Blue Phoenix Folding tutorial

Benjamin Wettle

August 31 2020

Blue Phoenix folding is a java application for designing box pleated origami designs. It can optimize the layout, generate crease patterns, and store designs. To get started, lets follow the steps for creating a simple design. A complete guide is below the tutorial.

Figure 1: Blue Phoenix Icon

To start, click the Blue Phoenix jar file to open a new design. In the new design, you should see two windows. On the right is the Designer, and on the left is the editor. The designer will let you see the tree plan of your design. The editor will let you make changes and additions to your design.

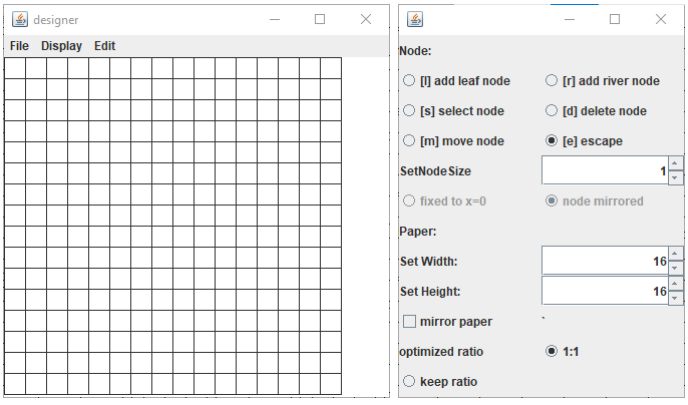

Figure 2: Designer and Editor

To add the first node, type "l" to select leaf node mode. Click on the planner to add your first node. This will add one leaf node the the design, on the nearest point on the grid. Leaf nodes are displayed as squares, with sides twice the size of the node. The placement of the nodes does not matter much, as long as they are connected properly.

Now type "r" to change to river mode. This lets you add a river node the the design with another click on the planner. River nodes are displayed as circles, with a radius of the size of the node.

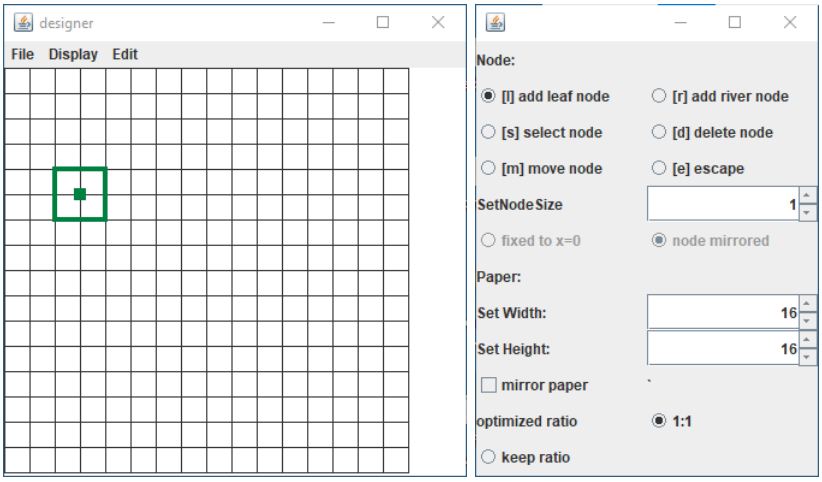

Figure 3: Adding the first leaf node

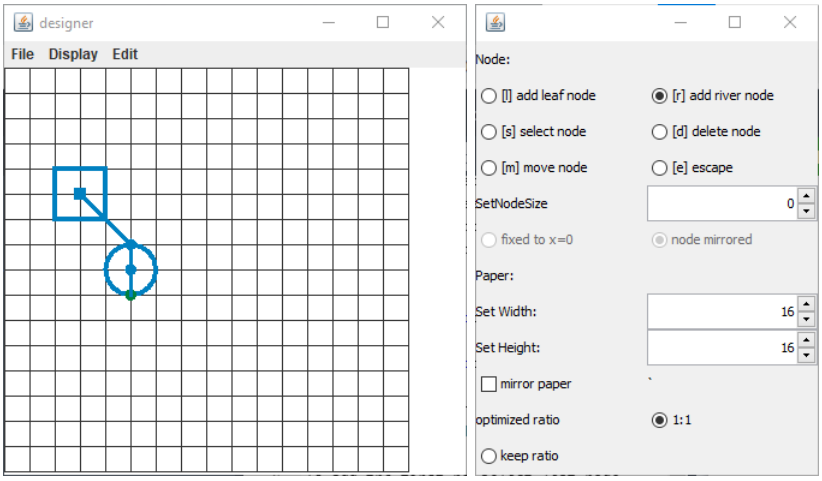

Figure 4: Adding a river node

Add another leaf node below the river. Since this is on the opposite side of the river, the two leaf nodes will be separated by the river.

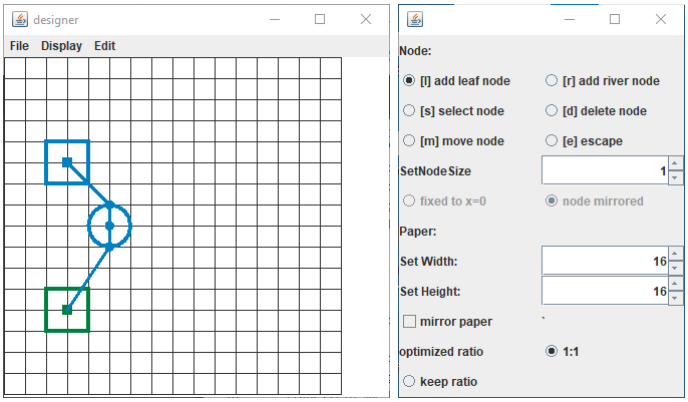

Figure 5: Adding the third node

The last node added is colored green, which indicates that it is the selected node. This lets you move, change size, and edit the symmetry of this node. To change the nodes size, use the setNodeSize spinner to set it to 2.

To change which node is selected, type "s" , and click on the node you want to edit. This will change where a new node is connected to. Select the small dot just below the river node.

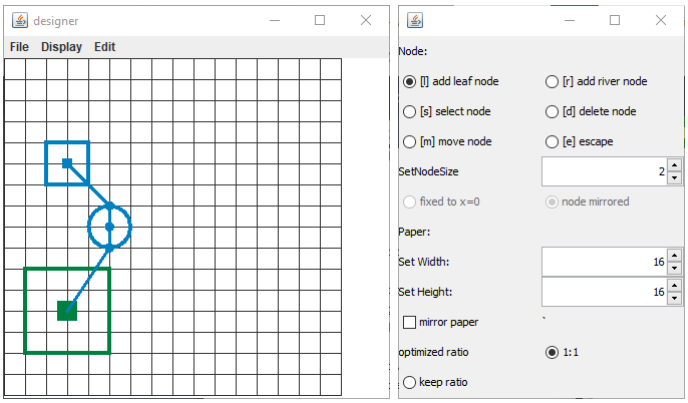

Figure 6: Increasing the size

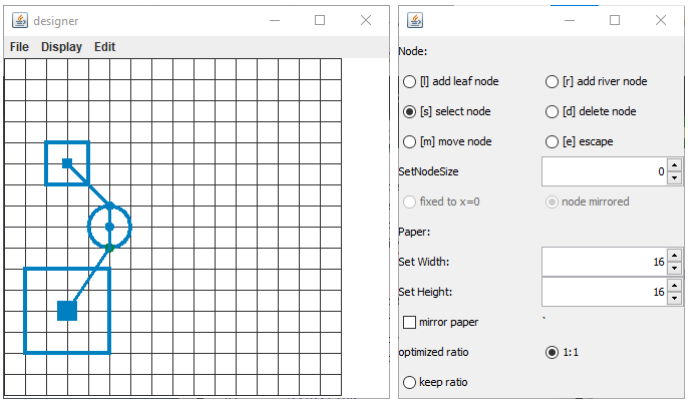

Figure 7: Selecting node

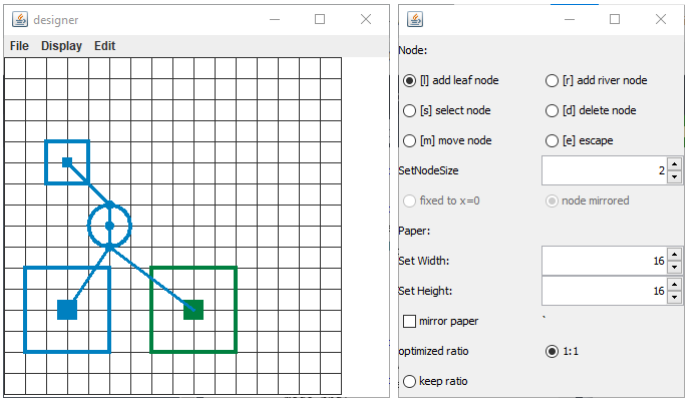

Figure 8: Adding another large leaf node

Now we can add another leaf node to the design. As before, select leaf mode and click on the designer. since the lower dot of the river node was selected, This will an another leaf node the the same side of the river as the larger one. Increase the size of the new leaf node to 2 as well.

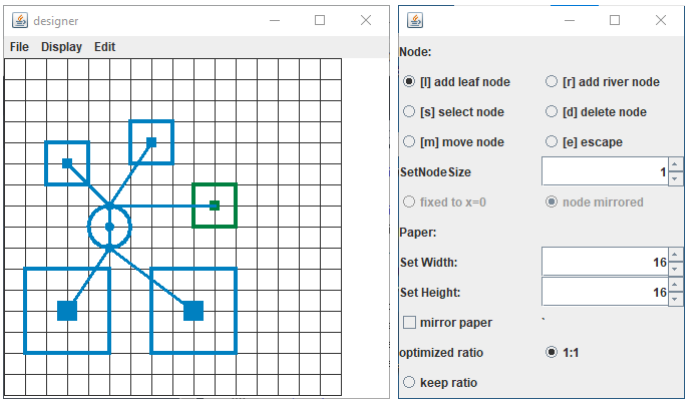

Figure 9: Added two more nodes correctly

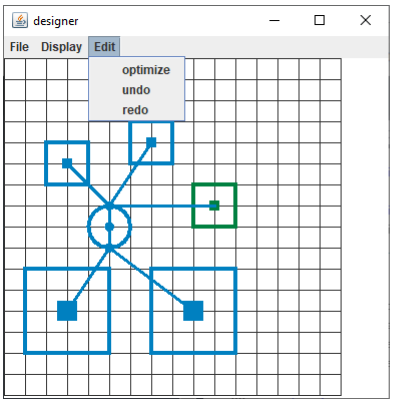

Figure 10: Edit menu

Now select the upper dot above the river node. Add two leaf nodes to this side of the river. After adding each node, be sure to select the upper dot again. If you make a mistake, use EDIT-> UNDO to go back a step.

Once these nodes are added, the design is complete. You should have three size 1 leaf node separated by a size 1 river from two size 2 leaf nodes. Now open the edit menu, and press optimize.

This will calculate the best placement for the nodes, in order to minimize wasted space in the design. Since this is a very simple design, it will optimize quickly. You should see the size of the paper and locations of the nodes update in under 10 seconds. If your design does not look like this, or a rotated version, then undo the optimization and check you connections between the nodes.

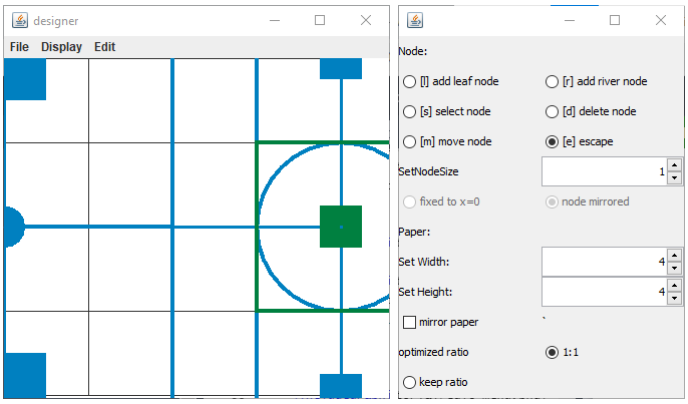

Figure 11: Optimized design

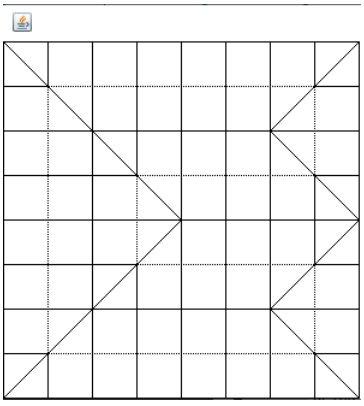

Figure 12: Finished crease pattern

To save your design, or start a new one, use the file menu. The display menu can be used to show the crease pattern, reopen the Editor, or tidy up the design. For the final step, generate the crease pattern. This will bring up a new window, which shows the creases needed to fold your design. Many of the horizontal and vertical lines will not be strictly necessary, but they are helpful as guideline for larger designs. Now you are ready to start designing and optimizing your own origami bases using Blue Phoenix folding! There are a few designs included on github, and the full manual provides detailed descriptions of all of the features.