Inkscape Tutorial 1: Basics

This tutorial demonstrates the basics of using Inkscape.

The Basic Tutorial covers canvas navigation, managing documents, shape tool basics, selection techniques, transforming objects with selector, grouping, setting fill and stroke, alignment, and z-order. For more advanced topics, check out the other tutorials in the Inkscape Help menu.

Panning the canvas

There are many ways to pan (scroll) the document canvas. Try Ctrl+arrow keys to scroll by keyboard. You can also drag the canvas by the middle mouse button. Or, you can use the scrollbars (press Ctrl+B to show or hide them). The wheel on your mouse also works for scrolling vertically; press Shift with the wheel to scroll horizontally.

TRY IT: TRY THE WAYS TO PAN AN IMAGE NOW

Zooming in or out

The easiest way to zoom is by pressing - and + (or =) keys. You can also use Ctrl+middle click or Ctrl+right click to zoom in, Shift+middle click or Shift+right click to zoom out, or rotate the mouse wheel with Ctrl. Or, you can click in the zoom entry field (in the bottom left corner of the document window), type a precise zoom value in %, and press Enter. We also have the Zoom tool (in the toolbar on left) which lets you to zoom into an area by dragging around it.

TRY IT: TRY THE WAYS TO ZOOM A IMAGE NOW

Inkscape tools
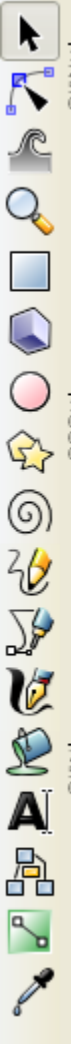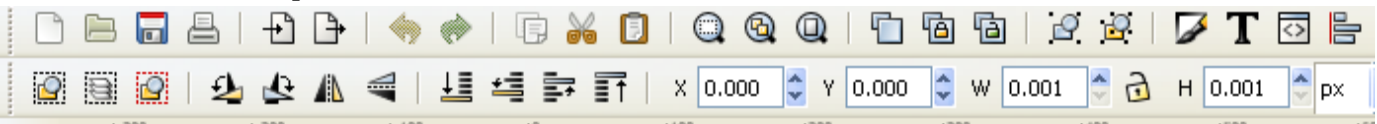
The vertical toolbar on the left shows Inkscape's drawing and editing tools. In the top part of the window, below the menu, there's the Commands bar with general command buttons and the Tool Controls bar with controls that are specific to each tool. The status bar at the bottom of the window will display useful hints and messages as you work.

Many operations are available through keyboard shortcuts. Open Help > Keys and Mouse to see the complete reference.

TRY IT: EXPLORE THE VARIOUS DRAWING TOOLS SHOWN TO THE LEFT

Creating and managing documents

To create a new empty document, use File > New or press Ctrl+N. To open an existing SVG document, use File > Open (Ctrl+O). To save, use File > Save (Ctrl+S), or Save As (Shift+Ctrl+S) to save under a new name. (Inkscape may still be unstable, so remember to save often!)

Inkscape uses the SVG (Scalable Vector Graphics) format for its files. SVG is an open standard widely supported by graphic software. SVG files are based on XML and can be edited with any text or XML editor (apart from Inkscape, that is). Besides SVG, Inkscape can import and export several other formats (EPS, PNG).

Inkscape opens a separate document window for each document. You can navigate among them using your window manager (e.g. by Alt+Tab), or you can use the Inkscape shortcut, Ctrl+Tab, which will cycle through all open document windows. (Create a new document now and switch between it and this document for practice.)

TRY IT: CREATE A NEW DOCUMENT

Creating shapes

Time for some nice shapes! Click on the Rectangle tool in the toolbar ▢ (or press F4) and click-and-drag, in your new empty document.
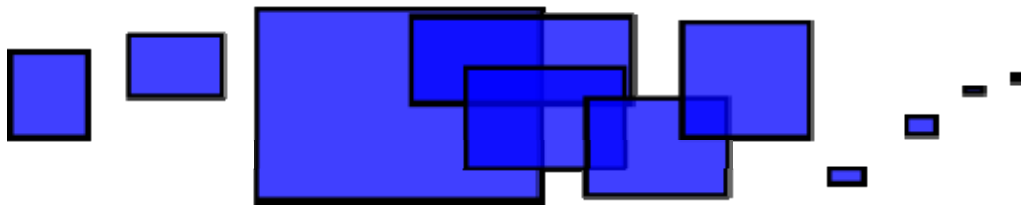
As you can see, default rectangles come up blue, with a black stroke (outline), and partly transparent. We'll see how to change that below. With other tools, you can also create ellipses, stars, and spirals:

These tools are collectively known as shape tools. Each shape you create displays one or more diamond-shaped handles; try dragging them to see how the shape responds.

TRY IT: DRAW A RECTANGLE, AN ELLIPSE, A STAR, AND A SPIRAL.

The Controls panel (the second toolbar from the top) for a shape tool is another way to tweak a shape; these controls affect the currently selected shapes (i.e. those that display the handles) *and* set the default that will apply to newly created shapes.

The Controls panel for a selected rectangle looks like this:

X 16.643 Y 723.786 W 183.857 H 123.857 px
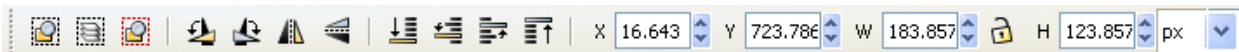
TRY IT: USE THE CONTROLS PANEL TO CHANGE THE SIZE AND POSITION OF A RECTANGLE. TO DO THIS, CHANGE THE X (POSITION LEFT OR RIGHT), Y (POSITION UP OR DOWN), W (WIDTH), AND/OR H (HEIGHT) FIELDS.

FYI: To undo your last action, press Ctrl+Z. (Or, if you change your mind again, you can redo the undone action by Shift+Ctrl+Z.)

Moving, scaling, rotating

The most frequently used Inkscape tool is the Selector. Click the topmost button (with the arrow) on the toolbar, or press F1 or Space.
Now you can select any object on the canvas.

TRY IT: TRY SELECTING AN OBJECT

You will see eight arrow-shaped handles appear around the object. Now you can:

- Move the object by dragging it. (Press Ctrl to restrict movement to horizontal and vertical.)
- Scale the object by dragging any handle. (Press Ctrl to preserve the original height/width ratio.)

Now click the rectangle again. The handles change. Now you can:

- Rotate the object by dragging corner handles. (Press Ctrl to restrict rotation to 15 degree steps. Drag the cross mark to position the center of rotation.)
- Skew (shear) the object by dragging non-corner handles. (Press Ctrl to restrict skewing to 15 degree steps.)

While in Selector, you can also use the numeric entry fields in the Controls bar (above the canvas) to set exact values for coordinates (X and Y) and size (W and H) of the selection.

TRY IT: TRY MOVING AND OBJECT AND THE ROTATE IT

Transforming by keys

One of Inkscape's features that set it apart from most other vector editors is its emphasis on keyboard accessibility. There's hardly any command or action that is impossible to do from keyboard, and transforming objects is no exception.

You can use the keyboard to move (arrow keys), scale (< and > keys), and rotate ([and] keys) objects. Default moves and scales are by 2 px; with Shift, you move or scale by 10 times that. Ctrl+> and Ctrl+< scale up or down to 200% or 50% of the original, respectively. Default rotates are by 15 degrees; with Ctrl, you rotate by 90 degrees.

However, perhaps the most useful are pixel-size transformations, invoked by using Alt with the transform keys. For example, Alt+arrows will move the selection by 1 pixel *at the current zoom* (i.e. by 1 screen pixel, not to be confused with the px unit which is an SVG length unit independent of zoom). This means that if you zoom in, one Alt+arrow will result in a *smaller* absolute movement which will still look like one-pixel nudge on your screen. It is thus possible to position objects with arbitrary precision simply by zooming in or out as needed.

TRY IT: MOVE AN OBJECT AROUND USING THE VARIOUS KEYBOARD SHORTCUTS.

Similarly, Alt+> and Alt+< scale selection so that its visible size changes by one screen pixel, and Alt+[and Alt+] rotate it so that its farthest-from-center point moves by one screen pixel.

Multiple selections

You can select any number of objects simultaneously by Shift+clicking them. Or, you can drag around the objects you need to select; this is called rubberband selection. (Selector creates rubberband when dragging from an empty space; however, if you press Shift before starting to drag, Inkscape will always create the rubberband.)

TRY IT: USE THE RUBBERBAND TO SELECT TWO OBJECTS

Each individual object within a selection displays a selection cue by default, a dashed rectangular frame. These cues make it easy to see at once what is

selected and what is not. Shift+clicking on a selected object excludes it from the selection.

<u>TRY IT: SELECT THREE OBJECTS AND THEN USE SHIFT-CLICK TO DESELECT ONE.</u>

Pressing Esc deselects any selected objects. Ctrl+A selects all objects in the current layer (if you did not create layers, this is the same as all objects in the document).

Grouping

Several objects can be combined into a group. A group behaves as a single object when you drag or transform it.

To create a group, you select one or more objects and press Ctrl+G (OR SELECT OBJECT > GROUP FROM THE MENU). To ungroup one or more groups, select them and press Ctrl+U (OR SELECT OBJECT > UNGROUP FROM THE MENU). Groups themselves may be grouped, just like any other objects. However, Ctrl+U only ungroups the topmost level of grouping in a selection; you'll need to press Ctrl+U repeatedly if you want to completely ungroup a deep group-in-group.

You don't necessarily have to ungroup, however, if you want to edit an object within a group. Just Ctrl+click that object and it will be selected and editable alone, or Shift+Ctrl+click several objects (inside or outside any groups) for multiple selection regardless of grouping.

<u>TRY IT: SELECT SEVERAL SHAPES THEN GROUP THEM. ONCE GROUPED, MOVE THE ENTIRE GROUP SOMEPLACE ELSE.</u>

<u>TRY IT: CTRL-CLICK AN OBJECT IN YOUR GROUP TO MOVE IT BY ITSELF.</u>

Fill and stroke

Many of Inkscape's functions are available via dialogs. Probably the simplest way to paint an object some color is to open the Swatches dialog from the View menu, select an object, and click a swatch to paint it (change its fill color).

TRY IT: USE THE SWATCHES DIALOG TO CHANGE THE COLOR OF AN OBJECT

More powerful is the Fill and Stroke dialog (Shift+Ctrl+F or Objects > Fill and Stroke from the menu).

TRY IT: SELECT A SHAPE AND OPEN THE FILL AND STROKE DIALOG.

You will see that the dialog has three tabs: Fill, Stroke paint, and Stroke style. The Fill tab lets you edit the fill (interior) of the selected object(s). Using the buttons just below the tab, you can select types of fill, including no fill (the button with the X), flat color fill, as well as linear or radial gradients. For the above shape, the flat fill button will be activated.

Further below, you see a collection of color pickers, each in its own tab: RGB, CMYK, HSL, and Wheel. Perhaps the most convenient is the Wheel picker, where you can rotate the triangle to choose a hue on the wheel, and then select a shade of that hue within the triangle. All color pickers contain a slider to set the alpha (opacity) of the selected object(s).

TRY IT: USE THE WHEEL COLOR PICKER TO CHANGE THE COLOR OF YOUR SELECTED OBJECT.

Whenever you select an object, the color picker is updated to display its current fill and stroke (for multiple selected objects, the dialog shows their *average* color).

**TRY IT: SELECT OTHER OBJECTS AND WATCH THE COLOR PICKER CHANGE.**

Using the Stroke paint tab, you can remove the stroke (outline) of the object, or assign any color or transparency to it:

TRY IT: CHANGE THE COLOR OF THE STROKE (OUTLINE) OF YOUR CURRENTLY SELECTED OBJECT

The last tab, Stroke style, lets you set the width and other parameters of the stroke:

Finally, instead of flat color, you can use gradients for fills and/or strokes by selecting one of the gradient options as shown below:
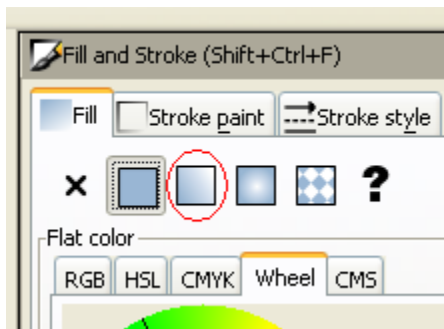
When you switch from flat color to gradient, the newly created gradient uses the previous flat color, going from opaque to transparent. Switch to the Gradient tool (Ctrl+F1) to drag the gradient handles the controls connected by lines that define the direction and length of the gradient. When any of the gradient handles is selected (highlighted blue), the Fill and Stroke dialog sets the color of that handle instead of the color of the entire selected object.

TRY IT: CHANGE YOUR CURRENTLY SELECT OBJECT TO BE FILLED WITH A GRADIENT AND PLAY AROUND WITH THE VARIOUS OPTIONS.

Yet another easy way to change a color of an object is by using the Dropper tool (F7). Just click anywhere in the drawing with that tool, and the picked color will be assigned to the selected object's fill (Shift+click will assign stroke color).

TRY IT: CHANGE THE COLOR OF THE CURRENTLY SELECTED OBJECT TO THE COLOR OF ANOTHER OBJECT USING THE DROPPER TOOL.

Duplication, alignment, distribution

One of the most common operations is duplicating an object (Ctrl+D – or Edit > Duplicate from the menu). The duplicate is placed exactly above the original and is selected, so you can drag it away by mouse or by arrow keys.

TRY IT: SELECT AN OBJECT AND DUPLICATE IT. MOVE THE DUPLICATE USING THE MOUSE OR THE ARROW KEYS.

Chances are your copies of the object are placed pretty randomly. This is where the Align dialog (Ctrl+Shift+A – or Object > Align and Distribute from the menu) is useful.

TRY IT: SELECT ALL THE OBJECTS (SHIFT+CLICK OR DRAG A RUBBERBAND), OPEN THE DIALOG AND PRESS THE "CENTER ON HORIZONTAL AXIS" BUTTON, THEN THE "MAKE HORIZONTAL GAPS BETWEEN OBJECTS EQUAL" BUTTON (READ THE BUTTON TOOLTIPS). THE OBJECTS ARE NOW NEATLY ALIGNED AND DISTRIBUTED EVENLY.

Z-order

The term z-order refers to the stacking order of objects in a drawing, i.e. to which objects are on top and obscure others. The two commands in the Object menu, Raise to Top (the Home key) and Lower to Bottom (the End key), will move your selected objects to the very top or very bottom of the current layer's z-order. Two more commands, Raise (PgUp) and Lower (PgDn), will sink or emerge the selection *one step only*, i.e. move it past one non-selected object in z-order (only objects that overlap the selection count; if nothing overlaps the selection, Raise and Lower move it all the way to the top or bottom correspondingly).

TRY IT: MOVE ONE OBJECT PARTIALLY OVER ANOTHER OBJECT AND CHANGE THE Z-ORDER MY USING ONE OF THE METHODS LISTED ABOVE.

You also can change the z-order by selecting one of these buttons from the Tools Control toolbar (second from the top)
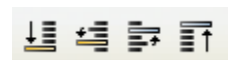
Selecting under and dragging selected

What to do if the object you need is hidden behind another object? You may still see the bottom object if the top one is (partially) transparent, but clicking on it will select the top object, not the one you need.

This is what Alt+click is for. First Alt+click selects the top object just like the regular click. However, the next Alt+click at the same point will select the object *below* the top one; the next one, the object still lower, etc. Thus, several Alt+clicks in a row will cycle, top-to-bottom, through the entire z-order stack of objects at the click point. When the bottom object is reached, next Alt+click will, naturally, again select the topmost object.

TRY IT: MOVE AN OBJECT TO BE COMPLETELY HIDDEN BY ANOTHER OBJECT. USE THE ALT-CLICK METHOD TO SELECT THE BOTTOM OBJECT.

This is nice, but once you selected an under-the-surface object, what can you do with it? You can use keys to transform it, and you can drag the selection handles. However, dragging the object itself will reset the selection to the top object again (this is how click-and-drag is designed to work â€" it selects the (top) object under cursor first, then drags the selection). To tell Inkscape to drag *what is selected now* without selecting anything else, use Alt+drag. This will move the current selection no matter where you drag your mouse.

TRY IT: MOVE THE HIDDEN OBJECT THAT YOU SELECTED LAST TIME USING THE ALT-DRAG METHOD.

Conclusion

This concludes the Basic tutorial. There's much more than that to Inkscape, but with the techniques described here, you will already be able to create simple yet useful graphics. For more complicated stuff, go through the Advanced and other tutorials in Help > Tutorials.

GO TO THE NEXT PAGE FOR INSTRUCTIONS ON TURNING THIS TUTORIAL IN.

<u>TURN YOUR IMAGE IN NOW.</u>

When you have completed this tutorial, put your name and period on the image file(s) you have created, print it out, and hand it in. Your image(s) should include:

1. **Several shapes including rectangles (of various colors), an ellipse, a star, and a spiral.**
2. **A shape that is rotated.**
3. **A grouped set of objects**
4. **An object filled with a gradient**
5. **At least two overlapping shapes**

<u>This is for a grade, so if you are missing any of these, find the step you missed and redo it.</u>