First experiences with "jddd" for PETRA vacuum controls

jddd: An Editor for control system panels for DOOCS & TINE & TANGO and a Runtime Engine

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Content

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- The jddd editor:
 - Components / widgets
 - Functionality
- New jddd features:
 - The subversion browser
 - The plugin interface
- Petra vacuum controls
- Experience & Outlook





Motivation

- We don't want do design all panels in the controls group (Flash: ~ 1300 control panels)
- Non-programmers / subsystem experts should develop graphical control panels
- Synaptical displays editor: simple creation of control panels with a set of standard components: text, buttons, graphical components...
- Replace old ddd (DOOCS data display, C++)
- \rightarrow jddd (Java DOOCS data display)



jddd

jddd implementation:

- Use JAVA for platform independence
- Standard JAVA technology (Swing, Java Beans)
- Save panels in xml file format
- We decided to write a completely new editor because:
 - Independence of external libraries
 - Highest flexibility
- Demands on the editor:
 - Stability, extendability, ergonomic and intuitive machine interface
 - Import old ddd files



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jddd Editor



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Pane Components:

- LayeredPane
- TabbedPane
- IncludeComponent
- DynamicList
- Alive

Static Components:

- Label
- Line
- Oval
- Rectangle
- Triangle
- Icon

Dynamic Components:

- Button
- ToggleButton
- Value
- Dial
- TextField
- ComboBox
- CheckBox
- ProgressBar
- Slider
- StatusRegister
- Audio
- ColouredIndicator
- LocationChooser
- Cameralmage
- TextArea
- DeviceTree

Logic Components:

- If
- Switch

Plot Component:

- PlotSpectrum
- PlotHist
- PlotLocation
- PlotXY

New Components



Dynamic List

in edit mode:

lame	Rotation Speed	current	Status	
/alue	Value	no value 🔹		1
				L
				L
				L
				L
				ŀ
				L
				L
				L
				L
				L

in run mode:

dynamicList.xml _								
DynamicList of pump stations								
Name	Rotation Speed	current	Status					
7ACC6.1.PS	734.496	0.70						
PS.86	0.000	0.00 *						
PS.85	0.000	0.00 -						
PS.115	0.000	0.00 -						
PS.111	0.000	0.77						
PS.119	0.000	0.00 -						
PS.117	0.000	0.00 -						
PS.120	0.000	0.00 -						
PS.45	565.470	0.00 -						
PS.112	0.000	0.00						
PS.113	0.000	1.08 -						
PS.116	779.880	0.00						
PS.43	0.000	0.00						
PS.114	0.000	0.00						

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Buttons with different functions:

- Set one or multiple control system values
- Open new window, replace window, override window
- Execute shell command
- Print panel
- Help (opens a predefined web page in a browser)
- Set component property (to set one or multiple property values)

Button



Buttons with Set Component Property function:



	button_setComponentProperty.xml			
(i	Rectangle	Include Component	Dynamic List	
Button with "Set Component			MTS.17ACC1	🗌 ON
Property" function			MTS.14ACC1	🗌 ON
Button			MTS.7ACC1.WG	🗹 ON
		2	MTS.1ACC1	🔲 ON

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Plot Components (Time domain, History, Location, XY plots) with mathematical functions for online data analysis







jddd new features

jddd new features:

- Subversion file browser
- Plugin interface



jddd subversion browser

Subversion File Browser:

- Central place for data storage
- Keep file history
- New development using the Svnkit library http://svnkit.com





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jddd plugin interface

Plugin Interface:

A plugin.jar is needed containing wrapper classes for all Java beans.

- ATKPlugin (Tango)
- ACOPPlugin (Tine)







jddd new features

Jddd sample panels from PETRA vacuum controls



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PETRA vacuum controls



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PETRA vacuum controls



PETRA vacuum controls

Pump Station Panel (imported from ddd)

LocationChooser: changes the base address of the whole panel





PETRA vacuum controls





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Experience & Outlook

Experience with jddd:

- The jddd editor can be used for designing highly complex control panels.
- The subversion browser keeps the control panels history and enables many users to work on the same panels.
- The plugin interface allows other institutes to use jddd with their own Java beans.



Experience & Outlook

Outlook on future jddd development:

API improvements:

- Implementation of asynchronous DOOCS calls
- Read history data from the data acquisition system (DAQ)
- Improved interface to TANGO and new interface to EPICS control systems

New middle layer server for:

- Caching the subversion file system
- Keeping a list of file dependencies
- Providing runtime statistics
- Updating panels in running applications



How to start jddd

Java Webstart links on http://jddd.desy.de



Thank you for your attention !



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Done



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