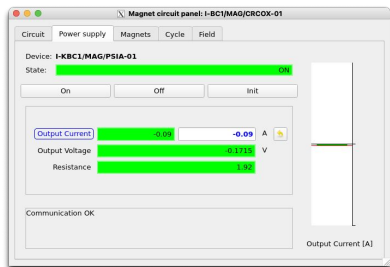


# MAX IV UI Roadmap

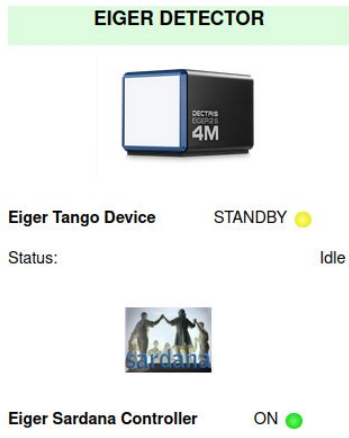
Carla Takahashi, Yimeng Li

# User interfaces at MAX IV



## Desktop Application

- PyQt5 and Taurus
- Hundreds of applications locally installed
- Maintained by software team, scientists and operators
- Experiment control, setup accelerator/beamline



## Web Application

- Mostly React applications
- Deployed on Kubernetes
- Maintained by software team
- Experiment/Beamline monitoring, data analysis



Taranta is a web application that allows a user to:

- **easily browse devices of a Tango** server, **inspect** them and **interact** with them, all using web browser of choice.
- **quickly develop and change interactive dashboards** with widgets that allow you to monitor and control the systems even cross databases. Once created, dashboards can be shared, saved, and exported.
- **conduct and manage experiments**, and design custom dashboards tailored to various experimental setups.

## History of Taranta

### Start Webjive at MAX IV

2018

Web interface for basic  
functionality of Jive: Attribute  
reading and command  
execution

### Collaborate with SKA Observatory

2019

Weekly project meeting  
Annual development meeting

### Join Tango-Control Rename to Taranta

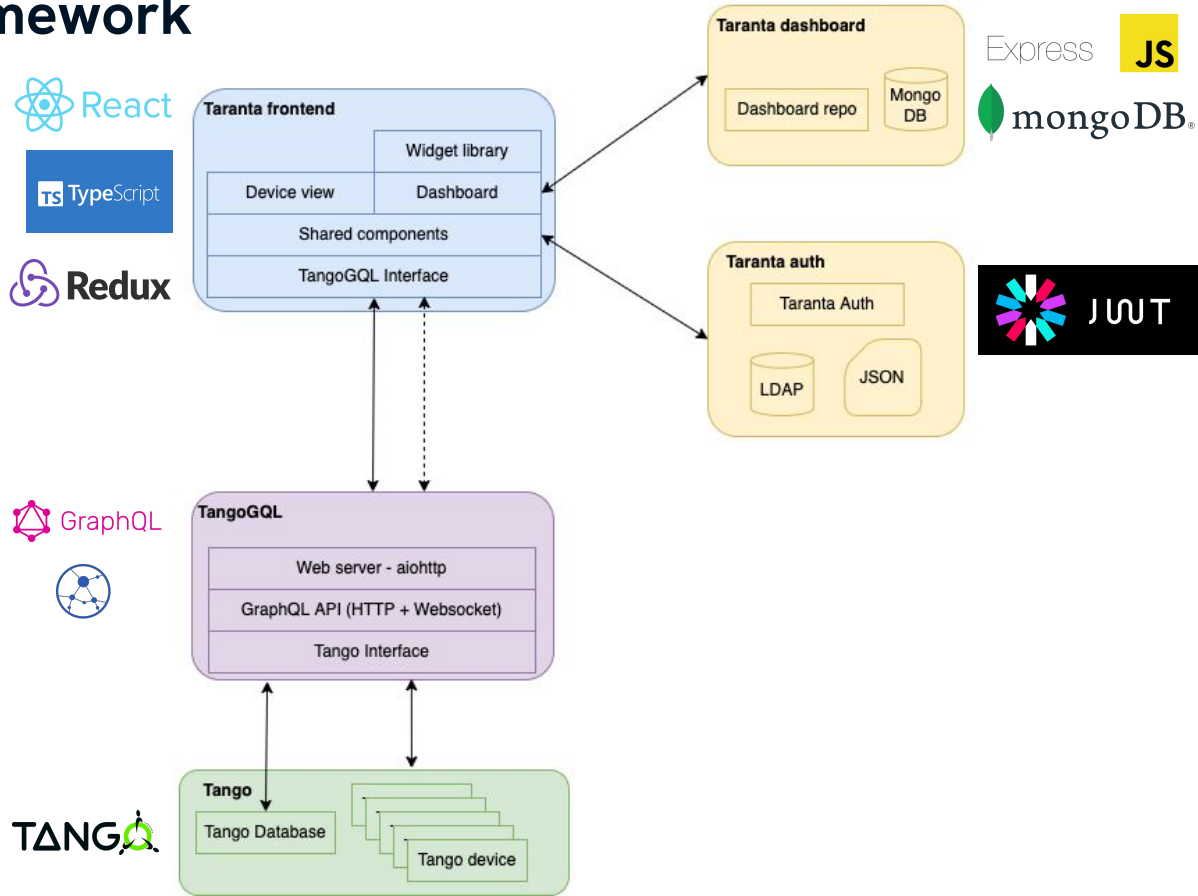
2021

### Release version 2.0

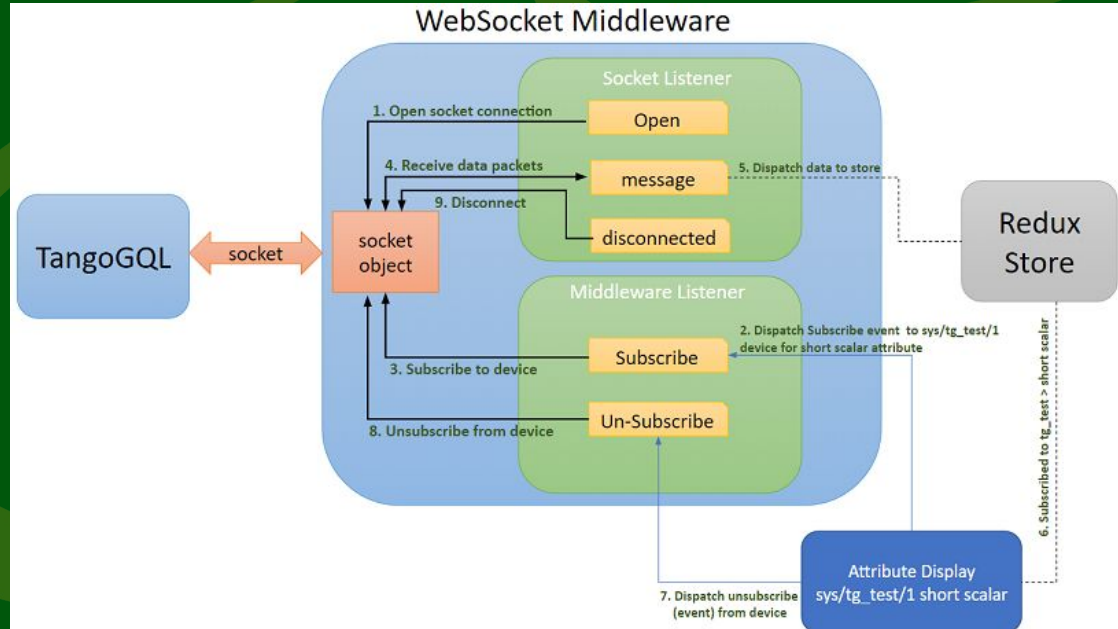
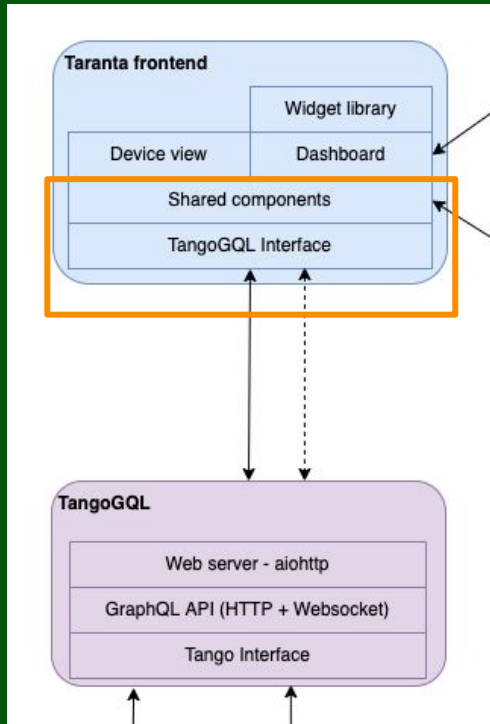
2023

Introduce websocket  
middleware to improve  
performance  
Refactoring with improvement  
on selective rendering

# Taranta Framework



# Communication Layer



# Synoptics on Taranta

## SVG Widget

Integrate svg components to enhance dashboard customization options.

## Synoptics View

Focus on interacting with and controlling synoptics during operation.

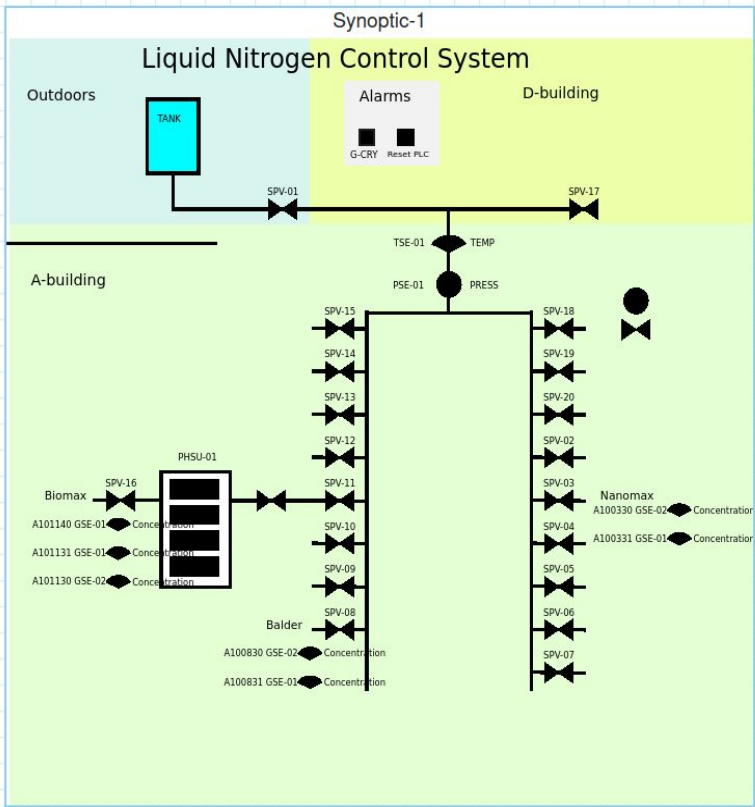
**SVG Widget**

Title

SVG File   
No file selected

SVG Uploaded

Custom Css



Widgets Dashboards Layers

Box

Label

Attribute Display  
Device/Attr: 100

Attribute Writer  
device/attributeLabel: unit

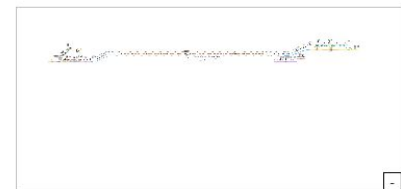
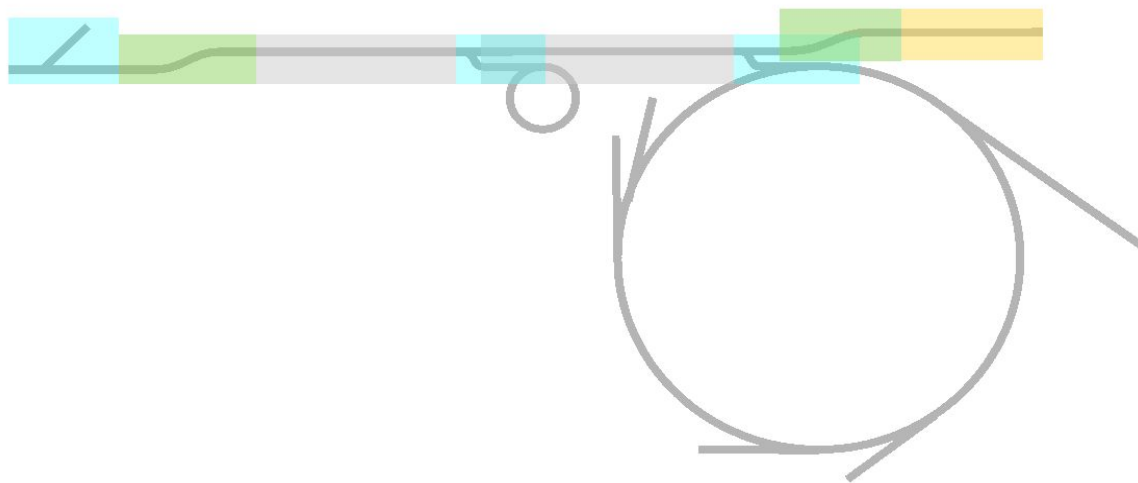
Attribute Writer Dropdown  
attributeLabel: Dropdown Submit

Variable Selector  
Name  
No device found

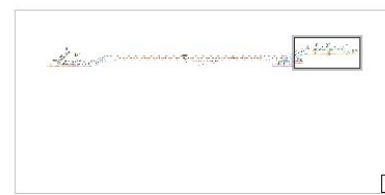
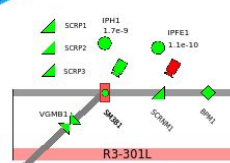
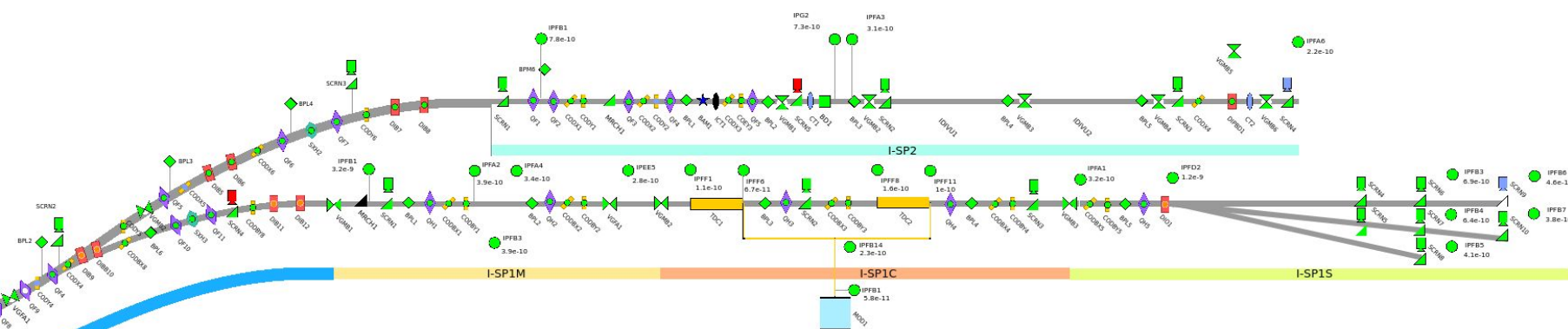
SVG Widget

**TARANTA**  
**SVG**





DIA RF MAG VAC



DIA RF MAG VAC

# Accessing Tango Devices Across Databases

## Key Features and Benefits

- Allows users to access Tango devices from multiple beamlines databases, within a single dashboard.
- Enhances usability across the facility by ensuring all users can reach the system, improving collaboration and efficiency.
- For security, only users with granted permission have writable or executable access, maintaining data integrity.
- Users can seamlessly switch between databases, offering flexibility and efficiency to meet diverse operational needs.

The screenshot shows a web interface for accessing Tango devices. At the top, the word "Spectrum" is displayed with a left-pointing arrow. Below it, there are three input fields: the first contains "cosaxs" with a downward arrow, the second contains "b310a-fe/vac/rga-01", and the third contains "Mass". Below these fields, there is a label "Attribute display:" followed by a dropdown menu showing "Label" with a downward arrow. At the bottom, there are three checkboxes: "Show Title" (checked), "Show Tango database name" (unchecked), and "Inelastic Y Axis" (checked).

R3	399.2 mA	Reset Alarms	PLC	VGMB4	VGC	IPN7	BS	IPO6	VGMB3	FS	MM2	IPQ5	MM1	VGMB2	IPQ4	VGC-a	VGFA	HA	HA DIA	FM3	FM2	IPQ3	XBPM2	XBPM1	IPQ2	FM1	IPFE1	IPFB1
R303 NanoMAX	...	Submit																										
R304 DanMAX	...	Submit																										
R308 Balder	...	Submit																										
R309 ForMAX	...	Submit																										
R310 COSAXS	...	Submit																										
R311 BioMAX	...	Submit																										
R312 MicroMAX	...	Submit																										
R316 Veritas	...	Submit																										
R317 HIPPIE	...	Submit																										
R318 SoftiMAX	...	Submit																										

R1	499.8 mA	Reset Alarms	PLC	VGMB4	VGC	IPN6	BS	IPO5	VGMB3	FS	MM2	IPO4	MM1	VGFA2	IPO3	VGMB1	HA DIA	HA	IPO2	FM1	IPE1	WAT	Ring Valve	ID Gap [mm]	
R107 FlexPES	...	Submit																						38.52	R107 FlexPES1
R108 SPECIES	...	Submit																						25.66	R108 SPECIES
R110 Bloch	...	Submit																						58.04	R110 Bloch
R111 MAXPEEEM	...	Submit																						35.37	R111 MAXPEEEM
R112 Finest	...	Submit				not found																		75.13	R112 Finest

# Taranta Roadmap 2024-2025

## Current Issues

- Search by device alias and server name is not possible in DeviceView
- Unable to set attributes that are currently invalid.
- Sardana macro button has limited functionality in running scans.

## Upcoming Features

- Craft widget: Develop dashboards as widgets to enhance reusability.
- Introduce dashboard version control.
- Enhance the interaction within the Synoptic View and provide support for camera control.

# Beamline Status Page

## kitslab Status Dashboard

Logs (28)

antjou/dia/aem-01 | FAULT

Close

### Scan Status

Door State: ✔ RUNNING | Macro State: ✔ RUNNING

31%

### Message

Custom message

### Custom Attributes

Total Attributes: 4

Name	Attribute	Value
DIA/AE M-01	STATE	<span style="color: red;">✘</span> FAULT
DIA/AE M-01	STATUS	ERROR COMMUNICATING WITH ELECTROMETER - CHECK SETTINGS AND CONNECTION: • CONNECT CALL TIMEOUT ON ('192.168.96.241', 5025). EXECUTE 'INIT' COMMAND TO TRY TO CLEAR ERROR.
DIA/PC AP-01	STATE	<span style="color: green;">✔</span> ON
DIA/PC AP-01	NFRAMES RECEIVED	0

### Measurement Group

Active: TEST\_MEAS | State: ✔ RUNNING

#### Enabled Elements

Filter Sort Search ↵Reset

Name	Value
ZEROD25	<span style="color: green;">✔</span> ON

## Objectives

- A simple outside facing application to give insight about experiment status to Scientist and Users.
- Bounded development done in the scope of a Summer Worker/Student project.

## Current State

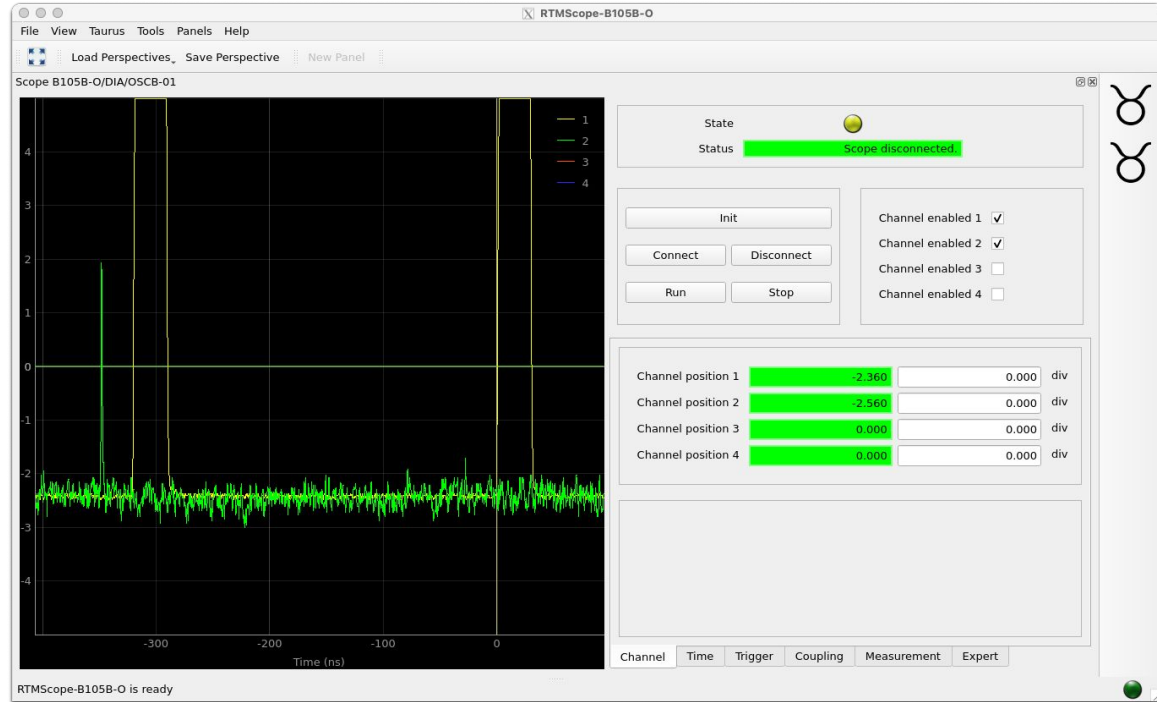
- Test version is deployed in selected beamlines that uses Sardana to orchestrate experiments.

## Future Development

- Implement plugins for other experiment frameworks.
- Automate deployment pipeline.

# Taurus applications status

- Many of MAX IV GUIs are based on Taurus and QT applications.
- We take part on the Taurus development community whenever possible.
- We will test the next version of Taurus with conda before release.





**Questions?**