The Spiral2 Command Control Software Organization and Management
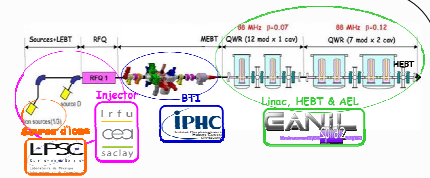
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Abstract

The SPIRAL2 project aims to provide a new facility able to produce and study rare ions. To ease collaboration between laboratories involved in software development, the command control team has chosen the EPICS software. At an upper layer, high level applications will be programmed in Java while the XAL framework is currently under investigation. A development skeleton, programming rules, subversion development tools are about to be fixed on to achieve the whole organization. Program developers will be able to generate generic EPICS applications which can be integrated in each IOC VME crate or LINUX box. Furthermore, Spiral2 beam control equipment will be described in a relational database and a program will be provided to automatically generate EPICS flat databases. The aim of this paper is to describe this organization and the benefits for the Spiral2 command control team.

The SPIRAL2 project

The Spiral2 project consists of a new facility to provide high intensity RIB (Rare Ions Beams). Deuterons or Heavy Ions will be pre-accelerated in a RFQ (Radio Frequency Quadrupole) and then in a Linac (Superconducting Linear Accelerator). This primary beam will bombard target/source assemblies producing several rare ions which will be selected on the fly. They will be sent to the existing GANIL facility to be post-accelerated with the CIME cyclotron and transported to the experiment areas.
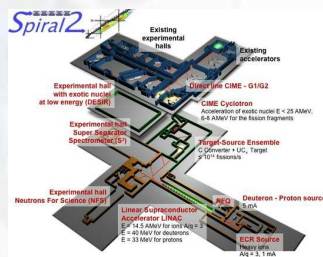
TopSP2 directories

An EPICS directory tree model specific to SPIRAL2 and named "topSP2" has been elaborated. It allows to separate the modules from the IOCs. A module is an EPICS application associated to a type of equipment or function which will be instantiated in an IOC. Furthermore, an IOC is allocated to a SPIRAL2 accelerator section or function.

Naming and version convention

Item	Currently used	Future
Epics	3.14.9	3.14.11 to be validated
Consoles & servers	RHEL5.2	no evolution foreseen yet
IOCs	VxWorks 6.5	VxWorks 6.7 to be validated
JAVA	5	6 to be validated

All the labs use the same working environment

| Function	Signal
Domain-Marker-Component (17 character max)	(10 character maximum)
DDDDD-MMMMM[-CCCCCCC]	: SssssSsssss

A convention to name the equipment has been established for the whole SPIRAL2 project

Relational database management

To describe and exploit the 4000 equipments which are envisaged for the control of the SPIRAL2 facility, a relational database and the management tools associated are developed
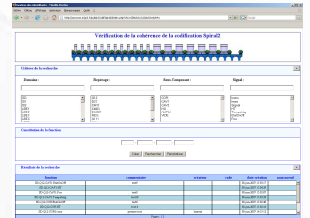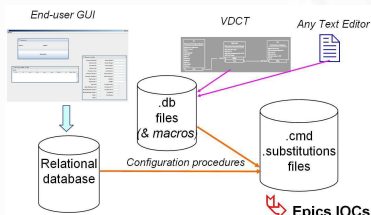
SVN Structure
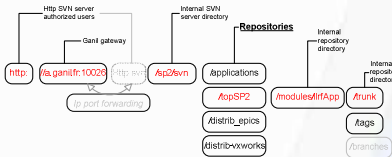
A versioning software control system, Subversion software, also named SVN, has been set up. Each remote team can easily access to a SVN shared module or to a SVN shared IOC with an URL
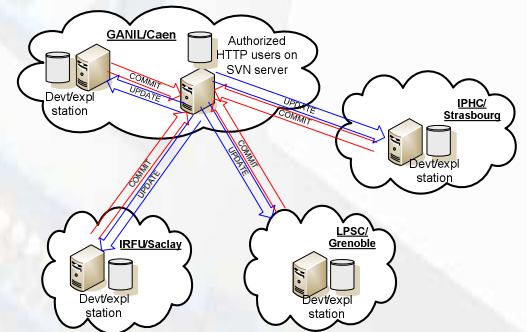
Automatic Epics Database generation

The set of conventions and rules described above, the tools that have been deployed for development, and the equipment database, would permit to automatically generate EPICS flat files that define completely an IOC

Conclusions and perspectives

A life-size beam test turned out that the conventions and the organization have simplified and optimized the work in the point to make the system operational in very short time. Although a lot of work has still to be done, software deployment tests that have already been done show that these solutions improve the command control team efficiency. At this time, the definitive development rules are being studied and are being about to be achieved..