PAUL SCHERRER INSTITUT —

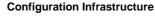
Database Driven Control System Configuration for the PSI Proton Accelerator Facilities

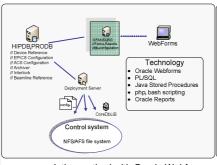
H.Lutz, D. Anicic, Paul Scherrer Institut, 5232 Villigen PSI, Switzerland

At PSI there are two facilities with proton cyclotron accelerators. The machine control system for PROSCAN which is used for medical patient therapy, is running with EPICS. The High Intensity Proton Accelerator (HIPA) is mostly running with the in-house control system ACS. The control of dedicated parts of HIPA runs already with EPIĆS. Both these facilities are configured through an Oracle database application suite. This paper presents the concepts and tools which are used to configure the control system directly from the database-stored configurations. Such an approach has advantages which contribute for better control system reliability, overview and consistency.

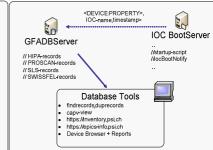
Oracle database architecture for HIPA/PROSCAN J. . #. D PRODB // PROSCAN-fac HIPADB GFAPRD **PRODB HIPADB GFAPRD** + Device Reference + Device Reference + EPICS (PVs) + Epics configuration Epics configuration + Inventory + Archiver + ACS configuration + Interlock + Interlock + Beamline Reference GFADEV • HIPA /-PROSCAN has its own db-instance

· GFAPRD contains data for all PSI facilities





EPICS PV database



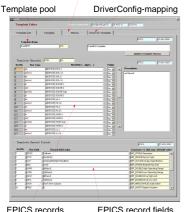
- a prescriptive method with Oracle Webforms
- · basic configuration data for IOCs and applications are entered in the web interface
- Configuration files are deployed on to Control systems NFS shared file system
- · EPICS records are created at IOC boot process and loaded into database tables
- The information is queried by several database tools

¹ HIPA= High Intensity Proton Accelerator complex

Epics Template Editor

Macro-definition (\$DEVICE)

• Oracle Database Version 11g

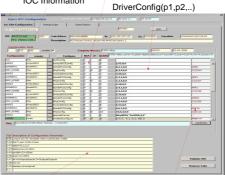


EPICS record fields

· Changes in templates requires reconfiguration of all connected IOCs. Import of plain text files is supported.

IOC Configuration Setup

Configuration slot



Parameter description

IOC Information

² PROSCAN= medical patient therapy

Substitution info

• Configuration slot is identified by a name ,require statment, driverConfig(p1,p2) + vme slot adressing

Macro Substitution Editor

EPICS Template Device Reference IOC configuration slot Device [] [CM2+8

Macro values

Query By IOC, Template

• For a given a Device the IOC configuration slot is mapped to the corresponding EPICS Template

Workflow

Database Entry Generate & Deploy Reboot | Restart Verify Data Access

EPIC IOC installation

Select one or more IOCs



After Reboot the current EPICS PVs may be verified

e.g epics-info.psi.ch

Archiver configuration

Record name (Device:Property)

Interval/period



All Records which are marked for archiving are listed into a dedicated configfile and the archiver can be restarted after

Record availability



generate startup scripts plus substitution file
deploy it to the IOCs Bootserver file system