



TDAQ Software Configuration

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Joint Meeting on Farm Management
31/1/07



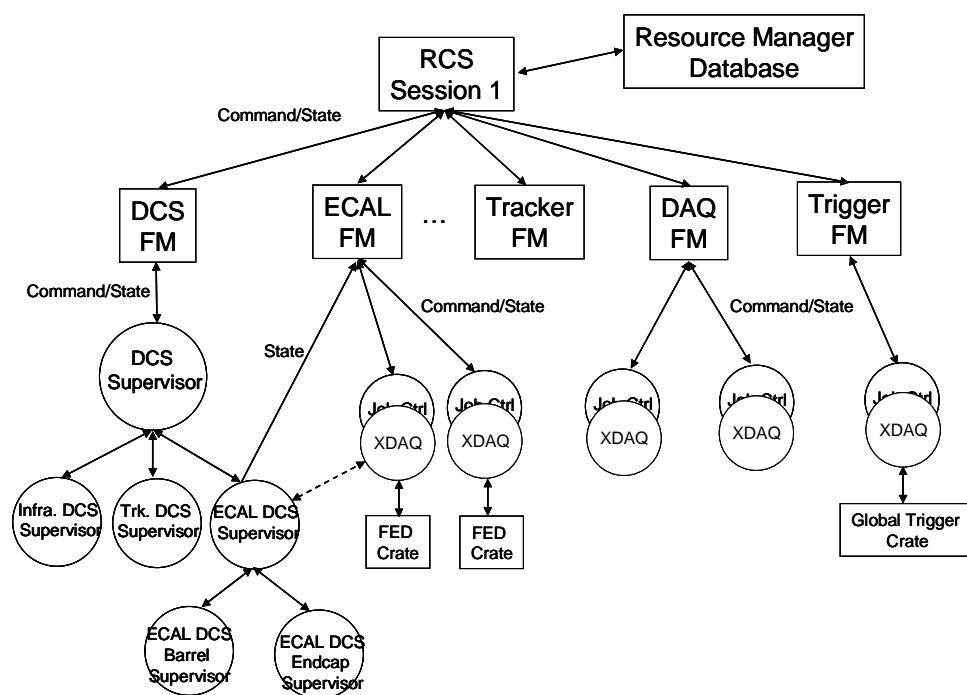
DAQ Configuration



- DAQ Components are based on Xdaq and RunControl frameworks.
 - Xdaq: C++
 - RunControl: Java / Tomcat
- Configuration data is stored in the “Resource Service” (RS) DB.
- RunControl is responsible for starting the DAQ processes and distributing the configuration.



Control Structure



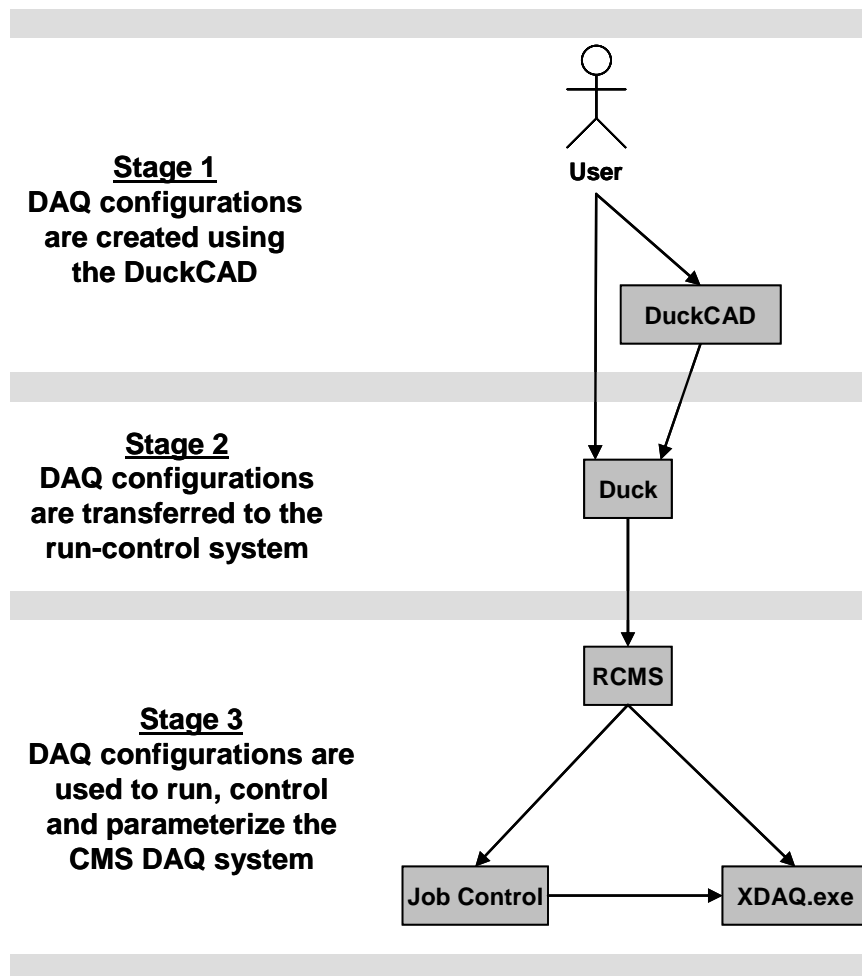
- The experiment is controlled by a tree of Function Managers.
- Function Managers are driven by a finite state machine.
- The control structure can be viewed as hierarchical tree of finite state machines.



Configuration



- Configuration Information is stored in the configuration DB of the RS.
- RS contain all information to run a Xdaq and RCMS3 based daq or detector sub-system.
- The information is filled with the DuckCAD (graphical tool) or RS-Manager utility.
- Information flow:



taken from:
CMS DAQ Configuration files, M. Gulmini, S. Murray and A. Petrucci



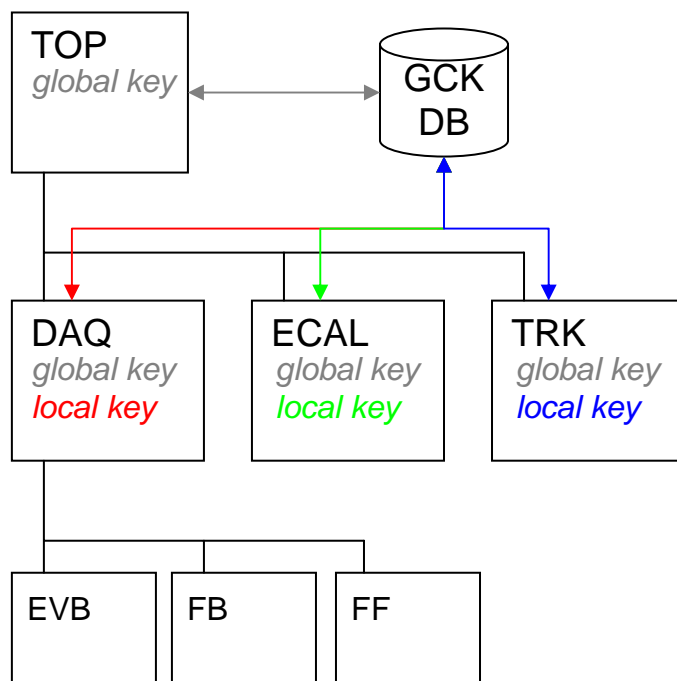
Configuration



Top FM
User selects global key

Subsystem FM
*receives global key
instantiates corresponding
"Group" identified by
local key*

Level3 FM
*doesn't see global key,
configuration is driven by
"Group"*



- Tree configuration uses Global Configuration Key to decouple sub-system configurations.
- The RS-Manager can associate a "Group" (local key) to a Subsystem and a Global Configuration Key (global key).
- A "Subsystem" determines its configuration from the Global Configuration Key.



Configuration Generation



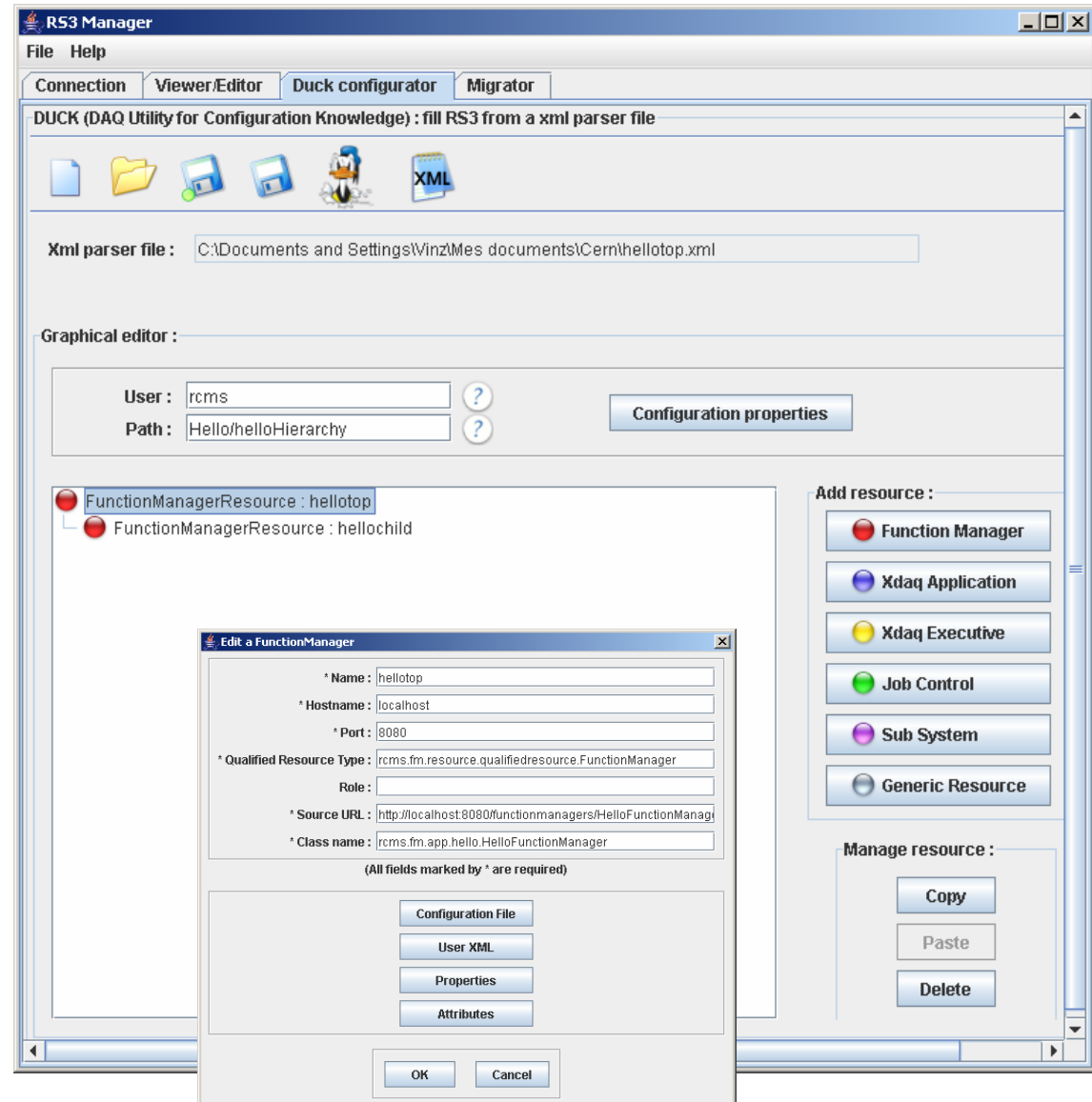
- The information is generated via a graphical tool (DuckCAD) or via an XML-file.
- Configurations are managed with the RS manager.
- Configurations are registered to Global Configuration Keys with the RS manager.



RS Manager Tool



- RS Manager Tool
 - manage configurations
 - edit/move/delete possible
 - configurations are versioned





DuckCAD

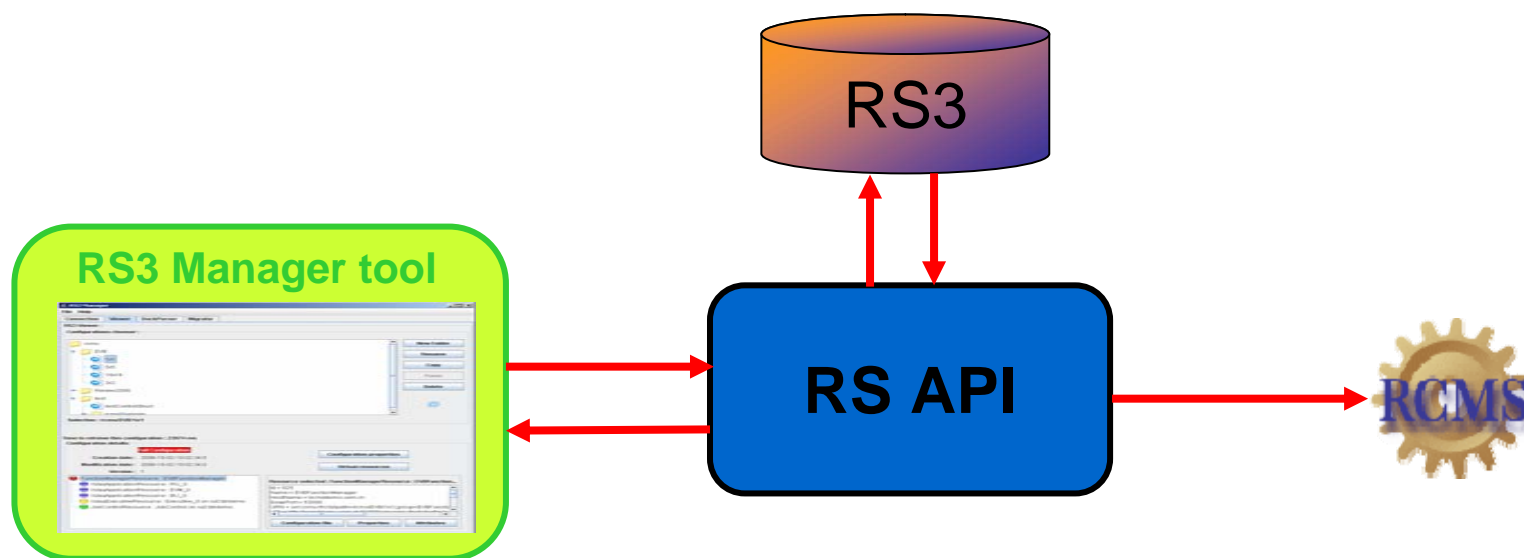


- Configuration can be generated graphically with “DuckCAD”

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.



Resource Service



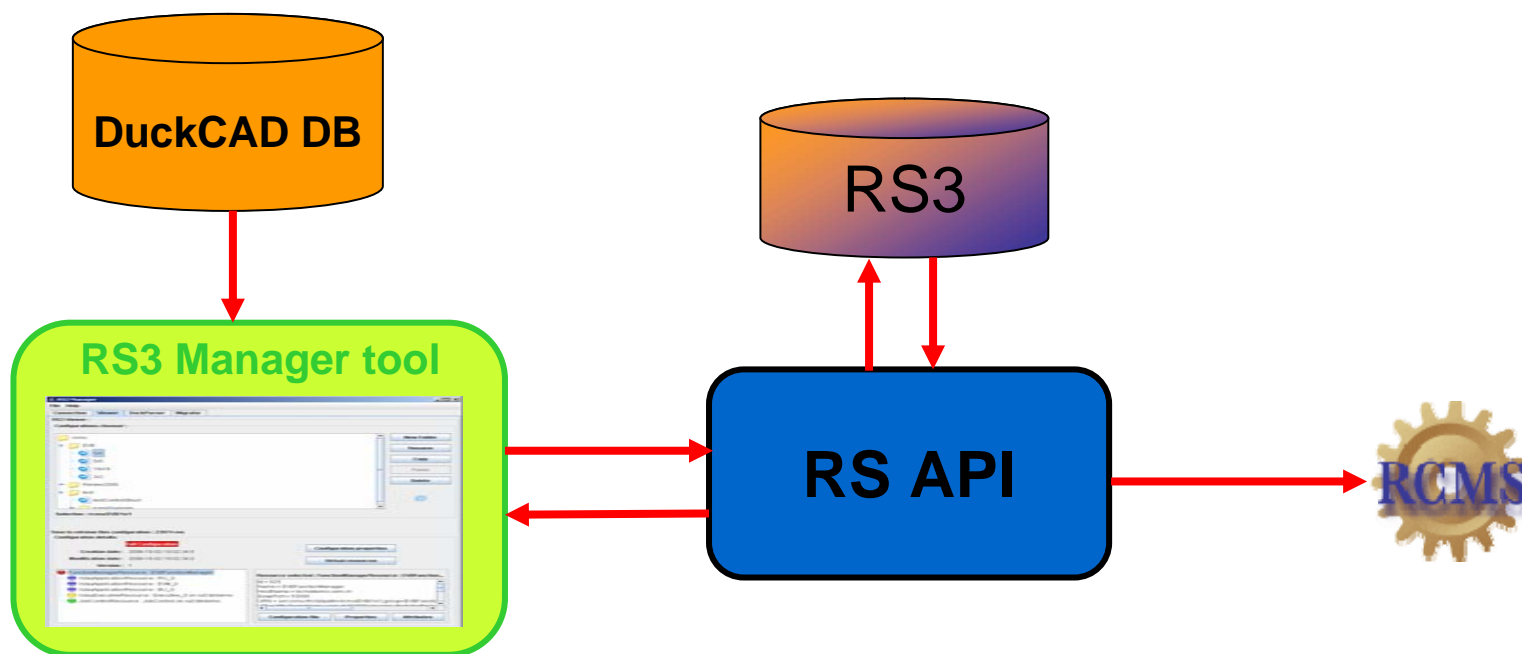
- ✓ Flexible schema
- ✓ Java API to read and write in RS3
- ✓ Xdaq Configurations files can be built on the fly
- ✓ Concept of « Full Configuration » and « Light Configuration »
- ✓ Added a versioning configuration system (like CVS)
- ✓ RS3 Manager tool



How to populate RS3



1. The Migrator



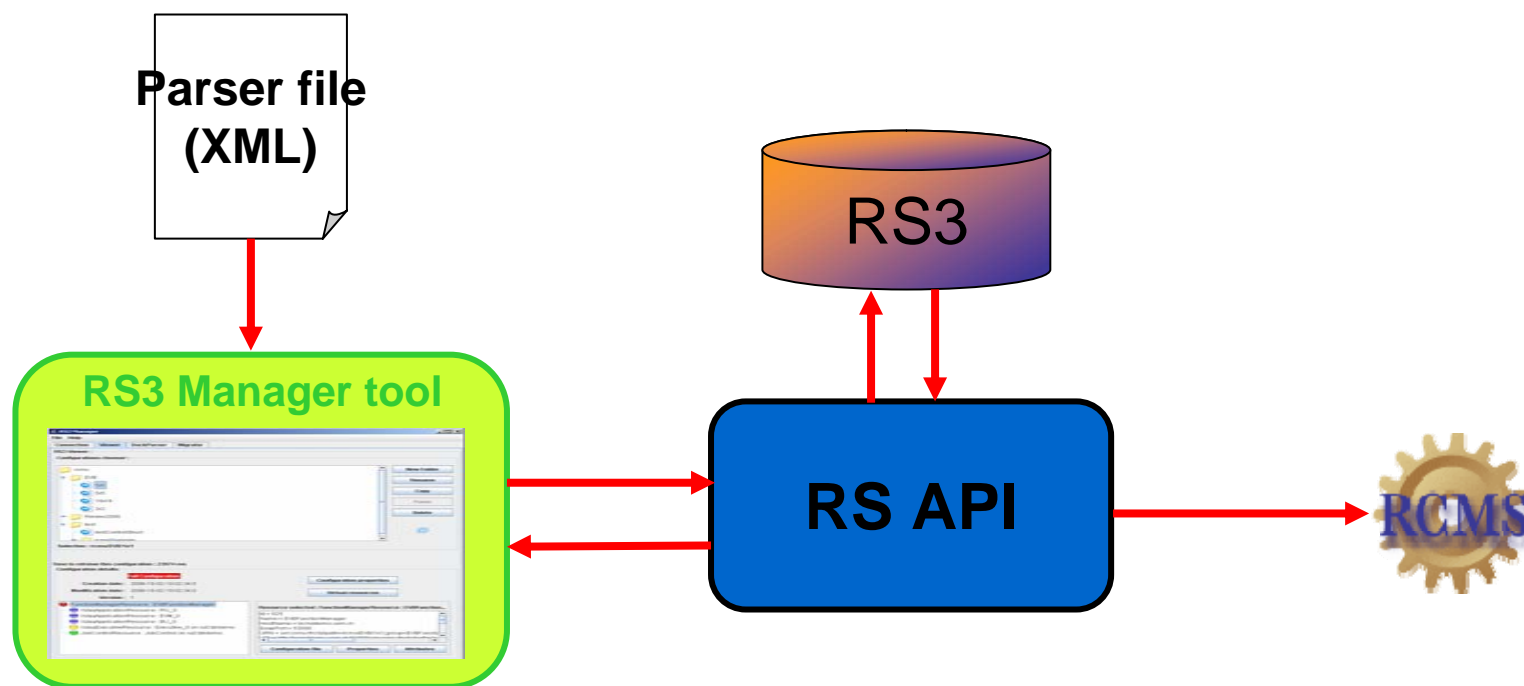
- Migration of a DuckCAD configuration to RS3



How to populate RS3



2. The Duck configurator



➤ Fill RS3 from a XML parser file



Summary



- DAQ Configurations are stored in the RS DB.
- Sub-detectors use independent RS-DB, coupling via global configuration key.
- Tools for creation and managing of configurations exist.