



Overview and Update

The Open Source Initiative for Distributed Industrial Automation and Control

*2nd 4DIAC Users' Workshop
ETFA , Toulouse, France
September 9, 2011*

www.fordiac.org

Mission

The goal of the 4DIAC Initiative is to provide an open, IEC 61499 standard compliant foundation, that gives the opportunity to establish an automation and control environment, based on the targets

- **portability,**
- **configurability and**
- **interoperability.**

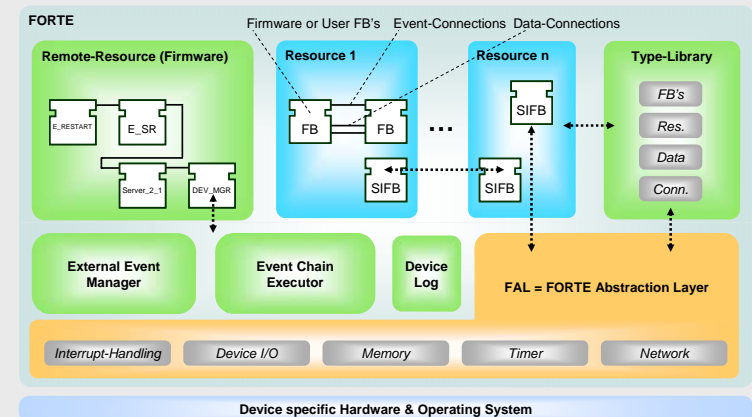
Short History

- Need for basic infrastructure in 2 research projects
- Development of runtime environment and engineering tool
- Provision of results as initial open source version in 4DIAC
 - Consent of all involved project partners
 - Common basis for development, industrial appliance and research of IEC 61499
 - Leveraging the use of IEC 61499 within industry
- Further development by initial committers:
PROFACTOR GmbH & Vienna University of Technology
- Industrial/commercial usage by nxtControl

Current Projects

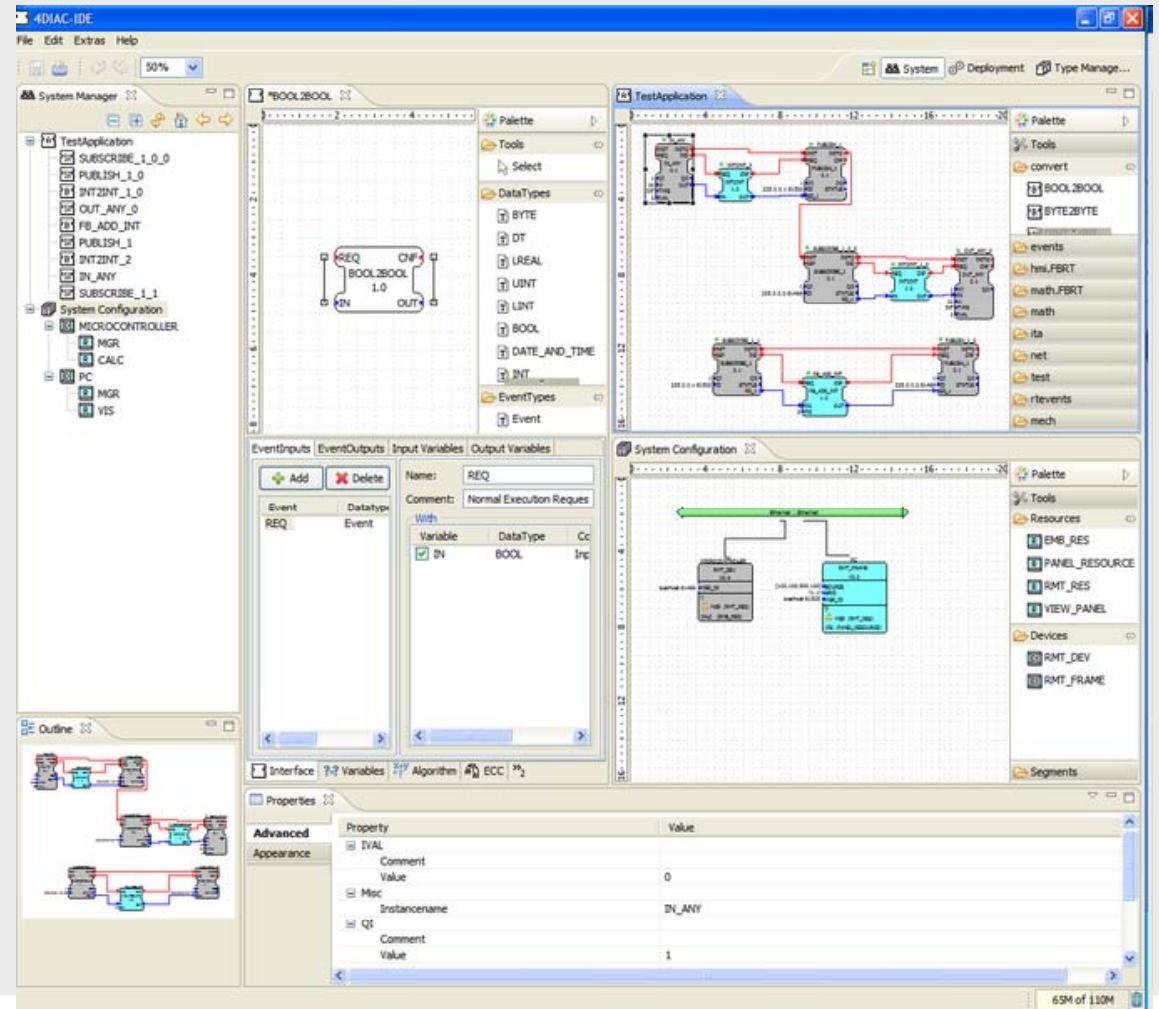
- FORTE (4DIAC-RTE)
 - IEC 61499 compliant run-time environment
 - C++ implementation
 - Portable to multiple platforms
- 4DIAC-IDE
 - IEC 61499 compliant engineering environment
 - Java-based implementation
 - Implementation as Eclipse plug-ins
- **NEW** 4DIAC-FBLIB
 - Collection of function block libraries

- Features
 - Basic FB's, Composite FB's, SIFB's, Adapters
 - Elementary data-types according to IEC 61131-3
 - Event & data connections
 - Configuration commands (create, write, start ... according to IEC 61499)
 - Communication FB's (Server/Client, Publish/Subscribe for Ethernet)
 - Type-Library & Device Log
 - RMT-Device, RMT- & EMB-Resource
 - Real-time event FB's
- Platforms
 - Posix (tested on: Cygwin, Linux (i386, PPC))
 - Digi Connect ME (ARM7, ThreadX)
 - eCos (ARM7, Lego Mindstorms NXT)



Features

- **Function Block Editor:**
 - Basic FB's
 - Composite FB's
 - SIFB's
- **System Editor:**
 - support for sub-applications
 - mapping
- **Deployment:**
 - support for different profiles
 - separate deployment possible
- **Project Management**
 - project specific Type-Libraries



- Collection of common needed FBs
- Current work items
 - IEC 61131-3 standard Functions and FBs
 - OSCAT - Open Source Community for Automation Technology (<http://www.oscat.de/>)
 - Huge library of IEC 61131-3 functions and FBs
 - Mainly in domain of building automation
- Call for Partizipation
 - Submit FBs you think should be part of an IEC 61499 standard library

Most recent changes FORTE

- Performance improvements → half execution time
- Migration of all communication parts to new communication interface
- Improved data type handling and casting
- Support for UTF8 WSTRINGS
- Support for Adapters in Basic FBs
- Test suite for data-types and (de-)serialization
 - More tests would be great
- Implemented many IEC 61131-3 functions for ST Algorithm usage
- New build system CMake

Most recent changes 4DIAC-IDE

- Bugfixes and usability improvements
- Switch to “Feature Build” in preparation for an Update Site
- Switch to Eclipse 3.7
- Better adapter handling in the interface editor
- Adapter support in ECC
- Automatic coloring of mapped FBs
- FB outline view
- Smaller Improvements
 - Show FB in application
 - Focus on predecessor
 - Beautification of ECC editor

New Release Cycle

- Two major releases per year
 - Feb. 15th
 - Sept. 15th
- Feature freeze two weeks upfront
- Next Releases:
 - Sept. 15th, 2011: Version 1.0
 - Feb. 15th, 2012: Version 1.1

- Hosted on SourceForge-Platform
- Bug-Tracker
- Feature requests
- Forum
- Wiki

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ID	Summary	Status	Opened	Assignee	Submitter	Resolution	Priority
3052007	Wrong connectDO connectDI in CCompositeFB	Closed	2010-08-25	ali	nobody	Fixed	5
3052893	Green bar above the devices at the system configuration	Open	2010-08-25	gebenh	christiansangerber	Fixed	5
3052099	System Import	Open	2010-08-24	gebenh	christiansangerber	None	5
3046700	Adapter Type Import	Open	2010-08-19	nobody	christiansangerber	None	5
3048527	Patch 3044282	Open	2010-08-19	nobody	christiansangerber	Fixed	5
3046230	Save picture	Open	2010-08-16	gebenh	christiansangerber	None	5
3044277	linux IDE projects not compatible with windows IDE ones	Open	2010-08-13	gebenh	anubis080	None	5
3030269	Export of array in C++ doesn't work	Closed	2010-08-02	ali	nobody	Fixed	5
3032467	New runtime launcher is not working with Eclipse 3.6 Helios	Open	2010-07-21	gebenh	tsbras	None	3

- PLEASE provide feedback, questions, etc. via the offered channels
- Feedback helps to improve quality



4DIAC likes to say thank you!

Many thanks to all bug reporters, feature requesters and patch submitters.

Getting Involved

- Bug-list / feature-requests as starting point for involvement
- Source code provided in distributed version control system "Mercurial"
 - 4DIAC-IDE:
[http://fordiac.hg.sourceforge.net:8000/hgroot/fordiac/fordiac - ide](http://fordiac.hg.sourceforge.net:8000/hgroot/fordiac/fordiac-ide)
 - FORTE:
<http://fordiac.hg.sourceforge.net:8000/hgroot/fordiac/forte>
 - 4DIAC-FBLIB:
<http://fordiac.hg.sourceforge.net:8000/hgroot/fordiac/fordiac-lib>
- Patches of collaborators will be reviewed and applied

Next steps

- Finalize Version 1.0
- Setup update site
- New features:
 - Syntax highlighting and code completion for ST
 - Algorithm editing
 - Improved FB palette for application editing
- ...

Overview and Update



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