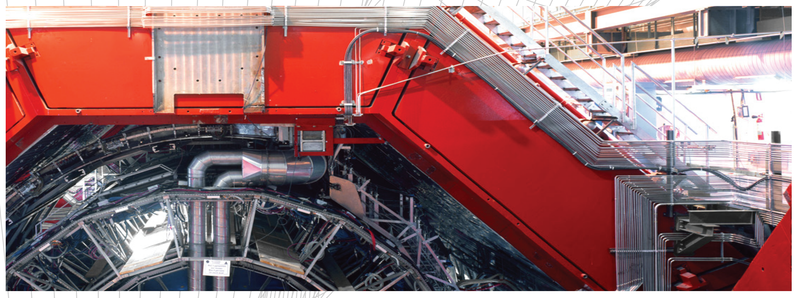
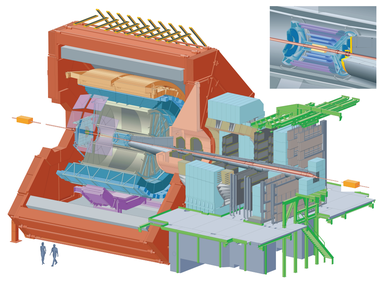
ALICE ELECTRONIC LOGBOOK





_ALICE Experiment

ALICE is the acronym for A Large Ion Collider Experiment, one of the largest experiments in the world devoted to High Energy Physics. Hosted at CERN, it will study the physics of strongly interacting matter at extreme energy densities, where the formation of a new phase of matter, the quark-gluon plasma, is expected. Consisting of 18 sub-detectors, the ALICE experiment will primarily target heavy-ion collisions (in particular Pb-Pb), but it will also be able to cope with proton-proton and proton-ion collisions.

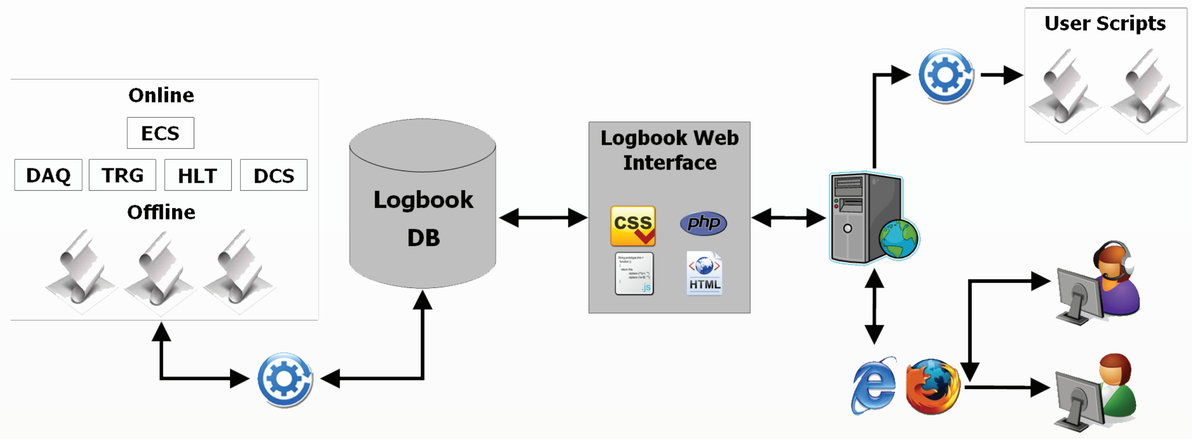
_Logbook Architecture

The Alice Electronic Logbook, first envisioned as a web replacement of traditional paper logbooks used in previous experiments, is now a massive information repository used to store not only the shifters/experts reports but also heterogeneous operational information such as run conditions (active detectors, magnets current and polarity, recording configuration), run statistics (data rates, trigger rates) and subsystem status (shuttle, data migration). In addition, it's also used by the Offline system to select good run candidates for quick reconstruction, making sure that the most promising runs are processed first.

To allow the non-human ALICE actors to interact with this repository several APIs were implemented:

- C API for fast read/write access
- HTTP API for exporting information in several formats (ASCII, XML, Excel)
- DIM (Distributed Information Management System) based API

For interactive access, a web-based GUI was developed, providing users with a fast and intuitive tool to retrieve the relevant information, from detailed per run parameters to aggregated time-based trends.
Plans for the future include the development of new GUIs (desktop widgets, big screens status display) and the expansion

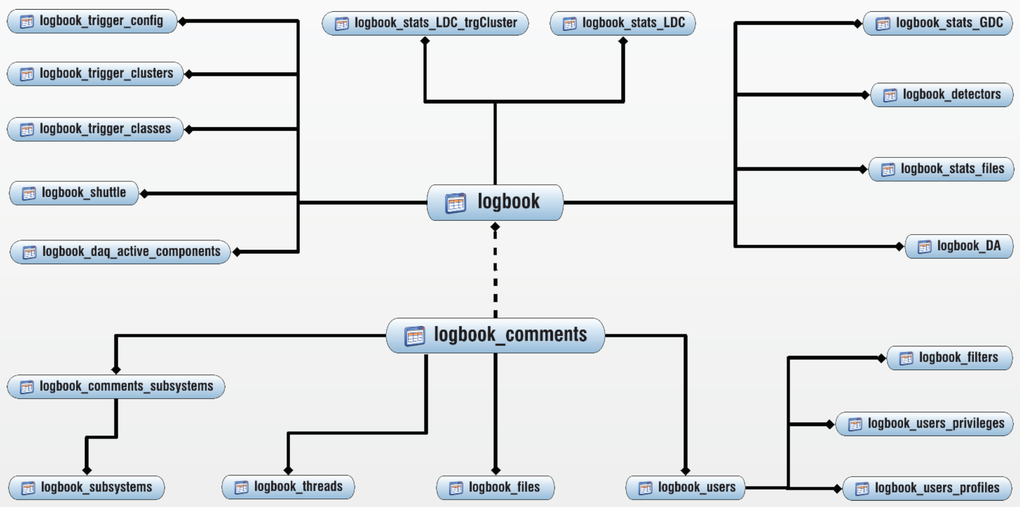


_Logbook DataBase

The Logbook DB is the place where all the Alice Electronic Logbook's information is stored. Implemented as a relational database and running on a MySQL server, it has currently 23 tables storing more than 1 million rows and 400 MB of operational data and metadata. Two of these tables serve as 'master' tables:

- 'logbook': Central table for run indexation, stores the most common run parameters.
  Currently it holds more than 60 000 runs.
- 'logbook_comments': Central table for text reports indexation, stores both human and non human log entries.
  Currently it holds 120 000 log entries, including more than 5 000 human reports.

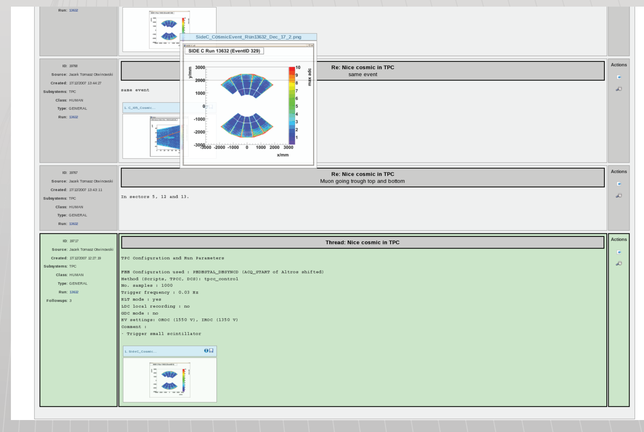
Stored procedures are also used to fill aggregated and derived fields such as global counters and rates. It has been growing steadily both in terms of complexity and stored volume, making it a center piece of the experiment's data taking operations.
Plans for the future include table partition for performance tuning and new detector specific tables.

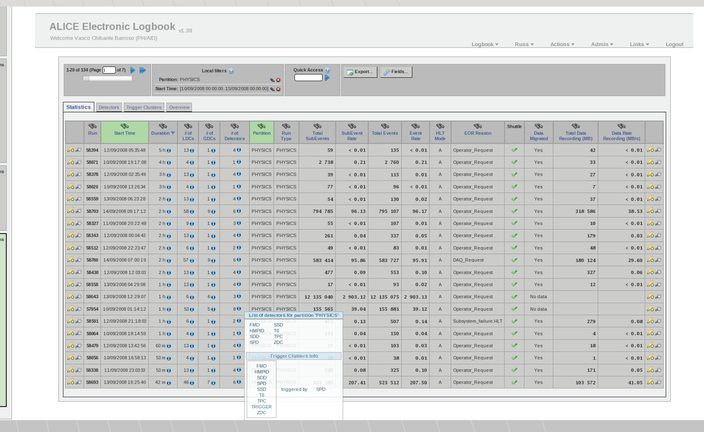


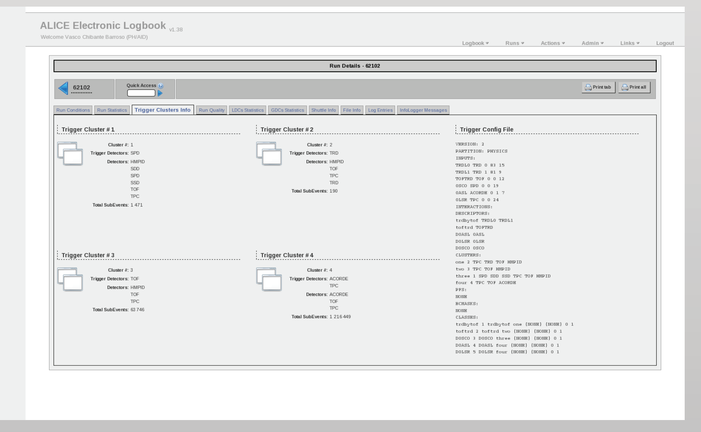
_Logbook Web Interface

The Alice Electronic Logbook Web Interface, running on a LAMP (Linux, Apache, MySQL, PHP) software stack, provides interactive access to the Logbook DB. With features such as access control, search/filtering, summary and detailed views, user preferences and data-mining plots, it has become the from door for all members of the experiment who want to follow the ALICE activities, search for specific run details or get aggregated values and plots for long time ranges or specific run conditions. It has currently more that 600 registered users from 30 different countries in 4 continents.

Plans for the future include new data-mining plots, migration to the web 2.0 paradigm and integration of other information repositories (such as Data Quality Monitoring).







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