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THE UNIFIED ANKA ARCHIVING SYSTEM – A POWERFUL WRAPPER TO SCADA SYSTEMS LIKE TANGO AND WINCC OA

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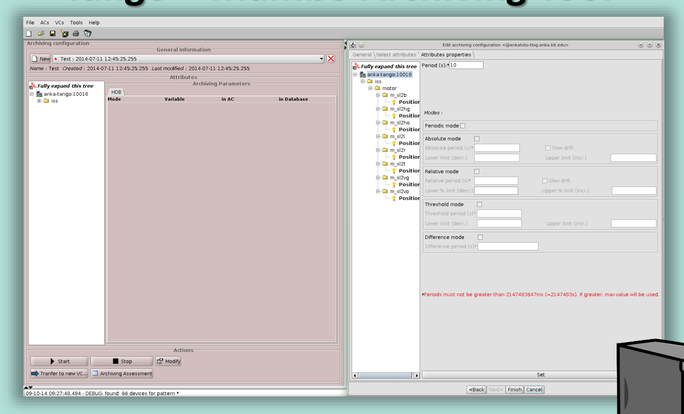
ABSTRACT

ANKA realized a new unified archiving system for the typical synchrotron control systems by integrating their logging databases into the “Advanced Data Extraction Infrastructure” (ADEI). ANKA’s control system environment is heterogeneous: some devices are integrated into the Tango archiving system, other sensors are logged by the Supervisory Control and Data Acquisition (SCADA) system WinCC OA. For both systems modules exist to configure the pool of sensors to be archived in the individual control system databases. ADEI has been developed to provide a unified data access layer for large time-series data sets. It supports internal data processing, caching, data aggregation and fast visualization in the web. Intelligent caching strategies ensure fast access even to huge data sets stored in the attached data sources like SQL databases. With its data abstraction layer the new ANKA archiving system is the foundation for automated monitoring while keeping the freedom to integrate nearly any control system flavor. The ANKA archiving system has been introduced successfully at three beamlines. It is operating stable since about one year and it is intended to extend it to the whole facility.

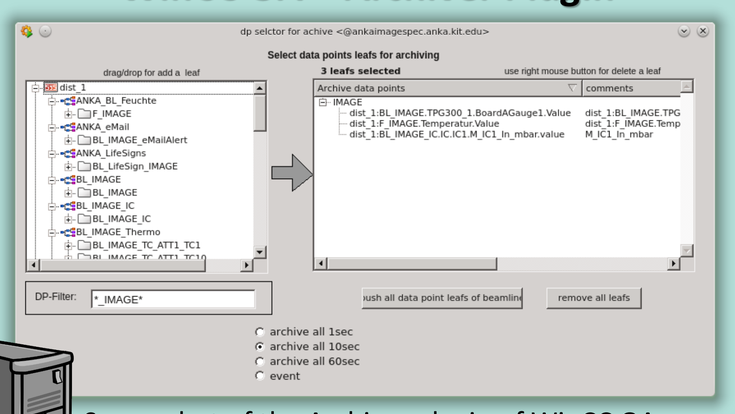
WORKFLOW OF THE ANKA ARCHIVING SYSTEM

Tango – Mambo Archiving Tool



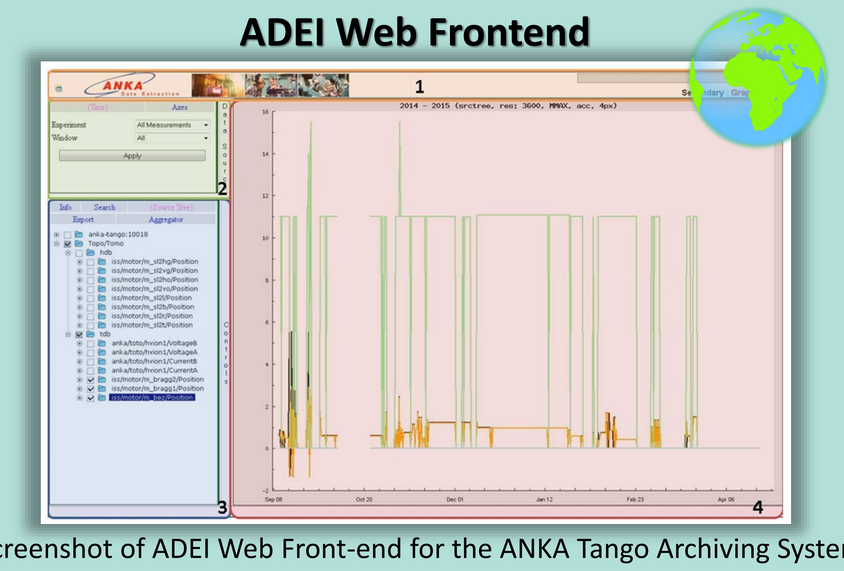
Screenshot of Mambo. GUI to configure the logging data points of Tango. The data-points can be logged at different time mods.

WinCC OA – Archiver Plugin



Screenshot of the Archiver plugin of WinCC OA. The sensors, can be added to the list of archived data-points by drag-and-drop

ADEI Web Frontend



Screenshot of ADEI Web Front-end for the ANKA Tango Archiving System.
(1) header bar with main menu, (2) dropdown-menu for selecting server respectively beamline, (3) data selection, (4) plot of the selected data

- Approx 175 datapoints/beamlime
- Sum of 3500 datapoints at ANKA

- Approx 100 datapoints/beamlime
- Sum of 2000 datapoints at ANKA

MySQL

ADEI Server
Precaching datapoints for fast data access < 1s

Archiving server
Running the MySQL databases

MySQL

CONCLUSION & OUTLOOK

The unified ANKA archiving system was implemented and tested at three beamlines. It is a powerful combination of different interconnected tools providing a convenient, state-of-the-art and user friendly way to log, archive and represent data of a synchrotron beamline. The system is easy to setup and does not required deep programming knowledge. The test system is in operation since nearly one year and turned out to be stable and reliable. It can be easily extend by further history database sources. The next steps will be to extend our system to mobile devices like smartphones and tablets and to roll out the unified archiving system to the remaining ANKA beamlines. The sources will be available under GNU GPL2 on the official Tango website www.tango-controls.org.