

An example of station TEST with complete information filled out. The XML is only complete for use when the Network line contains the word ‘true’ in the Response column. This means that all responses have been calculated for all stations (highlighted in red).

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# IRIS PASSCAL

## Q330 Data Processing with Nexus In a Nutshell

You’ve offloaded a service run and have stacks of multiplexed files. Now what to do with them? Start with organization and quality control (steps 1-5). Build the database (6-10) and the dataless (11-12). Then send the day volumes and dataless to PASSCAL (13). **Unix commands (bold print) and any command line arguments are highlighted in yellow.** Input files are denoted by *<filename>*. GUI options and menus are highlighted gray.

**1.** Start by creating a main directory for the project. Once the project directory is made, create a subdirectory within it for the raw data from your service run. For example: **mkdir service1\_RAW** If you used B14 balers copy the .sdr folders to this directory. If you used B44 balers, copy the BALER44 directory on the USB drive to your raw directory and rename it to reflect your station. **cp -rp /Volumes/BALER44 service1\_RAW/<stationName>** (The -p preserves the timestamp on the files). If your data used more than one USB drive you could call the second one *<stationName>*2.

**2.** Split the multiplexed files into station subdirectories. **dataselect** is an IRIS DMC program that allows for the extracting and sorting of miniseed data. This will read the data from the .sdr or B44 folders and convert them into day volumes with the accepted naming format. Use the following command line for B14:

**dataselect -A DAYS/%s.%n.%l.%c.%Y.%j <service1\_RAW>/\*.sdr/\***

Use this command for a B44:

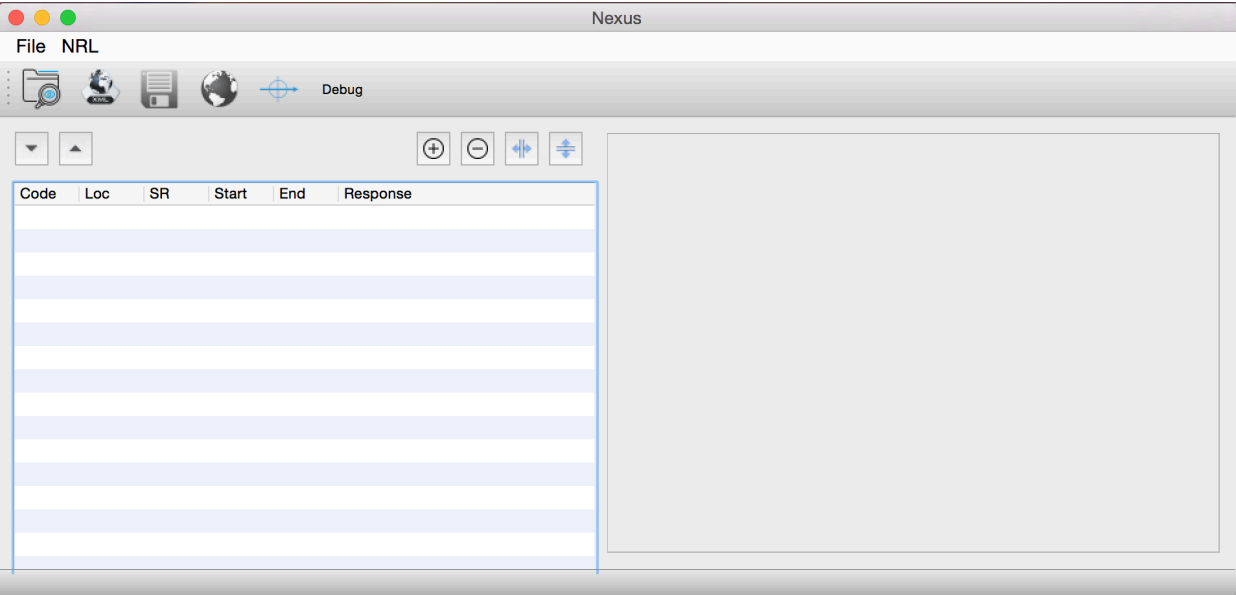
**dataselect -A DAYS/%s.%n.%l.%c.%Y.%j <service1\_RAW>/<stationName>\*/data/\***

(the ‘\*’ after station-name is a wildcard to grab both USB drives’ data) You may need to run **dataselect** in a loop that runs over the different days or stations in your experiment.

**3.** Verify the data quality by reviewing the traces and log files (with **qpeek** and **pql**). (see ‘Q330 State of Health (SOH) Channels’ at the web link on page 3 for more information). Obvious signs of trouble include loss of GPS timing, overlaps, gaps, corrupted files, etc. Make a note of any problems. Use **fixhdr** to correct any problem headers, mark timing issues, and/or to convert the files to big endianess if they aren’t already. For more information on how to use these tools and the Q330 State of Health (SOH) channels, refer to the Appendices at:

<http://www.passcal.nmt.edu/content/data-archiving/documentation/passive-source> and <http://www.passcal.nmt.edu/content/pql-II-program-viewing-data>

4. If you had to alter any of the header information with **fixhdr**, rename the day volumes so that the file names reflect the correct station-network-location-channel codes.
5. Use Nexus to create a stationXML for your experiment. Start by opening the Nexus GUI by typing **nexus** in a terminal window. This will bring up the Nexus GUI:



After opening Nexus, scan the miniseed files created by **dataselect** by either selecting the **Scan MiniSEED** button or going to **File > Scan MiniSEED**. Navigate to the DAYS folder created by **dataselect** and select **Open**.

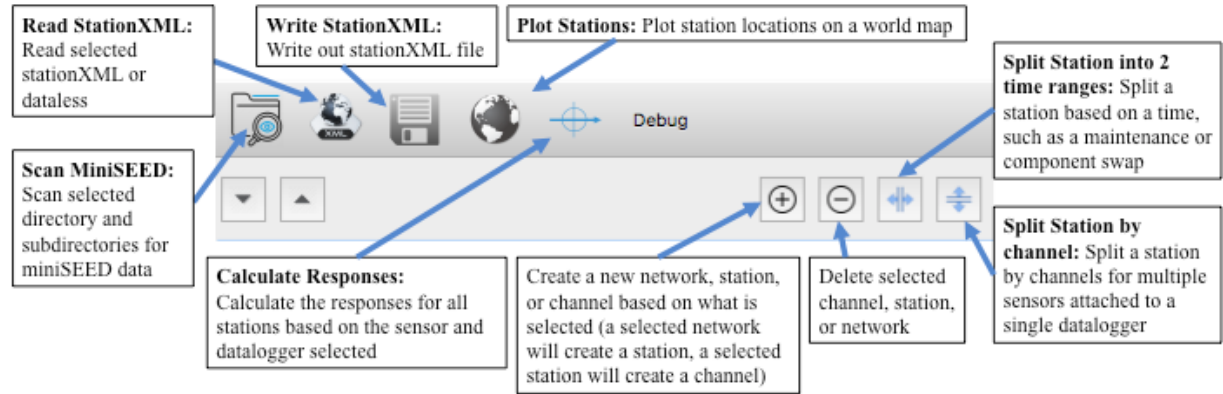
Select each station block and specify station location, datalogger and sensor type and serial numbers, datalogger gain, and station long name. Confirm that all stations listed are named correctly and have the correct channel names. If not, this can be fixed in **fixhdr**.

Once you have finished inputting all station level information including the datalogger and sensor types, select the **Calculate Responses** button. If the instrument information has been correctly populated for all stations, the values in the Response column will all change to “true”. Verify the station locations by selecting the **Plot Stations** button to bring up a map of the station locations.

After all values in the Response column are true and you have verified your station locations, select the **Write StationXML** button to save your stationXML file. Name the stationXML file with the network code, experiment name, and today’s date. For example:  
PI.PasscalTestNetwork.2018172.xml

6. Last step: Please drop a note to [data\\_group@passcal.nmt.edu](mailto:data_group@passcal.nmt.edu) before sending the data to PASSCAL so that we can set up a receiving area. Attach your stationXML to this email unless it is larger than 5Mb. You can use our tool **data2passcal** to automatically send the data:  
**data2passcal** <directory containing miniseed day volumes>

A few tips...  
...Coming soon...



Buttons in the main Nexus GUI. The Split Station buttons can be used to create new time epochs (for a service run that involved a sensor or datalogger swap) or separate out channels for a station with multiple sensors.

For a much more detailed processing guide, please see the PASSCAL document: “Generating SEED From Q330 Raw Data”, available from our web page:  
<http://www.passcal.nmt.edu/content/data-archiving/documentation/passive-source>