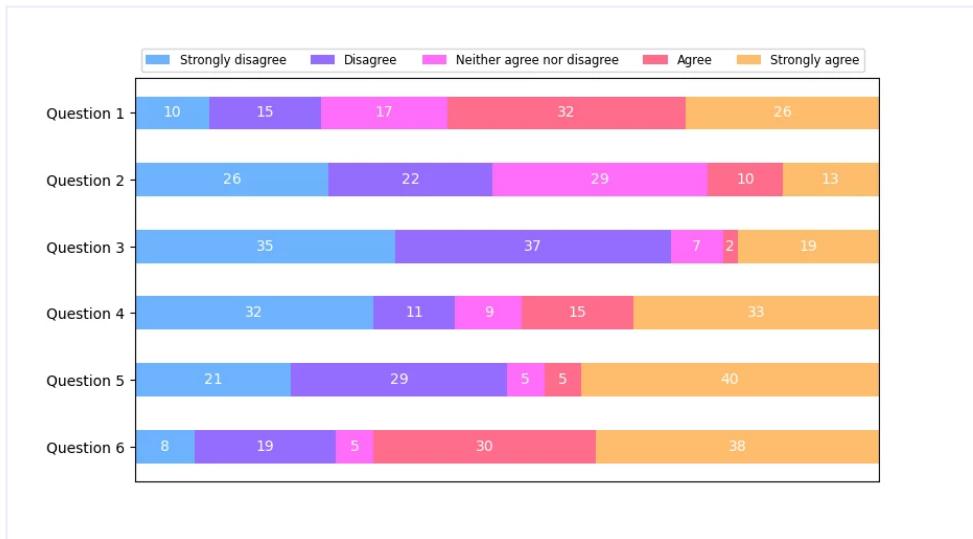
python

```

1 ...
2
3 def survey(results, category_names):
4     ...
5     category_colors = ['#6DB2FE', '#966DFE', '#FF6DF9', '#FE6D8B', '#FEBD6D']
6 ...

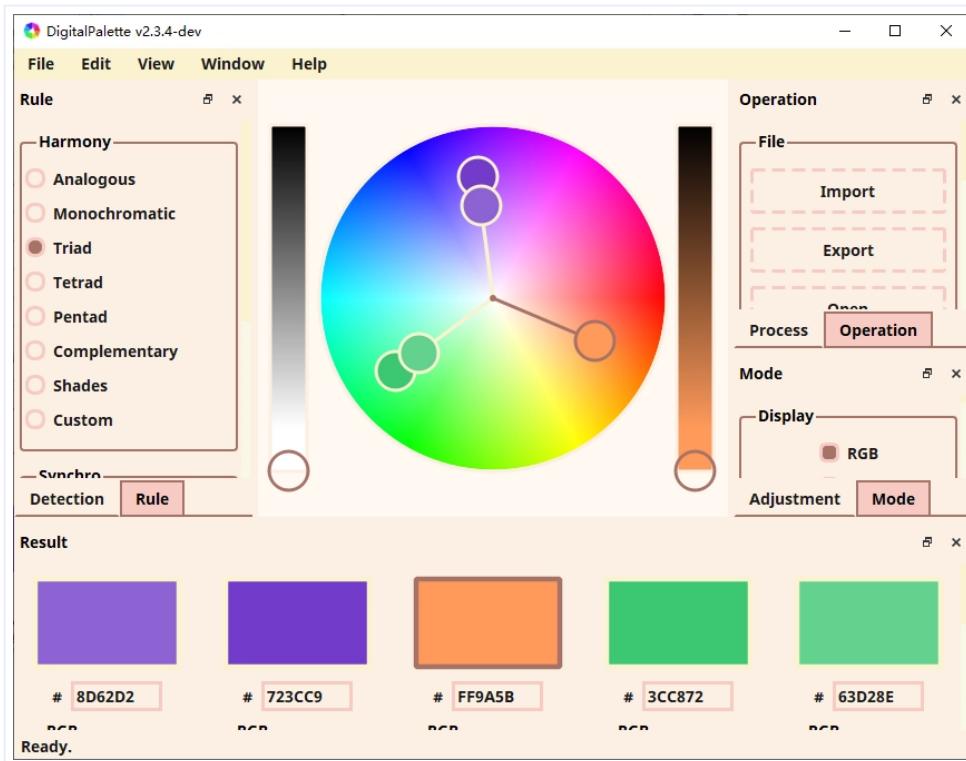
```

- 4 Run this code to plot the chart, and the result is shown in below.



Coloring with Triad Colors

- 1 Open Haworthia the Firework.
- 2 Create a set of triad colors from wheel, and integrate their saturation (S) and brightness value (V) by using "Symmetrical" synchro rule.



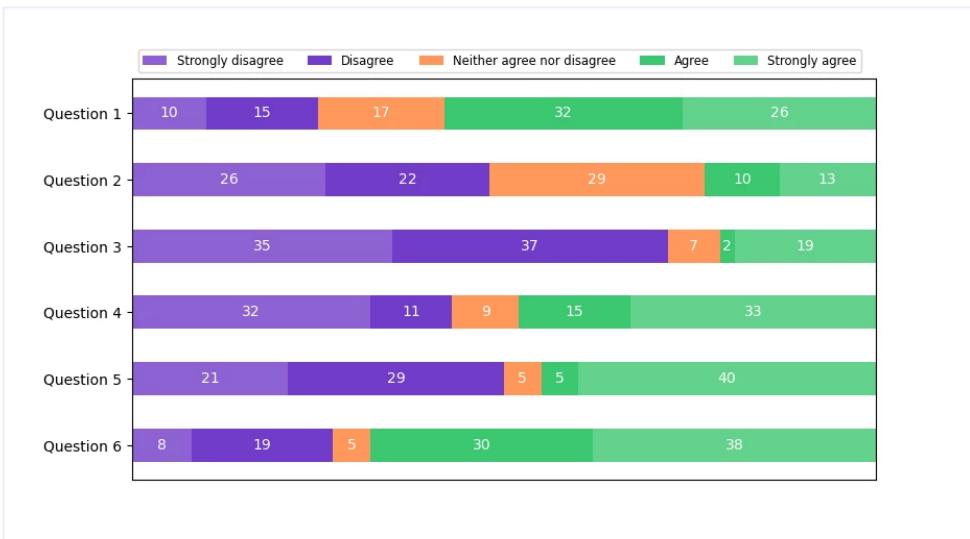
- 3 Press Shift+X and copy the hex codes of this color set, and paste them behind "category_colors = " as shown in below.

python

```
1 ...
2
3 def survey(results, category_names):
4 ...
5     category_colors = ['#671DDC', '#9059E6', '#F79659', '#59E690', '#1DDC67']
6 ...
```

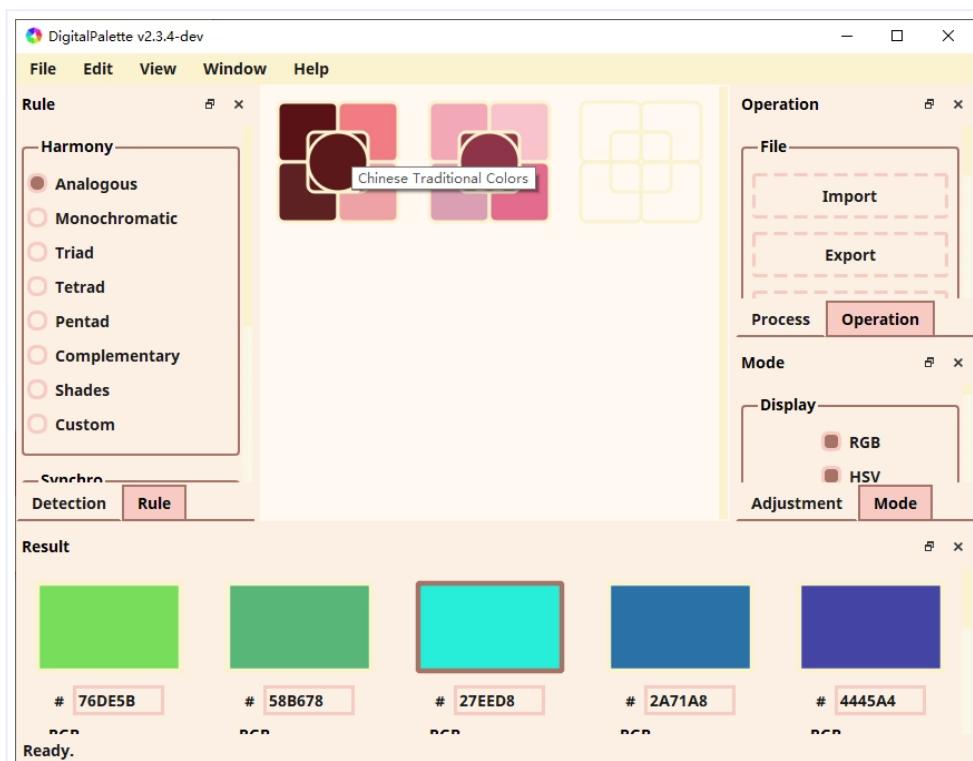
- 4 Run this code to plot the chart, and the result is shown in below.





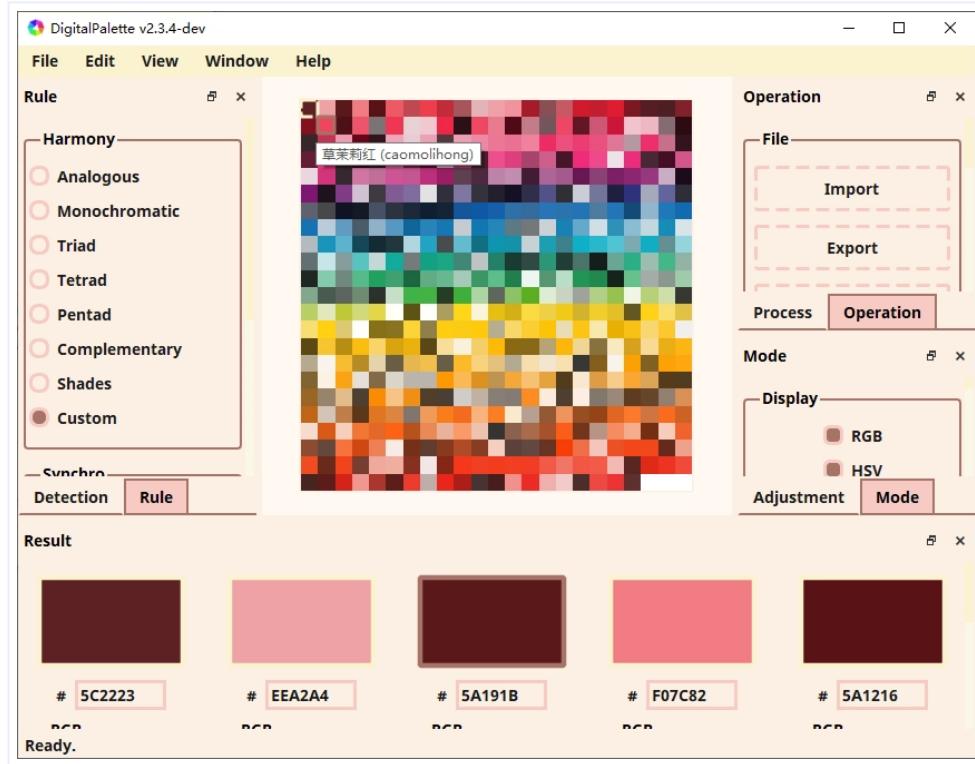
COLORING WITH CHINESE TRADITIONAL COLORS

- 1 Open Haworthia the Firework.
- 2 Press **Ctrl+D** and switch to depot view. Double click the color set icon named "Chinese Traditional Colors". Please download this color set from here if you didn't find this color set.



- 3 Press **Ctrl+B** and switch to board view. Select color No. 25 "草茉莉红 (caomolihong)", then press **Ctrl+X** to copy the hex code "#EF475D" of this color and paste it into the list behind "category_colors = ".





- 4 Similarly, paste the hex codes of colors No. 101 "苋菜紫 (xiancaizi)", No. 180 "云山蓝 (yunshanlan)", No. 334 "琥珀黄 (hupohuang)" and No. 443 "燕倾红 (yanhanhong)" into list, as shown in below.

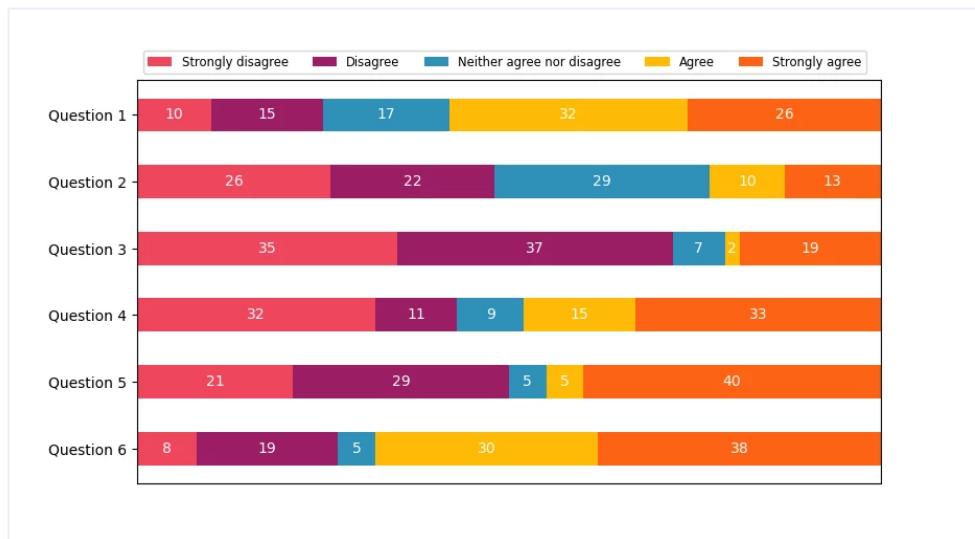
python

```

1 ...
2
3 def survey(results, category_names):
4     ...
5     category_colors = ['#EF475D', '#9B1E64', '#2F90B9', '#FEBA07', '#FC6315']
6 ...

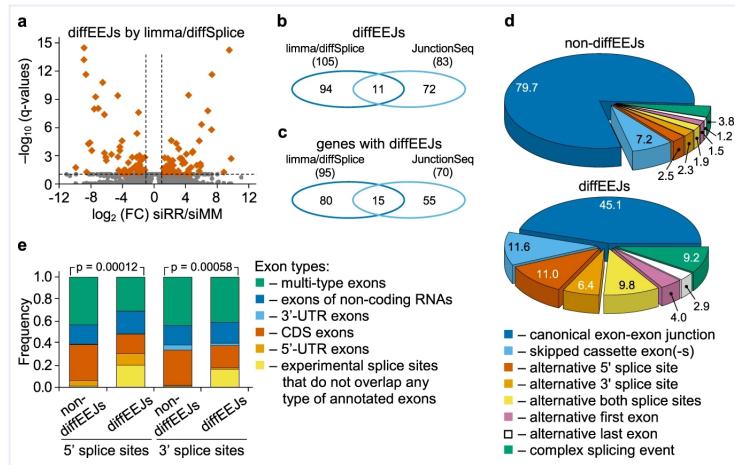
```

- 5 Run this code to plot the chart, and the result is shown in below.

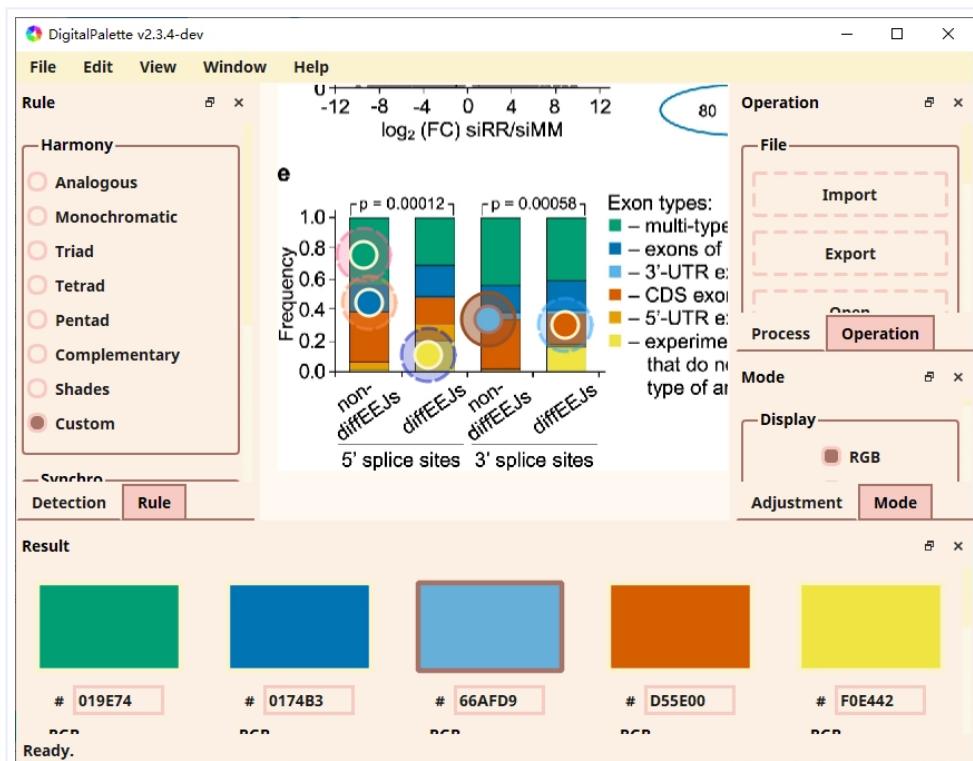


Coloring with colors in Other Articles

- 1 For example, we could color the chart with the colors in Figure 2 of this article: "Grinev, V.V. et al. Nat Commun 12, 520 (2021)". This article is licensed under Creative Commons Attribution License 4.0 (CC BY 4.0).



- 2 Open Haworthia the Firework.
- 3 Press **Ctrl+G** and switch to image view. Double click the empty area to open this picture. Set the harmony rule as "Custom", then press 1 and click on the green area in picture. Similarly, press 2, 3, 4 and 5, and click on other areas to set the others of color set as colors in picture.



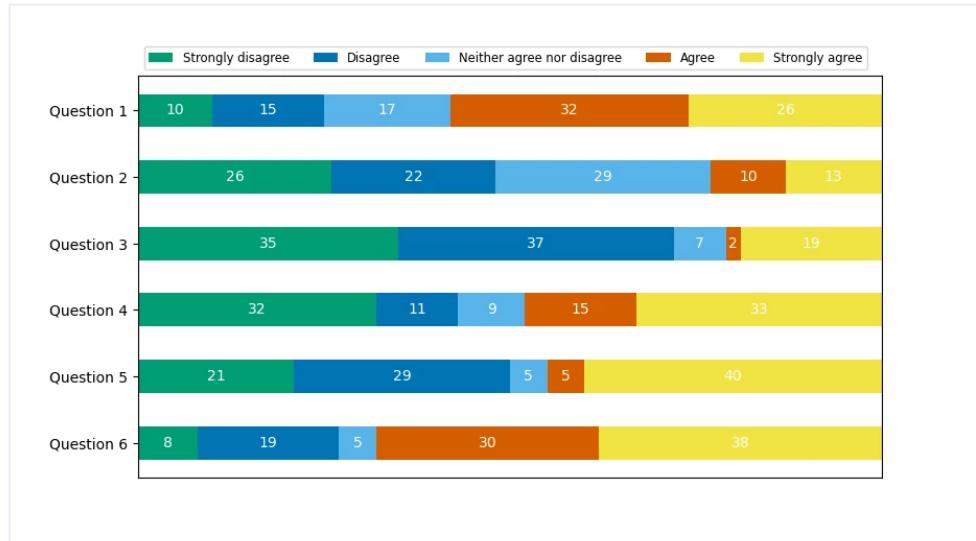
- 4 Press **Shift+X** and copy the hex codes of this color set, and paste them behind "category_colors = " as shown in below.



python

```
1 ...  
2  
3 def survey(results, category_names):  
4 ...  
5     category_colors = ['#019E74', '#0174B3', '#58B4E9', '#D55E00', '#F0E442']  
6 ...
```

- 5 Run this code to plot the chart, and the result is shown in below.



Work Area

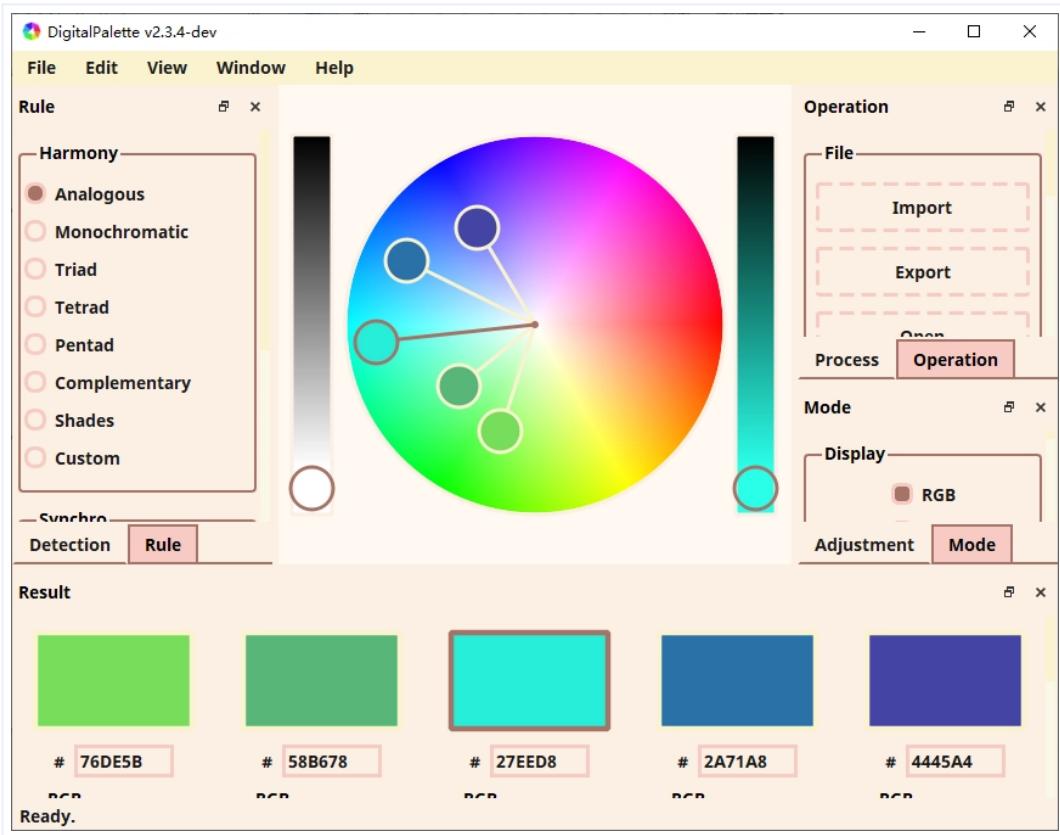
Work area is the major place for creating, modifying, storing and checking color sets and boards. Here you could create a set of colors from wheel, locate a set of colors from image, derive a board from color set and attach the color set into depot.

Creating a Set of Colors from Wheel

Wheel view is the default view of work area as shown as below. You could click "View" in the menu bar and select "Wheel" (or click "Create" in "Operation" window, or shortcut $Ctrl+W$) to switch to wheel view, if your current work area view isn't wheel.

There are five circle color tags above the wheel, corresponding to the five squares in "Result" window (where the central square determines the major color). You could change the corresponding colors by dragging the tags, or adjust the sliders of R, G, B or H, S, V in "Result" window to modify the colors accurately. Meanwhile, the position and color of other tags on wheel would also change according to the selected harmony rule. The harmony rule could be settled in "Rule" window.



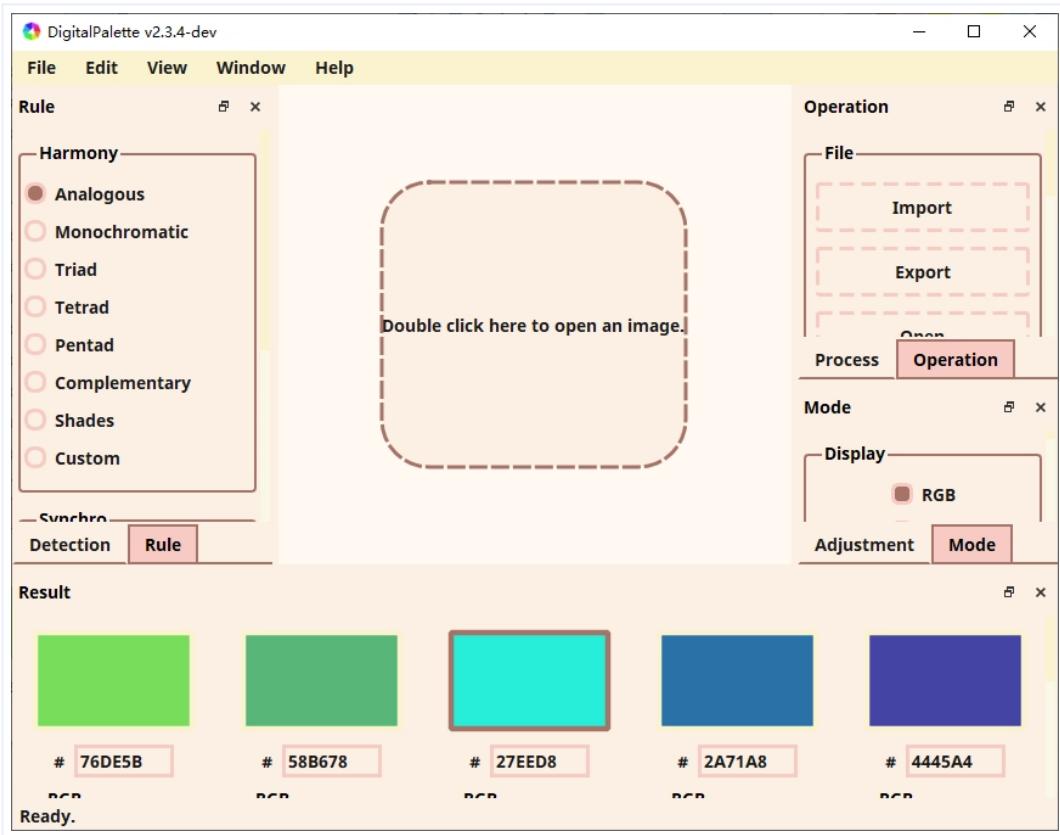


Locating a Set of Colors from Image

The image view is shown as below. You could click "View" in the menu bar and select "Image" (or click "Locate" in "Operation" window, or shortcut $Ctrl+G$) to switch to image view, if your current work area view isn't image.

Double click the work area to open an existed image, and left click anywhere above the image, then a color tag corresponding to the color square would appeared at this position. Its color will also change into the corresponding color in image. Meanwhile, the colors of other squares would also changed according to the selected harmony rule. The harmony rule could be settled in "Rule" window. Also, you could try to obtain a set of colors automatically by "extract colors" provided in "Process" window.





8. Deriving a Board from Color Set

The board view is shown as below. You could click "View" in the menu bar and select "Board" (or click "Derive" in "Operation" window, or shortcut $Ctrl+B$) to switch to board view, if your current work area view isn't board.

Board could be divided into dynamic board and static board. In dynamic board, the gradient colors can be modified by control points and assistant points dynamically, while in static board, each color box can be edited directly. The control points and assistant points are only displayed in dynamic board, where larger double circles represent control points (there are five control points, and the color of them are corresponding to the color set in "Result" window, respectively, which controls the major colors of color boxes nearby), and smaller circles with dashed lines connecting with control points are assistant points (the colors of assistant points are derived from control points' colors, and these colors would induce subtle color changes of color boxes). Drag the tags on board to adjust the control points and assistant points. Right click on dynamic board, and select "Insert" or "Delete" in the drop-down menu to modify the number of assistant points of current control point. Right click on static board, and select "Insert", "Switch", "Delete" or "Detail" in the drop-down menu to add, modify, delete or check the color box (switch refers to switching the colors of two boxes with black and white frames). Press $Ctrl+Tab$ to switch between dynamic board and static board.

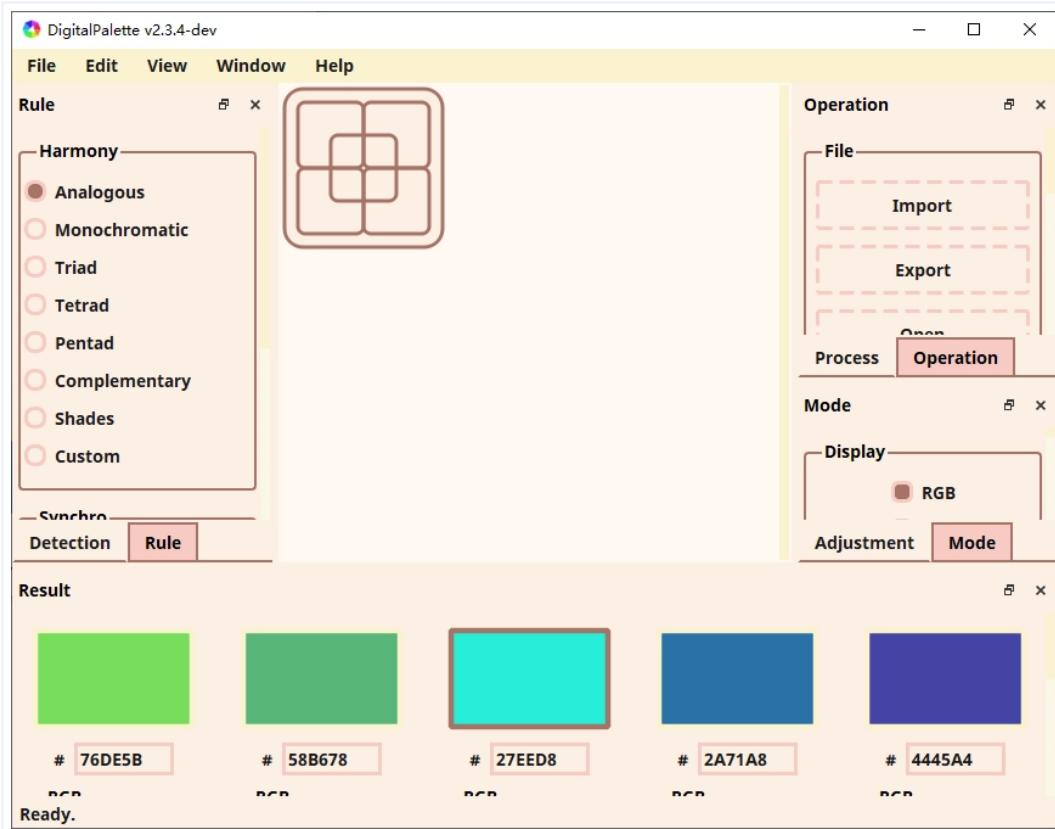




⌚ Attaching the Color Set into Depot

The depot view is shown as below. You could click "View" in the menu bar and select "Depot" (or click "Attach" in "Operation" window, or shortcut **Ctrl+D**) to switch to depot view, if your current work area view isn't depot. Double click the blank icon to attach your created color set into depot. Each icon in color depot includes five

color squares, which are corresponding to the five colors of color set, where the color of central square represents the major color. This color set contains a static board if a circle appears at the middle of center square (no circle for dynamic board). You could right click any icon, and select "Import", "Export", "Delete", "Detail" or "Attach" in the drop-down menu to modify the information of color set.



Rule Window

You could set the harmony and synchronization rules for color set in "Rule" window.

Harmony Rule

The harmony rule controls the collocation method of colors.

Analogs

Analogs set contains colors with same included angles between two closing tags on color wheel.

Colors of analogous set usually mix well with each other harmoniously and pleasantly. Analogous colors are shown as below.



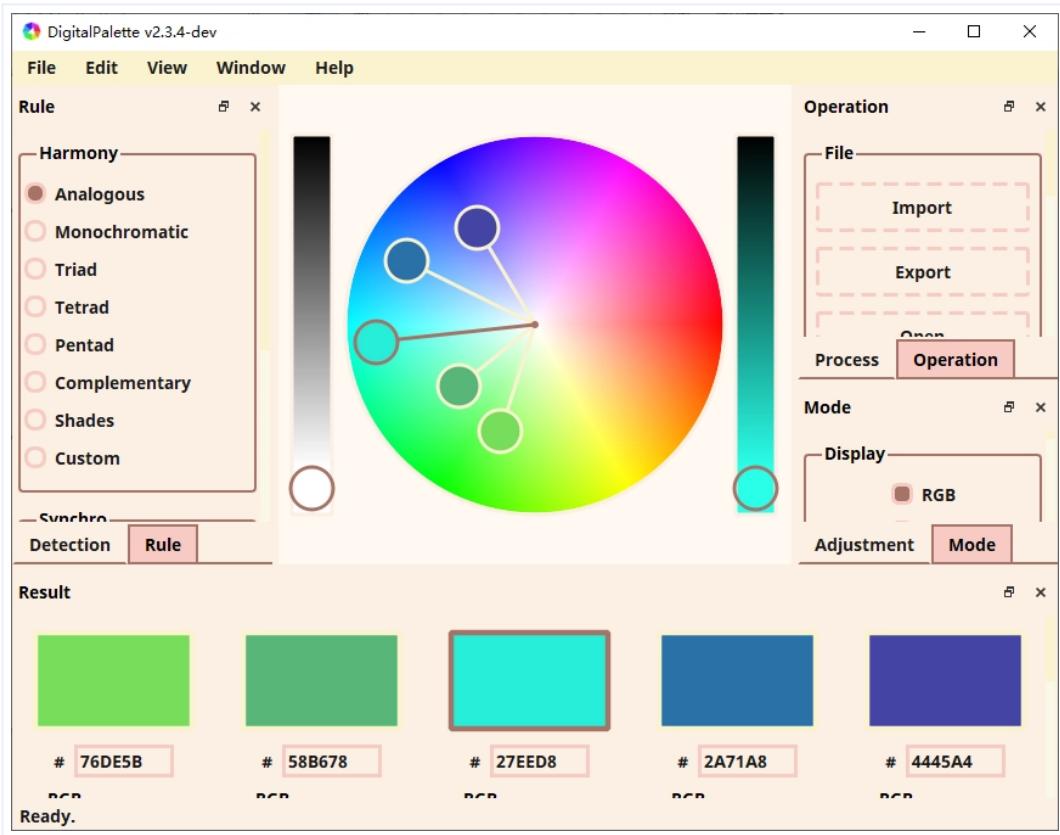
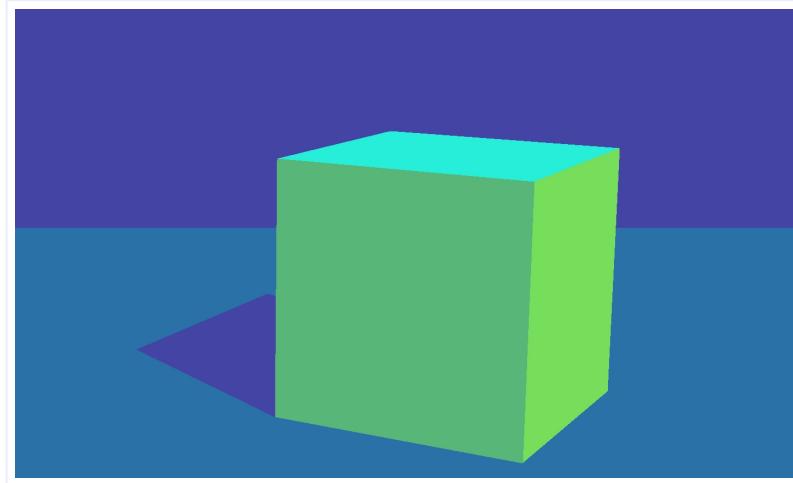


Image example coloring with the analogous colors.



Monochromatic

Analogous set contains colors with same hue (H) but different saturation (S) and brightness value (V) on color wheel. Colors of monochromatic set usually produce a relaxed effect. Monochromatic colors are shown as below.



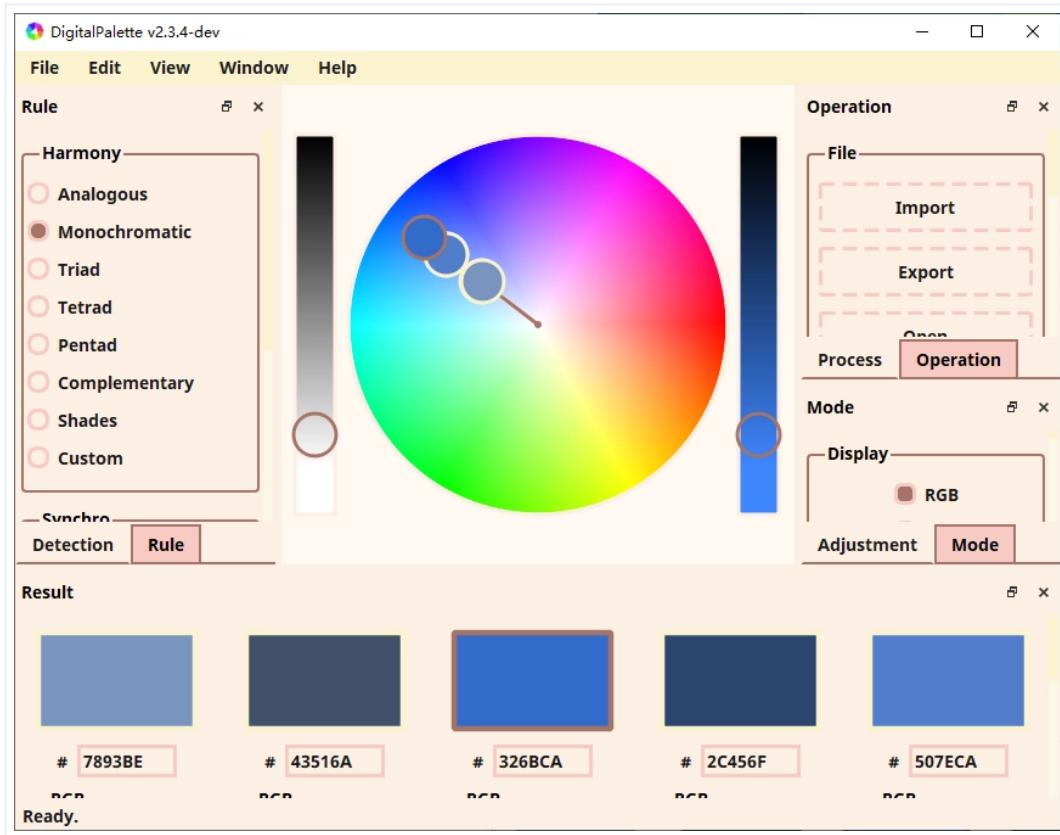
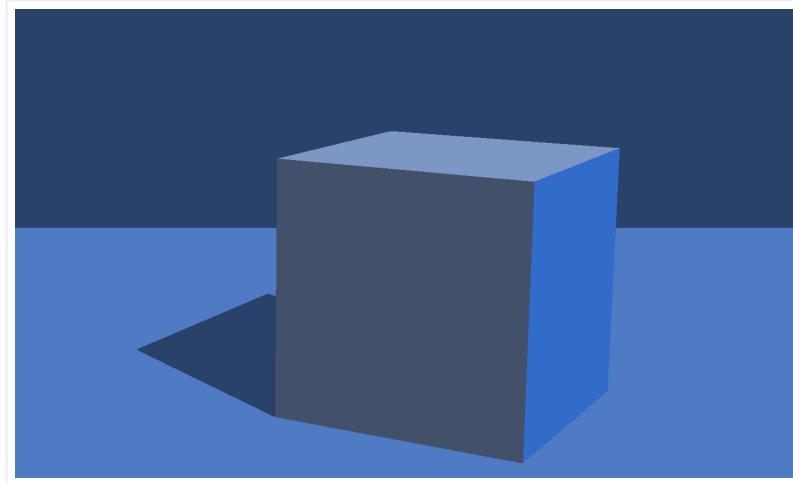


Image example coloring with the monochromatic colors.



Triad

Analogous set contains colors with included angles in three equidistant on color wheel. Colors of triad set could generate a contrast effect but not as strong as complementary colors. Triad colors are shown as below.



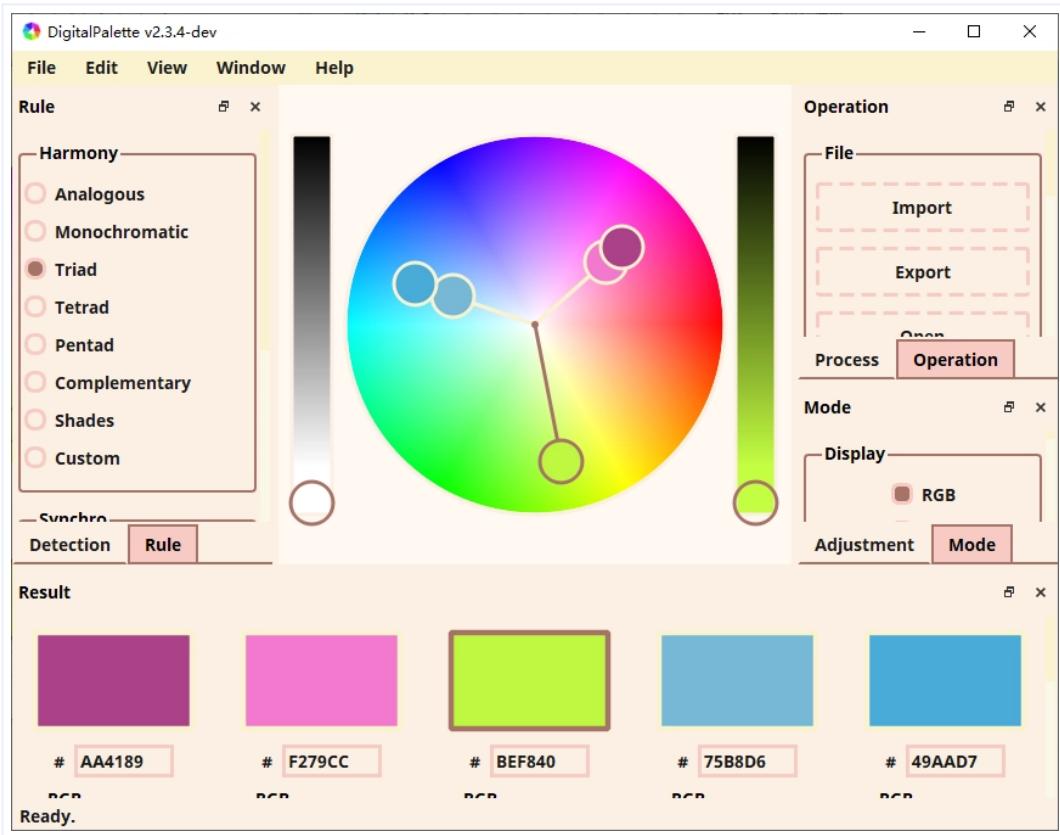
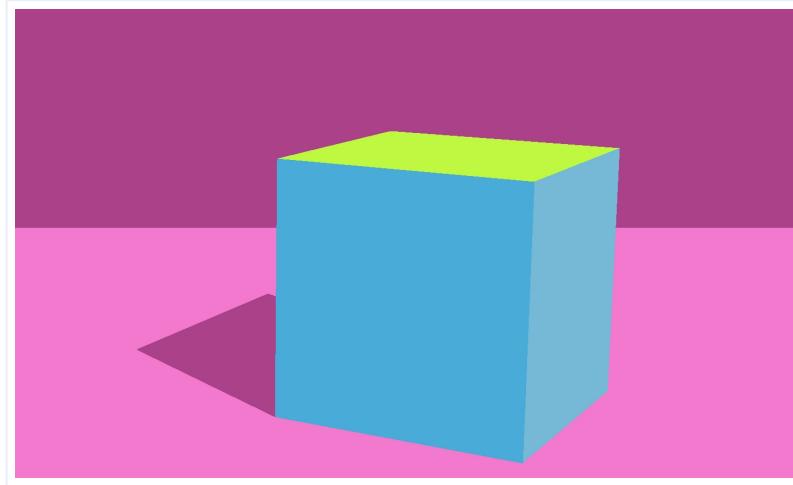


Image example coloring with the triad colors.



● Tetrad

Tetrad set contains two group of colors opposite to each other on color wheel. Colors of tetrad set could generate a contrast effect and form comparisons between cold and warm. Tetrad colors are shown as below.



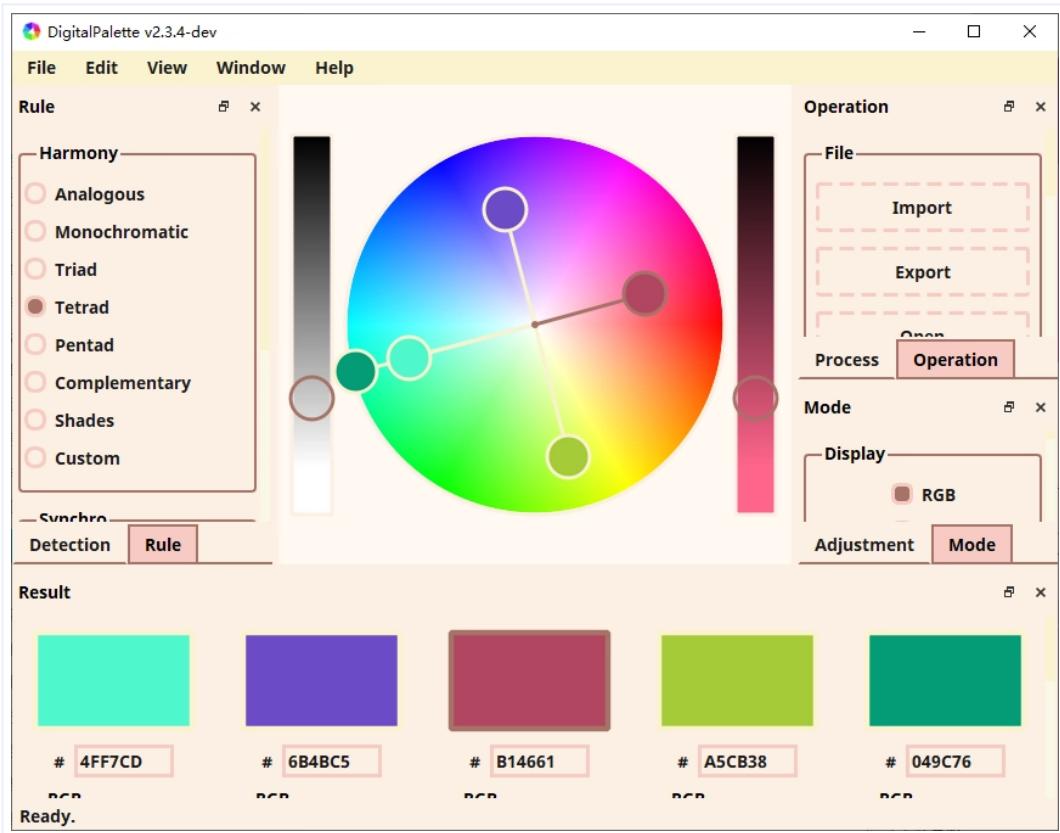
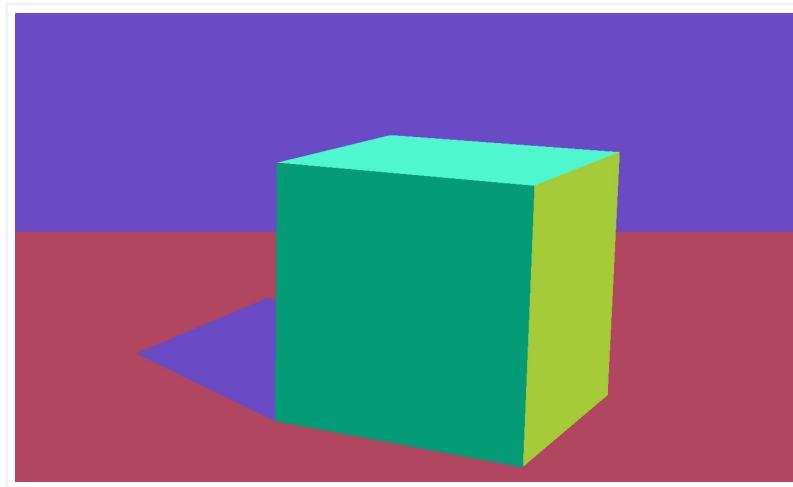


Image example coloring with the triad colors.



○ Pentad

Analogous set contains colors uniformly distributed on color wheel. Colors of pentad set could give images rhythms. Pentad colors are shown as below.



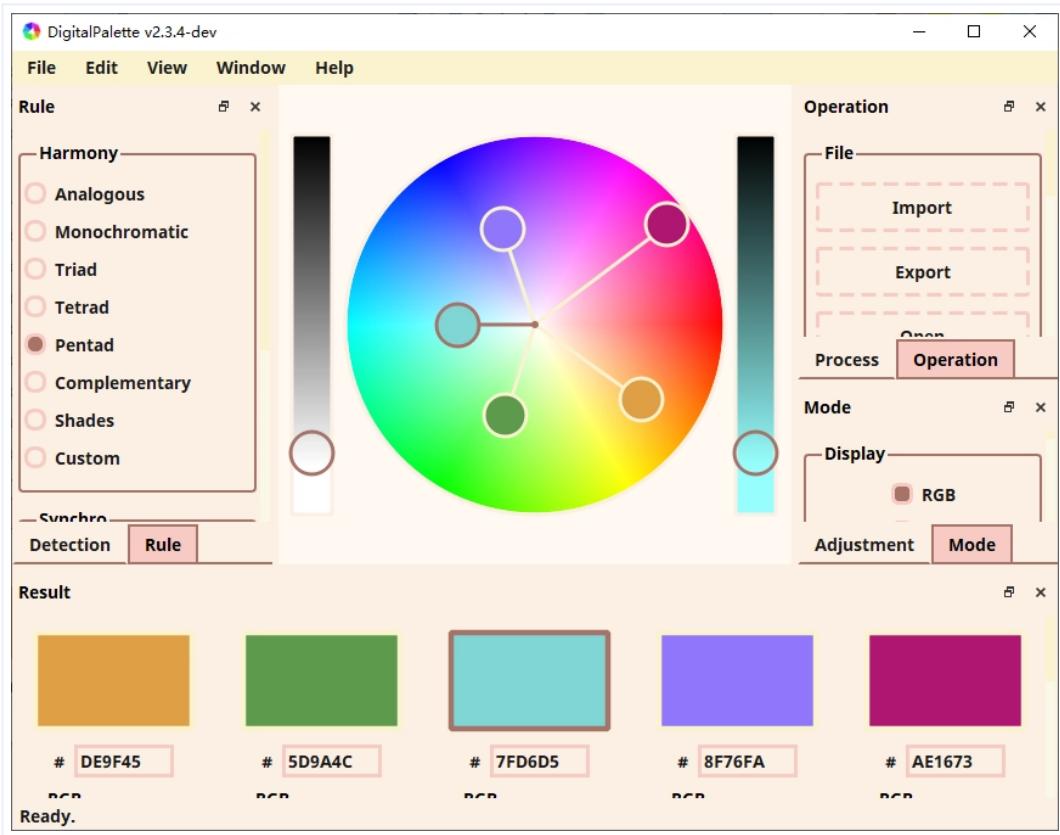
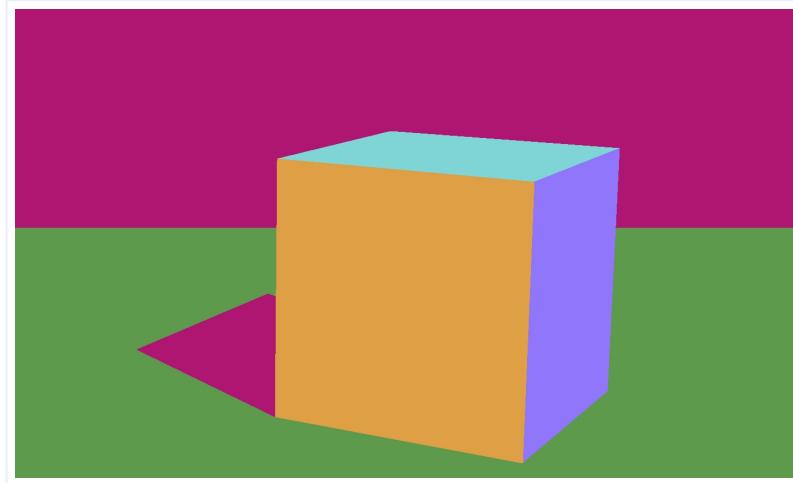


Image example coloring with the pentad colors.



● Complementary

Complementary set contains colors opposite to each other on color wheel. Colors of complementary set usually generate a great contrast effect and become prominent when putting together, and may even cause the color instability in the case of high saturation. Complementary colors are shown as below.



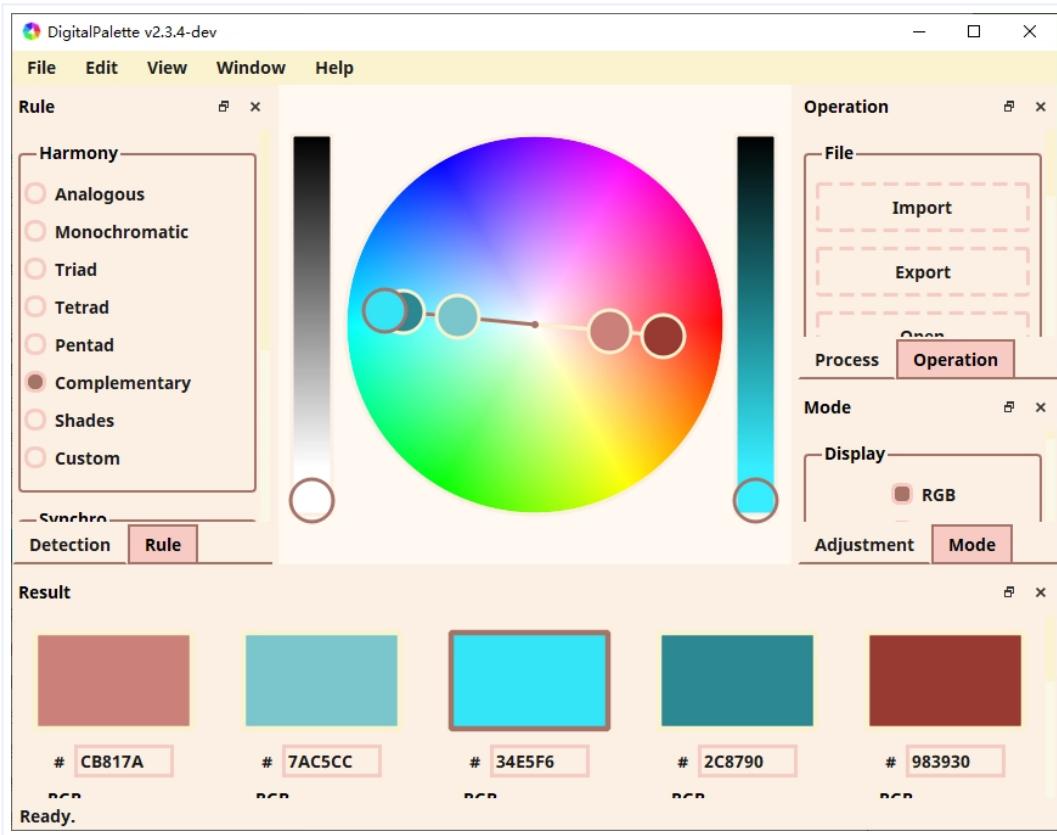
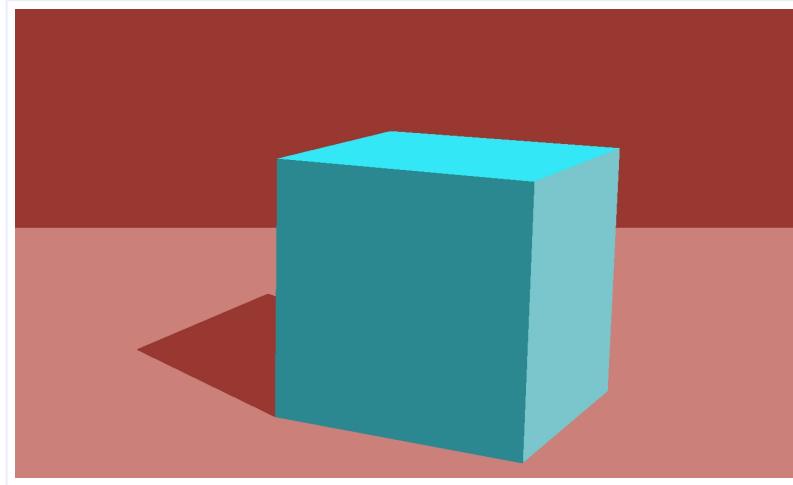


Image example coloring with the complementary colors.



○ Shades

Shades set contains colors with same hue (H) and saturation (S) but different brightness value (V) on color wheel. Colors of shades set usually produce a relaxed effect similarly. Shades colors are shown as below.



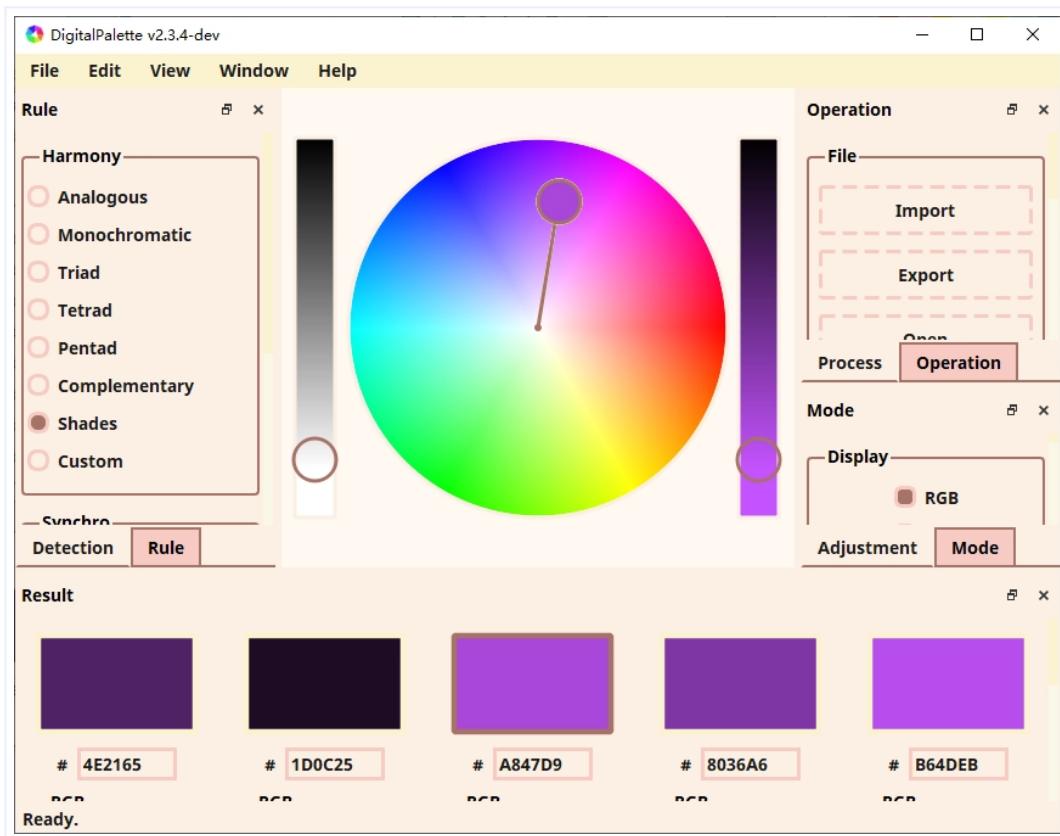
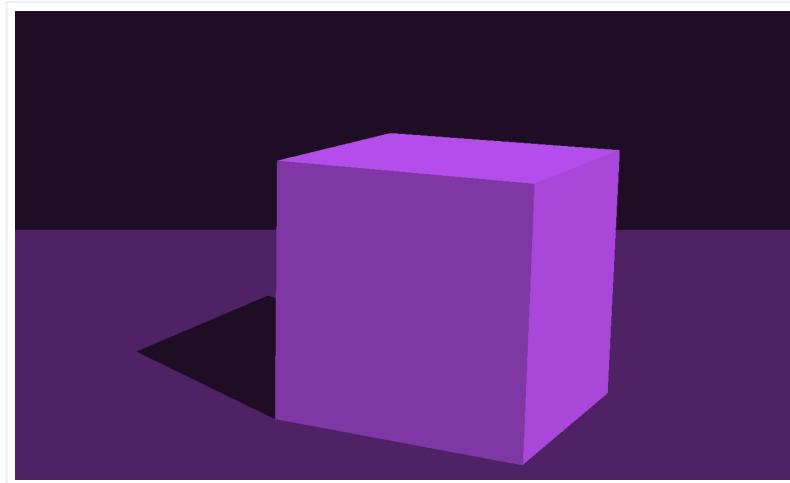


Image example coloring with the shades colors.



Custom

Custom set allows you to define each color manually without the constraint of rules, and generate the expected effect. Custom colors are shown as below.



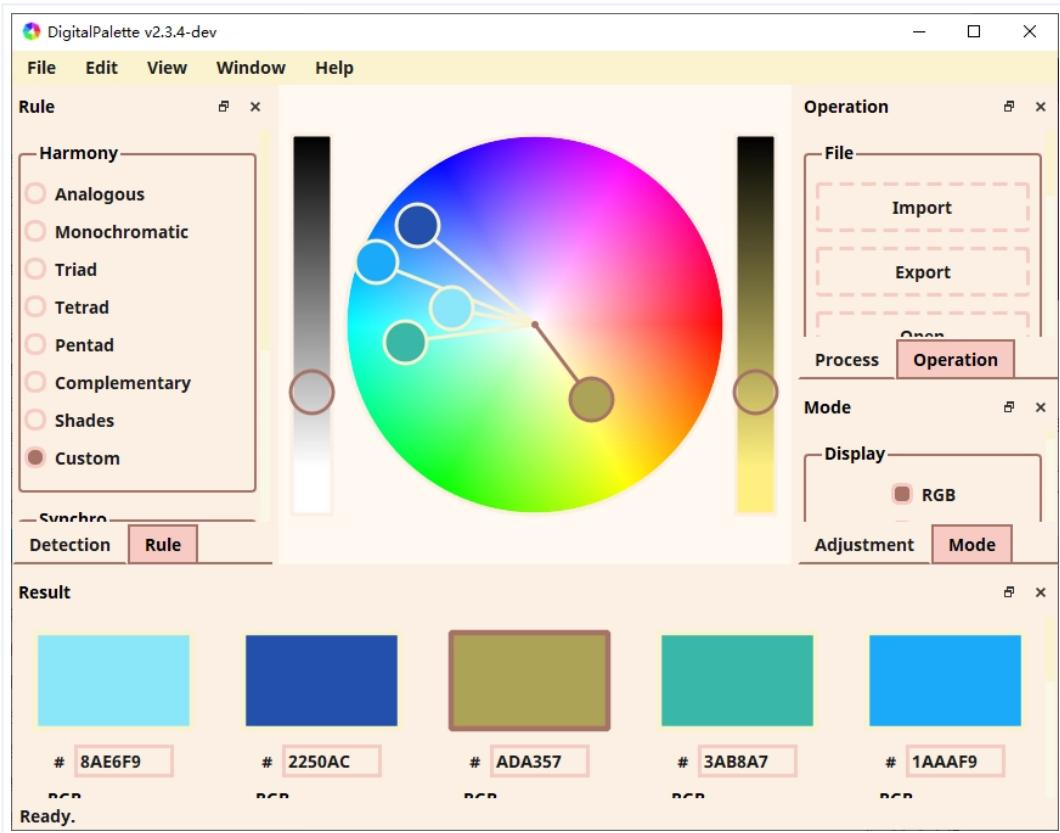
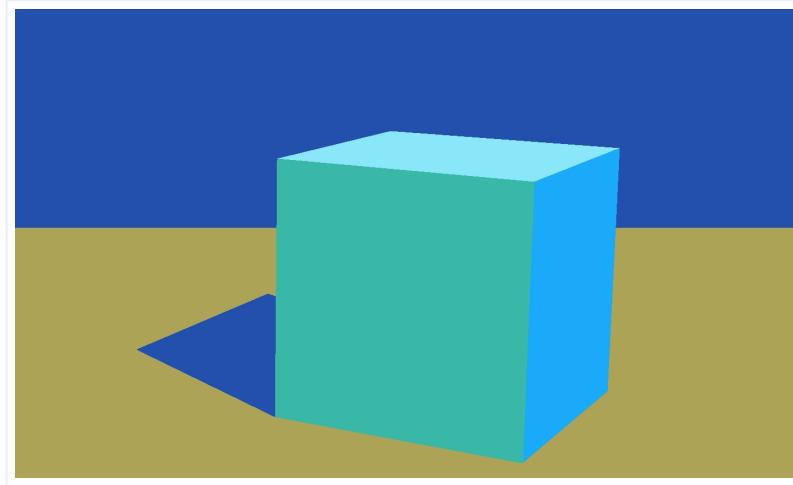


Image example coloring with the custom colors.



⌚ Synchro Rule

Synchro rule controls the moving actions of tags on wheel.

⌚ Unlimited

Don't limit the movement of tags. When one tag is moved, the other tags will move according to the harmony rule.

⌚ Fix H

Fix the hue (H) of all tags. When tags are moved, only saturation (S) and value (V) can be changed. Note → that the relative locations (hue angles) of tags are also fixed.

- Fix S

Fix the saturation (S) and value (V) of all tags. When tags are moved, only hue (H) can be changed. Note that the relative locations (hue angles) of tags are also fixed.

- Equidistant

Fix the relative locations (hue angles) of tags. That is, hue (H), saturation (S) and value (V) of tags can be changed arbitrarily, but the hue difference (angle) between two tags are fixed.

- Equal

The saturation (S) and value (V) of tags are set to be equal. The relative locations (hue angles) of tags are fixed.

- Gradual

The saturation (S) and value (V) of tags are gradual changed. The relative locations (hue angles) of tags are fixed.

- Symmetrical

The saturation (S) and value (V) of tags are symmetrical relative to the main tag. The relative locations (hue angles) of tags are fixed.

⌚ Detection Window

You could detect the edge and channel of image in "Detection" window.

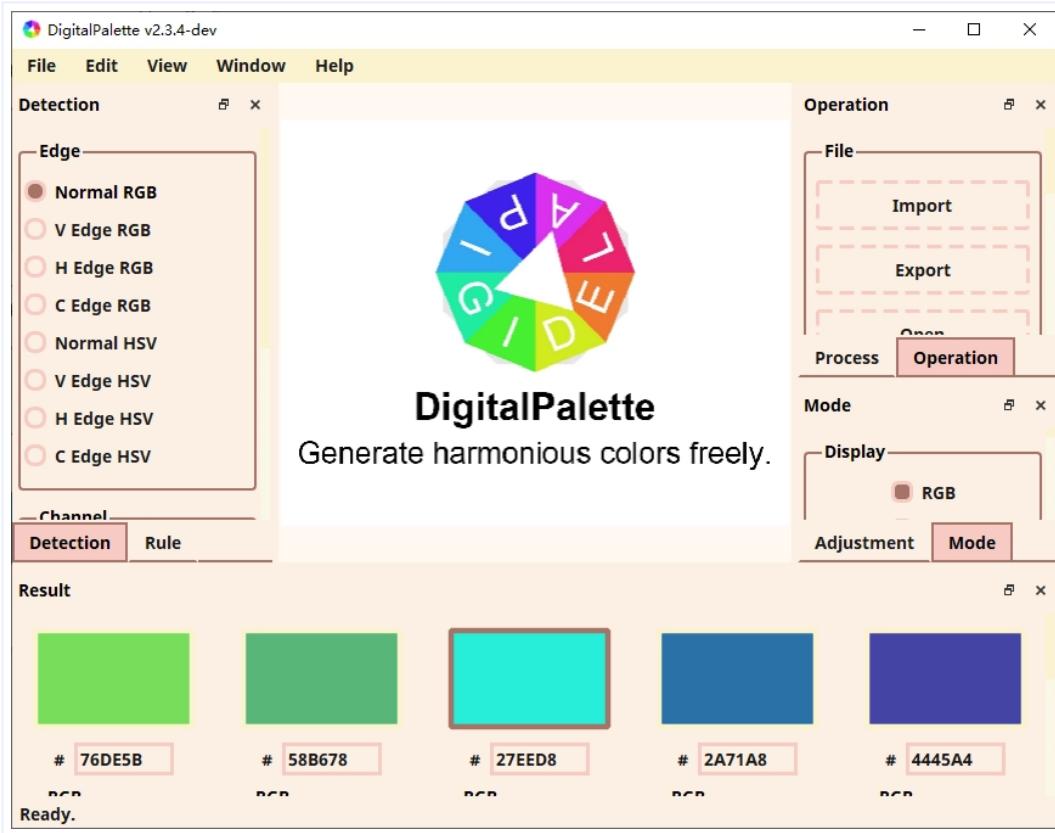
⌚ Edge Detection

Select the edge detection category of image. Detecting the edge of image could assist you perceiving the variation of colors, and therefore locating colors more accurately.

- Normal RGB

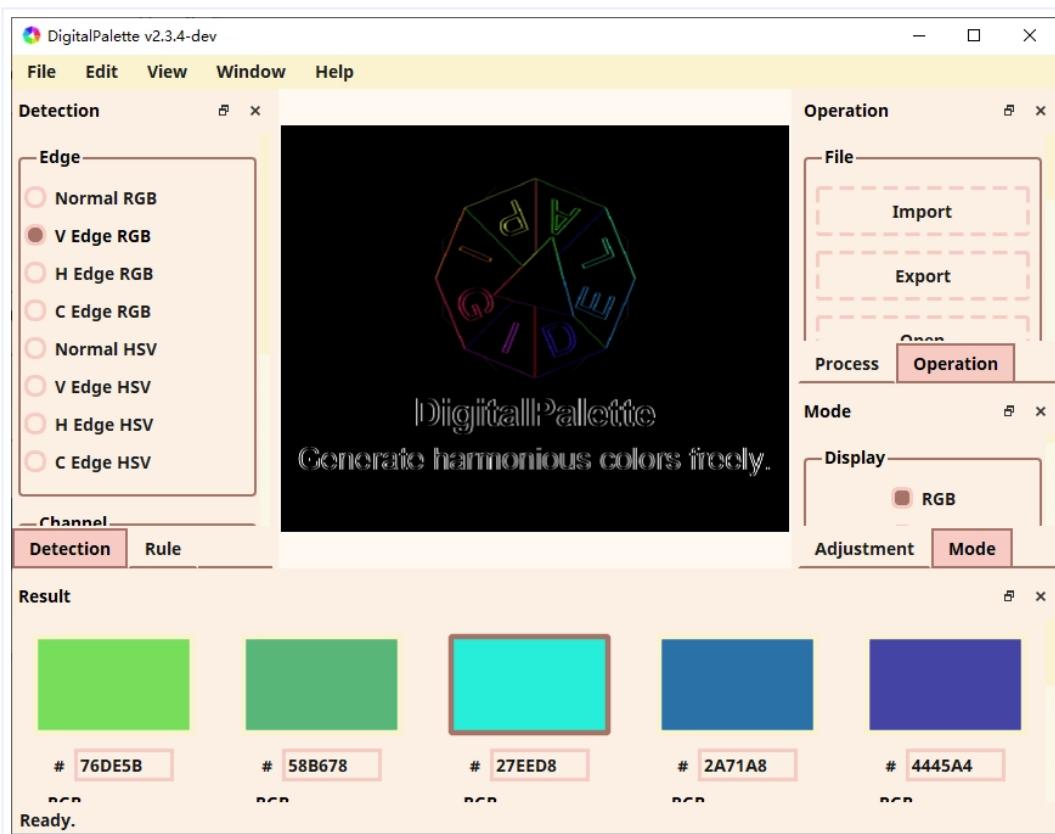
Display normal RGB image. It can be used to display the R, G or B channels of image with the aid of channel detection.





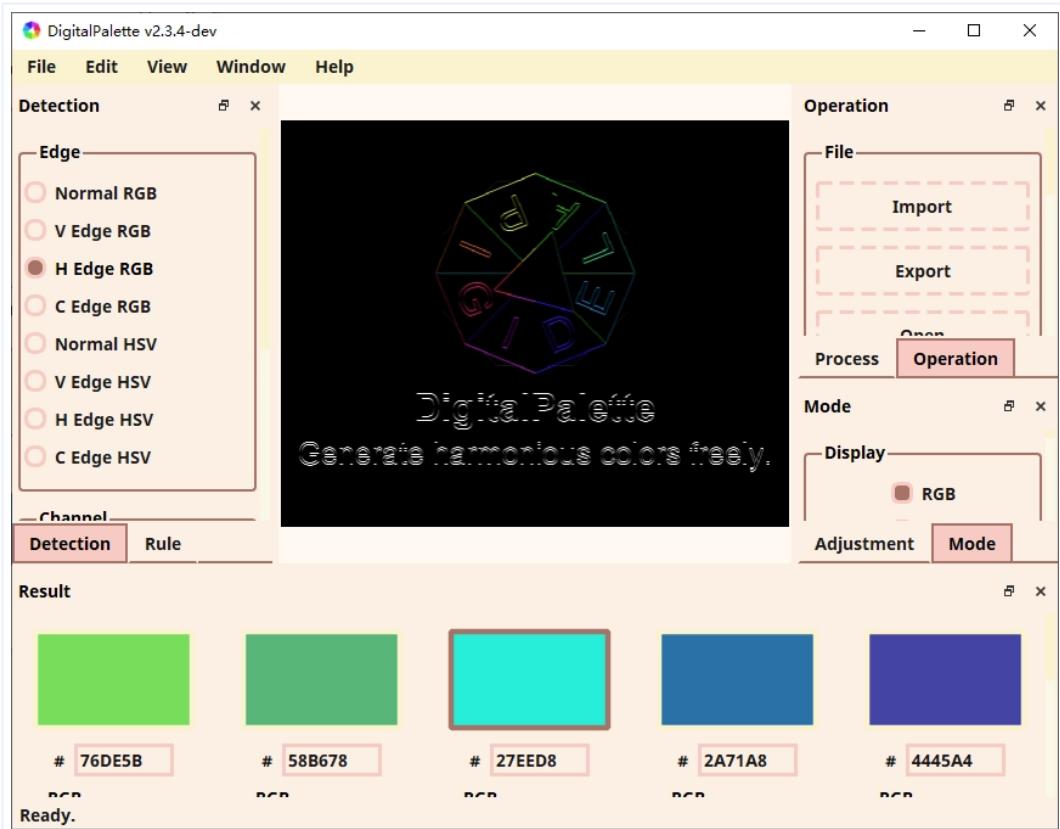
○ V Edge RGB

Detect the vertical edges of image based on RGB values. The brighter the position, the more clear the RGB boundary.



○ H Edge RGB

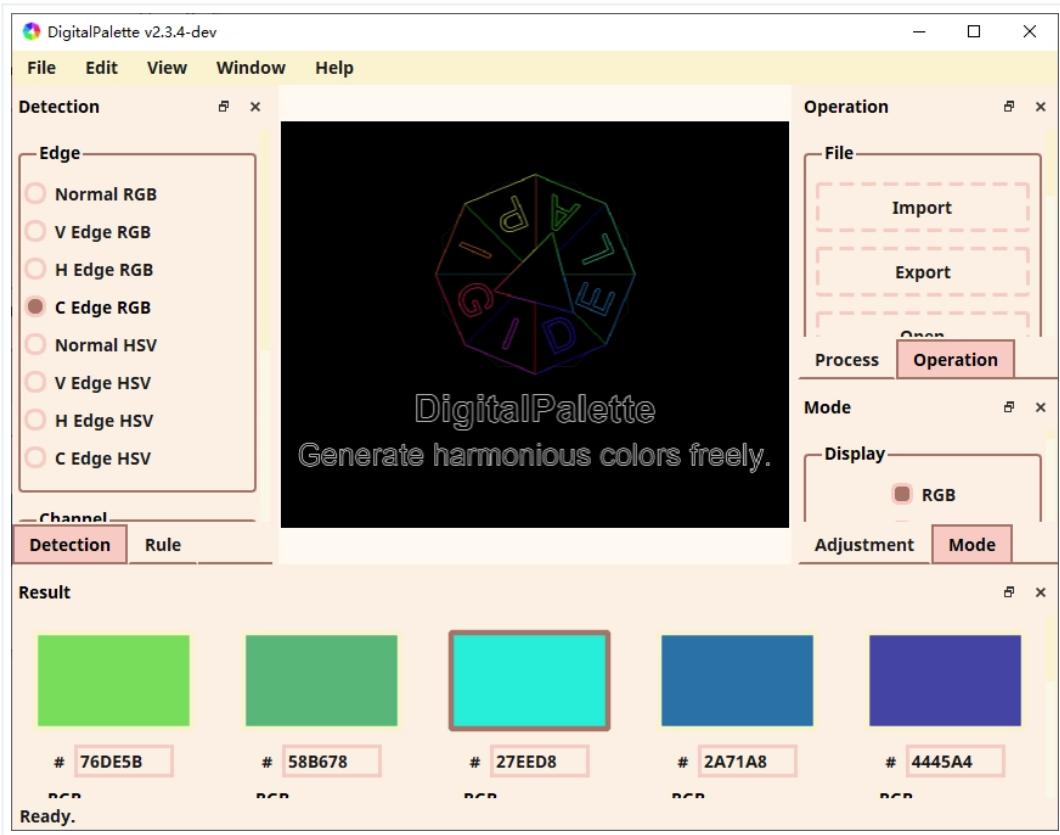
Detect the horizontal edges of image based on RGB values. The brighter the position, the more clear the RGB boundary.



○ C Edge RGB

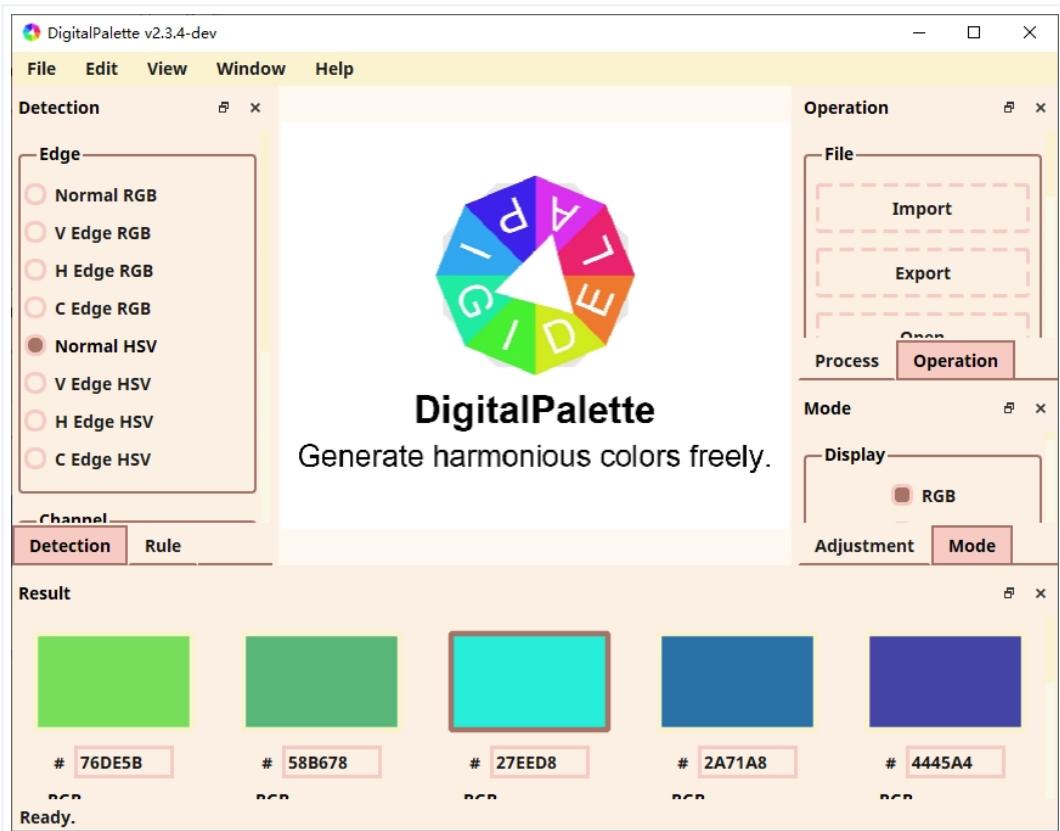
Detect the vertical and horizontal edges of image based on RGB values. The brighter the position, the more clear the RGB boundary.





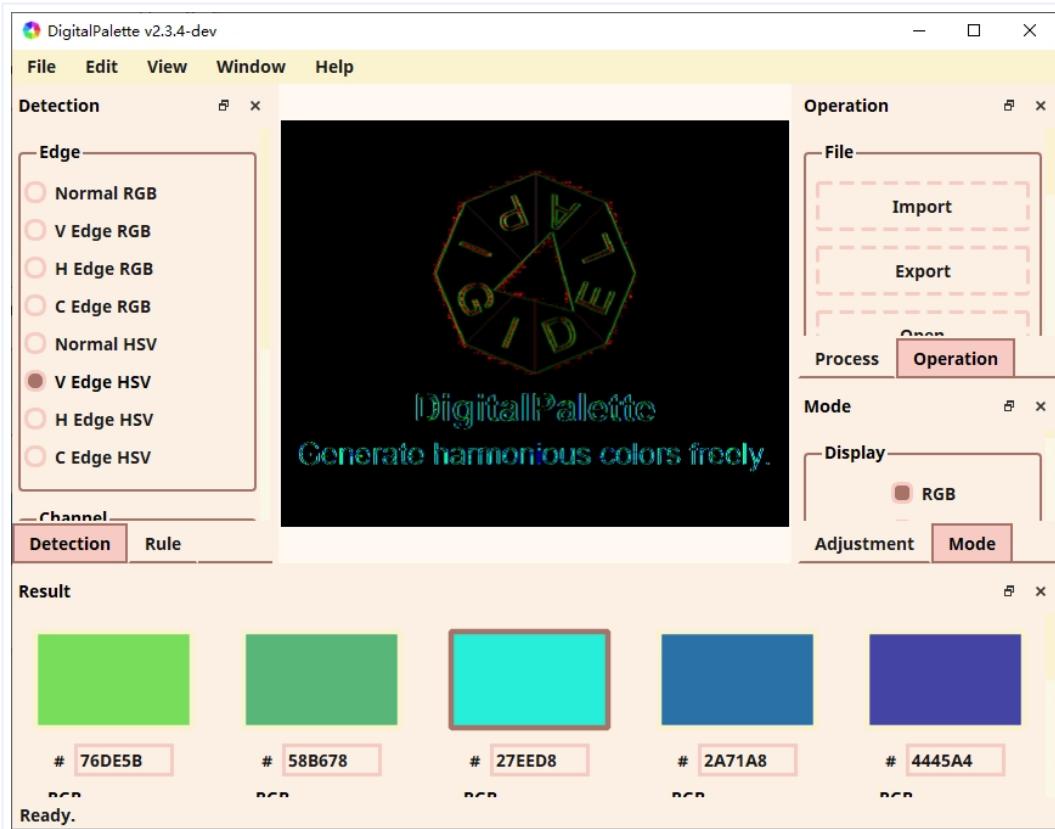
● Normal HSV

Display normal HSV image. It can be used to display the H, S or V channels of image with the aid of channel detection.



● V Edge HSV

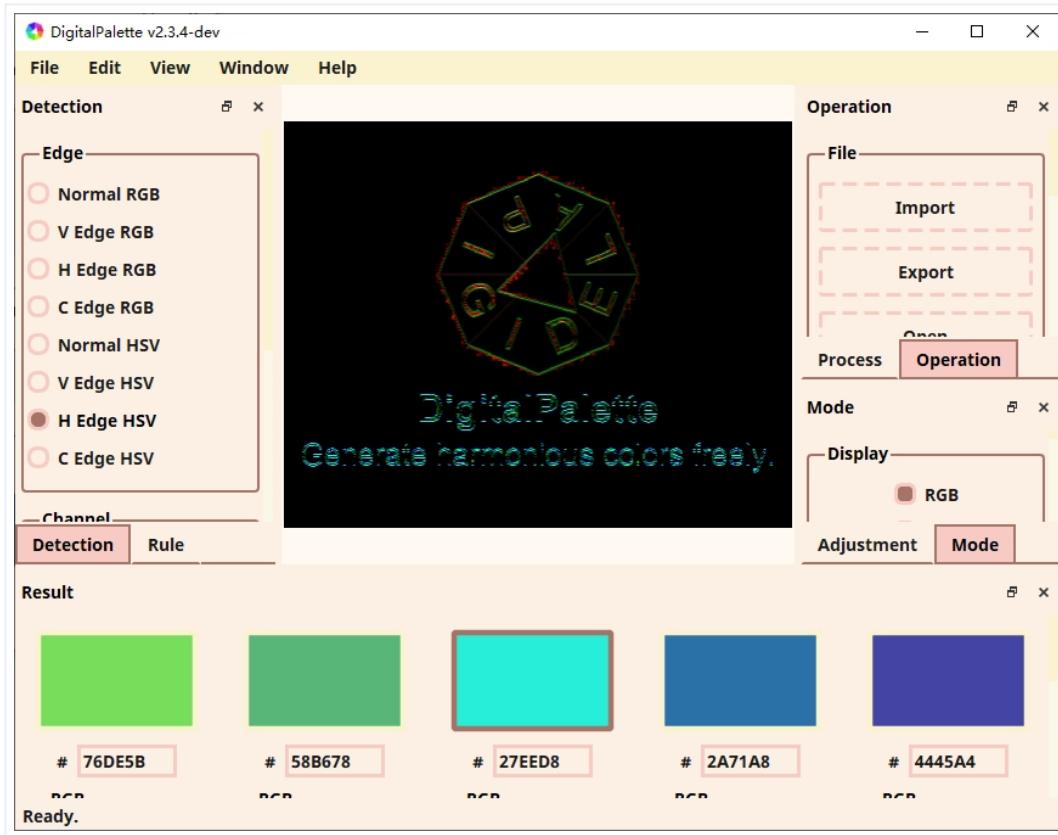
Detect the vertical edges of image based on HSV values. The brighter the position, the more clear the HSV boundary.



● H Edge HSV

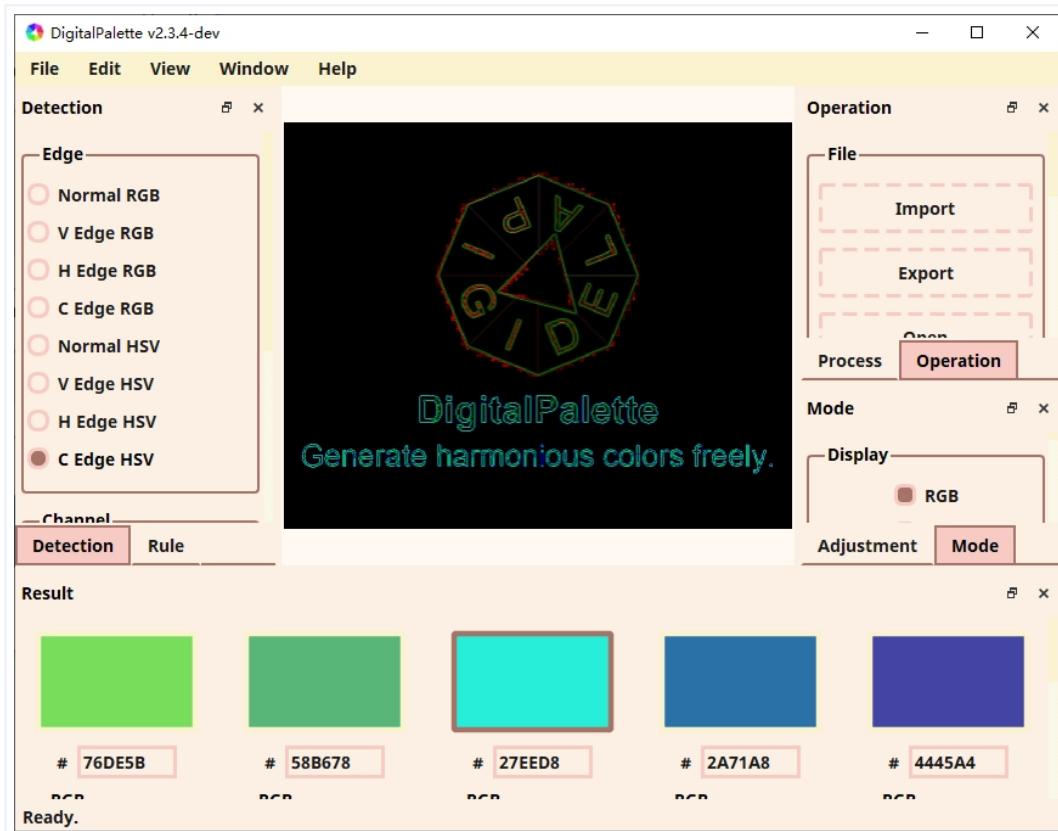
Detect the horizontal edges of image based on HSV values. The brighter the position, the more clear the HSV boundary.





④ C Edge HSV

Detect the vertical and horizontal edges of image based on HSV values. The brighter the position, the more clear the HSV boundary.

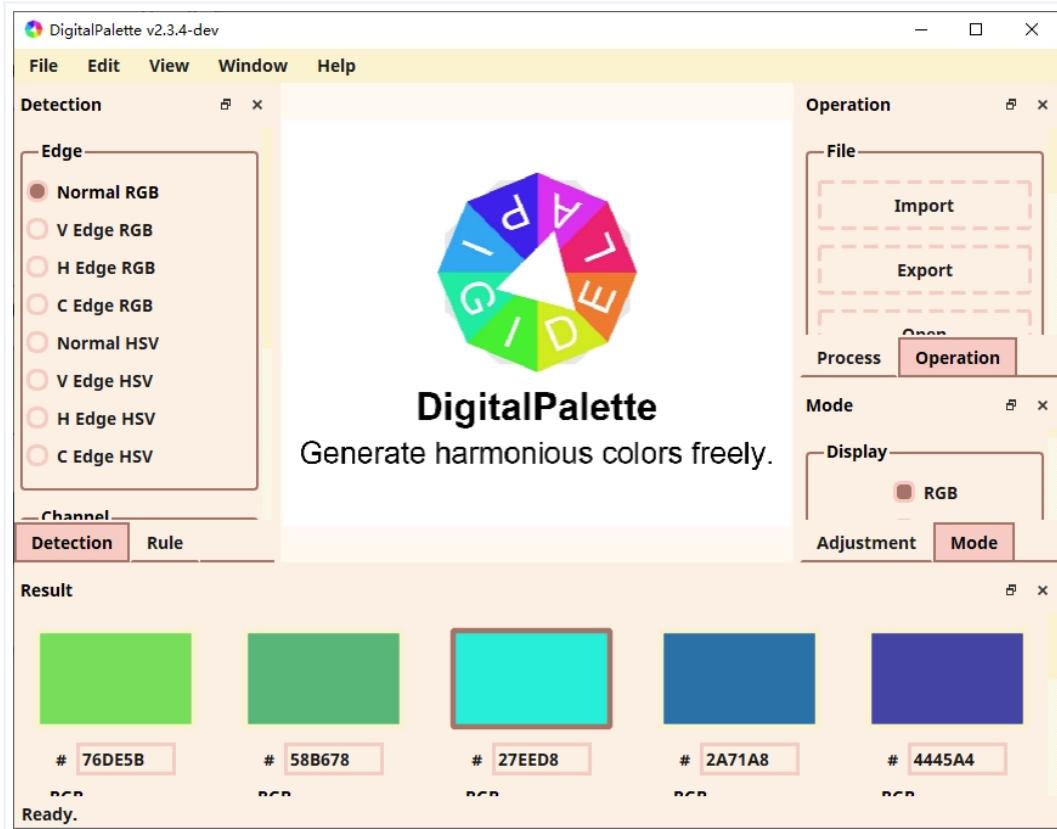


↗ Channel Detection

Select the channel detection category of image.

- Full RGB (HSV)

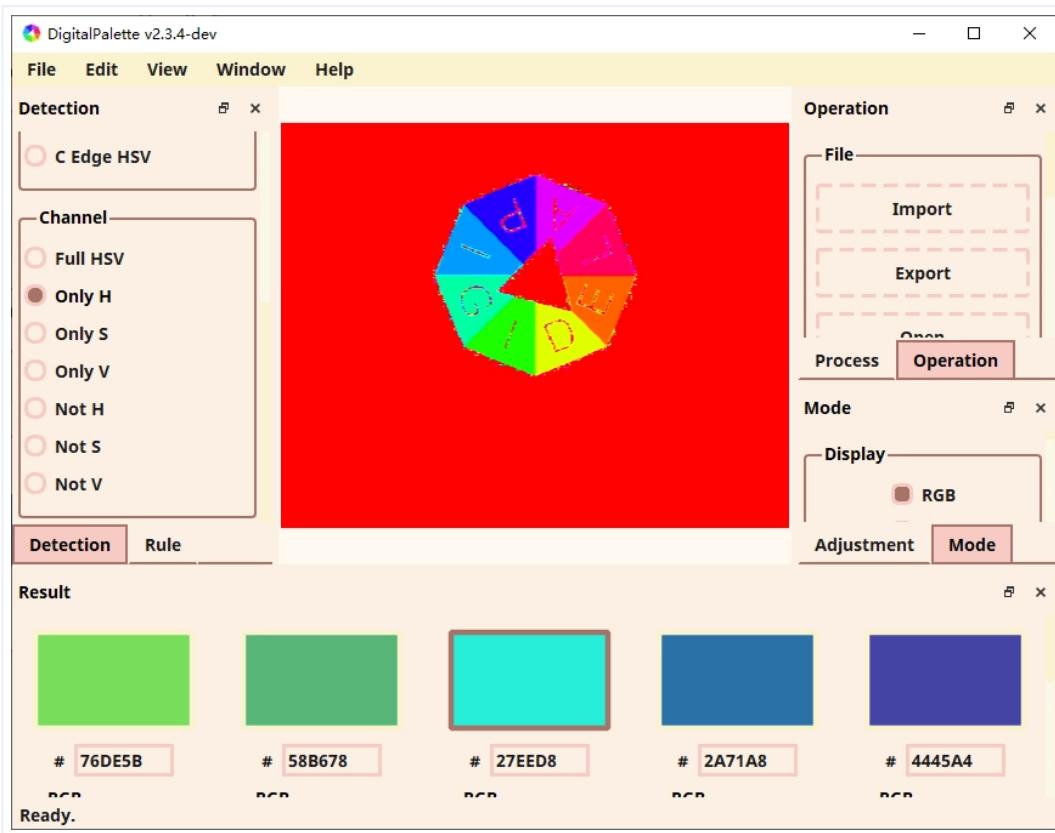
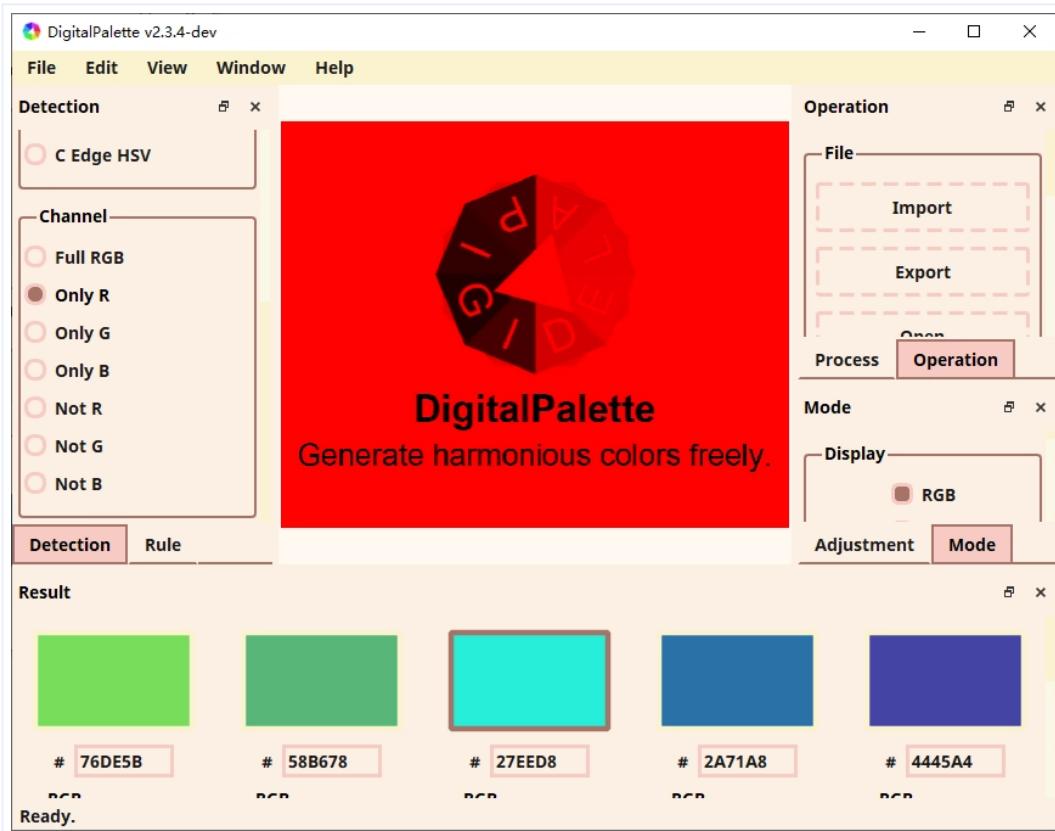
Display full R, G and B (H, S and V) channels.



- Only R (H)

Only display R (H) channel.

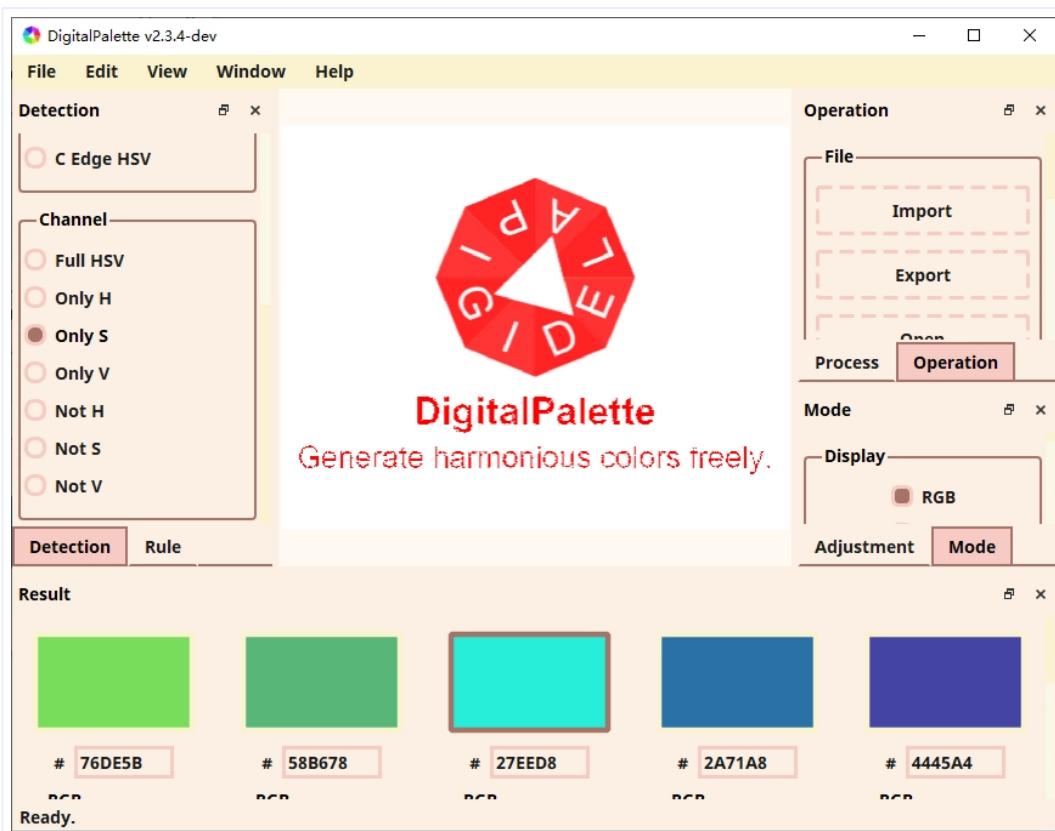
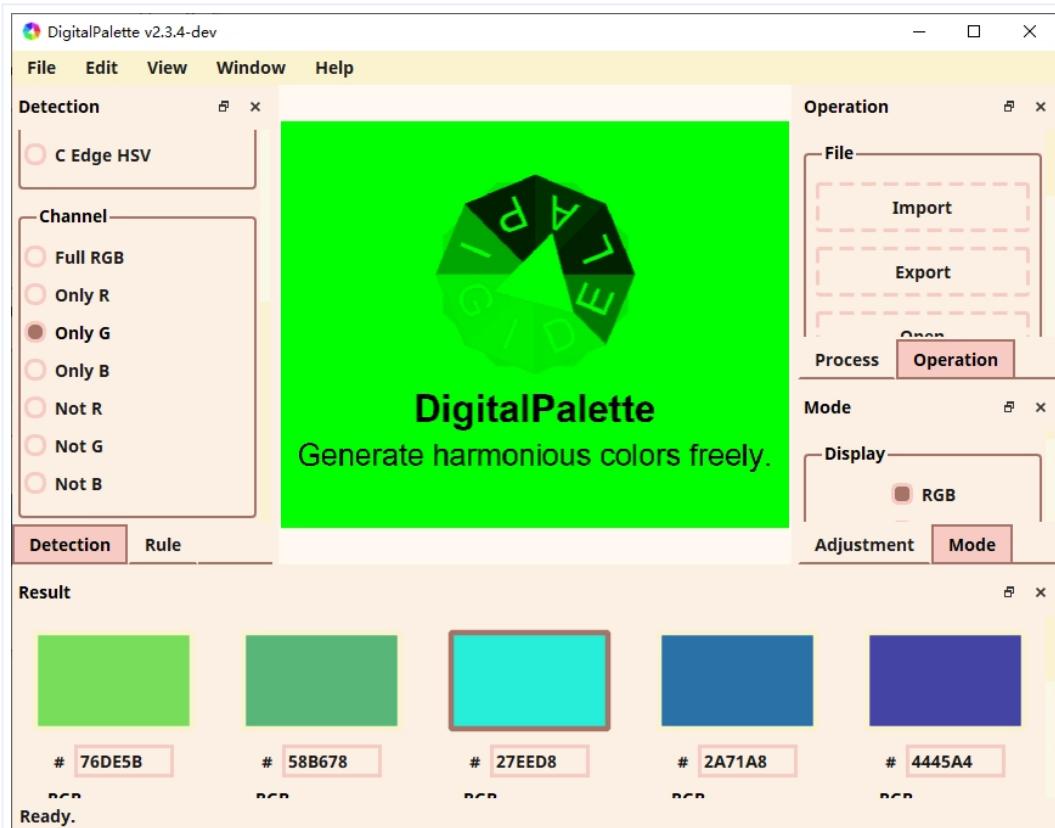




Only G (S)

Only display G (S) channel.

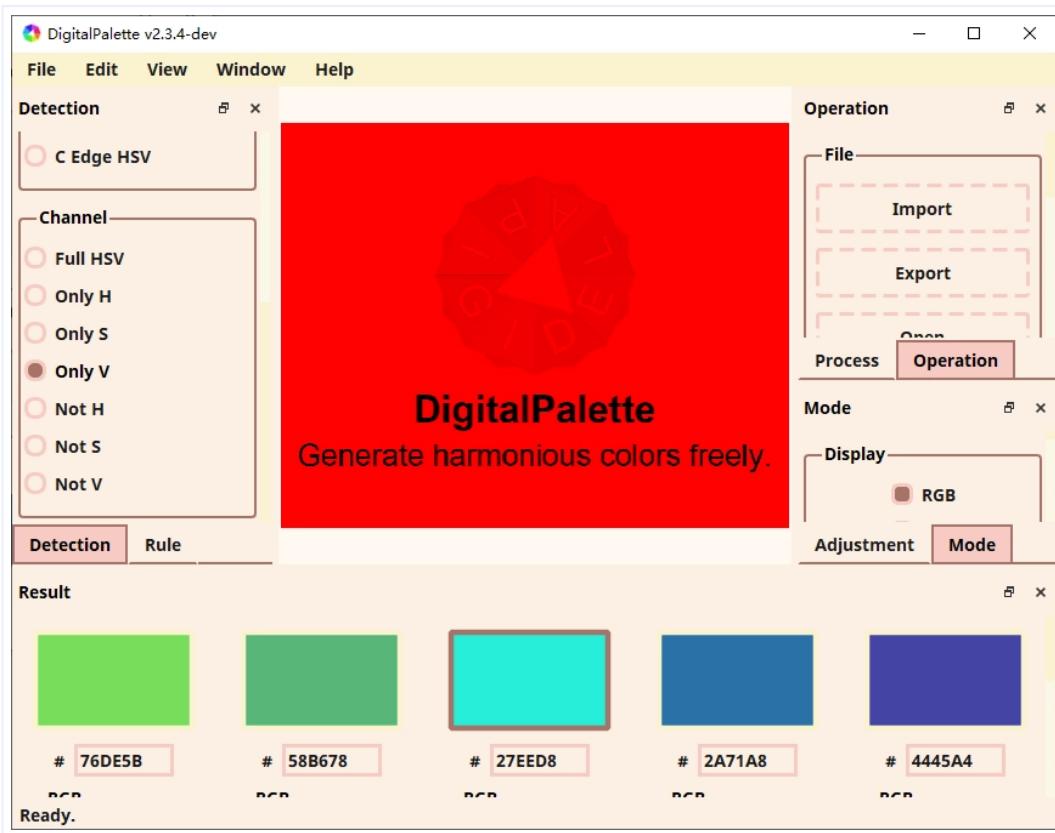
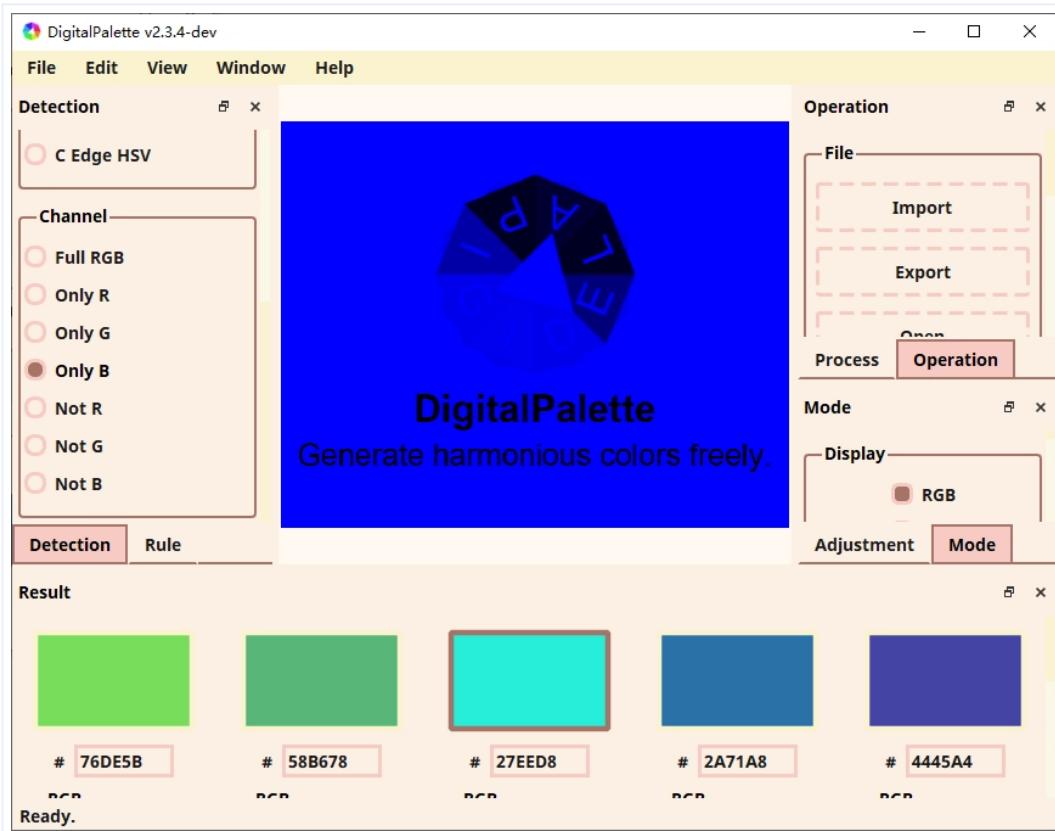




Only B (V)

Only display B (V) channel.

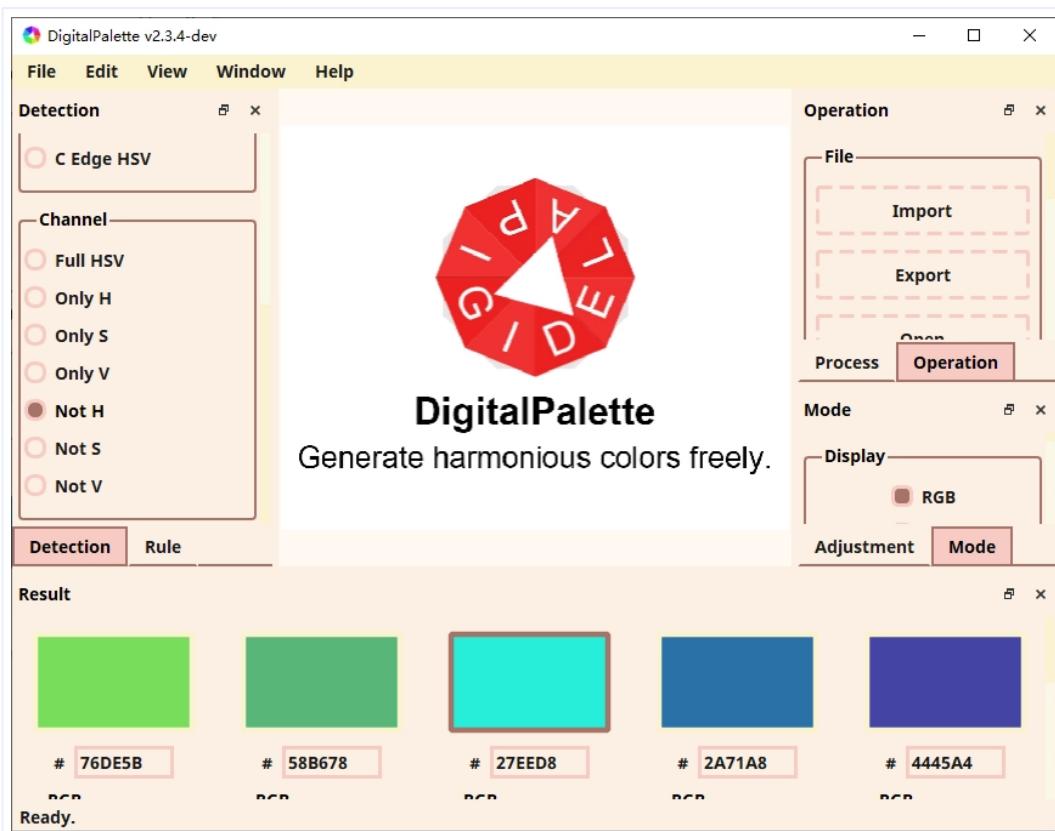
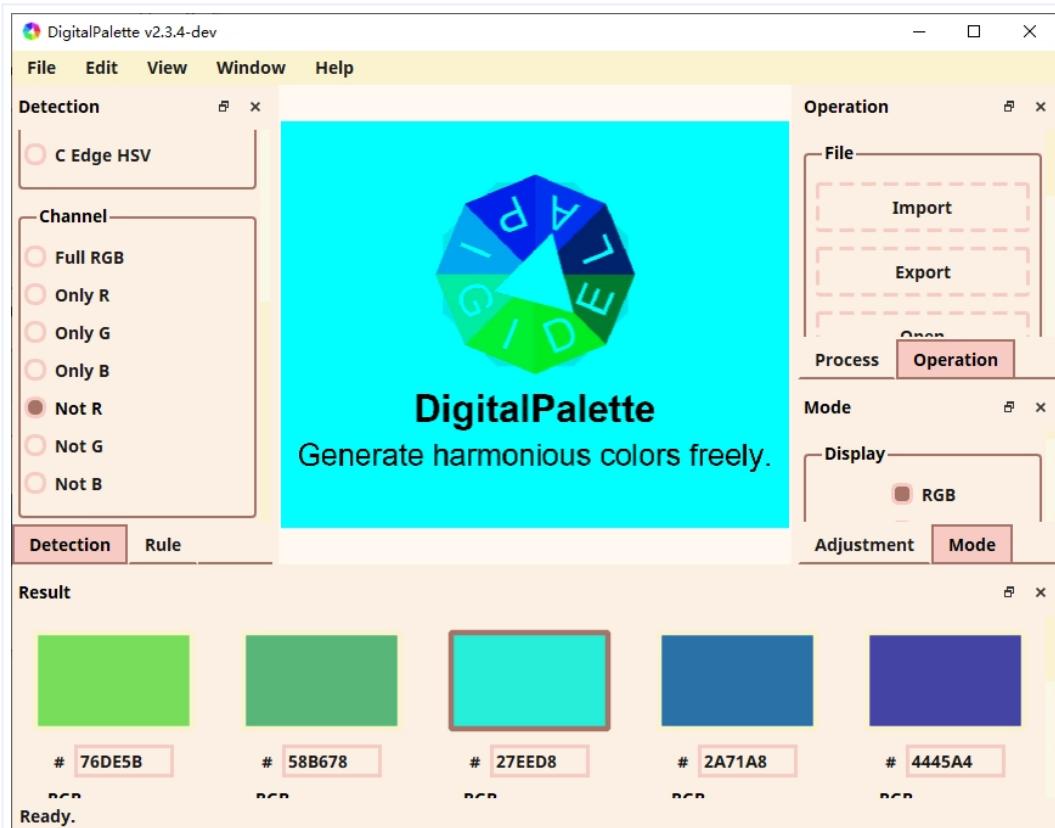




- Not R (H)

Only display G and B (S and V) channels.

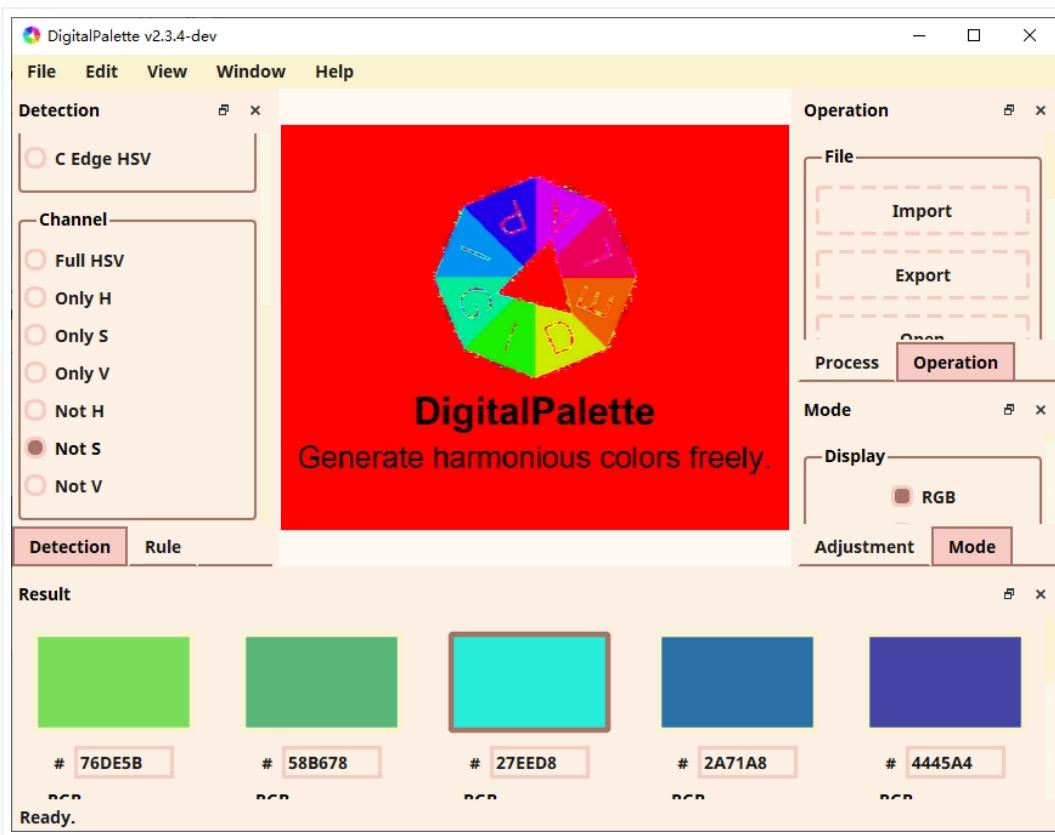
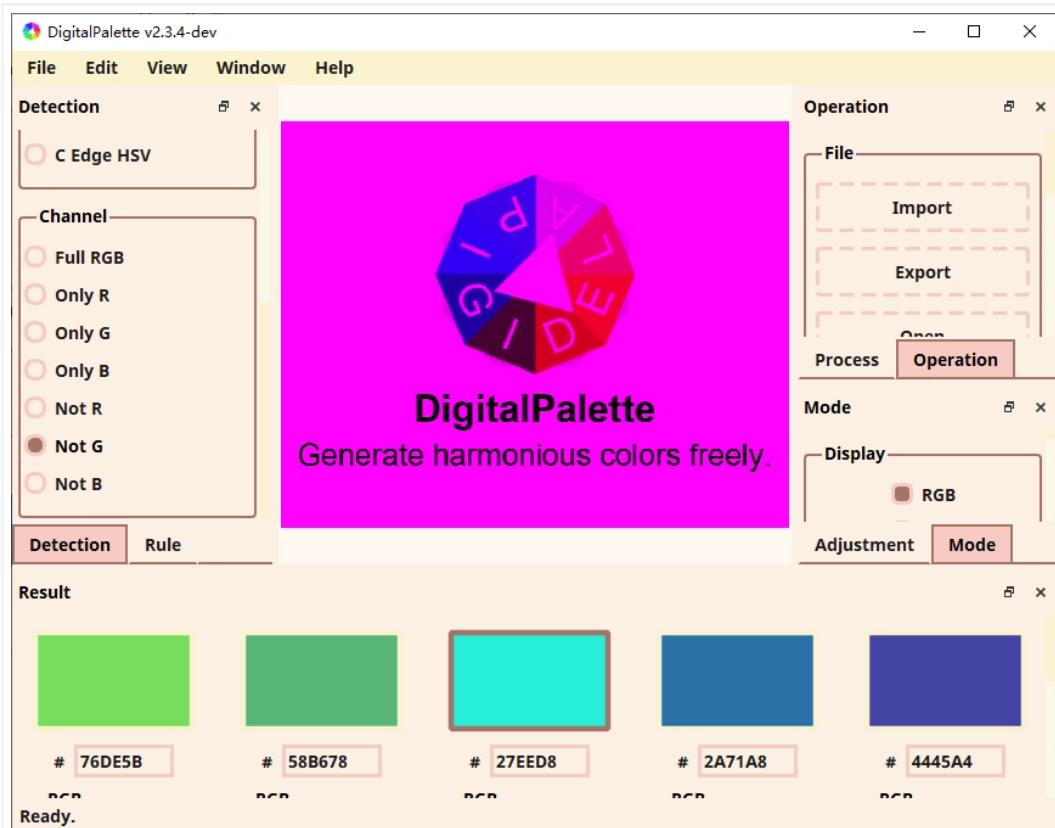




- Not G (S)

Only display R and B (H and V) channels.

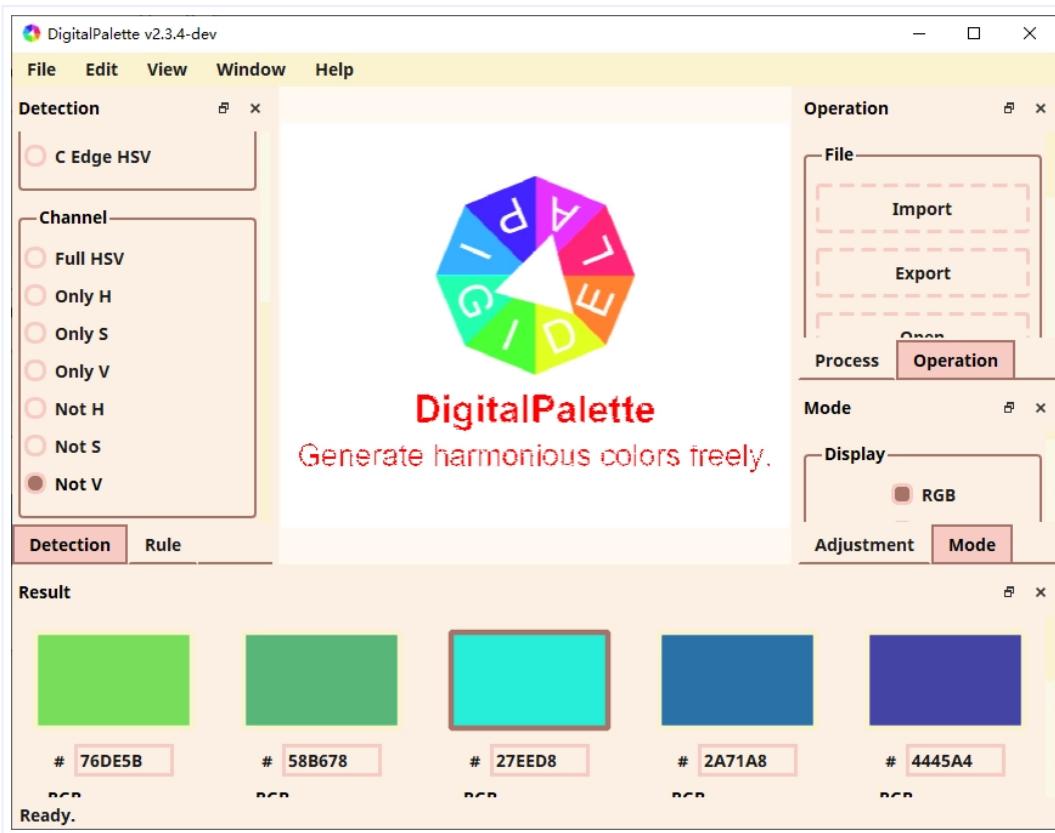
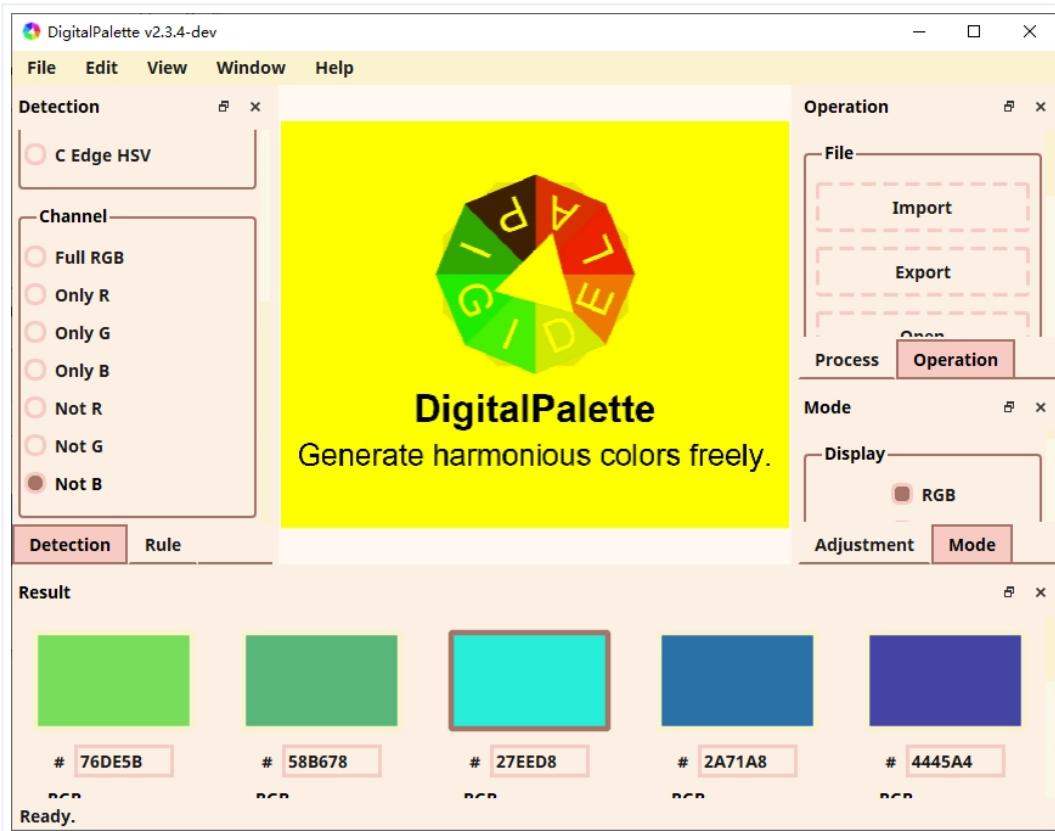




- Not B (V)

Only display R and G (H and S) channels.





⌚ Operation Window

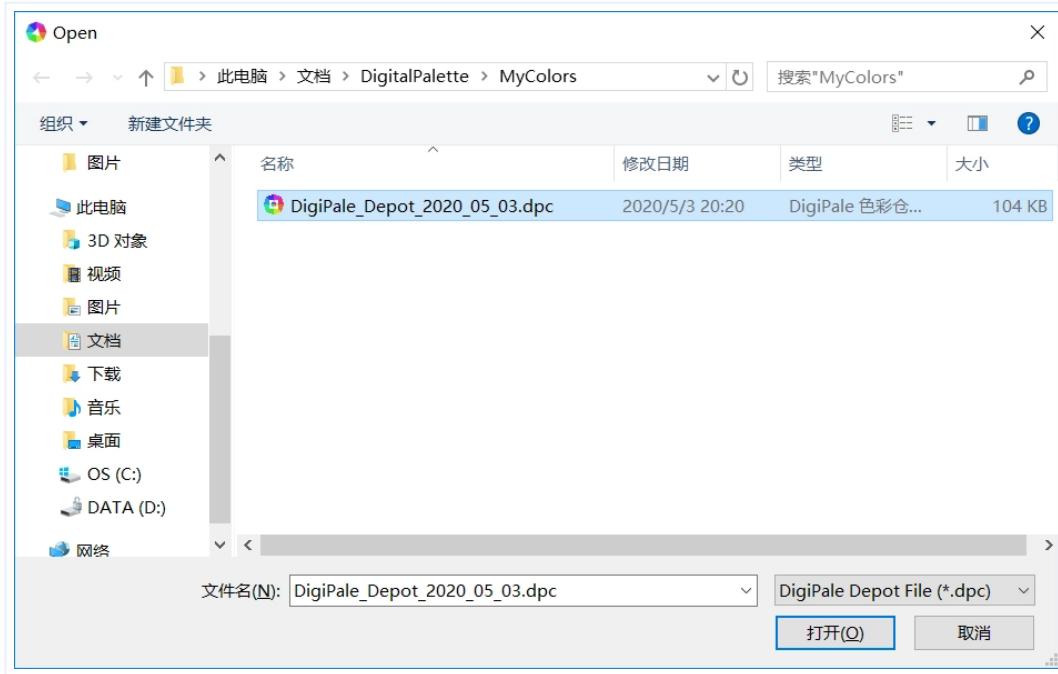
You could operate files and views in "Operation" window.

⌚ File Operation

After collocating a set of colors, you could export (or save) the color set in "Result" window (or all color sets in depot) as readable and writable files or files in other formats for later backups and usages. You could also import (or open) existed color files into (in) software.

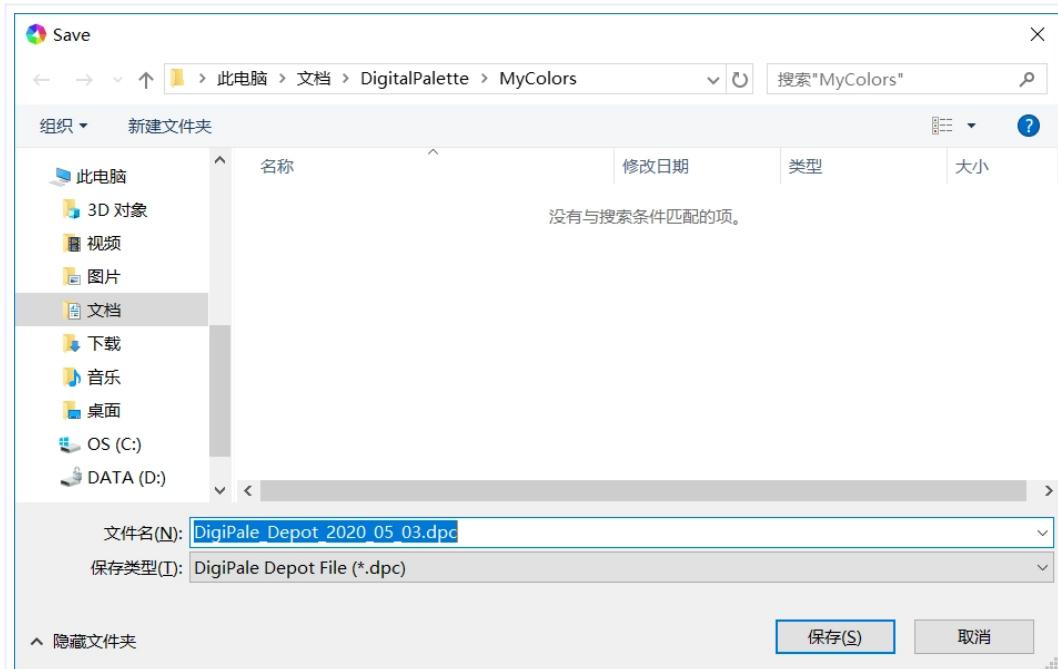
● Open

Open a color depot file in software. The supported file formats include: Firework Depot File (*.dpc) and Firework Json File (*.json).



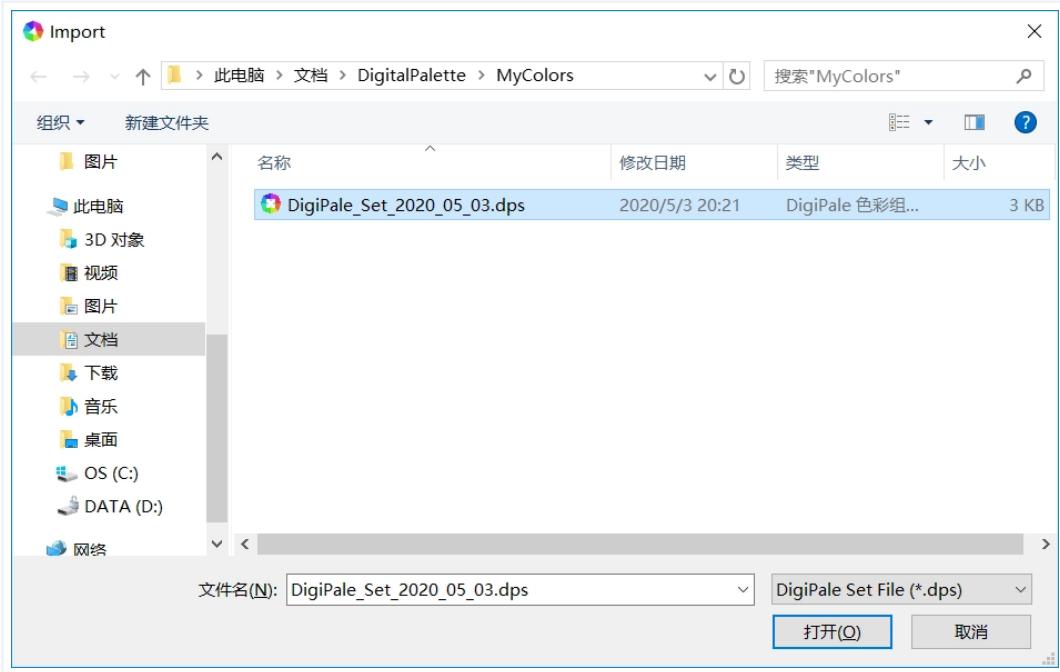
● Save

Save the color depot as local file. The supported file formats include: Firework Depot File (*.dpc), Plain Text File (*.txt), Adobe Swatch File (*.aco), GIMP Palette File (*.gpl) and Pencil Palette File (*.xml).



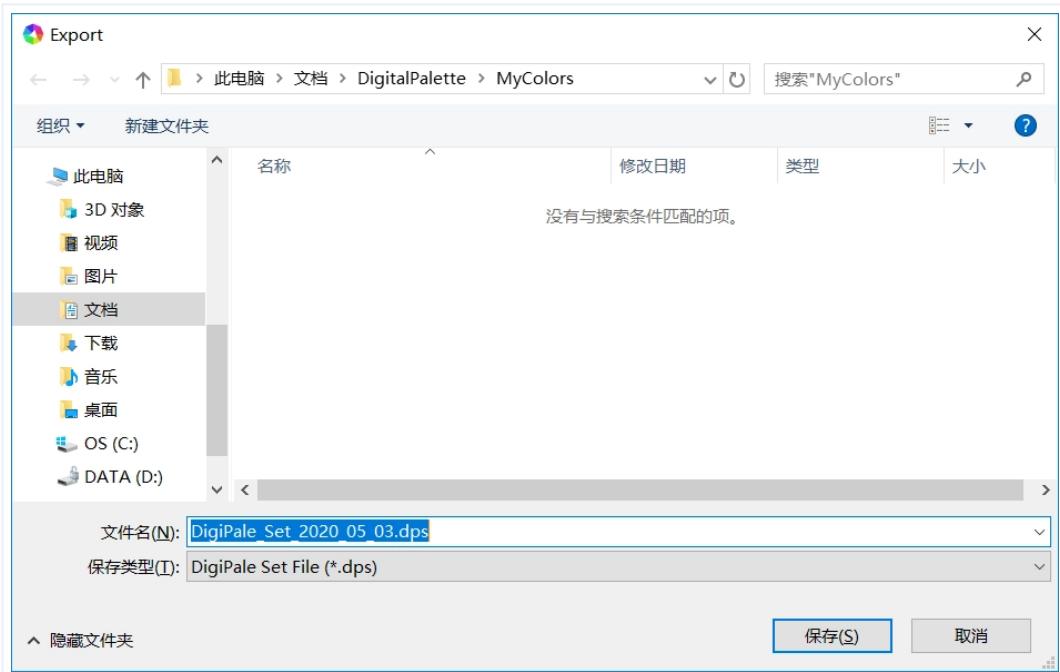
● Import

Import a color set file in software. The supported file formats include: Firework Set File (*.dps), Firework Json File (*.json), Plain Text File (*.txt), Adobe Swatch File (*.aco), GIMP Palette File (*.gpl) and Pencil Palette File (*.xml).



● Export

Export the color set as local file. The supported file formats include: Firework Set File (*.dps), Plain Text File (*.txt), Adobe Swatch File (*.aco), GIMP Palette File (*.gpl) and Pencil Palette File (*.xml).



⌚ View Operation



By means of inner view operations, you could switch to wheel view and create a set of colors from wheel, or switch to image view and locate a set of colors from image, or switch to board view and derive a board from color set, or switch to depot view attach the color set into depot. For more details, please see **Work Area**.

Process Window

You could process a image, include extract, filter, snap, crop and zoom, in "Process" window. Different from operations in "Adjustment" window, these operations on image are irreversible.

Extract

You could locate a set of colors automatically by using the extract processes. Meanwhile, the harmony rule will change into custom automatically.

Bright Colorful

The color set extracted from an image are mainly bright colors and supplemented by light or dark colors, reflecting the diversity of colors.

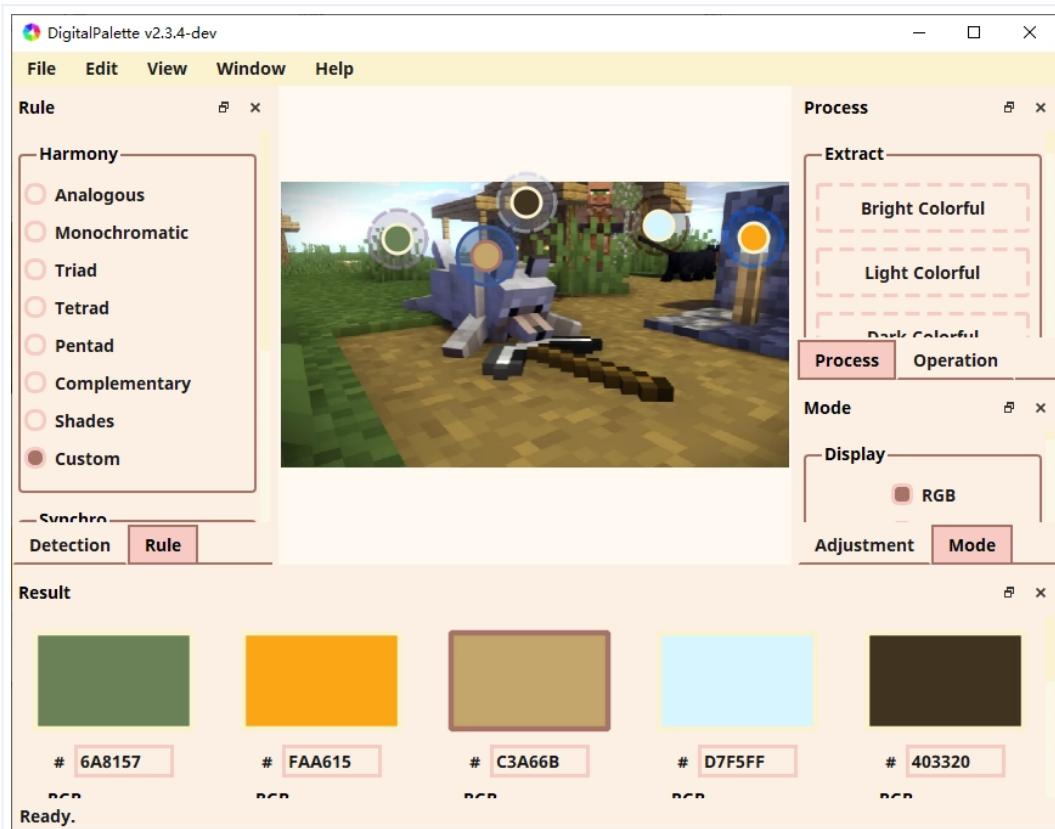
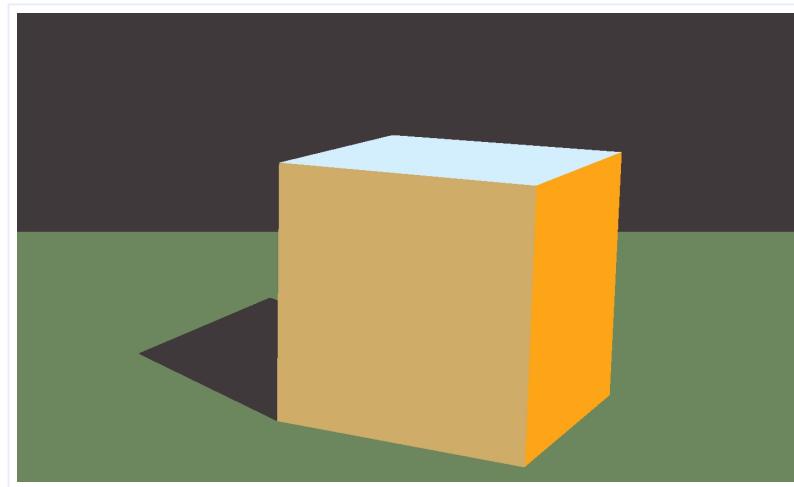


Image example coloring with the bright colorful colors.





● Light Colorful

The color set extracted from an image are mainly light colors and supplemented by dark colors, reflecting the diversity of colors.

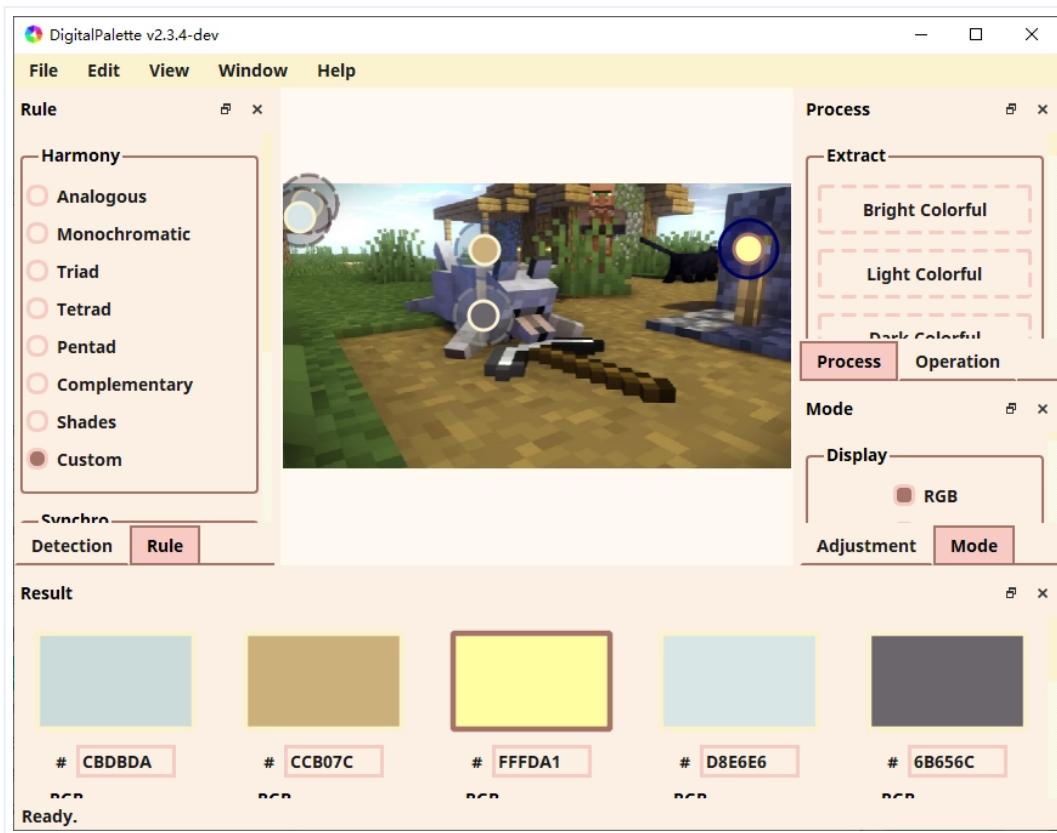
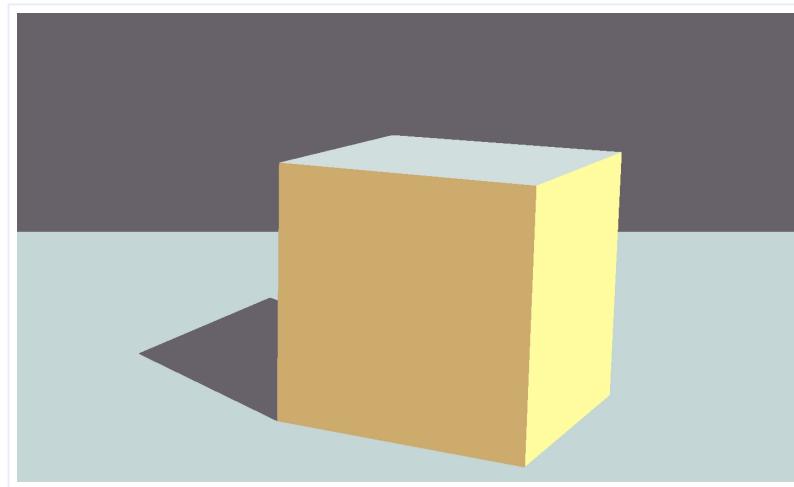


Image example coloring with the light colorful colors.





● Dark Colorful

The color set extracted from an image are mainly dark colors and supplemented by light colors, reflecting the diversity of colors.

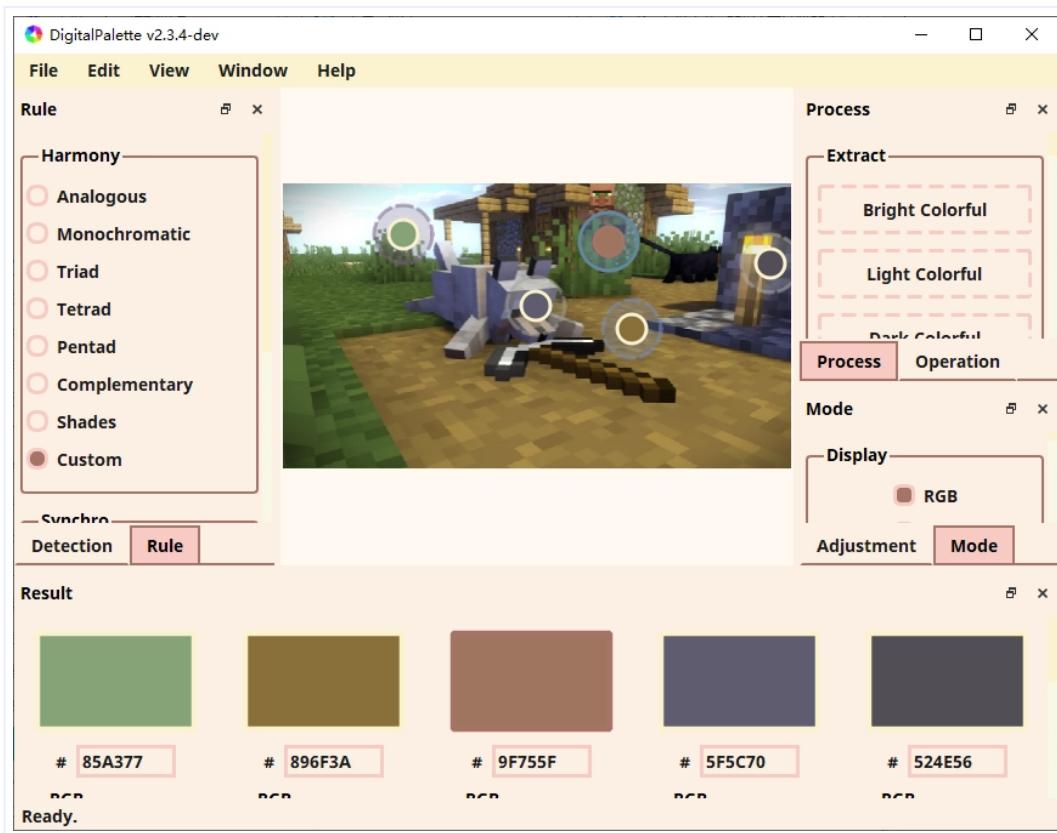
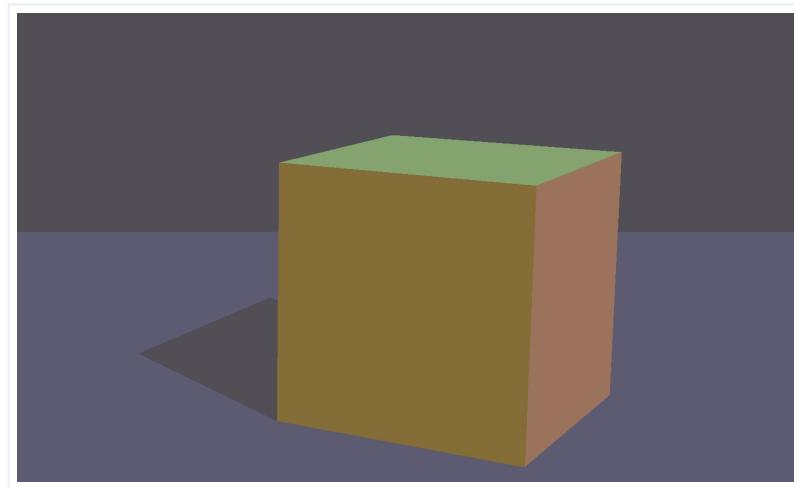


Image example coloring with the dark colorful colors.





● Bright

Extract bright colors from an image, reflecting the homogeneity of colors.

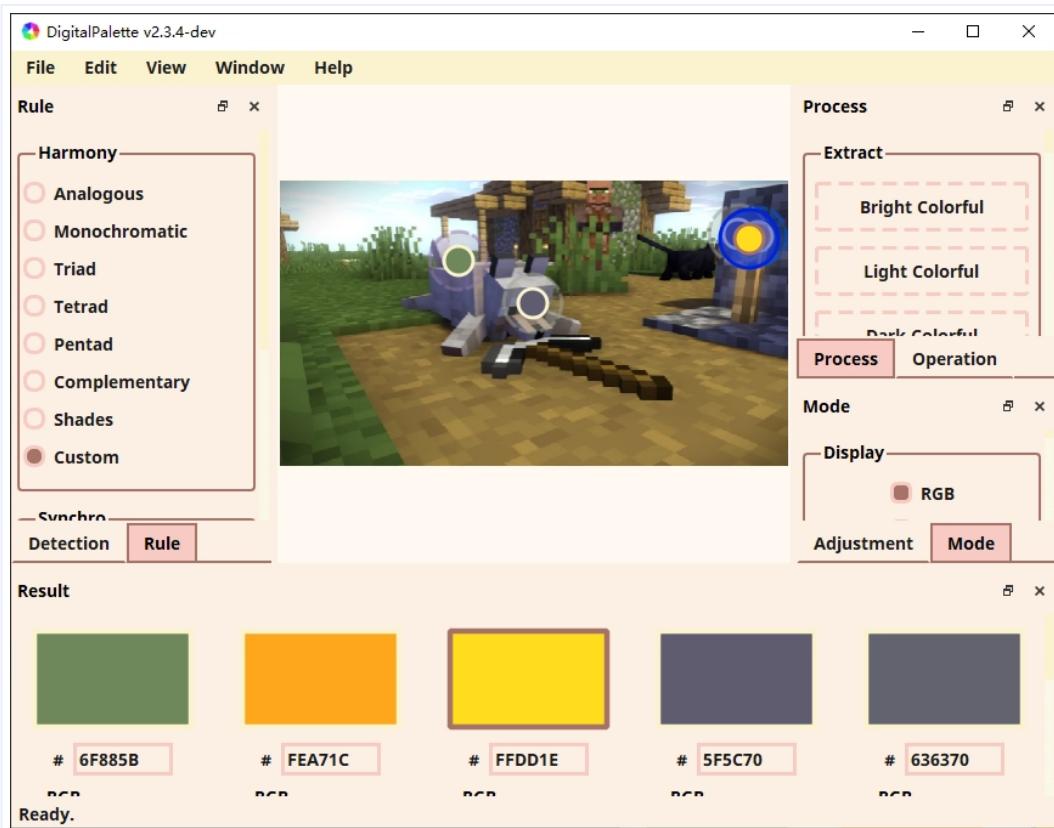
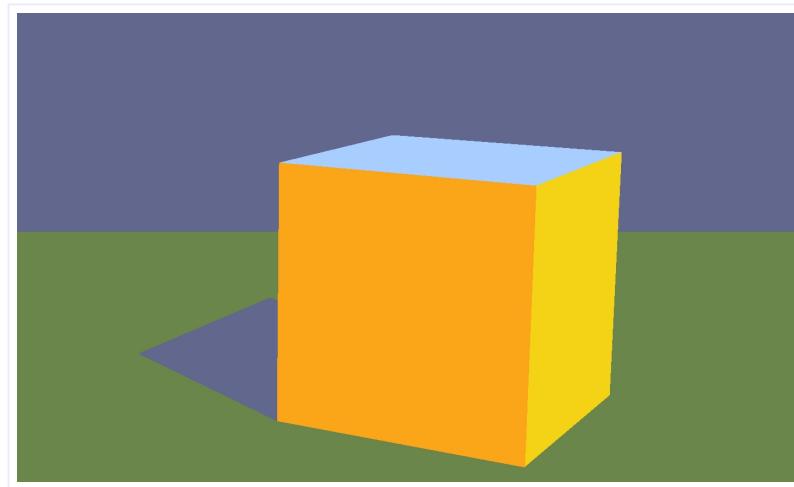


Image example coloring with the bright colors.





● Light

Extract light colors from an image, reflecting the homogeneity of colors.

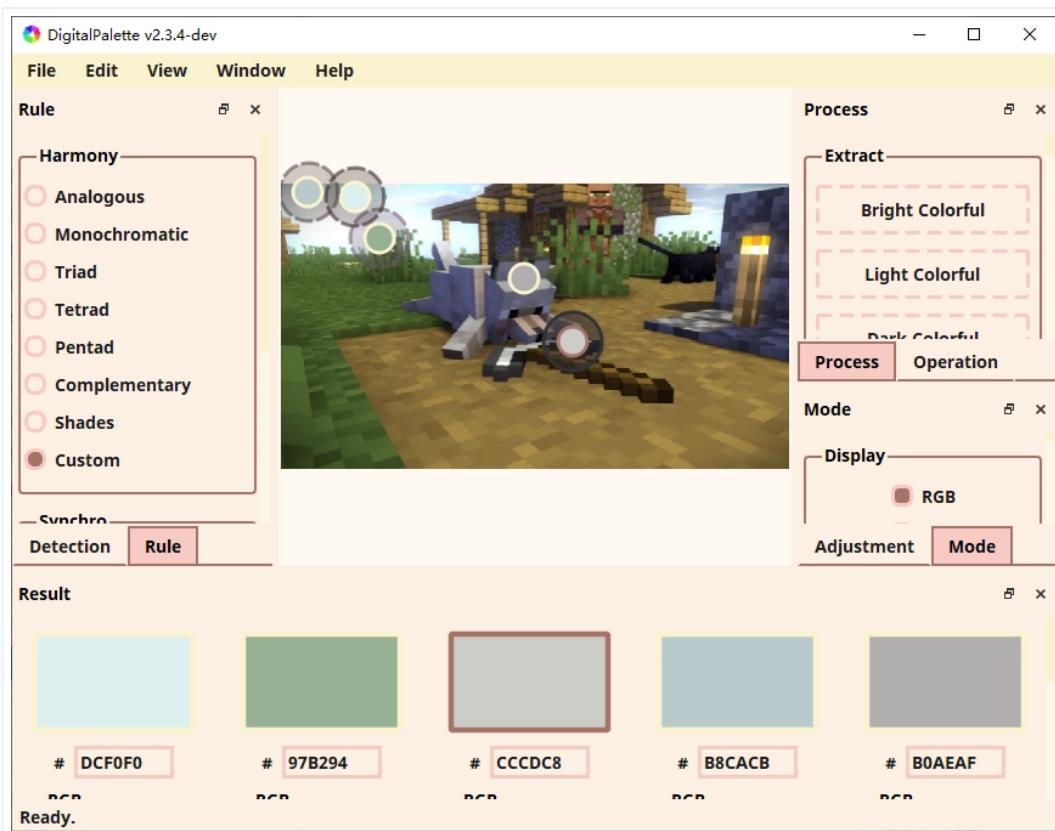
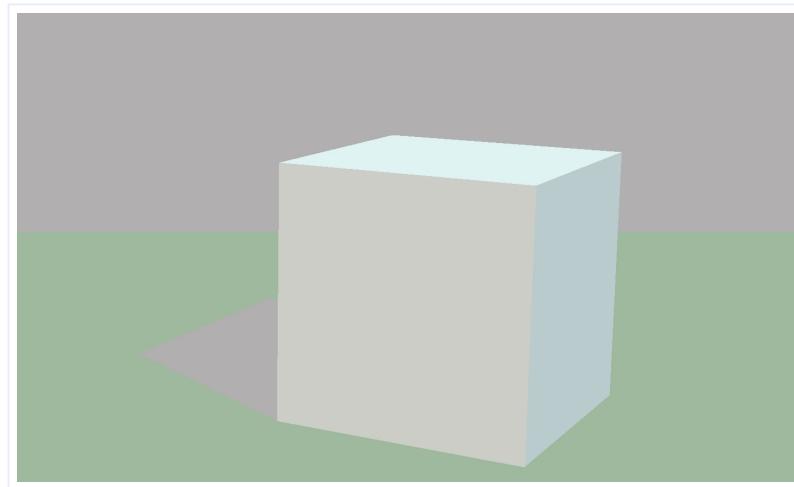


Image example coloring with the light colors.





● Dark

Extract dark colors from an image, reflecting the homogeneity of colors.

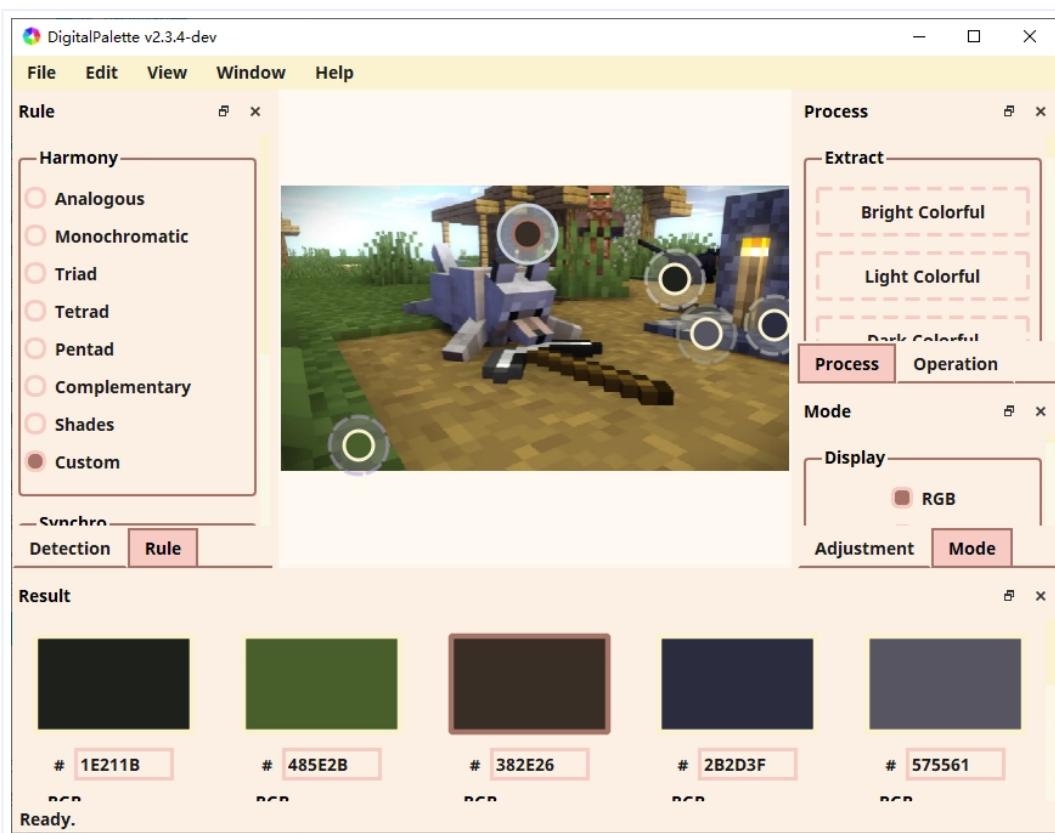
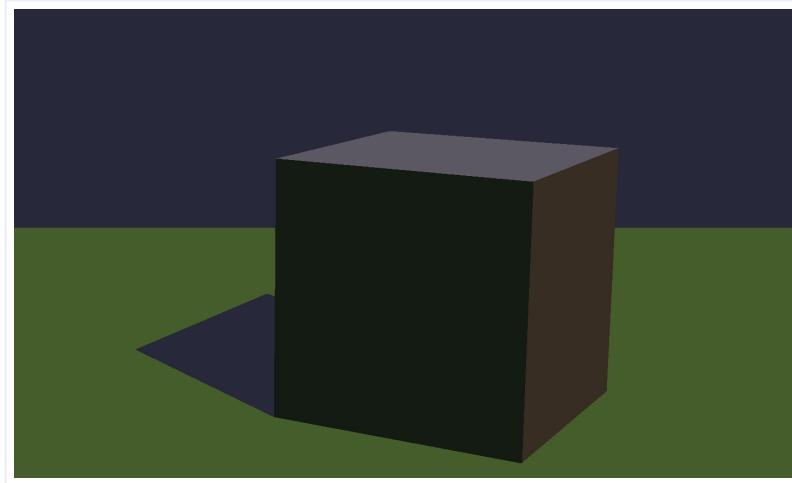


Image example coloring with the dark colors.





❖ Filter

You could improve the image quality to preferably locate colors in image by applying filter processes. Note that the filter processes are irreversible.

❖ Snap

You could freeze or export image by applying snap processes. Some process provided by software won't change the original image, such as operations in "Detection" and "Adjustment" windows. In this situation, the located colors are colors of original image. You could use "Freeze Image" to fix the image if you want to locating colors from a processed image. Note that the snap processes are irreversible.

❖ Crop (Zoom)

You could crop or zoom the image arbitrarily by applying crop or zoom processes. The smaller the image is, the faster the process is. Note that the crop and zoom processes are irreversible.

❖ Mode Window

You could set and modify the display modes for color set result and board in "Mode" window.

❖ Display Mode

In display mode, you could show or hide the sliders of R, G, B or H, S, V in "Result" window.

- RGB

Check the "RGB" box to display the R, G, B sliders in "Result" window, uncheck to hide them.



HSV

Check the "HSV" box to display the H, S, V sliders in "Result" window, uncheck to hide them.

Assistant Mode

Control the color mode of assistant points in dynamic board. The color of a assistant point is obtained by shifting the color of control point. For example, selecting "S" and setting the value as "-0.35" mean that the saturation (S) of assistant point's color is lower than that of control point about -0.35.

Grid Mode

Control the generation mode of grid in dynamic board. Check the "Reverse Grid" and the gradient colors will use white as basic color for intermediate colors (on the contrary, uncheck uses black as basic color). "Column" indicate the column number of generated grid. The values of "Inner F" and "Outer F" indicate the influence scales of control points. The smaller the factor is, the larger the scale is. The scale controlled by "Inner F" is more concentrate than that of "Outer F". When both factors are 0, the board is fill by basic colors (white or black), indicating that the influence scales of control points are as wide as the board. However, when factors are 20 and 10, respectively, only grids around control points equip gradient colors, indicating that the influence scale of control points are concentrated. "Dim F" indicates the shifting degree of intermediate colors. "Asst F" indicate the influence scales of assistant points.

Adjustment Window

You could adjust a image, include position, size and colors, in "Adjustment" window. Different from operations in "Process" window, these operations on image are reversible.

Move (Zoom)

Move and zoom the image. Different from the crop and zoom processes in "Process" window, these operations don't change the size of original image.

Enhance

Enhance the R, G or B (or H, S, V) values of entire image. Check "Reserve Result" will keep the result of last adjustment. "Width" indicate the influence scale of color values. Color values upper than "Space" will be enhanced, while lower will be reduced. "Factor" indicate the magnitude of enhancement.

Inverse



Inverse the R, G or B (or H, S, V) values of entire image. Check "Reserve Result" will keep the result of last adjustment.

Replace

Replace the RGB (or HSV) value of image at a place by activated color in "Result" window, and colors at other locations will also be changed correspondingly. "Replace" is simiar to "Enhance", but use the replaced color as separator. "Spread" indicate the degree of approaching to replaced color. Other arguments are same to "Enhance".

Cover

Cover the R, G or B (or H, S, V) values of current image by another image in same size. Check "Reserve Result" will keep the result of last adjustment.

Result Window

You could check and modifying the results of color set in "Result" window.

Result window contains five squares, and the colors of squares are corresponding to the colors of tags on wheel. Double click a color square and you could modify the color directly in the opened dialog. Simultaneously, the tags on wheel will be also changed. Additionally, the opened dialog provides a function to pick screen color, which could obtain the colors of other windows in current screen directly.

There are hex code strings, RGB sliders and HSV sliders below five squares, which could also change the colors directly. Also, you could show or hide the sliders by **Mode Window**.

Shortcut

Introduction	shortcut 1	shortcut 2
General	-	-
Open Software Homepage	Alt+H	F1
Search for Available Update	Alt+U	F2
Show Information About Software	Alt+B	F3
Settings	Alt+T	'
→ Close Software	Esc	

Introduction	shortcut 1	shortcut 2
Close Software Without Saving	Alt+Q	
Keep Main Window on Top	Ctrl+T	
Show or Hide All Windows	Ctrl+A	
Operation	-	-
Open a Color Depot File	Alt+O	Ctrl+O
Save Color Depot into File	Alt+S	Ctrl+S
Import a Color Set File	Alt+I	Ctrl+I
Export Color Set into File	Alt+E	Ctrl+E
Creating a Set of Colors from Wheel	Alt+C	Ctrl+W
Locating a Set of Colors from Image	Alt+L	Ctrl+G
Deriving a Board from Color Set	Alt+D	Ctrl+B
Attaching the Color Set into Depot	Alt+A	Ctrl+D
Clipboard	-	-
Copy Activated RGB	R	
Copy Activated HSV	H	
Copy Activated Hex Code	X	
Copy All RGB Results	Shift+R	
Copy All HSV Results	Shift+H	
Copy All Hex Code Results	Shift+X	
Copy RGB in Selected Set	Ctrl+R	
Copy HSV in Selected Set	Ctrl+H	
Copy Hex Code in Selected Set	Ctrl+X	
Activation	-	-
Activate Tag 1	1	6

Introduction	shortcut 1	shortcut 2
Activate Tag 2	2	7
Activate Tag 3	3	8
Activate Tag 4	4	9
Activate Tag 5	5	0
Adjustment	-	-
Move Upward	Up	
Move Downward	Down	
Move Leftward	Left	
Move Rightward	Right	
Zoom In	=	+
Zoom Out	-	-
Reset	Home	
End	End	
Page Up	PgUp	
Page Down	PgDown	
Storage	-	-
Insert or Import a Set (Box)	Insert	I
Delete	Del	
Delete with Confirmation	D	
Display Information of Set (Box)	F	
Switch Two Color Boxes	Tab	S
Show or Hide Tags on Board	Space	Ctrl+Space
Derive or Clear Static Board	Ctrl+Tab	Shift+Tab
Copy	Ctrl+C	

Introduction	shortcut 1	shortcut 2
Paste	Ctrl+V	
Withdraw (Data in Board)	Ctrl+Z	

Supported File Formats

- Firework Set File (*.dps)
File in this format contains all color data in current color set, including the harmony rule, hex code, RGB, HSV values of colors and board list. This type of file could be used as backups and can be imported (recovered) into Haworthia the Firework.
- Firework Depot File (*.dpc)
File in this format contains all color data in color depot, including the harmony rule, hex code, RGB, HSV values of colors and board list. This type of file could be used as backups and can be imported (recovered) into Haworthia the Firework.
- Plain Text File (*.txt)
File in this format contains basic color data, including the hex code, RGB and HSV values of colors. This type of file has better readability than Firework Json File and can be opened, readed and edited by ordinary editors directly.
- Adobe Swatch File (*.aco)
File in this format contains all color values and can be imported into image processing softwares such as Photoshop, GIMP and Clip Studio Paint as a color swatch.
Available color types include: RGB, HSV, CMYK, LAB (CIE-LAB) and Grey. Note that software will not use any CMYK profile for importing CMYK colors (or exporting colors into CMYK type). Hence, the converted RGB values may not equal in other softwares. In addition, you should provide the "White Reference Illuminant" (default as "D65 (Daylight, sRGB, Adobe-RGB)") and "Standard Colorimetric Observer" (default as "2° (CIE 1931)") before importing LAB colors (or exporting colors into LAB type). The converted RGB values under different standard references are different. Please use RGB when exporting files if no special requirements. The color type and reference values are provided in settings dialog.

P.S. White Reference Illuminant and Standard Colorimetric Observer Values (from: www.easyrgb.com)

Standard	2° (CIE 1931)			10° (CIE 1964)			Illustrations
Colorimetric Observer	White	X _n	Y _n	Z _n	X _n	Y _n	Z _n
→							

Reference							
Illuminant							
A	109.850	100.000	35.585	111.144	100.000	35.200	Incandescent/t
B	99.0927	100.000	85.313	99.178	100.000	84.3493	Old direct sunl noon
C	98.074	100.000	118.232	97.285	100.000	116.145	Old daylight
D50	96.422	100.000	82.521	96.720	100.000	81.427	ICC profile PCS
D55	95.682	100.000	92.149	95.799	100.000	90.926	Mid-morning c
D65	95.047	100.000	108.883	94.811	100.000	107.304	Daylight, sRGB, Adobe-RGB
D75	94.972	100.000	122.638	94.416	100.000	120.641	North sky dayli
E	100.000	100.000	100.000	100.000	100.000	100.000	Equal energy
F1	92.834	100.000	103.665	94.791	100.000	103.191	Daylight Fluore
F2	99.187	100.000	67.395	103.280	100.000	69.026	Cool fluorescer
F3	103.754	100.000	49.861	108.968	100.000	51.965	White Fluoresc
F4	109.147	100.000	38.813	114.961	100.000	40.963	Warm White Fluorescent
F5	90.872	100.000	98.723	93.369	100.000	98.636	Daylight Fluore
F6	97.309	100.000	60.191	102.148	100.000	62.074	Lite White Flu
F7	95.044	100.000	108.755	95.792	100.000	107.687	Daylight fluore D65 simulator
F8	96.413	100.000	82.333	97.115	100.000	81.135	Sylvania F40, D simulator
F9	100.365	100.000	67.868	102.116	100.000	67.826	Cool White Fluorescent
F10	96.174	100.000	81.712	99.001	100.000	83.134	Ultralume 50, F TL85
F11	100.966	100.000	64.370	103.866	100.000	65.627	Ultralume 40, F



							TL84
F12	108.046	100.000	39.228	111.428	100.000	40.353	Ultralume 30, F TL83

○ Adobe Exchange File (*.ase)

File in this format contains all color values and can be imported into image processing softwares such as Photoshop as a color swatch.

Note that you can't export HSV colors in this format. The comments for CMYK and LAB colors are above. In addition, you should provide the exchange type before exporting in this format. Exchange types include: "Spot", "Global" and "Process", see Swatch.

○ GIMP Palette File (*.gpl)

File in this format contains all color values and can be imported into image processing softwares such as GIMP and Krita as a color swatch.

○ Pencil Palette File (*.xml)

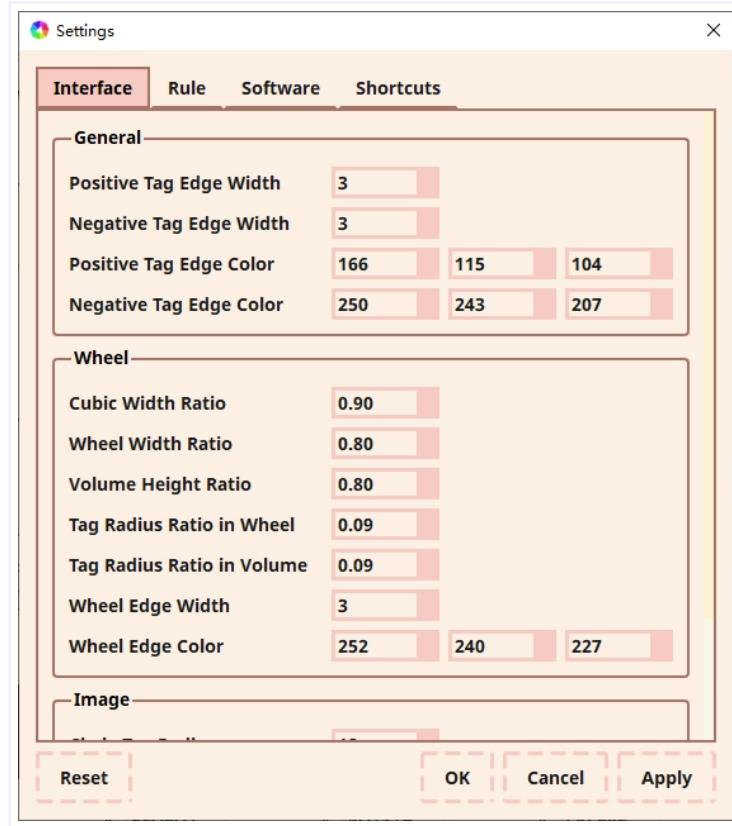
File in this format contains all color values and can be imported into image processing softwares such as Pencil2D as a color swatch.

⌚ Common Questions

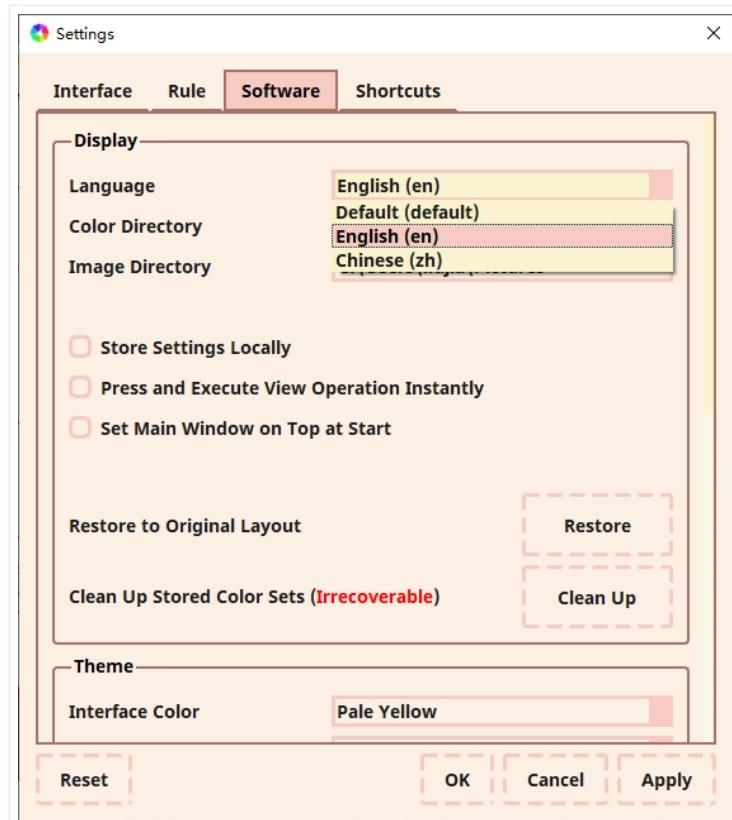
⌚ How to change the interface language?

- 1 Click "Edit" in the menu bar and select "Settings", and open the settings dialog.



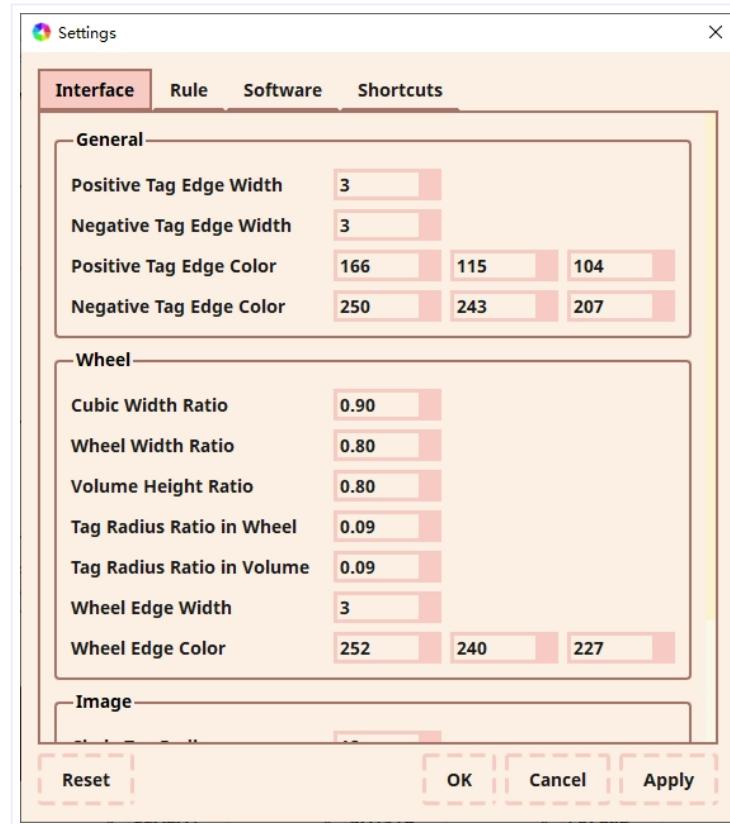


- 2 Click the "Software" tab and select the target language in the drop-down menu beside "Language", such as "English".

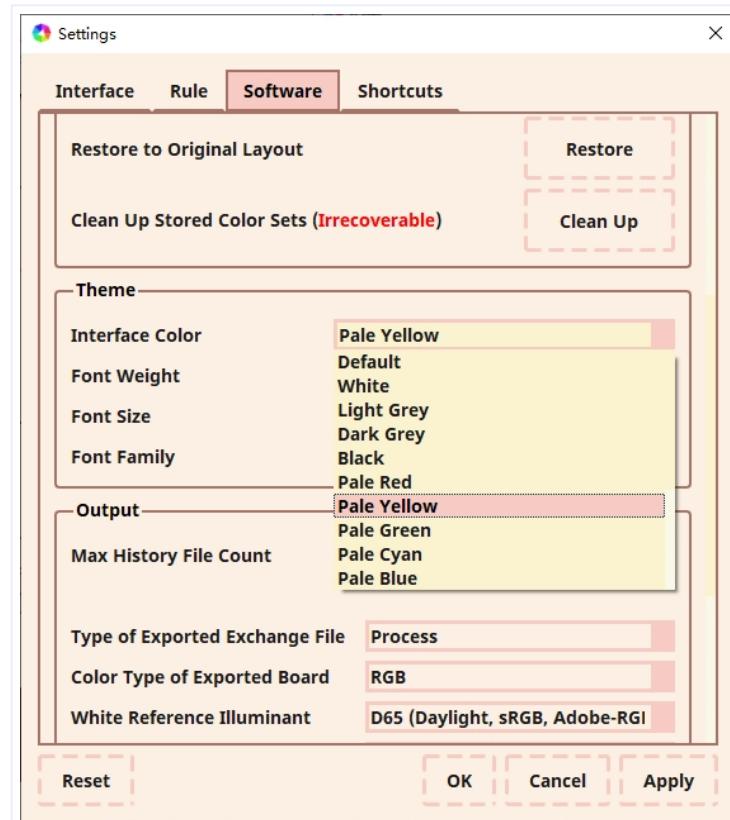


→ **How to change the theme color of software?**

- 1 Click "Edit" in the menu bar and select "Settings", and open the settings dialog.

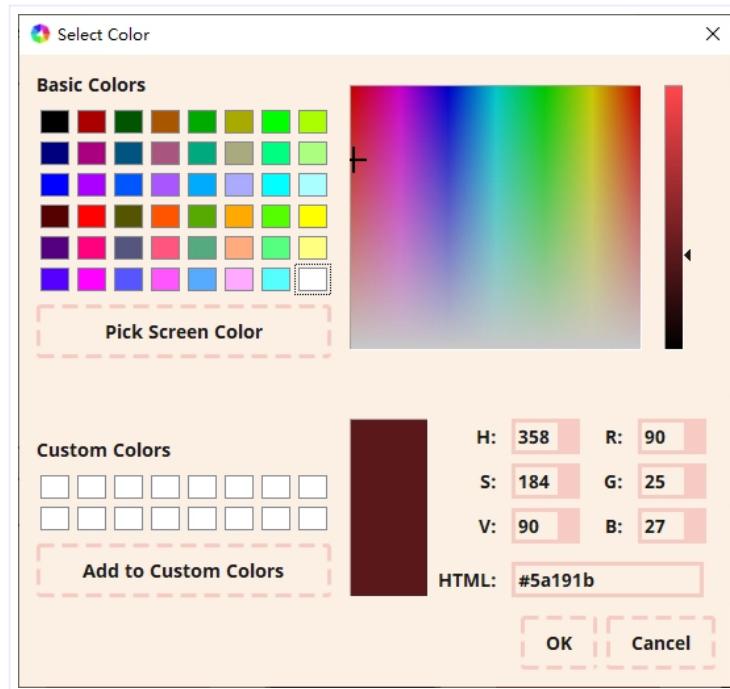


- 2 Click the "Software" tab and select the target theme color in the drop-down menu beside "Interface Color", such as "Pale Magenta".



6 How to pick up colors from screen?

- 1 Double click any color square in "Result" window. The opened dialog provides a function to pick screen color, which could obtain the colors of other windows in current screen directly.



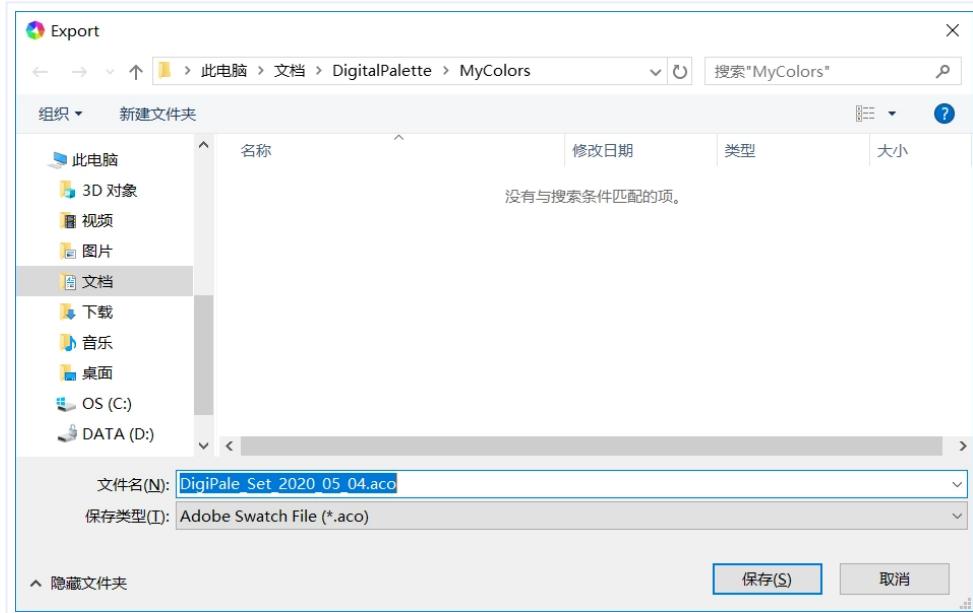
How to export color set file and import it into other image



processors?

- 1 Click "Export" in "File" button box, "Operation" window, and export this color set as a Adobe swatch file (*.aco). Note that in DigitalPalette v2.3.3 or later, the export action will create two swatch files by default, where file without "_Grid.aco" extention (for example, "DigiPale_Set_2020_05_04.aco") only contains five colors of color set in "Result" window, and file with "_Grid.aco" extention ("DigiPale_Set_2020_05_04_Grid.aco" in this example) contains full gradient colors in board. The extended name could be set in settings dialog ("Extended Name of Exported Board File" in "Software" tab).





- 2 For Adobe Photoshop: Firstly, open Adobe Photoshop and select "Load" in swatch box and open the file dialog. Then, find the pre-saved swatch file and click "Open". The harmonious colors would be added to the end of current swatch.
- 3 For GIMP: Firstly, open GIMP and select "Import Palette" with right-bottom cliked in colormap and open the import dialog. Then, find the pre-saved swatch file and click "Import".
- 4 For Clip Studio Paint (or UDongman Paint): Firstly, open Clip Studio Paint and select "Load" in swatch box and open the file dialog. Then, find the pre-saved swatch file and click "Open". The harmonious colors would be opened in a new swatch.

⌚ How to keep main window on top?

- 1 Click "Edit" in the menu bar and select "Settings", and open the settings dialog.
- 2 Click the "Software" tab and check "Set Main Window on Top at Start", and software window will keep on top at next time when start. You can also press shortcut **Ctrl+T** to keep window on top immediately (press again to cancel it).

⌚ How to restore to original layout of software?

- 1 Click "Edit" in the menu bar and select "Settings", and open the settings dialog.
- 2 Click the "Software" tab and click the "Resotre" button near "Resotre to Original Layout".

⌚ How to reset all settings of software?

- 1 Click "Edit" in the menu bar and select "Settings", and open the settings dialog.
- 2 Click the "Reset" button at left bottom.

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