

Purge Duplicate Path Segments

A common problem while laser cutting or vinyl cutting for example, is the problem with duplicating lines which are overlapping invisibly. Often you won't find them in your drawing. If you use graphics without filtered duplications you might run into issues like burnt edges, rough-cut edges, long running cutting processes, etc.

This plugin removes duplicates from paths with respect to their type (bezier or straight line segments). Please note that **maybe you need to combine all lines/paths to one common path** to make this work. So this plugin is ideal to remove common edges like professional nesting software is doing too.

Key phrases: remove overlapping lines, remove duplicated lines, purge redundant lines, purge doubled lines, remove common edges, remove occulted lines, hidden line removal, retrace edges, chain paths, clean paths

Annotation belonging to the lines

This extension also helps removing straight line duplications where start or end point is duplicated by using "z" or "Z" in "d" descriptor, which invokes a closing contour, like the following

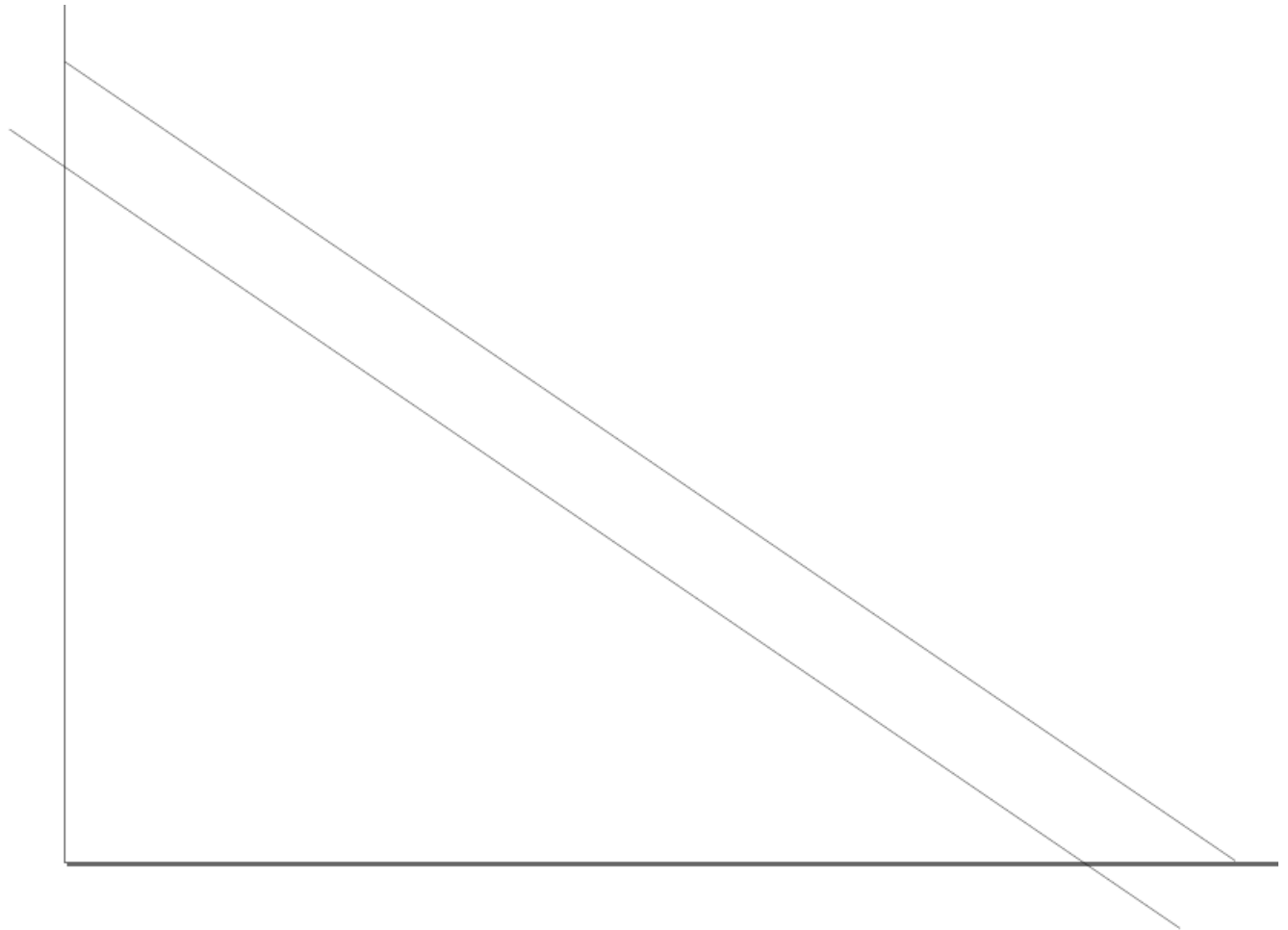
```
#turns
m 47.127583,101.78891 h 9.944022 z

#into
M 47.1276 101.789 L 57.0716 101.789
```

Example on how to remove duplicates

Draw a line and copy/paste it

```
<svg:svg id="svg2">
  <svg:metadata id="metadata366">
    <svg:defs id="defs364">
      <sodipodi:namedview id="namedview362">
        <svg:path id="path18541">
```



for each line a path 'd' is defined:

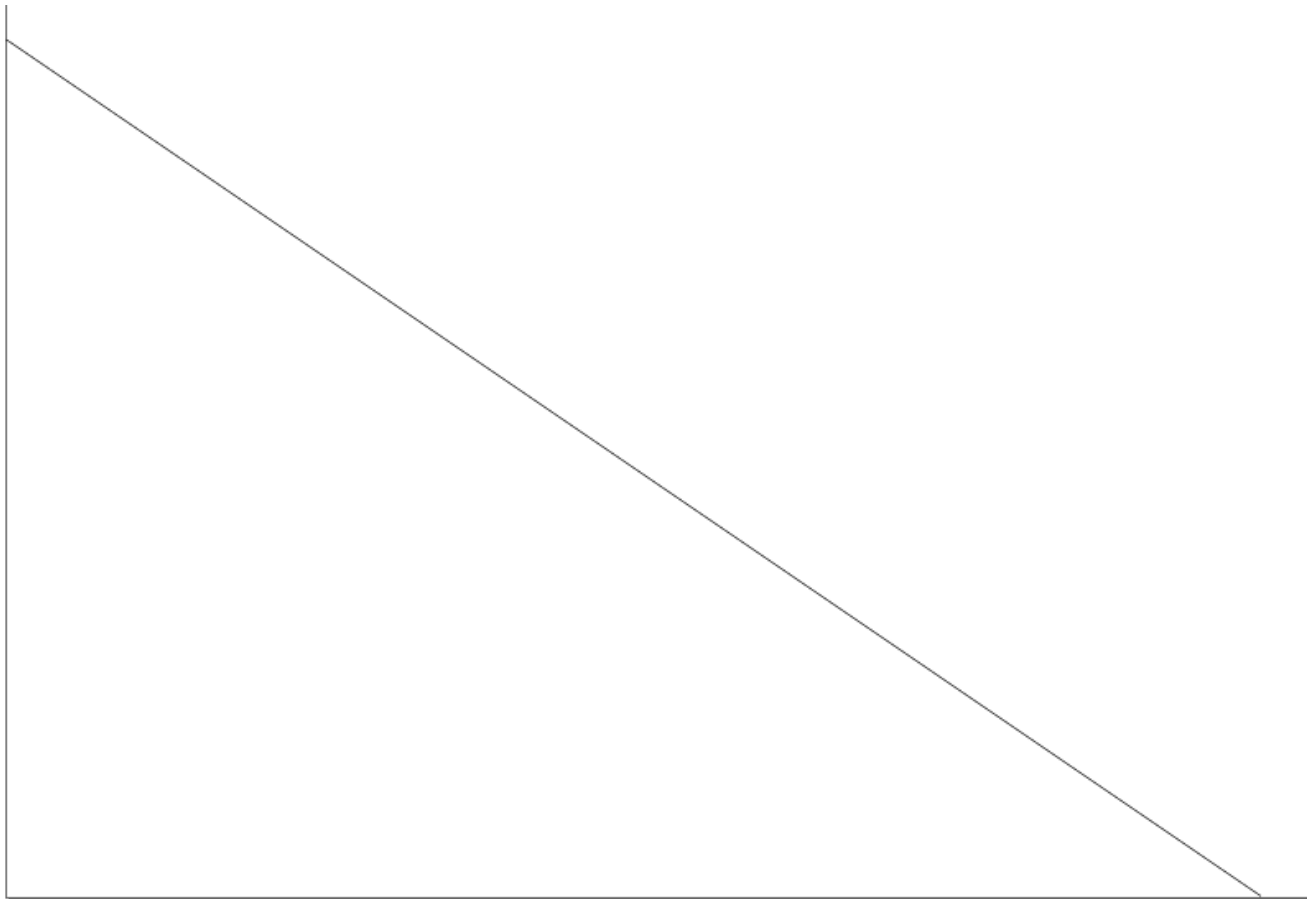
Name	Wert
d	M 2.5457688,8334.8683 3609.9398,10797.2

Make the paths overlapping visually (to enforce having some example of duplicated, invisible path)

```

<svg:svg id="svg2">
  <svg:metadata id="metadata366">
    <svg:defs id="defs364">
      <sodipodi:namedview id="namedview362">
        <svg:path id="path18541">
          <svg:path id="path18541-9">

```



Combine the lines (Ctrl + K)

<pre> <svg:svg id="svg2"> <svg:metadata id="metadata366"> <svg:defs id="defs364"> <sodipodi:namedview id="namedv <svg:path id="path18541-9"> </pre>	<table border="1"> <thead> <tr> <th>Name ▲</th> <th>Wert</th> </tr> </thead> <tbody> <tr> <td>d</td> <td>M 2.5457688,8334.8687 3609.9399,10797.2 M 2.5457688,8334.8683 3609.9398,</td> </tr> <tr> <td>id</td> <td>path18541-9</td> </tr> <tr> <td>style</td> <td>fill:none;fill-rule:evenodd;stroke:#000000;stroke-width:1.93615437px;stroke-</td> </tr> </tbody> </table>	Name ▲	Wert	d	M 2.5457688,8334.8687 3609.9399,10797.2 M 2.5457688,8334.8683 3609.9398,	id	path18541-9	style	fill:none;fill-rule:evenodd;stroke:#000000;stroke-width:1.93615437px;stroke-
Name ▲	Wert								
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id	path18541-9								
style	fill:none;fill-rule:evenodd;stroke:#000000;stroke-width:1.93615437px;stroke-								

The path is now duplicated. See entry 'd' - this is repeated

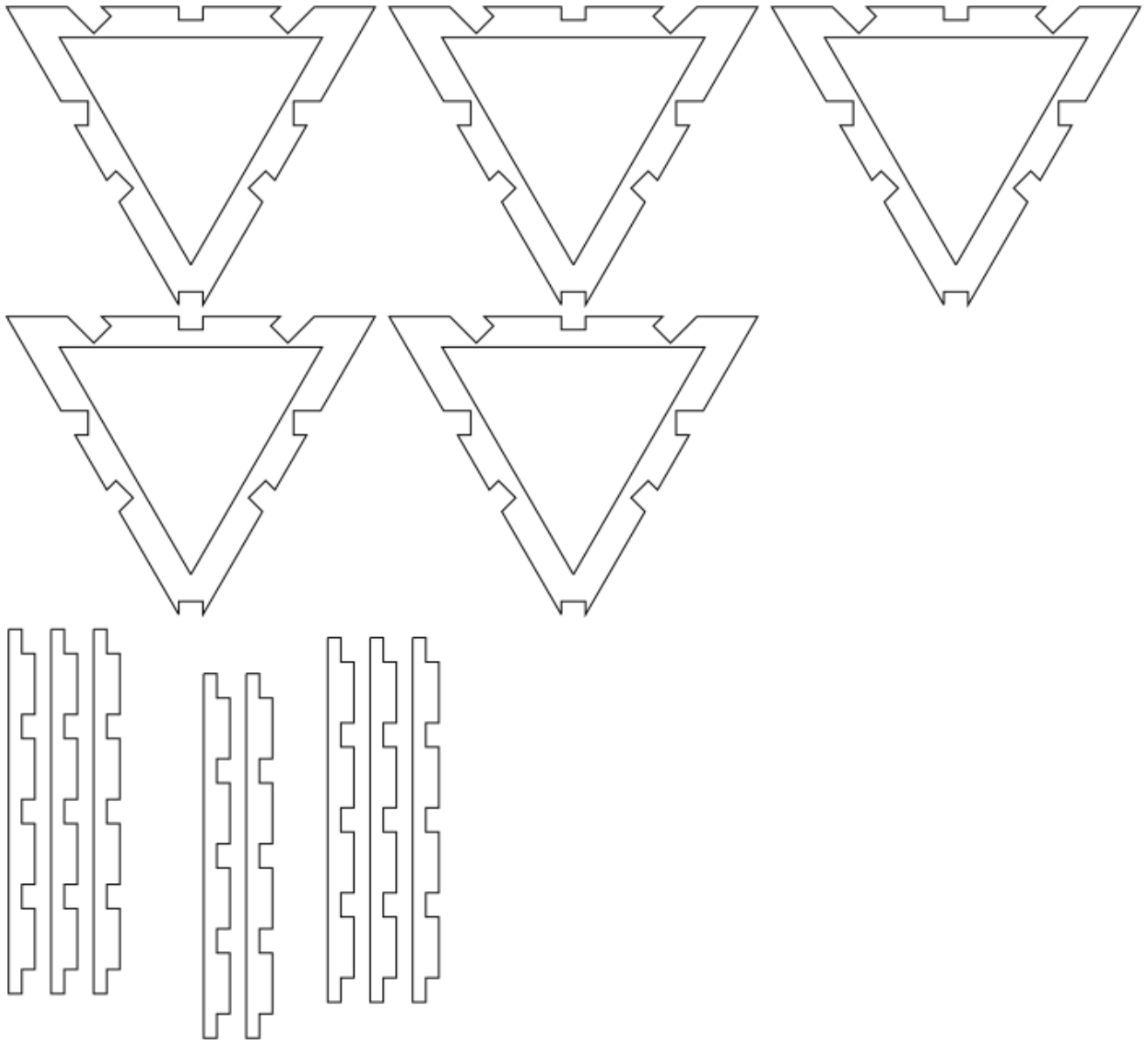
Run the extension

Now check the XML element tree to see the cleaned up path

<pre> <svg:svg id="svg2"> <svg:metadata id="metadata366"> <svg:defs id="defs364"> <sodipodi:namedview id="namedv <svg:path id="path18541-9"> </pre>	<table border="1"> <thead> <tr> <th>Name ▲</th> <th>Wert</th> </tr> </thead> <tbody> <tr> <td>d</td> <td>M2.5457688 8334.8687L3609.9399 10797.2</td> </tr> <tr> <td>id</td> <td>path18541-9</td> </tr> <tr> <td>style</td> <td>fill:none;fill-rule:evenodd;stroke:#000000;stroke-width:1.93615437px;stroke-</td> </tr> </tbody> </table>	Name ▲	Wert	d	M2.5457688 8334.8687L3609.9399 10797.2	id	path18541-9	style	fill:none;fill-rule:evenodd;stroke:#000000;stroke-width:1.93615437px;stroke-
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Real example and known limitation(s)

Get some parts you want to optimize by rearranging and removing common edges



Check the node count

Calculate the total number of nodes by clicking through XML tree and noting down the nodes count. We use this information to check how good we can reduce the duplicates in the drawing.

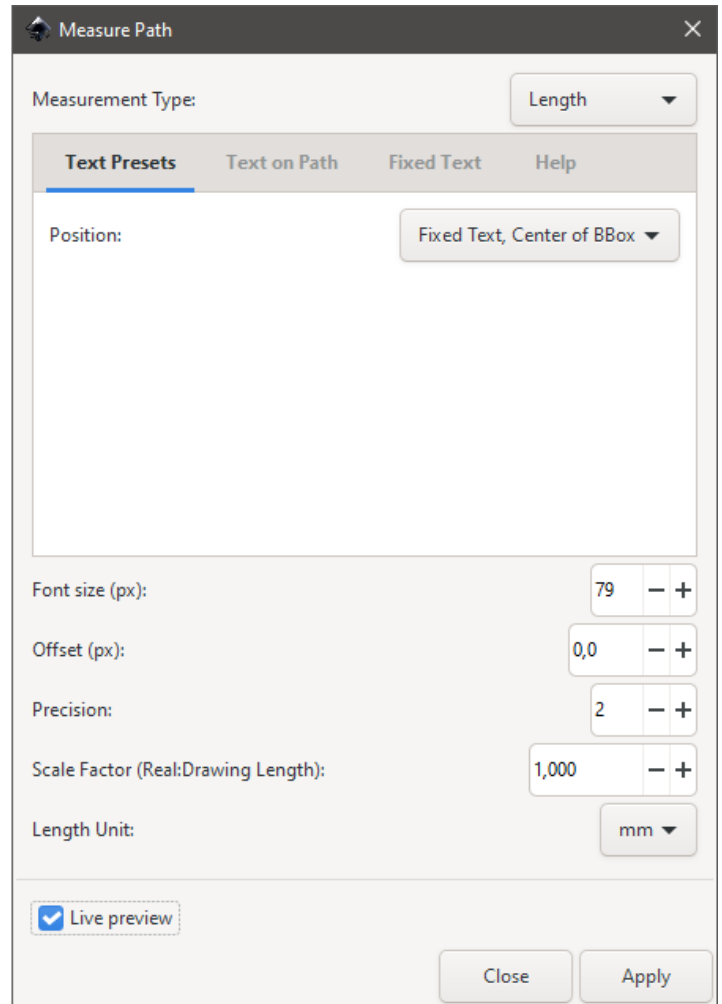
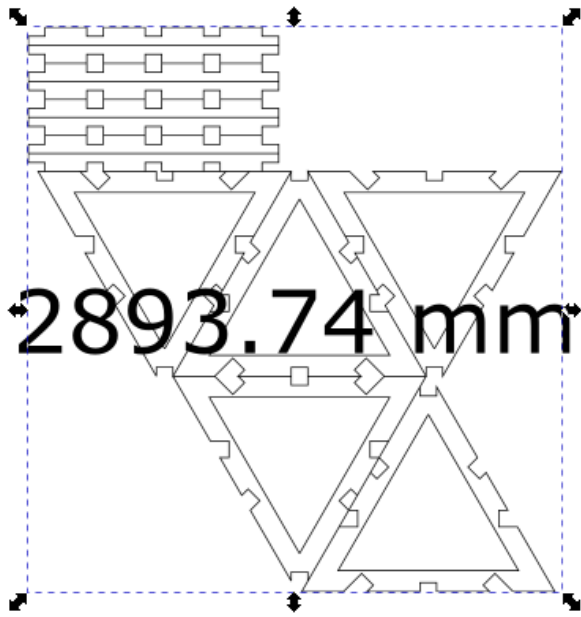
```
<svg:svg id="svg6">
  <svg:defs id="defs2">
    <sodipod:namedview id="base">
      <svg:g id="layer1" inkscape:label="Layer 1">
        <svg:g id="g856">
          <svg:path id="path1223" inkscape:label="Test"
          <svg:path id="path1225" inkscape:label="Test"
          <svg:path id="path1227" inkscape:label="Test"
          <svg:path id="path1229" inkscape:label="Test"
          <svg:path id="path1231" inkscape:label="Test"
          <svg:path id="path1233" inkscape:label="Test"
          <svg:path id="path1235" inkscape:label="Test"
          <svg:path id="path1237" inkscape:label="Test"
          <svg:path id="path1239" inkscape:label="Test"
          <svg:path id="path1241" inkscape:label="Test"
          <svg:path id="path1243" inkscape:label="Test"
          <svg:path id="path1245" inkscape:label="Test"
          <svg:path id="path1247" inkscape:label="Test"
          <svg:g id="g1250" inkscape:label="newlayer":
```

▼ Path 38 nodes in layer #g856. Click selection to toggle scale/rotation handles (or Shift+s).

For this example we have 13 paths with a total of $38 * 5 + 21 * 8 = 358$ nodes

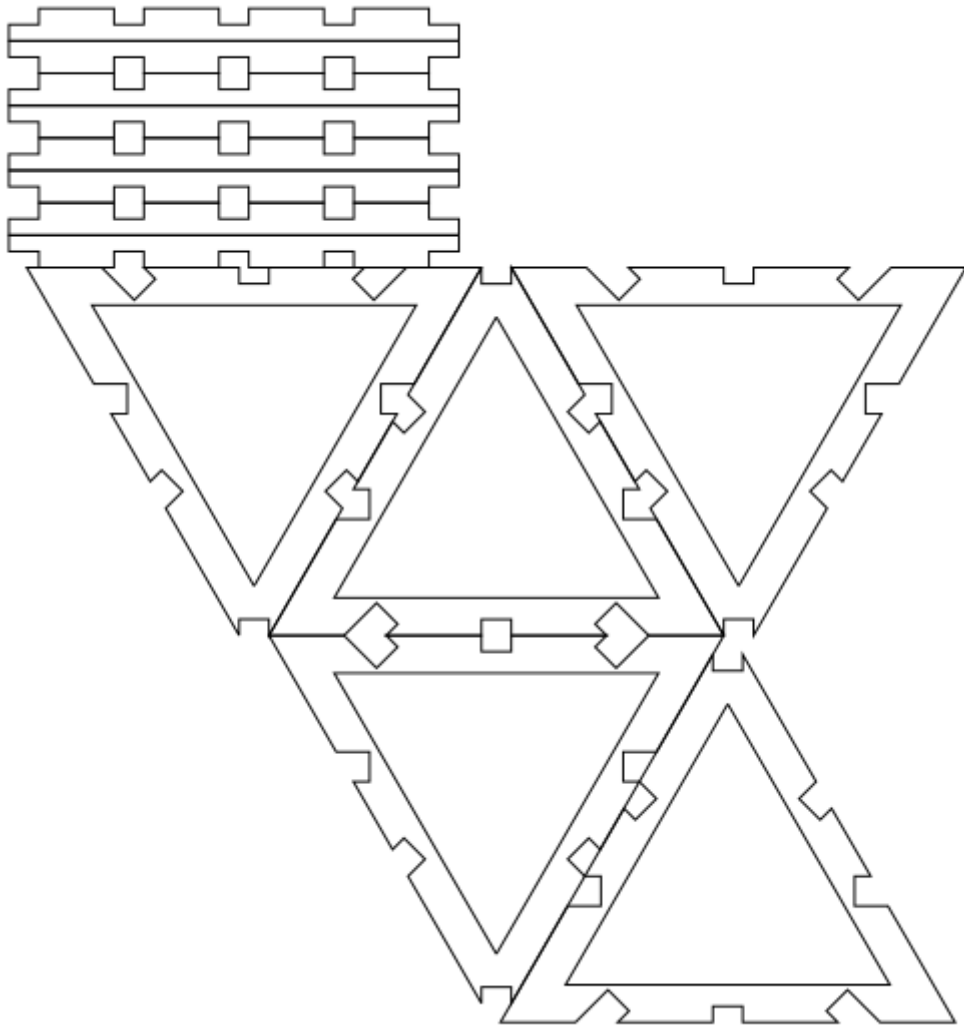
Check the total line length

We can also get a good comparison by measuring the total length of all paths before and after purging duplicate lines.

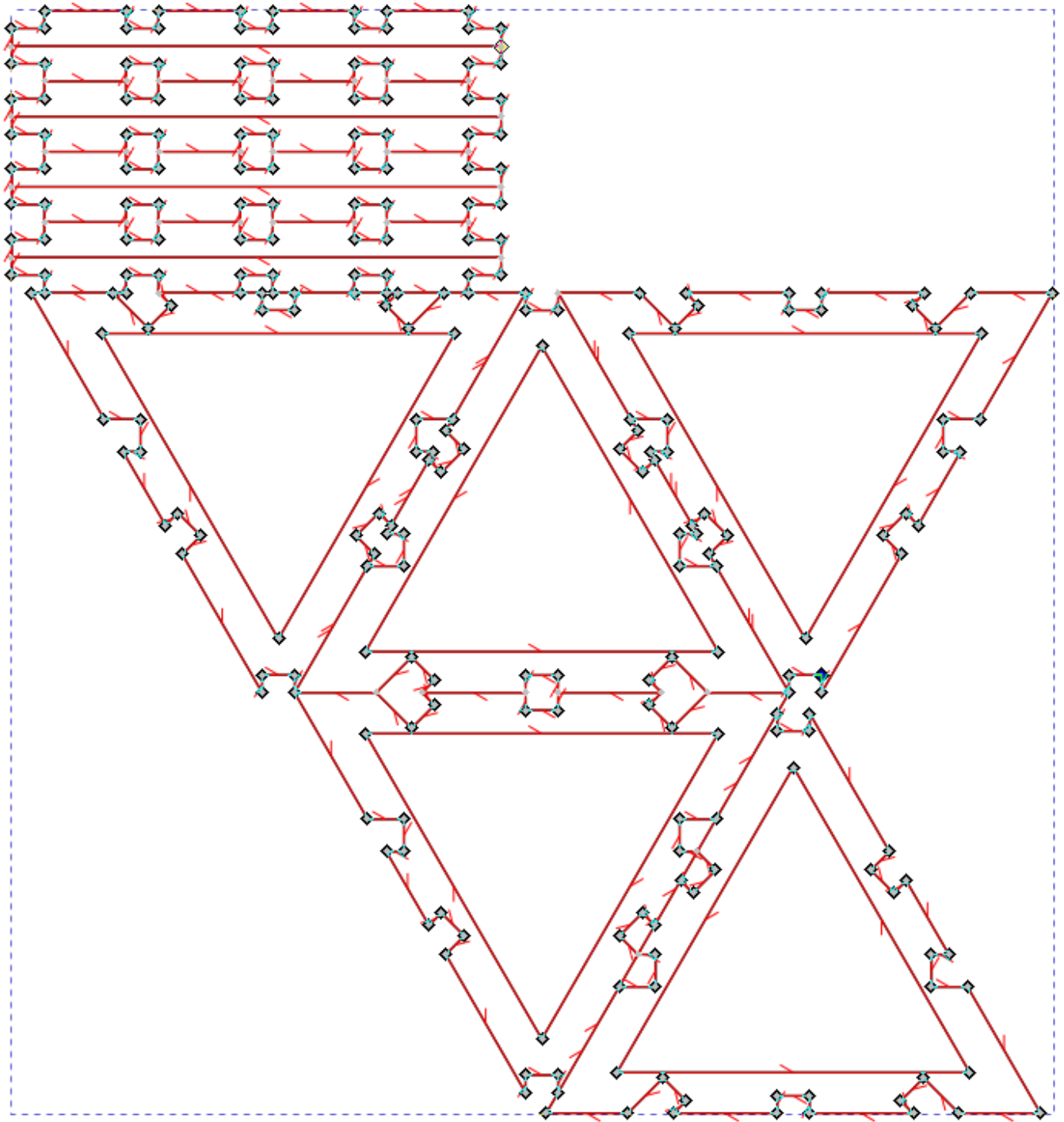


Rearrange and combine all paths

CTRL + K to combine the things. You might need to ungroup all items before.



Run the extension and get the result

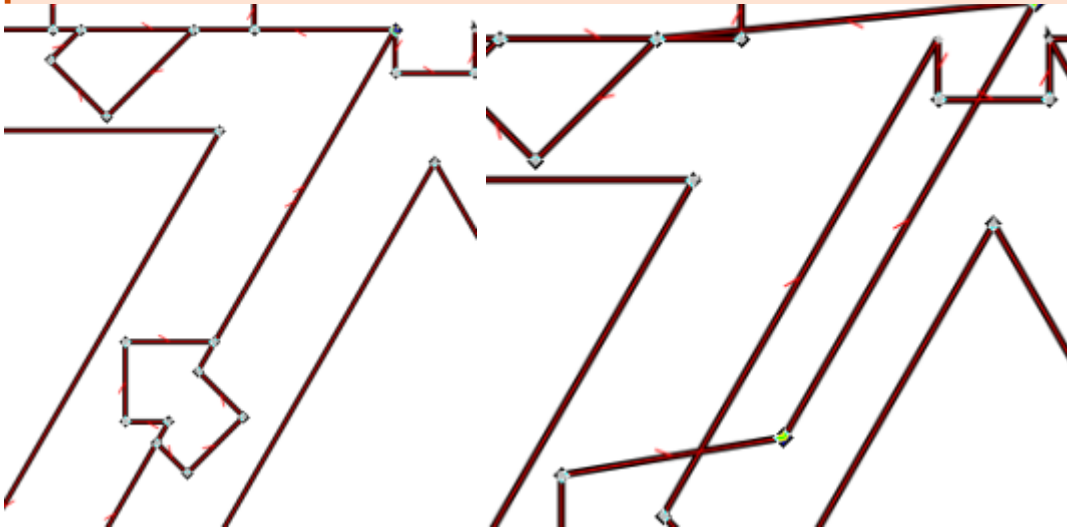


Check the line length again

▼ Path 350 nodes in layer #g856. Click selection to toggle scale/rotation handles (or Shift+s).

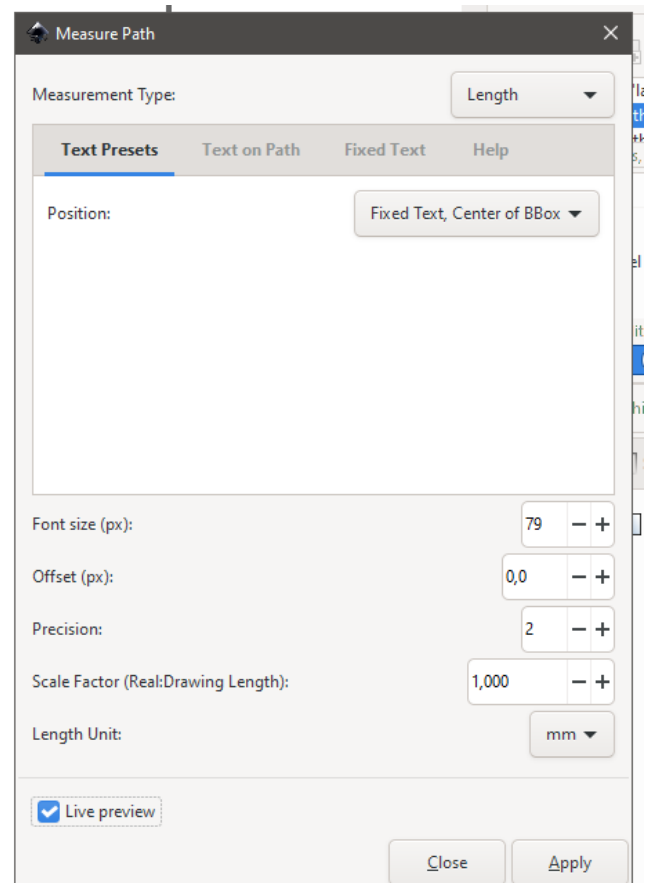
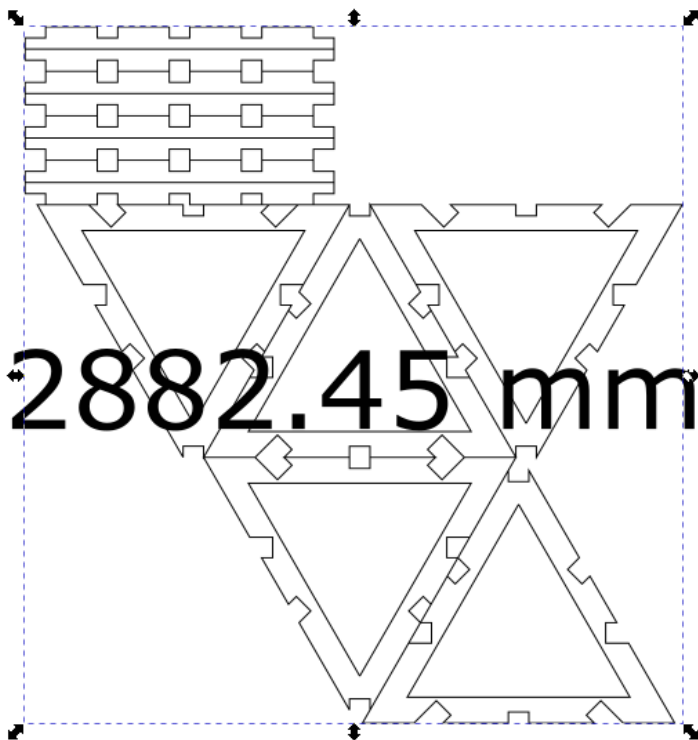
Known Limitation: We reduced the set by 8 nodes (only). The limitation can be found in detail: Duplicated paths are only removed if start and end point of the line segment are equal. It will not work if one line segment is shorter or longer because the X1Y1 or X2Y2 coordinate will be different. A more complicated algorithm is required to get optimal results. The following screenshots just shows one line

segments moved to reveal the remaining underlying common edge. To avoid this problem we would need to intersect all lines with each other to receive the whole set of intersecting points. Then we proceed to remove duplicate segments.



Check the total line length again

We reduced the line length from 2893.74 mm to 2882.45 mm. Not a great saving for this example, but still a reduction.



Version #1

Erstellt: 2025-05-24 18:12:52 CEST von Mario Voigt

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