Sardana Status

39th Tango Community meeting

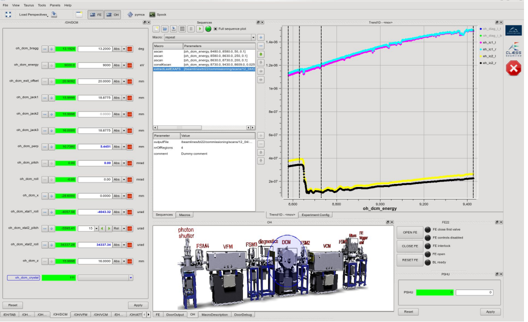
21-23 May 2025, INAF, Giulianova, Italy

Vanessa Da Silva, Johan Forsberg (MAXIV)
Maria Teresa Nuñez (DESY)
Michal Piekarski (SOLARIS)
Daniel Schick, Michael Schneider (MBI-Berlin)
Oriol Vallcorba, Jordi Aguilar, Roberto Homs, Zbigniew Reszela (ALBA)

on behalf of the Sardana Community

Sardana - Scientific SCADA Suite

Built on top of Tango Control System



Taurus based GUIs

What is Sardana?

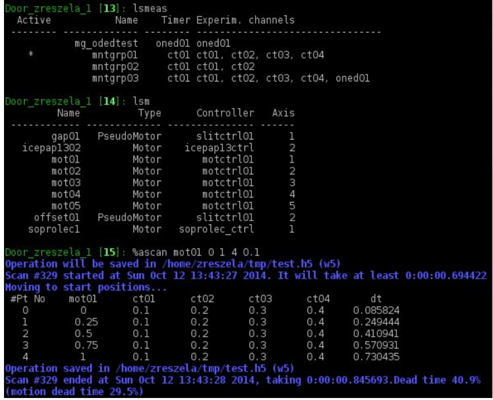
Sardana - Scientific SCADA Suite

Built on top of Tango Control System

100% Python

Four pillars extendable with plugins

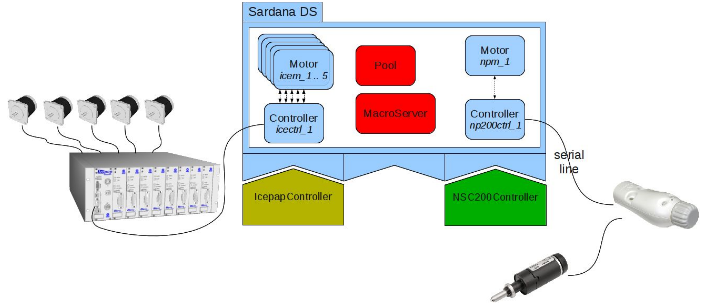
Suite = Sardana & Taurus projects



Spock - IPython based CLI

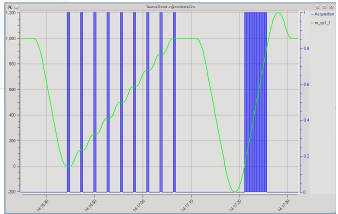
Device Pool - access to the hardware

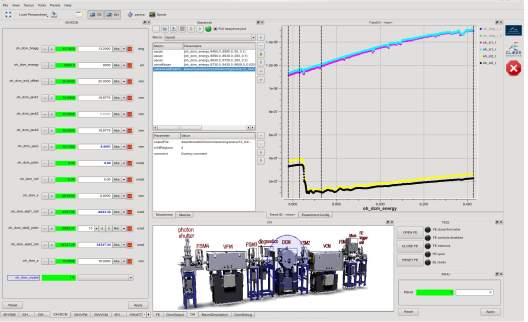
MacroServer - powerful sequencer




```python
from sardana.macroserver.macro import macro

@macro()
def hello_world(self):
    """This is a hello world macro"""
    self.output("Hello, World!")
```





Taurus based GUIs

Sardana - Scientific SCADA Suite

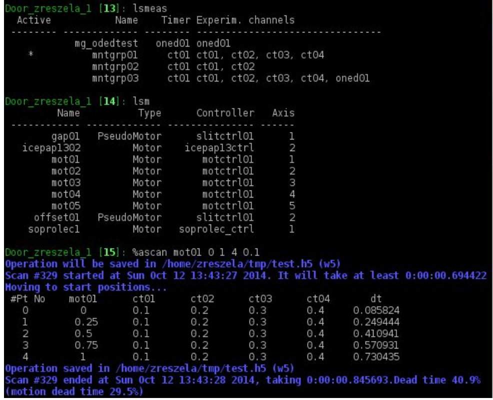
Built on top of Tango Control System

100% Python

Four pillars extendable with plugins

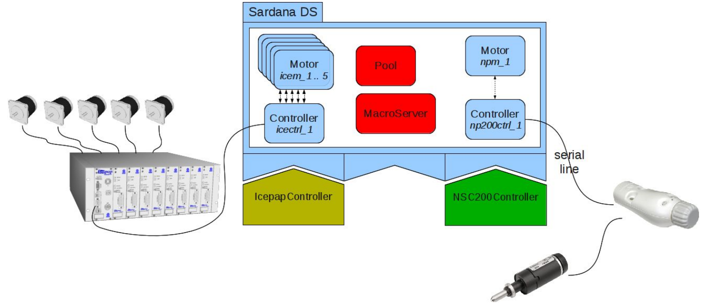
Suite = Sardana & Taurus projects

Community of users and developers



Spock - IPython based CLI

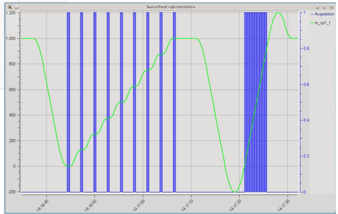
Device Pool - access to the hardware



MacroServer - powerful sequencer

```
from sardana.macroserver.macro import macro

@macro()
def hello_world(self):
    """This is a hello world macro"""
    self.output("Hello, World!")
```



🚀 Sardana stable version 3.5 released on June 26th, 2024

Additions that were already reported in last Tango meetings:

- ✓ New features and bug fixes in configuration tool
- ✓ Improvements in showscan widget
- ✓ Experiment Status widget

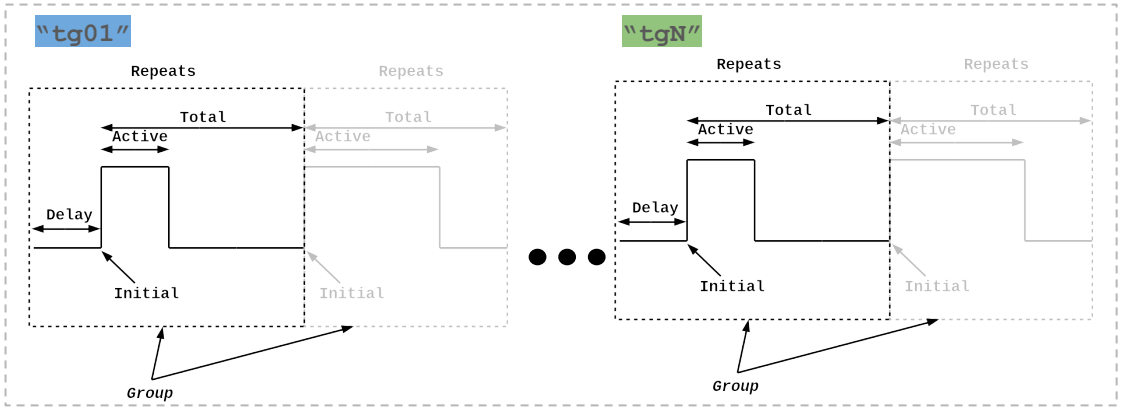
Next stable version 3.6 scheduled for July 2025

🎯 Current developments: **Continuous Scans**

Roadmap defined in Sardana CS Workshop 2023

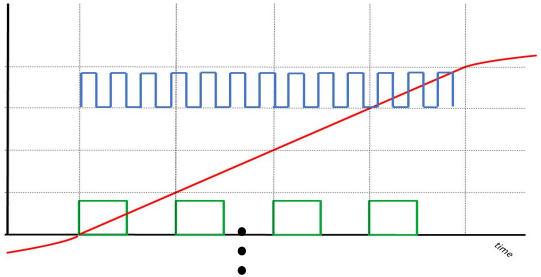
Improve support for multi-technique experiments

1. Multiple **synchronization descriptions**



Elements relationships {JSON}

Channel	Synchronizer	Synchronization
ct01	tg01	Trigger
...		...
...		
twod01	tgN	Gate



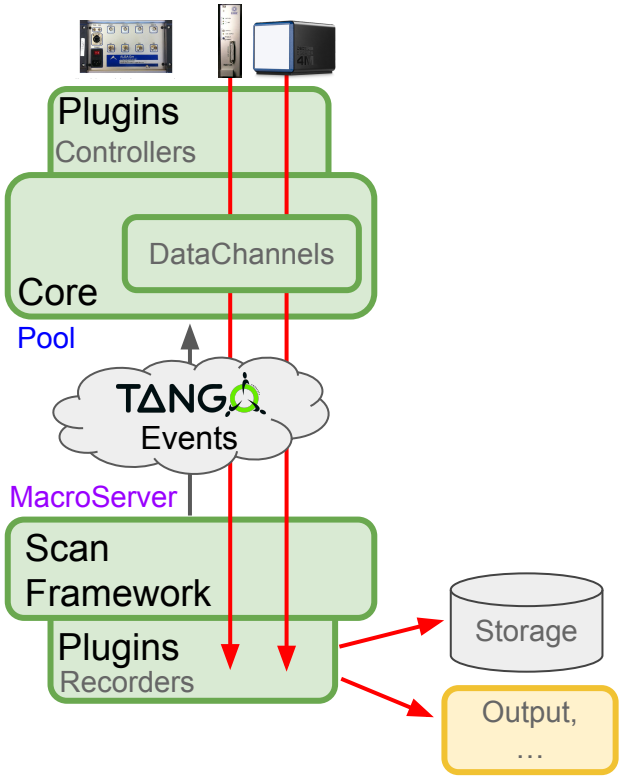
✓ Already available in develop branch

🎯 Current developments: **Continuous Scans**

Roadmap defined in Sardana CS Workshop 2023

Improve support for multi-technique experiments

2. New tools for **data composition**



🎯 Current developments: **Continuous Scans**

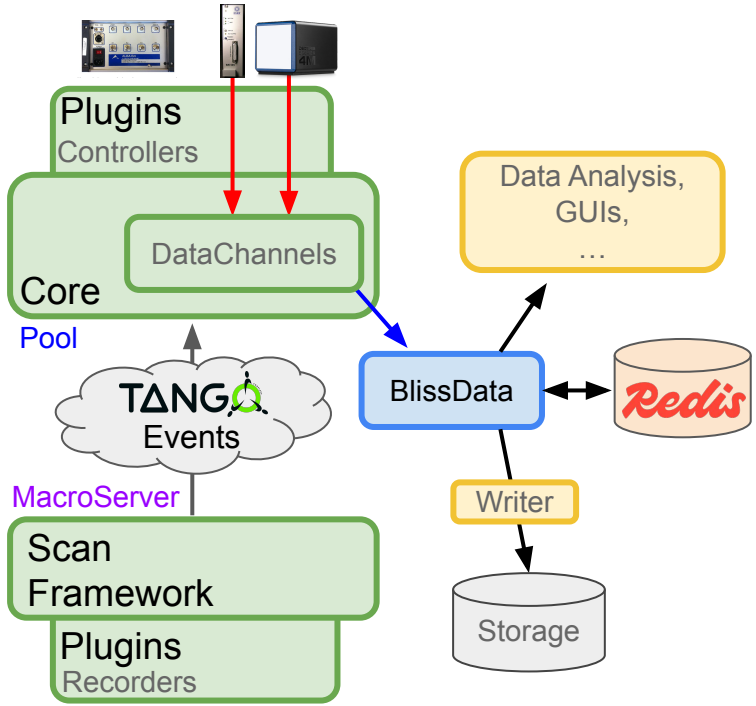
Roadmap defined in Sardana CS Workshop 2023

Improve support for multi-technique experiments

2. New tools for **data composition**

Integrate ESRF **Blissdata** in Sardana

Minimize the stress on the MacroServer
Real-time data available for external consumers
Avoid potential bottlenecks in Tango events
Enable external data composition



Tested successfully with multiple sync descriptions.

🛠️ WiP for final integration

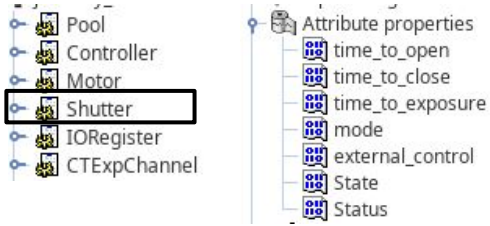
🎯 Current developments: **Continuous Scans**

Roadmap defined in Sardana CS Workshop 2023

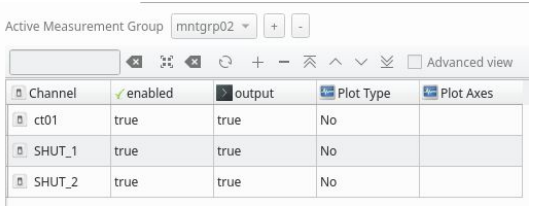
Improve support for multi-technique experiments

3. Dedicated control for fast **shutters** (radiatio-sensitive or time resolved exp.)

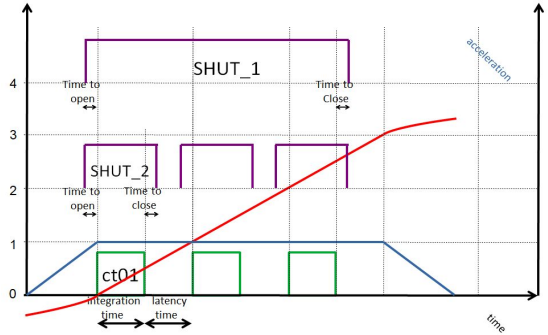
Sardana device with configuration attributes



Measurement Group member



Native software and hardware control using Multiple Synch. Description



SEP21: Shutter Synchronization

Aim to integrate shutters independently of its synchronization hardware.

https://gitlab.com/sardana-org/sardana/-/merge_requests/2029

🎯 Current developments: **Continuous Scans**

Roadmap defined in Sardana CS Workshop 2023

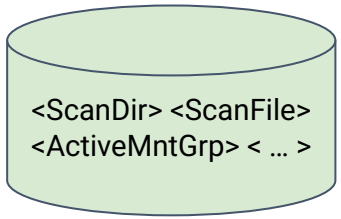
Meshct improvements 

- https://gitlab.com/sardana-org/sardana/-/issues/1946
- Avoiding last latency time
- Optimize motion time of “step” motor
- Ensure Prepare is called once per meshct

Yimeng Li talk on Thursday@12:05 *Arbitrary Two-Dimensional Mapping Scan Utilizing the Sardana Framework*

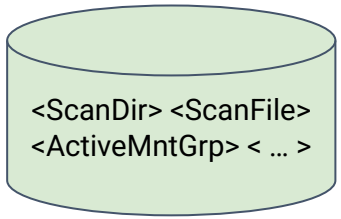
🎯 Current developments: **MacroServer Environment more user friendly**

- Global space to store variables persistently to be accessed during macro execution.
- Can be set on different scope: Global, Door, Macro, Door.Macro
- Modified via macros: `senv` and `usenv`
- Exposed as an attribute called Environment (pickled dictionary)
- Stored in a file using Python `shelve`



🎯 Current developments: **MacroServer Environment more user friendly**

- Global space to store variables persistently to be accessed during macro execution.
- Can be set on different scope: Global, Door, Macro, Door.Macro
- Modified via macros: `senv` and `usenv`
- Exposed as an attribute called Environment (pickled dictionary)
- Stored in a file using Python `shelve`



✓ Improve documentation

🛠️ Review environment on different scope - !2032

🛠️ Add to the configuration tool - !2040

🛠️ Support other backends (Redis & TangoDB) - !2054

💡 SEP14 MSenv Taurus scheme

MAX IV LABORATORY

s²innovation

Current developments: **Other improvements**

- 🛠️ Better Sardana Archiving: Push events for attributes “position” and “state” from code 

- 🛠️ Add custom commands to controllers and extend Sardana to support typical workflows for high-intensity laser experiments
  Alexander Kessler talk this morning *Tango-Controls @ HIJ-POLARIS: state and upcoming activities*

HI JENA
Research School
of Advanced Photon Science

s²innovation

Plugin development

https://gitlab.com/sardana-org/sardana-extras/

Available plugins for widely used hardware/software:

- IcePAP https://gitlab.com/icepap-organization/sardana-icepap
- LImA https://github.com/alba-Synchrotron/sardana-limaccd
- PandaBox https://gitlab.com/MaxIV/pandabox/sardana-kitslabpandabox
- AlbaEM
- …

🛠️ Migration of plugins/tools to sardana-org to promote collaboration.

e.g. https://gitlab.com/sardana-org/sardana-tango

Integrate Sardana, Bluesky-QueueServer, Blissdata, and Daiquiri for control and data visualization

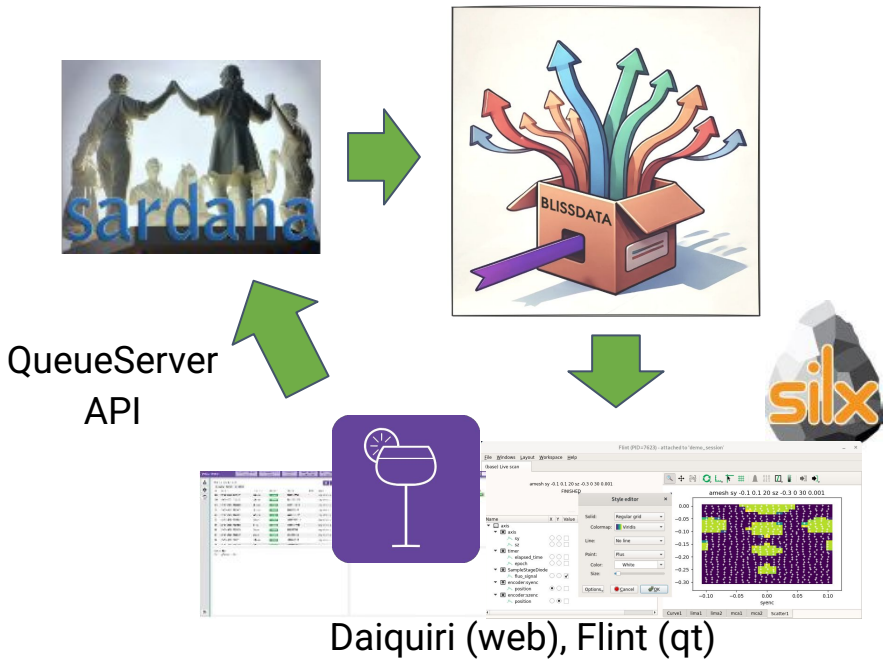
Brookhaven National Laboratory

Bliss ESRF

Thanks Udai Singh!

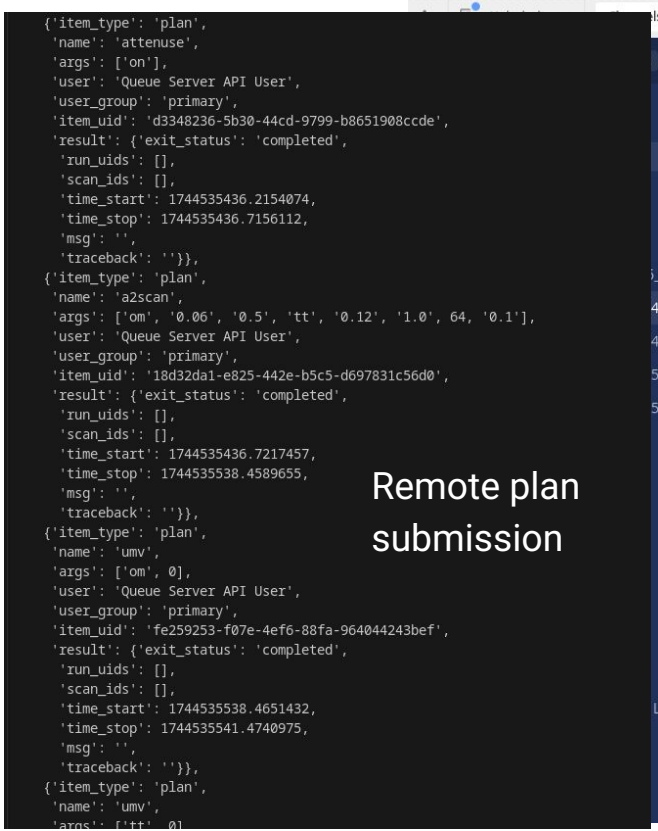
DESY.

- Daiquiri and Flint takes data from Blissdata for real-time experiment monitoring.
- Modification of Bluesky-QueueServer and Blissdata provide a unified data layer under the Daiquiri interface. Enable the submission of Sardana macros as part of the Bluesky queue and allow for tracking their execution status.
  https://gitlab.desy.de/fs-ec/queueserver/-/tree/sardana
- Publish Blissdata events to Mattermost and SciLog
- Use of the Sardana Blissdata recorder available in sardana-redis



Integrate Sardana, Bluesky-QueueServer, Blissdata, and Daiquiri for control and data visualization

Thanks Udai Singh!

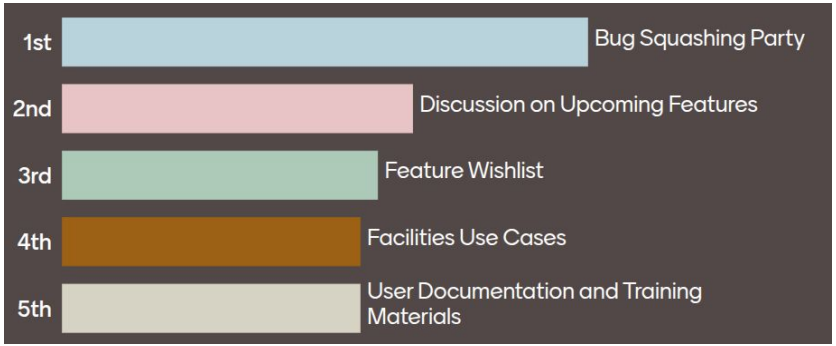


Sardana Project

- Monthly follow-ups organized by ALBA, DESY, MAX-IV, SOLARIS.
- Current open Issues: 355
- Current open MRs: 55
  (significant number of contributions!)

Sardana Workshop at MAX IV LABORATORY

27-29 August 2025



Big thanks to all contributors (issues, MRs, commits in last 2y, alphabetical order)

Albert Olle, Alexander Kessler, András Wacha, Anton Joubert, Antonio Bartalesi, Áureo Freitas, Benjamin Bertrand, Carla Takahashi, Canrong Qiu, Daniel Schick, Dmitry Egorov, Elmir Jagudin, Henrique Silva, Hanno Perrey, Ireneusz Zadworny, Isak Lindhé, Jan Kotanski, Johan Forsberg, Jordi Aguilar, José Gabadinho, Julen Rodríguez, Leonid Lunin, Lin Zhu, Lukas Wittenbecher, Marco Leorato, Markus Bala, Martí Caixal, Miquel Navarro, Michał Gandor, Michael Schneider, Michal Piekarski, Oriol Vallcorba, PhilIJC, Roberto Javier Homs Puron, Teresa Nuñez, Vanessa Silva, Vincent Hardion, Wojciech Kitka, Wojciech Wantuch, Yimeng Li, Yury Matveyev, Zbigniew Reszela

Thank you for your attention!