**Charon GUI Features**

Charon GUI is a Java-based application, currently running on the top of a UI (user interface) installation. It is usually provided by a VO as a dedicated machine. The Charon GUI currently supports the Czech national grid environment as well as worldwide EGEE grid infrastructure.

- File management
- Input files modification
- Job execution
- Job control files cleaning
- Job submit
- Job monitoring
- Results retrieval
- Advanced filtering options for jobs
- Listing of application modules
- XSmile access, localization, skins
- Research projects management

When started remotely, Charon GUI displays on a remote X-server that can be either Linux GIS or MS Windows with X-Windows emulator. The one and only prerequisite on the server side is to have XRB (Java Runtime Environment) installed.

The full list of Charon GUI features includes a key Charon Extension Layer (CEL) functionality, such as job submission, monitoring, results retrieval together with the exploration of available application modules, both of them enhanced by graphical representation.

**Technical details**

**Implementation**

The Charon GUI is implemented in Java, and a widget toolkit Swing through the utilization of NettBeans due to its excellent graphical user interface development support. Java was chosen as one of the most widely used programming languages and due to its advantage in platform independence. The professional look and feel Alloy has been used to provide visually stunning feelings from Charon GUI utilization.

**Authentication**

In current implementation, Charon GUI runs at a user interface machine where CEL system is installed. Security and access to grid resources is handled by lower layers of particular grid middleware.

Charon GUI can be easily used on every system where an X-server is allowed natively or through an X-server emulator. The channel for communication with the X-server is authenticated using standard SSH protocol. Based on the end-user feedback we plan to implement full authentication features that will allow Charon GUI to operate directly at the client system.

**Conclusions**

Charon GUI retains the simplicity and usability of the original, command line based Charon Extension Layer system, and simultaneously includes a set of new, highly expected features.

Unique features provided by CharonGUI:

- Provides interactive frontends to distinct grid niches
- Research projects management
- Advanced filtering options for jobs
- XSmile access, localization

The further planned development concerning Charon GUI will focus especially on the preparation of remote client version simultaneously with extension of supported grid environments. Some minor enhancements as incorporation of subprojects and interactive list of application modules including links to Charon on-line documentation are considered too.

**Added Values**

The Charon GUI functions primarily as a laboratory tool to keep track of end-user’s research projects and the corresponding computational jobs allowing full project and/or jobs manipulation. The researchers are allowed to freely manage, check status, sort and study computational jobs belonging to individual analyses.

The interface also allows users to invoke an instance of XSmile whenever it is requested/needed for further detailed analysis. Charon GUI also supports “nautical” (currently Czech and English are available) and supports visualization skins.

**What is behind?**

Charon Extension Layer (CEL) system is a universal framework [1, 2] creating a layer upon the basic grid middleware environment and making an access to the complex grid infrastructure much easier compared to native middleware. The CEL system provides a simple CLI independent of any particular middleware (PBS, LCG, etc.) thus allowing transparent access to distinct grids. Detailed information concerning CEL utilization is available at http://egees.cesnet.cz/envelopa/Charon.html.

**References**


**Acknowledgements**

The Charon GUI & CEL system development is financially supported by EGEE II project funded by European Commission (contract number INFSO-RI-031688).