PDV – a PVSS Data Viewer Application
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The PVSS Data Viewer (PDV) has been developed to access environment and control data of the Pixel detector of the ATLAS experiment, with an effort to be sufficiently generic to provide access to data of other subdetectors and even data of other experiments or PVSS systems in general. Other important keys for the design were independence from any existing PVSS installation and universality regarding operation systems or user environments.

**Design Criteria**
- A GenericPVSS/PvssDb interface
- Machine independency, which excludes JNI interfaces by principle.
- Universal (Java VM)
- No OS, environment or policy dependency
- All possible “save-as” options

**Technical Implementation**
A data flow diagram embedding the URL for the software design is shown below. The user interacts with the application mainly through the DPE (data point element) name selector dialog and the corresponding display window shows the schema and DPE structure in tree form. The relatively long DPE names are cut intelligently in order to arrange them in the tree. The DPE name display can be changed at any time (for display and selector) from DPE names to the PVSS alias convention. The DPE Selector window shows the schema and DPE structure in tree form. The relatively long DPE names are cut intelligently in order to arrange them in the tree. The DPE name display can be changed at any time (for display and selector) from DPE names to the PVSS alias convention.

**PVSS Data Compress**
As opposed to physics data which undergo a systematic reconstruction process, DCS data are expected to be relatively stable and can be stored in a compressed format. The PVSS associates validity information with each value. In case of transient errors during data acquisition, data values are still recorded, but can be flagged according to a variety of error conditions. PDV allows to filter these data, i.e. to include or exclude all or part of values with error conditions from the plots.

**Data Reconstruction (and re-compression)**
As the PDV software aims at a completely transparent generation of displayed and extracted data for the user, a reconstruction of the compressed raw data in the PvssDb in per-formed at query time on SQL level, and inside PDV in order to fill all time slices that would be left empty due to compression of relatively stable DPE values.

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**Application Features 2: DPE search**
- Selection of DPEs in DPE Tree
- Search of DPEs with patterns on DPE names/aliases
- Search of DPEs with DPE comments

**Application Features 3: History**
Users typically verify some groups of DPEs routinely or, more generally, want to re-make a display query that they have executed formerly. The PDV retains the last executed queries for each user in the user-specific PDV database (stored in the "recent" directory).

**Software management and frameworks**
The source code of the PDV application has been successfully managed with CVS in repository and Savannah for user feedback, bug tracking and task management. Migration from CVS to SVN has been performed using the Python script extension of it without any impact on the project. The Eclipse IDE has not been mandatory, but turned out to be the favored tool of all developers and contributed.

**References**
http://cern.ch/twiki/bin/view/Atlas/PGV
http://pvss.at