

Pixel Bender Accelerator

Adobe After Effects®

User Manual

version 1.21

Copyright © 2013-2015 CROSSPHERE

## Contents

<b>Overview</b>	<b>3</b>
<b>Setup</b>	<b>5</b>
Platform	5
Install	5
Uninstall	5
<b>How to use</b>	<b>6</b>
Warning for Pixel Bender files used for the first time	6
Apply Pixel Bender	6
Alternate way to apply Pixel Bender files	6
The differences from Pixel Bender filter effects supported After Effects	6
Check the Pixel Bender Information	7
Reload the invalid Pixel Bender file	7
Automatically reloading for the invalid Pixel Bender file	8
Check the Hardware Information	8
Export error log	8
<b>Pixel Bender programming guide for PBAccelerator</b>	<b>9</b>
Don't use GLSL reserved words as identifiers	9
Don't use the identifiers beginning with "pbka_", "_pbka_", "pbga_", "_pbga_"	9
Use explicit values in parameter metadata block	9
Maximum number of available parameters	10
<b>Postscript</b>	<b>11</b>
Author	11
Links	11

# Overview

PBAccelerator is a plugin for Adobe After Effects®.

This plugin loads Pixel Bender Kernel and Pixel Bender Graph files and executes them as effects in After Effects.

Unlike Pixel Bender filter supported before After Effects CS6, the plugin executes the filter with the graphics card GPU, this makes the PB filter run much faster.



Image: plugin loaded twirl.pbk, a sample file of Pixel Bener Kernel.



Image: plugin loaded sepia-twirl.pbg, a sample file of Pixel Bener Graph.

For more information about Pixel Bender, refer to [Pixel Bender Technology Center](#).

# Setup

---

## Platform

- Adobe After Effects (for Windows and Mac OS X) CS4 or later.
  - **OpenGL version 2.0 or later** is required  
(To check OpenGL version, see Edit(Windows)/After Effects(Mac OS) > Preference > Previews, click "GPU Information..." button).
  - **GLSL and Graphic card correspond to GLSL code translated from Pixel Bender.**  
The required version depends on the Pixel Bender filter. See also the section [How to use, warning.](#)
- 

## Install

Place the plugin in the '**Plug-ins**' folder inside the After Effects folder.  
Default directory is:

(win CS6)

C:\Program Files\Adobe\Adobe After Effects CS6\Support Files\Plug-ins

(mac CS6)

/Applications/Adobe After Effects CS6/Plug-ins

---

## Uninstall

1. Launch After Effects and apply PBAccelerator to a layer. Click "PB Info" or "About..." button in the top of effect panel.
2. Click "Unregister" button on the popup panel.
3. A popup to confirm will appear, click "Yes".
4. Shut down After Effects, and remove the plugin from the 'Plug-ins' folder.

# How to use

---

## Warning for Pixel Bender files used for the first time

This plugin does **NOT CHECK** the **SAFETY** of Pixel Bender Kernel files (.pbk) or Pixel Bender Graph files (.pbg).

For Pixel Bender file used first time:

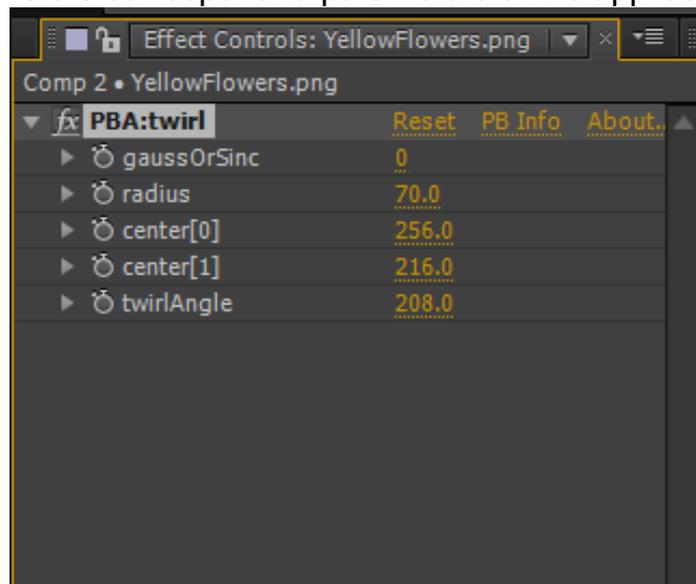
- Make a backup for all files being used.
- Validate the Pixel Bender file with the Pixel Bender Toolkit.  
You can download Pixel Bender Toolkit from [Pixel Bender Technology Center](#).

## Apply Pixel Bender

Apply Pixel Bender Accelerator to the target layer in After Effects (Effects > CROSSPHERE > PBAccelerator.)

A file open dialog appears. Choose the Pixel Bender file (.pbk or .pbg).

When the effect is applied correctly, the name of effect is changed to PBA:(Pixel Bender name), and the UI parameters correspond to parameters of the applied Pixel Bender.



The parameter UI when PBAccelerator loads twirl.pbk, a sample of Pixel Bender Kernel.

---

## Alternate way to apply Pixel Bender files

When PBAccelerator is applied to a layer, it checks the first marker of the layer. If the marker comment has a valid file path to a Pixel Bender file, PBAccelerator loads the Pixel Bender file without opening the file open dialog.

This function is mainly for scripting. For a sample of script, refer to the included PBA\_Launcher script.

---

## The differences from Pixel Bender filter effects

# supported After Effects

Unlike the native Pixel Bender filter effects supported After Effects CS4, CS5, CS5.5, PBAccelerator has these features:

- **Parameters are sorted by their type**

Though parameters of native Pixel Bender filters are in the sequence ordered in Pixel Bender, parameters of PBAccelerator are sorted by type.

- **The number of parameters have a maximum limit for each parameter type**

PBAccelerator has a limited number for each type of parameter. The parameters that exceed the limit are used at their default value. The max limits for each type are shown below.

Type	Layer	Checkbox	Popup	Slider(Integer)	Slider	Point	Angle	Color
max	3	20	10	10	50	10	10	10
parameterType	(inputImage)	(bool)	enum	(int)	(float)	point	angleDegrees	colorRGB(A)
aeUIControl	(inputImage)	(bool)	aePopup	(int)	(float)	aePoint	aeAngle	aeColor

Max number for each type of parameters. In lower 2 rows, corresponding metadata types are shown.

- Region functions are ignored

In PBAccelerator, region functions (needed-function, changed-function and generated-function) are ignored. Input region and output region are the same as layer size.

Instead, those regions are able to be changed by precomposing, or effects that change the layer bounds such a **Grow Bounds** and **RGS Grow Bounds**.

---

## Check the Pixel Bender Information

Click "**PB Info**" (or "**Register**" for trial version) in the header of the PBAccelerator UI, an information panel of the Pixel Bender filter appears.



Information of twirl.pbk, a sample of Pixel Bender Kernel.

And if there is an error log, error log exporting is offered.

---

## Reload the invalid Pixel Bender file

When specified Pixel Bender file is not loaded, or loaded Pixel Bender file is invalid, another Pixel Bender file is specified by [checking the Pixel Bender information](#).

---

## Automatically reloading for the invalid Pixel Bender file

If a folder where load Pixel Bender filters from is set, and there are Pixel Bender filters with invalid filepath, this plugin search the filters from the folder and set the Pixel Bender filters if they are found.

A folder set as a root folder of the attached script "PBA\_Launcher.jsx" is used by the folder this plugin searches from.

This folder is set also by writing next to the preference file of After Effects.

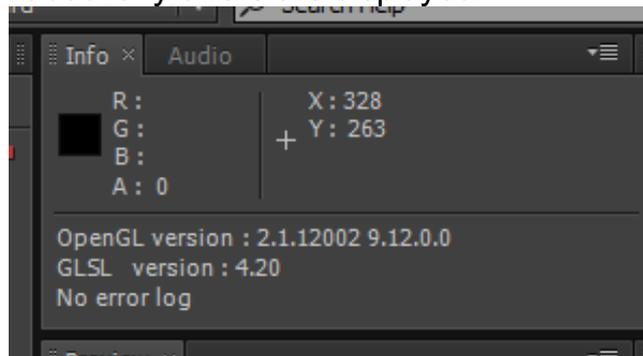
```
["Settings_cs_PBA_Launcher"]  
"rootFolder" = "/Users/UserName/Documents/Pixel Bender"
```

Files in folders hierarchy two levels down from the folder are searched by the plugin.

---

## Check the Hardware Information

Click "**About...**" in the header of the PBAccelerator UI, the version of OpenGL driver, GLSL driver, and the information about any errors are displayed.



Information of openGL, GLSL, and error log.

And if there is an error log, error log exporting is offered.

---

## Export error log

If there is a compile error when PBAccelerator is applied, the error log is able to be exported by clicking the "**PB Info**" or "**About...**" buttons.

To export the error log, please select a folder where the error log should be exported. The log file named **PBAccelerator\_log.txt** will be exported.

When troubleshooting issues please send this log along with the Pixel Bender file to [koizumim83@gmail.com](mailto:koizumim83@gmail.com).

# Pixel Bender programming guide for PBAccelerator

PBAccelerator translates Pixel Bender Kernels into GLSL, and executes it with OpenGL. For successful translation, Pixel Bender Kernels are required to obey normal Pixel Bender grammar as well as the additional rules explained here.

---

## Don't use GLSL reserved words as identifiers

In Pixel Bender grammar, GLSL reserved words can be used as identifiers if it is not reserved in Pixel Bender. But if GLSL reserved words are used in Pixel Bender Kernel code, when the Kernel is translated, those words conflict with the GLSL reserved words. This will cause the compiled PB translated to GLSL to fail. Therefore, for successful translation by PBAccelerator, GLSL reserved words cannot be used.

Example:

A Pixel Bender code

```
float2 vec2;
```

translated into GLSL code

```
vec2 vec2;
```

this code will fail to compile.

GLSL reserved words can be referenced on the OpenGL official website, the [GLSL documents](#), section 3.6 "Keywords".

---

## Don't use the identifiers beginning with "pbka\_", "\_pbka\_", "pbga\_", "\_pbga\_"

Those identifiers will conflict when translated by PBAccelerator.

---

## Use explicit values in parameter metadata block

The plugin is not able to load implicit values in metadata block. For example:

```
#define MY_VALUE 10
const int my_max_value =100;
parameter int myParameter
<
  defaultValue:MY_VALUE;
  maxValue:my_max_value;
>;
```

Pixel Bender compiler can compile this code, but PBAccelerator can't load MY\_VALUE or my\_max\_value. User must use explicit expression:

```
parameter int myParameter
<
  defaultValue:10;
```

```
    maxValue:100;  
>;
```

For vector type parameter, like "float2", user can use constructor expression:

```
parameter float2 myVector2  
<  
    defaultValue:float2(10.0,10.0);  
    maxValue:float2(100.0,100.0);  
>;
```

## Maximum number of available parameters

There is a max limit to the number of available parameters. For more details, refer the section ["The number of parameters"](#). If the parameter limit is exceeded, those parameters will use their default values. The user will not be able change those parameters in After Effects.

# Postscript

---

## Author

Author: Koizumi (CROSSPHERE)

E-mail address: [koizumim83@gmail.com](mailto:koizumim83@gmail.com)

<http://aescrpts.com/authors/crossphere/>

---

## Links

Pixel Bender Technology Center

<http://www.adobe.com/devnet/pixelbender.html>

OpenGL

<http://www.opengl.org/>

Documents about GLSL

<http://www.opengl.org/documentation/glsl/>