

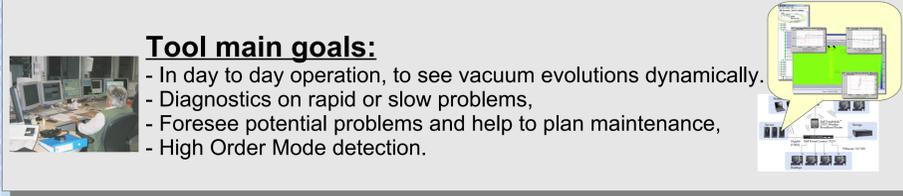
ESRF Vacuum Control Based on TANGO

Tool to manage more than 1200 devices efficiently

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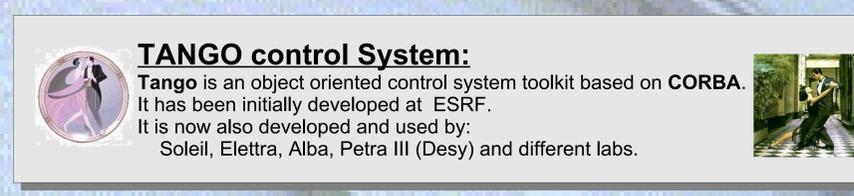
Tool main goals:

- In day to day operation, to see vacuum evolutions dynamically.
- Diagnostics on rapid or slow problems,
- Foresee potential problems and help to plan maintenance,
- High Order Mode detection.



TANGO control System:

Tango is an object oriented control system toolkit based on CORBA. It has been initially developed at ESRF. It is now also developed and used by: Soleil, Elettra, Alba, Petra III (Desy) and different labs.

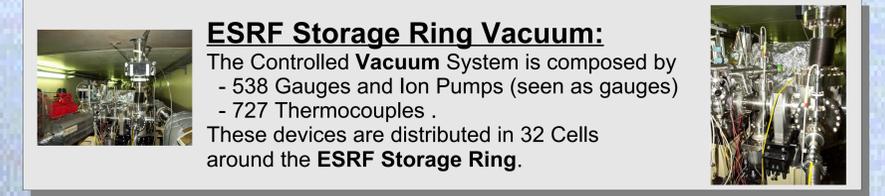
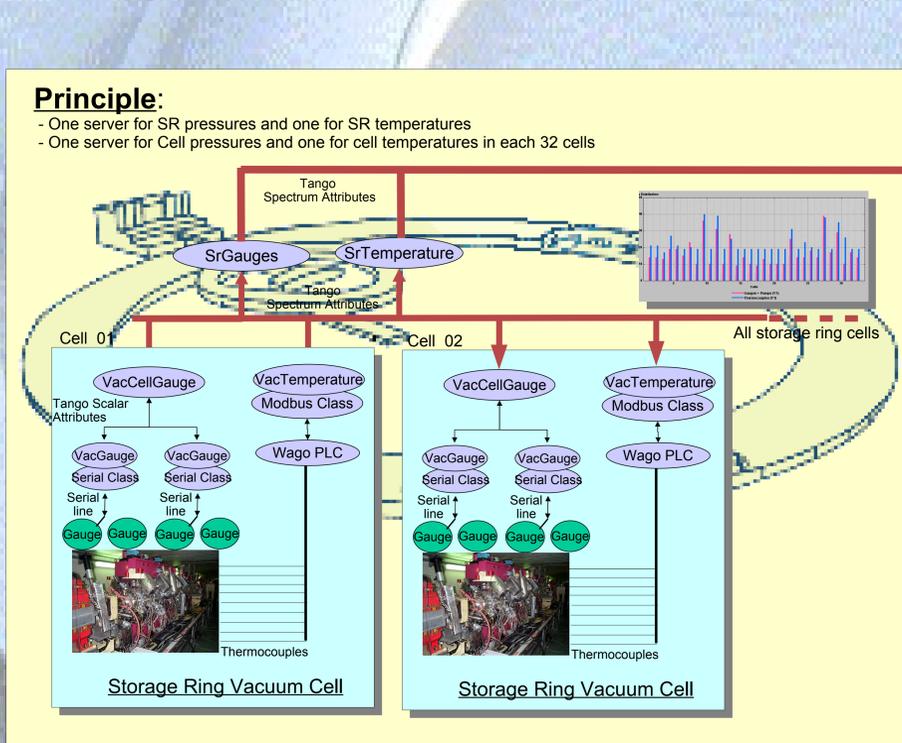


ESRF Storage Ring Vacuum:

The Controlled Vacuum System is composed by

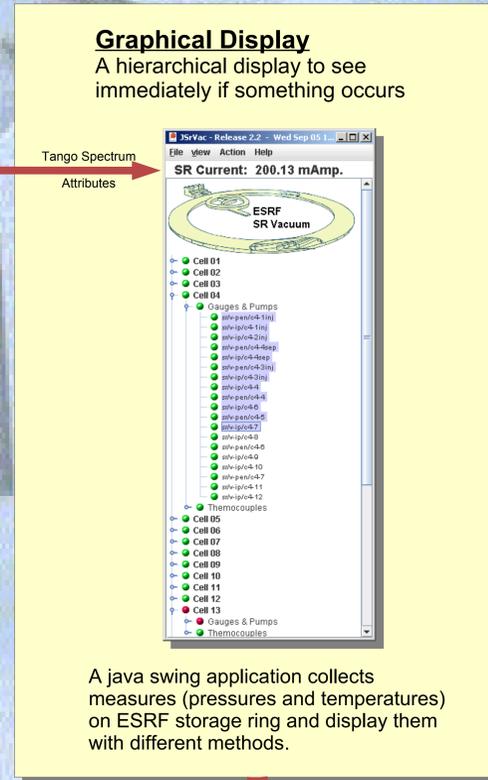
- 538 Gauges and Ion Pumps (seen as gauges)
- 727 Thermocouples .

These devices are distributed in 32 Cells around the ESRF Storage Ring.

Graphical Display

A hierarchical display to see immediately if something occurs

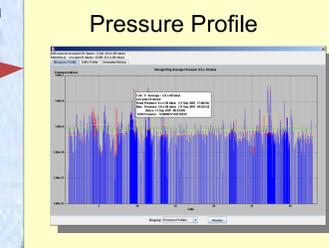


A java swing application collects measures (pressures and temperatures) on ESRF storage ring and display them with different methods.

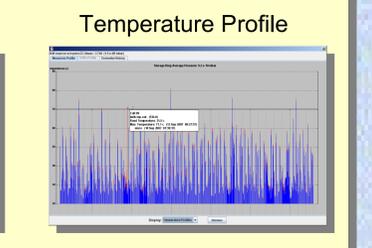
A Storage Ring profile With Average Cell By Cell Measure and Maximum Pressure Displayed For Each Gauge

Standard profile with measure and maxi

Pressure Profile



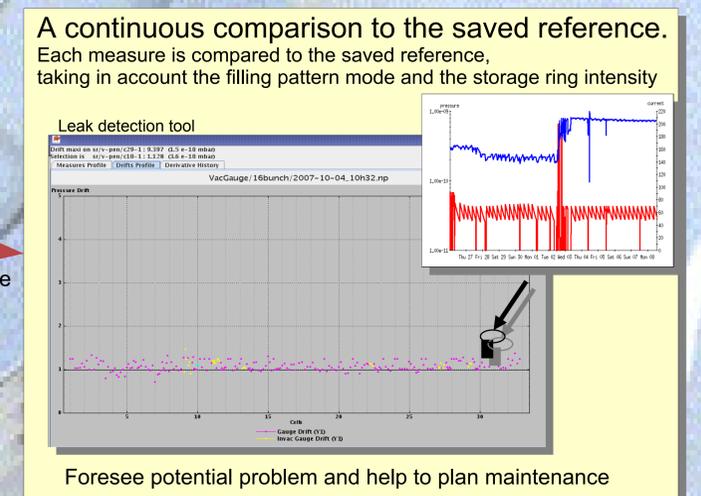
Temperature Profile



A continuous comparison to the saved reference.

Each measure is compared to the saved reference, taking in account the filling pattern mode and the storage ring intensity

Leak detection tool

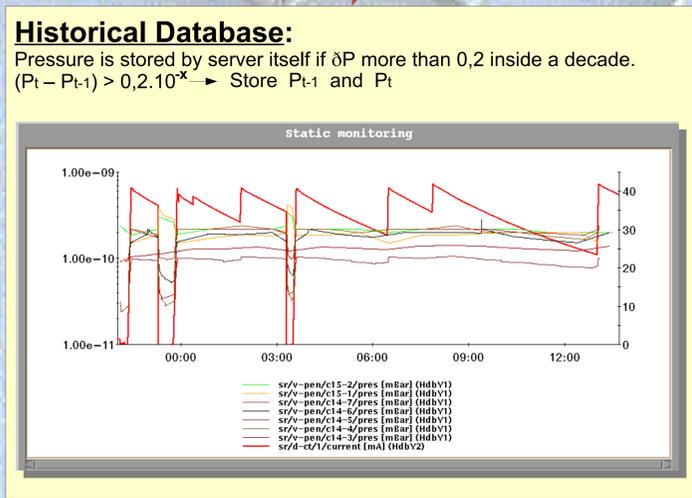


Foresee potential problem and help to plan maintenance

Historical Database:

Pressure is stored by server itself if $\Delta P > 0,2 \cdot 10^{-x}$ inside a decade. $(P_t - P_{t-1}) > 0,2 \cdot 10^{-x} \rightarrow$ Store P_{t-1} and P_t

Static monitoring



"Derivatives" 2D plot during beam injection

2D plot of "derivatives" (Pt / Pt-dt) over one hour shows changes much quickly than linear plots.

Pressure linear plots during beam injection

Pressure and "derivative" plots during beam injection

Septum ON ~ Septum OFF

RF fingers problem

Scraper closed for cleaning

See the evolutions of the vacuum dynamically on day to day operation

