

Kollmorgen Automation Suite

30 Minutes to Motion User Manual



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Valid for Kollmorgen Essentials Drive Firmware Version: <Adjust in target>

Part Number: 959714



For safe and proper use, follow these instructions.
Keep for future use.

KOLLMORGEN

A REGAL REXNORD BRAND

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1 Key Features

Kollmorgen Automation Suite is a Kollmorgen all-in-one solution for designing, developing, and maintaining automation systems. It integrates these three main functionalities of a machine:

- Interface with machine operators (HMI)
- Logic handling of the machine (IEC 61131-3 Soft PLC)
- Precise control of all moving parts (Motion control)

1.1 KAS-IDE

KAS comes with an Integrated Development Environment (IDE) used to:

- Create new application project using KAS predefined or custom application templates.
- Define the machine hardware architecture as well as the machine program.
- Develop PLC programs using the IEC 61131-3 programming languages (FBD, FFLD, IL, SFC, and ST) and KAS function block libraries dedicated to motion.
- Centrally manage all IEC 61131-3 variables with the KAS variable dictionary and map logical variables to physical inputs and outputs.
- Set up HMI panels and map graphical object to IEC 61131-3 variables.

1.2 Main Tools

Tool	Description
Cam Profile Editor	Used to create or modify a profile definition that describes the position evolution of the cam in a 2D graphical format.
Pipe Network Editor	Graphical tool describing the mechanical System into the logical world based on an one to one translation.
Simulator	Used to develop your application without any hardware available.
Softscope	Used to view in a two-dimensional graph one or more variable's evolution (vertical axis) across the time (horizontal axis).

2 Install KAS-IDE

2.1 System Requirements

These are the minimum system requirements for the KAS-IDE.

Component	Description
Supported Operating Systems	• Microsoft® Windows® 11 (64-bit). • Microsoft® Windows® 10 (32-bit or 64-bit). • For optimal performance, verify the operating system is fully updated with the latest patches.
Connectivity	• 1 Ethernet port or WiFi connectivity, at either 100 MB or 1 GB. • See Note #2.
Display	• WXGA+ (1440 x 900) or higher-resolution monitor with 24-bit, 16.7M colors. • See Note #1.
Hard Disk	Free space required on hard disk: • 32-bit hard disk: 16GB • 64-bit hard disk: 20GB
Network	Internet connection for downloading and updating WebView2 Runtime.
Processor	Intel® Pentium® M or equivalent processor at 1.5GHz or greater.
RAM	• 32-bit: 1GB RAM • 64-bit: 2GB RAM or greater • Recommended for complex applications.
Software	• Microsoft Edge WebView2 Runtime (Evergreen) version 133.0.3956.59 or newer. • .NET Framework 4.8.1 or newer.
Web Browser	• A modern web browser is required to access the controller Web server and online help. • We recommend Microsoft Edge.

NOTE

1. Better results are achieved with OpenGL and 3D cards.
2. A 100MB or 1GB network is required to allow the KAS-IDE to Runtime communication to work in all conditions.
The AKD WorkBench AutoTuner and Scope both require 100MB of bandwidth to function properly.

TIP

See [Connect Remotely](#) about the ports used by the KAS.

The ports may need to be opened to support connecting to a controller from an external network.

2.2 Digital Signatures

The KAS-IDE Installer and the executables are digitally signed to protect the integrity of these files and identify the distributor of the software components.

The digital signature appears as part of the file properties.

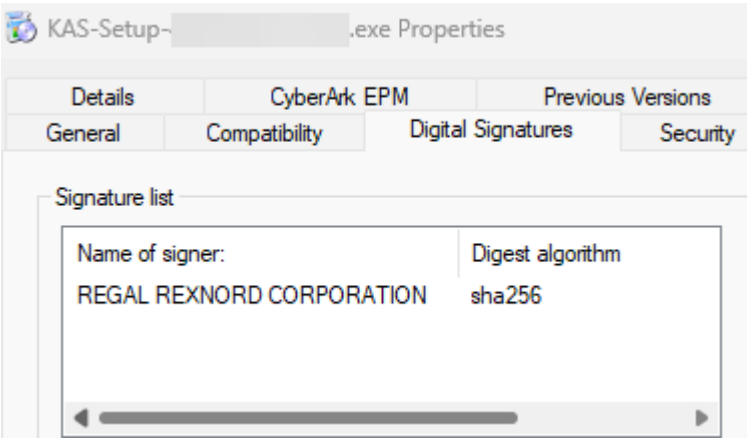


Figure 2-1: Example: KAS Setup Properties Digital Signature

2.3 Download

The latest version of the Kollmorgen Automation Suite is available from the Kollmorgen Support Network here: [KAS IDE Distribution](#).

NOTE

This is a restricted site.
You must be given access based on having purchased KAS.
If you do not have access, contact "Support and Services" (→ p. 37).

Procedure

1. Open the [KAS IDE Distribution](#) site.
2. Login to the site.
3. In the table, click the applicable Full or Small Installer link.
The file starts downloading.
4. When the download is completed, continue with the "KAS-IDE Installation" (→ p. 7).

2.4 KAS-IDE Installation

❗IMPORTANT

Installation of the KAS-IDE can require you to change your firewall setting.
If you do not have sufficient privileges to configure your firewall, you must stop the relevant Windows Service.

👉 TIP

- Adding the **KAS-IDE** application as an exception in your firewall settings is recommended to avoid security issues.
- See the FAQ entry [How can I fix security issues?](#) about firewall recommendations.

Procedure

1. On the computer, locate the folder where the EXE file was downloaded to.
2. Double-click the EXE file.

The Kollmorgen Automation Suite Setup starts loading.

❗IMPORTANT

The **Verified Publisher** in the installation wizard dialog must be **REGAL REXNORD CORPORATION**.

3. Wait for the setup splash screen to vanish after being displayed.
The Kollmorgen Automation Suite Setup wizard starts.
The **Welcome** window opens showing the version number of the KAS-IDE. (Figure 2-2)

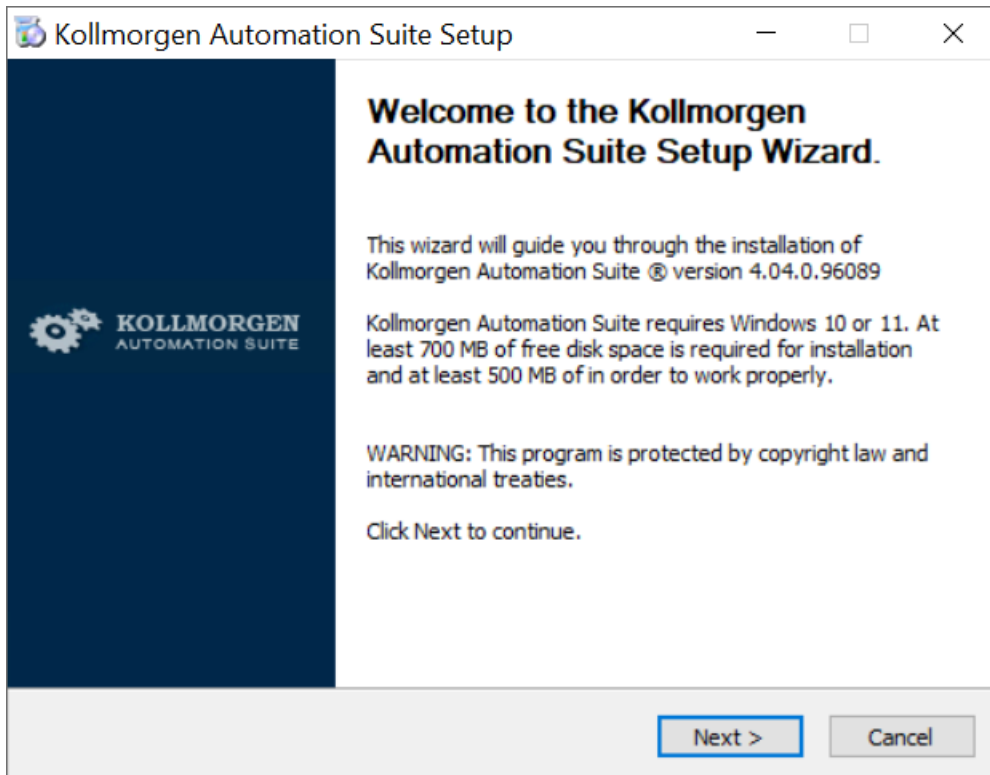


Figure 2-2: Welcome window

4. Click **Next**.
The **License Agreement** window opens. (Figure 2-3)

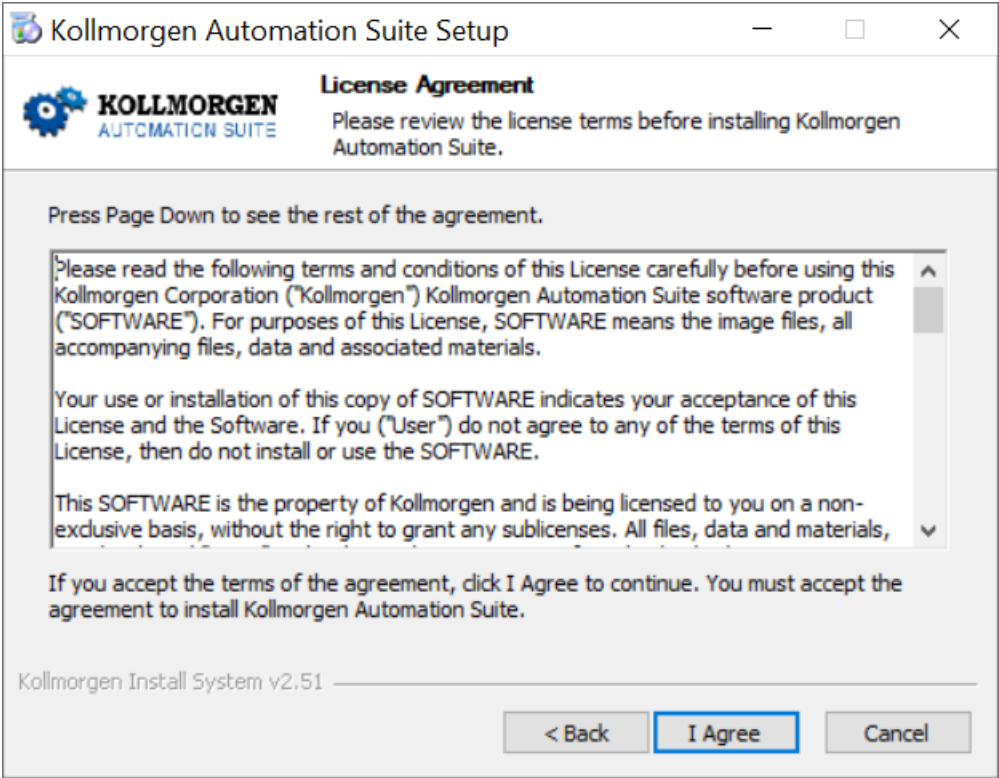


Figure 2-3: License Agreement window

5. Review the License Agreement and click **I Agree**.

NOTE

You must accept the agreement to install KAS.

The **Choose Components** window opens. (Figure 2-4)

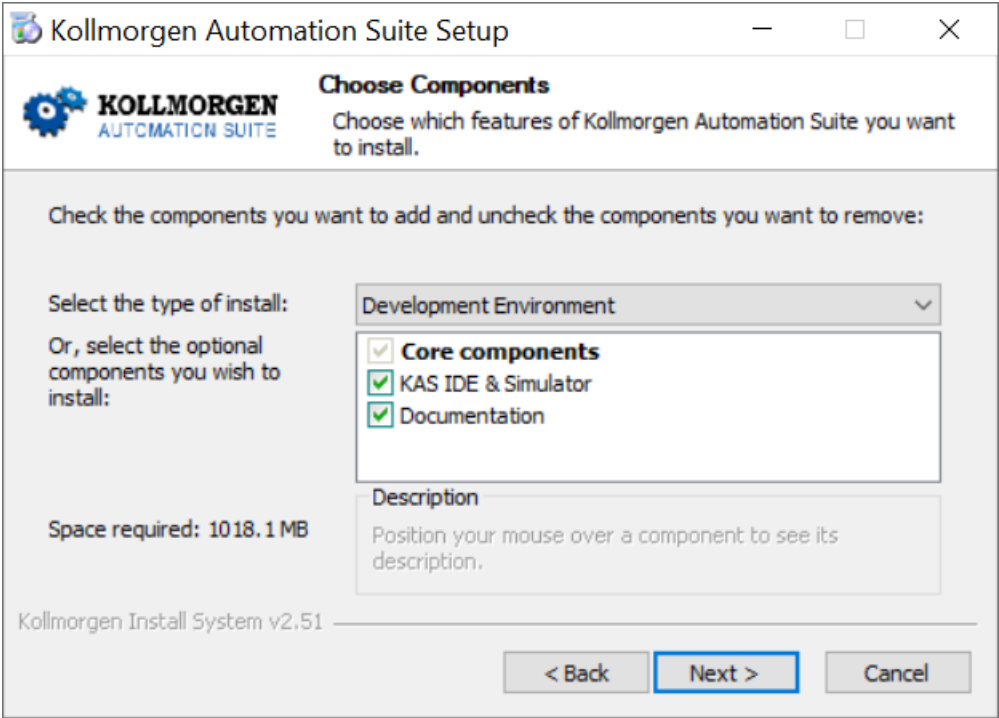


Figure 2-4: Choose Components window

6. From the drop-down menu, verify the **Development Environment** installation type is selected.
7. Click **Next**.

The **Choose Users** window opens. (Figure 2-5)

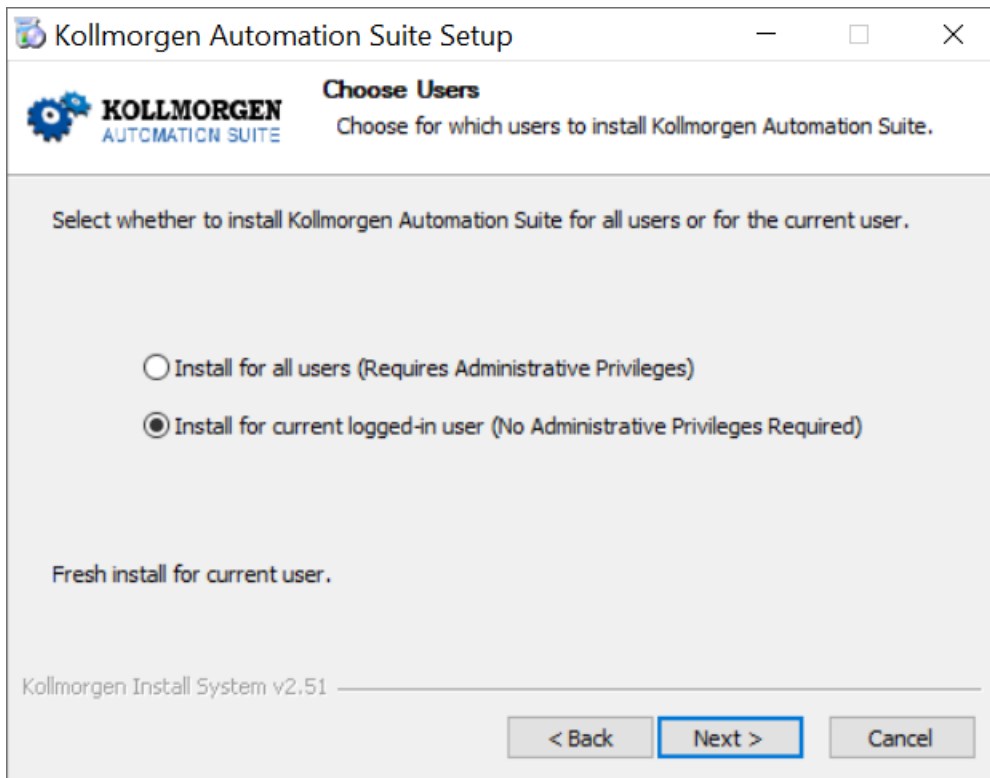


Figure 2-5: Choose Users window

8. Select either:
 - Install for all users (Requires Administrative Privileges)
 - Install for current logged-in user (No Administrative Privileges Required)

TIP

Kollmorgen recommends installing for **All Users** if this is a first time KAS-IDE installation on the computer.

NOTE

The KAS-IDE software requires these Windows components to be installed on your system:

- .NET Framework 4.8.1 Runtime
- WebView2 Runtime

If these components are not already installed, the installer prompts you to install them.

Administrative privileges may be required for the initial installation of these components.

9. Click **Next**.
The **Choose Install Location** window opens. (Figure 2-6)

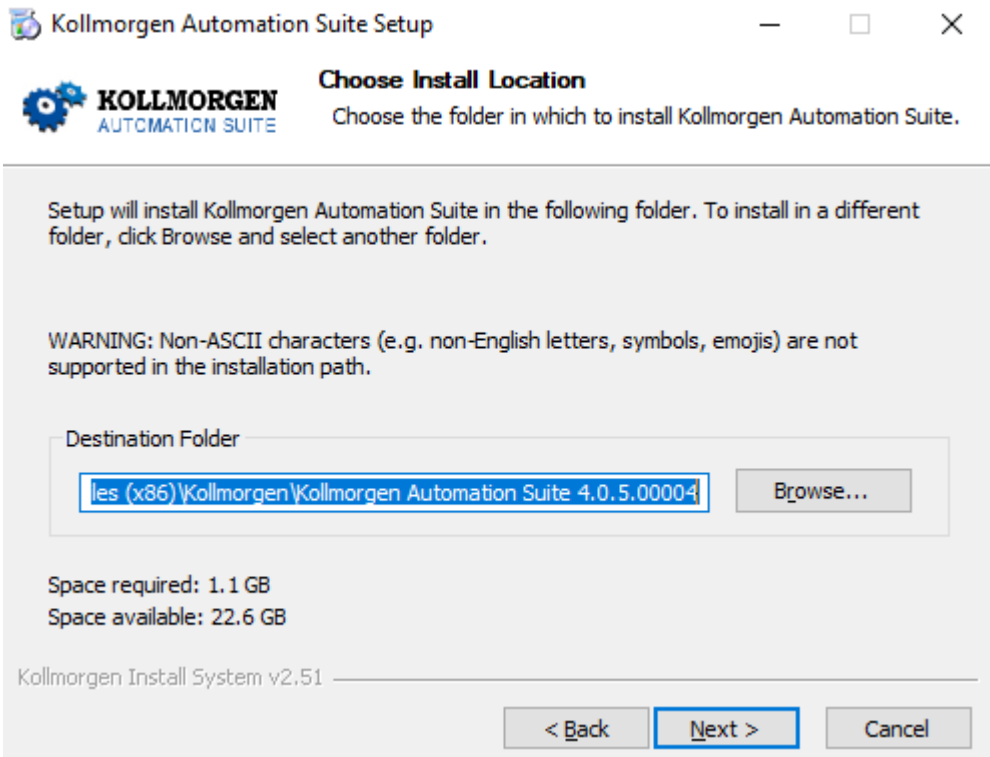


Figure 2-6: Choose Install Location window

10. Accept the recommended default location.
Option: Click **Browse** to specify a custom install directory.

⚠ WARNING

Kollmorgen does not support non-ASCII characters in the install location path.
If these characters exist in the path, you must specify a different installation directory.

📌 TIP

Kollmorgen recommends accepting the default destination folder:

- For the All Users option, the location is here:
 - C:\Program Files\Kollmorgen\Kollmorgen Automation Suite\Kollmorgen Automation Suite <<KAS-VERSION-ID>>.
- For the Current User option, the location is here:
 - C:\Users\{user.name}\AppData\Local\Kollmorgen\Kollmorgen Automation Suite <<KAS-VERSION-ID>>.

11. Click **Next**.
The **Choose Start Menu Folder** window opens. (Figure 2-7)

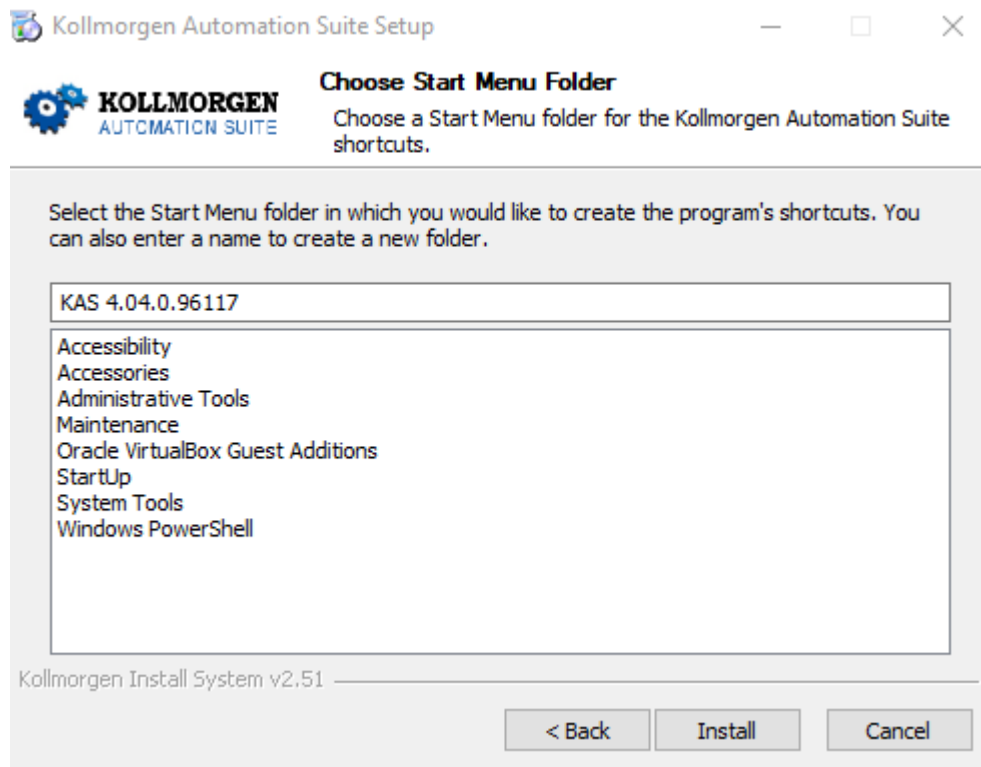


Figure 2-7: Choose Start Menu Folder window

12. Accept the recommended default folder name.
Option: Edit the text to specify a custom folder name.
13. Click **Install**.
KAS-IDE is installed in the designated install location.
 - a. If WebView2 is **not** installed, the Figure 2-8 message appears.

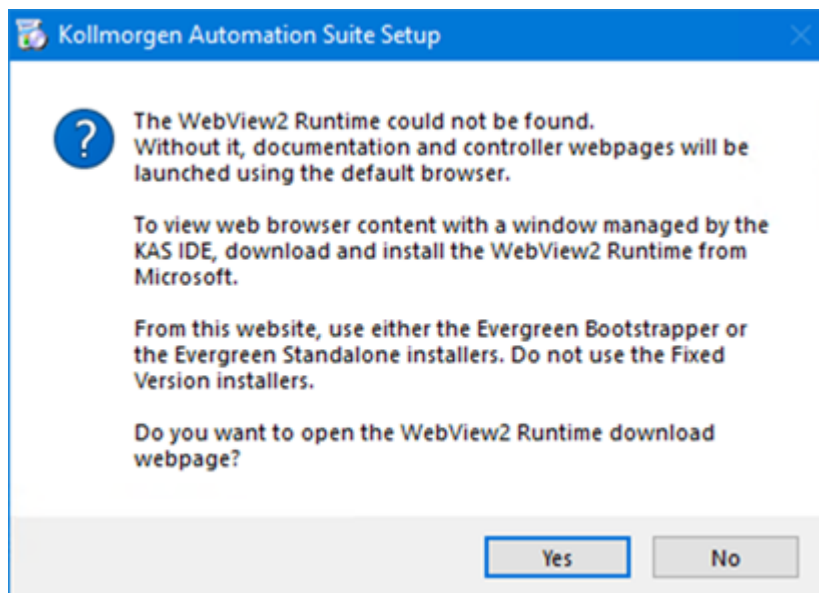


Figure 2-8: WebView2 Confirmation message

- b. Continue with "WebView2 Installation" (→ p. 12).
- When the installation is complete, the **Completing KAS Setup** window opens. (Figure 2-9)

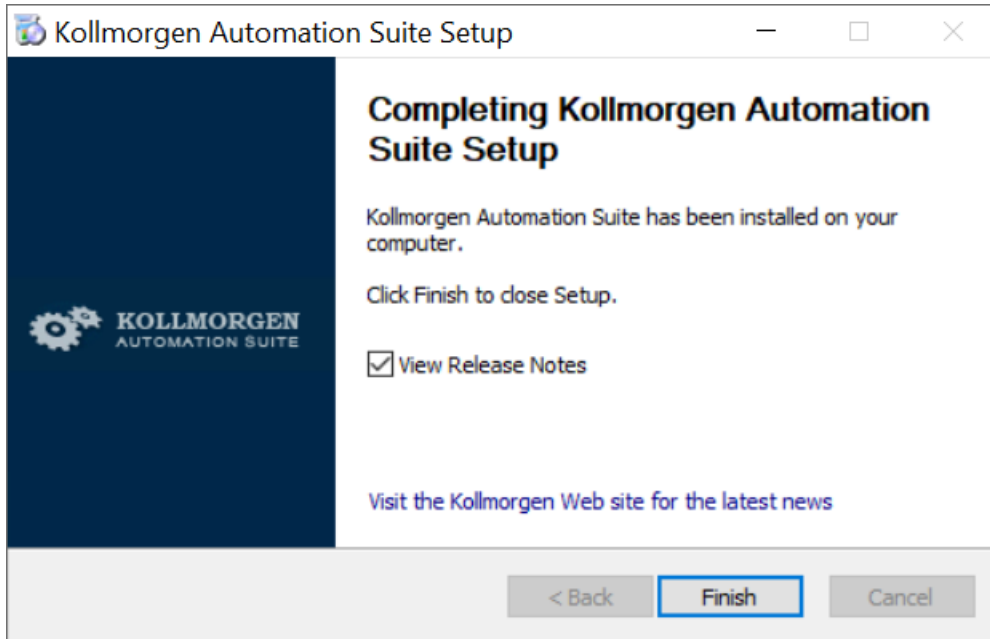


Figure 2-9: Completing KAS Setup window

14. Click **Finish** to close the wizard and open the Release Notes.

2.4.1 WebView2 Installation

❗IMPORTANT

- The KAS software uses Microsoft WebView2 Runtime software to display the documentation and web server pages from the KAS-IDE.

Notes

- If Microsoft WebView2 is **NOT** installed, the KAS-IDE installer prompts the user to download and install it from the Microsoft website here: [Microsoft Edge WebView2 Runtime software](#).
- Use either the Evergreen Bootstrapper or the Evergreen Standalone installers.
 - **Do not use the Fixed version installers!**
- The user must follow the provided link to install WebView2 to view the documentation and access the web server from the KAS-IDE.

Procedure

1. Click **Yes**.
The Download area of the Microsoft Edge WebView2 website opens.
 - Use either the Evergreen Bootstrapper or the Evergreen Standalone installers.
 - **Do not use the Fixed version installers!**
2. Download the applicable Evergreen installer.
3. Click the Accept and Download link to the license terms and download the software.
4. Locate and install the MicrosoftEdgeWebview2Setup.exe file.
Wait until the installation process is complete.

2.4.2 User Data

- User-generated data (e.g., log files, project sources, field bus configurations, function blocks, etc.) are stored in the Windows® User directory and are maintained between installations.
- This applies to files on AKD PDMMs, PCMMs, PCMM2G, and Simulator files.

3 Explore the KAS Workspace

This section helps you become familiar with the KAS-IDE.

3.1 Windows and Panels Overview

3.1.1 Main Window

The KAS-IDE interface provides an all-in-one-window integrated workspace.

The main view in the Integrated Development Environment (IDE) is a Multiple Document Interface (MDI) environment. This provides an easy-to-use and customizable view, including the ability to hide, enlarge, or overlap windows in order to optimize visibility.

The main view is saved when you exit KAS-IDE. This ensures that your workspace remains the same each time you open and use the KAS-IDE.

The KAS-IDE main window contains these items:

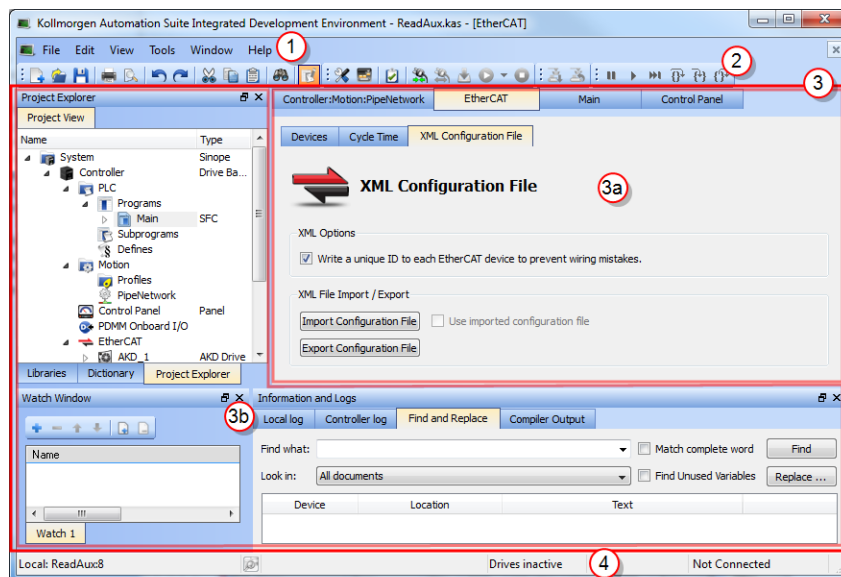


Figure 3-1: KAS Main Window

Item Number	Description
1	Menus
2	Toolbars
3	Workspace
3a	This area is specifically used for the workspace children windows.
3b	Several toolboxes A toolbox is a child window that provides some functions to perform specific tasks.
4	Status Bar - Shows the current state of the target.

3.1.2 Toolboxes

These are the available toolboxes:

- "Project Explorer" (→ p. 14)
- "Libraries" (→ p. 14)
- "Information and Logs window" (→ p. 16)

3.1.3 Project Explorer

The Project Explorer toolbox window displays machine application information in a tree-structure representation.

This window contains all the items used to design, implement, test, and document the application.

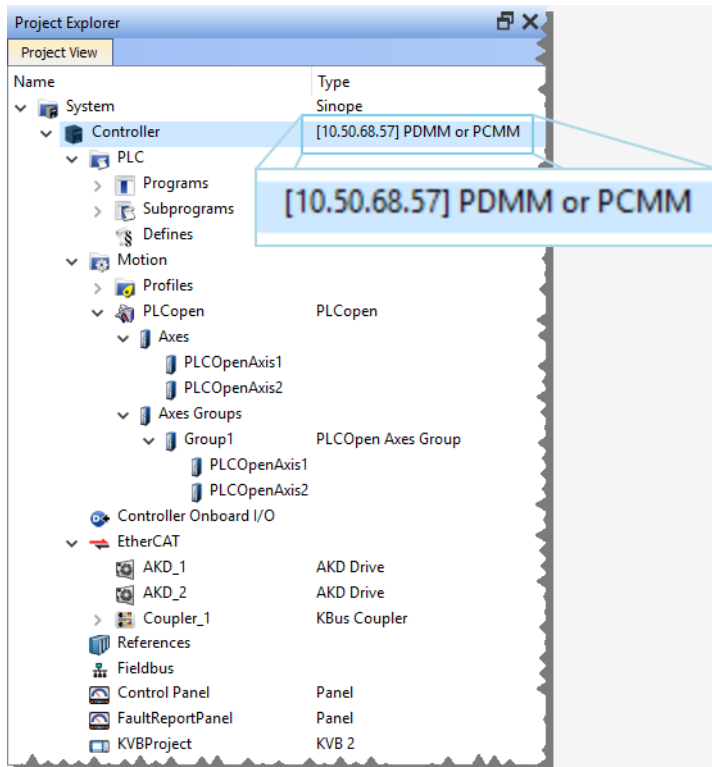


Figure 3-2: KAS Project Explorer

3.1.4 Libraries

This toolbox contains several tabs to access all the functions of the available libraries.

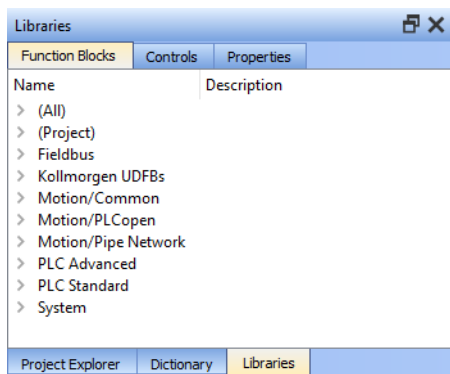


Figure 3-3: Libraries dialog box

3.1.4.1 Function Blocks tab

This tab displays all the available libraries shown in a tree-structure representation and grouped by categories. Expand a library to access all its functions. A short description of each function is available.

- Fieldbus Library
- Kollmorgen UDFBs
- Motion Library - Pipe Network
- Motion Library - PLCOpen
- PLC Advanced Libraries
- PLC Standard Libraries
- System Library

3.1.4.2 Controls tab

This tab displays all the controls available for the HMI design.

3.1.4.3 Properties tab

This tab displays all the properties of an HMI control.

3.1.5 Variables tab

The Variables tab is used to show all the variables defined in the project.

The variable details are displayed in order to show the variable types, dimensions, attributes, etc.

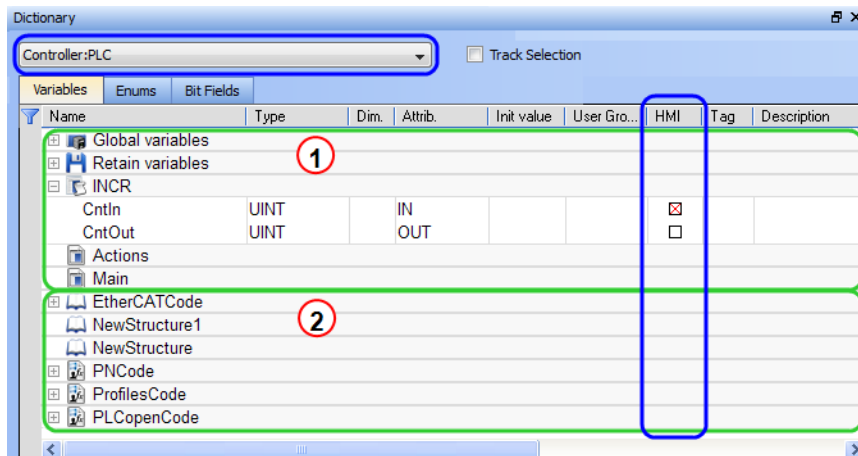


Figure 3-4: Variables tab

The list of variables is split into two parts:

Item Number	Description
1	All the Variables are at the top.
2	All the Structures are at the bottom.

Modify Parameters of a Variable

Mode	Description
One Parameter	In the cell edition mode, double-click on the parameter.
All the parameters are at the same time	In the row edition mode, double-click in any parameter to open the dialog box for variable configuration.

3.1.6 Information and Logs window

The Information and Log window is used to identify current state status and can be used to identify operational errors, compilation errors, and also to quickly assist you in finding areas of the workspace or program variables.

This window contains these tabs:

- Breakpoints tab with a list of breakpoints.
- Browse Variable tab
- Compiler Output tab with state reports.
- Find and Replace tab for a system search.
- Log Messages tabs (Local or Controller) including Log Messages Settings.

4 Create an Application

This exercise helps you become familiar with KAS application environment.

The Control Panel is used to create a simulated motion on two axes.

In this exercise, you will perform these steps:

- "Create a Project" (→ p. 17)
- "Compile the Project" (→ p. 29)
- "Start the KAS Simulator" (→ p. 29)
- "Download the Project" (→ p. 30)
- Start the project using the "Device Control" (→ p. 31) buttons.
- "Operate the Control Panel" (→ p. 31) to observe the functions in the KAS Simulator.

4.1 Create a Project

Step	Description
1	To start your project, you have to add a controller, choose which motion engine your application is based on (Pipe Network or PLCopen), and set the properties of the controller.
2	Add all AKD drives being part of your EtherCAT network and define all their parameters.
3	Add all the IO couplers and slices being part of your EtherCAT network.
4	Configure EtherCAT motion bus by mapping all the devices and setting the cycle time.
5	Create programs with the five programming languages that comply with the IEC 61131-3 standard.
6	Create variables, which can also be arrays or complex structures, and monitor them with the Dictionary, or the variable editor.
7	Create functions and function blocks that can be called from your programs.
8	Use constant definitions to ease the maintenance of your code.
9	Use the functions available in the pre-defined libraries.
10	Create your custom libraries containing your PLC code that you can use in different projects.
11	Map digital or analog inputs and outputs, that are on the EtherCAT motion bus, to PLC variables.
12	Design motion with pipe blocks in the pipe network or with PLCopen axis.
13	Create Cam Profiles that you can associate to a cam pipe block.
14	Define the number of cycles between successive executions of the PLC programs, and configure the programs priority.
15	Add an HMI device, design the KVB Panel, and map the variables.

❗ IMPORTANT

Each time the project is changed, recompile and download the new version to save the changes on the target.

4.1.1 Add the Controller

- 1. Click the **File** menu and select **New**.
The Controller Creation Wizard opens.
The **Choose controller type** dialog box is active.
- 2. Select the type of controller for the project.

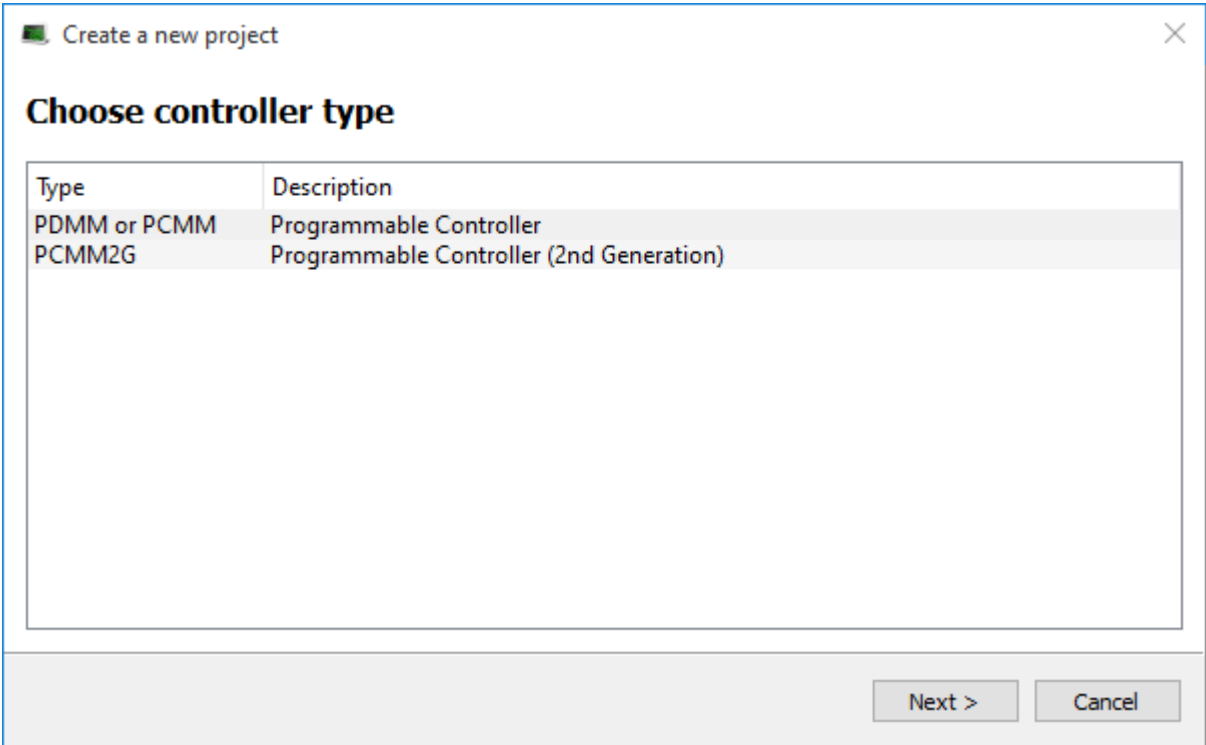


Figure 4-1: Choose controller type dialog box

- 3. Click **Next**.
The **Choose an application template** dialog box opens.
- 4. In the Template type area, choose the motion engine option .
- 5. In the template list, select the application template.

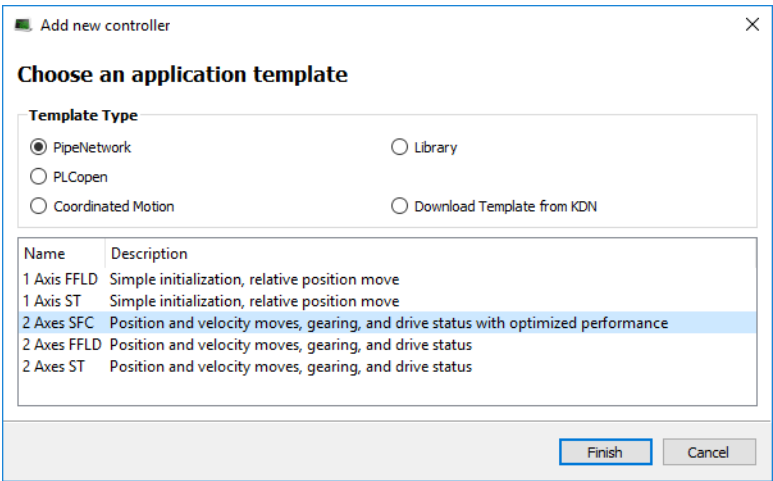


Figure 4-2: Choose an application template dialog box

- 6. Click **Finish**.
The wizard closes.

7. Click the **File** menu and select **Save As**.
The Save As dialog box opens.
8. Define the Project Name and its location.
9. Click **OK** to save the changes or selections and close the dialog box.

4.1.2 Configure the Controller

The controller is configured using the **Controller Properties** dialog box.

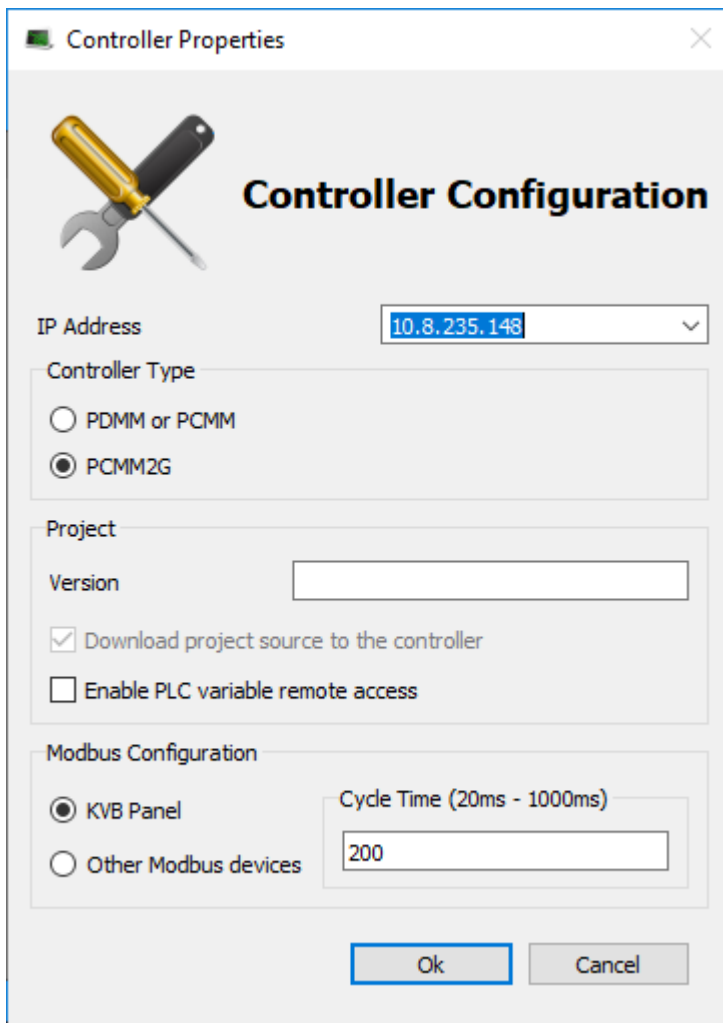


Figure 4-3: Controller Configuration dialog box

Procedure

1. In the Project Explorer, right-click the new controller to open the menu and click **Properties**.
2. Choose the Controller Type.

❗ IMPORTANT

The correct Controller Type must be selected before compiling the application. This is because the PLC code generated for the AKD PDMM or PCMM controls and the PCMM2G have different endianness. AKD PDMM / PCMM files are [big endian](#). PCMM2G files are [little endian](#). A warning opens if the application is started with an incompatible controller type.

3. Define the IP address.
4. Optional: Specify a version number (the string can be composed of any character).

🔑 TIP

Versioning is useful to make improvements to the application and if a version control system is needed. The version is saved in your project file.

5. Optional: Choose whether the project's source code should be downloaded to the controller.
This is enabled by default and your preference is saved with the project.
Disabling this option means a comparison of source on the controller and in the IDE is not available.
6. Optional: Choose whether PLC variables are read/written via an HTTP connection.
This requires that the source be downloaded to the controller.
By default this option is disabled so unauthorized changes may not be made.

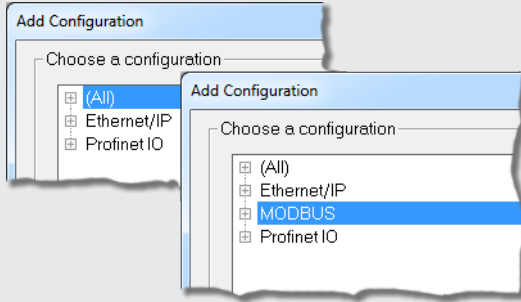
** TIP**

Recompile the project before downloading it to the controller.

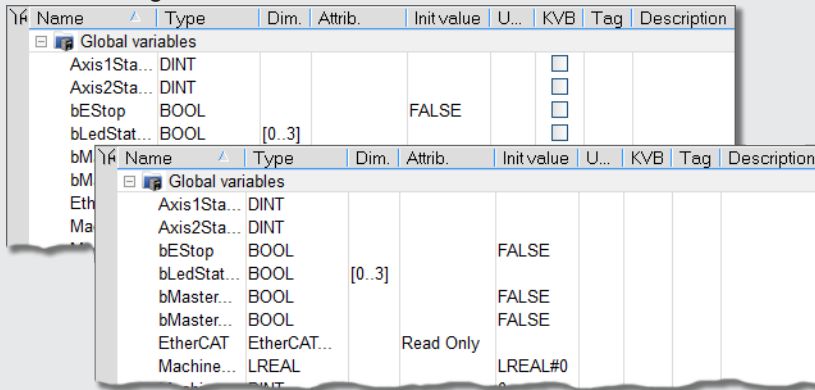
7. Select whether Modbus goes to a KVB Panel or is handled by another Modbus device.
8. Set the **Cycle Time** (i.e., the communication update frequency).

NOTE

- If KVB Panel is selected, there is no node to add a Modbus configuration in the Fieldbus Editor.

**Figure 4-4: Example: KVB Panel**

- If Other Modbus devices is selected, the KVB checkbox for Dictionary items is hidden. Motion configuration must be added from the Fieldbus Editor.

**Figure 4-5: Example: Other Modbus Devices**

9. Click **OK** to save the changes or selections and close the dialog box.

4.1.3 Configure Custom Project Settings

The KAS Runtime is used to modify specific configurations within a user's application without needing to access the KAS-IDE, recompile and re-downloading the project file to the controller.

- This functionality streamlines configuration management, particularly for customers commissioning multiple machines using a single KAS project file.
- This custom project configuration feature supports modifying the Server IP addresses of the EtherNet/IP IO Scanner (Client) defined in the KAS project.

Procedure

1. Create the controller settings file.
 - a. Create a text file named **controller_settings.xml** with this content:

```
<?xml version="1.0" encoding="utf-8"?>
<KasControllerConfig xmlns="KasControllerConfig">
  <IpAddrMapping>
    <IpAddrAlias alias="1.1.1.1" canonical="192.168.1.91" />
    <IpAddrAlias alias="2.2.2.2" canonical="192.168.1.177" />
    <IpAddrAlias alias="3.3.3.3" canonical="192.168.1.213" />
  </IpAddrMapping>
</KasControllerConfig>
```

ⓘ IMPORTANT

The alias IP addresses **must match exactly** the Server IP Address specified in the KAS project under the Fieldbus Editor > EtherNet/IP IO Scanner (Client) -> Server nodes.

- b. Replace the canonical IP addresses in the configuration file with the actual EtherNet/IP addresses of your adapter controllers.
2. Upload the file to the scanner controller.
 - a. Open a command prompt.
 - b. Using curl, run these commands to upload the file:
 - i. `curl.exe -k -X POST -d "username=administrator" -d "password=<<administrator_account_password>>" -G https://(IP_Address)/authorize/login -c cookie.txt`
 - ii. `curl.exe -k -F "sendfile=@<<controller_settings.xml file path>>" -F "filename=controller_settings.xml" https://(IP_Address)/userfiles -b cookie.txt`

NOTE

- Replace the (IP_Address) with the actual IP address of your scanner controller (PxMM or PCMM2G).
 - Example:


```
curl.exe -k -F "sendfile=@<<C:\tmp\controller_settings.xml" -F "filename=controller_settings.xml" https://192.168.0.10/userfiles -b cookie.txt
```
- Replace <<administrator_account_password>> with the actual password of your controller Web server.
See [User Authentication](#).
- If your controller is AKD PDMM or PCMM, use http:// instead of https://.
- See [HTTP Commands for User Data File Management](#).

3. Verify the file upload.
 - a. Open a web browser and navigate to https://(IP_Address).
 - b. Navigate to: KAS Application > User Data page.
 - c. Locate the **controller_settings.xml** file and click the Download (📄) icon next to it. (Figure 4-6)
 - d. Once the file is downloaded, open it and verify that its contents are correct and as expected.

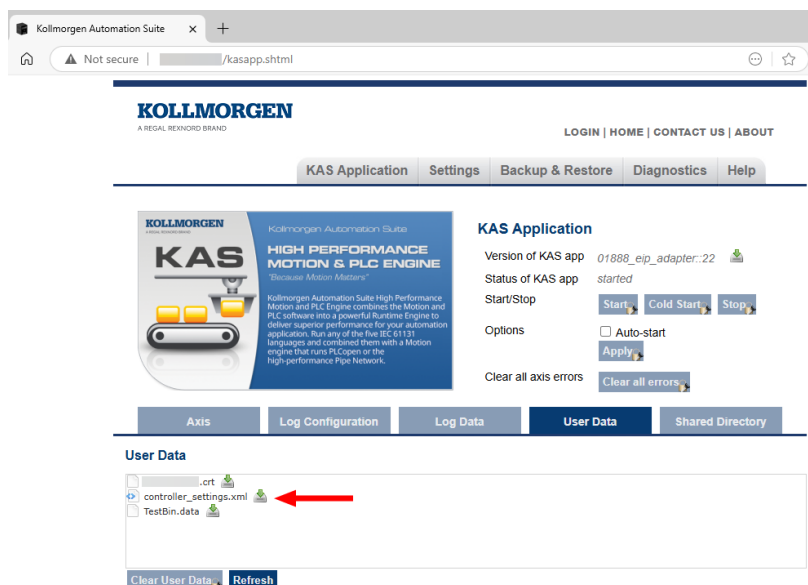


Figure 4-6: controller_settings.xml file

4. Configure the KAS project.
 - a. In the KAS-IDE, open the KAS application project.
 - b. Stop the project if it is currently running.
 - c. In the Project Explorer, double-click Fieldbus to open the FieldBus Editor.
 - d. Under the Server nodes, update the IP address to match the alias values from the XML file. (Figure 4-7)

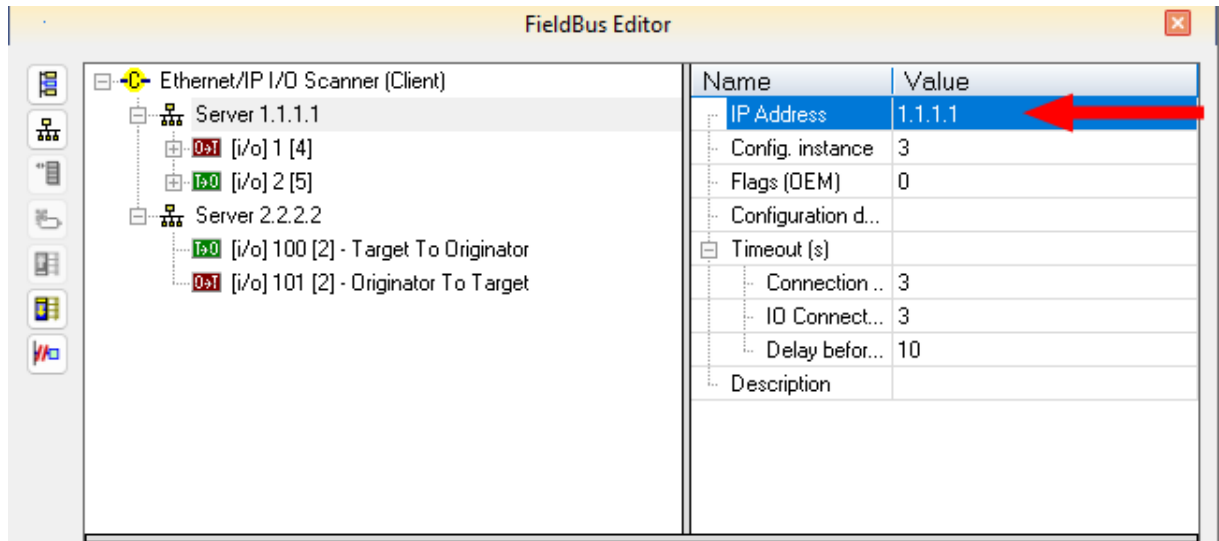


Figure 4-7: Alias IP address

5. Verify the operation.
 - a. Compile and download the project to the controller.
 - b. Start the project and wait for the application to fully initialize.
 - c. Confirm that all EtherNet/IP I/O Scanners are operating correctly and communicating as expected.

4.1.4 Configure Project Settings

1. On the **Project** menu, click **Settings**.
The Project Settings opens. (Figure 4-8)

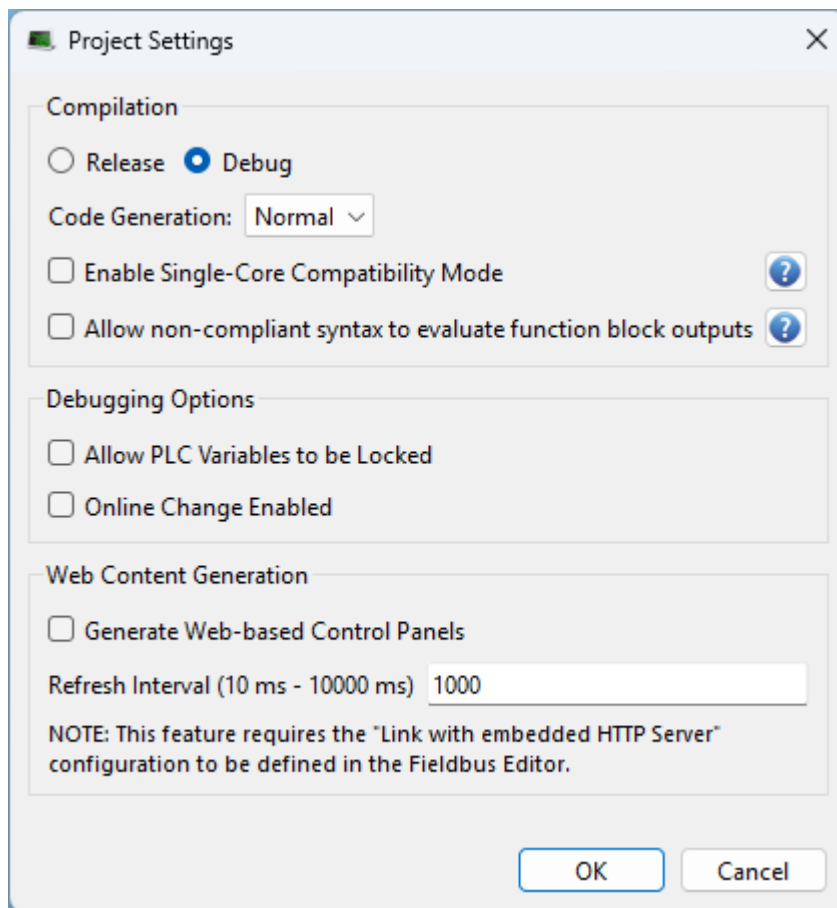


Figure 4-8: Project Settings dialog box

2. In the **Compilation** section:
 - a. Select either the **Release** or **Debug** option button.
 - Select the **Release** option button:
 - If step-by-step debugging is not required.
 - To give highest performance to the application.
 - Select the **Debug** option button to use Step-By-Step Debugging during simulation or online testing.
 - b. Click the **Code Generation** drop-down arrow and select either **Normal** or **Optimized**.
 - See Normal.
 - See Optimized.
 - c. For PCMM2G only:
 - i. Select the **Enable Single-Core Compatibility Mode** check box if:
 - The application does not follow multi-core controller programming guidelines.
 - See Program a Multi-Core Controller.
 - Reduced performance on the PCMM2G is acceptable for the application.

ⓘ IMPORTANT

The limitations listed in "Single-Core Compatibility Mode" (→ p. 26) are acceptable.
 - ii. Select the **Allow non-compliant syntax to evaluate function block outputs** check box if:
 - The application was developed using a version of KAS earlier than v4.00.
 - You are encountering Unexpected complex data in expression compile errors.
 - You prefer not to update the KAS project to use compliant syntax for the corresponding function blocks.
 - See Unexpected complex data in expression..

3. In the **Debugging Options** section:
 - a. Select the **Allow PLC Variables to be Locked** check box to enable PLC variables to be locked (forced).
 - b. Select the **Online Line Change Enabled** check box to update the PLC application while it is running on the controller.
4. In the **Web Content Generation** section for PCMM2G only:
 - a. Select the **Generate Web-based Control Panels** check box to allow access to control panel files in the project from the web browser using the KAS Web server.
 - b. In the **Refresh Interval** text box, specify the interval at which web pages are refreshed to receive PLC variable updates from the KAS Web server.
5. Click **OK** to save the changes or selections and close the dialog box.

4.1.5 Single-Core Compatibility Mode

Single-Core Compatibility Mode enables migration of existing PxMM (first-generation) projects to the PCMM2G platform.

- **Configuration:** This setting is enabled for each project.
 - See [Configure Project Settings](#).
- **Execution Behavior:** This mode forces the motion engine and PLC virtual machine to run on the same core, emulating single-core controller behavior.
- **No Code Changes Required:** Applications originally designed for single-core execution run without modification.
- **Diagnostics Support and Persistence:** A warning message is logged at project startup when the compatibility mode is enabled to aid in diagnostics.
 - This setting persists across firmware updates and controller backup/restore operations.
- **Customer Benefit:** Allows continued use of existing applications without the need for immediate code refactoring, easing the transition to multi-core platforms.

4.1.5.1 Limitations and Guidelines

This mode preserves compatibility with legacy applications but exhibits operational characteristics that differ from both first-generation controllers and native PCMM2G multi-core operation.

- "Operational Behavior" (→ p. 26)
- "Impact on Migrated Applications" (→ p. 27)
- "Application Guidelines" (→ p. 27)
 - "Recommendations" (→ p. 27)

4.1.5.1.1 Operational Behavior

In Single-Core Compatibility Mode:

- The PCMM2G controller does not interrupt PLC code execution when the next motion cycle begins.
- The controller continues executing PLC logic until completion, regardless of cycle time boundaries.
- This differs from first-generation AKD PDMM / PCMM controllers, where the PLC VM is suspended if execution exceeds the available cycle time.

When PLC execution exceeds the motion cycle time:

- EtherCAT communication is delayed until PLC logic completion.
- The controller reports late Tx/Rx messages.
- Distributed clock synchronization is affected.
- E30 errors are likely to occur.

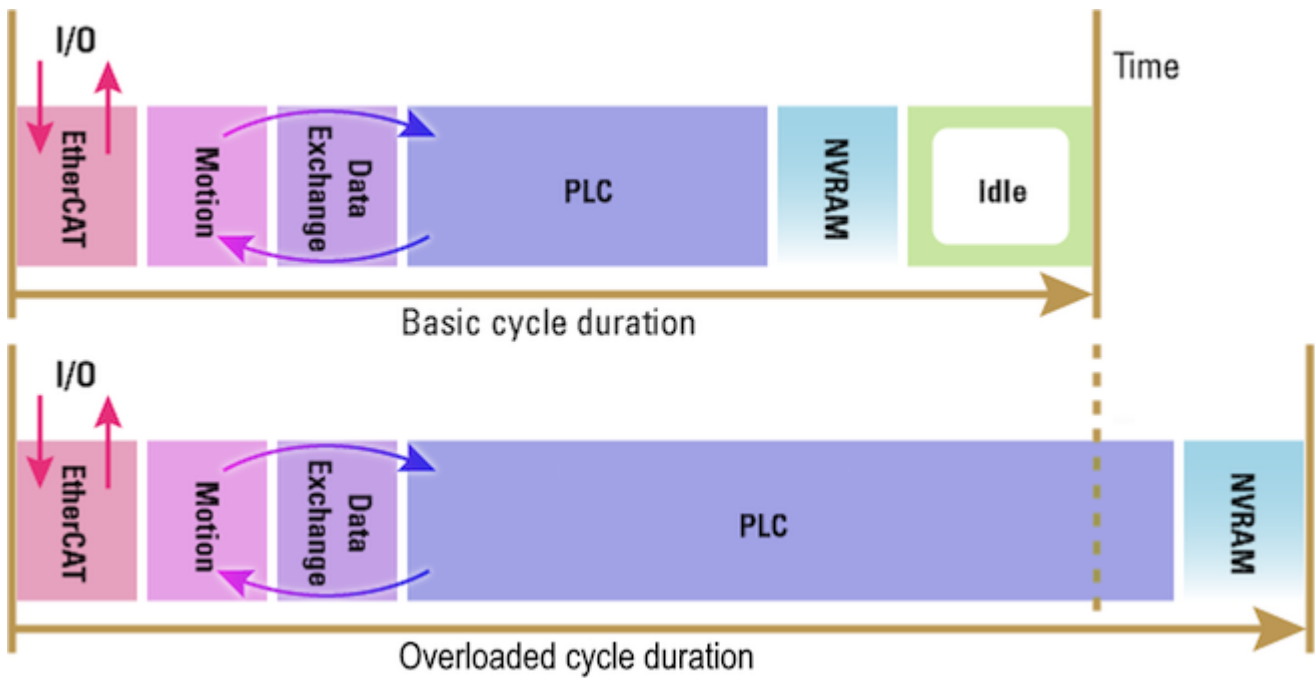


Figure 4-9: Example: SCCM Overloaded Cycle

4.1.5.1.2 Impact on Migrated Applications

The PCMM2G provides significantly higher processing performance than first-generation hardware.

Applications that operate within timing constraints on PxMM controllers typically execute with greater timing margin on PCMM2G hardware.

Timing issues may occur when:

- Additional PLC logic increases execution time beyond the original application scope.
- EtherCAT cycle time settings are aggressive relative to total workload.
- Complex computational tasks are added to migrated code.

4.1.5.1.3 Application Guidelines

Single-Core Compatibility Mode is appropriate for:

- Migration of existing PxMM controller projects to PCMM2G.
- Applications where minimizing code modification is required.
- Maintaining legacy application behavior during hardware transition.

Multi-core compatible execution is recommended for:

- New projects developed on PCMM2G hardware.
- Applications requiring significant functional expansion.
- Projects where maximum performance and scalability are required.

4.1.5.1.4 Recommendations

Kollmorgen strongly recommends updating PLC code for multi-core compatibility when migrating existing code to new projects that increases controller workload.

Mitigation Options

If timing constraints are encountered in Single-Core Compatibility Mode, consider these mitigation options:

- **Code Optimization:** Reduce computational complexity in PLC logic.
- **Update the Program Cycle settings:** See [Program a Multi-Core Controller](#).
- **Cycle Time Adjustment:** Increase EtherCAT cycle time if application requirements allow it.

- **Multi-Core Migration:** Update application to use multi-core compatible guidelines.
 - See [Define the PLC Cycle](#).

See Also

"Configure Custom Project Settings" (→ p. 22)

4.2 Compile the Project

After creating all the elements of the project, it is ready to compile.

Use the Compile button () on the toolbar or the **<Ctrl+B>** shortcut to compile the project.

4.3 Start the KAS Simulator

Click the Simulator button in the toolbar to simulate your application.



Figure 4-10: Simulator button

Once the program opens, start the simulation using the Control Panel.

4.4 Connect to the Controller

KAS provides all the commands for controlling the target in the **Device** toolbar (Figure 4-11):



Figure 4-11: Device toolbar

NOTE

If a previous download failed (due to the disconnected Ethernet or the controller is turned off), the application cannot be started.

Additionally:

- No version information is shown in the web server or status bar.
- The Start, Cold Start, and Download buttons are not available on the web server.
- If the AKD PDMM or PCMM tries to auto-start, an E24 error is flashed on the 7-segment display. Review the Controller logs for more information.

Click the  button to verify the Simulated device mode is active.

Click the **Connect Device** button () to establish the connection with the target controller.

4.4.1 Actions to Prevent Compatibility Issues

ⓘ IMPORTANT

The software versions of the KAS-IDE and the KAS Runtime MUST match to avoid compatibility issues.

🔖 TIP

The software versions of the KAS-IDE and the KAS Runtime are available in the local log messages (the level for this message is INFO).

See "Information and Logs window" (→ p. 16).

When another KAS-IDE is already connected to the controller, a warning opens and the connection is discarded to prevent any conflict.

4.5 Download the Project

Click the **Compile and Download** () button (**Ctrl + F7**) or the **Download** () button. The application is compiled and downloaded or just downloaded to the controller.

An alert appears if:

- An attempt to Compile and Download is made without a connection to a controller.
- There is not sufficient space on the controller for the application.
 - Clearing the User Data is one method to create more space on the controller.
- In the **Controller Properties** dialog box, if the **Download Project Source in the controller** option is:
 - **Enabled** - the source code is copied to the controller. See "Configure the Controller" (→ p. 20).
 - **Disabled** - and the controller has project source loaded, a message appears.
 - The message is different based on whether the current project and the project on the controller have the same name or not.

4.5.1 Project Name - Same Name

If the Project Name is the same, the message is (Figure 4-12):

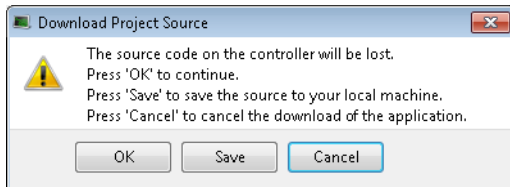


Figure 4-12: Download Project Source message - Project Name = Same Name

4.5.1.1 Actions

Click either:

- **OK**: Source on controller is deleted.
- **Save**: Source on controller is overwritten and is saved to "My Documents".
 - If that source file already exists in My Documents, a prompt appears to rename the source file, overwrite that file or not.
 - If the file is not renamed or overwritten, the download to the controller is canceled.
- **Cancel**: Download is stopped.

4.5.2 Project Name - Different Name

If the Project Name is different, the message is (Figure 4-13):

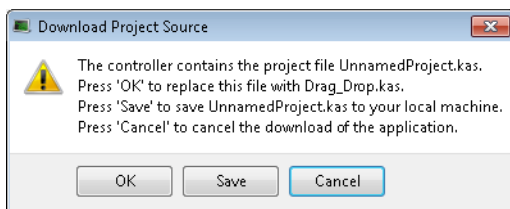


Figure 4-13: Download Project Source message - Project Name = Different Name

4.5.2.1 Actions

Click either:

- **OK:** Source on the controller is replaced.
- **Save:** Source on the controller is saved to **My Documents**.
- **Cancel:** Download is stopped.

NOTE

The versions between the KAS-IDE and the KAS Runtime must be the same to debug the application.

IMPORTANT

If the KAS-IDE version differs from the KAS Runtime after compiling an application, the function blocks defined in the KAS-IDE and those implemented in the virtual machine of the runtime can be different. To prevent this potential mismatch, compile and download the application again.

TIP

The project's source code can be downloaded to store the project.

4.6 Device Control

Start / stop the device with the buttons  and .

4.7 Operate the Control Panel

The Example program has a default control panel built-in to make it easy to start an application.

Use this procedure to operate the control panel:

1. Double-click **Control Panel** in the Project Explorer to open the form.

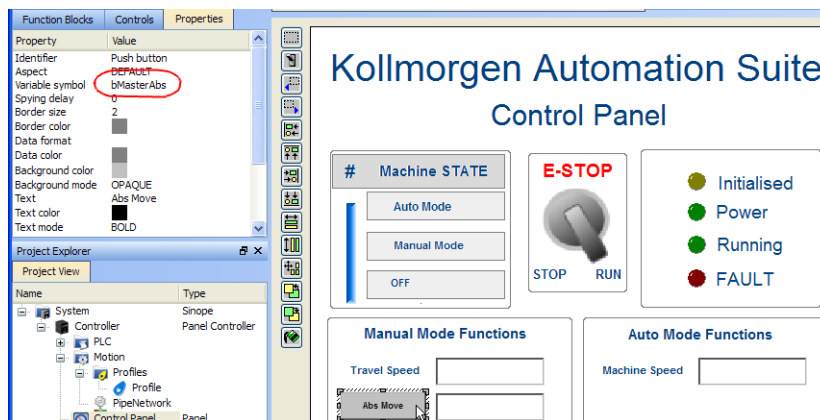


Figure 4-14: Control Panel

2. Move the vertical slider bar to select the Machine STATE as **Manual Mode**.
3. In the **Manual Mode Functions** area, double-click the text box for the **Travel Speed**.
4. Enter the numeric value for the **Travel Speed** and press <Enter>.

4.7.1 KAS Simulator Display

The KAS Simulator displays the status and position of the axes and the log messages.

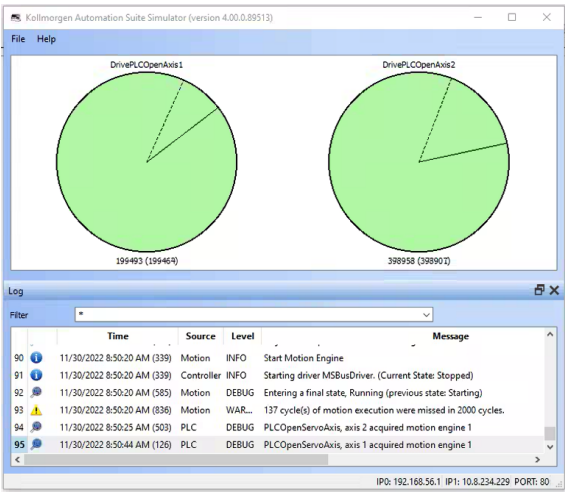


Figure 4-15: Example: Log Messages

Continue to use the Control Panel to:

- Experiment with the controls and observe the simulated output.
- Perform an absolute move by entering a position in the text box.
- Perform a relative move.

4.7.2 Exiting Simulation Mode

To exit Simulation mode, do as follows:

1. Click the **Stop Device** button .
2. Click the **Disconnect Device** button .

NOTE

For additional information about Kollmorgen Automation Suite, see:

- Online Help
- Getting Started
- Technical Reference - PLC Library
- Technical Reference - Motion Library
- User Manual

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 - For more information about accessing the PCMM2G's files, see [SSH Login to a Controller](#).
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- The OS image and its corresponding sources file is identified by an "OS-Sources" designator, followed by its version number: OS-Sources-x.xx.x.xxxxx.
- The compilation scripts and sources file are available at the Kollmorgen webpage [PCMM2G Operating System \(OS\) Build Sources](#).
- See [PCMM2G - File Naming Conventions](#) in the KAS online help.

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