



truBlock

An Ad-Blocker for FireFox

Team Bobby
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Extension

Demo

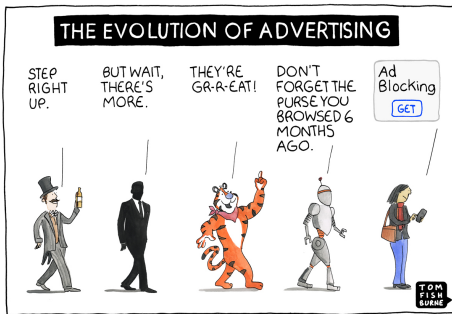
Conclusion

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Brandon Ingli Trey Reinheimer Andrew Flynn Chase Anderson

```
Team ' ; DROP TABLE team_names;
```



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Plan of Attack

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- Split into two groups
 - Extension: Brandon and Chase
 - Filter List: Andrew and Trey
- Communication
 - Weekly Email Updates
 - Bi-Weekly Group Meetings outside class
 - Frequent Group Updates before class
 - Group Chat for instant communication



Why FireFox?

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- Free and Open Source Software
- More closely follows the WebExtensions proposed W3C standards
- Google removed some useful APIs in a recent update
- Brandon's personal browser of choice



Filter List Approach

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- ① Collect filter lists from various places on the Internet
 - Primarily easylist.to
- ② Compile those filter lists into a master filter list.
- ③ Convert that master filter list into a useable format for the extension team
 - 577,003 domains included

Tools Used

- Unix's **sort** tool to sort filter list alphabetically
- Unix's **uniq** tool for removing adjacent duplicates
- Andrew's Python Program to combine lists and convert into needed format



Anatomy of a Firefox Extension

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- **manifest.json**: File that outlines metadata of the extension, what files are used, and what purpose they serve
 - Includes name, version, required permissions, icons, security policy, etc.
- **Background Page/Scripts**: Page and Scripts that run in the background when extension is active; can handle events when browser actions happen.
- **PopUp**: Page/Scripts that run when you click the extension icon in toolbar
- All content written in HTML/CSS/JS



Our manifest.json (1/2)

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```
{  
  
  "description": "Attempts to block advertisements using a master filter list  
    ↪ .",  
  "manifest_version": 2,  
  "name": "truBlock",  
  "version": "1.0.1",  
  "icons": {  
    "48": "icons/icon.png",  
    "96": "icons/icon96.png"  
  },  
  
  "background": {  
    "page": "background_page.html"  
  },  
}
```



Our manifest.json (2/2)

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```
"permissions": [  
  "webRequest",  
  "webRequestBlocking",  
  "http://**/*",  
  "https://**/*"  
],  
  
"browser_action": {  
  "default_popup": "popup.html"  
},  
  
"content_security_policy": "script-src 'self' https://brandoningli.github.io;  
  ↪ object-src 'self'"  
}
```



Blocking Web Requests

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```
browser.webRequest.onBeforeRequest.addListener(  
    function(details) {  
        if (enabled) {  
            return { cancel: true };  
        }  
    }, { urls: DomainList }, ["blocking"]  
);
```

- **DomainList**: Array containing filter list with patterns in the form
:/.*.domain.com/*
- **enabled**: boolean var toggled by PopUp page



Packaging the Extension

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- ① Use the **web-ext** **build** tool provided by Mozilla to package used files into a ZIP file.
- ② Upload the ZIP file to Mozilla's add-on portal
- ③ Add-on goes through automated validation
- ④ Distribute the add-on, by...
 - Downloading and distributing XPI file, or
 - Submitting for human review before listing on the add-on marketplace



Validation Issues

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- Issue: non-binary files cannot exceed 4MB in size; filter list is 19MB
- Solution: Load remotely from GitHub

background_page.html

```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="utf-8">
  <script type="text/javascript" src="https://brandoningli.github.io/cs-455-
    ↪ project/filter_lists/MasterListLive.js"></script>
  <script type=" text/javascript " src="trublock.js "></script>
</head>

</html>
```



Installation

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Simple Installation

- 1 Click on the XPI file from the release from our GitHub Repository to open it:
<https://github.com/brandoningli/cs-455-project/releases>
- 2 Allow GitHub to download and install it.
- 3 Accept the permissions.

Download then Install

- 1 Download the release from our GitHub Repository:
<https://github.com/brandoningli/cs-455-project/releases>
- 2 Open FireFox, select Hamburger Menu, then “Add-Ons”
- 3 On the Extensions page, click the settings cog, “Install Add-on From File...”
- 4 Select the XPI file you downloaded, accept permissions.



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- It works!
- Not the most RAM efficient.
- Fails on YouTube ads, but those are tricky