

Welcome to the fastest Element.

Element X has launched!



Amandine Le Pape



Amsha Kalra



Ştefan Ceriu

September 2023

Element X Project

STATUS: IGNITION

IGNITION

September 2024



Element X Project

STATUS: **TAKE OFF!!**

TAKE OFF!!

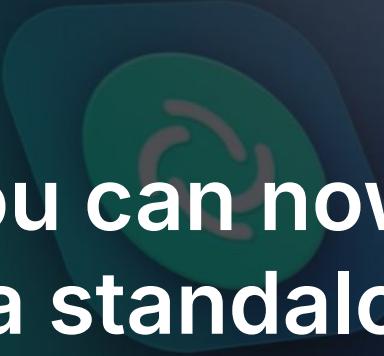


element X



**Element X is now the app that
all Element users should use.**

Whether they're new or
already have an account.



You can now run it
as a standalone app.

- Ignition required having classic Element alongside it: not anymore!
- You can create an account and use any baseline feature.

In the past, Element users
faced some challenges

**Today,
we have fixed it!**

So, here it is....

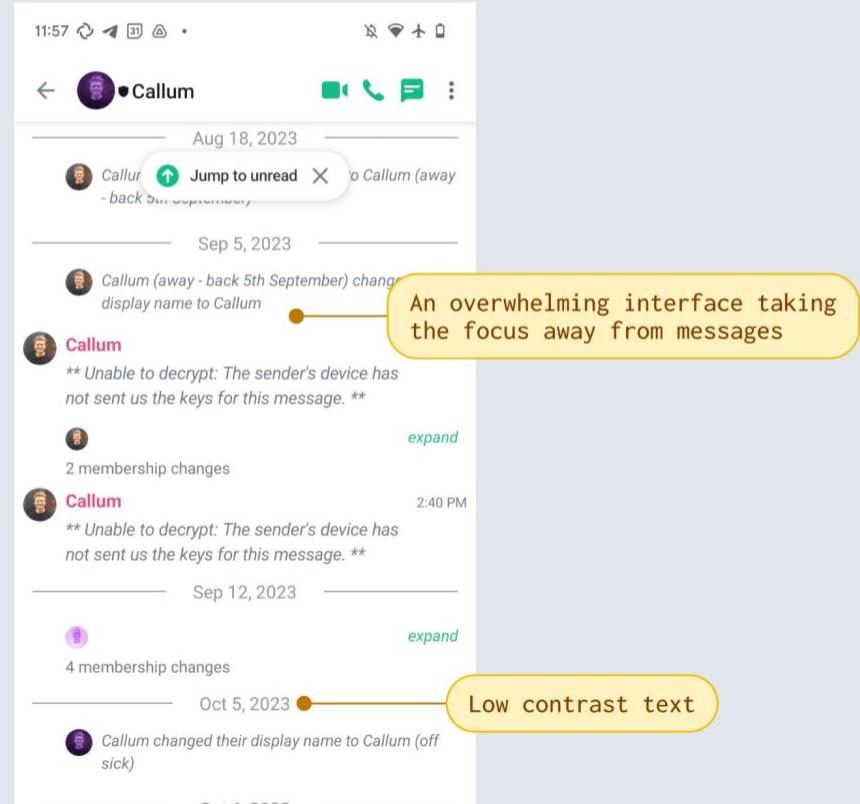
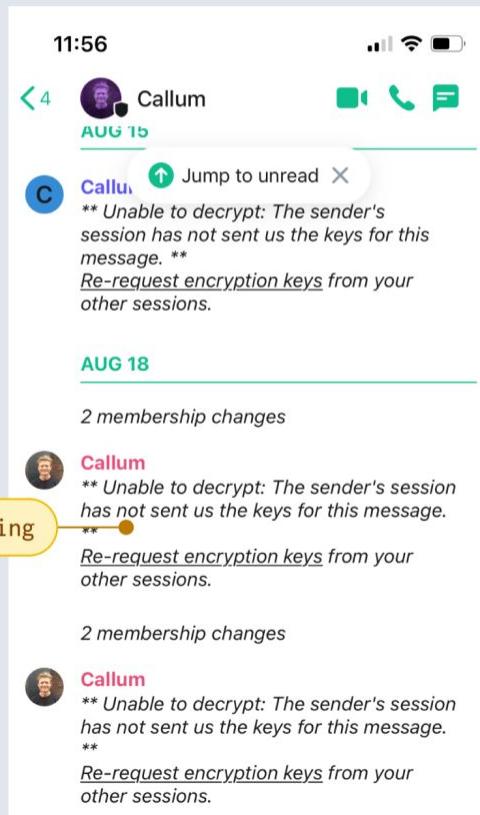


Element X: Design Language

Amsha Kalra, Head of Design, Element
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High cognitive load



Platform inconsistencies

The image displays two side-by-side screenshots of mobile application settings interfaces, highlighting design inconsistencies.

Screenshot 1 (Left): Settings Screen

- Top Bar:** Shows the time (11:56), signal strength, battery level, and a back arrow labeled "All chats".
- Section Headers:** "USER INTERFACE" and "TIMELINE".
- Settings:**
 - "Find your contacts": A toggle switch is off. Below it is a note: "This will use your identity server to connect you with your contacts, and help them find you."
 - "Language": Set to "English >".
 - "Theme": Set to "Auto >".
 - "Message bubbles": A toggle switch is off.
 - "Show a placeholder for removed messages": A toggle switch is on (green).
 - "Show latest avatar and name for users in message history": A toggle switch is off.
- Bottom Bar:** "ADVANCED".

Annotated Callouts:

- A yellow callout bubble points to the "All chats" back arrow with the text "Different menu options".
- A yellow callout bubble points to the "Find your contacts" toggle switch with the text "Inconsistent component use".

Screenshot 2 (Right): Settings Screen

- Top Bar:** Shows the time (11:57), signal strength, battery level, and a back arrow labeled "Settings".
- Section Headers:** "General", "Notifications", "Preferences", "Voice & Video", "Security & Privacy", "Labs", "Advanced settings", "Help & About", and "Legals".

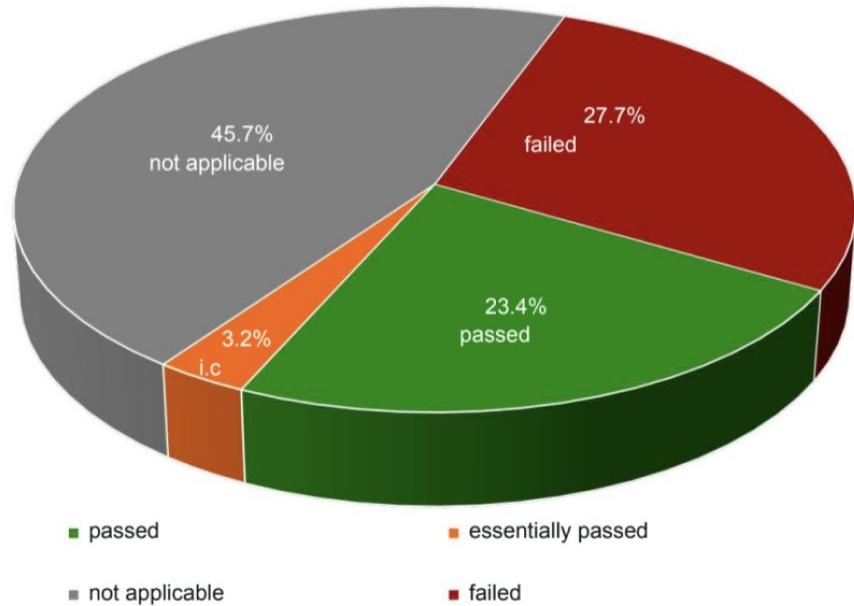
Annotated Callout:

- A yellow callout bubble points to the "Security & Privacy" icon with the text "Icon use on one platform".

Low accessibility

→ Generally passed on screen reader, keyboard navigation

→ Failed on everything else visual: Text contrast, button contrast etc



Design Language 2.0

Holistic vision for combining best practises, desirability & craft

Intuitive

Building on known
design standards

Clear

Easy to use and
understand

Polished

Looks and feels good
and spark joy

Differentiator

Design as a competitive
advantage

Scalable

Adaptable and
expandable

Efficient

Work smarter,
not harder

Design Language 2.0

Revisiting various design aspects, all while working efficiently

Typography

Colour

Iconography

Component
libraries

Voice and tone

Branding

Colour guidelines to be accessible

WCAG A

Baseline for standard vision.

3:1 for content.

WCAG AA

Moderate low vision.

4.5:1 for text content.

WCAG AAA

Low vision.

7:1 for text content.

3:1 · Standard vision

[Get Started](#)

2.42:1 · Fail A

4.5:1 · Moderate low vision

[Get Started](#)

[Get Started](#)

4.66:1 · Pass AA

6.84:1 · Pass AA

7:1 · Low vision

[Get Started](#)

8.47:1 · Pass AAA

Starting with monochrome

Primary



Base (content, icons, CTAs, interactive elements)



No accent

Secondary



Graytones (UI elements)



Success or error (text, icons, form fields)

Argument

- With a **fully black-and-white interface**
- The content people are sharing that matters most.
- Everything else should get out of the way, or else clearly inform the user what's going on if they need to take action or be aware of something important.

- Other than the logo, never use colour anywhere by default**
- Colour used ONLY for special states** (confirmation/success, problem/error, etc.)
- Pros:** It's clear, trustworthy, and simple (if we do it right)
- Cons:** It could be super boring, utilitarian, and confusing (if we do it wrong)

Add a pop of branding



**Dynamic
Type**



VoiceOver



Display customization

**Accessible
Tap Targets**



Compound

Design system



Keyboard support



**Semantic
properties**



**Guided
Access**

compound.element.io

The screenshot shows the left side of the website, featuring a navigation sidebar with the following structure:

- compound** (with a gear icon)
- Find components /
- Overview**
- FOUNDATIONS**
 - : Overview
 - Accessibility
 - Design Tokens
 - Iconography
- DESIGN**
 - : Get started
 - Contributing
 - Marketing
 - Styles
 - Typography
- DEVELOP**
 - Component Libraries
 - Design Tokens
 - Theming
- CONTENT**
 - : Overview
 - Audience First
 - Basic Guidelines
 - Goals & Principles
 - Processes & Resources

Compound is the design system for Element. It's a shared language and set of UI component implementations for the web, iOS & Android. Compound is broken down into the following primitives:

- Foundations: Guiding principles which inform the basis of any implementation.
- Styles: Systems for applying colour, type, spacing, sizing and materials.
- Components: Defined components used to build end user experiences.

Platforms

The first target platforms for Compound are:

- ElementX, iOS & Android
- Element Web
- Element Call
- Element Admin
- Authentication screens when authenticating using OIDC

Find the latest status on [the roadmap and board](#) (will be publicly accessible when the design system matures further).

Using Compound

While we're in early design & development, Compound is primarily built for and consumed by the Element core team. As Compound matures, we plan to open access to as much of Compound as possible.

In the meanwhile, if you're on the core team, start using Compound to:

- Design: Set up Figma with shared libraries and plugins. Start designing using styles and components.
- Develop: Familiarise yourself with packages and workflows.

compound.element.io

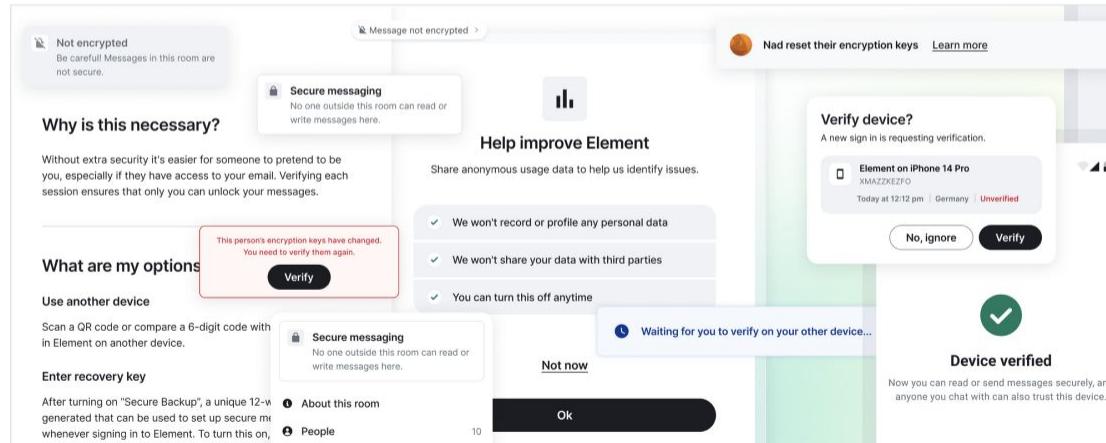
The screenshot shows the compound.element.io design system interface. The left sidebar contains a navigation menu with sections like Overview, FOUNDATIONS, DESIGN, DEVELOP, and CONTENT. The DESIGN section is currently selected, and its sub-section Typography is highlighted with a black bar. The main content area is titled "Typography" and lists various font styles with their corresponding Web and Android paths. A search bar at the top left says "Find components". On the right side, there are three vertical bars of increasing height, each with a plus sign at the bottom.

Style	Web Path	Android Path
Body XS Regular	Web/font/body/xs/regular	Android/font/body/xs/regular
Body XS Medium	Web/font/body/xs/medium	Android/font/body/xs/medium
Body XS Semibold	Web/font/body/xs/semitbold	Android/font/body/sm/regular
Body SM Regular	Web/font/body/sm/regular	Android/font/body/sm/medium
Body SM Medium	Web/font/body/sm/medium	Android/font/body/md/regular
Body SM Semibold	Web/font/body/sm/semitbold	Android/font/body/md/medium
Body MD Regular	Web/font/body/md/regular	Android/font/body/lg/regular
Body MD Medium	Web/font/body/md/medium	Android/font/body/lg/medium
Body MD Semibold	Web/font/body/md/semitbold	Android/font/heading/sm/regular
Heading SM Regular		

compound.element.io

- DESIGN**
 - : Get started
 - Contributing
 - Marketing
 - Styles
 - Typography
- DEVELOP**
 - Component Libraries
 - Design Tokens
 - Theming
- CONTENT**
 - : Overview
 - Audience First
 - Basic Guidelines
 - Goals & Principles
 - Processes & Resources
 - Translations
 - Vocabulary & Iconography
 - Voice & Tone
- Writing for Apps**
 - Writing for Email
 - Writing for Web & Marketing
- TOKENS**
 - Color Palettes
 - Icons
 - Semantic Colors
 - Spacing
 - Typography

Writing for Apps



The interface should...

- **Get out of the way whenever possible.** Let the user focus on the content, not the interface.
- **Use colour sparingly, but consistently**

Green = Confirmed, success, verified, enabled ONLY

Element X



Design Principles

Ensure high quality 

Make every feature count 

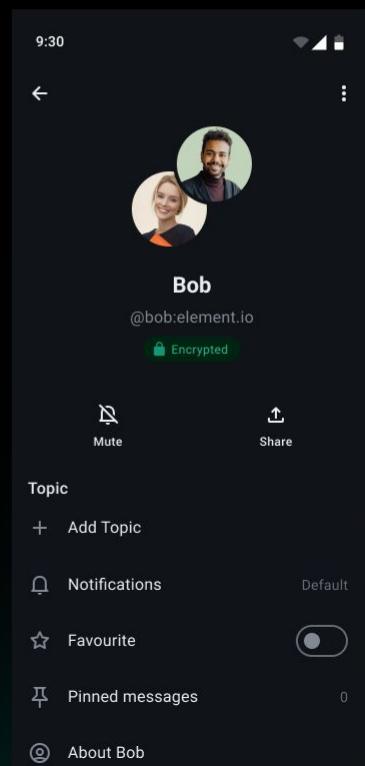
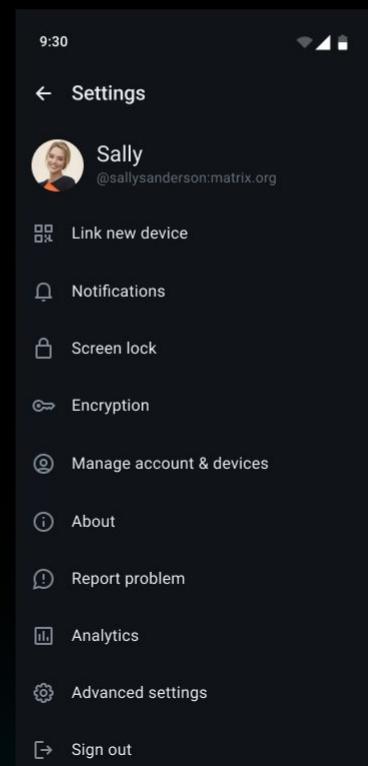
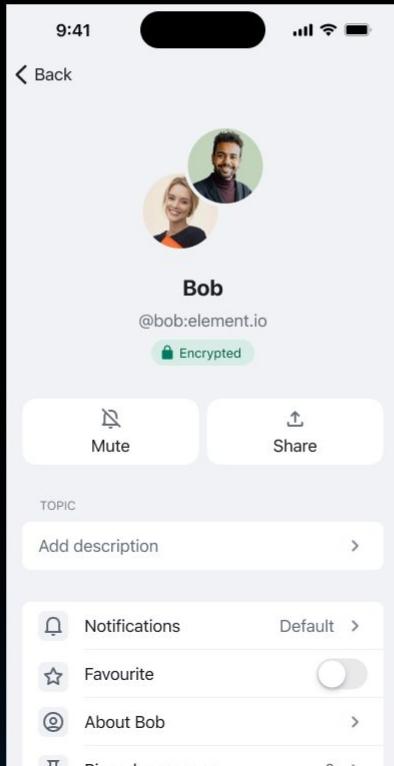
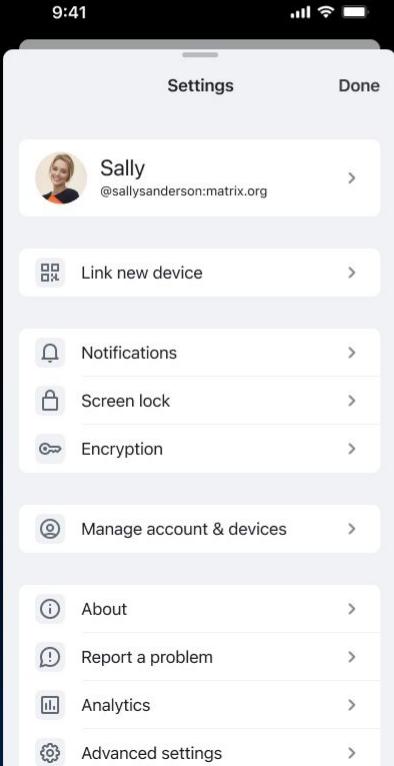
Embrace our super powers 

Using element is effortless 

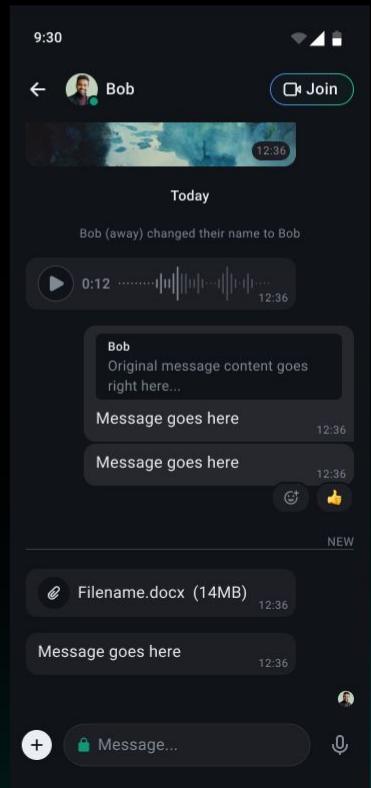
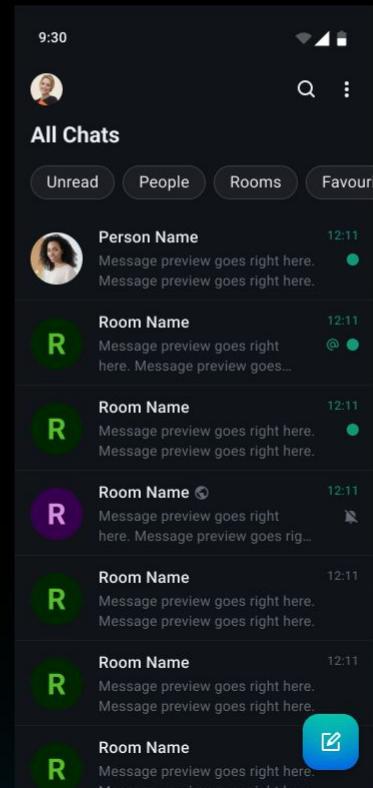
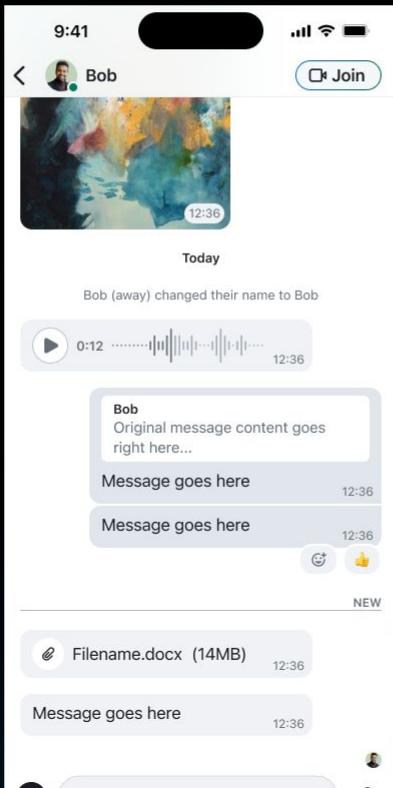
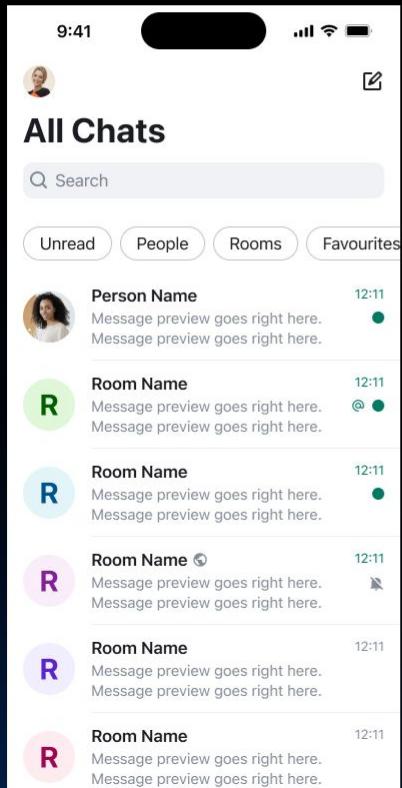
Bring joy to our users 

Don't reinvent the wheel 

Using familiar native patterns



While keeping high uniformity



What's next?

Feature parity ✓

Illustrations 🖌

Improve Accessibility 💪

Motion 🎭

Sound 🔊

Delight ✨

**Design is always a work in
progress.**

**Thank you for all your
feedback and support
over the years.**

Element X and Apple Platforms.



Stefan Ceriu
Apple Platforms Tech Lead

Element X + 🍏

• • •

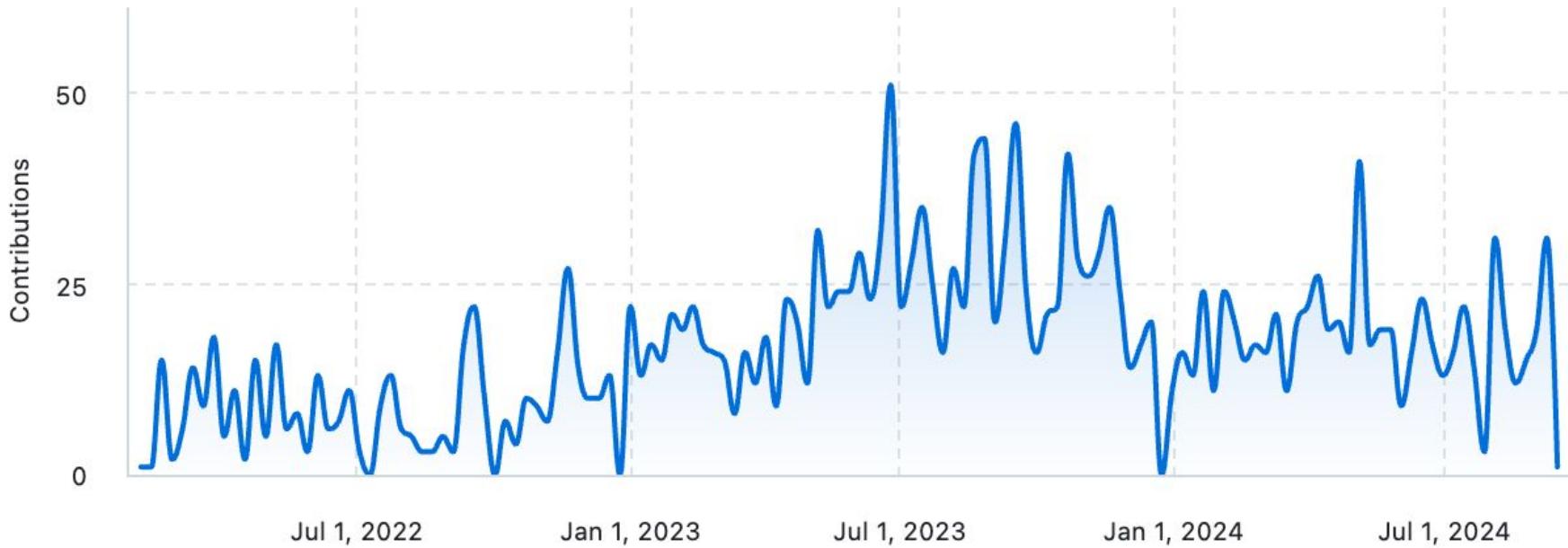
```
git log --reverse
commit a499570f39206d0322b804950b4ca734e5f0f904
Author: Stefan Ceriu <stefan.ceriu@gmail.com>
Date:   Fri Feb 11 14:06:26 2022 +0200
```

Initial commit

Element X + 🍏

Commits over time

From 6 Feb 2022 to 15 Sept 2024



What can go wrong?

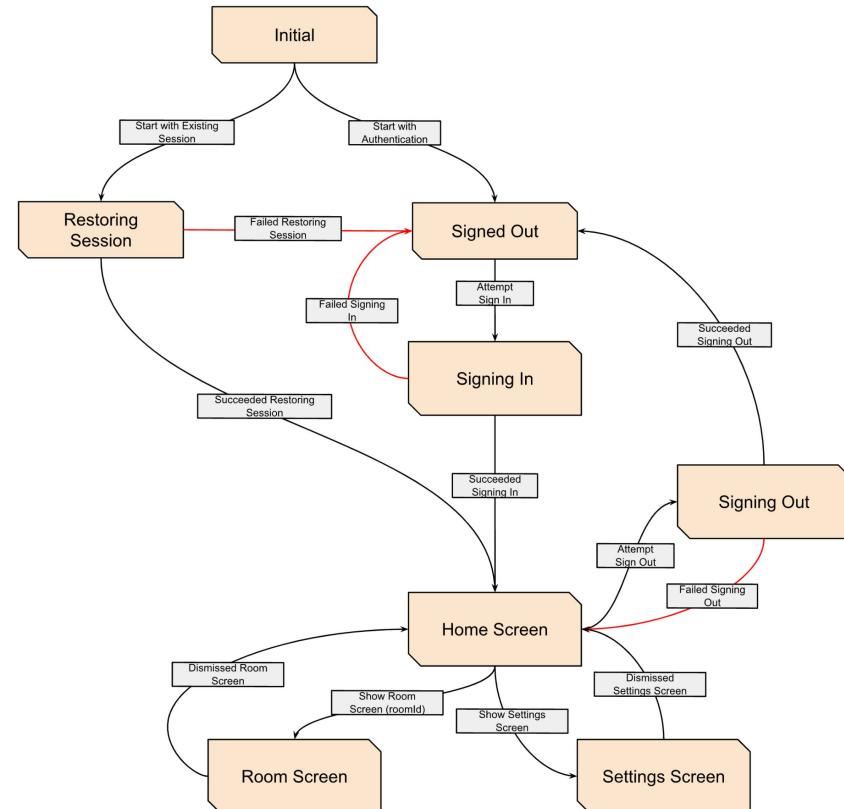
We wanted to:

- Build on top of the Rust SDK
- Rewrite everything in Swift
- Rethink the UX to be more friendly and approachable
- Using SwiftUI and Element specific design system
- While replacing the sync engine

(on Android replace SwiftUI with Jetpack Compose)

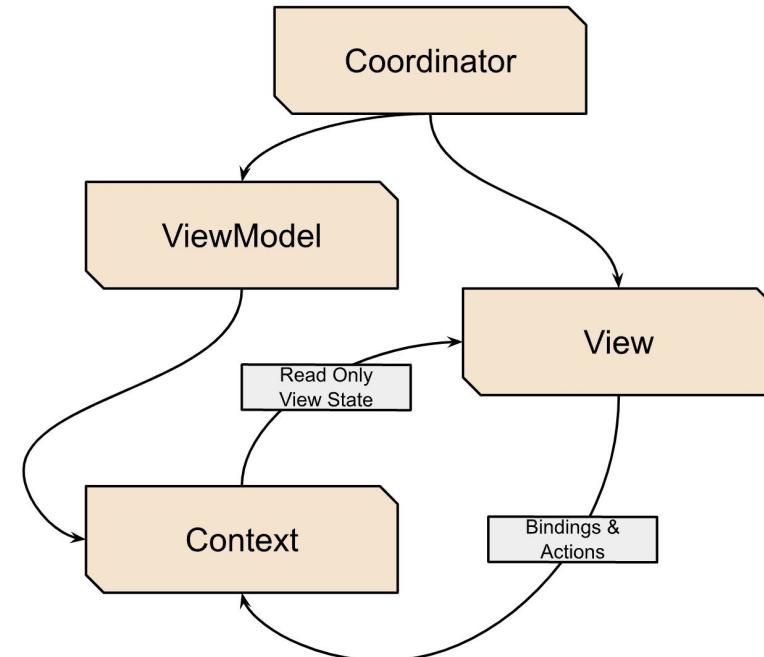
Architecture

- The tried and tested MVVM-C
- Overseen by Flow Coordinators with built in state machines that enforce valid navigation paths
- Asserting in production
- The app will always be in an expected and correct state



SwiftUI

- A version of the system we used in the legacy app
- Decoupling the ViewState and only providing a read only version to the view
- Powered by a custom UI navigation stack



Testing

More is more so:

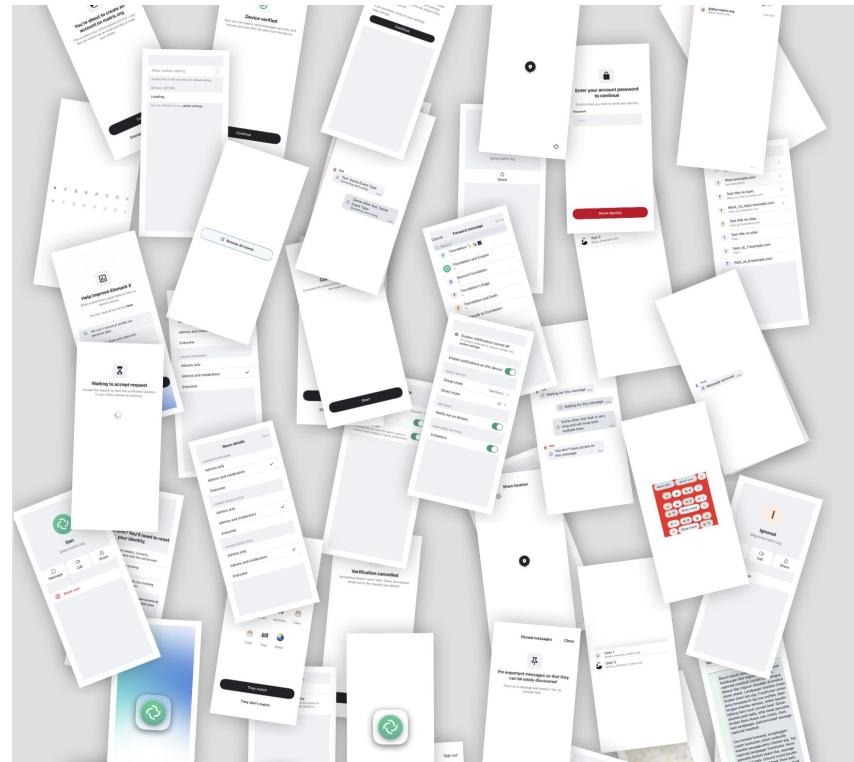
- Plain unit tests
 - Snapshot unit tests on top of SwiftUI previews
 - Plain UI Automation Tests + Snapshots
- ... all with automatically generated mocks for both local and SDK services.
- UI Automation Integration tests
 - Element X iOS is sitting at a comfortable 82% overall coverage

Unit tests

- We love them, everybody should
- We have around 800 of them
- They work great with the generated mocks

Snapshot tests

- We use SwiftUI previews to build new screens
- But we also use them for snapshots tests
- On different devices and language configurations



UI automation tests

- Test real UI with mocked services and data
- We can compose together multiple screens and user flows
- We also snapshots various steps within the tests



Full integration tests

- We run UI automation tests with real users on real homeservers (matrix.org)
- We check the main app flows and that nothing breaks (on any layer)
- We gather and track performance stats



And then were the tools and DevX

- Xcode Cloud 🤖 - for continuous delivery
- Github Actions - for everything else
- Danger - Check PRs adhere to rules
- Fastlane - to configure the various app flavours (PR, nightly, enterprise builds)
- Swiftlint and swiftformat - to .. well.. Lint and format
- Sonarcloud - to track down common bugs and code smells
- Codecov - for info on tests and coverage
- Localazy - to share translations
- Custom git hooks for checking formatting, git lfs, licenses etc.
- Custom swift scripts for setting up the project, releasing bindings, generating mocks and more
- Rust xtask based scripts for generating Swift bindings through Uniffi
- Shared project: RustSDK, Compound, AnalyticsEvents and the RichTextEditor

Thank you!



What's next?

You can use it today!

- Just log in with your existing account
- Or use it to create an account on any server having Matrix Authentication Service (MAS) deployed
- Element Server Suite fully supports it of course!
- Matrix.org will only have MAS at the end of the year, but a registration helper allows you to go through legacy registration
- Or you can experiment with beta.matrix.org

What remains?

- Threads
- Spaces
- Continue improving UX (e.g. invisible crypto, media management...)
- Feature parity with EW (e.g. verifying users, tracking your own verified and unverified devices...)
- Proper UI for joining rooms (but Element X iOS has /join)!

And beyond that?

- Retiring the legacy apps once we have feature equivalence in Element X
- Element X Web
- Element Call feature parity with Jitsi, Zoom & friends
- Faster, Sexier Element Server Suite
- People and content search
- ...

In the meantime...

**Go and tell the world!
The new generation of Element
is out and it rocks! 🤘**

Element X.

