

ETAS INTECRIO V5.0.5
Integrated Prototyping Environment
Release Notes

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1. Introduction

ETAS INTECRIO is an integration platform for prototyping of automotive embedded control systems. It allows for the integration of application software on embedded control units. This document describes the properties, prerequisites, and conventions for INTECRIO, especially a general product overview, how INTECRIO is installed, new features, and known issues.

The document is valid for the INTECRIO V5.0.5 product family consisting of the following products:

INTECRIO Integration Platform

The integration platform includes

- Connectivity for Matlab®/Simulink®¹
- Connectivity for Matlab®/Simulink® Embedded Coder

A license for the INTECRIO connector for ASCET (INTECRIO-ASC) is included. INTECRIO-ASC is shipped on the ASCET installation medium.

INTECRIO-RP

INTECRIO for Rapid Prototyping

With this add-on, INTECRIO supports real-time prototyping on ES800 and ES900 systems.

INTECRIO-VP

INTECRIO for Virtual Prototyping on Windows PCs

With this add-on, INTECRIO supports non-real-time prototyping on Windows PCs

Licenses for RTA-OSEK and RTA-OSEK for PC are included. The product installations are contained on the INTECRIO installation medium and need to be installed separately.

ETAS Experiment Environment

ETAS Experiment Environment supports experimenting with INTECRIO projects on ETAS prototyping hardware and with virtual prototyping on Windows PC.

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>

1.1. Definitions and Abbreviations

Term/Abbreviation	Definition
EHI	ETAS Help Desk International
HW	Hardware
KIR	Known Issue Report – 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: www.etas.com/kir
PR	Problem Report
RP	Rapid Prototyping
VP	Virtual Prototyping
Target	The hardware on which a program or an experiment runs

1.2. User Documentation

The ETAS INTECRIO V5.0.5 documentation in PDF format can be found on the DVD and is also installed with the product.

It serves as an overview of the available INTECRIO functionality. The detailed instructions for use can be found in the online help of INTECRIO after the installation.

2. Product Definition

2.1. Functions at a glance

ETAS INTECRIO is an integration platform for prototyping of automotive embedded control systems. It allows for function validation and verification through integration and configuration of application software modules on real-time prototyping hardware targets, such as ES910 and ES830. INTECRIO also supports the Windows®-PC as a non-real-time target. INTECRIO closely interoperates with the modeling tools ASCET and Simulink, the measurement and calibration tools INCA and INCA-EIP, as well as with RTA-OSEK, RTA-OS, and RTA-RTE.

2.2. General Description

2.2.1. System Prerequisites

The following minimum system prerequisites have to be met:

Required Hardware	1.5 GHz PC, 4 GB RAM DVD-ROM drive Ethernet Adapter 10/100BaseT Graphic Adapter with 32 MB RAM, 16bit colors, DirectX 7 Screen resolution 1024 x 768
Required Operating System	Windows 10 (x64) Version 20H2
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 Multicore PC, 8 GB RAM DVD-ROM drive 2nd Ethernet Adapter 10/100BaseT Graphic Adapter 256 MB RAM, 32 bit colors, DirectX 7 or higher, and hardware acceleration Screen resolution 1600 x 1200
Recommended Operating System	Windows 10 (x64) Version 22H2
Recommended Free Disk Space	>2,0 GB

2.2.2. Software Prerequisites

The following versions of ETAS software products are recommended for usage with ETAS INTECRIO V5.0.5:

- ASCET-MD V6.4.5
- ASCET-RP V6.4.5
- Experiment Environment EE 3.8.5
- INCA V7.4.6 and INCA-EIP V7.4.6
- MDA V8.6.6, downloadable on the ETAS website [here](#)
- HSP V13.7.0

- INTECRIO-VPSYSTEM V5.0.5 (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) V1.8.11.24 (as provided along with INTECRIO V5.0.5)

The following products can be used in connection with INTECRIO:

ASCET

In order to use INTECRIO with ASCET, one of the ASCET-MD versions V5.1 to V6.4 needs to be present on the system.

Simulink

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

In total, INTECRIO V5.0.5 supports the following Simulink versions:

- Simulink R2018a and R2018b
- Simulink R2019a and R2019b
- Simulink R2020a and R2020b
- Simulink R2021a and R2021b
- Simulink R2022a and R2022b
- Simulink R2023a and R2023b

Virtual Prototyping

To use INTECRIO-VP, the INTECRIO VPSYSTEM is required. It is included on the installation DVD and gets installed with INTECRIO-VP.

ES4xx/ES63x/ES930 support with the Microcontroller Connector for ES830/ES910

To use daisy chain measurement modules for rapid prototyping with ES830/ES910 and INTECRIO, the corresponding configuration tool is needed. It can be downloaded [here](#) from <https://www.etas.com/>.

INCA and INCA-EIP

For experimenting with executable prototypes built with INTECRIO, INCA and INCA-EIP can be used. INCA versions starting with V7.0 are supported.

AUTOSAR Software Components

INTECRIO V5.0.5 allows the usage of existing workspaces using *.arxml files based on the AUTOSAR releases R4.0.3, R4.0.2, R3.1, R3.0 & R2.0. In INTECRIO V5.0.5, no new AUTOSAR software components (SWC) can be imported.

In a future INTECRIO version, the handling of AUTOSAR SWC will be changed completely and made more flexible.

2.2.3. Release Test Configuration

The release tests have been performed on Windows 10 (x64). INTECRIO V5.0.5 has been tested

together with HSP V13.7.0, INCA V7.4.6, INCA-EIP V7.4.6, Experiment Environment V3.8.4 as well as all supported Simulink versions.

2.2.4. Restrictions

For configurations other than recommended in section 2.2.2, compatibility restrictions may apply. Please read this document carefully for details.

INTECRIO makes use of some third party products. They are listed in section 2.3.1. These products are installed with INTECRIO automatically. The usage of the products is permitted under the respective licenses.

2.3. Delivery

The software is delivered with an installation routine on a DVD including ETAS INTECRIO software, documentation, tools, utilities, and further information. All software documentation is available in the Portable Document Format (PDF), which requires Adobe® Reader®. You find the installation link together with the product installation.

See the Getting Started Manual for details on the delivery.

2.3.1. Used 3rd Party Software

INTECRIO as well as the additional ETAS software make use of 3rd party software products released under their respective licenses. For details, please see the documents located on the DVD in the '.\Documentation\INTECRIO_Documents\OSS_Attributions' folder. The DVD also contains the sources themselves in the '.\Documentation\OSS_Sources' directory if required by its license.

2.4. Installation

To run ETAS INTECRIO, 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 below.

To install INTECRIO V5.0.5:

- 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.

During the installation process of ETAS Experiment Environment, the user has the choice to configure the setup for simultaneous use (e.g. in a bypass application) with INCA. Compatibility restrictions apply in combination with the ES830/ES910 compact rapid prototyping hardware and virtual prototyping.

Note

On some systems, a message like the following may appear during the installation of the Experiment Environment:

“The Windows Installer service cannot update the system file C:\WINNT\System32\asycfilt.dll because the file is protected by Windows. You may need to update your operating system for this program to work correctly.”

Click **OK** to continue the installation. No further action is required.

Section 2.5 describes the activation of your software license certificate. Please read this section carefully and follow its instructions.

To uninstall INTECRIO V5.0.5:

- 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, 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 <https://license.etas.com/flexnet/operationsportal/logon.do> 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 2.5. 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. INTECRIO.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 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 INTECRIO V5.0.5 with respect to earlier versions. Some of them are not mentioned in the documentation.

3.1. New Functionality in ETAS INTECRIO V5.0.5

INTECRIO V5.0.5 is a minor refresh and provides the following new features:

- Automapping of CAN frames to software tasks
When cycle times for CAN frames are provided in a CANdb file then these frames can be automatically assigned to the correct software tasks. Software tasks will be created automatically if needed. For more details see INTECRIO Online help.
- Support of Simulink R2022b, R2023a and R2023b
INTECRIO V5.0.5 supports Simulink versions from 2018a to R2023b.
- Support of ES891.2 and ES886.2 devices
These devices have integrated a new CAN controller that supports CAN XL in addition to CAN and CAN FD.
For Rapid Prototyping with INTECRIO currently only CAN and CAN FD are supported with ES891.2 and ES886.2 devices. INTECRIO does not yet differentiate between ES8xx.1 and ES8xx.2. You can select ES891/ES886 in for ES891.2/ES886.2.
CAN XL support for Rapid Prototyping will be available in a future release of INTECRIO.
Hint: Some CAN FD baud rate combinations are not supported anymore by the ES8xx.2 devices: Nominal / Data bit rate: 50 kb / 1 Mb, 83.3 kb / 3.2 Mb, 100 kb / 3.2 Mb are not supported. For details see HSP V13.7.0 Release Notes. INTECRIO is not checking the selected baud rate combinations. A model with an unsupported baud rate will start without any errors or warnings but the CAN FD communication might be not possible or unstable.
- Support of FETK-T3 ,FETK-T4 and BR-XETK-S4
This new ETKs can now be used for External Bypass.

Note

The ETAS Experiment Environment V3.8.4/V3.8.5 is not shipped with this INTECRIO version. It can be downloaded from <https://www.etas.com/intecrio-ee>

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

3.2. New Functionality in ETAS INTECRIO V5.0.4

INTECRIO V5.0.4 is a minor refresh providing improvements in usability and corrections of product defects. Below you find a short summary.

- Round Trip Time measurement with FETK

Now the Round Trip Time (RTT) for one start and one stop event can be measured (RTT = time needed to read data from FETK, calculate the model and writing back the results to the FETK). This can be used to determine the runtime of your configured Bypass.

The start and stop events are configured in INTECRIO. The RTT values are currently visualized only in the ETAS XCT Tool. The XCT Tool is part of the ETK Tools Package which can be downloaded [here](#). For more information see documentation or help of XCT Tool.

- Support of Simulink R2022a
Simulink R2022b will be supported with the next INTECRIO release V5.0.5. This is planned for end of 2023.
- Support of 64 bit versions of Experiment Environment (EE)
Starting with INTECRIO V5.0.4 only 64 bit versions of the ETAS Experiment Environment will be supported. 32 bit versions of the EE (versions up to 3.7.x) are not supported anymore. Only version V3.8.4 of EE and newer versions can be used with INTECRIO V5.0.4 and further INTECRIO versions.

Note

The ETAS Experiment Environment V3.8.4 is not shipped with this INTECRIO version. It can be downloaded from August 2023 from www.etas.com/intecrio-ee

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

3.3. New Functionality in ETAS INTECRIO V5.0.3

INTECRIO V5.0.3 is a minor refresh providing improvements in usability and corrections of product defects. New features are:

- Signal Connection Export and Import
Allows the reuse of signal connections (export and import) on System-Level and Software-System-Level. A simple ASCII text file format is used and connections can be defined or modified manually in the text file.
See example file “ConnectionImportExportExample.txt” in the INTECRIO example folder.
- Support of Windows 11
INTECRIO V5.0.3 can be installed and used on Windows 11. See Note below.

Note

INTECRIO V5.0.3 can be installed and used on Windows 11.

But Experiment Environment EE 3.7.14 cannot be installed and used on Windows 11.

To perform an INTECRIO VP or RP experiment under Windows 11, currently only INCA and INCA-EIP is supported!

- New added Hardware Devices are automatically added to Used Devices in the System. No need to add them manually to the System.

In INTECRIO V5.0.3, no new AUTOSAR software components (SWC) can be imported. It allows the usage of existing workspaces using *.arxml files based on the AUTOSAR releases R4.0.3, R4.0.2, R3.1, R3.0 & R2.0, though.

In a future INTECRIO version, the handling of AUTOSAR SWC will be changed completely and made more flexible.

3.4. New Functionality in ETAS INTECRIO V5.0.2

INTECRIO 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

ARXML Feature	Supported in INTECRIO V5.0.2
Detailed connector dependent parameters via CAN-CONTROLLER-CONFIGURATION-REQUIREMENTS and CAN-CONTROLLER-FD-REQUIREMENTS	no
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
Signal InitValue imported from COMUP-METHOD COMPU-DEFAULT-VALUE	yes

ARXML Feature	Supported in INTECRIO V5.0.2
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

In INTECRIO V5.0.2, no new AUTOSAR software components (SWC) can be imported. It allows the usage of existing workspaces using *.arxml files based on the AUTOSAR releases R4.0.3, R4.0.2, R3.1, R3.0 & R2.0, though.

In a future INTECRIO version, the handling of AUTOSAR SWC will be changed completely and made more flexible.

3.5. New Functionality in ETAS INTECRIO V5.0.1

INTECRIO 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 in INTECRIO workspaces.

Note

The support of ES1000 and RTPRO-PC has been discontinued with INTECRIO V5.0.0. Corresponding systems cannot be built anymore. INTECRIO V5.0.1 will **completely remove** hardware systems containing ES1000 or RTPRO-PC configurations from workspaces automatically, when they 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.

In INTECRIO V5.0.1, no new AUTOSAR software components (SWC) can be imported. It allows the usage of existing workspaces using *.arxml files based on the AUTOSAR releases R4.0.3, R4.0.2, R3.1, R3.0 & R2.0, though.

In a future INTECRIO version, the handling of AUTOSAR SWC will be changed completely and made more flexible.

3.6. New Functionality in ETAS INTECRIO V5.0.0

INTECRIO V5.0.0 provides the following new features:

- New options for handling of exported global parameters in Simulink (related to solved PR 628867)
- Table view of ES800-Stack
- Support of Simulink R2020b

Note

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 License 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. 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 V5.0.0 or V5.0.0 to the file system so that they can later be imported and reused on ES800 or ES900.

3.7. Compatibility to Earlier Releases

INTECRIO V5.0.5 is functionally upwards compatible with previous INTECRIO versions. For changes, please see the User's Guide and this document. Earlier INTECRIO versions can neither open models nor experiments that have been created with INTECRIO V5.0.5.

3.7.1. Changes in Scripting API in INTECRIO V5.0.3

Some new objects and methods were added in this version. Below you find a short summary. For details, please see INTECRIO help and the Scripting API help file "INTECRIOScriptingAPI.chm".

To get a reference to the new "Signal Connection Importer Exporter" object use the method

```
IIntecrioConnectionExporterImporter* GetConnectionExporterImporter()
```

This method is available in the objects `IIntecrioFunction`, `IIntecrioSoftwareSystem` and `IIntecrioSystem`.

A new method was added to the object `IIntecrioSignalGroup`:

```
IIntecrioSystemDevice* GetParentSystemDevice()
```

This method returns the device which owns this signal group.

To the object `IIntecrioPort` following new methods were added:

```
- IIntecrioPortType PortType()
- IIntecrioConnectable* GetParentConnectable()
- BSTR ShortName()
```

The new method `ConnectableType()` returns the type of the connectable.

This can be `Function`, `SoftwareSystem`, `System`, `Module`, `Device` or `SignalGroup`.

Is available at all `IIntecrioConnectable` objects:

`IIntecrioFunction`, `IIntecrioModule`, `IIntecrioSignalGroup`, `IIntecrioSoftwareSystem`, `IIntecrioSystem`, `IIntecrioSystemDevice`

The new method `ArePortsConnected()` checks whether two ports are connected or not, independent of their respective hierarchical level in the system.

Is available in `IIntecrioFunction`, `IIntecrioSoftwareSystem` and `IIntecrioSystem`.

```
VARIANT_BOOL ArePortsConnected(IIntecrioPort* pPort1, IIntecrioPort* pPort2)
```

The method `GetPortByName()` in the `IIntecrioConnectable` objects returns the port if the port name is unique. If the name is not unique and more than one port is found an error is returned.

3.7.2. Interface Changes for CAN/FlexRay User Hooks and FlexRay Algorithms in 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 userFlexRayPDU RxHook(T_FlexRay_PDU_HookData *ptrHookData);
void userFlexRayPDU TxHook(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.

3.8. Fixed Problems

This section describes the set of fixed problems of the released version of INTECRIO V5.x.x.

3.8.1. Issues Solved in INTECRIO V5.0.5

Problem Number Title

PR 734529	INTECRIO 5.0.4 - erzeugt A2L nicht in INCA einlesbar Special characters and double quotes are now handled correctly in the long identifier and will not lead anymore to errors of a2l import in INCA.
-----------	---

3.8.2. Issues Solved in INTECRIO V5.0.4

Problem Number Title

PR 695056	Workspace with umlauts (e.g. "Prüfstand") in the path name can be created successfully but the build fails Workspaces in folders with umlauts cannot be created anymore. A warning is displayed that only ASCII characters are allowed.
-----------	---

PR 686362	Execution of command failed. Error occurred during main-build The problem is now solved. In version 5.0.4, the Java environment was replaced with a 64 bit version.
-----------	---

726352	Wrong default value for Java VM memory is displayed in the UI The problem is now solved. In version 5.0.4, the Java environment was replaced with a 64 bit version.
--------	---

3.8.3. Issues Solved in INTECRIO V5.0.3

Problem Number Title

PR 685796	Experiment Environment 3.7.11: Create Workspace fails Multi-line descriptions in Simulink lead to several issues in EE and INCA. This is fixed, and the behavior is now: If a documentation-tag in the SCOOP-IX is multi-line - the first line is kept as LongIdentifier - create an ANNOTATION for the A2L element and put every line after the first into it. Additionally the limit of 255 characters for strings in an A2L file is now respected for LongIdentifier and ANNOTATION.
-----------	---

PR 691287	Hardware Initialization of INCA for Virtual Prototyping doesn't finish For Virtual Prototyping Models that use large number of characteristics or signals the Hardware Initialization in INCA-EIP did not finish. This is now fixed, and Hardware Initialization will finish as expected.
-----------	--

PR 676183	Import very large SIX coming from MATLAB in INTECRIO issue Very large six files created from large Simulink models could not be imported into
-----------	---

INTECRIO. The importer was modified and now also very large six files can be imported as expected.

PR 701970

Wrong log message for missing COMPU_METHOD in INTECRIO

The logging messages for missing COMPU_METHODS at the A2L import are corrected. The behavior is now:

1. Import of A2L file containing a MEASUREMENT referring a not existing COMPU_METHOD leads to a warning in the log window. Indicating that the ident formula will be used instead.
 2. Signal Selection of measurement with missing COMPU_METHOD (ident formula) results in an error in the log window to indicate that the user must either fix the problem or adapt his model to use the raw value.
 3. Building a system project containing a signal with missing COMPU_METHOD (ident formula) results in an error in the log window to indicate that the user must either fix the problem or adapt his model to use the raw value, but the hex file is created at the end on the user's risk.
-

3.8.4. Issues Solved in INTECRIO V5.0.2**Problem Number Title**

PR 662655

INTECRIO shows an error message at startup and later crashes

Under certain conditions, INTECRIO shows the following error message at startup:
`"GMPlugin: General exception in InstallTool at '119'
with error code : 0".`

Later, when working with INTECRIO, a crash occurs. This is due to a wrong or missing option setting in

`"%appdata%\Roaming\ETAS\INTECRIO5.0\Settings\GM\GM.opt."`

3.8.5. Issues Solved in INTECRIO V5.0.1**Problem Number Title**

PR 651641

Failing FIBEX import due to missing runtime redistributables

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

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).

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.

PR 656635	ES830 stand-alone operation failed
	Under certain conditions, the startup of ES830 failed when it was booted stand-alone from flash memory.

3.8.6. Issues Solved in INTECRIO V5.0.0

Problem Number Title

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.

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.

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.

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.

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.

3.9. Known Issue Reports

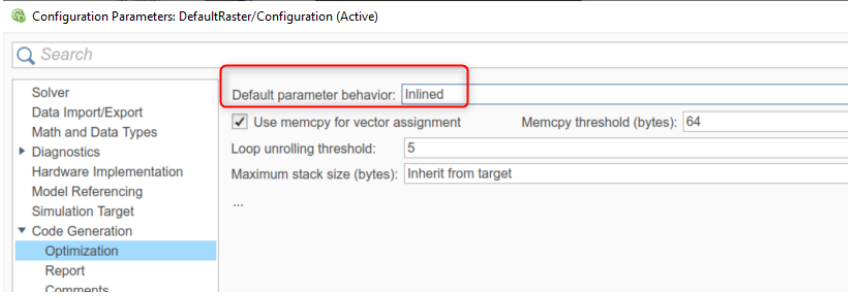
If a product issue develops, ETAS will prepare a Known Issue Report (KIR) and post it on the internet. The report includes information regarding the technical impact and status of the solution. Therefore you must check the KIR applicable to this ETAS product version and follow the relevant instructions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

The Known Issue Report (KIR) can be found here: www.etas.com/kir

3.10. Known Issues

This section describes the set of known problems of the released version of INTECRIO V5.0.5.

3.10.1. Known Issues of the Simulink Integration

Problem Number	Title
PR 745566	<p>INTECRIO Help in Simulink is not working correctly</p> <p>Due to changes in the Simulink Help system, INTECRIO Help may not work as expected. The INTECRIO help in Simulink is not displayed or not displayed correctly. It may also happen that the help of other Simulink components is no longer displayed correctly.</p> <p>If you encounter this problem, please contact ETAS support. See section 5.1.</p>
RR 726779	<p>Simulink Model build fails in R2021a</p> <p>In some cases the model build in Simulink R2021a will fail.</p> <p>Recommendation: The model build is successful with “Default parameter behaviour” set to “Inlined”.</p> 
PR 242265	<p>Simulink "Exported Global" Constants Are Not Listed in Global Section of EE/EIP-Workspace</p> <p>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.</p> <p>Recommendation: None; you may want to introduce a second instance of the constant to circumvent the problem.</p>
PR 245996, 330825	<p>A2L generation for Simulink supports no MEASUREMENTs</p> <p>A2L generation for Simulink matrixes only works with CHARACTERISTICs, not with MEASUREMENTs.</p> <p>Recommendation: none.</p>
PR 343163	<p>Some Custom Storage Classes not supported when working with Simulink Embedded Coder</p> <p>Recommendation: Choose the option "Ignore custom storage classes" in Simulink code generation.</p>

PR 334945, 343384, **Problems with A2L generation for Simulink Lookup Tables**

344407

The A2L generation for Simulink Lookup Tables sometimes leads to problems.

Recommendation: In Tools -> Options -> Project Integration -> ASAM-2MC Generation switch off the option "Generate ASAM2 MC files internally" for Simulink modules.

PR 346877, 351564, **Simulink look-up tables must have storage class "ExportedGlobal"**

356923

Due to limitations in Simulink and INTECRIO, Simulink look-up table blocks of types "Lookup_n-D", "Interpolation_n-D" and "LookupNDDirect" require special settings during Simulink code generation.

Recommendation: Please use "Inline Parameters" option and the 'ExportedGlobal' storage class according to the documentation.

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.

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.

PR 338871 **Simulink Fix Axes are not supported**

The A2L generation for Simulink Fix Axes sometimes leads to problems. These are generally not supported, but sometimes even lead to build errors.

Recommendation: In Tools -> Options -> Project Integration -> ASAM-2MC Generation switch off the option "Generate ASAM2 MC files internally" for Simulink modules to avoid the build errors.

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.

PR 377648

Changed handling of maps, curves, etc. in Simulink 2013b

In Simulink 2013b, Mathworks have changed the handling of maps, curves, etc. considerably compared to previous versions.

For this reason, the handling of these objects has been revised with INTECRIO versions starting with V4.4. For Simulink Coder, the new option "Enable legacy ASAM-2MC generation" has been added to the ASAP2 generation options, which can be activated for Simulink releases prior to R2013b only. If this option is switched on, INTECRIO V4.4 treats older Simulink versions in the same way as previous INTECRIO versions did. If the option is switched off (mandatory setting for Simulink R2013b and later versions), a new way of code generation is applied for maps and curves.

– Recommendation:

When the new way of ASAM-2MC generation is used (i.e. the option "Enable legacy ASAM-2MC generation" is switched off), the following conditions must be observed:

- When the Simulink optimization option 'inline parameters' is switched off, all data from maps, curves, etc., are implemented as fields of the Simulink global parameter structure. In this case, Simulink Coder does not provide information about input value references and axis references for maps, curves etc.. This means that the ASAM-2MC description (and thus the representation in INCA) will be incomplete. Therefore, this setting is not recommended.
- When the Simulink optimization option 'inline parameters' is switched on (recommended), an ASAM-2MC description (and thus the representation in INCA) for any object will only be available, if a dedicated storage class, e.g. "ExportedGlobal", not "Auto", is chosen. I.e. all data objects that users need to view or modify with INCA must be explicitly configured for that purpose. In this case, look-up table parameters, which are supported by the native Simulink Coder (previously Real-Time Workshop) ASAM-2MC generation, will be represented in INCA correctly and completely.

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. +/-10³⁰⁵ manually. On request, ETAS can provide you with an example script doing this for the complete model.

PR 427768

2D Table of a Simulink Project in INCA Experiment

Error when adding 2D Table into INCA Experiment of a Simulink Project built in INTECRIO.

Recommendation: select "generate a2l internally" in INTECRIO, the error will not occur then.

PR 427464	Installation conflict between Matlab/Simulink and INTECRIO/ RLINK Matlab/Simulink is blocked after installation/association of INTECRIO or RLINK due to info.xml Recommendation: Remove info.xml files from INTECRIO installation
PR 448926, 462541	Constant Parameters cannot be shared for several Simulink Models A const_parameter.c file cannot be compiled for each Simulink module individually. In consequence all files which would like to make use of global constant parameters must be located in the same directory and must make use of the same "slprj" folder. The same problem occurs if the common "slprj" folder is deleted between several model builds. An error in the following style will occur: GNU_QCC_CROSS_LINKER undefined reference to `rtCP_pooled_<unique identifier>' Recommendation: regenerate all models without deleting the slprj folder or use 'set_param(gcs,'GenerateSharedConstants','off');' in the MATLAB command prompt before regenerating all models.
PR 473169	Custom 2D Table are shown as scalar element in INCA Recommendation: none.
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.
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.
PR 564344	Build fails if model name is 'add' Recommendation: avoid this name in INTECRIO models.
PR 614781	Init values of Lookup Tables objects are not always exported to SCOOP-IX/A2L If a Lookup table makes use of a lookup table objects defined in the Model Explorer, the initial values located in the lookup table objects are not considered. Recommendation: none.

PR 616142	Build fails when using a referenced model containing a Datastore block built in Simulink 2016b with specific settings
	<p>Build fails when building a Simulink module under the following conditions:</p> <p>The evpt_grt/ erpt_grt target is used AND optimization 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).</p> <p>Recommendation: Change one of the before-mentioned settings.</p>
PR 619096	Simulink coder build fails with "Conflicting ParameterGroup references"
	<p>X and Y axes are defined for look-up tables as Matlab variables.</p> <p>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.</p> <p>Recommendation: use each X and Y axis in one unique way, either as X or as Y axis in your model.</p>
PR 627021	Building very large model works after pressing Ctrl-D only
	<p>The build of very large models in Simulink may fail, if memory is not sufficient for the Simulink code generation. This may in particular affect the INTECRIO code generators, because their memory needs are higher.</p> <p>Recommendation: 'Update Diagram' (Ctrl-D) optimizes the model before building it and may avoid the out-of-memory problem.</p>
PR 634009, 634083, 651668, 658781	Simulink protected referenced models are not supported in many cases
	<p>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.</p> <p>Recommendation: don't use protected models in such a situation.</p>
PR 648129	An A2L file with a CURVE/MAP and shared table data but unique breakpoints can cause issues in INCA
	<p>The A2L file format doesn't allow to describe a corresponding modeling concept supported by Simulink. Consequently INCA cannot display the shared curve/map.</p> <p>Recommendation: Don't use the same CURVE/MAP data with different sets of breakpoints/axes.</p>
PR 685516	Backanimation in Simulink is not working for versions 2021a/b
	<p>It is not recommended not to use the Backanimation feature with Simulink 2021 versions.</p>

PR 673564	Incorrect Min and Max limit of calibration parameters for fixed point logic when generating with Matlab Simulink
	<p>When using fixed point blocks in Simulink the allowed range is written to the Scoop-IX file. This is later on used for setting the range in the A2L file which will be used by the calibration tools e.g. CommonEE or INCA.</p>
	<p>However the values are not correctly written and are sometimes too large causing a wrap around when these values are set. Or sometimes the values are too small causing an artificial limit for the end user.</p>

3.10.2. Properties and Known Issues of the ASCET Integration

Problem Number	Title
	<p>OS auto mapping of ASCET processes</p> <p>If a module is exported from ASCET using the default project, no timing information for the processes is provided. The automatic mapping provided by the INTECRIO OSC skips these processes without any log entry.</p> <p>Recommendation: assign these processes manually.</p>
	<p>ASCET module information lost if code generation settings changed</p> <p>When the user switches from OID-based code generation to name-based code generation in ASCET, INTECRIO is not able to update the modules accordingly.</p> <p>Recommendation: the model must be reconstructed</p>
	<p>Incomplete ASCET V5.1.2 support of non-volatile RAM</p> <p>Variables in non-volatile RAM can only be measured in INTECRIO, when generated with ASCET V5.1.2 or an earlier version. They can also be calibrated when using ASCET V5.1.3 or later.</p>
	<p>Inconsistency for “cont” elements with conversion formula</p> <p>If a “cont” element has a conversion formula, this formula is not represented in the ASAM-2MC file, which is correct. It is represented in the SCOOP-IX file, however, which is wrong.</p> <p>Recommendation: only use the “ident” formula for “cont” elements.</p>
	<p>Linker errors, if multiple ASCET projects are generated into one directory</p> <p>File name conflicts arise if multiple ASCET projects are generated into one code generation directory.</p> <p>Recommendation: use one code generation directory per ASCET project</p>
PR 530295	<p>Restrictions when using ASCET messages with nonlinear formulas</p> <p>INTECRIO does not support non-linear formulas from ASCET models. The complete model import was refused in the past. Now the import is done, but for the corresponding variables, the “ident” formula is used.</p> <p>Recommendation: Check the validity of the prototype behavior carefully in this case.</p>

3.10.3. Known Issues of the Daisy Chain Integration

Problem Number	Title
	<p>Data transmission cycle times within a daisy chain setup depend on each other</p> <p>The data transmission periods of all modules within an ES4xx chain are always 2^n times the data transmission period of the fastest module ($n = 0, 1, 2 \dots$).</p> <p>Example: let the fastest ES4xx module transmit data in an $80 \mu\text{s}$ cycle. Then all other transmission periods within the chain must be from the following list:</p> <ol style="list-style-type: none"> 1. $80 \mu\text{s} = 80 \mu\text{s} \times 2^0$ 2. $160 \mu\text{s} = 80 \mu\text{s} \times 2^1$ 3. $320 \mu\text{s} = 80 \mu\text{s} \times 2^2$ 4. $640 \mu\text{s} = 80 \mu\text{s} \times 2^3$ 5. $1280 \mu\text{s} = 80 \mu\text{s} \times 2^4$ 6. ...
PR 329527	<p>Changing filter settings in the Daisy Chain configuration may require OS reconfiguration</p> <p>A change in the Daisy Chain filter settings may result in new signal groups and thus in new OS processes.</p> <p>Recommendation: Make sure to map these new processes in the OS according to your needs. Otherwise their corresponding signals will not be shown in the experiment.</p>

3.10.4. Known Issues of 3rd Party Tools

Problem Number	Title
	<p>Special characters cause Python script execution to fail</p> <p>Python cannot execute scripts containing particular characters, e.g. an apostrophe (<code>'</code>).</p>
	<p>Compiler keyword checking is stricter than in ASCET</p> <p>When migrating from ASCET to INTECRIO, some keywords, which are allowed in ASCET (e.g. "random"), will be forbidden by the compiler.</p> <p>Recommendation: avoid using any GNU C standard identifiers as names for software modules, messages, etc.</p>
	<p>Special method syntax for Python scripting with the Experiment Environment</p> <p>With Python as scripting language, argument-less methods must be used without parentheses for the automation of the Experiment Environment. E.g., <code>SignalSources.Download()</code> will fail.</p> <p>Recommendation: use <code>SignalSources.Download</code> instead</p>

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.
PR 85703, 2008405764	RTA-OSEK for PC path must be adapted for each user individually Recommendation: If a workstation is used by multiple users, the path to the RTA-OSEK installation must be entered for each user individually. In Tools → Options, open "Project Integration" → Tools. Under "Select tool", choose the "LiveDevices RTA-OSEK Tools for PC Target" entry and enter the installation path under "Tool path". Also the "RTA-OSEK Easy Installer" from the INTECRIO product DVD initializes the path for all users correctly.
PR 86062	QCC crashes with internal compiler error In rare cases, QCC cannot compile projects. Recommendation: disable compiler optimization.
PR 93988	RTA tools need to be started by "Run as administrator" command Otherwise, RTA tools do not install properly.
PR 372935	Scripting with Python requires at least Python V2.7.4 ActivePython V2.7.1.4 and older versions do not work with INTECRIO due to a missing runtime library reference. Recommendation: use at least Python V2.7.4

3.10.5. Known Issues of the Experiment Environment (EE)

Problem Number	Title
PR 715969	<p>Recording in Adaptive Execution mode is taking too long</p> <p>When Adaptive Execution mode is selected for recordings and recording is stopped the data logger stays in the postprocessing state for a long time. (sometimes hours depending on the recording time).</p> <p>Recommendation: Do not use Adaptive Execution mode for recordings.</p>
PR 717452	<p>CEE Model Download fails in Admin Mode</p> <p>When EE V3.8.4 is launched with Admin Rights a model cannot be downloaded to the hardware.</p> <p>Recommendation: Start Experiment Environment without Admin Rights.</p>
	<p>Problems with Screensaver during endurance tests</p> <p>During endurance tests some interference problems between the Windows screensaver and the RT Oscilloscope have been observed. They may lead to a freeze of the RT Oscilloscope</p> <p>Recommendation: disable the screen saver when performing endurance tests.</p>
	<p>Special method syntax required for Python scripting</p> <p>With Python as scripting language, argument-less methods must be used without parentheses for the automation of the Experiment Environment. E.g., <code>SignalSources.Download()</code> will fail.</p> <p>Recommendation: use <code>SignalSources.Download</code> instead.</p>
PR 67072, 436699	<p>3D-arrays are not supported</p> <p>Recommendation: use a number of 2D-arrays.</p>
PR 307147	<p>Signal generation not supported for AUTOSAR systems</p> <p>The signal generation cannot stimulate signals in AUTOSAR systems.</p> <p>Recommendation: none.</p>
PR 307163	<p>Enumeration typed value block parameters unsupported by EE</p> <p>Enumeration typed value block parameters are supported by INTECRIO for Simulink, but cannot be handled by the Experiment Environment.</p> <p>Recommendation: INCA-EIP supports these parameter types</p>
PR 657427	<p>Parallel usage of INTECRIO-EE and INCA V7.3 fails</p> <p>It is not possible to use INTECRIO EE V3.7 and INCA V7.3 at the same time.</p> <p>Recommendation: If you need parallel access to the ECU and the Rapid Prototyping System please use the INCA add-on INCA-EIP instead of INTECRIO-EE.</p>

3.10.6. Known Issues of INTECRIO, including VP and RP

Problem Number	Title
RR 726779, 735782	<p>INCA Checksum error when using cdfx files</p> <p>If you start your INCA experiment, you may get checksum errors.</p> <p>The reason is that INCA V7.4.x has as a shortcoming in processing .cdfx files. INCA assumes a certain sorting in this file, whereas the CDFX file definition standard doesn't describe any particular order. This is a known issue and is filed to be fixed in the future.</p> <p>Until the fix is available, you can work around the problem by an upload of the data set (if an E-target is connected), as it is offered in the memory page manager of INCA or just deleting the cdfx file.</p>
	<p>No undo/redo for scripting</p> <p>For scripting, no undo/redo is supported.</p>
	<p>No dynamic module reconfiguration after reconnect</p> <p>For safety reasons, the dynamic reconfiguration of module connections is not possible after a reconnect anymore. The "update" button becomes inactive.</p> <p>Recommendation: download the executable prototype to the hardware again.</p>
	<p>Uncritical XSL validation errors during document generation</p> <p>Especially when using ISR event dependencies in the model, uncritical validation errors occur.</p> <p>Recommendation: none.</p>
	<p>Incremental build does not work after previous linker error message</p> <p>Once the linker generates an error message, system re-build is necessary.</p> <p>Recommendation: re-build the system.</p>
	<p>Virtual prototyping: model task periods must be 100 µs or larger</p> <p>For virtual prototyping, task periods smaller than 100 µs are not supported.</p> <p>Recommendation: none.</p>
	<p>Message copy bitmasks used in service based bypass must be consistent with original bitmasks</p> <p>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.</p> <p>Recommendation: none.</p>
PR 66903	<p>No warning for CAN frame size overflow</p> <p>INTECRIO does not notify the user, if a CAN frame contains too many bytes</p> <p>Recommendation: check frame size in the graphical frame layout editor.</p>
PR 67066	<p>CAN interrupt dT monitoring overflows</p> <p>When monitoring the time difference between CAN interrupts, for</p>

	performance reasons only values less than 4.29s are detected correctly. Recommendation: none.
PR 67072, 332317	3D-arrays are not supported for Simulink integration and in the EE Recommendation: use a number of 2D-arrays.
PR 67777	Double quotes (“) as a part of a unit in A2L not supported The Experiment Environment fails to open A2L files, which contain double quotes inside unit definitions.
PR 69255	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.
PR 69897	Strange message when exporting workspaces to a write-protected location INTECRIO reports a general error and “Unbekannter Fehler” in this case. Recommendation: export to a different location or remove write-protection.
PR 69904	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.
PR 70810	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.
PR 73676, 383452	Low disk space may cause data loss Saving to a location with low or no disk space may cause unexpected behavior and data loss. The same is true for importing workspaces or building system projects. Recommendation: always be sure to have plenty of free disk space on the drive your workspaces are on.
PR 74231	Experiment cannot be started after document generation Projects are set into “edit” mode after document generation, thus no experiment can be started. Recommendation: Execute “build” again.
PR 74310	“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.
PR 75282	Change of documentation template requires INTECRIO restart

	<p>Changing a documentation template becomes effective after the next INTECRIO start only.</p> <p>Recommendation: restart INTECRIO.</p>
PR 76336	<p>Workspace export/import only considers experiments inside workspace folder</p> <p>If an experiment configuration (*.eex) is located outside the workspace folder, it is not exported together with a workspace export. After importing the corresponding workspace again, the experiment configuration is not found automatically anymore.</p> <p>Recommendation: locate your experiment files inside the workspace folder or open experiments at the correct path manually from the EE.</p>
PR 80586	<p>Signals during FIBEX import due to missing data type entries</p> <p>If a signal has no <ho:BASE-DATA-TYPE> entry in FIBEX, it is not imported.</p> <p>Recommendation: modify the FIBEX file manually.</p>
PR 83662	<p>Useless “Error 1931” message during installation</p> <p>A message like the following may appear during the installation of the Experiment Environment:</p> <p>“Error 1931: The Windows Installer service cannot update the system file C:\WINNT\System32\asycfilt.dll because the file is protected by Windows. You may need to update your operating system for this program to work correctly.”</p> <p>Recommendation: Click OK to continue the installation. No further action is required.</p>
PR 84292	<p>Disconnect from virtual prototyping experiment deteriorates VP UI</p> <p>The virtual prototyping user interface may show wrong behavior after disconnecting from a running virtual prototype and downloading again.</p> <p>Recommendation: do not disconnect before second download.</p>
PR 85060	<p>Overlapping IP addresses can cause malfunction of XCP on UDP</p> <p>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.</p>
PR 245112, 245049, 242321	<p>Build fails if path names contain exotic UTF8 characters</p> <p>Some UTF8 characters (e.g. the “€” sign) cause build errors, if they are used in the installation path name, the workspace path name, or in the module path name.</p> <p>Recommendation: avoid UTF8 characters in path names and file names.</p>
PR 85254	<p>Some documenter options do not take effect</p> <p>Recommendation: none.</p>
PR 85916	<p>Static connections can be switched in online mode</p> <p>Even if they are configured as “static”, connections can be switched in online</p>

	mode. Recommendation: none.
PR 1003513	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.
PR 1003678	Properties cannot be changed via Scripting Several property settings cannot be influenced via the scripting interface. Recommendation: none.
PR 242342	The ASAM-MCD2-MC file entry "max write variables" is not applied During bypass configuration, the "max write variables" field is ignored. Recommendation: none.
PR 244001	Code generation fails if a module contains native struct (no typedef) Code generation fails if the SCOOP-IX file contains a description of a native struct (no typedef). Recommendation: none.
PR 244895	Invalid figures (i.e. inf, NaN) are converted to valid numbers When a float64 number is transmitted between a software system and a hardware system, invalid figures (i.e. inf, NaN) are converted to valid numbers. Recommendation: none.
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.
PR 245177	Wrong message during ASCET-OS import: ASCET OS description contains periodical task 'Task01' with setting 'autostart = true', but only 'false' is supported This message is wrong. All periodical tasks are auto-started by default. Recommendation: none.
PR 245410	Some license manager features are not implemented For INTECRIO, the license manager does not support interactive installation, auto-borrowing, etc. Recommendation: Open the license manager manually and perform the required tasks.
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.
PR 245483, 245547	System project option "Additional compiler include search path" applies to "additional C files" only Recommendation: none.
PR 245489	Linker error message "...undefined reference to `runnable`" For ASCET SW components, messages like the following may be generated: "OSC\auto_runnable.o(.text+0x18):auto_runnable.c: undefined reference to `runnable`" Recommendation: please set "events and periods" for the runnables in ASCET properly.
PR 245504	Redefinition warnings when building AUTOSAR project (R3.1.0) These redefinition warnings are harmless. Recommendation: none.
PR 245517	The ASAM-MCD2 file entry "max write variables" is not applied Recommendation: none.
PR 245537	No error message during AUTOSAR build process, if a file is not found INTECRIO displays information messages only, if an AUTOSAR project cannot be built due to missing files. Recommendation: none.
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.
PR 245739	No error message when trying to mix AUTOSAR SWCs from different AUTOSAR releases AUTOSAR SWCs from different AUTOSAR releases cannot be mixed in one system project. INTECRIO does not notify the user in this case. Recommendation: ensure by other means to use AUTOSAR SWCs from only one AUTOSAR release in one system project.
PR 245821, 333519, 333761	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.
PR 245832	INCODIO blocks sharing the same global variable are not supported Recommendation: you may contact ETAS for a manual workaround.

PR 249366	<p>Virtual prototyping execution occasionally crashes when exchanging one prototype with another</p> <p>Recommendation: Stop virtual prototype execution using the system tray icon and close and reopen INCA to launch execution of a different virtual prototype.</p>
PR 250217	<p>No simultaneous VP Debugging and ASCET back animation</p> <p>ASCET back animation and debugging are not possible simultaneously during virtual prototyping experiments.</p> <p>Recommendation: Close either back animation or the debugger.</p>
PR 279550	<p>Not all code lines support stepping during VP debugging</p> <p>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.</p> <p>Recommendation: Set multiple breakpoints and jump from breakpoint to breakpoint. For further details see RTA-OSEK for PC User Guide.pdf, chapter 16.2 on page 263.</p>
PR 307168	<p>“AUTOSAR Version Mismatch” messages are displayed during AUTOSAR build</p> <p>During the AUTOSAR build procedure, “AUTOSAR version mismatch” messages may be shown, even if the build is successful.</p> <p>Recommendation: If the system is set into "Built" mode after the build procedure, you may ignore the wrong messages.</p>
PR 312188	<p>Simulink code generation ignores lower/upper bounds for local data elements</p> <p>The generated A2L file does not contain information on the value ranges of local elements.</p> <p>Recommendation: none.</p>
PR 324265	<p>Deleting FlexRay frames causes unexpected error messages</p> <p>When deleting FlexRay Frames from an existing configuration, sporadic harmless error messages like the following may show up:</p> <p>Error ... Data Management Object Server 0xC0410001 OID ... is not available in this transaction (sessionId = 0).</p> <p>Recommendation: Ignore the messages.</p>
PR 328972	<p>Timer task names longer than 39 characters are not allowed</p> <p>If the name of a timer task exceeds 39 characters, INTECRIO generates the error message "LD_RTA_BUILD-EC315: The identifier: ... exceeds the maximum allowed length of 40 characters." The reason is that internally, additional characters are appended to the task name.</p> <p>Recommendation: use timer task names shorter than 40 characters.</p>

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.
PR 324930	Long path names for workspaces lead to malfunction Very long path names lead to wrong behavior of INTECRIO. Recommendation: make sure to store INTECRIO workspaces in directory paths with less than 100 characters.
PR 325099, 338938	Host connection lost if startup of hardware system takes too long If the startup phase of a hardware system (ES910, ES1000, or RTPRO-PC device) takes too long, the connection to the host PC gets lost and an interface error occurs.
PR 327296	Target Server cannot handle large matrices in prototyping experiments The Target Server, which establishes the connection between the prototyping hardware and the Experiment Environment (INCA-EIP or ETAS Experiment Environment) cannot handle large matrices. The maximum size supported is 63x63 elements. Recommendation: do not use matrices larger than this limit.
PR 327857, 643180	Workspace folder must not be deleted or modified by the user Modifications of the folder containing an INTECRIO workspace, or of the files within the folder, might not be possible, while INTECRIO is open. In general, such modifications can lead to unexpected tool behavior and even a crash. Recommendation: do not alter workspace folders manually.
PR 328798	Some *.mat files cannot be imported into ETAS Experiment Environment for signal generation Recommendation: To create a valid signal generator set in MATLAB, please proceed according to the following example. On the MATLAB command line, enter, e.g., the following commands: <pre>>> t1=0:0.1:10; >> t2=0:0.5:30; >> s1=sin(0.5*pi*t1)+1; >> s2=3*cos(0.2*pi*t2); >> X=[t1' s1']; >> Y=[t2' s2']; >> save F:\DemoProject\signals.mat X Y;</pre> This example creates the MATLAB file „signals.mat“ with the two signals X and Y as matrices.

PR 329121	CAN Nodes with specific names are ignored during the CANdb import Node names beginning with the String "Vector_" are ignored during the CANdb import. Recommendation: none.
PR 329491	Wrong error message when using "INTECRIO Tools --> Virtual Prototyping" from the Windows start menu When using "INTECRIO Tools → Virtual Prototyping" from the Windows start menu, a message may occur that a license file is missing. Recommendation: Ignore this message. No extra license file is needed to run VRTA-OSEK with INTECRIO-VP.
PR 331928	ETK to CAN gateway generation fails, if the configuration file is located on a network drive Recommendation: Place the file on a local drive.
PR 340411, 341610	System projects containing a large number of modules cannot be linked Linking fails for system projects containing a large number of modules. Recommendation: none.
PR 341609, 341610	Build fails with large workspaces Workspaces with a large number of modules cannot be built. Recommendation: none.
PR 349744	Non-linear conversion formulas are not supported for messages SCOOP-IX files containing non-linear conversion formulas for messages are not supported. An error message will be generated in this case. Recommendation: Use linear conversions only.
PR 351828	Relative paths are not supported in SCOOP-IX for referenced libraries If a reference to a library file is included in a Simulink model, the code generation creates an absolute path to that library in the module description (SCOOP-IX) file. So relative paths are not supported. Recommendations: either store libraries under fix paths on all involved workstations, or modify the SCOOP-IX file manually.
PR 356147	LIN I/O and Monitoring is not supported simultaneously Recommendation: if possible, do monitoring on one LIN port and I/O on the other LIN port of the ES910.
PR 358043	Rebuild All required after compiler change. Build is not sufficient. A full rebuild is needed in INTECRIO after changing the compiler, e.g. from GCC V3.4.4 to V4.7.2. Due to incompatible object files, incremental build is not sufficient. Recommendation: after changing the compiler, rebuild the project.

PR 359247	Build fails after update of AUTOSAR SWCs, if their AUTOSAR version has changed
	During the update of AUTOSAR SWCs, INTECRIO does not recognize if the AUTOSAR release version has changed. As a consequence, the build process may fail.
	Recommendation: please remove the SWC from the project and import it again.

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.

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.

PR 385035	INTECRIO Experiment Environment does not support the FIX_AXIS keyword in ASAM-2MC
	Recommendation: None.
	Note that INCA-EIP supports FIX_AXIS.

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.

PR 399833	Option "Create standalone code" must be active to use environment systems
	In a System Project, the communication between a contained Environment Systems and a Software System is only ensured, if the code generation option 'Create standalone code' is switched on.
	Recommendation: Do not change the default setting and keep the option switched on.

PR 401597	<p>Build Problems if an ASCET-RP Project is Transferred to INTECRIO, Including the Hardware Configuration</p> <p>If an ASCET-RP project is transferred to INTECRIO including the hardware configuration, the build process will fail in INTECRIO. Recommendation: Remove the hardware configuration before the transfer.</p>
PR 436873	<p>BlockSimu: If signal recording fails, repeated error messages are generated</p> <p>If signal recording fails, repeated error messages are generated. FATAL[I_DATA_ACCESS]: SIGNALGENSV: 0x7120: Failed to record signals. FATAL[I_DATA_ACCESS]: SIGNALGENSV: 0x7120: Failed to record signals. (thousands of messages following)</p>
PR 435757	<p>BlockSimu: With ASCET module, if the value in the DCM file is outside the datatype range, the measurement value is not correct</p> <p>With ASCET module, if the value in the DCM file is outside the datatype range, the values are not saturated No error message is logged In case of array, if the index is out of range, no error is logged For arrays, the values from DCM file is not considered Recommendation: Please check DCM before usage</p>
PR 433815	<p>BlockSimu: VP-ECU crashes if mgx file is present while calibrating for Arrays</p> <p>For some workspaces used for the block simulation mode, VP-ECU crashes if mgx file is present while calibrating for arrays.</p>
PR 409123	<p>Adding large number of Modules to the Software System not possible</p> <p>Limit of 24.000 ports detected. Recommendation: Stay inside the limitation of 24.000 ports</p>
PR 412422	<p>INTECRIO help document for the blocks is not visible in Matlab online help window since Matlab 2012</p> <p>The help document about the INTECRIO Simulink blocks are not visible any more in the Matlab online help window since Matlab 2012.</p>
PR 414128, 540162	<p>Special characters (i.e. ä, ö, ü) are not allowed as part of path</p> <p>Some 3rd party components used in INTECRIO (ruby, gcc) cannot handle German special characters. Recommendation: Do not use special characters in any paths</p>

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'
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.
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.
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.
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.
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.
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.

PR 595114	<p>Custom ENUM types of Matlab are not fully supported</p> <p>If Enumerations are created in Matlab using the following command:</p> <pre>Simulink.defineIntEnumType('Enum_EnmTest', ... {'Test1', 'Test2', 'Test3'}, ... [0,1,2], ... 'Description', 'Test', ... 'DefaultValue', 'Test1', ... 'AddClassNameToEnumNames', false, ... 'StorageType', 'uint8');</pre> <p>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.</p>
PR 600627	<p>Long ES830 timeout time in case of bypass connection loss</p> <p>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.</p> <p>Recommendation: Wait until ES830 becomes accessible again.</p>
PR 615988	<p>Migration of ES900 to ES800 is not working with AUTOSAR ports and empty OS task</p> <p>Recommendation: Create task assignments in the OS configuration.</p>
PR 618884	<p>Incorrect error shown in INTECRIO during HWX export & import</p> <p>During HWX export or import, INTECRIO may show an incorrect error related to inconsistent IP address settings.</p> <p>Recommendation: Ignore the error.</p>
PR 624946	<p>Conflicting file names, if Windows is configured to use 8.3 path names</p> <p>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.</p> <p>Recommendation: Use file names that are unique before the fourth character of the file name extension.</p>
PR 625314	<p>User interface is sporadically broken</p> <p>In rare cases, the icon bar is broken and ICONS are displayed in more than one horizontal line.</p> <p>Recommendation: delete the following key in the Windows Registry: Computer\HKEY_CURRENT_USER\Software\ETAS\INTECRIO x.y. This will reset the toolbar to the original setting.</p>
PR 626002	<p>Scripting cannot add signal to signal group under certain conditions</p> <p>This is the case, if the signal selection mode is changed to "All".</p> <p>Recommendation: none.</p>

PR 626555	Error Occurs While Migrating ES900 Configurations to ES800
	<p>The migration of a hardware configuration from ES900 to ES800 may fail if the workspace contains an ES1000 system.</p> <p>Recommendation: Remove the ES1000 configuration from the workspace. If its content is still needed, you may export it before deletion, so that it can be retrieved later.</p>
PR 627067	The “Run Script file” menu item in INTECRIO is not supported for Python 3.x.
	<p>Recommendation: Use Python 2.x, at least Python 2.7.4 or start Python 3 scripts outside INTECRIO. You can then also enable an external script to start INTECRIO or to attach to an INTECRIO instance already running.</p>
PR 628412	LIN slave device allows adding of unconditional send frame into event-triggered frame which contains already an unconditional receive frame
	<p>INTECRIO allows users to add an unconditional send frame to an event-triggered frame that is not empty, i.e. already contains unconditional receive frames.</p> <p>Recommendation: don't add such a send frame.</p>
PR 636076	Using Simulink Asynchronous Process with Model Variants
	<p>If Simulink model variants is used in combination with the asynchronous process, the Simulink build may fail.</p> <p>Recommendation:</p> <ul style="list-style-type: none">- Set the mode of the Async Process block to "RTW-Build."- Select "Support continuous time."
PR 636212	Changes in Scripting for the IntecrioETCParameter Interface
	<p>For enum types contained in the IntecrioETCParameter 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.</p> <p>Recommendation: For enum types contained in the IntecrioETCParameter, the Value attribute can now be set as follows:</p> <ul style="list-style-type: none">- 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. <p>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.</p>

PR 637848

Controller names are not checked for uniqueness in hardware configuration

INTECRIO allows users to freely define the names of hardware controllers and FlexRay devices. INTECRIO 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.

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.`

Recommendation: Restart the ES800 system to release the error in this case.

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.

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.

PR 673126 **Difference in displayed signal names for matrix elements generated by INTECRIO and INCA names from A2L file**

INCA displays signal names generated by INTECRIO and names from A2L file different.

INTECRIO is bound to the C language perspective, because all the model code is finally written in C. In C the first index is the row number, the second the column number, both starting with 0.

INCA handles matrixes like maps with x and y axis as defined in A2L standard: the first index is the column number, the second the row number, both starting with 0.

PR 673126 **“Maximum number of DAQ Lists for this event exceeded” error occurs when starting XCP bypass**

This problem occurs when too many signals are used for the XCP bypass. The number of selected signals exceeds the size of the DAQ or STIM list in the ECU. For the MC use case with INCA, the XCP functionality MEASUREMENT_SPLIT_ALLOWED is used to minimize the memory usage of signals in the DAQ list in the ECU.

To ensure data consistency for rapid prototyping with INTECRIO, MEASUREMENT_SPLIT_ALLOWED cannot be used and is therefore not supported. This results in higher memory usage in the DAQ list of the ECU and reduces the number of usable DAQ and STIM signals for the XCP bypass.

PR 667708 **An error occurs when importing a Simulink model (six file) to INTECRIO**

When using Japanese characters in Simulink for explanations or comments the import of the generated six in INTECRIO fails.

Recommendation:

Do not use any Japanese characters for names, explanations or comments in Simulink (and INTECRIO).

4. Hints

4.1. Scripting Support for Referenced Models

The new feature introduced with INTECRIO 4.7.1 supporting now referenced Simulink Models does also include an extended scripting support.

For a better understanding we ship an example script which is located here:

[%userprofile%\documents\ETAS\INTECRIOx.x\Scripting\Python\Import_Reference_Module.py](#)

4.2. Precautions Using Dynamic Reconnection Functionality

INTECRIO features an exciting functionality: it enables you to modify connections between modules, and hardware ports as well, dynamically, while the experiment is running. This way, you can easily validate and verify modules and compare different versions of them (see user's guide for more details). Nevertheless, this functionality can also cause damage to the overall system if used incorrectly. Therefore, we want to give you some important hints, when working with this functionality:

- Please make sure, that a dynamically changed connection does not damage your overall system behavior. As the overall system behavior is created by you, it is your responsibility to ensure that the overall system is still in a usable state after reconnecting dynamically.
One example for possible unwanted behavior is the following: assume you have two A/D inputs, and one holds the desired throttle position, the other the steering wheel angle. If you change the input of a module from one channel to the other, the overall system behavior will be undefined.
- When deleting an input to a control algorithm module (so the input is now unconnected), the implementation of INTECRIO runs a sample and hold functionality. This means the last valid input value is applied to the module input. It is your responsibility to ensure that the overall system is still in a usable state after disconnecting dynamically. It is neither possible nor desirable to configure a default value for each module input for such cases, since the computation result of the module depends on its internal structure, which is (based on the concept of INTECRIO) not known to INTECRIO.
One example for possible unwanted behavior is the following: assume you have a PID controller, and you disconnect the actual value (the feedback loop), the control algorithm will not result in stable behavior of the overall system.

4.3. 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 "logfiles" directory. These files may also be useful if you contact the ETAS support.

4.4. Preventing from Workspace Inconsistencies

Although INTECRIO has been developed with a strong focus on stability and software quality, workspace inconsistencies due to program failure cannot be excluded. However, you can reduce the risk of data loss by some easy countermeasures:

- Utilize a SCM system or similar procedure that keeps a history of "backups" of your work
- Use the "Save" feature regularly to minimize the amount of pending changes that could be lost
- If you experience "strange" error messages or suspicious application behavior, use "Save As" when trying to keep your changes. Do not just save your changes upon closing the workspace or INTECRIO. The data may already be inconsistent at that time.

4.5. Administrator Rights Required

For the following actions administrator rights are required:

- The installation of INTECRIO;
- 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, and RTA-Trace.

4.6. Full Access Rights to Files Required

INTECRIO requires full create/read/write/delete rights to all files and directories of the workspace. It 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 will detect insufficient rights automatically when the user tries to open a workspace. However, please make sure that no access rights apply to files needed by INTECRIO.

4.7. Interaction with Virus Scanning

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

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

4.8. Smart build takes full effect only at the third build procedure

Smart build optimizes the build time in three steps. Thus, it takes effect partially, when building a workspace for the second time. The full effect is achieved for the third and all subsequent build procedures.

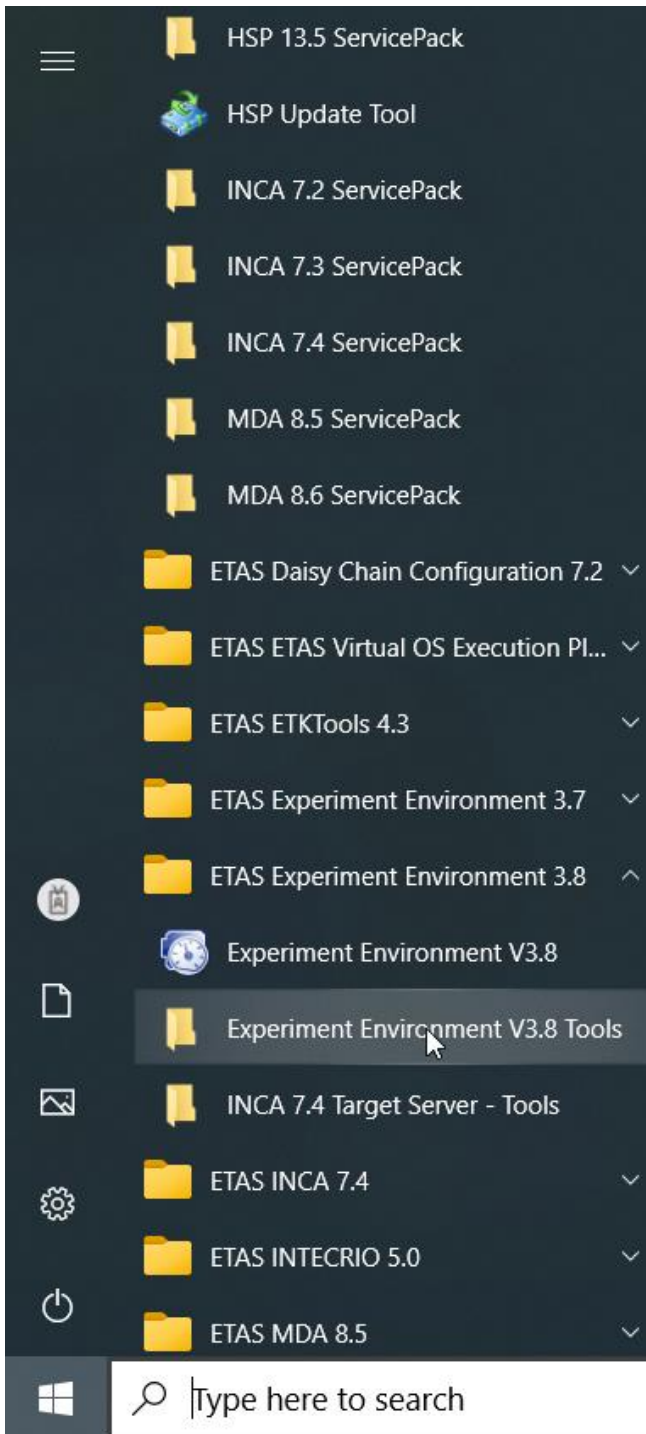
4.9. ASAM-2MC Files for ETK and XCP Bypass

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 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. They can be found inside the AML folder in your INTECRIO installation. Please copy the respective section into your ASAM-2MC file and adapt your settings accordingly.
- INTECRIO 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. In case of doubt, please use the SAPIDE ASAM-2MC checking tool that you can obtain from the ASAM website.

4.10. INTECRIO EE Usage on One Computer Together with INCA

The INTECRIO Experiment Environment can be used online simultaneously (e.g. in a bypass application) with INCA. You can use the “Associate to INCA” program from the ETAS folder in the Windows Start Menu to define the INCA version that you intend to use together with the EE. Please see section 2.2.2 Software Prerequisites as well.



If you associate the Experiment Environment with one INCA version, but use it with a different version, each installation will work correctly on its own, but they will not work simultaneously.

Note

ETAS Experiment Environment and INCA cannot be used simultaneously on the same rapid prototyping target.

Parallel access of ETAS Experiment Environment and INCA to the same target will cause access conflicts and runtime errors. This is also true for the usage of the same measurement raster in both INCA and a bypass model.

It is possible however, to access a rapid prototyping target with INTECRIO-EE and an ECU with INCA, both running in parallel on the same computer, e.g. in a bypass setup.

4.11. Usage of ES910 CAN Monitoring with INCA

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

4.12. Using License via Network and Windows Firewall

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

4.13. Using Virtual Prototyping with Firewall

If you are using a firewall, make sure that it allows INCA-EIP or ETAS Experiment Environment to download and access the prototype with INTECRIO-VP.

4.14. Scripting Performance

Using the LockUI() method on the INTECRIO.Workspace object helps to achieve optimal scripting performance. Most users don't need UI updates while the script is running and may therefore lock the UI once at the beginning of the respective script. It has also been observed that closing all graphical modeling windows improves performance of some scripting commands considerably.

4.15. Multiple Task Activations during Virtual Prototyping

During virtual prototyping, the message "RTA-OSEK Error: ActivateTask: E_OS_LIMIT" may occur. The message is shown, if a task is activated before its execution in the previous scheduling cycle has been finished. This may, e.g., be caused by Windows OS latencies or similar effects. 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.

5. Contact Information

5.1. Technical Support

For details of your local sales office as well as your local technical support team and product hotlines, take a look at the website: www.etas.com/hotlines



5.2. ETAS Headquarters

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