



# SEISCOMP3 - Introduction to sconfig

Release Seattle

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*sconfig* is a graphical user interface which allows to configure all SeisComP3 modules for which descriptions are provided.

The modules are usually programs part of the SeisComP3 system and have two distinct types of configuration:

- Global configuration, or just program configuration (like the `scautopick.cfg` file).
- Station bindings, that are set of parameters to configure how the module will treat a certain station.

The bindings configuration can be done using profiles, or directly per station. A profile is a named set of parameters for a certain module that can be attributed for more than one station.

Using profiles makes it easier to maintain large number of station configuration. When two stations are configured by the same profile, both will have the same parameter set for a certain module.



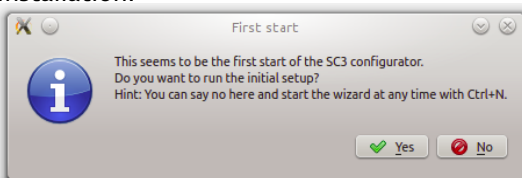
*sconfig* does not know anything about the SeisComP3 database, the only thing it can do is actually read and write the content of files from *etc/* and */.seiscomp3* folder and allow you to manage this information in organized and friendly manner.

It relies on other application (like the proper *seiscomp* command) to complete the system configuration. The main tasks that it can handle are:

- start/stop/check all registered modules
- import station metadata from various sources
- configure modules
- configure module bindings



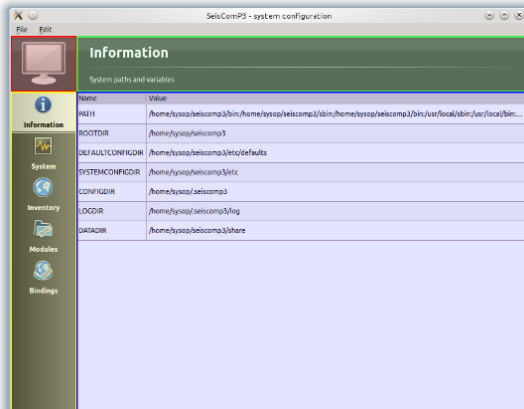
If `scconfig` is started for the first time it will ask the user to setup its new installation.



If done already with the command line interface this step can be skipped. If pressing yes, the setup wizard will be started.



The layout of the main window is always the same regardless of what panel is selected.



It is divided into 4 areas:

- red: the mode switch (user vs. system)
- yellow: panel switch
- green: title and description of current panel
- blue: the content and interactive screen of the current panel



The main menu contains two entries: File and Edit.

The file menu allows

- to run the setup wizard (Wizard)
- to reload the configuration (Reload)
- to save the configuration (Save)
- to close the configuration (Quit)

The edit menu allows to switch the current configuration mode.

Pressing the switch button in the upper left corner (red box) is a shortcut for this operation.



This panel shows information about the SeisComP3 environment (see figure main window).

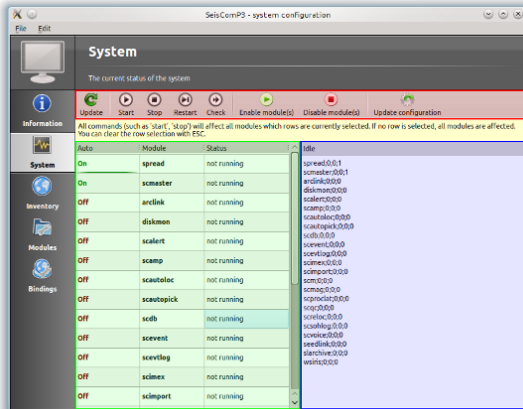
All variables (except PATH) can be used as placeholders in most of the configuration parameters which define directories or files, e.g.:

```
autoloc.grid = @CONFIGDIR@/autoloc/local.grid
```





The system panel is a graphical frontend for the seiscamp script.



It is divided into 3 parts:

- red: toolbar
- green: module list
- blue: log window

The log window shows the output of all external programs called such as *seiscamp*.

The standard output is colored black and standard error is colored brown.

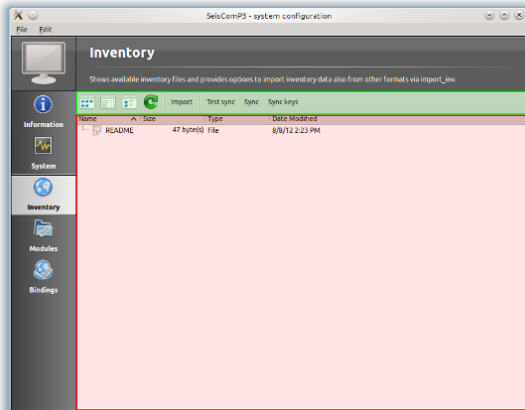
Due to the buffering of the GUI it can happen that standard output and standard error logs are not in perfect order.



The toolbar gives access to the available operations. All operations will affect the currently selected modules (rows).

If no row is selected, all modules are affected and the corresponding call to `seiscomp <arg>` is done without any module.

- Update - Updates the current module state by calling `seiscomp -csv status`
- Start - Calls `seiscomp start`
- Stop - Calls `seiscomp stop`
- Restart - Calls `seiscomp restart`
- Check - Calls `seiscomp check`
- Enable module(s) - Enables all selected modules for autostart.
- Disable module(s) - Disables all selected modules for autostart.
- Update configuration - Calls `seiscomp update-config`. This is important after the module configuration or bindings have changed and before restarting the affected modules.

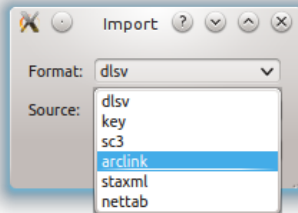


The inventory panel allows to import and synchronize inventory files. It shows a list of inventory XML files located in folder etc/inventory.

Only SeisComP3 XML files be used as source for inventory data but various importers exist to integrate inventory data from other formats. After the first start the list is empty and contains only a README file.

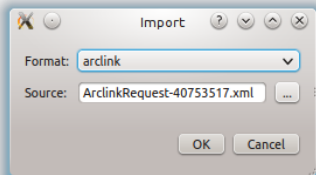


To import inventory information into *sconfig* press 'Import' button in the toolbar on the top. It will open a popup which allows to select for input format.

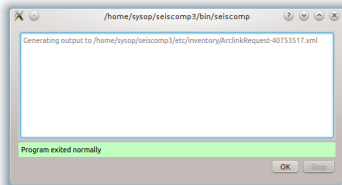


One source of importing inventory information is ArcLink as run at <http://www.webdc.eu>.

After downloading the inventory XML file from ArcLink it can be imported by choosing the arclink format.



If ArcLink is selected, the source location should then point to the ArcLink XML file downloaded before.



If successfully imported a window will popup with the execution result and the import output.



SeisComP3 - system configuration

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

Import Test sync Sync Sync keys

Name	Size	Type	Date Modified
README	47 byte(s)	file	8/9/12 2:23 PM
ArcLinkRequest-40753517.xml	210 KB	xml File	10/9/12 12:23 PM

After closing the popup the new file will show up in the list.



The inventory XML files are not used directly with SeisComP3. They need to be synchronized with the database first. The toolbar support 3 additional actions:

- Test sync - This action is a dry-run of the actual synchronisation. It performs merging and creates differences but does not send any update. This actions is useful to test all your existing inventory files before actually modifying the database.
- Sync - Almost identical to Test sync but it does send updates to the database and additionally synchronizes key files and resource files.
- Sync keys - This action is part of sync but can be called also standalone. It merges all inventory XML files and creates key files in etc/key/station\_\* if a key file does not yet exist. Existing key files are not touched unless the station is not part of the inventory anymore.

Sync and Sync keys will cause a reload of the configuration to refresh the current binding tree (see Bindings panel).

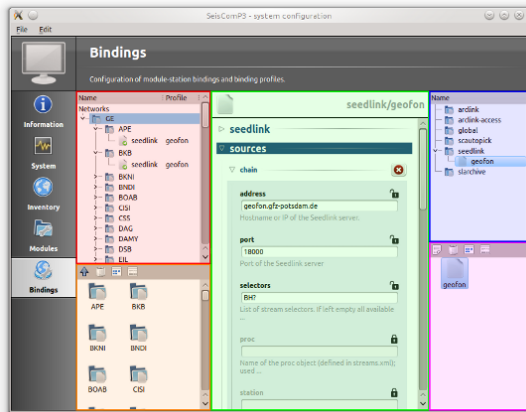


The modules panel allows configuration of all registered modules.

The screenshot shows the 'SeisComP3 - system configuration' window. On the left, a tree view under 'Configuration / arclink' lists various modules: Acquisition (arclink, seedlink, slarchive), GUI (scsv, scsvl, scsvp, scrib), Inventory (inport\_iniv, investr), Messaging (smaster), Processing (scamp, scautopic, scautopick, sevenv, smag, seq, seqrc, scwparam), System (diskmon, global, kernel), and Utilities (scalert, scbulletin). The 'arclink' module is selected and highlighted in green. The main area on the right shows the configuration for 'arclink' in a blue-themed interface. It contains several configuration fields, each with a lock icon indicating it is read-only. The fields and their values are: request\_dir (/var/lib/arclink/request), contact\_email (operator), connections (500), connections\_per\_ip (20), request\_queue (500), request\_size (1000), handler\_cmd (/usr/bin/arclink/reqhandler -s), handlers\_soft (4), handlers\_hard (10), handler\_timeout (10), handler\_start\_retry (60), handler\_shutdown\_wait (10), port (18001), lockfile (/etc/passwd/var/run/arclink.pid), and statefile (/var/lib/arclink/arclink.state). Each field has a small tooltip explaining its function.

The left/green part shows the list of available modules grouped by defined categories and the right/blue part shows the current active module configuration. The active configuration corresponds to the selected item in the list.





The binding panel configures a station for a module.

It is separated into 3 main areas:

- the station tree (red + orange)
- the binding content (green)
- the module tree (blue + magenta)



The **station tree (red/orange)** shows a tree of all available networks and their stations. Each stations contains nodes of its configured bindings. The lower view (orange) represents the content of the currently selected item in the station tree.

The **binding content (green)** shows the content of a binding and is similar to the module configuration content.

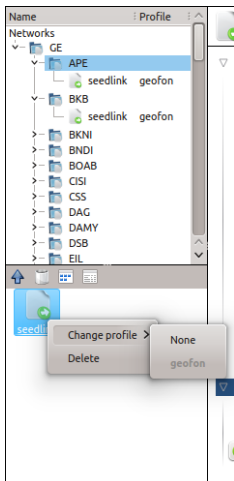
The **module tree (blue/magenta)** contains all modules which can be used along with bindings. The upper/blue window contains the modules and all available binding profiles for each module and the lower/magenta part shows all binding profiles of the currently selected module. This view is used to add new profiles and delete existing profiles.



The screenshot displays the Gempa configuration tool. On the left, a tree view shows a hierarchy of networks under 'GE'. The 'APE' network is selected, and its 'seedlink' binding is highlighted. The right pane shows the configuration for the selected 'seedlink' binding, with fields for 'access' (0.0.0.0/0), 'segments' (50), and 'blanks' (10). A context menu is open over the 'seedlink' entry in the tree, listing options: arclink, arclink-access, global (highlighted), scautopick, and slarchive.

To create an exclusive station binding for a module, it must be opened in the binding view (orange box) by either selecting a station in the station tree (red) or opening/clicking that station in the binding view (orange).

The binding view will then contain all currently configured bindings. Clicking with the right mouse button into the free area will open a menu which allows to add a binding for a module which has not yet been added. Adding a binding will activate it and bring its content into the content panel.



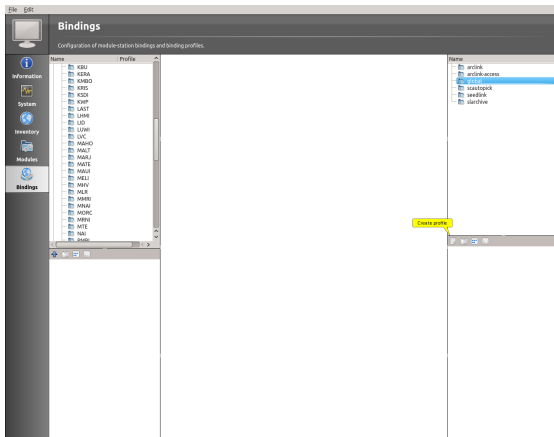
To convert an existing profile into a station binding, right click on the binding icon and select Change profile => None. The existing profile will be converted into a station binding and activated for editing.



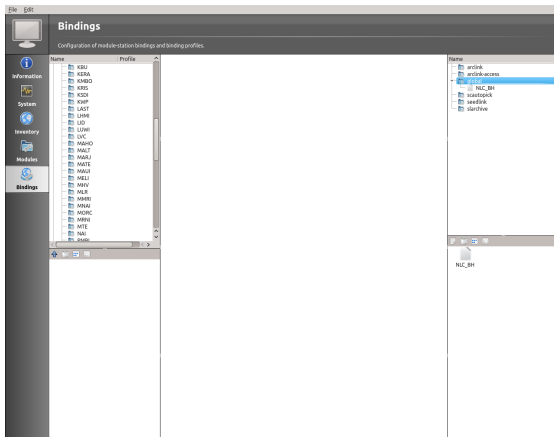
To assign a binding profile to a station, a network or a set of stations/networks, drag a profile from the right part (blue or magenta) to the left part (red or orange). It is also possible to drag and drop multiple profiles with one action.



- Follow the instructions of initial setup
- Import your inventory in the "Inventory" tab (import station information)
- Press "sync keys" in the inventory tab
- Create Bindings in the "Bindings" tab (station configuration)
- Start with a profile for the "global" bindings (definition of primary stream)
- Create profiles for SeedLink bindings (acquisition)
- Create profiles for slarchive bindings (archiving)
- Create profiles for scautopick bindings (processing)
- Drag and drop the profiles to the corresponding networks/stations
- Save your configuration
- Update the configuration in the "System" tab
- Set the "enabled" modules, which should be started by default
- Press "Start"



Create a global configuration profile and name it "NLC\_BH".



Profile NLC\_BH is created.





global/NLC\_BH

**global**

detectStreams  detectLocId

Defines the channel code of the preferred stream used eg. ...

Defines the location code of the preferred stream used ...

**MLh**

maxMag  ClippingThreshold  params

Defines combiner operation for both horizontal (pitch) ... MLh clipping level, in raw counts, eg. 80% of 2<sup>13</sup> ... Defines attenuation parameters for MLh format ...

**amplitudes**

Defines general parameters for amplitudes of a certain type.

enable  enableResponses

Defines if amplitude calculation is enabled, if disabled ... Activates deconvolution for this station, if no ...

**amp**

Amplitude type profile

**mag**

Defines general parameters for magnitudes of a certain type.

Magnitude type profile

**picker**

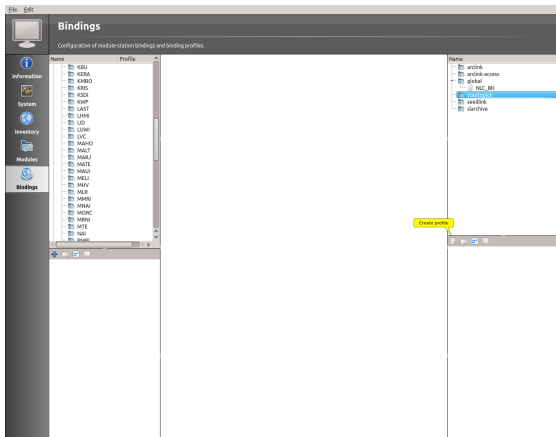
**BK**

Picker is an implementation of the BasePicker picker adopted to SeisComP3. It was created by generating Modified Bines from Python to C++ and inserting it as a replacement for the picker algorithm. The picker interface name to be used in configuration files is "BK".

signalBegin  signalEnd  FilterType  FilterPoles

Overrides the default time resolution to the ... Overrides the default BP (Bandpass) is necessary the only ... Number of poles.

Doubleclick on profile "NLC\_BH".  
Click on the "lock" next to the  
detectStream box and add "BH".



Create a scoutpick configuration profile and name it "default".



The screenshot shows the 'Bindings' configuration window. The main area displays the configuration for 'scautopick/default'. The configuration is organized into sections, each with a 'lock' icon:

- scautopick**
  - detectEnable**: Enables/disables picking on a station. Value: 1.5
  - detectStream**: Allows to override the preferred stream.
  - detectLocked**: Allows to override the location code of the preferred...
  - detectFilter**: Defines the filter to be used for picking.
  - IntgOn**: For which value on the filtered waveform a pick detected.
- IntgOff**: The value the filtered waveform must reach to enable #...
- TimeCorr**: The time correction applied to a detected pick. Value: 0.0

On the right side, a tree view shows the hierarchy of bindings, with 'default' selected under 'scautopick'.

- Doubleclick on "default" to see the parameters
- By clicking on the "lock" you can change the parameters.
- We stay with the predefined parameters for now.

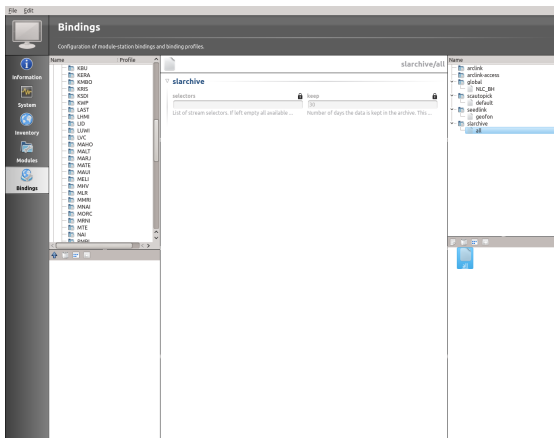


The screenshot shows the 'Bindings' configuration window. The main area displays the configuration for the 'seedlink/geofoon' profile. The 'seedlink' section is expanded, showing fields for 'access', 'buffers', 'segments', 'segmentsize', and 'blanks'. Below this is the 'proc' section with an 'encoding' dropdown. At the bottom, the 'sources' section shows a list with a green '+' button next to 'chain'. The left sidebar contains navigation icons for Information, System, Inventory, Modules, and Bindings. The right sidebar shows a tree view of the binding structure, with 'geofoon' selected.

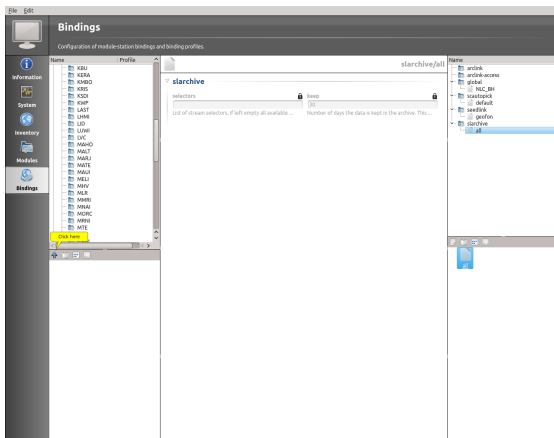
- Click on SeedLink
- Create profile "geofoon"
- Doubleclick on "geofoon"
- Now the SeedLink settings are shown.
- Click on the green button with the "+". The chain name can be empty.



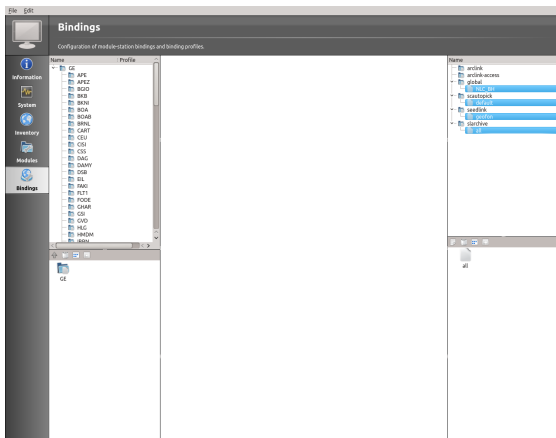
- Click on the small triangle next to the chain to see the settings.
- We stay with the predefined parameters for now.



- Click on SLarchive
- Create a profile "all"
- Doubleclick on "all"
- Now the SLarchive settings are shown.
- We stay with the predefined parameters for now.



- Press the "up" error on the lower left side until you see "GE".



- Drag and drop the profiles (global, seedlink, scautopick, slarchive) one by one on "GE" on the lower left side.
- The profiles are now assigned to all "GE" stations.





File Edit

### System

The current status of the system

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	File
On	spread	not running	\$ sconsmp enable arclink scautopick scmag screen scautoloc scamp seedlink scq:
On	somaster	not running	enabled arclink
On	arclink	not running	enabled scautopick
On	scautopick	not running	enabled scmag
On	scmag	not running	enabled screen
On	screen	not running	enabled scautoloc
On	scautoloc	not running	enabled scamp
On	scamp	not running	enabled seedlink
On	seedlink	not running	enabled scq:
On	scq:	not running	
Off	caps	not running	
Off	scalent	not running	
Off	crezcaps	not running	
Off	scimeex	not running	
Off	scashlog	not running	
Off	screenloc	not running	
Off	diskless	not running	
Off	spublish	not running	
Off	rszcaps	not running	
Off	screenec	not running	
Off	son	not running	
Off	screenflag	not running	
Off	screenstat	not running	
Off	scdb	not running	
Off	scimport	not running	
Off	rsfpbcaps	not running	
Off	slarchive	not running	

- Goto File and press "Save".
- Switch to the "System" tab.
- Press "Update Configuration"
- Multiselect SeedLink, SLarchive, ArcLink, scautopick, scautoloc, scamp, scmag, scelevent, scq.
- Press "Enable Modules"
- Press "Start"

Thank you for your attention!

**gempa**



# Questions?