

Best Practices for Open Sourcing Government Code

CivicActions

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

- 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

What Is Open Source?

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



What Is Open Source?

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

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**

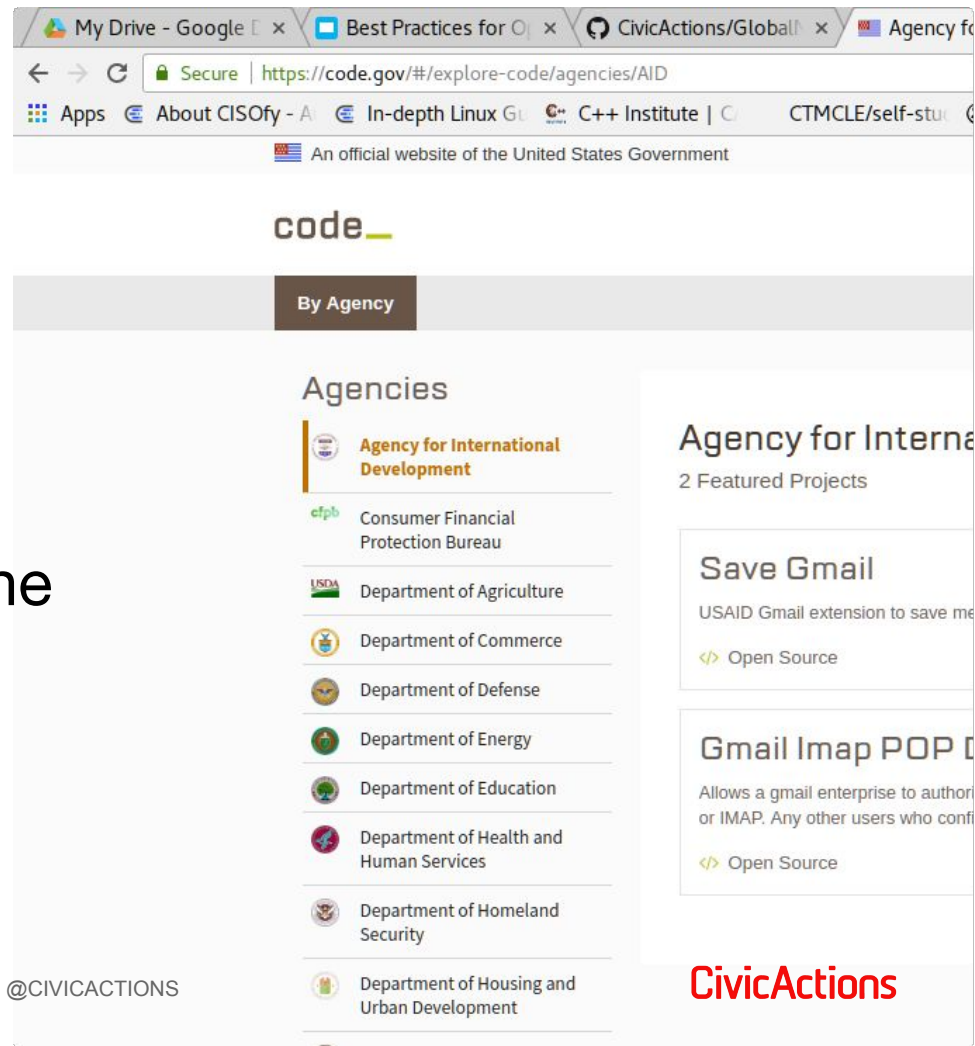
Publishing Code

Publishing Code

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

Publishing Code

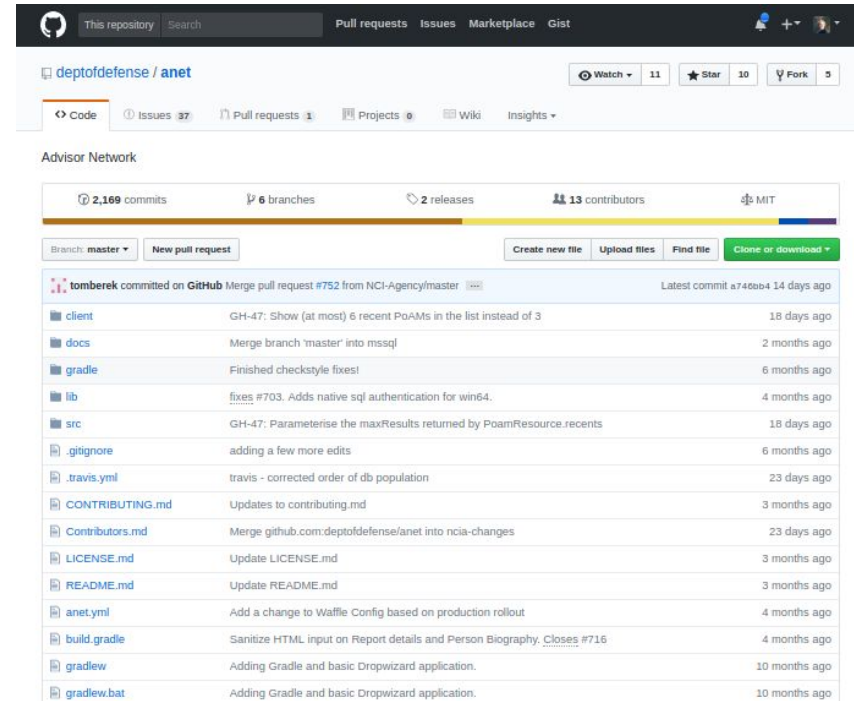
- **Who should publish the code?**
 - Where does the lead technologist work?
 - Vendors can do it for the agency
 - Many Agencies are publishing their own code



The screenshot shows a web browser displaying the code.gov website. The URL is <https://code.gov/#/explore-code/agencies/AID>. The page features a navigation bar with the 'code_' logo and a 'By Agency' filter. Below this, a list of agencies is displayed, including the Agency for International Development, Consumer Financial Protection Bureau, Department of Agriculture, Department of Commerce, Department of Defense, Department of Energy, Department of Education, Department of Health and Human Services, Department of Homeland Security, and Department of Housing and Urban Development. On the right side, there are two featured project cards: 'Save Gmail' (USAID Gmail extension) and 'Gmail Imap POP D' (Gmail enterprise authorization), both marked as 'Open Source'. The CivicActions logo is visible in the bottom right corner.

Publishing Code

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



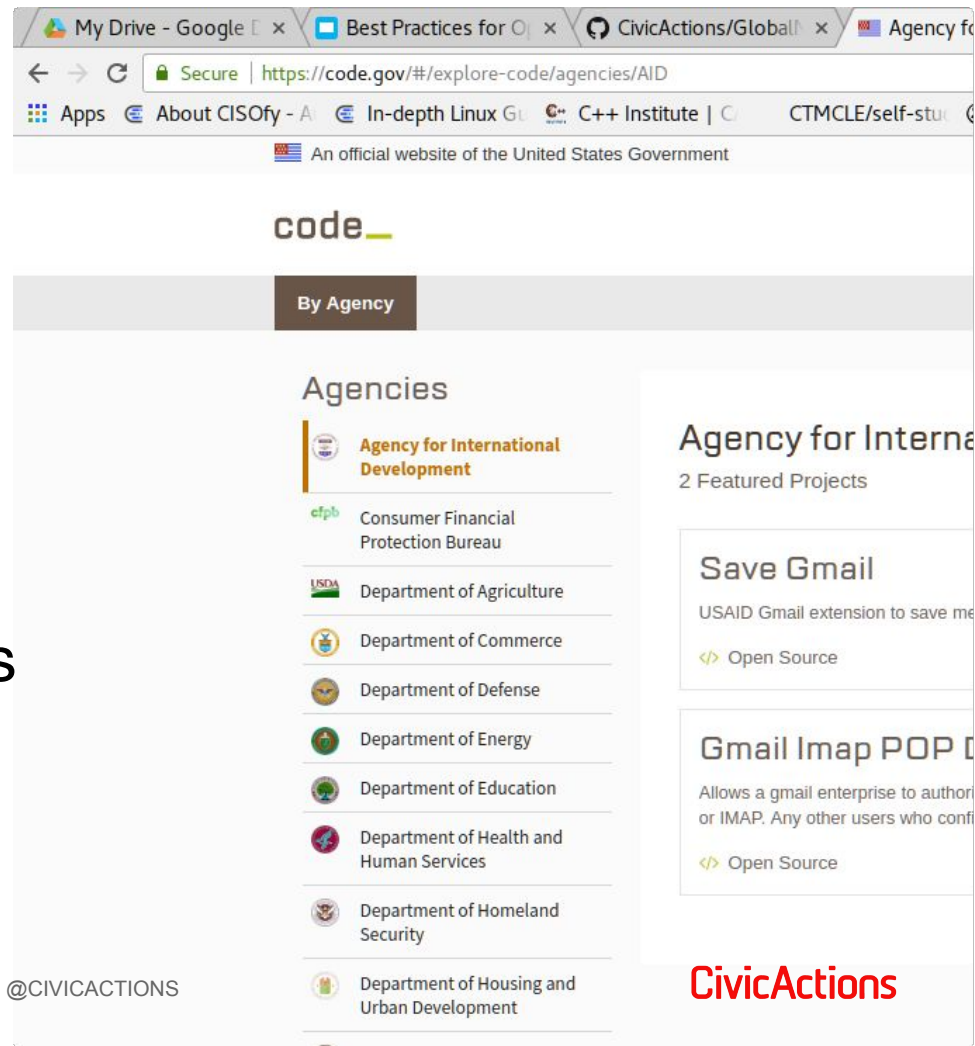
deptofdefense / anet

2,169 commits 6 branches 2 releases 13 contributors MIT

File	Commit Message	Time Ago
client	GH-47: Show (at most) 6 recent PoAMs in the list instead of 3	18 days ago
docs	Merge branch 'master' into mssql	2 months ago
gradle	Finished checklist fixes!	6 months ago
lib	fixes #703. Adds native sql authentication for win64.	4 months ago
src	GH-47: Parameterise the maxResults returned by PoamResource.recents	18 days ago
.gitignore	adding a few more edits	6 months ago
.travis.yml	travis - corrected order of db population	23 days ago
CONTRIBUTING.md	Updates to contributing.md	3 months ago
Contributors.md	Merge github.com:deptofdefense/anet into ncia-changes	23 days ago
LICENSE.md	Update LICENSE.md	3 months ago
README.md	Update README.md	3 months ago
anet.yml	Add a change to Waffle Config based on production rollout	4 months ago
build.gradle	Sanitize HTML input on Report details and Person Biography. Closes #716	4 months ago
gradlew	Adding Gradle and basic Dropwizard application.	10 months ago
gradlew.bat	Adding Gradle and basic Dropwizard application.	10 months ago

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



The screenshot shows a web browser displaying the code.gov website. The URL is <https://code.gov/#/explore-code/agencies/AID>. The page features a navigation bar with the code.gov logo and a "By Agency" filter. Below this, there is a list of agencies, including the Agency for International Development, Consumer Financial Protection Bureau, Department of Agriculture, Department of Commerce, Department of Defense, Department of Energy, Department of Education, Department of Health and Human Services, Department of Homeland Security, and Department of Housing and Urban Development. To the right, there are featured projects, such as "Save Gmail" and "Gmail Imap POP D", both marked as "Open Source".

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 Digital 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

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

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

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

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

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

deptofdefense / anet

2,169 commits 6 branches 2 releases 13 contributors MIT

Branch: master New pull request

Create new file Upload files Find file Clone or download

tomberek committed on GitHub Merge pull request #752 from NCI-Agency/master Latest commit a746bb4 15 days ago

client	GH-47: Show (at most) 6 recent PoAMs in the list instead of 3	19 days ago
docs	Merge branch 'master' into mssql	2 months ago
gradle	Finished checkstyle fixes!	6 months ago
lib	fixes #703. Adds native sql authentication for win64.	4 months ago
src	GH-47: Parameterise the maxResults returned by PoamResource.recents	19 days ago
.gitignore	adding a few more edits	6 months ago
.travis.yml	travis - corrected order of db population	24 days ago
CONTRIBUTING.md	Updates to contributing.md	3 months ago
Contributors.md	Merge github.com:deptofdefense/anet into ncia-changes	24 days ago
LICENSE.md	Update LICENSE.md	3 months ago
README.md	Update README.md	3 months ago
anet.yml	Add a change to Waffle Config based on production rollout	4 months ago
build.gradle	Sanitize HTML input on Report details and Person Biography. Closes #716	4 months ago
gradlew	Adding Gradle and basic Dropwizard application.	10 months ago
gradlew.bat	Adding Gradle and basic Dropwizard application.	10 months ago
insertBaseData.sql	Mods for MS SQL 2017 and importing insertBaseData.sql through sqlcmd	2 months ago
mssql2sqlite.sh	Errors on form save now show up on all forms	7 months ago
settings.gradle	Adding Gradle and basic Dropwizard application.	10 months ago

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

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

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

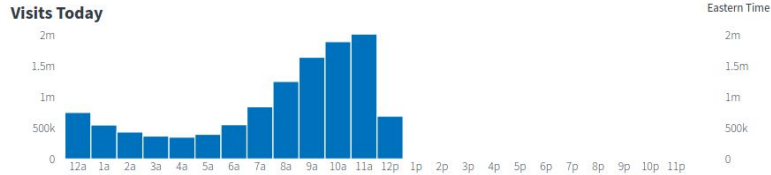
18F's Analytics

analytics.usa.gov

All Participating Websites

233,112

people on government websites now



analytics.phila.gov

423

people on city websites now

VISITS TODAY

3k
2.5k
2k
1.5k
0



Eastern Time

3k
2.5k
2k
1.5k
0

CFPB e-regulations

Secure | <https://www.consumerfinance.gov/eregulations/>

eRegulations

A platform to read regulations.
eRegulations makes regulations easier to find, read, and understand.

[About eRegulations >](#)

Title XII Banks and Banking

1002	Regulation B Equal Credit Opportunity Act	▶
1003	Regulation C Home Mortgage Disclosure	▶

New amendment effective 1/1/2018
[View new amendment >](#)

New amendment effective 1/1/2019
[View new amendment >](#)

Recently issued notices

- Agency Information Collection Activities: Comment Request; Correction [▶](#)
- Home Mortgage Disclosure (Regulation C) Temporary Increase in Institutional and Transactional Coverage Thresholds for Open-End Lines of Credit [▶](#)
- Agency Information Collection Activities: Comment Request [▶](#)
- Agency Information Collection Activities: Comment Request [▶](#)

Secure | <https://atf-eregs.18f.gov>

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Title XXVII Alcohol, Tobacco Products and Firearms

447	Importation Of Arms, Ammunition And Implements Of War	▶
478	Commerce In Firearms And Ammunition	▶
479	Machine Guns, Destructive Devices, And Certain Other Firearms	▶

Open Discussion

Thank you.