

Taurus workshop @ SOLEIL

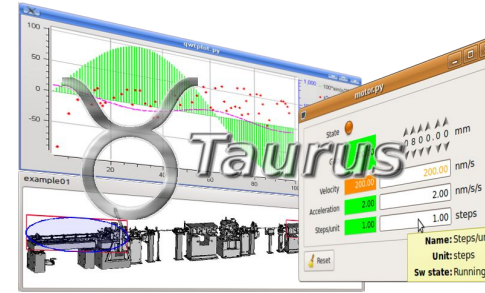
Thanks to Arnaud, Patrick, Deborah & Yves-Marie for organizing and hosting the workshop in SOLEIL, and to all speakers and participants for contributing to the Taurus community.

Day 1 (today) – <i>Using Taurus</i>	Day 2 (tomorrow) – <i>Developing Taurus</i>
09:10 Taurus Framework: Introduction	09:00 Developer Introduction
10:30 Coffee Break	10:00 Hands-on Practical Session
11:00 Recent Features & Developments	10:30 Coffee Break
12:30 Lunch Break	10:30 Hands-on Practical Session
13:30 User Feedback & Use Cases	12:30 Lunch Break
15:30 Coffee Break	13:30 Hands-on Practical Session
16:00 User Feedback & Use Cases	15:00 Workshop Feedback & Closure
16:30 Qt Ecosystem & Python	15:30 Coffee Break
17:15 Steering Committee meeting	

Full agenda available on Indico <https://indico.synchrotron-soleil.fr/event/166/timetable/#20260512.detailed>



TAURUS Workshop, 12-13 May 2026



Taurus framework Introduction

Oriol Vallcorba on behalf of all Taurus team



Taurus Introduction

Today: **Taurus Introduction**

Focus:

- Why Taurus?
- What Taurus provides
- How to use Taurus tools
- Form, Plot, GUI, Synoptics
- A short look under the hood

Tomorrow: **Taurus Developer Introduction**

Focus:

- Taurus Core internals
- Schemes and plugins
- Taurus Qt integration
- Custom widgets and extensions
- Contribution workflow

*Today we focus on **using** Taurus.*

*Tomorrow we will focus on **extending** and **developing** Taurus.*

Content

Taurus

Why Taurus?

What is Taurus

Using Taurus: from zero-code to custom apps

Taurus Form

Plotting

Taurus GUI

Synoptics

Programmatic GUIs

Taurus *lower-level*

Taurus project

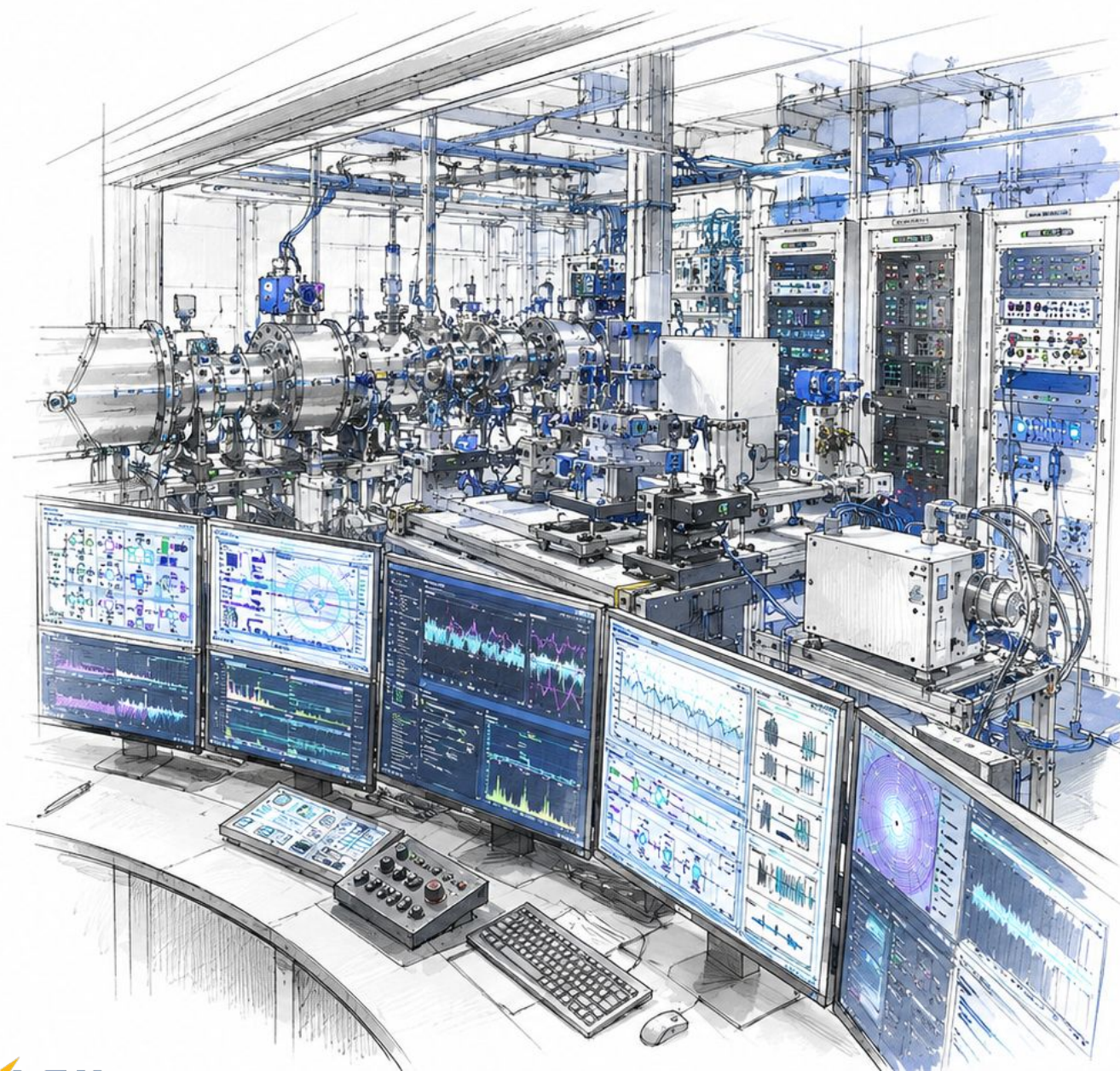
taurus-org

Taurus installation

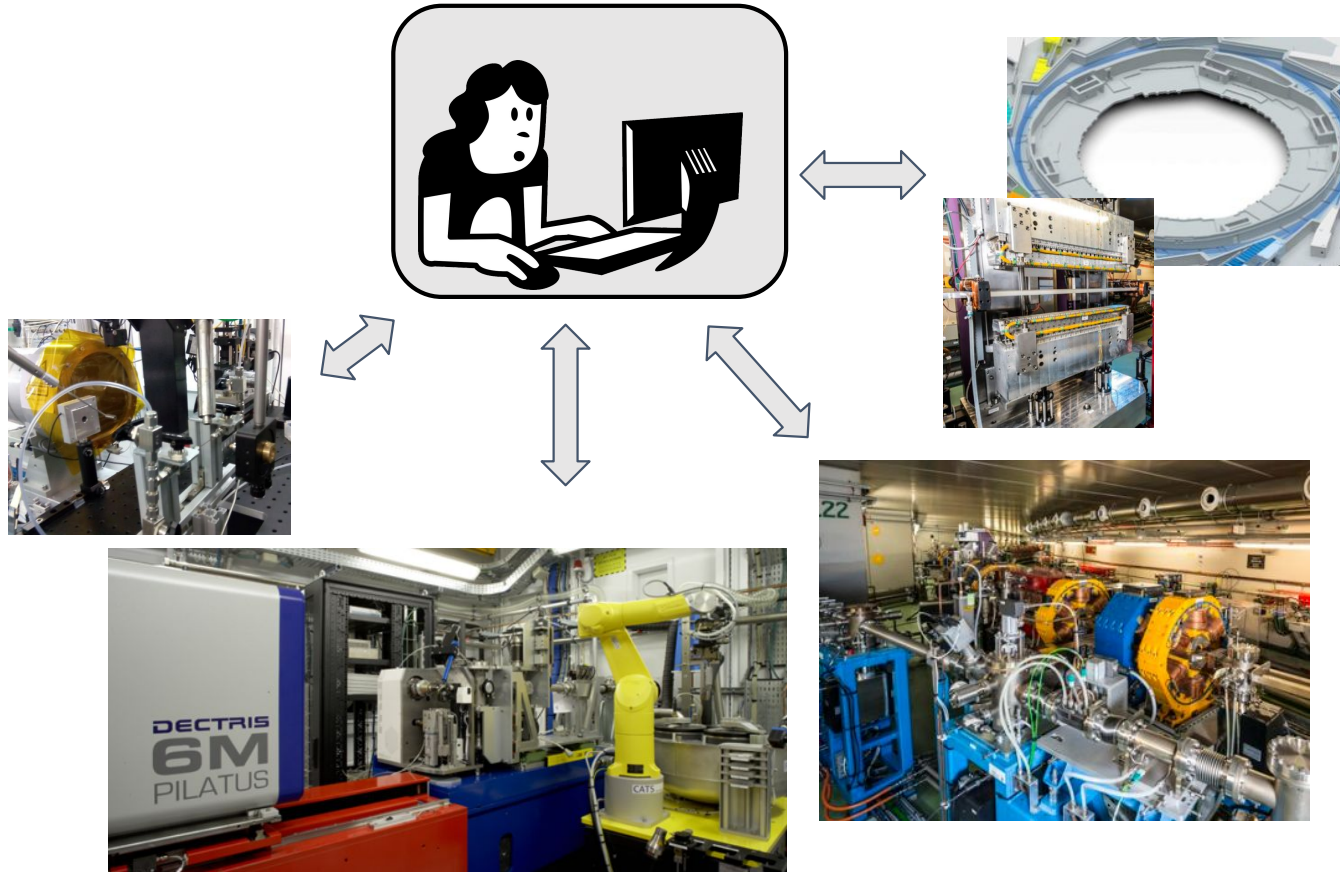
Where to go next?

Taurus

Why Taurus?
What is Taurus



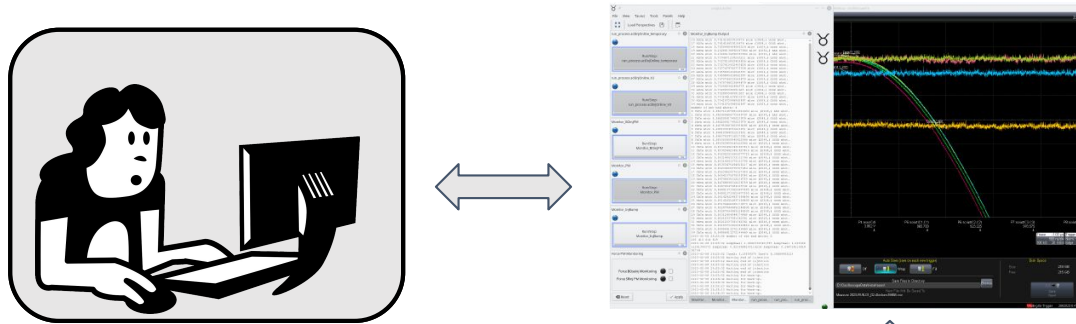
Motivation



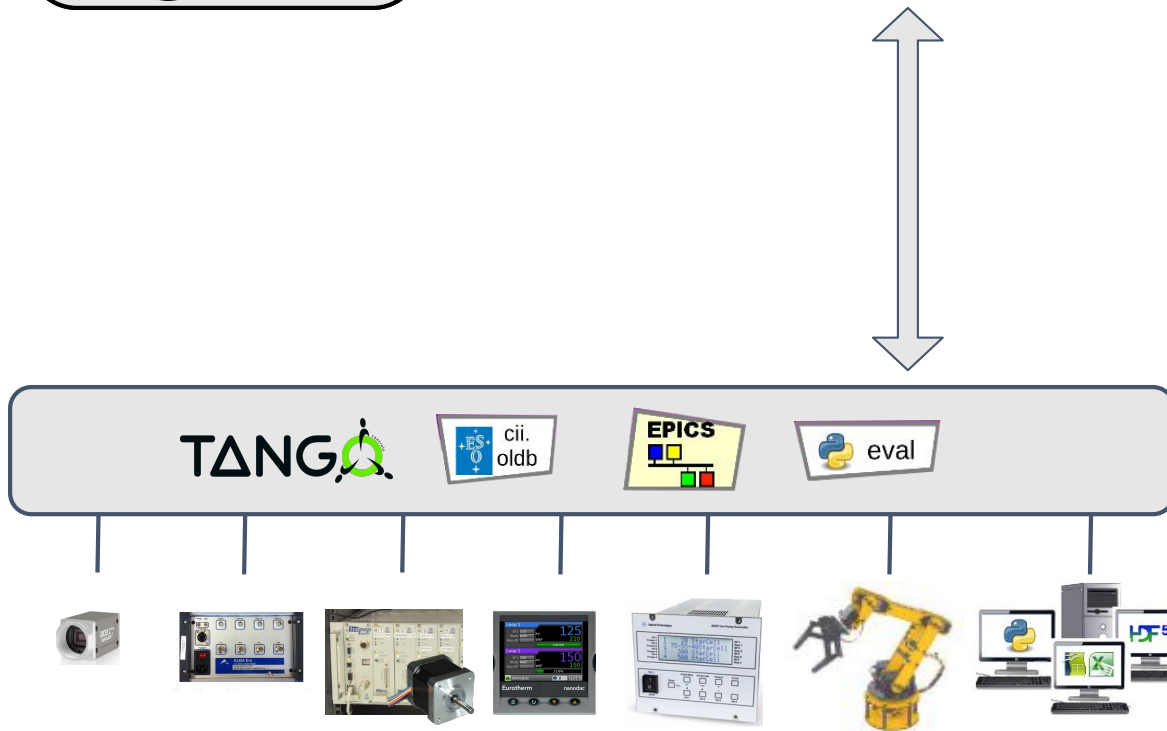
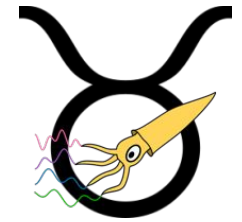
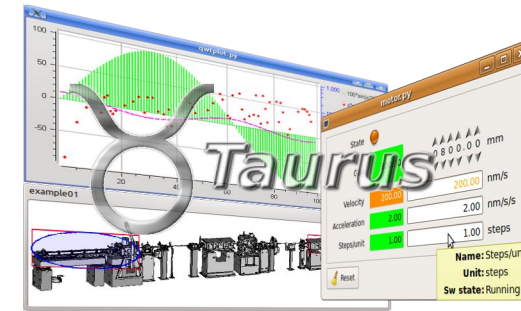
Large-scale facilities: many devices, protocols, locations and user needs

- Power Supplies
 - Vacuum
 - Temperatures
 - Water system
 - Interlocks
 - Feedback systems
 - Diagnostics
 - Motion
 - Sample environments
 - Acquisition cards
 - Detectors (0D, 1D, 2D)
 - ...
- User interfaces
 - Experiment control
 - Data acquisition
 - Archiving
 - Alarms
 - ...

Distributed Control Systems



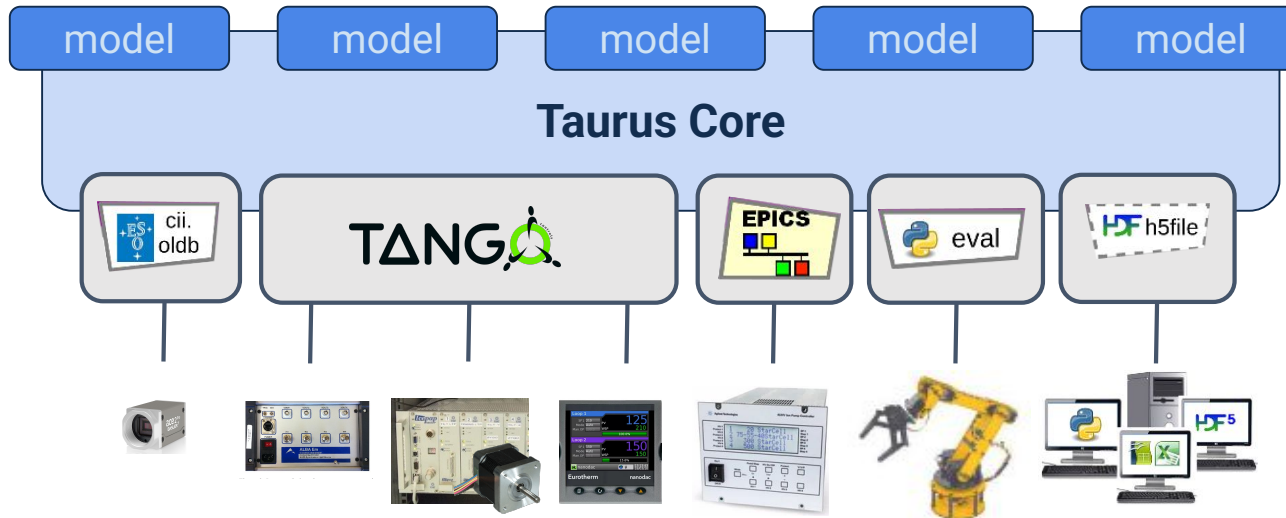
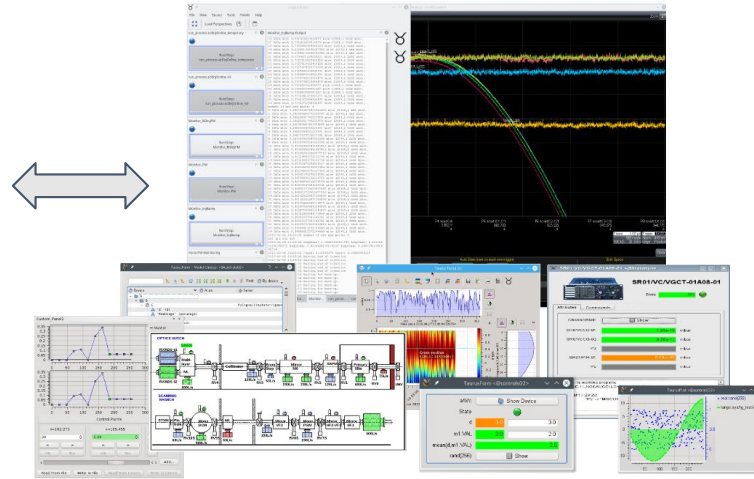
3. Provide high level tools to operate with them



2. Define a homogeneous way to access them (and from anywhere)

1. Identify the elements we want to control

Why Taurus?



A model-driven abstraction layer for control systems

Taurus GUIs

Taurus Qt Widgets

Everything is a model!

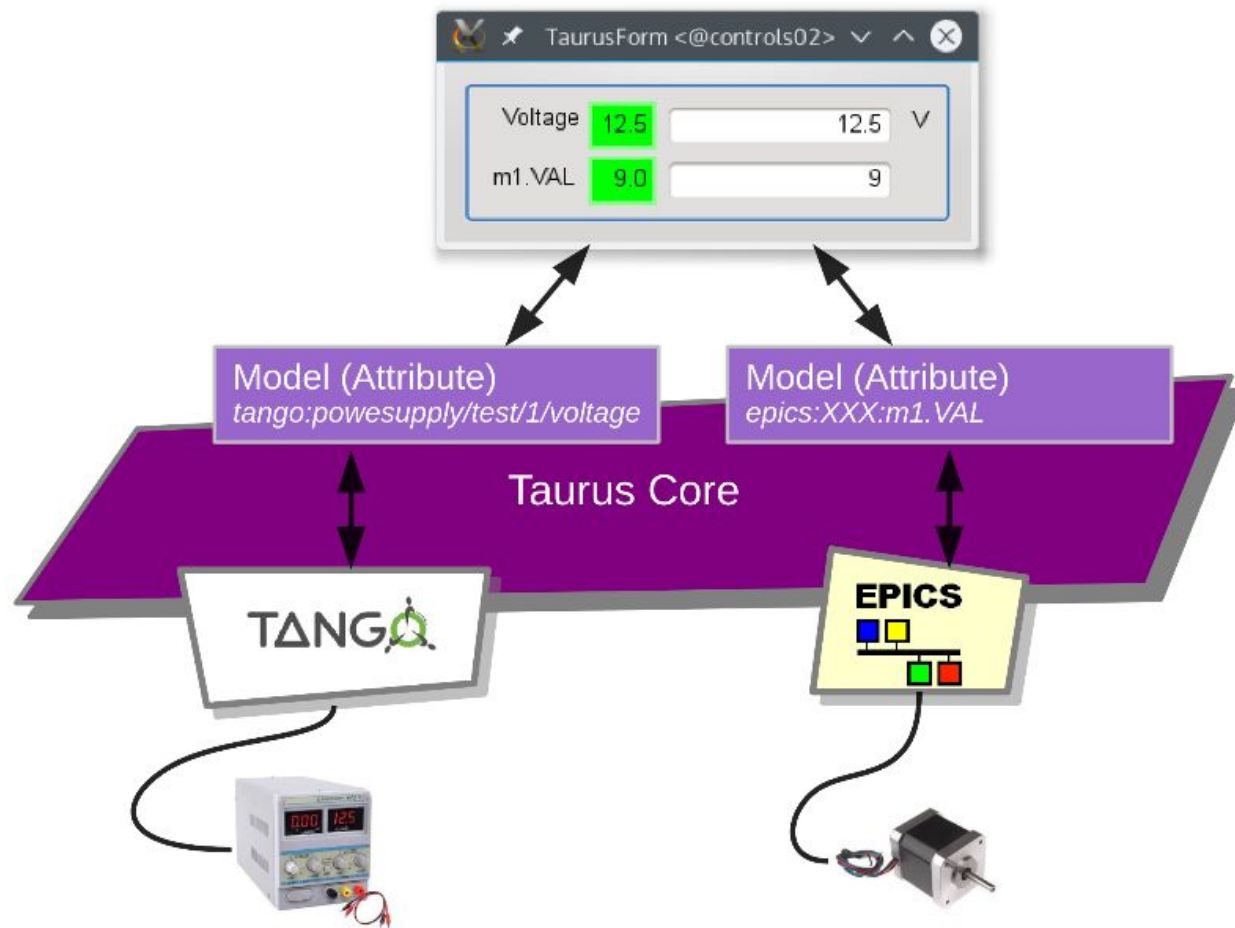
Model Objects (e.g. Attribute, Device,...)

Schemes

Taurus architecture: model-view-controller

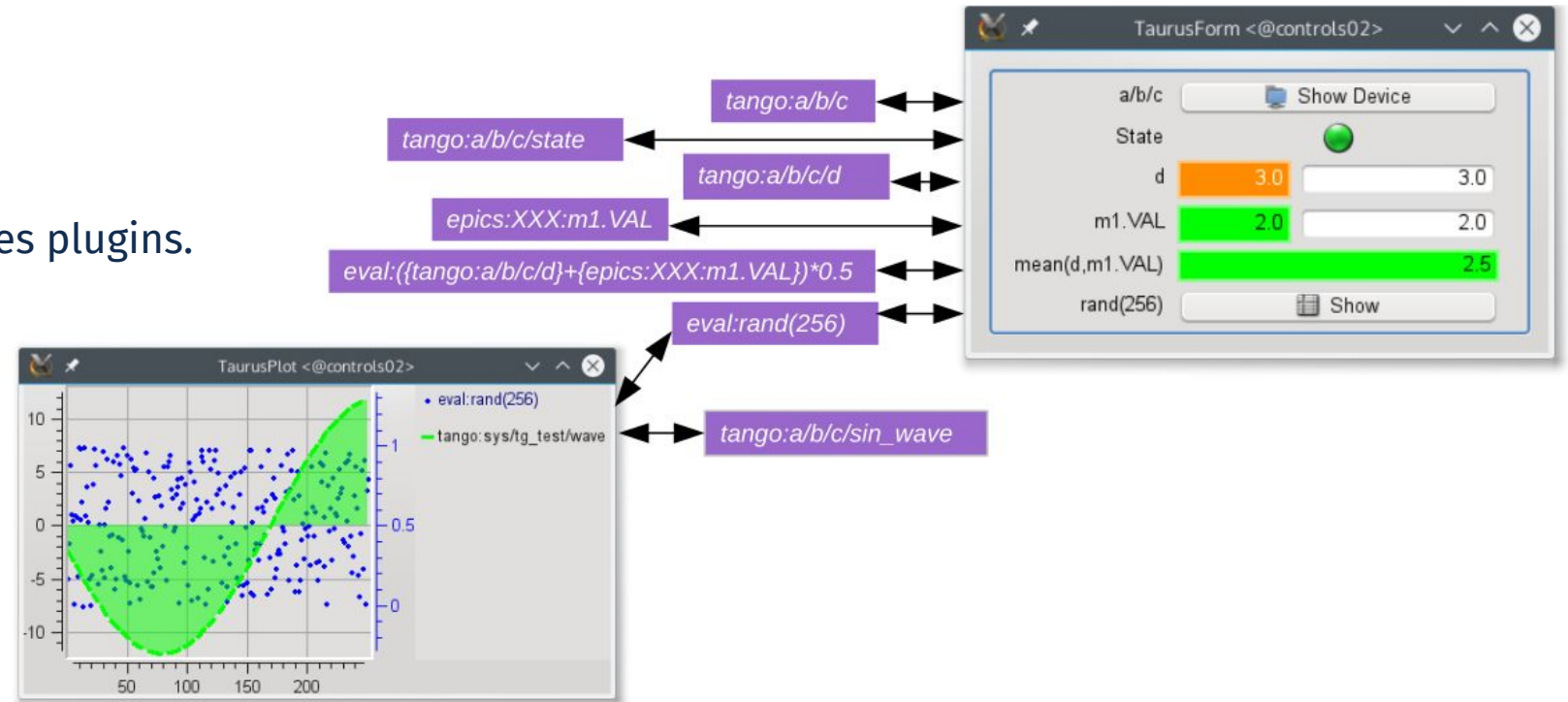
Taurus Qt Widgets
(View & Controller)

Taurus Core
(Model)



Taurus architecture: model-view-controller








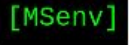



- Taurus is **data source agnostic**
- Model objects are **singletons**
- Model names are **URIs**
(Uniform Resource Identifiers)
- Models are provided by schemes plugins.
Each scheme provides:
 - A **model factory** for:
 - Authority
 - Device
 - Attribute
 - Model name validators



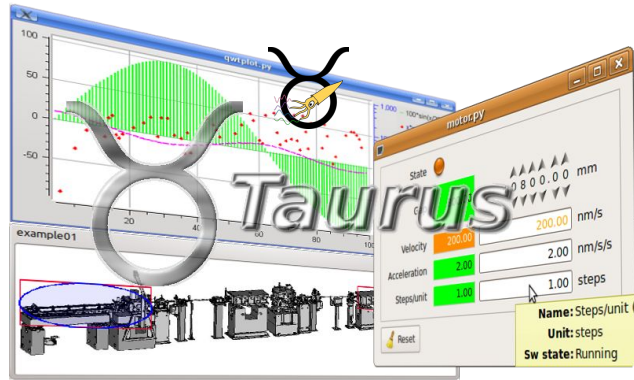
- All functionality is enabled by just **attaching** the model to the widget (i.e. providing its URI)
- Each type of widget offers a **particular view** on its model(s)

Model names: Uniform Resource Identifier (URIs)

`scheme:authority/path?query#fragment`

#	Model name (URI)	Scheme	Model type	Represented source of data/control object
1	<code>tango://foo:1234</code>	 TANGO	Authority	Tango database listening to port 1234 of host <i>foo</i>
2	<code>tango://foo:1234/a/b/c</code>	 TANGO	Device	Tango Device <i>a/b/c</i> registered in database <i>foo</i>
3	<code>tango:a/b/c/state</code>	 TANGO	Attribute	Tango attribute <i>state</i> of device #2
4	<code>tango:a/b/c/d#units</code>	 TANGO	Attribute	Tango attribute <i>d</i> of device #2 (<i>units</i> fragment)
5	<code>ca:XXX:m1.VAL</code>	 EPICS	Attribute	EPICS process variable <i>XXX:m1.VAL</i>
6	<code>eval:({tango:a/b/c/d}+{epics:XXX:m1.VAL})*0.5</code>	 eval	Attribute	Calculated average of the values of #4 and #5
7	<code>eval:rand(256)</code>	 eval	Attribute	Random generated array of 256 values
8	<code>msenv://foo:1234/macroserver/bar/1/ScanDir</code>	 [MSenv]	Attribute	<i>ScanDir</i> variable from Sardana's environment
9	<code>h5file:/mydir/myfile.hdf5</code>	 HDF5	Device	File in HDF5 format saved at <i>/mydir/myfile</i>
10	<code>h5file:/mydir/myfile.hdf5:data/energy</code>	 HDF5	Attribute	HDF5 dataset <i>energy</i> of group <i>data</i> from file #9
11	<code>ssheet:myfile.ods:Sheet1.A1</code>		Attribute	Contents of cell A1 of Sheet1 of <i>myfile.ods</i> spreadsheet

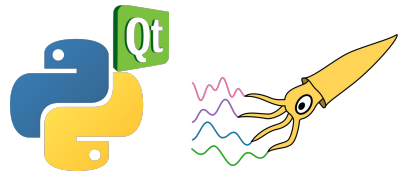
What is Taurus?



Python framework

Provides a structured approach for building **Graphical User Interfaces** (GUIs) and interacting with underlying control systems (e.g. **TANGO**.)

Based on



PyQt/PySide pyqtgraph

Modular and extensible with plugins and widgets.

Zero-code solutions. Designer.
 Programmatic development.
 Draggable attributes between apps.
 Synoptics.

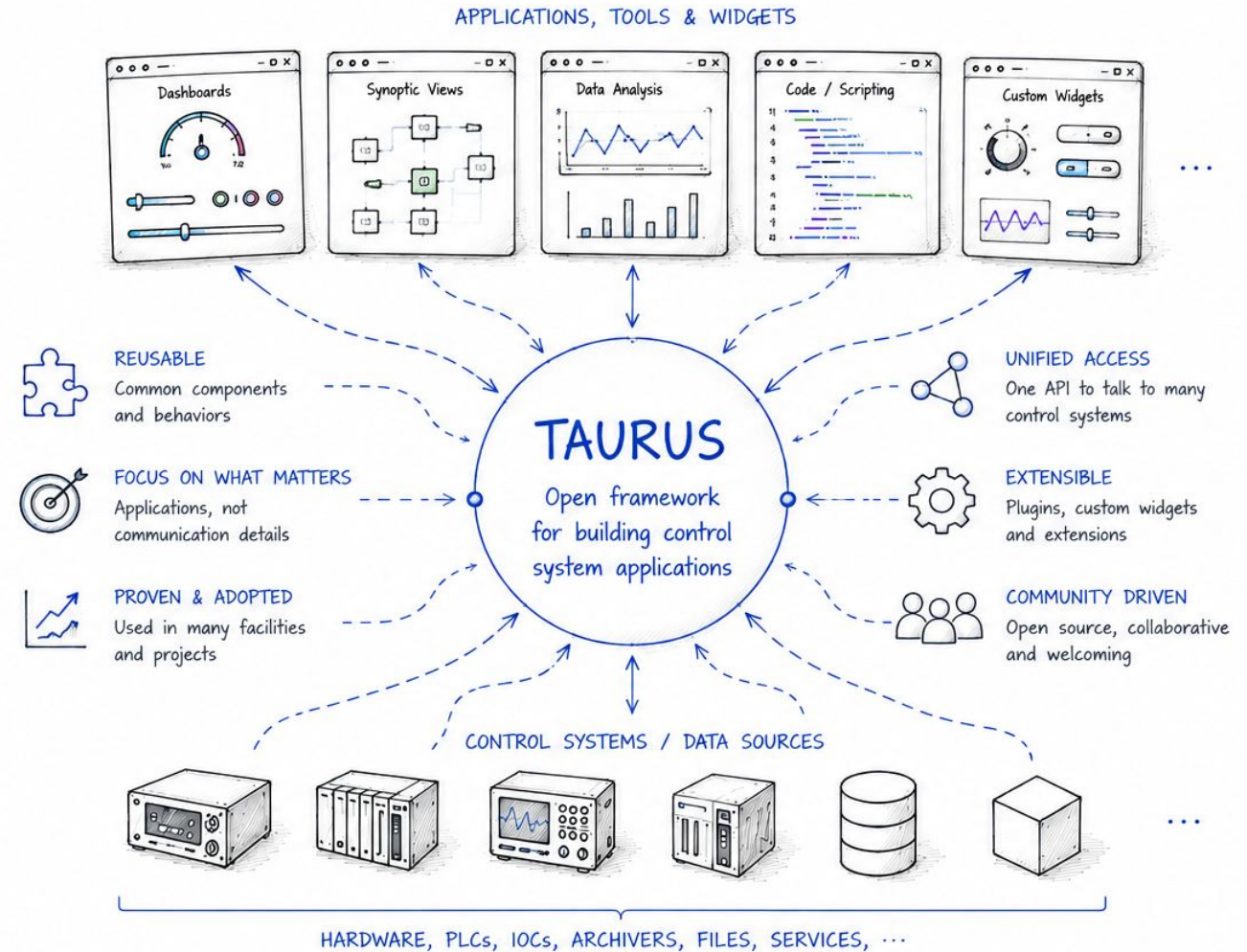


Community-driven. Open Source (LGPL v3). @ALBA more than 10y of operation with Taurus. Extensively used.

Why Taurus?

- Unified API for different control systems
- Model-centric architecture
- Event-driven data access
- Plugin-based extensibility

- Same widget → different backend
- Uniform event handling
- Reusable GUIs
- Simplified application development



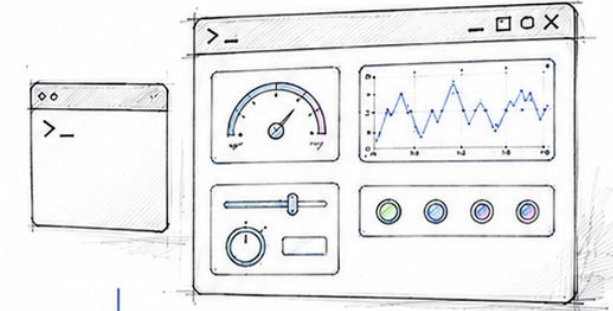
Using Taurus: from zero-code to custom apps

Taurus Form
Plotting
Taurus GUI
Synoptics
Programmatic GUIs

CUSTOMIZATION

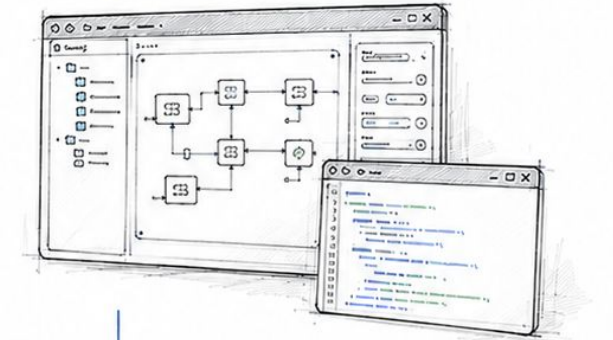
ZERO-CODE

- CLI Taurus Widgets
- Taurus GUI



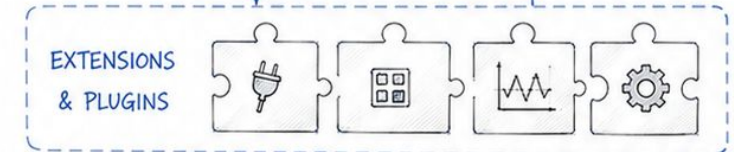
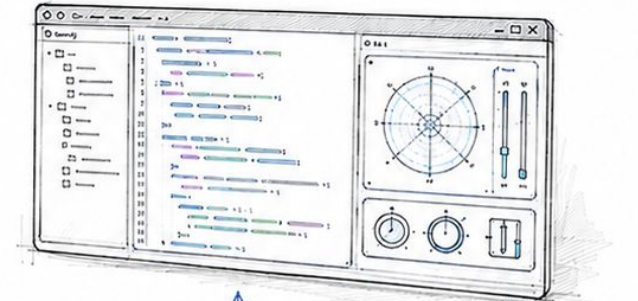
LOW-CODE

- Taurus Designer
- Config files



CODE

- Taurus Application
- Custom widgets



Using Taurus: from zero-code to custom apps

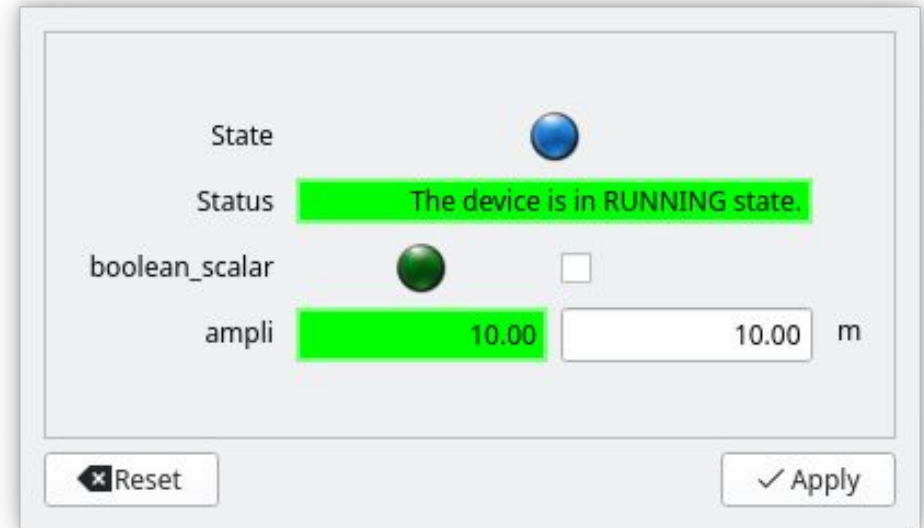
Three levels of customization

- **Zero-code:** CLI/Form, Taurus GUI
- **Low-code:** Taurus Designer, config files
- **Code:** TaurusApplication + Taurus widgets

Taurus Form

Standard widget for inspection/control of attributes and devices

Command: `taurus form [MODEL/s]`



The screenshot shows a Taurus Form widget with the following elements:

- State:** A blue sphere indicator.
- Status:** A green bar containing the text "The device is in RUNNING state."
- boolean_scalar:** A green sphere indicator and an unchecked checkbox.
- ampli:** A green bar containing the value "10.00", a text input field containing "10.00", and the unit "m".

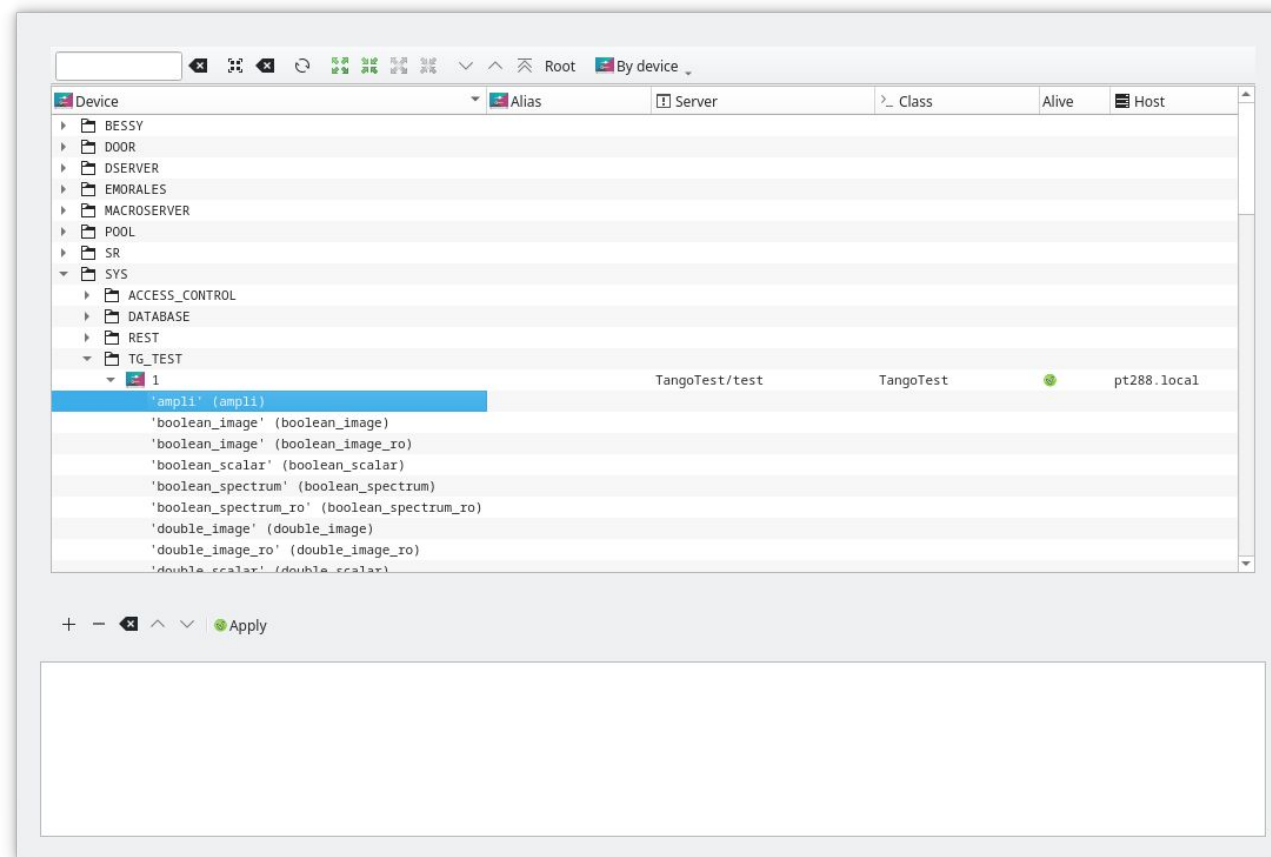
At the bottom of the widget, there are two buttons: "Reset" (with a close icon) and "Apply" (with a checkmark icon).

```
taurus form sys/tg_test/1/state sys/tg_test/1/status sys/tg_test/1/boolean_scalar sys/tg_test/1/ampli
```

Taurus Form

If you want to navigate your device tree (e.g. inside your TangoDB), Model Chooser widget will help you.

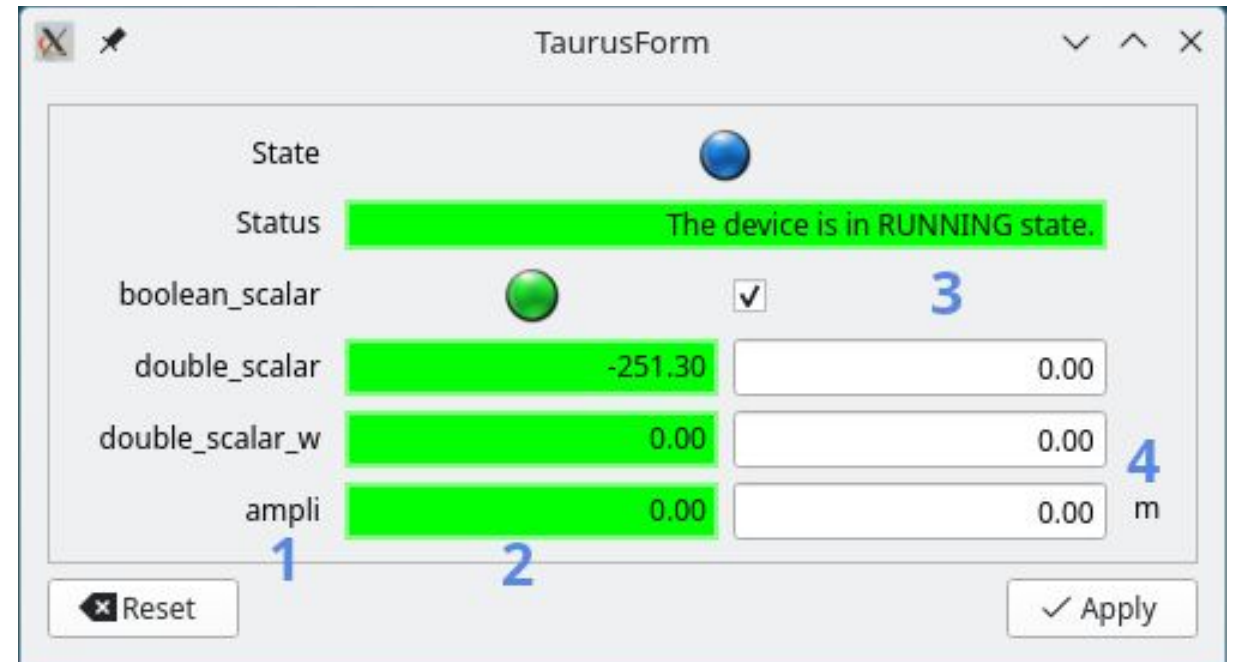
Command: `taurus form`



Taurus Form

The heart of Taurus Form: **TaurusValue**

1. Label widget
2. Read widget
3. Write widget
4. Units widget
5. Extra widget (not shown)

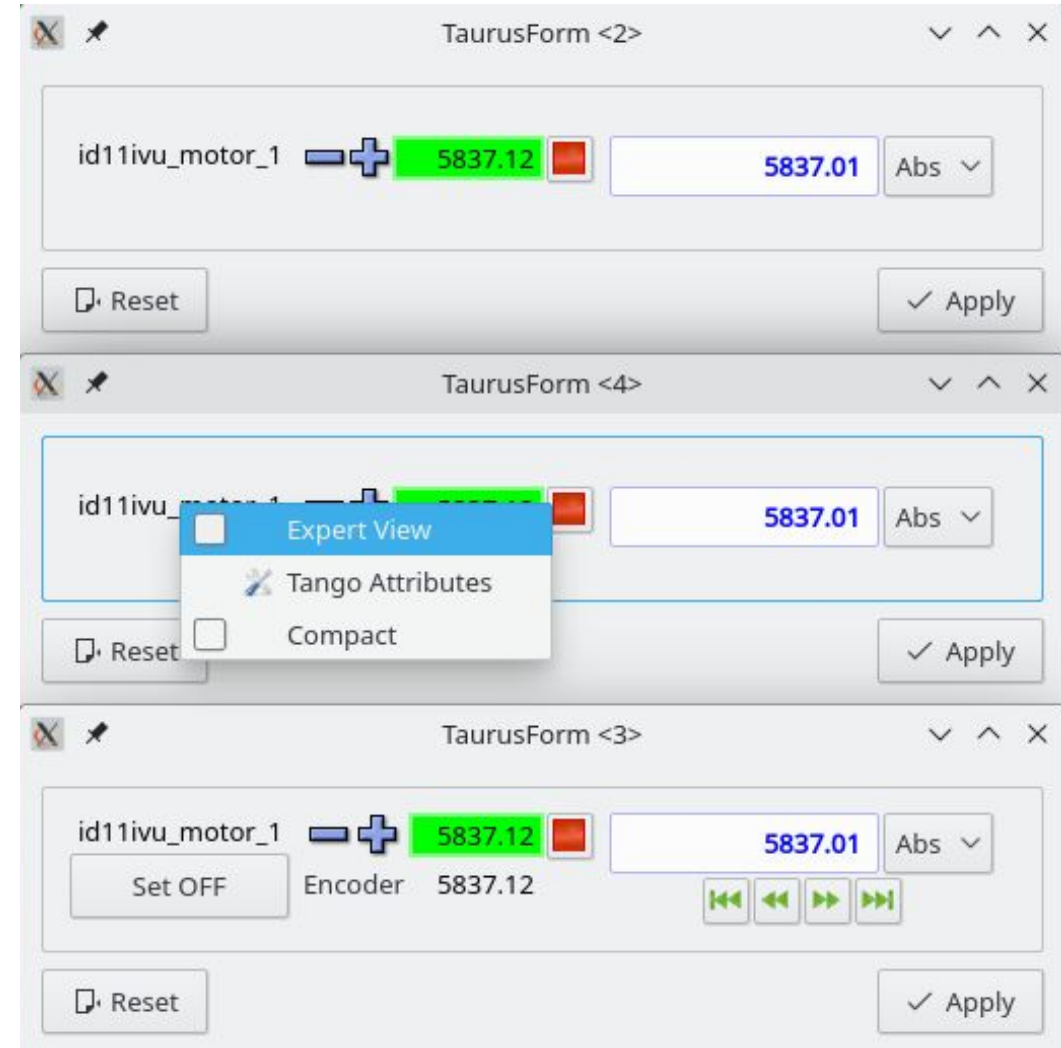


Taurus Form

The heart of Taurus Form: **TaurusValue**

1. Label widget
2. Read widget
3. Write widget
4. Units widget
5. Extra widget (not shown)

**customizable per device class
with extensions**



Taurus Form

Taurus Form features

- **Pending operations**
- **Apply & Reset buttons**
- **Hide buttons**
- **Compact mode**
- Configuration menu
- 1D & 2D Data
- Devices

A screenshot of a Taurus form for a device named 'ampli'. It features a green progress bar at 10.00 and a text input field containing '11'. Below the input field are 'Reset' and 'Apply' buttons. The unit 'm' is displayed to the right of the input field.

A screenshot of a Taurus form for a device named 'ampli'. The green progress bar is at 11.00 and the text input field also contains '11.00'. The 'Reset' and 'Apply' buttons are present, and the unit 'm' is shown to the right.

A screenshot of a Taurus form for a device named 'ampli' in compact mode. The green progress bar is at 11.00 and the text input field contains '11.00'. The unit 'm' is shown to the right.

A screenshot of a Taurus form for a device named 'ampli' in compact mode. The green progress bar is at 11.00 and the unit 'm' is shown to the right. The text input field is not visible.

A screenshot of a Taurus form for a device named 'ampli' in compact mode. The text input field contains '11.00' and the unit 'm' is shown to the right. The green progress bar is not visible.

Taurus Form

Taurus Form features

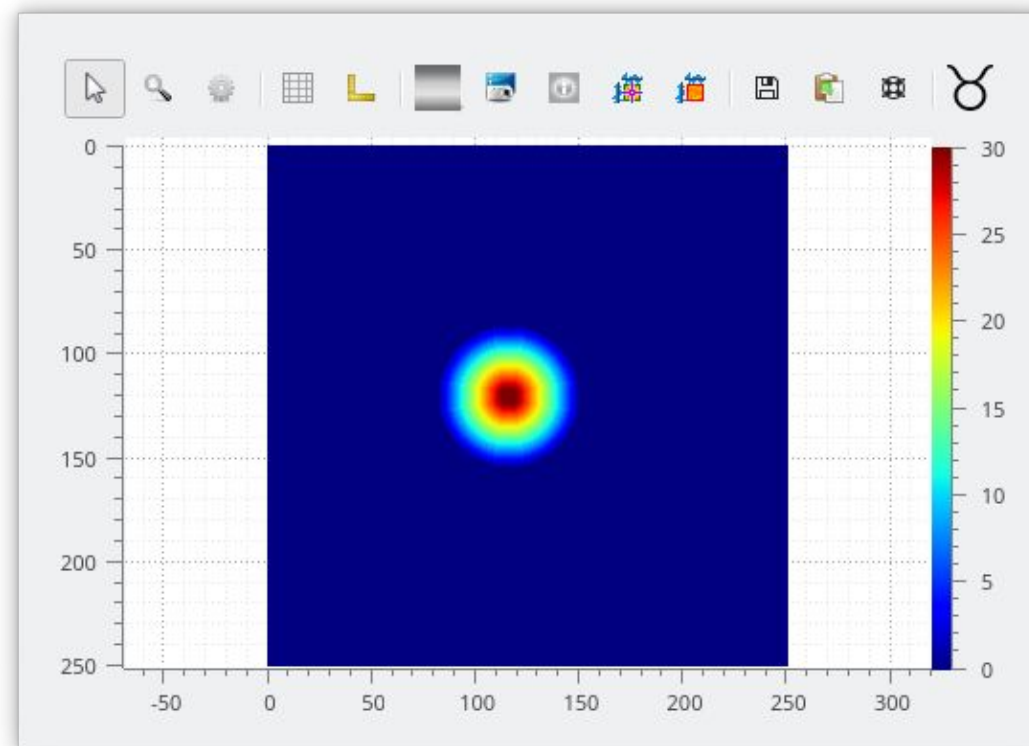
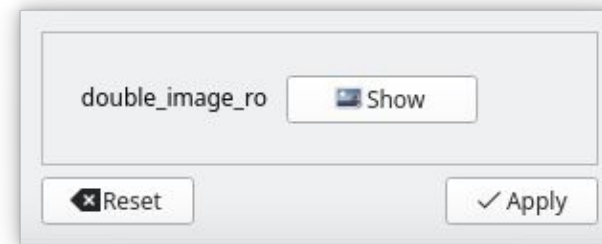
- Pending operations
- Apply & Reset buttons
- Hide buttons
- Compact mode
- **Configuration menu**
- 1D & 2D Data
- Devices

The screenshot shows a configuration dialog for a device. The 'Full Name' field contains 'sys/tg_test/1/ampli'. The 'Label' field contains 'ampli', 'Unit' contains 'm', and 'Display Unit' contains 'No display unit'. The 'Standard Unit' is set to 'None' and the 'Format' is '%6.2f'. The 'Description' field is empty, containing 'No description'. On the right side, there are three sections: 'Value' with 'Min' and 'Max' both set to 'Not specified'; 'Alarm' with 'Min' set to '-50' and 'Max' set to '40'; and 'Warning' with 'Min' set to '-10' and 'Max' set to '10'. At the bottom, there are four buttons: 'OK', 'Apply', 'Cancel', and 'Restore'.

Taurus Form

Taurus Form features

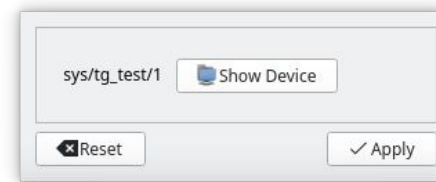
- Pending operations
- Apply & Reset buttons
- Hide buttons
- Compact mode
- Configuration menu
- **1D & 2D Data**
- Devices



Taurus Form

Taurus Form features

- Pending operations
- Apply & Reset buttons
- Hide buttons
- Compact mode
- Configuration menu
- 1D & 2D Data
- **Devices**



Attributes Commands

ampli 11.00 11.00 m

boolean_image Show Edit

boolean_image Show

boolean_scalar

boolean_spectrum Show Edit

boolean_spectrum_ro Show

double_image Show Edit

double_image_ro Show

double_scalar -226.03 0.00 mm

double_scalar_rww -226.03 0.00

double_scalar_w 0.00 0.00

double_spectrum Show Edit

double_spectrum_ro Show

enum_image Show Edit

The device is in RUNNING state.

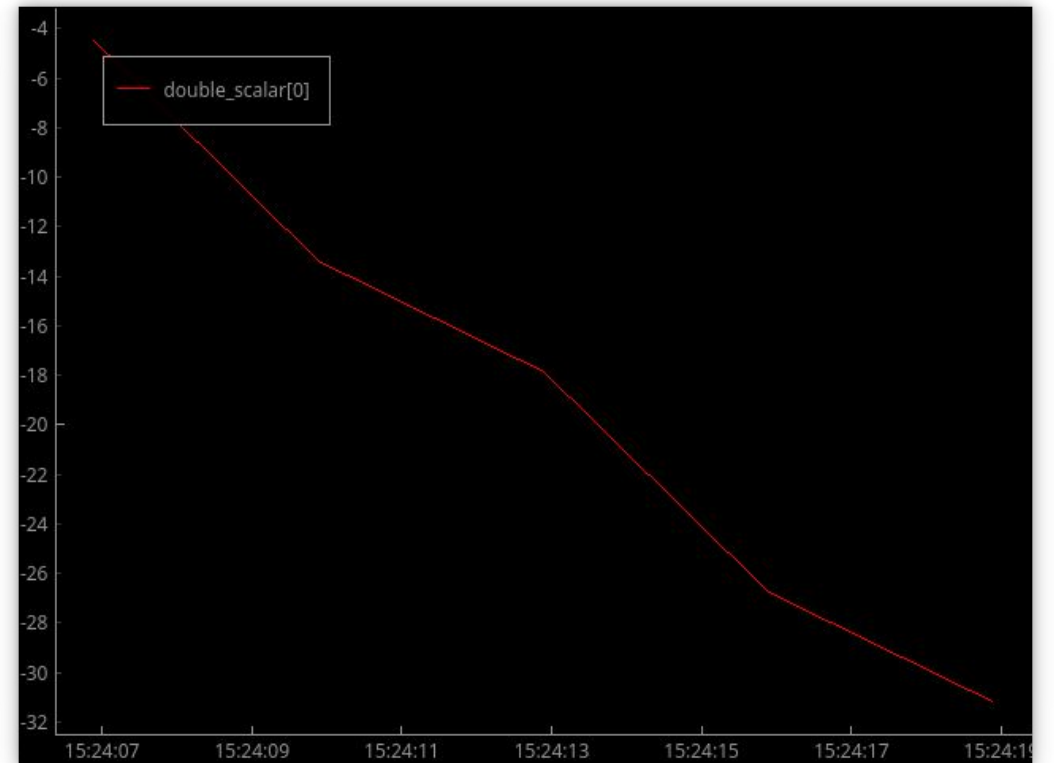
Plotting

Trend: Standard widget for live plotting of time-based data.

Command: `taurus trend [MODEL/s]`

Example:

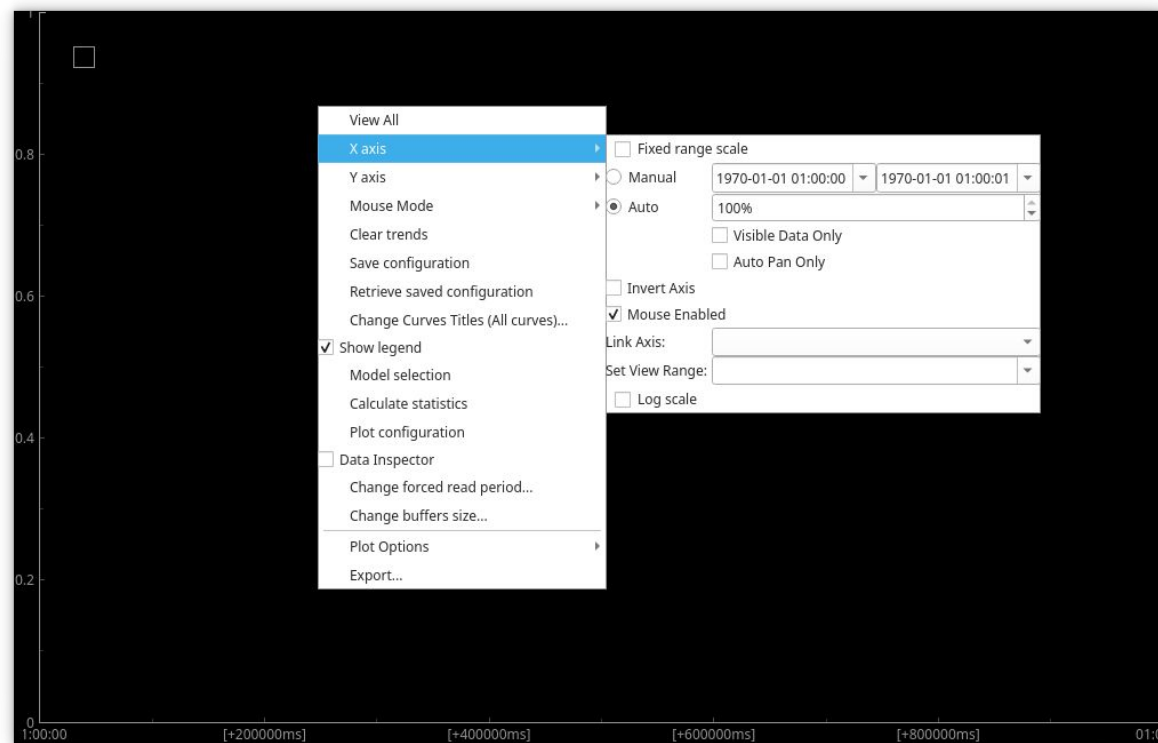
```
taurus trend sys/tg_test/1/double_scalar
```



Plotting

Context menu offers options to adjust and configure your plot.

- Model(s) selection
- Adjust X & Y axis
- Configure plot
- Change buffer size
- Archiving tool configuration
- Save/retrieve plot configuration



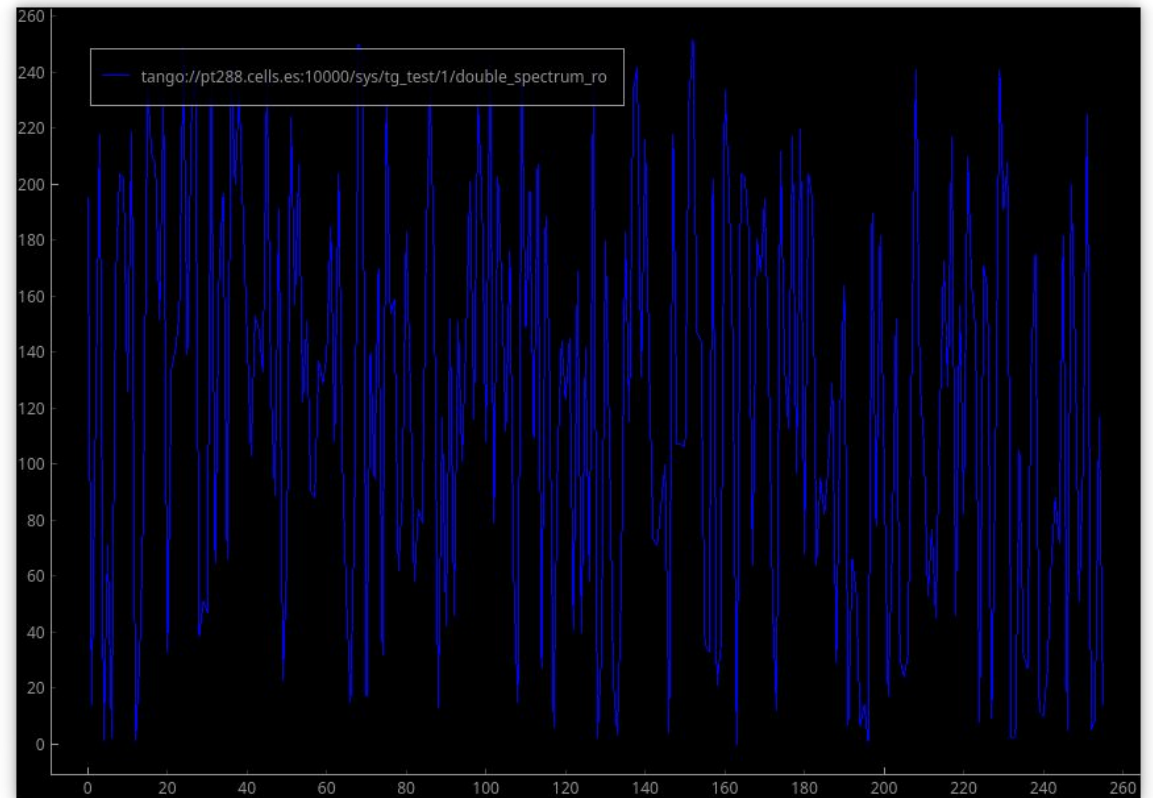
Plotting

Plot: Standard widget for plotting spectrums and data arrays.

Command: `taurus plot [MODEL/s]`

Example:

```
taurus plot sys/tg_test/1/double_spectrum_ro
```



Plotting

More plotting details in next talk by Jose Ramos

Taurus GUI

The screenshot displays the Taurus GUI interface, which is used for monitoring and controlling the synchrotron beamline. The interface is divided into several main sections:

- Tree View:** Shows the hierarchical structure of the beamline components, including FE04, VC, IPCT-01, VGCT-01, P1, P2, BL04, and VC.
- Table:** A table listing attributes with columns for Attribute Name, Label, Format, and Max Alarm.

Attribute Name	Label	Format	Max Alarm
1 fe04/vc/ipct-01/p1	IP1-TU	%5.2e	Not specified
2 fe04/vc/vgct-01/p1	CC1-TU	%5.2e	Not specified
3 fe04/vc/ipct-01/p2	CCA-COLL	%5.2e	Not specified
4 bl04/vc/ipct-01/p1	IP1-FILTER	%5.2e	Not specified
5 bl04/vc/ipct-01/p2	IP2-WBATT	%5.2e	Not specified
6 bl04/vc/vgct-01/p1	CC1-FILTER	%5.2e	Not specified
7 bl04/vc/vgct-01/p2	CCA-WBATT	%5.2e	Not specified
8 bl04/vc/ipct-02/p1	IP1-M1	%5.2e	Not specified
- 3D Schematic:** A detailed 3D rendering of the synchrotron beamline components, including the Photon Shutter, Slits, Monochromator, Fluo. screen, M.Masks, Mirror, White beam Att, Filter, and Trigger Unit. Each component is labeled with its name and current status (e.g., "Open" or "Closed").
- Status Panel (BL04/VC/IPCT-03):** A detailed view of the selected component, showing its state (ON), attributes (ErrorStatus, FirmwareVersion, HV1Code, HV1Status, HV2Code, HV2Status, I1, I2), and commands (BlackBox, IPProtectSetPoints). It also displays high voltage status and communication logs.
- Form:** A section for setting and monitoring various parameters, such as pressure (mbar) for different components.
- Trend:** A graph showing the trend of a selected parameter over time.

Taurus GUI

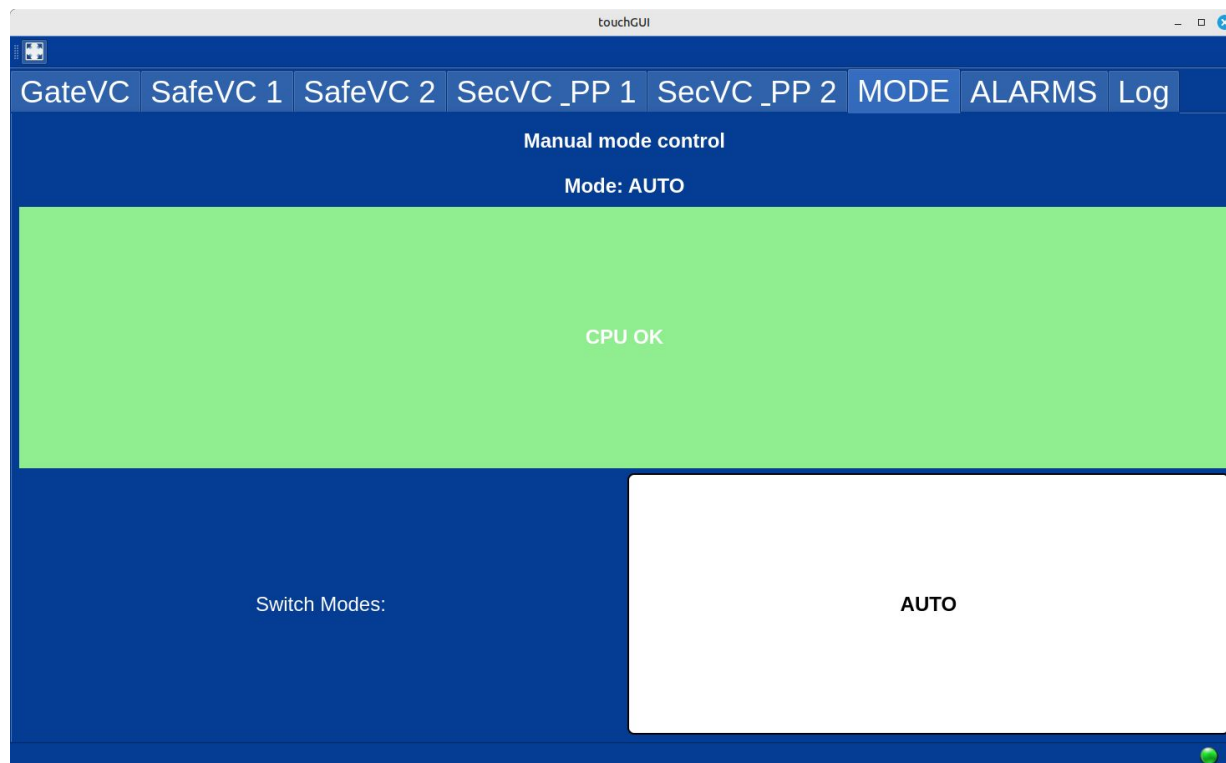
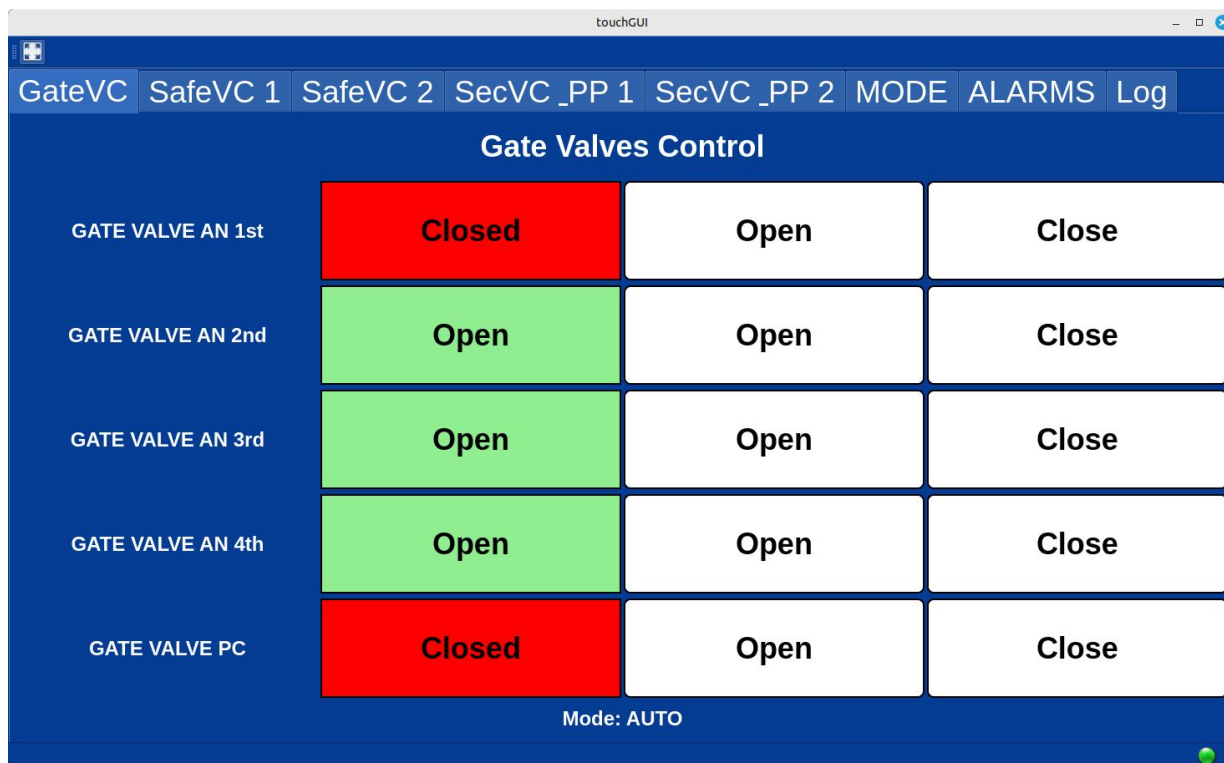
Powerful drag & drop framework for building graphical user interfaces.

Main features are:

- Wizard to construct your GUI without code. Command: `taurus newgui`
- Combination of panels with Taurus/Qt widgets
- Configuration files
- Modularity
- Pre-saved perspectives
- Integration of external applications.

Taurus GUI

Touch screen Taurus GUI example for PLC control.



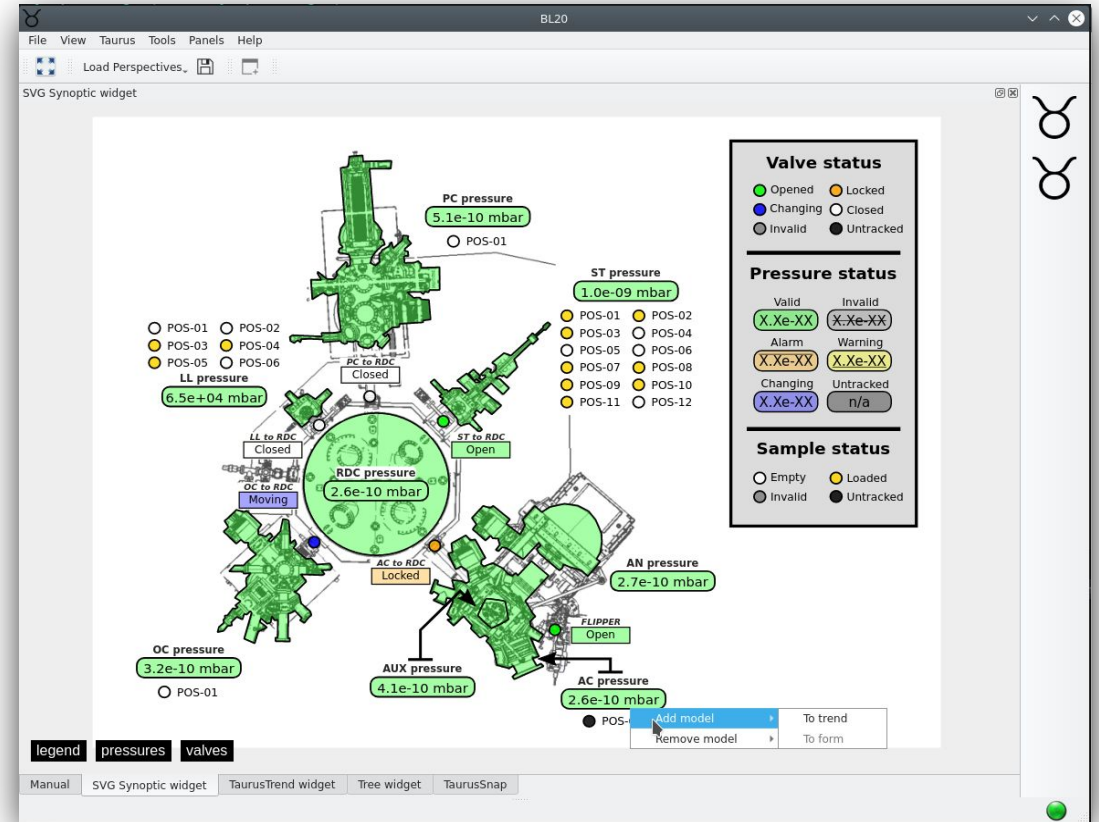
Taurus GUI

The screenshot displays the Taurus GUI interface, which is used for controlling a microscope system. The main window shows a live video feed of a sample, with a grid overlay and various measurement tools. The interface is divided into several panels:

- Beam Status:** Shows the MocoState as 'WAITBEAM' and the Beam intensity as 0.0207722.
- Camera:** Controls for video zoom (V_zoom_um: 30.38), navigation zoom (nav_zoom: 10011.00), focus (nav_foc: 1.31), and navigation coordinates (nav_x, nav_y, nav_z).
- Sample:** Controls for sample parameters such as hp_sz (30.0891), hp_sxu (2.6564), hp_syu (0.1040), hp_sxd (-11.8630), hp_syd (0.1800), hp_som (0.0025), and lckOmega (30.00).
- LimaCCD:** Controls for video mode (RGB32), video active status, video exposure (0.60), oav_video_live status, video gain (0.00), and the last image counter (763).
- Mar_ct macro:** A control panel for the macro, with a 'mar_ct' button highlighted in green.
- Log:** A window at the bottom left showing system logs, including timestamps and messages like 'NOW click on the point you want to center on...' and 'WAIT! moving omega to the next position...'.

Synoptics

- User friendly representation of a control system that provides live feedback
- Synoptic widgets:
 - jdraw (Tango, built-in)
 - SVG (libsvgsynoptic by J. Forsberg, MaxIV)
Python, SVG, CSS, javascript
- Can be used in Taurus GUI and combine with other widgets.



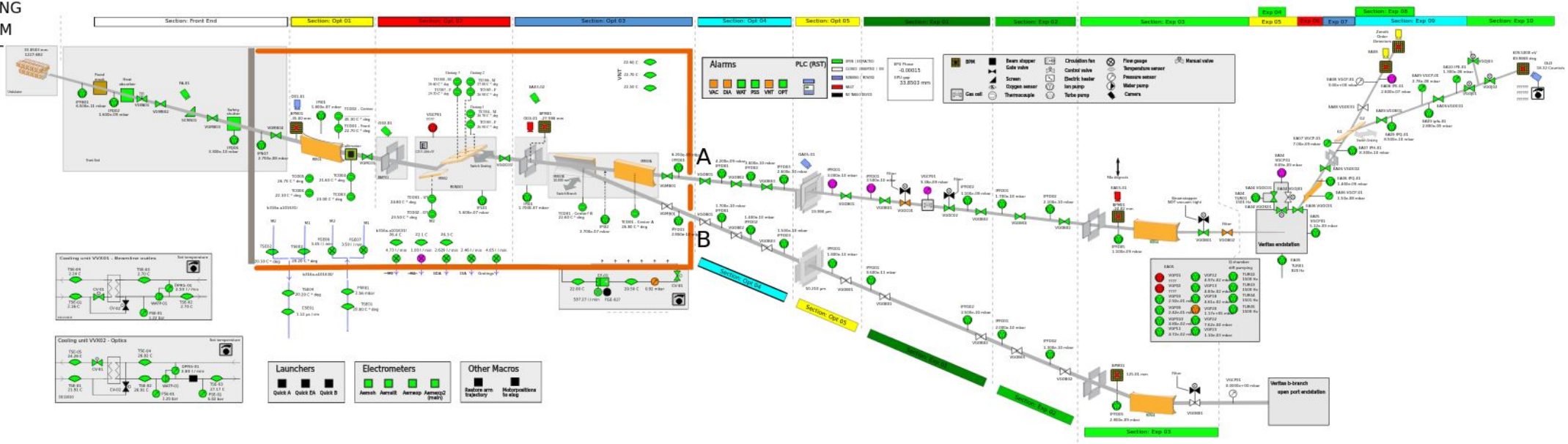
ALBA BL20 Lorea Endstation Vacuum

Taurus Synoptics



TANGO states

- ON/OPEN
- OFF/CLOSED
- MOVING
- ALARM
- FAULT



Ventilation WAT Undulator Front End OPT Endstations DIA Vacuum

BALDER beamline at MAX-IV

Konstantin Klementiev

Taurus Synoptics

More about SVG Synoptics in today's presentations:

- **12:10 - SVG Synoptic library by Johan Forsberg**
- **14:10 - MAX IV BALDER beamline GUIs by Konstantin Klementiev**

Programmatic GUIs

Low-code: Configuration files

Simplest way of creating programmatic Taurus GUIs. It consists of a .py configuration file that determines the default, permanent, predefined contents of the GUI in a **declarative format**.

Command:

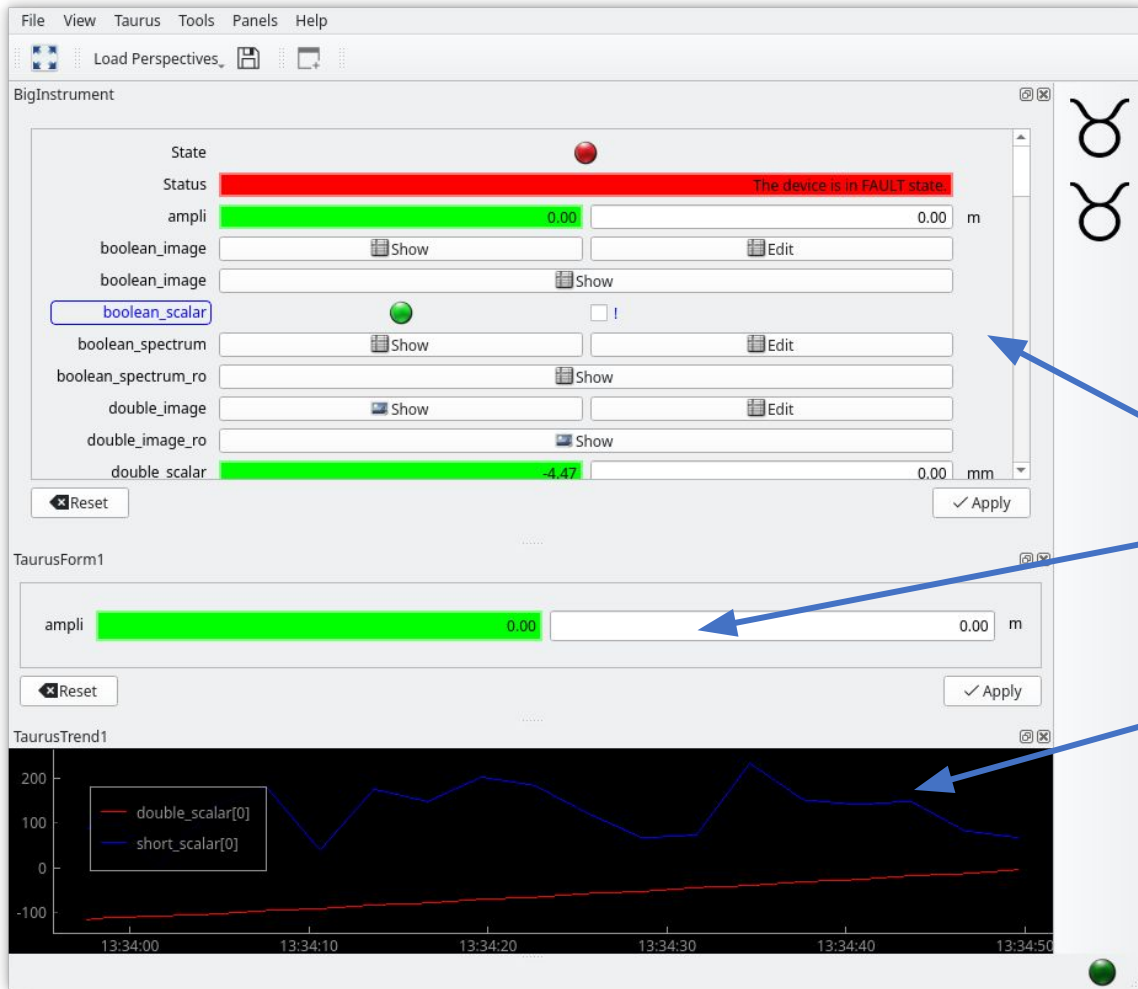
```
taurus gui mypanel.py
```

```

1 from taurus.qt.qtgui.taurusgui.utils import PanelDescription
2
3 GUI_NAME = "taurus_panedescriptions"
4 ORGANIZATION = "TAURUS"
5
6
7 tango_host="tango://pt288.cells.es:10000"
8 tango_test = f"{tango_host}/sys/tg_test/1"
9
10
11 taurus_form = PanelDescription("TaurusForm1",
12                               |
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```

Programmatic GUIs



```

1 from taurus.qt.qtgui.taurusgui.utils import PanelDescription
2
3 GUI_NAME = "taurus_paneldescriptions"
4 ORGANIZATION = "TAURUS"
5
6
7 tango_host="tango://pt288.cells.es:10000"
8 tango_test = f"{tango_host}/sys/tg_test/1"
9
10
11 taurus_form = PanelDescription("TaurusForm1",
12                               classname="taurus.qt.qtgui.panel:TaurusForm",
13                               model=f"{tango_test}/ampli")
14
15
16 taurus_trend = PanelDescription("TaurusTrend1",
17                                 classname="taurus_pyqtgraph:TaurusTrend",
18                                 model=[f"{tango_test}/double_scalar",
19                                       f"{tango_test}/short_scalar"])
20
21
22 attr_form = PanelDescription("BigInstrument",
23                              classname="taurus.qt.qtgui.panel:TaurusAttrForm",
24                              model="sys/tg_test/1")

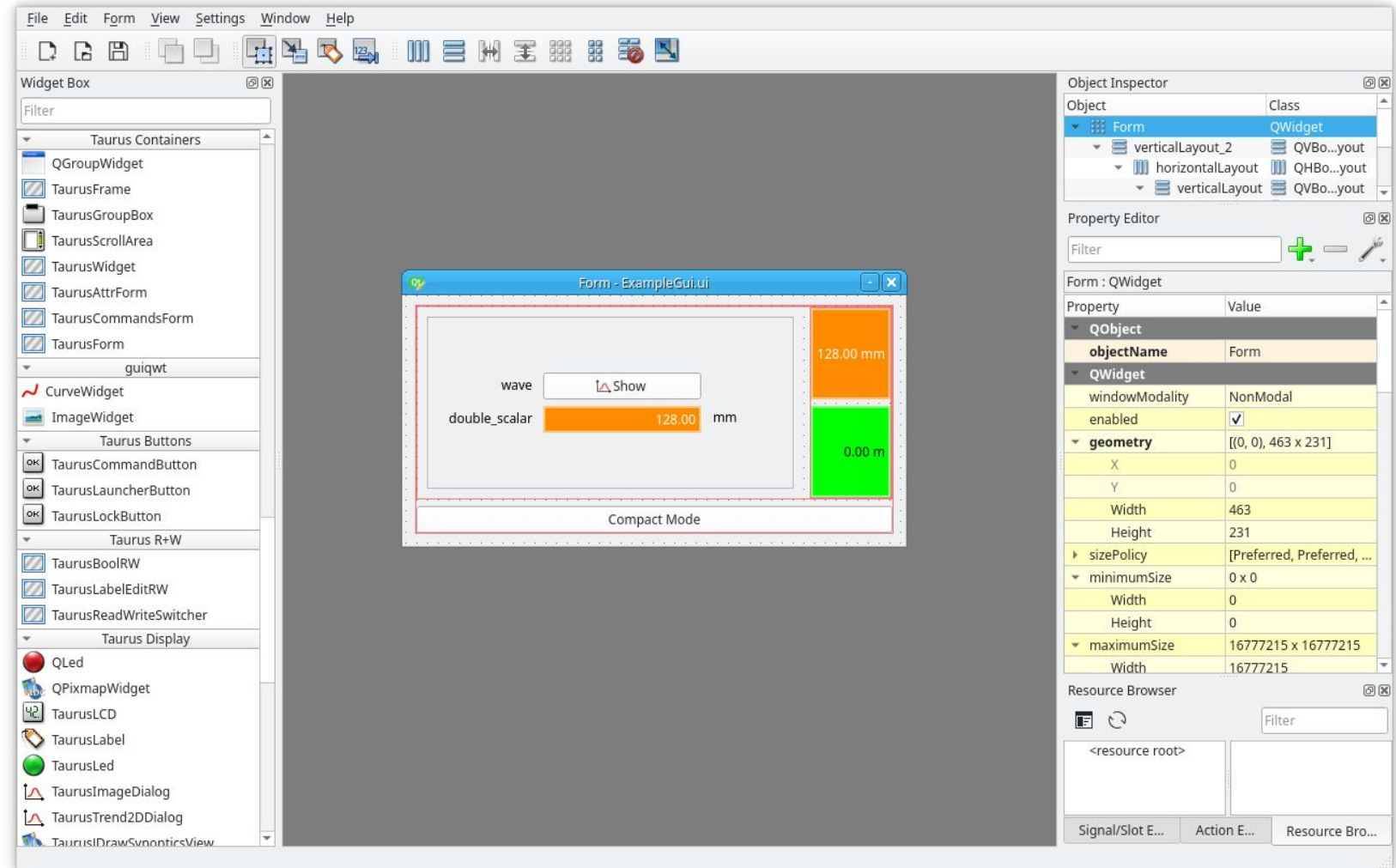
```

Programmatic GUIs

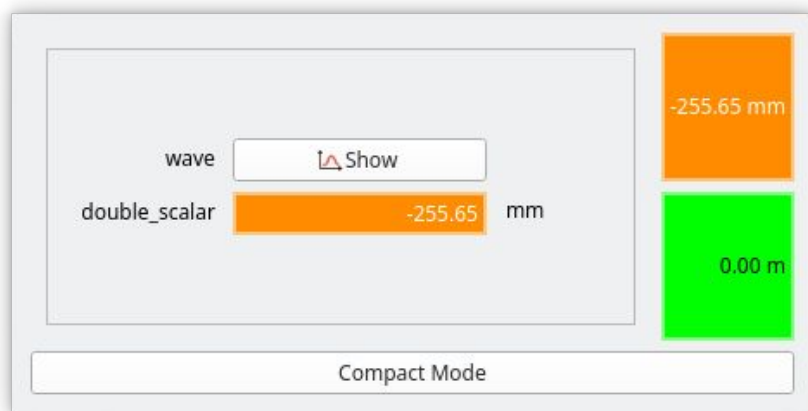
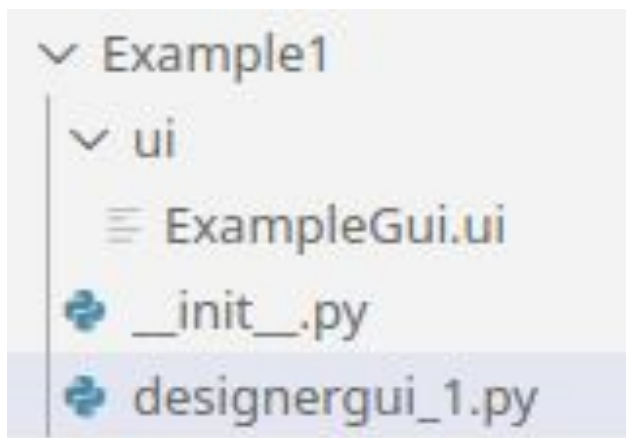
Low-code: Taurus Designer

Taurus offers a QtDesigner customization, including a catalog of Taurus widgets.

Command:
`taurus designer`



Programmatic GUIs



```

1 import os
2 import sys
3
4 from taurus.external.qt import QtGui, QtWidgets, uic
5
6 class ExampleWidget(QtWidgets.QWidget):
7     def __init__(self, parent=None):
8         QtWidgets.QWidget.__init__(self, parent)
9
10        uipath = os.path.join(os.path.dirname(__file__), "ui", "ExampleGui.ui")
11        self.ui = uic.loadUi(uipath, self)
12
13        self.pushButton.clicked.connect(self.changeCompactMode)
14
15        def changeCompactMode(self):
16            if self.taurusForm.compact:
17                self.taurusForm.compact = False
18            else:
19                self.taurusForm.compact = True
20
21    def main():
22        app = QtGui.QApplication(sys.argv)
23        GUI = ExampleWidget()
24        GUI.show()
25        sys.exit(app.exec_())
26
27
28 if __name__ == "__main__":
29     main()
30

```

Programmatic GUIs

Code: A Taurus GUI can also be created in a *pure* programmatic way following these steps:

1. Create a new `mygui.py` file.
2. Create a `TaurusApplication`, a `TaurusGui` and a widget.
3. Create a panel with the created widget in the `TaurusGui` using `createPanel(widget, name)`.
4. Show the GUI and execute the application.

```
app = TaurusApplication(sys.argv)
gui = TaurusGui()

form = TaurusForm()
form.model = [
    "sys/tg_test/1/ampli",
    "sys/tg_test/1/double_scalar"
]
gui.createPanel(form, 'Panel')

gui.show()
app.exec_()
```

Command: `python mygui.py`



Programmatic GUIs

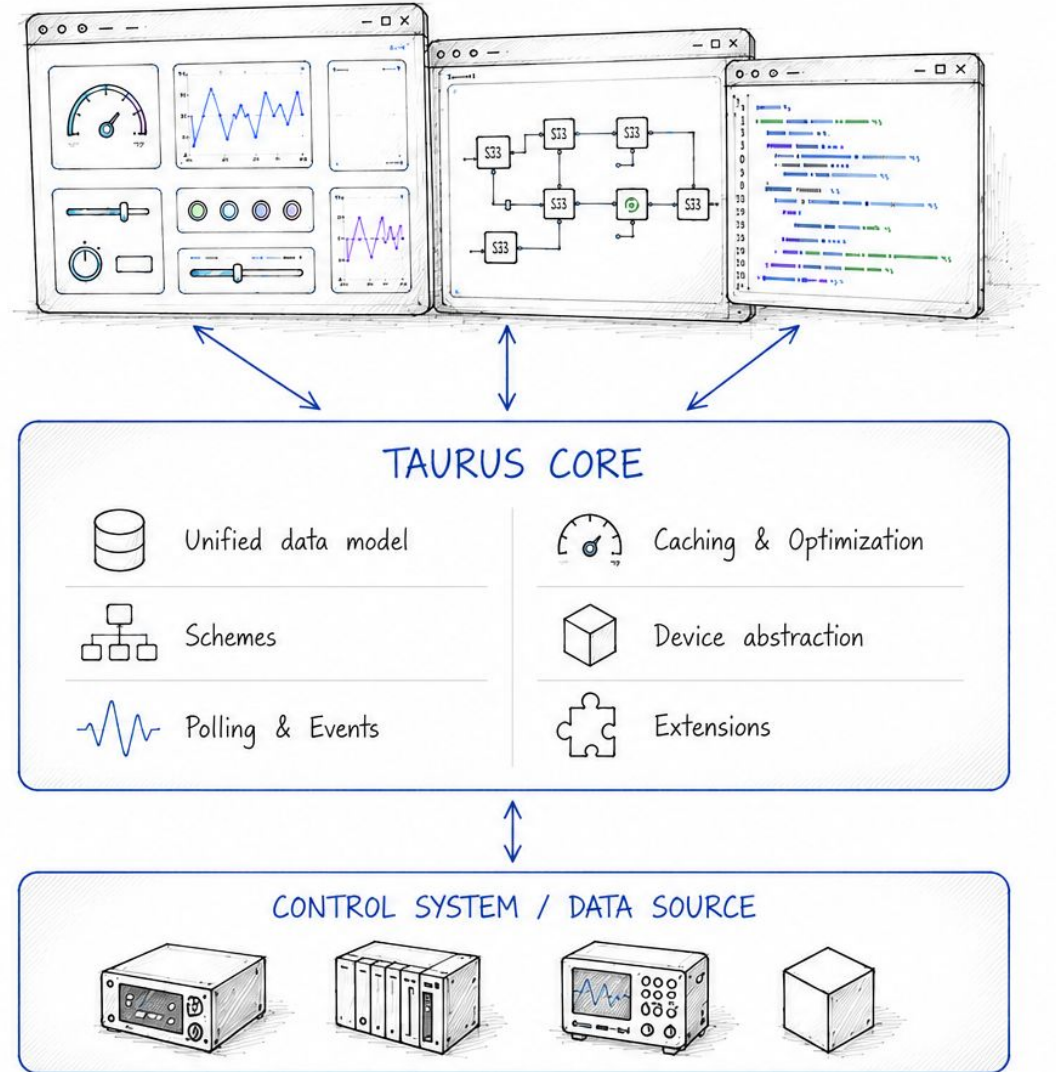
More about programmatic GUIs:

- **Today at 15:10 - Designer usage details by Emilio Morales**
- **Tomorrow at 09:00 - Taurus Developer introduction**

Taurus *lower-level*

(key aspects only)

TAURUS TOOLS, WIDGETS & APPLICATIONS



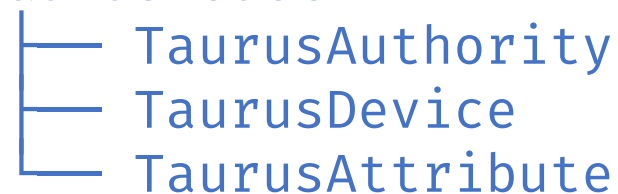
Taurus Core

A model-driven abstraction layer for control systems

Taurus model classes

(core abstraction)

TaurusModel



Applications interact with Taurus models, not directly with backend APIs.

```
from taurus import Device, Attribute

dev = Device("sys/tg_test/1")
attr = Attribute("sys/tg_test/1/double_scalar")

print(dev.state)
print(attr.read().rvalue)
```

```
TaurusDevState.Ready
112.22353595244027 K
```

Taurus Core

Key Taurus Core Behaviors

Attribute cache

- Reduce backend traffic
- Shared values between widgets
- Updated by events/polling

```
attr.read(cache=True/False/N)
```

Default authority / scheme

- Shorter model names
- Configurable environment
- Easier application portability

```
taurus form motor_z
```

Object references

- Same model name → same Taurus object
- Centralized event handling
- Shared cache and subscriptions

Different from raw backend APIs

(e.g. PyTango usually creates independent proxies)

Working with units

- Taurus numeric attributes are **pint.Quantity** objects -> **magnitude** and a **unit**.
- Unit conversions
- Consistent physical values
- Safer scientific applications

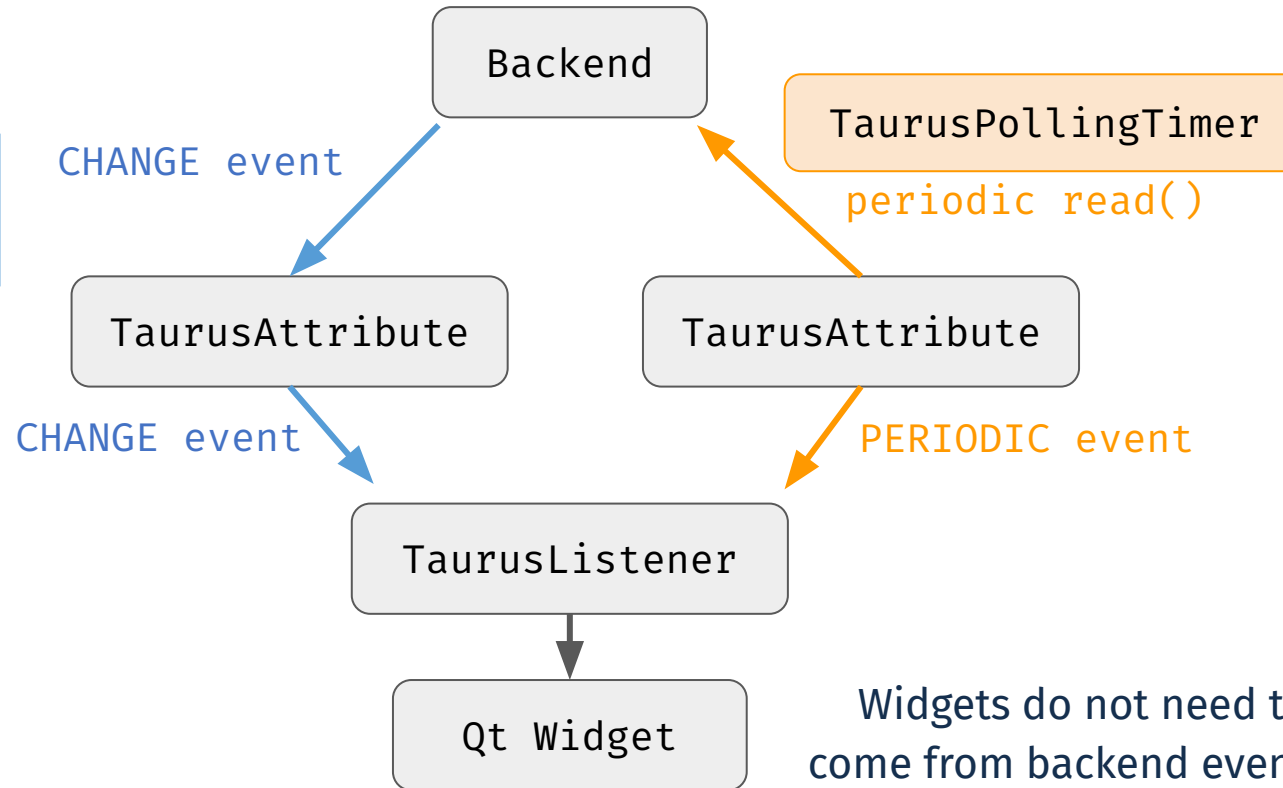
Taurus Core

Taurus Listener System (events vs. polling)

Event-driven architecture: You can attach listeners to Taurus models, triggered when a particular event occurs (done automatically when attaching models to widgets)

Native events path

No continuous polling
Lower CPU/network usage



Polling fallback path

Default polling period: 3s
One polling thread per process/periodicity
Shared by all attributes using that timer

Widgets do not need to know if updates come from backend events or Taurus polling.

Taurus schemes

Taurus URIs **scheme**:**authority**/**path**?**query**#**fragment**

- **Schemes:** `tango`, `eval`, `h5file`
- Handled by **plugins**
- Map URIs to Taurus Models:
 - TaurusAttribute: Represents a scalar or array value
 - TaurusDevice: Represents a logical grouping or endpoint
 - TaurusAuthority: Represents the source or backend

#	Model name (URI)	Scheme	Model type	Represented source of data/control object
1	<code>tango://foo:1234</code>	TANGO	Authority	Tango database listening to port 1234 of host foo
2	<code>tango://foo:1234/a/b/c</code>	TANGO	Device	Tango Device <code>a/b/c</code> registered in database <code>foo</code>
3	<code>tango:a/b/c/state</code>	TANGO	Attribute	Tango attribute <code>state</code> of device #2
4	<code>tango:a/b/c/d#units</code>	TANGO	Attribute	Tango attribute <code>d</code> of device #2 (<code>units</code> fragment)
5	<code>ca:XXX:m1.VAL</code>	EPICS	Attribute	EPICS process variable <code>XXX:m1.VAL</code>
6	<code>eval:({tango:a/b/c/d}+{epics:XXX:m1.VAL})*0.5</code>	eval	Attribute	Calculated average of the values of #4 and #5
7	<code>eval:rand(256)</code>	eval	Attribute	Random generated array of 256 values
8	<code>msenv://foo:1234/macroserver/bar/1/ScanDir</code>	[MSenv]	Attribute	ScanDir variable from Sardana's environment
9	<code>h5file:/mydir/myfile.hdf5</code>	HDF5	Device	File in HDF5 format saved at <code>/mydir/myfile</code>
10	<code>h5file:/mydir/myfile.hdf5:data/energy</code>	HDF5	Attribute	HDF5 dataset <code>energy</code> of group <code>data</code> from file #9
11	<code>ssheet:myfile.ods:Sheet1.A1</code>	ssheet	Attribute	Contents of cell A1 of Sheet1 of <code>myfile.ods</code> spreadsheet

Taurus schemes

Two useful built-in schemes

The `eval`: Scheme

- Provides evaluation objects for performing mathematical evaluations with data from other sources
- Allows fast interfacing with sources of data not supported by specific schemes

```
taurus form \
'eval:@os.*/path.exists("/data")' \
'eval:rand(256)' \
tango:sys/tg_test/1/ampli \
'eval:{tango:sys/tg_test/1/ampli}+100'
```

path.exists("/data")	<input checked="" type="checkbox"/>
rand(256)	<input type="text" value="20.00"/> Show
ampli	<input type="text" value="20.00"/>
ampli+100	<input type="text" value="120.0"/>

The `res`: Scheme

- Provides symbolic model aliases via mapping.
- Decouple applications from real model names
- Better portability and reusability

```
factory = taurus.Factory('res')
d = {'my_attr':'tango:sys/tg_test/1/double_scalar'}
factory.loadResource(d)
my_attr = taurus.Attribute('res:my_attr')
```

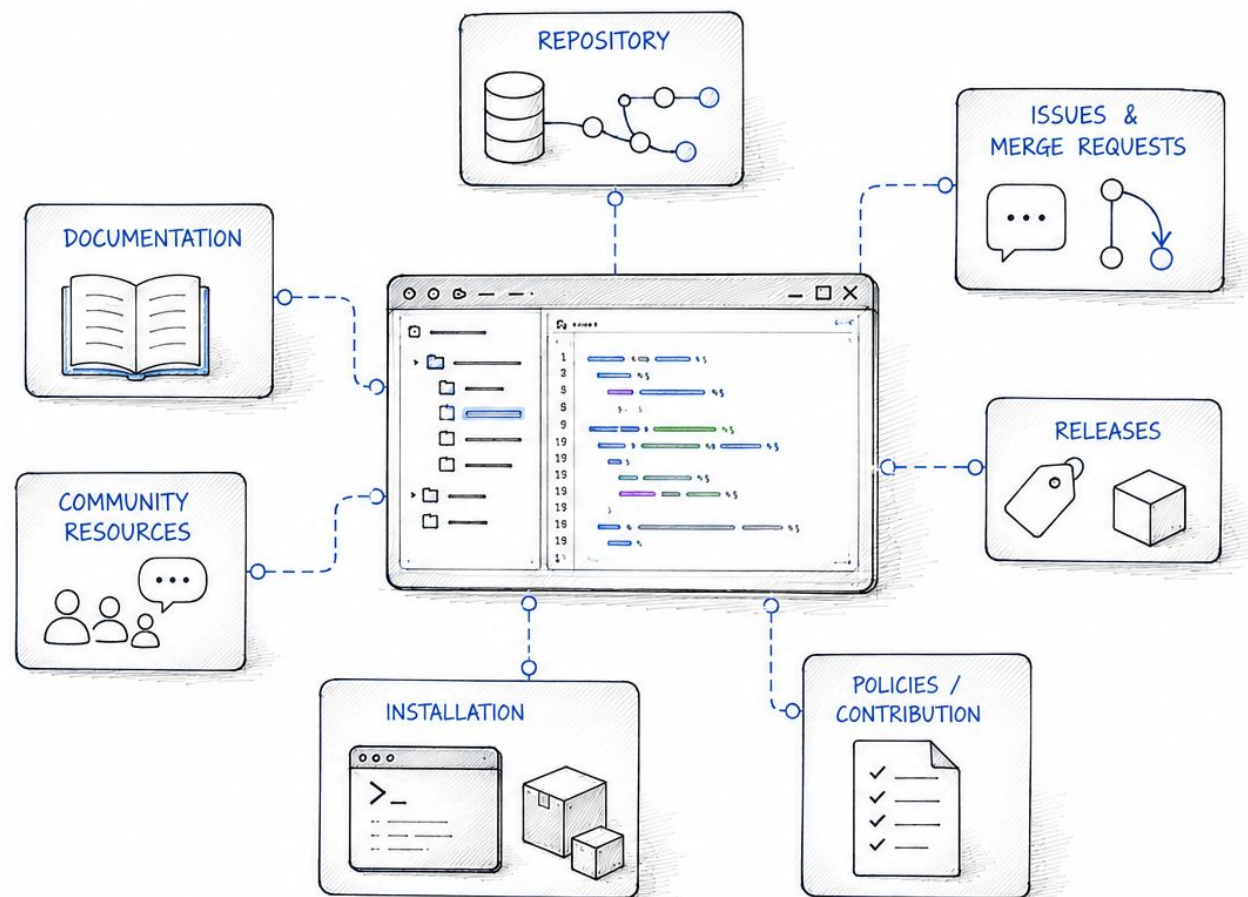
Taurus *lower-level*

More on tomorrow's Taurus Developer Introduction

- Connecting Taurus Core with Taurus Qt, i.e. *Taurify* widgets
- Extending Taurus with new schemes
- Extending Taurus with Core and GUI extensions

Taurus Project

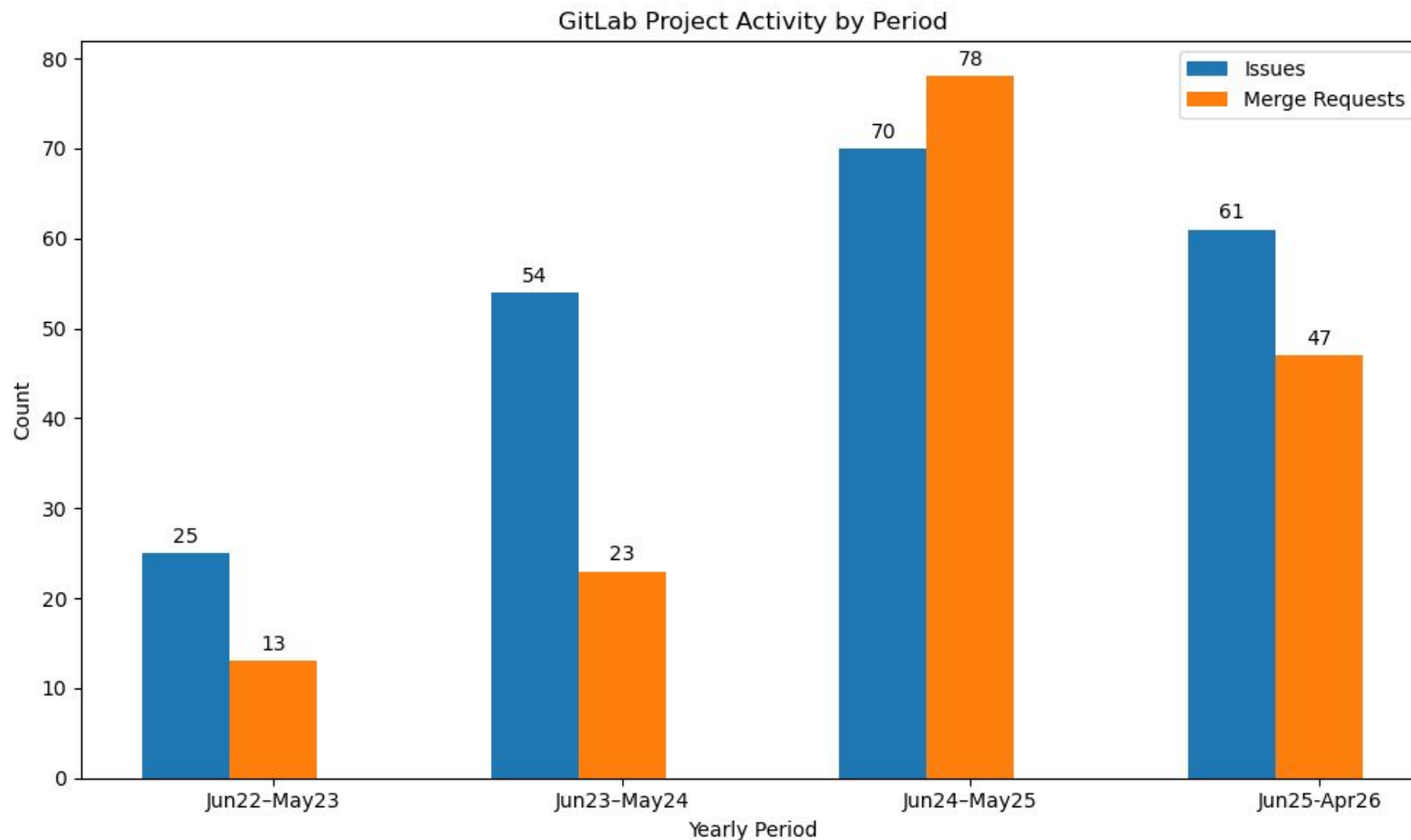
taurus-org
Taurus installation
Where to go next?



Taurus-org

- GitLab Taurus Organization (<https://gitlab.com/taurus-org/>) contains the source code of Taurus (LGPL v3+ license) and other projects that complement Taurus
- Fork & Pull Model is used for contributions as development workflow
- Core Maintainers are currently ALBA, ESO, MAXIV, SOLARIS and DESY. Besides integrating MRs, they are (or should be) the responsible for managing releases and roadmap
- Two annual official *stable* releases (roughly in July and January). Packaging for PyPI, conda and Debian

Taurus-org



Current open issues: 271
Current open MRs: 10

- Active development
- Regular community meetings
- Contributions from several institutes

Taurus installation

- conda

e.g. `conda env create -n taurus taurus pytango pyqt taurus_pyqtgraph`
(specify preferred python, pytango and pyqt versions if needed)

- PyPI

- Debian package

- Pixi

Check this environment used for trainings and demos:

<https://gitlab.com/alba-synchrotron/controls-section/icalepcs2025-workshop>

- Site customization: Taurus can be adapted to each facility using configuration settings in a `taurus.ini` file (e.g. default scheme/authority, custom plugins, resources, widgets...)

Where to go next?

Tomorrow developers session (at 9:00)

- Taurus core internals (plugins, schemes, extensions, Qt integration, custom widgets, Taurus manager, Taurus custom settings, ...)
- Taurus codebase
- Development environment
- Contribution workflow

Where to go next?

Taurus community resources

- Taurus documentation: <https://taurus-scada.org/>
- Taurus repository: <https://gitlab.com/taurus-org/taurus>
wiki also contain useful links: <https://gitlab.com/taurus-org/taurus/-/wikis/Home>
- Taurus PyQtGraph: https://gitlab.com/taurus-org/taurus_pyqtgraph
- Taurus trainings: <https://gitlab.com/taurus-org/taurus-training>
- Taurus [mailing lists](#)
- Monthly follow-up meetings with the community.
 - Meeting minutes: <https://gitlab.com/taurus-org/taurus-followup>
- Taurus Mattermost channel in Tango-Controls

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Thank you for your attention!

