

The Island of T_EX organisation

Island of T_EX, developers

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1 Introduction

As a means to systematise and concentrate efforts in developing the T_EX ecosystem, a group of developers created an online organisation under the name of Island of T_EX (IoT). Such endeavour acts as a hub to community-based T_EX-related projects.

<https://gitlab.com/islandoftex>

2 Active projects

The organisation holds the following active projects:

2.1 T_EX Live Docker images

IoT provides Docker images for T_EX Live repositories. Two groups are available: *historic*, which contains releases from 2014 on, and *latest*, which refers to the current stable release plus all updates available as weekly snapshots. For every T_EX Live release, from historic to latest, there are four flavours: binaries only, binaries and documentation, binaries and sources, and the full pack, binaries, sources and documentation.

<https://gitlab.com/islandoftex/images/texlive>

2.2 ConT_EXt Docker images

IoT also provides Docker images for the ConT_EXt distribution (full installation with all modules). These images also provide the necessary tooling to execute common

helper tools. Three groups are available: MkIV current (updated monthly), MkIV beta and LMTX (updated weekly).

<https://gitlab.com/islandoftex/images/context>

2.3 \TeX doc online

IoT provides \TeX doc online, an online \TeX and \LaTeX documentation lookup system. The project provides a RESTful API and a self-updating Docker container. The package documentation lookup relies on the IoT's \TeX doc API (see subsection 2.4). For topic and package listings, as well as recommendations, the system relies on the CTAN JSON API, properly cached and updated twice a day to save external queries. There is an instance of IoT's image at <https://texdoc.org>.

<https://gitlab.com/islandoftex/images/texdoc-online>

2.4 \TeX -related libraries

IoT provides three \TeX -related libraries: a Sync \TeX parser, as a means to (partially) provide some structured Sync \TeX representation to the community, a \TeX doc API, which offers a layer of abstraction for the \TeX doc command line interface, and a library for getting objects out of the CTAN JSON API.

<https://gitlab.com/islandoftex/libraries/synctex-parser>

<https://gitlab.com/islandoftex/libraries/texdoc-api>

<https://gitlab.com/islandoftex/libraries/ctan-api>

2.5 \TeX -related tools

Regarding \TeX -related tools, IoT currently holds five projects:

\TeX Printer \TeX Printer is an application designed for the purpose of printing threads from the \TeX community at StackExchange. It can print threads in PDF and \TeX formats.

<https://gitlab.com/islandoftex/texprinter>

\TeX plate \TeX plate is a tool for creating document structures based on templates, acting as an easy and straightforward framework for reducing the typical code boilerplate when writing \TeX documents. The tool is powerful enough to generate any text-based structure, given that a corresponding template specification exists.

<https://gitlab.com/islandoftex/texplate>

checkcites checkcites is a tool for detecting unused or undefined references from both auxiliary or bibliography files. It currently supports two backends, Bib \TeX and biber, and can detect files from the \TeX tree.

<https://gitlab.com/islandoftex/checkcites>

albatross albatross is a command line tool for finding fonts that contain a given (Unicode) glyph. It relies on Fontconfig, a library for configuring and customizing font access.

<https://gitlab.com/islandoftex/albatross>

arara arara is a \TeX automation tool based on rules and directives. It gives users a way to enhance the \TeX experience. The tool is an effort to provide a concise way to automate the daily \TeX workflow. This is IoT's most important, oldest and most widespread project.

<https://gitlab.com/islandoftex/arara>

3 Long-term goals

The Island of \TeX aims at providing a modern tooling for the \TeX ecosystem. The organisation makes use of modern technology such as Docker, the programming language Kotlin and the rich toolset provided by GitLab such as continuous integration to ensure reproducible tested builds. All that is the IoT's base for approaching modern \TeX tooling for all major operating systems and infrastructures.

Currently, the Island of \TeX provides executable Java archive files which depend on a Java virtual machine installed in the host operating system. IoT keeps the code as portable and compliant as possible, so the tool can run on virtual machines from all vendors supporting Java 8 (at the time of writing, the latest stable version of Java is 15).

The organisation plans to work on improving support for our tools by producing native executables by means of Kotlin/Native, a technology for compiling Kotlin code to native binaries without the need of a JVM, languages like Rust and similar modern technology. This is needed to increase the tool's visibility as e.g. Overleaf is reluctant to provide JVM-based tools to their users (which does not only affect the IoT's tools).

Project-wise, the Island of \TeX is planning the stabilization of the current projects and implementation of new modular components which will form the base of our most ambitious long-term project, a \TeX editor named Ar \TeX mis. This particular

project aims at being a smart, powerful \TeX editor designed for all users, especially for package writers and kernel developers.

4 Funding

The development happens on Linux machines. Incidental issues specific to Windows or macOS are handled through voluntary testing from users who sometimes do not have development expertise. The lack of such systems in the development pool poses a problem and can hinder the long-term goals for better coverage and interoperability (see section 3).

The Island of \TeX seeks funding for the acquisition of one up-to-date Apple machine (e.g, a M1-based MacBook), as a means to broaden its operating system coverage (macOS natively, Windows through virtualization) for the next years. The recent adoption of an ARM-based chip (M1 Silicon) in Apple hardware opens new possibilities for development and testing.

For being able to productively test and debug aforementioned tools on such a machine, at least 16 GB of RAM and 512 GB of SSD storage are required. A 13-inch MacBook Pro in this configuration would amount to approximately R\$ 23.899,00. For Windows development on this machine, an operating system license amounts to approx. R\$ 1.099,00 and a license for virtualization software (Parallels Desktop) to approx. R\$ 410,00. Therefore, we request funding of approx. R\$ 25.408,00.

5 Conclusions

The \TeX ecosystem is very challenging yet exciting. The Island of \TeX intends to establish itself as a vibrant environment for the development of \TeX -related tools as a means to enhance the user experience, from newbie to expert, with the use of modern methodologies and technologies.