



Senior Design Fall 2022

Firefox: Improving Import Usability for Users

Sponsor: Mozilla Foundation
Faculty Advisor: Dr. Chengyu Sun

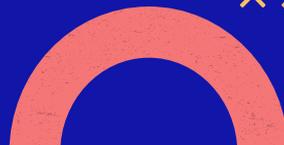




TABLE OF CONTENTS

#1

Introduction

#2

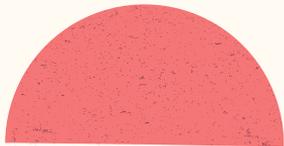
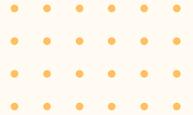
Hack Weekend

#3

What We Did

#4

What's Next?





01

Introduction





The Team

Members

Alvin Lew (Project Lead)	Ani Movsesian	Angel Villalobos	
Brian Macoy	Brian Pham	Evan Liang	Nolan Ishii
Portia Wu	Steven Wang	Zach Harris	

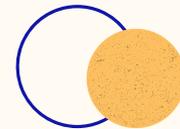
Faculty Advisor

Dr. Chengyu Sun

Liaisons — Mozilla Team

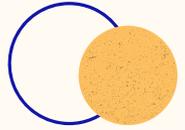
Mike Conley	Katherine Patenio	Niklas Baumgardner
Neil Deakin	Gijs Kruitbosch	

The Mozilla Foundation



- 👉 Mission: make Internet **open and accessible**
- 👉 Ensure it remains a force for good
- 👉 Projects like MDN set **web standards**
- 👉 Lots of other products advocating online safety





What is Firefox?

- **4th** most popular browser in the world
- Still boasts over **200 million** Monthly Active Users
- Firefox is a **non-profit, open-source** browser
- Privacy and security focused
- Over 20 million lines of code



Nightly:
2 versions ahead



Firefox Beta:
1 version ahead



Firefox Release:
Current version

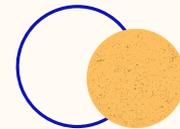
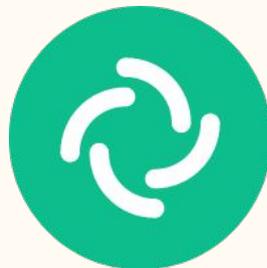
Mozilla Project Overview

- ☞ Make a new importer for **Firefox**
- ☞ Develop a more **modern UI** and new **features**
- ☞ Enhance **user experience** switching to Firefox

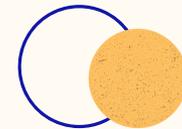


Project Conduct

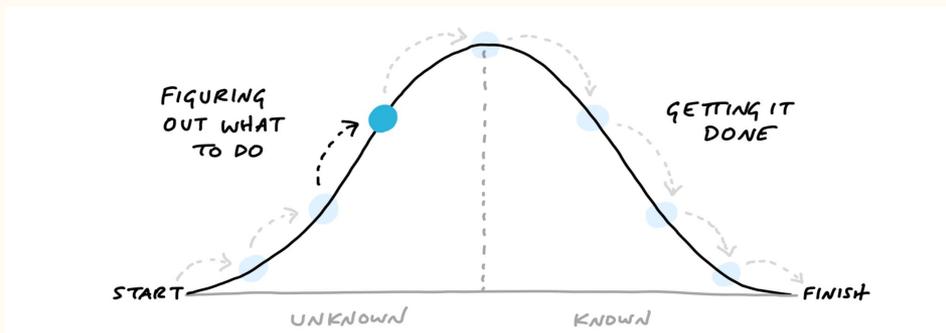
- 👉 Work with Mozilla mentors
- 👉 Work on individual bugs on weekdays
- 👉 Communicate through Matrix Element
- 👉 Zoom meetings on Fridays



How to Start?



- 👉 Unlike other projects, Firefox is **big**
- 👉 Big learning curve
- 👉 Started with simpler bugs
- 👉 Gradually work towards complex features





02

Hack Weekend



Hack Weekend



13 hours of Hack Weekend...

- 👉 Cloning the repository/building environment
- 👉 Get L1 Commit Access
- 👉 Began work on our first bugs (ESM to JSM)



The Challenge



Bug Reports

Bugzilla

Version Control

Mercurial

Code Review

Phabricator

New Browsers

Opera, Opera GX,
Vivaldi

New Communication

Element / Matrix

New Language

JavaScript

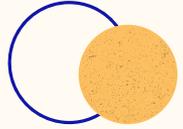


03

What We Did



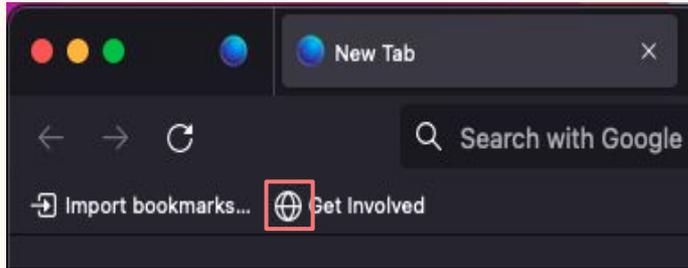
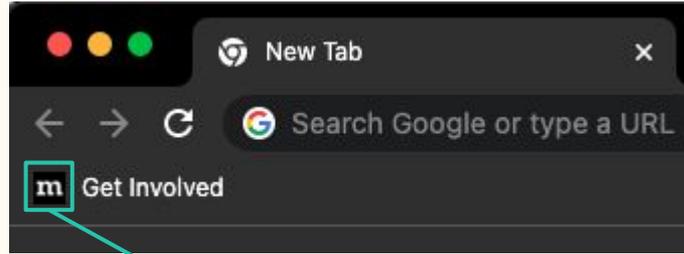
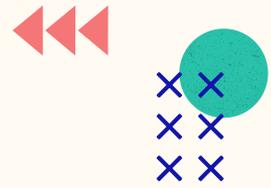
JSM to ESM (ESMification)



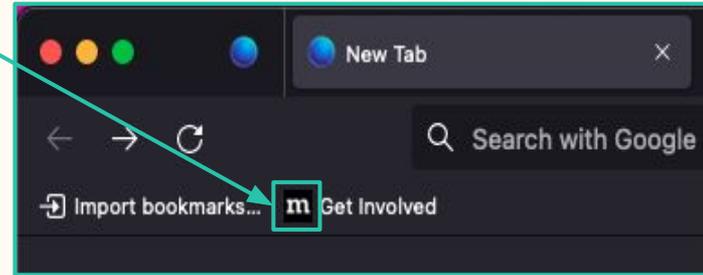
- 👉 JSM files: Mozilla-specific module system
- 👉 ESM files: General JS modules
- 👉 Mozilla has an automatic script to convert JSM -> ESM
- 👉 We practiced conversions to familiarize with workflow



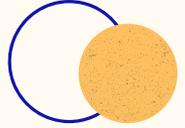
What are Favicons?



Before



After

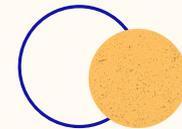


How to import Favicons?

1. Find the favicons
2. Access the favicons' data
3. Send it to the newly created function
4. Sniff out its MIME type (**M**ultipurpose **I**nternet **M**ail **E**xtension)
5. Troubleshoot possible problems
6. Successful import



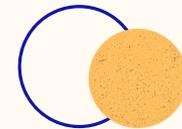
Importing data from other browsers



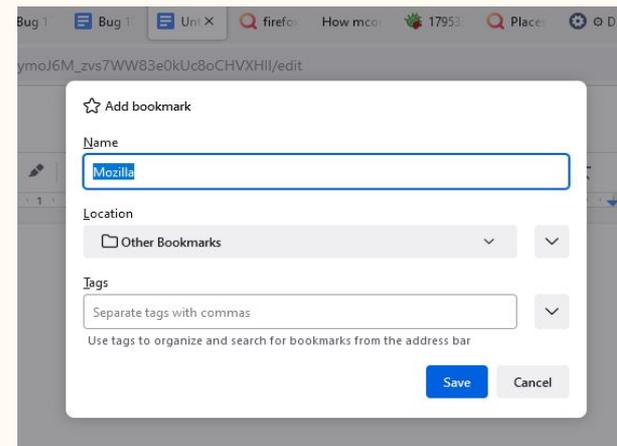
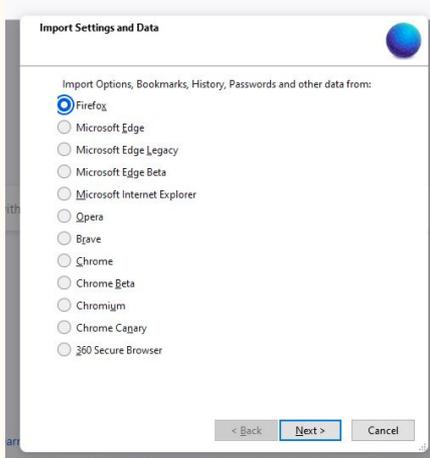
- 👉 Goal: support more browsers; easier to switch to Firefox
- 👉 Focus: importing bookmarks, user profiles, browsing history, and login information
- 👉 We targeted Opera, Opera GX, Vivaldi, and more planned in the future
- 👉 They're Chromium based, similar to importer for Chrome
- 👉 Touch up on Safari importer



UI/UX Improvements



- ➔ Transitioning to a new/more modern migration modal
- ➔ Eliminate need for user to close a browser being migrated
- ➔ Remove need for system to check if migrated bookmarks in the bookmarks toolbar or not

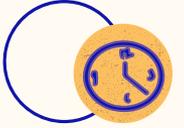




04

What's Next?





2023 Spring Goals

- 👉 Contribute to Firefox Importer project
- 👉 Redesign the Import Widget UI
- 👉 Develop additional features to enhance user experience
- 👉 Write documentation for Senior Design Course and Mozilla
- 👉 Continue learning despite challenges and setbacks





Thank you!

Q&A
