Best Practices for Open Sourcing Government Code

CivicActions

Housekeeping

- Compliance Engineer and In-house Counsel
- Former technology manager and IT architect at University of Connecticut
- Practicing Free Software Law for 5 years

Housekeeping

1. I am an attorney, but I am not your attorney
2. This is not legal advice

1. **Jargon**
   - Free Software vs. Open Source Software
   - FOSS, FLOSS, & OSS

Overview

1. What Is Open Source
2. Government Policy
3. Publishing Code
4. Encouraging a Community
5. Contributing
6. Evaluating FOSS Projects
7. Vendor Management

What is Open Source?

Practical definition of a FOSS License

- **A license that allows anyone to use, modify, and redistribute software with few restrictions.**

Licenses Restrictions

- “These are the limits of the rights I give you permission to use ....”
- “You can’t use the software unless you …”

When do FOSS restrictions apply?

- Doesn’t restrict use
- Doesn’t restrict copying
- Minimal restrictions on making modification* **
- Some restrictions on distribution

* Restrictions on modification in practice only a concern when also distributing
** Except AGPL restricts use of modifications as a third party service provider over a network

Two kinds of FOSS licenses

- Permissive
- Copyleft

Permissive License

- Must provide a copy of the license
- Must preserve copyright notices
- Must preserve warranty disclaimers
- Must add modification notices

ex: BSD, MIT, Apache, CC0

Copyleft License

- Must provide a copy of the license
- Must preserve copyright notices
- Must preserve warranty disclaimers
- Must add modification notices
- **Must provide source code under compatible license**

ex: GPL, AGPL, CDDL, MPL, ...

Open Source Licenses

Open Source Initiative's "Popular Licenses"

- Apache License 2.0
- BSD 3-Clause "New" or "Revised" license
- BSD 2-Clause "Simplified" or "FreeBSD" license
- GNU General Public License (GPL)
- GNU Library or "Lesser" General Public License (LGPL)
- MIT license
- Mozilla Public License 2.0
- Common Development and Distribution License
- Eclipse Public License

Open Source Licenses

Other Popular Licenses

- Affero GNU General Public License (AGPL)
- NASA License
- Creative Commons Suite (CC-BY and CC-SA)
- CC0
- Public Domain Dedications

Government Policy

CivicActions

Government Open Source

- DOD's "Clarifying Guidance Regarding Open Source Software (OSS)" (2009)

  http://dodcio.defense.gov/Portals/0/Documents/OSSFAQ/2009OSS.pdf
- DoD Open Source Software (OSS) FAQ
  http://dodcio.defense.gov/Open-Source-Software-FAQ/
- Federal Source Code Policy (2016)
  https://sourcecode.cio.gov/

“Clarifying Guidance Regarding Open Source Software (OSS)”

- FOSS is Commercial Software
- No barriers to using FOSS licensed code
- Contractor created code can be released under a FOSS license

Federal Source Code Policy (2016)

- Encourages the use of existing Commercial Software solutions
- Commercial Software includes existing FOSS projects like Drupal
- Adopt policies and procedures to share customized government source code

Federal Source Code Policy (2016)

Two key requirements for custom developed code:

- **Must come with a government wide reuse license**
  - Primarily a procurement contract question
- **20% of custom developed code must be licensed under a Open Source license**
  - legal/procurement/technology management question

Federal Source Code Policy (2016)

Motivation:

- Agency Benefits - “reduce costs, streamline development, apply uniform standards, and ensure consistency in creating and delivering information”
- Tax Payer Benefits - “including decreasing duplicative costs for the same code and reducing Federal vendor lock-in”

Federal Source Code Policy (2016)

Reasons for promoting FOSS:

- “continual improvement of Federal custom-developed code projects as a result of a broader user community implementing the code for its own purposes and publishing improvements.”
- “vendors participating in or competing for future maintenance or enhancement can do so with full knowledge of the underlying source code.”

Federal Source Code Policy (2016)

Exceptions to sharing source code

- **Restricted by law - Patents, Export controls, etc…**
- **Sharing creates an identifiable risk**
  - national security, confidentiality, or individual privacy
  - stability, security, or integrity of agency systems
  - agency mission, programs, or operations
- **CIO believes it is in the national interest**

Federal Source Code Policy (2016)

Implementation:

- **Create appropriate policies**
- **List source code on code.gov**
  - indicate if it “OSS”
- **Store code in code repositories**
  - Buildable, version controlled
- **Include appropriate OSS license in source code**

Publishing Code

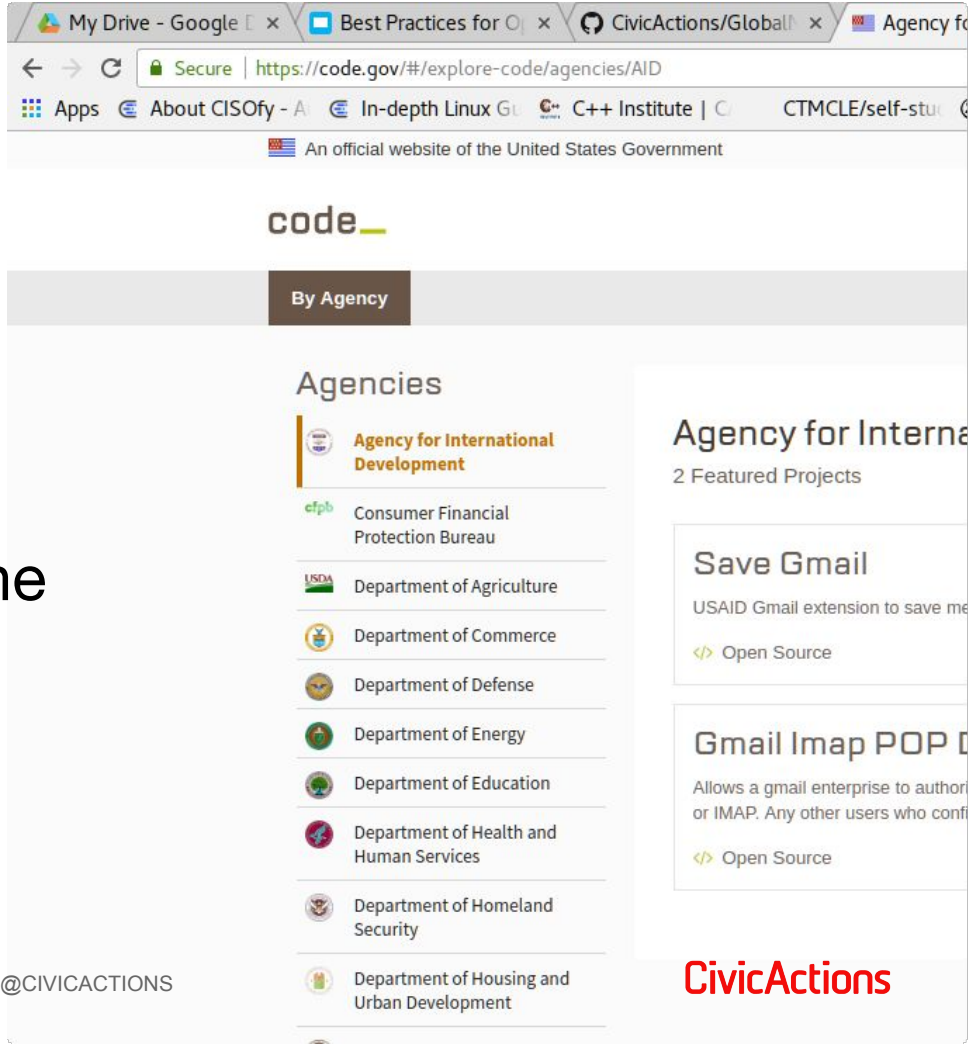
CivicActions

Publishing Code

- Who is publishing the code?
- Where to publish code?
- Choosing a license?

Publishing Code

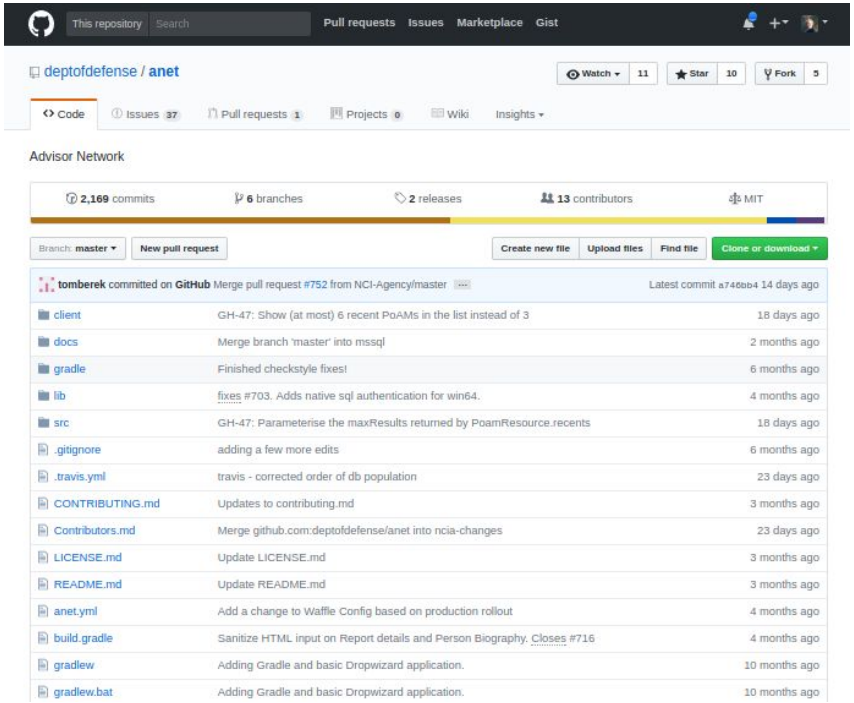
- **Who should publish the code?**
  - Where does the lead technologist work?
  - Vendors can do it for the agency
  - Many Agencies are publishing their own code



CivicActions

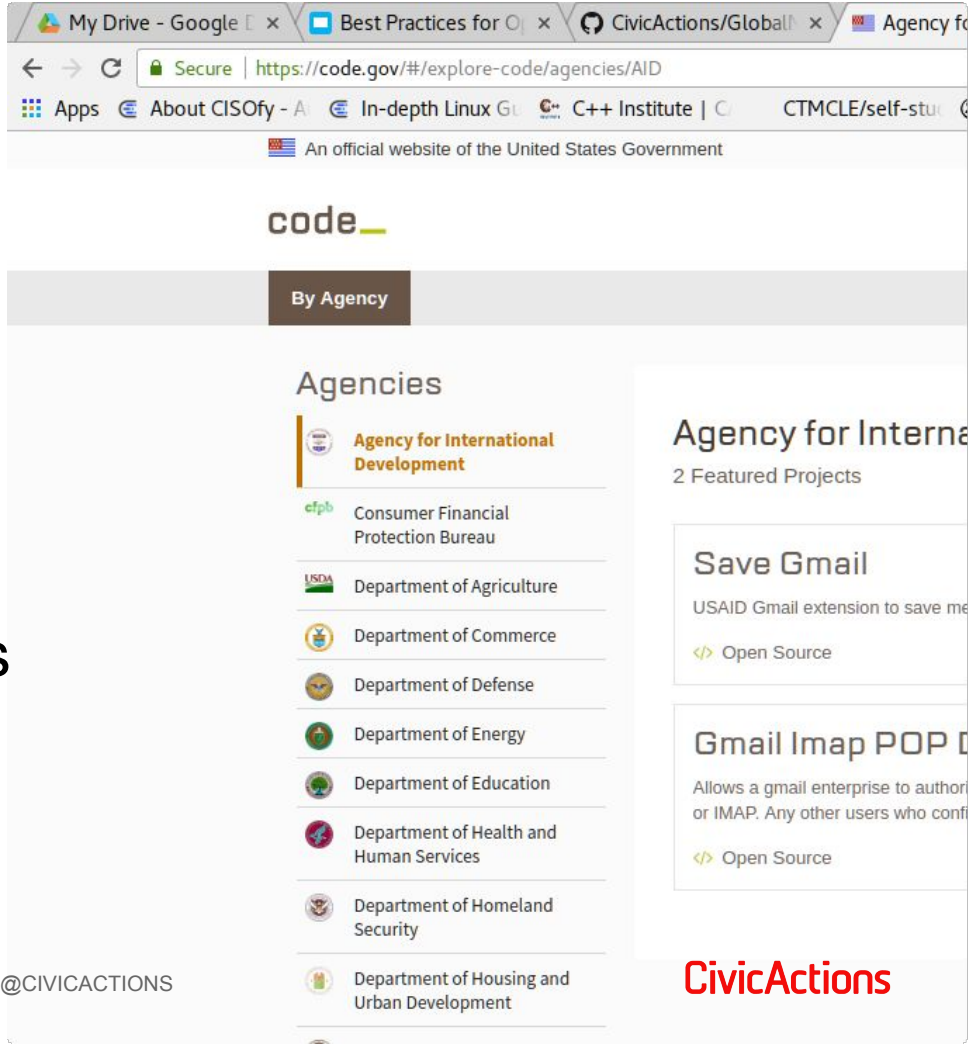
Publishing Code

- **Where to publish the code?**
  - Most popular location is currently GitHub
  - forge.mil for DOD
  - self hosted repositories



Publishing Code

- **List the code on code.gov?**
  - Inventory of code
  - Developed by vendors
  - Developed by government employees
  - Does not store the actual source code



CivicActions

Choosing a License

- Can the Government use FOSS licenses?
- What is your “business strategy”?
- Did you use any copyleft libraries?
- Do you want to encourage others to contribute back to your project?

Can the Government use FOSS licenses

- It depends ….

Can the Government use FOSS licenses?

- FOSS licenses are copyright licenses
- Works created by U.S. Government employees have no copyright within the US
- Works created by Government contractors generally are protected by copyright
- Generally works created by state employees are generally covered by copyright

What do agencies do then?

- Works created entirely by federal employees are generally “licensed” under the CC0
- But! Defense Digitial Service is releasing code under FOSS licenses using a legal “hack” http://code.mil
- States are starting to think about the best license for them

Choosing a License

- **What is your “business strategy”**
  - Reducing cost by encouraging reuse
  - Encouraging standardization
  - Enhanced development from third parties
  - Reduce vendor lock-in
  - More competitive bidding

Choosing a License

- **Did you use any copyleft libraries?**
  - Some licenses require you to use a certain license
  - If you are using that license, you will have to make sure you are using a “compatible” license
  - Lots of resources online for helping with compatibility decisions.

Choosing a License

- Do you want to encourage others to contribute back to your project?

  Permissive vs. Copyleft (Community terms)
  Permissive vs. Protective (DOD FAQ terms)

Choosing a License

- **Permissive vs. Protective**
  - Do you want vendors to be able to resell the code without giving back?
  - Do you want to let private companies build products with few restrictions
  - Do you want to ensure that improvements to the code stay free and open?

Encouraging a Community

CivicActions

Encouraging a Community

Values

- Transparency
- Inclusiveness
- Communicating effectively
- Culture of appreciation
- Recognizing the motivation of others

How do FOSS projects encourage communities:

- Overview
- The license
- How to get involved
- The road map for the future
- How to get help
- Acknowledging help

Encouraging a Community

How do FOSS projects do this:

- **README or web site**
- **LICENSE**
- **CONTRIBUTING**
- **Issue tracking**
- **Mailing list**
- **ACKNOWLEDGEMENTS**

ex: https://github.com/deptofdefense/anet
ex: https://github.com/OpenLightingProject/ola

Contributing

CivicActions

Contributing

“continual improvement of Federal custom-developed code projects as a result of a broader user community implementing the code for its own purposes and publishing improvements.”

Federal Source Code Policy

Contributing goes both ways

- Accepting contributions from other agencies
- Accepting contributions from the public
- Contributing to third party projects

Accepting Contributions

- Defining the relationship with other contributors
- Clarifying the terms of third parties contributions
- Recognizing that code contributed by federal employees probably doesn't have a copyright
- Define your contributor policy

Accepting Contributions

- **Two common ways to do it:**
  - **Contributor Agreements (a.k.a. a contract)**
  - **Developer Certificate of Origin**
- **Federal contract**
  - requirement of the contract that code is published as open source and meets certain standards

Contributing to other projects

- Upstreaming changes reduces costs in the longer term
- Provides benefits to other users of the upstream project
- Makes it easier to stay current with security patches and features

Evaluating FOSS Projects

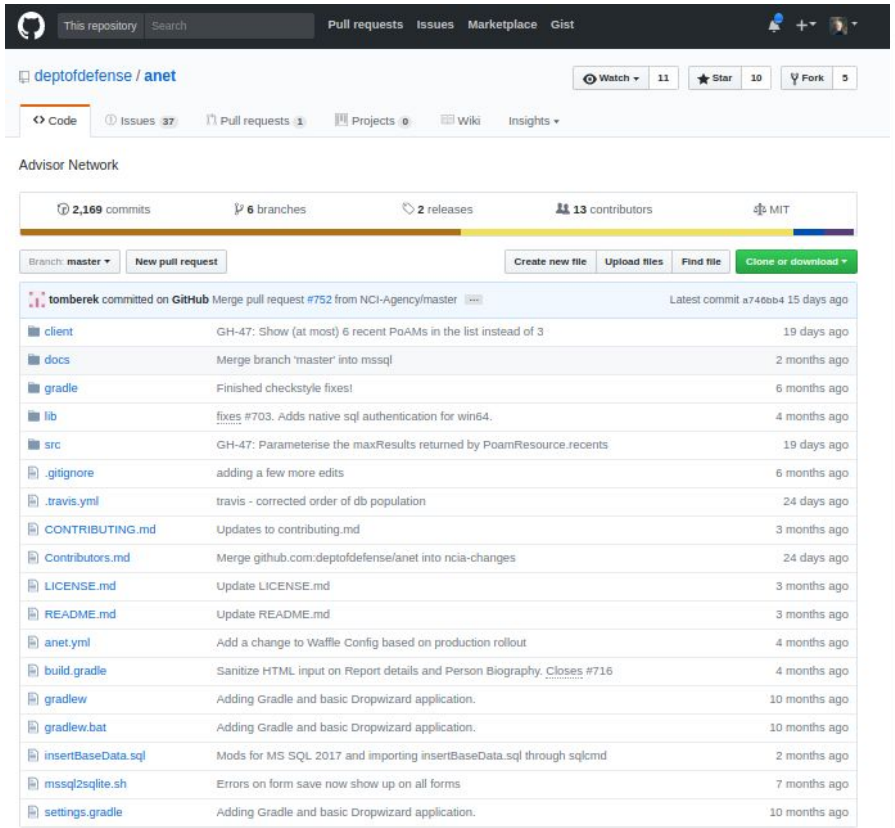
CivicActions

Evaluating FOSS Projects

What to look for

- **Last updated/last commit**
- **Active Issue queue**
- **Number of contributors**
- **Is the license aligned with your “business strategy”**
- **Do they have good documentation**
  - How to contribute
  - Bug reporting
  - Licensing

Evaluating FOSS Projects



README.md

What is ANET?

The Advisor Network ("ANET") is a tool to track relationships between advisors and advisees. ANET was built by the Defense Digital Service in support of the the USFOR-A and Resolute Support mission to train, advise, and assist the Afghan government.

Although this tool was built in a very specific context, ANET has many potential applications. At its core, ANET is a way of tracking reports and tying them to authors, organizations, and goals. It also simplifies relationships between members of an organization, and members of different organizations -- like NATO and the Afghan government.

In making this software available to the open source community, it is our hope that other groups are able to use ANET to meet their needs. We would also welcome contributions that help improve functionality, add features, and mature this work.

Setting up your development environment

This repository is structured in two main, disparate components: the frontend and the backend. The frontend is a react.js based JavaScript application that communicates with the backend via XMLHttpRequest (ajax). The backend is a Java application based the Dropwizard framework that runs on a JVM and utilizes Microsoft SQL Server for its database.

We recommend reading through the documentation in the following order:

1. Getting your Development Environment Set Up
2. Working on the backend
3. Working on the frontend
4. See DOCUMENTATION.md and INSTALL.md for additional information.
5. See User Workflows for details on user workflows.

Contributing

As part of the Defense Digital Service's goal of bringing technology industry practices to the U.S. Department of Defense, we welcome contributions to this repository from the open source community. If you are interested in contributing to this project, please review `CONTRIBUTING.md` and `LICENSE.md`. Those files describe how to contribute to this work.

Works created by U.S. Federal employees as part of their jobs typically are not eligible for copyright in the United States. In places where the contributions of U.S. Federal employees are not eligible for copyright, this work is in the public domain. In places where it is eligible for copyright, such as some foreign jurisdictions, this work is licensed as described in `LICENSE.md`.

Vendor Management

CivicActions

Vendor Management

- **“including decreasing duplicative costs for the same code and reducing Federal vendor lock-in”**

- **“vendors participating in or competing for future maintenance or enhancement can do so with full knowledge of the underlying source code.”**

-Federal Source Code Policy

Change the balance of power

- **Make vendors help other vendors compete against them**
- **Avoid facing a choice between paying the vendors price or starting over with a new implementation**
- **Require the use of all FOSS products**
  - right to use the code with you when you switch vendors
  - right to modify the code when you switch vendors

Evaluating FOSS Projects

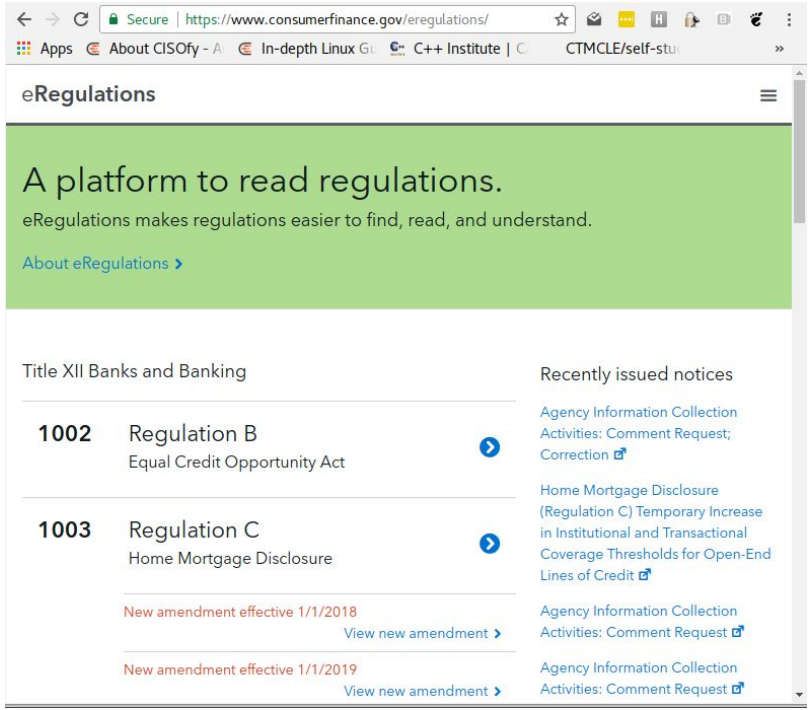
Vendor evaluation

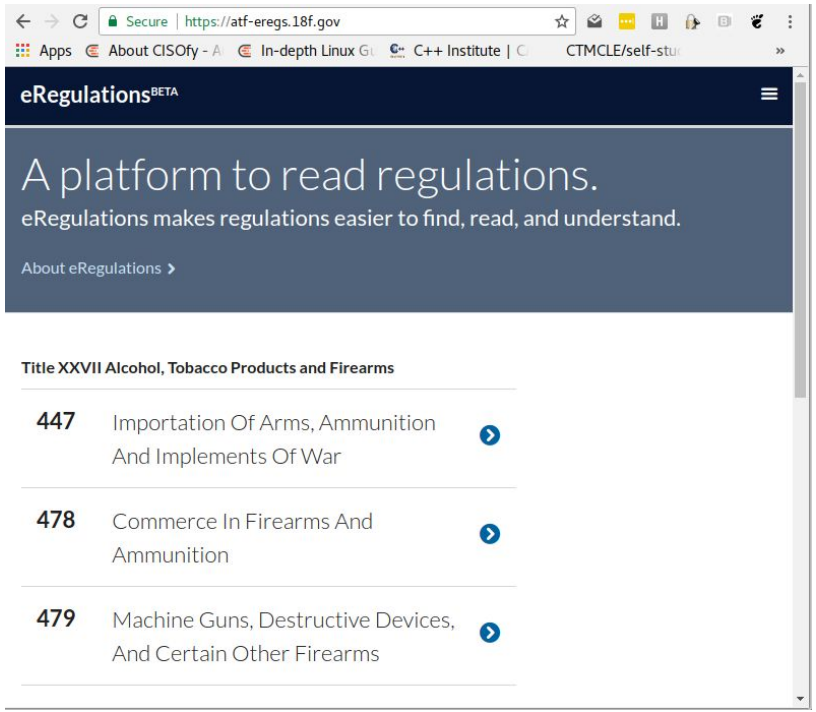
- Judge vendors on if they can maintain/build a healthy FOSS project
- Judge vendors on if they know how to participate in other communities
- Are vendors helping to fulfill the purpose of the federal source code policy

Examples

18F's Analytics

CFPB e-regulations





Open Discussion

CivicActions

Thank you.

CivicActions