
Welcome to ABB Automation Builder 1.0.2

This README file contains important information about the Automation Builder and the Control Builder Plus software.

Please read this file carefully and completely. It contains the latest information and relevant documentation.

System Requirements:

- Pentium PC, 1GHz, 3 GB RAM
- Hard disk memory: 10 GB
- SVGA graphics adaptor 256 colors, resolution of 1024x768 pixels
- USB 2.0 port
- Windows XP (Service Pack 3 or later) /
Windows 7 (32/64 Bit) Professional / Enterprise / Ultimate

Attention:

The installation of the ABB Automation Builder software requires administrator rights.

Prior to installation, the Control Builder Plus, CoDeSys software and the CoDeSys Gateway Server must be shut down.

If you have already installed the ABB Automation Builder 1.0 or newer, you can perform an update to the ABB Automation Builder 1.0.2 via the Service Release 2 (SR2). SR2 includes Service Release 1 (SR1), so there is no need to prior installation of SR1.

Information about the installation of the Service Release 2 (SR2) Update package:

A basic requirement for the installation of the SR2 update package is that Automation Builder 1.0/Control Builder Plus 2.3.0 or newer have already been installed.

1. Start the setup by double-clicking on the update package (ABB_Automation_Builder_V1.0_SR2.exe). You will be guided interactively through the installation.
2. Press the "Update" button to obtain an overview of changes, innovations and further links.
3. The update checks which software components have been installed on your computer and then shows you the required updates. All installed software components will be automatically updated.
4. Start the installation by pressing the "Update" button.

Remark:

If you decide to install additional Automation Builder packages with the original USB media after installing the Service Release, please re-apply the Service Release to also update these additional packages.

Information about the installation of the complete Automation Builder 1.0.2 by means of a USB stick:

1. Deinstall earlier versions of Control Builder Plus from your computer. You can keep using your previous projects with the new version in the corresponding compatibility mode or update them to the new version.
2. Installation of the software using the installation menu of the ABB Automation Builder USB stick. If the setup does not start automatically, start it via run "start_menu.exe".
 - Select the installation language of the ABB Automation Builder setup.
 - Press the "Installation" button.
 - Establish the type of installation. Once you have completed the selection of the software packages or have decided in favor of the standard installation, start the installation by pressing the "Install" button.
 - The next screen shows you the installation sequence and the components of the software packages to be installed.
 - You will be guided interactively through the installation.
3. If you have selected a user-defined installation, you can select or deselect optional software packages manually during the installation. These are the AC500 PLC packages:
 - Drive Manager
 - AC500-S safety PLC
 - OPC serverand
 - CP600 operating panels
 - Motion Controller – MicroFlex e150
 - Robot Controller – IRC5
 - Programmable drives ACS880

Version identification

In Control Builder Plus, you can display the installed version via Help -> About....

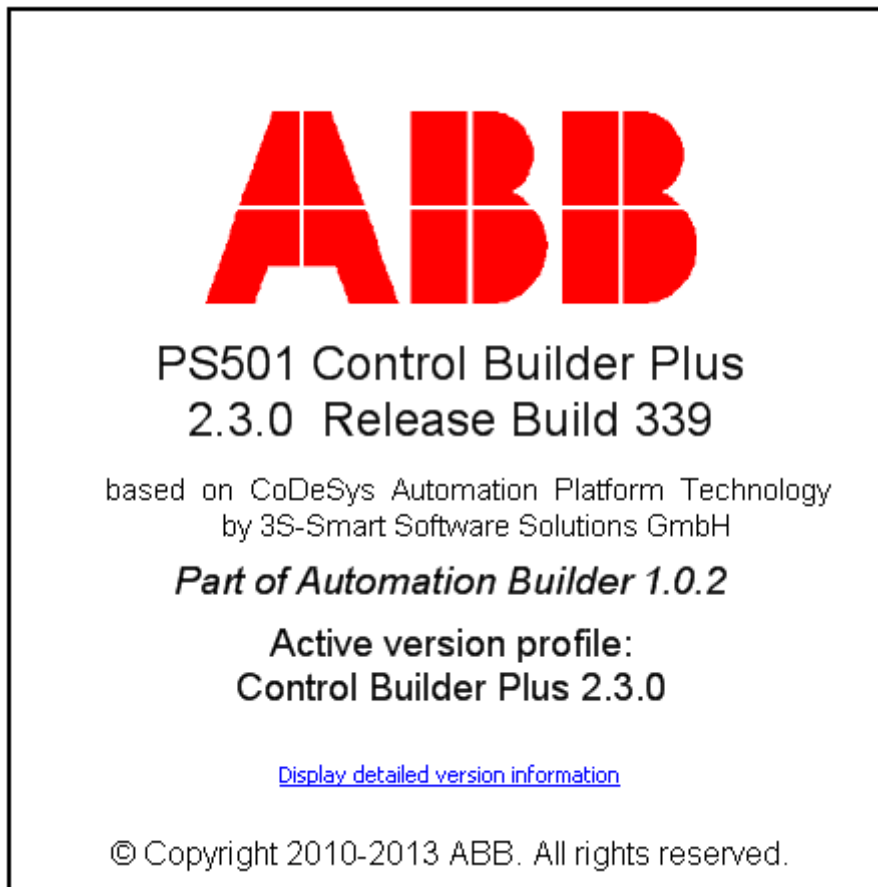


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1. Important information about Control Builder Plus

PS501 Control Builder Plus V2.3.0 is based on CODESYS Automation Platform V3.5.0.3 and CoDeSys V2.3.9.40.

Note: To make it easier to read, the Control Builder Plus is abbreviated hereinafter as CBP.

1.1 *Special information regarding AC500-S safety PLCs*

Before using the safety configuration and programming tools contained in CBP, you must have read and understood the AC500-S Safety PLC User Manual (see www.ABB.com/PLC). Only qualified personnel is allowed to work with AC500-S safety PLCs.

Compiling and executing safety projects on SM560-S Safety CPUs require the purchase of a PS501-S license enabling package.

1.2 *Compatibility of Control Builder Plus*

CBP V2.3.0 offers special compatibility features for projects created with CBP V2.2.1 and CBP V2.1.0. Side-by-side installation of different versions is not required. Projects created with CBP V2.2.x and CBP V2.1.x can be opened in two different ways:

- Opening in the compatibility mode: The project is opened with the version of CBP it was initially created with. In this case, newer features and devices cannot be used.
- Opening in the update mode: The project is updated to the newest version of CBP. However, the new features and devices may require an update of the PLC firmware as well. After the update, the project can no longer be opened with previous versions. Keeping a backup copy for further use with previous versions should be considered.

Projects created with previous versions can be updated to the new version.

For further information, please see the end user documentation and online help.

If you are using a PLC with a firmware version older than that of the CBP, the PLC will generate a diagnostic message if features are used that are not yet supported. In this case, you should consider updating your PLC to a firmware equal to or higher than the version of CBP.

1.3 *PROFINET*

The PROFINET configuration format has changed from version V2.0.x to V2.1.0 of Control Builder Plus.

- A PROFINET configuration created with CBP V2.0.x requires CPU-FW V2.0.x
- A PROFINET configuration created with CBP V2.1.0 or higher requires CPU-FW V2.1.3 or higher.
- Using the "Update device" function in CBP will automatically convert it to the new configuration format.

1.5 Information and updates via Internet

The latest news, information and updates around the controller family AC500, the visualization system CP600 and the Automation Builder can be found at www.abb.com/PLC.

2. Changes in Automation Builder 1.0 Service Release 2

The service release includes changes for the following device groups:

PLC-AC500

Bug corrections	
Target Support package - Update of AC500 errors description file	1.0.2.0

Drive Manager

Functional changes	
ABB DriveManager package - New firmware support AINFX 1.62, AINF6 1.70, AINF2 1.71 for ACS880 drive. - New firmware support 3.14E for ACS550 drive.	2.3.1.1656

Bug corrections	
ABB DriveManager package - DriveManager is not able to communicate with the drive if 4 or more data-in/data-out are configured on the drive. - Automatic Reset of fieldbus is not required when user edits the fieldbus parameters.	2.3.1.1656

Known problems	
ABB DriveManager package - Running drive stops when connecting with DriveManager <u>Workaround:</u> First Connect the DriveManager to the drive then start the drive. Then drive doesn't get stopped automatically.	2.3.1.1656

Programmable Drive - ACS880

Warning: In firmware versions prior to AINLx 1.5, the IEC61131-3 program reads/writes drive firmware parameters directly with internal scaling (including input/output mapping). **The change to external parameter scaling shall take effect in drive firmware version AINLx 1.5 and later.** In case of updating drive firmware to AINLx 1.5 please ensure correct functioning of the IEC application program. Check all firmware parameter read/write functions and mappings (Drive Interface) carefully. Please find more information in the bug correction of the system library chapter.

Note 1: In order to program ACS880 drive there shall be an application programming license (+N8010) loaded to drive memory unit. Please contact your ABB representative for details. However, firmware version AINFX 1.62.0.0 or older are not requiring a license on the drive.

Note 2: In order to get ABB Standard and System library visible, please disable the *Enable simplified library handling* and *Hide system libraries* options in Library management Tools/Options/Feature.

Note 3: DriveComposer Pro version 1.5 or newer is recommend. See appendix 3 how to make DriveComposer Pro work in parallel with Control Builder Plus

VERSION INFO	
ABB Driveware application programming package	3.5.1.24
Automation Builder engineering suite	1.0 (1.01, 1.02)
Control Builder Plus (CBP)	2.3.0 (or newer)
Compiler version	3.4.4.30
ABB Standard library in project (AS1LB)	1.0.1.1
ABB System library in project (AY1LB)	1.9.0.6*
D2D communication library in project (AY2LB):	1.9.0.2*
Target FW:	AINFX 1.7x**
Target device ACS880_AINF_ZCU11_M_V3_5	3.5.1.13 (ZCU-11 /13)
Target device ACS880_AINF_BCU12_M_V3_5	3.5.1.13 (BCU-12/02/22)
Target device ACS880_AINF_ZCU12_M_V3_5	3.5.1.13 (ZCU-12 /14)

*) Target ZCU-11 is having library 1.9.0.5 and is not supporting D2D communication library

**) Target ZCU-11 only AINF4 1.62.x.x supported

Functional changes	
<p>ABB Driveware application programming package</p> <p>General</p> <ul style="list-style-type: none"> - There is a possibility to include OEM license file to application program (Project settings/Application licensing). Loaded license is visible in DriveComposer Pro and ACS_AP-I panel system info display. - Device scan displays the “no license”-information in case the drive is not having application programming license (+N8010) on the drive. - IEC SFC library (3.4.2.0) required for SFC programming is added to the package. - ZCU-12/14 and BCU-12/02/22 memory space extended to 160kB. - Support of downloading boot project to multiple nodes is added. Requires setting in Tools/Customize/ABB - Online Commands. Add <i>Create Boot application to multiple drives</i> -command. Separate reboot is needed. <p>APEM</p> <ul style="list-style-type: none"> - Collapse all / Expand all -buttons added to UI. - Number of powerfail type parameters is limited to 9 and indicated by yellow arrow on the parameter tree. <p>Drive Interface</p> <ul style="list-style-type: none"> - There is also possible to update Drive Interface FW parameter table using Drive Composer pro backup file directly (*.dcp_paramsbak) - Possibility to add new default values for the drive FW parameters in DriveInterface in Pro/In-house mode. (Column New Defaults). 	3.5.1.24
<p>Firmware</p> <ul style="list-style-type: none"> - Application programming license (+N8010) is required in order execute and be in on-line connection with the drive's CODESYS runtime system. 	AINLX1.7
<p>System library (AY1LB)</p> <p>Parameter utility functions added for parameter attribute settings.</p> <ul style="list-style-type: none"> - PAR_UNIT_SEL - PAR_SCALE_CHANGE - PAR_LIM_CHANGE - PAR_DEF_CHANGE - PAR_DISP_DEC - PAR_PROT - PAR_GRP_PROT - PAR_REFRESH <p>See new revision B of the ACS880 drive application programming manual.</p>	1.9.0.6
<p>D2D communication library (AY2LB)</p> <ul style="list-style-type: none"> - D2D function block library is added. There is more information in ACS880 Drive application programming manual rev B. 	1.9.0.2

Bug corrections	
<p>ABB Driveware IEC programming package</p> <p>General</p> <ul style="list-style-type: none"> - There was a problem to open drive parameters in non default access levels with passcodes in case application program is loaded to drive. This is now fixed. (BZ6248) - Mapping of the value pointer as output to existing REAL type variable corrected (BZ6840). <p>APEM</p> <ul style="list-style-type: none"> - Name of application or device object in a project (device tree) can be changed (BUG5538). - It's prevented to use code below 128 for user units. Unit codes below 128 are reserved for firmware. - There is an indication on the build message window if there is not found previously linked variables. Variable is removed or name of path is changed. - The possibility create application program, which reboots the drive software continuously is prevented. Root cause was that the IEC memory address of user parameter is wrong (existing-option). (BZ7328) 	3.5.1.24
<p>FW</p> <ul style="list-style-type: none"> - Application task cycle measurement function is possible reactivated by parameter 7.21. bit 15. - With BCU-12/02/22 targets mappings of (Driveinterface) the following types variables are now working: output UINT, INT and input UNIT. (BZ5454). - Retain memory area was limited to 64 Byte. Now 256Byte. (BZ5296). 	AINLX1.7
<p>System library (AY1LB)</p> <p>-</p>	1.9.0.6

Known problems	
<p>ABB Driveware IEC programming package</p> <ul style="list-style-type: none"> - The firmware pointer parameter mapping (using Drive Interface or system library AY1LB function PAR_Set_Pointer_IEC) is lost in case drive parameters are restored to defaults by parameter 96.06 or macro change is requested by parameter 96.04. The consequence is that application functionality is defected and this can be dangerous for the machine control. The mappings are again valid after power cycle. REMEDY: Use e.g. group 47.x as transfer parameters in order to connect application to FW pointer parameter (e.g. 22.11). BZ8384 - In case the pointer parameters of Master follower functionality (62.01-03) or with Fieldbus process data mapping (53.01-10) are linked to application parameters the application download to RAM memory fails. REMEDY: In order to load application to drive M/F link and fieldbus process data writing shall be stopped. BZ4871 - In case adding of the new device to project (without using New project) latest compiler version 3.5.1.30 is proposed. However correct version is 3.4.4.30. This version can be selected from the menu 	3.5.1.24

<p>Project / Project settings. Also compiler version is wrong if the ACS880 device is added after the AC500 device is already in project. Compiling fails. Set correct compiler version in Project menu/ project settings and compiler options (version shall be 3.4.4.30). BZ6638</p> <ul style="list-style-type: none"> - APEM tool is sometimes not able to save changes to project. E.g. reconnection of the existing IEC variable link of parameter may not be saved. Anyhow the error message is reported in build phase. Another case is that sometimes APEM parameter attribute (e.g. number of decimal) is not saved to project and then if the project is reopened the value holds old value BZ8351 - Create Boot Application download the application download fails, if the DriveComposer monitoring is running at same time. REMEDY Stop monitoring and repeat download. BUGID 8515 	
<p>FW -</p>	<p>AINLX 1.7.</p>

3. Changes in Automation Builder 1.0 Service Release 1

The service release includes changes for the following device groups:

PLC-AC500

- Various bug fixes and improvements
- Support of PM556-ETH

	PM554	PM564	PM554-ETH	PM564-ETH	PM572	PM573-ETH	PM582	PM583-ETH	PM590-ETH	PM591-ETH	PM592-ETH	and Device
New functions												
Quick data exchange between PM5xx and SM560-S					X	X	X	X	X	X	X	SM560-S
New function block BOOTPRO_HASH_INFO, which provides MD5 values for all parts of a user program. The MD5 values only change when the user program changes.	X	X	X	X	X	X	X	X	X	X	X	
From C-Code access to further standard functions atof, atoi, atol, strtod, strtol, strtoul, calloc, realloc, bsearch, qsort is possible.					X	X	X	X	X	X	X	
DO524	X	X	X	X	X	X	X	X	X	X	X	DO524

Safety PLC AC500-S

	PM554	PM564	PM554-ETH	PM564-ETH	PM572	PM573-ETH	PM582	PM583-ETH	PM590-ETH	PM591-ETH	PM592-ETH	and Device
New functions												
Example: Implementation for high-speed data exchange between PM5xx and SM560-S					X	X	X	X	X	X	X	SM560-S

ABB Drive Manager

- Various bug fixes and improvements in stability
- Improved monitoring functionality
- Monitoring data can now be exported.

Control Panel - CP600

- Various bug fixes and improvements
- Export of the Panel Builder project directly from Control Builder Plus

Programmable Drive - ACS880

- Added option to set application parameters to defaults in Create boot application download. This ensures that application parameters are not holding old values after reboot of the drive with new an application.
- There is created application file packages (Application.wrp) for the external tools to add all application files firmware loading package.
- Parameter read/write functions (also input/output mapping) are changed to use external scaling interface in system library AY1LB_System_ACS880_V3_5 1.9.05. This is valid in ACS880 Primary Control Program AINfx 1.5x onwards. Previous system library versions internal scaling was used. Other parameters are having same scaling in internal and external interface. It is strongly recommend to check all parameter write/read functions and mappings in application in order to verify correct function. Here is listed parameters which are having different scaling in new firmware AINLx1.5 compare to older firmware (1.41. or older) in case of reading /writing or using input/output mapping.
- (5.11, 21.18, 27.16, 17.20, 27.21,43.1, 43.8, 43.9, 43.10, 43.11, 43.12, 92.11, 93.11, 97.3, 97.4,97.11, 97.13, 97.16, 97.17, 98.11, 98.12, 98.13, 98.14, 98.15)

Motion Controller - MicroFlex e150

- Various bug fixes and improvements
- Support for the following MicroFlex e150 firmware versions:
 - Builds 5710, 5711 and 5712

4. Changes in Automation Builder 1.0

PLC-AC500

	PM554	PM564	PM554-ETH	PM564-ETH	PM572	PM573-ETH	PM582	PM583-ETH	PM590-ETH	PM591-ETH	PM592-ETH	and Device
New functions												
Safety libraries for AC500-S Safety					X	X	X	X	X	X	X	SM560-S
Support for AC500-S Safety PLCs					X	X	X	X	X	X	X	SM560-S
Extension of the CAA file library by FILE_MOVE, FILE_DISKFORMAT and FILE_DISKSTATUS	X	X	X	X	X	X	X	X	X	X	X	
Performance improvement PM59x									X	X	X	
PS501 Control Builder Plus SW update via packages	X	X	X	X	X	X	X	X	X	X	X	
C programming					X	X	X	X	X	X	X	
Integrated version support. CBP V2.3.0 also includes CBP versions V2.2.1 and V2.1.0.	X	X	X	X	X	X	X	X	X	X	X	
Function block BOOTPRG_HASH for calculating MD5 Hash via the boot project in the PLC.	X	X	X	X	X	X	X	X	X	X	X	
Support of modular EtherCAT devices					X	X	X	X	X	X	X	
CANopen configuration supports deactivation of CANopen devices					X	X	X	X	X	X	X	
Keyboard support for menu navigation in CBP	X	X	X	X	X	X	X	X	X	X	X	
Installation of the CBP integrated into the Automation Builder V1.0 setup	X	X	X	X	X	X	X	X	X	X	X	
Improved navigation between editors and the associated objects in the device tree.	X	X	X	X	X	X	X	X	X	X	X	
Export of a device list	X	X	X	X	X	X	X	X	X	X	X	
Improved performance in "Create configuration data"	X	X	X	X	X	X	X	X	X	X	X	
Integration of the IRC5 robot controller as PROFINET device					X	X	X	X	X	X	X	ABB IRC5
Integration of MicroFlex e150 servo drive as EtherCAT device					X	X	X	X	X	X	X	MicroFlex e150
IEC-61131 programming of the ACS880 industrial drive												ACS880
DriveManager support for ACS550, ACQ810 drives on Profibus and PROFINET					X	X	X	X	X	X	X	ACS550, ACQ810

Appendix 1: Update of devices in Automation Builder 1.0 Service Release 1

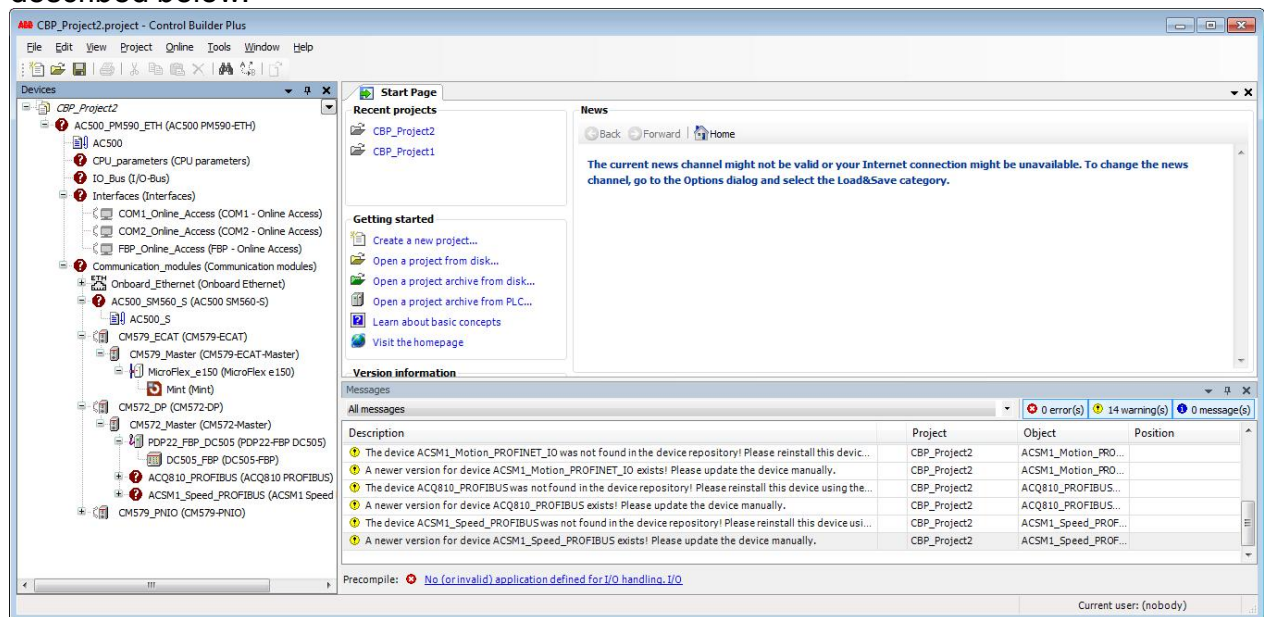
For several devices newer versions are provided with the Automation Builder 1.0 SR1. This requires manual device object updates in certain scenarios:

- When opening projects/project archives created with Control Builder Plus prior to 2.3.0 a complete project update is required which updates automatically all devices in the project. In general no manual steps are required.
- When opening projects/project archives created with Control Builder Plus version 2.3.0 the devices are not automatically updated to the latest available version (2.3.X). Manual steps are required which are explained in details in the section below.

Device Updates in projects/project archives created with Control Builder 2.3.0

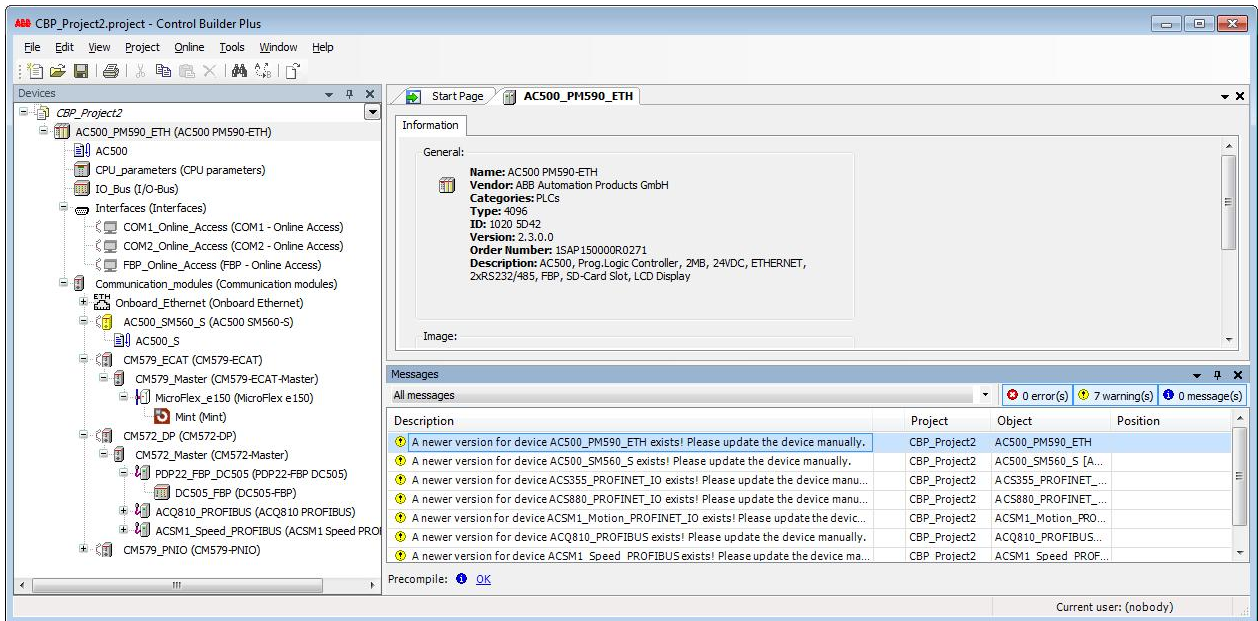
Opening Projects:

After opening a project some device objects might be highlighted with question marks. Additionally, the Message Window lists all objects that should be updated to the latest version of the description file. The steps to update the device objects are described below.



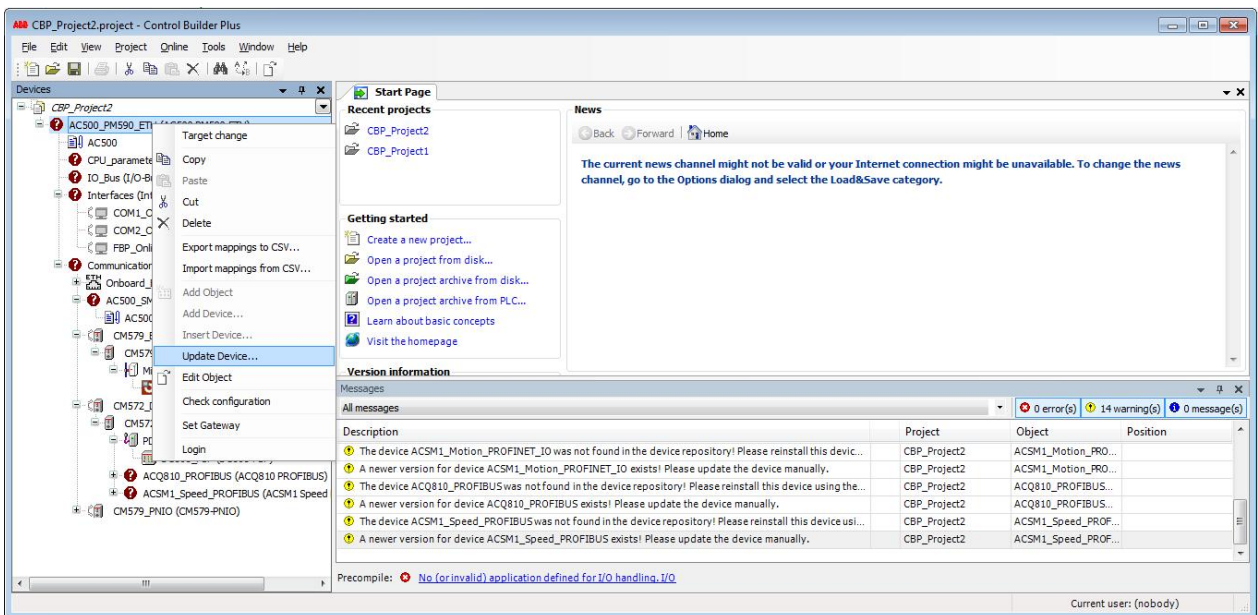
Project archives:

When opening a project archive the original device description version is installed in the current device repository on customer's choice. The Message Window lists all objects that should be updated to the latest version of the description file. The steps to update the device objects are described below.

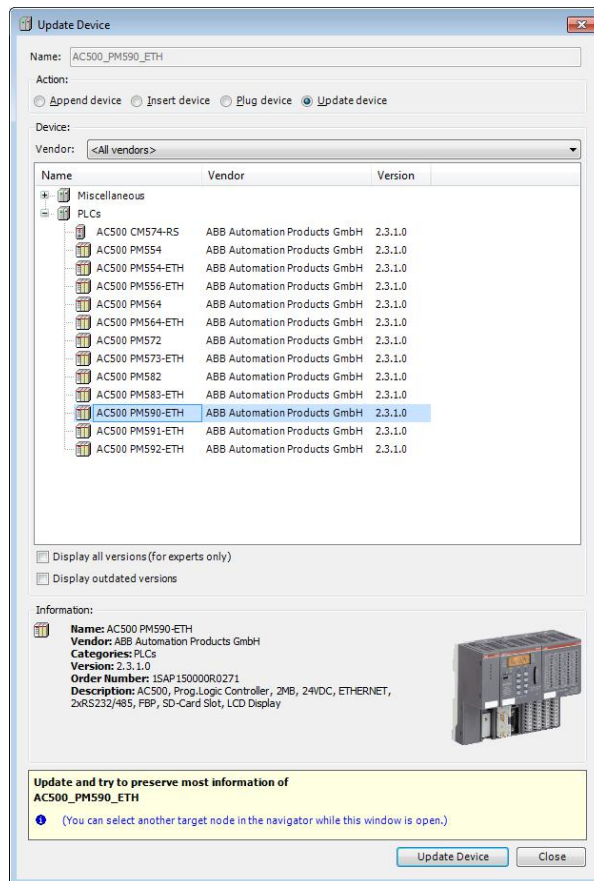


Device Updates Steps:

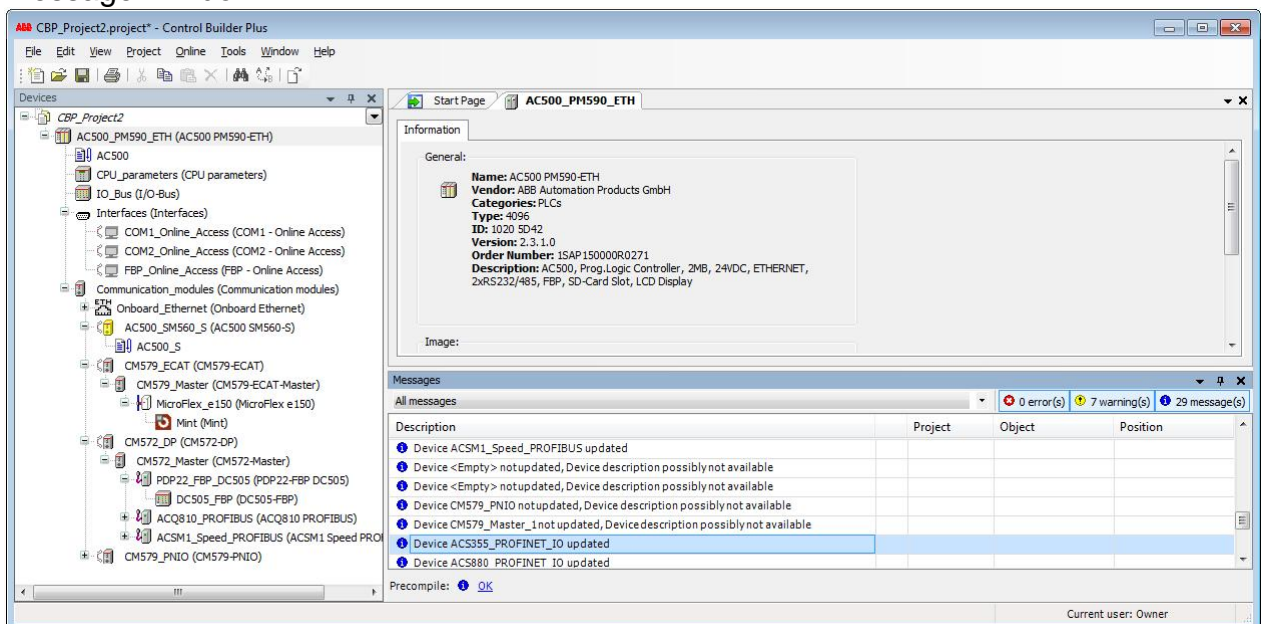
- Please update the AC500 PM node via “Update device” in context menu. All sub nodes will be updated automatically to the latest available version 2.3.X.



- Select in the dialog the same device with version 2.3.1.



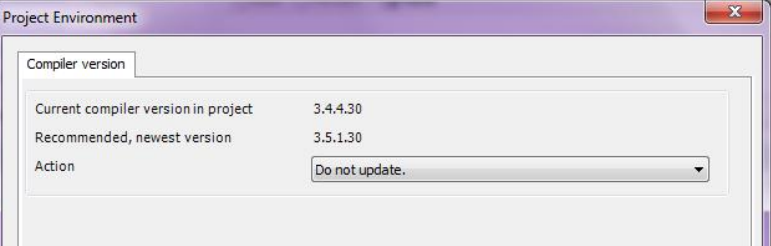
All sub nodes below the selected AC500 PM are automatically updated to the latest version 2.3.X in the device repository. The device update result is shown in the Message Window.



General Remark:

It is not recommended to open projects/project archives created or updated with the Control Builder Plus SR 1 version in previous Control Builder Plus 2.3.0 versions! Devices, their parameters and functionality might not work properly in previous versions.

Appendix 2: How to open existing project archives after updating ABB Driveware IEC programming package

Upgrade instructions	
1.	Open the old project archive (File / Project Archive / Extract Archive) <ul style="list-style-type: none"> - Select project archive file - Select correct new location to extract this project
2.	Do not allow update of the compiler <div style="border: 1px solid gray; padding: 5px; margin: 5px 0;">  <p>Project Environment</p> <p>Compiler version</p> <p>Current compiler version in project: 3.4.4.30</p> <p>Recommended, newest version: 3.5.1.30</p> <p>Action: Do not update.</p> </div>
3.	Update device to version 3.5.1.2 or newer available. Device tree right click mouse above <i>Device</i> item and select Update device.
4.	Compile (Be aware that default ABB library names are changed and this may cause compiling errors as the same functions are found several libraries. Remove overlapping library installations)

Appendix 3: How to use Drive Composer Pro and CBP parallel

In order to share communication connection with Drive Composer Pro the following setting must be active (*Share connection with Control Builder Plus*)

