Summary of 2017 FDSN WGII Meeting

1 August 2017. 12:00-13:30

Venue: IASPEI, Kobe

John Clinton, Chad Trabant, Reinoud Sleeman

WGII - Data Format, Data Centers and Software

1. Attendance list:

29 in attendance

Goran Ekstrom	Columbia University, USA
Jose Antonio Jara	ICGC, Spain
Bruce Beaudoin	PASSCAL, USA
John Clinton	ETHZ/SED, Switzerland
Fabien Engels	RESIF, France
Marc Grunberg	RESIF, France
Catherine Pequegnat	RESIF, France
Ruifeng Liu	Institute of Geophysics, CEA, China
David Jepsen	CTBTO
Wen-Tzong Liang	Institute of Earth Sciences, Academia Sinica, Taiwan
Seiji Tsuboi	JAMSTEC, Japan
Florian Haslinger	ETH, Switzerland
Mark Chadwick	GNS Science, New Zealand
Tormod Kværna	NORSAR, Norway
Reinoud Sleeman	ORFEUS/KNMI, Netherlands
Xyoli Pérez Campos	UNAM, Mexico
Chad Trabant	IRIS, USA
Yinshuang Ai	Institute of Geology and Geophysics, China Academy of Sciences, China
Adrienne Moseley	Geoscience Australia
Wanye Crawford	IPGP, France
Tim Ahern	IRIS, USA
Paul Drummond	Trimble/RefTek, USA
Vunganai Midzi	Council for Geoscience, South Africa
Atalay Ayele	Addis Ababa University, Ethiopia
Qi-Fu Chen	Institute of Geology and Geophysics, China Academy of Sciences, China

Peter Voss   GEUS, Denmark

Michelle Grobbelaar   Council for Geoscience, South Africa

Ulubey Ceken   AFAD, Turkey

Eren Tepengur AFAD, Turkey

Reinoud Sleeman chairman

2. Agenda:

• StationXML

pending issues, often very limited response; minor revisions vs major revision

• OBS White Paper Metadata (Wayne Crawford)

proposal to define standards for OBS (data, metadata, processing) and align these with FDSN standards

• Quality Control

proposal to define standard metrics of basic parameters - status

• Future of miniSEED (Next Generation format)

3. Discussion / Action Items:

StationXML

- Acceptance by WG2 to release a minor version update of StationXML (includes all accepted changes, e.g. DOI):
    - Persistent identifier element addition to StationXML
    - Unify response elements
    - Allow the Station::CreationDate element to be optional
    - Use xs:double type instead of xs:decimal type for ApproximationLowerBound
    - Include data availability elements described in the fdsn-station+availability-1.0.xsd extension schema as optional elements of the main schema.
    - Remove Storage Format from Channel
    - No more than one <Agency> element is permitted within <Operator>
    - Force UTC times in the StationXML being marked as UTC
- Acceptance by WG2 to work on a major revision of StationXML related to future developments of mini-SEED.

OBS

- During the discussion it was clear there was consensus that the current OBS proposal is not ready to adopt within StationXML. Many open questions remain, eg how to handle

drifts in timing (provide raw uncorrected data, or only corrected data using an (as yet not known) approved correction algorithm) and position.
- Recommendation by WG2 to involve OBS community in on-going discussions regarding the development of StationXML.
- Two specific items were discussed regarding miniSEED (later presented in detail in the WG5 meeting): the need for a high resolution sampling rate and the concept of a flag to identify data that is known to have a linear clock drift. These should be considered in next generation miniSEED developments.

Quality Control

- Shortly before the meeting, the EIDA QC document was sent to IRIS and feedback was requested from IRIS DMC. The DMC indicated that was not sufficient time to review the document, though if there were no significant changes from the previous version then they believe the definitions are consistent between EIDA and IRIS.
- EIDA and IRIS-DMC are (most likely) consistent in definitions and will deploy further testing by running implemented metrics on similar dataset
- It is expected that these QC parameters can be agreed as FDSN standard using mailing list within some months.

Future of mini-SEED

- IRIS stress there is an urgent need for a new format that better can support large N experiments, as well as other emerging needs (processed and synthetic datasets, non-seismic datasets). The existing MSEED2 has severe limitations on the number of available network, station, channel and location codes. A new version, MSEED3, needs to be developed to support support these already existing projects.
- The existing pace of developments (meetings, white paper) are moving too slowly from IRIS perspective. IRIS will begin developing and implementing a new miniSEED version that will meet its needs. IRIS will continue to accept positive input to improve the design and implementation.
- WG2 agrees to continue working on the Development Requirements Document/List of the new format. In an effort to ensure FDSN consensus regarding MSEED3 developments, the new chair and vice-chair will take over the white paper process, attempting to achieve consensus on a tighter list of recommendations, accelerated timeline, and shortened number of possible solutions.
- MSEED3 will be used for projects that requires the new format, expected within 1-2 years.
- MSEED3 should be supported via the standard FDSN services (implications on the services expected (WG3))
- MSEED2 will continue to remain an accepted FDSN standard
- WG2 recognise that a transition to MSEED3 will require more than just a format definition, it will require also: consistent changes to the station metadata (leading to changes to StationXML or indeed a new metadata format); proper documentation, akin to the MSEED manual, including full update on best practice for naming (Appendix A) reflecting the wider scope for MSEED3; software to convert between MSEED2 and MSEED3 data / metadata and support by a variety of equipment manufacturers and software producers.

3

4. Action items

1) Draft release 1.1 of StationXML with the 8 accepted changes and distributed to the working group for evaluation.
   Responsible: Trabant

2) Compare quality metrics from common data to verify that there is consistency between the EIDA and IRIS definitions and software.
   Responsible: EIDA

3) Compile a list of common requirements for next generation miniSEED
   Responsible: Clinton and Trabant

5. Addendum

The following decisions directly related to WG2 were taken outside the direct meeting:

1/ Reinoud Sleeman is replaced as Chair by John Clinton. Chad Trabant will take over as Vice-Chair. (Approved in FDSN Closing Plenary)
2/ It was agreed that QuakeML should become a format included under the remit of WG2 (decided in FDSN WG3 meeting)
3/ It was requested that WG2 explore standards for data provenance. (recommended in FDSN WG5 meeting)
4/ For all WG's, a plan (see Appendix A) was agreed to prepare for future FDSN meetings. This is only to coordinate efforts in a timely manner in advance of the regular meetings. Of course updates / agreements can be reached via the mailing list outside of the biennial meetings. (Approved in FDSN Closing Plenary)

Appendix: Strategy for Updating Products of Working Groups

- **6 months before meeting**: WG chair announces forthcoming meeting, describes activities under the remit of the WG (e.g. WGII: stationXML, mseed). Requests within 2 months any proposal for changes to any of the products (definitions, specifications, etc.).

- **3 months before meeting**: WG chair prepares list of requests, proposes changes / timeline / release type, starts request for comment for 1 month

- **1 month before meeting**: for each proposal, final text of changes to be voted on in meeting are released.

- **FDSN meeting**: assembly vote to approve changes (members not present can nominate a proxy)

- **within 3 months of meeting:** WG chair checks on the status of the implementation of approved changes.

- **Between meetings (2 years)**: for major issues intermediate dedicated meetings can be organized