

# Creating Symmetrical Patterns using Clones in Inkscape

- Art: designs using symmetry
- Programming: creating clones of objects
- Math: symmetry, translation of geometric shapes

Clones change **when the original object is changed**. There are many ways to use Clones to create symmetrical patterns.

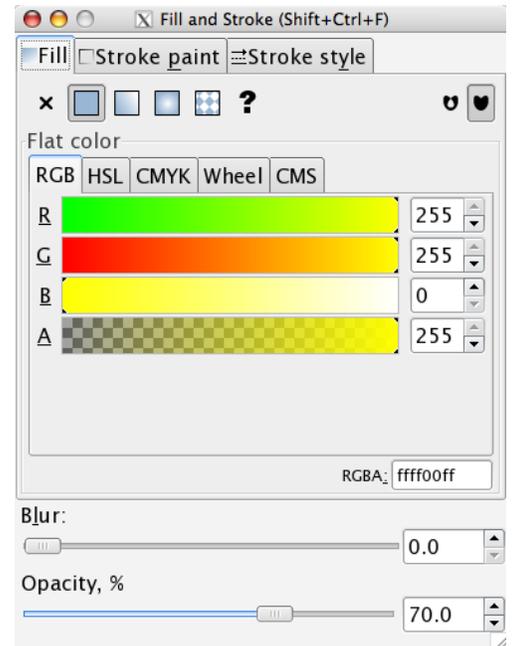
## Project 1: Creating symmetrical patterns using clones and P6 transformation

1. Create any object – circle, rectangle, star etc.
2. Select the object and open the Fill-Stroke window by clicking on the paintbrush icon on the top.

Paint brush Fill Stroke

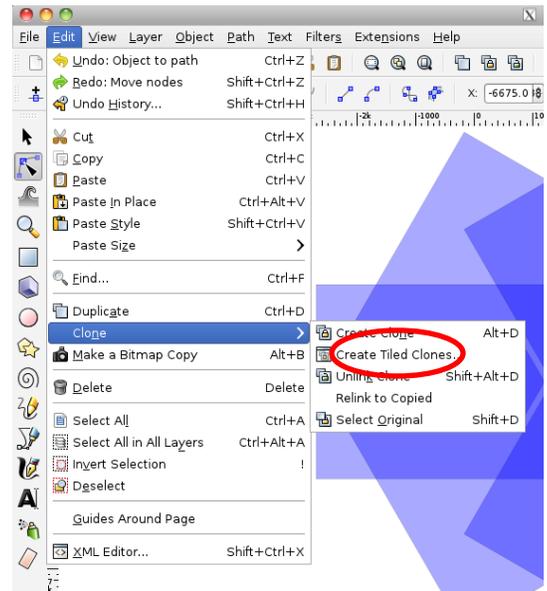


3. Click on RGB – Fill and slide the Alpha value from 255 to any number below 100 to make it transparent.



4. Select Your object and click on Edit- Clone-Create Tiled Clones

5. Symmetry tab - Set the parameters



P6 60° Rotation



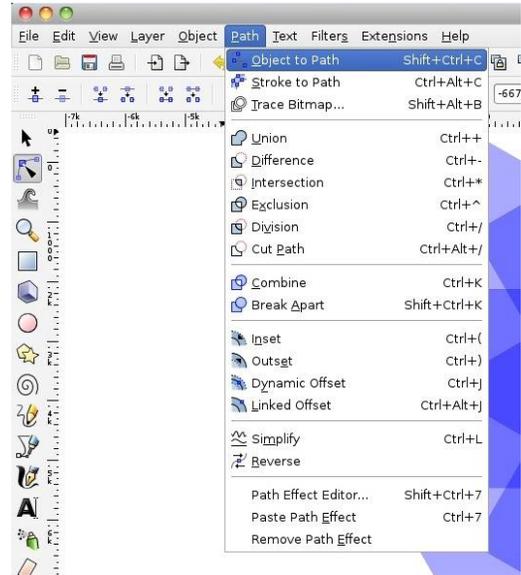
1 row x 6 columns.

Click Create.

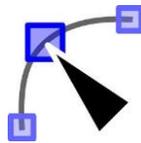
6. Use arrow keys on the keyboard to move the original object out of the pattern.

7. Select original object and click on Path – Object to Path.

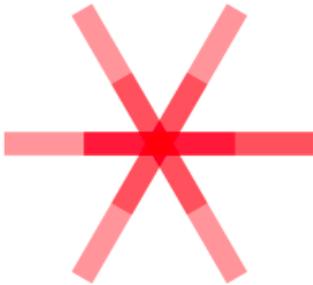
8. Click on Edit Path by Node and drag and edit nodes to change pattern.



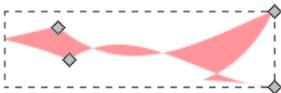
Edit Path by Node



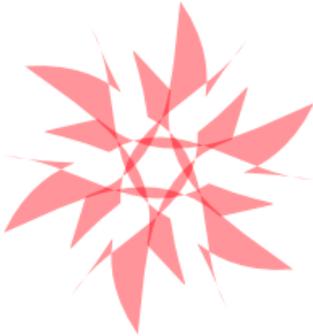
Original transparent object



Use create Tiled Clone as shown to create pattern



Select original and transform Path-Object to Path and edit nodes

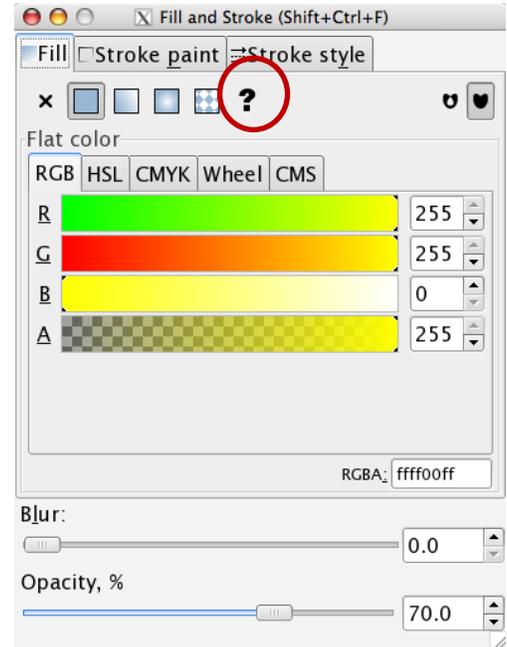


Same pattern as above after nodes are changed.

## Project 2: Creating symmetrical patterns using other Clone transformations.

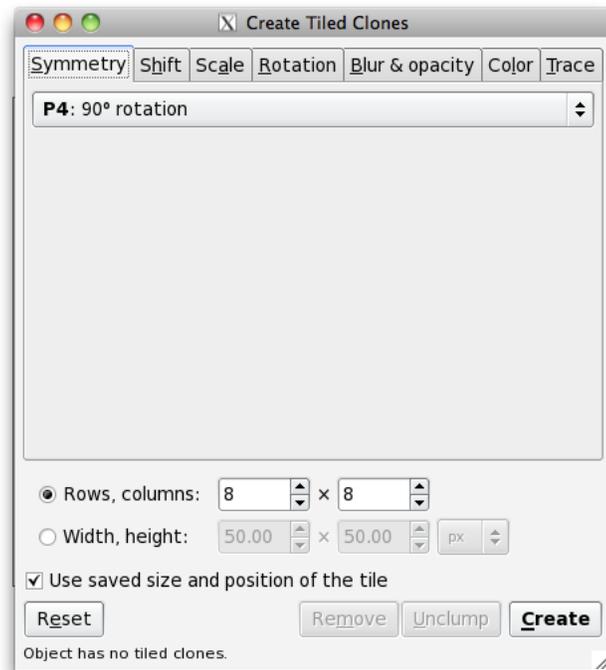
1. Create the original shape to be cloned – use a square the first time.
2. Select the shape and click on the paintbrush (RGB window).
3. Click on Fill and click on ? – make the color undefined.

Paint brush Fill Stroke

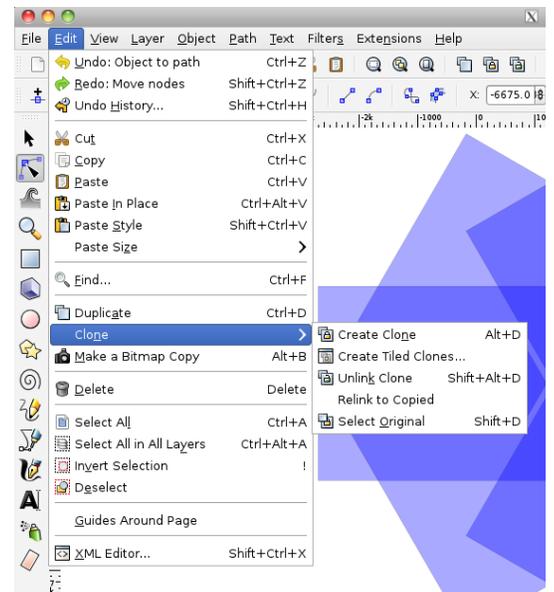


4. Select original shape and click on Edit-Clone- Create Tiled Clones.
5. Set Symmetry

P4 90° Rotation

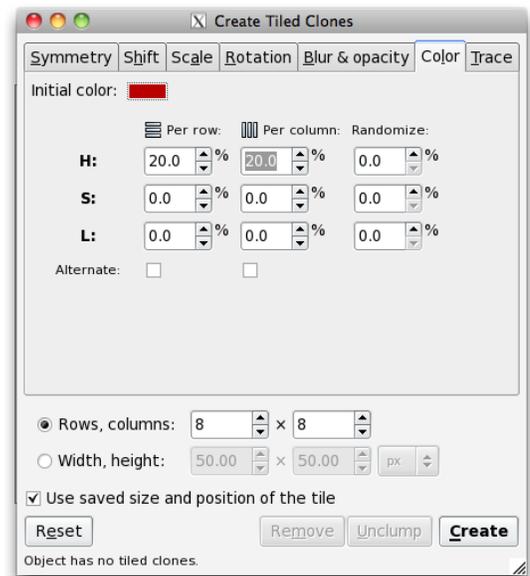


Rows 8 X  
Columns 8

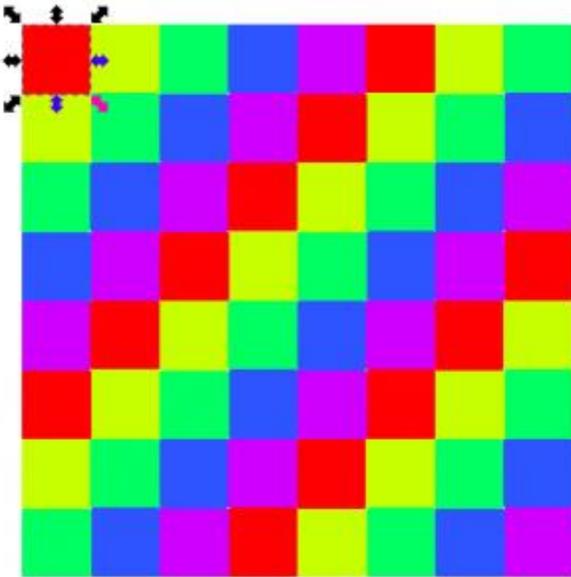


6. Click on Color : change Hue – row 20% column 20%.

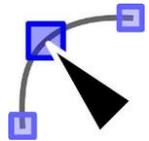
Do not change anything else.  
Make sure the initial color is NOT black.



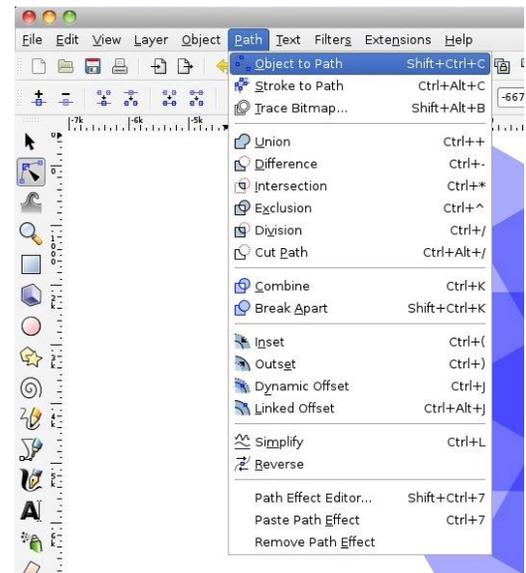
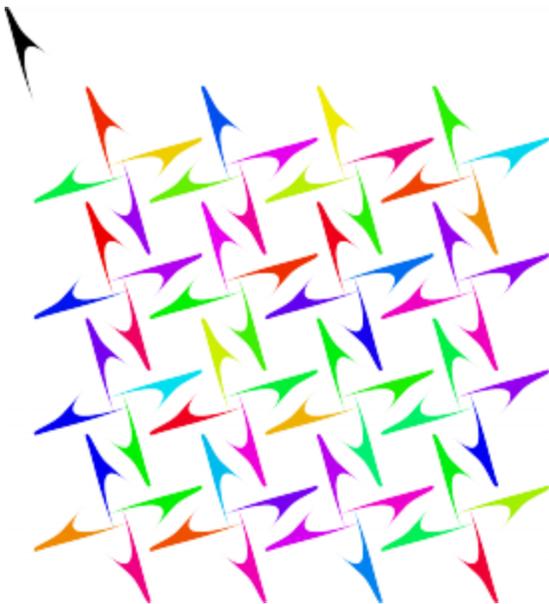
- 7. Click on Create.
- 8. Unclump
- 9. Clones are created and the original is under the first cloned shape. See the selected square.



Edit Path by Node



9. Find original shape (under first cloned shape) and edit it (use Path-Object to Path to make object editable) and see all clones change.



**Troubleshooting Tips:**

If the shapes do not line up, check your Shift tab and make sure Shift X and Shift Y are 0's

Make sure in Edit – Clone – Created Tiled Clone you have Use saved size and position of the tile unchecked.

The line at the very bottom offers suggestions.

Excerpted from <http://www.computersforcreativity.com>