

# LABCAR-OPERATOR 5.4.10 – What's new

## LABCAR-OPERATOR 5 at a glance...

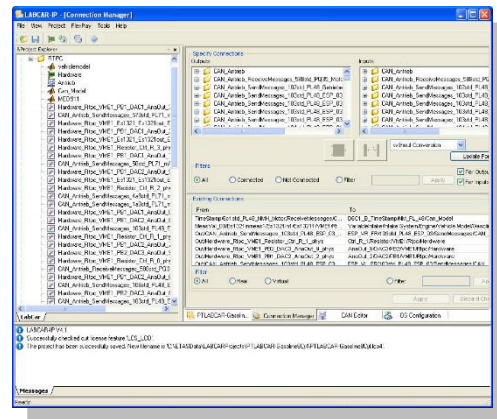
✓	Modular and open software for interactive in-lab testing of ECUs by means of the LABCAR testing system.
✓	Individually configurable user interface for experiment design and control
✓	Open interfaces for automated testing
✓	Easily interfaces with standard ECU development tools (MATLAB®/Simulink®, INCA)



## LABCAR-IP (Integration Platform)

In the Integration Platform of LABCAR-OPERATOR you can:

- import behaviour models from different design tools (Matlab/Simulink, ASCET or just C code) into one project
- configure the I/O hardware modules
- connect between these modules
- generate code for the simulation target
- define OS settings for real-time simulation
- configure CAN, LIN and FlexRay bus simulations
- Configure Rest bus simulation for AUTOSAR v4.3.0 using Network module

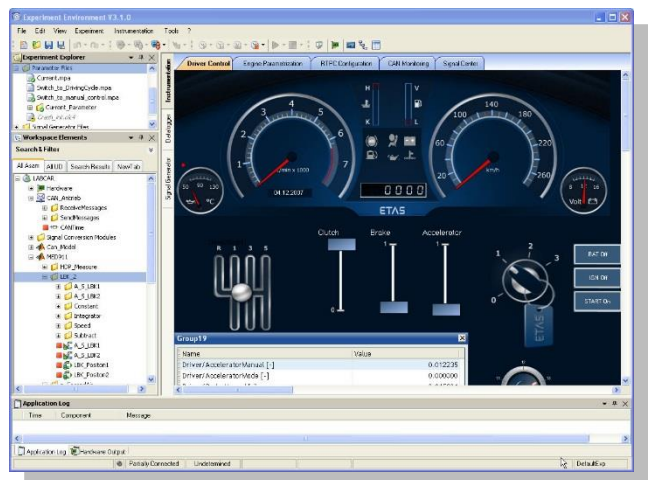


## LABCAR-EE (Experiment Environment)

The re-designed Experiment Environment introduced with LABCAR-OPERATOR 4 and INTECRIO 3 is designed for configuring (instrumentation, parameterization etc.) and executing experiments.

The experiment environment offers the following possibilities:

- Clear access to all parameters and measure variables in the "Workspace Elements" window.
- Creation of instrumentations for displaying measure variables and for modifying parameters of the running experiment
- Signal conversion and sensor/actuator modeling
- Tracing signal paths
- Data recording with the Datalogger
- Define stimulation patterns and stimulate inputs with the Signal Generator



## New Features in Versions 5.4.x of LABCAR-IP (Integration Platform)

New in LABCAR-IP 5.4.10	
✓	Support of SOME-IP Methods
✓	Support of User add-ons for Autosar Rest Bus simulation
✓	Support of Manipulation of length field for Profile 6 and 7 in Network Module.
✓	Support for LIN E2E profiles SQC, CRC manipulations
✓	Support of MATLAB® Simulink® 2019b and Removed the support for 2015b
✓	Support of RTPC 6.4.0

## New in LBCAR-IP 5.4.9

✓	Support IXXAT IB640 cards in NIC,NIL modules UI and API
✓	Support of Global Time Synchronization of AE/CAN - Enhancements
✓	Support of E2E profile 7 for CAN/CAN-FD and AE
✓	Support Frames without Sender and only receiver in CAN\CAN-FD only
✓	Support of MATLAB® Simulink® 2018b and 2019a
✓	Support EB tresos® Busmirror® 4.16.x
✓	Support of RTPC 6.3.7
✓	Possibility to display Bus load of CAN IXXAT cards in Network module
✓	Manipulation in Network module during communication phase

### New in LABCAR-IP 5.4.8

✓	Support for transmitting Wakeup messages in NIL module
✓	Support 802.1AD(double-tagged) based Ethernet communication
✓	Support of E2E profile 5 in NIL module
✓	Manipulation of CRC and SQC for E2E profiles 2, 5, and 6 in Network module
✓	Support of MATLAB® Simulink® 2018a
✓	Support EB tresos® Busmirror® 4.15.x
✓	Support of RTPC 6.3.6

### New in LABCAR-IP 5.4.7

✓	Support of Sub TLVs in AE
✓	Support of Update Bits in signals, signal group and PDU levels
✓	Support of E2E profile 2 in NIL module
✓	Support of MATLAB® Simulink® 2017b
✓	Support of RTPC 6.3.5

### New in LABCAR-IP 5.4.5

✓	Support of AUTOSAR Network module with Automotive Ethernet
✓	Support of Ethernet Monitoring
✓	Global Time Synchronization for CAN/CAN-FD and Automotive Ethernet
✓	Secured On Board Communication (Slave only mode)
✓	Support of RTPC 6.3.4
✓	Support EB tresos <sup>®</sup> Busmirror <sup>®</sup> 4.13.x and 4.14.x

### New in LABCAR-IP 5.4.4

✓	Support of AUTOSAR Network module with CAN/CAN-FD
✓	Support of Windows 10 (LTSC version 1507)
✓	Support of INCA 7.2.6
✓	Support of RTPC 6.3.1
✓	Support of new I/O boards

### New in LABCAR-IP 5.4.3

✓	Support of new Simulink versions
✓	Support of Windows 10 (basic support – minor limitations)
✓	Support of INCA 7.2.4 and 7.2.5
✓	Support of ASCET 6.4.2
✓	Support of RTPC 6.3.0
✓	Support of new I/O boards
✓	Enhanced features of existing I/O boards
✓	NIF enhancements

### New in LABCAR-IP 5.4.2

✓	Support of Simulink R2015b and 2016a
✓	Support of Windows 10 (basic support – minor limitations)
✓	Support of EB tresos <sup>®</sup> Busmirror <sup>®</sup> 4.10.2
✓	Support only up to ASCET 6.2.1
✓	Support of ARXML 4.2.x in NIC (only basic CAN features)

### New in LABCAR-IP 5.4.1

✓	Support of CAN-FD ISO/Non-ISO mode
✓	Support ES5300.1-B, ES5350.1, ES5372.1 and ES5392.1

### New in LABCAR-IP 5.4.0

✓	Support FlexRay™ diagnostic target user modules (TUMs)
✓	Support EB tresos® Busmirror® 4.9.x, 4.10.x
✓	Support MATLAB® Simulink® 2015a
✓	Support ES4452.1, ES4455.2, ES4457.1, ES5321.1, ES5338.1 and ES5385.1
✓	Support Windows 8.1 64-bit
✓	Memory usages increased up to 4GB
✓	Increase of elements within one LABCAR module
✓	Limit of ports within one LABCAR project eliminated



### **Improvements and Enhancements in LABCAR-IP V5.4.10**

- Support for SOME-IP methods for Automotive Ethernet Rest Bus Simulation.
- Support for User add-ons for Autosar Rest Bus Simulation where the user is able to select specific PDU/Frame in ARXML for which the user can add User defined Code. User Defined code can be added at transmission or reception. User defined code can manipulate PDU contents at Physical or Hex level. User defined code overwrites normal transmission or reception behaviour.
- Support of Manipulation requirements where user can manipulate the Length field of E2E profiles 6 and 7 in CAN and AE.
- Support for LIN E2E profiles SQC, CRC manipulations.
- Support of MATLAB® Simulink® 2019b, also we removed the support for 2015b version, minimum version supported now is 2016a.
- Support for RTPC 6.4.0. The new RTPC comes with an updated Debian Version to be compliant with recent developments and I/O boards etc.

### **Improvements and Enhancements in LABCAR-IP V5.4.9**

- Support usage of IXAAT IB640 cards in NIC and NIL modules via UI and API so that future LABCAR racks can deploy IB640 cards in RTPC and customers can make use of these new cards.
- Support of Global Time Synchronization of AE/CAN – Enhancements, Provide two switches  
AE\_GTS\_SYNC\_Enable/CAN\_GTS\_SYNC\_Enable and  
AE\_GTS\_FUP\_Enable/CAN\_GTS\_FUP\_Enable under every AE/CAN ECU control folder so that user can explicitly toggle between enable\disable of the transmission of AE/CAN GTS SYNC and FUP messages.

- Support E2E Profile 7 in LABCAR Operator so that it can be used for AE/CAN communication.
- Support for collecting the CAN/CAN-FD frames in Network module without sender into a default ECU node so that these frames can be used during simulation in CEE.
- Support of MATLAB® Simulink® 2018b and 2019a, also we removed the support for 2012, 2013 and 2014 versions, minimum version supported now is 2015b.
- Support EB tresos® Busmirror® 4.16.x so that new features in EB v4.16 can be used.
- Support of RTPC 6.3.7  
the new RTPC comes with an updated Debian Version to be compliant with recent developments and I/O boards etc.
- Possibility to display bus load of CAN IXAAT cards in Network module ,Provide an option during simulation in CEE to view the bus load of CAN/CAN-FD clusters in Network module.
- Support for manipulation in Network module during communication phase, it involves manipulating PDU timings for CAN/CAN-FD and AE, manipulation of service discovery timings for offered\consumed services, switching from unicast to multicast for Ethernet data PDUs transmission.

### **Improvements and Enhancements in LABCAR-IP V5.4.8**

- Support for transmitting Wakeup messages in NIL module now LABCAR supports RBS in NIL module where every ECU is provided with a Trigger signal to transmit wakeup message when the trigger value switches from 0 to 1.
- Support 802.1AD(double-tagged) based Ethernet communication now LABCAR supports RBS in Network module where User can choose between using the default 802.1Q based Ethernet packets or choose to use 802.1AD(QinQ) based Ethernet packets.

- Support of E2E profile 5 in NIL module  
now LABCAR supports RBS in NIL module where User can parse E2E profile 5 related information from LDF file, LIN frames are protected, and verified using E2E profile 5 information configured in LDF\provided manually.
- Manipulation of CRC and SQC for E2E profiles 2, 5, and 6 in Network module  
now LABCAR supports RBS in NIL module where User can override the default calculation of CRC and SQC and provide values of his choice for transmission. In this way, User will be able to manipulate the CRC and SQC across the E2E profiles 2, 5 and 6 and use it for negative use cases testing.
- Support of MATLAB® Simulink® 2018a
- Support EB tresos® Busmirror® 4.15.x  
the new LABCAR comes with support of EB tresos Busmirror v4.15.x support in NIF module. This version from EB includes support of Autosar v4.3.x RBS for Flexray including support for Secured Onboard communication with customer specific EB Maids.
- Support of RTPC 6.3.6  
the new RTPC comes with an updated Debian Version to be compliant with recent developments and I/O boards etc.

### **Improvements and Enhancements in LABCAR-IP V5.4.7**

- Support of Sub TLVs in AE  
now LABCAR supports RBS in Network module where sub TLVs Time-Secured, Status-secured and User-Data-secured can be transmitted as part of Follow message in Global time synchronization of AE
- Support of Update Bits in signals, signal group and PDU levels  
now LABCAR supports RBS in Network module where update bits

from ARXML are parsed and corresponding signal is created in CEE workspace for update bits at signal, signal group and PDU levels. User can manipulate these update bits between values 0 and 1.

- Support of E2E profile 2 in NIL module  
now LABCAR supports RBS in NIL module where User can parse E2E profile 2 related information from LDF file, LIN frames are protected, and verified using E2E profile 2 information configured in LDF\provided manually.
- Support of MATLAB® Simulink® 2017b
- Support of RTPC 6.3.5  
the new RTPC comes with an updated Debian Version to be compliant with recent developments and I/O boards etc.

### **Improvements and Enhancements in LABCAR-IP V5.4.5**

- Support of AUTOSAR Network module with Automotive Ethernet  
now LABCAR supports RBS of AUTOSAR v4.3.0 ARXMLs with Automotive Ethernet(Some/IP based) using newly introduced Network module. The AUTOSAR PDUs, triggering and End-to-End protection (profiles 2,5 and 6) are supported.
- Support of Ethernet Monitoring  
now LABCAR supports Ethernet Monitoring feature using Network Module where Automotive Ethernet ECUs can be marked as use for monitoring purpose where the ECU just needs a tap to Ethernet network and listens to all the traffic addressed as Rx to that ECU.
- Global Time Synchronization for CAN/CAN-FD and Automotive Ethernet  
now LABCAR supports time synchronization of RBS ECUs in Network module with real ECUs. The RBS ECUs can act both as Time Master or Time Slave.
- Secured On Board Communication (Slave only mode)  
now LABCAR supports secured on board communication where it can encode and decode MAC based on AES-128 bit(CBC mode) encryption and derive its own freshness value using real time offset. Also signal TFV and TMAC can be manipulated during transmission for error insertions.

- Support of RTPC 6.3.4  
the new RTPC comes with an updated Debian Version to be compliant with recent developments and I/O boards etc.
- Support EB tresos® Busmirror® 4.13.x and 4.14.x  
the new LABCAR comes with support of EB tresos Busmirror v4.13.x support in NIF module. This version from EB includes support of Autosar v4.2.2 RBS for Flexray including PDU header concept and Global Time synchronization in Master mode.

#### **Improvements and Enhancements in LABCAR-IP V5.4.4**

- Support of AUTOSAR Network module with CAN/CAN-FD  
now LABCAR supports RBS of AUTOSAR v4.3.0 ARXMLs with CAN/CAN-FD using newly introduced Network module. The AUTOSAR PDUs, triggering and End-to-End protection (profiles 5 and 6) are supported.
- Support of Windows 10  
a basic support of Windows 10 is continued. LCO-IP and CEE works fine and the compatibility verified using Windows 10 LTSC version 1507 released by Microsoft in 2015. It is observed that on Windows 10 CB version 1511 that RTIO editor does not work but this is solved if User upgrades to CB version 1607.
- Support of INCA 7.2.6  
now LABCAR supports INCA 7.2.4, 7.2.5 and 7.2.6 version additionally to INCA 7.1.10.
- Support of RTPC 6.3.1  
the new RTPC comes with an updated Debian Version to be compliant with recent developments and I/O boards etc.
- Support of new I/O boards
  - ES5398.1 Fault Insertion Board (40-CH)
    - The ES5398.1 Fault Insertion Board enables fault simulation in real time for 40 ECU channels.

## Improvements and Enhancements in LABCAR-IP V5.4.3

- Support of new Simulink versions  
now LABCAR also supports upto R2016b, additionally R2015aSP1 is supported
- Support of Windows 10  
a basic support of Windows 10 is continued. LCO-IP works fine while sporadic problems with RTIO-Editors are encountered. In such cases the user has to reopen the RTIO again. Further the CEE does not execution triggered recordings as expected under specific conditions.
- Support of ASCET 6.4.2  
introduction of ASCET 6.4.2 support based on the features set as known from ASCET 6.2.1.
- Support of new INCA versions  
now LABCAR supports INCA 7.2.4 and 7.2.5 version additionally to INCA 7.1.10.
- Support of RTPC 6.3.0  
the new RTPC comes with an updated Debian Version to be compliant with recent developments and I/O boards etc.
- Support of new I/O boards
  - ES5436 Current Source Load Board (48-CH):
    - Board for the ES5300 housing with 48 software controllable current sources with a load up to 150 mA. Can be use for Pull-up/down and H- Bridge load application.
  - Flexible FPGA V3.0
    - Support of floating point
    - Bugfix „NAN“ Call ID: 552659
  - ES5321 °CA Measurement
    - Feature Enhancement, requires update with HSP, LCO, RTPC.

- Rail pump functionality (similar as ES5340)
- Enhanced features of existing I/O boards  
more SENT channels on ES5340 boards
- NIF enhancements  
it is now possible to start network communication independently  
from start simulation.

### **Improvements and Enhancements in LABCAR-IP V5.4.2**

- With LABCAR-IP V5.4.2 the support of Simulink® R2015b and 2016a is introduced. As the underlining code generation of Simulink® Models realized by the Simulink® Coder from The MathWorks changed the handling of inlined workspace variables this lead to a different access structure in the Experiment Environment and via automation API (ASAM XiL). Formerly the inlined workspace variables were accessible via model structure while now all inlined workspace variables are found in the artificial structure/folder "GlobalParameters".
- With LABCAR-IP V5.4.2 a basic support of Windows 10 is introduced. LCO-IP works fine while sporadic problems with RTIO-Editors are encountered. In such cases the user has to reopen the RTIO again.
- The new FlexRay™ diagnostic target user modules (TUMs) introduced as Addons from Elektrobit with EB tresos® Busmirror® V4.10.2 will be available for LABCAR users as well. Therefore a new column within the LABCAR FlexRay™ editor (LCO-NIF) will be introduced. All elements which support these new TUMs will be enabled for selection within the new introduced column.
- With LABCAR-IP V5.4.2 a support of ASCET has been limited to 6.2.1 for use as plant modelling system. LABCAR-IP V5.4.2 support of ASCET
  - V6.0.1 HF3 + HF8 + HF10

- V6.1.3HF5
- V6.2.0HF1
- V6.2.1HF3

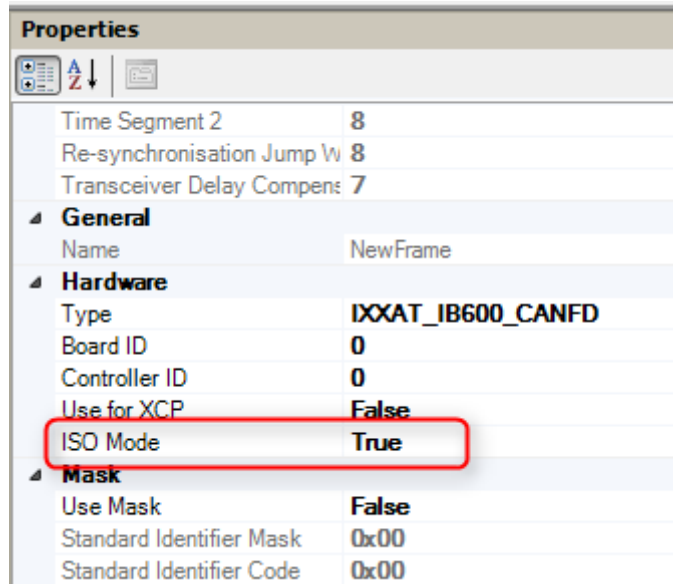
This also means that usage of ASCET is no more possible with Windows 10, as only ASCET 6.3.0 and newer support Windows 10.

- Support of ARXML 4.2.x in NIC additionally to the already supported ARXML version 4.1.x and 3.2.x with the same feature set (only basic CAN features, no enhanced AUTOSAR communication features!).
- **NOTE:** Please create a backup copy of your LCO project before starting the migration assistant to migrate your LCO project to V5.4.2 – this is important as the migration from V5.4.1 to V5.4.2 is an in place copy which overwrites the initially selected project with the new version of the project.

### **Improvements and Enhancements in LABCAR-IP V5.4.1**

- With LABCAR-IP V5.4.1 the load and build time of projects is considerably improved. Amongst others this is achieved by implementing a lazy load mechanism for connections. This means that the connections in the Connection Manager are not updated before the Connection Manager is opened.
- After general CAN-FD support was added with LABCAR-OPERATOR V5.3.1 the officially released CAN-FD ISO mode is now also supported. Within the buses properties it can be configured which of the 2 specifications shall be used.

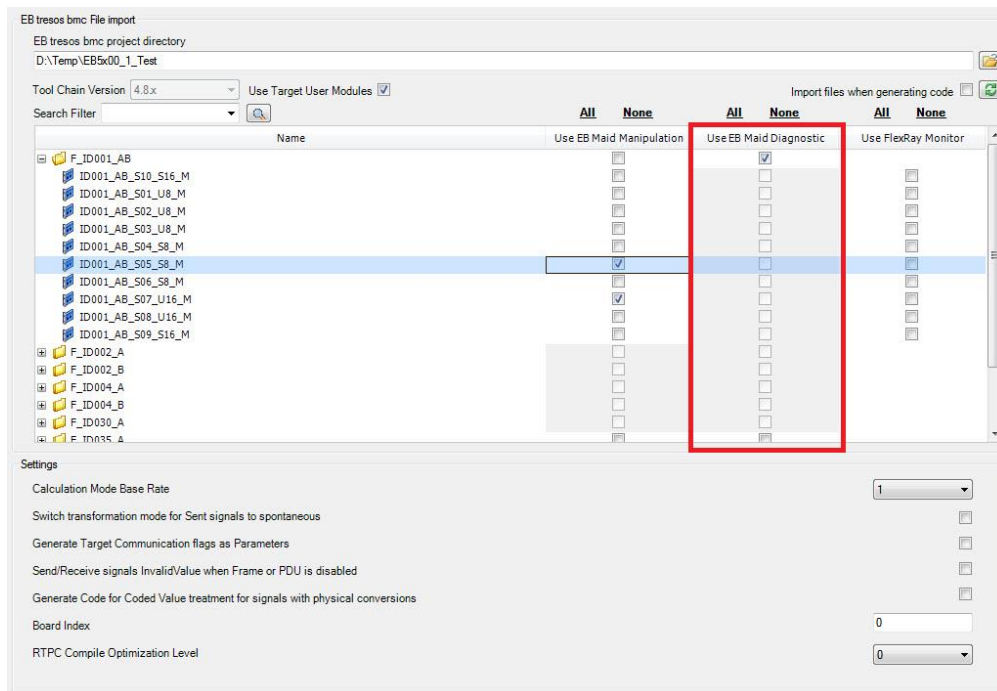




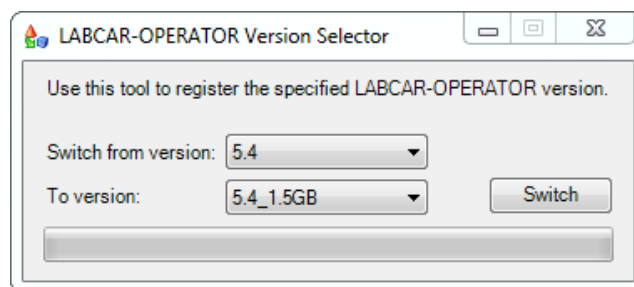
- LABCAR-OPERATOR now also supports the new cards ES5372.1 - Carrier Board for ES4455 Load boards and ES5392.1 - High Current Switch Board (6-CH).

### Improvements and Enhancements in LABCAR-IP V5.4.0

- The new FlexRay™ diagnostic target user modules (TUMs) introduced as Addons from Elektrobit with EB tresos® Busmirror® V4.10.1 will be available for LABCAR users as well. Therefore a new column within the LABCAR FlexRay™ editor (LCO-NIF) will be introduced. All elements which support these new TUMs will be enabled for selection within the new introduced column.



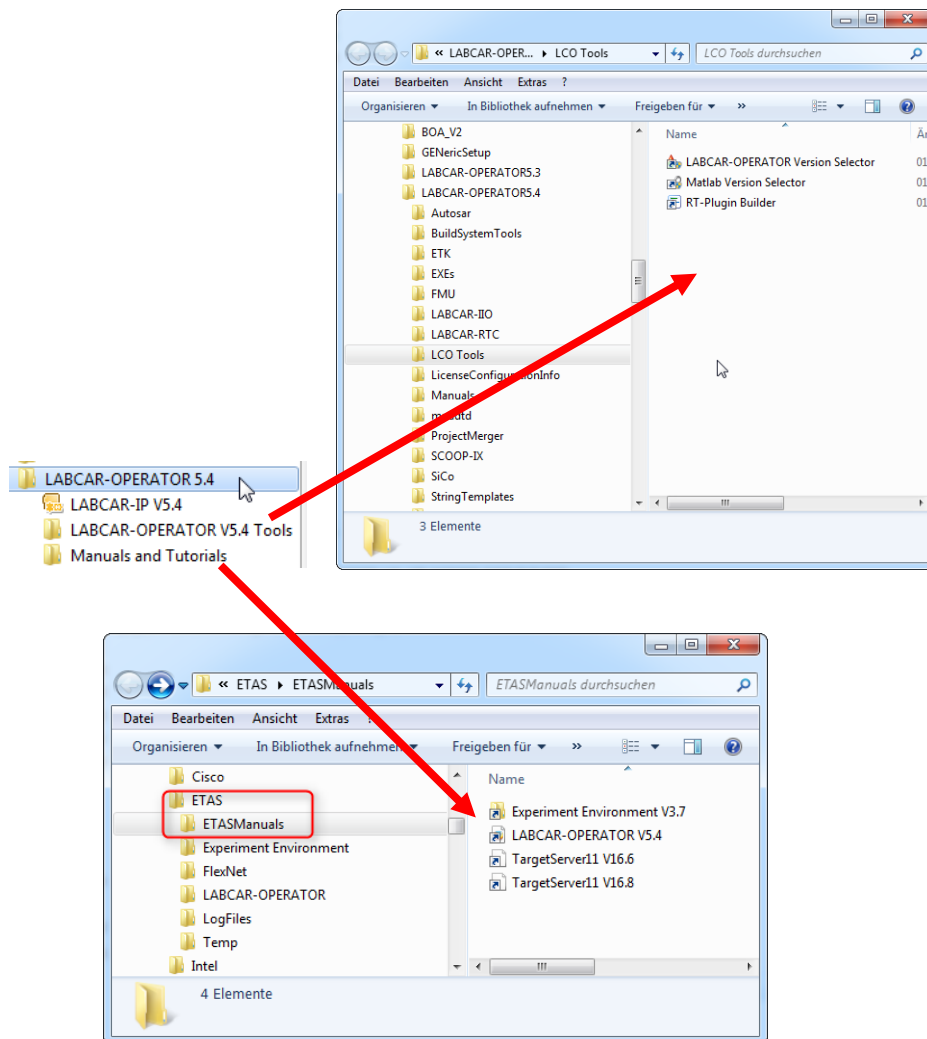
- With LABCAR-IP V5.4.0 the maximum possible used memory (RAM) will be increased up to 4GB. In case of instabilities a fall-back LABCAR-IP will be available where the maximum memory consumption is limited to 1.5GB. Switching between this 2 versions is handled via the "LABCAR-OPERATOR Version Selector".



- Within LABCAR modules a maximum number of measurements and parameters in total exist. Until LABCAR-OPERATOR V5.3.1 the limit was set to 32768 elements. This limit will be increased now up to 1073741824 elements.
- Within a LABCAR project a maximum number of ports (in/out) in total existed. Until LABCAR-OPERATOR V5.3.1 the limit was set to 29108 ports within the whole project. This limit is eliminated now.

- Windows 8.1 specifics

Since windows 8.1 comes with the so called "Tiles" instead of the standard start menu the look will also change for Windows 7.



Notes: This restructuring of the start menu was also done for the Common Experiment Environment. The Uninstall link can be accessed via "Control Panel" => "Programs and Features".

## Bug fixes in LABCAR-IP V5.4.10

EHI #	Title
624083	LCO 5.4.10 Undefined reference to BusLoad signals, build errors in network module
623039	LCO5.4.9 NIC J1939 Properties: baudrate missing
621073	LCO 5.4.9 Prerelease (Build 27220): Hardware configuration not correctly given in .ltc-file and connection manager
619655	Unusual Performance using CAN-FD settings of IXXAT card
618666	LCO5.4.9 EB4.16.1 Problem with Init values
615342	Interchange_Nw Configuration_XMI_Re open the project
616732	LCO 5.4.4/1 project with external library fails to build on Windows 10
618845	Multiplexed SOME-IP PDUs are not working with simulated and monitored ECUs
603104	TI_Network Module: PDU-Timestamping: Use Raw Setter method during transmission to avoid using compu-methods.
616894	VSS_SecureTickCount initial sequence. The initial sequence starts with the second part of the segmented message (counter 01 instead of counter 00)
616895	Manipulation of the SYNC/FUP on CAN-FD: Is the SYNC Frame disabled, the value for the nanoseconds in the FUP is constant.

## Bug fixes in LABCAR-IP V5.4.9

EHI #	Title
603511	TI- FR Module: Transmitted PDUs in Container PDU with Cycle time 20msec is not consistent
605006	TI- Network module : Network Module Code generation takes ~2 hours
605760	LCO 5.4.8 Beta Bundle 03: Single source principle for several RT-Plugins not possible
606115	Migration LCO545 -> LCO548 Failed with Build Error: multiple definition of 'rtCP_pooled_Yr23f5kvj2p0'
606379	LCO 5.4.5/1 : How configure CAN-FD ARXML description file in LCO projectComplete example:
607018	LCO5.4.8 NIF PDU RX/TX problems
607151	LCO 5.4.8: object code is not copied back into host \codegen\ after build in RTPC
607414	LCO 5.4.9 Prerelease (Build 26153): Automatically calling the ProjectMerger.exe fails often due to denied access
607813	LCO 5.4.5/1 : IXXAT IB600 CAN-FD CANTxmessage Bad position on Frame
607840	LCO : V5.4.8 , error: invalid digit "8" in octal constant, Build error generated C code Network Module CANFD ARXML File
600556	EE V3.7.9 PreRelease (Build 22958): Creation of experiments for merged LCO projects with more than 1 million elements fail
601867	Customer's Unique MATLAB installation fails to Update/Build Simulink Modules

609884	Build error : "undefined reference to Network_EIS_GW_AE_GTS_SYNC_Enable"
610611	Profile 5_6_7_CRC manipulation failed
603929	LCO 5.4.8.60 Prerelease (Build 23843): Flexray signals are not send on the bus
603050	Model crash observed with error: Segmentation fault.

## Bug fixes in LABCAR-IP V5.4.8

EHI #	Title
598478	TI_LCO Network Module - AUTOSAR N-PDU's does not offer DLC manipulation
598469	TI_LCO NM_Module - GlobalSyncTime Unit not displayed
598180	LCO 5.4.5: Error using Relative Path in Network Module - Input file does not exist:
597168	LCO License Checkout failed when using API for opening LCO Project.
597004	TI_LCO_Network_Module_NM PDU reception in Automotive Ethernet does not work

## Bug fixes in LABCAR-IP V5.4.7

EHI #	Title
594172	CAN Editor (NIC) LMD File Contents does not match code
595171	TF_LABCAR_LIN: Sending of LIN frames uses the smallest base rate.
594754	TI_Labcar_NetworkModule:GTS_The SubTLVs are missing
594753	TI_Labcar_NetworkModule:CAN/CAN-FD from the VSS_TP_RealTimeOffset only the message 1 is send. Message 0 and 2 is missing
593404	TI_Labcar_NetworkModule:Observed Buffer Full Error when Pdu fails to transmit ,too many transmission requests at the same time
590565	Missing Debounce for GTS
590563	Build of Network module fails on setting Remote-IP to "Any".
590498	LCO5.4.5 pR Bundle 08: build not possible with Network Module and Automotive Ethernet

## Bug fixes in LABCAR-IP V5.4.5

EHI #	Title
584807	LCO 5.4.4: N-PDU Not Connectable to Model
587579	EE3.7.2 64Bit CANin signal value at LCO Output is wrong /rounded.
586171	LCA4.2.3 All C# often testcases fail with error, an exception caught in EE
544545	LCO5.3.1HF4: Problem with NIC C-Code generation if hardwaretype is IXXAT_IB600_CANFD
582139	ES1335 does not update ActAngle at customer system
581802	Signal conversion GUI not usable for PCIe Node

## Bug fixes in LABCAR-IP V5.4.4

EHI #	Title
572733	FlexRay rest bus signal values will not transmitted by restarting the simulation in CEE
576735	LCO Code Generation bug for ES4440 c module
575744	LCO5.3.1/6 - LCO5.4.3: NIC code generation review

## Bug fixes in LABCAR-IP V5.4.3

EHI #	Title
531047	LABCAR 5.4.0: Image Files cannot be Loaded at API Usecase
564323	LCO5.4.2: Build mit Matlab 2016a und LCO 5.4.2 nicht möglich - Build with R2016a and LCO 5.4.2 fails
565840	LCO5.4.2: Unable to read HWX File
567533	LCO 5.4.2: CAN-FD frames cannot be received correctly with a CAN controller when "STT" feature is activated
568955	LCO 5.4.2 / EE 3.7.2 with INCA 7.2.4 HF1: EE crashes when ECU measurement raster is full
553938	Using LABCAR-IP API causes LABCAR to exit without warning when COM object holder exits
556902	Frage zu LCO 5.3.1/3 CAN Datentypen
558900	OS Settings messed up after change of target name
559608	LCO5.4.1: CAN SendType OnChange for Multiplexed signals
568349	LCO 5.4.3.190 Beta (Build 12894): Project migration from LCO V5.4.x -> LCO V5.4.3 with x=[0,1,2] not consistent/ not acceptable
569038	LABCAR 5.4.3: HWX Implementation in LCO does not work as expected
569889	LCO 5.4.3 Beta (Build 13159): Cannot create 64 bit SIGNED Signals in LABCAR-NIC
547823	LCO5.3.1/6: Pseudoaddress in rtpc.lpi are removed
315179	LCO 5.0.1: Update Processes always necessary in OS Configuration after Update ASCET Modules in LABCAR-IP

## Bug fixes in LABCAR-IP V5.4.2

EHI #	Title
467802	LCO5.3.1: Migration error with CAN project
538521	EE V3.7.0: Address map fails for 0, Change xxx_ConstantValue impossible after play Script
540532	LCO 5.3.1/6: Wrong HWC settings not detected leading to strange errors during init phase
540648	LCO5.3.1 EE3.5.1 Signalgenerator: long waiting times during adding segments in signal editor
540982	LCO 5.3.1 und LCO 5.4.1: How does LCO detect "correct CAN-FD frames"?

EHI #	Title
467802	LCO5.3.1: Migration error with CAN project
541015	LCO 5.3.1 und LCO 5.4.1: Wrong Signal length 64bit in CAN-FD Frame ISOx_Airbag_01_Req_FD instead of 512bit as described in DBC
541627	UUT selection incorrect for BWM_solitaere.arxml file
542260	LCO 5.4.1 - Rebuild required although project was not changed
542677	[Documentation Call] LCO 5.4.1: Zahlendreher in LABCAR-OPERATOR_V5.4.1_Whats_new -> LCO V3.5.1 statt LCO V5.3.1
542688	LCO 5.4.1: Non CAN-FD Frames (both Standard and Extended) are wrongly detected as CAN-FD Frames by LABCAR-NIC
543388	Transfer of scaling data out of arxml File not correct

### Bug fixes in LABCAR-IP V5.4.1

EHI #	Title
514920	LCO5.3.1: Error when saving wrong Calibration/Parameters is not displayed
520020	LCO5.3.1HF4: Migration from LCO 5.1.2 with API error: Failed to finish migration of 'Update LIN Connections'
522154	LCO 5.3.1 NIF: Single Shot Flexray Nachricht senden
522708	LCO5.4.0: error during build because of slprj directory is not a directory
527979	LCO 5.4.0/1: CAN Messages with Frame Send Type "cyclicAndSpontanX" cannot be deactivated when containing signals with Send Mode „On Change" if connected to a permanently changing model value
528269	Cycle Time Inport not working correctly - resolution is 1 second
532304	LCO5.2.1: Enumerations data types not supported in Simulink models

### Bug fixes in LABCAR-IP V5.4.0

EHI #	Title
434152	LCO 5.2.1: Save in CAN Module does not update definitions for mc_module files
439446	LCO 5.3.0: Failure to launch LCO V5.3.0 if you were not the original installer
449178	LCO 5.3.0: Error while opening Matlab (R2013a- 64b)
462531	LCO 5.3.1: API Import of vemox model fails
465995	LCO 5.3.1: freezes during simulink model import
467476	LCO 5.3.0: Documentation FMU definition co-simulation and model exchange is wrong
468841	LCO 5.3.1: No error message shown when user creates two LIN Frames with the same Name or ID (leads to trouble in scheduling)
468843	LCO 5.3.0/1: Error Messages using A2L in LABCAR-FIL - ETAS_ODX_HANDLING is not a valid key in the current block of type "if_data"

EHI #	Title
469336	LCO 5.3.1: Update Bit is not correctly imported from arxml-File (AR 3.2.2) LABCAR-IP -> frame is missing
470772	LCO 5.3.1: Bypass with ES910 not working for a FiL Simulation with MED17.1.8 - 'ES910 (ETKC 0x0) Error: RTIO driver locked'
471276	LCO 5.2.1: Simulink error during compiling the project: extract bits block
475247	LCO 5.3.1/2: RTIO editor open fails
476929	LCO 5.3.1/2: EE Registry key missing
477666	LCO 5.3.1: Documentation about new GUI of NIF
479528	LCO 5.3.1: IP CAN Module Out of Memory Exception during code generation
481200	LCO 5.3.1: API Call ConnectionManager.Load(..) is not throwing an exception anymore in case of missing connections
481209	LCO 5.3.1: Using EB tresos Busmirror 4.10.x in LABCAR-NIF
490351	LCO 5.3.1/3: Build Error with external MATLAB Simulink model due to missing file - Error using load. Unable to read file 'LCO_WorkSpaceVariables.mat'. No such file or directory
501192	LCO 5.4.0 Beta (Build 2618): FlexFPGA project no more usable after migration due to SIGSEGV error after Init Task has been completed



## New Features in Versions 3.7.x of LABCAR-EE (Experiment Environment)

### New Features in LABCAR-EE 3.7.10

✓	Support INCA 7.2.14 and 7.2.15
✓	Support of ASAM XiL Ver 2.1.0 / 2.1.X
✓	Support smart Download option in CEE to save time in subsequent downloads

### New Features in LABCAR-EE 3.7.9

✓	Support INCA 7.2.12 and 7.2.13
✓	Support Stop Trigger of type 'Conditional watcher' for supported segments
✓	Support configurable Default stop behaviour for Signal generators
✓	Support for EESPort(ASAM XiL) via ES4440\ES5398 module

### New Features in LABCAR-EE 3.7.8

✓	Support INCA 7.2.10
✓	Support of Operational segments in XiL

### New Features in LABCAR-EE 3.7.7

✓	Support INCA 7.2.9
✓	Support of Idle and exponential segments in XiL

### New Features in LABCAR-EE 3.7.6

✓	Support INCA 7.2.8
✓	"Stop Behaviour" option for the Signal Generator

### New Features in LABCAR-EE 3.7.4

✓	Forward Compatibility across refresh version of RTPC starting from v6.3.1
---	---

### New Features in LABCAR-EE 3.7.3

✓	New FlexRay Instruments
---	-------------------------

### New Features in LABCAR-EE 3.7.2

✓	Support INCA 7.2.2
---	--------------------

### New Features in LABCAR-EE 3.7.1

✓	Support INCA V7.2.1
✓	ASAM XiL API V2.0.1 – Support of Signal Generator creation
✓	ASAM XiL API V2.0.1 – Support of sti 2.0 file format including DATA, RANDOM and LOOP segments (functional range comparable to CEE API)
✓	ASAM XiL API V2.0.1 – Support of sti 2.0 file format including DATA, RANDOM and LOOP segments (functional range comparable to CEE API)

### New Features in LABCAR-EE 3.7.0

✓	Multiple Monitor support of Layers
✓	ASAM XiL API V2.0.1 – MA (Model Access) port
✓	Repetitions of Data Logger runs
✓	Support Windows 8.1 64-bit

### Improvements and Enhancements in LABCAR-EE V3.7.10

- INCA V7.2.14 and V7.2.15 can now be used.
- Support of ASAM XiL Ver 2.1.0. In addition, this requirement is including the direct support of ASAM XiL Ver 2.1.x.
- Smart Download feature: CEE will check if the .hex file is already present in the RTPC during the download operation.  
If the file is already available, CEE skips transferring the file again to RTPC. This will reduce the download time that is required to transfer the .hex file and download will be faster.  
If the .hex file is not present in the RTPC, then regular download operation will happen. There is no special GUI/API available for this feature. This happens internally during the CEE download operation.

### Improvements and Enhancements in LABCAR-EE V3.7.9

- INCA V7.2.12 and V7.2.13 can now be used.
- Support Stop Trigger of type 'Conditional watcher' in Signal description set of Signal generator in EE so that customer get benefited of using this feature via XiL API. Also supported via UI of signal generators.
- Support configuring 'StopBehavior' default value for every CEE experiment in global options level.

- Support for EESPort, Now ES4440\ES5398 system to be accessible via ASAM XiL EESPort interface so that HiL Tester can execute tests for electrical problems between SUT(System Under Test) and its environment(sensors, actuators, power supply, busses).Also supported via FIU instrument.

### **Improvements and Enhancements in LABCAR-EE V3.7.8**

- INCA V7.2.10 can now be used.
- Support of Operational segments in XiL

Now CEE supports XiL APIs, which are capable of adding Operational segments to experimentation. Also supported via UI of signal generators.

### **Improvements and Enhancements in LABCAR-EE V3.7.7**

- INCA V7.2.9 can now be used. However, be aware that INCA V7.2.0 and V7.2.1 are explicitly not supported.
- Support of Idle and exponential segments in XiL

Now CEE supports XiL APIs, which are capable of adding Idle and exponential segments to experimentation. Also supported via UI of signal generators.

### **Improvements and Enhancements in LABCAR-EE V3.7.6**

- INCA V7.2.8 can now be used. However, be aware that INCA V7.2.0 and V7.2.1 are explicitly not supported.
- "Stop Behaviour" option for the Signal Generator

### **Improvements and Enhancements in LABCAR-EE V3.7.4**

- Forward Compatibility across refresh version of RTPC starting from v6.3.1 to ease the use of different RTPC refresh versions for simulation

### **Improvements and Enhancements in LABCAR-EE V3.7.3**

- New FlexRay Instruments to ease the use of FlexRay TUMs.

### **Improvements and Enhancements in LABCAR-EE V3.7.2**

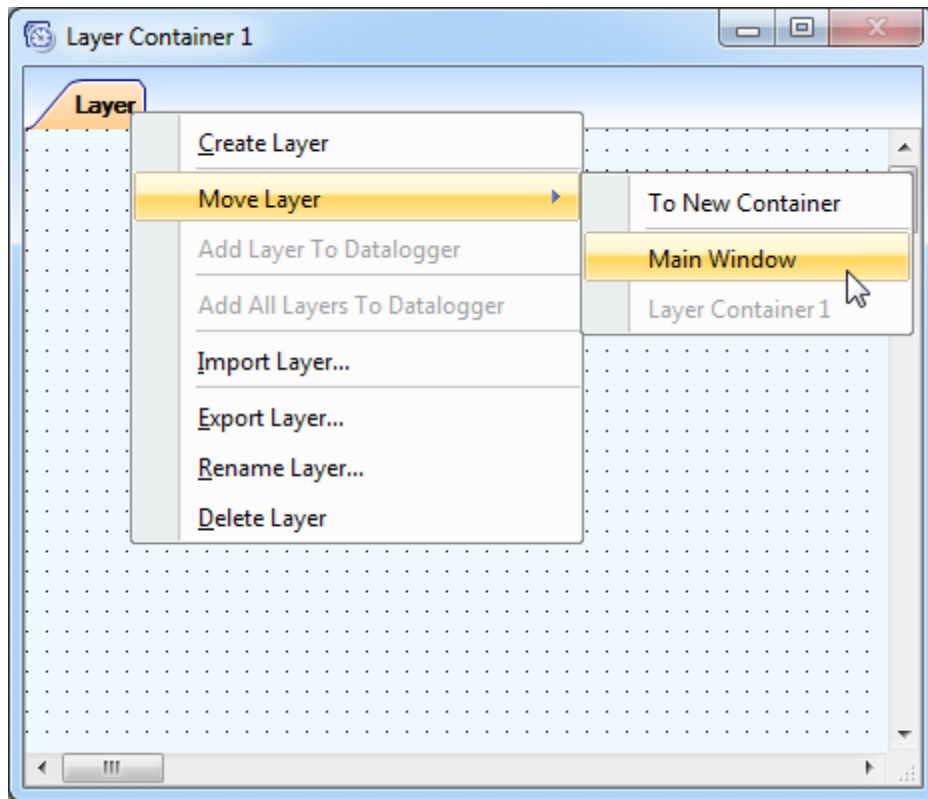
- INCA V7.2.2 can now be used. However be aware that INCA V7.2.0 and V7.2.1 are explicitly not supported.

### **Improvements and Enhancements in LABCAR-EE V3.7.1**

- INCA V7.2.1 can now be used. However be aware that INCA V7.2.0 is explicitly not supported
- ASAM XiL API V2.0.1 – Support of Signal Generator creation
- ASAM XiL API V2.0.1 – Support of sti 2.0 file format including DATA, RANDOM and LOOP segments (functional range comparable to CEE API)

### **Improvements and Enhancements in LABCAR-EE V3.7.0**

- Multiple Monitor support of Layers



On each layer you can find a new context menu called „Move Layer“. Via this context menu you can create up to 6 layer container which can be moved to any available display. The window position of each container will be stored within your experiment and will be restored while loading it. If the display is not available where the container was located the last time the container will be moved back to the main screen during experiment load.

- Repetitions of Data Logger runs

Available Dataloggers

Name	Active	State	Rec. Time	Automatic Restarts	Current Restart
✓ New Datalogger 1	<input type="checkbox"/>	▶ Off	-	5	0

Editable Automatic Restart Count which can be set if an valid StartTrigger and StopTrigger is set. Otherwise this option is off.

Shows the current restarts. Stays at 0 for the first run.

The "Automatic Restarts" feature is always coupled to a valid StartTrigger condition including a specified post trigger time or a

valid StopTrigger condition. Without this the new option will be disabled and show a tooltip with further informations.

Note: We highly recommend that you use this feature only with "Auto Increment" file numbering enabled. Without this option the file will be continuously overwritten. Therefore only the last recording will be available on hard disk afterwards.

## Bugs fixed in LABCAR-EE V3.7.10

EHI #	Title
620631	EE Stimuli File Handling: which .sti Segment Types are currently supported?
620470	LCO 5.4.9: ASAM XiL EES port API - SCB and SCG error activation issue
620471	LCO 5.4.9: ASAM XiL EES port API - ES4440 device connection time out issue
624569	CEE 3.7.9: EES Port log file contains the wrong time stamp value
623110	ASAM XIL API EES Port - Empty error set can't be loaded

## Bugs fixed in LABCAR-EE V3.7.9

EHI #	Title
608463	TX_CCI data logger with operand "!" is not working
607418	EE 3.7.8 Beta (Build 24934): Loading of multi rtpc project fails sporadically

## Bugs fixed in LABCAR-EE V3.7.8

EHI #	Title
594932	RT-Plugin not finding C modules at multi-RTPCs
589193	LCO-EE Instrument Programming Help outdated

## Bugs fixed in LABCAR-EE V3.7.7

No customer bug fixes.

## Bugs fixed in LABCAR-EE V3.7.6

EHI #	Title
581903	EE3.7.1/2 Signalgenerator - signal management Unhandled Exception while importing ESTI File

## Bugs fixed in LABCAR-EE V3.7.4

EHI #	Title
436049	Association completion window should not appear if association has failed



### Bugs fixed in LABCAR-EE V3.7.3

EHI #	Title
563327	EE Interface Changes requested: Unability to see shortened names in CAN-Monitor

### Bugs fixed in LABCAR-EE V3.7.2

EHI #	Title
530571	LCO5.3.1/4 EE3.5.1/2 CAN GUI No Trigger color

### Bugs fixed in LABCAR-EE V3.7.1

EHI #	Title
369896	MDF Channel Import breaks with error
526780	LCO 5.3.1/4: SignalMeasurement in Experiment Environment via COM-Interface > Wrong value object type

### Bugs fixed in LABCAR-EE V3.7.0

EHI #	Title
312132	CEE 3.3.0: Software crash using EE 3.3.0
350605	CEE 3.3.1: CAN Configuration causes DTC instrument to spew errors
369896	CEE 3.3.2: MDF Channel Import breaks with error
388296	CEE 3.4.1: parameter files DCM 1.1 error message when using existing file name
462938	CEE 3.4.2: Connect leads to L1 interface error with EE 3.4.2
490699	CEE 3.5.1/1: Problem with Snapping in EE - Values below 1.0 no more possible
497700	CEE 3.5.1/2: Fixed Maps not usable with LABCAR-CCI - Exception: Der Objektverweis wurde nicht auf eine Objektinstanz festgelegt.