DRIVING EMBEDDED EXCELLENCE

ETAS INTECRIO-RLINK V5.0.2

Release Notes

Copyright

Contents

1 Introduction

ETAS INTECRIO-RLINK Prototyping Blockset is an add-on product for Matlab/Simulink®[1] .

INTECRIO-RLINK allows users to create and configure executable prototypes for the execution on ETAS prototyping hardware and Windows PCs directly in Simulink®. This allows for efficient, rapid, and reliable development of control functions with Simulink®.

This document describes the properties, prerequisites, conventions, and known issues for INTECRIO-RLINK. See the overview slides, the installation guide, and the online help for further information.

The document is valid for INTECRIO-RLINK V5.0.2.

Note

The support of ES1000 and RTPRO-PC has been discontinued with INTECRIO-RLINK V5.0.0. Corresponding systems cannot be built anymore.

INTECRIO-RLINK V5.0.2 **completely removes** hardware systems containing ES1000 or RTPRO-PC configurations from workspaces automatically, when they are opened in INTECRIO-RLINK.

If you want to continue using old configurations on ES800 or ES900 hardware, it is highly recommended to export them from INTECRIO-RLINK V5.0.0 to the file system so that they can later be imported and reused on ES800 or ES900.

1.1 Definitions and Abbreviations

Term/Abbreviation	Definition
PR	Problem Report
RP	Rapid Prototyping
VP	Virtual Prototyping
EE	Experiment Environment
Target	The hardware on which a program or an experiment runs
KIR	**K**nown **I**ssue **R**eport – For severe Problem Reports which occur after a release, ETAS has introduced the Known Issue Report to inform affected customer immediately. The current Known Issues of former versions can be found on the ETAS website: http://www.etas.com/kir

1.2 Conventions

The following typographical conventions are used in this document:

Choose **File →Open**. Menu commands are shown in boldface.

[1] MATLAB and Simulink are registered trademarks of The MathWorks, Inc.

For MATLAB and Simulink product information, please contact:
The MathWorks, Inc.
3 Apple Hill Drive
Natick, MA, 01760-2098 USA
info@mathworks.com
https://www.mathworks.com

Click **OK**.	Buttons are shown in boldface.
Press <ENTER>.	Keyboard commands are shown in angled brackets.
The "Open File" dialog box is displayed.	Names of program windows, dialog boxes, fields, etc. are shown in quotation marks.
`Select the file setup.exe`	Text in drop-down lists on the screen, program code, as well as path- and file names are shown in the Courier font.
A *distribution* is always a one-dimensional table of sample points.	General emphasis and new terms are set in italics.

1.3 User Documentation

The ETAS INTECRIO-RLINK V5.0.2 Getting Started manual in PDF format can be found on the INTECRIO-RLINK DVD and is also installed with the product.

After the installation, detailed instructions for use of the products can be found in their online help.

2 Product Definition

2.1 Functions at a glance

With ETAS INTECRIO-RLINK Prototyping Blockset, Simulink® models can be easily tested onboard the vehicle. With the aid of the powerful, real-time capable ETAS prototyping targets, such as the ES800 and the ES900 series, the behavior of Simulink® models can be thoroughly validated under real-world conditions. INTECRIO-RLINK also supports the Windows®-PC as a non-real-time target.

INTECRIO-RLINK closely interoperates with the measurement and calibration tools INCA and INCA-EIP, as well as with RTA-TRACE.

2.2 General Description

2.2.1 Safety Notice

Please read and observe the safety hints during the startup of the software and included with the documentation on the DVD carefully.

2.2.2 Privacy Notice

Your privacy is important to ETAS so we have created the following Privacy Statement that informs you, which data is processed in INTECRIO/RLINK, which data categories INTECRIO/RLINK uses, and which technical measure you have to take to ensure the users privacy.

Additionally, we provide further instructions where this product stores and where you can delete personal or personal-related data.

Data Processing

Note that personal or personal-related data respectively data categories are processed when using this product.

The purchaser of this product is responsible for the legal conformity of processing the data in accordance with Article 4 No. 7 of the General Data Protection Regulation (GDPR). As the manufacturer, ETAS GmbH is not liable for any mishandling of this data.

Data and Data Categories

Please note that this product creates files containing file names and file paths, e.g. for purposes of error analysis, referencing source libraries, or for communicating with third party programs. The same file names and file paths may contain personal data, if they refer to the current user's personal directory or subdirectories (e.g., C:\Users\UserId\ Documents\...).

Furthermore, using ETAS Rapid Prototyping solutions in test vehicles connected to real sensors, busses or ECUs, the ETAS tools may get access to personal data of the driver. This data can also be stored using data loggers as provided by INCA-EIP or the ETAS Experiment Environment.

When using the ETAS License Manager in combination with user-named licenses, particularly the following personal or personal-related data respectively data categories can be recorded for the purposes of license management:

- Communication data: IP address
- User data: UserID, WindowsUserID

Technical and organizational measures

This product does not itself encrypt the personal or personal-related data respectively data categories that it records. Ensure that the data recorded is secured by means of suitable technical or organizational measures in your IT system.

Personal or personal-related data in log files can be deleted by tools in the operating system.

2.2.3 System Prerequisites

The following minimum system prerequisites have to be met:

Required Hardware	1.5 GHz PC, 2 GB RAM DVD-ROM drive Ethernet Adapter 10/100BaseT Graphic Adapter with 32 MB RAM, 16bit colour, DirectX 7 Screen resolution 1024 x 768
Required Operating System	Windows 8.1 (x64), Windows 10 (x64) Version 1709
Required Free Disk Space	1.8 GB (not including size for application data)

The following system prerequisites are recommended:
Note that extremely demanding applications (e.g. virtual prototyping with extraordinarily large workspaces) may demand high-end workstations).

Recommended Hardware	2.0 GHz MulticorePC, 8 GB RAM DVD-ROM drive 2nd Ethernet Adapter 10/100BaseT Graphic Adapter 256 MB RAM, 32 bit colour, DirectX 7 or higher, and hardware acceleration Screen resolution 1600 x 1200
Recommended Operating System	Windows 10 (x64) Version 20H2
Recommended Free Disk Space	>2,0 GB

2.2.4 Software and Firmware Prerequisites

The following versions of ETAS software products are recommended for usage with INTECRIO-RLINK V5.0.2:

- INCA V7.4.0 and INCA-EIP V7.4.0
- MDA 8.5.7, downloadable on the ETAS website here
- HSP V13.0.0
- INTECRIO-VPSystem V5.0.2 (as provided on the installation medium)
- Daisy Chain Configuration Tool V7.2.8.27 for ES4xx, ES63x, and ES930, downloadable on the ETAS website here
- ETAS License Manager (LiMa) V1.8.6 (as provided along with INTECRIO-RLINK V5.0.2)

Note

The INTECRIO VP-System (formerly known as ETAS Virtual OS Execution Platform) is now automatically installed with INTECRIO-RLINK. Standalone installation is also possible.

INTECRIO Integrated Prototyping Environment

The model and workspace transfer to the INTECRIO Integrated Prototyping Environment from INTECRIO-RLINK V5.0.2 requires at least INTECRIO Integration Platform V5.0.0

Simulink

In order to use INTECRIO-RLINK with Matlab®/Simulink®, Matlab®, Simulink®, and Real-Time Workshop or Simulink® Coder must be installed. In addition, INTECRIO-RLINK supports Simulink® Embedded Coder.

Note

INTECRIO-RLINK supports the 64bit versions of the above-mentioned MathWorks products starting with R2016a.

Earlier Simulink releases are no longer supported.

In order to use INTECRIO-RLINK with Matlab®/Simulink®, Matlab®, Simulink®, and Real-Time Workshop or Simulink Coder must be installed in at least one of the following versions:

- Simulink® R2016a and R2016b
- Simulink® R2017a and R2017b
- Simulink® R2018a and R2018b
- Simulink® R2019a and R2019b
- Simulink® R2020a and R2020b
- Simulink® R2021a and R2021b

2.2.5 Release Test Configuration

The release tests have been performed on Windows 10 (x64) Version 20H2. INTECRIO-RLINK V5.0.2 has been tested together with HSP V13.0.0, INCA V7.4.0, INCA-EIP V7.4.0, as well as all supported Simulink versions.

2.2.6 Restrictions

For configurations other than recommended in section 2.2.4, compatibility restrictions may apply. Please read this document carefully for details.

2.3 Delivery

See the INTECRIO-RLINK installation guide for details on the delivery.

2.3.1 Used 3rd Party Software

INTECRIO-RLINK makes use of 3rd party software products released under their respective licenses. For details, please see the documents located in the '.\Documentation\Manuals\Open Source Information' folder of the installation delivery. It also contains the sources themselves in the '.\Documentation\OSS_Sources' directory.

2.4 Installation

To run INTECRIO-RLINK you will need a software license certificate. See section 2.5. ETAS also offers free and fully functional time-limited evaluation licenses. The installation is possible independent from the license key as described in the InstallationGuide.pdf.

To install INTECRIO-RLINK V5.0.2:

- Insert the installation DVD into the drive of your computer or locate the downloaded installation in the file system.
- Double-click on loader.exe in the main installation directory.
- The installation dialog appears. Please follow the instructions of the installation dialog.

To uninstall INTECRIO-RLINK V5.0.2:

- Open the Windows Control Panel
- Locate the Software entry and open it
- Search for the INTECRIO entry in the list of installed software products and select it
- Select the change/Delete entry. An uninstall dialog appears. Please follow its instructions.

2.5 Licensing

Besides the perpetual product licenses that you obtain when you purchase INTECRIO-RLINK, ETAS offers free and fully functional time-limited evaluation licenses.

In order to obtain your software license certificates, please start the 'Obtain License Info' command in the Tools menu of the ETAS license manager (Start → ETAS → License Management → ETAS License Manager).

It will provide you with a list of network adapters installed in your system. Please choose an adapter from the list. This adapter will later be referenced by your license certificates to ensure that they are valid for the respective machine. We recommend you to choose an adapter that is always present in your system (e.g. the main company network adapter). Please make sure, that this adapter is also present, if you remove e.g. your laptop from the docking station.

After selecting the network adapter, the tool will provide you with information on the used MAC address and the user name.

During the ordering process, ETAS provides you with a license activation number (the so-called entitlement ID). With this information, the MAC address and the user name, please do one of the following:

- Visit http://www.etas.com/support/licensing and generate your license certificate based on the information mentioned above.

- Return the licenseinfo.txt generated by the 'Get license info' application to licenses.de@etas.com or one of the contact addresses provided in section 6. The licenseinfo.txt file can also be generated after the INTECRIO installation.

The information that you submit permits ETAS to generate the software license certificate, i.e. the actual license key. It will not be used for any other purpose.

Please copy the key into a text file with the extension *.lic (e.g. RLINK.lic) and store it on your hard disk. When starting INTECRIO, INTECRIO will ask you for the location of this file. If you have further questions regarding the installation procedure, please regard the installation manual or contact ETAS for assistance.

Note

Without a valid license key, INTECRIO-RLINK can be started for a limited number of times. Please observe the recent change in the behavior of the "grace mode".

Further information to ETAS License Management can be found here:

- ETAS Download Center (filter: "ETAS License Manager): https://www.etas.com/de/portfolio/download_center.php
- ETAS License Management FAQ Document: https://www.etas.com/de/downloadcenter/37717.php
- ETAS License Manager Tool (Help / Help F1)

If you need further support:

- Contact your responsible ETAS Sales team
- Contact ETAS SE Support: Phone: +49 711 3423-2314, ec.support.de@etas.com

3 Changes

This chapter describes changes of ETAS INTECRIO-RLINK with respect to earlier versions. Some of them are not mentioned in the documentation.

3.1 New Functionality in INTECRIO-RLINK V5.0.2

INTECRIO-RLINK V5.0.2 provides the following new features:

- Import of CAN-Bus Configurations from AUTOSAR ARXML files
- Import of FlexRay Configurations from AUTOSAR ARXML files
- Support of Simulink R2021a and R2021b
- Automatic generation of CDFX files with initial values for calibrations.
  This file allows a first calibration in INCA/INCA-EIP without a connected Simulation Controller (ES910/ES830). See INCA-EIP V7.4.0 documentation.
- Support of TAB_INTP conversion method for ECU signals
- Optional Checking of A2L files if they are prepared with ETAS EHOOKS for INTECRIO usage

Not all features of AUTOSAR ARXML are supported by the CAN/Flexray ARXML Importer. Following table shows an overview of supported and not supported features:

ARXML Feature	Supported in INTECRIO V5.0.2
INTECRIO Devices Supporting AUTOSAR .arxml Import Files	
CAN-I/O (classic and FD)	yes
FlexRay I/O	yes
.arxml File Versions	4.2 and 4.3
Support BIT-COUNTING-POLICY sawtooth	yes
Support IS-HIGH-LOW-BIT-ORDER true (decreasing)	yes
E2E protection	
END-TO-END-PROTECTION-SET PROFILE_02 is Supported for FlexRay (CRC and Message Counter)	yes
All other PROFILEs for FlexRay not and for CAN nothing at all	no
CAN Bus configuration	
Classic / FD mode flag	yes
Baud rate values (arbitration / payload phase)	yes
Detailed connector dependent parameters via CAN-CONTROLLER-ATTRIBUTES and CAN-CONTROLLER-FD-ATTRIBUTES	no
Detailed connector dependent parameters via CAN-CONTROLLER-CONFIGURATION-REQUIREMENTS and CAN-CONTROLLER-FD-REQUIREMENTS	no

ARXML Feature	Supported in INTECRIO V5.0.2
CAN Frame	
AUTOSAR Frame is represented in INTECRIO ETC signal group, CAN-ID (std/extended) and classic/FD format (via CAN-FRAME-RX-BEHAVIOR or CAN-FRAME-TX-BEHAVIOR) is imported to ETC signal group	yes
CAN-FRAME-TRIGGERING/CAN-FD-FRAME-SUPPORT is NOT supported	no
CAN PDU	
All AUTOSAR CAN PDUs from an AUTOSAR CAN frame are merged into 1 INTECRIO ETC signal group / Frame	yes
CAN PDU Timing and Triggering Specification details (like timing, on value change)	no
CAN PDU UPDATE-INDICATION-BIT-POSITION	no
CAN Signal	
CAN Checksum and Alive Counter	no (delivered as normal signal only)
FlexRay	
FlexRay Channel / Slot / Cycle / Frame / PDU / Signal Structure	yes
FLEXRAY-FRAME-TRIGGERING with CYCLE-REPETITION specification	yes
FLEXRAY-FRAME-TRIGGERING with CYCLE-COUNTER specification	no
FlexRay PDU Triggering Specification details (like on value change)	no
FlexRay PDU UPDATE-INDICATION-BIT-POSITION	yes
General PDU	
PDU PACKING-BYTE-ORDER Intel and Motorola	yes
PDU of unimportant type is disabled	yes
PDU Type CONTAINER-I-PDU	no (only raw bytes)
PDU Type SECURED-I-PDU	no (only the payload signals are imported, authenticator signals as 1 byte raw signals)
PDU Type Multiplexed	no
PDU Type (others)	yes (payload signals are imported)
General Signal	
Signal PACKING-BYTE-ORDER Intel and Motorola	yes
Signal PACKING-BYTE-ORDER OPAQUE	yes (as Intel)
Signals in SignalGroups are imported as they would be directly in the PDU. Also the associated STRUCTURE (i.e. record or struct) data type is handled.	yes

ARXML Feature	Supported in INTECRIO V5.0.2
Signal InitValue imported from COMUP-METHOD COMPU-DEFAULT-VALUE	yes
Signal InitValue imported from I-SIGNAL INIT-VALUE	no
Signal Timing & Triggering details	no
Signal UPDATE-INDICATION-BIT-POSITION	no
BASE-TYPE-ENCODING (2C, IEEE754, ISO-8859-1, ISO-8859-2, NONE, BOOLEAN, WINDOWS-1252, UTF-8, UTF-16, UCS-2, VOID) from I-SIGNAL or SYSTEM-SIGNAL	yes
BASE-TYPE-ENCODING (others: 1C, BCD-P, BCD-UP, DSP-FRACTIONAL, SM)	no
Signals with larger data type than supported by INTECRIO (*int64) are split in a sequence of 1 byte signal[i] with uint8 and ident formula	yes
Signals of Array type are imported as sequence of single element[i]. This includes also strings, where the elements become uint8 signals with ident formula.	yes (strings become arrays with uint8 signals)
STRUCTURE (i.e. Record) Signal Types	yes
COMPU-METHOD from I-SIGNAL and SYSTEM-SIGNAL is imported	yes
COMPU-METHOD fully supported: IDENTICAL, LINEAR, TEXTTABLE, BITFIELD-TEXTTABLE	yes
COMPU-METHOD limited supported (only 1 SCALE with 1 linear or identity formula is defined): SCALE-LINEAR, SCALE-LINEAR-AND-TEXTTABLE, RAT-FUNC, SCALE-RAT-FUNC, SCALE-RATIONAL-AND-TEXTTABLE	yes
COMPU-METHOD not supported: TAB-NOINTP	no (as _ETASraw signal)
COMPU-METHOD using COMPU-INTERNAL-TO-PHYS	yes
COMPU-METHOD using COMPU-PHYS-TO-INTERNAL	no
Signal name suffixed with _ETASraw if semantics of value is modified by INTECRIO and the user must adapt his model code	yes

3.2 New Functionality in INTECRIO-RLINK V5.0.1

INTECRIO-RLINK V5.0.1 is a minor refresh providing improvements in usability and corrections of product defects. Observe the following note on the usage of ES1000 and RTPRO-PC.

Note

The support of ES1000 and RTPRO-PC has been discontinued with INTECRIO-RLINK V5.0.0. Corresponding systems cannot be built anymore.

INTECRIO-RLINK V5.0.1 will **completely remove** hardware systems containing ES1000 or RTPRO-PC configurations from workspaces automatically, when they are opened in INTECRIO-RLINK. At the same time, the library blocks still remain in the Simulink model, so that the configurator can be accessed from the existing model.

If you want to continue using old configurations on ES800 or ES900 hardware, it is highly recommended to export them from INTECRIO-RLINK V5.0.0 to the file system so that they can later be imported and reused on ES800 or ES900.

3.3 New Functionality in INTECRIO-RLINK V5.0.0

INTECRIO-RLINK V5.0.0 provides the following new features:

- Table view of ES800-Stack
- Support of Simulink R2020b

Notes

With this version of INTECRIO the licensing technology for machine-named licenses was changed to FlexNet Embedded (FNE). Therefore the license activation procedure in ETAS Licence Manager has changed as well. For more information see section 2.5 Licensing.

ES1000 and RTPRO-PC hardware systems can no longer be configured with this version of INTECRIO-RLINK. Future INTECRIO-RLINK versions will *completely remove* hardware systems containing ES1000 or RTPRO-PC configurations from workspaces automatically, when these workspaces are opened in INTECRIO. If you want to continue using corresponding configurations on ES800 or ES900 hardware, it is highly recommended to export them from INTECRIO V5.0.0 to the file system so that they can later be imported and reused on ES800 or ES900.

3.4 New Functionality in INTECRIO-RLINK V1.5.3

INTECRIO-RLINK V1.5.3 provides the following new features:

- Simulink R2019a, R2019b and R2020a support
- Configuration of ES800 stacks with up to 5 devices.

Please observe section 3.14.2 regarding changed hardware device naming.

Notes

The support of Windows 7 is discontinued with this version of INTECRIO-RLINK.

ES1000 and RTPRO-PC hardware systems can no longer be configured with this version of INTECRIO-RLINK.

Simulink versions older than R2014a are no longer supported by this version.

Future INTECRIO versions will *completely remove* hardware systems containing ES1000 or RTPRO-PC configurations from workspaces automatically, when these workspaces are opened in INTECRIO. If you want to continue using corresponding configurations on ES800 or ES900 hardware, it is highly recommended to export them from INTECRIO V4.7.3 to the file system so that they can later be imported and reused on ES800 or ES900.

3.5 New Functionality in INTECRIO-RLINK V1.5.2

INTECRIO-RLINK V1.5.2 provides the following new features:

- Support of XCP V1.5 and XCPplus
- Support of XCP on CAN-FD
- Support of XCP on Fast Ethernet on ES830
- Support of ES830 LIN on ES8xx
- Support of Default Rasters for usage with INCA-EIP

Note

The support of RTPRO-PC is discontinued with this version of INTECRIO.

3.6 New Functionality in ETAS INTECRIO-RLINK V1.5.1

INTECRIO-RLINK V1.5.1 provides the following new features:

- Support of 'model referencing' in Simulink® Models
- Support of Simulink® R2018a/b
- Support of ES882 Hardware device
- Support of up to 3 X/FETK Bypasses

3.7 New Functionality in ETAS INTECRIO-RLINK V1.5.0

INTECRIO-RLINK V1.5.0 provides the following new features:

- FlexRay support on ES830/ES89x RP Hardware
- Daisy Chain support on ES830/ES89x RP Hardware
- Introduction of new System Device for ES830/ES89x RP Hardware

3.8 New Functionality in ETAS INTECRIO-RLINK V1.4.3

INTECRIO-RLINK V1.4 SP2 provides the following new features:

- Support of ES830[2]/ES89x RP Hardware

[2] The ES830 Release is scheduled for Q4/2018

- Support of ES922 extension for ES910
- Support of CAN FD
- Support of Matlab Simulink 2017a + 2017b

3.9 New Functionality in ETAS INTECRIO-RLINK V1.4.2

INTECRIO-RLINK V1.4 SP2 provides the following new features:

- Support of Motorola Format for FlexRay Bus (FIBEX Files)
- Adapted OS auto mapping strategies: HW Init order can be defined in *.xml file
- Support of Matlab Simulink 2016a + 2016b
- Support of Windows 10

3.10 New Functionality in ETAS INTECRIO-RLINK V1.4.1

Beginning with INTECRIO-RLINK 1.4, INTECRIO-RLINK will release in a Service Pack Mode. Service packs are planned twice a year.

INTECRIO-RLINK V1.4 SP1 provides the following new features:

- Support External bypass with FETK/ES89x hardware
  - single FETK systems
  - IP handling improvements
  - Migration support for dmETK
- Support of Simulink Model-Level Flat Busses Typed Ports (Scalars Only)

3.11 New Functionality in ETAS INTECRIO-RLINK V1.4.0

INTECRIO-RLINK V1.4.0 provides the following new features:

- SBB 2.1 for XETK (DISTAB17)
- Error handling of hooked service points similar to classical service points
- Introduction of RTA-OS for Virtual Prototyping
- Seed&Key on XCPonCAN
- Update A2l parser to support ASAM 1.6.1 and 1.7

3.12 New Functionality in ETAS INTECRIO-RLINK V1.3.1

INTECRIO-RLINK V1.3.1 provides some minor bugfixes and some improvement for the Block Simulation Mode.

3.13 New Functionality in ETAS INTECRIO-RLINK and INCA-VLINK V1.3.0

INTECRIO-RLINK V1.3.0 provides the following new features:

- Improved Bypass Performance for MDG1 with DISTAB17 support based on Service Based Bypass V2 technology.

Both INTECRIO-RLINK and INCA-VLINK V1.3.0 provide the following new features

- Block Simulation Mode for high speed simulation and optimization without GUI interaction.

3.14 Compatibility with Earlier Releases

INTECRIO-RLINK V5.0.2 is functionally upwards compatible with previous versions. For changes, please see the User's Guide and this document. Earlier INTECRIO-RLINK versions

can neither open models nor experiments that have been created with INTECRIO-RLINK V5.0.2.

3.14.1 Interface Changes for CAN & FlexRay User Hooks and FlexRay Algortihms in INTECRIO-RLINK V5.0.0

The User Hook functions are extended to provide more information to the receive/transmit data. Also new initialization and exit functions are added to enable preparation and cleanup tasks for User Hooks.

CAN User Hook code:

Old (removed) functions:

```
void userCanRxHookV2(unsigned long canId, unsigned long* lengthInBytes,
                     unsigned char* data_ptr);
void userCanTxHookV2(unsigned long canId, unsigned long* lengthInBytes,
                     unsigned char* data_ptr);
```

New hook functions:

```
extern void userCanRxHookV3(unsigned long canId, unsigned long* lengthInBytes,
                            unsigned char* dataPtr, T_timestamp timestamp,
                            T_CanHook_addInfo *addInfo);
extern void userCanTxHookV3(unsigned long canId, unsigned long* lengthInBytes,
                            unsigned char* dataPtr, T_CanHook_addInfo *addInfo);
```

The `T_CanHook_addInfo` struct provides details about the individual CAN port, where the current CAN frame was received or will be sent. Details see in the header file userFuncProcessCanPayload.h.

Additional new functions:

```
extern void userCanHookGetVersionAndCid(uint32 *version, uint32 *cid);
```

The user hook code shall declare the hook interface version and compatibility ID which for it is written. This function is called for each used CAN port in the driver initialization phase and the driver checks if it can operate with the currently used user hook code file.
Here the file userFuncProcessCanPayload.c provides already a suitable default implementation.

```
extern void userCanInitHook(T_CanHook_addInfo *addInfo);
extern void userCanExitHook(T_CanHook_addInfo *addInfo);
```

These functions are called once for each used CAN port (details are given in the struct T_CanHook_addInfo) during driver initialization respectively finishing and allow the user hook code to prepare / cleanup user hook code internal auxiliary data.

FlexRay User Hook code:

Old:

```
void userFlexRayPDURxHook(T_FlexRay_PDU_HookData *ptrHookData);
void userFlexRayPDUTxHook(T_FlexRay_PDU_HookData *ptrHookData);
```

New:

```
void userFlexRayPDURxHook(T_FlexRay_PDU_HookData *ptrHookData,
                          T_timestamp timestamp, T_FlxHook_Rx_addInfo *addInfo);
```

```
void userFlexRayPDUTxHook(T_FlexRay_PDU_HookData *ptrHookData,
                          T_FlxHook_Tx_addInfo *addInfo);
```

The T_FlxHook_Rx_addInfo and T_FlxHook_Tx_addInfo struct provides details about the individual FlexRay port, where the current FlexRay frame was received or will be sent. Details see in the header file flexrayUser.h.

Additional new functions:

```
extern void userFlexRayHookGetVersionAndCid(uint32 *version, uint32 *cid);
```

The user hook code shall declare the hook interface version and compatibility ID which for it is written. This function is called for each used FlexRay port in the driver initialization phase and the driver checks if it can operate with the currently used user hook code file.
Here the file userFuncProcessFlexRayPayload.c provides already a suitable default implementation.

```
void userFlexRayInitHook( T_FlxHook_Tx_addInfo *addInfo );
```

```
void userFlexRayExitHook( T_FlxHook_Tx_addInfo *addInfo );
```

These functions are called once for each used FlexRay port (details are given in the struct T_FlxHook_Tx_addInfo) during driver initialization respectively finishing and allow the user hook code to prepare / cleanup user hook code internal auxiliary data.

FlexRay Checksum Algorithm code:

Old:

```
typedef int (*RxPDUChecksumAlgorithm) (T_PDU_Description *desc,
             int *checksumCorrect, int *aliveCounterCorrect);
```

```
typedef int (*TxPDUChecksumAlgorithm) (T_PDU_Description *desc);
```

New:

```
typedef int (*RxPDUChecksumAlgorithm) ( T_PDU_Description *desc,
                        int *checksumCorrect, int *aliveCounterCorrect,
                        T_timestamp timestamp, T_FlxHook_Rx_addInfo *addInfo);
```

```
typedef int (*TxPDUChecksumAlgorithm) (T_PDU_Description *desc,
                                       T_FlxHook_Tx_addInfo *addInfo);
```

The T_FlxHook_Rx_addInfo and T_FlxHook_Tx_addInfo struct provides details about the individual FlexRay port, where the current FlexRay frame was received or will be sent. Details see in the header file flexrayUser.h.

3.14.2 Changed hardware device default naming scheme in INTECRIO-RLINK V1.5.3

Due to the increased amount of hardware devices supported in one system, the default naming scheme for hardware interfaces has been changed.

If you use scripts to create hardware systems automatically, take care to adapt them in order to match the new default naming scheme, if necessary.

This may affect the "Name" property of the "IIntecrioPort" object, i.e. "IIntecrioPort.Name". In the past, the physical port name was used in this place, e.g. "CAN1", "CAN2". Starting with INTECRIO V4.7.3, the name of the corresponding controller in the hardware configuration is used instead.

Example:

Old: inPortName = "**CAN2**.Example_CAN_IO._signals_out"

New: inPortName = "**Example_CAN_Controller2**.Example_CAN_IO._signals_out"

IIntecrioPort.Name can be used in combination with the following scripting methods and objects:

The methods

* IIntecrioConnectable.InPorts
* IIntecrioConnectable.OutPorts
* IIntecrioConnectable.Ports
* IIntecrioConnectable.GetPortByName (BSTR bsPortName)

either return or use that object type.

In this context, the IIntecrioConnectable object can be a IIntecrioSystemDevice, IIntecrioSignalGroup or IIntecrioSystem.

The methods

IIntecrioPorts.Contains (BSTR bsPortName)

IIntecrioPorts.GetByName (BSTR bsPortName)

can be affected, since they require port names as arguments.

Methods dealing with connections, which have ports as arguments, may be affected as well, if the ports are selected by their names. For

IIntecrioSystem.ConnectPorts (IIntecrioPort *pPort1, IIntecrioPort *pPort2)

IIntecrioFunction.Connections

IIntecrioPort.Connections

this can be the case.

In addition to that, due to a change particular for the FlexRay driver, the corresponding action name for the FlexRay driver, contained in

IIntecrioAction.Name

has changed as well.

The methods

IIntecrioOS.InitTask.Actions.GetByName(BSTR bsName)

IIntecrioOS.ExitTask.Actions.GetByName(BSTR bsName)

IIntecrioOS.InitTask.Actions.Contains(BSTR bsName)

IIntecrioOS.ExitTask.Actions.Contains(BSTR bsName)

which are only relevant in the OS expert mode, use this action name.

3.14.3 Variable names and types for scripting with LIN configurations in INTECRIO-RLINK V1.5.2

When creating or accessing LIN configurations over scripts, observe the following changed names and types of elements:

	Old value	**New value (INTECRIO V4.7.2)**
Name of Status Signal Group	Outputs_ScheduleTableBasetick	Outputs_ScheduleTableSelect
Type of Status Signal Group	Base Tick	Schedule Table Select
Name of Status Signal	ScheduleTableStart_out	NextScheduleTable_out
Type of Status Signal	BaseTick_ScheduleTableNr	ScheduleTableSelect_ScheduleTableNr

3.14.4 Migration from previous INTECRIO-RLINK versions to INTECRIO-RLINK V5.0.2

Workspaces from old INTECRIO-RLINK versions can be opened with INTECRIO-RLINK V5.0.2 directly without any restrictions. Afterwards, they cannot be opened with older versions again.

3.15 Solved Problems

This section describes the problems solved in INTECRIO-RLINK and INCA-VLINK.

3.15.1 Issues Solved in INTECRIO-RLINK V5.0.2

ES1000 and RTPRO-PC library blocks are removed and not visible anymore.

3.15.2 Issues Solved in INTECRIO-RLINK V5.0.1

This section describes the issues solved with INTECRIO V5.0.1.

Solved PR 651641
Failing FIBEX import due to missing runtime redistributables

The MS C++ 2005 redistributables are now included in the INTECRIO delivery.

Solved PR 636335
Unclear Error Message While Migrating ES900 Configurations to ES800

During the migration of ES900 configurations to ES800, messages like the following could occur:
"Value '10' for Parameter 'moduleType' at node 'ES900_CAN_Controller1' cannot be imported."
Now the clear name of a hardware device is shown instead of the numeric moduleType (‘10’, in the example).

Solved PR 620660:
HWX Import in Replace Mode created 2 LIN Controllers with the same name

The name of the second controller will now be made unique automatically.

Solved PR 650657:
Error "Event channel already defined by static config file" when adding a time triggered raster to an FETK-T setup

A problem in the event channel handling was solved, due to which the above error message could occur.

3.15.3 Issues Solved in INTECRIO-RLINK V5.0.0

This section describes the issues solved with INTECRIO V5.0.0.

Solved PR 649559:
Wrong calculated ECU memory address for selected elements of a 2D or 3D matrix for ETK and XCP bypass

Signal Selection Dialog for ETK or XCP bypass: The ECU memory locations of selected elements of 2D or 3D matrices is calculated wrong in most cases. Signal data is not read/written from/to correct ECU memory locations in an active bypass.

Solved PR 647908:
INTECRIO 4.7.3 generated A2L with wrong axis settings

Axes of 2D Look-up tables in Simulink models are swapped in the A2L file generated by INTECRIO. The table representation in INCA and EE shows swapped axes and re-arranged data elements.

Changing data of the Look-up table leads to download of data to incorrect positions in the table (wrong values are changed). Downloading an existing dataset (created with the same model with a previous INTECRIO version) might lead to re-arranged data in the Look-up table on the RP Target.

Solved PR 626060:
1-D Tables are defined as VAL_BLK in A2L files

When the same parameter used as 'table data' and as a constant in parallel, 1-D Tables will be generated as VAL_BLK in A2L files.

Solved PR 324508:
Automatic update of Daisy Chain configuration fails

When updating a Daisy-Chain configuration in the configuration tool and returning to INTECRIO, an error Message "ES4xx Import 0xC0582F01: An error occurred during update of Daisy Chain Configuration" may occur.

Solved PR 637290:
FlexRay raw data interface does not distinguish PDUs with identical names

The raw data interface distinguishes PDUs by their names. For PDUs with identical names, the same function is used, even if they are received on different FlexRay interfaces.

3.15.4 Issues Solved in INTECRIO-RLINK V1.5.2

This section describes issues solved with INTECRIO-RLINK 1.5.2.

Solved PR 615977:
Build operation failed with AsyncOut block

If the model contained an AsyncOut block in ML2018b the build failed.

3.15.5 Issues Solved in INTECRIO-RLINK V1.5.1

This section describes issues solved with INTECRIO-RLINK 1.5.1.

Solved PR 595219:
Build for targets ES800/ES1000 failed, if back animation is enabled:

Due to a different build toolchain compared to the ES910 target the build failed, if external mode (back animation) was enabled.

Solved PR 606494:
Matlab back animation fails for models on ES830 - no TCP connection available

Back animation with Simulink Models running on an ES830 was not possible. The TCP connection to the ES830 couldn't be established from the Simulink model.

This has now been solved by providing a new library in the INTECRIO installation (libmatlabextcomm2009aff_gnu.a).

Solved PR 606984:
Error: "Cannot convert string "," to a number" with Lookup Table objects

A Lookup table makes use of a lookup table objects defined in the Model explorer. This lookup table object couldn't be used during code generation of the IRT/IER target for INTECRIO.

The build now continues, however there remains one open issue, see PR 614781.

Solved PR 606985: RTIO lock on starting ETK/XETK bypass

In case an ETK as well as an XETK are configured in INTECRIO for an ES910, the startup of the ES910 might end in an "RTIO driver locked". This is due to a wrong usage of the 'BoardID' for the XETK device which is now fixed.

Solved PR 608843: Handling of OS Threads on ES830

For huge OS setups on ES830 targets, INTECRIO limits the number of OS threads to the maximal available amount of 144.

If there are more task priorities used than threads available, lower task priority values are clustered and share the same thread.

Higher task priorities and ISR priorities will be assigned individual threads for optimal overall performance.

Solved PR 610657: Build error - Invalid table input reference

Simulink code generation could not properly determine the input reference of a 1D/2D look-up table in case the AXIS were defined as ExportedGlobal Elements.

3.15.6 Issues Solved in INTECRIO-RLINK V1.5.0

This section describes issues solved with INTECRIO-RLINK 1.5.0.

Solved PR 333200/596674: CAN multiplexed signals cannot be selected in Simulink using signals selection window

If a CAN network was configured having multiplexed signals, they do not appear in the signals selection dialogue.

This issue is fixed with INTECRIO-RLINK V1.5.

Solved PR 601518: A2L parsing issue using ETK_XETK_AML_VERSION_2_2_0

In an A2L files based on ASAP V1.6 or earlier uses ETK_XETK_AML_VERSION_2_2_0 or ETK_XETK_AML_VERSION_2_5_0, INTECRIO's A2L parsers was not able to understand this enumeration. This support was now introduced with V4.7.

Solved PR 602434: Build with invalid IP addresses are successful

After an automatic move from ETK to X/FETK the IP addresses are set to 0.0.0.0. It is up to the user to specify the IP addresses according to his network setup, however even having the zero based IP addresses in place the workspace could have been built. This is fixed now.

3.15.7 Issues Solved in INTECRIO-RLINK V1.4.3

This section describes issues solved with INTECRIO-RLINK 1.4.3.

Solved PR 530544: Execution of command failed due to command line overflow

If a workspace containing a huge amount of modules (HW and/or SW) is used, the build may fail with a generic error like:

Execution of command failed. Error occurred during main-build.

The main root cause was that there was a command line overflow. This is now fixed by introducing a linker response file (*.rsp) for targets ES910, ES830 and RTPRO-PC, which is used for the command line.

Solved PR 565700: ES1000 build is failing under Windows10 due to cpp.exe error

If an ES1000 HW is used the build chain is not working because the cpp.exe crashes. This problem is fixed now.

Solved PR 568348: Automated installation of loopback device not working under Win10

During the initial INTECRIO installation the Loopback adapter needed for back animation was not fully configured, if Windows 10 was used. A manual reconfiguration was necessary.

Solved PR 573182: Pointer disappears as soon as user start moving signals in signal layout

If the user tried to move signal in signal layout window for FlexRay, CAN or LIN, the mouse pointer disappeared. This is fixed now.

Solved PR 573770: Command line was shortened to 300000 characters in build.log

For 3rd party based toolchain the maximum allowed length of the command is 30000. In case this is exceeded, the build stops with an error message. Unfortunately the log file did only provide the shortened command line of 30000 characters.

Now the logging is improved and the full command is listed in the log file.

3.15.8 Issues Solved in INTECRIO-RLINK V1.4.2

This section describes issues solved with INTECRIO-RLINK 1.4.2.

Solved PR 330739: Uninstaller of SL-Tool box does not remove HKEY_CURRENT_USER Entry

The uninstaller of INTECRIO-RLINK did oes not remove the Registry entries HKEY_CURRENT_USER for HWX2Editor for Versions 4.2 and 4.1.

Solved PR 428082: OS System Time block does not provide time as expected

"If the user uses OS System Time blocks in his Simulink models then he does not get a time value as expected. There is no information about the time scale (s, ms, µs, ...)

Solver PR 430804: When copying the model, configuration in the Stimuli Editor is not being copied

If a Simulink Model used for RLINK is copied by using "Save As", the belonging *.sgx configuration for Stimuli Signals is not created under the new name.

Solved PR 437758: OS Timer block parameter values are not retained after INTECRIO transfer

If OS Timer blocks are used within an RLINK Simulink Model and the model is transferred later on to INTECRIO, than the set parameters of the OS Timer block are lost.

3.15.9 Issues Solved in INTECRIO-RLINK V1.4.1 HF3

This section describes issues solved with INTECRIO-RLINK 1.4.1 HF3.

Solved PR 554035:
Error in CAN db import when importing a certain node a second time

A CAN IO dbc import is successful for the first time although showing some warning. If the same dbc is imported into the same CAN IO a second time, an error occurred.

The problem is a signal of type multiplexer switch. Its 'value type' is defined as signed, but multiplexer switches must be unsigned.

Solved PR 555989:
ETK Bypass: Incorrect Memory Blocks written when block greater than 512 bytes

If a project has one Service Point whose ID is greater than 512, SrvResPtId table will be incorrectly written, and the bypass on this SP will not work. The problem affects only ETK + ES910, XETK + FETK are not affected.

3.15.10 Issues Solved in INTECRIO-RLINK V1.4.1 HF2

This section describes issues solved with INTECRIO-RLINK 1.4.1 HF2.

Solved PR 546054:
Restart strategy of ETK Bypass system with ES910 after communication interrupt

IF ETK Bypass on ES910 is used with INTECRIO V4.6 SP1 HF1, then the restart strategy of an ES910 after a failed write back of signal values to the ECU is different than expected.

Formerly, ETK-bypass went into emergency stop in case of write back error, which can be caused by either a reset, a wire interruption between ES910 and ECU or others. This stopped bypass and ensured defined system behavior. With the affected versions, this emergency stop is prevented for 300ms.

3.15.11 Issues Solved in INTECRIO-RLINK V1.4.1 HF1

This section describes issues solved with INTECRIO-RLINK 1.4.1 HF1.

Solved PR 529619:
Failing Installation of VC 2015 Redistributable leads to installation abort

In case ASCET 6.4.1 is installed prior to INTECRIO 4.6 SP1, the installation fails.

The workaround is to manually uninstall the VC 2015 Redistributable packages (x64 and 32bit) via the Control Panel.

If INTECRIO is installed first, ASCET will update the redistributable package.

Solved PR 534446:
Bypass via FETK cannot be enabled

The HW ES910, FETK-T is initialized. Experiment is open. Simulation Controller is running. ECU is running

It's not possible to enable the Bypass with KL15 though.

3.15.12 Issues Solved in INTECRIO-RLINK V1.4.1

This section describes issues solved with INTECRIO-RLINK 1.4.1.

Solved PR 488769
Installation issue if Virtual Prototyping is not selected

If "Virtual Prototyping on Windows PC" is unchecked in installation wizard, also the Rapid Prototyping block set is not properly installed.

Solved PR 523075
INTECRIO-RLINK 1.4.0: impossible to build model from Matlab R2012b

INTECRIO shows that some R2012b libs are missing and that therefore it is impossible to build.
Forward table for AsyncIn and AsyncOut blocks was added, but not correct for the MDL version of the library, just the SLX one

3.15.13 Issues Solved in INTECRIO-RLINK V1.4.0

This section describes issues solved with INTECRIO-RLINK 1.4.0.

Solved PR 484174:
Simulink model with references cannot be build

Simulink model with references cannot be build due to "Error: Matrix dimensions must agree."

Solved PR 451977:
Build fails for models using busses

Build fails with "Unable to find DataTypeName within the DataType scope", if model contains Stateflow Truthtable.

Note that the structured busses are not yet supported, but are currently ignored.

4 Properties and Known Issues

This chapter describes properties and known issues of INTECRIO-RLINK V5.0.2. Some of them are not mentioned in the documentation.

4.1 Known Issue Report

If a product issue develops, ETAS will update the Known Issue Report (KIR) and post it on the internet. The report includes information regarding the technical impact and status of the solution. Therefore, you must check the KIR applicable to this ETAS product version and follow the relevant instructions prior to operation of the product.

The Known Issue Report (KIR) can be found here:

http://www.etas.com/kir

4.2 Properties and Known Issues of the Simulink Integration

The Simulink integration in INTECRIO depends on the properties of the Simulink code generation. Some of these properties cannot be influenced by INTECRIO and are described in this section.

Usage of the Simulink external mode (back animation)

The option "spawn sub rates as processes" does not work in the external mode. When using the block "create asynchronous process", the external mode does not work. Stopping the OS from the ETAS Experiment Environment may prevent INTECRIO from connecting to Simulink again.

Line names instead of signal names for inputs

If a line connected with a Simulink input signal has a name, Simulink uses the name of the line, not the name of the input signal.

Known PR 67072:
3D-arrays are not supported for Simulink integration

Recommendation: use a number of 2D-arrays.

Known PR 242265:
Simulink "Exported Global" Constants Are Not Listed in Global Section of EE/EIP-Workspace

If an exported global constant is used in the Simulink model only once, it is not listed in the global section of the experiment data structure.

Recommendation: None; you may want to introduce a second instance of the constant to circumvent the problem.

Known PR 243930:
Matlab/Simulink network installations not fully supported

If Matlab/Simulink is installed on a network drive, it will not support several INTECRIO features (like, e.g., open in modeling tool).

Recommendation: use local Matlab/Simulink installation.

Known PR 245872:
"Associate with Matlab" deletes custom content of startup.m

When executing "INTECRIO 4.0" → "Connectivity" → "Associate with Matlab" from the Windows start menu, it removes custom content (if there is any) from the startup.m file

Known PR 245996:
A2L generation for Simulink supports no MEASUREMENTs.

A2L generation for Simulink matrixes only works with CHARACTERISTICs, not with MEASUREMENTs.

Recommendation: none.

Known PR 310949:
Simulink R2010a and 2010b does not work with "Create_Async_Process" blocks from INTECRIO block library

Due to an error in Simulink, these blocks cannot be used in Simulink R2010a and R2010b.

Recommendation: none.

Known PR 333977:
The Function call split block is not supported for INTECRIO-RLINK and INCA-VLINK trigger blocks.

Recommendation: none.

Known PR 340875:
Native Simulink Simulation with INTECRIO-RLINK or INCA-VLINK blocks is not supported

Recommendation: none.

Known PR 343163:
Some Custom Storage Classes not supported when working with Simulink Embedded Coder

Recommendation: Choose the option "Ignore custom storage classes" in Simulink code generation.

Known PR 344986:
Problems with rate transition blocks with Simulink R2007b and lower

Models will not build, if rate transition blocks (protected RT or unprotected RT blocks) are used with their default settings.

Recommendation: Set the sample time in the rate transition blocks appropriately.

Known PR 346877, 351564, 356923:
Simulink look-up tables must have storage class "ExportedGlobal"

Due to limitations in Simulink, Simulink look-up table blocks of types "Lookup_n-D", "Interpolation_n-D" and "LookupNDDirect" don't support structured storage. The corresponding data elements (Simulink parameter or MATLAB variable) must use the storage class 'ExportedGlobal' to avoid Simulink code generation errors.

Recommendation: Please use the 'ExportedGlobal' storage class.

Known PR 364879, 372712:
No support for structured Simulink parameter data

Structured Simulink parameter data (e.g. introduced via bus selector and bus creator blocks) is currently not supported.

Recommendation: do not use these modeling elements.

Known PR 369710:
Installation fails if local startup.m file is used

INTECRIO enhances the standard startup.m file during installation. If a local startup.m file is used, the modification of this file fails and Simulink connectivity does not work properly.
Recommendation: modify the local startup.m file manually in this case.

Known PR 377106:
FlexRay alive counter check may recognize the second error only

If the first alive counter value read from the FlexRay bus is equal to the internal start value of the expected alive counter value, then the system doesn't recognize a first potentially occurring alive counter error on the bus. The system will recognize and report alive counter errors starting only from the second alive counter error on the bus in this special case.

Recommendation: none.

Known PR 377206:
User permissions on algorithm directory must be unchanged

Algorithm handling, e.g. for FlexRay checksum handling, may fail, if the user permissions on the algorithm directory (e.g. C:\Users\Public\Documents\ETAS\INTECRIO\Algorithms) are changed.

Recommendation: keep permissions unchanged.

Known PR 379812:
Modules generated with Simulink pre-releases cannot be built

Due to special compiler switches used by pre-released Simulink versions, models generated with these versions cannot be built.
Recommendation: Use released Simulink versions.

Known PR 389186:
"RTA-OSEK Error: ActivateTask: E_OS_LIMIT" when trying to start experiment

The message occurs, if a task is activated before its execution in the previous scheduling cycle has been finished. For virtual prototyping on the PC, this message may also be caused by Windows OS latencies or similar effects.

Recommendation: If the message occurs during startup of a virtual prototype, it is typically harmless. If it occurs repeatedly during normal execution, it indicates that the execution speed in scaled time operation should be reduced.

Known PR 396566:
Saturation Upper/Lower Value Limits are Sometimes not Initialized Properly

If +/-inf saturation limits are specified in saturation blocks, their initialization is done dynamically after the executable prototype has been started. After initial upload by INCA, they may thus appear as zero or to such a large number, that INCA cannot handle them properly. Calibration access may lead to wrong results in this case.
Recommendation: Enter value limits of e.g. $+/-10^{305}$ manually. On request, ETAS can provide you with an example script doing this for the complete model.

Known PR 399952:
Problems with white spaces in installation path under Windows 7

In a single case, the error "Invocation of 'qcc' failed, return code is 1" occurred under Windows 7, because the INTECRIO installation path contained a white space.
Recommendation: Install INTECRIO in a path without white spaces or make sure that at least the compiler is installed in a path without white spaces.

Known PR 400468:
Stimuli Signal Configuration Does Not Support MDF 2.0 Format

The Signal Configuration Editor cannot read MDF files in Version 2.0 or below.
Recommendation: Convert the files to MDF V3.0, e.g. using MDA.

Known PR 412422:
INTECRIO help document for the blocks is not visible in Matlab online help window since Matlab 2012

The help document about the INTECRIO Simulink blocks are not visible any more in the Matlab online help window since Matlab 2012.

Known PR 414128, 540162:
Special characters (i.e. ö,ä) are not allowed as part of path

Some 3rd party components used in INTECRIO-RLINK (ruby, gcc) cannot handle German special characters.

Recommendation: Do not use special characters in any paths.

Known PR 425820:
INTECRIO 4.4.1: not all "asdWriteUserDebug" outputs are displayed in CEE message/hardware window

If a VP system calls ""asdWriteUserDebug"" quite often, then not all messages are displayed. Recommendation: printing first into a string which is then displayed via asdWriteUserDebug(string). Does not work in all cases though

Known PR 433815:
VP-ECU crashes if mgx file is present while calibrating for Arrays

For some workspaces used for the block simulation mode, VP-ECU crashes if mgx file is present while calibrating for arrays.

Known PR 436873:
BlockSimu: If signal recording fails, repeated error messages are generated

If signal recording fails, repeated error messages are generated.

FATAL[I_DATA_ACCESS]: SIGNALGENSVC: 0x7120: Failed to record signals.

FATAL[I_DATA_ACCESS]: SIGNALGENSVC: 0x7120: Failed to record signals.

.... (thousands of messages following)

Known PR 437319:
Manual cleanup of MATLAB startup.m file

In some cases uninstalling INTECRIO might not cleanup the startup.m file which loads the INTECRIO blocks in Simulink. This might happen in case the startup.m is open in some other process. To cleanup manually, open the startup.m file located in <MATLAB Installation path>\toolbox\local\ and remove the entries with comments starting with '%irt'

Known PR 438177:
INTECRIO: Back animation not working with ML version 2014A

For some models, back animation not working, starting with ML version 2014A.

Further information about affected models is currently not available.

Known PR 438330:
Calibration of type const not possible for BlockSimulationMode

In this case, the VP_ECU crashes without an error message.

Recommendation: avoid calibration of const type elements.

Known PR 473169:
Custom 2D Table are shown as scalar element in INCA

Recommendation: none.

Known PR 489013:
Only one instance of "reusable functions" is supported

INTECRIO can handle only one instance of “reusable functions” in a Simulink model.

Recommendation: none.

Known PR 495322:
SBB V2.0 is not supported for XETK

This is not a product defect, but according to the specification of the product.

Recommendation: none.

Known PR 500153:
Missing error message at installation under Windows XP

Windows XP is not supported by INTECRIO. Therefore the user cannot install it on a Windows XP machine. There's currently no proper error message to the user.

Known PR 500252:
Installation not possible because of a missing .NET Framework

Installation does not start on fresh machine where .NET framework 4.0 or higher is not installed. On Win7 machines, .NET framework 4.0 is typically available.

Known PR 503934:
"Manager feature" is not supported by XETK

The feature 'Rapid Prototyping System Detection' is not supported for XETK. I.e. when the ES910 is unplugged from the XETK when the bypass is running, the ES910 will not reestablish the connection to the XETK once reconnected again and will not resume the bypass.

Known PR 513734:
Handling of Lookup-Tables in referenced models

Lookup-Tables are handled differently depending on their location in the main Simulink model or in a referenced model.

In the main Simulink model, they are created as
/* Characteristic type */ MAP

In a referenced model, they are created as
/* Characteristic type */ VAL_BLK
which is inconvenient in INCA.

Recommendation: avoid Lookup-Tables in referenced models.

Known PR 538790:
Contingent Licensing Mode unsupported for Virtual Prototyping

For Virtual Prototyping, licensing does not support grace mode or contingent mode

Recommendation: Make sure that you have a valid license.

Known PR 540162:
Build fails due to Umlaut in workspace path or name.

Recommendation: Make sure not to use Umlauts in workspace paths or names.

Known PR 563475:
SCOOP-IX Import: Parser error: Port 'xyz' skipped from import because the data type is not completely defined or not supported

If user-defined datatypes are used and their definitions are incomplete from the INTECRIO point of view, and these datatypes are used for IN or OUTPUT ports, then such ports are skipped during the SCOOP-IX import of the model with the above-mentioned warning.

Known PR 564344:
Build fails if model name is 'add'

Recommendation: avoid this name in INTECRIO models.

Known PR 571801:
RTIO Driver locks when starting Bypass for Big Endian FETKs

The affected ETK device is dmETK-S21.
INTECRIO 4.6.2 provides the right RTIO driver, however the firmware supporting this must be at least HSP 11.5.1.
The HSP version INTECRIO 4.6.2 was released with is HSP 11.5.0

Known PR 573006:
Compiler error: cc1.exe: out of memory allocating <xyz> bytes

If big models are generated into one single c-code file and this file exceeds a specific size (e.g. 30 MB), the used GNUC compiler for the ES910 target (QNX) crashes with an out of memory message as the used compiler is a 32bit variant.

Known PR 595114:
Custom ENUM types of Matlab are not fully supported

If Enumerations are created in Matlab using the following command:

```
Simulink.defineIntEnumType('Enum_EnmTest',...
```

```
{'Test1','Test2','Test3'},...
[0,1,2],...
'Description','Test',...
'DefaultValue','Test1',...
'AddClassNameToEnumNames',false,...
'StorageType','uint8');
```

the datatype can be explicitly specified (e.g. here as uint8). Unfortunately this information cannot be handed over to the INTECRIO build toolchain as the used SCOOP-IX format is not able to do so. In consequence the generated A2Lfile uses SLONG as data type which does not really fit and will have a negative impact when using this enumeration in the experiment.

Known PR 614348: Delay Blocks in referenced Models not properly working with SL R2014a

All discrete blocks making use of the z-element are not working if they are used inside a referenced model and if code is generated with R2014a.

Known PR 616123: INTECRIO Transfer not possible with RLINK / VLINK in case Referenced Models are involved

The transfer of an RLINK/VLINK Model into a plain INTECRIO Workspace will fail in case referenced models are used.

Known PR 616142:
Build fails when using a referenced model containing a Datastore block built in Simulink 2016b with specific settings

Build fails when building a Simulink module under the following conditions:

The evpt_grt/ erpt_grt target is used AND optimisation is set to tunable AND a Datastore block is used inside an atomic subsystem inside a referenced model AND a variable in the workspace is used to store the data by using read and write blocks (not placing the Datastore block itself into the model).

Recommendation: Change one of the before-mentioned settings.

Known PR 619096:
Simulink coder build fails with "Conflicting ParameterGroup references"

X and Y axes are defined for look-up tables as Matlab variables.

If these are used in the opposite way (X<->Y) in the same model for another look-up table the build fails in Simulink coder the IRT target due to restrictions in the A2L language definition.

Recommendation: use each X and Y axis in one unique way, either as X or as Y axis in your model.

Known PR 634009, 634083, 651668, 658781:
Simulink protected referenced models are not supported in many cases

There are many cases in which protected models cannot be used, because too much content is hidden or mandatory files are unavailable so that they cannot be compiled.

Recommendation: don't use protected models in such a situation.

Known PR 648129:
An A2L file with a CURVE/MAP and shared table data but unique breakpoints can cause issues in INCA

The A2L file format doesn't allow to describe a corresponding modeling concept supported by Simulink. Consequently INCA cannot display the shared curve/map.

Recommendation: Don't use the same CURVE/MAP data with different sets of breakpoints/axes.

4.3 Properties and Known Issues of the Daisy Chain Integration

Data transmission cycle times within a daisy chain setup depend on each other

The data transmission periods of all modules within an ES4xx chain are always 2^n times the data transmission period of the fastest module (n = 0, 1, 2 ...).

Example: let the fastest ES4xx module transmit data in an 80 µs cycle. Then all other transmission periods within the chain must be from the following list:

- 80 µs = 80 µs x 2^0
- 160 µs = 80 µs x 2^1
- 320 µs = 80 µs x 2^2
- 640 µs = 80 µs x 2^3
- 1280 µs = 80 µs x 2^4
- …

Known PR 329527 (2012402720):
Changing filter settings in the Daisychain configuration may require signal group reconfiguration

A change in the Daisychain filter settings may result in changed signal groups.

Recommendation: Reconfigure the model accordingly.

4.4 Properties and Known Issues of 3rd Party Tools

Special characters cause Python script execution to fail

Python cannot execute scripts containing particular characters, e.g. an apostrophe (`).

Known PR 84098:
Interferences with 'Shared Folder' Functionality in VMWare

VMWare versions handle file access in different manners, which are sometimes not fully Windows compatible. In connection with INTECRIO data loss has been observed in rare cases.

Recommendation: Do not store Workspaces, SCOOP-IX, A2L files, and other valuable information on "shared folders" in VMWare.

Known PR 93988:
RTA tool installation needs to be started by "Run as administrator" command

Otherwise, RTA tools do not install properly.

4.5 Properties and Known Issues of INTECRIO-RLINK and INCA-VLINK

This section describes the problems known in INTECRIO-RLINK and INCA-VLINK V5.0:

Known PR 573006: Compiler error: cc1.exe: out of memory allocating <xyz> bytes

If big models are generated into one single c-code file and this file exceeds a specific size (e.g. 30 MB), the used GNUC compiler for the ES910 target (QNX) crashes with an out of memory message as the used compiler is a 32bit variant.

Known PR 571801: RTIO Driver locks when starting Bypass for BigEndian FETKs

The affected ETK device is dmETK-S21.
INTECRIO 4.6.2 provides the right RTIO driver, however the firmware supporting this must be at least HSP 11.5.1.
The HSP version INTECRIO 4.6.2 was released with is HSP 11.5.0

No undo/redo for scripting

For scripting, no undo/redo is supported.

No dynamic module reconfiguration after reconnect

For safety reasons, the dynamic reconfiguration of module connections is not possible after a reconnect anymore. The "update" button becomes inactive.

Recommendation: download the executable prototype to the hardware again.

Uncritical XSL validation errors during document generation

Especially when using ISR event dependencies in the model, uncritical validation errors occur.

Recommendation: none.

Incremental build does not work after previous linker error message

Once the linker generates an error message, system re-build is necessary.

Recommendation: re-build the system.

Virtual model execution on Windows: model task periods must be 100 µs or larger.

For virtual prototyping, task periods smaller than 100 µs are not supported.

Recommendation: none.

Message copy bitmasks used in service based bypass must be consistent with original bitmasks

If a bit mask is defined for a message copy, which deviates from the bit mask of the original message, the message cannot be used for service based bypass.

Recommendation: none.

Known PR 242242:
Original A2L-file required to copy and paste ETK configuration

Copy and paste fails for an ETK configuration, if the original A2L file has been moved or deleted.

Recommendation: preserve the original file.

Known PR 242342, 245517:
The ASAM-MCD2-MC file entry "max write variables" is not applied

During bypass configuration, the "max write variables" field is ignored.

Recommendation: none.

Known PR 243692:
No warning for CAN frame size overflow

INTECRIO-RLINK does not notify the user, if a CAN frame contains too many bytes

Recommendation: check frame size in the graphical frame layout editor.

Known PR 243738:
CAN interrupt dT monitoring overflows

When monitoring the time difference between CAN interrupts, for performance reasons only values less than 4.29s are detected correctly.

Recommendation: none.

Known PR 243809:
Double quotes (") as a part of a unit in A2L not supported

The ETAS Experiment Environment fails to open A2L files, which contain double quotes inside unit definitions.

Recommendation: avoid units with double quotes.

Known PR 243995:
Name clashes with reserved compiler keywords

If the model uses variable or function names reserved by the compiler (e.g., "time") the project cannot be built.

Recommendation: rename the conflicting entities.

Known PR 244059, 246261:
In the error log, hexadecimal numbers are shown in decimal format

Recommendation: in some cases, it is helpful to translate decimal number representations in the log window into hexadecimal format to understand log messages properly.

Known PR 244131:
Only one multiplexer per frame supported for FIBEX import

For FIBEX files with frames containing more than one multiplexer, only the first multiplexer is imported. A corresponding warning message is provided.

Recommendation: de-multiplexing can be done by the application model in these cases.

Known PR 244367:
Low disk space may cause data loss

Saving to a location with low or no disk space may cause unexpected behavior and data loss.

Recommendation: always be sure to have plenty of free disk space on the drive your workspaces are on.

Known PR 244855:
Signals during FIBEX import due to missing data type entries

If a signal has no <ho:BASE-DATA-TYPE> entry in FIBEX, it is not imported.

Recommendation: modify the FIBEX file manually.

Known PR 245046:
Overlapping IP addresses can cause malfunction of XCP on UDP

Recommendation: IP addresses for XCP on UDP must not overlap with the address range used in the ETAS Network settings. Otherwise IP address conflicts can occur, since the ETAS IP Manager has no knowledge of the IP configuration used for XCP on UDP.

Known PR 245112, 245049, 242321:
Build fails if path names contain exotic UTF8 characters

Some UTF8 characters (e.g. the "€" sign) cause build errors, if they are used in the installation path name or the module path name.

Recommendation: avoid UTF8 characters in path names.

Known PR 245382, 246262, 245387:
HWX1 Import with multiple instances of the hardware configurator running

If multiple instances of INTECRIO or the ASCET-RP V6.1 hardware configurator are running, the hardware system import may fail with an error message (system 'xy' cannot be found in the workspace) or it might take place in the wrong application

Recommendation: only open one hardware configuration at once.

Known PR 245449:
OS configuration: Alarm task with a delay of 0 are only started at the next OS tick

If an Alarm tasks has a delay setting of 0ms, it is started at the next OS tick only. If this is, e.g. at 10ms, there will be a difference of 10ms between a task with a delay of 0ms and a delay of 20ms.

Recommendation: if this is relevant for your use case, design you OS configuration carefully to avoid the effect.

Known PR 245734:
Execution error if FlexRay key slot only contains NullFrame

If a FlexRay key slot is configured, which contains only a NullFrame, the system cannot be executed.

Recommendation: use a slot as key slot, which contains at least one frame different from NullFrame.

Known PR 245821:
Message "ConnectionStatus: A fatal error has happened. Stopping operations." during virtual prototyping

For virtual prototyping, paths to referenced files are hard coded in the executable. If the referenced files are not found, the virtual prototype cannot be executed.

Recommendation: Add the path to RTA to the 'PATH' environment variable and restart INCA or EE. The referenced files will be found, then, and the prototype executes properly.

Known PR 252351:
"Deep Smart Power Down" (DSPD) impacts electronic licensing

The DSPD feature disables network adapters when they are not used. If DSPD deactivates a network adapter, which is used for electronic licensing, INTECRIO will not find a valid license.

Recommendation: disable DSPD for the corresponding network adapter.

Known PR 279550:
Not all code lines support stepping during VP debugging

In order to simulate interrupts in a Virtual ECU, the Virtual Machine has to manipulate the stack of the application thread asynchronously. Since many functions cannot cope with asynchronous stack changes, stepping is not possible in every line of code.

Recommendation: Set multiple breakpoints and jump from breakpoint to breakpoint. For further details see RTA-OSEK for PC User Guide.pdf, Page 263, Chapter 16.2.

Known PR 311000:
Error message " 'A_INT64' is not a valid enum value for element 'Datatype' "
During A2L Import

When importing A2L files for bypass configuration, INTECRIO does not support A_INT64 or A_UINT64 data types.

Recommendation: none.

Known PR 312188:
Simulink code generation ignores lower/upper bounds for local data elements

The generated A2L file does not contain information on the value ranges of local elements.

Recommendation: none.

Known PR 324265:
Deleting FlexRay frames causes unexpected error messages

When deleting FlexRay Frames from an existing configuration, sporadic harmless error messages like the following may show up:

> Error ... Data Management Object Server 0xC0410001 OID ... is not available in this transaction (sessionId = 0).

Recommendation: Ignore the messages.

Known PR 327296:
Target Server cannot handle large matrices in prototyping experiments

The Target Server, which establishes the connection between the prototyping hardware and INCA-EIP cannot handle large matrices. The maximum size supported is 63x63 elements.

Recommendation: do not use matrices larger than this limit.

Known PR 330360:
Hardware configuration needs to be done prior to configuring hardware signal groups

An error message occurs if you try to open a hardware signal group block without a hardware configuration file (*.hwx) being available. Reasons may be that no hardware configuration block is present at all or that from an existing hardware configuration block no configuration file has been created yet.

Recommendation: Create a hardware configuration block, open the hardware configurator from it and save the configuration before opening a hardware signal group block.

Known PR 330360:
Build fails if a hardware configuration block is present but no actual configuration was created

If a model contains a hardware configuration block, an actual configuration must be created before the model can be built.

Recommendation: Open the hardware configurator and save the configuration before building the model.

Known PR 330360:
Model needs to be saved before opening the hardware configurator or the stimuli configurator

To open the hardware configurator or the stimuli configurator, a working directory needs to be defined. For this reason, the model needs to be saved before the configurators can be opened.

Recommendation: Save the model before using any of the configuration dialogs, so that a wording directory is defined.

Known PR 330442:
ETAS Virtual OS Execution Platform seems to be installed, but is not

In some cases, the ETAS Virtual OS Execution Platform installation reports that the platform is already installed. This may be the case, because VRTA-OSEK is already present on the computer. However, other parts of the ETAS Virtual OS Execution Platform may be missing, e.g. for stimuli signal generation.

Recommendation: Uninstall VRTA-OSEK and install the ETAS Virtual OS Execution Platform again.

Known PR 330537, 331550:
Renaming or copying models or saving them with another name may cause strange error messages

If you rename models or use "save as", the reference to the related hardware configuration file (*.hwx) or stimuli configuration file (*.sgx) may get lost. This results in error messages.

Recommendation: When you rename a model or save it with another name, please make sure that the hardware configuration file (*.hwx) or the stimuli configuration file (*.sgx) is renamed accordingly as well. The configuration files are referenced by their names.

Known PR 331666:
Connections or block references are not displayed properly after opening the model

Only when the Simulink application is running, INTECRIO-RLINK and INCA-VLINK blocks and their connections to the rest of the model are handled correctly.

Recommendation: Start Simulink manually before opening an INTECRIO-RLINK or INCA-VLINK model.

Known PR 331698:
Availability of referenced interface description files (*.a2l, *.dbc, ...) must be ensured by the user

Recommendation: Please ensure manually that all interface descriptions for the hardware configuration are in place as configured. This is especially valid when models are relocated or description files are renamed.

Recommendation: none.

Known PR 331858:
Using the new feature "SW consistency check" requires A2L reimport

The new INTECRIO V4.1 feature “SW consistency check” feature cannot be used unless the *.a2l file is imported again, because some values from the file are required by INTECRIO, which had not been imported by previous versions.

Recommendation: re-import the A2L file.

Known PR 331861:
Hardware and stimuli configuration files are not found, if the model directory does not equal the working directory

If the working directory does not match the model directory, the hardware configuration files (*.hwx) and the stimuli configuration files (*.sgx) are not found.

Recommendation: make sure to switch the working directory to the model directory.

Known PR 332228:
At maximum 1.2 hours of recorded data is supported for stimulation.

If stimuli data for more than 1.2 hours is contained in an *.mdf file, the time stamps will restart at 0 after this time span.

Known PR 332389:
Each signal generation channel group can only be represented by one single block

While the same hardware signal group can be represented by multiple signal group blocks, each stimuli signal group can only be represented by one single block.

Recommendation: if applicable, use "goto" and "from" blocks or similar means to structure your model.

Known PR 332790:
Before using the INCA transfer, the model needs to be saved and built

Recommendation:

- Before you open the INCA transfer block, your model needs to be saved at least once.
- Before the transfer of a model to INCA, the model has to be built successfully.

Known PR 332811:
Problems transferring models from one location or computer to another

When you transfer models from one directory or computer to another one, INTECRIO-RLINK and INCA-VLINK may lose the references to the used hardware configuration files (*.hwx) or stimuli configuration files (*.sgx).

Recommendation: Open the hardware configuration block or the signal configuration block. If a file reference is lost, a dialog will open which allows you to enter the correct file location.

Known PR 333172:
Model transfer to INTECRIO integration platform: Transfer path must not be empty

Building the model, fails if in the INTECRIO transfer block the path for the model transfer is undefined (which is the default).

Recommendation: Enter a transfer path into the corresponding field of the dialog.

Known PR 333403:
To run communication on the LIN bus, some specific signal groups need to be scheduled by the model

Recommendation: The LIN signal groups Outputs_WakeUp, Outputs_ScheduleTableBasetick, and Outputs_GoToSleep need to be scheduled using asynchronous subsystems or similar mechanisms to make LIN work properly.

Known PR 333428:
Many MDF files do not contain valid sample rate values

Many MDF files do not contain valid values for the signal sample rates. In this case, the stimuli signal configurator will display zero (“0”) in the corresponding field. Simulink build will fail if users do not enter a valid value instead.

Recommendation: Enter valid signal sample rates for all stimuli signals in the stimuli signal configurator.

Known PR 333813:
The System time block returns timer ticks, not seconds

Recommendation: adapt the model accordingly.

Known PR 334043:
Signal configuration changes are not adopted by the signal groups

If you change details of the signal configuration (e.g. the sample rate), the new settings are not adopted by the individual signal groups automatically.

Recommendation: Open each signal group configuration individually and accept the configuration with "OK”.

Known PR 334071:
ETAS Virtual OS Execution Platform is already installed, but not in Start menu

If the ETAS Virtual OS Execution Platform has been installed on your computer by another user, it will be available for usage, but not appear in the Start menu. If you try to install it again, the installer will notify you that it is already installed.

Recommendation: No action is required in this case.

Known PR 334280:
Scripting API currently not supported for hardware configuration

The hardware configuration block cannot be accessed using the scripting API

Recommendation: you may want to use predefined HWX files instead.

Known PR 339607:
The model transfer to INTECRIO Integration Platform requires admin rights.

Recommendation: none.

Known PR 340379:
The "Embedded Coder" code generator "ERPT_GRT" must be selected manually in the Simulink code generation settings

While the standard code generator is selected automatically according to the target, the "Embedded Coder" code generator is not.

Recommendation: Please select the code generator manually, if required.

Known PR 342110:
One hardware send signal can be used in one hardware signal send group block only

Multiple representations of the same hardware send signal are not supported.

Recommendation: use merge blocks to write to the same hardware signals multiple times in the model.

Known PR 362590:
The first and the last time stamp in an MDF file are ignored during signal generation

The INCA-VLINK signal generator ignores the first and the signals with the first and the last time stamp in the MDF file.

Recommendation: none.

Known PR 363302:
Installation of prerequisites may fail

The installation of prerequisites may fail under certain conditions.

Recommendation: You may execute individual installations from the "\Installation\Prerequisites" directory on the DVD manually.

Known PR 364052:
Hardware system change or stimuli configuration change may require to touch the signal group blocks

After changes of a hardware system or a stimuli configuration, it may be required to open the corresponding signal group blocks once and confirm the settings under certain conditions. Otherwise, the build procedure may fail.

Recommendation: open receive and send signal blocks and confirm the settings after changes of the hardware system or the stimuli signal configuration.

Known PR 375947:
Build fails with unknown reason

INTECRIO-RLINK and INCA-VLINK sporadically do not show error messages properly. In some cases, the build process fails, but the user gets no information about the actual problem.

Recommendation: In this case, look at the *.log file in the model specific RTW results directory and at the files in the corresponding "Logs" subdirectory.

Known PR 377478:
Restricted INCA transfer functionality for prototypes providing XCP access

Models for virtual prototyping PC using XCP access cannot directly be transferred to INCA using the project transfer. The transfer does not create/add the "Ethernet-System" ECU automatically. Please add the "Ethernet-System" ECU with XCP manually.

Known PR 377934:
XCP Timeouts when running VP models in adaptive mode with XCP-Access

When XCP is used to access virtual prototypes, no time synchronization between the executable prototype and the measurement and calibration (M/C) tool is possible, i.e. if the prototype runs too fast, the M/C tool may miss values.

Recommendations:

- Run the virtual prototype at a slower speed, e.g. avoid adaptive time simulation and use scaled time instead.
- Use INCA-EIP and the ETAS communication protocol instead of XCP access. This way, full synchronization and data consistency can be ensured.

Known PR 377976:
[ERROR] RTA-OSEK Error: ActivateTask: E_OS_LIMIT

Especially during the startup of virtual prototypes, but also during normal execution in scaled time mode, the above-described message can occur, if the same task is activated multiple times before its execution has completed. This is typically the case, if the computing power is insufficient to fulfill the timing requirements. Nonetheless, the execution can usually continue.

Recommendations:

- Use adaptive time execution mode or slow down the execution in scaled time mode.
- During the initialization phase of the virtual prototype, the message can typically be ignored.

Known PR 378385:
Installing ETAS Virtual OS Execution Platform with limited user privileges

Especially on x86 systems, problems may arise during the installation of the ETAS Virtual OS Execution Platform if the user has limited privileges.

Recommendation: In this case, RTA-OSEK for PC V5.0.2 may be installed from the installation DVD manually first. Then, the ETAS Virtual OS Execution Platform installer can be launched.

Known PR 378392:
ETAS Virtual OS Execution Platform cannot be installed to user-defined folder

Some parts ETAS Virtual OS Execution Platform is installed to a fixed location, which cannot be modified by the user.

Recommendation: If certain installation locations are not possible, RTA-OSEK and RTA-OSEK for PC may be installed from the installation DVD manually first. Then, the ETAS Virtual OS Execution Platform installer can be launched.

Known PR 379862:
Using workspaces generated from INCA-VLINK or INTECRIO-RLINK models in INTECRIO Integrated Prototyping Environment

When an INTECRIO workspace is created by transfer from INCA-VLINK or INTECRIO-RLINK, the portability of this workspace to other workstations may be restricted due to missing Simulink files.

Recommendation: Install the original Simulink version on both workstations.

Known PR 383929:
Prefixes and suffixes are applied in the order of their definition

If user-defined prefixes or suffixes are used for the signal names in the signal configuration dialog for virtual prototyping, they are applied in the order of their definition. This may lead to unexpected results. E.g. let the prefix definition be "foo; foobar_" and the signal name is "foobar_signal", the first prefix is applied, not the second. I.e. the resulting model label name will be "bar_signal".

Recommendation: If you need to define prefix or suffix names, which partially contain each other, make sure to define the respective longer names first.

Known PR 427464
Installation conflict between Matlab/Simulink and INTECRIO/

RLINKMatlab/Simulink is blocked after installation/association of INTECRIO or RLINK due to info.xml

Recommendation: Remove info.xml files from INTECRIO installation

Known PR 436270
VLINK 1.3: blocksimulation mode seems to start twice

Starting the block simulation mode using the generate start.bat shows an information or behavior as it seem to start twice the block simulation (it starts, stops and restarts again).

The execution of blocksimulation mode is happening only once. The messages are due to the switch from Application Mode to UserAppMode.

Known PR 426739
BlockSim: Max and Min Value Limits from Init.m are not applied in generated a2l and six file

The optimization option 'Inline Parameters' is set to 'off' in this model. In this case, all parameters will have the storage class 'SimulinkGlobal' and therefore no data limits are propagated to the code generation (we are dealing with a Simulink Coder limitation).

Known PR 419886
INTECRIO-RLINK1.2.1: No parameters in A2L anymore with R2012b/R2013b in INCA

Building a RLINK model from Simulink R2012a works fine and all parameters as expected are in the A2L for use with INCA.

Building the same RLINK model from Simulink 2012b/R2013b leads to an A2L that does not show anymore the parameters in an existing INCA experiment (as all name have changed).

The same problem occurs also if the Simulink model is generated for INTECRIO 4.4.1.

Known PR 402211
VLINK: Import of invalid lab file throws an unhandled exception

Proper error handling is missing.

Known PR 403440
VLINK/RLINK: startup.m behavior

If the user places a startup.m in his startup folder, the RLINK added startup.m in the folder X:\Program Files\MATLAB\RXXXXy\toolbox\local is no more executed

Known PR 406632
When the model is renamed old configuration files are not deleted

When a model is renamed, old configuration files (hwx and mdl files) remain available

Recommendation: Clean up manually on filesystem

Known PR 411715
INTECRIO-RLINK 1.2.1: unable to connect ports

Multiple writes to the same HW send signal is currently not allowed.

However, this is a use case since in the model you can have multiple independent execution paths.

Recommendation: Create a data store variable and then write to it within the different execution paths.

Finally (within the same raster) the data store variable content gets routed to a singleton HW send signal variable.

Known PR 417985
INCA-VLINK 1.2.1: Signal Reader does not provide correct data

The Signal Reader does not provide corrent data if the read process is not assigned to a task with the same periode as its sampling period.

Recommendation: Use the stimuli data in the same raster like recorded.

Do not use synchro rasters at the moment

Known PR 451878
Configuration Editor: Changes made to Sample Rate will not be considered unless Receive Blocks are opened

Configuration Editor: Changes made to Sample Rate will not be considered unless Receive Blocks are opened

Known PR 500252
GENESIS: Installation not possible because of a missing .NET Framework

Installation does not start on fresh machine where .NET framework 4.0 or higher is not installed. On Win7 machines, .NET framework 4.0 is typically available

Known PR 496855,496865
ETAS License Manager (LiMa) crashes on attempt to start any ETAS products

The crash occurs in LiMa 1.5.x because LiMa cannot read/write accurately the borrow information into the registry key HKEY_CURRENT_USER\Software\FLEXlm License Manager\Borrow. Check KIR for more details.

Workaround: Before installation of ETAS-products (e.g , INTECRIO 4.6.0 containing LiMa V1.5.x), return manually all the borrowed licenses within the old LiMa V1.4.3. In case the crash already occurs, remove manually the "Borrow" information from the registry.

Known PR 503934
"Managerfeature" is not supported by XETK

The feature 'Rapid Prototyping System Detection' is not supported for XETK. I.e. when the ES910 is unplugged from the XETK when the bypass is running, the ES910 will not reestablish the connection to the XETK once reconnected again and will not resume the bypass.

Known PR 529619
Failing Installation of VC 2015 Redistributable leads to installation abort

In case ASCET 6.4.1 is installed prior to INTECRIO-RLINK 1.4 SP1, the installation fails.
The workaround is to manually uninstall the VC 2015 Redistributable packages (x64 and 32bit) via the Control Panel.
If INTECRIO-RLINK is installed first, ASCET will update the redistributable package.

Known PR 538790:
Grace Mode unsupported for Virtual Prototyping

For Virtual Prototyping, licensing does not support grace mode.

Recommendation: Make sure that you have a valid license.

Known PR 600627:
Long ES830 timeout time in case of bypass connection loss

If a bypass connection is lost (e.g. to power loss at an XETK device), the ES830 device may become inaccessible for up to 20 seconds. This is the expected behavior. Recommendation: Wait until ES830 becomes accessible again.

Known PR 618884:
Incorrect error shown in INTECRIO during HWX export & import

During HWX export or import, INTECRIO may show an incorrect error related to inconsistent IP address settings.

Recommendation: Ignore the error.

Known PR 624946:
Conflicting file names, if Windows is configured to use 8.3 path names

If Windows is configured to use 8.3 path names and files are used, whose names differ only after the third character of the file name extension, workspace export fails.

Recommendation: Use file names that are unique before the fourth character of the file name extension.

Known PR 626002:
Scripting cannot add signal to signal group under certain conditions

This is the case, if the signal selection mode is changed to "All".

Recommendation: none.

Known PR 627067:
The "Run Script file" menu item in INTECRIO is not supported for Python 3.x.

Recommendation: Use Python 2.x, at least Python 2.7.4. You can then also enable an external script to attach to an INTECRIO-RLINK instance already running.

Known PR 636212
Changes in Scripting for the IIntecrioETCParameter Interface

For enum types contained in the IIntecrioETCParameter interface, the Value attribute could be set by means of a string containing the enum index up to INTECRIO V4.7.2. This is no longer possible.

Recommendation: For enum types contained in the IIntecrioETCParameter, the Value attribute can now be set as follows:
- Either as an integer type using the enum index as an argument.
- Or as a string type using the enum value (as displayed in the hardware configurator) as an argument.
In earlier INTECRIO versions, only the index could be used at this place, even if it had been defined as a string type. In this case, the script must now be modified to pass the index as an integer type. In this context, please observe PR 637399 for ES910 CAN configurations as well.

Known PR 637699:
Changes in Scripting for ES910 CAN

Until INTECRIO V4.7.2, when configuring the ES910 CAN ports by means of a script, the CAN ports of the ES910 were addressed by one enum with the indexes from 0 to 7. This is now changed.

Recommendation: Starting with INTECRIO V4.7.3, either the string values or the enum indexes can be used, as described for PR 636212. In addition, instead of the index range from 0 to 7, now the range from 1 to 2 needs to be used in combination with the concrete module type (ES910, ES921, ES922). This corresponds to the GUI representation in the hardware configurator.

Known PR 637846:
Changed hardware device default naming scheme in INTECRIO V4.7.3

Due to the increased amount of hardware devices supported in one system, the default naming scheme for hardware devices has been changed in INTECRIO V4.7.3.

Recommendation: If you use scrips to create hardware systems automatically, take care to adapt them in order to match the new default names, if necessary. See section 3.14.2 for details.

Known PR 637848:
Controller names are not checked for uniqueness in hardware configuration

INTECRIO-RLINK allows users to freely define the names of hardware controllers and FlexRay devices. INTECRIO-RLINK does not check these names from both categories together for uniqueness, only within all controllers and separately within all devices the uniqueness is ensured. This way, ambiguities can occur, e.g. in the representation of the hardware structure in the Experiment Environment.

Recommendation: Choose unique hardware controller and FlexRay device names.

Known PR 628412:
LIN slave device allows adding of unconditional send frame into event-triggered frame which contains already an unconditional receive frame

INTECRIO allows users to add an unconditional send frame to an even-triggered frame that is not empty, i.e. already contains unconditional receive frames.

Known PR 643266, 647596:
Dual ETK Bypass Failing with one FETK in Reset Mode

When using an ES800 setup with more than one FETK for bypass, the ECUs should be activated (KL15) or powered on at the same time (after Start OS in INCA-EIP). When the ECUs are not activated at the same time the bypasses may not become active in one or more ECUs.

In rare cases the following error can occur after several successful initializations of bypass setups with more than one FETK: `<GMHM Error> ES830/Simulation Controller:1: SBBonXCP: ……  -> bypass EMERGENCY STOP initiated.` The ES800 system must be restarted to release the error in this case.

Known PR 650028:
Page in VLINK Online help not found.

Some pages for the VLINK online help are not displayed. An error page is displayed instead of it.
Recommendation: none.

Known PR 650657:
Error "Event channel already defined by static config file" when adding a time triggered raster to an XETK/FETK setup

When bypass is used, simultaneous definition of time triggered rasters for measurement and calibration is not supported on XETK and FETK devices due to resource conflicts.

Recommendation:
Remove time triggered rasters for measurement and calibration from your A2L file, if bypass operation is needed. If you need help, please contact your local ETAS support.

Known PR 663293:
ES830 watchdog reset if configured BR-ETK is not connected

In some cases, if a BR-ETK is configured for the usage with ES830 in INTECRIO, but is not connected when the ES830 device is started, ES830 can run into a watchdog reset instead of providing a proper error message about the missing BR-ETK connection.

Recommendation:

Connect a BR-ETK with the ES830 device according to the configuration.

Known PR 685796:
Experiment Environment 3.7.11: Create Workspace fails

Multi-line descriptions in Simulink can lead to several issues in EE and INCA and should be avoided.
In EE the creation of the Workspace may fail and in INCA the representation of the values can be incorrect.

5 Hints

5.1 Log Files

In case of unwanted or unexpected behavior of your system, you may get useful information from the log files created in the ETAS-log files directory. These files may also be useful, if you contact the ETAS support.

In this context please consider also the ETAS privacy statement in chapter 2.2.2

5.2 Restrictions with ES910

To use INTECRIO-RLINK models on ES910 systems, a firmware update with at least HSP V9.4.0 is mandatory. HSP V13.0.0 is recommended.

5.3 Administrator Rights Required for Some Operations

For the following actions administrator rights are required:

- The installation of INTECRIO-RLINK;
- The "Associate with …" operations listed in the Windows start menu;
- Access to custom hooks which can be added to *.c/*.h files located in the product installation directory (e.g. under .\Program Files) for CAN, FlexRay, AUTOSAR, RTA-Trace.

5.4 Full Access Rights to Files Required

INTECRIO-RLINK requires full create/read/write/delete rights to all files and directories of the workspace. They will not detect restrictions outside the data sub-directory nor user or user group specific settings on individual files that are not reflected by the file attributes.

When experimenting, the support for read only workspaces is limited as well.

In most cases, INTECRIO-RLINK will detect insufficient rights automatically when the user tries to build a project. However, please make sure that no access rights apply to files needed by INTECRIO-RLINK.

5.5 Interaction with Virus Scanning

When INTECRIO-RLINK writes files to disk, virus scanners will check them and block them for a short period, during which INTECRIO-RLINK cannot modify, rename, or delete them. If file access problems occur, they may be caused by a virus scanner. Besides, the build performance may be heavily impaired.

Please exclude your model folder(s) from the virus scan.

5.6 Usage of ES910 CAN Monitoring with INCA

On one port of the ES910, INCA supports the following CAN monitoring capabilities in combination with INTECRIO-RLINK CAN operation:

INTECRIO CAN operation	**INCA CAN monitoring**
CAN-I/O sending	Monitoring **not** supported
XCP on CAN bypass sending	Monitoring **not** supported
CAN-I/O receiving	Monitoring supported

XCP on CAN bypass receiving	Monitoring **not** supported

5.7 Using License via Network and Windows Firewall

If you are using the Windows Firewall make sure to unblock INTECRIO-RLINK to prevent from licensing errors.

5.8 ASAM-2MC Files for ETK and XCP Bypass

When configuring an ETK or XCP bypass, an ASAM-2MC file needs to be read for the hardware configuration. When creating such an ASAM-2MC file, you should be aware of the following details. For more details, please consult the INTECRIO-RLINK online help or your local ETAS support.

- The ASAM-2MC file needs to contain a valid AML section definition for your bypass system setup. For your convenience, we have included all possible AML sections into the installation of INTECRIO. You might locate them inside the AML folder in your INTECRIO-RLINK installation. Please copy the respective section into your ASAM-2MC file and adapt your settings accordingly.

INTECRIO-RLINK adheres to the ASAM-2MC standard when parsing such files in a stricter way than some other (ETAS-) tools. For example, missing references (e.g. references to non-existing conversion formulas) are not accepted by INTECRIO-RLINK. In case of doubt, please use the SAPIDE ASAM-2MC checking tool that you can obtain from the ASAM website.

5.9 OS Application Modes

Although ETAS prototyping hardware supports multiple application modes, the OS configuration of INTECRIO only allows one application mode. This is compliant to the OSEK specification.

5.10 Special Modelling Hints

5.10.1 Modelling Rules for Asynchronous Subsystems

INTECRIO-RLINK uses task oriented scheduling on an automotive OS. For this purpose, some rules must be observed for the modeling of individually triggered asynchronous subsystems. In general, it is recommended to set "inherit sample time" or sample rate = -1 (inherit) for all model elements contained in an asynchronous subsystem.

Between different asynchronous subsystems, rate transition blocks are required.

5.10.2 Modeling Rules for referenced models

It is recommended to use the RLINK blocksets in the main module level only.

The ETAS Async. Process block for example doesn't work if used in referenced models.

6 Contact, Support and Problem Reporting

For details of your local sales office as well as your local technical support team and product hotlines, take a look at the ETAS website:

ETAS subsidiaries	WWW:	www.etas.com/en/contact.php
ETAS technical support	WWW:	www.etas.com/en/hotlines.php