How to add CAN XCP messages in DaVinciConfiguratorPro

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Restrictions	Customer confidential - Vector decides

Abstract	XCP PDUs are not always part of the databases provided by the vehicle manufacturer. This document describes how XCP PDUs can be added directly in DaVinci Configurator Pro.

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1.0 Overview

The DaVinci Configurator Pro workflow allows adding XCP PDUs in two ways:

- XCP PDUs are defined in the SystemDescription or DBC/FIBEX file that has been provided by the vehicle manufacturer. Such files can be created or modified with Vector tools such as the AUTOSAR Network Explorer or CANdb++. The ECUC configuration (including the XCP PDUs) can be derived from such input formats. The XCP PDUs will have to be added each time a new version is received from the vehicle manufacturer.
- XCP PDUs can be created within DaVinci Configurator Pro by configuring the affected modules directly. These messages are independent of PDUs defined by the input formats provided by the vehicle manufacturer. During a database update the added PDUs will not be removed.

This document describes the second approach: Adding XCP PDUs directly to the ECUC configuration.

1.1 BSW Module Configuration

This document assumes that CAN based communication (except XCP) is configured and operational.

The names and the detailed properties are meant to be examples and can be modified as required. A general description how XCP is configured can be found in the technical reference of that module.

1.2 ECUC Configuration

Navigate to **/MICROSAR/EcuC/EcucPduCollection**

- Add a new (global) PDU for XCP message transmission (Tx) and message reception (Rx)
- Configure the PDU length to 8 bytes for **both** PDUs

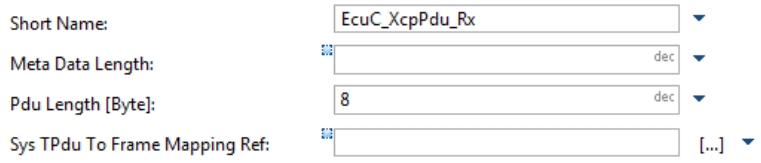

Figure 1 – Enter PDU Information for Rx.

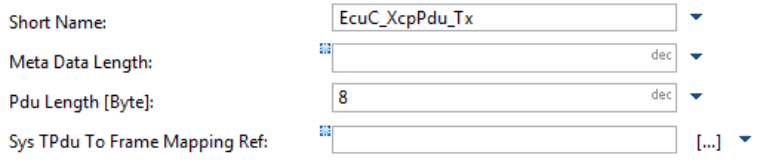

Figure 2 – Enter PDU Information for Tx

1.3 CANIF Configuration

Navigate to **/MICROSAR/CanIf/CanIfInitCfg/CanIfRxPduCfg**

- Add a new CANIF Rx PDU (CanIfRxPduCfg)
- Configure the CAN message:

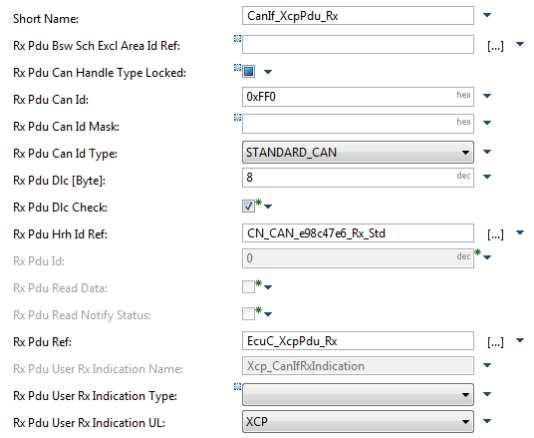

Figure 3 – Configure CAN Rx Message

CanIfRxPduCanId
The CAN ID that shall be use as Xcp Request ID

CanIfRxPduCanIdType
Type of CAN message (e.g. standard or extended addressing)

CanIfRxPduHrhIdRef
Hardware receive handle used to receive this message. This reference defines indirectly the channel the XCP message is received on.

CanIfRxPduRef
Reference to the global Rx PDU defined in the ECUC module (s. 1.2)

CanIfRxPduUserRxIndicationUL
Set this parameter to XCP

CanIfRxPduUserRxIndicationName
Will be set to Xcp_CanIfRxIndication by the configuration tool

Navigate to **/MICROSAR/CanIf/CanIfInitCfg/CanIfTxPduCfg**

- Add a new CANIF Tx PDU (CanIfTxPduCfg)
- Configure the CAN message

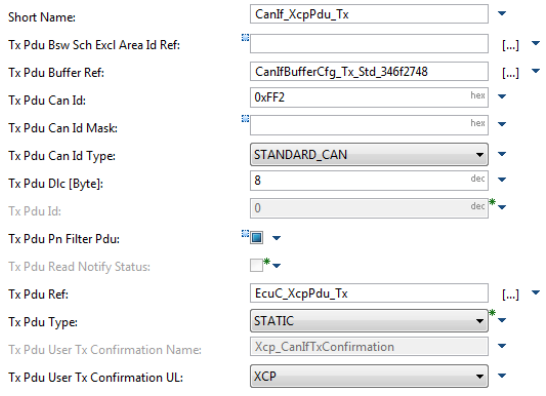

Figure 4 – Configure CAN Tx Message

CanIfTxPduBufferRef
Buffering strategy. For XCP the existing default buffer (0 byte in size) can typically be reused.

CanIfTxPduCanId
The CAN ID that shall be use as Xcp Response ID

CanIfTxPduCanIdType
Type of CAN message (e.g. standard or extended addressing)

CanIfTxPduDlc
Set this parameter to 8 bytes (non CAN-FD)

CanIfTxPduRef
Reference to the global Tx PDU defined in the ECUC module (s. 1.2)

CanIfTxPduType
Set this parameter to STATIC

CanIfTxPduUserTxConfirmationUL
Set this parameter to XCP

CanIfTxPduUserTxConfirmationName
This parameter will be set to Xcp_CanIfTxConfirmation by the configuration tool

1.4 XCP Configuration

Navigate to the XCP settings in the basic editor

- Create one Rx and one Tx XCP PDU by adding choice containers (right click on the blue/yellow container, select **Choose**) below the XcpPdus node.

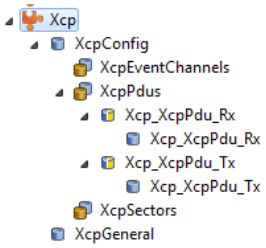

Figure 5 – XCP Module in Basic Editor

- Configure the parameter **Rx Pdu Ref** and Tx Pdu Ref (screenshot looks the same for Tx) by selecting the global PDU that has been configured in the ECUC module (done in 1.2).

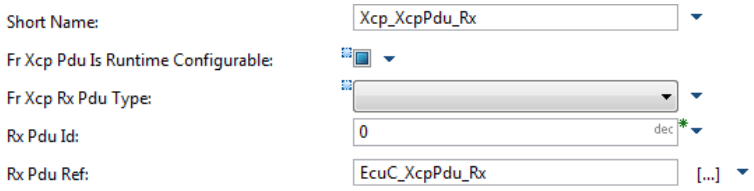

Figure 6 – Configuration of Rx Pdu Ref

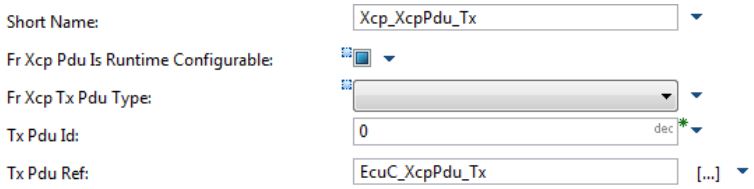

Figure 7 – Configuration of Tx Pdu Ref

- Within the XcpGeneral container, enable the flag XcpOnCanEnabled

2.0 Additional Resources

MICROSAR Technical References

- TechnicalReference_Asr_CanIf.pdf
- TechnicalReference_Asr_CanXcp.pdf
- TechnicalReference_Asr_Xcp.pdf
- XCP_ReferenceBook_<Version/Language>.pdf

3.0 Contacts

For a full list with all Vector locations and addresses worldwide, please visit http://vector.com/contact/.