

Salsa User Manual

last update February 2020

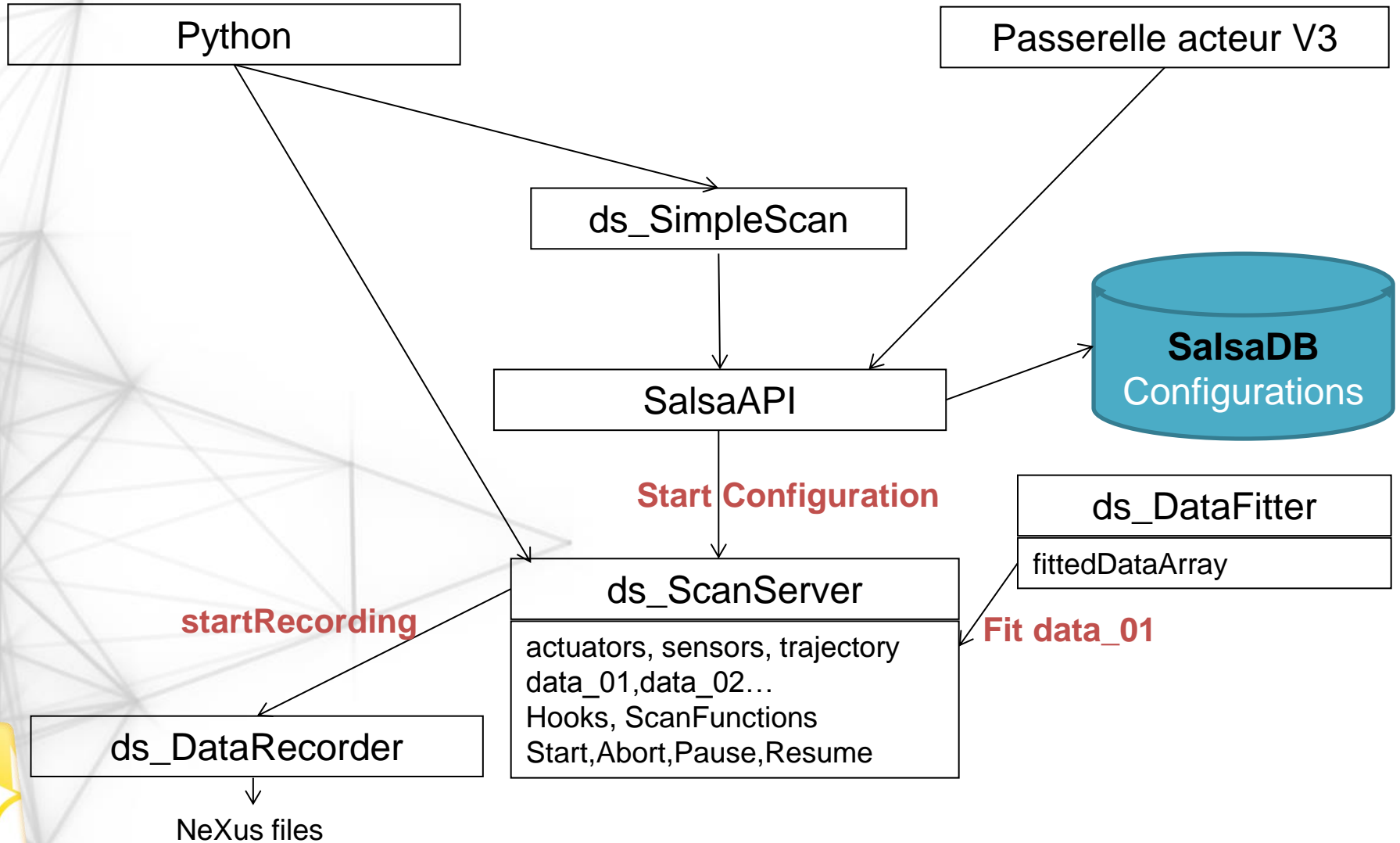
- Software architecture.....6
- COMETE graphical library...9
- Software packages.....10
- Salsa lexicon.....11
- Salsa description.....12

- Environment variables.....[12](#)
- Preferences settings.....[13](#)
 - Scan server device settings
 - Data fitter device settings
 - Historic log settings
 - Data recording settings
 - Enable confirmation settings
 - Scan server device properties settings
 - Nexus file browser integration
- Salsa mode.....[14](#)
 - Configuration mode
 - Configuration manager
 - Salsa read only
 - Salsa result

- Create a new configuration.....[18](#)
- General parameters.....[19](#)
 - Number of scan
 - Actuators delay
 - Zig zag trajectory
 - Scan on the fly
 - Scan speed adjustment
 - After run function and scan function
- Scan execution.....[23](#)
 - Start
 - Abort
 - Pause
 - Resume
- Scan parameters.....[20](#)
 - Sensors
 - Time bases
 - Actuators
 - Trajectories
 - Hooks
 - Error strategies

- Scan result.....[24](#)
 - Display manager
 - 1D scan result
 - 2D scan result
 - Scan functions
 - Error strategies
 - Scan historic
 - Salsa logging

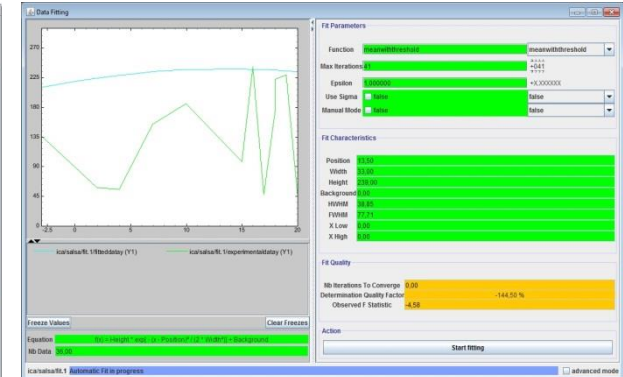
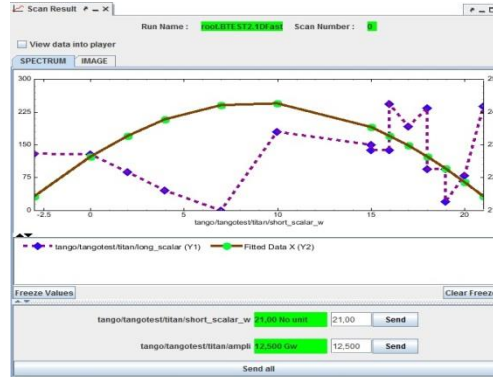
- Other functionalities.....[31](#)
 - Perspectives
 - Data fitter
 - Data recorder
 - Bookmarks
 - Search tool
 - Custom trajectory
 - Open Nexus files
 - Get trajectory from scan image



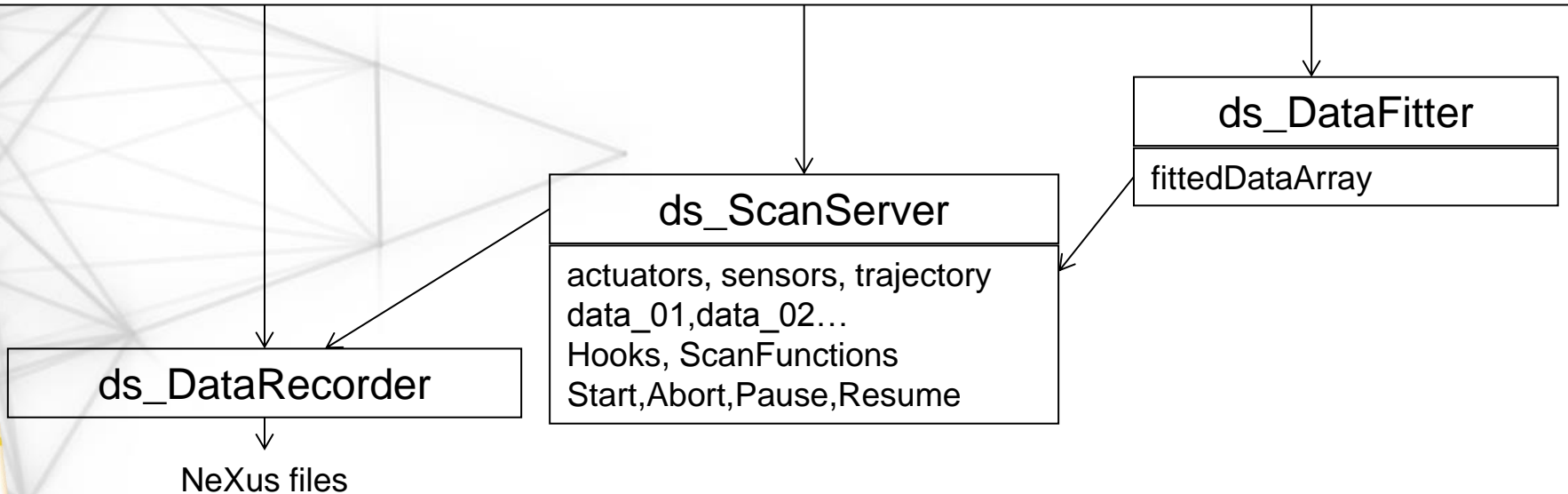
DataRecorderBean

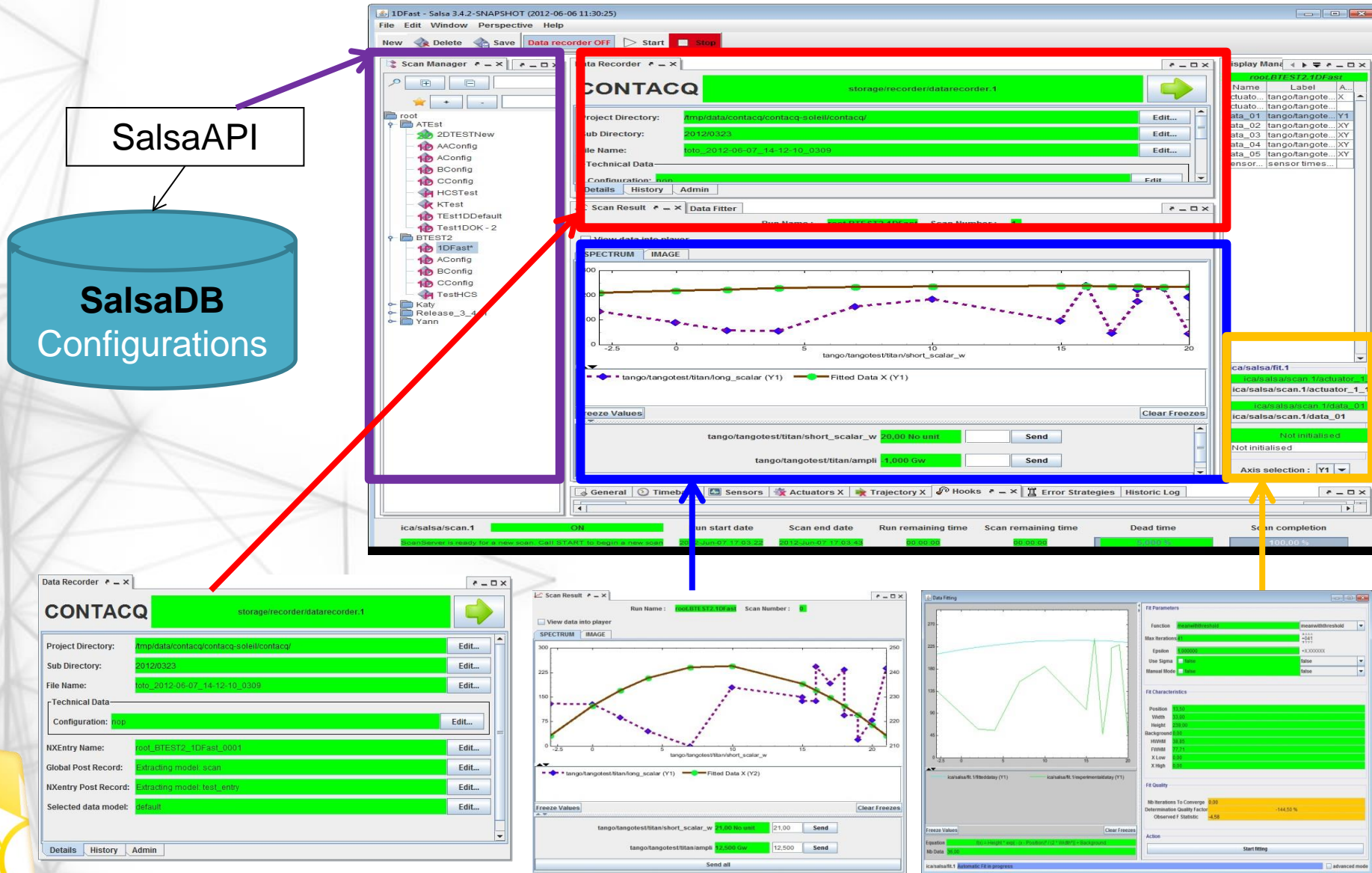
CurrentScanResultBean

DataFitterBean

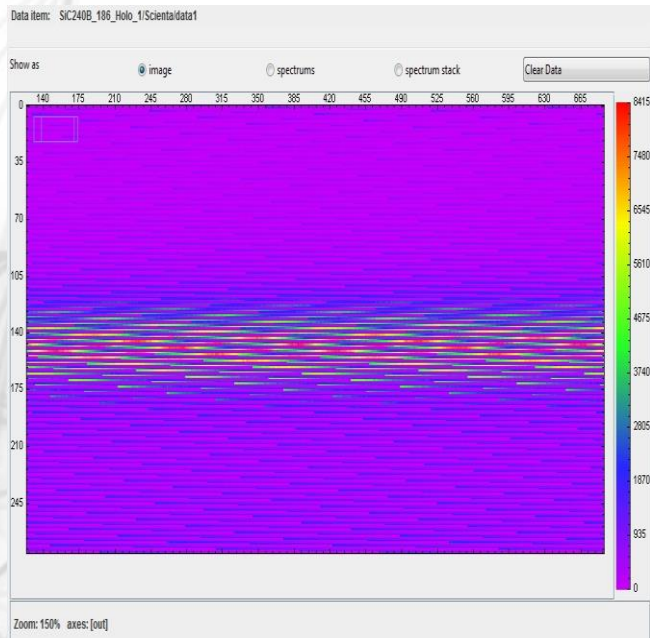


COMETE Graphical library

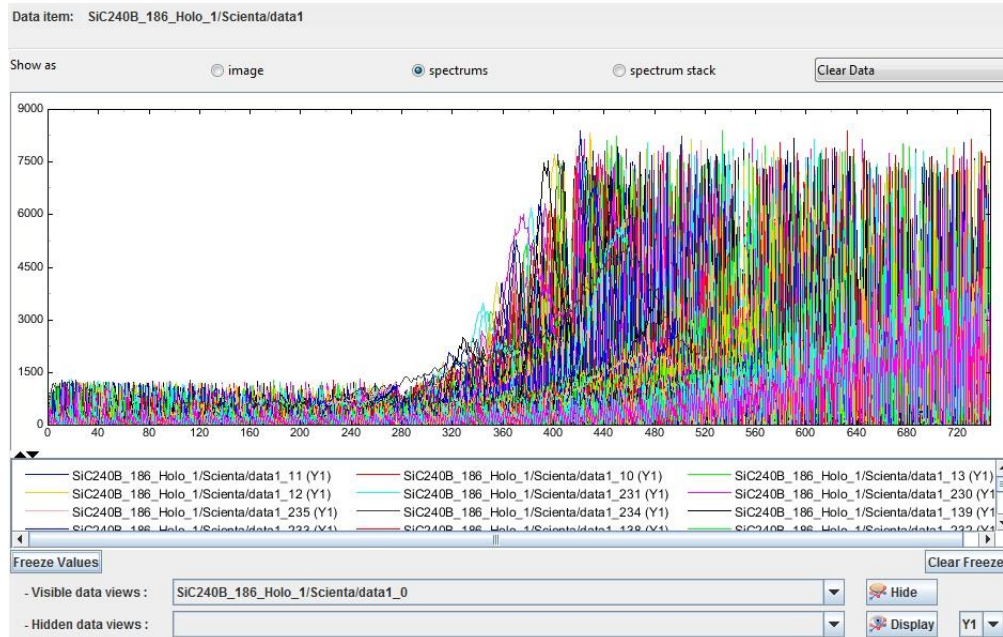




COMETE graphical library



20,00 No unit



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+030.00
▼▼▼▼▼

95,00 %

NEXUS

TANGO

Archivage

PASSERELLE_ROOT

Bossanova

Passerelle

SalsaAPI (Duplication)

LIVE_ROOT

SALSA

DataRecorderBean

ScanResultBean

DataFitterBean

Comete

SalsaAPI

DEVICE_ROOT

ds_DataRecorder

ds_ScanServer

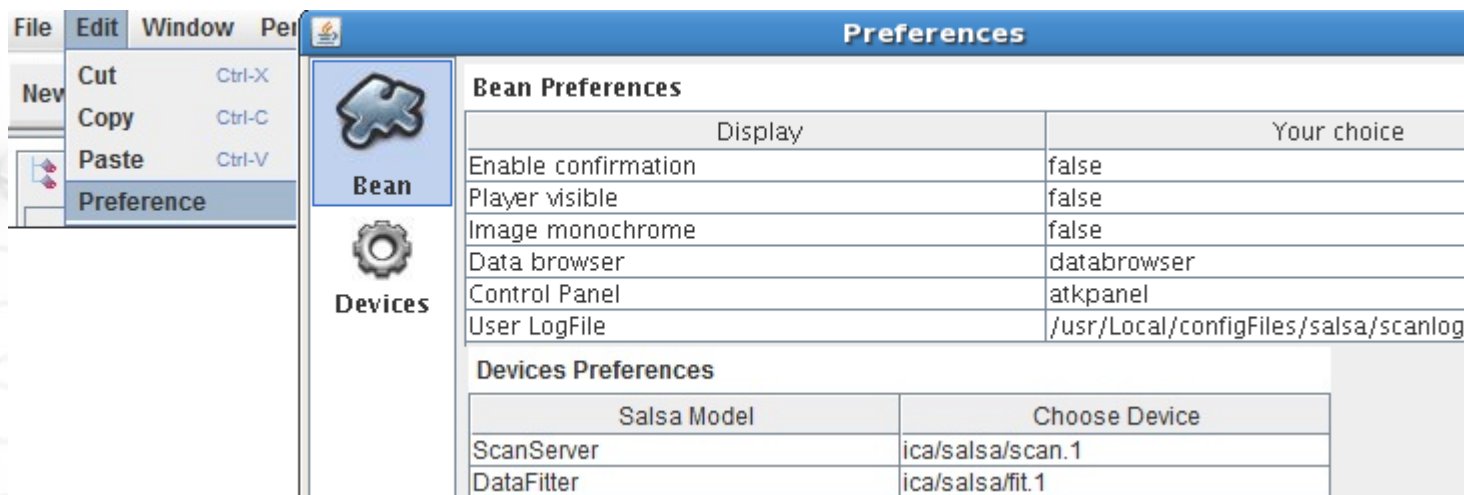
ds_DataFitter

- **TANGO** : The control system of SOLEIL
- **Device** : A TANGO programm for remoting a equipment or processing.
- **Attribute** : An equipment or a process parameter (eg : position or integration time).
- **Command** : An equipment or a process action (eg : Move or Count)
- **Scan server device** : The Tango device server for processing scan.
- **Nexus** : Format of files of SOLEIL.
- **Sensor** : listened Tango parameter
- **Actuator** : moved Tango parameter
- **Hook** : A simple Tango command (no argument as Start, Close...)
- **Perspective** : A custom view disposition.

Salsa needs for several environment variables to be set.

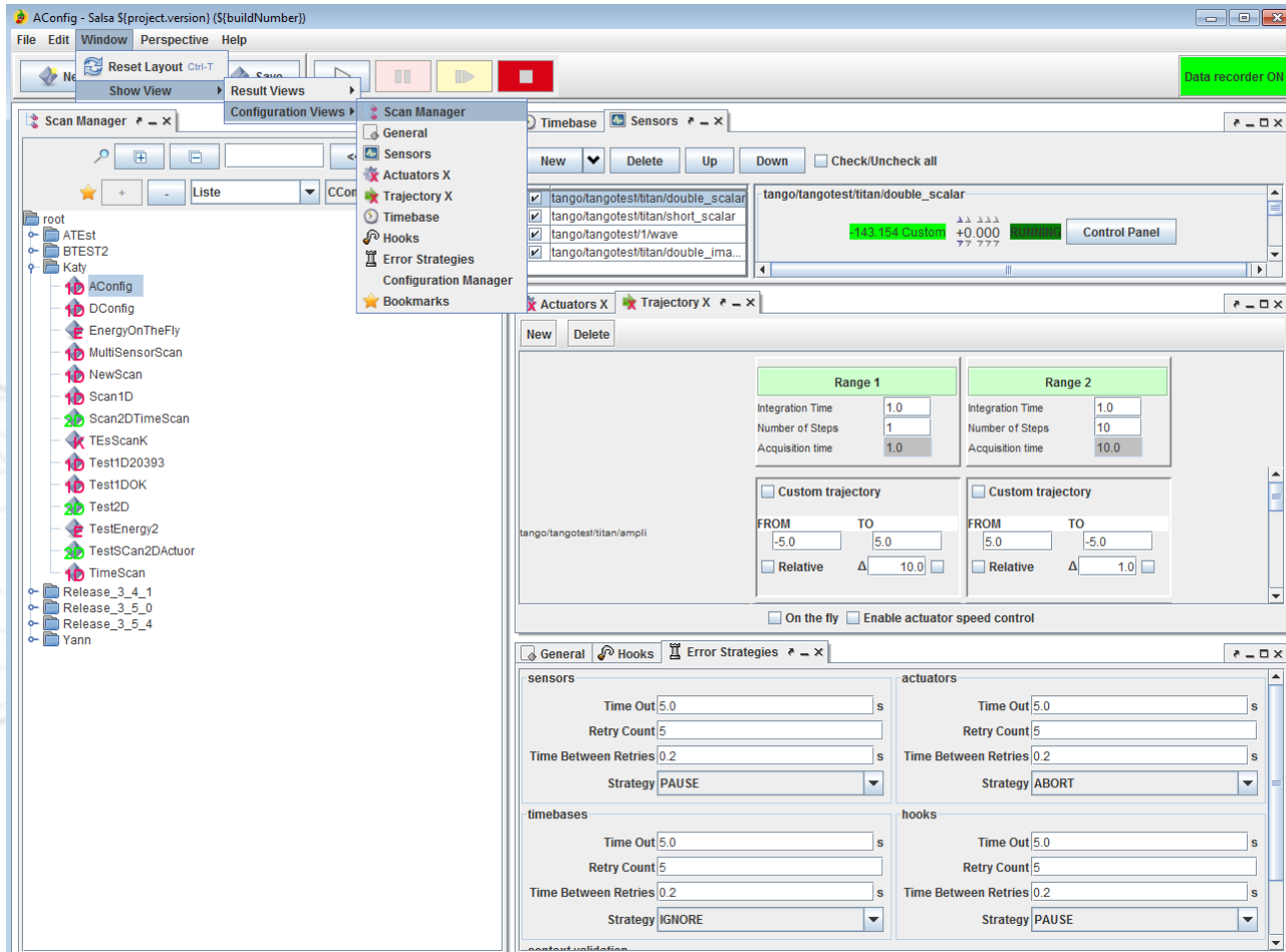
- **TANGO_HOST**
Host of the tango database (localhost:20001)
- **SALSA_SERVER_URL**
Url of the salsa database (jdbc:mysql://localhost/salsa)
- **SALSA_LOGIN**
The login of the user connected on Salsa database
- **SALSA_PERSPECTIVES_DIRECTORY**
The folder for the perspectives files
- **SALSA_DEVICE_PREFERENCES**
The file for the device configurations
- **SALSA_UI_PREFERENCES**
The file for the user interface configurations

- Log file setting
- Scan server device setting
- Data Fitter device setting
- Nexus file browser application



Configuration mode : (“salsa” command)

In this mode you can create, modify and remove a scan configuration.
All the configuration edition views are available in the Menu
Window > Show View > Configuration Views



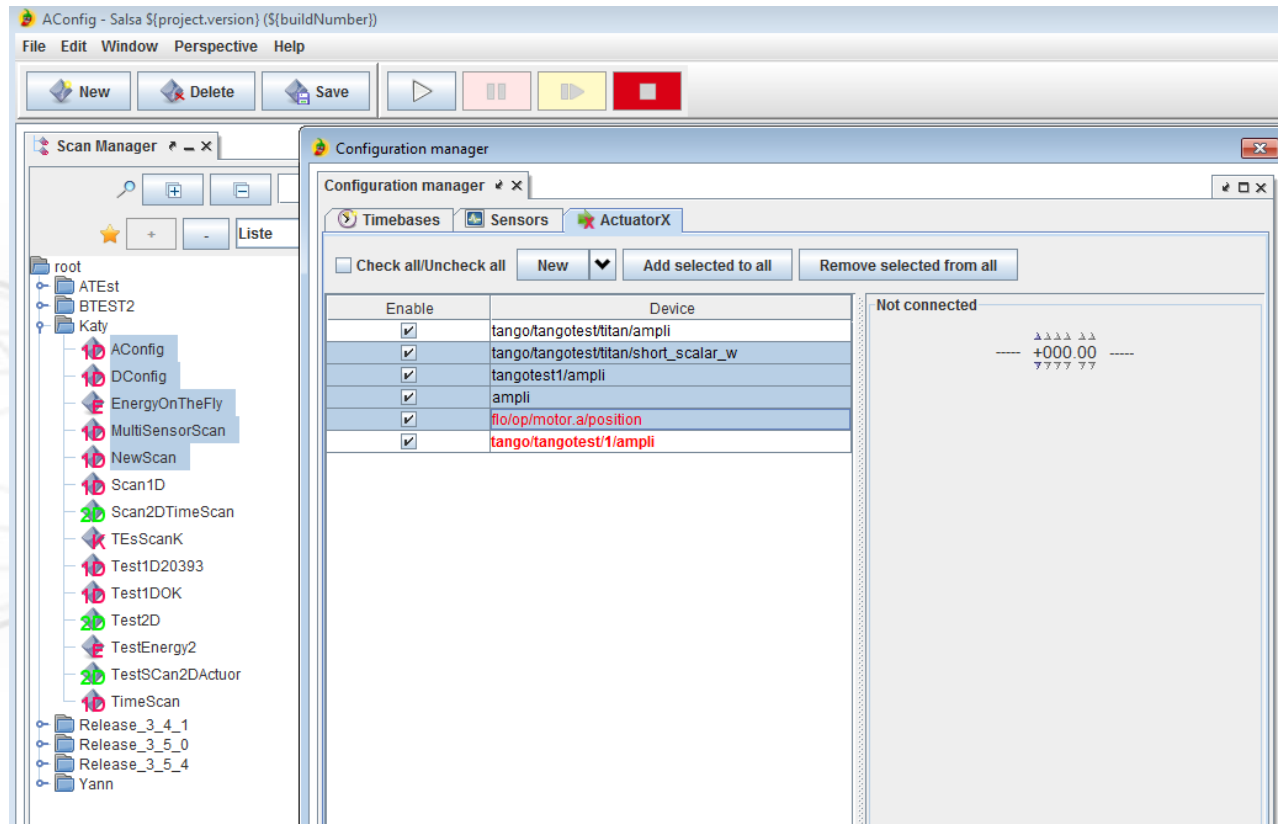
Configuration manager

The management of several configurations is possible now.

You can Add, Remove, Enable/Disable a TimeBase, Sensor or Actuator on several configurations.

Select several configuration in the Scan Manager Tree.

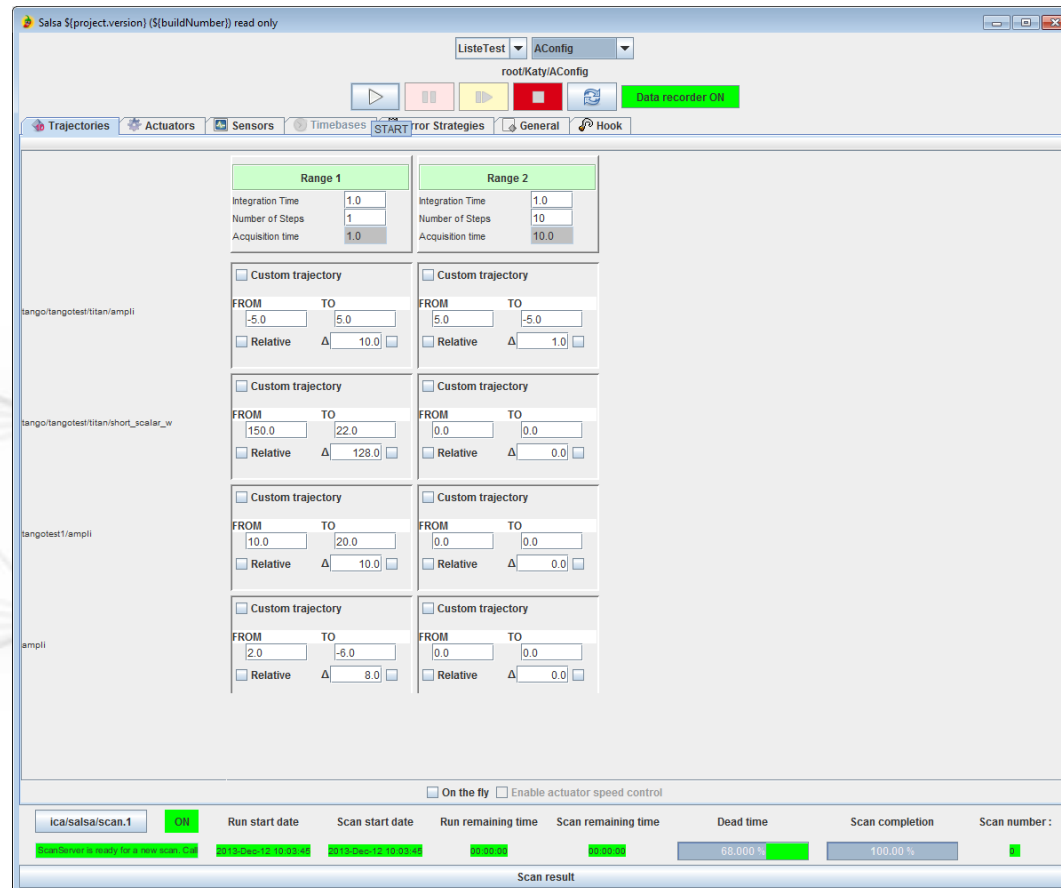
The **devices appear in red color**, are the uncommon devices.



Salsa read only: (“salsa-ro” command)

In this mode you can only select a Scan configuration from the bookmark, modify the scan configuration (delete or add devices, or hook is not possible).

And you can play the configuration.



The screenshot shows the Salsa Mode software interface. At the top, there's a title bar with the text "Salsa \$(project.version) \$(buildNumber) read only". Below the title bar, there are tabs for "Trajectories", "Actuators", "Sensors", "Timebases", "START", "Error Strategies", "General", and "Hook". The "START" tab is active. The main area is divided into two columns, "Range 1" and "Range 2". Each range has a table of parameters: Integration Time, Number of Steps, and Acquisition time. Below these tables, there are checkboxes for "Custom trajectory" and "Relative" settings. The bottom of the interface shows a status bar with various indicators: "On the fly", "Enable actuator speed control", "Run start date", "Scan start date", "Run remaining time", "Scan remaining time", "Dead time", "Scan completion", and "Scan number".

Range	Integration Time	Number of Steps	Acquisition time
Range 1	1.0	1	1.0
Range 2	1.0	10	10.0

Device	FROM	TO	Relative	Δ
tango/tangotest/titan/amp1	-5.0	5.0	<input type="checkbox"/>	10.0
tango/tangotest/titan/short_scalar_w	150.0	22.0	<input type="checkbox"/>	128.0
tangotest/t/amp1	10.0	20.0	<input type="checkbox"/>	10.0
amp1	2.0	-6.0	<input type="checkbox"/>	8.0

On the fly ☐ Enable actuator speed control

ica/salsa/scan.1 Run start date Scan start date Run remaining time Scan remaining time Dead time Scan completion Scan number :

00:00:00 00:00:00 00:00:00 00:00:00 00:00:00 100.00 %

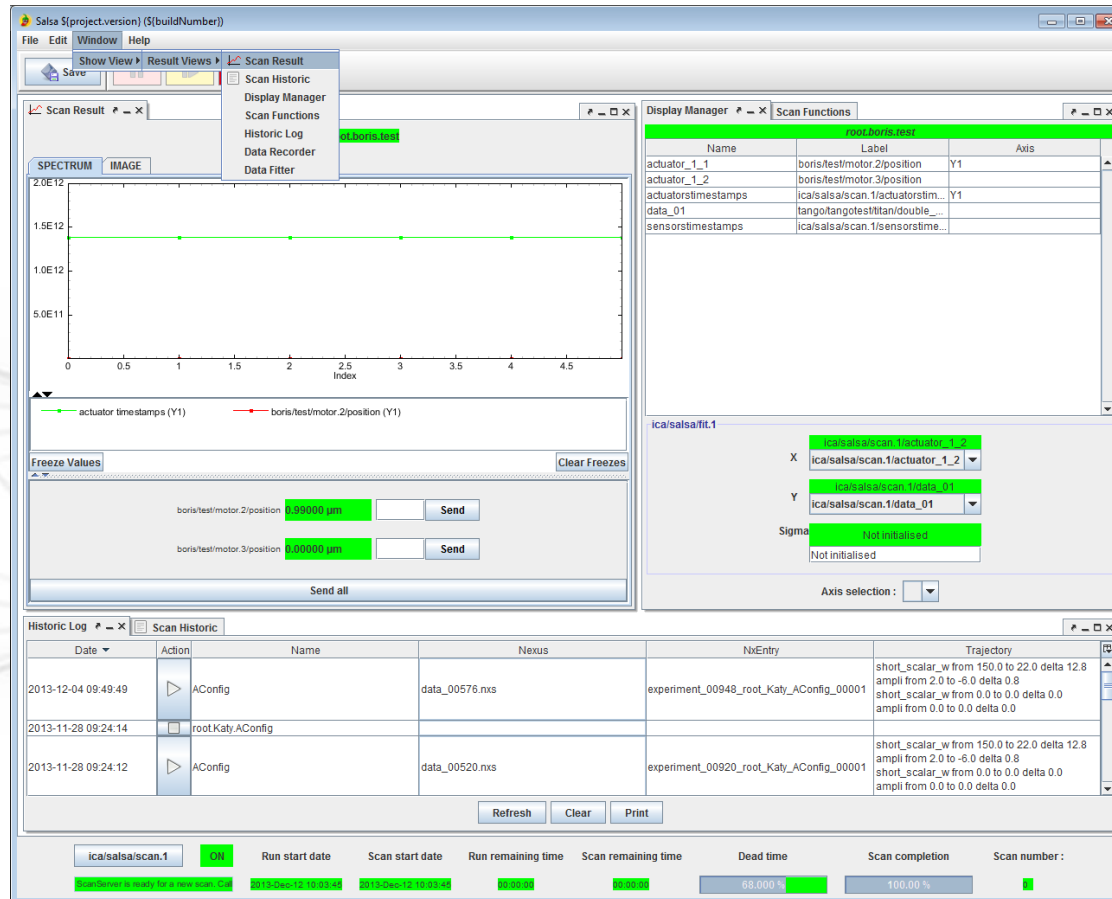
Scan result

Salsa result : (“salsa-result” command)

In this mode you can only visualize the current scan result.

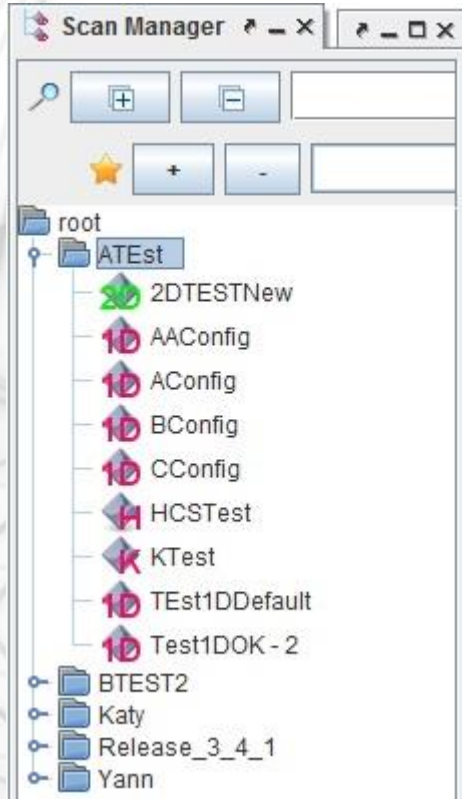
All the views for the visualization are available in the Menu :

Window > Show View > Result Views



Create a new configuration

- New scan configuration. Several kinds of scan exist



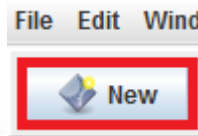
1D = dimension X

2D = dimension X et dimension Y

HCS = 1D continu hardware with a time base

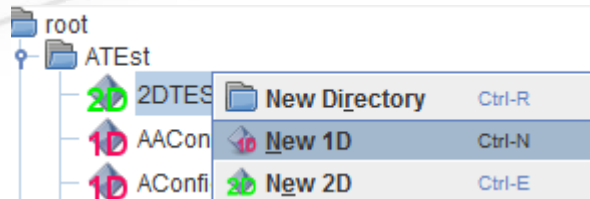
K = 1D specific trajectory in 3 phases

E = 1D trajectory visualized differently in a table



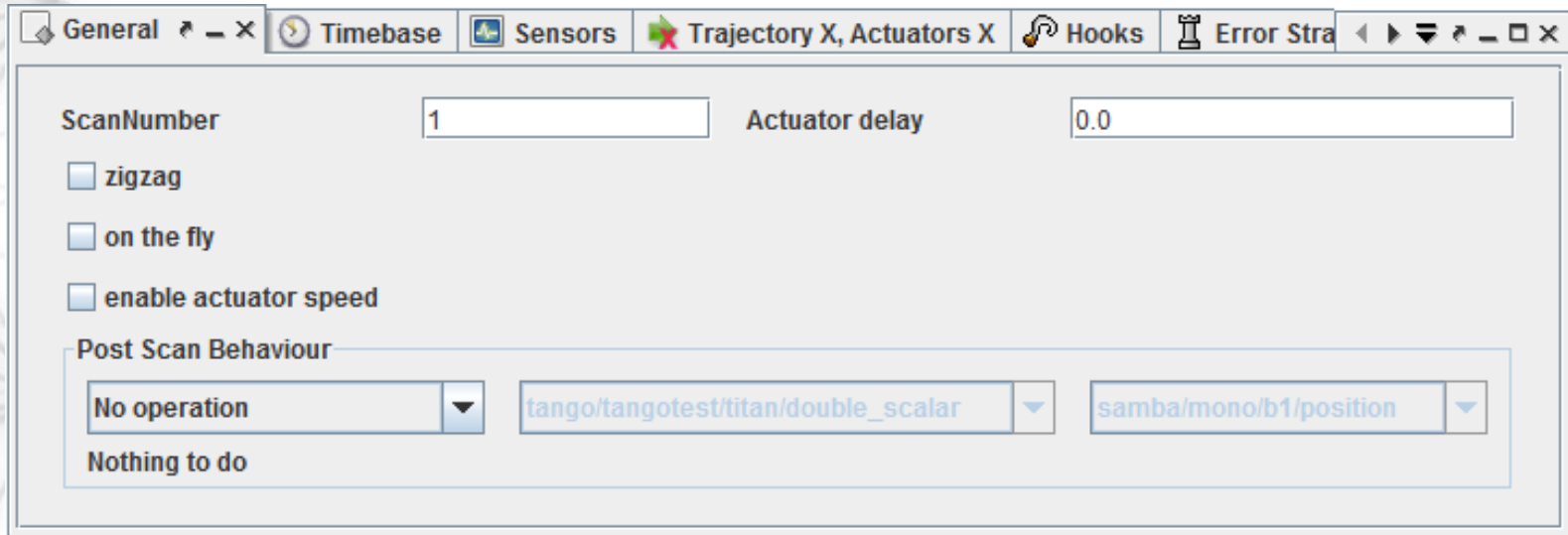
Click on the New button

Or right click on the tree to make appears the configuration management menu.



- LINE/EX/SCAN.1/scanNumber
- LINE/EX/SCAN.1/ actuatorsDelay
- LINE/EX/SCAN.1/ zigzag
- LINE/EX/SCAN.1/ onTheFly
- LINE/EX/SCAN.1/ enableScanSpeed
- LINE/EX/SCAN.1/ afterRunActionType

*scanserver
attributes*



The screenshot shows a software window titled "General" with several tabs: "General", "Timebase", "Sensors", "Trajectory X, Actuators X", "Hooks", and "Error Stra". The "General" tab is active. It contains the following fields and controls:

- ScanNumber**: A text input field containing the value "1".
- Actuator delay**: A text input field containing the value "0.0".
- zigzag**: A checkbox, currently unchecked.
- on the fly**: A checkbox, currently unchecked.
- enable actuator speed**: A checkbox, currently unchecked.
- Post Scan Behaviour**: A section containing three dropdown menus:
 - The first dropdown menu is set to "No operation".
 - The second dropdown menu is set to "tango/tangotest/titan/double_scalar".
 - The third dropdown menu is set to "samba/mono/b1/position".
- Nothing to do**: A text label at the bottom of the Post Scan Behaviour section.

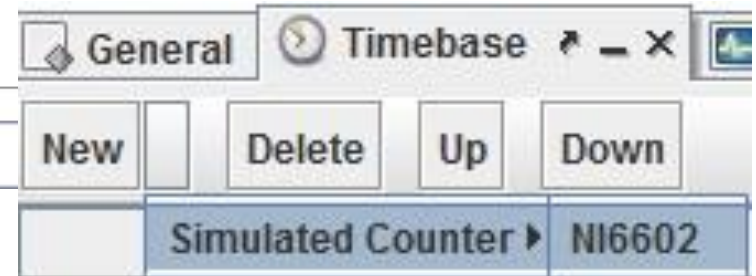
- LINE/EX/SCAN.1/sensors
- LINE/EX/SCAN.1/timebases
- LINE/EX/SCAN.1/actuators
- LINE/EX/SCAN.1/trajectories

*scanserver
attributes*

- Predefined values defined in the device properties :
 - ActuatorsFile,
 - SensorsFile,
 - TimebasesFile

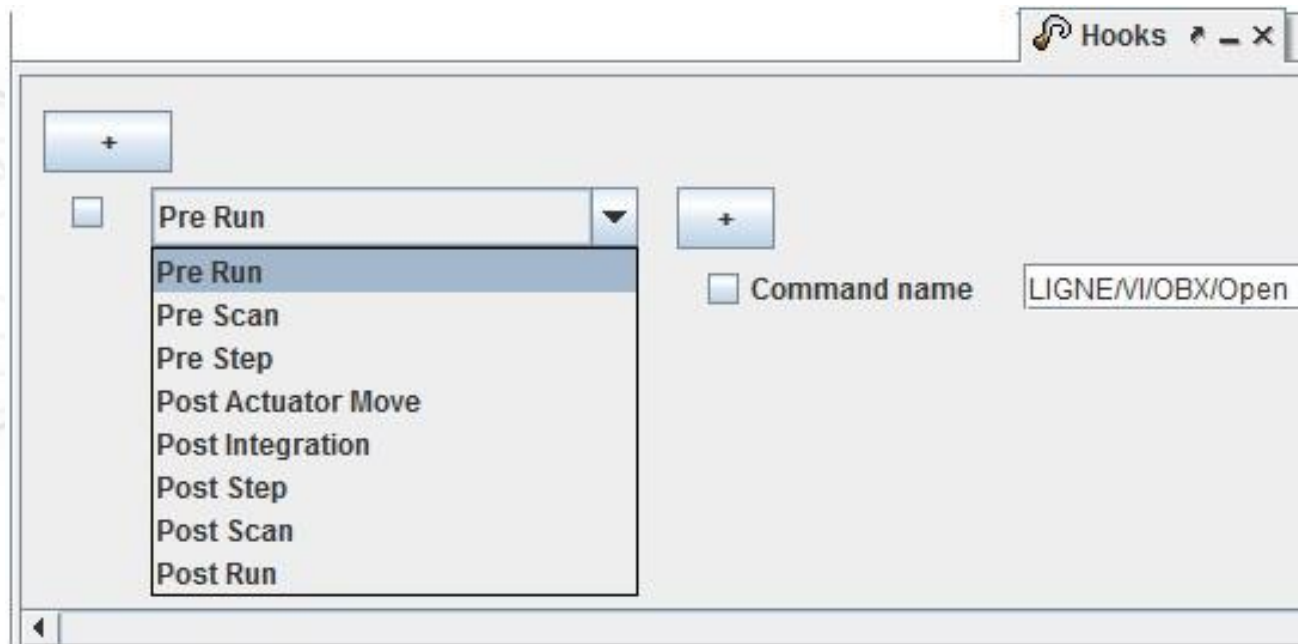
Device properties [ICA/SALSA/SCAN.1]

Property name	Value
ActuatorsFile	menu::TangoTest Titan::null submenu::ampli::tango/tangotest/titan/ampli submenu::short_scalar_w::tango/tangotest/titan/short_scalar_w
SensorsFile	menu::TangoTest Titan::null submenu::double_scalar::tango/tangotest/titan/double_scalar submenu::short_scalar::tango/tangotest/titan/short_scalar
SynchronizeData	false
TimebasesFile	menu::Simulated Counter::null submenu::NI6602::test/ni6602/simuled



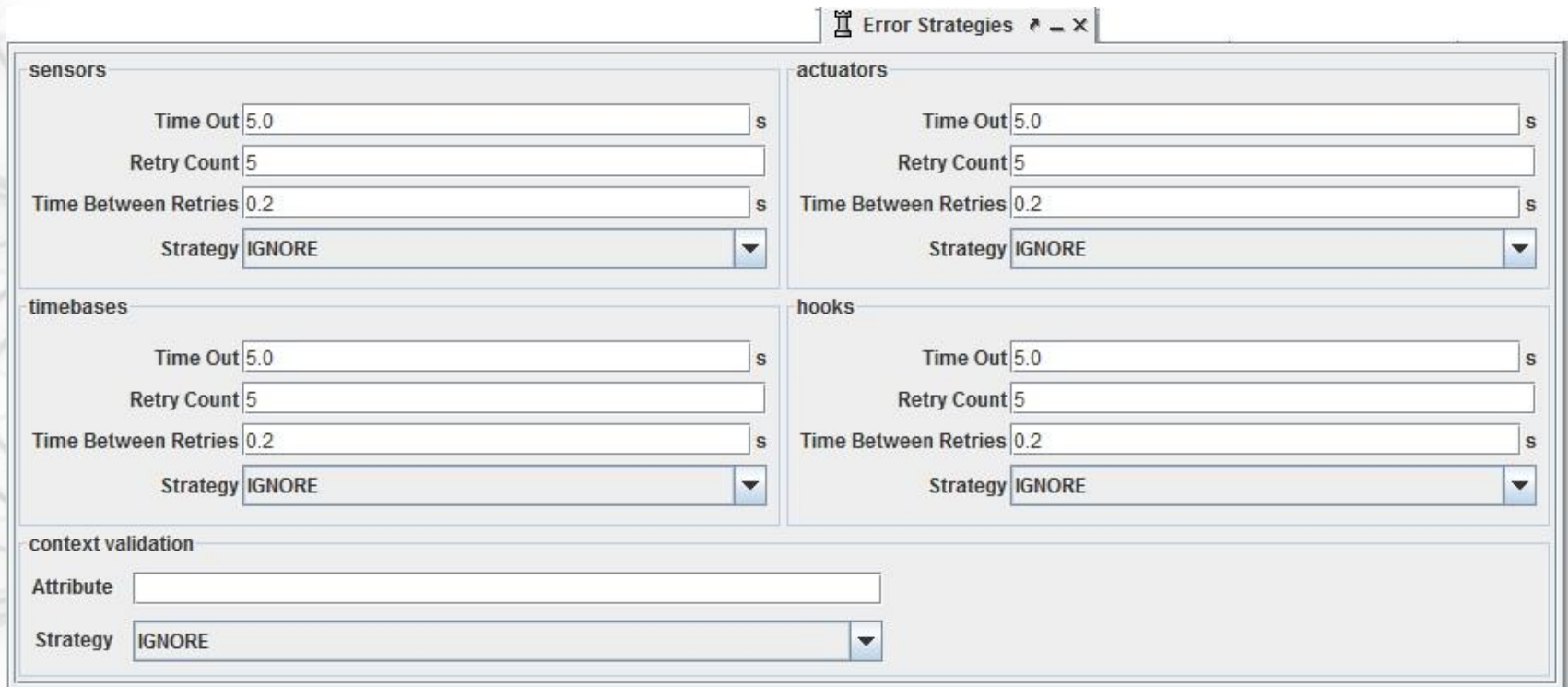
- LINE/EX/SCAN.1/postActuatorMoveHooks
- LINE/EX/SCAN.1/postIntegrationHooks
- LINE/EX/SCAN.1/postRunHooks
- LINE/EX/SCAN.1/postScanHooks
- LINE/EX/SCAN.1/postStepHooks
- ...

*scanserver
attributes*



- LINE/EX/SCAN.1/sensorsErrorStrategy
- LINE/EX/SCAN.1/sensorsRetryCount
- LINE/EX/SCAN.1/contextValidation

*scanserver
attributes*



Error Strategies

sensors

Time Out: 5.0 s

Retry Count: 5

Time Between Retries: 0.2 s

Strategy: IGNORE

actuators

Time Out: 5.0 s

Retry Count: 5

Time Between Retries: 0.2 s

Strategy: IGNORE

timebases

Time Out: 5.0 s

Retry Count: 5

Time Between Retries: 0.2 s

Strategy: IGNORE

hooks

Time Out: 5.0 s

Retry Count: 5

Time Between Retries: 0.2 s

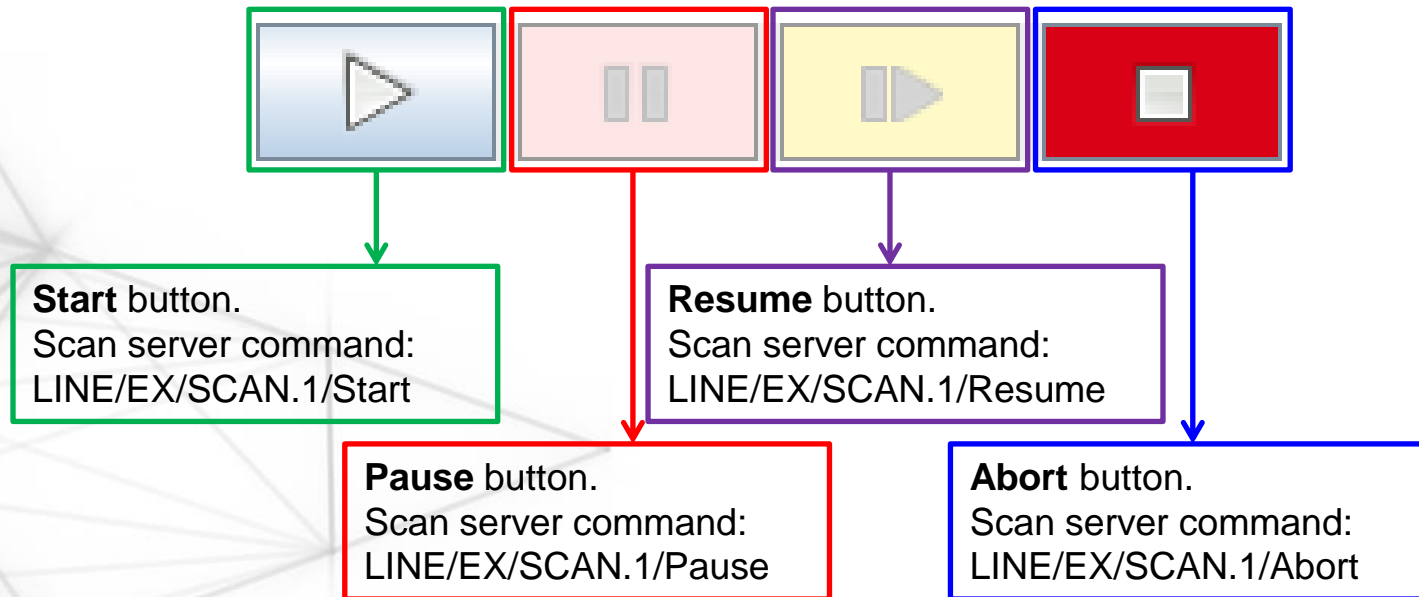
Strategy: IGNORE

context validation

Attribute:

Strategy: IGNORE

First select a configuration before starting a scan configuration.
When no configuration is selected, the Start button is disabled.



- LINE/EX/SCAN.1/actuatorsDataList
- LINE/EX/SCAN.1/sensorsDataList
- LINE/EX/SCAN.1/sensorsTimestamps
- LINE/EX/SCAN.1/actuatorsTimestamps
- LINE/EX/FIT.1/fittedDataY

*scanserver
attributes*

Display Manager [X] Scan Functions [X] Scan Historic [X]

root.katy.TestScan2D

Name	Label	Axis
actuator_1_1	tango/tangotest/titan/ampli	Z
actuator_1_2	tango/tangotest/titan/short_scalar_w	Y1
actuator_2_1	tango/tangotest/1/ampli	Y1
actuator_2_2	tango/tangotest/1/short_scalar_w	
actuatorstimestamps	actuator timestamps	X
data_01	tango/tangotest/titan/double_scalar(sensor)	Z
data_02	tango/tangotest/titan/short_scalar(sensor)	
data_03	tango/tangotest/1/double_scalar(sensor)	Z
sensorstimestamps	ica/salsa/scan.2/sensorstimestamps	Y1
		Y2
		X

ica/salsa/fit.1

X:

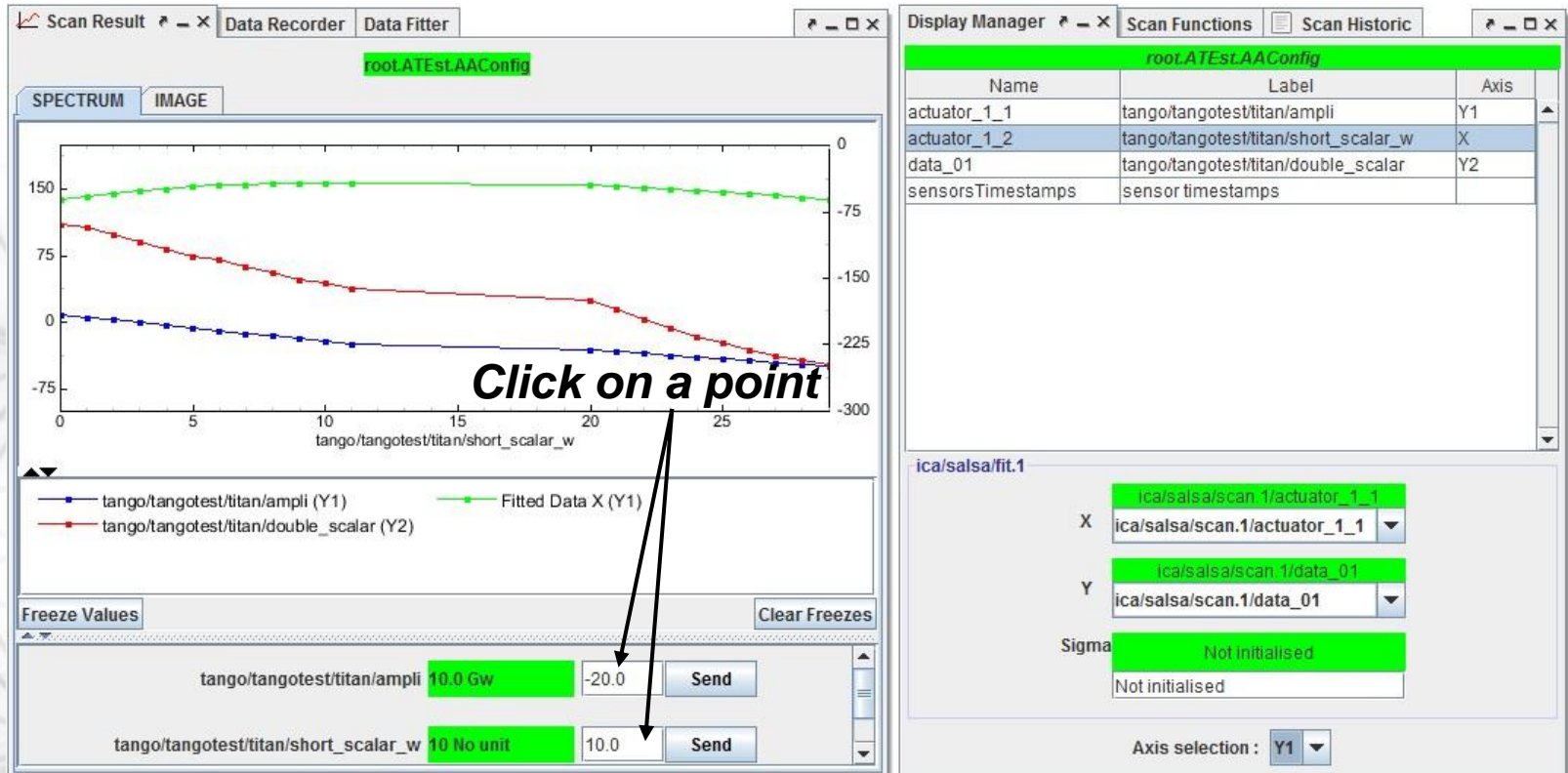
Y:

Sigma:

Axis selection:

*datafitter
attributes*

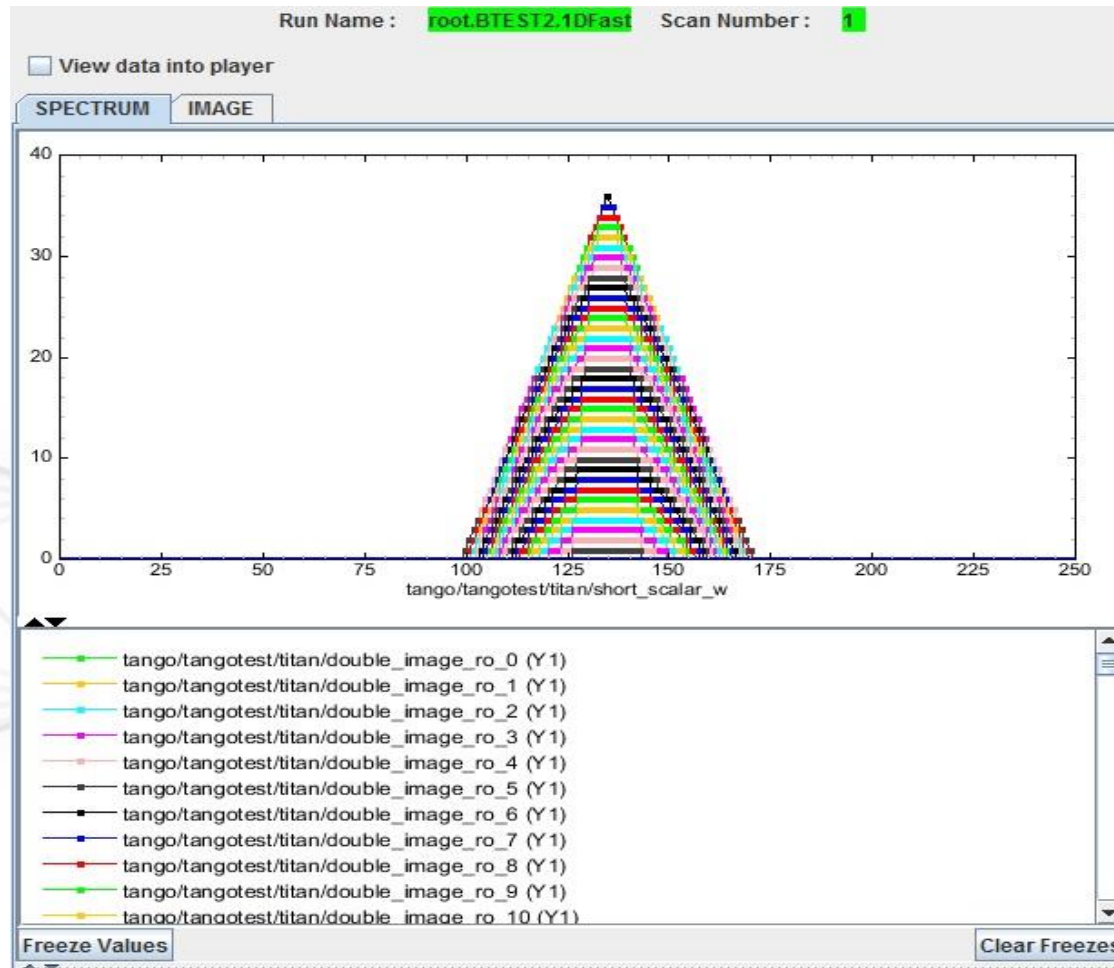
- LINE/EX/SCAN.1/data_XX *scanserver attribute*
- Send the actuator to the selected point.



- LINE/EX/SCAN.1/data_XX *scanserver attribute*
- Send the actuator to the selected point.



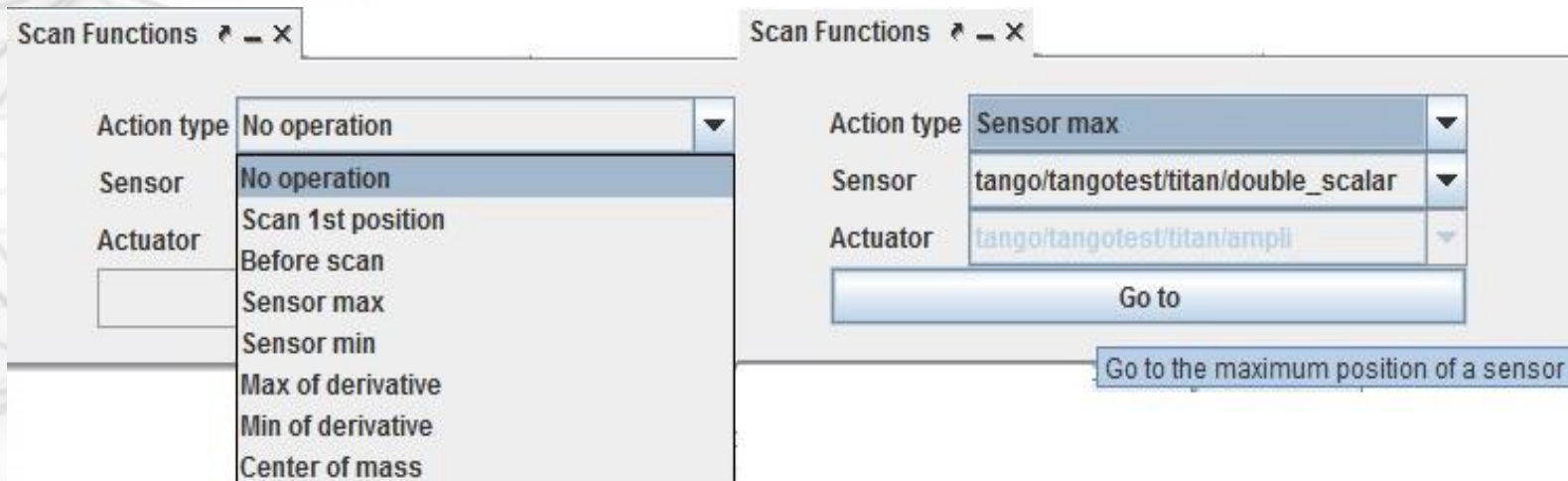
- Display a 2D Image as N Spectra in Chart
 - LINE/EX/SCAN.1/data_XX *scanserver attribute*



- Executed by the user on demand (except in Abort case) !

- LINE/EX/SCAN.1/afterRunActionType
- LINE/EX/SCAN.1/afterRunActionSensor
- LINE/EX/SCAN.1/afterRunActionActuator
- LINE/EX/SCAN.1/afterRunActionActuatorValue
- Commande LINE/EX/SCAN.1/ExecuteAction

*scanserver
attributes*



Scan Functions

Action type: No operation

Sensor: No operation

Actuator: Before scan

Sensor max

Sensor min

Max of derivative

Min of derivative

Center of mass

Scan Functions

Action type: Sensor max

Sensor: tango/tangotest/titan/double_scalar

Actuator: tango/tangotest/titan/ampli

Go to

Go to the maximum position of a sensor

- Current scan historic (can be very useful for debugging !)
- LINE/EX/SCAN.1/historic *scanserver attribute*

Scan Historic		
Period ▼	Type	Message
2012-06-08T13:56:16.689831	INFO	Run ended successfully
2012-06-08T13:56:16.689808	INFO	Executing sensors after_run...
2012-06-08T13:56:16.689647	INFO	Executing after-run action...
2012-06-08T13:56:16.589441	INFO	DataRecorder : EndRecording
2012-06-08T13:56:16.589385	DEBUG	Synchronisation with data recording...
2012-06-08T13:56:16.589344	DEBUG	Remaining scan to do : 0
2012-06-08T13:56:16.588138	INFO	DataRecorder : EndNXentry
2012-06-08T13:56:16.536178	INFO	DataRecorder : WriteMonitoredData
2012-06-08T13:56:16.378655	INFO	DataRecorder : WritePostTechnicalData
2012-06-08T13:56:16.378629	DEBUG	Access to DataRecorder file has been released...
2012-06-08T13:56:16.277368	DEBUG	Opening NXentry swing_0058_scan_Tab1Tz1
2012-06-08T13:56:16.276781	DEBUG	Opening file /usr/Local/spool/datarecorder/20110796/reglages/swi...
2012-06-08T13:56:16.276765	DEBUG	Access granted to DataRecorder file...
2012-06-08T13:56:16.275894	DEBUG	Requesting access to DataRecorder file...
2012-06-08T13:56:16.275687	DEBUG	Access to DataRecorder file has been released...
2012-06-08T13:56:16.174340	DEBUG	[41 , 1] Writing step values to Nexus file
2012-06-08T13:56:16.174323	DEBUG	NXdata 'scan_data' opened
2012-06-08T13:56:16.174151	DEBUG	Opening NXentry swing_0058_scan_Tab1Tz1
2012-06-08T13:56:16.173367	DEBUG	Opening file /usr/Local/spool/datarecorder/20110796/reglages/swi...
2012-06-08T13:56:16.173350	DEBUG	Access granted to DataRecorder file...
2012-06-08T13:56:16.172280	DEBUG	Requesting access to DataRecorder file...
2012-06-08T13:56:16.172241	DEBUG	[41 , 1] Saving value of i11-c-c09/dt/mi_diode.9/intensity
2012-06-08T13:56:16.172214	DEBUG	[41 , 1] Saving value of i11-c-c09/dt/mi_diode.8a/intensity
2012-06-08T13:56:16.172190	DEBUG	Synchronisation with data recording...
2012-06-08T13:56:16.171448	DEBUG	Sensor read : i11-c-c09/dt/mi_diode.9/intensity
Clear		

- Scans executed actions via SalsaAPI historic (historic file)
 - ds_simpleScan, passerelle and Salsa.
 - Replay (exactly) a scan via Play button
 - Click on the nexus file name to open it a nexus file browser application

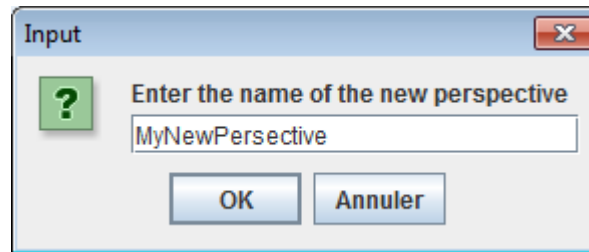
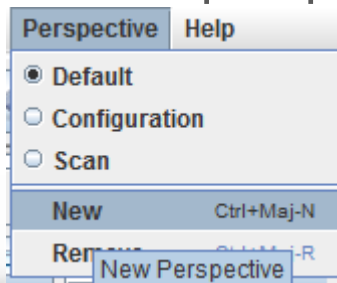
Historic Log				
Date ▼	Action	Name	Nexus	Trajectory
2012-06-08 11:29:45	▶	1DFast	/tmp/data/contacq/contacq-soleil/contacq/2012/0323/toto_2012-06-08_09-37-19_0	short_scalar_w from -3.0 to 10.0 delta 2.6 ampli from 30.0 to 25.0 delta 1.0 short_scalar_w from 15.0 to 22.0 delta 0.4375 ampli from 20.0 to 12.0 delta 0.5
			/tmp/data/contacq/contacq-soleil/contacq/2012/0323/toto_2012-06-08_09-37-19_0309.nxs	
2012-06-07 17:03:21	▶	1DFast	/tmp/data/contacq/contacq-soleil/contacq/2012/0323/toto_2012-06-07_14-12-10_0	short_scalar_w from -3.0 to 10.0 delta 2.6 ampli from 30.0 to 25.0 delta 1.0 short_scalar_w from 15.0 to 22.0 delta 0.4375 ampli from 20.0 to 12.0 delta 0.5 short_scalar_w from 30.0 to 20.0 delta 0.8333333333333334
2012-06-07 14:12:28	◻	root.BTEST2.1DFast	/tmp/data/contacq/contacq-soleil/contacq/2012/0323/toto_2012-06-07_14-12-10_0	
2012-06-07 14:12:17	▶	1DFast	/tmp/data/contacq/contacq-soleil/contacq/2012/0323/toto_2012-06-07_14-12-10_0	short_scalar_w from -3.0 to 10.0 delta 2.6 ampli from 30.0 to 25.0 delta 1.0 short_scalar_w from 15.0 to 22.0 delta 0.4375 ampli from 20.0 to 12.0 delta 0.5 short_scalar_w from 30.0 to 20.0 delta 0.8333333333333334
2012-06-07 14:12:09	◻	root.BTEST2.1DFast	/tmp/data/contacq/contacq-soleil/contacq/2012/0322/toto_2012-06-07_14-11-57_0	
2012-06-07 14:11:56	▶	1DFast	/tmp/data/contacq/contacq-soleil/contacq/2012/0322/toto_2012-06-07_14-11-57_0	short_scalar_w from -3.0 to 10.0 delta 2.6 ampli from 30.0 to 25.0 delta 1.0 short_scalar_w from 15.0 to 22.0 delta 0.4375 ampli from 20.0 to 12.0 delta 0.5 short_scalar_w from 30.0 to 20.0 delta 0.8333333333333334
2012-06-07 10:07:05	◻	root.BTEST2.1DFast	/tmp/data/contacq/contacq-soleil/contacq/2012/0322/toto_2012-06-07_10-06-53_0	
2012-06-07 10:06:53	▶	1DFast	/tmp/data/contacq/contacq-soleil/contacq/2012/0322/toto_2012-06-07_10-06-53_0	short_scalar_w from -3.0 to 10.0 delta 2.6 ampli from 30.0 to 25.0 delta 1.0 short_scalar_w from 15.0 to 22.0 delta 0.4375

Refresh Clear Print

A perspective is a windows disposition preference.

- **Create a perspective:**


- Menu Perspective -> New
- Enter a perspective Name



- **Load a perspective:**

- Menu Perspective -> Check the desired perspective to load.

- **Save a perspective:**

- Hide and show the desired views (Window menu)
- Organize your views disposition
- Click on Save button 
- The perspective is also saved at the software exit.

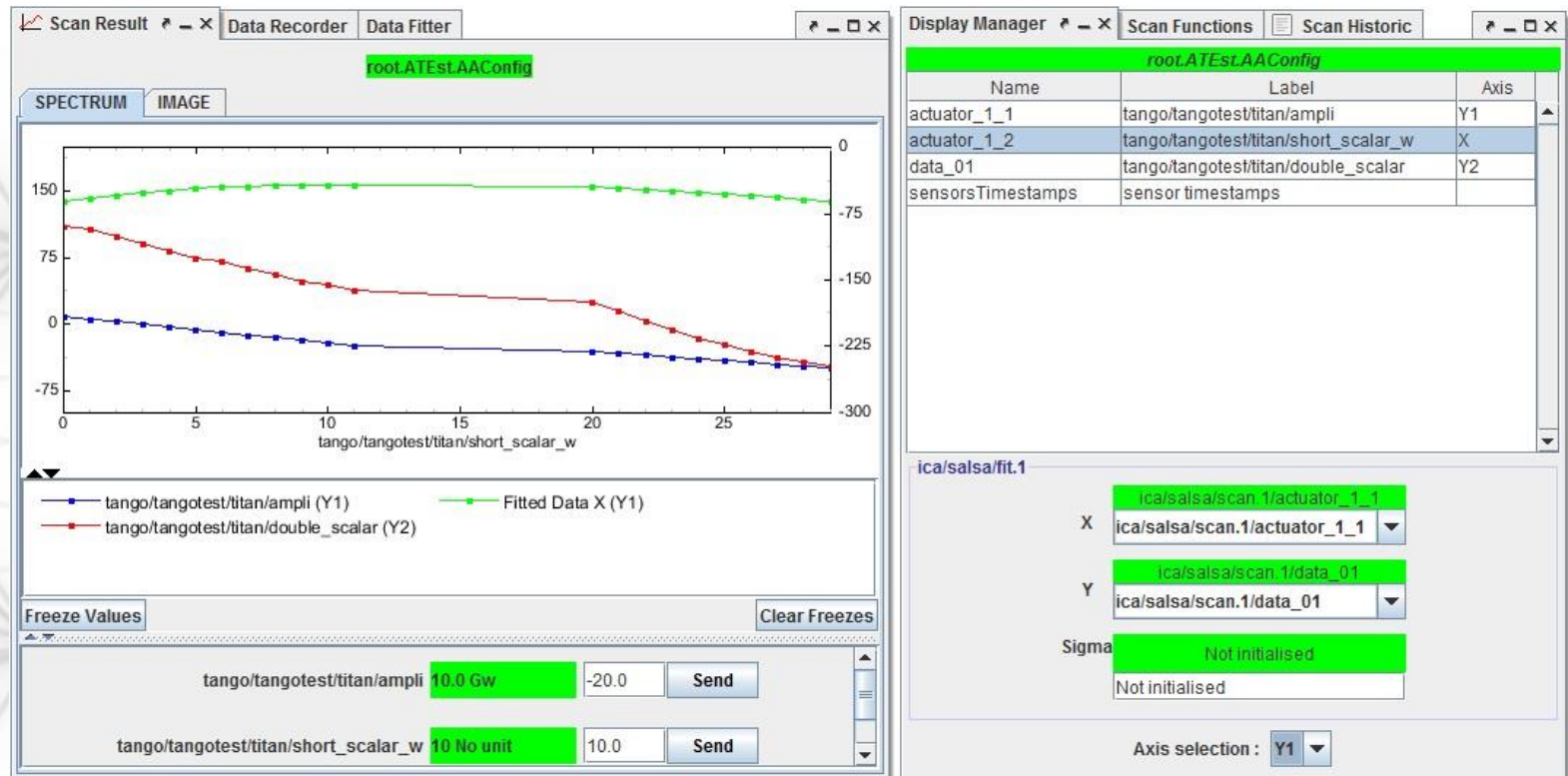
- **Remove a perspective:**

- Menu Perspective -> Remove

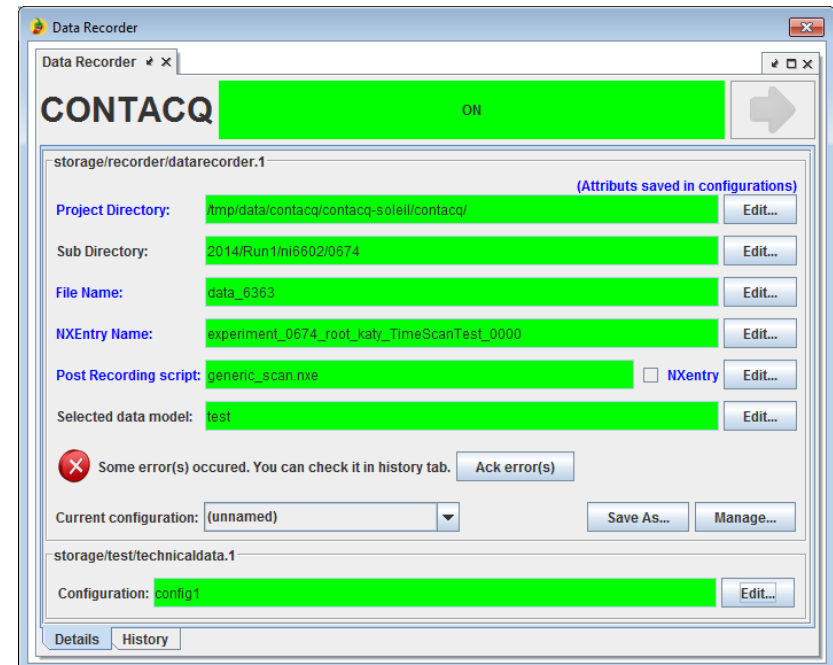
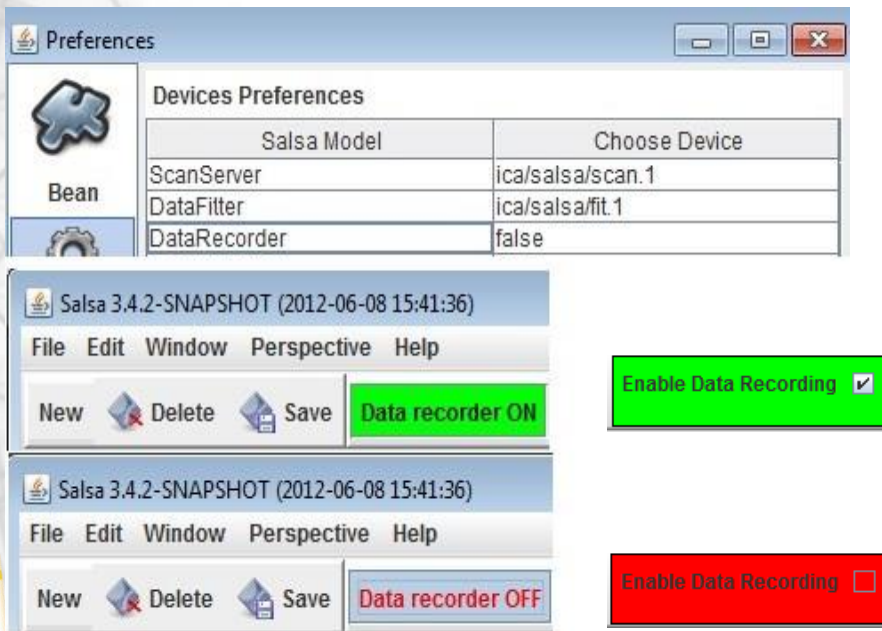
- DataFitter integration in the scan chart result

- LINE/EX/FIT.1/fittedDataY
- LINE/EX/FIT.1/deviceAttributeNameX
- LINE/EX/FIT.1/deviceAttributeNameY

*data fitter
attributes*

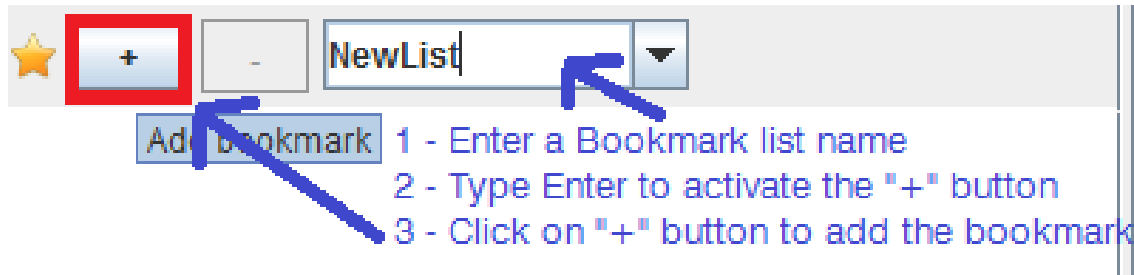


- Data recording service
 - LINE/EX/FIT.1/recorderData *data recorder attribute*
- Default configuration of data recording service
 - Menu Edit -> Preferences -> Devices
 - Set true or false
- Enable/Disable recording service
 - Click on the Data recorder button

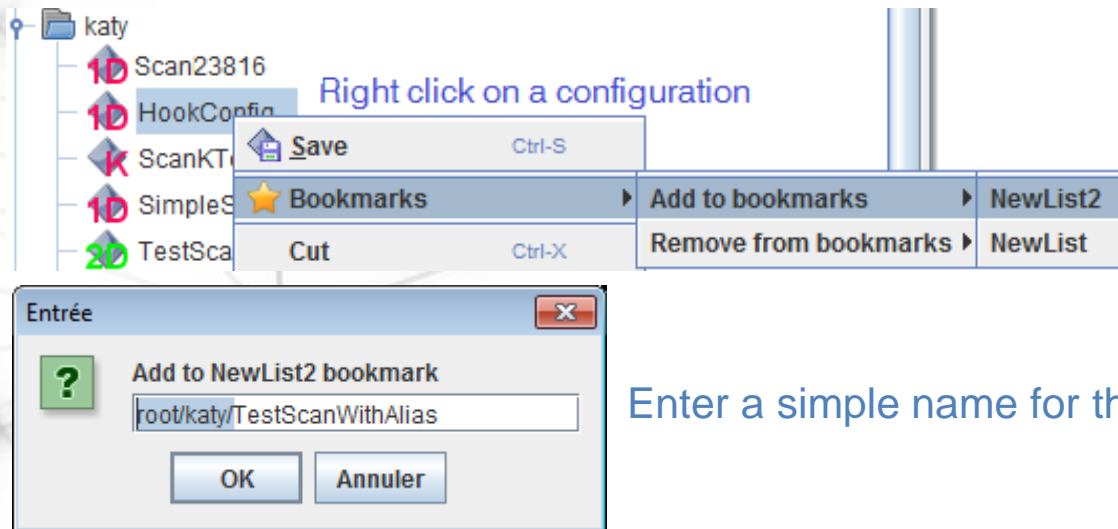


- Bookmarks management

- Create a bookmark



- Fill the bookmark



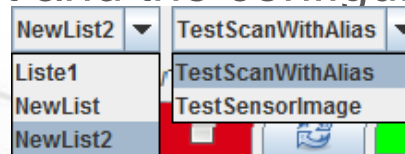
- Configuration selection via bookmarks



- 1 - Select a bookmark in the first combo box.
It will change the configuration list display in the configuration combobox
- 2 - Select a scan configuration in the second combo box.
It will select the configuration in the Scan Manager Tree.

- salsa-ro arguments

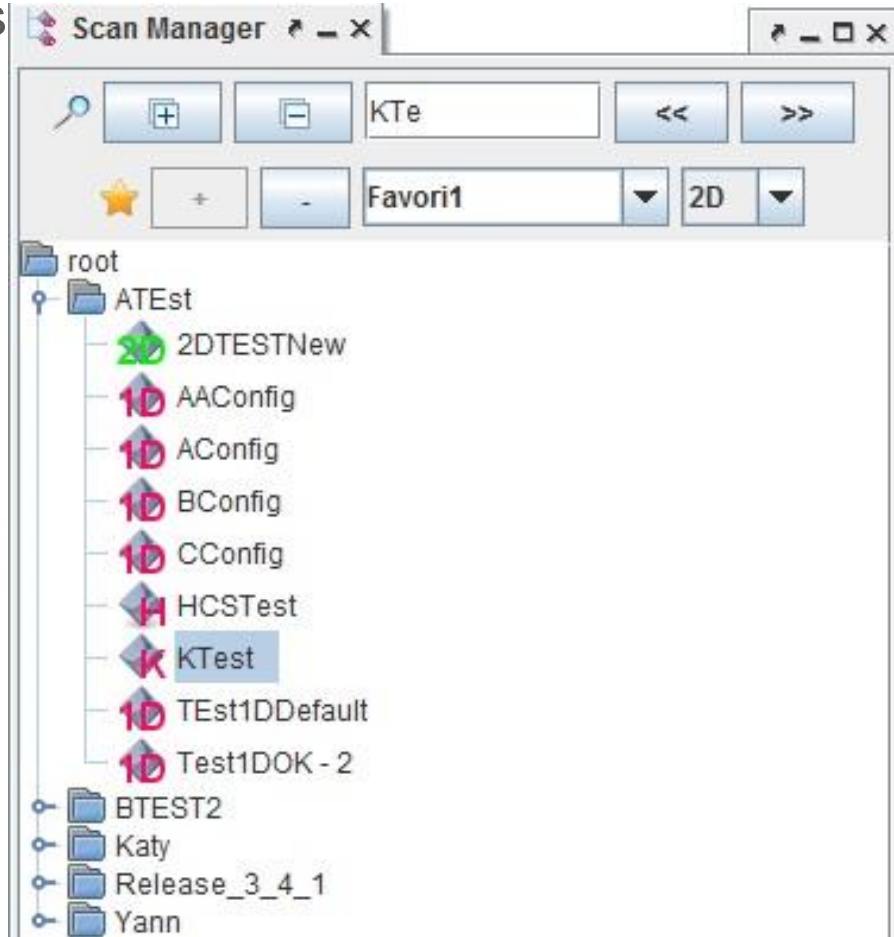
- **salsa-ro with no argument** will display 2 combo boxes: The Bookmarks list and the configuration list associated to a selected bookmark



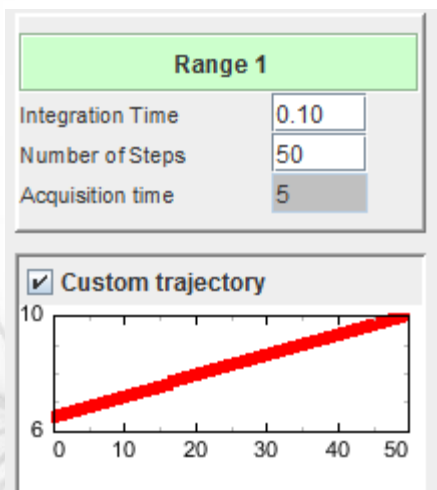
- **salsa-ro bookmark_name** (salsa-ro NewList2) will display 1 combo box: The configuration list associated to the bookmark named in argument
- **salsa-ro configuration_name** (salsa-ro root/Katy/My1DConfig) will display the view with directly the configuration named in argument.

In order to quickly find a configuration

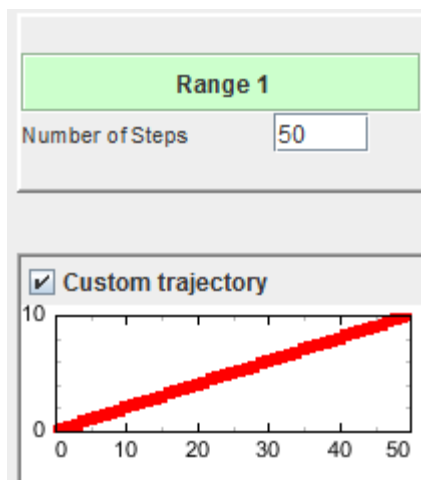
- Type a text to find in a configuration name
- Click on Next (>>) button or Previous (<<) button to find all matching configurations



Trajectory X



Trajectory Y



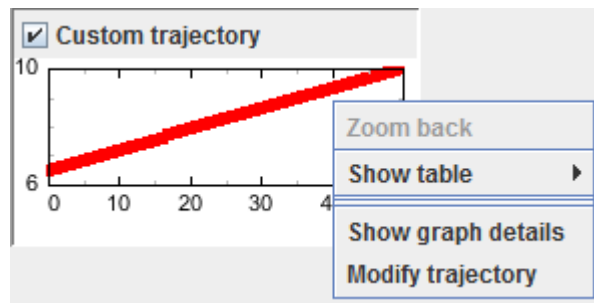
Trajectory Editor

Trajectory TextArea Editor

0	0.0
1	0.5
2	1.0
3	1.5
4	2.0
5	2.5
6	3.0
7	3.5
8	4.0
9	4.5
10	5.0

Apply Close

Trajectory Menu



- Open a nexus file in the databrowser

Click on a nexus file name to open it in the databrowser.

Historic Log				
Date ▼	Action	Name	Nexus	Trajectory
2012-06-08 11:29:45	▶	1DFast	/tmp/data/contacq/contacq-soleil/contacq/2012/0323/toto_2012-06-08_09-37-19_0	short_scalar_w from -3.0 to 10.0 delta 2.6 ampli from 30.0 to 25.0 delta 1.0 short_scalar_w from 15.0 to 22.0 delta 0.4375 ampli from 20.0 to 12.0 delta 0.5
			<u>/tmp/data/contacq/contacq-soleil/contacq/2012/0323/toto_2012-06-08_09-37-19_0309.nxs</u>	
2012-06-07 17:03:21	▶	1DFast	/tmp/data/contacq/contacq-soleil/contacq/2012/0323/toto_2012-06-07_14-12-10_0	short_scalar_w from -3.0 to 10.0 delta 2.6 ampli from 30.0 to 25.0 delta 1.0 short_scalar_w from 15.0 to 22.0 delta 0.4375 ampli from 20.0 to 12.0 delta 0.5 short_scalar_w from 30.0 to 20.0 delta 0.8333333333333334
2012-06-07 14:12:28	☐	root.BTEST2.1DFast	/tmp/data/contacq/contacq-soleil/contacq/2012/0323/toto_2012-06-07_14-12-10_0	
2012-06-07 14:12:17	▶	1DFast	/tmp/data/contacq/contacq-soleil/contacq/2012/0323/toto_2012-06-07_14-12-10_0	short_scalar_w from -3.0 to 10.0 delta 2.6 ampli from 30.0 to 25.0 delta 1.0 short_scalar_w from 15.0 to 22.0 delta 0.4375 ampli from 20.0 to 12.0 delta 0.5 short_scalar_w from 30.0 to 20.0 delta 0.8333333333333334
2012-06-07 14:12:09	☐	root.BTEST2.1DFast	/tmp/data/contacq/contacq-soleil/contacq/2012/0322/toto_2012-06-07_14-11-57_0	
2012-06-07 14:11:56	▶	1DFast	/tmp/data/contacq/contacq-soleil/contacq/2012/0322/toto_2012-06-07_14-11-57_0	short_scalar_w from -3.0 to 10.0 delta 2.6 ampli from 30.0 to 25.0 delta 1.0 short_scalar_w from 15.0 to 22.0 delta 0.4375 ampli from 20.0 to 12.0 delta 0.5 short_scalar_w from 30.0 to 20.0 delta 0.8333333333333334
2012-06-07 10:07:05	☐	root.BTEST2.1DFast	/tmp/data/contacq/contacq-soleil/contacq/2012/0322/toto_2012-06-07_10-06-53_0	
2012-06-07 10:06:53	▶	1DFast	/tmp/data/contacq/contacq-soleil/contacq/2012/0322/toto_2012-06-07_10-06-53_0	short_scalar_w from -3.0 to 10.0 delta 2.6 ampli from 30.0 to 25.0 delta 1.0 short_scalar_w from 15.0 to 22.0 delta 0.4375

Refresh

Clear

Print

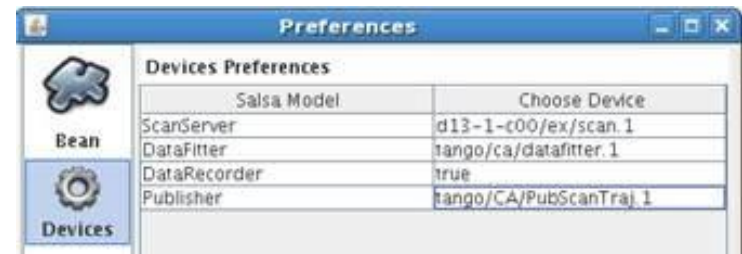
- Declare a Publisher device in Tango database:

- Device Server name: Publisher/SAV-SCAN-TRAJ
- Device name: tango/CA/PubScanTraj.1
- Properties:

Device properties [tango/CA/PubScanTraj.1]	
Property name	Value
AttributesList	trajectory;DEVDOUBLE;SPECTRUM;10000 xActuator;DEVSTRING;SCALAR yActuator;DEVSTRING;SCALAR

- Configure Salsa to access to Export Trajectory option:

- To get the expected menu in Salsa, more precisely in the « Image » tab of the « Scan Result » tab, you have to declare the publisher that will receive the trajectory.
- Menu Edit -> Preferences, select Devices and fill Publisher field with *tango/CA/PubScanTraj.1*



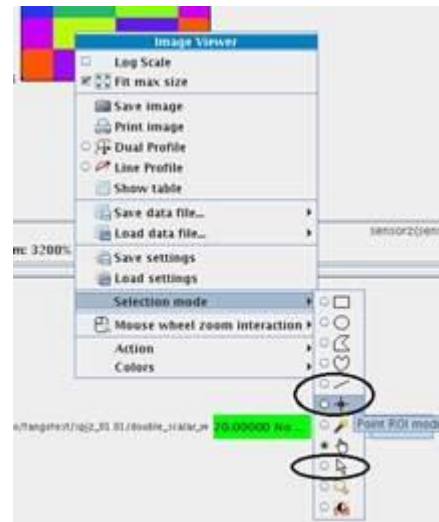
- The following **Export Trajectory** button will be available:



- **Select points in scan image:**

Right click on image -> Selection mode

- Either select n points on image with « Point ROI Mode » tool,
- Or select a line on image with « Line ROI Mode » tool,
- Or go back to default cursor with « Selection Mode » tool.



- **Remove points:**

- Right click on image -> Selection mode -> « Delete all Rois » red cross



- Save trajectory:

- First, choose « X actuator » and « Y actuator » in image tab.
- Click on « Export Trajectory » button



- If a line was chosen, then a step number should be fulfilled.
- The **trajectory content** (n X,Y couples) will have to be obtained from the **trajectory Spectrum attribute of the Publisher device.** (cf. *tango/CA/PubScanTraj.1/trajectory*)

- Trajectory extraction:

Example of 5 points extraction from python:

