The Island of TeX 2023

Sailing the smooth seas of ideas

Island of TeX
July 16, 2023

TUG 2023
Ich heiße Paulo!

Pringles-powered
Brazilian bloke

Computer Science
theoretician

Rubber duck
enthusiast
Ich heiße Paulo!

Core team member (Island of \TeX{})
Community Outreach Coordinator (Overleaf)
Introduction

We always valued community over development pace
Introduction

New release of albatross
Community website
Improved Docker builds
Dedicated area for \TeX\ packages
New experts and contributors
Exciting ideas for the future
New release of albatross

Command line tool for finding fonts that contain a given Unicode glyph

https://gitlab.com/islandoftex/albatross
New release of albatross

Island inhabitants

Theme of an Iron Maiden song

Theme of a Monty Python sketch
New release of albatross
New features in this release
New release of albatross

- Redesigned border styles
- Font lookup in the \TeX{} tree
- Grapheme support
New release of albatross

Examples

# Include fonts from the TeX tree
# (font indexing might take a while)
$ albatross --include-tex-fonts 0xDF

# Subsequent calls are faster, as
# albatross will use a font cache
$ albatross --include-tex-fonts 0xDF

# Include fonts and rebuild font cache
$ albatross --include-tex-fonts --clear-cache 0xDF
New release of albatross

Glyph itself

Hexadecimal notation

Multiset union

ß

0xDF

U+DF
A grapheme is a sequence of one or more code points that are displayed as a single, graphical unit that a reader recognizes as a single element of the writing system.

ä

Legacy, single code point + diaeresis
Examples

# Since Ŷ is composed of two code points, albatross will
# query all fonts that have both U+79 and U+306
$ albatross Ŷ

# Should yield the same results, as albatross takes a conjunctive
# approach and will look for fonts that contain all elements
$ albatross U+79 U+306
New release of albatross

Woman construction worker,
medium-light skin tone

1. Construction worker
2. Medium-light skin tone
3. Zero width joiner
4. Female sign
Examples

# The tool will query all fonts that have U+1F477, # U+1F3FC, U+200D, U+2640, and U+FE0F — all code # points that represent this emoji ZWJ sequence $ albatross 🧵

# Should yield the same results $ albatross U+1F477 U+1F3FC U+200D U+2640 U+FE0F
This project is meant to present our community to the wider public

https://islandoftex.gitlab.io
Write our journal entries
Collect our publications
Inspire and engage new contributors
Community website

The Island of TeX

The Island of TeX is a warm and welcoming place for Texrelated projects.

arara
Compile your documents in a breeze. arara is a full automation tool based on rules and directives. It gives you a way to enhance your TeX experience. The tool is an effort to provide a concise way to automate the daily TeX workload for users and also package writers. Users might write their own rules when the provided ones do not suffice.

Project page  Source code

albatross
Find your favorite animated characters in TeX. Albatross is a command line tool for finding fonts that contain a given Unicode glyph. It makes use internally, a library for configuring and customizing font access. The tool takes a list of glyphs as input (three names are supported); it is worth noting that the tool also provides proper glyphname support.

Project page  Source code

texdoc-online
TeX documentation search like texdoc.org. Texdoc online is an online TeX and LaTeXML documentation lookup system. It provides a RESTful API and a self-hosting Docker container. The package documentation lookup relies on the blindly texdoc API. The tool and package listings, as well as recommendations, the system relies on the CTAN JSON API.

Project page  Source code

checkities
Detect undefined and/or unused references. Checkities is a command line tool written for the sole purpose of detecting undefined and/or unused references from both LaTeX auxiliary or bibliography files. The tool currently supports both packages and libraries/bibliographies and can the generate auxiliary files to start the analysis.

Project page  Source code

TeXplate
Create flexible TeX templates. Texplate is a tool for creating document structures based on templates. One can easily adapt the use case articles and templates: the tool is powerful enough to generate any text-based structure given a corresponding template vector.

Project page  Source code

Docker Images
TeX Live or ConTeXt available through Docker.

With the spread of continuous integration services among TeX users, there is a need to provide distributions for containerized services. We aim to provide images for the regular user who wants continuous integration to work like any other TeX distro.

Project page  Source code

Dark mode
Community website

Hosted at Gitlab

Powered by Zola

Projects are indexed

Continuous integration
Improved Docker builds

- Dedicated CI runners
- Robustness and reliability

https://gitlab.com/islandoftex/images
Improved Docker builds

- Improved layering
- Splitting by schemes
Improved Docker builds

Most complete and comprehensive TeX Live Docker images available in the TeX ecosystem
Dedicated area for \TeX{} packages

We are welcoming packages to be part of our \TeX{} tree

https://gitlab.com/islandoftex/texmf
<table>
<thead>
<tr>
<th>expkv-bundle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection of key/value packages for \TeX{}</td>
</tr>
</tbody>
</table>

https://gitlab.com/islandoftex/texmf/expkv-bundle
Dedicated area for \TeX packages

kvmap

Draw (even large) Karnaugh maps with \TeX

https://gitlab.com/islandoftex/texmf/kvmap
TEX packages are welcome!
Our small core team is supported by the invaluable help of experts who participate in the island’s projects.
New experts and contributors

Yukai Chou

website / docs

Sam Carter

TeX packages
We thank all our contributors, even those who are not explicitly listed in this keynote.
Exciting ideas for the future

Performance

- Response time
- Memory/CPU consumption
- Error handling
Exciting ideas for the future

Implementing the font lookup in the \TeX{} tree for albatross

Revision d13a85d4

Revision 24f6b26e
Exciting ideas for the future

Benchmarks

$ hyperfine --prepare 'rm -rf ~/.cache/albatross' \ 
  -L revision d13a85d4,24f6b26e \ 
  'java -jar {revision}.jar -t 0xDF; java -jar {revision}.jar -t 0xDF'

- d13a85d4: 15.09 s
- 24f6b26e: 8.95 s
Exciting ideas for the future

Tooling

Kotlin
KMM

Kotlin
Native

GraalVM
Native

Rust
(oxidizing)
Exciting ideas for the future

Windows
Linux
MacOS
JVM
JavaScript
WebAssembly
Exciting ideas for the future

Preliminary experiments

# The native image builder is a utility that processes all classes of an application and their dependencies and ahead-of-time compiles that reachable code and data to a native executable for a specific operating system and architecture

$ native-image --no-fallback -cp ./albatross-jdk9-with-deps-*.jar
   -H:Name=albatross -H:Class=org.islandoftex.albatross.ApplicationKt
   -H:+ReportUnsupportedElementsAtRuntime
   -H:ReflectionConfigurationFiles=../native/config.json
Exciting ideas for the future

- Clear and simple
- Good UX interface
- Intuitive and enjoyable
- Useful and equitable
Exciting ideas for the future

Visual identity

Brand recognition
Credibility and professionalism
Cohesion and consistency
Community engagement
Exciting ideas for the future

- Typography
- Colour palette
- Creative design
- Logos
- Imagery
- Graphic elements
Exciting ideas for the future

- Custom theme for presentations
- Website redesign
- Landing pages for all projects
- Updated documentation

help wanted
help wanted
help wanted
help wanted
Exciting ideas for the future

On the road towards a new visual identity

https://islandoftex.gitlab.io/blog/new-website/
Our projects:

things to conquer

A bright future awaits!
Exciting ideas for the future

arara: compile your documents in a breeze

From YAML to Lua
Full KMM code base
Concurrent automation
Modular approach

help wanted
help wanted
help wanted
help wanted
Exciting ideas for the future

albatross: find your favorite Unicode characters in fonts

- Enhanced interface
  - help wanted
- Improved caching
  - help wanted
- Query language
  - help wanted
- Export formats
  - help wanted
Exciting ideas for the future

\texttt{TEX}doc online: an online \texttt{TEX} and \texttt{LTEX} documentation lookup system

- Redesigned frontend
- Feedback and analytics
- Search engine optimization
- Multiple TL releases

help wanted
Exciting ideas for the future

checkcites: detect undefined and/or unused references

- Kotlin rewrite
- KibTeX validation
- Interface implementation
- JavaScript targeting

help wanted
Exciting ideas for the future

TeXplate: create flexible TeX templates

- Code refactoring
- Interface redesign
- Scripting support
- Graphical user interface

help wanted help wanted help wanted help wanted
Docker images: \TeX\ Live or Con\TeX\t standalone through Docker
Exciting ideas for the future

Management tool for TeX installations

- Scope statement
- API endpoint design
- Backend development
- Interface proposal

help wanted
Final remarks

If you like TeX, see missing pieces in the TeX ecosystem, or want to start contributing to open-source software in a welcoming environment...
We would love to hear from you!
Final remarks

The island is always open!

Tourists
Regular visitors
New residents
Visas for the island are free and easy to get!
Final remarks

The Island of T\textsc{E}X is hosted at

https://gitlab.com/islandoftex

Join our community chat on Matrix at

https://matrix.to/#/#iot-community:matrix.org
Duck news: I am going to get married on January 6, 2024, and move to Rio de Janeiro!
Cheerio!