

SC2SEI
**Automatic transfer of phase readings and
waveforms from a SeisComp3 data base to a
SEISAN data base**

Version 1.14

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1	INTRODUCTION	5
2	MODIFICATIONS IN VERSION 1.14	6
3	INSTALLATION	7
3.1	STEP-BY-STEP installation of SC2SEI.....	7
4	HOW SC2SEI WORKS	9
4.1	Which mode to use and testing.	12
4.2	Starting sc2sei as a cron job.	12
5	PARAMETER FILES	14
5.1	Overview of parameter files.	14
5.2	sc2sei.par.....	14
5.3	sc2sei.cfg.....	15
6	UTILITIES STATIONHYP AND CRT_RESP	17
6.1	stationhyp	17
6.2	crt_resp	17
7	FILES IN DISTRIBUTION.....	18
8	REFERENCES	19
9	CONSOLE OUTPUT EXAMPLES.....	20

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Any questions or suggestions concerning the software can be sent to the email addresses on the front page.

1 INTRODUCTION

Within the seismological community one of the most popular data acquisition and automatic processing system is the SeisComp3(SC3) system (seiscomp3.org). The system is maintained by Gempa (gempa.de). The system has limited facilities for manual processing of events, so many people choose to transfer the data to the SEISAN analysis software for further processing (Havskov and Ottemöller (1999), www.seisan.info). However this is a slightly cumbersome task since the data manually has to be extracted out of the SC3 relational data base (based on date and time and component) and then manually inserted into the SEISAN data base.

The SC2SEI utility is an attempt to make a simple interface to automatically extract triggered and located events recorded by SC3 and store them in the SEISAN database complete with phase readings, locations and magnitudes as well as a corresponding extracted waveform file. Utilities are also included to extract station coordinates and response files, readable by SEISAN, from SC2SEI. The data in the SEISAN data base will then be ready for the operator for further processing.

SEISAN can also read the continuous data from the SC3 archive so manual extraction of events with SEISAN can be done as well as offline event detection, both using the SC3 archive. The combination SC3-SEISAN will then provide the user with a good system for both automatic and manual processing.

This version of SC2SEI must run on the same computer as the SC3 and SEISAN as utilities in both systems are used.

Any feedback will be appreciated.

2 Modifications in version 1.14

Earthmodel used is now extracted from the SC3 database. The Seisan s-files will now include the indicator D for distant (iasp91) or L for local if other model is used.

New input parameter -hid text: host-id. User can extract data from other host where SC3 is running. Assuming that user has access to this host. Default is localhost.

New parameter -sdbnam text: Name of SC3 database. Default is seiscomp3.

The manual/automatic indicator is extracted from the SC3 bulletin and inserted in the s-file.

The magnitudes, and corresponding amplitudes and periods, are extracted from the SC3 bulletin. In the SC3 bulletin 3 magnitudes are recognized and inserted in line type 1 in the s-file, if present. The corresponding amplitudes and period are stored on the phase lines

MLv	L
mb	b
mB	B

Weight from SC3 bulletin: 1.0 and 0.0 are set to "space" and "4" respectively in the s-file.

First motion from SC3 bulletin is set to C, D or blank in the s-file.

Agency is set to SC3 as default in the s-file

In line 1 in the s-file all events are set to D or L depending on the earth model used..

Three new command line options have been implemented:

-wav 1 (default: record both s-file and waveform)

-wav 0 record s-file only

-allcmp 1 (default: record all components specified in parameter file sc2sei.cfg)

-allcmp 0 record all components that have a phase reading.

-allcmp 2 as for option 0, but will also record components from same station with no phases.

The -allcmp 2 option is valid for Request, Continuous, Archive and Archive_ID mode.

-ID sc3-event-id create s-file and record waveform for this SC3 single event id.

The -man option is only valid for mode Request and Archives:

-man 0 (default: record all events, both automatic and manually processed)

-man 1 record all automatically processed events only

-man 2 record all manually processed events only

3 INSTALLATION

Pre-requisites:

SEISAN installed according to SEISAN documentation.

SC3 installed according to SC3 documentation.

Package libmysqlclient-dev must be installed.

3.1 STEP-BY-STEP installation of SC2SEI

STEP 1:

It is assumed there is a user account in where SC2SEI can be installed. If not or you want to use a separate account, first create a user account with a username and directory name. An account **seismo** will be used throughout this manual, but any account name will work.

Username: **seismo**

Password: selected by the user.

Making this account will create a home directory: /home/seismo.

Log into this account to start the installation.

STEP 2:

Copy the distribution tar file into your /home/seismo directory and extract the distribution files:

```
gunzip sc2sei_v1.14.tar.gz
```

```
tar -xvf sc2sei_v1.14.tar
```

A new directory SC2SEI will be created with the subdirectories:

bin	executables
par	parameter files
slinktool	modified version of the SC3 slinktool
src	sc2sei source files and Makefile

STEP 3:

Change to the SC2SEI directory and type:

```
make clean
```

```
make all
```

```
make install
```

The sc2sei re-compiled executable is now stored in the SC2SEI/bin directory.

NB! Include the environment variable SC2SEIS_TOP, ARCHIVE_TOP and PATH:

bash:

```
export SC2SEI_TOP=/home/yourdir/SC2SEI
```

```
export ARCHIVE_TOP=/archive-directory
```

```
PATH=/home/yourdir/SC2SEI/bin:$PATH
```

csh:

```
setenv SC2SEI_TOP /home/yourdir/SC2SEI
```

```
setenv ARCHIVE_TOP /archive-directory
```

```
set sc=(/home/yourdir/SC2SEI/bin)
```

```
set path=($path $sc)
```

The SC3 environment setting SEISCOMP_ROOT must be set to the installation directory of the SC3 unless already set during the installation of SC3. Example:

```
export SEISCOMP_ROOT=/home/yourdir/seiscomp3
```


4 How SC2SEI works

SC3 is often operated with both local and remote stations and will thus, in addition to triggering on local events, also trigger on distant events which might not be of interest for the local monitoring. SC2SEI has therefore implemented a latitude-longitude and magnitude window within which the event must occur to be transferred to SEISAN. The magnitude is the one defined as M in SC3. SC3 must be running for SC2SEI to work. To ensure this, SC2SEI enters a loop checking if SC3 is active. When SC3 is active, SC2SEI will continue.

The program can work in four different modes:

- **Request mode:** The program is started to extract events in a given time interval *-begin* to *-end*. Events are extracted from the Seedlink segments. When all events from this time window have been extracted, the program exits.
- **Continuous mode:** The program runs continuously to extract events shortly after an event has been processed by SC3. An input parameter, *-time*, tells the program how far back in time it should start to look for events. When all events up until current time have been transferred, the program will continue checking for new events every minute. When events up to current time have been extracted, the next waveform extract is delayed 90 seconds (can be changed in parameter file), plus post event time to ensure data availability.
- **Archive mode:** The program is started to extract events from a given time interval *-begin* to *-end* and the *-arc* option directs the program to extract the events from the continuous SC3 archives. When all events from this time window have been extracted, the program exits. To use this mode the user must ensure that archives are generated by SC3 (module slarchive must be running).
- **Archive ID mode:** The program is started to extract one event specified by the option *-ID idnumber* where idnumber can be found in for example the SC3 scolv display. To use this mode the user must ensure that archives are generated by SC3 (module slarchive must be running).

All modes will record both s-file and waveform by default.

The user can add the option *-wav 0* on all four modes to record only the s-files.

The user can add the option *-allcmp 0* on all four modes to record only components with phase readings and also *-allcmp 2* on all four modes to record components with picked phases but include components from same station without picked phases.

In all modes, the main tasks performed by SC2SEI are:

- Checks if the magnitude is within the range specified in the parameter file.
- Checks if the location is within the area specified in the parameter file.
- A waveform file (MiniSeed format) with the detected event is extracted from the SC3 segments or archives and stored in the SEISAN database, the S-file is created with the corresponding link to the waveform file. The SC3 segments and archives are normally several days or weeks long. This is configured in SC3.

SC2SEI does not transfer all SC3 parameters. Currently the following are transferred:

origin time, hypocentre, magnitudes and corresponding amplitudes and periods (MI, Mb and MB), number of stations used, residuals each p-phase reading, rms residual and all automatic p-phase readings.

As agency is not available in the SC3 bulletin, agency in the s-file is set to SC3.

In addition, the user must make his own SEISAN station and model file and the response files. The station and response files can be extracted from SC3 with an included utility while the model information must be provided by the user.

SC3 uses IASP91 model by default. SEISAN can also use IASP91, but then the distance indicator must be set to D.

SC2SEI command line arguments:

-time	n	hours to check back in time at startup. Note: <i>-time</i> cannot be used together with <i>-begin</i> and <i>-end</i> .
-arc	1	switch to extract data from archives
-u	username	username SC3 database
-p	password	password SC3 database
-hid	hostid	hostid database (default: localhost)
-sdbnam	SC3 database	SC3 database name (default: seiscomp3)
-begin	time1	format: "2012-01-28 10:30:00"
-end	time2	format: "2012-01-30 15:30:00"
-wav	1/0	1: record waveforms (default) and s-file. 0: do not record waveforms, only s-files
-allcmp	1/0/2	1: record all components specified in parameter-file (default) 0: record only components with phase readings. 2: as for option 0, but will record components from same station with no phase readings.
-ID	event-id	create s-file and extract the waveform for this SC3 event id

- The username and password must always be present.
- The *-time n* option will extract data from the n hours back in time until current time and continue checking for new events every minute. Data extracted from the Seedlink segments. Not allowed with *-arc*, *-begin* and *-end*.
- The *-arc 1* option will extract data from *-begin* to *-end* from the SC3 continuous data archive. Not allowed with *-time*.
- The *-begin time1 -end time2* will extract events from time1 to time2 and exit. The format must be as shown above (as for SC3).
- The *-wav* controls if the waveform is extracted into the SEISAN data base or not. Default is 1. If the option 0 is selected, no waveforms are extracted and the corresponding s-file do not include the type 6 line that specifies the filename.
- The *-allcmp* controls which components that are extracted. Default is 1, which means that all components specified in the parameter-file are extracted. A 0 will extract only components with phase readings. A 2 will as for option 0, but will also extract components from same station that have no phase readings. (2 is valid for Request mode, Continuous mode, Archive mode and Archive ID mode)
- If the *-arc 1* option is set, data are always extracted from the SC3 archives (normally big archives), otherwise from the SC3 segments (normally only some days storage).

Start `sc2sei`:

Request mode:

The command below will start `sc2sei`, look for events in the time window from *-begin* to *-end*, and it will log in to the database with the username *alfa* and password *beta*. Data is extracted from the Seedlink segment buffers. Then it will exit.

```
sc2sei -u alfa -p beta -begin "2012-01-28 10:30:00" -end "2012-01-30 15:30:00"
```

same as above, but only manually processed events:

```
sc2sei -man 2 -u alfa -p beta -begin "2012-01-28 10:30:00" -end "2012-01-30 15:30:00"
```

Continuous mode:

The command below will start `sc2sei`, look for events back in time 1 hour, extract data from Seedlink segment buffer, and it will log in to the database with the username *alfa* and password *beta*. Then continue checking for new events every minute.

```
sc2sei -time 1 -u alfa -p beta
```

Archive mode:

The command below will start `sc2sei`, look for events in the time window from *-begin* to *-end*, extract data from the SC3 continuous archives and exit.

```
sc2sei -arc 1 -u alfa -p beta -begin "2012-01-28 10:30:00" -end "2012-01-30 15:30:00"
```

same as above, but only automatically processed events:

```
sc2sei -man 1 -arc 1 -u alfa -p beta -begin "2012-01-28 10:30:00" -end "2012-01-30 15:30:00"
```

Archive ID mode:

The command below will start `sc2sei`, look for event id *gfz2015abcd*, extract data from the SC3 continuous archives and exit.

```
sc2sei -ID gfz2015abcd -u alfa -p beta
```

An example of continuous mode, no waveform recording:

sc2sei -time 1 -u alfa -p beta -wav 0

NB! -time cannot be used together with *-begin* and *-end*

4.1 Which mode to use and testing.

The user decides which mode to run the sc2sei depending on the tasks to be performed with the extracted data. Which mode that can be started will also depend on how the SC3 is configured. For example, if continuous archives are not generated, the *archive mode* and *archive ID mode* does not work. The time window of data to be extracted from the Seedlink segments (Request mode and Continuous mode) must be within the time window that are configured for the number of segments defined in SC3.

All modes will by default extract data into a SEISAN database called SC3__. If the user already uses this database name for other purposes and don't want data to be mixed or overwritten, the SEISAN database name must be changed in the sc2sei configuration file.

It is recommended that the user test the different actual options with a relatively small time interval, for example 2-5 days, before setting up a job to extract data for several months or years. This will give the user the possibility to check that the options works as wanted. This testing can be done in a few minutes while a long time interval can take hours.

It is also important to check the sc2sei.par file to verify that database name, magnitude limits and latitude, longitude are set to correct values.

4.2 Starting sc2sei as a cron job.

Cron jobs can be set up to run sc2sei. An example is shown below (edit the two files below to fit your installation):

cron_restart.bash

```
#!/bin/bash
#
MAILTO=""
PROCESS='sc2sei'
if ps ax | grep -v grep | grep $PROCESS > /dev/null
then
echo "SC2SEI running, EXIT"
exit
else
echo "$PROCESS is not running"
echo "start the process"
echo "Start $PROCESS !"
#echo "put in the start command here"
/home/yourdir/SC2SEI/par/start_sc2sei.bash &
fi
```

start_sc2sei.bash

```
#!/bin/bash
source /home/seisan-dir/COM/SEISAN.bash
export SEISCOMP_ROOT=/home/seiscomp3-dir/seiscomp3
export PATH=/home/seiscomp3-dir/seiscomp3/bin:$PATH
export LD_LIBRARY_PATH=/home/seiscomp3-dir/seiscomp3/lib:$LD_LIBRARY_PATH
export PYTHONPATH=/home/seiscomp3-dir/seiscomp3/lib/python:$PYTHONPATH
export MANPATH=/home/seiscomp3-dir/seiscomp3/share/man:$MANPATH
```

```
# Setup SC2SEI
export SC2SEI_TOP=/home/yourdir/SC2SEI
export ARCHIVE_TOP=/home/seiscomp3-dir/seiscomp3/var/lib/archive
PATH=/home/yourdir/SC2SEI/bin:$PATH
cd /home/yourdir
/home/yourdir/SC2SEI/bin/sc2sei -time 1 -u alfa -p beta &
```

Run `crontab -e` and add the following line to check every 2 minutes that `sc2sei` is running. If not running, it will be re-started.

```
*/2 * * * * /home/yourdir/SC2SEI/par/cron_restart.bash >/dev/null 2>&1
```

Edit the above to comply with your installation:

<code>yourdir:</code>	your account directory, for example <code>/home/seismo</code>
<code>seisandir:</code>	where SEISAN is installed, for example <code>/home/seismo</code>
<code>seiscomp3-dir:</code>	home directory for the SC3 installation, for example: <code>/home/sysop</code>

5 PARAMETER FILES

5.1 Overview of parameter files.

SC2SEI needs 2 parameter files as input:

sc2sei.par is used to configure sc2sei to look for events within a certain range of magnitude and geographical area.

It also specifies the name of the SEISAN database where the waveform and s-files are to be stored.

sc2sei.cfg is used for sc2seis to specify which station components are to be extracted from the Seiscomp3 archives.

5.2 sc2sei.par

This file is parameter file for SC2SEI.
Only the lines with recognized keyword under KEYWORD will be read.
The comments have no importance.
Columns Par 1-Par 2 start in columns 41,51.

All keywords in capital letters.

```
KEYWORD.....Comments.....Par 1.....Par 2
-----name of SEISAN database-----
DBASENAME      For SEISAN          SC3__
-----pre-event in seconds-----
PRE_EVENT      Pre-event (seconds)  60
-----post-event in seconds-----
POST_EVENT     Post-event (seconds) 240
-----seconds to sleep to finish processing-----
PROC_DELAY     Delay (seconds)      90
-----magnitude min-----
MAG_MIN        Minimum magnitude    2.0
-----magnitude max-----
MAG_MAX        Maximum magnitude    9.0
-----latitude min-----
LAT_MIN        Minimum latitude     -40.0
-----latitude max-----
LAT_MAX        Maximum latitude     -10.0
-----longitude min-----
LON_MIN        Minimum longitude    -80.0
-----longitude max-----
LON_MAX        Maximum longitude    -50.0
```

DBASENAME	SEISAN database name (up to 5 letters)
PRE_EVENT	Number of seconds to record before the SC3 origin time.
POST_EVENT	Number of seconds to record after the origin time.
PROC_DELAY	Number of seconds to sleep to finish processing
MAG_MIN	Minimum magnitude.
MAG_MAX	Maximum magnitude.
LAT_MIN	Minimum latitude.
LAT_MAX	Maximum latitude.
LON_MIN	Minimum longitude.
LON_MAX	Maximum longitude.

5.3 sc2sei.cfg

The sc2sei.cfg file specifies which stations and components to be extracted from the SC3 archives. The format is column specific:

The top line RECORD CHILE1 is just a header.

NW Network name

STAT Station name

LOC Location (no location is specified as ..)

CMP Component

```
RECORD CHILE1
NW STAT LOC CMP
CX PB01 .. BHZ
CX PB01 .. BHN
CX PB01 .. BHE
CX PB02 .. BHZ
CX PB02 .. BHN
CX PB02 .. BHE
CX PB03 .. BHZ
CX PB03 .. BHN
CX PB03 .. BHE
CX PB04 .. BHZ
CX PB04 .. BHN
CX PB04 .. BHE
CX PB05 .. BHZ
CX PB05 .. BHN
CX PB05 .. BHE
CX PB06 .. BHZ
CX PB06 .. BHN
CX PB06 .. BHE
CX PB07 .. BHZ
CX PB07 .. BHN
CX PB07 .. BHE
CX PB08 .. BHZ
CX PB08 .. BHN
CX PB08 .. BHE
CX PB09 .. BHZ
CX PB09 .. BHN
CX PB09 .. BHE
CX PB10 .. BHZ
CX PB10 .. BHN
CX PB10 .. BHE
CX PB11 .. BHZ
CX PB11 .. BHN
CX PB11 .. BHE
CX PB12 .. BHZ
CX PB12 .. BHN
CX PB12 .. BHE
CX PB14 .. BHZ
CX PB14 .. BHN
CX PB14 .. BHE
CX PB15 .. BHZ
```

CX	PB15	..	BHN
CX	PB15	..	BHE
CX	PB16	..	BHZ
CX	PB16	..	BHN
CX	PB16	..	BHE
CX	MNMCX	..	BHZ
CX	MNMCX	..	BHN
CX	MNMCX	..	BHE
CX	PATCX	..	BHZ
CX	PATCX	..	BHN
CX	PATCX	..	BHE
CX	PSGCX	..	BHZ
CX	PSGCX	..	BHN

6 Utilities stationhyp and crt_resp

6.1 stationhyp

This routine extracts the station name, latitude, longitude and elevation from the SC3 inventory database. The values are converted into SEISAN format and can be used directly in the STATION0.HYP file. It is recommended to run the routine from a working directory and then edit the STATION0.HYP file and include stations from the stationhyp.txt generated.

6.2 crt_resp

This is a script stored in the SC2SEI directory that will use different routines from SC3 to produce response files that can be used directly in SEISAN.

It is recommended that you start the script from a working directory to check the files before transferring them to the CAL directory in SEISAN. Files can be checked with the SEISAN presp program.

Start the script from for example /home/seismo/TESTING

```
cd /home/seismo/TESTING
```

/home/seismo/SC2SEI/crt_resp alfa beta where alfa and beta is SC3 database username and password respectively.

The script will generate response files for all stations defined in the SC3 database.

```
RESP.CX.PB01..BHZ  
RESP.NU.ESPN..HHN  
etc.
```

7 Files in distribution

SC2SEI/Makefile	Makefile for all source codes
SC2SEI/crt_rest	script to create response files
SC2SEI/bin/sc2sei	executable of SC2SE
SC2SEI/bin/getwindow	executable of modified slinktool. Does not reconnect after timeout.
SC2SEI/bin/stationhyp	executable of routine to create SEISAN station file
SC2SEI/par/sc2sei.cfg	configuration file
SC2SEI/par/sc2sei.par	parameter file
SC2SEI/par/cron_restart.bash	cron file
SC2SEI/par/start_sc2sei.bash	file to start SC2SE from cron file
SC2SEI/slinktool/libslink	original seedlink library files needed for getwindow
SC2SEI/slinktool/src	source slinktool and getwindow
SC2SEI/src	source code for sc2sei
SC2SEI/src	source code for stationhyp
SC2SEI/src	mybulletin.py

8 REFERENCES

Havskov, J and L. Ottemøller (1999). SEISAN earthquake analysis software. *Seismological Research letters*, 70, 532-534. For current version see seisan.info.

Seiscomp3, Gempa, Potsdam, Germany. See www.seiscomp3.org

9 Console output examples

CONTINUOUS MODE

Start `sc2sei` in continuous mode and look for data 18 hours back in time

```
sc2sei -time 18 -u alfa -p beta
seedlink: not running.....wait.... SC3 not active, wait until started
seedlink: not running.....wait....
seedlink: not running.....wait....
seedlink: 3467 running, continue
code 7
Contin. mode: Extract from segments n hours back in time. Waveforms. All components.
SC2SEI: SEISCOMP_ROOT.....: /home/seismo/seiscomp3
SC2SEI: SEISAN_TOP.....: /home/seismo/snew
SC2SEI: SC2SEI.....: /home/seismo/SC2SEI
SC2SEI: ARCHIVE.....: /home/seismo/seiscomp3/var/lib/archive
SC2SEI: Read_Parameters.....: /home/seismo/SC2SEI/par/sc2sei.par
SC2SEI: PRE_EVENT.....: 60 seconds
SC2SEI: POST_EVENT.....: 180 seconds
SC2SEI: PROC_DELAY.....: 90 seconds
SC2SEI: LAT_MIN.....: -40.00
SC2SEI: LAT_MAX.....: -4.00
SC2SEI: LON_MIN.....: -80.00
SC2SEI: LON_MAX.....: -50.00
SC2SEI: MAG_MIN.....: 2.00
SC2SEI: MAG_MAX.....: 9.00
SC2SEI: DBASENAME.....: SC3__
SC2SEI: WAVEDIR.....: /home/seismo/snew/WAV
***** Read sc2sei *****
SC2SEI: Read_Config_to_MEM.....: /home/seismo/SC2SEI/par/sc2sei.cfg
number of lines in parameter file: 57
Mode: Continous
```

Check for event id in time interval

```
Setting start to 2015-10-28 19:41:37
Setting end to 2015-10-29 13:41:37
Extract ID: gfz2015vdqa after sleeping 90 seconds
```

Output from SC3 database

```
0 Event:
1   Public ID          gfz2015vdqa
2   Description
3     region name: Northern Chile
4 Origin:
5   Date              2015-10-28
6   Time              19:45:04.5 +/- 1.0 s
7   Latitude          -23.26 deg +/- 6 km
8   Longitude         -69.27 deg +/- 13 km
9   Depth             62 km +/- 11 km
10  Agency            AA
11  Mode              automatic
12  Status            NOT SET
13  Residual RMS      0.57 s
14  Azimuthal gap     215 deg
15
16 2 Network magnitudes:
17   MLv      5.06 +/- 0.20  12
18   M        5.06          12 preferred
19
20 14 Phase arrivals:
21   sta net cmp dist azi toang phase time res wt sta loca
22   PB15 CX BHZ 0.2 284 0.0 P 19:45:15.4 0.0 A 1.0 . PB15
23   PB06 CX BHZ 0.6 333 0.0 P 19:45:18.7 -0.5 A 1.0 . PB06
24   PB05 CX BHZ 1.0 295 0.0 P 19:45:22.2 -0.1 A 1.0 . PB05
25   PB10 CX BHZ 1.2 257 0.0 P 19:45:25.5 0.0 A 1.0 . PB10
26   PB04 CX BHZ 1.2 318 0.0 P 19:45:25.8 0.1 A 1.0 . PB04
27   PB03 CX BHZ 1.3 340 0.0 P 19:45:26.8 0.3 A 1.0 . PB03
28   PB07 CX BHZ 1.6 339 0.0 P 19:45:31.4 0.3 A 1.0 . PB07
29   PB14 CX BHZ 1.7 217 0.0 P 19:45:32.2 0.1 A 1.0 . PB14
30   PB02 CX BHZ 2.0 343 0.0 P 19:45:36.9 0.6 A 1.0 . PB02
31   PB01 CX BHZ 2.2 355 0.0 P 19:45:39.6 0.7 A 1.0 . PB01
```

```

32  HMBCX CX BHZ 3.0 349 0.0 P 19:45:49.7 -0.2 A 1.0 . HMBCX
33  PB08 CX BHZ 3.1 2 0.0 P 19:45:51.7 0.6 A 1.0 . PB08
34  PB11 CX BHZ 3.5 354 0.0 P 19:45:56.0 -0.5 A 1.0 . PB11
35  PSGCX CX BHZ 3.7 348 0.0 P 19:45:58.1 -1.6 A 1.0 . PSGCX
36

```

37 14 Station magnitudes:

sta	net	cmp	dist	azi	type	value	res	time	amp	per
38	PB15	CX	BHZ	0.2	284	MLv	4.40	-0.66	2015-10-28 19:45:26.469	360.98
40	PB06	CX	BHZ	0.6	333	MLv	4.92	-0.14	2015-10-28 19:45:31.419	118.315
41	PB05	CX	BHZ	1.0	295	MLv	4.75	-0.31	2015-10-28 19:45:37.819	53.2659
42	PB10	CX	BHZ	1.2	257	MLv	5.15	0.08	2015-10-28 19:45:47.149	94.0489
43	PB04	CX	BHZ	1.2	318	MLv	4.91	-0.15	2015-10-28 19:45:49.519	53.0053
44	PB03	CX	BHZ	1.3	340	MLv	4.90	-0.16	2015-10-28 19:45:49.269	48.6762
45	PB07	CX	BHZ	1.6	339	MLv	4.90	-0.17	2015-10-28 19:46:04.569	30.7757
46	PB14	CX	BHZ	1.7	217	MLv	5.41	0.35	2015-10-28 19:46:00.494	90.7636
47	PB02	CX	BHZ	2.0	343	MLv	5.24	0.18	2015-10-28 19:46:11.919	41.615
48	PB01	CX	BHZ	2.2	355	MLv	4.92	-0.14	2015-10-28 19:46:14.019	15.2115
49	HMBCX	CX	BHZ	3.0	349	MLv	5.35	0.28	2015-10-28 19:46:42.350	14.473
50	PB08	CX	BHZ	3.1	2	MLv	5.00	-0.06	2015-10-28 19:46:17.419	5.84834
51	PB11	CX	BHZ	3.5	354	MLv	5.40	0.34	2015-10-28 19:47:03.549	8.92896
52	PSGCX	CX	BHZ	3.7	348	MLv	5.33	0.27	2015-10-28 19:47:17.150	6.22662

```

53
SC2SEI:.fullpath and filename: /home/seismo/snew/WAV/SC3___/2015/10/2015-10-28-1944-04.SC3___
SC2SEI:.waveform directory...: /home/seismo/snew/WAV/SC3___/2015/10
buffer: 10-29-2015 13:43:07.

```

Extracting waveform data. Some components no data and program get timeout

```

TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
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TUMOD Timeout. No data for 1 second, try next channel
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TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel

```

```

0 gfz2015vdqa
1
2
3
4
5
6
7
8
9

```

New event

Extract ID: gfz2015vdri after sleeping 90 seconds

```

0 Event:
1   Public ID           gfz2015vdri
2   Description
3     region name: Northern Chile
4 Origin:
5   Date                2015-10-28
6   Time                20:25:29.9 +/- 1.1 s
7   Latitude            -22.62 deg +/- 5 km
8   Longitude           -68.87 deg +/- 9 km
9   Depth               10 km
10  Agency              AA
11  Mode                automatic
12  Status              NOT SET
13  Residual RMS        2.22 s
14  Azimuthal gap       229 deg
15

```

16 2 Network magnitudes:

```

17  MLv 2.70 +/- 0.34 10
18  M 2.70 10 preferred
19

```

20 14 Phase arrivals:

sta	net	cmp	dist	azi	toang	phase	time	res	wt	sta	loca	
21	PB06	CX	BHZ	0.7	262	0.0	P	20:25:45.4	2.4	A	1.0	. PB06

```

23 PB15 CX BHZ 0.8 223 0.0 P 20:25:42.6 -3.1 A 1.0 . PB15
24 PB03 CX BHZ 1.0 305 0.0 P 20:25:46.2 -2.8 A 1.0 . PB03
25 PB04 CX BHZ 1.2 283 0.0 P 20:25:54.5 2.2 A 1.0 . PB04
26 PB05 CX BHZ 1.3 259 0.0 P 20:25:55.1 2.3 A 1.0 . PB05
27 PB07 CX BHZ 1.3 313 0.0 P 20:25:50.7 -2.7 A 1.0 . PB07
28 PB02 CX BHZ 1.6 324 0.0 P 20:25:57.8 -0.2 A 1.0 . PB02
29 PB01 CX BHZ 1.7 340 0.0 P 20:25:55.8 -3.1 A 1.0 . PB01
30 PB10 CX BHZ 1.8 240 0.0 P 20:26:08.2 7.6 AX 0.0 . PB10
31 PB14 CX BHZ 2.5 215 0.0 P 20:26:19.2 9.4 AX 0.0 . PB14
32 PB08 CX BHZ 2.5 354 0.0 P 20:26:12.1 1.8 A 1.0 . PB08
33 HMBCX CX BHZ 2.5 338 0.0 P 20:26:10.8 -0.0 A 1.0 . HMBCX
34 PB11 CX BHZ 3.0 345 0.0 P 20:26:18.5 1.9 A 1.0 . PB11
35 PSGCX CX BHZ 3.2 339 0.0 P 20:26:21.9 1.3 A 1.0 . PSGCX

```

```

36
37 12 Station magnitudes:
38 sta net cmp dist azi type value res time amp per
39 PB06 CX BHZ 0.7 262 MLv 1.92 -0.78 2015-10-28 20:26:06.769 0.113909
40 PB15 CX BHZ 0.8 223 MLv 2.42 -0.28 2015-10-28 20:26:24.019 0.29509
41 PB03 CX BHZ 1.0 305 MLv 2.08 -0.62 2015-10-28 20:26:20.269 0.106647
42 PB04 CX BHZ 1.2 283 MLv 2.77 0.07 2015-10-28 20:27:21.419 0.392509
43 PB05 CX BHZ 1.3 259 MLv 2.45 -0.25 2015-10-28 20:27:39.069 0.180837
44 PB07 CX BHZ 1.3 313 MLv 2.50 -0.20 2015-10-28 20:27:17.869 0.191774
45 PB02 CX BHZ 1.6 324 MLv 2.95 0.24 2015-10-28 20:27:24.469 0.356159
46 PB01 CX BHZ 1.7 340 MLv 2.52 -0.18 2015-10-28 20:27:37.819 0.122708
47 PB08 CX BHZ 2.5 354 MLv 2.79 0.09 2015-10-28 20:27:20.819 0.0804687
48 HMBCX CX BHZ 2.5 338 MLv 3.22 0.52 2015-10-28 20:27:56.699 0.206196
49 PB11 CX BHZ 3.0 345 MLv 3.32 0.61 2015-10-28 20:28:00.649 0.150248
50 PSGCX CX BHZ 3.2 339 MLv 3.32 0.62 2015-10-28 20:27:37.899 0.104494
51

```

```

SC2SEI:.fullpath and filename: /home/seismo/snew/WAV/SC3___/2015/10/2015-10-28-2024-29.SC3___
SC2SEI:.waveform directory...: /home/seismo/snew/WAV/SC3___/2015/10
buffer: 10-29-2015 13:45:12.

```

No data, timeout

```

TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel

```

- 0 gfz2015vdqa
- 1 gfz2015vdri
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

New event

Extract ID: gfz2015vdrv after sleeping 90 seconds

```

0 Event:
1   Public ID           gfz2015vdrv
2   Description
3     region name: Northern Chile
4 Origin:
5   Date               2015-10-28
6   Time               20:39:32.7 +/- 0.5 s
7   Latitude           -21.75 deg +/- 3 km
8   Longitude          -69.33 deg +/- 6 km
9   Depth              10 km
10  Agency              AA
11  Mode                automatic
12  Status              NOT SET
13  Residual RMS        2.60 s
14  Azimuthal gap       179 deg
15

```



```

TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
TUMOD Timeout. No data for 1 second, try next channel
0 gfz2015vdqa
1 gfz2015vdri
2 gfz2015vdrv
3 gfz2015vezt
4
5
6
7
8
9

```

No data to extract, check every minute

```

Setting start to 2015-10-29 13:48:46
Setting end to 2015-10-29 13:53:46

```

REQUEST MODE

Extract events in given time interval from segments

```

rt>sc2sei -u sysop -p sysop -begin "2015-10-28 20:00:00" -end "2015-10-28 23:00:00"
seedlink: 6620 running, continue
code 27
Request mode: Extract from segments. Waveforms. All components.
SC2SEI: SEISCOMP_ROOT.....: /home/seismo/seiscomp3
SC2SEI: SEISAN_TOP.....: /home/seismo/snew
SC2SEI: SC2SEI.....: /home/seismo/SC2SEI
SC2SEI: ARCHIVE.....: /home/seismo/seiscomp3/var/lib/archive
SC2SEI: Read_Parameters.....: /home/seismo/SC2SEI/par/sc2sei.par
SC2SEI: PRE_EVENT.....: 60 seconds
SC2SEI: POST_EVENT.....: 180 seconds
SC2SEI: PROC_DELAY.....: 90 seconds
SC2SEI: LAT_MIN.....: -40.00
SC2SEI: LAT_MAX.....: -4.00
SC2SEI: LON_MIN.....: -80.00
SC2SEI: LON_MAX.....: -50.00
SC2SEI: MAG_MIN.....: 2.00
SC2SEI: MAG_MAX.....: 9.00
SC2SEI: DBASENAME.....: SC3__
SC2SEI: WAVEDIR.....: /home/seismo/snew/WAV
***** Read sc2sei *****
SC2SEI: Read_Config_to_MEM.....: /home/seismo/SC2SEI/par/sc2sei.cfg
number of lines in parameter file: 57
Mode: Request
Setting start to 2015-10-28 20:00:00
Setting end to 2015-10-28 23:00:00
0 Event:
1 Public ID gfz2015vdri
2 Description
3 region name: Northern Chile
4 Origin:
5 Date 2015-10-28
6 Time 20:25:29.9 +/- 1.1 s
7 Latitude -22.62 deg +/- 5 km
8 Longitude -68.87 deg +/- 9 km
9 Depth 10 km
10 Agency AA
11 Mode automatic
12 Status NOT SET
13 Residual RMS 2.22 s
14 Azimuthal gap 229 deg
15
16 2 Network magnitudes:
17 MLv 2.70 +/- 0.34 10
18 M 2.70 10 preferred
19

```

20 14 Phase arrivals:

21	sta	net	cmp	dist	azi	toang	phase	time	res	wt	sta	loca
22	PB06	CX	BHZ	0.7	262	0.0	P	20:25:45.4	2.4 A	1.0	.	PB06
23	PB15	CX	BHZ	0.8	223	0.0	P	20:25:42.6	-3.1 A	1.0	.	PB15
24	PB03	CX	BHZ	1.0	305	0.0	P	20:25:46.2	-2.8 A	1.0	.	PB03
25	PB04	CX	BHZ	1.2	283	0.0	P	20:25:54.5	2.2 A	1.0	.	PB04
26	PB05	CX	BHZ	1.3	259	0.0	P	20:25:55.1	2.3 A	1.0	.	PB05
27	PB07	CX	BHZ	1.3	313	0.0	P	20:25:50.7	-2.7 A	1.0	.	PB07
28	PB02	CX	BHZ	1.6	324	0.0	P	20:25:57.8	-0.2 A	1.0	.	PB02
29	PB01	CX	BHZ	1.7	340	0.0	P	20:25:55.8	-3.1 A	1.0	.	PB01
30	PB10	CX	BHZ	1.8	240	0.0	P	20:26:08.2	7.6 AX	0.0	.	PB10
31	PB14	CX	BHZ	2.5	215	0.0	P	20:26:19.2	9.4 AX	0.0	.	PB14
32	PB08	CX	BHZ	2.5	354	0.0	P	20:26:12.1	1.8 A	1.0	.	PB08
33	HMBCX	CX	BHZ	2.5	338	0.0	P	20:26:10.8	-0.0 A	1.0	.	HMBCX
34	PB11	CX	BHZ	3.0	345	0.0	P	20:26:18.5	1.9 A	1.0	.	PB11
35	PSGCX	CX	BHZ	3.2	339	0.0	P	20:26:21.9	1.3 A	1.0	.	PSGCX

37 12 Station magnitudes:

38	sta	net	cmp	dist	azi	type	value	res	time	amp	per
39	PB06	CX	BHZ	0.7	262	MLv	1.92	-0.78	2015-10-28 20:26:06.769	0.113909	
40	PB15	CX	BHZ	0.8	223	MLv	2.42	-0.28	2015-10-28 20:26:24.019	0.29509	
41	PB03	CX	BHZ	1.0	305	MLv	2.08	-0.62	2015-10-28 20:26:20.269	0.106647	
42	PB04	CX	BHZ	1.2	283	MLv	2.77	0.07	2015-10-28 20:27:21.419	0.392509	
43	PB05	CX	BHZ	1.3	259	MLv	2.45	-0.25	2015-10-28 20:27:39.069	0.180837	
44	PB07	CX	BHZ	1.3	313	MLv	2.50	-0.20	2015-10-28 20:27:17.869	0.191774	
45	PB02	CX	BHZ	1.6	324	MLv	2.95	0.24	2015-10-28 20:27:24.469	0.356159	
46	PB01	CX	BHZ	1.7	340	MLv	2.52	-0.18	2015-10-28 20:27:37.819	0.122708	
47	PB08	CX	BHZ	2.5	354	MLv	2.79	0.09	2015-10-28 20:27:20.819	0.0804687	
48	HMBCX	CX	BHZ	2.5	338	MLv	3.22	0.52	2015-10-28 20:27:56.699	0.206196	
49	PB11	CX	BHZ	3.0	345	MLv	3.32	0.61	2015-10-28 20:28:00.649	0.150248	
50	PSGCX	CX	BHZ	3.2	339	MLv	3.32	0.62	2015-10-28 20:27:37.899	0.104494	

51
 SC2SEI::fullpath and filename: /home/seismo/snew/WAV/SC3___/2015/10/2015-10-28-2024-29.SC3___
 SC2SEI::waveform directory...: /home/seismo/snew/WAV/SC3___/2015/10

TUMOD Timeout. No data for 1 second, try next channel
 TUMOD Timeout. No data for 1 second, try next channel
 TUMOD Timeout. No data for 1 second, try next channel
 TUMOD Timeout. No data for 1 second, try next channel
 TUMOD Timeout. No data for 1 second, try next channel
 TUMOD Timeout. No data for 1 second, try next channel
 TUMOD Timeout. No data for 1 second, try next channel
 TUMOD Timeout. No data for 1 second, try next channel
 TUMOD Timeout. No data for 1 second, try next channel
 TUMOD Timeout. No data for 1 second, try next channel
 TUMOD Timeout. No data for 1 second, try next channel
 TUMOD Timeout. No data for 1 second, try next channel
 TUMOD Timeout. No data for 1 second, try next channel
 TUMOD Timeout. No data for 1 second, try next channel
 TUMOD Timeout. No data for 1 second, try next channel
 TUMOD Timeout. No data for 1 second, try next channel
 TUMOD Timeout. No data for 1 second, try next channel

0 Event:
 1 Public ID gfz2015vdrv
 2 Description
 3 region name: Northern Chile
 4 Origin:
 5 Date 2015-10-28
 6 Time 20:39:32.7 +/- 0.5 s
 7 Latitude -21.75 deg +/- 3 km
 8 Longitude -69.33 deg +/- 6 km
 9 Depth 10 km
 10 Agency AA
 11 Mode automatic
 12 Status NOT SET
 13 Residual RMS 2.60 s
 14 Azimuthal gap 179 deg
 15

16 2 Network magnitudes:

17	MLv	2.35 +/- 0.32	9
18	M	2.35	9 preferred

20 12 Phase arrivals:

21	sta	net	cmp	dist	azi	toang	phase	time	res	wt	sta	loca
22	PB03	CX	BHZ	0.5	232	0.0	P	20:39:39.3	-3.8 A	1.0	.	PB03
23	PB07	CX	BHZ	0.5	272	0.0	P	20:39:40.5	-2.9 A	1.0	.	PB07
24	PB02	CX	BHZ	0.7	309	0.0	P	20:40:00.5	14.3 AX	0.0	.	PB02
25	PB01	CX	BHZ	0.7	348	0.0	P	20:39:45.4	-1.4 A	1.0	.	PB01
26	PB04	CX	BHZ	1.0	232	0.0	P	20:39:55.3	4.2 A	1.0	.	PB04


```

2015 1028 2039 32.7 R -21.750 -69.330 10.0 SC3 12 2.6 2.3LSC3 1
GAP=179 0.50 3.0 6.0 E
2015-10-28-2038-32.SC3 6
ACTION:NEW 15-10-28 20:39 OP:SEIS STATUS: ID:20151028203932 I
Northern Chile 3
STAT SP IPHASW D HRMM SECON CODA AMPLIT PERI AZIMU VELO AIN AR TRES W DIS CAZ7
PB03 BZ IP A 2039 39.3 -3.80 55 232
PB07 BZ IP A 2039 40.5 -2.90 55 272
PB02 BZ IP A 2040 0.5 14.30 77 309
PB01 BZ IP A 2039 45.4 -1.40 77 348
PB04 BZ IP A 2039 55.3 4.20 111 232
PB06 BZ IP A 2039 49.4 -2.20 111 193
PB05 BZ IP A 2039 59.9 2.50 155 216
PB15 BZ IP A 2039 56.5 -2.30 166 185
HMBCXBZ IP A 2040 1.7 1.60 177 340
PB08 BZ IP A 2040 0.5 -0.40 177 6
PB10 BZ IP A 2040 11.2 3.40 233 212
PSGCXBZ IP A 2040 11.3 1.10 255 341
PB03 BZ IAML 2040 18.1 123.4 55 232
PB07 BZ IAML 2040 10.4 113.4 55 272
PB01 BZ IAML 2040 31.0 101.5 77 348
PB04 BZ IAML 2040 13.8 178.9 111 232
PB06 BZ IAML 2040 10.8 148.7 111 193
PB05 BZ IAML 2040 47.8 142.9 155 216
PB15 BZ IAML 2040 23.4 344.5 166 185
HMBCXBZ IAML 2042 0.0 156.2 177 340
PB08 BZ IAML 2041 53.7 88.8 177 6
PB10 BZ IAML 2040 48.7 169.1 233 212
PSGCXBZ IAML 2041 36.2 91.4 255 341

```

ID MODE

Extract event-id gfz2015uukb from archive

```
sc2sei -u sysop -p sysop -ID gfz2015uukb
```

```
seedlink: 6620 running, continue
```

```
code 131
```

```
ID mode: Extract event ID gfz2015uukb from archives. Waveform. All components.
```

```
SC2SEI: SEISCOMP_ROOT.....: /home/seismo/seiscomp3
```

```
SC2SEI: SEISAN_TOP.....: /home/seismo/snew
```

```
SC2SEI: SC2SEI.....: /home/seismo/SC2SEI
```

```
SC2SEI: ARCHIVE.....: /home/seismo/seiscomp3/var/lib/archive
```

```
SC2SEI: Read_Parameters.....: /home/seismo/SC2SEI/par/sc2sei.par
```

```
SC2SEI: PRE_EVENT.....: 60 seconds
```

```
SC2SEI: POST_EVENT.....: 180 seconds
```

```
SC2SEI: PROC_DELAY.....: 90 seconds
```

```
SC2SEI: LAT_MIN.....: -40.00
```

```
SC2SEI: LAT_MAX.....: -4.00
```

```
SC2SEI: LON_MIN.....: -80.00
```

```
SC2SEI: LON_MAX.....: -50.00
```

```
SC2SEI: MAG_MIN.....: 2.00
```

```
SC2SEI: MAG_MAX.....: 9.00
```

```
SC2SEI: DBASENAME.....: SC3
```

```
SC2SEI: WAVEDIR.....: /home/seismo/snew/WAV
```

```
***** Read sc2sei *****
```

```
SC2SEI: Read_Config_to_MEM.....: /home/seismo/SC2SEI/par/sc2sei.cfg
```

```
number of lines in parameter file: 57
```

```
Mode: ID request
```

```

0 Event:
1   Public ID           gfz2015uukb
2   Description
3   region name: Off Coast of Northern Chile
4 Origin:
5   Date                2015-10-23
6   Time                18:33:31.5 +/- 2.4 s
7   Latitude            -26.60 deg +/- 19 km
8   Longitude           -71.80 deg +/- 18 km
9   Depth               10 km
10  Agency              AA
11  Mode                automatic
12  Status              NOT SET
13  Residual RMS        0.76 s
14  Azimuthal gap      340 deg

```

```

15
16 5 Network magnitudes:
17   MLv      5.06 +/- 0.14  10
18   mB       5.12           2
19   Mw (mB)  4.48           2
20   mb       4.81 +/- 0.28  6
21   M        4.97           10 preferred
22

```

```

23 12 Phase arrivals:
24   sta net cmp dist azi toang phase time res wt sta loca
25   PB14 CX BHZ 2.3 33 0.0 P 18:34:09.0 -0.9 A 1.0 . PB14
26   PB10 CX BHZ 3.3 20 0.0 P 18:34:22.9 0.1 A 1.0 . PB10
27   PB15 CX BHZ 4.0 32 0.0 P 18:34:34.0 1.3 A 1.0 . PB15
28   PB06 CX BHZ 4.4 28 0.0 P 18:34:37.4 -0.6 A 1.0 . PB06
29   PB04 CX BHZ 4.5 20 0.0 P 18:34:39.9 0.0 A 1.0 . PB04
30   PB03 CX BHZ 4.9 23 0.0 P 18:34:44.9 -0.3 A 1.0 . PB03
31   PB07 CX BHZ 5.2 20 0.0 P 18:34:48.4 -0.4 A 1.0 . PB07
32   PB02 CX BHZ 5.6 19 0.0 P 18:34:53.7 -0.3 A 1.0 . PB02
33   PB01 CX BHZ 5.9 21 0.0 P 18:34:58.8 -0.5 A 1.0 . PB01
34   HMBCX CX BHZ 6.6 16 0.0 P 18:35:09.0 1.3 A 1.0 . HMBCX
35   PB08 CX BHZ 6.9 21 0.0 P 18:35:13.5 1.1 A 1.0 . PB08
36   PSGCX CX BHZ 7.2 13 0.0 P 18:35:15.3 -0.7 A 1.0 . PSGCX
37

```

```

38 20 Station magnitudes:
39   sta net cmp dist azi type value res time amp per
40   PB14 CX BHZ 2.3 33 MLv 5.14 0.08 2015-10-23 18:34:26.795 21.9576
41   PB10 CX BHZ 3.3 20 MLv 4.53 -0.53 2015-10-23 18:35:00.250 1.60612
42   PB15 CX BHZ 4.0 32 MLv 5.65 0.59 2015-10-23 18:35:22.269 11.1773
43   PB06 CX BHZ 4.4 28 MLv 5.08 0.02 2015-10-23 18:35:30.269 2.42735
44   PB04 CX BHZ 4.5 20 MLv 5.03 -0.03 2015-10-23 18:35:39.669 1.99724
45   PB03 CX BHZ 4.9 23 MLv 5.10 0.04 2015-10-23 18:35:46.869 1.85902
46   PB07 CX BHZ 5.2 20 MLv 5.24 0.18 2015-10-23 18:35:57.319 2.207
47   PB07 CX BHZ 5.2 20 mB 5.07 -0.06 2015-10-23 18:35:38.219 1691.18
48   PB07 CX BHZ 5.2 20 mb 5.09 0.28 2015-10-23 18:35:09.169 148.86 0.72
49   PB02 CX BHZ 5.6 19 MLv 5.18 0.12 2015-10-23 18:36:24.619 1.56288
50   PB02 CX BHZ 5.6 19 mB 5.18 0.06 2015-10-23 18:35:52.719 1991.59
51   PB02 CX BHZ 5.6 19 mb 5.05 0.24 2015-10-23 18:35:18.319 84.7969 0.50
52   PB01 CX BHZ 5.9 21 MLv 4.84 -0.21 2015-10-23 18:36:21.669 0.573598
53   PB01 CX BHZ 5.9 21 mb 4.62 -0.18 2015-10-23 18:35:22.419 30.9372 0.54
54   HMBCX CX BHZ 6.6 16 MLv 5.12 0.06 2015-10-23 18:36:44.699 0.762258
55   HMBCX CX BHZ 6.6 16 mb 5.01 0.21 2015-10-23 18:35:37.150 61.9356 0.49
56   PB08 CX BHZ 6.9 21 MLv 5.07 0.01 2015-10-23 18:36:51.919 0.54982
57   PB08 CX BHZ 6.9 21 mb 4.60 -0.20 2015-10-23 18:35:38.169 26.0943 0.56
58   PSGCX CX BHZ 7.2 13 MLv 4.69 -0.37 2015-10-23 18:37:04.549 0.197526
59   PSGCX CX BHZ 7.2 13 mb 4.27 -0.54 2015-10-23 18:35:16.850 11.9064 0.57
60

```

```

SC2SEI:.fullpath and filename: /home/seismo/snew/WAV/SC3___/2015/10/2015-10-23-1832-31.SC3___
SC2SEI:.waveform directory...: /home/seismo/snew/WAV/SC3___/2015/10
scart -dsvE -l scartinput.txt /home/seismo/seiscomp3/var/lib/archive >
/home/seismo/snew/WAV/SC3___/2015/10/2015-10-23-1832-31.SC3___

```

s-file generated

```

2015 1023 1833 31.5 R -26.600 -71.800 10.0 SC3 12 0.8 5.0LSC3 4.8bSC3 5.1BSC31
GAP=340 2.40 19.0 18.0 E
2015-10-23-1832-31.SC3___ 6
ACTION:NEW 15-10-23 18:33 OP:SEIS STATUS: ID:20151023183331 I
Off Coast of Northern Chile 3
STAT SP IPHASW D HRMM SECON CODA AMPLIT PERI AZIMU VELO AIN AR TRES W DIS CAZ7
PB14 BZ IP A 1834 9.0 -0.90 255 33
PB10 BZ IP A 1834 22.9 0.10 366 20
PB15 BZ IP A 1834 34.0 1.30 444 32
PB06 BZ IP A 1834 37.4 -0.60 489 28
PB04 BZ IP A 1834 39.9 0.00 500 20
PB03 BZ IP A 1834 44.9 -0.30 544 23
PB07 BZ IP A 1834 48.4 -0.40 578 20
PB02 BZ IP A 1834 53.7 -0.30 622 19
PB01 BZ IP A 1834 58.8 -0.50 656 21
HMBCXBZ IP A 1835 9.0 1.30 733 16
PB08 BZ IP A 1835 13.5 1.10 767 21
PSGCXBZ IP A 1835 15.3 -0.70 800 13
PB14 BZ IAML 1834 26.7 21957.6 255 33
PB10 BZ IAML 1835 0.2 1606.1 366 20
PB15 BZ IAML 1835 22.2 11177.3 444 32
PB06 BZ IAML 1835 30.2 2427.4 489 28
PB04 BZ IAML 1835 39.6 1997.2 500 20

```

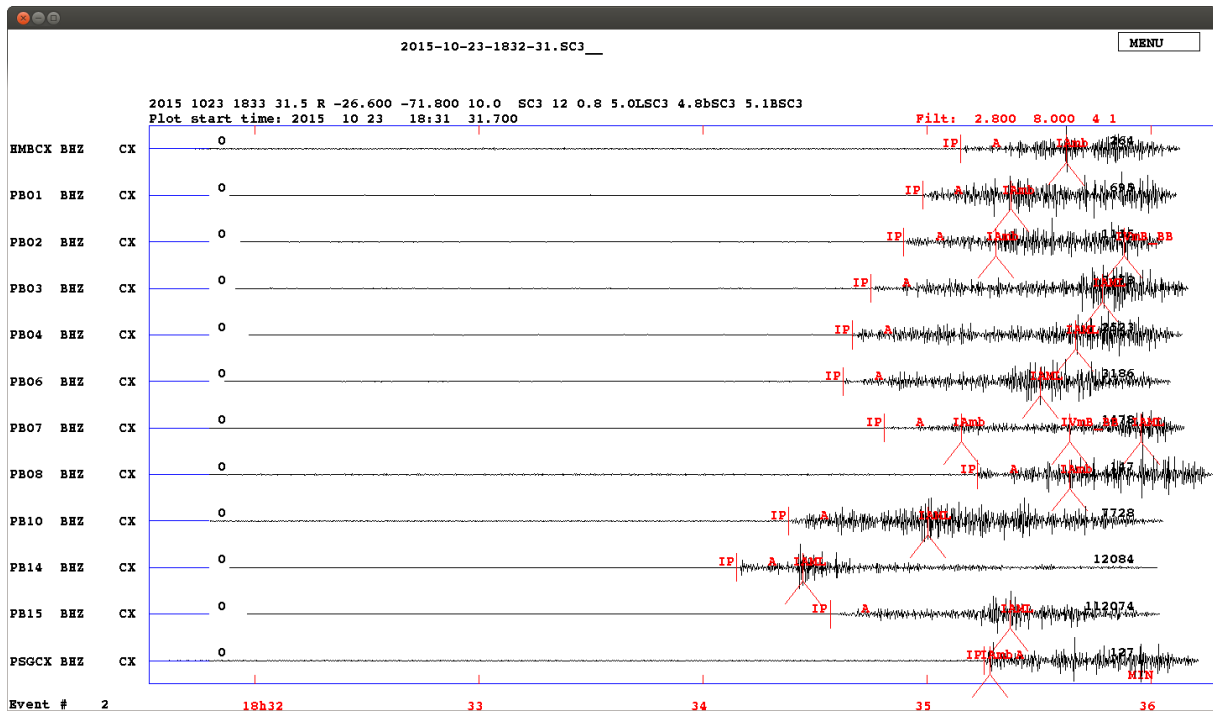
PB03 BZ	IAML	1835	46.8	1859.0	544	23	
PB07 BZ	IAML	1835	57.3	2207.0	578	20	
PB07 BZ	IVmB_BB	1835	38.2	1691.2	578	20	
PB07 BZ	IAmb	1835	9.1	148.9	0.72	578	20
PB02 BZ	IAML	1836	24.6	1562.9	622	19	
PB02 BZ	IVmB_BB	1835	52.7	1991.6	622	19	
PB02 BZ	IAmb	1835	18.3	84.8	0.50	622	19
PB01 BZ	IAML	1836	21.6	573.6	656	21	
PB01 BZ	IAmb	1835	22.4	30.9	0.54	656	21
HMBCXBZ	IAML	1836	44.6	762.3	733	16	
HMBCXBZ	IAmb	1835	37.1	61.9	0.49	733	16
PB08 BZ	IAML	1836	51.9	549.8	767	21	
PB08 BZ	IAmb	1835	38.1	26.1	0.56	767	21
PSGCXBZ	IAML	1837	4.5	197.5	800	13	
PSGCXBZ	IAmb	1835	16.8	11.9	0.57	800	13

ID MODE components with phases only

```
sc2sei -u sysop -p sysop -ID gfz2015uukb -allcmp 0
```

The command above produces a waveform containing only components with phase readings. The figure below shows the extracted waveform.

The figure also show the effect of a too short POST-EVENT. The magnitude of the event is 5.1 and the POST-EVENT should be at least twice the length.



ARCHIVE MODE many events example:

This command will extract events for a time interval of almost a month, a total of 107 events. Each event have 55 components configured and the extracted waveform is around 5 minutes long. Total time to extract all events was around 4 minutes on a standard laptop computer.

```
sc2sei -u sysop -p sysop -begin "2015-10-01 00:00:00" -end "2015-10-29 23:00:00" -arc 1
```