

Tauri

Florob

Motivation

Overview

Security

Tooling

Live Coding

Questions

# Tauri

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# Why?

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Questions

- cross platform application development is hard
- particularly with custom widgets
- HTML/CSS/JS has become the lingua franca of app development
- frontend isolation

# *Why not Electron?*

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- includes a full Chromium engine
- includes all of Node
- big bundle sizes
- high memory usage

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- framework for multi-platform application development
- frontend-independent
- written in Rust
- MIT/Apache 2.0 licensed

# Tauri Architecture

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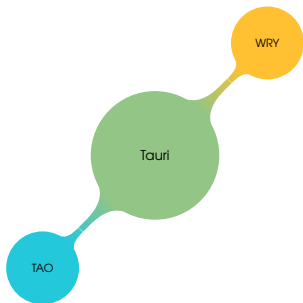
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Questions



- split into reusable crates
- TAO for window management
- WRY for webview rendering
- Users write a Rust application using the `tauri` crate
- message passing between frontend and backend

# *Rust Ecosystem Integration*

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- uses and integrates with well known crates
- `serde` for (JSON) Serialization/Deserialization
- `tokio` as async runtime



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- Window Creation Library
- forked from `winit`
- supports menus and system tray
- platform-dependent implementation:
  - Windows Win32
  - macOS Cocoa, Core Foundation/Graphics
  - Linux GTK 3

- Webview Rendering Library
- platform-specific WebView:
  - Windows WebView2 (Microsoft Edge Chromium)
  - macOS native WebKit (Safari)
  - Linux WebKitGTK

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# Threat Model

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- untrusted frontend
  - might be compromised
  - load external content
  - (remote) user provided content
- trusted backend
  - arbitrary Rust code
  - can use any crate
  - can call arbitrary native code
- connected via a limited well-defined interface

# Security

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Questions

- no server/open ports
- functionality exposed to frontend is allowlisted
- unused functionality is not included  
(less attack surface, smaller bundles)
- being audited by Radically Open Security

# Allowlist

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Questions

- Which APIs to include
  - file system access
  - binary execution
  - opening dialogs
  - ...
- What the API may do
  - which files to access
  - what binaries to execute
  - what dialogs to open
  - ...

# Freezing Object.prototype

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Questions

- code changing the prototype can affect code at a distance
- room for security vulnerabilities “Prototype Pollution”
- available as an option
- breaks most frameworks (notable exception Svelte)

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# Tauri CLI

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Tool to manage Tauri projects

- initialize a new Tauri project
- Development and Production Builds
- create application icons
- ...

# Bundles

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Questions

Windows Microsoft Installer (.msi)

macOS Application Bundle (.app) or Apple Disk Image (.dmg)

Linux Debian Package (.deb) or AppImage

# GitHub Action

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Questions

- `tauri-action`
- `test build`
- create and upload Tauri bundles
- upload artifacts to a release

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# Home Automation

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## Lifecoding

■ `https://tauri.app`

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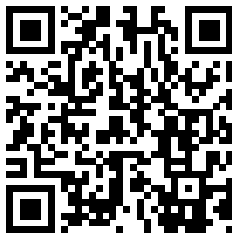
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Thank you for your attention.  
Any questions?



<https://babelmonkeys.de/~florob/talks/RC-2022-11-02-tauri.pdf>