Documentation Policy

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1 Introduction

With movement towards smaller experiments, restricted funding streams, and shared software infrastructure, it is becoming more and more important for us to document the work we do. Documentation provides the project fund providers with evidence that progress is being made towards the goals, and permits them to use the information for our benefit. The purpose of this document is to define the type of work that needs to be documented and how the work will be documented. In other words, this document contains documentation requirements and where they apply. The requirements contained here are meant not only do help funders, but also to help us; they will better connect us with groups that do similar development and allow us to more quickly recall the work we've done.

The projects that this documentation policy directly applies are anything classified as R&D. Any projects directly associated with Field Work Proposals (FWPs), laboratory base funded projects, or other HEP program-related projects must take these requirements into account. Any common software infrastructure projects must also follow with requirements. Of course scientific research and research that is part of experiment collaboration effort does not apply. The work that this documentation policy applies to is listed in the following sections.

The documentation produced as a result of the requirements contains here must be available to people funding the projects according to the contained rules. Our assumption is that the viewers of this documentation will be friendly to our mission or at least neutral.

2 Content of Documents

2.1 Studies, prototypes, designs

Work of this type includes prototyping efforts and studies that help select algorithms, programming techniques, or system design parameters. It also applies to system analysis results, design proposals and decisions, and interface discussion and interfaces between software components. Studies include performance tests, simulations, and robustness tests. Anything that influences decisions necessary to move towards overall project goals must follow the requirements contained here.

The provided template for this document type is largely based on the ANSI Z39.18-2005 standard. Each step of a project requires documentation using this template. If a work is small, then the document will be short; submitting one page is fine as long as the relevant information is conveyed. The template contains instructions on what information belongs is the document sections.

Here are a few examples of small studies that have been carried out that need documenting:

- Work that was done to select and prototype the compression routine for the DarkSide-50 data.
- The CUDA/GPU multi-stream performance study.
- The early configuration and running of the artdaq event builder.

2.2 Project or study proposal

Sometimes it is necessary to clearly state the goals for a new project, especially when you are trying to get agreement from multiple people on what the project must accomplish. If you need to propose a new project, we have a *Vision and Goals* document template that can help organize your thought to help present your case to the people in charge. This is only needed if the project requires agreement or approval from multiple organizations.

2.3 User documentation

We will work to define a template for a user guide, reference manual, and quick-start guide (tutorial document).

Of initial importance are instruction sheets. Any set of rules needed to use a body of software or set up an environment for developing software must be documented. Wiki pages are appropriate for this type of document.

2.4 Conferences and journals

The study documents described in previous sections should be used as starting points or as input when creating documents for publication. The format and content of these publications should be prepared according to the rules of the conference or journal.

The following should be published:

- Completed software products (new or new reworked)
- Applied software engineering practices or programming techniques
- Significant results from our products or practices or analysis.

3 Home for documents

3.1 Internal

Documents that are not formal and are used to complete larger bodies of work fit into this category. All documents that are not for conferences and journals and are not Fermilab Technical Memos fit into this class. There are two classes of internal documents: public and private. Public just means that all viewers described in the introduction can see it and connect it with other work we've done. Private means work that is still being discussed or will be connected with published works that should not be made available yet.

There already is a home for these types of documents on the cdcvs.fnal.gov redmine site. Here are the rules for organization:

- It is acceptable to store the document source in a code repository (git or SVN). The redmine cet-is git repository is an appropriate spot. In addition, you must place the document on one of the two sites below.
- https://cdcvs.fnal.gov/redmine/projects/cet-is-public/documents - public documents go here.
- https://cdcvs.fnal.gov/redmine/projects/cet-is/documents - private documents go here.

The above sites are flat collections of documents. As these collections grow, we may need to rely more upon a hierarchical arrangement. In this case, attachments on wiki pages in cet-is-public and cet-is redmine projects will be more appropriate. In addition to placing documents on the document sites above, it might be appropriate to provide a link to a document from notes in the wiki from related material.

3.2 External

The information in the internal documents should be used to create more official publications. Conferences and journals should first be targeted. For other relevant bodies of work you should submit a Fermilab Technical Memo.

4 Conclusion

With the downsizing of the Fermilab program, it is necessary that we let others know about the work we do, within and outside of laboratory. Documenting our work will help achieve this goal. Documenting our work and publicizing it can also permit up to communicate better with external groups, which will help us to form new projects: finding new customers, adapting new low-level tools, or forming teams.