FDSN Working Group 3

Coordination of Products, Tools and Services

2025 IASPEI

Lisbon, Portugal

Agenda

- Review of proposed agenda
- Ratification of 2023 minutes
- Review and status of past Action Items
- Proposal for new authentication method for FDSN services (in review)
- Overview of PSD-PDF harmonization effort
- Data manifest concept for large and asynchronous data access
- Review of outstanding web service specification issues
- Review of new Action Items

2023 Working Group 3 meeting minutes

Posted to: https://www.fdsn.org/wg/wgIII/

- Input requested on 28 July 2023, with a deadline of 1 September
- Feedback received and incorporated, changes were minimal

Process proposal:

- Continue to distribute draft minutes shortly after the meetings
- Request review with a 2-3 month deadline
- Assuming no objections, or major issues, following the deadline:
  - Chair and Vice Chair incorporate suggestions and approve
  - Working Group ratifies minutes at next meeting

Action Items 1/

Action Item (2019): Related to QoS standards. Once feedback had been incorporated, a Survey Monkey will be developed to get input from data centers as to the priority order that they should be implemented as QoS standards for the Federated System. **Responsible**: IRIS
Status: incomplete
Chair recommendation: drop

Action Item (2019): Standardisation of the required QA service API including request parameters, and is expected to be coordinated between IRIS and EIDA, those being the two Quality systems in operation at EIDA and IRIS.
Responsible: IRIS and EIDA
Status: partially in progress
Chair recommendation: recommend dropping or changing to reflect PSD/PDF harmonization

Action Item (2019): An action was proposed that after the QA service API has been defined, then look towards getting this into SeisComp3 assuming funding can be found. **Responsible**: FDSN
Status: not realizable
Chair recommendation: drop

Action Items 2/

Action Item (2019): When an EIDA proposal related to a new authentication system is ready it should be distributed to the WGIII for comments.
Responsible: EIDA
Status: **completed, proposal in review**

Action Item (2021): Data Center Registry, regarding how to best encourage registrations: Generate a message to be circulated by the FDSN via email, and specifically targeting coordinators in different regions, and potentially being translated into other languages.
A follow-on action may be to write an article to broaden awareness. Suggested journals were SRL and EOS. EOS in particular has a broad reach and support for multiple languages.
Responsible: WG Chair and FDSN Chair
Status: **incomplete**

Action Items 3/

Action Item (2021/2023)**:** Call for an ad hoc committee to investigate the potential for a standard to adopt or develop for JSON output from *fdsnws-event*. In 2023, this action was expanded to include: JSON output from *fdsnws-station*, and potentially other FDSN services.
Responsible: WG Chair
Status: initiated

Action Item (2023): Call for an ad hoc team to review the accumulated issues, draft changes and propose specification revisions for WG review.
Responsible: WG Chair
Status: incomplete, volunteers needed

Action Item (2023) Investigate MIME registration of StationXML and review of the description of the registration for miniSEED
Responsible: WG Chair
Status: completed

Proposal for a new authentication method

Javier Quinteros, GEOFON, GFZ Helmholtz Centre for Geosciences

Overview of PSD-PDF harmonization effort

Gillian Sharer, EarthScope Consortium

The manifest concept for data access

Chad Trabant, EarthScope Consortium

A manifest contains the location, type, and details of user selected data.

Manifest locations are envisioned to be used primarily for identifying data in storage systems that are directly accessible to users. For example, object-storage systems, either as direct object access or to data containers (zarr, tiledb, iceberg, etc.) at object-store prefixes.

Manifest example: miniSEED

(incomplete)


```
{
 "request_time": "2025-08-29T19:37:55.891250Z",
 "dataselect_params_list": [
   {
     "source": "merged", "repository": null,
     "starttime": "2024-10-02T06:30:00Z", "endtime": "2024-10-03T10:30:00Z",
     "network": "UW", "station": "Y*", "location": null, "channel": "HH*"
   }
 ],
 "contents": [
   {
     "type": "station_day_object",
     "source_id": "FDSN:UW_YACT__H_H_E",
     "edid": "01GVDXZPX5AMPVD7MMF84QV9JZ",
     "start": "2024-10-02T05:59:56.700000Z",
     "end": "2024-10-03T00:00:00.150000Z",
     "query_start": "2024-10-02T06:30:00Z",
     "query_end": "2024-10-03T10:30:00Z",
     "byte_count": 7876096,
     "object_path":
"s3://repository-stage-us-east-2-mlmoghi3ooss/miniseed/UW/2024/276/YACT.UW.2024.276",
     "object_version_id": "EDSVQqroyYijBQd1kaaeq7Mr3ug38buk",
     "offset": 29404672
   },
 ]
}
```

Manifest example: TileDB

```
{
 "type": "tiledb",
 "array_uri": "tiledb://foo/bar/array.tdb",
 "dimensions": ["source_id","time"],
 "domains": [
      ["FDSN:AA", "FDSN:ZZ"],
      [t0, t1],
 ],
}
```

Manifest example: mixed sources


```
[
 {
   "type": "station_day_object",
   "source_id": "FDSN:UW_YPT__H_H_Z",
   "edid": "01H46MV6003N93JR57H6GXKJC6",
   "start": "2025-08-29T00:00:00Z",
   "end": "2025-08-29T00:00:05.240000Z",
   "query_start": "2025-08-28T00:00:00Z",
   "query_end": "2025-08-29T13:00:00Z",
   "byte_count": 512,
   "object_path":
"s3://repository-prod-us-east-2-035e3gc5kiwt/miniseed/UW/2025/241/YPT.UW.2
025.241#1",
   "object_version_id": "mcssUTInAryod04sUlXFiqToS0Dsv8l6",
   "offset": 11264
 },
 {
   "type": "holding_db_request",
   "source_id": "FDSN:UW_YPT__H_H_Z",
   "edid": "01H46MV6003N93JR57H6GXKJC6",
   "start": "2025-08-29T00:00:05.240000Z",
   "end": "2025-08-29T13:00:00Z",
   "query_start": "2025-08-28T00:00:00Z",
   "query_end": "2025-08-29T13:00:00Z",
   "byte_count": null
 }
]
```

What does a manifest allow?

All discovery and access information steps except for the “download”

- Promotes direct access for analysis, no “download then read”
- Provide data locations that are not easily transmittable
- Provide data locations in multiple repositories and storage systems
- Parallel access
- Further selection of data based on returned information

Review of reported web service issues

From https://fdsn.org/webservices/:

The following project repositories should be used to report issues or suggestions for the specifications:

https://github.com/FDSN/WebServiceSpecificationCommonalities
https://github.com/FDSN/fdsnws-dataselect
https://github.com/FDSN/fdsnws-station
https://github.com/FDSN/fdsnws-event
https://github.com/FDSN/fdsnws-availability

Outstanding service specification issues

Specification	Open issues	“Easy” issues	Needing deeper consideration
Common features	9	7	2
fdsnws-dataselect	3	2	1
fdsnws-station	10	9	1
fdsnws-event	7	5	~2
fdsnws-availability	8	8	0

OpenAPI as replacement for WADL or recommendation

WebServiceSpecificationCommonalities/issues/4

Chair recommendation: adopt OpenAPI as the next API description specification.

Rationale: WADL is dead.
Use limited to ObsPy for optional feature discovery?

OpenAPI is the de facto standard for REST APIs

General authentication method for all services

WebServiceSpecificationCommonalities/issues/6

Summary: authentication method is currently supported by fdsnws-dataselect. Can this, or a more modern method, be allowed on any service?

Discussed in 2023 with no clear consensus.

The tension: FDSN promotes open access data. Specifying a method to restrict access to users with accounts adds a barrier to use. The need for accounts may be required by data centers for operational protection.

Extend the "format" request parameter

fdsnws-dataselect/issues/3

- format=miniseed => response is in miniseed v.2
- format=miniseed3 => response is in miniseed v.3
- (default = miniseed)

Challenges:

1) Does not allow mixed versions of miniSEED
2) Converting all data to (default) miniSEED v2 is inefficient and difficult

Queries that cross the international date line

fdsnws-event/issues/2
fdsnws-station/issues/2

Current specification is unclear on how to select geographic regions crossing the international date line. Many implementations fail to select such regions.

Suggested methods to address this include:

- rename or provide alternate parameters to **south**, **north**, **west**, **east**
- adopt the “bounding box” convention within the GeoJSON spec for dealing with antimeridian and poles

Clarify picks, station magnitudes, amplitudes

fdsnws-event/issues/7

The specification is underdefined regarding the inclusion of phase picks, station magnitudes and amplitudes.

Suggestions:

- clarify that **includearrivals=true** implies the inclusion of picks (as far as referred to by amplitudes) if they are available.
- new optional request parameter **includestationmagnitudes=true|false** controlling the addition of inclusion of station magnitudes, station magnitude contributions, amplitudes referred to by station magnitudes,, and picks (as far as referred to by amplitudes).

Other business

Review Action Items

Adjourn