

Sardana Status

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36th Tango Community Meeting 2022, 29-30.06.2022



Outline

Short introduction to Sardana

Sardana Community

Release 3.3 - new features

Sardana Configuration Tool (SEP20)

Integration with Jupyter Lab

Summary

Introduction to Sardana

Scientific SCADA suite:

Sardana + Taurus

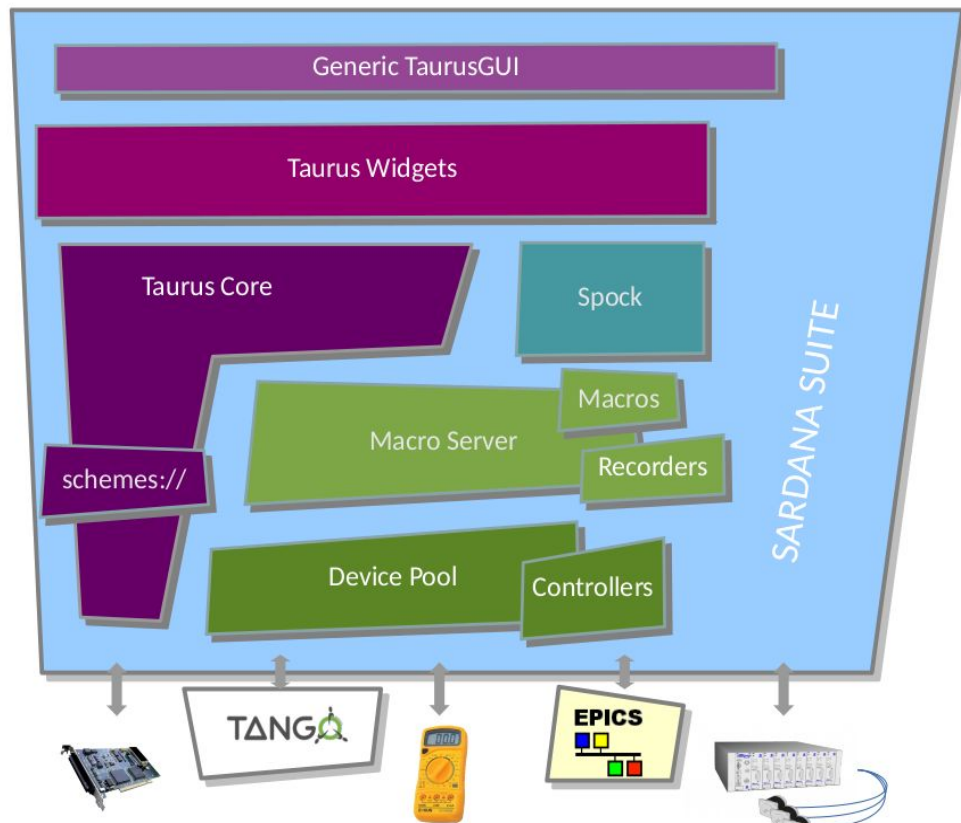
Build on top of Tango CS

Extendable with plugins

100% Python

Sardana Suite overview

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Sardana Community

Periodic Sardana meetings for discussion about bugs and current and new developments

Specific meetings dedicated to concrete topics/tasks: bug solving, documentation, tools, new big features (brainstorming, MVP + tech stack discussions)

Remote **pair programming**

Events: Docs camps, bug squashing parties, workshops on conferences...

Periodic releases (~ twice per year)

ALBA, DESY, MaXIV, Solaris, MBI main contributors

Release 3.3 (Jul 22) - Refactor of memorized attributes

Fix order of restoring standard **memorized attribute** values e.g. acceleration, velocity, step_per_unit, etc.

Possibility to define order of restoring extra memorized attribute values

Curiosity: re-implementing restoring of a memorized values lead to x2 (5.5 s vs. 3 s) faster server startup (based on test case with 1600 memorized attributes)

Thanks to Marc Espin (student at internship at ALBA)!

Release 3.3 (Jul 22) - View and Edit modes in expconf

Implemented in order to **avoid** annoying **pop-ups** with external changes

Thanks to Jakub Kowalczyk (S2Innovation and MAXIV)!

The widget can be used in either *view mode* (default one) or *edit mode*.

In the view mode the experiment configuration can be only viewed but not edited. In this mode all the external changes to the experiment configuration e.g. `set_meas` macro execution changed the active measurement group, will be automatically reflected by the widget.

In the edit mode the experiment configuration can be both viewed and edited. In this mode all the external changes to the experiment configuration raise a pop-up dialog asking what to do with the remote changes. In this mode parameters may be modified in an arbitrary order, at any of the tabs, and will be maintained as pending to apply until either applied or reset by the user.

Experiment Configuration



View mode

Edit mode



You started editing experiment configuration. External changes will show a pop-up dialog.

Measurement Group

Snapshot Group

Storage

Active Measurement Group

dummy





Channel	enabled	output	Data Type	Plot Type	Plot Axes	Timer
ct01	true	true	float64	No		ct01
ct02	true	true	float64	No		ct01
mot01/...	true	true	float64	No		
mot02/...	true	true	float64	No		

Reload

Keep editing

Apply

Release 3.3 (Jul 22) - sardanacustomsettings in config files

Load sardana configuration (aka in sardanacustomsettings) **from files** - analog to Taurus

Two files allowed: OS-level and User-Level

Linux and Windows compatible

Configuration will not be distributed with the sardana package

Thanks to Carlos Pascual (ALBA on-leave) and Marc Espin (student at internship at ALBA)!

Sardana Configuration Tool (SEP20)

Objectives:

Reduce the **time of configuring a new system** e.g. a new beamline or laboratory

Reduce the time of **adding/removing/editing elements** e.g. adding a new controller, axis, measurement group, etc.

Reduce the time of **debugging** problems caused by a wrong configuration

Increase the **participation** of Managers in System administration tasks which were previously executed by Administrators only

Smooth the Sardana **learning curve**

Status:

Evaluation of **existing** individual **tools** (DESY XML tool, dsconfig, bliss Beacon and their PyTango Database implementation)

Discussion about **minimal requirements**

First tests will start in order to **define the implementation**

Sardana Configuration:

Tango DB:

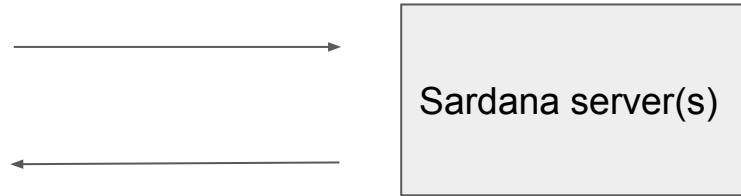
- servers/devices definition
- attributes properties e.g. memorized values, range, units

Environment Variables:

- PreScanSnapsho
- General Hooks
- Custom Variables

sardanacustomsettings:

- SPEC_CUSTOM_DATA_FORMAT
- MACROEXECUTOR_MAX_HISTORY



- **Bidirectional** flow (persistent <-> runtime)
- Improve **debugging** by comparing changes
- **Tracking** of historical changes

Integration with Jupyter Lab (ctd.)

Advantages:

Does **not** need **installation**

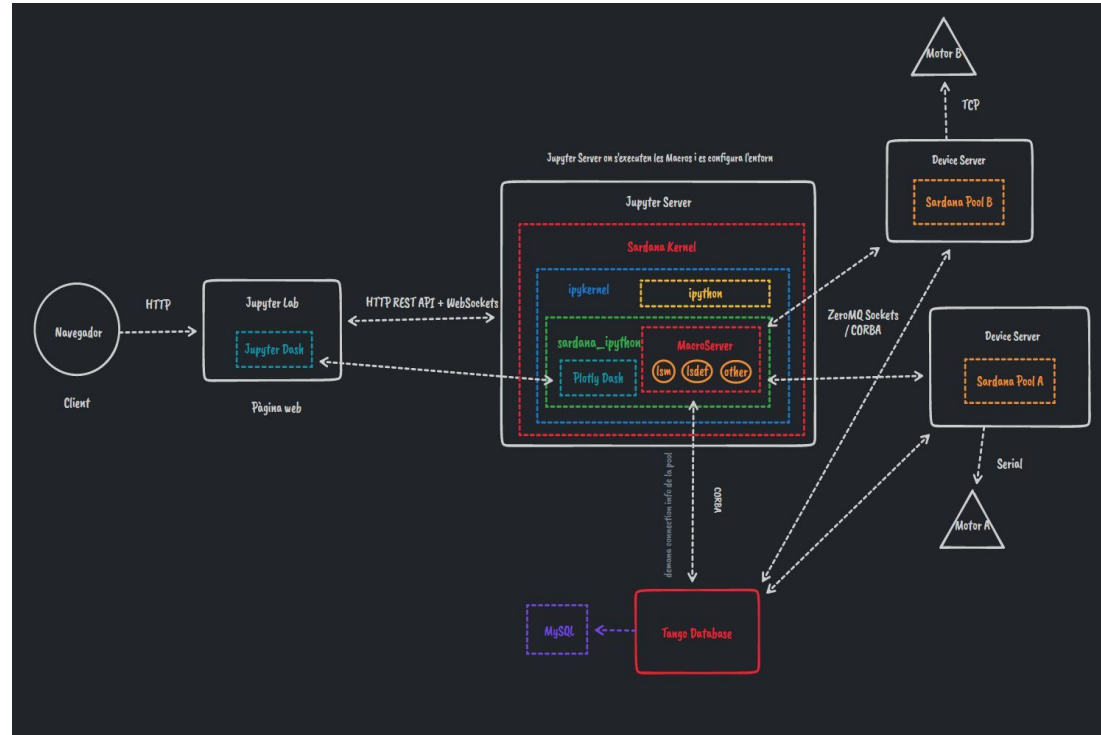
Allows **versioning** (plain text)

Allows **fast execution** of a **group of macros**

Offers **debugging**

Offers **interactive console** (similar to spock)

Integrates **plots** (currently with Plotly Dash)



Pool Server running in Tango, MacroServer running in Jupyter Server

Sardana and Tango common issues

- API for re-implementing restoring of memorized attributes, methods missing for getting memorized value and checking if attribute is memorized - [PyTango#426](#), [PyTango!435](#), [PyTango!456](#)
- SIGSEGV when dserver's DevRestart() is executed from a thread - [cppTango#888](#)
- Problem with deleting device in a PyTango DS at runtime: calling `tango.Util.instance().delete_device()` does not fully destroy the internal objects - [PyTango#433](#)
- Calling `unsubscribe_event()` by Python GC in `__del__()` with reference cycle - [PyTango#413](#)

Thanks to: Reynald, Michal, Anton, Emilio, ...

Summary

Sardana is **being actively developed!**

We would love to hear your **feedback** and **suggestions** for new developments.

We are very happy with **Tango Community support** - again big thanks to all of you!

We plan to organize **Sardana Bug Squashing Party 2022** - announcement soon - you are very welcome to participate!