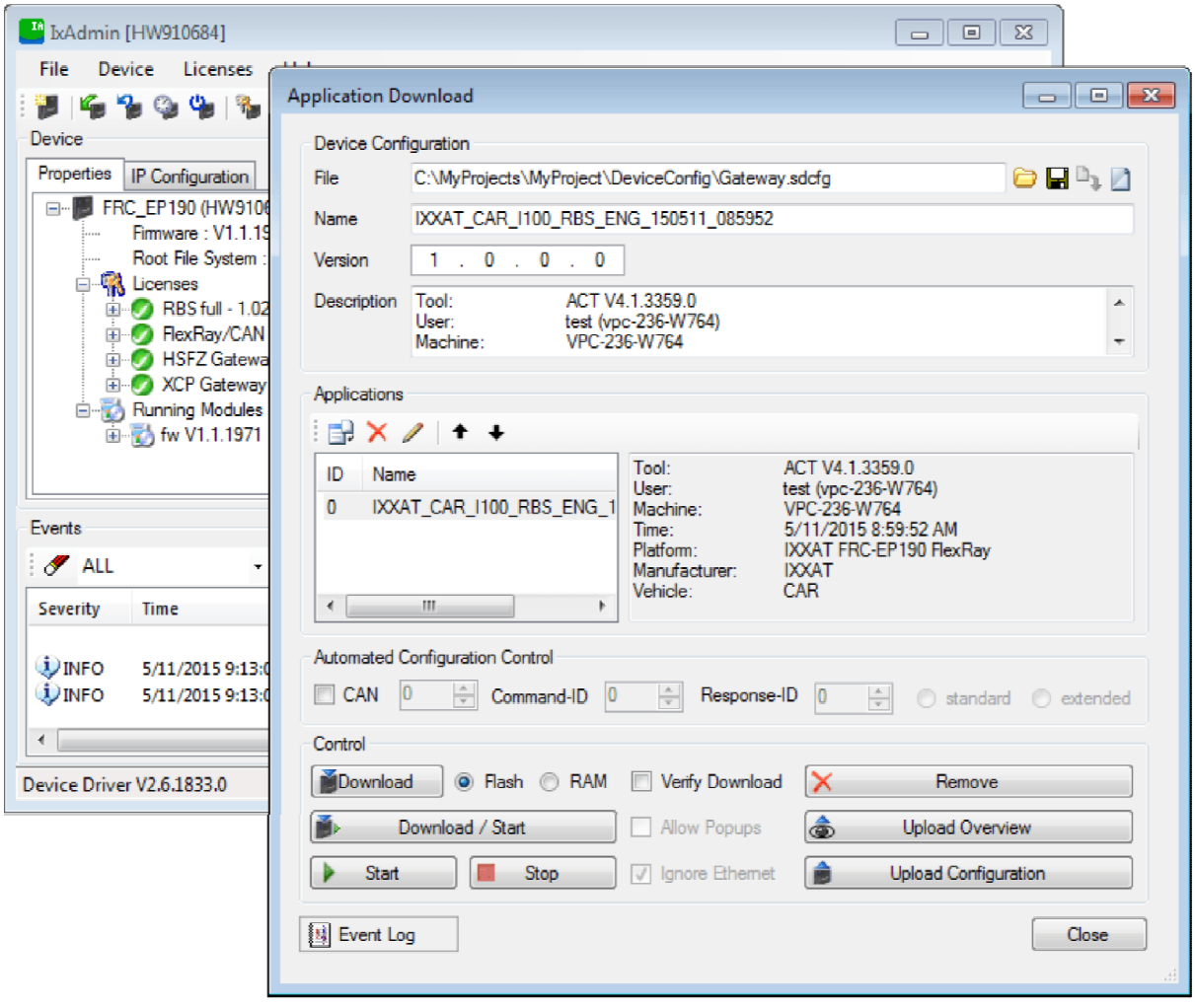
Automotive Configuration Tool (ACT)

ACT Variants

	IxAdmin	Vehicle Editor	RBS	Gateway	Data Logger	Signal Visualization	Develop. Tool
Gateway +RBS	X	X	X	X	X	X	X
Gateway	X	X		X	X	X	X
Logger (Freeware)	X	X			X	X	X

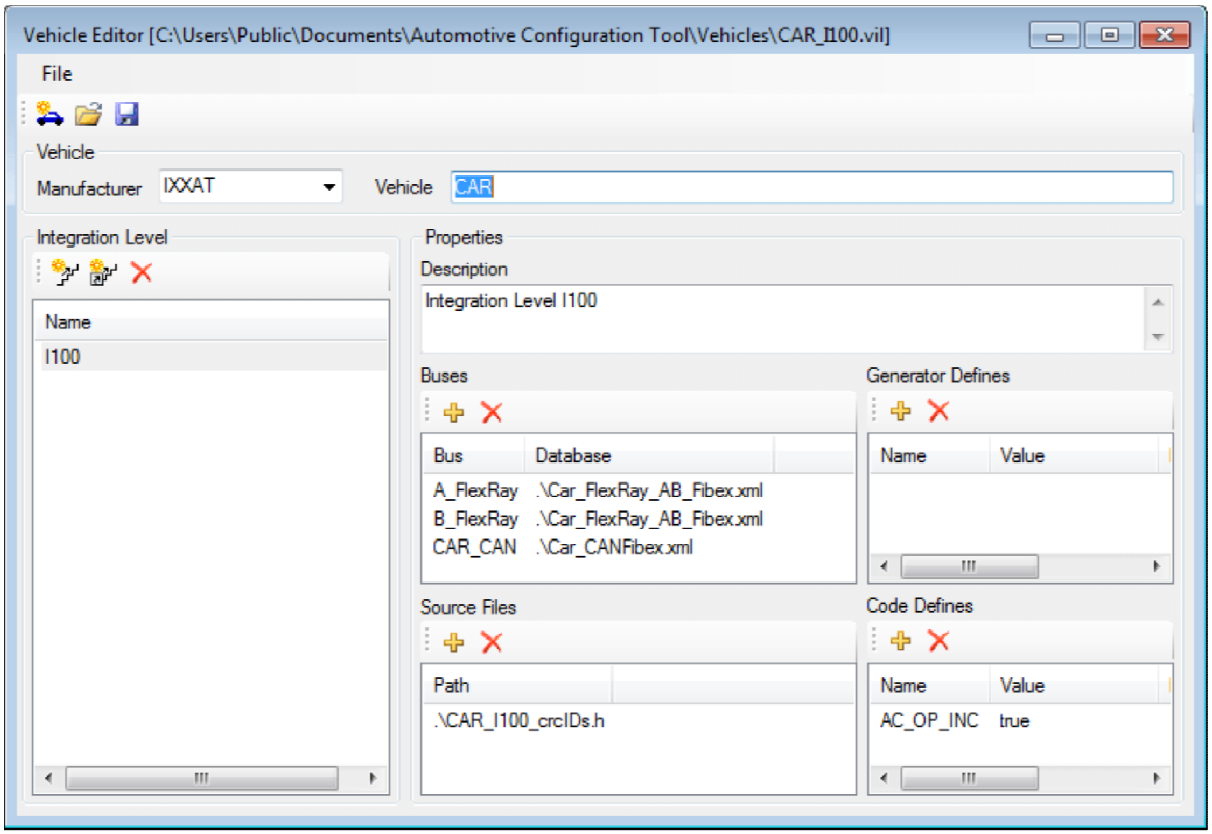
IxAdmin



Administration tool for the embedded platform which is connected to the device via USB, Ethernet or Wi-Fi.

- Up-/download of configurations
- Execution of updates
- Runtime license management
- General settings

Vehicle Editor



Basis for most solutions are bus descriptions in CANdB, FIBEX or AUTOSAR-XML format. The descriptions contain a great deal of information, but often not all required information. Using the Vehicle Editor, everything that belongs to a certain vehicle, an integration level or a test configuration can be easily combined.

Residual bus simulation (RBS)

The RBS view of ACT provides a simulation environment for electronic control units to test them independently of other network devices.

- Generation of the necessary communication traffic
- Automatic calculation of signal-based CRCs and alive counters
- With configuration wizard – no programming effort
- Easy graphically configuration of the simulation
- Autonomously execution of the generated function modules on the embedded platform

XCPonEthernet

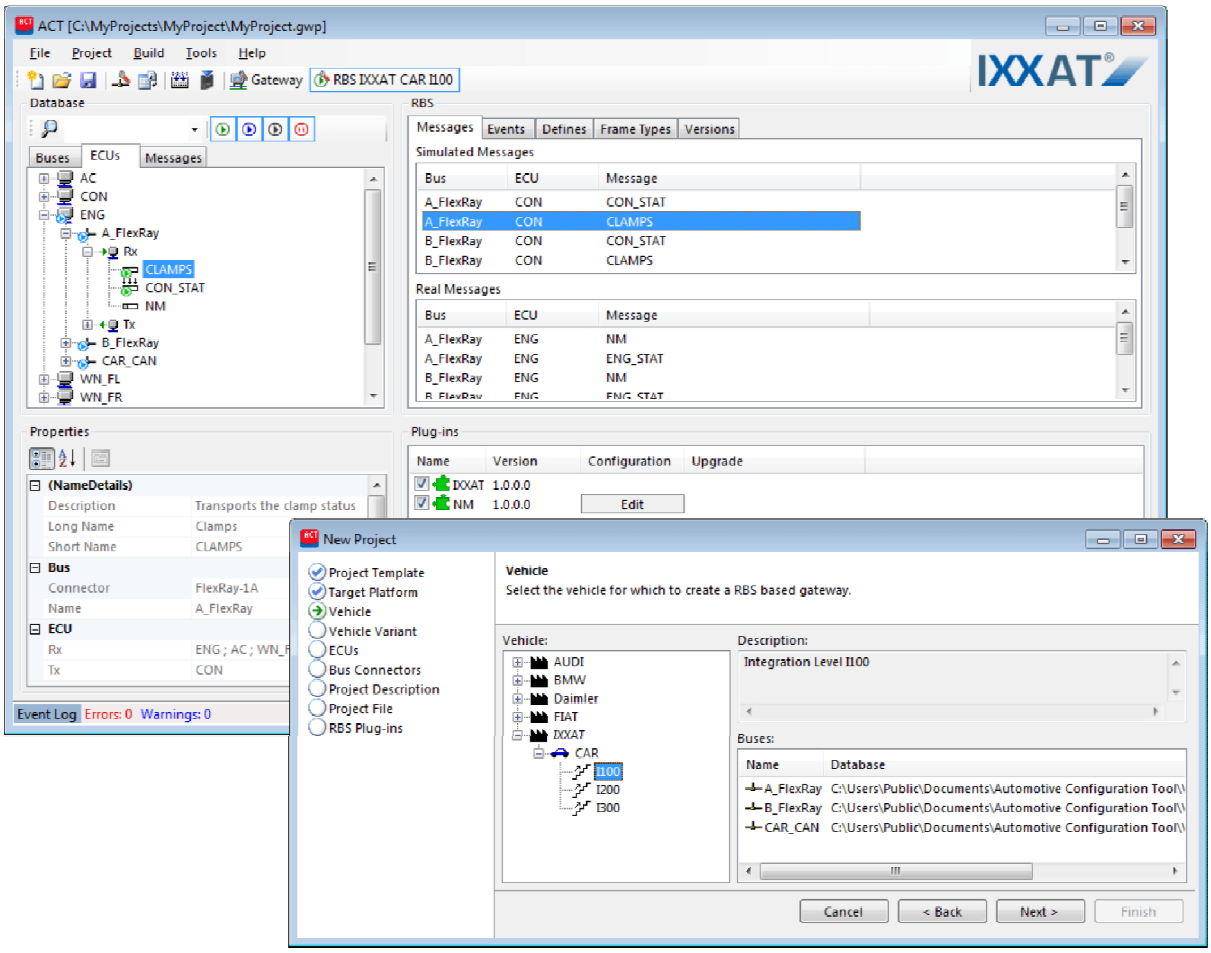
- Control of the residual bus simulation and evaluation of communication data via standardized protocol
- Signals of CANdb and/or FIBEX file merged in an A2L file for import in suitable software solutions
- Presentation of all signals on the bus and influence on all signals sent by the RBS

HIL signal manipulation

Based on the FlexRay/CAN RBS and the XCPonEthernet extension, the signals sent by the RBS can be defined and manipulated. This includes, for example:

- On/off switching of signals for a defined time or number of cycles
- Transmission of defined substitute values with switched-off signals
- Defined corrupting of CRCs and alive counters

The control of the signal manipulation can take place via user code, the gateway or XCPonEthernet.



Gateway

Like RBS, the gateway is a view of the ACT tool. The gateway is a versatile solution, which can be used alone or in conjunction with a RBS to combine different data streams with each other. It does not matter whether physical or virtual bus systems are involved. The gateway view of the ACT tool is divided into two areas: source and target. Mapping of messages or individual signals from the source to the target bus always takes place via drag & drop. The created configuration can be loaded on an IXXAT embedded platform and executed stand-alone.

FlexRay / CAN / CAN FD

A bus description file can be provided for physical FlexRay, CAN and CAN FD bus systems. With the signal-based gateway, it is thereby possible to combine signals from different source messages into one target message.

- Free selection of send triggers and possible default values
- Optional automatic signal transformation – if the signal description of the source and target signal deviate from each other
- Cycle time adaptation of the sent messages to relieve the recipient connected to the target bus.

Analog / Digital IO

After configuration of data direction, range of values, conversion rules and unit, the IOs can be easily mapped via drag & drop. This allows to map the trigger inputs/outputs of the logger or to fill vehicle signals based on the analog inputs.

- Different IOs supported depending on the used embedded platform
- Easily added to the gateway as a virtual bus

Generic Ethernet

In addition to the CAN interfaces installed in the device, the embedded platforms have up to 16 „virtual CAN on Ethernet" buses.

- IXXAT protocol used for reception and transmission of messages from/to 16 different IP addresses.
- Generation of CANdB files for each virtual CAN bus via ACT, enabling remote stations to interpret the data stream
- Virtual CAN channel can be evaluated by the control PC, analyzed with the IXXAT canAnalyser or transformed to CAN again via an IXXAT CAN@net

EtherCAT

- EtherCAT extension for FRC-EP190 allowing to combine the automotive world with the industrial world in the test bench
- Easy signal selection for analysis and stimulation via EtherCAT by using ACT
- EtherCAT configuration can be read directly from the device

FDX

The Fast Data Exchange protocol is an Ethernet-based communication interface and represents a favorable alternative to XCPonEthernet for accessing physical signals.

- No elaborate communication stack required
- Quick implementation on any target platform
- Interpretation of the data stream via XML description file generated with ACT

MATLAB/SIMULINK

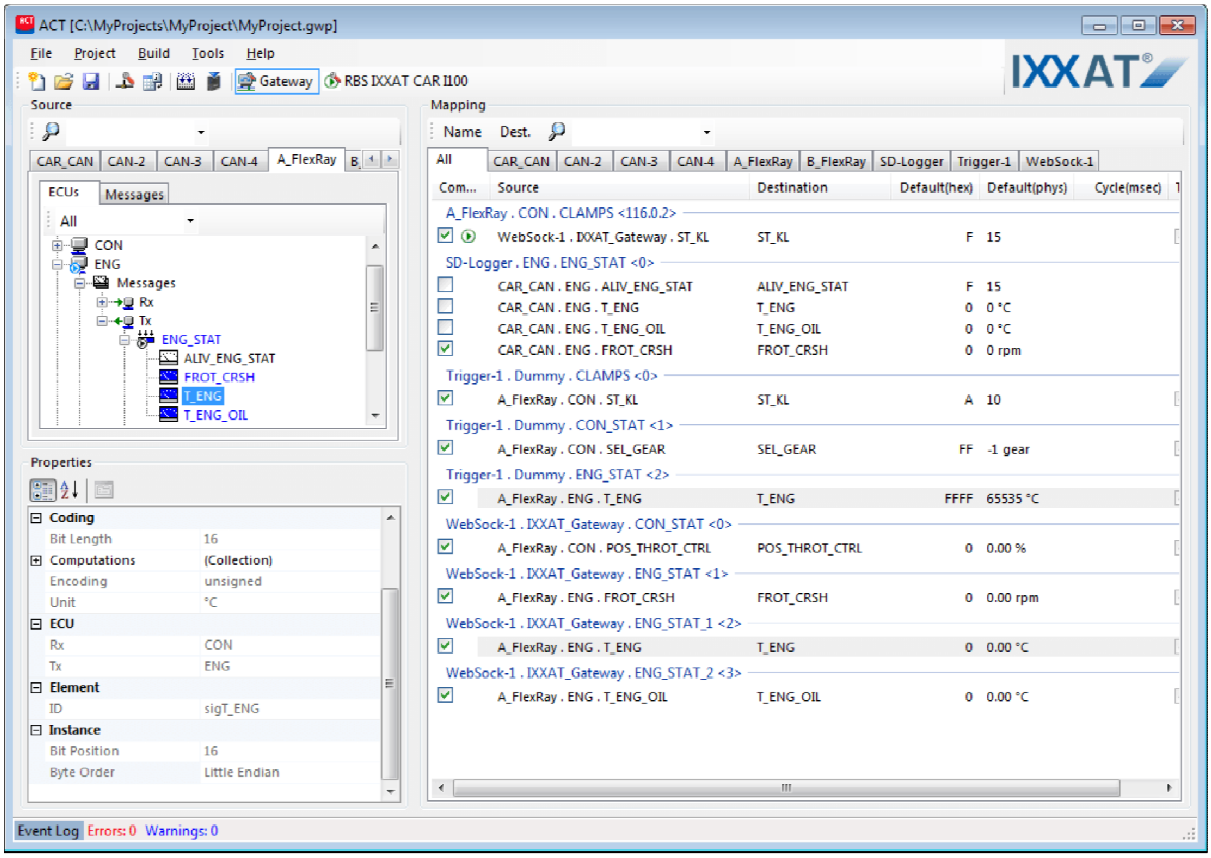
- Integration of your own MATLAB/Simulink models
- Send/receive data via the gateway
- Required: Matlab/Simulink license for Embedded Systems

User code

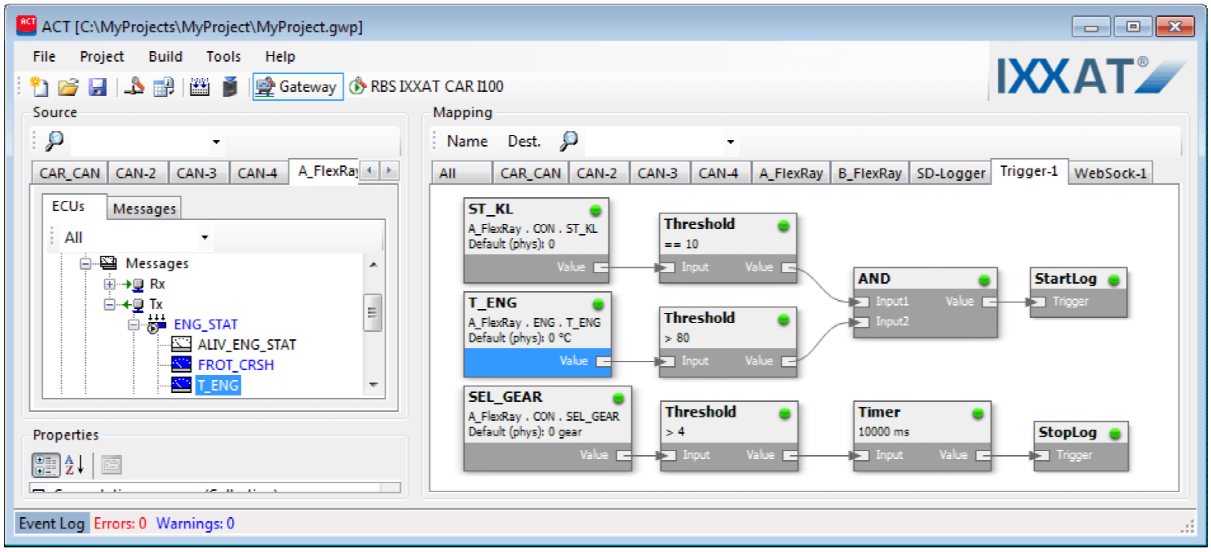
- Easy implementation of own functions, e.g. for control of digital outputs or implementation of complex trigger modules for the logger
- User code bus added as a virtual bus to the the gateway configuration
- IO signals for own code mapped via drag & drop from and to all other bus systems
- User code application written in standard C and may represent also specific algorithms
- Eclipse-based SDK incl. remote debugger for developing and testing the application

Functional models

For some users, the development of C code is too complex or there are already finished models from other projects. The integration of these models is possible via an API based on the user code bus. Similar to the user code, a Matlab/Simulink model can then access the mapped signals/messages.

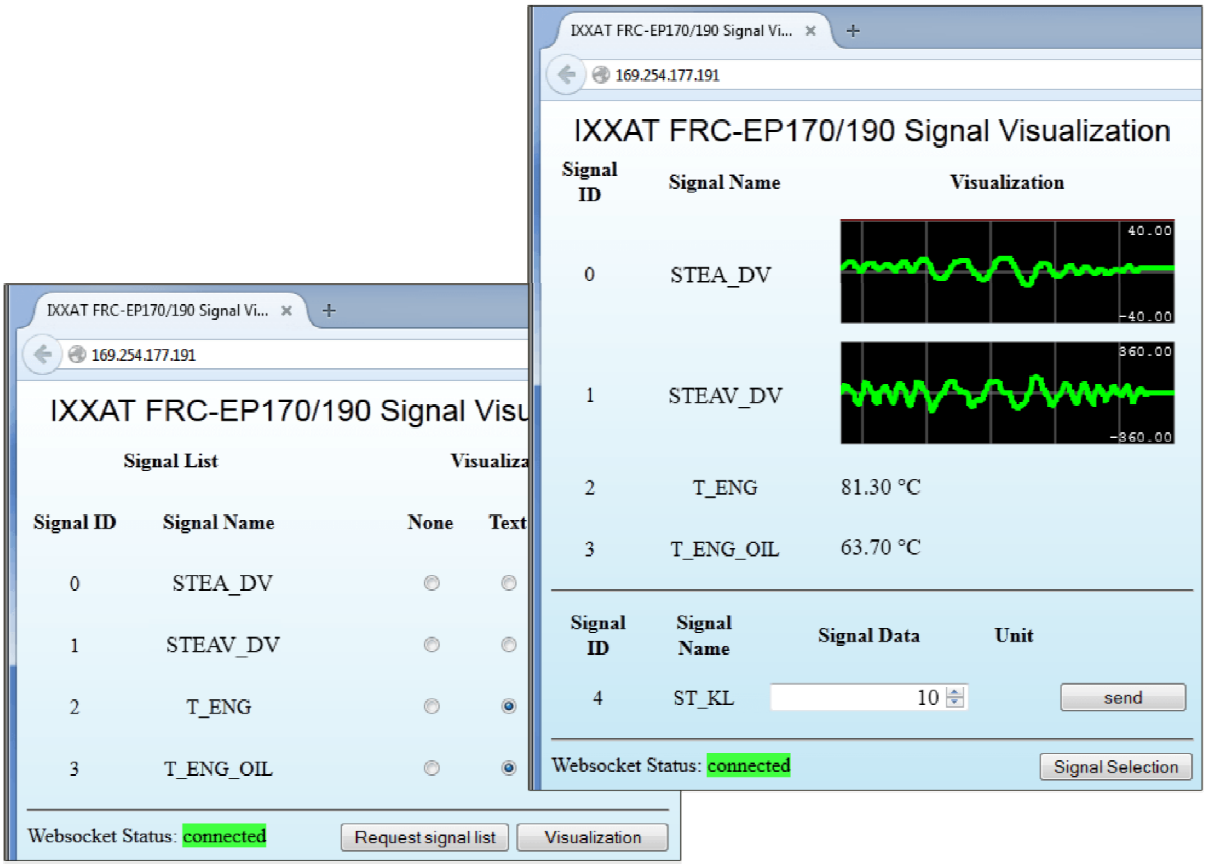


Signal / data logger



- Easily added to gateway configuration as a virtual bus
- Signals/messages to be recorded are mapped on the logger bus via drag & drop
- Definition of trigger inputs on signal basis and graphically configuration
- Recording for all connected bus systems on a common time basis
- Different formats for recording on SDHC card supported
- Logging individually or in parallel to a residual bus simulation
- Recordings can be played back in correct chronological order

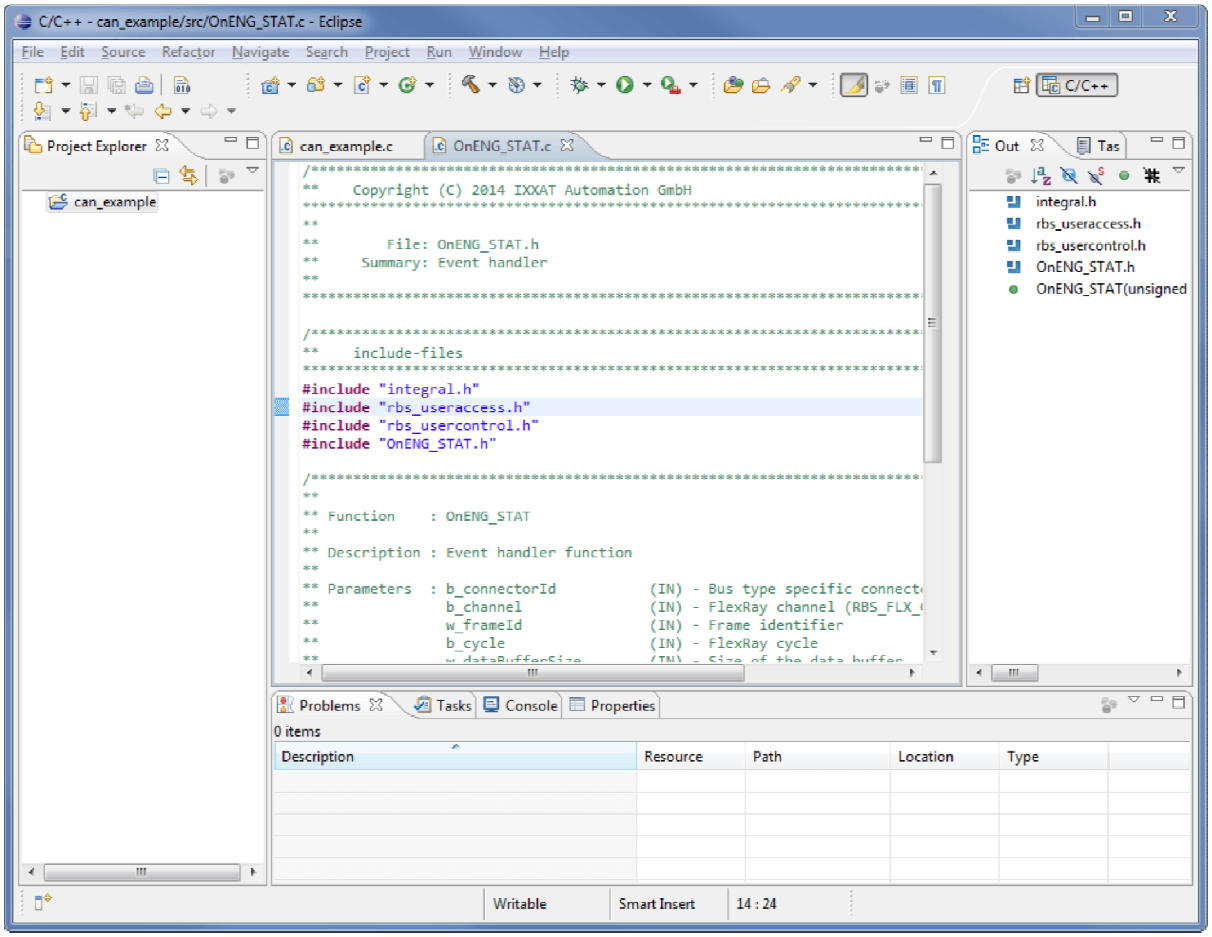
Signal visualization



- Easily added to the gateway configuration as a virtual bus
- Simple display and stimulation for all mapped signals using integrated web server
- Any device (PC, smartphone, tablet) can be used as display device
- Connection of the visualization device via USB, Ethernet or Wi-Fi
- Requires only HTML5-capable web browser
- Generic HTML page provided for easy adaptation by the user

Development tool

An Eclipse-based development environment is available for the development of own applications. With this development environment, user code applications for the extension of the gateway solution or completely separate applications can be created. This is supported by the integration into the ACT project, the convenient editor, cross-compiler as well as a high-level language debugger. The applications developed can be executed stand-alone or on the IXXAT embedded platforms.


C/C++ - can_example/src/OnENG_STAT.c - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Project Explorer
can_example
can_example.c
OnENG_STAT.c
Out
Tas
integral.h
rbs_useraccess.h
rbs_usercontrol.h
OnENG_STAT.h
OnENG_STAT(unsigned
Copyright (C) 2014 IXXAT Automation GmbH
File: OnENG_STAT.h
Summary: Event handler
include-files
#include "integral.h"
#include "rbs_useraccess.h"
#include "rbs_usercontrol.h"
#include "OnENG_STAT.h"
Function : OnENG_STAT
Description : Event handler function
Parameters : b_connectorId (IN) - Bus type specific connect
b_channel (IN) - FlexRay channel (RBS_FLX_
w_frameId (IN) - Frame identifier
b_cycle (IN) - FlexRay cycle
Problems
Tasks
Console
Properties
0 items
Description
Resource
Path
Location
Type
Writable
Smart Insert
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