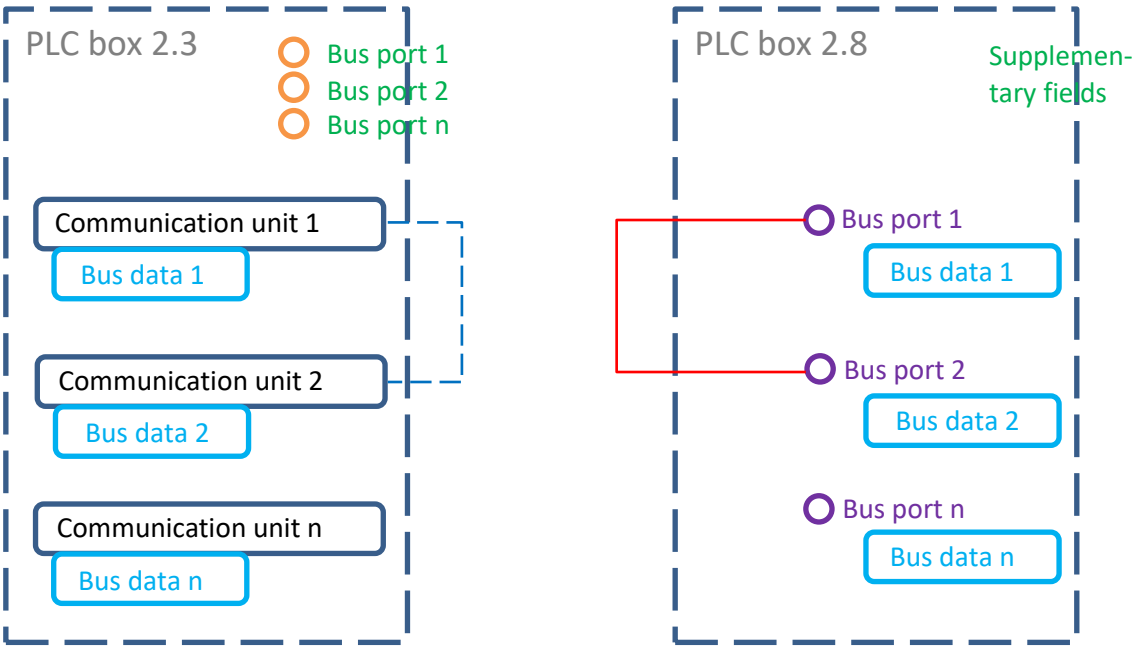
TechTip: PLC data transfer from Version 2.3 to 2.8 and higher with API extension modules

Contents

Overview

This TechTip describes the use of API extension modules that help you with the migration of PLC data from the Version 2.3 to the Version 2.8 or higher.



Installation

The API extension modules made available by EPLAN are made available as a packed archive. Since the API extension modules are signed, no separate API license is required.

Content of the packed archives

- Eplan.EplAddin.PLCMigrationTools.dll
- Eplan.EplAddin.MarkExistingCEs.dll
- Eplan.EplAddin.UpdateBusTerminals.dll
- Eplan.EplAddin.UpdateSinglelineBusTerminals.dll
- Eplan.EplAddin.UpdateSinglelineBusTerminals.resources.dll
- Eplan.EplAddin.PLCConnectionPointsProperties.dll

In order to use the API extension modules, you must extract all files from the archive and copy them to the platform directory of Version 2.8 (or higher), usually `"C:\Program Files\EPLAN\Platform\<Version>\Bin"`. You need administrator rights for the copying.

After the copying start your EPLAN version and load the required API extension modules via the menu items **Utilities > API add ins**.

Toolbar

To call up an action in an API extension module you require a toolbar in which the call ups are stored with possible parameters.

Changes by an action can be undone via the menu item **Edit > Undo**.

Exception: Data of the user-defined properties are deleted at the functions but not the user-defined properties themselves.

Working with the API extension modules

Before you can work with the API extension modules you have to open the project to be edited (as a rule from Version 2.3 or earlier). You agree to a possible project transfer into the current EPLAN version since otherwise the project editing is not possible.

At this time do not perform project compression at which the following options are activated:

- "Remove communication units at PLC boxes" or
- "Remove PLC structure data at PLC auxiliary functions"

The check run "004045 Communication unit at the PLC box: '<x>'" shows you at which PLC boxes data of communication units are available.

If you do not use the data exchange for PLC configuration programs, it is sufficient to perform the step in chapter "Show bus data from V2.3 in 2.8 and higher".
Bus data from 2.3 can be edited in 2.8 and higher, be displayed in the schematic and be printed. A data exchange with the PLC configuration programs is not possible.

If you use the data exchange for PLC configuration programs, perform all steps described below.

1. Show bus data from V2.3 in 2.8 and higher

Action:	XPlcMoveComEntityPropertiesAction
Contained in:	Eplan.EplAddin.PLCMigrationTools.dll
Range:	Complete EPLAN project
Functionality:	Copies data from old communication units into user-defined supplementary fields with the name "EPLAN.<Name>.<Seq. No.>" at the PLC box. Instead of the properties of the old communication units, those of the new bus ports are displayed in the schematic. Bus data from 2.3 can be edited in 2.8 and higher, displayed in the schematic and printed. A data exchange with the PLC configuration programs is not possible.

Parameter	Description
UPDATEDISPLAYEDPROPERTIES	1 = Properties already used for the display of communication units are replaced by the corresponding user-defined display properties. The replacement happens at all the affected main and auxiliary functions.

Notes:

- This action is available to you as an internal action as of EPLAN version 2.5, even without the API extension module.
  - The internal action has a higher priority than the action from Eplan.EplAddin.PLCMigrationTools.dll and is executed preferentially.
  - The UPDATEDISPLAYEDPROPERTIES parameter is meaningless here, so that no replacement takes place.
- No data is deleted at the communication units.
- Messages of the following kind that occur can be ignored for the action above:
  "This class is obsolete and is not used anymore. Use '<x>' instead"

2. Identify old PLC bus functions

Action:	MarkExistingCEs
Contained in:	Eplan.EplAddin.MarkExistingCEs.dll
Range:	Complete EPLAN project
Functionality:	Identifies the following functions with the property specified by the parameter: - All functions at which the properties of communication units are used for display. - All functions at which bus-specific user-defined properties are used for display with the "XPlcMoveComEntityPropertiesAction" action. Marks items that are further edited subsequently.

Parameter	Description
PropertyId	ID of the property that is used for identification.
PropertyIdentName	Identification of the user-defined property that is used for identification. This parameter is used if no PropertyId is specified.
PropertyIndex	Index of the property that is used for identification. The "0" value is used without specification.
PropertyValue	Value with which the property that is used for identification is filled. The "TODO" value is used without specification.
Clear	1 = The property that is used for identification is removed at all functions.

Notes:

- Each writeable property can be specified when specifying a PropertyId. In this case caution should be exercised!
- If both a PropertyId as well as a PropertyIdentName are specified, the PropertyId is used.
- You can filter for the used properties in the Navigators.

3. Transferring data to bus ports

3.a. Transferring data to all selected bus ports

Action:	UpdateBusTerminals
Contained in:	Eplan.EplAddin.UpdateBusTerminals.dll
Range:	All selected bus ports irrespective of their representation type
Functionality:	Assigns the data of the old communication units semi-automatically to all selected bus ports.

Procedure

- Mark at least one bus port to which you want to transfer the data of a communication unit. If you want to write the data in all representation types, you have to select the corresponding representation types in the Navigator.

  The bus port can also be available as an unplaced function.

- Call up the action.

  If multiple communication units exist at the PLC box, they are displayed in a dialog together with the transferable data. Select the desired record to be transferred in this dialog. When the desired communication unit is double-clicked the data is transferred to the selected bus ports.

- After the transfer a query is displayed whether the data of the communication units is to be removed at the PLC box.

Note:

You should only delete the data existing at the PLC boxes for the communication units after all the data has been transferred. This action cannot be undone. A selective deleting of the data that has just been transferred is not possible since only all entries can be removed via API.

The Compression run "Remove communication units at PLC boxes" can be used to delete the data at communication units.

Possible messages when calling up the action:

- Please select at least one bus port

3.b. Transferring data to new single-line bus ports

Action:	UpdateSinglelineBusTerminals
Contained in:	Eplan.EplAddin.UpdateSinglelineBusTerminals.dll Required DLL (language-dependent): Eplan.EplAddin.UpdateSinglelineBusTerminals.resources.dll
Range:	Individual, marked bus port in the representation type "Single-line"
Functionality:	Assigns the data of the old communication unit semi-automatically to the new single-line bus ports.

Procedure

- Mark the single-line bus port to which the data of a communication unit is to be transferred.

  Create a new bus port if no single-line bus port exists yet to which the data is to be transferred and set the "Single-line" representation type at it. The bus port can also be available as an unplaced function. It is only important that the representation type is "Single-line".

- Call up the action.

  If multiple communication units exist at the PLC box, they are displayed in a dialog together with the transferable data. Select the desired record to be transferred in this dialog. When the desired communication unit is double-clicked the data is transferred to the selected bus port.

- After the transfer a query is displayed whether the data of the communication units is to be removed at the PLC box.

Note:

You should only delete the data existing at the PLC boxes for the communication units after all the data has been transferred. This action **cannot** be undone. A selective deleting of the data that has just been transferred is not possible since only all entries can be removed via API.

The Compression run "Remove communication units at PLC boxes" can be used to delete the data at communication units.

Possible messages when calling up the action:

- Bus port must have the representation type 'Single-line'
- Please select only 1 bus port

4. Changing connection point directions at bus ports

Action:	SetPLCConnectionPointsPropertiesAction
Contained in:	Eplan.EplAddin.PLCConnectionPointsProperties.dll
Range:	All selected bus ports irrespective of their representation type
Functionality:	Changes the display settings at the selected bus ports. Instead of the properties of the old communication units, those of the new bus ports are displayed in the schematic.

Existing property from EPLAN Version 2.3 or earlier	Is changed to
Main function <20064> / **Bus system [x]** <20109 x>	**Bus system (indirect)** <20338>
Main function <20064> / **Position / Bus ID [x]** <20138 x>	**Physical network: Bus ID / item number (indirect)** <20426>
Main function <20064> / **Bundle / Network ID [x]** <20133 x>	**Physical network: Name (indirect)** <20425>
Main function <20064> / **To bus master / bus coupler ID [x]** <20137 x>	**Logical network: Name (indirect)** <20424>
Main function <20064> / …	…

Note:

Through this action the properties (**Display** tab) to be displayed are replaced. The content of the properties is not changed.

The exchange of properties is independent of the Index [x] of the communication units.

Position and formatting of the properties remain.

5. Displaying bus data at the PLC box

Action:	WriteBusDataToPlc
Contained in:	Eplan.EplAddin.PLCMigrationTools.dll
Range:	All marked PLC boxes or the complete EPLAN project
Function:	Copies properties from single-line bus port into user-defined properties at the single-line PLC box. This way bus data can, for example, be shown at channels.

Parameter	Description
PROPERTYPREFIX	Prefix of the created user-defined properties. The properties of the bus port are copied to the corresponding user-defined properties at the PLC box.

Procedure

- Manually create user-defined properties in the project, for example "ESS.PLC.X1.20313". The naming system of the user-defined properties follows the pattern:

  <PROPERTYPREFIX>.<Connection point designation of the bus port >.<Property-ID of the property of the bus port>.

- Mark one or more PLC boxes or the entire project for which the action is to be carried out.

- Call up the action.