svg2tikz

Release 3.3.0

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Svg2tikz is an Inkscape extension for exporting SVG paths as TikZ/PGF paths for LaTeX document. Svg2tikz can also be used as a command line tool or as a Python module.

CHAPTER

ONE

CONTENTS

1.1 Installation guide

Svg2TikZ can be used in three different ways:

- as an Inkscape extension
- as a command line tool
- as a python module

1.1.1 Dependencies

SVG2TikZ has the following dependencies:

- lxml (not required if SVG2TikZ is run as an inkscape extension)
- xclip or pbcopy (required only if you want clipboard support on Linux or Os X)
- inkex (not required if SVG2TiKz is run as an inkscape extension)

xclip is a command line tools available in most Linux distributions. Use your favorite package manager to install it. pbcopy is a command line tool available in OS X.

1.1.2 Installing for use with Inkscape

SVG2TikZ is not bundled with Inkscape. You therefore have to install it manually.

The extension consists of the following files:

- `tikz_export.py`, extension code
- `tikz_export_effect.inx`, effect setup file
- `tikz_export_output.inx`, output setup file

Which are located in the `svg2tikz/extensions` folder. Installing is as simple as copying the script and its INX files to the Inkscape extensions directory. The location of the extensions directory depends on which operating system you use:

Windows
`C:\Program Files\Inkscape\share\inkscape\extensions\`

Linux
`/usr/share/inkscape/extensions` *or* `~/.config/inkscape/extensions/`

Mac
`/Applications/Inkscape.app/Contents/Resources/extensions` *or* `~/.config/inkscape/extensions/`

Additionally the extension has the following dependencies:

- inkex
- lxml

The dependencies are bundled with Inkscape and normally you don't need to install them yourself. But in the case they are not her, look in the main extensions directory. You can also download them from the repository

1.1.3 Installing for use as library or command line tool

SVG2TikZ started out as an Inkscape extension, but it can also be used as a standalone tool.

Automatic installation via a package manager

SVG2TikZ is available on pypi. You can install it directly with the following command:

```
pip install svg2tikz
```

Manual installation from a Git checkout

- Clone this repository from GitHub, using `git clone https://github.com/xyz2tex/svg2tikz.git`
- `cd` into `svg2tikz`.
- For installation as a Python 3 package, type

  ```
  $ pip install .
  ```

You should now be able to import the `svg2tikz` module from the Python 3 prompt without error:

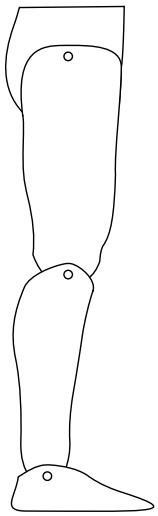
```
>>> import svg2tikz
```

For more information on the use of `svg2tikz` as a Python module, see the *package guide*.

Installation using `pip` also makes available the `svg2tikz` command-line tool; typically (for non-root installation), it will be in the directory `$HOME/.local/bin/`, so to run it, you need to ensure that directory is on your PATH.

1.2 Example

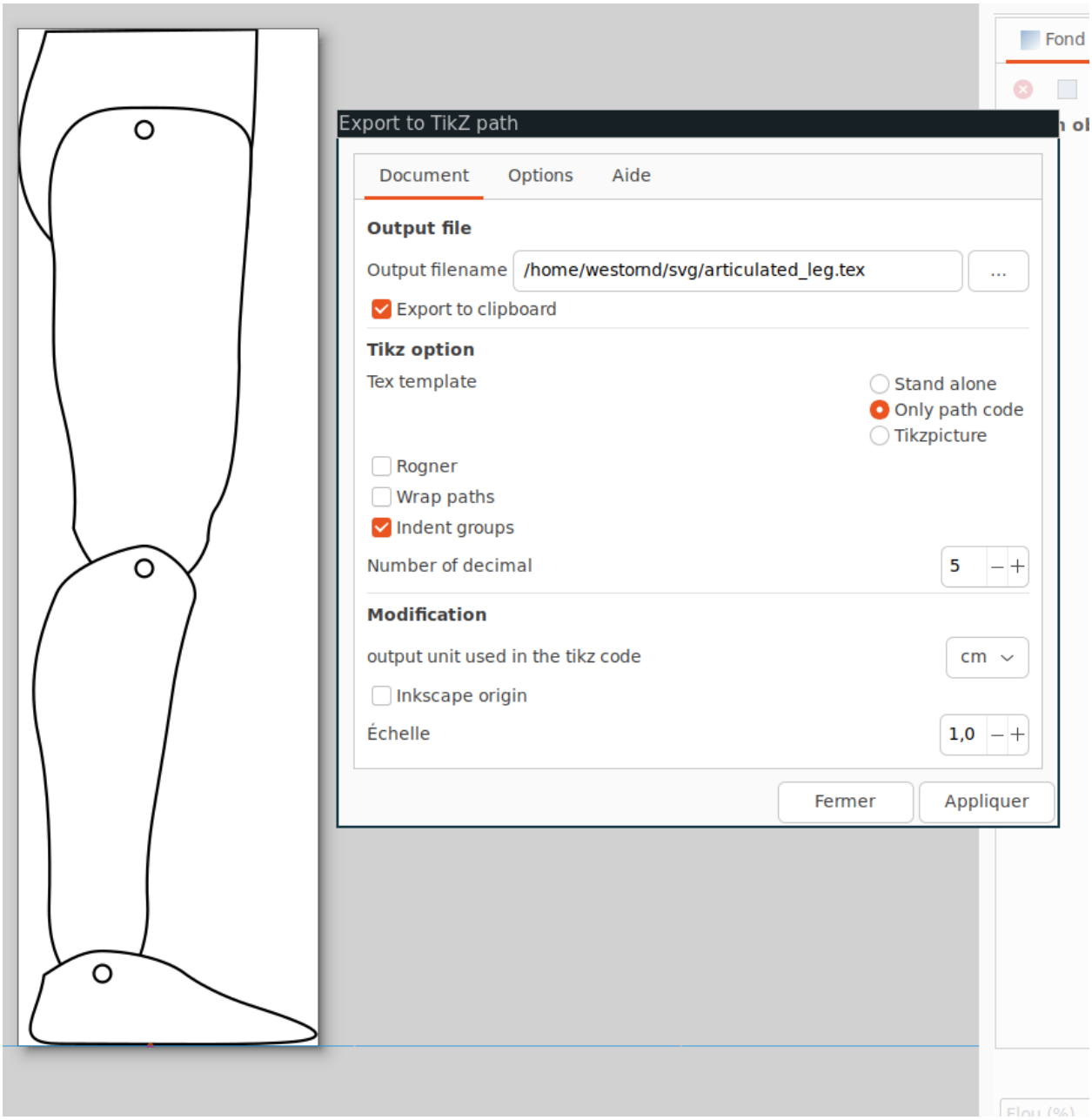
Let's see together how to use SVG2Tikz to convert an SVG to tikz code and include it in your work. Let's take this svg of articulated_leg:



It's composed of several paths:

- A torso
- A Thigh
- A Calf
- A Foot
- 3 articulation joints: Ankle, knee and hip

With the file open in inkscape, we can directly go into Extension/export/Export to tikz path. This open a new window with multiple options in serveral tabs.



First we can check the option *Export to clipboard*. Then in the Tikz option we set to export only the pathcode as we do not need any particular color definition and that we will use this tex file in an another code. We click on apply and we

get the following output:

```
\path[draw=black,fill=white,line cap=round,line width=0.01855cm] (0.18996, 6.67363)..␣
↪controls (0.16754, 6.59255) and (0.16587, 6.586) .. (0.15354, 6.54586).. controls (0.
↪14121, 6.50572) and (0.12729, 6.46367) .. (0.11179, 6.41973).. controls (-0.02653, 6.
↪02751) and (-0.05811, 5.5991) .. (0.22882, 5.29253).. controls (0.35169, 5.23787) and␣
↪(1.0929, 5.23726) .. (1.51182, 5.37904).. controls (1.51506, 5.42205) and (1.51951, 5.
↪47389) .. (1.52318, 5.52894).. controls (1.53178, 5.65804) and (1.53761, 5.77619) ..␣
↪(1.53855, 5.88105).. controls (1.5442, 5.91233) and (1.54938, 5.96152) .. (1.55409, 6.
↪02865).. controls (1.55881, 6.09577) and (1.56455, 6.22178) .. (1.56682, 6.28381)..␣
↪controls (1.5691, 6.34584) and (1.5715, 6.42702) .. (1.57298, 6.4857).. controls (1.
↪57446, 6.54439) and (1.57524, 6.58326) .. (1.57734, 6.68764) -- cycle;



\path[draw=black,fill=white,line cap=round,line width=0.01855cm] (0.23489, 5.24417)..␣
↪controls (0.24789, 5.18345) and (0.24593, 5.08146) .. (0.24092, 4.8556).. controls (0.
↪23326, 4.50973) and (0.24308, 4.39896) .. (0.30338, 4.15382).. controls (0.37273, 3.
↪87191) and (0.3952, 3.62892) .. (0.36992, 3.40372).. controls (0.4783, 3.10227) and (0.
↪64618, 3.01406) .. (0.79016, 2.99682).. controls (0.81982, 2.99327) and (0.84847, 2.
↪99273) .. (0.87976, 2.99622).. controls (1.00951, 3.01079) and (1.18465, 3.09504) ..␣
↪(1.25524, 3.32276).. controls (1.25549, 3.39971) and (1.27522, 3.4903) .. (1.29886, 3.
↪52406).. controls (1.40255, 3.67209) and (1.44593, 3.92328) .. (1.46142, 4.46525)..␣
↪controls (1.4467, 4.78798) and (1.53565, 5.45383) .. (1.53855, 5.88103).. controls (1.
↪54563, 6.16964) and (1.11475, 6.17171) .. (0.90207, 6.17244).. controls (0.84398, 6.
↪17264) and (0.80216, 6.17274) .. (0.7554, 6.17204).. controls (0.50573, 6.16816) and␣
↪(0.115, 6.14067) .. (0.23489, 5.24417);



\path[draw=black,fill=white,line cap=round,line width=0.01855cm] (1.16312, 2.92339)..␣
↪controls (1.11279, 2.78068) and (1.04991, 2.51646) .. (1.02337, 2.33625).. controls (0.
↪96993, 1.97341) and (0.97082, 1.97911) .. (0.89825, 1.54901).. controls (0.86234, 1.
↪33618) and (0.8471, 1.11987) .. (0.8573, 0.94698).. controls (0.8717, 0.65971) and (0.
↪75582, 0.39403) .. (0.61336, 0.33848).. controls (0.5881, 0.32863) and (0.56201, 0.
↪32539) .. (0.52692, 0.3324).. controls (0.41144, 0.3555) and (0.1986, 0.48976) .. (0.
↪20932, 0.93085).. controls (0.21981, 1.27003) and (0.20895, 1.6992) .. (0.14059, 2.
↪02779).. controls (0.06794, 2.37699) and (0.11809, 2.64748) .. (0.25717, 2.97495)..␣
↪controls (0.33005, 3.13468) and (0.62011, 3.25057) .. (0.78457, 3.28224).. controls (0.
↪81705, 3.28849) and (0.84463, 3.29146) .. (0.8778, 3.28371).. controls (1.00433, 3.
↪25413) and (1.21223, 3.06852) .. (1.16312, 2.92339);



\path[draw=black,fill=white,line cap=round,line width=0.01855cm] (0.2806, 0.01255)..␣
↪controls (1.80006, 0.0098) and (2.46455, -0.02931) .. (1.55022, 0.25983).. controls (1.
↪46244, 0.28759) and (1.25302, 0.35957) .. (1.08461, 0.48791).. controls (0.96181, 0.
↪56917) and (0.77457, 0.60981) .. (0.61801, 0.62088).. controls (0.58522, 0.6232) and␣
↪(0.55379, 0.62422) .. (0.52323, 0.62148).. controls (0.4078, 0.61131) and (0.30498, 0.
↪54812) .. (0.17596, 0.464).. controls (0.13929, 0.19854) and (-0.05827, 0.01311) .. (0.
↪2806, 0.0125) -- cycle;
```

We can create macro for each articulation:

```
\newcommand{\hipArt}{(1.3537, 6.2435)}
\newcommand{\kneeArt}{(1.3537, 3.3575)}
\newcommand{\ankleArt}{(1.0781, 0.6906)}
```

We separate each path into its own file:

torso.tex:

```
\path[draw=black,fill=white,line cap=round,line width=0.01855cm] (0.18996, 6.67363)..␣
↪controls (0.16754, 6.59255) and (0.16587, 6.586) .. (0.15354, 6.54586).. controls (0.
↪14121, 6.50572) and (0.12729, 6.46367) .. (0.11179, 6.41973).. controls (-0.02653, 6.
↪02751) and (-0.05811, 5.5991) .. (0.22882, 5.29253).. controls (0.35169, 5.23787) and␣
↪(1.0929, 5.23726) .. (1.51182, 5.37904).. controls (1.51506, 5.42205) and (1.51951, 5.
↪47389) .. (1.52318, 5.52894).. controls (1.53178, 5.65804) and (1.53761, 5.77619) ..␣
↪(1.53855, 5.88105).. controls (1.5442, 5.91233) and (1.54938, 5.96152) .. (1.55409, 6.
↪02865).. controls (1.55881, 6.09577) and (1.56455, 6.22178) .. (1.56682, 6.28381)..␣
↪controls (1.5691, 6.34584) and (1.5715, 6.42702) .. (1.57298, 6.4857).. controls (1.
↪57446, 6.54439) and (1.57524, 6.58326) .. (1.57734, 6.68764) -- cycle;
```

thigh.tex:

```
\path[draw=black,fill=white,line cap=round,line width=0.01855cm] (0.23489, 5.24417)..␣
↪controls (0.24789, 5.18345) and (0.24593, 5.08146) .. (0.24092, 4.8556).. controls (0.
↪23326, 4.50973) and (0.24308, 4.39896) .. (0.30338, 4.15382).. controls (0.37273, 3.
↪87191) and (0.3952, 3.62892) .. (0.36992, 3.40372).. controls (0.4783, 3.10227) and (0.
↪64618, 3.01406) .. (0.79016, 2.99682).. controls (0.81982, 2.99327) and (0.84847, 2.
↪99273) .. (0.87976, 2.99622).. controls (1.00951, 3.01079) and (1.18465, 3.09504) ..␣
↪(1.25524, 3.32276).. controls (1.25549, 3.39971) and (1.27522, 3.4903) .. (1.29886, 3.
↪52406).. controls (1.40255, 3.67209) and (1.44593, 3.92328) .. (1.46142, 4.46525)..␣
↪controls (1.4467, 4.78798) and (1.53565, 5.45383) .. (1.53855, 5.88103).. controls (1.
↪54563, 6.16964) and (1.11475, 6.17171) .. (0.90207, 6.17244).. controls (0.84398, 6.
↪17264) and (0.80216, 6.17274) .. (0.7554, 6.17204).. controls (0.50573, 6.16816) and␣
↪(0.115, 6.14067) .. (0.23489, 5.24417);
```

calf.tex:

```
\path[draw=black,fill=white,line cap=round,line width=0.01855cm] (1.16312, 2.92339)..␣
↪controls (1.11279, 2.78068) and (1.04991, 2.51646) .. (1.02337, 2.33625).. controls (0.
↪96993, 1.97341) and (0.97082, 1.97911) .. (0.89825, 1.54901).. controls (0.86234, 1.
↪33618) and (0.8471, 1.11987) .. (0.8573, 0.94698).. controls (0.8717, 0.65971) and (0.
↪75582, 0.39403) .. (0.61336, 0.33848).. controls (0.5881, 0.32863) and (0.56201, 0.
↪32539) .. (0.52692, 0.3324).. controls (0.41144, 0.3555) and (0.1986, 0.48976) .. (0.
↪20932, 0.93085).. controls (0.21981, 1.27003) and (0.20895, 1.6992) .. (0.14059, 2.
↪02779).. controls (0.06794, 2.37699) and (0.11809, 2.64748) .. (0.25717, 2.97495)..␣
↪controls (0.33005, 3.13468) and (0.62011, 3.25057) .. (0.78457, 3.28224).. controls (0.
↪81705, 3.28849) and (0.84463, 3.29146) .. (0.8778, 3.28371).. controls (1.00433, 3.
↪25413) and (1.21223, 3.06852) .. (1.16312, 2.92339);
```

foot.tex:

```
\path[draw=black,fill=white,line cap=round,line width=0.01855cm] (0.2806, 0.01255)..␣
↪controls (1.80006, 0.0098) and (2.46455, -0.02931) .. (1.55022, 0.25983).. controls (1.
↪46244, 0.28759) and (1.25302, 0.35957) .. (1.08461, 0.48791).. controls (0.96181, 0.
↪56917) and (0.77457, 0.60981) .. (0.61801, 0.62088).. controls (0.58522, 0.6232) and␣
```

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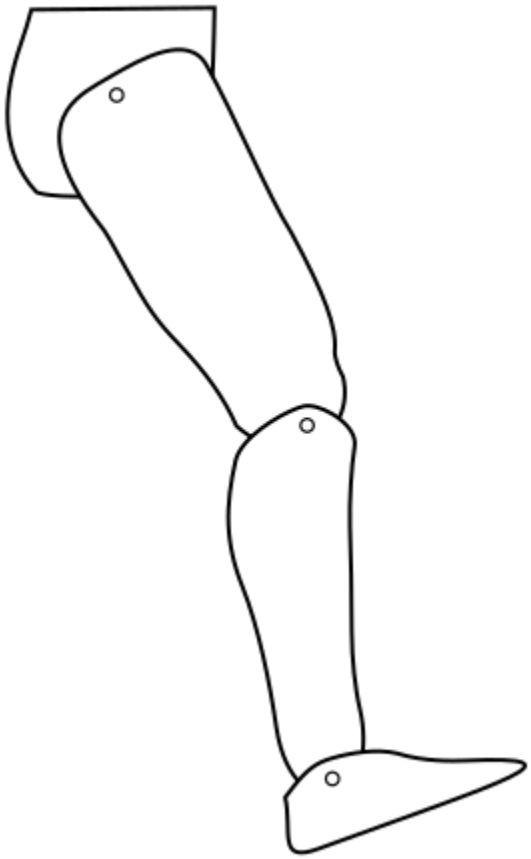
```
↪(0.55379, 0.62422) .. (0.52323, 0.62148).. controls (0.4078, 0.61131) and (0.30498, 0.
↪54812) .. (0.17596, 0.464).. controls (0.13929, 0.19854) and (-0.05827, 0.01311) .. (0.
↪2806, 0.0125) -- cycle;
```

We can then recombine our svg with the following code:

```
\begin{center}
        \tikzsetnextfilename{Test_articulated_leg}
        \begin{tikzpicture}[y=1cm, x=1cm, inner sep=0pt, outer sep=0pt]


                \input{joints_def}
                \input{articulated_leg/torso}

                \begin{scope}[rotate around={30:(hipArt)}]

                        \input{articulated_leg/thigh}
                        \begin{scope}[rotate around={-20:(kneeArt)}]

                                \input{articulated_leg/calf}
                                \begin{scope}[rotate around={10:(ankleArt)}]

                                        \input{articulated_leg/feet}
                                \end{scope}
                                \draw[line width=0.018cm] (ankleArt) circle(0.05);
                        \end{scope}
                        \draw[line width=0.018cm] (kneeArt) circle(0.05);
                \end{scope}
                \draw[line width=0.018cm] (hipArt) circle(0.05);


        \end{tikzpicture}
\end{center}
```

It allows us to control the angle between each member



1.3 Inkscape guide

Svg2TikZ originally started out as an Inkscape extension and most users will probably use it this way.

If installed properly, the extension should appear in the extensions menu under *Export*. If you can't find it see the *Installing for use with Inkscape* for installation details.

1.4 Command line guide

You can get direct help from the command line with `svg2tikz -h`

1.5 package guide

1.6 How to contribute

First of all thanks for your interest in contributing in this project.

1.6.1 Tools

We used black and pylint to format and lint the code. Github actions are run on the merge request to check that the code is valid.

You can directly install the dev depedencies with *poetry install –with dev*

1.6.2 Tests

The tests of SVG2TikZ are writting using the unittest package. You can run all the test with command *python -m unittest*.

CHAPTER

TWO

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