OPEN NAVIGATION SURFACE WORKING GROUP

MEETING SUMMARY

2019-10-16
Teleconference

FINAL VERSION
2019-12-28

1   Introduction

This document details the result of the meeting held on 2019-10-16 to continue development and maintenance of the library. The meeting was held through Zoom teleconference hosted by the University of New Hampshire, Center for Coastal and Ocean Mapping & NOAA-UNH Joint Hydrographic Center. The summary of all meetings and teleconferences of the Open Navigation Surface Working Group (ONSWG) can be obtained from the project's web-site, http://www.opennavsurf.org. For a list of participants, see section 4.

In the following, names of people with action items are shown in **BOLD SMALL CAPS**; expected deadline release dates are shown in red. Sizes of variables are indicated by 'U' for unsigned, 'S' for signed, 'F' for floating-point, and a size in bits (e.g., U8 is an eight-bit unsigned integer, F64 is a 64-bit (double precision) floating-point number). Data sizes are given in bytes (B) with the usual convention that the SI multipliers are taken to mean multiples of 2^{10}B (i.e., 1kB = 2^{10}B = 1024B). The acronym 'CR' means 'Candidate Release' (i.e., a release of the library for comments) and 'FR' means 'Full Release'.

2   Summary of Discussion

2.1   Prior Actions

The intersessional actions from the meeting (2019-03-20, US Hydrographic Conference 2019) were reviewed:

1. Movement to GitHub for the primary reference version of the repository. This is now complete, and appears to be working appropriately. The participants agreed that the BitBucket repository is no longer required.
2. Rice reported that an issue tracker for development priorities has now been established in GitHub, and should be the primary location for discussion in the future.
3. Some further actions were continued (see Section 3).

2.2   Current Development Work

Rice provided background on the current work being done to support NOAA's proposal for a metadata layer that supports composite BAG files (i.e., files assembled from multiple sources), which is being conducted by Teledyne CARIS. In addition to providing more frequent updates to the library, this is also developing testing strategies so that we have better coverage and infrastructure. This has been integrated into the GitHub project so that continuous integration and testing are being conducted.

2.3   New Development

The group discussed potential new development topics, looking for prioritization of topics. These included:

1. Different formats for storage of a grid's variable-resolution refinements, potentially as a means to provide for more efficient visualization. After some discussion, the group agreed that while it would be very useful to have a storage solution that would improve the speed of access to the refinements available, it would not be appropriate to add components (except potentially as an auxiliary layer) just to improve visualization. This reflects the original design decision of the BAG format to be a transfer mechanism, rather than (necessarily) a working format. **Masetti** suggested that this might be better to tackle in V 2.1 of the library, rather than the current development leading to V 2.0, so as not to add too many things at the same time. **Rice** suggested, however, that when we do make the change, doing everything at the same time might be more appropriate since it will likely break many things, but do so only once.
2. Tiling of refinements. One minimally invasive modification is to rebuild the internal implementation of the current refinement set, potentially using tiles as a means of spatially-optimized reads of smaller components of the field. The group agreed that this would bear further investigation, and **Rice**, **Paton**, **McGillvray**, **Adams**, and **Masetti** volunteered to pursue this idea, with **Rice** coordinating [**ACTION: RICE**].

3. Documentation. The code at present has base-level documentation, but none that is available for machine translation. The group agreed that use of doxygen was most commonly supported among the developers, should be adopted in the future for all new code, and added to all code being modified. [**Action: All**].

4. Unit Testing Framework. The library currently has no formal unit testing framework. The group discussed a number of options, including Google Test, Boost Test, and Catch2. There was no immediate consensus on which to choose, there being good and bad points to each. The group therefore agreed to address the decision through an e-mail vote [**Action: Calder**].

5. Minimum supported versions of development environments. There are a number of issues with supporting library compatibility if different compilers, interpreters, and/or language versions are used for different parts of the code base. In order to minimize these issues, the group agreed to standardize of at least Visual Studio 2015 for Windows, and Python 3.5 for interpreted code. [**Action: All**].

2.4   Community Standards

Masetti brought forward the suggestion that the group should consider developing a general agreement on how participants in the project work together, noting that this is common in many open source projects. **Calder** noted that the project has a prototype version of this through the Architecture Review Board proposed in the File Specification Document, but this has never been fully formalized or extensively developed. The group discussed the concept, and agreed with this suggestion in principle, offering to return to the question for the next meeting. [**Action: Calder**].

2.5   Conference Paper for the Project

It was noted that it is over a decade since the project last had a conference paper describing the library, its methods, and structure. The group agreed that sufficient change, and progress, has been made that this should be rectified at the first opportunity, and therefore that an abstract should be submitted for the Canadian Hydrographic Conference 2020 [**Action: Calder**]. The group also agreed that there might be potential to have a special session on open source projects in hydrography, should the conference organizers be interested [**Action: Calder**].

2.6   Separation Surfaces in BAG

Riley raised the question of the ability to preserve separation surfaces (i.e., between two datums) within the file in the new API under development. Byrne indicated that the current implementation is a regularly spaced grid, which could potentially do with some more metadata added. There seemed to be no reason, however, why this should not be preserved into the future. Paton agreed to look at the implementation, and verify that it is still valid [**Action: Paton**].

2.7   Relative Status of the File Specification Document and Code

The group discussed the current relative status of the File Specification Document (FSD) and the code base, noting that since the FSD often lags behind the code, in effect the code is the definition of a BAG, rather than simply being an implementation of the FSD. The group agreed that this is not the ideal situation and noted the hope that FSD 2.0 would resolve this situation. FSD 2.0 was previously agreed to be implemented via the Wiki element of the GitHub site for the project, an ongoing task.

3 Summary of Action Items and Dates

The following actions and dates were agreed:

Person	Actions(s)	Section	Date
Rice	Coordinate development of alternative mechanisms for implementation of refinement storage, and report.	2.3/2	2020-02-28
All	Use doxygen for all future and retro-fitted code documentation	2.3/3	N/A
Calder	Coordinate test framework vote by e-mail	2.3/4	2019-10-23
All	Use at least Visual Studio 2015 and Python 3.5	2.3/5	N/A
Calder	Schedule Community Standards document discussion for next meeting	2.4	2020-02-28
Calder	Submit abstract on project for CHC20	2.5	2019-10-21
Calder	Approach CHC20 organizers about special session	2.5	2019-10-30
Paton	Review separation surface implementation in new API	2.6	2020-02-28

4 Participants

Jeff Adams (Leidos)
Shannon Byrne (Leidos)
Brian Calder (CCOM/JHC)
Mike van Duzee (CARIS)
Barry Gallagher (NOAA)
Casiano Koprowski (NOAA)
Bill Lamey (CARIS)
Mark Paton (QPS)
Giuseppe Masetti (CCOM/JHC)
Glen Rice (NOAA)
Jack Riley (NOAA)