

JS-Capacitor Passkey Kit Architecture Doc

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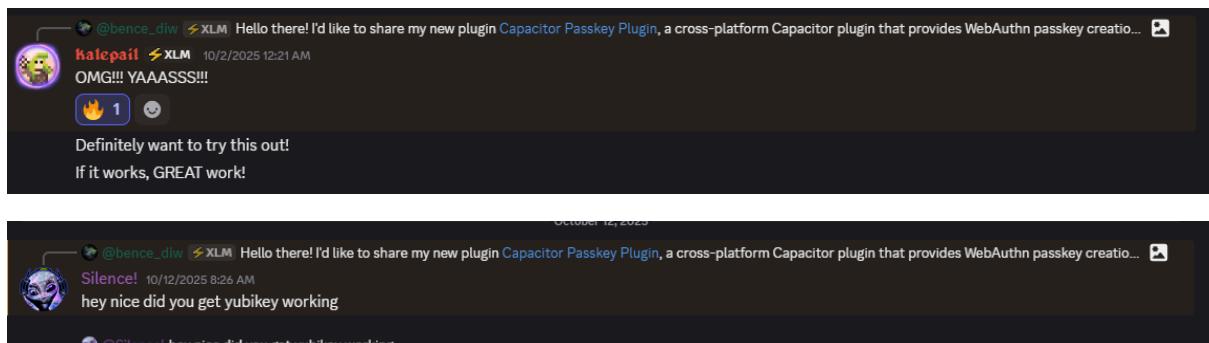
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1. Introduction

This document describes the architecture and development plan for extending the open-source Capacitor Passkey Plugin with YubiKey hardware for Soroban Smart Wallets and other Soroban dApps.

The open-source Passkey Plugin (<https://www.npmjs.com/package/capacitor-passkey-plugin>) provides cross-platform passkey functionality for iOS, Android, and Web, enabling JavaScript developers to build passkey-based authentication and signing flows in their Soroban dApps.

After the publication of the plugin and integration proposal in the Stellar Discord community, and encouraged by the positive feedback received, I've decided to extend the plugin to include YubiKey hardware support.



With this new proposed integration, developers will be able to use external FIDO2 hardware authenticators, such as YubiKey, to enhance security and compatibility for Soroban based dApps. This extension continues the project's mission: To make it easy for JavaScript developers to provide multi-platform passkey support to their Soroban dApps.

2. Overview

The project consists of two major parts:

1. The Passkey Plugin is the bridge layer providing native passkey APIs on iOS (Swift), Android (Kotlin), and Web (WebAuthn).
2. Demo App an open-source, cross-platform sample app demonstrating the integration of the plugin for passkey support on all platforms including YubiKey support.

With this submission, I seek funding to be able to extend the plugin to fully support YubiKey hardware on iOS, Android as well as browser. Furthermore, I will implement the open-source Demo App.

3. Passkey Plugin

The plugin acts as a unified access layer for native passkey operations. It already provides implementations for:

- iOS: Swift.
- Android: Kotlin.
- Web: WebAuthn browser API.

This extension will introduce YubiKey hardware key support for all platforms. All new features will be exposed through the same JavaScript interface, ensuring a seamless upgrade path for developers already using the existing plugin.

4. Demo App

An open-source, cross-platform demo application integrating the plugin will demonstrate how to use the plugin to easily provide multi-platform passkey support including YubiKey support. The Demo App will be used as a reference project by JavaScript developers who want to integrate the plugin into their Soroban dApps.

5. Project Architecture

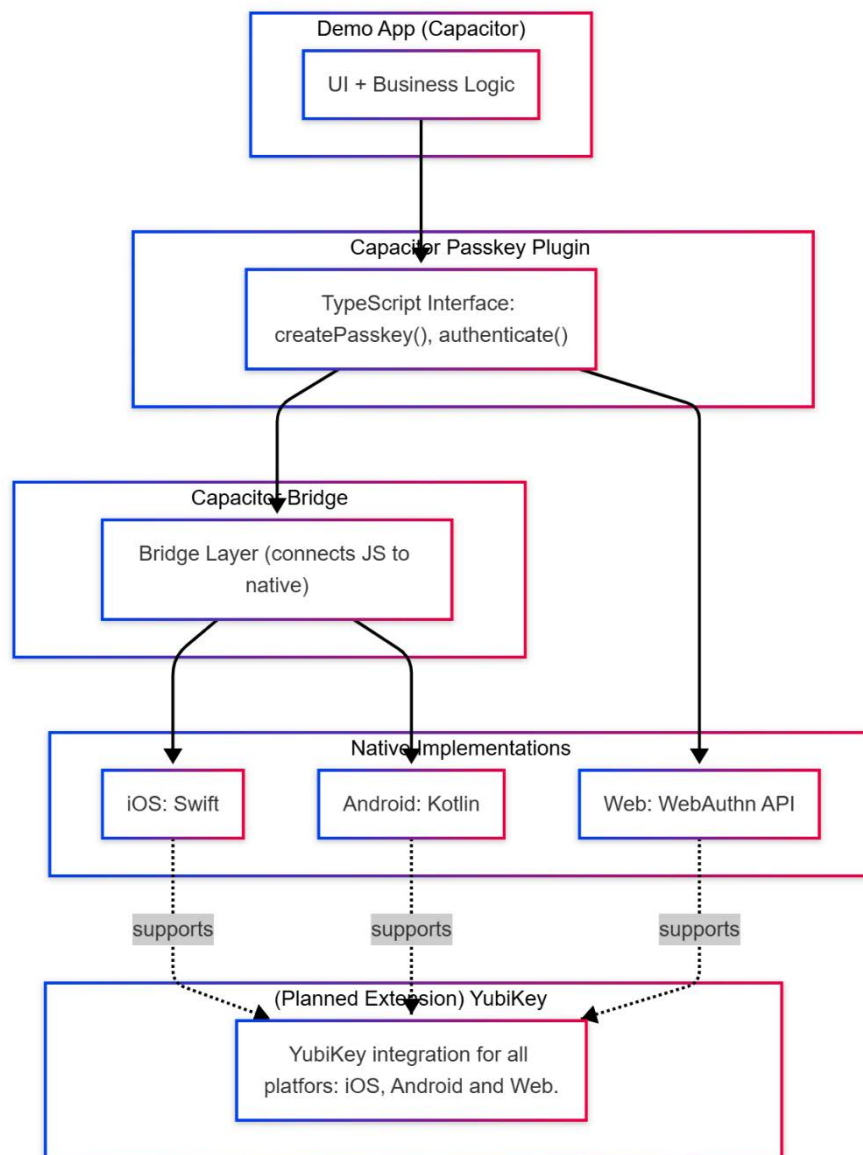


Figure 1 Demo App and Passkey Plugin Architecture with Planned YubiKey Hardware Support