Evolution of SeedLink
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History

Initial development and requirements at that time.

The SeedLink protocol was originally created at GEOFON/GFZ around 2000.

Version 3, the first widely used version of the protocol, was a result of the development within the MEREDIAN EC project under the lead of GEOFON/GFZ and ORFEUS/KNMI.

Later, a number of extensions to SeedLink v3 were added by GFZ and IRIS DMC.
Motivation for next generation development

Known limitations of existing SeedLink protocol

- Only miniSEED 2.x with 512-byte record length supported
- Protocol (SELECT) assumes fixed length location and channel codes
- 24-bit sequence numbers limit ringbuffer to 8 GB
- Station wildcards, capabilities, extended ERROR reply not standardized
- End-time not supported with DATA and FETCH, time-windowed requests not resumable
- Sub-second time resolution not supported in protocol commands
- Authentication not supported
Features added to next generation protocol

How limitations have been addressed

● New packet header allowing
  ○ Multiple payload formats (miniSEED 2, 3, etc.)
  ○ Variable length packets
● New SELECT syntax: delineated identifiers, wildcard “*” supported
● 64-bit sequence numbers
● Station wildcards, capabilities and error codes standardized
● New syntax of DATA and FETCH
  ○ including ISO8601-compatible date format with sub-second time resolution
● AUTH command added, options for user/password and token
Current status

Specification drafted in FDSN web format

Initial technical evaluation included:

- Prototype server
- Prototype libslink port
- Prototype JavaScript client
Work on libslink

The libslink library is a common foundation for many SeedLink clients. As part of prototyping work, libslink has been modified to support the v4 drafts (not quite up to date as of now).

Key points for future release

- Will supports both v3 and v4 seamlessly
- *Not* a drop-in replacement for previous releases, porting needed
- Many dependent clients will be updated when/if adopted (slinktool, slarchive, slink2ew, slink2orb)

The strategy: allow seamless upgrade for users of libslink-based programs
Outlook (assuming acceptance for review)

- Formal submission to FDSN as the new standard real-time protocol (now/September)
- Review process (September/October)
- Prototype server from GEOFON (September/October)
- Prototype libslink and slinktool client from IRIS DMC (September/October)
- Public release of the project repository and specifications (October/November)

Contact the WG chair if you are willing to engage in the review process!