Proposal for Import project

The Inkscape project is looking for a Python developer to implement importing functionality for a file format that is not yet supported by Inkscape. The work will be carried out in Python based on the Inkscape extension library inkex.

The file format will be implemented based on an outdated specification that is publicly available. Missing bits will be reverse engineered by the candidate, with possible support from the Inkscape development team.

In particular, the following tasks should be performed (not necessarily in this order):
1. Implementing a parser for the file format based on the old specification (about 100 pages), which contains a mostly complete EBNF description of the format, in Python (preferably pyparsing).
2. Designing and implementing functionality to convert the relevant parts of the abstract syntax tree created in 1) into an Inkscape SVG file.
3. Reverse-engineering the later additions to the file format, in particular: texts, multi-page documents, path effects, mesh gradients; and include those parts in the parser and converter functionality. The extent and prioritization of those items will be decided on based on the candidate's progress.
4. Document the format whenever the existing documentation is insufficient or outdated, in particular for items 2) and 3). This documentation will preferably reside outside of the code.
5. Write unit tests to test the implemented functionality, a very good test coverage is expected. A test-driven development approach might prove beneficial, especially for 2) and 3).

The candidate's work will build on already existing boilerplate code, and the inkex library provides the necessary syntactic sugar to create SVG files. They will work closely together with the maintainers of Inkscape's Python-based extension collection, who also have experience on implementing importing and exporting functionality. These maintainers will guide the on-boarding and mentoring process. The candidate will be provided with a license of the format's native software to create sample files, for the purpose of creating unit tests and reverse-engineering the missing pieces, for the duration of the project.

Duration:
The project is scoped to fit a 6-week full time schedule. Milestones for each week are available, and the progress will be evaluated by the candidate and the mentor(s) in (at least) weekly discussion sessions. Depending on the progress, the project may be extended to up to 12 weeks (with additional compensation). The schedule may be shifted in order to accommodate part-time candidates. Payment terms: Net 30.

About Inkscape:

Inkscape is a Free and open source vector graphics editor for GNU/Linux, Windows and macOS. Inkscape uses the standardized SVG file format as its main format, which is supported by many other applications including web browsers.

Inkscape is a member of the [Software Freedom Conservancy](), a US 501(c)(3) non-profit organization.

INTERNAL INFORMATION

Hiring Team

The hiring team consists of up to 4 Inkscape contributors and one SFC staff member. The hiring team performs the candidate selection, including posing questions to candidates, reviewing the applications and deciding on criteria for selection. The hiring team will be appointed by the PLC as a part of the vote on this proposal.

Furthermore, the hiring team performs the midterm evaluation (see below).

Members of the hiring team must not apply themselves.

Members: Jonathan Neuhauser, Réne de Hesselle, Marc Jeanmougin (Martin Owens as stand-in)

License

The work done by the candidate will be licensed as GPL2+, and the copyright will be with the SFC.

Milestones

- Week 1: Get acquainted with the format, inkex, pyparsing, Illustrator. Write a basic pyparsing parser to extract simple objects and styles (layer, rectangle, linestyle, solid RGB fill) and convert those objects to SVG.

- Week 2: Create a high-level overview of the class structure. Setup a testing environment to test all parts of the pipeline (parser, converter)

- Week 3: Completely implement the language of the file format based on the outdated specification.

MID EVALUATION: Evaluate process; decide whether to request additional funds due to initial miscalculation of the time required; or because the progress is so good that we can extend the initial targets to include more reverse-engineering. An extension requires a unanimous vote by the Hiring Team, after consultation of the Develoment Team.

- Week 4+5: Add SVG output functionality and unit tests bit by bit.

- Week 6: Time buffer + start reverse engineering of additional features.

Financials

- A total of $10,000 is allocated for the candidate's compensation, with option for another $10,000 (will be decided by the hiring team, in coordination with the Development Team). Expenses of the candidate, such as a Creative Cloud subscription, will be reimbursed.

- $400 as a management/onboarding/support/ stipend, which may be requested by the (up to) two mentors. Mentors until now: Jonathan Neuhauser

- $600 as compensation for the Hiring team, split equally amongst its members (excluding SFC staff).

Other

- Boilerplate code: https://gitlab.com/inkscape/extras/extension-ai

  - can read files form Illustrator 3 (1990) to current (2020) and extracts the AI-internal Postscript-ish document ("file")

- the format of the file is described in http://www.idea2ic.com/File_Formats/Adobe%20Illustrator%20File%20Format.pdf

  - which contains a complete EBNF specification

  - changelog up until version 7 (2000ish), so at least layers are already described

  - Text saving changed in Illustrator 11, so this would need to be reverse-engineered (top-priority, other goodies such as path-effects, multipage, mesh gradients etc can come later)

- I'd like to avoid to very publicly label this project as "AI import" – it's irrelevant for applicants, users might get hyped (and then it doesn't work), and Adobe might become interested. Therefore the above proposal is written without any reference to AI at all.