

allotropia

LOWA, In Need Of a VCL Plug

Stephan Bergmann
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LibreOffice®

Free software
for all



free software - independent
- future proof -
control your own documents
libreoffice.org

LibreOffice in the browser



Browser

JavaScript

Emscripten
POSIX
simulation

Wasm

LibreOffice
compiled from
C++ via
Emscripten

Qt5 fills the <canvas>

A screenshot of a web browser window displaying the ZetaOffice 'About' dialog box. The browser's address bar shows 'localhost:6931/qt_soffice.html'. The dialog box has a blue title bar and contains the ZetaOffice logo, a description of the software, copyright information, and version details. The background shows a sidebar with menu items like 'Open File', 'Remote Files', 'Recent Documents', and 'Templates'.

localhost:6931/qt_soffice.html

File Tools Help

Open File Filter: All Applications

Remote Files


Recent Documents

Templates

Create:

- Writer Document
- Calc Spreadsheet
- Impress Presentation
- Draw Drawing
- Math Formula
- Base Database

About ZetaOffice



Zeta Office

ZetaOffice is a modern, easy-to-use, open source productivity suite for word processing, spreadsheets, presentations and more.

This release was supplied by allotropia software GmbH.
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ZetaOffice is derived from LibreOffice which was based on OpenOffice.org

Version Information

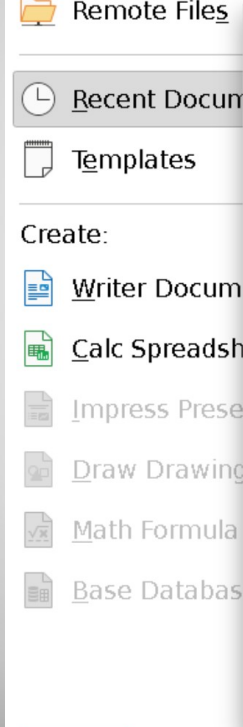
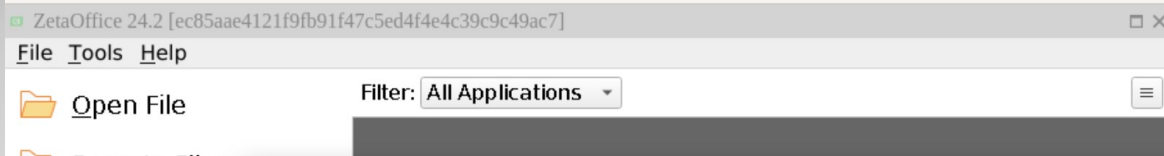
Version:	24.2.8.0.beta1 (x86)
Build:	ec85aae4121f9fb91f47c5ed4...
Environment:	CPU threads: 20; OS: Emscripten 4.0.0
User Interface:	UI render: default; VCL: qt5 (cairo+wasm)
Locale:	en-US (en_US.UTF-8); UI: en-US
Misc:	Calc: threaded

Close



- Emscripten doesn't like app code running on browser main thread (e.g., `pthread_create` may hang)
- Emscripten `-sPROXY_TO_PTHREAD`
 - The one `<canvas>` is handed over
 - Only few places in Qt5 that access JS window etc.
 - A few calls to `emscripten_sync_run_in_main_runtime_thread` hacked in

Towards Qt6?



A hacker's nightmare



- Uses dynamically generated `<canvas>` elements
- Accesses JS window all over the place
- Quickly gave up trying to hack it up
- <https://lists.qt-project.org/pipermail/development/2024-December/thread.html#45960> “Wasm: Support for Emscripten PROXY_TO_PTHREAD?”

- WebAssembly JavaScript Promise Integration
- Hooks into the interface between JS and Wasm code
- Automatically suspend/resume Wasm code
- Still highly experimental across browsers, emsdk, Qt6, and LibreOffice
- Originally wanted to use it for modal dialogs

- Main browser thread:
 - browser event loop →
 - Qt event handling →
 - LO event handling →
 - ~all the LO code

- Main browser thread:
 - browser event loop →
 - Qt event handling →
 - `emscripten_promise_await(emscripten_proxy_promise(→))`
- Additional thread:
 - LO event handling →
 - ~all the LO code

What can possibly go wrong?



- LO code mostly prepared for multi-threading
 - even in VCL
 - SolarMutexReleaser etc.
- Qt picky about which thread created a widget
- Adapted a handful of places in vcl/qt5 for now
 - `GetQtInstance().EmscriptenProxyToMainThread([] { ... })`
- Atop an unmodified Qt6 dev branch build
- Shows a Writer document now!

Try it out



[<https://zetaoffice.net/>](https://zetaoffice.net/)