PH5 Overview

PH5 is an HDF5 based format and accompanying software suite designed to efficiently work with a large variety of seismic and geophysical data. PH5 separates metadata and data within the PH5 container. This allows for quick and simple modifications and updates to metadata without a need to modify or touch any waveform data. PH5 provides integrated tools for validating and checking a data volume. The tools help ensure all necessary metadata are present before submitting for archival at the IRIS DMC. FDSN compliant webservice have been developed at the IRIS DMC to allow users to extract metadata and data from a PH5 volume. A new GUI application allows for easy editing and creation of metadata.

A: PH5 is a data format and software suite:
* Allows for ingesting a variety of data formats
* Metadata and Data separation
* Data is stored compressed in data arrays
* Outputs in community standard formats
* Accepted format by the IRIS DMC
* ~47,000 stations archived in PH5 at DMC to date
* Fast

B: PH5 GUI:
The new PH5 GUI is a single interface for editing, manipulating, viewing, processing and analyzing data in PH5. It allows a user to:
* Edit metadata
* Load responses
* Add/remove data
* Plot metadata
* Plot gathers and traces
* Write out in supported formats

Bode style plots
ASCII-Complex-spectra
ASCII-Frequency-amplitude phase
miniSEED, SAC, GeoCSV, SEG-Y
FDSN StationXML, Text
SAC
mseed
SEG-Y
NRL
SEG-D
RefTek
Nexus Overview

Nexus is an easy to use software tool to efficiently generate SEED metadata in StationXML format. Nexus is designed primarily for campaign-style temporary networks in that it exposes only a subset of metadata fields needed to create a valid StationXML document. Nexus leverages the IRIS Nominal Response Library (NRL) to streamline loading of responses into StationXML and reduces user input for standard response information. Nexus abstracts the details of SEED format and inspects miniSEED data to prepopulate many of the metadata fields.

A: Scan miniSeed on disk:
* Fast: 330MB in 0.24 seconds
* Most fields populated
* Defaults to typical conventions
* Write new .XML file

B: PH5 Seismic Data Container
C: PH5 Web Services:
The IRIS Data Management Center's PH5 web services provide FDSN compatible access to PH5 time series data and metadata at the IRIS DMC. The PH5 evaRESP and RESP web services provide a way to evaluate instrument response information.

Coming soon:
* Availability web service providing time series data availability
* SEG Y output from the dataselect web service, including shot gathers
* Higher performance station web service
* Inclusion of PH5 in the IRIS DMC's MUSTANG data quality metrics system

A: Ingest 1TB raw data in to PH5 in 1 hour
Data output ~180MB/S on SSD
Ingest 1TB raw data in to PH5 in 1 hour

Recent Advances to PASSCAL Software for Managing and Archiving Seismic Data

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Nexus and PH5 leverage ObsPy internally:
Core functionality of Nexus upstreamed to ObsPy
Use PH5, Nexus and ObsPy in your own projects
PR 1185 -SEED -> Inventory read support + NRL client: Main PR contributor: Lloyd Carothers. Largest single Obspy pull request. Adds SEED-Inventory reading, a client for response fetching from NRL and reading of RESP file format response