

FAQ No.0002

Project-Handling and versioning

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Introduction

This document describes general recommendations regarding project creation, layout and version maintenance with COMBIVIS studio 6.

COMBIVIS studio 6 is an automation platform. By using many different target systems, fieldbus devices, communication interfaces and topologies COMBIVIS studio 6 makes application development possible. It supports its user with pre-developed software modules and project templates.

COMBIVIS studio 6 offers an open and flexible device and library database. The user can expand the preinstalled range of functions individually by adding further fieldbus devices and software components or by using the integrated version management.

COMBIVIS studio 6 projects that have been verified during their initial operation and test phase are internally exactly defined. By archiving a project the user is able to freeze the current state and restore the project at any time.

Individual components can be changed with older or newer versions as needed.



Fundamentals

Versioning

Components are being identified by a 4-digit version code

<major version>.<specification version>.<release version>.<implementation version>

Major version	Introducing a new generation
Specification version	Introducing new specifications and concepts
Release version	Introducing new functions
Implementation version	Hotfixes/ Bug fixes

Among others the following main components pursue the above pattern:

Component	Example
COMBIVIS 6	6.2.3.0
Compiler (CODESYS CORE)	3.5.4.10
Project	1.0.0.25
Devices (PLCs, Fieldbus-Master/slaves),	3.5.4.10
Library	3.5.4.11



Updates

On a regular basis KEB delivers software and device updates together with expansions that can be downloaded via the integrated online update function or manually via <u>www.keb.de</u>. Older versions remain on the programming system.

A new COMBIVIS studio 6 Setup installs a coherent set of versions, meaning compiler, devices and libraries are well-matched and verified.

Outdated device versions are not being installed to ensure a clear and performant device selection as well as the development with an optimal version set.

Thanks to the backwards compatibility an update of individual components is possible. However, some aspects must be kept in mind:

Implementation Version [....d] Contains small bug fixes. The risk of incompatibility is very low.

Release Version [_._.c._]

New functions are being released. These functions are only usable with the at release active compiler version and in some circumstances effective across multiple devices.

For the use of new functions, it is necessary to project wise update the compiler, and every object, that regards this function, to its according version.

Specification Version [_.b._.]

New specifications or concepts are being released. "Mixed"-Projects with different specifications may cause compiler errors or lead to unexpected behavior!

For example: 3.3 PLC + 3.4 ETC Master + 3.5 EtherCAT Library

It is recommended to update compiler, devices and library simultaneously.

Major Version [a._._]

A new software generation is being released. In some circumstances file formats are not compatible and have to be exchanged via the Import/ Export function.



Repositories

Device-Repository

The Device-Repository is the local device database located on the user- pc.

Location: System Repository (C:\ProgramData\COMBIVI	Sstudio 6\Devices)	•	Edit Locations
Installed device descriptions:			
Name	Vendor	Version ^	Install
- PLC C6 Compact - PLC C6 Compact - PLC C6 Compact - PLC C6 Compact - PLC C6 Compact II - PLC C6 Compact II - PLC C6 HMI LC BASIC	KEB - Karl E. Brinkmann GmbH KEB - Karl E. Grinkmann GmbH	3.2.1.4 3.3.1.4 3.4.0.1 3.4.1.5 3.4.1.5 3.5.4.10	Uninstall
•	III	- F	Details

All local installed devices and their versions can be managed here.

> Details...

Furthermore, it is possible to install additional devices:

> Install...

All supported description files (*.xml;*.eds;*.dcf;*.gs?)
Device description files (*.devdesc.xml)
EDS and DCF files (*.eds, *.dcf)
EtherCAT XML Device description Configuration Files (*.xml)
Installed device descriptions (*.xml)
IO-Link Device Description (IODD) (*IODD1.1.xml;*IODD1.0.1.xml)
PROFIBUS DP V5.0 Configuration Files (*.gs?)
PROFINET IO Configuration Files (GSDML*.xml)
sercos XML Device description Files (*.xml)



Library-Repository

The Library-Repository is local library database located on the user- pc.

Location:	System (C:\ProgramData\COMBIVIS studio 6\Managed Libraries)	•	Edit Locations.
Installed lib	raries:		Install
Company:	(All companies)	•	Uninstall
	KEB - Karl E. Brinkmann GmbH		Uninstall
	B + HSP5_Master KEB - Karl E. Brinkmann GmbH		
1 22 12 12 13	KEB Modbus KEB - Karl E. Brinkmann GmbH		
1.1 12 23	KebCanSlave KEB - Karl E. Brinkmann GmbH		
	KEB_Drive_Utility KEB - Karl E. Brinkmann GmbH		
		=	
	ം ച <mark>ഞ</mark> 3.4,4.0		
H	• KEB_Gateway_Utility KEB - Karl E. Brinkmann GmbH		
1 1 1 1	- • KEB_SMC_UTILITY KEB - Karl E. Brinkmann GmbH		
127 12 23	EE_StatusCollectorH6 KEB - Karl E. Brinkmann GmbH		
			Find
	E RenewableEnergy	÷	
	23 111	•	Details
📝 Group l	by category		Dependencies.
			C

All local installed libraries and their versions can be managed here.

> Details...

Furthermore, it is possible to install additional libraries:

> Install...



Library management

A library is a self-contained collection of POUs (Program Organization Unit), that can be used to enlarge the range of functions of a project or a superior library.

Advantages of libraries

- ✓ Source code protection
 ✓ Reusability
 ✓ Reproducibility through versioning
- ✓ Easy usability and integrated documentation

The available set of libraries is defined by the Library-Repository.

The available set of functions of each project is set by the Library Manager and the added libraries within.

/ 🎁 Library Manager 🗙			
🔁 Add library 🔀 Delete library 🛛 🕋 Properties 📷 Details 🛛 🛒 Placeholders 🖉 Library re	pository		
Name Namespace Effective version			
🖩 🗝 🚥 IoStandard = IoStandard, 3.4.2.0 (System)	IoStandard	3.4.2.0	
🗄 📲 KEB_Modbus = KEB_Modbus, 3.5.9.70 (KEB Automation KG)	KEB_Comm_Modbus	3.5.9.70	
KEB_PLC_Hardware_Library = PLC Hardware Library, 3.2.3.0 (KEB - Karl E. Brinkmann GmbH)	KebPlc	3.2.3.0	
🗄 🚥 SM3_Basic = SM3_Basic, 4.1.1.0 (3S - Smart Software Solutions GmbH)	SM3_Basic	4.1.1.0	
≝…⊶ SM3_CNC = SM3_CNC, 4.1.1.0 (3S - Smart Software Solutions GmbH)	SM3_CNC	4.1.1.0	
🗑 🚥 SM3_Robotics = SM3_Robotics, 4.1.1.0 (3S - Smart Software Solutions GmbH)	SM3_Robotics	4.1.1.0	
🖫 👓 SM3_Robotics_Visu = SM3_Robotics_Visu, 4.1.0.0 (3S - Smart Software Solutions GmbH)	SM3_Robotics_Visu	4.1.0.0	

Some system- or hardware specific libraries are added automatically (shaded in light grey)

For example: IoDrvEtherCat-Library, while using an EtherCAT Master



Add Library

Additional libraries can be added by the user.

🗾 > 🋍 Library Manager > Add Library

The Add Library Assistant lists all POUs and libraries with a specific keyword and adds the correct version automatically following the placeholder concept.

A	dd Library		23
	KEB_Drive		
	Match	Library	
	KEB_Drive	KEB_Drive_Utility	
	KEB_DriveCtrl_OpenLoop	KEB_Drive_Utility	
	T_KEB_DRIVE_F5_INIT_PARAS	KEB_Drive_Utility	
	KEB_DriveCtrl_F5A	KEB_Drive_Utility	
	•	III	•
	Advanced	ОК	Cancel

Placeholder Concept

The library injection has been simplified since COMBIVIS studio 6 V3.5.4.10.

All libraries are being added via placeholder by default.

The manufacturer defines in the background, which library version is optimal for which target system and the set compiler version. The library version is being applied automatically.

If necessary, the placeholder version can be set to a different version manually.



Project Environment

The Project Environment dialogue checks the used versions in the project and informs the user about updates.

Library versions Compiler version	Device versions Visualization profile Visualization styles Visualization sym	
Current compiler version in project	t 3.5.9.70	
Recommended, newest version	3.5.11.30	
Action	Do not update.	
The compiler version used in this p	roject is not the newest one. It is recommended to update to '3.5.11.30'.	
The compiler version used in this p	project is not the newest one. It is recommended to update to '3.5.11.30'.	

If a project has to be supplemented by new functions, the dialogue offers the possibility to update all objects at once.

> Set all to newest

If an already verified project, meaning an already on a machine running project has to be changed by uncritical source code lines, or if the project's only purpose is the monitoring of something, it is recommended to cancel the assistant. If preferred, the "Check for updates when loading this project"-function can be bypassed by disabling the Checkbox.

> Cancel

□ Check for updates when loading this project



Project Information

Even projects can be marked by an explicit version number or additional information such as Company, Title, Version, Author and Descriptions.

The Project Information must be activated separately for each project.

Project Information		23
File Summary Pro	operties Statistics Licensing Signing	
Company:	KEB Automation KG	
Title:	SampleGateway	
Version:	3.5.9.70 Releas	ed
Library Categories:		
Default namespace	:: [
Author:	KEB Automation KG	
Description:	This sample shows usage of the KEB Gateway Utility library	*
The fields in bold le	etters are used to identify a library.	
Automatically generat	te 'Library Information' POUs	
Automatically generat	te 'Project Information' POUs	
	OK Canc	el

The deposited information can be viewed online. The precise machine version is therefore able to be determined.

It is being recommended to create and maintain the Project Information for each project.



Recommendations for user

Creating a new project

Recommended procedure for new projects:

• Using the newest COMBIVIS studio version (see also <u>www.keb.de</u>)

🛃 > Help > 🕑 Check for updated...

Using the automatically generated standard project
 > File > New Project > Standard PLC project

Using sample projects as basis

🛃 > File > 🎬 Open sample project...

Expanding an existing project

Recommended procedure to update projects or old machines:

Case A: Usage of new functions

New functions must be added to a project that requires a compiler, library or device update. The whole project functionality must be re-verified. The update of all components to an equivalent version is recommended; thereto the Project Environment dialogue is being used.

Project > Project Environment...

Additionally, the manual update of all fieldbus devices is recommended: **Right click on device > Update Device...**

The project should be cleaned after a device update. Eventual precompile information that is no longer in use is being deleted and libraries are being reinitialized.

🛃 > Build > Clean All...

Case B: Source code changes

A project must be extended by various operations that solely regard the source code.

For example: Changing values of variables

For example: Adaption of a state machine

In that case, it is recommended to freeze all core components such as compiler, devices and libraries to its already verified state. The Project Environment dialogue that might be shown at each project opening should be canceled.



Project layout/ Programming convention

Cite - Droiget Archive - Cove/Cond Archive

For a global consistent and optimal project and source code layout, KEB recommends the usage of "KEB Software Engineering Guideline for IEC 61131-3 libraries and applications".

Help > Help > A Show "FAQ" documents...

Data maintenance / After-Sales-Support

Project Archive

To safe a project entirely the Project Archive creation is necessary.

 Project Archive	<u> </u>
Include the following information into the archive:	
Additional files Comment Save Send	Cancel

A Project Archive consists among others of the following data in one file:

- Project files (IEC Code, POUs, etc.)
- All used library versions!
- All used device versions!

It is highly recommended to create a whole Project Archive after project acceptance and to save it on a failsafe medium. The Project Archive allows a full project restore, independent on the user's repository.

Login without compiling

A project archive should not be created until the project file has been downloaded to the target system or the creation of a boot application on the target system. Only if these steps are being followed the **download information files** can be saved into the archive. Without download information a login on a running machine without recompiling is not possible.



Source code download

The function Source download... enables the possibility to deposit a Project Archive directly onto a target system.

> File > Source download...

If this is done consistently, the correct project source code is directly stored on the machine and in case of service available.

This option can be enabled within the project for simplification purposes.

Compile options	Source Download
Compiler warnings Page Setup	Destination device
Security	<all devices="" in="" project=""></all>
SFC SoftMotion Source Download Static Analysis Light Users and Groups Visualization Visualization Profile	Content The project file itself is always part of the source download archive. Use compact download Additional files Timing Minimitian Timing Minimitian Timing
	 Implicitly at creating bootproject Implicitly at creating bootproject, download and online change Prompt at program download and online change Only on demand



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