Open Source
LAWRENCE LIVERMORE NATIONAL LABORATORY
“Our large collection of software is a precious Laboratory asset, one that benefits both Lawrence Livermore, and in many cases, the public at large.”

- Bruce Hendrickson
  Associate Director, Computing
LLNL Open Source Presence

Repo Creation History

- Git Released [2003-04-07]
- GitHub Founded [2008-02-08]

Repositories

0 50 100 150 200 250 300 350 400 450 500 550 600 650 700


Added to GitHub
First Commit

software.llnl.gov/explore
LLNL Open Source Engagement

software.llnl.gov/explore
LLNL Open Source Activity

Activity Across All Repos [Default Branches, 1 Year]
LLNL Open Source Interaction with the World

software.llnl.gov/explore/dependencies
LLNL Open Source Popular Repositories

Repo Popularity by Stars

1. openzfs/zfs
2. spack/spack
3. mfem/mfem
4. LLNL/zfp
5. openzfs/openzfs
6. rose-compiler/rose
7. openzfs/spl
8. chaos/pdsh
9. chaos/diod
10. LLNL/RAJA

software.llnl.gov/explore/popular-repos/
2019 R&D 100 Award Winners

SCR caches checkpoint data in storage on the compute nodes of a Linux cluster to provide a fast, scalable checkpoint / restart capability for MPI codes. http://computing.llnl.gov/projects/sc...
LLNL Open Source Communication

Follow @LLNL_OpenSource

Official account for #OpenSource developed @Livermore_Lab. Managed by @IanLee1521.

Livermore, CA software.llnl.gov Joined March 2016

95 Following 754 Followers

https://llnl.slack.com
Websites

Pull Requests Welcome!
Open Source Policy & Guidelines (May 2019)

Releasing LLNL Software Under Open Source Licenses

Background

Much of the software that LLNL develops is intended for open release to users from any organization around the world. Building and sustaining open source communities around LLNL’s software and key external projects helps to establish LLNL leadership in mission-critical fields, increases the visibility of LLNL’s projects to potential users, and helps to broaden contributions to software projects of strategic interest to the laboratory. Exceeding the public release of LLNL software through open-source licenses via LLNL’s Software Catalog enables quick publication of the source code, easier transfer to end potential users, and continued engagement with outside developers who can submit code to help improve functionality.

This guideline is issued under the LLNL Open Source Licensing Policy and applies when and how LLNL employees may release LLNL software under open-source licenses.

Open Source Licensing Requirements

In order for any software project to be released under an open-source license, it must meet the following requirements:

1. The project must be on LLNL’s Designated Unclassified Subject Area (DUSA) or has been reviewed by a Designated Classifier as fully Unclassified, citing guides and topics to support this decision.
2. The proposed contribution does not raise export control concerns and contains no Unclassified Controlled Information (UOCI) information, Unclassified Controlled Nuclear Information (UCNI), etc.
3. Check with the Office of Classification and Export Control if in doubt, see https://oarc.llnl.gov/usclnt.html for more information
4. Each person who worked on the software project has signed an open-source software license agreement approved by the Innovation & Partnerships Office (IPO) (see text below for pre-approved IMs).
5. The software project (including future contributions) will be released under an open source software license approved by the Innovation & Partnerships Office (IPO) (see text below for pre-approved IMs).
6. Any contribution to the software released by LLNL employees, or all rights to release the code have been obtained, e.g. for international collaboration.
7. Any contributions in the software methods have been obtained, evaluated for patentability, and protected as appropriate (see https://oarc.llnl.gov/usclnt.html)
8. The LLNL development does not have an actual or perceived conflict of interest (see https://oarc.llnl.gov/usclnt.html)
9. The software does not contain code, data or methods that LLNL cannot publicly release. Examples include: Official Use Only information, test data that was obtained under confidentiality agreements, algorithms/methods that are patented by outside entities, etc.

This guide is not intended to be limited to only after a software project is completed. We encourage developers to start the review process in software before any code is written, to handle any issues with licensing the software as open source. As the code is developed, it can then be released immediately via the approved open-source licenses, for example as

Incremental Contributions to External Open Source Projects

Background

Many software projects that LLNL uses are developed in open source communities, where users from different organizations can submit code to fix bugs or improve functionality. LLNL employees often want to contribute to these software projects, so that changes that benefit LLNL (and other users) become part of the supported product. In addition, many software developers consider it a professional responsibility to contribute back to the open source projects they use.

The full LLNL software release process is designed for standalone projects where LLNL is the sole author or a major contributor. It does not account for incremental contributions to external projects. This Guideline is issued under the LLNL Open Source Licensing Policy and applies when and how LLNL employees may contribute to external projects without pursuing the full software release process.

Incremental Contribution Conditions

LLNL employees may contribute to external open source projects when all of the following conditions are met:

1. The project is on LLNL’s Designated Unclassified Subject Area (DUSA) or has been reviewed by a Designated Classifier as fully Unclassified, citing guides and topics to support this decision.
2. The proposed contribution does not raise export control concerns and contains no Unclassified Controlled Information (UOCI) information, Unclassified Controlled Nuclear Information (UCNI), etc.
3. Check with the Office of Classification and Export Control if in doubt, see https://oarc.llnl.gov/usclnt.html for more information
4. Each person who worked on the software project has signed an open-source software license agreement approved by the Innovation & Partnerships Office (IPO) (see text below for pre-approved IMs).
5. The open source project is licensed, and contributions will be released under a license approved by the Innovation & Partnerships Office (IPO) (see text below for pre-approved IMs).
6. No contributor agreement or other legal agreement is needed for the project or related to the contribution, or LLNL has already signed a contributor agreement that covers the contributions being made.
7. The proposed contributions are authorized solely by LLNL employees, or all rights to release the code have been obtained, e.g. for external collaboration.
8. The project is not in a subject area that the LLNL program management or the Innovation & Partnerships Office has identified as being significant to LLNL or national interests.
9. The LLNL developer does not have an actual or perceived conflict of interest (see https://oarc.llnl.gov/usclnt.html)
Open Source Policy & Guidelines (May 2019)

- **Releasing**
  - eSoftware: [esw.llnl.gov](http://esw.llnl.gov)
    - No more DVDs!
    - Getting ready for phase 2 development
  - Expedited Approvals
    - Specific broad subject areas
    - Not an “application” that could have IP value
    - Not part of a CRADA or other IP agreement
    - Sponsor provided blanket approval for OSS
      - Currently: NNSA ASC & DOE Office of Science
    - Approved open source license
      - MIT, BSD-3, LGPL-2.1, GPL-2.0 are easiest

- **Contributing**
  - Email to: [open-source-notify@llnl.gov](mailto:open-source-notify@llnl.gov)
  - Provide details about the project:
    - Unclassified? Export Controlled?
    - Funding source (sponsor) OK with open source?
    - Approved License?
    - Requires a CLA?
    - Conflict of Interest?
    - Business need?
    - Contributions are “incremental”?
Leave things better than you found them.

Thank You!

lee1001@llnl.gov