

## Creation décor and ornament using Tile Builder

This is not a Tile Builder Users's Manual in common sense. It is a brief introduction into Tile Builder extensive possibilities.

If you have any questions, comments or requires, please write to [support@imageskill.com](mailto:support@imageskill.com)

You are free to use it for non-commercial purposes without author's agreement, but the reference to us is needed.

The web-address of this article is a [http://www.imageskill.com/tilebuilder/tb\\_art.pdf](http://www.imageskill.com/tilebuilder/tb_art.pdf)

## What Tile Builder is it?

Tile Builder is Photoshop-compatible plug-in for Windows developed by [ImageSkill Software](#). It will be useful for web designers, artist and computer graphics enthusiasts. It allows you create fantastic patterns by one touch using 17 tiling methods.

Tile Builder home page is

<http://www.imageskill.com/tilebuilder/tilebuilder.html>

The latest demo-version of Tile Builder you can download from

[http://www.imageskill.com/tilebuilder/TileBuilderDemo\\_Setup.exe](http://www.imageskill.com/tilebuilder/TileBuilderDemo_Setup.exe)

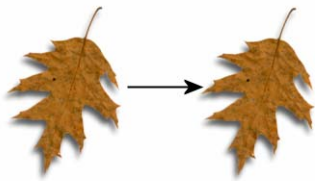
## Pattern, Frieze and Rosette

What does it mean “seamless tile or “pattern”? It is a color image (grayscale image is usually named as “texture”), that left side pixels match to right side pixels and upper side corresponds to bottom side. Using replication (or Flood Filling) of these images you can get image having any size you need without visible seam.

For example left image below is a tile (or pattern), because left side matches to right side (blue lines) and bottom side matches to upper side (red line). Right image is a result of flood filling.



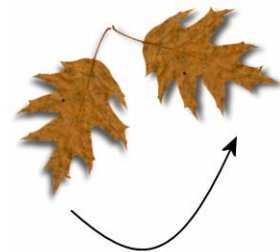
Tile Builder creates seamless tiles from images using symmetry rules (translation, rotation, reflection and glide reflection). It solves “tessellation” task - filling 2D plane by some motif without gaps and overlapping. It does not deform source image, only shifts (translation), rotates by 60, 120, 90, 180 degree step and reflects (mirrors) it.



Translation



Reflection (Mirror)



Rotation by 90 degree

There are only 17 tiling methods for plane (there is a strongly mathematical proof; you can see more detail in [The Discontinuous Groups of Rotation and Translation in the Plane](#) or [SYMMETRY AND ORNAMENT](#) by Slavik V. Jablan ), 7 types for frieze and 10 for rosette.

**Frieze** is a pattern where only two sides match to each other (for example left and right or up and bottom). In order to receive ornament form frieze use replication in only one direction.



**Rosette** is a figure created by rotation around one point and reflection.



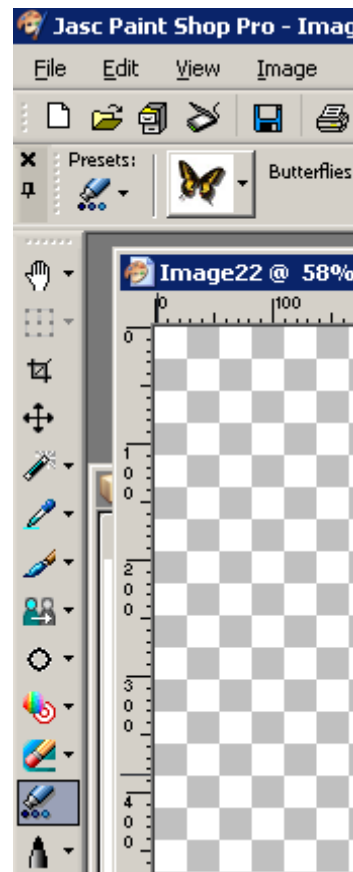
## How to create a pattern by Tile Builder?

Tile Builder works under RGB and Grayscale images with 8 and 16-bit/channel. (**NOTE:** Corel PaintShopPro X and Corel PaintShop Photo XI do not support 16-bit mode for plug-ins, so it won't work with such graphic host in 16-bit mode).

Using Tile Builder you can not “draw” pattern, you can only replicate part of your image using symmetry operations. So, in order to receive high quality pattern or ornament you have to have high quality source image. I will use “Picture Tube tool” in Jasc PaintShopPro 9.

Create transparency image  
using command “File->New” and  
check “Transparency flag”

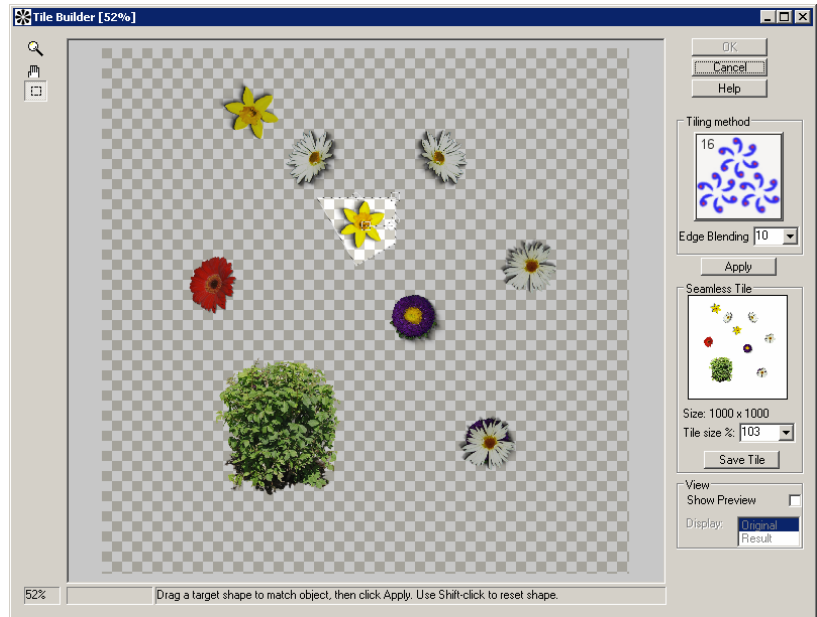
Select “Picture Tube” tool and  
choose desirable theme.



Draw a few image from selected tube and run Tile Builder

(“Effect->Plugins->Image Skill->Tile Builder”)

Select one of tiling methods, create a seamless tile, save it in PNG format. You can bend sides of target shape to match desirable motif.



Then create another tile and save it in PNG format too.

We can combine two or three tiles to one.

Copy tile to separate layer, then you can play with different blend modes.

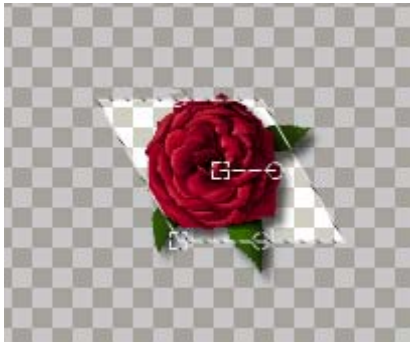




## How to create a frieze and rosette?

In common case you can not create frieze and rosette ornament using Tile Builder directly. There is a trick for creation desirable décor. Simply create tile with desirable motif, save it and then edit it using painting and erasing tools.

For example you want to create rosette with rose motif:



Create tile, fill some image, erase unnecessary parts by Eraser tool. You can add a few elements also.



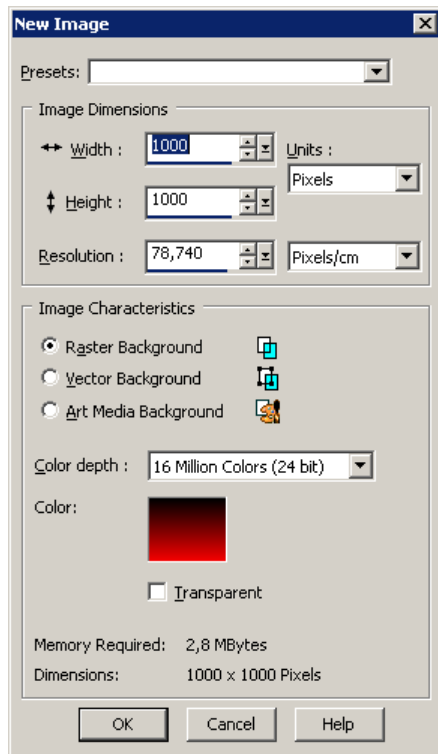
More suitable tile methods for frieze creation are methods without rotation (numbers 1-9), for rosette creation – otherwise (numbers 10-17)

## Tips and Tricks

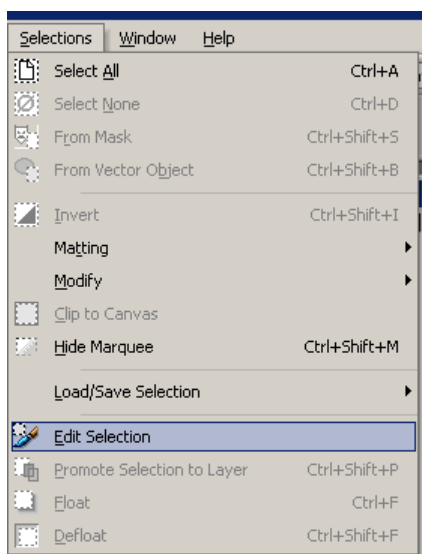
### Masks, Selections and Tile Builder

You can edit and create mask and selection using Tile Builder in order to achieve additional artistic effects.

You create black-red gradient image

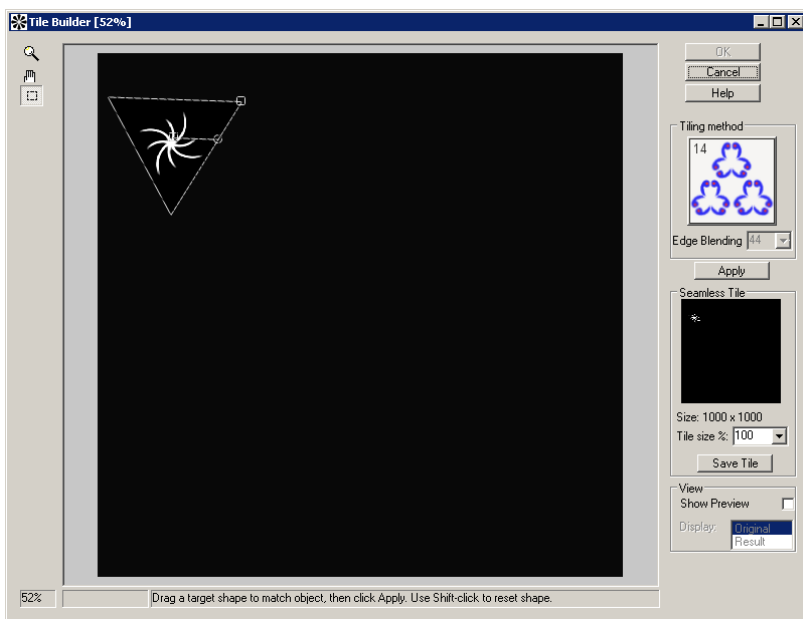
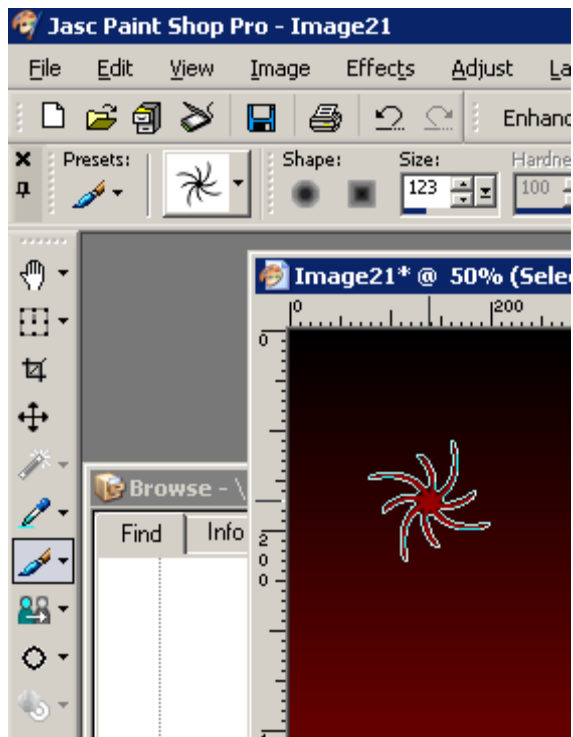


Set mode “Edit Selection” using command “Selection->Edit Selection”



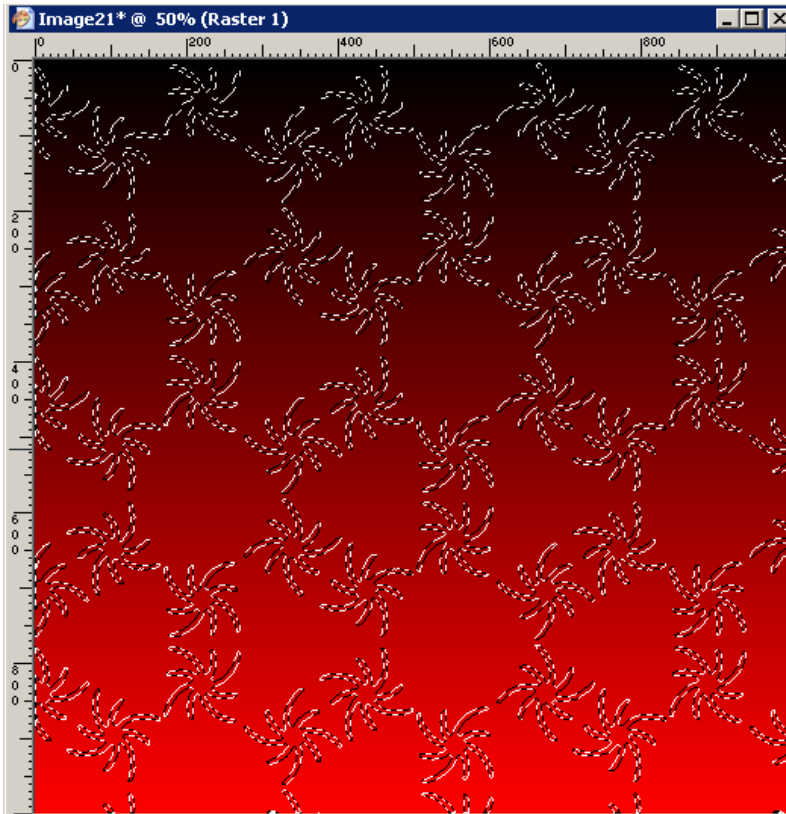
Then choose Paint Brush tool and draw a white star on the image





Then run Tile Builder using command “Effects->Plugins->Image Skill->Tile Builder”

Choose one of the tiling methods, apply it and press OK.



Then turn off “Edit Selection” mode.

You create artistic selection on your image and you can flood fill it using color, pattern or gradient.



By the same way you can edit masks in order to hide or reveal some area on your image.

### **Use result pattern as source image to Tile Builder**

In order to increase effect range, run Tile Builder twice (or more) under the same image. Or you can combine patterns to each other.

### **Saving patterns in JPG, BMP and PNG graphic formats**

What are differences between these formats? BMP is a lossless format supported by majority of graphic applications. So, you do not lose any information saving result in BMP format, but size of BMP will be larger than JPG or PNG. If you want to exchange (export) patterns in other programs use BMP format. Main disadvantages of BMP are large image size and lack of transparency feature.

If your pattern has transparent pixels – use PNG format. It is lossless data format with compression and it supports transparency. Image size will be less than in BMP, but more than in JPG format.

If you will use patterns in WEB design – save it in JPG format, the resulting image size will be smaller than in BMP and PNG, but JPG compress image with loss, so DO NOT use JPG for precise work, for example textile design or likewise.

## **Useful links**

**Manny Lorenzo** fantastic [Art Gallery](#) created by means of **Tile Builder**

<http://www.tropicaearth.com/gallery/1578532>

<http://www.tropicaearth.com/gallery/1830676>

### **Web**

- SYMMETRY AND ORNAMENT by Slavik V. Jablan:  
<http://www.emis.de/monographs/jablan/>
- The Xah Lee personal page about symmetry :<http://xahlee.org>
- Official M.C.Escher Website: <http://www.mcescher.com/>
- The Geometry Junkyard: <http://www.ics.uci.edu/~eppstein/junkyard/tiling.html>

## Software

- ImageSkill: **Tile Builder** <http://www.imageskill.com/tilebuilder/tilebuilder.html>  
This is a Photoshop-compatible plug-in for Windows. It creates patterns using symmetry rules. Just now there are 17 tiling methods.
- Pedagoguery Software: **Tess** <http://www.peda.com/tess/>  
Stand-alone application for creation symmetric planar illustrations. There are Win and Mac versions.
- Artlandia: **SymmetryShop** <http://artlandia.com/products/SymmetryShop/>  
Photoshop-compatible plug-in for symmetry pattern design. There are Win and Mac versions.