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Recent Advances to PASSCAL Software for Managing and Archiving Seismic Data

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IRIS PASSCAL continues to improve existing software as well as develop new software to aid the seismic community in efficiently archiving seismic data. Recent additions to the PH5 software suite and PH5 data format to streamline processing and increase efficiency were made in response to community feedback. IRIS PASSCAL has also released a new software application, NEXUS, in response to rising community need to more easily edit and generate StationXML and to simplify the data archiving process.
PH5 is a data format and accompanying software suite designed to efficiently work with a large variety of seismic and geophysical data (e.g. time-series data and associated meta-data). PH5 is built on HDF5 allowing for the efficient storage and access of large time-series data sets. Recent advances in the PH5 software suite allow for a faster, simpler, and more integrated approach to creating and working with a PH5 data volume. The new PH5 graphical, integrated environment allows users to create, load, edit, and view data and meta-data stored in PH5. Integrated tools also allow a user to validate a PH5 data volume before submitting it to the IRIS DMC. FDSN compliant webservices (station, dataselect, and event) allow users to extract station meta-data (StationXML, text, GeoCSV), data (miniSEED, SAC, GeoCSV), and event information (QuakeML, GeoCSV, text) from the PH5 data volume. The PH5 software suite also supports output in SEG-Y through a web page interface.
NEXUS is an easy to use software tool to efficiently generate SEED meta-data in StationXML format. NEXUS is designed primarily for campaign-style, temporary networks in that it exposes only a subset of meta-data fields needed to create a valid StationXML document. NEXUS leverages the IRIS Nominal Response Library (NRL) to streamline loading responses into StationXML and reduce user input for standard response information. NEXUS abstracts the details of SEED format and inspects MiniSEED data to populate many of the meta-data fields. NEXUS uses the community developed ObsPy python package and parts of NEXUS functionality have been contributed to ObsPy for community use in their own programs.