



# ESRF on Taurus Framework: New User Experience & Feedback

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Accelerator Control Unit

## Tango Based GUI applications : current situation at ESRF

Tango Application Toolkit ( **ATK**)Java

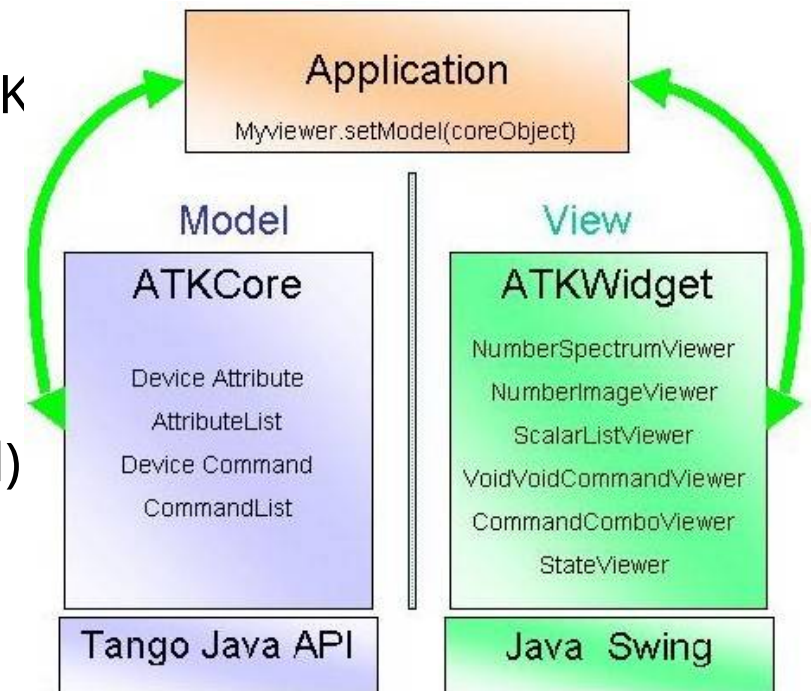
A client framework for building applications based on **Java Swing** in a Tango control system

**Model-View-Controller** design pattern : ATK Core and ATK

Central Components

- ATK Attribute (interface to Tango device attribute),
- ATK Command (interface to Tango Device command)

**Synoptic** drawing (JDraw) and viewer



# INTRODUCTION : CURRENT GUI STATUS CTRM AT ESRF (II)

±110 GUI Tango ATK based applications in production

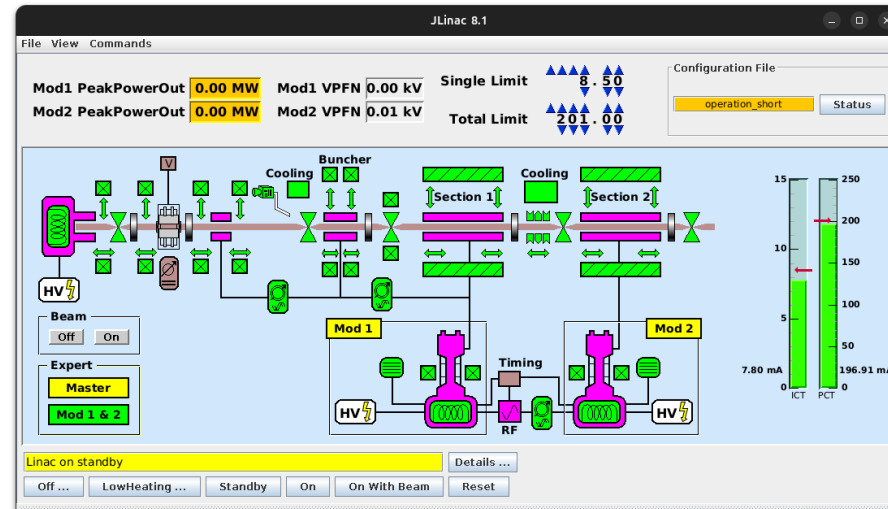
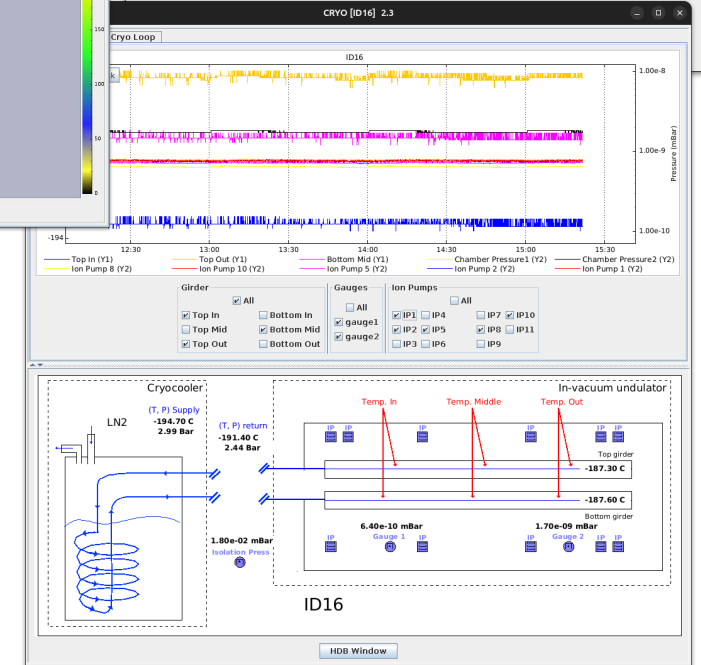
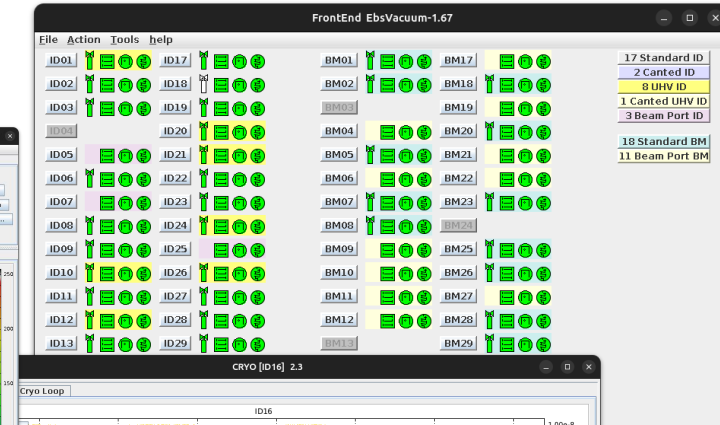
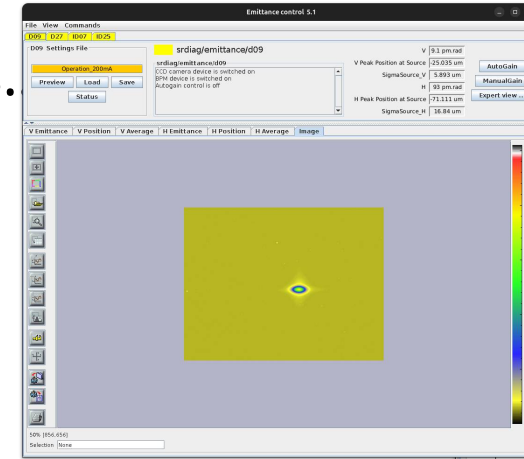
Tango data display : attributes, properties.

Data polling from Tango Devices

1D, 2D, Image display

Access to HDB++

Synoptics



## Synoptics : JDraw

ATK provided **synoptic editor**.

Easy to use and configure **drag'n'drop** application

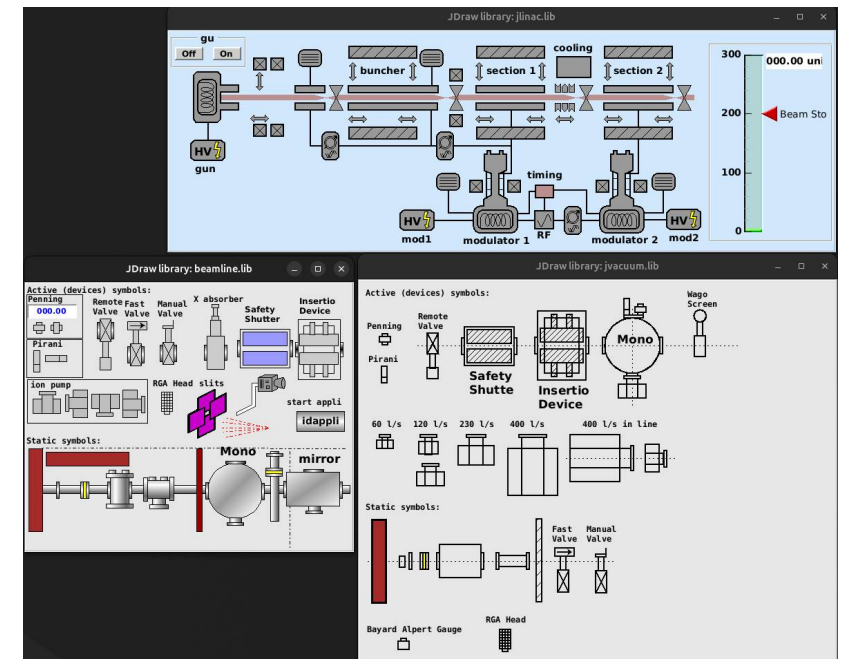
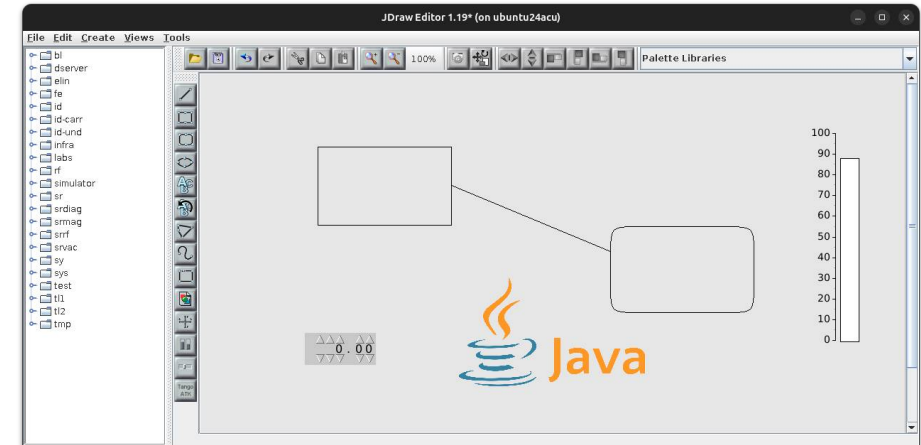
**Draw:**

- Basic objects : rectangle, lines, circle, images...
- **Tango ATK Widgets** : wheel switch, status viewer, comman button and more

... and associate them to Tango control objects (commands, attributes...)

**ESRF operators** autonomous on its use

Available pre-designed objects libraries : vacuum, beamline...



## Software Group @ ESRF : 3 Units

**ACU (Accelerator Control Unit)**   **BCU (Beamline Control Unit)**   **DAU (Data Automation Unit)**



**Taurus / Flint / Silx (Qt)** for beamline, accelerator control and data visualization



**Data Portal / hibou / h5web / Daiquiri / MxCube (web)** for experiment control and data visualization



**ATK Framework for Accelerator Control (and some beamline apps)**

## Rule of thumb for Graphical applications



Web-based apps for:  
remote access / user identification –  
log-in

Desktop Apps for:  
engineering, no user  
identification



### ATK Java Swing Based

It works ! And it could work for many years. No hurry for a change

**Swing** integral part of Java Standard Edition

In **maintenance** mode

- Oracle provides **bugfix** & **security** updates : stability and security.
- **No development** new features/enhancements
- ESRF Java competence decreasing (but available)
- JacORB ?

**Alternatives** : Taurus or Taranta or...

### Taurus :

- Mature technology production-proven in other facilities
- Establish synergies inside Software Team (PyQt technology and knowledge share)

## Application

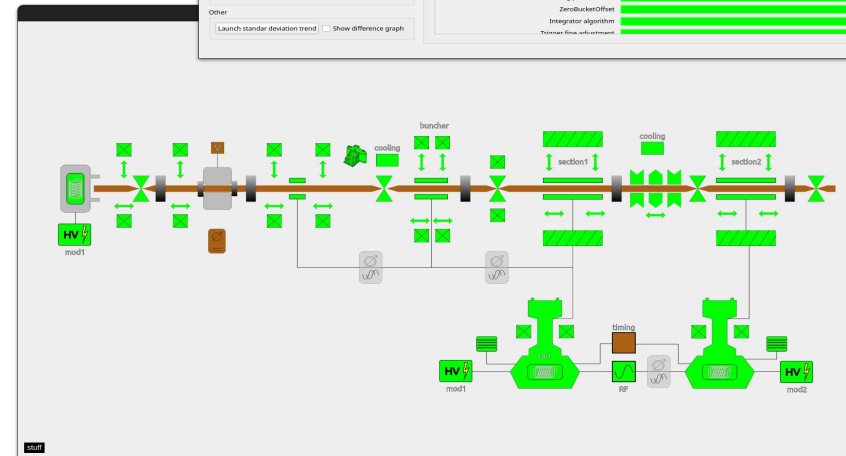
### TFillingPattern

converted to Taurus from ATK  
Taurus plotting & Taurus Form  
Commands & Attribute Read Widgets  
(not in production)



## Synoptics

### Jlinac with SVG synoptics



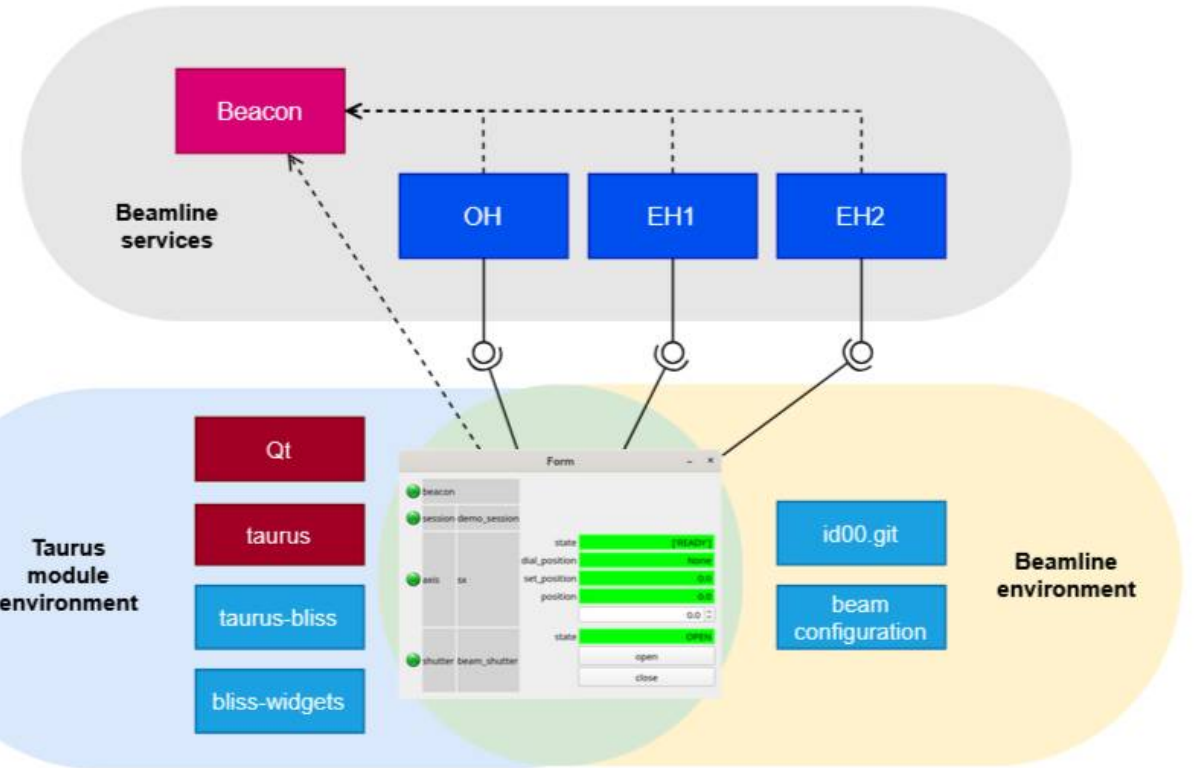
## Contributions

Add possibility to choose on config file the Status Color Policy  
New QpaintedLed needed to this new option (thanks Raphael, ALBA and Oriol !)

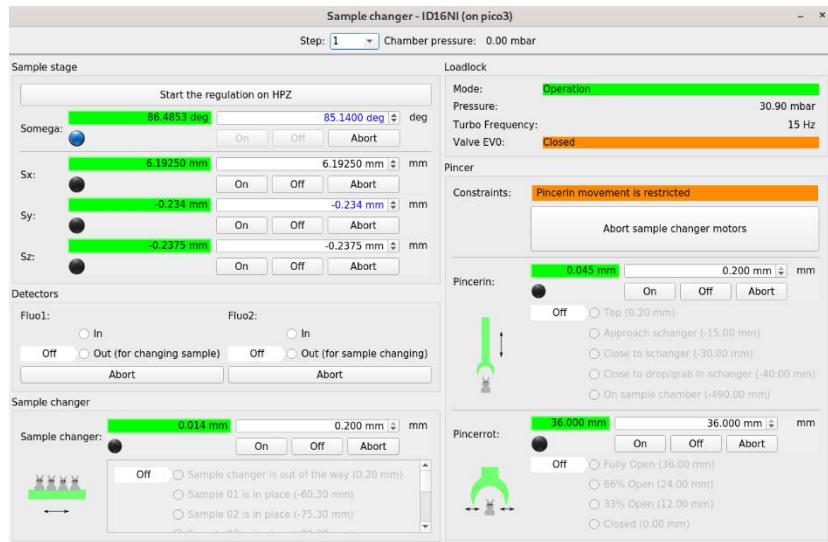
## Taurus @ beamlines

### bliss as Taurus scheme

Using recent bliss rest-api  
(under development)



## Taurus applications at ID16A



## Worked well (1/2)

<b>Category</b>	<b>Strength</b>
<b>Tango Integration</b>	Seamless integration with Tango control system
<b>GUI Building</b>	Pre-built widgets save development time Seamless integration with Qt
<b>Device Abstraction</b>	Unified interface for all device types
<b>SVG Synoptics</b>	Zoom / Layers / Interaction capabilities Python + web technologies : sky is the limit Modern looking synoptics

## Worked well (2/2)

<b>Category</b>	<b>Strength</b>
<b>Python based</b>	Easy to extend and script
<b>Active community</b>	Taurus (very patient) community at several research facilities
<b>Data logging</b>	Built-in logging capabilities

## Could be better

Category	Challenges
<b>Documentation</b>	Outdated or incomplete in some areas
<b>Taurus &amp; Qt Creator</b>	Missing Taurus Widgets in Qt Designer with Conda and PyQt5 >= 5.15.4 (tournarround provided)
<b>Testing</b>	Many manual testing for GUI aspects
<b>Debugging</b>	Debugging distributed systems with Tango
<b>SVG Synoptics</b>	Inkscape & Javascript learning curves (no previous experience)
<b>Active community</b>	Role definition Information on development process. Releases/migrations/meetings calendars

## Taurus@ESRF: Status and Strategy

**No Taurus** application **deployed** in production/Control Room **yet**

To make the **transition from ATK to Taurus** :

- Generate **acceptance** – facilitate change
  - No migration planned for now (only Taurus apps with clear benefit)
  - How to help Jdraw users (synoptics) to move to SVG?

**Accompany users** during adoption – transition

### For Beamlines

Basic BLISS model for Taurus exists (based on bliss REST-API)

Taurus deployed at ID16A

1 developer as Taurus referent

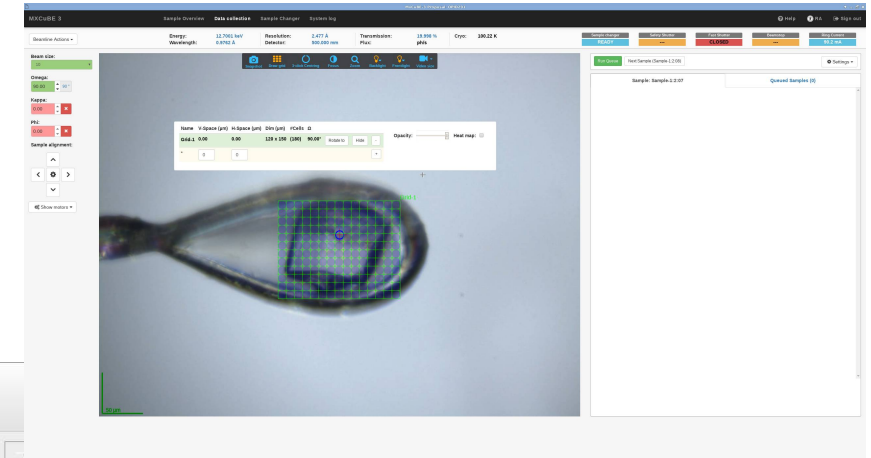
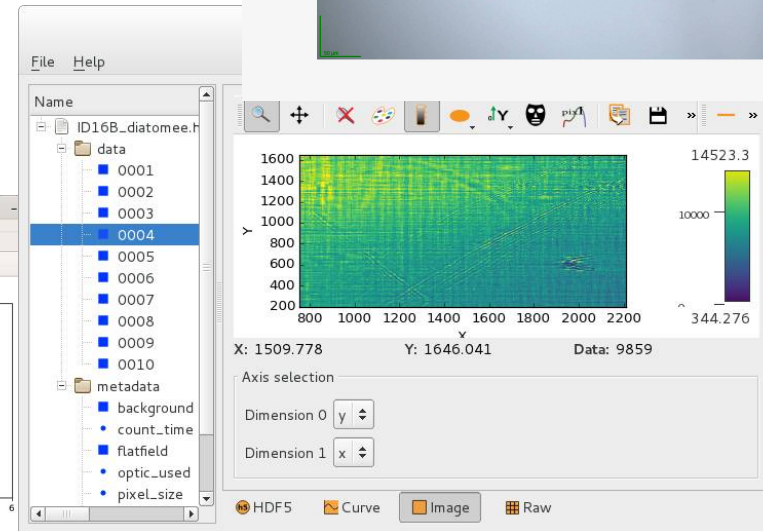
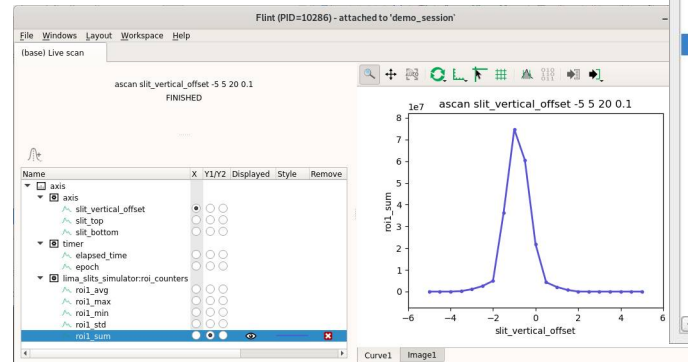
Both PyQt and web expertise exist across Software Group



Flint / Silx



Data Portal / Daiquiri / MXCuBE



## Taurus@ESRF: Future and Goals

Taurus to become the technology of choice for Control-room graphical applications (to be validated by users and operators)

Taurus to be deployed at beamlines to allow for local beamline and engineering apps based in Qt

Contribute to and profit from community-driven developments

## Taurus@ESRF: Future and Goals

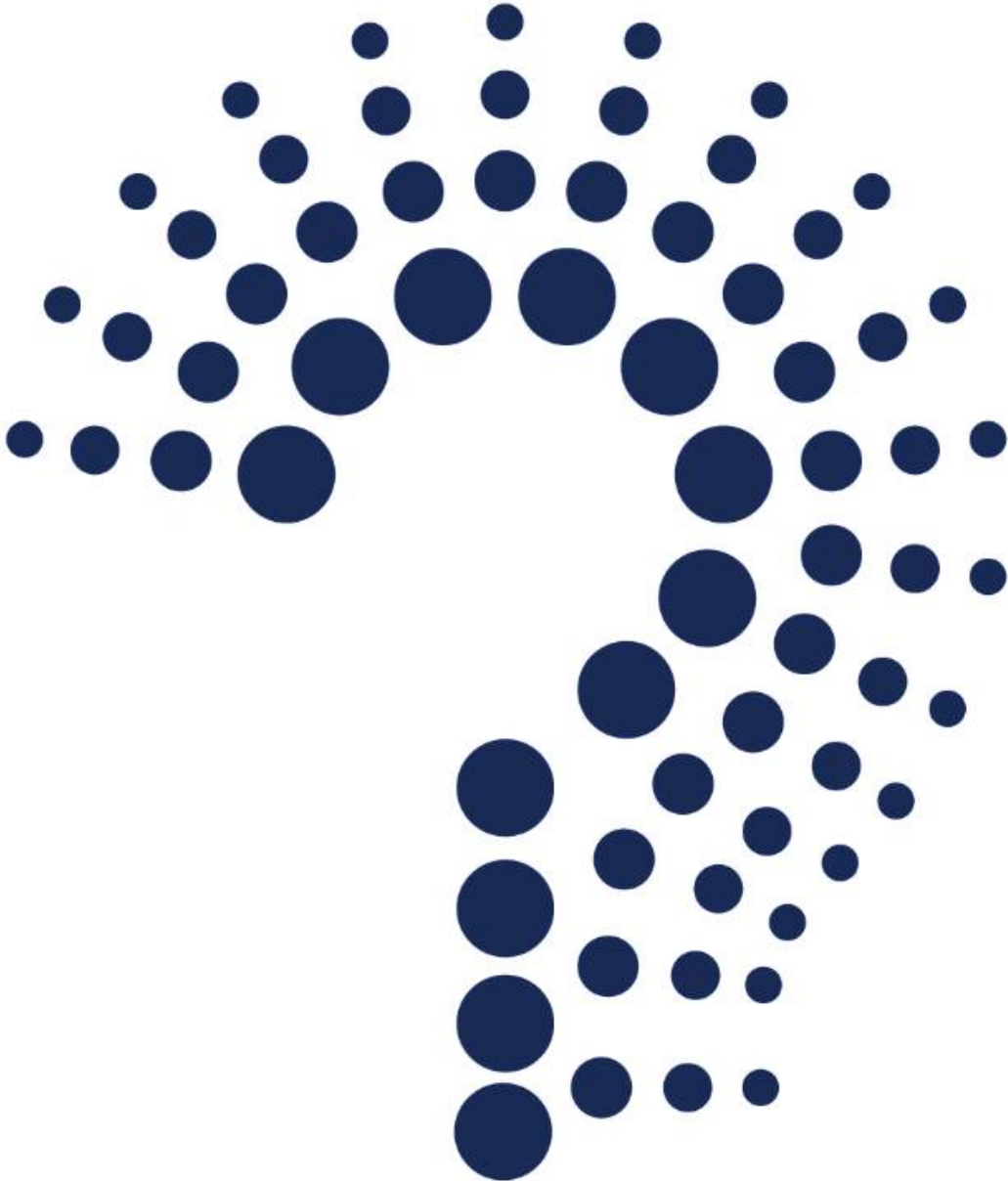
Some subjects to be addressed:

Include SVG graphics for synoptics with tools for user edition

Keep graphical coherence in control room across applications (as today with ATK)

Bliss rest-api + Taurus

Explore the possibility of using data analysis silx features in combination with Taurus





**THANKS FOR YOUR ATTENTION**