

OPEN NAVIGATION SURFACE WORKING GROUP

# MEETING SUMMARY

2018-10-02

Seventh International Conference on High-resolution Survey  
in Shallow Water (Shallow Survey 2018)

DRAFT VERSION

2018-11-06

## 1 Introduction

This document details the result of the meeting held at 1130 NDT on 2018-10-02 to continue development and maintenance of the library. The meeting was held in conjunction with the Seventh International Conference on High-resolution Survey in Shallow Water (Shallow Survey 2018), using facilities kindly arranged by Kim Thornhill of the Fisheries and Marine Institute of Memorial University of Newfoundland (the conference organizers). 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 NOAA Metadata Extensions

**Rice**, working on a project at NOAA to support bathymetric databases, proposed on behalf of the project to extend the current metadata structure of the BAG file to allow them to preserve metadata associated with segments of the data (i.e., which may come from different surveys, but are assembled together into an output BAG, for example as a database extract).

The proposition is for two components of extended metadata: a raster layer of codes (with a lookup table) one for each cell in the fixed-resolution layers, and a vector layer with format to be defined for components that might not correspond to a raster area (for example if there were overlapping areas). Neither of the extended layers would affect the current metadata, and would be implemented as optional layers in the HDF5 structure so that they could be safely ignored by any implementations that did not recognize them.

In discussion, **Lamey** suggested that it might be better to have multiple layers, one per attribute, rather than a composite raster layer with lookup, since this would avoid a second lookup action to translate the key into a set of parameters. The performance issues involved would have to be further investigated.

No other objections or friendly amendments being offered, the participants agreed to support the proposal, and recommended **Rice** coordinate a collaboration (with **Neville**, **Lamey**, and **Johnson** offering support) to implement and document, as required by the FSD. [ACTION: **Rice**].

### 2.2 Library Maintenance

#### 2.2.1 HDF5 Version

**Rice** pointed out that the version of HDF5 currently being used is older than is typically the case in other systems which might be used with the BAG library (e.g., within GDAL). This can lead to compatibility issues with libraries on some systems, and always leads to code bloat. The group considered consistency requirements (i.e., with their core software), but nobody raised an objection to upgrades to at least 1.10, or preferably higher. The only concern would be compatibility with the existing code, which needs to be investigated (**Rice**); upgrade and recompile can be managed at code release (**Calder**). [ACTION: **Rice**, **Calder**, **All**.]

#### 2.2.2 Encryption Library

In order to support digital signatures for BAG files, the library includes the BeeCrypt library. The version supported is largely out of date, however, and the development/maintenance of the library has essentially ceased. This lack of support makes it difficult to update, and makes use of the BAG library difficult for some sites due to security concerns.

A recent development supporting a variable-resolution to single-resolution conversion code supports optional compilation of BeeCrypt (due to security concerns in a known end-user); the general proposition, therefore, is to maintain this condition once this development branch is merged into the main branch.

The group concluded that although digital signatures were still a reasonable proposition, no-one had support for signatures within their codebase. Consequently, there was no objection to keeping the library optionally compiled, and off by default. The group agreed, however, that the project should attempt to replace the facility with an alternative library as available. [ACTION: **Calder**.]

### 2.2.3 Example Projects

The project has accumulated a number of more detailed example sub-projects beyond the core illustrative examples that simply read/write test files. Examples include the 3D viewer application, and the variable-resolution BAG converter. Although the group agreed that having more complex examples for how to use the library were beneficial, they are also difficult to support within the main repository for the library, and make maintenance more complex.

The group agreed, therefore, to separate the more complex examples from the core repository, and place them into auxiliary repositories aggregated together through a GitHub group [ACTION: **Masetti**.] The group also agreed to support better visibility for the repository group by providing links from the project website to the various repositories [ACTION: **Calder**.]

## 2.3 Continued Existence of the Library

**Rice** and **Greenaway** provided an update on the support for BAG within GDAL that NOAA funded. This provides more sophisticated support for BAG, including preliminary support for reading variable resolution components. This is expected to be rolled into GDAL 2.4.0, which should be released Q2/2019.

Given this support, the group discussed whether there was a requirement for a separate library to provide examples of how to read/write the BAG file. The group agreed that there could be many advantages in this approach, for example in maintenance and widespread support (most implementations, for example, use GDAL at some level). On balance, however, the group agreed that there was sufficient advantage in maintaining the library as a separate project to support continued development, at least for the time being.

The group discussed improvements to the library. Documentation, and specifically currency of documentation, has been a significant issue throughout the lifetime of the project. In previous discussion, a proposal had been made to convert the documentation from a Word document into a Confluence structure. On reflection, the group agreed that using the GitHub wiki associated with the main library repository would be a more useful alternative, since it was both open and readily updatable. [ACTION: **Calder**.]

Testing of the library has also been problematic, and has led to variant implementations of what should be a standard library. The group recommended that all of the tests used by the different implementations should be integrated if possible; **Calder** volunteered to host test datasets on the project website, but the vendors have to provide the tests. [ACTION: **All**.]

## 2.4 Licensing of the Library

There is currently no license associated with the library; when the repository was restricted to developers, this was acceptable. Since the repository is now public, **Rice** suggested that a license should be selected.

The group agreed, and discussed alternative licenses that might be considered. Although all agreed that GPL was unacceptable due to the inclusion clauses, there was no overall preferred open source license. A proposal of BSD was received, and accepted given that there are no further restrictions from the source libraries that would preclude it. [ACTION: **Rice**.] The library requires a copyright statement added, and the website needs to be updated to document this. [ACTION: **Calder**.]

## 2.5 Public Awareness, Messaging, and Branding

The library does not current show up at the top of searches, even if they are specific to the library. More visibility is preferable. The group discussed methods to improve matters, and recommended:

- a) Add a list of vendors to the website. All of the participants agreed to this in principle, but needed to seek appropriate levels of approval from their various chains of command. [ACTION: **All**.]
- b) Links to the repository could be provided on the project website, rather than just having snapshots of the library. This was discussed and agreed in Section 2.2.3.

- c) The name of the project could be modified so that “BAG” was more visible than “Open Navigation Surface”, and the repository moved to GitHub. This is implicit in sub-repository construction discussed in Section 2.2.3.

**2.6 Other Matters**

Further proposals to improve on details of the variable resolution implementation were made, but time for discussion was limited. These matters were therefore recommended for discussion either via e-mail on the development list, or deferred to the next meeting.

**3 Summary of Action Items and Dates**

The following actions and dates were agreed:

Person	Actions(s)	Section	Date
Rice	Coordinate development of NOAA metadata extension proposal	2.1	N/A
Rice	Confirm compatibility of HDF5 1.10	2.2.1	2019-03-19
Calder	Implement supported HDF5 library upgrade during library release	2.2.1	2019-03-19
Calder	Merge development branch for BeeCrypt optional compilation	2.2.2	2018-12-30
Masetti	Establish a GitHub group for the main and sub-repositories	2.2.3	2018-12-30
Calder	Provide links from project website to repositories.	2.2.3	2018-12-30
Calder	Convert FSD into GitHub wiki form.	2.3	2019-03-19
Rice	Ensure that no support library would preclude adoption of BSD license for the overall project	2.4	2019-02-28
Calder	Add license statement to project and website	2.4	2019-03-19
All	Determine whether company name can be displayed on the project website, and communicate to Calder for inclusion.	2.5	N/A

**4 Participants**

- Roland Arsenault (CCOM/JHC)
- Capt. Rick Brennan (NOAA)
- Shannon Byrne (Leidos) [Teleconference]
- Brian Calder (CCOM/JHC)
- Burns Foster (CARIS)
- Cdr. Sam Greenaway (NOAA)
- Stacey Johnson (NAVO) [Teleconference]
- Mark Paton (QPS) [Teleconference]
- Bill Lamey (CARIS)
- Giuseppe Masetti (CCOM/JHC)
- Danny Neville (QPS)
- David Parker (UKHO)
- Glen Rice (NOAA) [Teleconference]
- Jack Riley (NOAA) [Teleconference]
- Matt Thompson (NAVO)