
Knotter Manual

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Chapter 1

Knotter User Guide

1.1 Introduction

Interlace patterns are a kind of design hystorically used as a decorations in many places and by different cultures.

Knotter uses [graphs to represent knots](#).

A good description of the algorithm used to render them and design tips can be found at [Celtic Knotwork: the Ultimate Tutorial](#)



An illumination on the cover of the Quran with an interlaced frame.

1.2 Command-line interface

See the [Knotter man page](#)

1.3 Editing

A knot is produced from a graph where the edges define interactions between two knot lines.

1.3.1 Adding nodes

Double clicking on an empty spot on the drawing area will add a node. If you double click on an edge, the new node will split that edge in two.

1.3.2 Adding edges

To toggle edges between nodes, the Link selected and Unlink selected commands.

1.3.3 Changing edge type

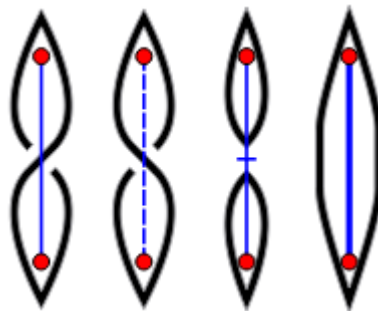
Knotter supports three types of edge:

Default The two lines cross at the edge midpoint, one on top of the other.

Inverted Like default but with the other line on top.

Hole The lines turn back without crossing.

Wall The lines follow the edge without crossing.



From left to right: Default, Inverted, Hole, Wall.

Tip

The type of an edge is changed with the mouse wheel or with the edge context menu.

1.3.4 Quick graph design

Adding nodes and edges one at the time can be very tedious, knotter provides the Edge list tool to make this process easier.

When this is enabled, a single click will create a node and each new node is connected to the previous one by an edge.

To break the edge chain, click with the right button, you'll be able to start a new chain from the next node.

1.3.5 Selection and transformation

Only nodes can be selected and moved, the edges will follow their vertices.

A single node is selected by left clicking it, multiple nodes can be selected by holding Shift or Control.

Dragging the mouse from an empty spot will select the nodes within a rectangular area.

Dragging one of the selected nodes will move the selection, while moving nodes can be transformed using the mouse wheel (will scale the selection) or Shift + mouse wheel (will rotate the selection around the node under the cursor). These transformations are available when pasting nodes.

Selected nodes can be mirrored using the horizontal and vertical flip commands.

1.3.6 Snapping

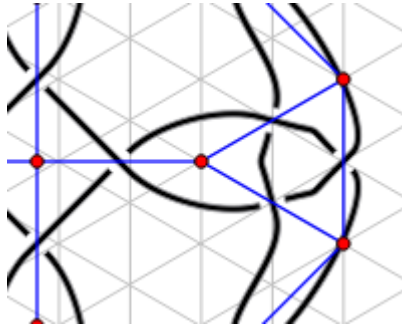
To allow precise designs knotter offers a grid that, when enabled, will snap nodes to the closest point.

There are three types of grid:

Square A regular square grid.

Triangular1 A grid where the elements are equilateral triangles with a horizontal base.

Triangular2 A grid where the elements are equilateral triangles with a vertical side.



The grid allows precise editing

1.4 Style

The Knot Style docks allow the configuration of display and shape options.

Curve Control Point Distance How much the knot line follows its direction when exiting from an edge.

Crossing Gap Distance between the end points when a lines are crossing.

Minimum Cusp Angle Minimum angle between two edge to make the knot line display a cusp rather than a smooth curve.

Cusp Distance Distance between the graph node and cusp tip.

Curve Style Various cuspid shapes.

Point Style How the sharp points are rendered.

Bevel Flat.

Miter With a sharp point.

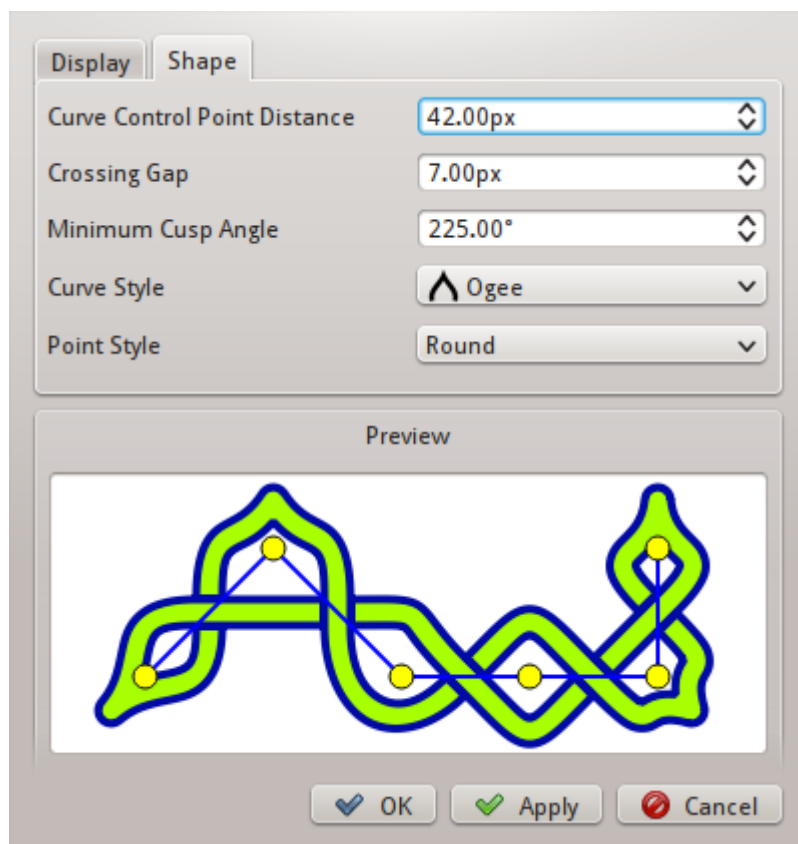
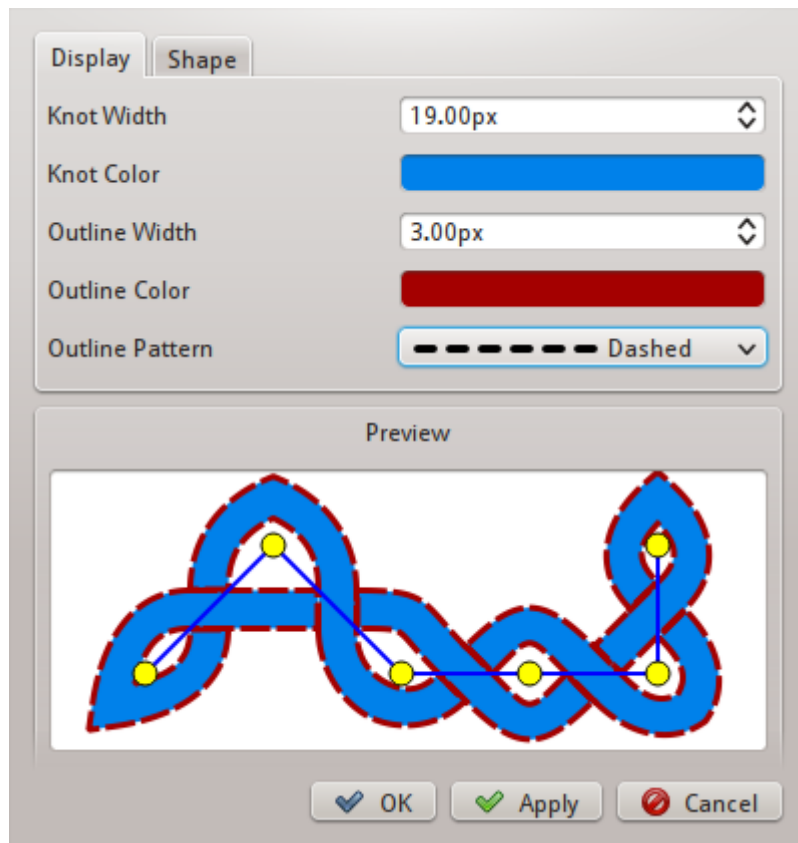
Round Smooth.

Tip

Some style settings can be configured on individual nodes, using the context menu (right click on a node)



Solomon's knots and trefoils rendered using various styles.



Style settings docks.

1.5 Save and Load

Knotter can save and load knots in its own human-readable format.

1.5.1 Export

The Export dialog gives many options to export the knot as Image.

1.5.1.1 Vector

If Only shape is checked, Knotter will export only the shape of the knot as a thin line, discarding some style option. This is useful if you plan to edit the image with an external program as it will give more control on shape changes.

1.5.1.2 Raster

Antialias If checked, the output image will be supersampled.

Compression The compression level, the result depends on the exported format (0% will produce large, uncompressed files; 100% small files).

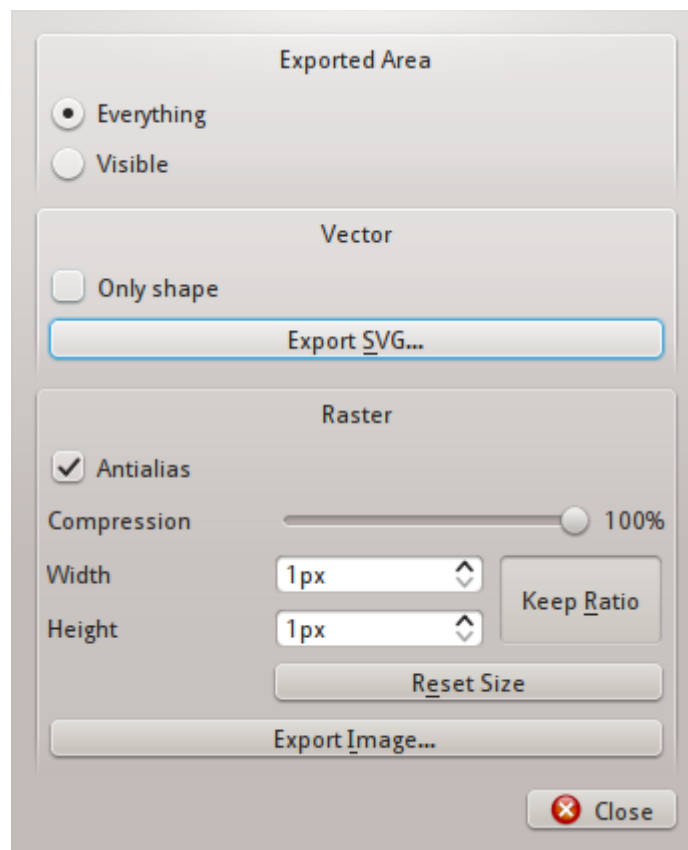
When exporting to a JPEG image, heavy compression will result in poor quality.

This option is only meaningful for export format that support compression.

Width/Height The resulting image size, if they are different from the actual knot it will be scaled to fit those.

Keep Ratio When enabled, editing Width/Height will preserve their ratio.

Reset Size Change Width and Height back to the default.



Export dialog.

Chapter 2

Man pages

2.1 knotter

knotter — Celtic knot editor

Synopsis

```
knotter [--no-gui] [ OPTION... INFILE... ]  
knotter [--help|--version|--list-formats]
```

DESCRIPTION

Knotter is an editor for interlace patterns. Knots drawn with Knotter can be exported as SVG or raster images.

OPTIONS

Information

- help, -h** Show help message and exit
- version, -v** Show version info and exit
- list-formats** Display a list of available export formats and exit

Load and export

- output=*file*, -o *file*** Export last loaded knot to *file*
 - antialias, --no-antialias** Toggle antialias for raster export (default enabled)
 - minimal, --no-minimal** Export only path or full shape to SVG (default disabled)
 - background=*color*, -b *color*** Set the background color for raster export.
color can be a color name (eg: red), in hex notation (eg: #ff0000) or function-like notation (eg: rgb(255,0,0) rgba(255,0,0,0)).
 - format=*format*, -f *format*** Set export format. See `--list-formats` for full list of accepted values
format is not case sensitive.
If *format* is `auto` the correct format will be deduced from the file name.
-

Other

--no-gui Don't start the gui after parsing the command line

EXAMPLES

knotter --no-gui *file.knot* -b "rgba(0,255,0,150)" -fpng -o *file.png* Export *file.knot* to *file.png* with a slightly transparent blue background and exit.

knotter *file.knot* Open the GUI with *file.knot*.

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SEE ALSO

Knotter website <https://sourceforge.net/projects/knotter/>

Chapter 3

Contacts and links

3.1 Obtaining Knotter

Source packages and some compiled binaries can be found at <http://sourceforge.net/projects/knotter/files/>, The latest sources can be obtained with git at `git://git.code.sf.net/p/knotter/code` ([Online repository browser](#)).

3.2 Reporting Bugs

To send bug reports, feature request and feedback you can use the [forum on SourceForge](#) or send me an email: [Mattia Basaglia mattia.basaglia@gmail.com](mailto:mattia.basaglia@gmail.com)

Chapter 4

HowTo

This section shows how most common operations are performed in Knotter. Multiple items represent multiple ways to perform the same task.

Editing

1. *Insert a node.*

When in *Edges and nodes* mode, double click on the canvas.

When in *Edge list* mode, left click on the canvas.

2. *Insert edges.*

When in *Edges and nodes* mode, select some nodes and click Link selected nodes (Ctrl-L).

When in *edge list* mode, subsequent nodes are connected automatically with an edge.

3. *Remove nodes.*

Select some nodes and press **Del**.

Select some nodes and click Erase selected nodes.

4. *Remove edges.*

Select the edges (or their vertices) and click Unlink selected nodes.

Bring the edge context menu and click Remove.

5. *Break an edge.*

Insert a node when the edge is highlighted.

Bring the edge context menu and click Break on intersections to add nodes where the edge intersects with others.

Bring the edge context menu and click Break... to break it in even-length pieces.

6. *Insert a regular polygon.*

Click on Insert polygon

7. *Scale part of the graph.*

Select some nodes and use the handles when *Scale* mode is active. By default, dragging a handle will set the anchor point to the opposing handle, if you hold **Shift** the anchor point will be the bounding box center.

While dragging or pasting a part of the graph, use the mouse wheel.

8. *Rotate part of the graph.*

Select some nodes and use the handles when *Rotate* mode is active. Holding **Ctrl** will snap the rotation to steps of 15°

While dragging or pasting a part of the graph, use the mouse wheel.

9. *Flip part of the graph.*

Select some nodes and click on Horizontal flip or Vertical flip.

10. *Merge nodes.*

Select some nodes and click Merge selected nodes (Ctrl-M).

Style

1. *Change knot style globally.*

Use the *Knot style* settings to change overall knot appearance, *Default node style* settings to change style features that can be overridden node-wise

2. *Change the style for a specific node.*

Click on Context menu → Preferences... and the Node style dialog will be shown.

3. *Remove node specific settings*

Click on Context menu → Reset custom style.

On the Node style dialog, check Use default.

Configuration

1. *Configure the grid.*

To set up grid size and shape click on Configure grid...

To move the grid origin, click on Move grid and click on the canvas to select the new origin.

2. *View only the knot line.*

The grid can be toggled with Enable grid, the graph with Show graph. The knot can be still be edited when the graph is disabled as the node or edge under the cursor will be displayed.

3. *Improve performace*

Change settings on the preferences dialog.

Uncheck Show Knotline.

Chapter 5

Menu actions

Note

Most keyboard shortcuts are loaded from the system settings and may differ from those listed here.

5.1 File Menu

File → New (Ctrl-N) Clear the current document.

File → Open (Ctrl-O) Select a file to open.

File → Open recent Lists recently used files.

File → Save (Ctrl-S) Save current file.

File → Save As.. (Ctrl-S) Save current file, always shows a dialog to select the file name.

File → Export Show the export dialog, this allows SVG and raster export of the knot.

File → Quit (Ctrl-Q) Quits Knotter.

5.2 Edit Menu

Edit → Undo (Ctrl-Z) Undo last action.

Edit → Redo (Ctrl-Shift-Z) Redo next action.

Edit → Copy (Ctrl-C) Copy selected subgraph, this will copy data for Knotter internals and a SVG image

Edit → Cut (Ctrl-X) Move selected subgraph to clipboard, outgoing edges are removed.

Edit → Paste (Ctrl-V) Paste clipboard contents.

Edit → Select All (Ctrl-A) Select all nodes.

Edit → Preferences... Show configuration dialog.

5.3 View Menu

TODO

5.4 Nodes Menu

TODO

5.5 Tools Menu

Tools → Edit graph (Alt-Shift-E) Changes the editing mode, when this is enabled the user can interact with every aspect of the graph.

Tools → Edge list (Alt-Shift-L) Changes the editing mode, when this is enabled the user can insert nodes and edges quickly but other operations are somewhat limited

Tools → Insert polygon... Show a dialog to insert a regular polygon

Tools → Refresh path (F5) Forces Knotter to redraw the knot if it missed some edit. If you need to use this item, you may have encountered a bug. See [?title].

5.6 Help Menu

Help → Manual (F1) Shows a window with the displaying the HTML version of this manual.

Help → About... Shows a dialog with information on Knotter version and build environment.

Chapter 6

Knotter file formats

**To Do**

This section has not been written yet.

Chapter 7

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-

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Version 3, 29 June 2007

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