# Contributors Guide

Ghidra is an open source project. If you are interested in making it better,

there are many ways you can contribute. For example, you can:

- Submit a bug report

- Suggest a new feature

- Provide feedback by commenting on feature requests/proposals

- Propose a patch by submitting a pull request

- Suggest or submit documentation improvements

- Review outstanding pull requests

- Answer questions from other users

- Share the software with other users who are interested

- Teach others to use the software

- Package and distribute the software in a downstream community (such as your

preferred Linux distribution)

## Bugs and Feature Requests

If you believe that you have found a bug or wish to propose a new feature,

please first search the existing [issues] to see if it has already been

reported. If you are unable to find an existing issue, consider using one of

the provided templates to create a new issue and provide as many details as you

can to assist in reproducing the bug or explaining your proposed feature.

## Patch Submission tips

Patches should be submitted in the form of Pull Requests to the Ghidra

[repository] on GitHub. But first, consider the following tips to ensure a

smooth process when submitting a patch:

- Ensure that the patch compiles and does not break any build-time tests.

- Be understanding, patient, and friendly; developers may need time to review

your submissions before they can take action or respond. This does not mean

your contribution is not valued. If your contribution has not received a

response in a reasonable time, consider commenting with a polite inquiry for

an update.

- Limit your patches to the smallest reasonable change to achieve your intended

goal. For example, do not make unnecessary indentation changes; but don't go

out of your way to make the patch so minimal that it isn't easy to read,

either. Consider the reviewer's perspective.

- Before submission, please squash your commits to using a message that starts

with the issue number and a description of the changes.

- Isolate multiple patches from each other. If you wish to make several

independent patches, do so in separate, smaller pull requests that can be

reviewed more easily.

- Be prepared to answer questions from reviewers. They may have further

questions before accepting your patch, and may even propose changes. Please

accept this feedback constructively, and not as a rejection of your proposed

change.

## Review

- We welcome code reviews from anyone. A committer is required to formally

accept and merge the changes.

- Reviewers will be looking for things like threading issues, performance

implications, API design, duplication of existing functionality, readability

and code style, avoidance of bloat (scope-creep), etc.

- Reviewers will likely ask questions to better understand your change.

- Reviewers will make comments about changes to your patch:

- MUST means that the change is required

- SHOULD means that the change is suggested, further discussion on the

subject may be required

- COULD means that the change is optional

## Getting Started

Once available, please see the [developer's guide][devguide] for instructions to set up a suitable development environment.

## Timeline and Managing Expectations

As we continue to engage contributors and learn best practices for running a successful open source project, our processes

and guidance will likely evolve. We will try to communicate expectations as we are able and to always be responsive. We

hope that the community will share their suggestions for improving this engagement. Based on the level of initial interest

we receive and the availability of resources to evaluate contributions, we anticipate the following:

- We will initially prioritize pull requests that include small bug fixes and code that addresses potential vulnerabilities

as well as pull requests that include improvements for processor language specifications because these require a

reasonable amount of effort to evaluate and will help us exercise and revise our process for accepting contributions. In

other words, we are going to start small in order to work out the kinks first.

- We are committed to maintaining the integrity and security of our code base. In addition to the careful review the

maintainers will give to code contributions to make sure they do not introduce new bugs or vulnerabilities, we will be

trying to identify best practices to incorporate with our open source project so that contributors can have more control

over whether their contributions are accepted. These might include things like style guides and requirements for tests and

documentation to accompany some code contributions. As a result, it may take a long time for some contributions to be

accepted. This does not mean we are ignoring them.

- We are committed to integrating this GitHub project with our team's regular development work flow so that the open source

project remains dynamic and relevant. This may affect our responsiveness and ability to accept pull requests

quickly. This does not mean we are ignoring them.

- Not all innovative ideas need to be accepted as pull requests into this GitHub project to be valuable to the community.

There may be times when we recommend that you just share your code for some enhancement to Ghidra from your own

repository. As we identify and recognize extensions that are of general interest to the reverse engineering community, we

may seek to incorporate them with our baseline.

## Legal

Consistent with Section D.6. of the GitHub Terms of Service as of 2019, and Section 5. of the Apache License, Version 2.0, the project maintainer for this project accepts contributions using the inbound=outbound model.

When you submit a pull request to this repository (inbound), you are agreeing to license your contribution under the same terms as specified in [LICENSE] (outbound).

This is an open source project.

Contributions you make to this public U.S. Government ("USG") repository are completely voluntary.

When you submit an issue, bug report, question, enhancement, pull request, etc., you are offering your contribution without expectation of payment, you expressly waive any future pay claims against the USG related to your contribution, and you acknowledge that this does not create an obligation on the part of the USG of any kind.

Furthermore, your contributing to this project does not create an employer-employee relationship between the United States ("U.S.") Government and the contributor.

[issues]: https://github.com/NationalSecurityAgency/ghidra/issues

[repository]: https://github.com/NationalSecurityAgency/ghidra/

[devguide]: DevGuide.md

[LICENSE]: LICENSE