Conversion of Projects to ELOP II Factory V4.0/V4.1

1 Overview

This document describes the conversion of an unchanged project.
Modifications of the project must be made in accordance with the safety manual (HI 800 023).

⚠	The consequences for safe operation depend on the application. The operating company must check the code of the converted project with the appropriate authorities!

By opening the projects of the lower ELOP II Factory versions are automatically converted into the higher ELOP II Factory version format.

Note	The conversion of a project from a lower ELOP II Factory version to a higher ELOP II Factory version is not reversible! Before conversion archive your project.

1.1 Conversion of a Project only for “Online-Test” of ELOP II Factory V4.0/4.1

The user may only convert a project from a lower ELOP II Factory version to a higher ELOP II Factory version without the proceeding described in this document, if the converted code will not be loaded into the controller.
After the conversion of the project to a higher ELOP II Factory version the user can monitor the controller using the "Online-test" in the higher ELOP II Factory version. This conversion has no effect to the function of the PES.

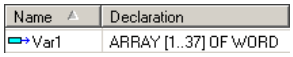
⚠	It is strongly recommended to avoid loading this converted version into the controller without the measures described in this document.

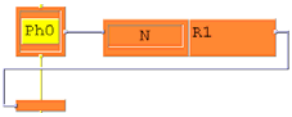
1.2 Rules for the conversion

- Upwards compatible only.
- Projects can be converted without restriction.
- Online test with converted projects is possible.
- Codeversion will change after the code generation in the higher ELOP II Factory version, if the project contains sequential function charts (SFC) or array variables.

1.3 Changes in ELOP II Factory V4.1

The following table provides an overview of the ELOP II changes, which cause a changed CRC during the conversion of a project to ELOP II Factory V4.0/V4.1. The function of the logic must be tested at every place in the program where this ELOP II changes are used.

Changes in V4.0	Remarks
Variable Type Array 	The processing sequence of the POUs (Logic) connected to array variables has been corrected. Effect: As a result the code version will change, if array variables are used in the project before ELOP II Factory V4.0.

Changes in V4.0/V4.1	Remarks
Sequential function chart (SFC) 	The order of creation of elements in sequential function charts (SFC) has been corrected. Effect: As a result the code version will change, if SFC elements are used in the project before ELOP II Factory V4.1.

2 Check Consistency of the CRCs

The consistency check of a projects CRCs can be performed “online” with a controller or “offline” on the PADT.

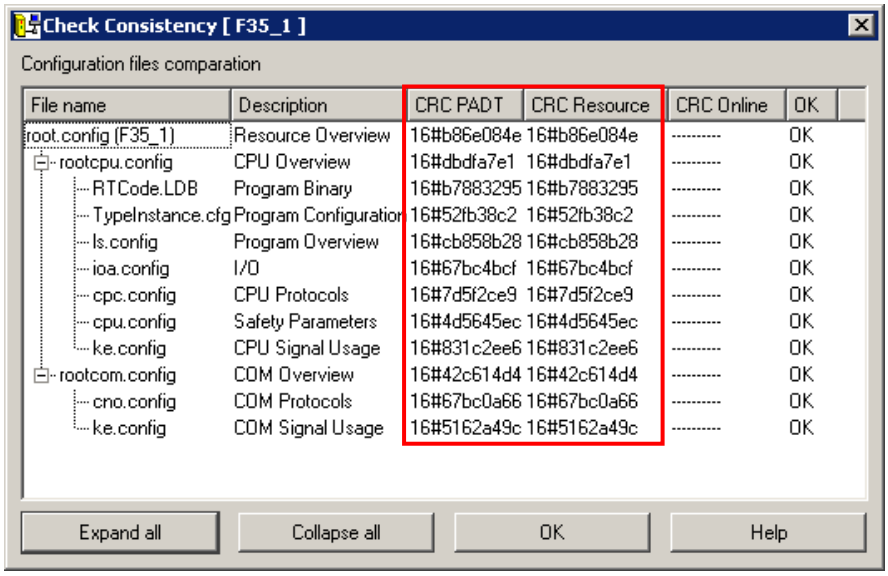
2.1 Consistency Check using a controller

The consistency check using a controller has the benefit, that the CRCs of the project resources from the lower and the higher ELOP II Factory version can be displayed side by side in the dialog “Check Consistency”.

Follow the steps to compare the CRCs of the project

- Open the unconverted project with the matching version of ELOP II Factory.
- Perform the code generation of all resources in the project correctly (see safety manual HI 800 023).
- Load the generated code into the controller (or dummy controller for test).
- Close ELOP II Factory.

- Open the prepared project with the higher ELOP II Factory version.
- Confirm the popup dialog to convert the project to the higher version with the button „OK“.
- Perform the code generation of the project correctly (see safety manual HI 800 023).
- Open the control panel and open the connection to the controller.
- From the menu bar of the control panel, select *Resource->Check Consistency…* to open the dialog “Check Consistency”.
- Check if the CRC of the controller (column “CRC Resource”) matches the CRC of the last code generation (column “CRC PADT”).



- If you have compared the CRCs of all resources in the project, then follow the instructions in chapter 2.3.

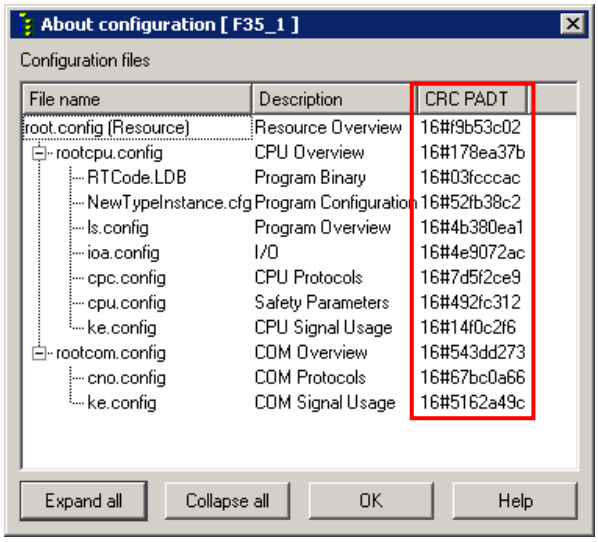
2.2 Consistency Check without a controller

The following consistency check can be performed “offline” using the PADT.

2.2.1 Consistency Check in the lower ELOP II Factory version

Follow the steps to determine the CRCs of the project:

- Open the ELOP II Factory version matching to the unconverted project.
- Perform the code generation of the project correctly (see safety manual HI 800 023).
- Change to the Hardware Management.
- Open the context menu of each Resource of the project *Resource->about configuration* and note the CRCs (column „CRC PADT“).

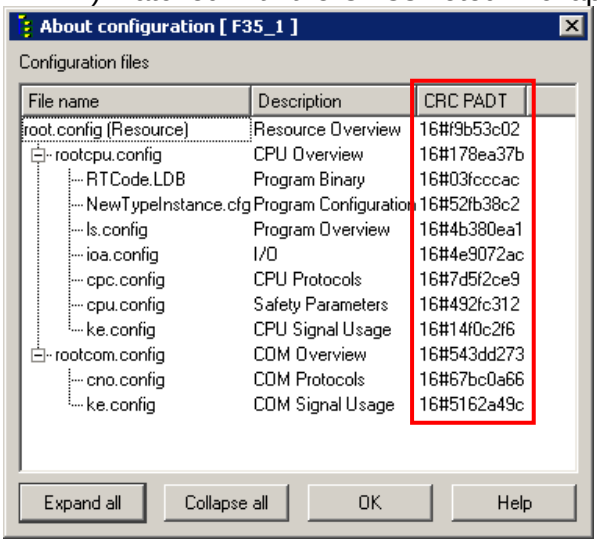


- If you have noted the CRCs of all resources in the project, close the project.
- Close ELOP II Factory.

2.2.2 Consistency Check in the higher ELOP II Factory version

Follow the steps to determine the CRCs of the project:

- Open the unconverted project with the higher ELOP II Factory version.
- Open the project analysed from chapter 2.2.1.
- Confirm the popup dialog to convert the project into the higher version with the button „OK“.
- Perform the code generation of the project correctly (see safety manual HI 800 023).
- Change to the Hardware Management.
- Open the context menu from each resource of the project *Resource->about configuration* and check that the CRCs (see column „CRC PADT“) matched with the CRCs noted in chapter 2.2.1.



- If you have compared the CRCs of all resources in the project, follow the instructions in chapter 2.3.

2.3 Result of the Consistency Check

2.3.1 No changes of the CRCs

If the CRCs did not change during the conversion to the higher version of ELOP II Factory, then you can use the code in the higher ELOP II Factory version without further examinations.

2.3.2 CRCs have changed

If the CRCs have changed during the conversion to the higher ELOP II Factory version and the user program containing “SFC elements” or “arry variables”, then the user program has to be completely tested.
Especially the logic containing the “SFC elements” and “arry variables” must be tested carefully (see chapter 1.3).

2.3.3 No plausible changes of the CRCs

If the CRCs have changed during the conversion to the higher ELOP II Factory version and no “SFC elements” or “arry variables” are used in the user program, then the cause is possibly a changed processing sequence.

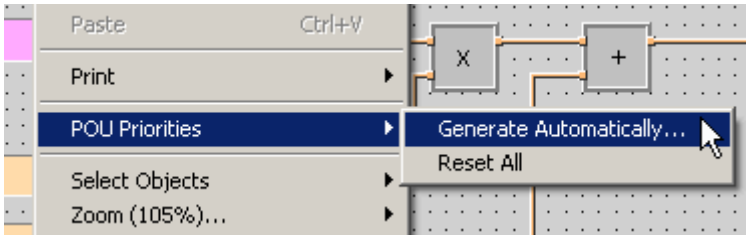
2.3.3.1 Information on this behaviour

The processing sequence is specified by the graphic position of the POEs, if the processing sequence were defined.
This behavior may also result in a different calculation of the processing sequence, e.g. when using different character fonts for the instance name of a POE.

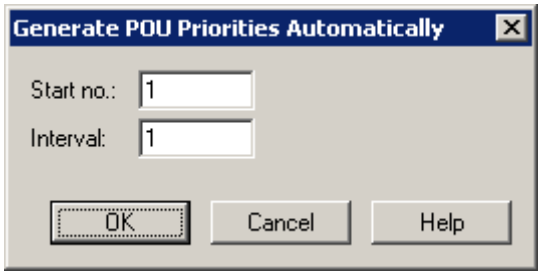
2.3.4 Prevention of the described CRC change

Follow the steps to generate the POU priorities to prevent CRC changes described in chapter 2.3.3.

- Open the lower ELOP II Factory version.
- Restore the archive of the original project from the lower ELOP II Factory version.
- Perform the following steps for each POU in the resource with changed CRC:
  - Select *POU Priorities->Generate Automatically...* from the context menu of the opened POU.



  - Confirm the default values to generate the POU priorities.



  - Close the edited POU and confirm the changes.
- Perform code generation of the resource correctly (see safety manual HI 800 023).
- Perform the consistency check desribed in chapter 2.

2.3.5 Results of the second renewed check consistency

2.3.5.1 No changes of the CRCs

If the CRCs are not changed after the conversion to the higher ELOP II Factory version, then the change of the processing sequence was the cause of the changes. Therefore you can use the code in the higher ELOP II Factory version without further examinations.
The priorities may remain set, until further changes of the function blocks are made. If changes of the function blocks are made, then the POU priorities must be reset or generated newly.

2.3.5.2 Changes of the CRCs once again

If the CRCs are changed again after the conversion to the higher ELOP II Factory version then call the HIMA Support.

3 Support

If you experience problems or questions about the conversion, please contact the HIMA Support.

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