

Documentation. Interaction Design for the Real World
Peter Sikking

Dylan Burns. Paula Hidalgo. Nora Huber

Fachhochschule Vorarlberg
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redesign of the gimp align tool

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design goals

The main focus of the project was the evaluation and redesign of the tool "Align" in Gimp 2.8.4. This tool is useful to align the image layers with various image objects.

To evaluate the tool, there were three aspects of the vision of GIMP that were taken in account:

1. Control:

Working with precision. Users should have control on the objects that are going to move, by what part they move, and what they move to. They should be able to define their alignments with precise values and be able to visualise the outcome with no surprises.

2. Freedom to work:

Freedom to create. The "Align" tool shouldn't interfere with users work and workspace. It should facilitate all possible alignments, such as distributing and dispersing (defined in the next section).

3. Speed, speed, speed:

The align tool is a shortcut for functions that are technically already possible with the move tool, so its primary purpose is to be efficient at what it does. It should be possible to work quickly and efficiently, whether simple tasks or more complex tasks. Complex alignments should be accomplished in as few steps as possible without the need to reselect or reenter values between steps.

functionality

The align tool serves a variety of interrelated but distinct functions. What these functions have in common is the precise mathematical placement of layers and other objects. We considered many possible alignment scenarios and defined two distinct alignment types to cover all needs.

Reference = The point or object which defines the X or Y coordinate to which all selected objects will move.

Align = Multiple points or objects are moved to the X or Y coordinate of a reference.

Align with Offset = Multiple points or objects are moved to the same X or Y coordinate of a

functionality

reference, but a compounding offset causes each object to distribute away from the offset like steps (i.e. 0px away, 5px away, 10px away, 15px away, and so on).

Disperse = Multiple points or objects are moved to the reference and spaced according to the size of each object, such that they are edge to edge rather than overlapping, with the ability to define the spacing between each object.

Magnetic = when holding and dragging an object on the canvas, the important points on that object (corners, edges, and center lines) jump to the important points on other objects when they come in close contact (similar to the way two magnets are drawn to each other when they get close).

Users should be able to...

- Align objects to the top, bottom, right, left, horizontal center or vertical center.
- Align objects to another reference object.
- Select multiple layers and objects.
- Visualize the selected objects and their order.
- Reorder the selected objects.
- Define the reference point of each alignment.
- Define the offset or spacing.
- Disperse objects and add a horizontal or vertical padding to it.
- Move objects by one user defined point on that object.
- Define the distance across which objects are dispersed.
- Make alignments “manually” on the canvas by moving objects with magnetic snapping.

users scenarios

Users scenarios represent some essential functions that we hope to achieve with the Align tool. The ability to perform these functions with control, freedom, and speed will guide our evaluation of the existing align tool.

1. Just align:

This is about the most essential function that you can do with the tool. The essence of this scenario is to move layers to align them with a reference object.

users scenarios

2. Keeping things together:

This is about the ability to move or align a group of things together.

3. Defining an offset:

Be able to distribute objects according to a reference object.

4. All of the above:

About how complicate things can get when object have to be aligned and distributed at the same time.

expert evaluation

After going through the four user scenarios, the expert evaluation of the tool was performed.

Positive things:

- The possibility to select several objects at the same time gives more freedom to work.
- The ability to choose what the alignment is relative to gives more control to users.
- The objects remain selected after an alignment is performed, allowing users to combine multiple alignments, speeding up the working process.

Negative things:

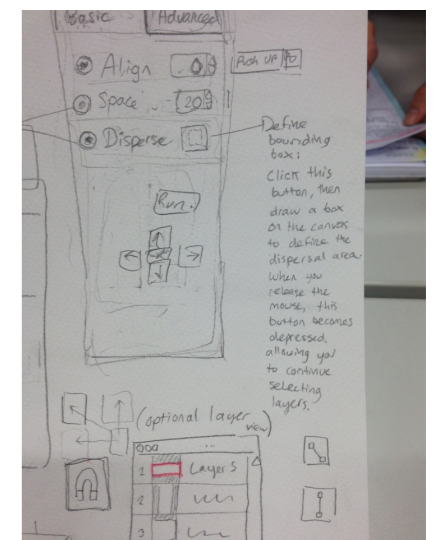
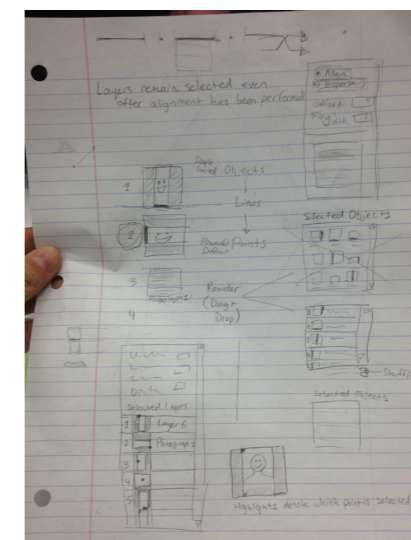
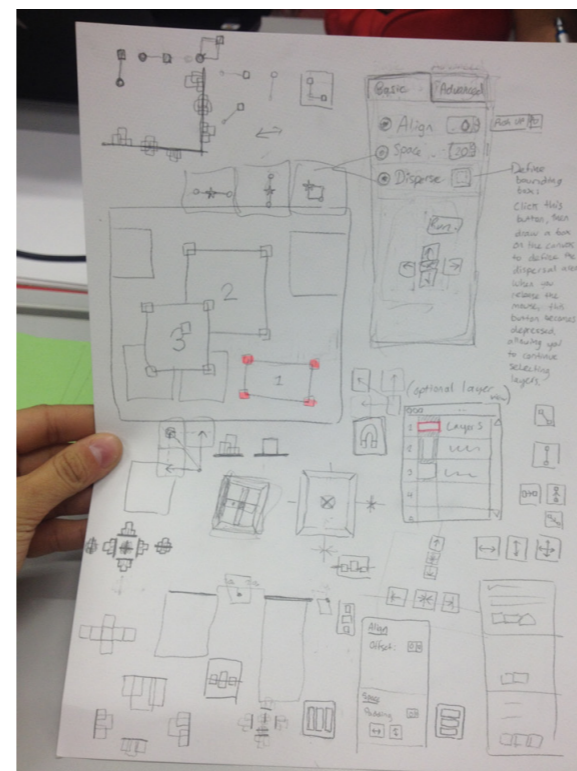
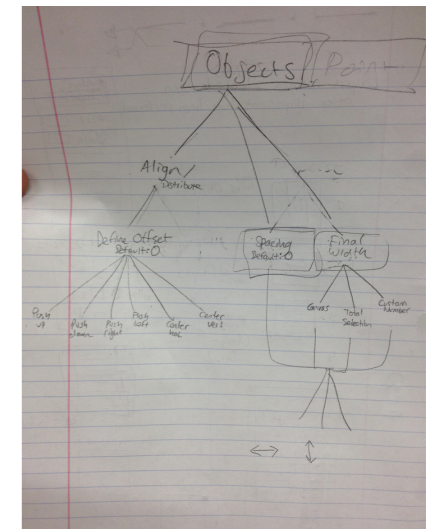
- The arrows are not easily understood. It's difficult to quickly distinguish which kind of alignment represents each one, what can make users spend more time figuring out which option to choose.
- Align icons shouldn't be the same as Distribute icons, it's redundant to have them twice and can confuse users causing more working time.
- There are too many options in the "Relative to" menu that are not needed, or that can be merged.
- Sometimes users have to do too many steps to reach their goal, decreasing the speed of their work.
- There's no way to evenly space multiple objects, so users don't have enough control over the tool.
- You must choose a single edge to align all objects, for example, there's no possibility to align a top to a bottom. This limits the user's control over the outcome of the alignment as many of the variables are decided for the user.

- There are no ability to “disperse” things, making some common alignment needs impossible and limiting the users freedom.

Through our evaluation we found that there was a large gap between the design goals of GIMP and the current state of the align tool. There are some ill-considered aspects of the Align tool that make the work flow slower and confusing sometimes. Users have to do many unnecessary steps to reach their goals. They don't have enough control over their alignments as some important parameters are decided for them, and they don't have enough freedom as some alignment functions are simply not possible.

brainstorming

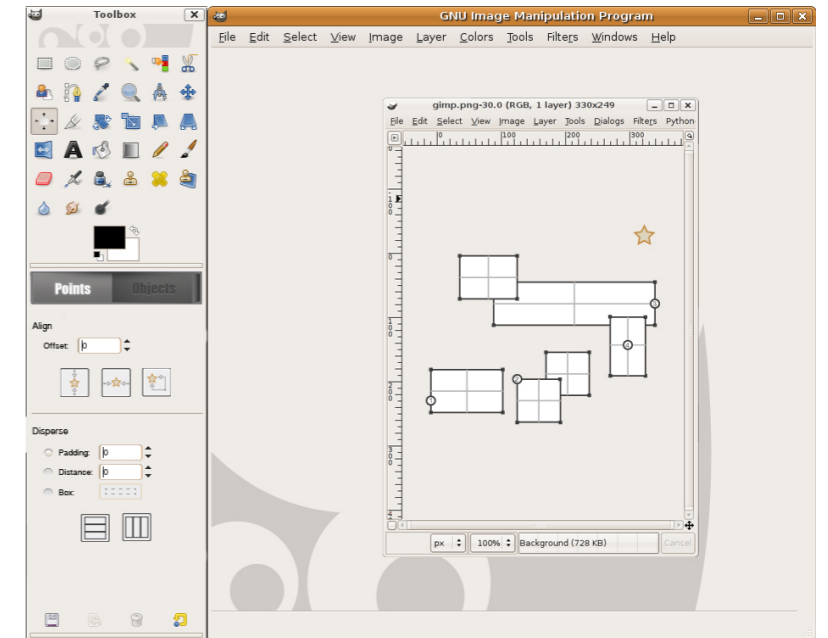
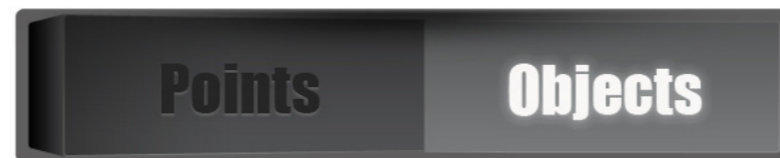
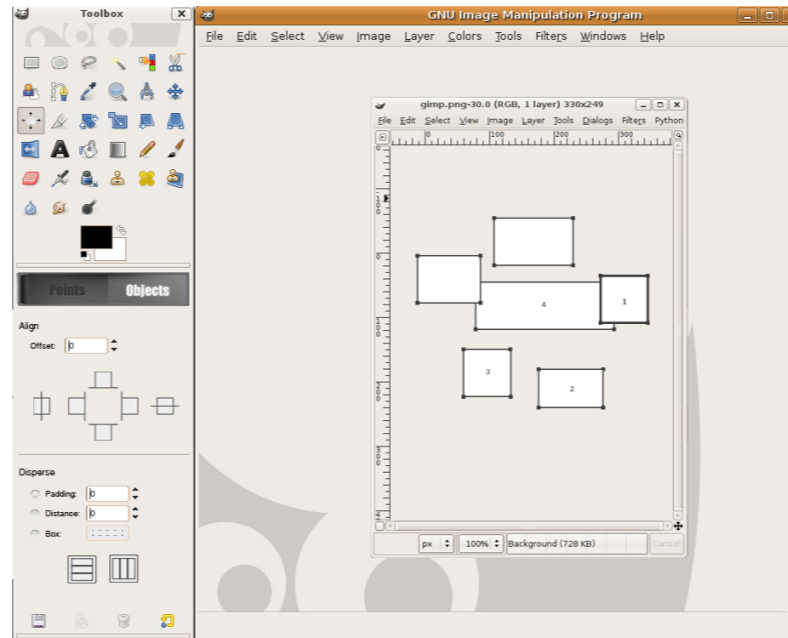
During a brainstorm session, we explored many possible ways an align tool could be executed to achieve the functionality we're aiming for without the shortcomings of the existing align tool.



redesigned tool

Align Tool Preferences Box

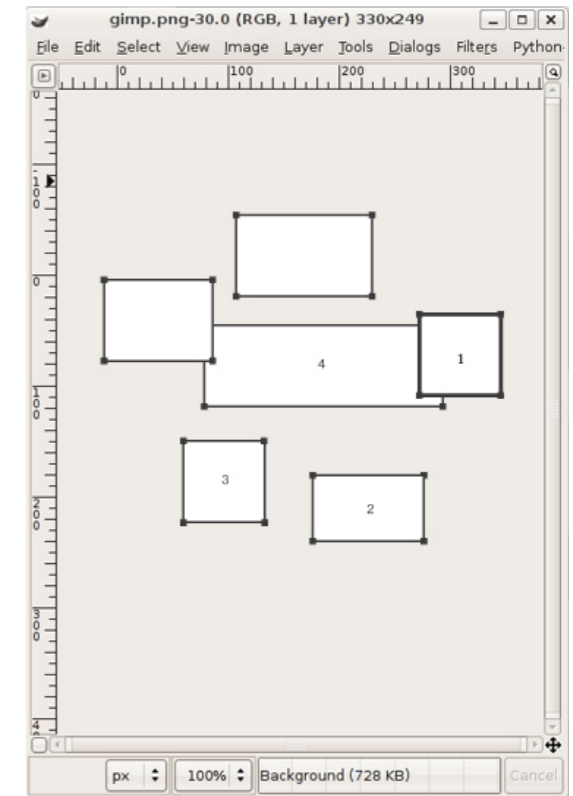
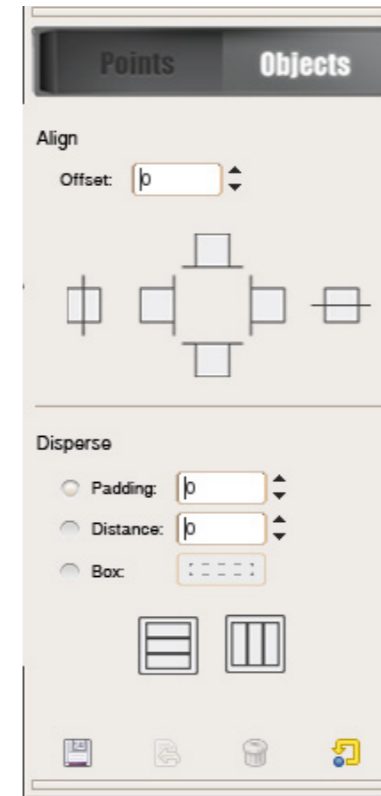
When the align tool is selected, the align tool preferences box appears below the toolbox. The top-most preference is a toggle between "objects" or "points". Below this toggle, there are two sections: align and disperse.



redesigned tool

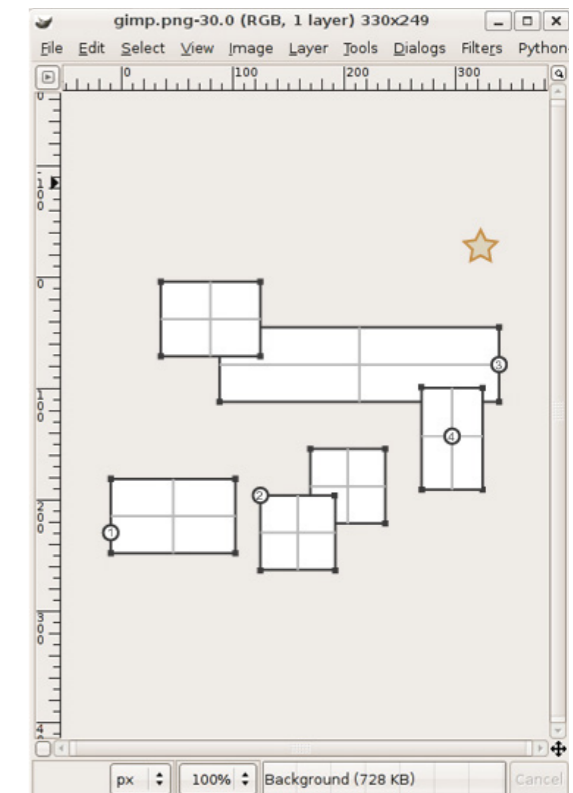
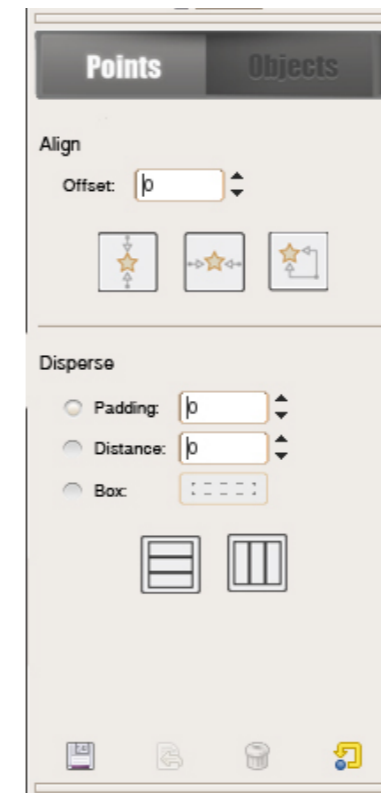
Objects

Select objects that you wish to align by clicking on them on the canvas. A number appears over each object you select, denoting their order. Their order may be rearranged in the selected objects pop-out window. Object 1 will have a special border around it on the canvas, denoting that it is the "reference object". Selected objects are lost if the user toggles back to "Points".



Points

Select specific points on objects by clicking on them. Each object may not have more than one point; if a second point is placed, the first disappears. An existing point may be moved through dragging and dropping, but it may not be dragged outside the boundaries of the layer. Each point appears as a number on the canvas. Their order may be rearranged in the selected objects pop-out window.



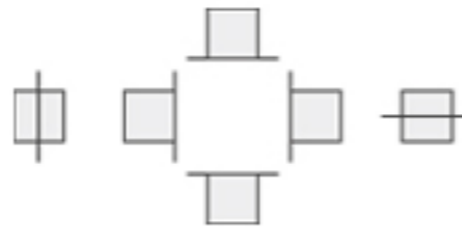
redesigned tool

Additionally, when "Points" is toggled, a star automatically appears in the center of the canvas. This is the "reference point". The reference point may be moved through dragging and dropping. It will automatically snap to corners, edges, centerlines, and centerpoints. Users may hold the alt key to disable snapping.

The reference point and all selected points are lost if the users toggles back to "Objects".

Align

Use this function to push selected objects or points together.



If "Objects" is toggled, users may choose from 6 different ways to align their selected objects: top, bottom, left edge, right edge, horizontal center, or vertical center. All selected objects are aligned to the one reference object.

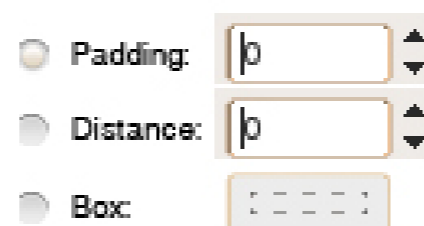


If "Points" is selected, users may choose from 3 different ways to align their selected points: vertically, horizontally, or both. All selected points are aligned to the one reference point.

Additionally, users may define the "offset" parameter, which causes the objects to be distributed in order. The default offset is 0.

Disperse

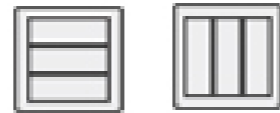
Use this function to space objects apart evenly.



Users may choose one of three options to define the dispersal. The first option is to define the padding, or the space between each selected object/point. The second option is to define the distance across which the objects/points should disperse. The third option is to define the aforementioned distance by

redesigned tool

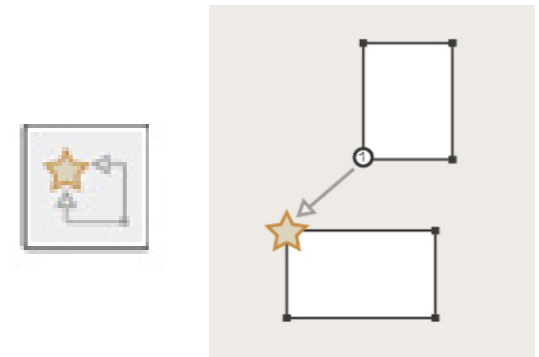
drawing it on the canvas: users click the “define bounding box” button and draw a box on the canvas. The bounding box will disappear if a different option is selected.



Finally, users may select to perform the dispersal either vertically or horizontally.

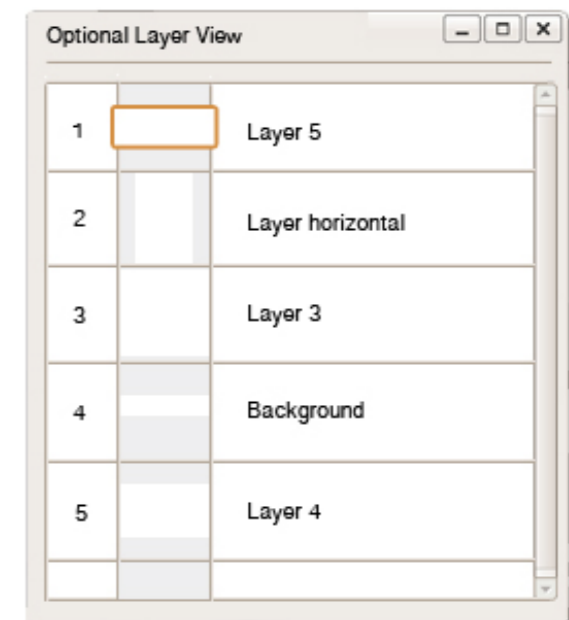
Magnetic Snapping

When the align tool is selected, users may move objects on the canvas similar to the move tool, but with magnetic snapping along the edges and centerlines of objects.



Selected Objects Pop-Out Window

Users may open an optional list of selected objects by accessing it from the windows menu. This list is similar to the standard layers window, showing the name and thumbnail icon of each object. If selecting objects by points, the point will be visible on each thumbnail icon. The order that the objects are listed in denotes the order in which the objects disperse or offset. Objects may be reordered through dragging and dropping.

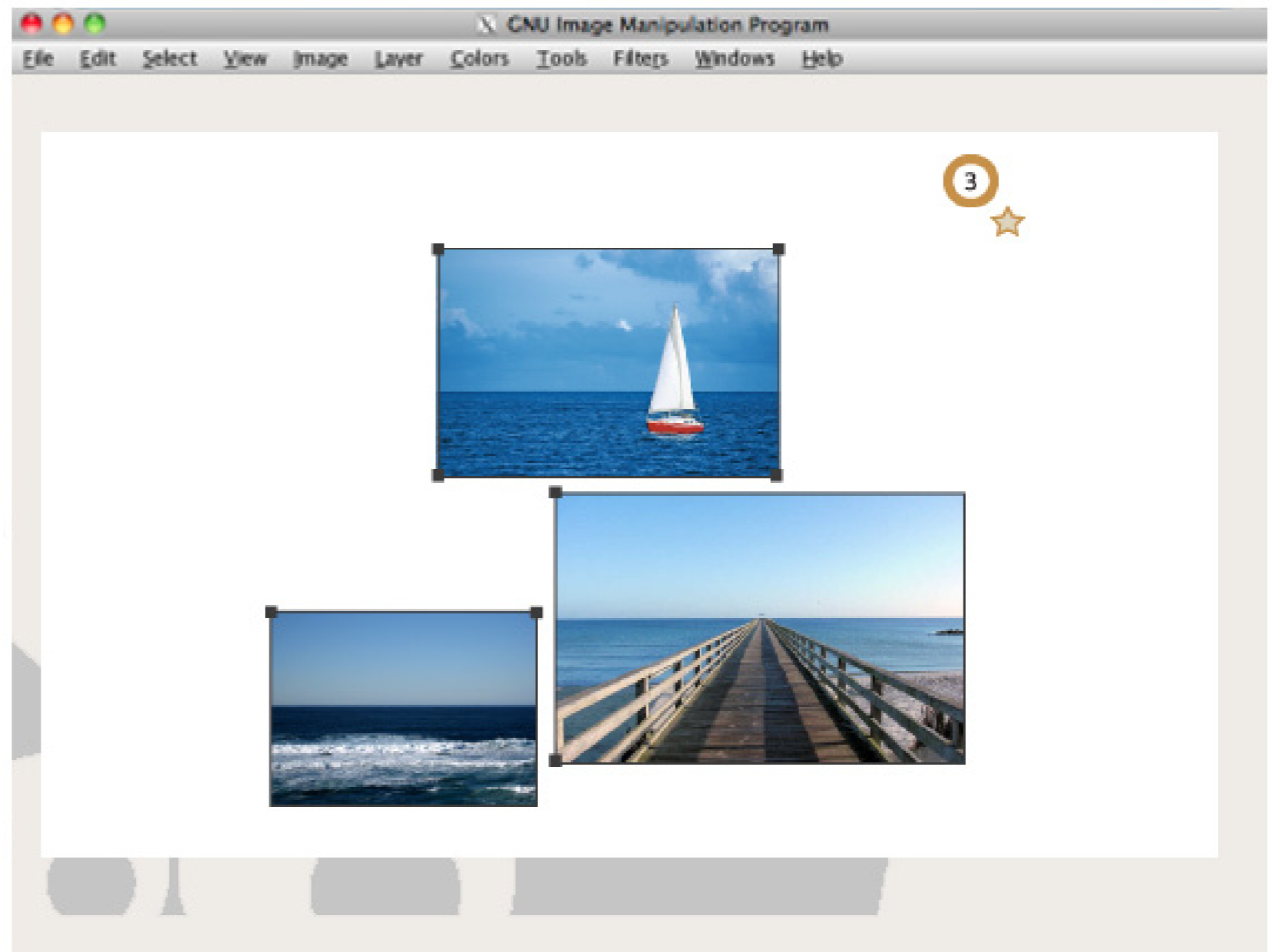
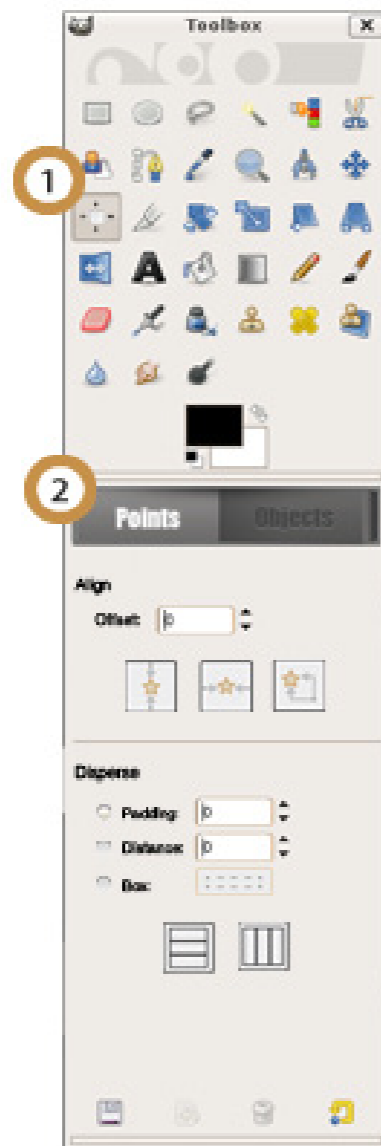


scenario example

Align some pictures to its horizon with
a uniform padding

Start:

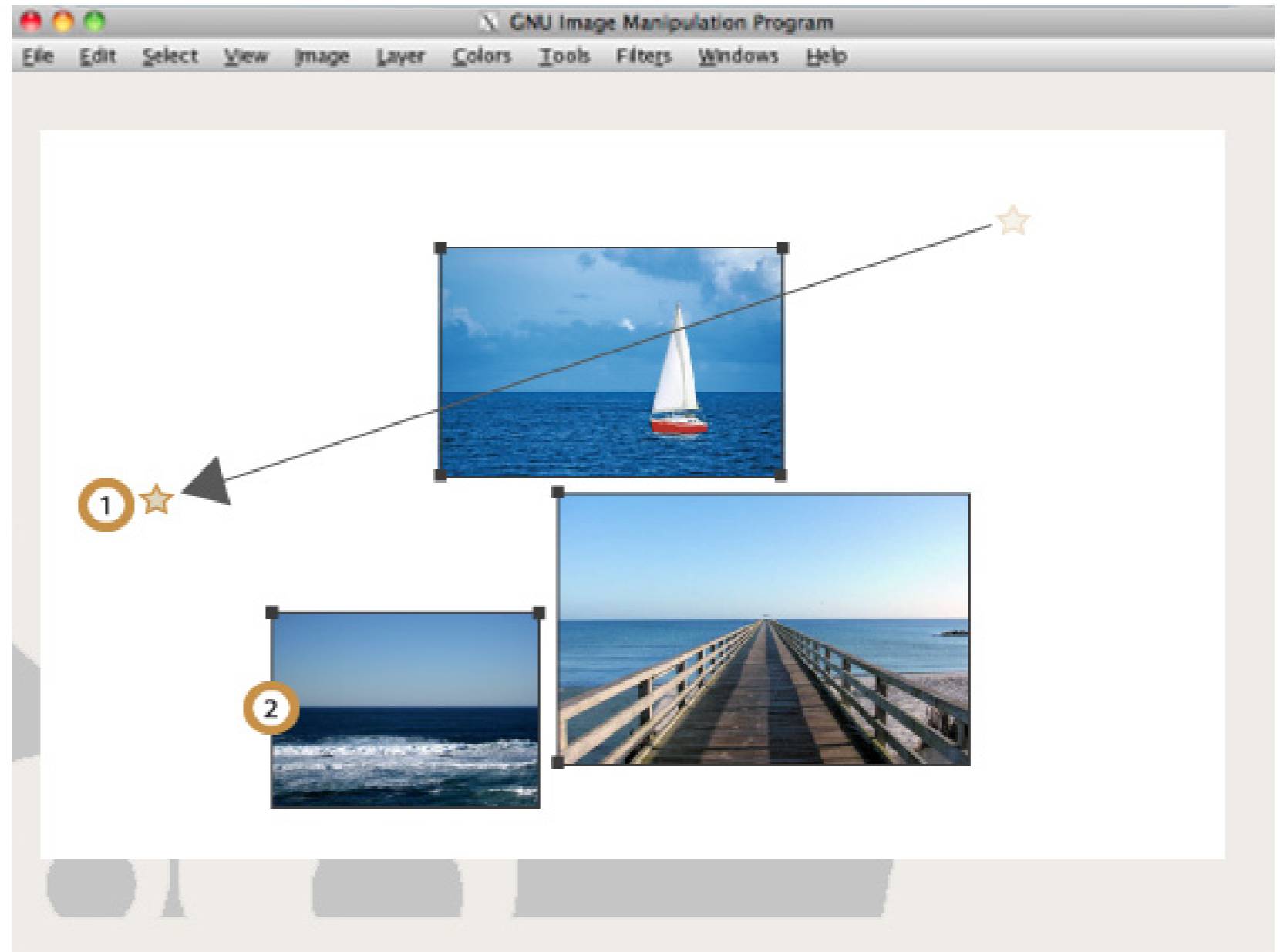
1. Activate the align tool
2. Switch the toggle button to points (because the horizon is a random point on the object)
3. The star appear on the canvas.



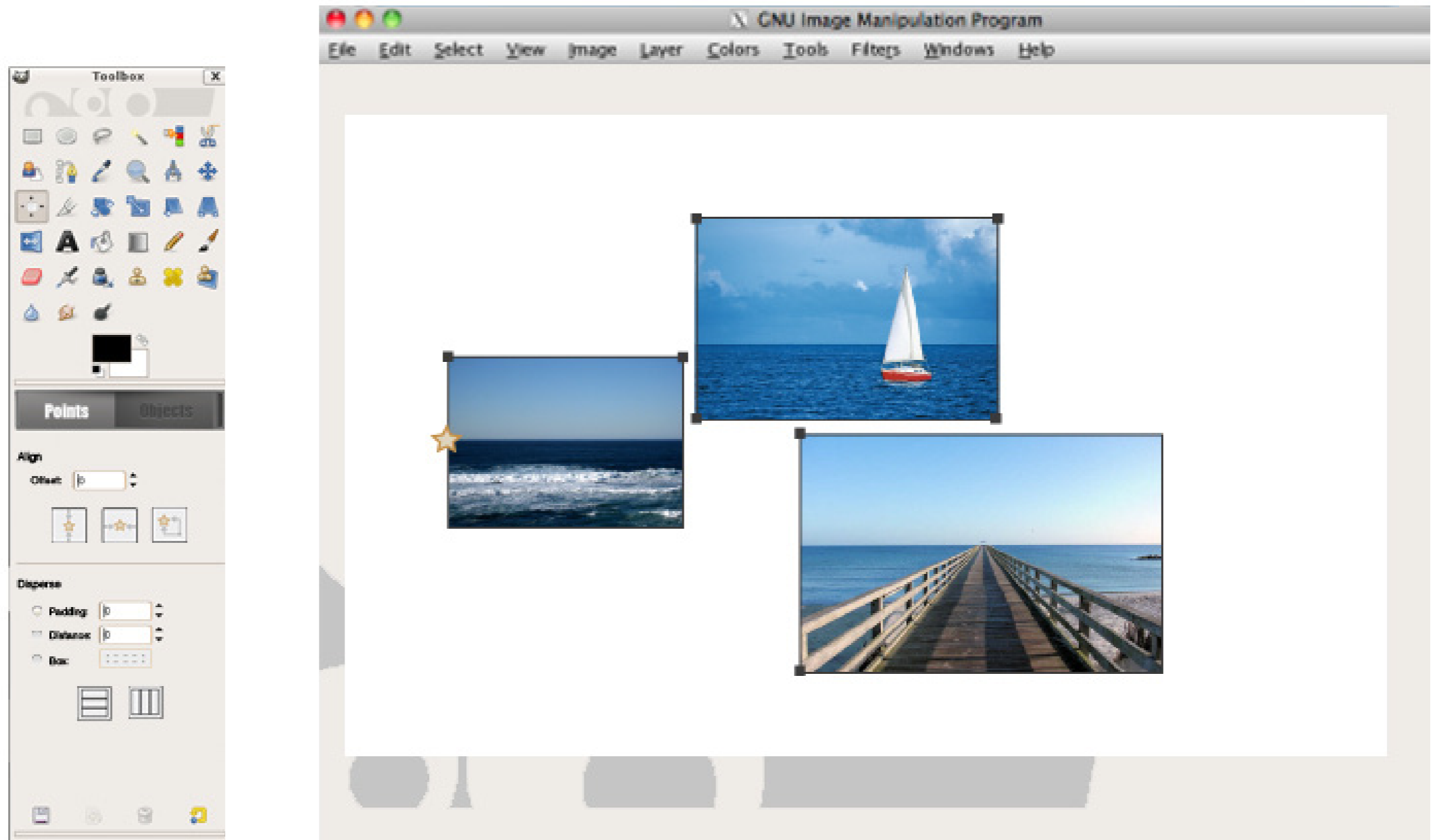
scenario example

Align Tool:

1. The User now has the possibility to drag the star to this certain point on the canvas where the picture will be aligned later
2. Select the referring picture by simply click on the desired edge of its skyline
3. A simple click on the magnetic icon will start the alignment



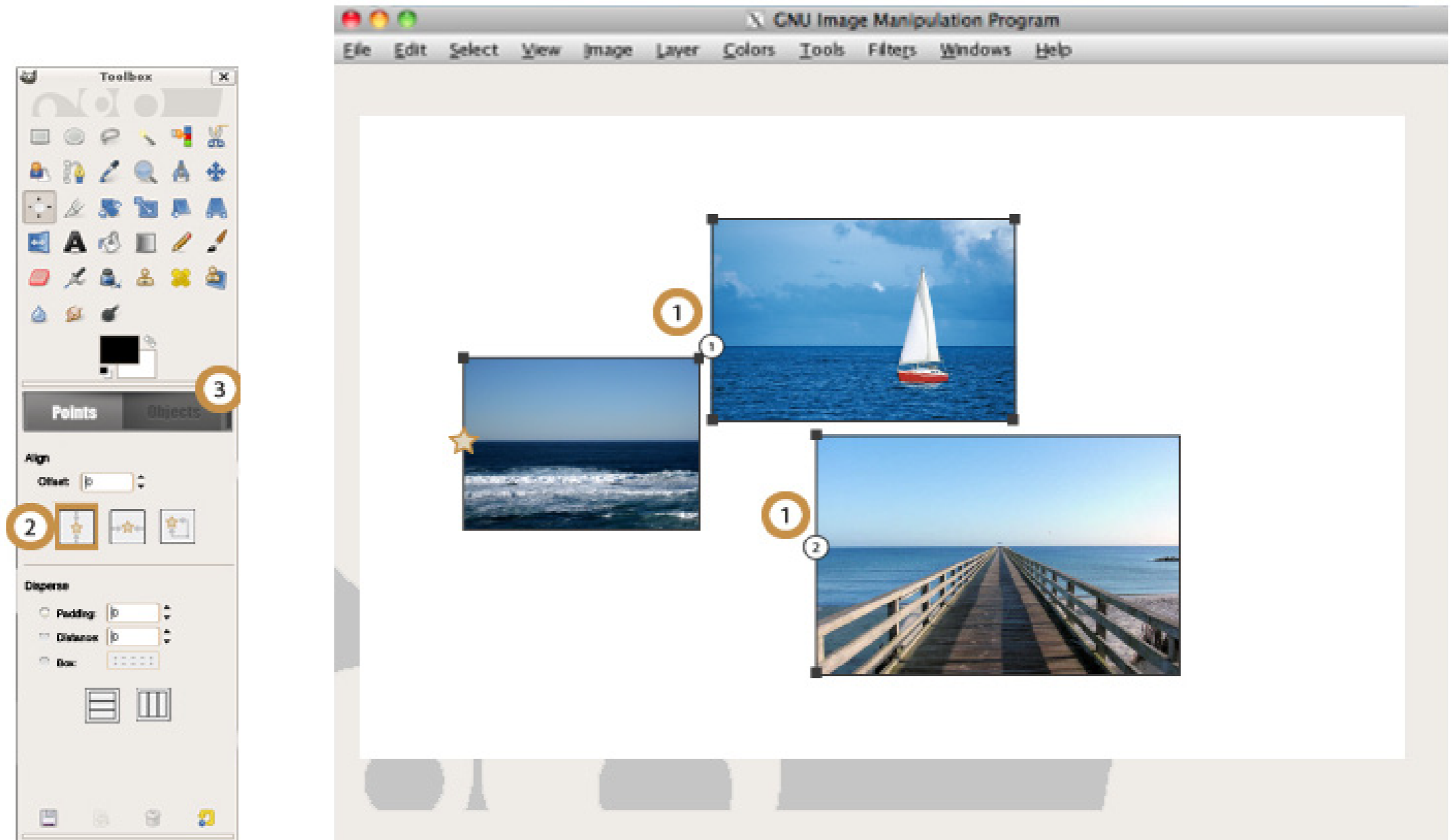
scenario example



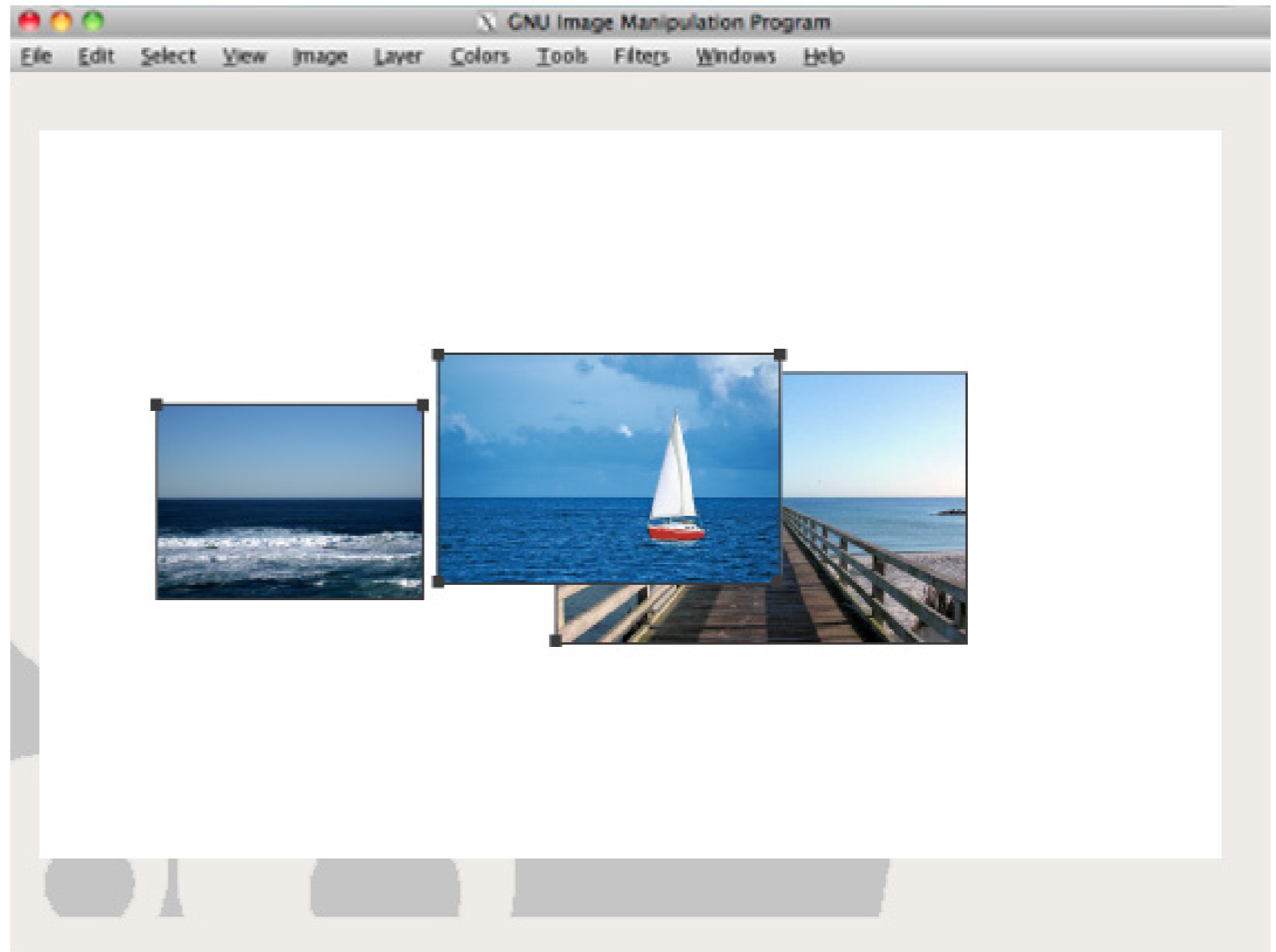
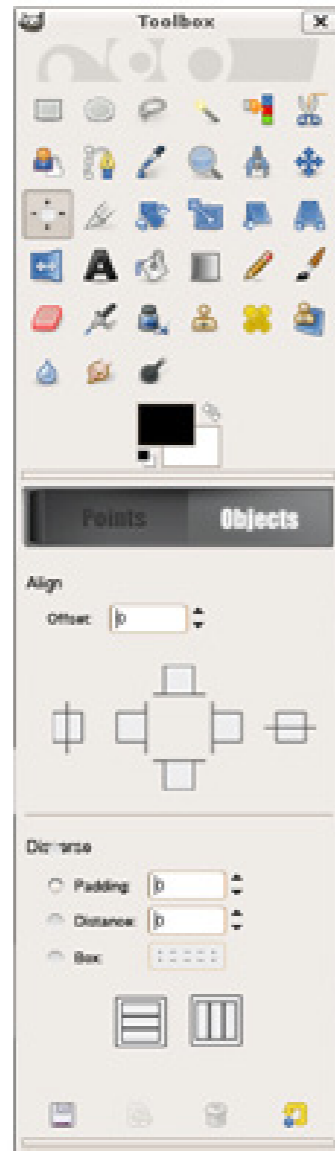
scenario example

Align Tool:

1. Select the other 2 referring points
2. Click on the vertical alignment icon
3. Switch the toggle back to Objects



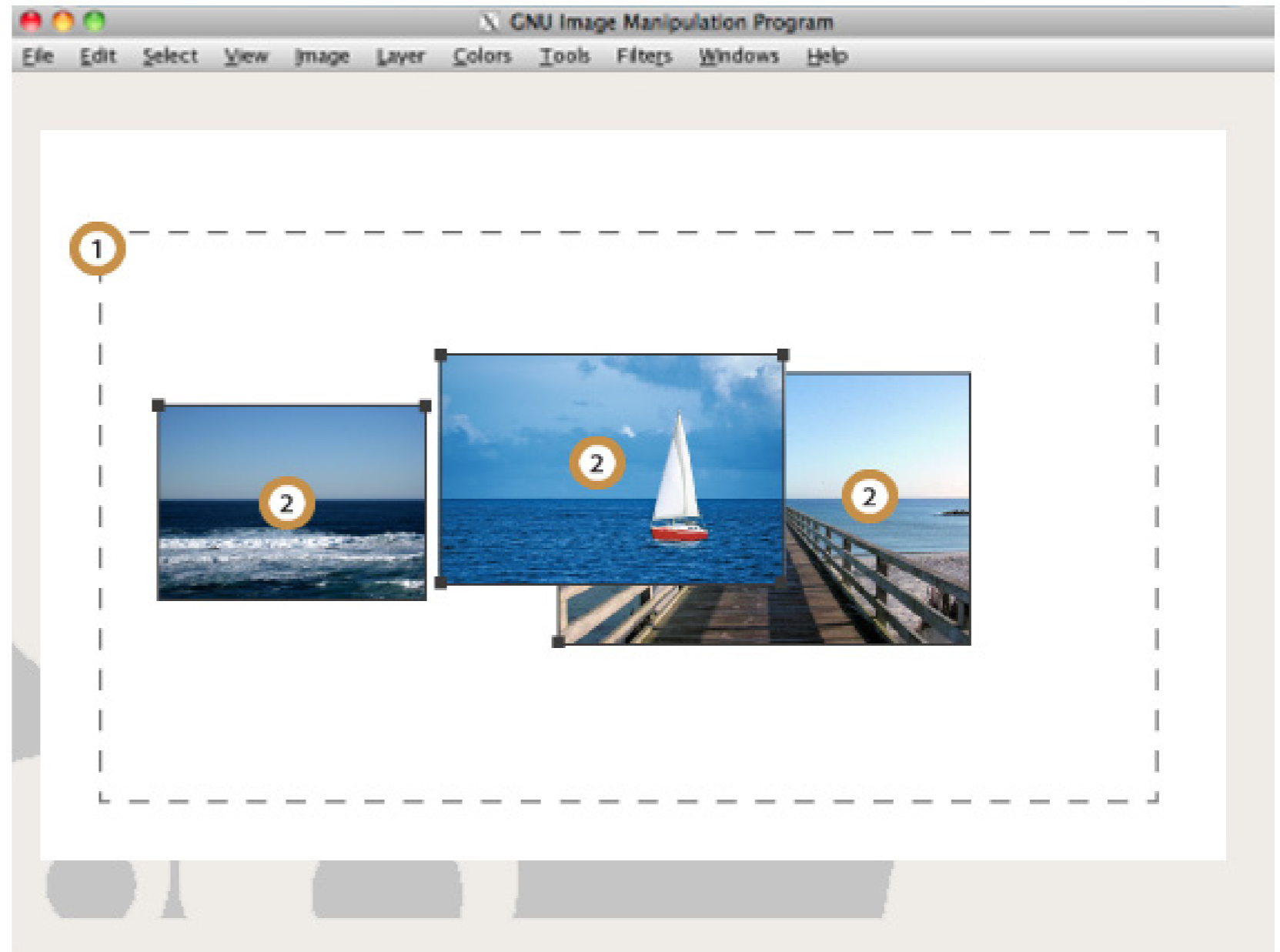
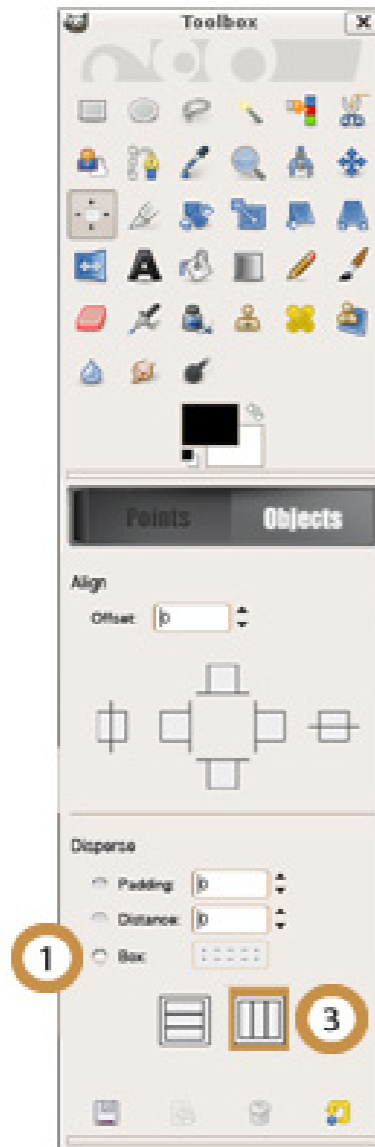
scenario example



scenario example

Disperse Tool:

1. Select the Box option and draw a rectangle on the canvas
2. Select the pictures which shall be aligned to the rectangle with an uniform padding
3. Click on the horizontal icon to start the alignment



scenario example

