

Inkscape Tutorial

v2023-02

Simon Andrews

simon.andrews@babraham.ac.uk

What is Inkscape?

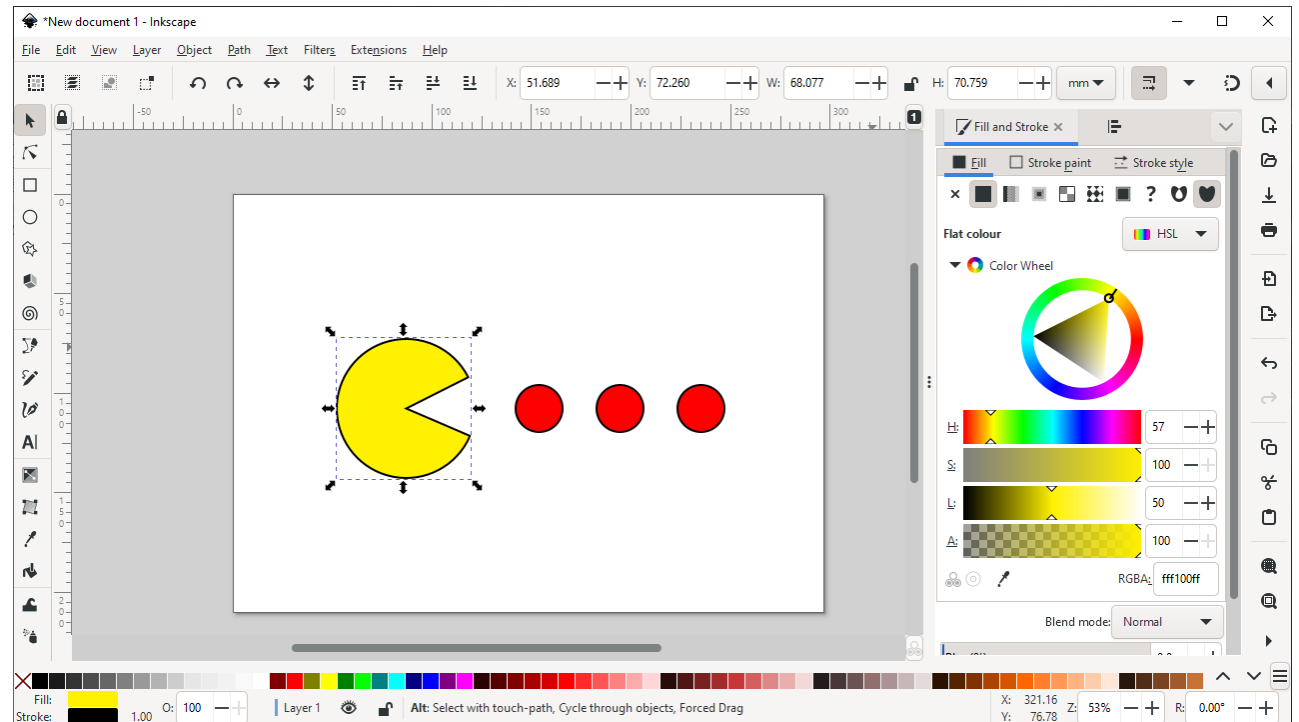
- Vector Graphics Editor
- Free Software
- Cross Platform
- Easy to use
- Good for:
 - Compositing
 - Drawing
- Not for:
 - Bitmap editing

www.inkscape.org



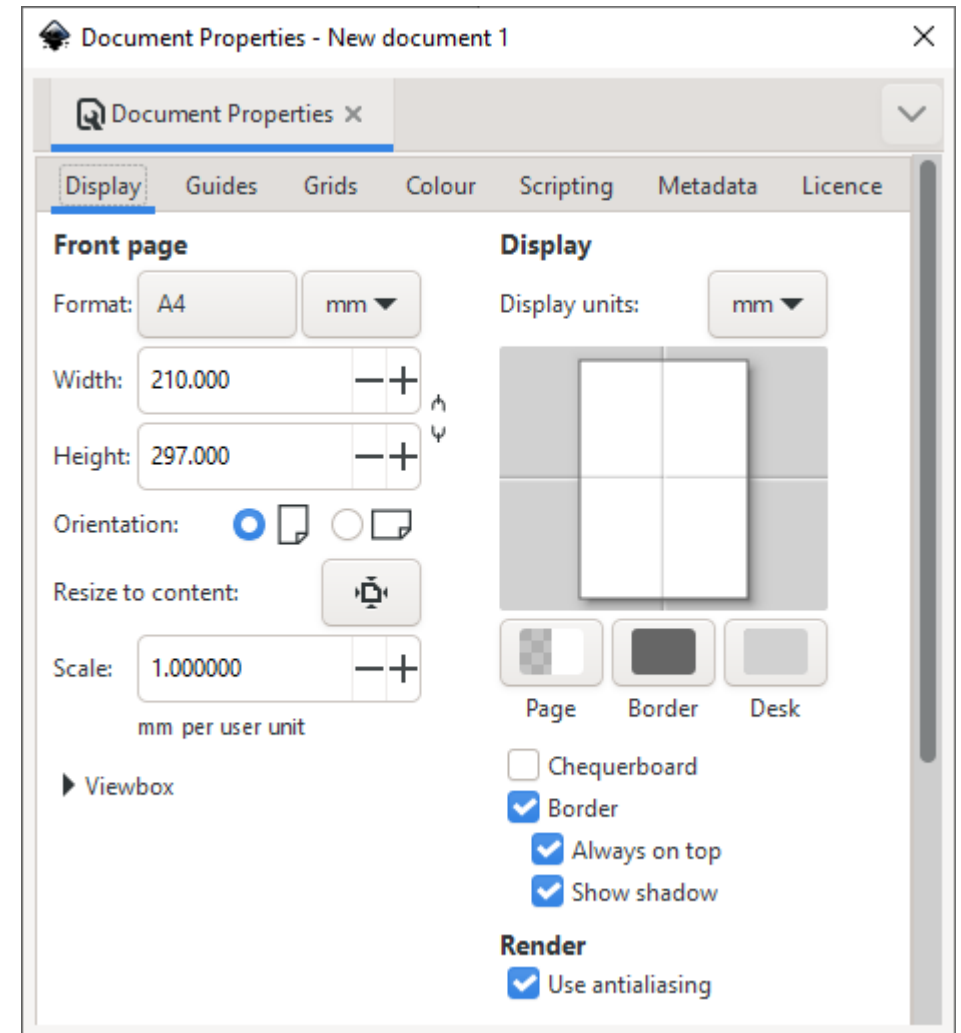
INKSCAPE

Draw Freely.








Setting up a canvas


- File > Document Properties
- Shows page in view
- Doesn't restrict drawing
- Useful as a guide



Moving around

- Panning
 - Scroll bars on bottom / right
 - Scroll up/down, Shift+scroll for left/right
- Zooming in / out
 -  – Click to zoom in, shift+click to zoom out
 - Control + Scroll Up/Down to zoom in/out to cursor
- Shortcuts
 -  – Fit  page,  drawing,  selection in window

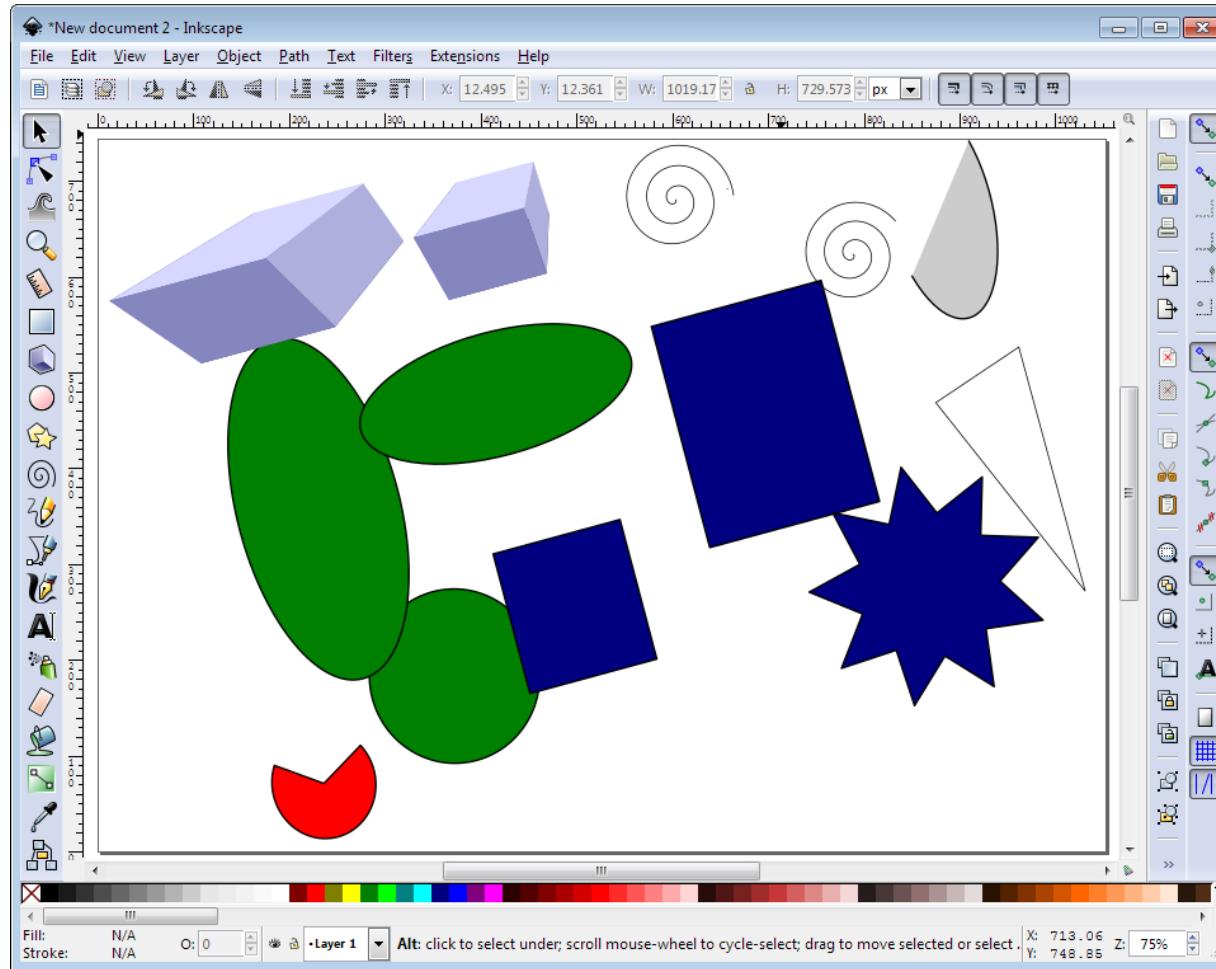
The main toolbar

- 
- Selection tool
 - Edit nodes tool
 - Make rectangles
 - Make ellipses / arcs
 - Make polygons / stars
 - Make 3D boxes
 - Make spirals
 - Draw straight lines / curves
 - Draw freehand lines
 - Calligraphy tool
 - Add text

Creating basic shapes

- Select tool from toolbar
- Click and drag on canvas
 - Box selects the bounds of the new shape
 - Colours are remembered from the last shape
- Basic options appear in top toolbar
 - Number of spokes on stars
 - Rounded corners on rectangles
 - Circle vs segment vs arc

Creating basic shapes



Creating basic shapes

- Modifiers – press keys whilst drawing
 - Control = Constrain height/width ratio
 - Easiest way to make circles / squares

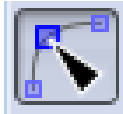
 - Shift = grow from centre not edge

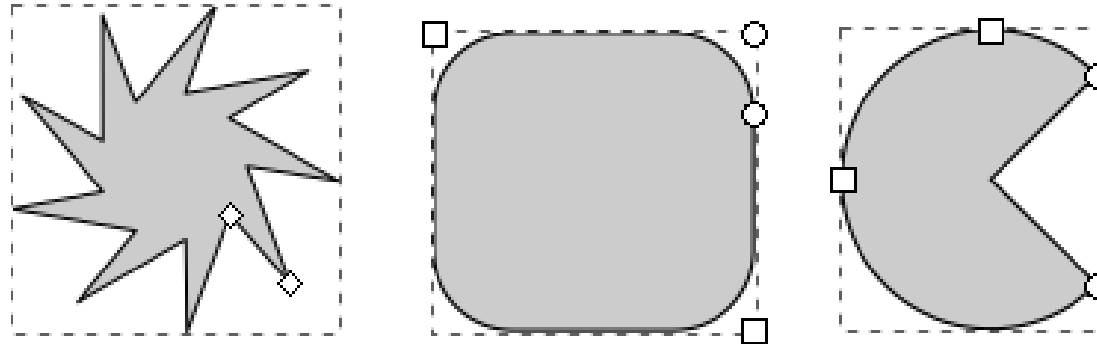
 - Help appears at the bottom of the screen

Ellipse: 24.13 px × 36.20 px; with **Ctrl** to make square or integer-ratio ellipse; with **Shift** to draw around the starting point

Click or click and drag to start a path; with **Shift** to append to selected path. **Ctrl+click** to create single dots (straight line modes only).

Control nodes

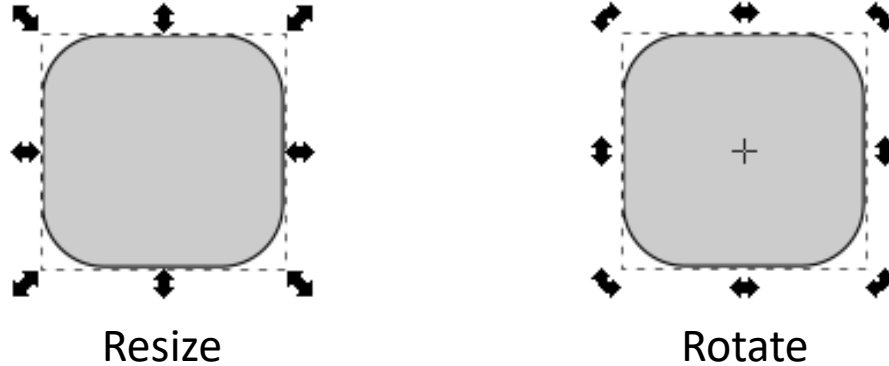
- Use the Edit Nodes tool 
- Two types of control points, squares and circles
 - Squares generally change the size of the shape
 - Circles change the appearance



General Transformations

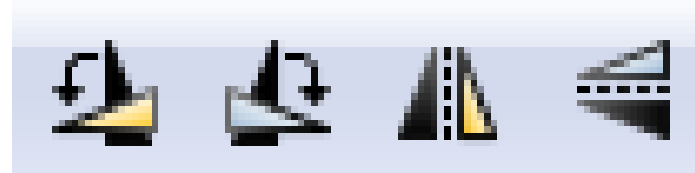
- Select the Selection tool
- Moving – Click and drag an object
- Duplicating – Select object and press Ctrl+D
- Resizing / Rotating
 - Click on object
 - Click again to change control arrow type
 - Click and drag arrows to resize / rotate

Resize / Rotate



- Can use shift/control keyboard modifiers as before
- For rotation you can move the crosshair to change the centre of rotation

Transform Shortcuts



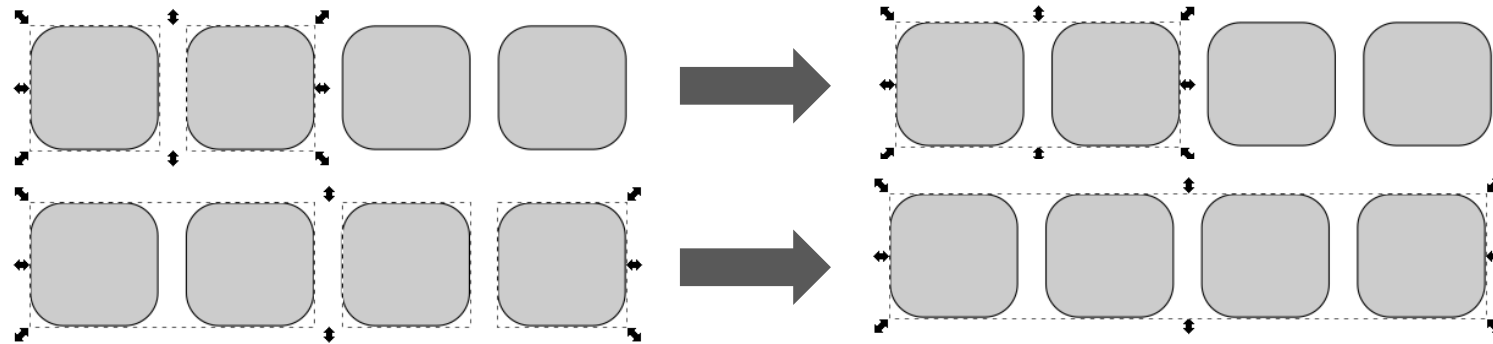
- Rotate 90 degrees anticlockwise
- Rotate 90 degrees clockwise
- Mirror object around the vertical axis
- Mirror object around the horizontal axis

Selecting and Grouping

- Selecting multiple objects
 - Drag a box to cover multiple objects
 - Shift+click to add an object to a selection
 - Shift+click on a selected object to remove it from the selection
- Grouping
 - Combine multiple objects into a single object
 - Reversible

Grouping

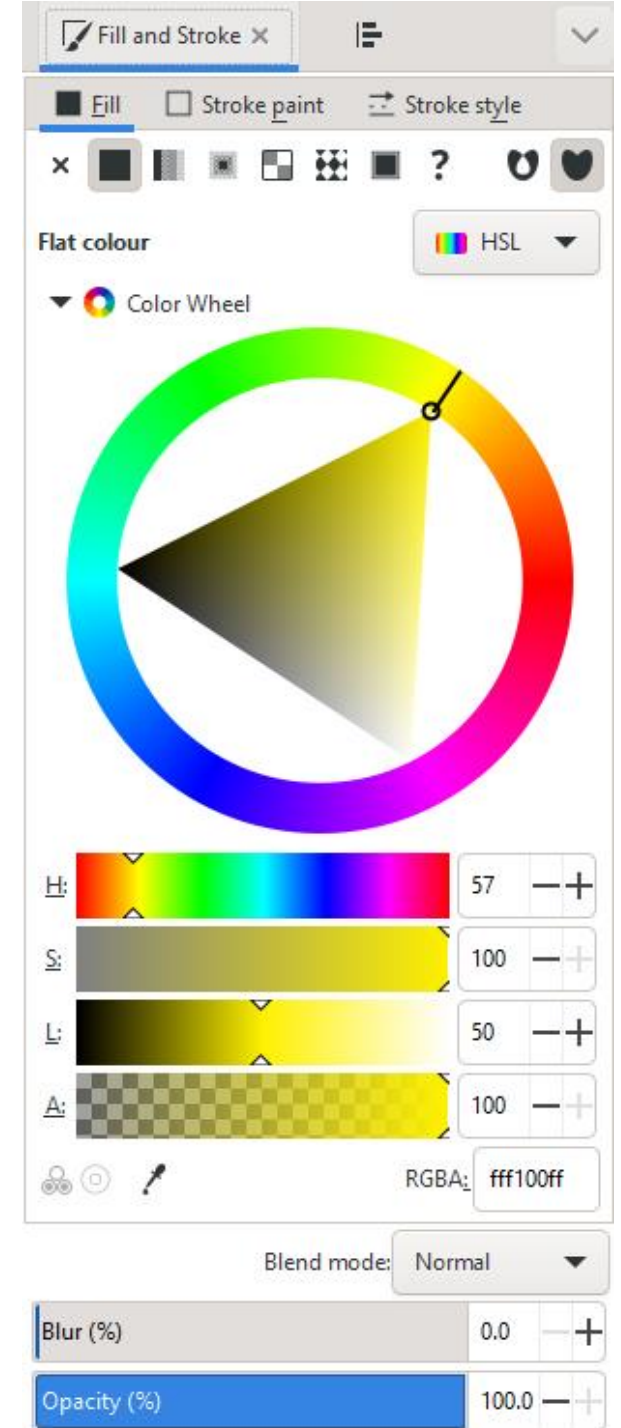
- Select Multiple Objects
- Object > Group (Control+G)
- Multiple Levels



- Object > Ungroup (Control+Shift+G)

Fill and Stroke

- Fill = Colour/Gradient/Pattern within a shape
- Stroke = The line around a shape
- Object > Fill and Stroke (Shift+Ctrl+F)
- Edit
 - Colours
 - Opacity
 - Blur



Opacity / Blur

- Applies to whole object
- Separate from alpha in colours
- Works on all Objects



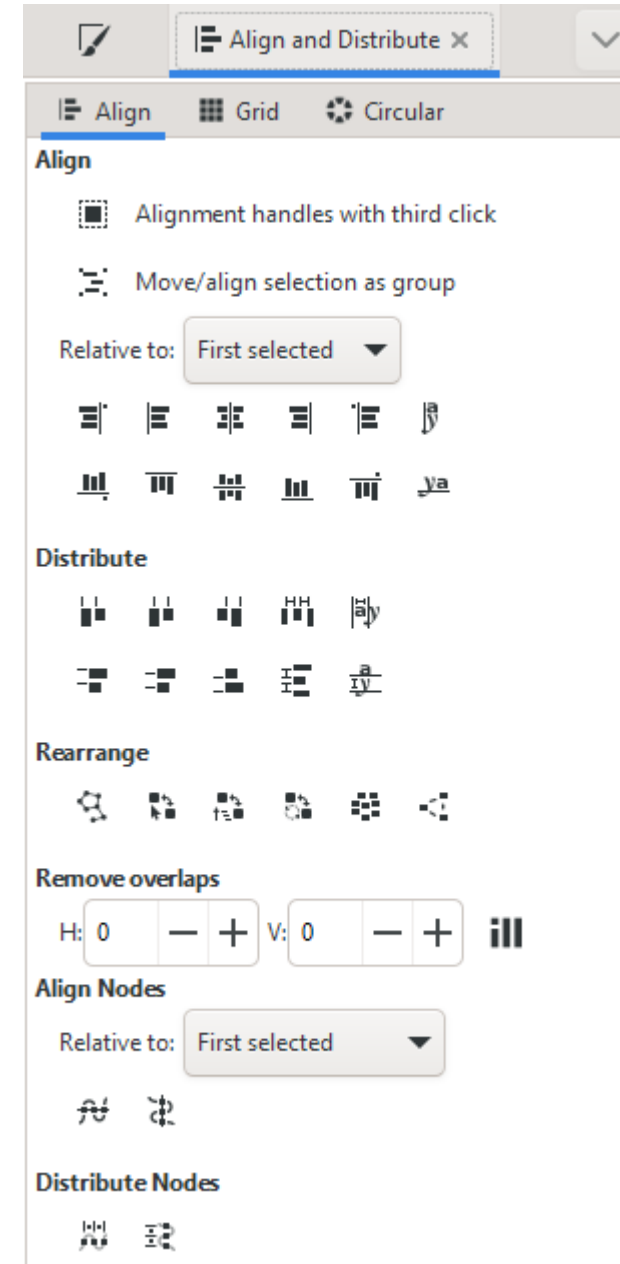
Opacity



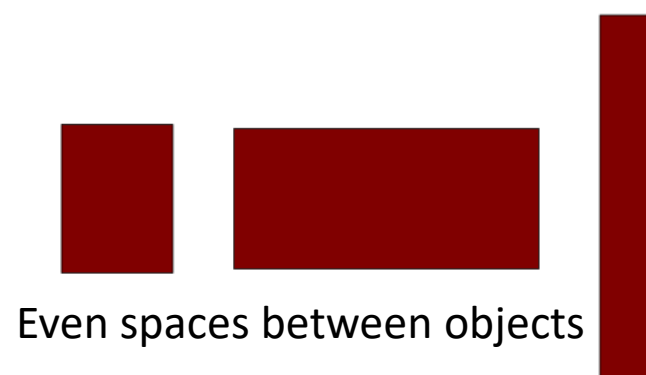
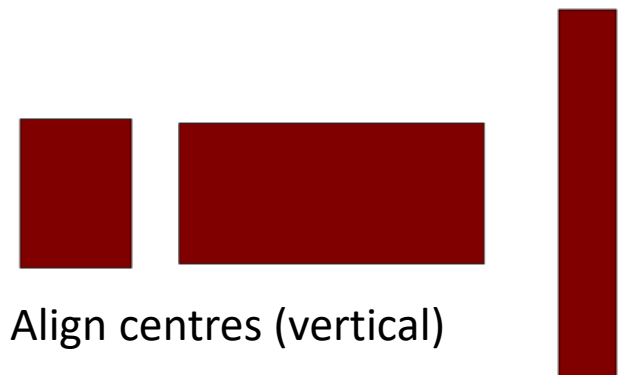
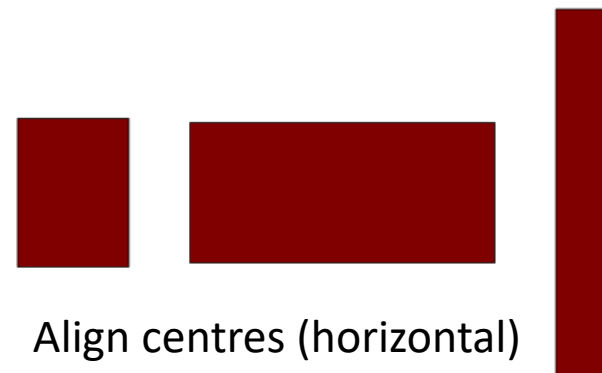
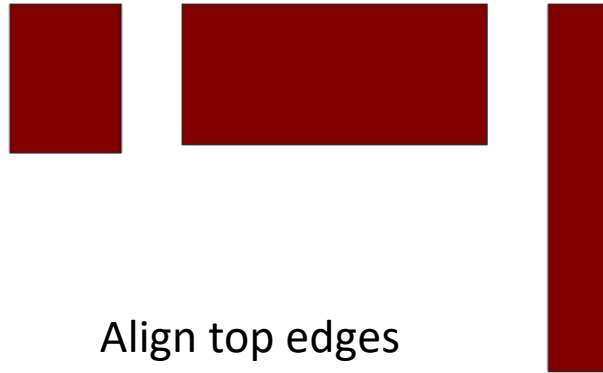
Blur
Blur
Blur

Aligning and Distributing

- Object > Align and Distribute
 - Align = Give objects the same centre/edge position
 - Distribute = Space objects evenly
- Align relative to
 - First/Last selected object in group
 - Largest/Smallest object in group
 - Page
 - Drawing

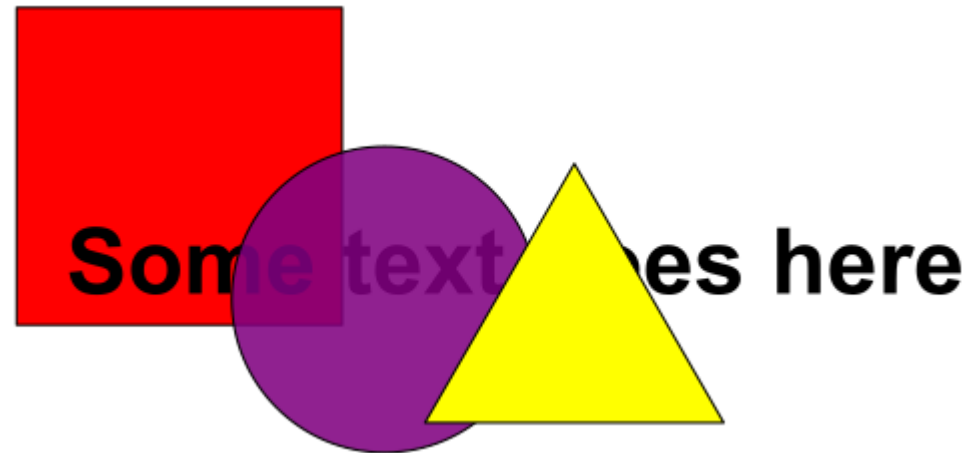


Aligning and Distributing



Z axis - Ordering

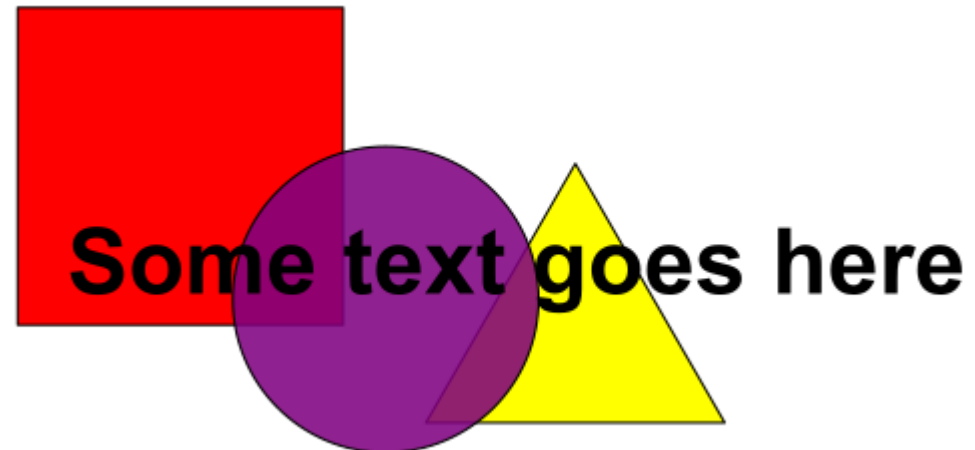
- New objects sit over the top of old objects
- Objects obscure those underneath them (except for transparency)



Z-axis Ordering



- Send object to bottom of z-stack
- Lower object one level
- Raise object one level
- Bring object to top



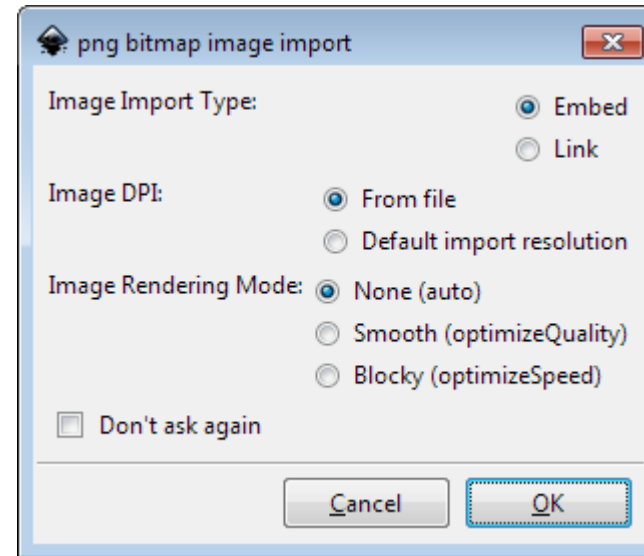
Working with bitmaps (photos)

- Inkscape can include bitmaps in images
- Appear as objects alongside vector objects
- Can't edit the images
- Can't increase the resolution of the image
- Transparency (from PNG etc) is preserved

- File > Import
 - PNG, JPEG, SVG, PDF etc. etc.

Working with bitmaps (photos)

- Embed
 - Large file sizes
 - No updating image
 - Portable file
- Link
 - Small file sizes
 - Need to keep original
 - Can update original
 - Can't (easily) move file

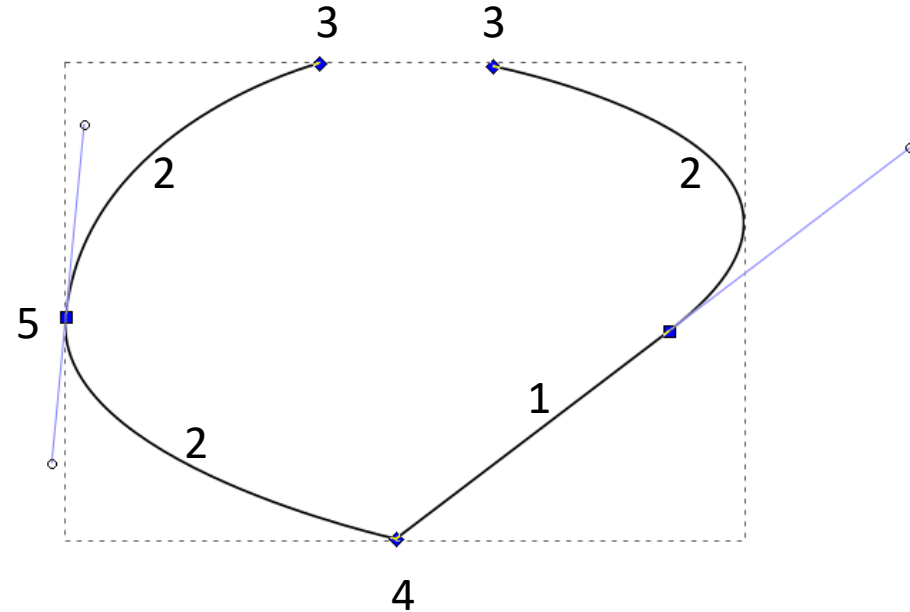


Creating and Editing Paths

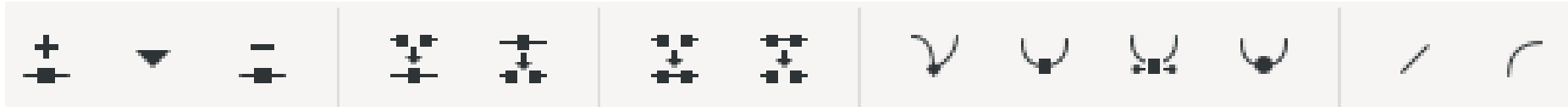
- Created using freehand or line tool
- Can convert other objects to become a path
- Paths are composed of nodes and segments
- There are different types of node and segment

Nodes and Segments

- Segment types
 - Lines (1)
 - Curves (2)
- Node types
 - End (3)
 - Corner (4)
 - Smooth (5)
 - Normal
 - Symmetric
 - Auto



Editing nodes



- Use nodes toolbar to add, remove or convert nodes or segments
- Select nodes or segments to make their handles visible
- Drag handles to change the arc of curves

Freehand drawing

- Freehand drawings tend to have large numbers of nodes, and be quite messy
- Can use simplification (Path > Simplify, Ctl+L)

Simon Simon Simon

- Can finally edit nodes on the simplified version

Simon

Combining paths

- Often want to add or subtract objects from each other
- Have to do this as paths (Path > Object to Path)
- Lots of options for joining paths together

Combining Paths

Union



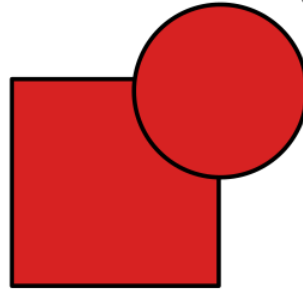
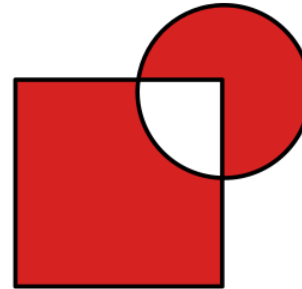
Difference




Intersection



Exclusion



Adding Text

- Use the text tool to add text. 
- Click and type to generate text
- Text can be scaled or rotated as any other object
 - Always hold Ctrl when scaling otherwise the aspect ratio will be messed up

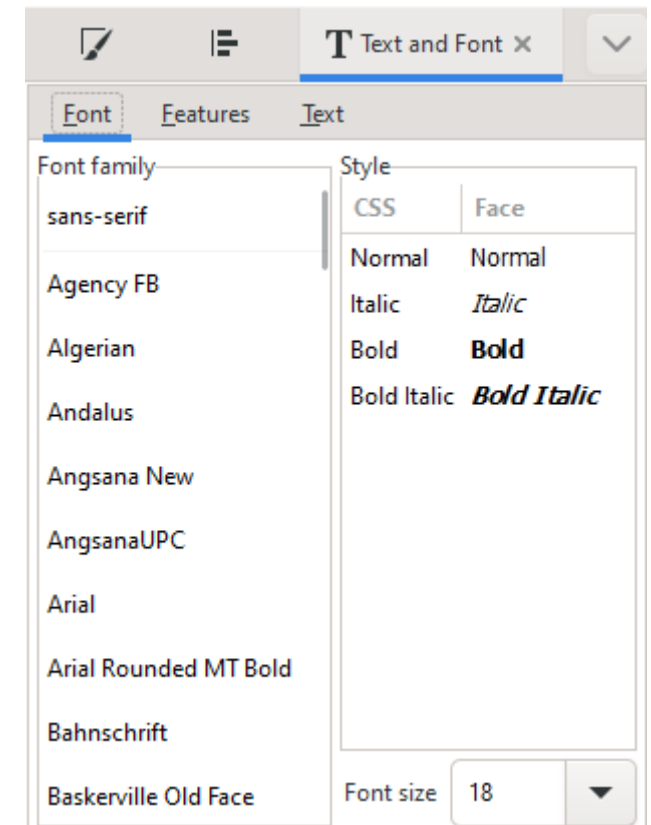
Text options

- Text toolbar



- Text and font settings

- Font
- Alignment
- Spacing



Saving

- Saving
 - File > Save (As)
 - Default is Scalable Vector Graphics (SVG)
 - Adds custom extensions to SVG standard
 - Can select plain SVG for maximum compatibility
 - Can compress SVG (svgz) for disk space saving

Exporting

- Vector
 - Can export as a PDF
 - File > Save (As), select PDF

- Bitmap
 - Can render high quality PNGs
 - File > Export PNG Image

