MVO Procedures No. 26

Recovering missing seismic data

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This quick document describes two ways to recover any continuous data files missing from the seisan database from either the Winston Waverserver(s) or the Scream gcf files.

Automatic reports on any missing (continuous) data for the previous month are currently emailed to the seismologist and seismic technician on the 1st of every month.

1 Missing data files

If continuous data files are missing from the seisan database, then first check on the earthworm server in case there was simply an error in archiving or copying the data across by the *export_seisan* module. The active earthworm server share should be mounted as */mnt/earthworm0x/monitoring_data/rbuffers* on **piton** and **seisan**.

2 Recovering missing data from Winston Waveserver

If the continuous seismic data is still missing, it can, in the first instance, be attempted to be recovered from the Winston Waverserver. The main Winston Server hosted on **earthworm01** currently retains the last 40 days of data. Therefore any data reported as missing by the automatic emails should be recoverable, as long as it was initially imported into earthworm and thus into the Winston database.

The command to recover the data is the earthworm program *waveman2disk*, which can be run from **piton**. Because earthworm is not configured for the default shell (csh) on **piton**, first start a bash shell by typing *bash* at the command prompt. Then run waveman2disk. Note that it requires a config file to specified as an argument - you can either use the full path to the default file: */home/seisan/ew/run_mvo/params/waveman2disk.d* directly, or copy it to the local directory if you wish to make any changes.

IMPORTANT: Please, note that by default, the output directory for the newly created seisan files is: */home/seisan/ew/run_mvo/data/cont*

After creating the missing seisan files, in order to fix problems with the network (MAN → MVO) and channel (BH-Z → BHZ) codes, the seisan utility *wavfix* MUST be run. This can be

done for a list of files (i.e. for a filenr.lis created using *dirf*) or for individual files. Accept the default options for no time or polarity changes.

3 Recovering data from Scream gcf files

If there are missing seismic data files due to a problem with earthworm, the data can be recovered from the Scream GCF files, using the perl script *scream2rbuffer*, on either **piton** or **seisan**.

Simply run the script from the command line and enter the start and end date/times to be recovered.

However, there are currently (as of the date of this document) unresolved issues with Scream ceasing to record GCF data, despite appearing to continue running and functioning normally. So take care to note any error messages regarding missing channels when running *scream2rbuffer*.

4 Spiders

Due to a bug/issue with the *seiputaway.c* code used by *waveman2disk*, data from the MVO spiders is currently archived separately to the other continuous data channels. The data are now first archived to miniSEED format, before then being converted to seisan format (see more extensive notes on webobs). In order to recover any missing data files for these channels a separate script, *spider_winston2rbuffer* on **piton**, can be utilised. Note that this fetches the data from the Winston Waverserver running on the spider acquisition laptop directly, rather than the main Winston database. Simply run the script and specify a start time and file length (in seconds, normally 1200 for a standard 20 minute file):

Usage /home/seisan/bin/spider_winston2rbuffer: starttime (yyyymmddHHMMSS) duration (s)

However, because this is archiving to seisan format directly, it may encounter the same issues with the *seiputaway.c* routine, so check each created file carefully. If there are gaps, or channels ending ending halfway through the file, it may be preferable to create new miniSEED files and then convert these to seisan format. This can be easily achieved using *spider_winston2mseed* on **piton**, with the same syntax as the *spider_winston2rbuffer* script. Any miniSEED files that are created can then be converted to seisan format easily by running *mseed2seisan_local.sh*, which requires an input time to search for files to convert in the local directory:

usage: /home/seisan/bin/mseed2seisan_local.sh year month day [hour]

Note that correction of the network and channel codes using *wavfix* is already built-in to this script.

5 Summary

If in any doubt contact the seismologist ;-)