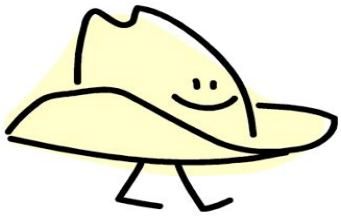
IRIS INSTRUMENT CENTER

IRIS PASSCAL

Program for Array Seismic Studies of the Continental Lithosphere



Texan Data Processing In a Nutshell

These abbreviated instructions show how to transform raw RT125 data into SEED format. Turquoise highlighting indicates a Unix command-line entry.

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1. Back up the entire raw dataset onto another disk.

2. Create & maintain an organized directory structure throughout these data processing steps. For example: mkdir raw, mkdir dayvol.

3. Convert the TRD files into miniseed:
trd2mseed –v –F list -2 –o mseed, where "list" is a text list of each raw data file by path & name, one per line, and "mseed" is the output directory created by *trd2mseed*.

4. Make timing corrections:
clockcor –m –d TC passcal.pcf *.m

5. Set trace headers to SEED format with fixhdr. Fixhdr can also be used to change endianess (big Endianess is required), and to set timing flags.

6. Create a dbbuild batch file - see example at right. The batch file contains the metadata which defines your network and station information. Name it whatever you like.

7. Build the Antelope database by giving it a short nickname and calling the batch file you just made:
dbbuild -b nickname batch.file >& dbbuild.out.

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#comment: This is an example batch file for 3 Texan sites.
net PI – PASSCAL Instrument Center

sta GC58 48.05695 -123.45808 0.731 Gold Creek, WA USA
time 07/06/2009 00:00:00
datalogger rt125 2250
sensor gs11 0 1
axis Z 0 180 - 1 32
samplerate 100sps
channel Z EHZ
add

sta GC59 48.05175 -123.45912 0.706 Gold Creek, WA USA
time 07/06/2009 00:00:00
datalogger rt125 3953
sensor gs11 0 1
axis Z 0 180 - 1 32
samplerate 100sps
channel Z EHZ
add

sta GC60 48.05422 -123.47149 0.727 Gold Creek, WA USA
time 06/20/2009 00:00:00
datalogger rt125 1770
sensor gs11 0 1
axis Z 0 180 - 1 32
samplerate 100sps
channel Z EHZ
add

close GC58 07/11/2009 23:59:59
close GC59 07/11/2009 23:59:59
close GC60 07/11/2009 23:59:59
```

8. View your database: `dbe nickname`. A GUI with several buttons will appear. Scroll through a few tables to be sure it's healthy. If you see problems, check the batch file for typos or omissions; repeat step 7 if necessary. At this point you have only a descriptive framework; the trace files are added next.

9. Add the waveforms to your database:
`miniseed2days –d nickname –w "dayvol/%{sta}/%{sta}.%{loc}.%{chan}.%Y.%j" mseed/ >& miniseed2db.out`. This long command line sorts & names the files by station, location, channel, and date. It then rewrites the files into station directories, and creates an important table in the database: the *wfdisc*. The wfdisc is the link between the data and the database.

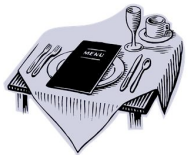
10. Assign calibration values to the freshly-made wfdisc with `dbfix_calib nickname`.

11. Verify the integrity of your data and database: `dbversdwf –tu nickname` A good result is: *0 bad files / 0 bad records.* Also run: `dbverify –tj nickname >& dbverify.out`. If you find errors, check the batch file for typos, omissions, or late start times. Rebuild the database if necessary.

12. Create the dataless SEED volume with the following naming convention:
`mk_dataless_seed –v –o NN.YY.nickname.YYYYJJJHHMM.dataless nickname`
Where: **NN** is your network code, **YY** is the year of your data, and **YYYYJJJHHMM** is the approximate *current* year-Julian date-hour-minute.

13. Verify the dataless: `seed2db –v NN.YY.nickname.dataless` (whatever you named it above).

Note: The *dataless* is the final manifestation of your metadata. It's like a menu, or an index, of the experiment, so that you & future users can see what files are available.* If any station or time range is missing from the dataless, the corresponding data will be orphaned - totally inaccessible by anyone.



If this should happen, you can fix the problem by finding & correcting the error in the batch file. Then make another database & create a new dataless. Revisions are less time-consuming *before* the traces have been linked in. This is why we always recommend that you inspect the database with 'dbe' before adding the traces in step 11.

***The dataless also serves as a means to determine actual ground motion via its instrument response information.**

14. Please drop a note to *data_group@passcal.nmt.edu* before sending the data to PASSCAL. We prefer you use `gui_DoFTP`. It will pack and send your files automatically, and trigger the automated system on our end to begin processing.

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A few tips…

- ☞ Many database errors can be avoided by rounding the start & close times to 00:00:00 and 23:59:59, respectively.
- ☞ Station changes, such as a new datalogger, sensor or sample rate, can be described in the batch file as shown by the examples in: `man dbbuild_examples`.
- ☞ For a more detailed processing guide, please see the PASSCAL document: **"Generating SEED From RT125 Data…"** available from: http://www.passcal.nmt.edu/content/data-archiving
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