USGS Software Planning Checklist

Planning the details of your new software project is a great way to get started before you even write the first line of code. Use the table below as a checklist of all the steps needed for your software development project.

A category of software called “Scientific Software” is more specifically defined by the [USGS Instructional Memorandum on Scientific Software for Release](https://www.usgs.gov/about/organization/science-support/survey-manual/im-osqi-2019-01-review-and-approval-scientific). A column specific to Scientific Software has been added for clarity in complying with policy. To learn more about the Scientific Software IM and what is applicable, visit the Scientific Software Frequently Asked Questions (FAQs). A scientific software product may also be integral to or part of another USGS scientific information product or series publication (for example a USGS data release, an Open-File Report or Techniques and Methods series product), or an outside publication such as a journal article. (Refer to Software IM). For more information on USGS Data Release policies and best practices, refer to the [USGS Data Management Website](https://www.usgs.gov/products/data-and-tools/data-management).

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| **Steps** | **Description** | **Scientific Software** | **Other Software** |
| Develop source code using a repository | Use one of the accepted USGS Git hosting options. Refer to [Develop](https://www.usgs.gov/products/software/software-management/develop-software). | Recommended | Recommended |
| Organization | Select an appropriate location in a USGS Git hosting option to manage your project. Refer to [Develop](https://www.usgs.gov/products/software/software-management/develop-software). | Recommended | Recommended |
| Testing | Write your code such that unit tests can be performed to provide technical reviewers and yourself with a thorough and granular method to review the functionality of the code at any time. Refer to [Test](https://www.usgs.gov/products/software/software-management/testing-and-automation). | Recommended | Recommended |
| Metadata | Provide properly structured metadata to ensure software can be adequately discoverable and reusable. In complying with the [Federal Source Code Policy](https://code.gov/#/policy-guide/policy) please create a code.json file in the root of each software repository. Refer to [Distribute](https://www.usgs.gov/products/software/software-management/distribution-usgs-code). | **Required** | **Required** |
| Licenses | Use an open-source license (put a "LICENSE.md in the project root"). Refer to [Distribute](https://www.usgs.gov/products/software/software-management/distribution-usgs-code). | **Required** | **Required** |
| Disclaimers | Add an appropriate USGS software disclaimer. Refer to [Scientific Software](https://www.usgs.gov/products/software/software-management/additional-guidance-review-and-approval-scientific-software). | **Required** | Recommended |
| IPDS Record | Enter Scientific Software products into IPDS. Select Software Release as the product type and complete peer reviews before sending to Center Directors for approval.  Refer to [Scientific Software](https://www.usgs.gov/products/software/software-management/additional-guidance-review-and-approval-scientific-software). | **Required** | N/A |
| Digital Object Identifiers | Assign a Digital Object Identifier for publication and release. Refer to Scientific Software and [USGS Digital Object Identifier (DOI) Creation Tool](https://www1.usgs.gov/csas/doi/). | **Required** | N/A |
| Security Review | Obtain a security review to ensure personal, private, or otherwise sensitive information is not included in the repository. Refer to [Review](https://www.usgs.gov/products/software/software-management/types-software-review). | **Required** | **Required** |
| Functionality and Subject Matter Review | Request peer review as an official USGS product. Refer to [Review](https://www.usgs.gov/products/software/software-management/types-software-review). | **Required** | Recommended |
| Center Director Approval | Scientific Software requires formal Center Director (or delegated authority) approval in IPDS. | **Required** | Recommended |
| Repository for Official USGS Product Release | Maintain or submit authoritative source code for Scientific Software to an approved digital repository. [USGS OpenSource GitLab](https://code.usgs.gov/) is currently the only approved digital repository. Refer to [Develop](https://www.usgs.gov/products/software/software-management/develop-software). | **Required** | Recommended |
| Deploy code as an application (optional) | All applications must be [FITARA complian](https://prd-wret.s3-us-west-2.amazonaws.com/assets/palladium/production/atoms/files/FITARA%20Authorities%20Survey%20Manual%20Chapter.pdf)t. Follow best practices (refer to Deploy) when deploying and running code on a server as an application available to others. | Optional | Optional |