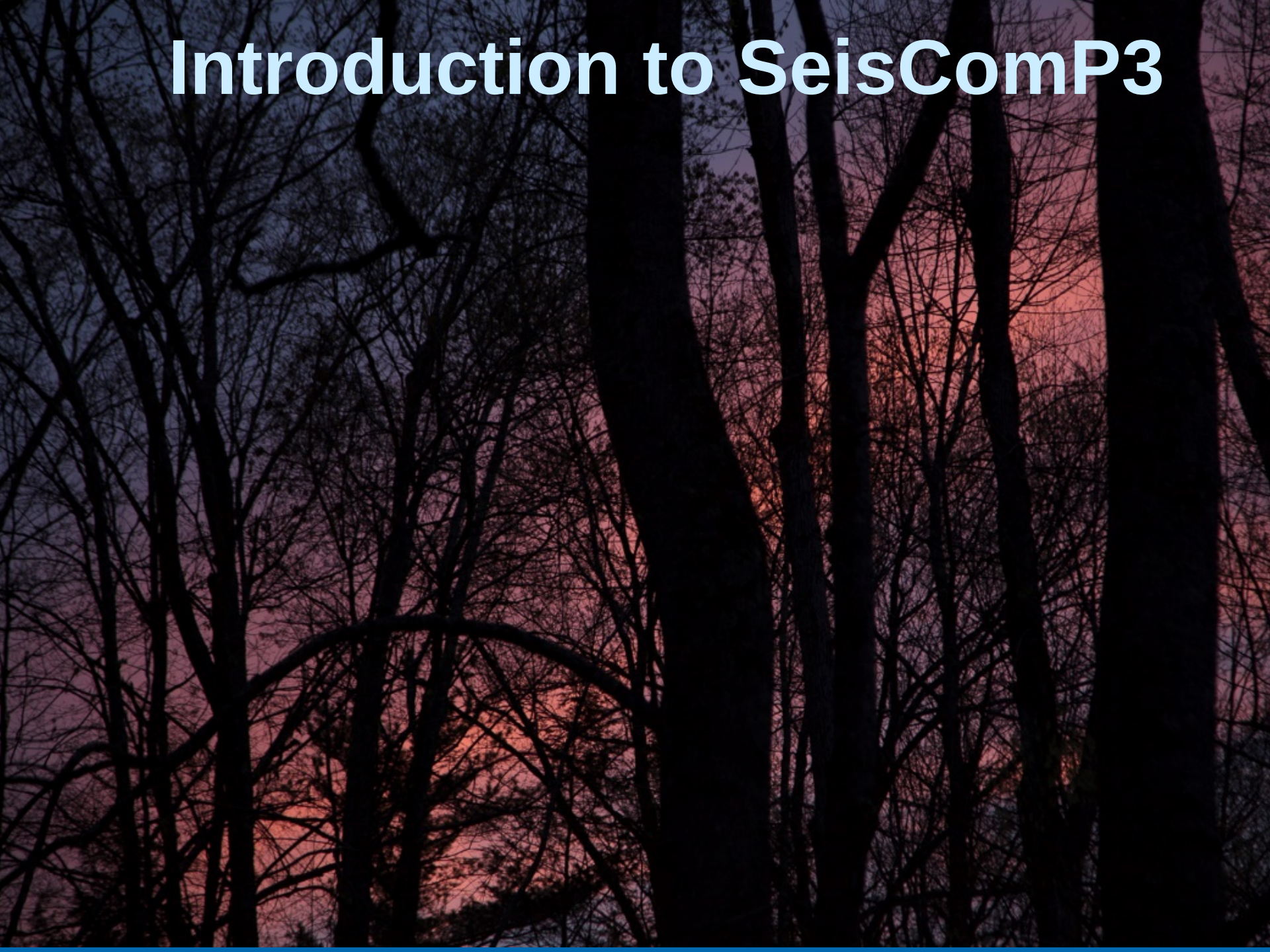
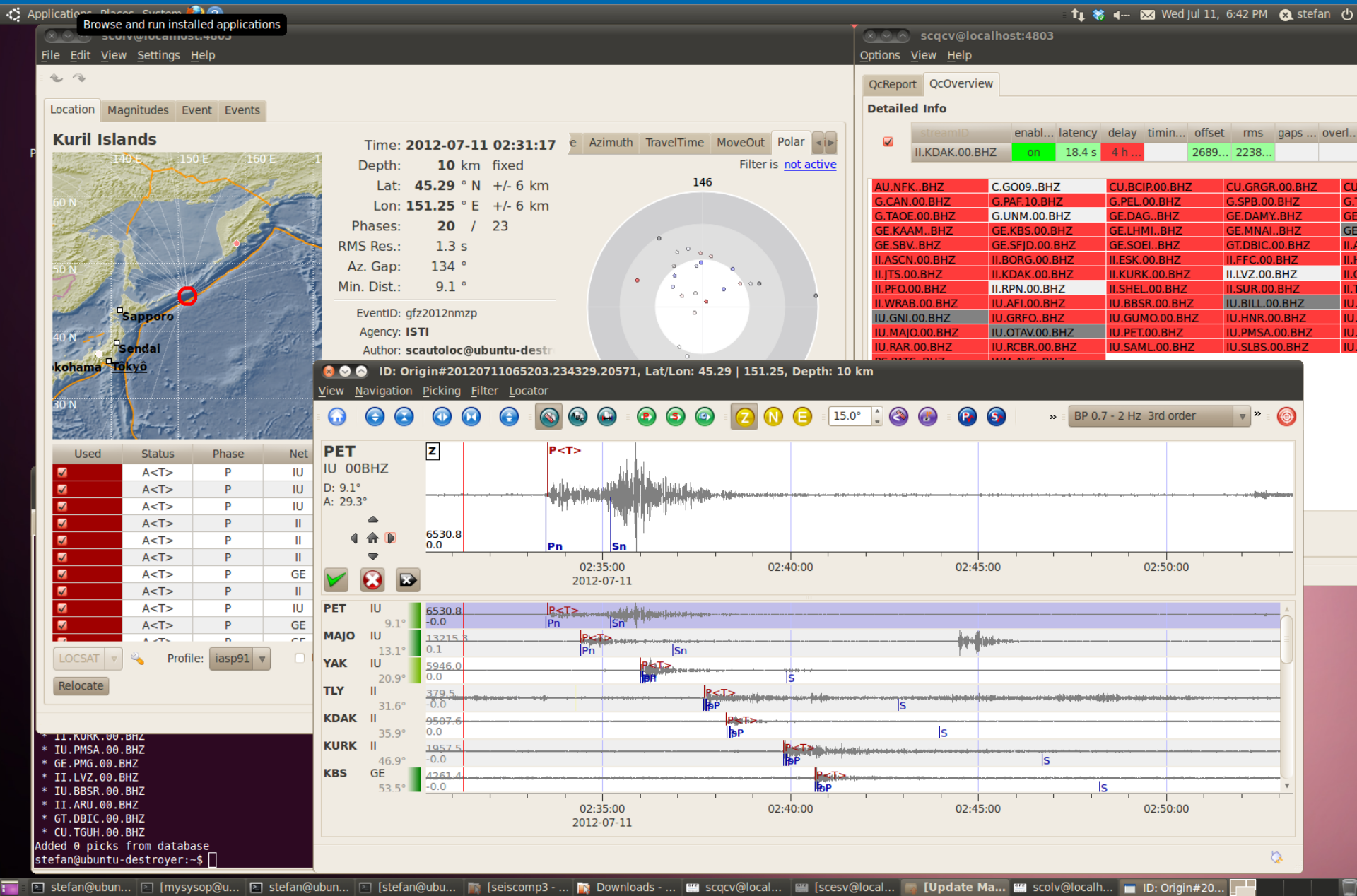
Introduction to SeisComP3



SeisComP3


Applications Places System
Wed Jul 11, 6:42 PM stefan
Browse and run installed applications
File Edit View Settings Help
Location Magnitudes Event Events
Kuril Islands
Time: 2012-07-11 02:31:17
Depth: 10 km fixed
Lat: 45.29 ° N +/- 6 km
Lon: 151.25 ° E +/- 6 km
Phases: 20 / 23
RMS Res.: 1.3 s
Az. Gap: 134 °
Min. Dist.: 9.1 °
EventID: gfz2012nmzp
Agency: ISTI
Author: scautoloc@ubuntu-destr
Azimuth TravelTime MoveOut Polar
Filter is not active
146
Sapporo
Sendai
Tokyo
Used Status Phase Net
LOCSAT Profile: iasp91
Relocate
scqcv@localhost:4803
Options View Help
QcReport QcOverview
Detailed Info
streamID enabl... latency delay timin... offset rms gaps ... overl...
II.KDAK.00.BHZ on 18.4 s 4 h ... 2689... 2238...
ID: Origin#20120711065203.234329.20571, Lat/Lon: 45.29 | 151.25, Depth: 10 km
View Navigation Picking Filter Locator
BP 0.7 - 2 Hz 3rd order
PET
IU 00BHZ
D: 9.1°
A: 29.3°
P<T>
Pn
Sn
6530.8
0.0
02:35:00
2012-07-11
02:40:00
02:45:00
02:50:00
PET IU 9.1°
MAJO IU 13.1°
YAK IU 20.9°
TLY II 31.6°
KDAK II 35.9°
KURK II 46.9°
KBS GE 53.5°
* IU.PMSA.00.BHZ
* GE.PMG.00.BHZ
* II.LVZ.00.BHZ
* IU.BBSR.00.BHZ
* II.ARU.00.BHZ
* GT.DBIC.00.BHZ
* CU.TGUH.00.BHZ
Added 0 picks from database
stefan@ubuntu-destroyer:~$

SeisComP3 History

2001 SeedLink was master's thesis

2003 Algerian M7. started automatic tools

2005 Seedlink & Arclink; GFZ, ORFEUS, BGZ, INGV. Synchronize inventory.

2006 – SeisComP*3* appears on the scene

2007 alpha/beta version - was operative from the beginning. stable! results used! Jakarta warning

2008 Barcelona 2009 Erice 2010 Potsdam

2011 Zurich 2012 Seattle 2016 Jakarta

SeisComP3 Components

There are 3 parts of SeisComP3, and they're covered by 3 different licenses.

Acquisition

Hardware data sources and public data feeds

SeedLink

Arclink

GNU Public License

Processing

Automated pick, locate, magnitudes

Source free to download for non-profits

SEISCOMP PUBLIC LICENSE

GUI

Display; post-processing tools

BINARY LICENSE

Source code now available as well

Acquisition
Hardware data sources and public data feeds
SeedLink
Arclink
GNU Public License

Prior to Acquisition: Metadata

QuakeML is the standard that the SeisComP3 database schema is based on.

To populate the database:

Inventory XML (sometimes called Station XML)

Dataless SEED volume

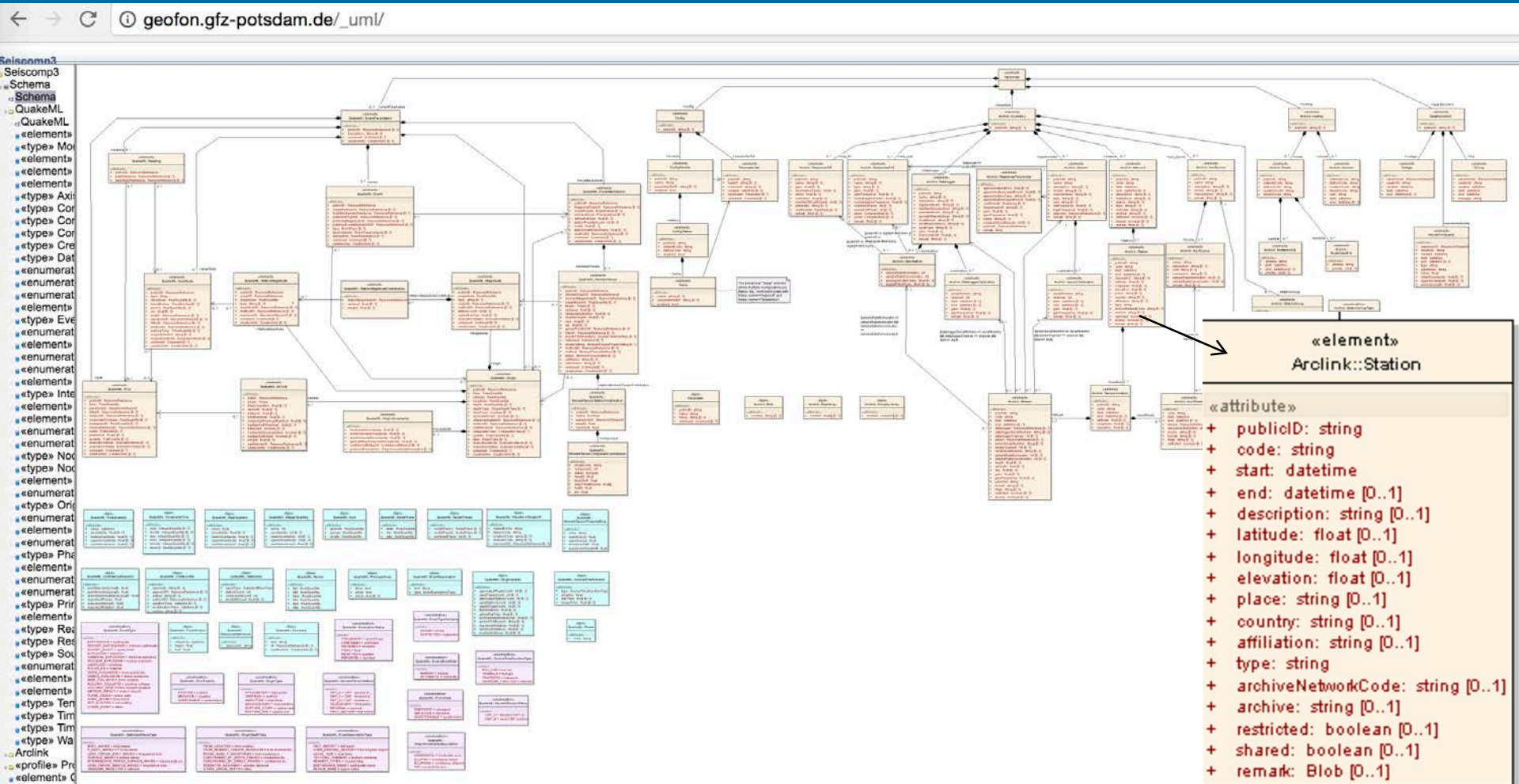
Station XML (called fdsnxml in SC3)

Nettab or tab

Key or arclink

SeisComP3 QuakeML

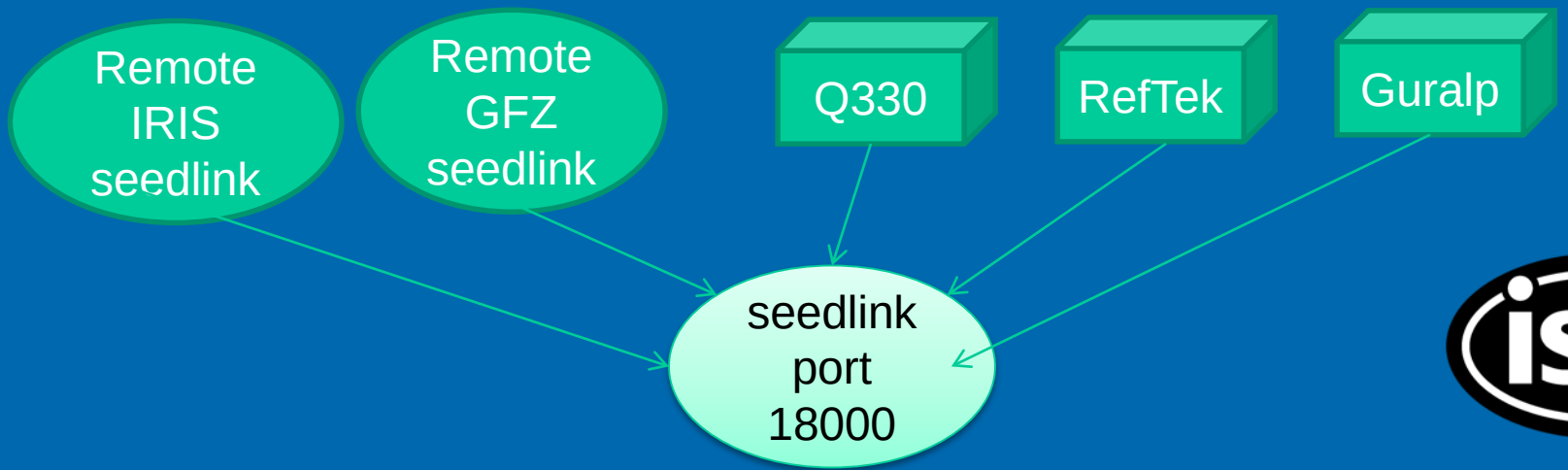
http://geofon.gfz-potsdam.de/_uml/



Acquisition
Hardware data sources and public data feeds
SeedLink
Arclink
GNU Public License

Acquisition: Waveforms

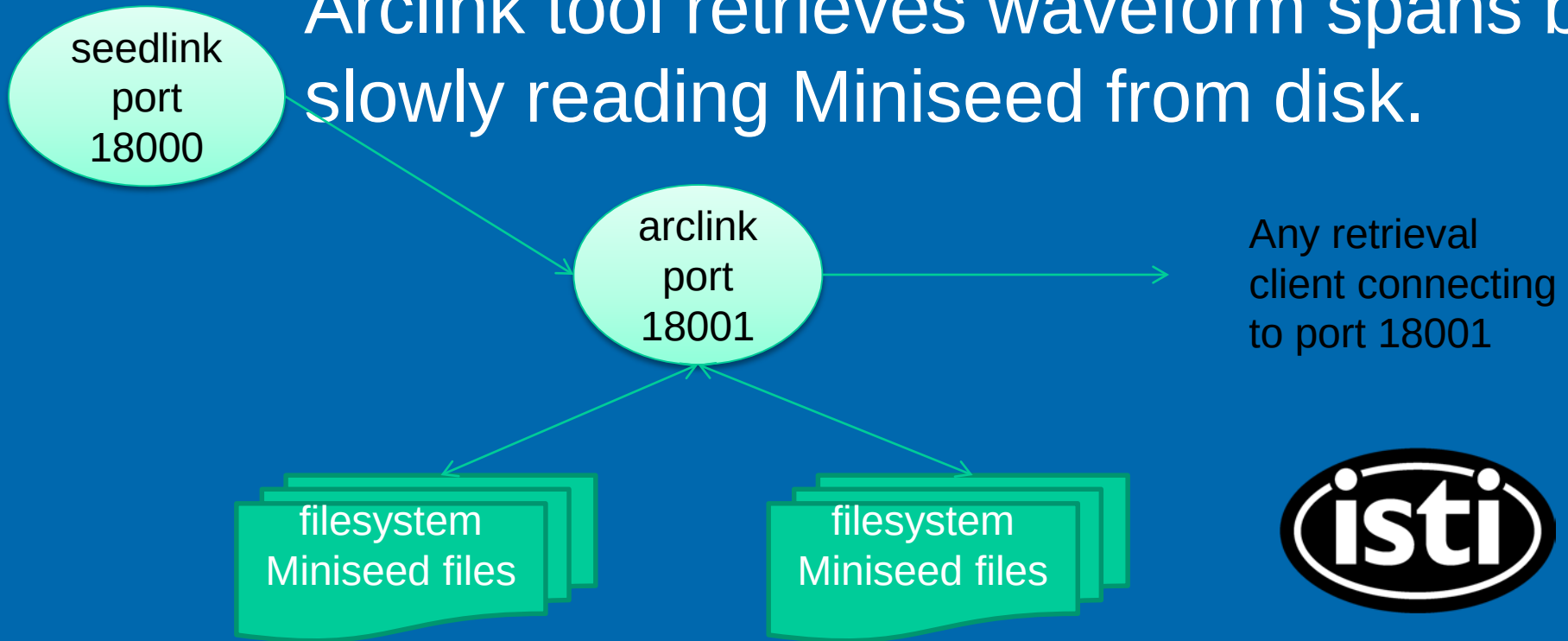
Seedlink acquires and stores some number of minutes of waveform data data. Seedlink servers can connect to other seedlink servers as well as many digitizers. Realtime processing depends on these waveforms.



Acquisition
Hardware data sources and public data feeds
SeedLink
Arclink
GNU Public License

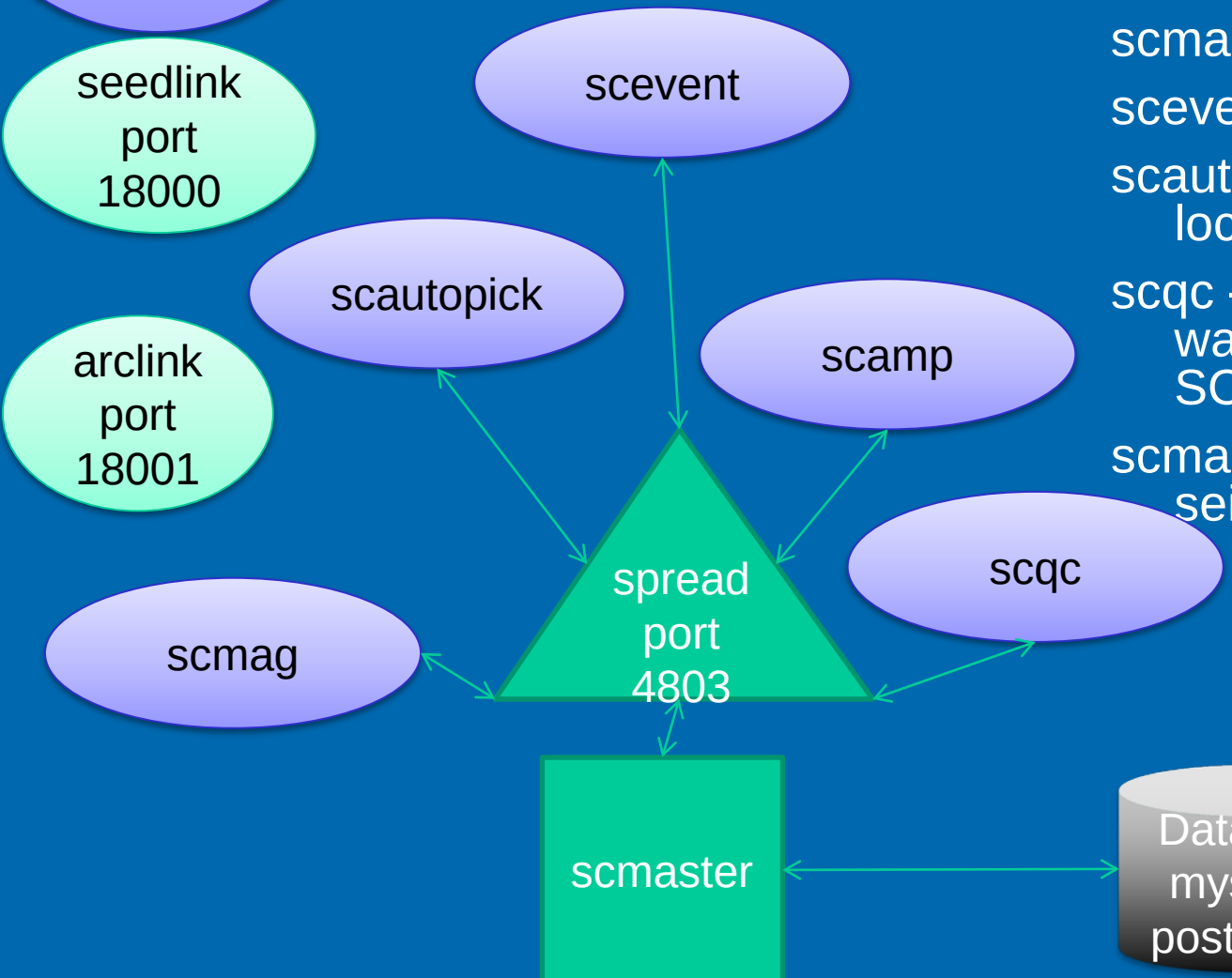
Waveform Storage

Arclink serves long-term storage. Data is stored in the file system via slarchive in Miniseed format. The Arclink tool retrieves waveform spans by slowly reading Miniseed from disk.



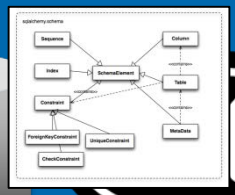
Processing

Processing
Automated pick, locate, magnitudes
SEISCOMP PUBLIC LICENSE



- scautopick - pick
- scamp - amplitude
- scmag - magnitudes
- scevent - events
- scautoloc - handles event locations
- scqc - quality control for waveforms coming in to SC
- scmaster - is the heart of seiscomp.

Database schema similar to QuakeML



Processing
Automated pick, locate, magnitudes
SEISCOMP PUBLIC LICENSE

Processing

scautopick
scautoloc
scevent

Magnitudes:

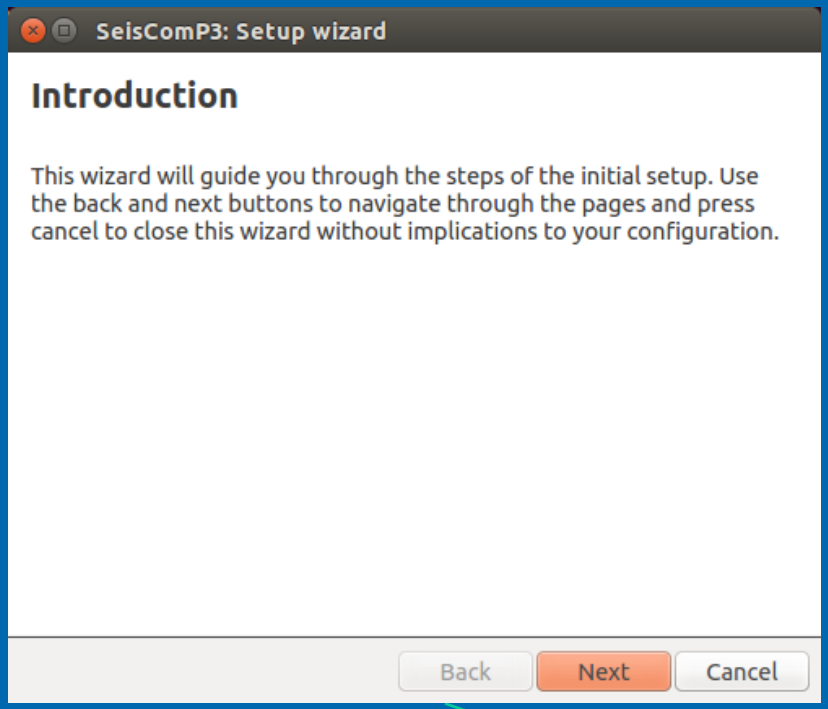
Md
ML
MLv
mb
mB
Mw(mB)
Mwp
Mw(Mwp)
Ms(BB)

Metadata, Data Streams

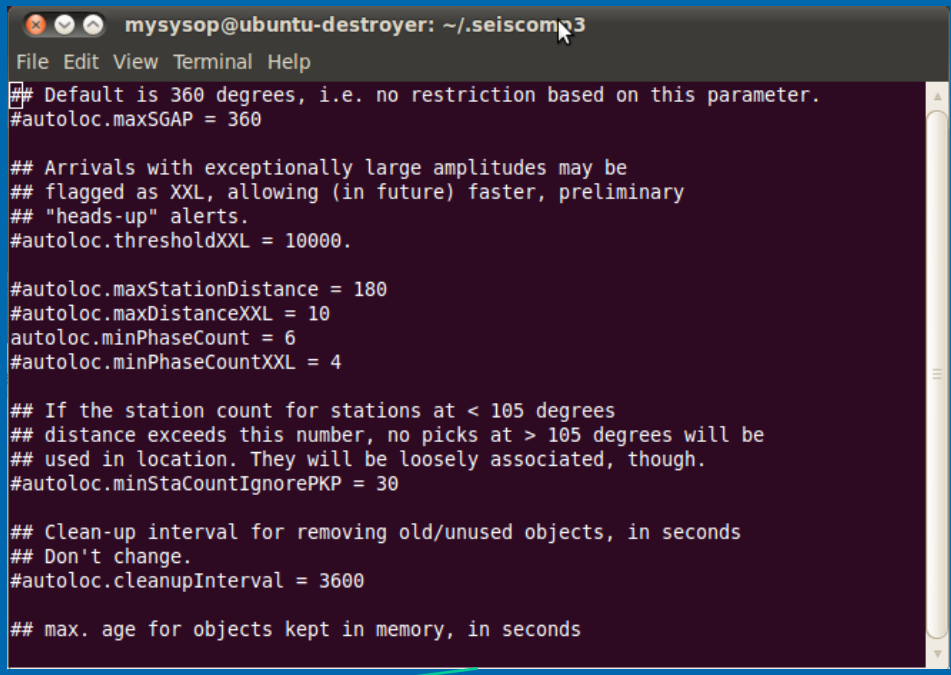
- Configuration includes submitting dataless seed to insert your instrument response metadata into SeisComP3
- IRIS,BUD DATA to get dataless seed
- http://ds.iris.edu/data/bud/
- GFZ is the IRIS of Europe, GFZ is government. geofon is part of gfz. gempa is a private company but on government campus of gfz
- http://eida.gfz-potsdam.de/

Initial Configuration

Wizard



Text File



seiscomp config

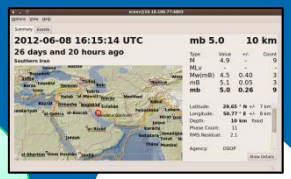
Database mysql or postgresql

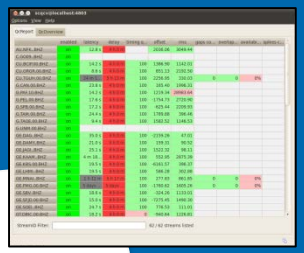
Graphical User Interfaces

GUI

Display; post-processing tools
BINARY
LICENSE
Source code available

scmv





seedlink port 18000

scesv

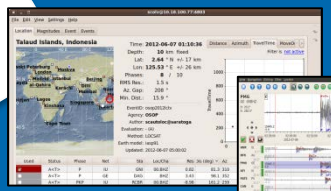
scqcv

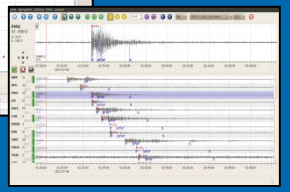
arclink port 18001

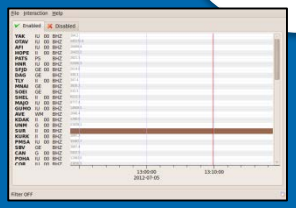
scrttv

sprea d port 4803

scolv







scmaster

Database mysql or postgresql

- scmv - map viewer -- shows where your stations are
- scqcv - quality control viewer
- scrttv - real-time trace viewer; like Swarm, but shows picks too
- scesv - events viewer -- summary map, shows mag, location etc.
- scolv paired with picker - origin locator view. this is the meat of the post-processing

GUI - scmv

GUI

Display; post-processing tools

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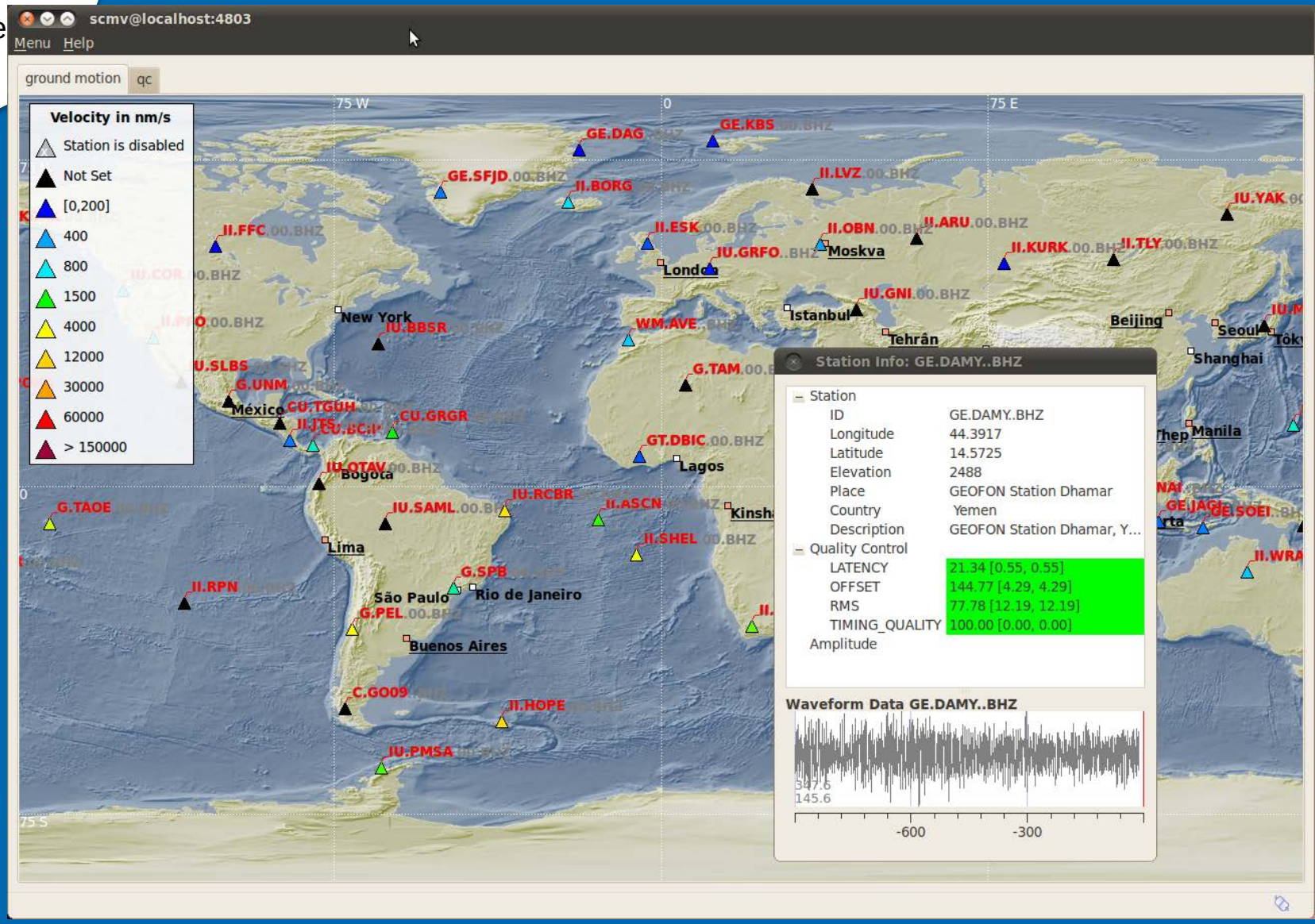
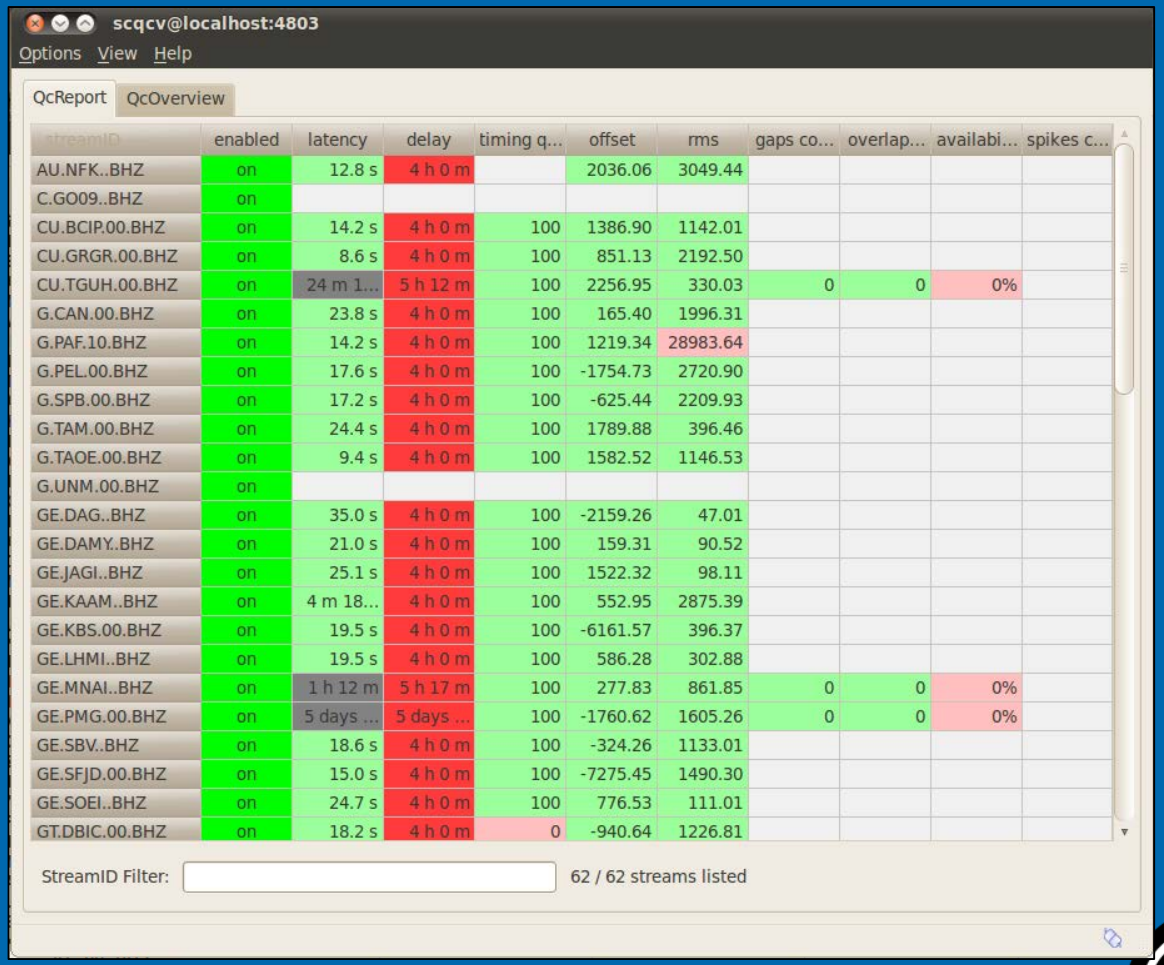
Source code available



GUI - scqcv

GUI

Display; post-processing tools
BINARY
LICENSE
Source code available



GUI - scrttv

GUI

Display; post-processing tools
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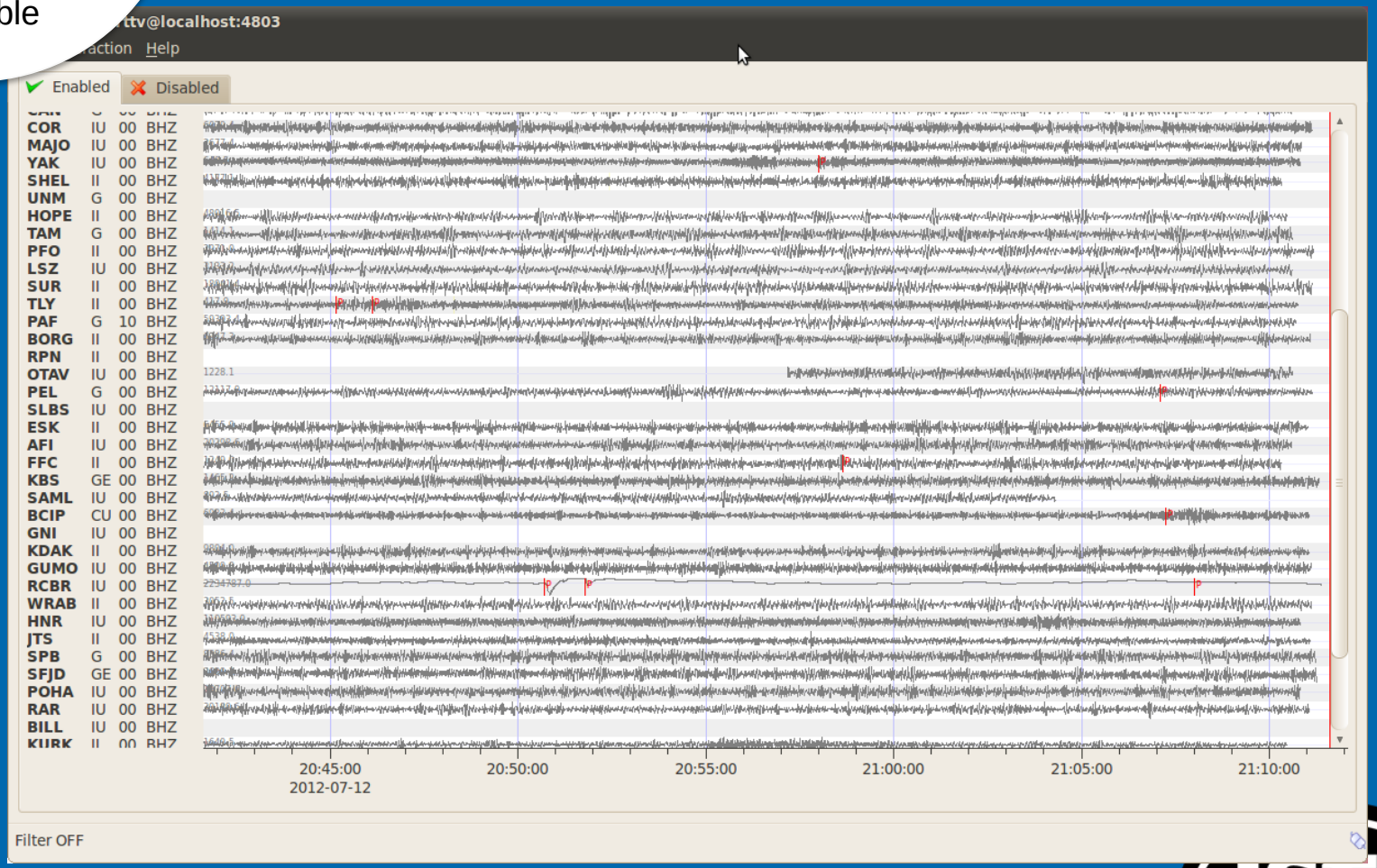
Source code available



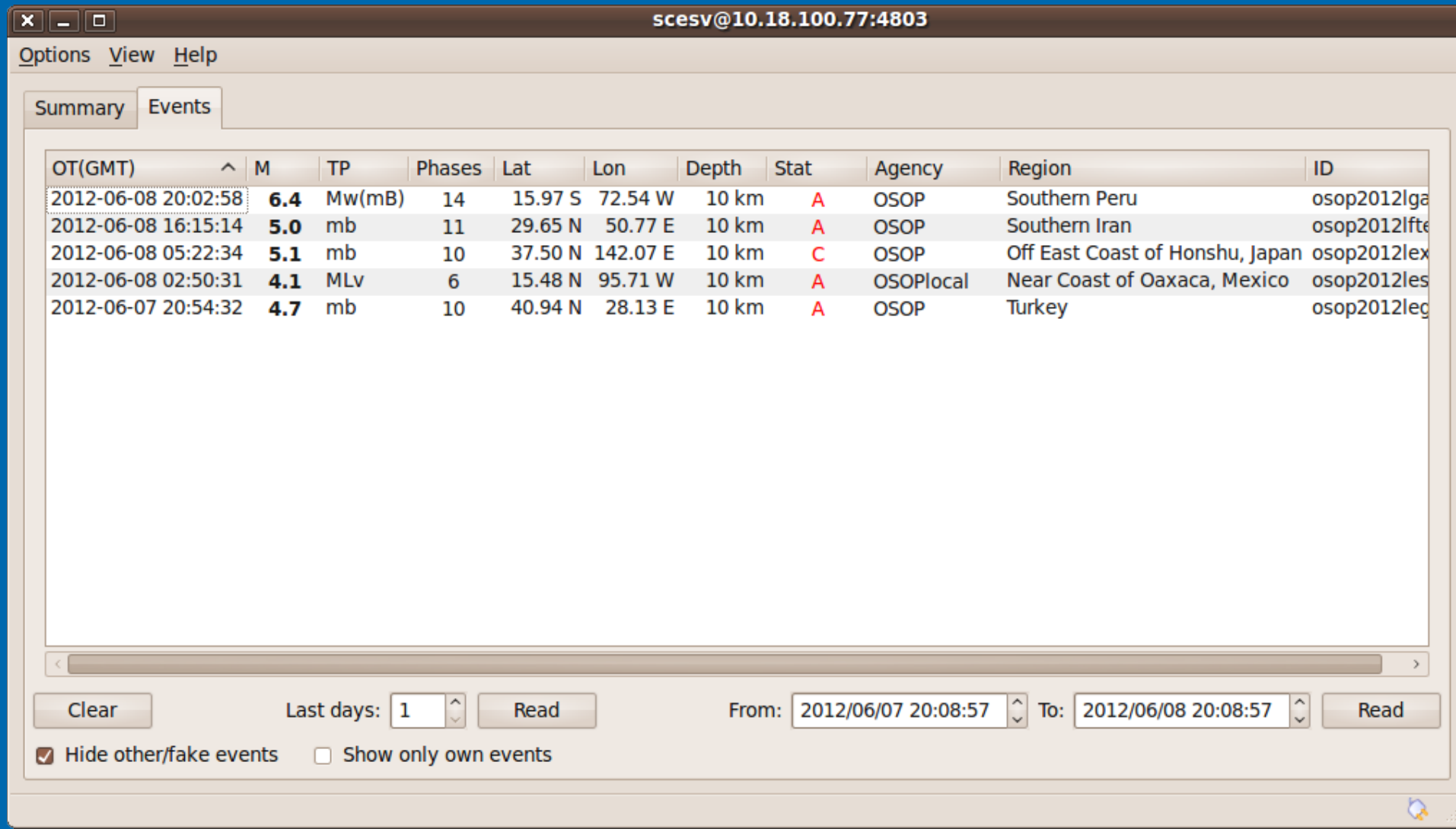
GUI

Display; post-processing tools

BINARY LICENSE

Source code available

GUI - scesv



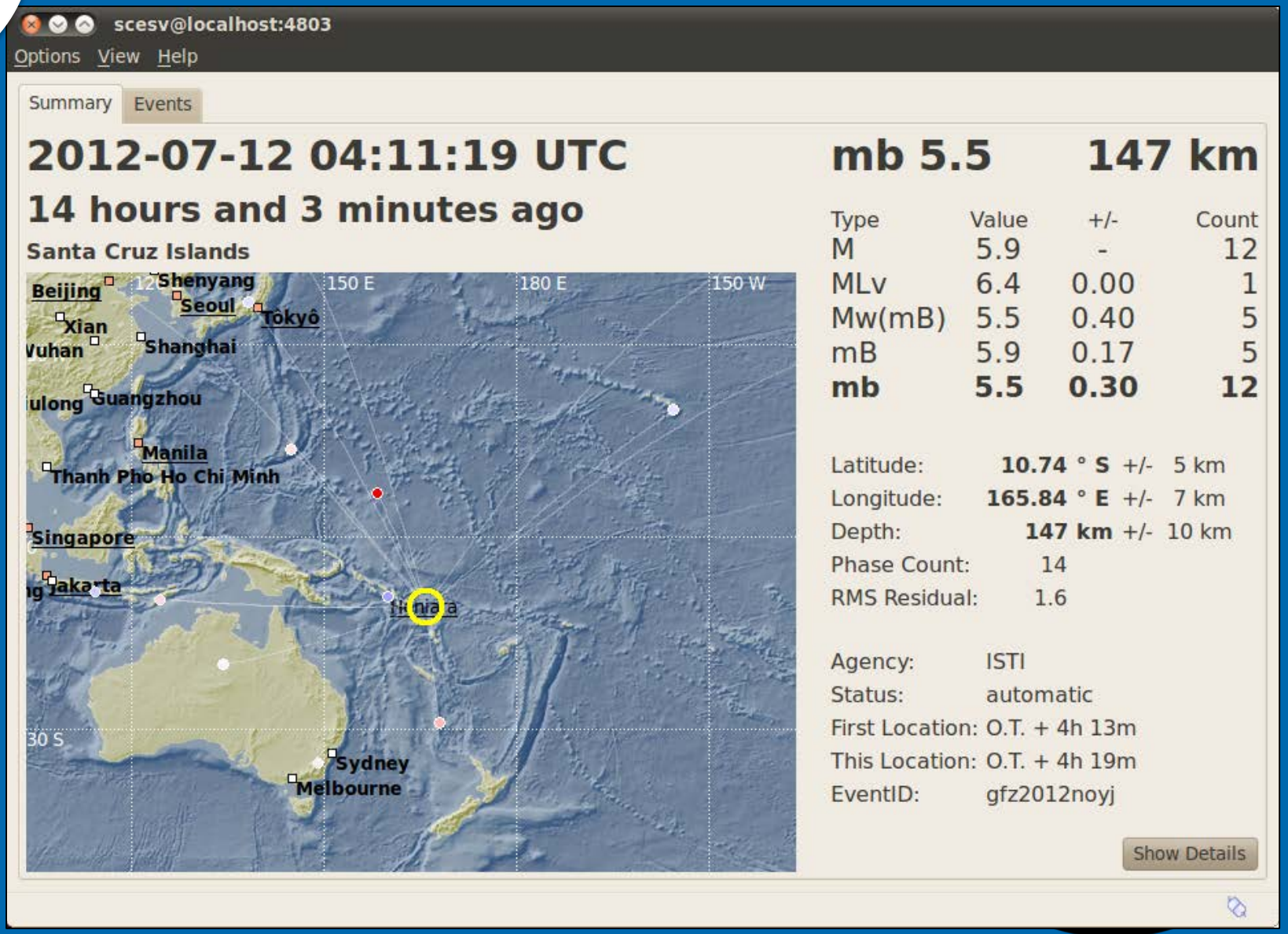
GUI

Display; post-processing tools

BINARY LICENSE

Source code available

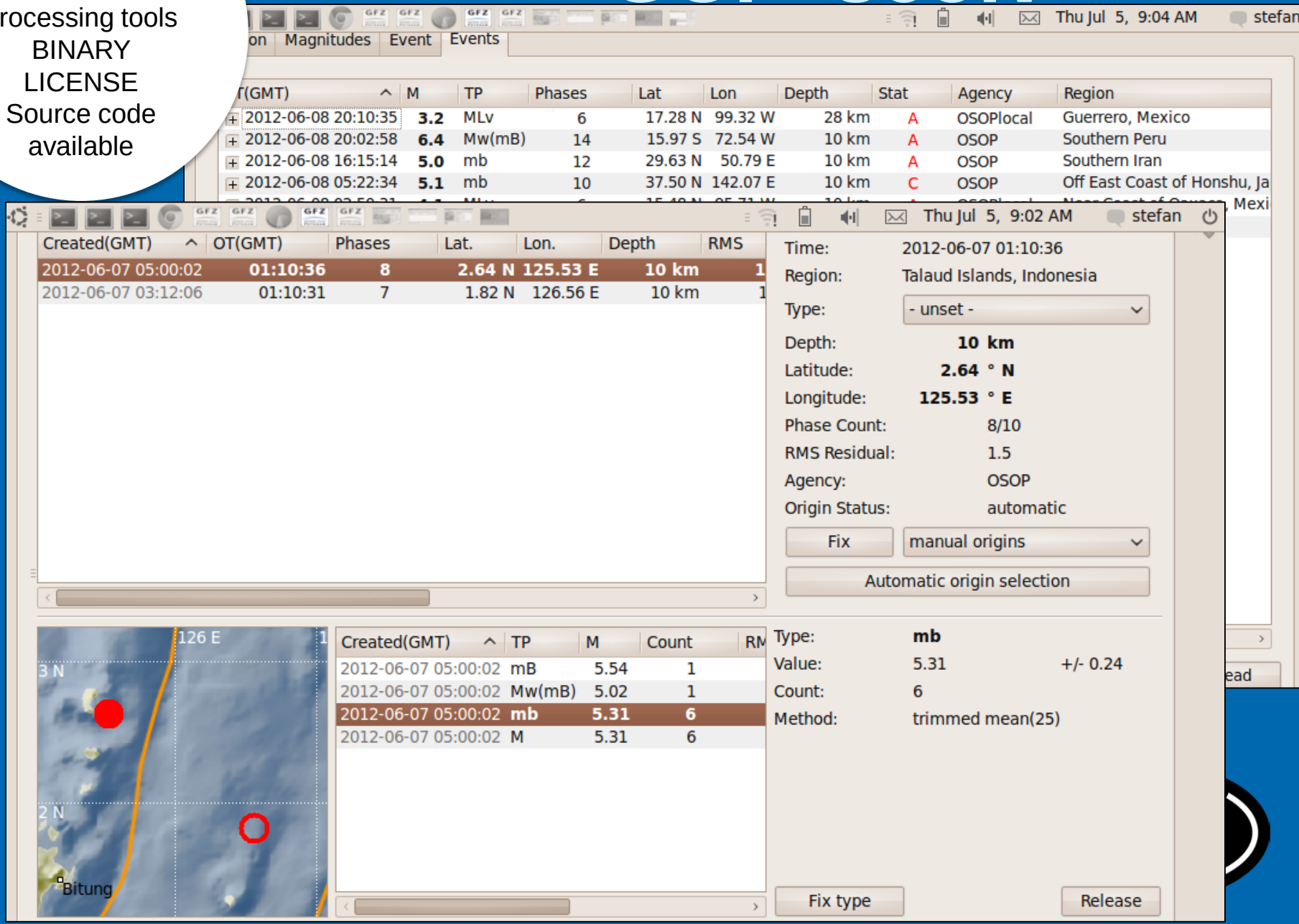
GUI - scesv



GUI - scolv

GUI

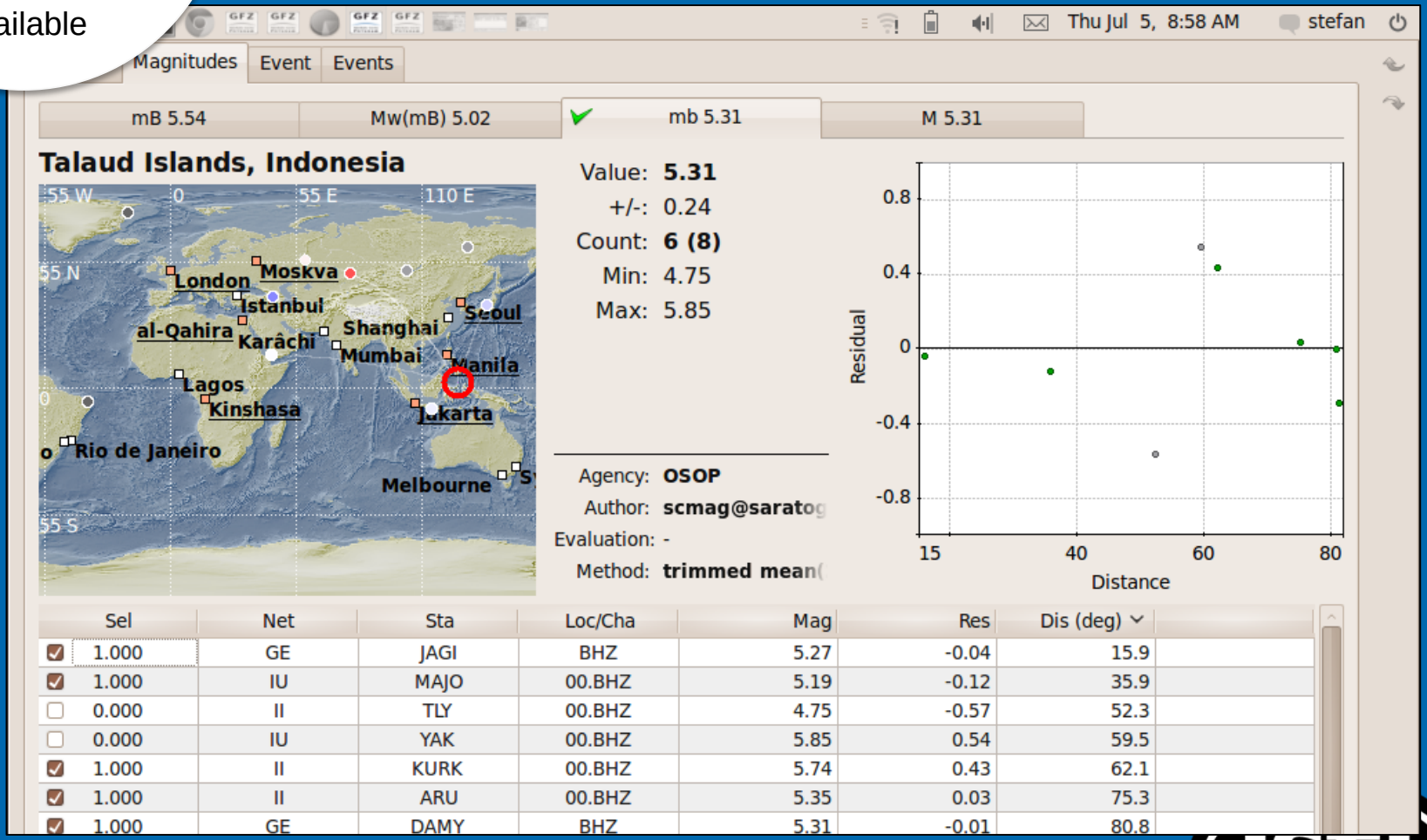
Display; post-processing tools
BINARY
LICENSE
Source code available



GUI

Display; post-processing tools
BINARY
LICENSE
Source code available

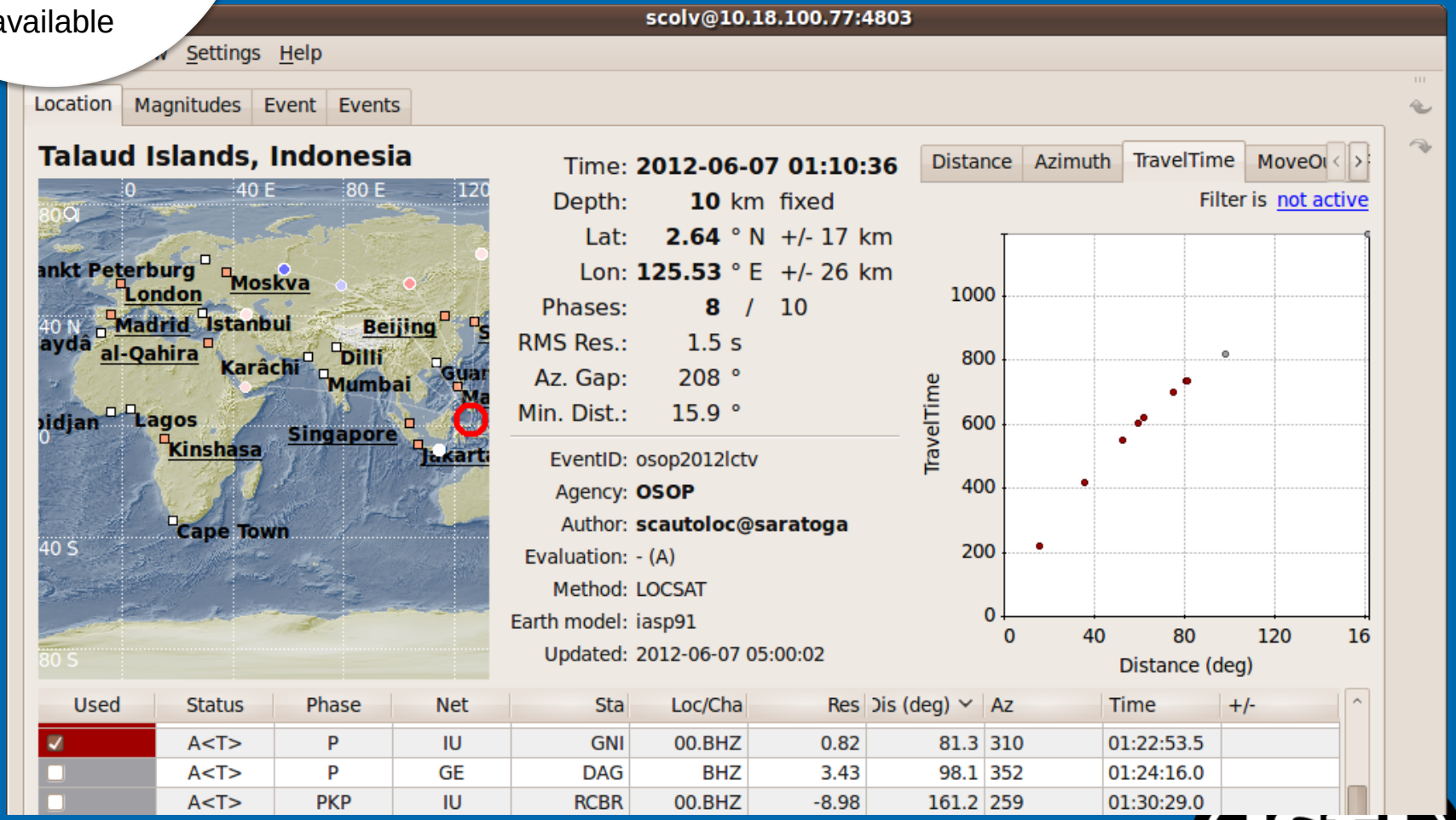
GUI - scolv



GUI

Display; post-processing tools
BINARY
LICENSE
Source code available

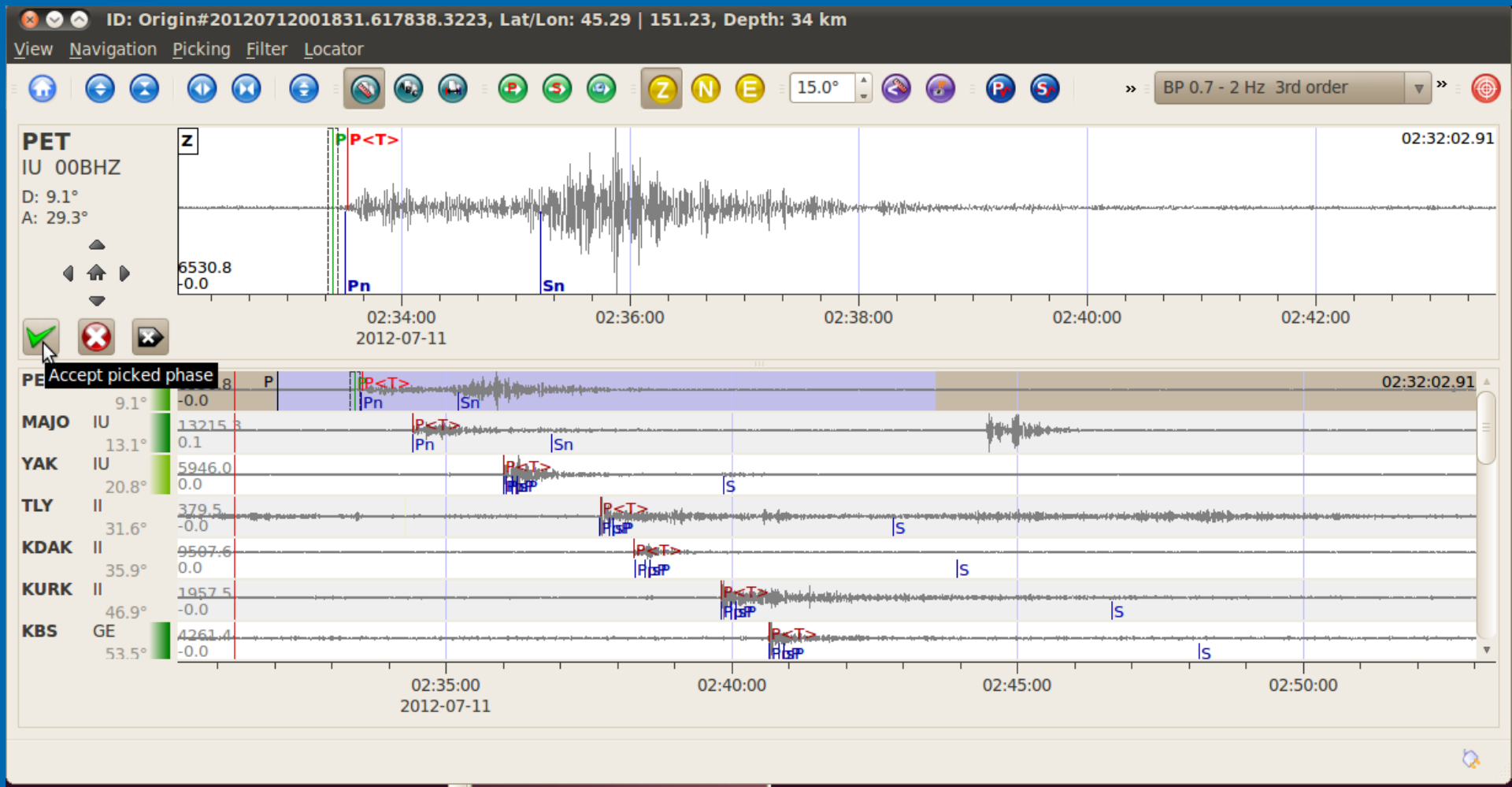
GUI - scolv



GUI

Display; post-processing tools
BINARY
LICENSE
Source code available

GUI – scolv's picker



GUI - scolv

GUI

Display; post-processing tools

BINARY

LICENSE

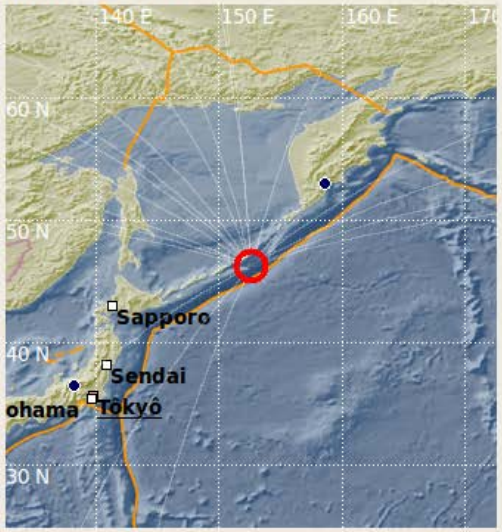
Source code available

scolv@localhost:4803

File Edit View Settings Help

Location | Magnitudes | Event | Events

Kuril Islands

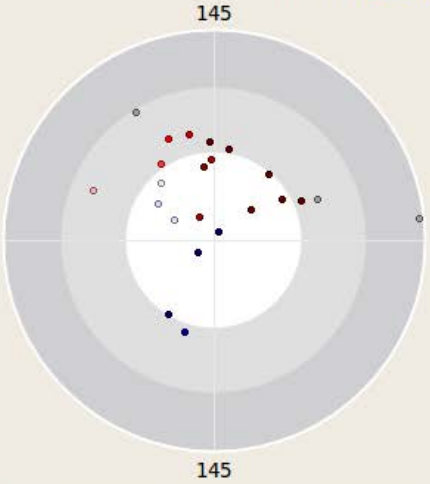


Time:	**2012-07-11 02:31:15**		
Depth:	**0** km	fixed	
Lat:	**46.31** ° N	+/- 6 km	
Lon:	**152.55** ° E	+/- 6 km	
Phases:	**20** / 23		
RMS Res.:	15.4 s		
Az. Gap:	134 °		
Min. Dist.:	7.8 °		

EventID: gfz2012nmzp
Agency: **OSOP**
Author: **stefan@ubuntu-destroye**
Evaluation: confirmed (M)
Method: LOCSAT
Earth model: iasp91
Updated: 2012-07-12 00:29:14

e | Azimuth | TravelTime | MoveOut | Polar

Filter is not active

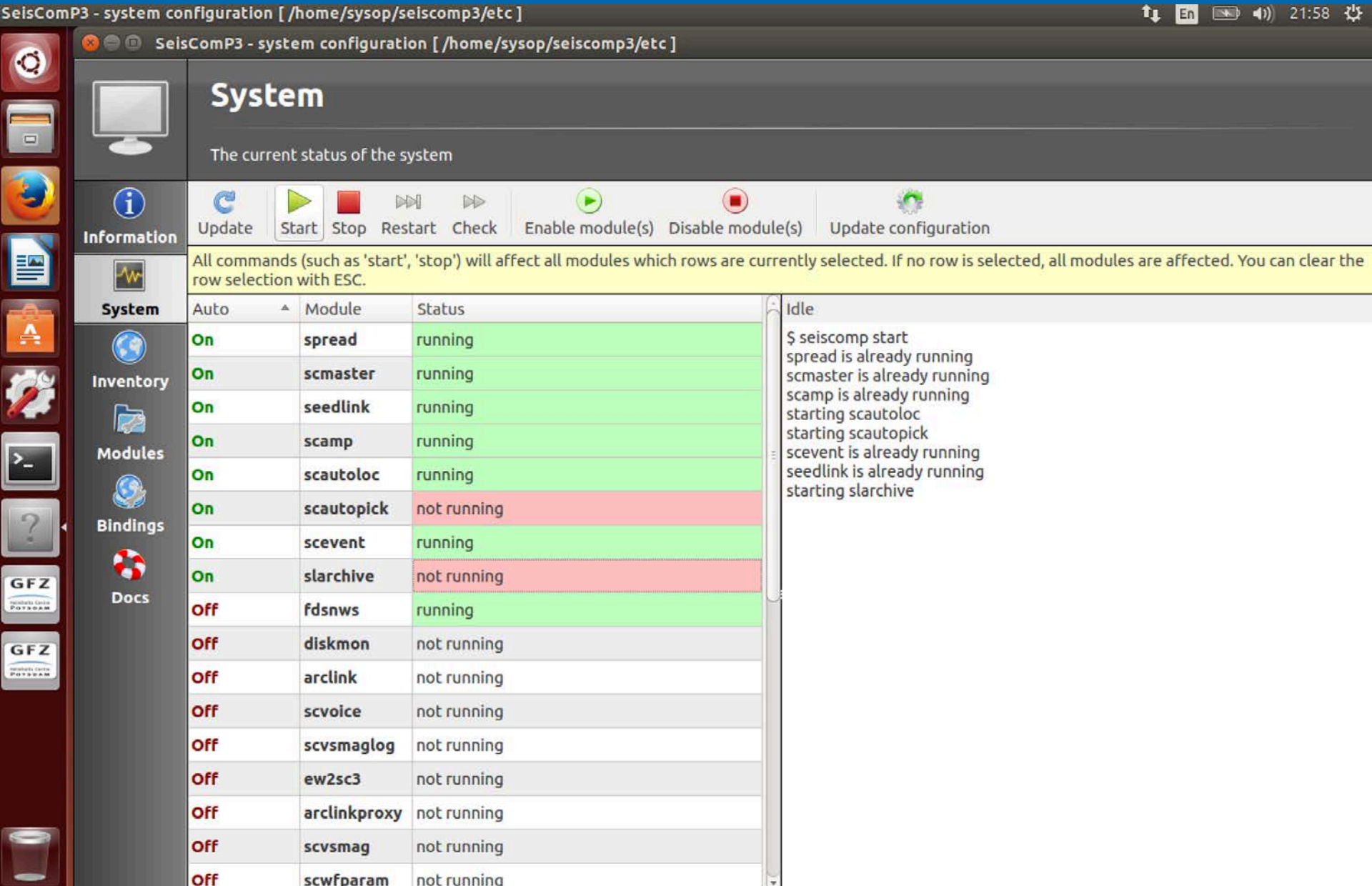


Used	Status	Phase	Net	Sta	Loc/Cha	Res	is (deg)	Az	Time	+/-
☑	M	P	IU	PET	00.BHZ	-60.12	7.80	28	02:32:09.3	
☑	A<T>	P	IU	MAJO	00.BHZ	-16.36	14.5	232	02:34:24.9	
☑	A<T>	P	IU	YAK	00.BHZ	6.09	20.5	328	02:36:00.0	
☑	A<T>	P	II	TLY	00.BHZ	-0.84	32.0	297	02:37:41.9	
☑	A<T>	P	II	KDAK	00.BHZ	11.13	34.7	50	02:38:16.9	
☑	A<T>	P	II	KURK	00.BHZ	-1.01	47.3	303	02:39:48.5	
☑	A<T>	P	GE	KBS	00.BHZ	7.10	52.9	351	02:40:38.7	
☑	A<T>	P	II	ARU	00.BHZ	0.62	55.1	317	02:40:48.5	
☑	A<T>	P	IU	COR	00.BHZ	11.62	56.3	58	02:41:08.6	
☑	A<T>	P	GE	DAG	BHZ	5.99	57.1	357	02:41:07.9	

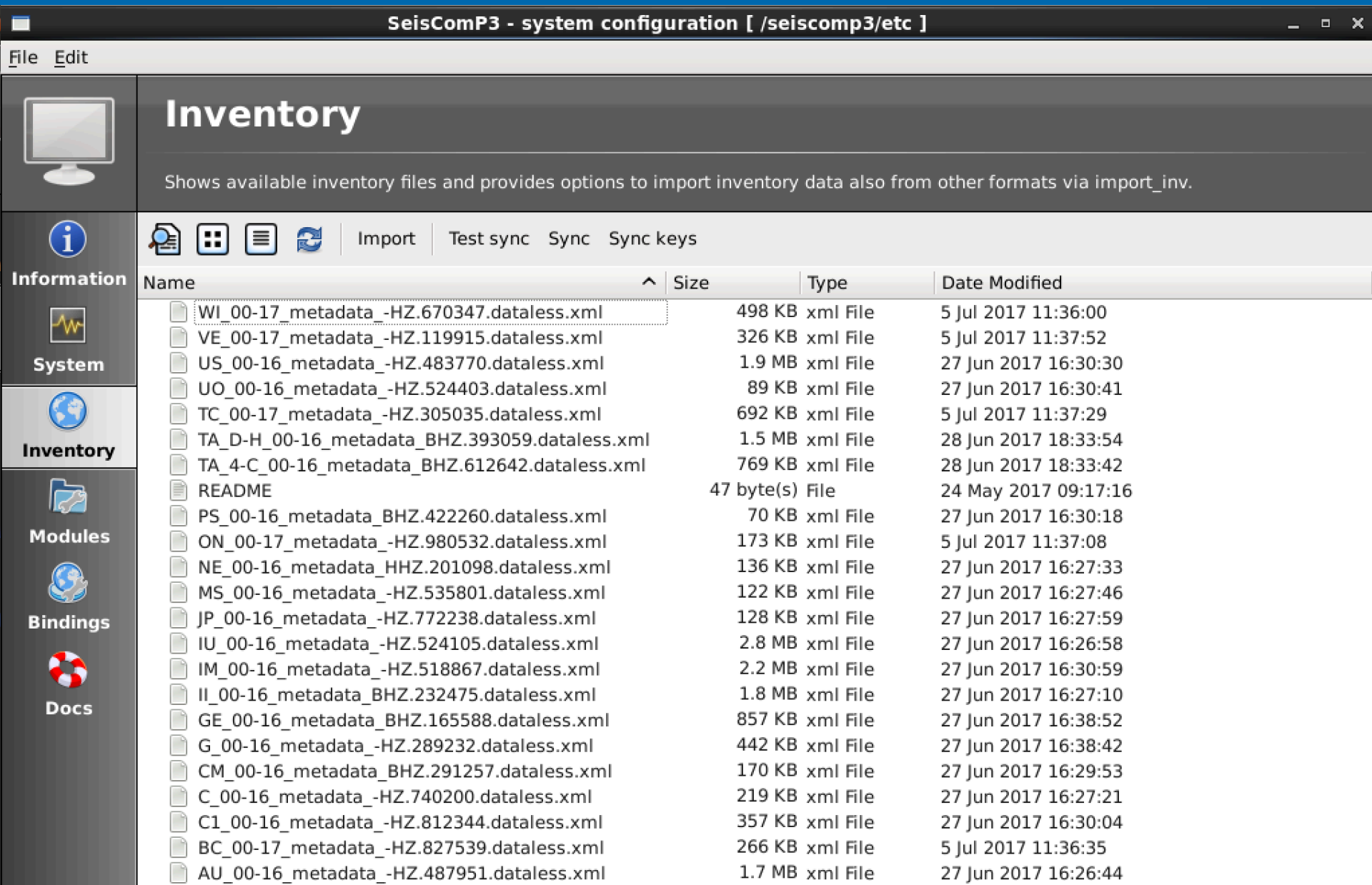
LOCSAT | Profile: iasp91 | Fix depth 0 km | Distance cutoff 1000 km

Relocate | Picker | Import picks | Compute magnitudes | Commit

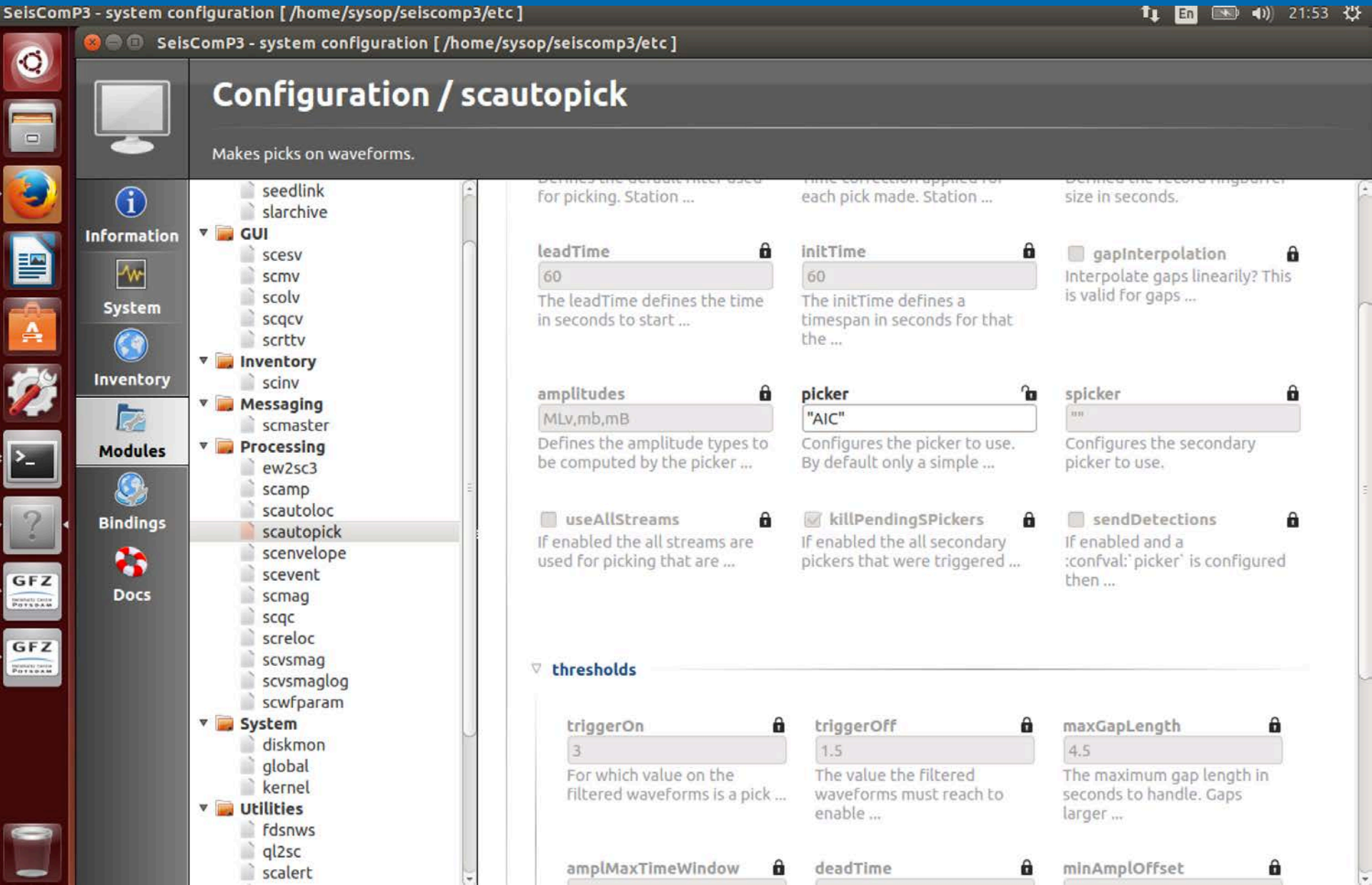
scconfig


SeisComP3 - system configuration [/home/sysop/seiscomp3/etc]
21:58
SeisComP3 - system configuration [/home/sysop/seiscomp3/etc]
System
The current status of the system
Information
System
Inventory
Modules
Bindings
Docs
Update
Start
Stop
Restart
Check
Enable module(s)
Disable module(s)
Update configuration
All commands (such as 'start', 'stop') will affect all modules which rows are currently selected. If no row is selected, all modules are affected. You can clear the row selection with ESC.
Auto
Module
Status
On spread running
On scmaster running
On seedlink running
On scamp running
On scautoloc running
On scautopick not running
On scevent running
On slarchive not running
Off fdsnws running
Off diskmon not running
Off arclink not running
Off scvoice not running
Off scvsmaglog not running
Off ew2sc3 not running
Off arclinkproxy not running
Off scvsmag not running
Off scwfparam not running
Idle
$ seiscomp start
spread is already running
scmaster is already running
scamp is already running
starting scautoloc
starting scautopick
scevent is already running
seedlink is already running
starting slarchive

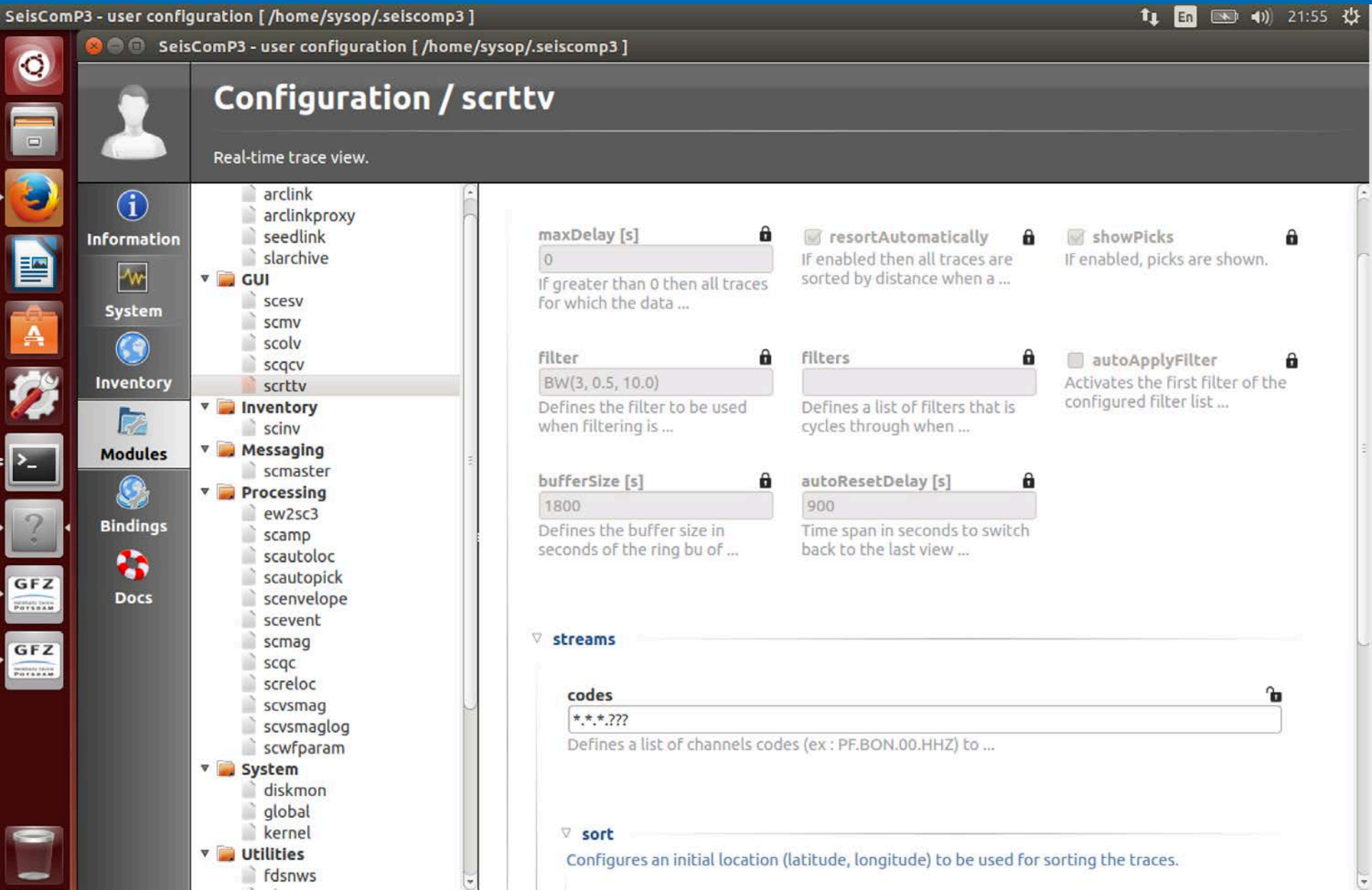
scconfig


SeisComP3 - system configuration [/seiscomp3/etc]
File Edit
Inventory
Shows available inventory files and provides options to import inventory data also from other formats via import_inv.
Information
System
Inventory
Modules
Bindings
Docs
Import
Test sync
Sync
Sync keys
Name
Size
Type
Date Modified
WI_00-17_metadata_-HZ.670347.dataless.xml 498 KB xml File 5 Jul 2017 11:36:00
VE_00-17_metadata_-HZ.119915.dataless.xml 326 KB xml File 5 Jul 2017 11:37:52
US_00-16_metadata_-HZ.483770.dataless.xml 1.9 MB xml File 27 Jun 2017 16:30:30
UO_00-16_metadata_-HZ.524403.dataless.xml 89 KB xml File 27 Jun 2017 16:30:41
TC_00-17_metadata_-HZ.305035.dataless.xml 692 KB xml File 5 Jul 2017 11:37:29
TA_D-H_00-16_metadata_BHZ.393059.dataless.xml 1.5 MB xml File 28 Jun 2017 18:33:54
TA_4-C_00-16_metadata_BHZ.612642.dataless.xml 769 KB xml File 28 Jun 2017 18:33:42
README 47 byte(s) File 24 May 2017 09:17:16
PS_00-16_metadata_BHZ.422260.dataless.xml 70 KB xml File 27 Jun 2017 16:30:18
ON_00-17_metadata_-HZ.980532.dataless.xml 173 KB xml File 5 Jul 2017 11:37:08
NE_00-16_metadata_HHZ.201098.dataless.xml 136 KB xml File 27 Jun 2017 16:27:33
MS_00-16_metadata_-HZ.535801.dataless.xml 122 KB xml File 27 Jun 2017 16:27:46
JP_00-16_metadata_-HZ.772238.dataless.xml 128 KB xml File 27 Jun 2017 16:27:59
IU_00-16_metadata_-HZ.524105.dataless.xml 2.8 MB xml File 27 Jun 2017 16:26:58
IM_00-16_metadata_-HZ.518867.dataless.xml 2.2 MB xml File 27 Jun 2017 16:30:59
II_00-16_metadata_BHZ.232475.dataless.xml 1.8 MB xml File 27 Jun 2017 16:27:10
GE_00-16_metadata_BHZ.165588.dataless.xml 857 KB xml File 27 Jun 2017 16:38:52
G_00-16_metadata_-HZ.289232.dataless.xml 442 KB xml File 27 Jun 2017 16:38:42
CM_00-16_metadata_BHZ.291257.dataless.xml 170 KB xml File 27 Jun 2017 16:29:53
C_00-16_metadata_-HZ.740200.dataless.xml 219 KB xml File 27 Jun 2017 16:27:21
C1_00-16_metadata_-HZ.812344.dataless.xml 357 KB xml File 27 Jun 2017 16:30:04
BC_00-17_metadata_-HZ.827539.dataless.xml 266 KB xml File 5 Jul 2017 11:36:35
AU_00-16_metadata_-HZ.487951.dataless.xml 1.7 MB xml File 27 Jun 2017 16:26:44

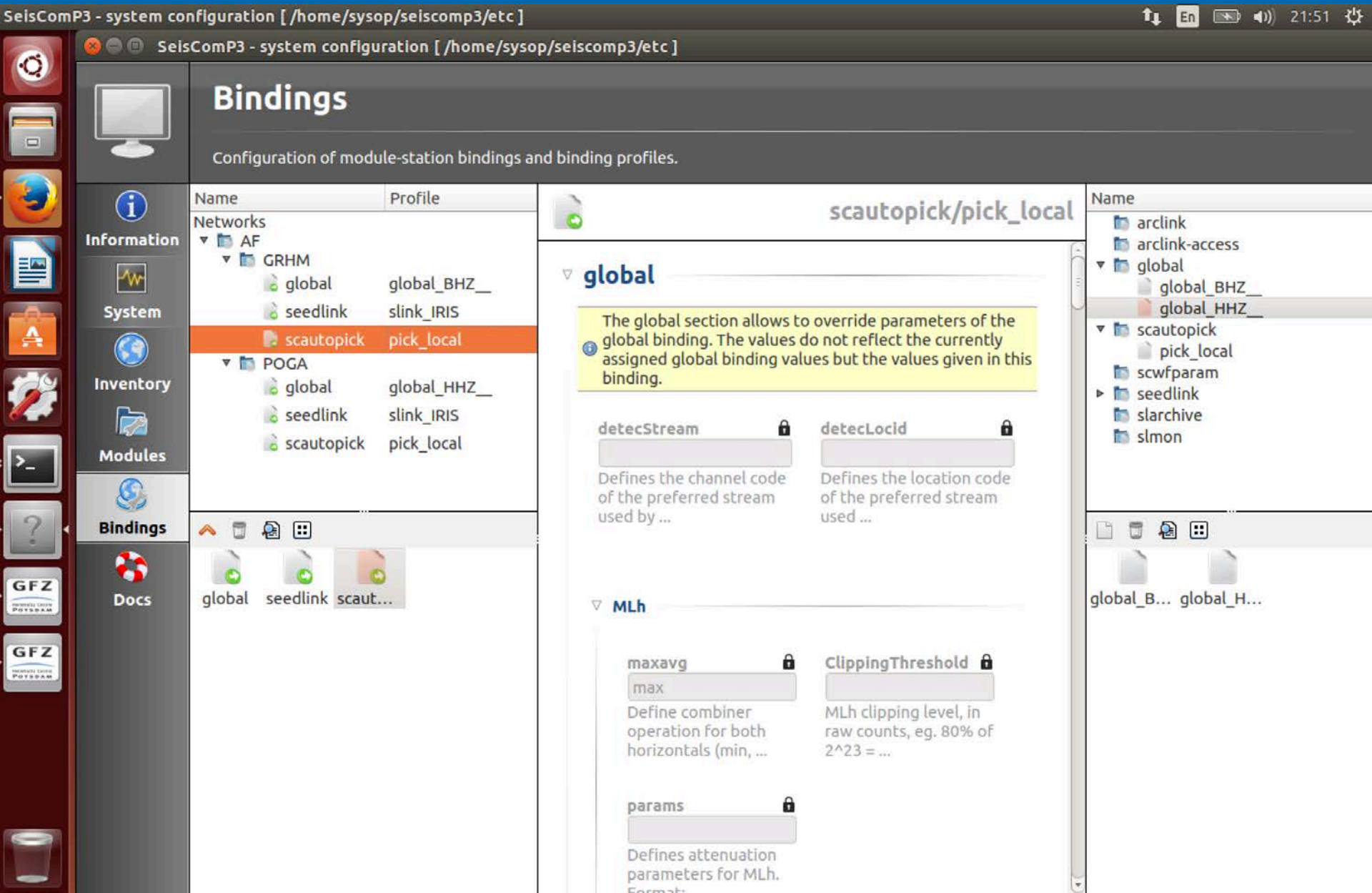
scconfig


SeisComP3 - system configuration [/home/sysop/seiscomp3/etc]
SeisComP3 - system configuration [/home/sysop/seiscomp3/etc]
Configuration / scautopick
Makes picks on waveforms.
Information
System
Inventory
Modules
Bindings
Docs
seedlink
slarchive
GUI
scesv
scmv
scolv
scqcv
scrttv
Inventory
scinv
Messaging
scmaster
Processing
ew2sc3
scamp
scautoloc
scautopick
scenvelope
scevent
scmag
scqc
screloc
scvsmag
scvsmaglog
scwfparam
System
diskmon
global
kernel
Utilities
fdsnws
ql2sc
scalert
leadTime
60
The leadTime defines the time in seconds to start ...
initTime
60
The initTime defines a timespan in seconds for that the ...
gapInterpolation
Interpolate gaps linearily? This is valid for gaps ...
amplitudes
MLv,mb,mB
Defines the amplitude types to be computed by the picker ...
picker
"AIC"
Configures the picker to use. By default only a simple ...
spicker
""
Configures the secondary picker to use.
useAllStreams
If enabled the all streams are used for picking that are ...
killPendingSPickers
If enabled the all secondary pickers that were triggered ...
sendDetections
If enabled and a :confval:`picker` is configured then ...
thresholds
triggerOn
3
For which value on the filtered waveforms is a pick ...
triggerOff
1.5
The value the filtered waveforms must reach to enable ...
maxGapLength
4.5
The maximum gap length in seconds to handle. Gaps larger ...
amplMaxTimeWindow
deadTime
minAmplOffset

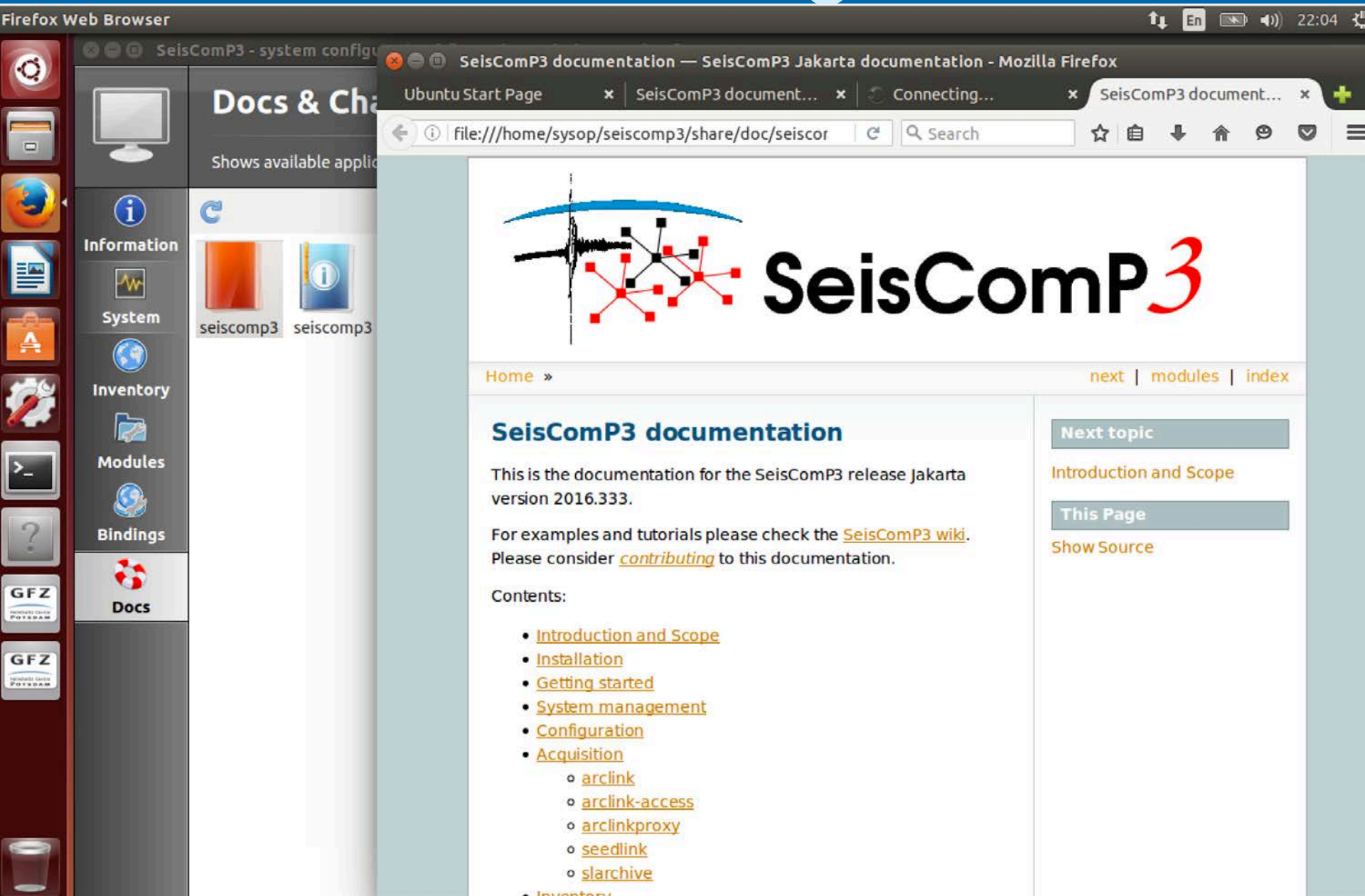
scconfig


SeisComP3 - user configuration [/home/sysop/.seiscomp3]
21:55
SeisComP3 - user configuration [/home/sysop/.seiscomp3]
Configuration / scrttv
Real-time trace view.
Information
System
Inventory
Modules
Bindings
Docs
arclink
arclinkproxy
seedlink
slarchive
GUI
scesv
scmv
scolv
scqcv
scrttv
Inventory
scinv
Messaging
scmaster
Processing
ew2sc3
scamp
scautoloc
scautopick
scenvelope
scevent
scmag
scqc
screloc
scvsmag
scvsmaglog
scwfparam
System
diskmon
global
kernel
Utilities
fdsnws
maxDelay [s]
0
If greater than 0 then all traces for which the data ...
resortAutomatically
If enabled then all traces are sorted by distance when a ...
showPicks
If enabled, picks are shown.
filter
BW(3, 0.5, 10.0)
Defines the filter to be used when filtering is ...
filters
Defines a list of filters that is cycles through when ...
autoApplyFilter
Activates the first filter of the configured filter list ...
bufferSize [s]
1800
Defines the buffer size in seconds of the ring bu of ...
autoResetDelay [s]
900
Time span in seconds to switch back to the last view ...
streams
codes
..*.???
Defines a list of channels codes (ex : PF.BON.00.HHZ) to ...
sort
Configures an initial location (latitude, longitude) to be used for sorting the traces.

scconfig


SeisComP3 - system configuration [/home/sysop/seiscomp3/etc]
21:51
SeisComP3 - system configuration [/home/sysop/seiscomp3/etc]
Bindings
Configuration of module-station bindings and binding profiles.
Information
System
Inventory
Modules
Bindings
Docs
Name
Profile
Networks
AF
GRHM
global
global_BHZ__
seedlink
slink_IRIS
scautopick
pick_local
POGA
global
global_HHZ__
seedlink
slink_IRIS
scautopick
pick_local
global
seedlink
scaut...
scautopick/pick_local
global
The global section allows to override parameters of the global binding. The values do not reflect the currently assigned global binding values but the values given in this binding.
detecStream
Defines the channel code of the preferred stream used by ...
detecLocId
Defines the location code of the preferred stream used ...
MLh
maxavg
max
Define combiner operation for both horizontals (min, ...
ClippingThreshold
MLh clipping level, in raw counts, eg. 80% of 2^23 = ...
params
Defines attenuation parameters for MLh.
Name
arclink
arclink-access
global
global_BHZ__
global_HHZ__
scautopick
pick_local
scwfparam
seedlink
slarchive
slmon
global_B...
global_H...

scconfig


Firefox Web Browser
22:04
SeisComP3 - system configu
Docs & Cha
Shows available applic
Information
System
Inventory
Modules
Bindings
Docs
seiscomp3
seiscomp3
SeisComP3 documentation — SeisComP3 Jakarta documentation - Mozilla Firefox
Ubuntu Start Page
SeisComP3 document...
Connecting...
SeisComP3 document...
file:///home/sysop/seiscomp3/share/doc/seiscor
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SeisComP3
Home »
next | modules | index
SeisComP3 documentation
This is the documentation for the SeisComP3 release Jakarta version 2016.333.
For examples and tutorials please check the SeisComP3 wiki.
Please consider contributing to this documentation.
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Introduction and Scope
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Getting started
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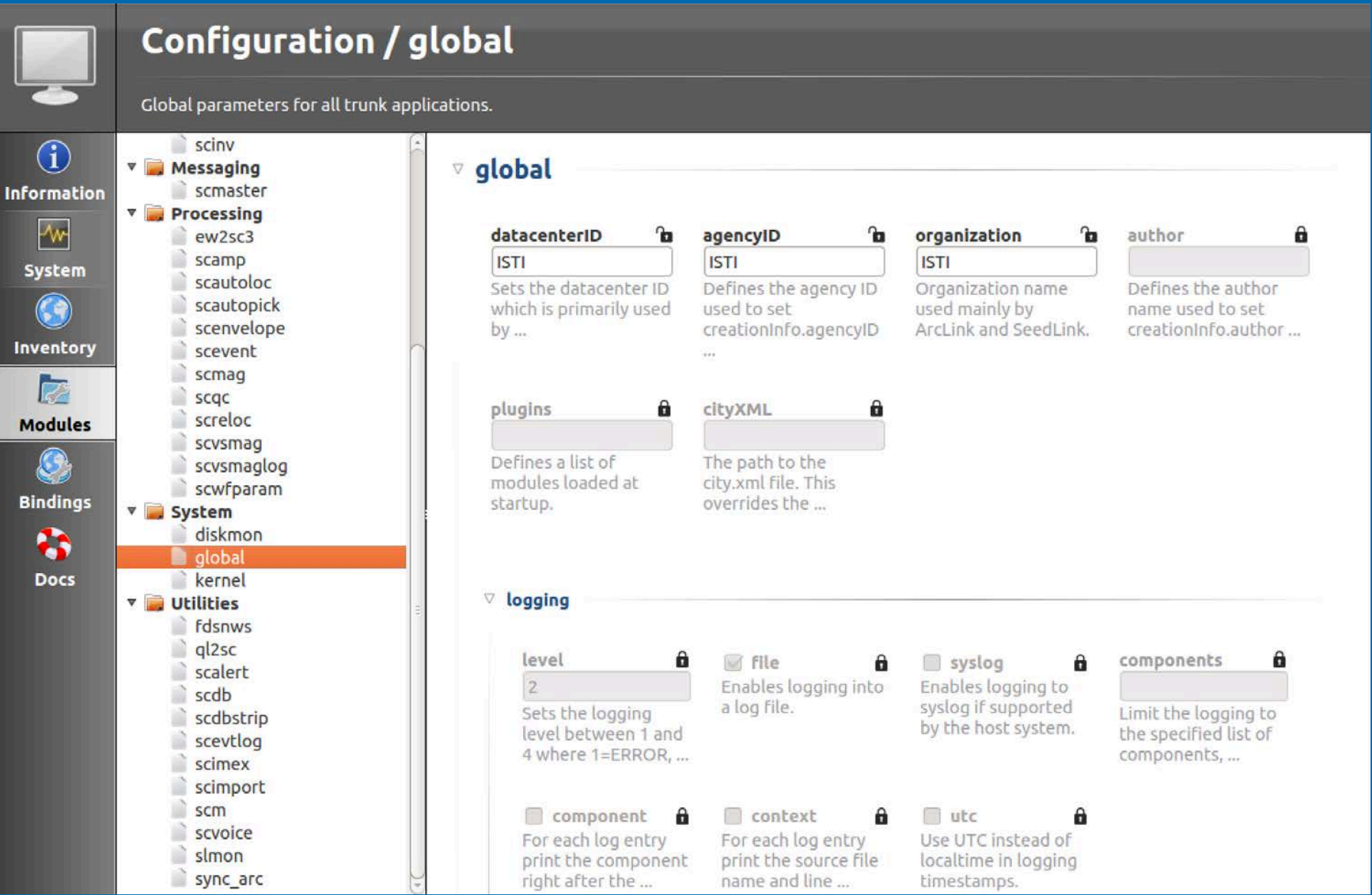
Acquisition
arclink
arclink-access
arclinkproxy
seedlink
slarchive
Next topic
Introduction and Scope
This Page
Show Source

scconfig


Configuration / global
Global parameters for all trunk applications.
Information
System
Inventory
Modules
Bindings
Docs
scinv
Messaging
scmaster
Processing
ew2sc3
scamp
scautoloc
scautopick
scenvelope
scevent
scmag
scqc
screloc
scvsmag
scvsmaglog
scwfparam
System
diskmon
global
kernel
Utilities
fdsnws
ql2sc
scalert
scdb
scdbstrip
scevtlog
scimex
scimport
scm
scvoice
slmon
sync_arc
global
datacenterID
ISTI
Sets the datacenter ID which is primarily used by ...
agencyID
ISTI
Defines the agency ID used to set creationInfo.agencyID ...
organization
ISTI
Organization name used mainly by ArcLink and SeedLink.
author
Defines the author name used to set creationInfo.author ...
plugins
Defines a list of modules loaded at startup.
cityXML
The path to the city.xml file. This overrides the ...
logging
level
2
Sets the logging level between 1 and 4 where 1=ERROR, ...
file
Enables logging into a log file.
syslog
Enables logging to syslog if supported by the host system.
components
Limit the logging to the specified list of components, ...
component
For each log entry print the component right after the ...
context
For each log entry print the source file name and line ...
utc
Use UTC instead of localtime in logging timestamps.

Pipelines

DUAL PIPELINE SYSTEM – Local and Global

create aliases

autopick1 2

- new config
- new pick/amplitude group

autoloc1 2