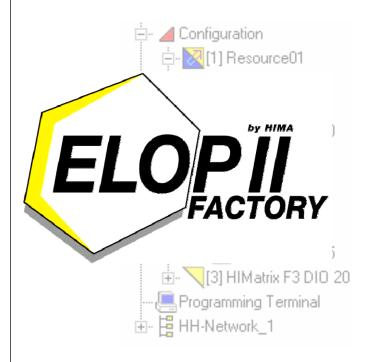
PC based Systems ELOP II Factory Version 4.1

New Features





HI 800 253 DEA

User Manual

ELOP II Factory

New Features in Version 4.1

Operating system: Windows 2000/Windows XP

Caution

The safety-related systems as described in this manual can be used for several different purposes. The knowledge of regulations and the technically perfect transfer carried out by qualified staff are prerequisites for the safe installation, start-up and for the safety during operation and maintenance of the safety-related systems.

In case of unqualified interventions into the automation devices, de-activating or bypassing safety functions, or if advices of this manual are neglected (causing disturbances or impairments of safety functions), severe personal injuries, property or environmental damage may occur for which we cannot take liability.

Important Notes

All HIMA products mentioned in this manual are protected with the HIMA trademark. As not differently noted down this is possibly also valid for other mentioned manufacturers and their products.

All listed modules are CE certified and meet the requirements of the EMC Guideline of the European Community.

All technical statements and data in this manual have been worked out very carefully, and effective checks and inspections have been applied. This manual may however contain flaws or typesetting errors. Therefore HIMA does not offer any warranties nor assume legal responsibility nor any liability for the possible consequences of any errors in this manual. HIMA would appreciate being informed on possible errors.

The technology is subject to changes without notice.

For more information see the documentation on CD-ROM and on our web site www.hima.com.

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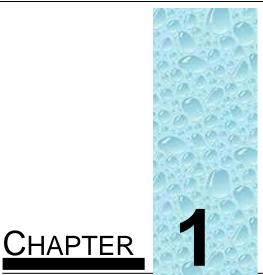




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Introduction





1 Introduction

1.1 Welcome to ELOP II Factory Version 4.1

This documentation presents the new functions of version 4.1. The images ("screenshots") and information should help you to make yourself quickly familiar with the additional possibilities of the new version.

This document concentrates mainly on the new features. Not all details are mentioned here as otherwise the quality of this overview may suffer from that. Nevertheless you will find sufficient information to try the new functions as soon as you have read this documentation. As usual, a detailed documentation is provided in the ON-LINE help.

From version 3.0 onwards projects created with previous versions are not converted automatically. You must explicitly "start" the conversion for each project. Please read <u>chapter 2 "Conversion"</u> for the reasons and the "How to...".

Please also observe section "Using Data of Earlier Versions" in the files READ1ST.HTM and README.HTM.

Note READIST.HTM and the other "readme"-files (PROBLEMS, WHATSNEW, HISTORY, README) can be found in the "Control Center" of ELOP II Factory: Look for them under *Documentation*. You will also find an electronic version of this manual in the "Control Center": Click New Features.

The *chapters* 3, 4, 5 and 6 inform you in detail about many other improvements and enhancements in the Project Management, Hardwaremanagement, the editors and in the additional products.



Detailed information about already existing functions can be found in the ON-LINE-Help of the product.

1.2 Conventions

Character Format	Used For		
italic	references and emphasis		
SMALL CAPITALS	keys of the keyboard If several keys have to be pressed at the same time, they are connected in the text by the character +. Example: ALT+S means that the ALT-KEY and the S-KEY must be pressed simultaneously.		
()	including one or various parameters with function calls		
Source	commands, options, parameters, source examples		
BEGIN	skipped lines in source examples		
END			
	following parameters with the same format		
0	<pre>identifying optional parameters Example: COMPILE [-Option1] [-Option2] PROJECT</pre>		
I	The parameter before or after this character must be entered.		





1.3 How to Enable the Current Version in Your Hardlock

Enabling the From Version 3.5 onwards you must enable each new version in version via your hardlock!

signature The version is enabled by a "signature" (a character-digit-combination, also known as "activation key"), which can be obtained from HIMA.

HIMA

In case of a new delivery or if purchasing following-licenses you receive a hardlock in which the specific version has already been enabled by HIMA.

If upgrading to a version, which is released later, you can enable that version yourself as follows:

- 1 Install the ELOP II Factory-base system.
- 2 Attach the hardlock to your computer.
- 3 Have the signature ("activation key") for the new version ready.
- 4 Start the Project Management.
- 5 A message informs you that the current version is not enabled in your hardlock.
- 6 Confirm this message (by clicking *OK*).
- 7 A dialog opens in which you can enter the signature:



- 8 Click Apply Signature.
- 9 A program message informs you about the successful enabling of the additional product. Confirm it, too.
- 10 Close the dialog by clicking
- 11 The Project Management is started.

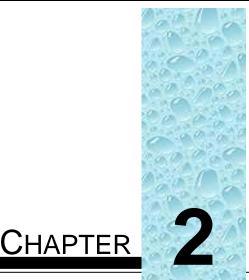
Note Use this dialog to enable additional products directly in the Project Management:

- 1 Start the Project Management.
- 2 Open the menu Tools of the menu bar.
- 3 Select Enable Feature.
- 4 The dialog *Enable Feature* is opened: The remaining operation is analogous to the above description.

Additional can be found in the ON-LINE help under "How to Enable an info... Additional Product in Your Hardlock" (index "Enabling").







Conversion

"What happens with my old data?"

This is the question, which often passes through your mind, if you are using new versions.

Of course, you can use your data in the new version, but you must convert it. Here you are informed about the necessary steps.

With the new repair option you can assure yourself that you have consistent project- and object data after conversion.

Please do read this chapter!





2 Conversion

2.1 Additional Tool LCConvVer for Conversion

Please use the additional tool LCConvVer to update your data to the current level! By using this additional tool you convert objects of the previous to the current version (e.g. version 4.0 to version 4.1).

You may know about its usage already from previous versions. If not, details on LCConvVer can be found in the HTML-manual included in the delivery. Open it as follows:

- 1 Start an "ELOP II Factory command prompt" (Start, Programs, ELOP II Factory).
- 2 Enter the following command: LCConvVer -m
- 3 The HTML-documentation for LCConvVer is opened.

Why an additional tool

Why • Using the additional tool, the conversion cannot be done by mistake. If you have converted data, you cannot use it any longer in older versions.

Reason: There is no downward compatibility between the versions.

- The conversion is performed centrally by this additional tool.
- The additional tool guarantees that the data is converted completely. Otherwise occurring errors might be recognized too late.
- Not every user of ELOP II Factory should be allowed to convert data.

Additional can be found in the ON-LINE help under "Why Conversion?" info... (index "Convert").

Notes on the additional tool LCConvVer:

- If you wish to convert objects from an older to the current version, you must execute the conversion for every version in between.
 - Exception: Objects from version 3.0 on can be converted directly to version 4.1 by using the conversion tool LCConvVer!
- During the conversion LCConvVer also checks the objects for critical errors. If such are reported, use the new repair option of LCConvVer (see below).
- HIMA recommends using the additional tool LCCheckObj after the conversion. This tool checks
 the integrity of ELOP II Factory-objects and detects inconsistencies and other errors in object
 data. Detailed information about LCCheckObj can be found in the online-help (e.g. by search
 term "LCCheckObj").

2.2 New Repair Option Fixes Errors

If you use the tools LCConvVer and LCCheckObj the project/object data is automatically checked for errors:

- Errors reported by LCConvVer prevent conversion of the project/object by ELOP II Factory.
- Errors reported by LCCheckObj do not prevent the usage of the faulty project/object but problems might arise because of it.

If errors are reported use the repair option -x of the additional tool so that ELOP II Factory removes this errors.

Example The command LCCheckObj -x -r C:\projects* (to insert in an "ELOP II Factory command prompt") removes errors in the objects under the path C:\projects.

HIMA will improve the error checks continuously to ease the work with projects/objects.





2.3 Survey: Use Data of Former Versions

The ON-LINE help contains a table answering the following questions:

- Which ELOP II Factory-version must be converted?
- Which conversion tool must be used?

How to find this table:

- 1 Start the ON-LINE help for ELOP II Factory.
- 2 Go to tab *Index*.
- 3 Enter "Convert".
- 4 Double-click the index-entry "Convert".
- 5 Double-click the topic "Convert: Update to the New Version" in the new window.
- 6 Scroll downwards in the topic until the table appears.

Please observe that there is no downward compatibility.

If you modify (and save) data e.g. in version 4.1, you cannot use it any longer in earlier versions.







Project Management

Version 4.1 contains enhanced display options and context-related editing functions for program instances as well as new functions for representing cross-references and for variable-matching.



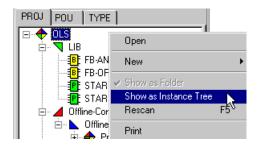


3 Project Management

3.1 Showing Instance Tree

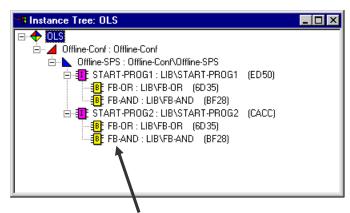
Now ELOP II Factory offers a survey about the instance usages in POUs/instances!

Select the new command *Show as Instance Tree* (e.g. in pop-up menu of the project):



The dialog *Instance Tree* will be displayed, but showing only the 1st level.

First step: Just click "+" (in front of the object-icon) in order to display the expanding next levels of the instance tree:



Opening **Double-clicking** a **POU** in the instance tree opens this POU from *POU* within the instance context.

Instance

Configuring You can have the instance tree displayed in a different way, e.g. display by sorting the instance usages, by showing the standard POUs and tasks.

The pop-up menu for the dialog offers commands for that.

More info... can be found in the online help (index "Instance Tree").

3.2 Opening POU from within Instance Context

The mentioned instance context is a condition for applying certain functions in a POU. For example, the new command *Open Calling POU* can only be applied, if the POU has been opened from within the instance context.

Possibilities for opening a POU from within the instance context:

- from within the instance tree (as described above)
- from within a POU-instance (e.g. by double-clicking an FB-instance in the drawing field)
- in the OLS structure window of tab *OLS* (in the Offline-Simulation)





3.3 How to Open Calling POU

If you have opened a POU via an instance context (see "Opening POU from within Instance Context"), you can now jump back to this "calling POU".

New Please try this new possibility in order to change quickly from one *button* POU to the other:

- 1 Click in the toolbar of the editor.
- 2 ELOP II Factory changes to the calling POU (= the POU via the instance context of which the called POU has been opened) and selects the instance of the called POU.
 In addition the line connected to an in-/output of the instance is selected in the calling POU, if such a value field has been selected in the called POU.
- TIP Press and hold the SHIFT-KEY while clicking the button: The editor with the called POU will be closed.

A message will inform you, if the button cannot be applied at all.

Command in If you prefer operation via pop-up menu, you might be interested pop-up in the new command Open Calling POU. You will find it within the menu POU:

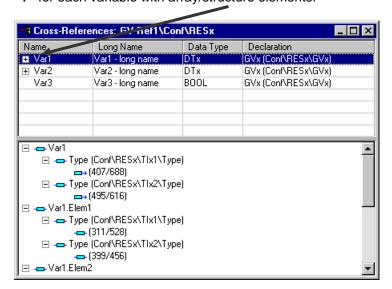
- in pop-up menu for the drawing field
- in pop-up menu for a value using an in-/output of the POU However, this POU must have been opened via an instance context.

3.4 Displaying Cross-References with Array/Structure Elements

Command *Display GV Cross-Reference*... (in pop-up menu of e.g. a configuration) displays the cross-references for global variables in a dialog.

Until now possible array/structure elements have only been displayed in the cross-reference representation (= the lower dialog part). In version 4.1 the **display** has been **improved**.

New: The variable-view (= the upper dialog part) shows a preceding "+" for each variable with array/structure elements:

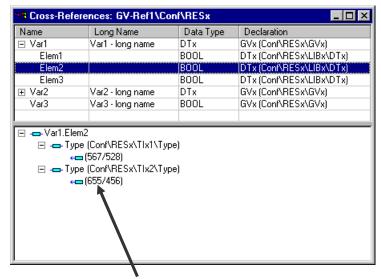


Click "+" in order to have the array/structure elements indented (tree view).





If you select an array/structure element afterwards, the lower dialog part displays only the cross-reference-information for the selected element:



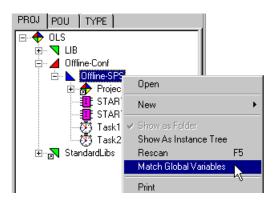
User action **Double-clicking** the 3rd level in the lower dialog part will get you to the usage of the element (= value field) in the FBD-editor – analogously to the variable.

Also new: If the online-test is already opened, double-clicking the 3rd level will automatically open the FBD-editor in OLT-mode – regardless whether a variable or an array/structure element is selected.

3.5 Matching Data of External Variables with Global-Variable Declaration

From now on ELOP II Factory helps you easily **correct different declarations** between variables declared as VAR_GLOBAL and VAR_EXTERNAL:

1 Select the new command Match Global Variables (e.g. in pop-up menu of a resource):



- 2 ELOP II Factory starts matching the variables for all included program/type instances. If those objects themselves contain instances, their variables will also be matched.
- 3 Program messages inform you if variables are matched or matching cannot be performed.

Direction of When matching the variable-data, ELOP II Factory transfers the data

matching • **from** variables declared as **VAR_GLOBAL**, which are defined in the global-variable object or in a program/type instance

 to all variables declared as VAR_EXTERNAL, which are found in a program/type instance or in instances included in it.

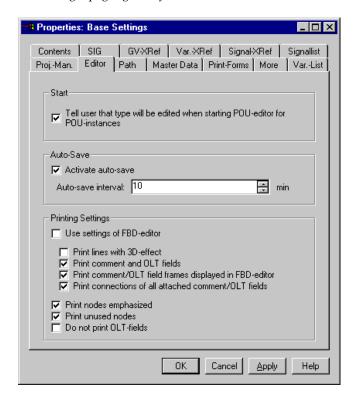
Condition The variables declared as VAR_GLOBAL and VAR_EXTERNAL must have the same name.





3.6 New Settings for Configuring FBD-Printouts

The tab *Editor* (properties of Project Management) contains 2 new settings to influence the printout of FBD-logic-pages globally:



Note Before version 4.1 the tab *Editor* was known under the name *FBD*!

As some of the tab settings are also valid for the ST-editor, the tab name was changed from "FBD" to "Editor".

3.6.1 Print Nodes Emphasized

By default the nodes are printed emphasized so that they stand out against lines. Uncheck *Print nodes emphasized,* if you wish that e.g. lines with free nodes appear as continuous lines.

Independent of this new setting junctions and inversions will always be printed emphasized.

3.6.2 Do not Print OLT-Fields

You can influence the printout of OLT-fields by various settings:

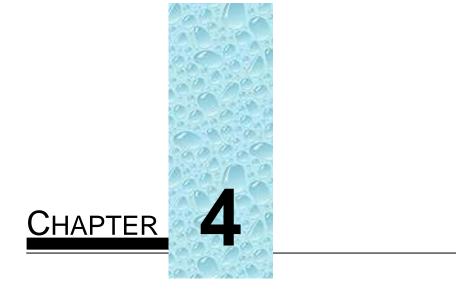
- command *will be printed* in the pop-up menu of an OLT-field (in FBD-editor) and checked box *Use settings of FBD-editor* (in tab *Editor*)
- checked Print comment and OLT-fields (in tab Editor)

Now you can define globally that OLT-fields will not be printed: Check *Do not print OLT-fields*. This check overrules all other possible settings for the printout of OLT-fields.

Note Nevertheless, OLT-fields will always be printed when the printout is started in the OFFLINE-simulation – independent of your settings.







Hardware Management





4 Hardwaremanagement

4.1 Supporting of the Interbus master protocol

INTERBUS has been designed as fast sensor / actuator bus for transmitting process data in industrial environments.

The INTERBUS is a single master system, i.e. all participants of an INTERBUS ring are controlled by one INTERBUS master (controller board).

The INTERBUS uses in principle a ring structure as bus topology.

The signal way of the INTERBUS begins at the controller board and leads through all INTERBUS participants ending at the controller board again.

Further details about INTERBUS communication you will find in online help of ELOP II Factory.

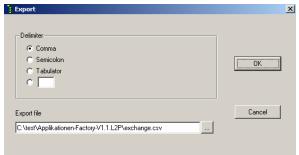
4.2 Export/Import for protocols

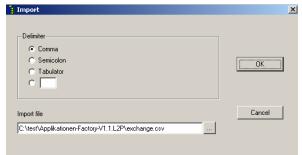
The export/import option of the protocols supports a simple data exchange between controller and PADT and a further handling of the communication data in the PADT.

The export/import is carried out via a list per communication partner. The following data could be exported and imported:

- Absolute address (depending on the protocol)
- Offset address (depending on the protocol)
- Index address (depending on the protocol)
- Variable name
- Long name
- Data type

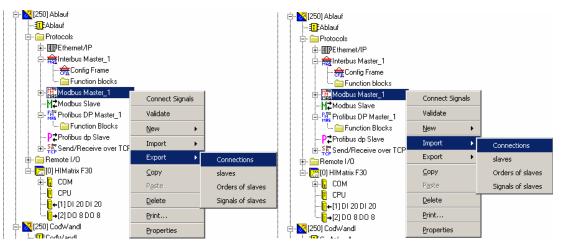
The data is exported/imported in the CSV format. The formats (separate character) can be selected in such a way that a further handling in Excel is possible.





Export/import window for protocol data

Example Modbus master:



Export/import options for protocol data at Modbus master

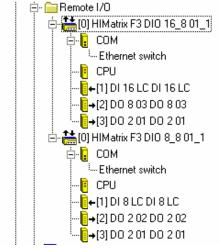




After selection of the protocol data option (menu option) the window for export or import opens (see preceding figures).

The existing data are refreshed and new data are added. The match criteria is the variable name. If there is a fault in the import file the whole import is rejected. A corresponding error message is displayed with a hint on the error.

4.3 New Remote I/O F3DIO8/8 01, F3DIO16/8 01 in ELOP II Factory



Structure of the new Remote I/Os in ELOP II Factory Hardware Management

Further information you will find in the data sheets of the F3 DIO8/8 01 and F3 DIO16/8 01.

4.4 Ethernet/IP

Ethernet/IP (Ethernet Industrial Protocol) is an open industrial communication standard for exchange of process data via Ethernet.

For further information see also http://www.odva.org (ODVA = Open DeviceNet Vendor Association).

Via Ethernet/IP *HIMatrix* controllers can communicate with other Ethernet/IP devices (e.g. PLC, sensors, actuators and industrial robots).

The physical connection of Ethernet/IP runs over Ethernet interfaces with 10/100 Mbit/s. In Hardware Management of ELOP II Factory the Ethernet/IP protocol can be configured for *HIMatrix* controllers (with layout 2, hardware revision 2).

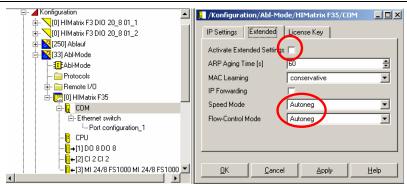
A *HIMatrix* controller can be configured as Ethernet/IP scanner and/or as Ethernet/IP target. Further details about Ethernet/IP communication you will find in the online help of *ELOP II Factory*.

4.5 Configuration of the Ethernet Switch

For HIMatrix devices in the register "Extended" the parameters "Speed Mode" and "Flow-Control Mode" must be set to "Autoneg". The option "Activate Extended Settings" must be set in order that the parameters are activated (see Properties of the COM).



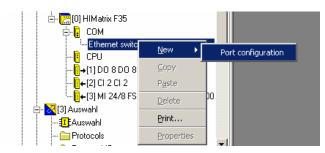




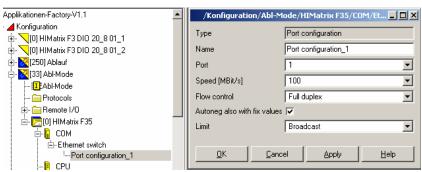
Properties of the COM

The parameters ARP, MAC Learning, IP Forwarding, Speed Mode and Flow-Control Mode are explained in detail in the online help of ELOP II Factory.

The port settings of the integrated switch of a HIMatrix resource can be parameterized individually from COM OS Version > 8.32 and ELOP II Hardware Management Version 7.56.10 on. Via the menu option Ethernet switch -> New -> Port configuration a configuration menu can be established for each switch port.



Setting a Port configuration



Parameter of a Port configuration





Name Description						
Port	Number of port as on device; per port only one configuration is					
	possible.					
	Value range: 1n, depending on the resource					
Speed [Mbit/s]	10 MBit/s: Data rate 10 MBit/s					
	100 MBit/s: Data rate 100 MBit/s					
	Autoneg (10/100): Automatic setting of the baud rate					
	Default: Autoneg					
Flow-Control	Full duplex: Communication in both directions at the same time					
	Half duplex: Communication in both directions at the same time					
	Autoneg: Automatic control of communication					
	Default: Autoneg					
Limit	Limit incoming Multicast and/or Broadcast packages.					
	Off: no limit					
	Broadcast: limit Broadcast (128 kbit/s)					
	Multicast and Broadcast: limit Multicast and Broadcast					
	(1024 kbit/s)					
	Default: Broadcast					
Option: Autoneg also with fix values						
_	" (transfer of the properties of Speed und Flow-Control) is made					
also at fix values of the parameters "Speed" and "Flow-Control".						
Thereby other devices, whose port settings are "Autoneg", can recognize						
how the ports of the HIMatrix are set.						

Parameter of the Port configuration

The parameters are set in the configuration of the COM of the HIMatrix controller by pushing the button *Apply*. The entries in the properties of the COM and of the Ethernet switches (configuration) must be compiled anew with the application program and transferred in the controller before the entries can become active for the communication of the HIMatrix. The properties of the COM and the Ethernet switches can also be changed directly online via the Control Panel. These settings become active at once, but are not transferred into the application program.

4.6 Support of Version 2 of the Service PDA

Service PDAs with Version 1 are not programmable by ELOP II Factory Hardware Management from V7.14 on. With V7.14 and later only Version 2 the Service PDA is supported.

4.7 Convenience Features in MCP (Multi Control Panel)

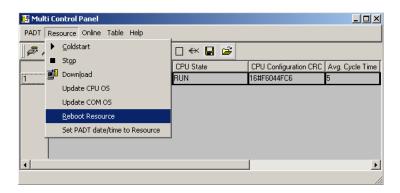
If there is a big amount of resources within a project new features in the MCP ease the handling and operation of the resources. The following features are new:

- Reboot of the selected resources
- OS Update (COM/CPU)
- Using of the last entered login parameters (default login parameters)
- Save and load a MCP configuration





Reboot Resource



All marked resources within the MCP window will be rebooted simultaneously.

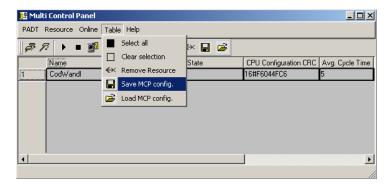
Update/Download of OS for COM and CPU

Via the corresponding menu options of the menu *Resource* new versions of the operating system of COM and CPU can be transferred into the controller (see Figure above).

MCP: Default login parameters

The first controller implemented in the MCP defines the default login parameters: Login name, password and access right. These values are not stored persistently in the MCP. All further controllers used in this MCP assume automatically the login parameters of the first controller. If a controller fails with these login parameters, a manual login is possible.

MCP: Save a MCP configuration, Load a MCP configuration



Save

A couple of controllers managed by the MCP can be saved in a project (MCP configuration). Thereby the defaults of login name and access right are also saved.

The password is not saved and must be entered once after reload of the configuration. Then all these login parameters (including the saved login name and access right) will be used as default login parameters.

Load

A previously saved couple of controllers can be loaded directly into the MCP. All controllers of the MCP configuration are implemented in the MCP. The login parameters of the configuration (login name and access right) are used. The password must be entered once after reload of the configuration (see "Save").





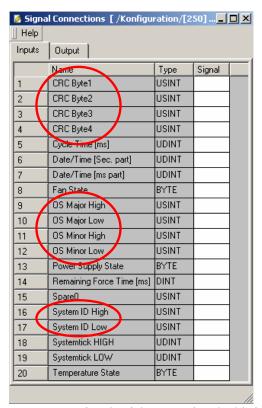
4.8 New CPU System Signals

Signal	[Data type]	R/W	Description
System ID	[USINT]	R	System ID of the CPU (first part of SRS)
high/low			
OS Major version	[USINT]	R	Major version of the CPU operating system (OS)
OS Major High			Example: OS version 6.12, Major version: 6
OS Major Low			from OS version 6, valid if System ID ≠ 0
OS Minor version	[USINT]	R	Minor-Version of the CPU operating system (OS)
OS Minor High			Example: OS version 6.12, Minor version: 12
OS Minor Low			from OS version 6, valid if System ID ≠ 0
Configuration	[USINT]	R	CRC of the loaded configuration; only valid in the
signature			operating states RUN and STOPP VALID
CRC Byte 1-4			CONFIGURATION.
			from OS version 6, valid if System ID ≠ 0

New CPU system signals

The new CPU system signals with notation of the number and the [Data type] (see also signal table of the CPU) are as follows:

- System High and Low (2 signals [USINT])
- OS Major and OS Minor (4 signals [USINT])
- Configuration CRC Byte (4 signals [USINT])



New system signals of the CPU, signal table in ELOP II Factory

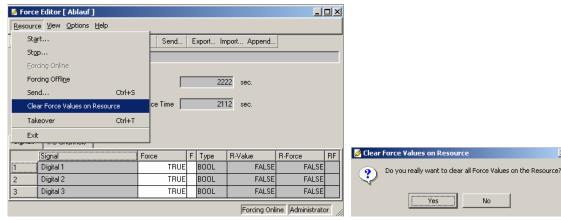
The new system signals can be read out in the logic within ELOP II Factory and used for further evaluations.



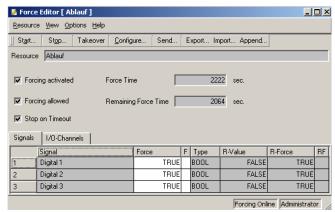


4.9 Force Editor- Clear Force Values on Resource

With the command *Clear Force Values on Resource* the actual forced signals in the Force Editor are set to their initial values.

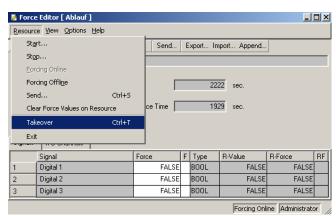


Forced signals after clearing on the resource



Forced signals before clearing of the resource

Before executing the command there appears one inquiry. After acknowledge in the column R-Value and R-Force the initial values of the forced signals are shown. With the menu option *Takeover* the actual force values in the controller are noted in the column "Force".



Actual force values in the controller after Takeover command

The *Takeover* function enables force values and force marks to be read out from the controller and transferred back to the "Force" and "F" columns in the Force Editor.

Takeover is required if the Force Editor has been closed in the meantime but the last force values are required again.

Takeover can also be carried out via the menu or via the Takeover... button on the button bar.





4.10 Changed Structure of the Node Editor at HH Network

The node editor is changed in features:

- "COM" is eliminated
- The column "IP Device" is substituted by the "IP Address"



Node editor of the Token group

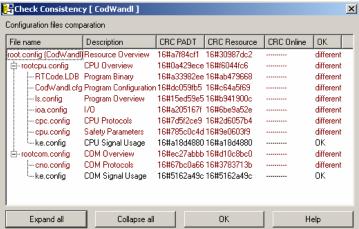
4.11 Check Consistency

The function Check Consistency can be invoked via the menu Resource in the Control Panel.



Check Consistency

At the function *Check Consistency* a third column is shown with the online changed configuration files.



Check Consistency within the Control Panel

The configuration in the controller can be compared with the one on the PADT generated for the controller in the project. The CRCs of the several configuration files are shown and marked if different.

During comparison of the configuration of the controller (CRC Resource) and the one on the PADT (CRC PADT), the **generated** version of the project configuration will be compared and not the **parameterized** configuration in the project (CRC Online at the PADT). In case of doubt the code generation on the PADT has to be carried out first.





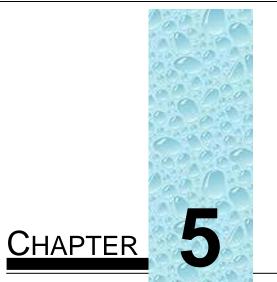
Between all these configurations there can be differences, which must be checked. If a controller has configured remote I/Os, the configuration files of the remote I/Os on the PADT and in the controller are assigned by the rack number (regardless of type and name).

In the configuration display the resource name is noted in brackets after the entry root.config. This name is identical to the resource name of the root.config transferred from the controller to the PADT. If there is no root.config in the controller, then the resource name of the corresponding resource in the project is shown (this is the **generated** resource name in the root.config on the PADT and not the actual **parameterized** resource name in the project).

The consistency check is restricted if it is carried out by a lower version of ELOP II Factory as that which generates the configuration files. The CRCs are displayed in the unknown configuration files but not the describing text. Exception: In version 3 unknown configuration files are not displayed.







Editors

In Version 4.1 especially the FBD-editor has been equipped with new practical editing functions and enhanced with more details in representation and configuration of objects and object-data.





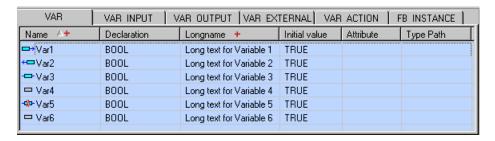
5 Editors

5.1 Showing Defined Filters More Clearly

Now the filters you set are more clearly to be seen in ELOP II Factory:

- Beside the column header the icon **■** is now displayed in color "Red".
- In addition the background color of the table changes to a "Light Blue".

Example Here filters are defined in columns Name and Long name of the variable declaration editor:



5.2 Dragging VAR_GLOBAL into POU: VAR_EXTERNAL is Created

Converting A variable of type VAR_GLOBAL, e.g. defined in a POU, can be VAR_ displayed in other POUs within the scope. There the variable will GLOBAL be used as a variable of type VAR_EXTERNAL.

New: drag This **conversion** is very simple from version 4.1 onwards:

- 1 Point to the variable declared as VAR_GLOBAL e.g. in the variable declaration editor.
- 2 Press and hold mouse button 1 and drag the variable into another open POU.
- 3 Release the mouse button so that a variable in tab VAR_EXTERNAL will be created in the target-POU.

Known: In previous versions you had to press and hold the keys

target-POU and the scope will not be checked.

modifier CTRL+SHIFT while dragging the variable.

keys You can still use those modifier keys, if you are used to them.

New: no If you wish to prevent the conversion in the target-POU, press and VAR_EXTERN hold the key CTRL while dragging the variable.

AL by Ctrl Subsequently a variable in tab VAR_GLOBAL will be created in the

Additional on conversion and scope can be found in the online-help under info... "Usage of VAR_GLOBAL and VAR_EXTERNAL" (index "scope").

5.3 Importing/Exporting Display Settings for Variable Declaration Editor

The new additional tools LCExpDeclSet and LCImpDeclSet are supposed to save time and effort: You can transfer your display options within a variable declaration editor quickly from one object to another one.

Which The following display settings for the tabs within the variable *settings?* declaration editor are exported/imported:

- font, style (e.g. "Bold"), font size
- grid shown or hidden
- for each column: column shown or hidden, column width, column position, defined filter in addition for the freely configurable columns: column title, column contents





Additional on LCExpDeclSet and LCImpDeclSet can be found in the HTMLinfo... manual included in the delivery. Open it as follows:

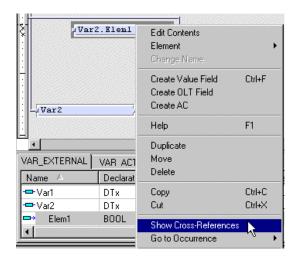
- 1 Start an "ELOP II Factory Command Prompt" (Start, Programs, ELOP II Factory).
- 2 Enter the following command: LCExpDeclSet -m or LCImpDeclSet -m
- 3 The HTML-manual for LCExpDeclSet or LCImpDeclSet is opened.

5.4 Starting Cross-Reference Display from within FBD-Editor

The dialog *Cross-References* (compare "Displaying Cross-References with Array/Structure Elements") can now be started directly from within the FBD-editor.

For that purpose you will find the new command *Show Cross-References* in the pop-up menu of value fields and variables.

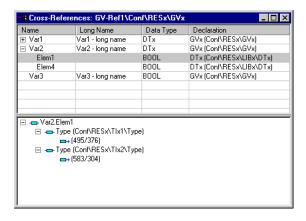
Example The cross-references for "Var2.Elem1" will be displayed by selecting command Show Cross-References in the pop-up menu of this value field:



Note The command *Show Cross-References* is only available for a variable of section VAR_GLOBAL or VAR_EXTERNAL or for an array or structure element of such a variable!

Dialog The dialog Cross-References opened from within the FBD-editor content displays the **global variables and** their **usages** – as if opened from within the Project Management!

In addition the display is positioned onto the variable or the array/structure element for which the command *Show Cross-References* has been selected:



Calling The cross-references can only be displayed if the current **POU** has been restriction opened from within an instance context.

See "Opening POU from Instance Context".

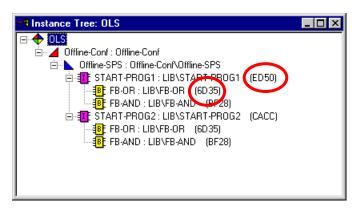




5.5 Explicit Number for POU-Identification

Now you can identify each POU explicitly by a 4-digit number (in hexadecimal format). This **number changes** each time the POU is changed and saved!

in The number is displayed in the new dialog *Instance Tree* behind *instance tree* the POU or the program/type instance:



in Moreover, you can have this number displayed in the title bar of *title bar* the POU-editor opened for the POU or the instance:



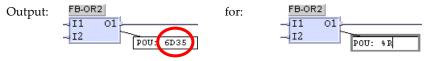
This display is produced by property FBDEditorAddTitleInfo (in tab *More* of the POU-properties) and the **new format string %R.**

This property configures the title bar of the POU editor. Detailed information can be found in the online-help (e.g. by search term "configuring title bar").

in AC The new format string &R can also be entered in an attached comment field (AC).

The comment field must be attached to a POU-instance or the drawing field of the current block.

Example for an AC with the usage of a POU (with a POU-instance):



Note: It is also possible to create the comment field in the interface declaration editor of the POU "FB-OR" and enter %R there. When using this POU (as a POU-instance), %R is evaluated as the actual 4-digit number.





5.6 Showing Complete Contents as "Screen Tip"

Starting with version 4.1 ELOP II Factory displays the contents of some drawing field objects as "screen tip".

Screen tip? The "screen tip" is a text that is displayed when the mouse cursor is held over a screen element.

5.6.1 Value Fields: Variable-Name or Constant

If a value field does not show the variable-name or the constant fully, the icon in the value field.

Now ELOP II Factory shows the complete contents as "screen tip" while the mouse cursor is positioned over such a value field.

Example value field without "screen tip": value field with "screen tip":





By the way, ELOP II Factory also displays this new "screen tip" if a part of the value field is outside of the visible screen:



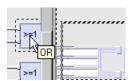
5.6.2 Blocks: Instance Name

This new feature works for the instance name of a block, too:

If an instance name is displayed incompletely or not at all, just move the mouse cursor over the block.

Example within drawing field: outside of visible area:



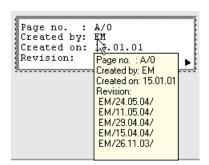


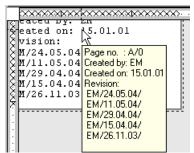
5.6.3 Comment Fields: Text

Comment fields also offer "screen tips", if the text in the comment field cannot be displayed fully: Move the mouse cursor over the comment field.

Example within drawing field:

outside of visible area:





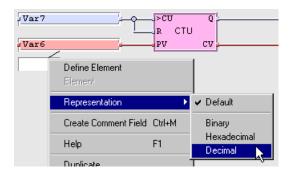




5.7 Changing Representation of Value in OLT-Field

If you prefer a different representation mode for variable-values, you can set that now for OLT-fields in ELOP II Factory:

- 1 Open the FBD-editor for a POU (or better: the FBD-editor in offline-simulation-mode).
- 2 Open the pop-up menu for an OLT-field.
- 3 Point to Representation. This command is only available for an OLT-field, if it will display the value of a variable in the offline-simulation.
- 4 Select one of the commands offered in the submenu:



Different representation modes are available **depending on** the **data type** of the variable. A complete list of the representation modes can be found in the online-help (index "OLT-Field, Changing Representation of Value").

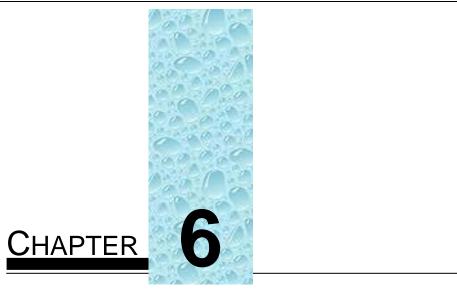
5 The value is being displayed according to the selected representation mode in the offline-simulation, whereas in the "normal" FBD-editor the representation mode is marked for the offline-simulation.

Note By default the representation mode *Default* is activated for an OLT-field (see illustration). This causes ELOP II Factory itself to select the representation mode for the data types.

Additional about these automatical representation can also be found in the info... online-help (index "OLT-Field, Changing Representation of Value").







Additional Products

Version 4.1 offers new possibilities in OFF-LINE simulation and document management.





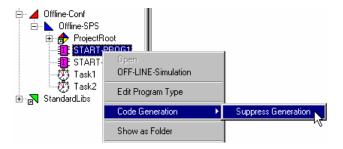
6 Additional Products

6.1 Ignoring Program Instances for OFF-LINE Simulation

If you start the OFF-LINE simulation for a resource, all contained program instances will be included in the OFF-LINE simulation.

But now you can exclude single program instances from the OFF-LINE simulation:

- 1 Open the pop-up menu for the program instance which should be ignored.
- 2 Point to Code Generation.
- 3 Select Suppress Generation.



- 4 The icon for the program instance changes in order to inform you about the changed state of the program instance.
- 5 Start the OFF-LINE simulation: pop-up menu for resource, OFF-LINE Simulation.

Select *Suppress Generation* again so that the program instance will be included in the OFF-LINE simulation again.

6.2 New Handling of Toolbar in Tab "OLS"

More If the toolbar does not display all buttons, you can display the *comfort for* missing buttons as follows:

you Click this new button in the toolbar.



In addition, the button offers Office-like features, e.g. to display/hide buttons permanently, to create your specific toolbar etc.

HIMA ...the safe decision.



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