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Motion Studio

User Guide

escon.maxongroup.com

Motion Studio User Guide
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READ THIS FIRST

These instructions are for qualified technical personnel only. Before you start any work:

- *Read this manual carefully.*
- *Make sure that you understand this manual.*
- *Follow all instructions in this manual.*

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1 ABOUT

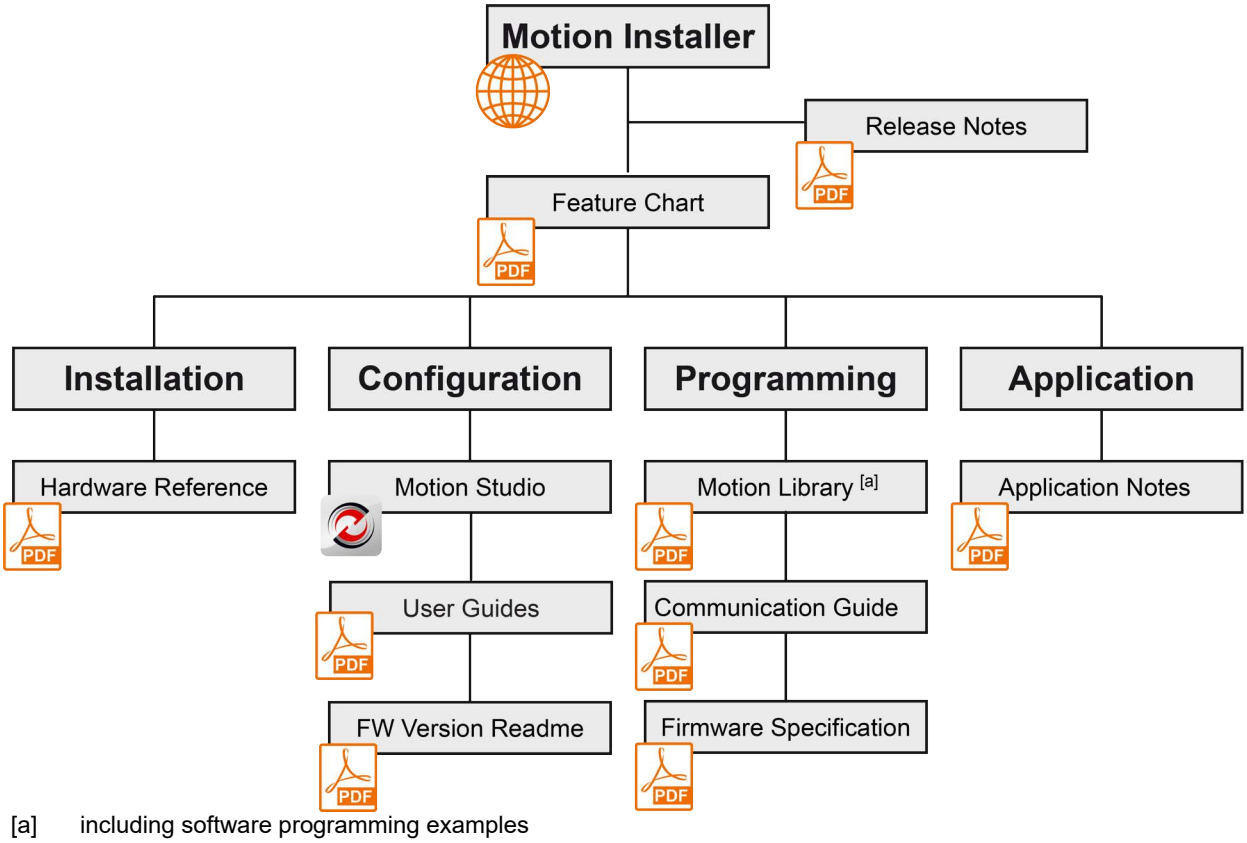
1.1 About this document

1.1.1 Intended purpose

This document familiarizes you with the Motion Studio application software (GUI) and it's use with maxon products. Follow the instructions:

- to avoid dangerous situations,
- to keep installation and/or commissioning time at a minimum,
- to increase reliability and service life of the described equipment.

This document is part of a documentation set. The overview below shows the documentation hierarchy and how its parts are related:



[a] including software programming examples

Figure 1-1 Documentation structure

Find the latest edition of this document, along with additional documentation and software for ESCON2 Servo Controllers, at: http://escon.maxongroup.com

1.1.2 Target audience

This document is intended for trained and skilled personnel. It provides information on how to understand and perform the respective tasks and duties.

1.1.3 How to use

Follow these notations and codes throughout the document.

Notation	Meaning
ESCON2	stands for “ESCON2 servo controller”
《Abcd》	indicating a title or a name (such as of document, product, mode, etc.)
(n)	refers to an item (such as a part number, list items, etc.)
*	refers to an internal value
➔	denotes “check”, “see”, “see also”, “take note of” or “go to”

Table 1-1 Notation used in this document

1.1.4 Symbols & signs

In the course of the present document, the following symbols and signs will be used.

Type	Symbol	Meaning
Safety alert WARNING		Indicates a **potential hazardous situation**. If not avoided, it **can result in death or serious injury**.
Requirement, Note, Remark		Indicates an activity you must perform prior to continuing, or gives information on a particular point that must be observed.
Best practice		Indicates an advice or recommendation on the easiest and best way to further proceed.
Material Damage		Indicates information particular to possible damage of the equipment.

Table 1-2 Symbols and signs

1.1.5 Trademarks and brand names

All trademarks, brand names or other signs mentioned in this manual remain the property of their respective owners. They are protected by trademark, copyright, and/or other applicable laws. For easier reading, no symbols such as ® or ™ are being used with respect to the trademarks or brand names mentioned herein.
Nothing in this manual shall be construed as granting any rights with respect to the mentioned trademarks, brand named or other signs, including without limitation neither the right to use the mentioned trademarks, brand names or other signs without permission of the respective owners.

The trademarks, brand names or other signs are mentioned in this manual solely for information or identification purposes.

1.1.6 Copyright

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1.2 About the safety precautions

- Read and understand the note ➔«READ THIS FIRST»!
- Do not start any work unless you have the required skills ➔Chapter “1.1.2 Target audience” on page 1-5.
- Refer to ➔Chapter “1.1.4 Symbols & signs” on page 1-6 to understand the symbols used.
- Follow all applicable health, safety, accident prevention, and environmental protection regulations for your country and work site.

WARNING

Risk of injury
Operating the device without full compliance of the surrounding system with EU Directive 2006/42/EC may cause serious injuries.

- *Do not operate the device unless you are certain that the other machinery fully complies with the EU directive's requirements.*
- *Do not operate the device, unless the other machinery fulfills all relevant health and safety aspects!*
- *Do not operate the device, unless all respective interfaces have been established and fulfill the requirements stated in this document!*

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2 INTRODUCTION

2.1 Application area

The Motion Studio application software, a Windows-based graphical user interface (GUI), facilitates simple configuration, operation, and analysis for all maxon motion control products. It offers various views, tools, and wizards to assist users with intuitive operation.

2.2 Modular plug-in concept

To maximize flexibility while maintaining low system requirements, Motion Studio adopts a plug-in concept. During installation using Motion Installer, users independently select the desired use cases across various maxon product lines based on their needs. Consequently, only the necessary software plug-ins, firmware files, and documents are installed and accessible to the user. Additionally, users have the option to install additional components at any time. Each use case includes its own User Guide, similar to this documentation, which assists users in product-specific commissioning, features, and functions.

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3 OVERVIEW

Motion Studio consists of various components, with the appearance of the user interface being influenced by the arrangement and configuration of these individual components.

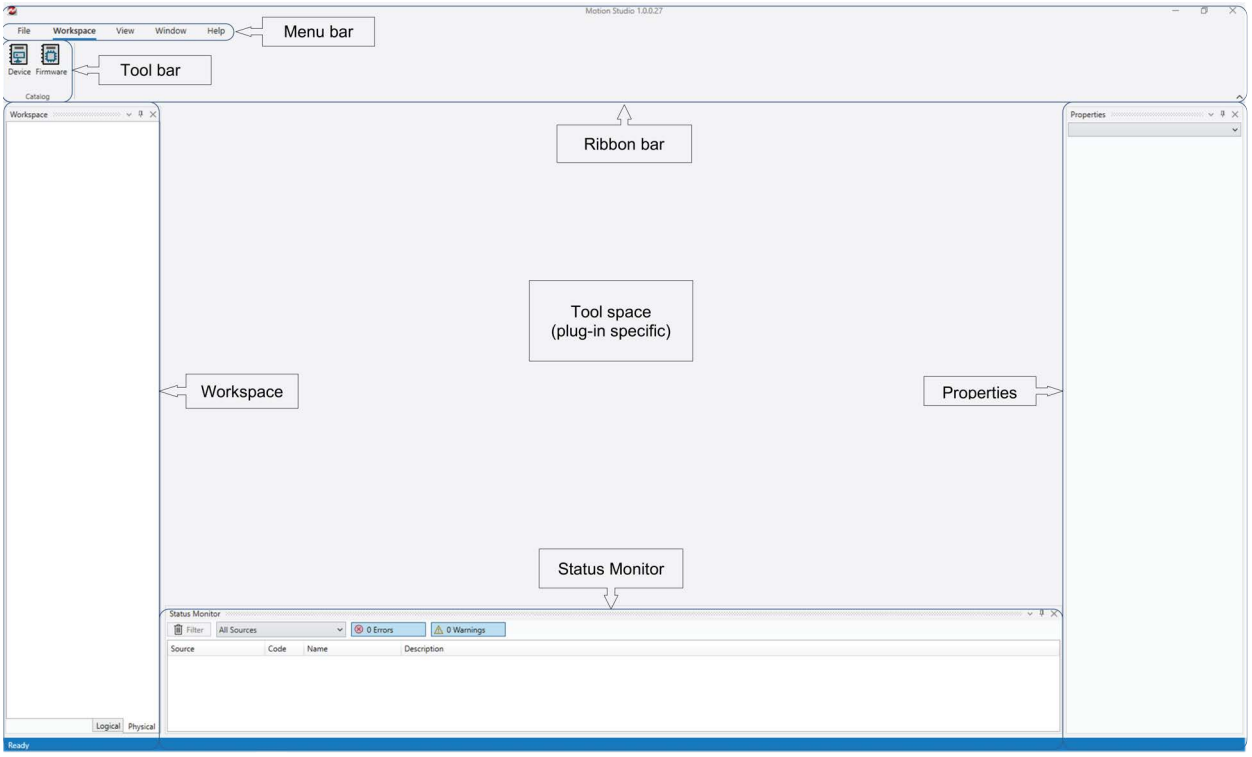

Figure 3-2 User interface components overview

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4 MENUS

4.1 File

Classic control operations, such as creating, saving, opening, or closing a project, can be performed within the *«File»* menu. Additionally, users can view project info, exit the program or adjust option settings through this menu.

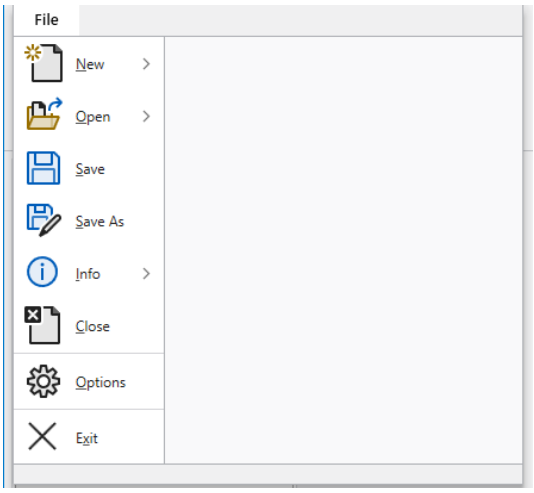

Figure 4-3 File menu

4.2 Workspace

The *«Workspace»* menu provides communication functions for connecting/disconnecting all devices at once, catalog functions for supported devices and firmware versions.

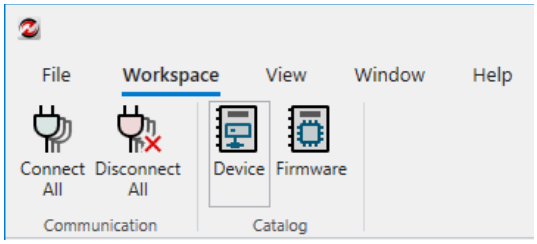

Figure 4-4 Workspace menu

4.3 View

Within the *«View»* menu, users can toggle different views on and off and reset the layout.

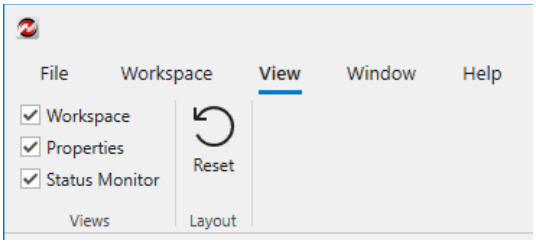

Figure 4-5 View menu

4.4 Window

The *«Window»* menu allows users to adjust settings for the arrangement of various windows within the tool space.

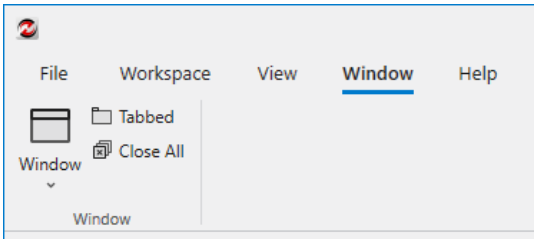

Figure 4-6 Window menu

4.5 Help

Within the *«Help»* menu, users can access various guidelines, support links, and additional sources of information.

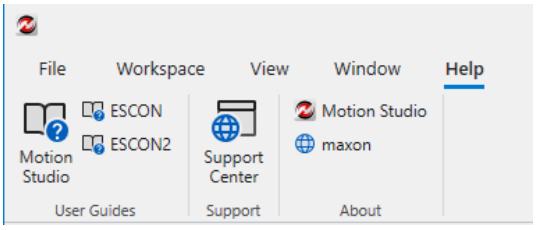

Figure 4-7 Help menu

5 OPTIONS

The *«Options»* dialog can be accessed from the *«File»* menu. It provides access to the following settings:

5.1 Application

- *«Startup»* behavior of Motion Studio Application
- Controller behavior in *«Workspace»* view
- *«Default location»* for storing project files and related content

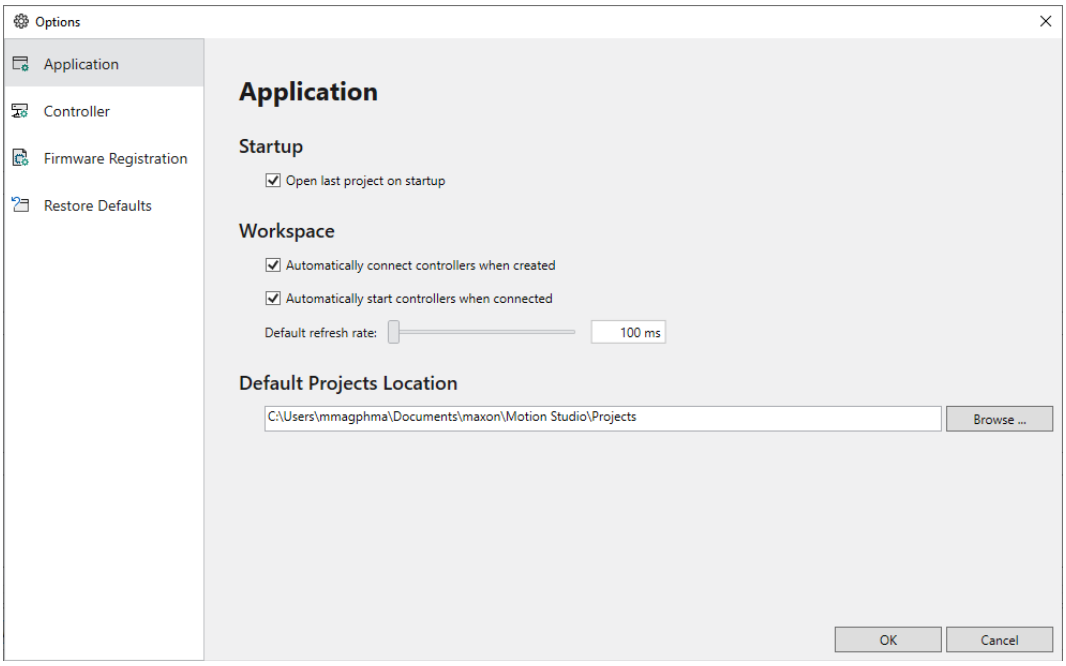

Figure 5-8 Options dialog | Application

5.2 Controller

The *«Default User Level»* for newly added controllers can be adjusted between *«Standard»* and *«Expert»*, with *«Internal»* being limited to maxon only. This setting affects the visibility of parameters and configuration options in various tools, thereby enhancing the clarity and usability of the interface.

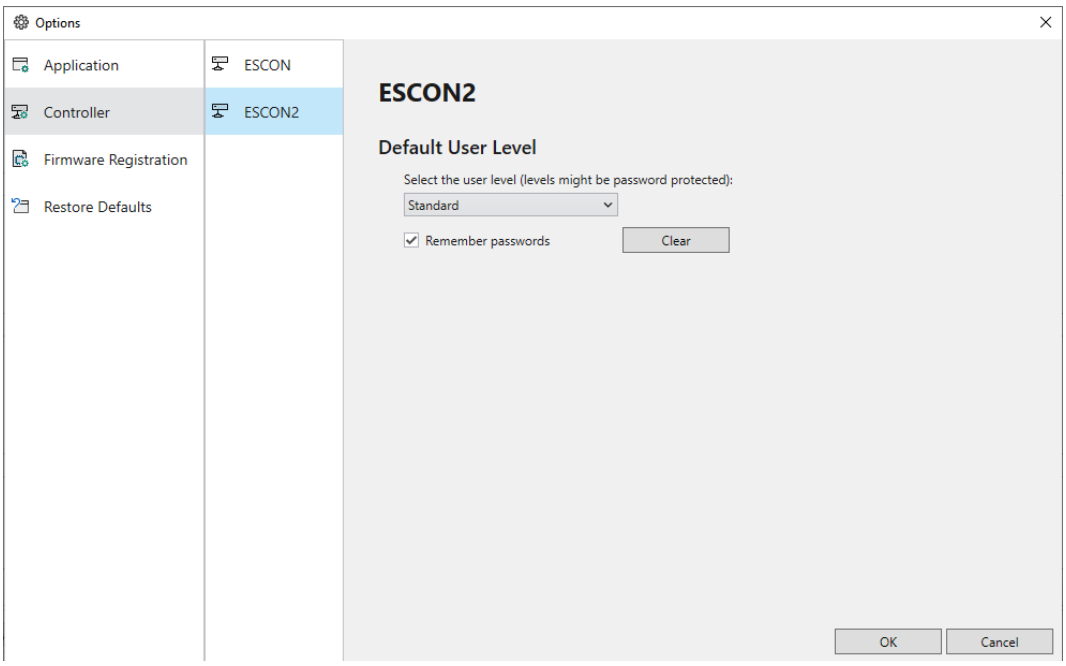

Figure 5-9 Options dialog | Controller

5.3 Firmware registration

«Firmware Registration» is required to adjust the graphical user interface to a specific product configuration. Alongside the installation path, which stores all current and previous standard firmware file versions, users have the option to select an additional personal path if desired.

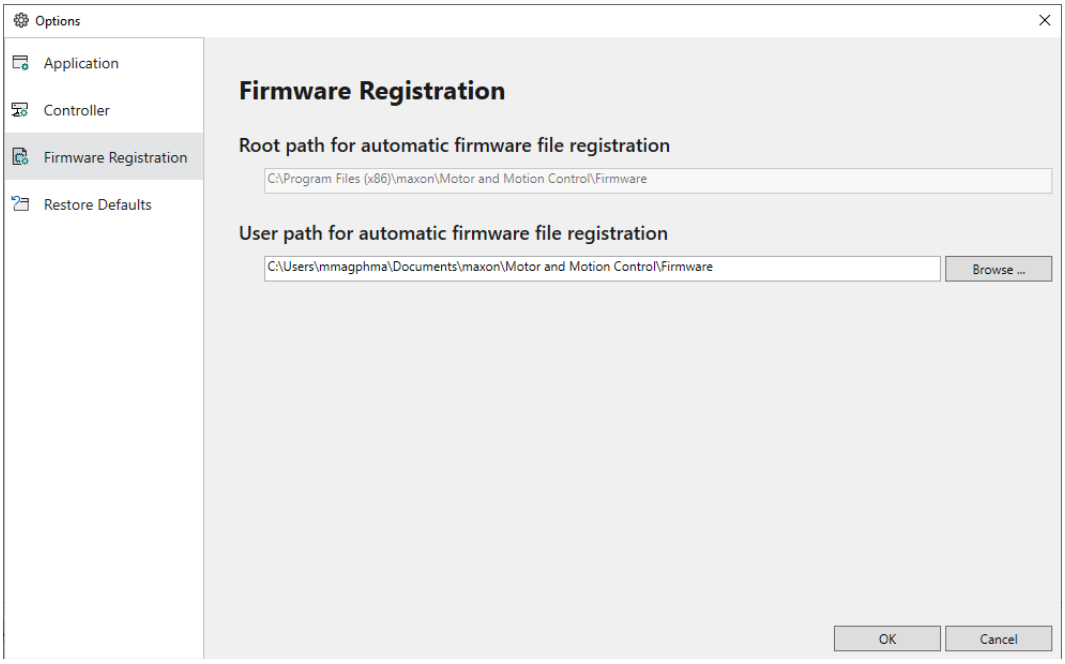

Figure 5-10 Options dialog | Firmware registration

5.4 Restore defaults

The *«Restore Defaults»* function resets all individual option settings of Motion Studio to the installation defaults.

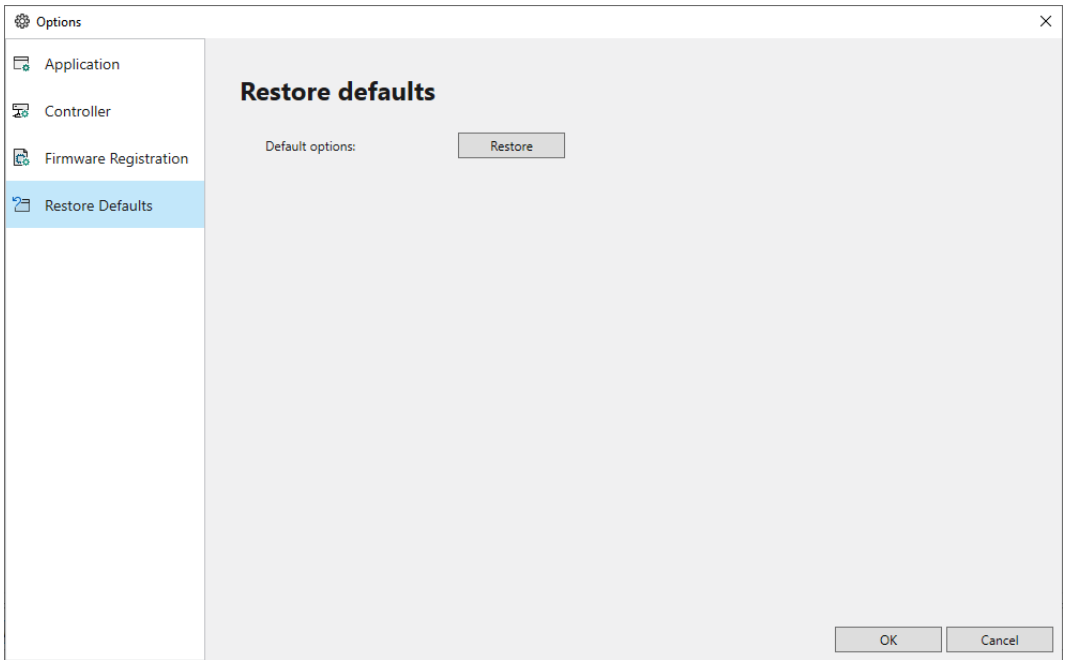

Figure 5-11 Options dialog | Restore defaults

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6 CATALOGS

The *«Catalog»* functions are located in the *«Workspace»* menu. The available catalogs are:

6.1 Device Catalog

The *«Device Catalog»* contains all available communication interfaces and controller types necessary for configuring an individual motion control project structure, depending on the installed use cases. This process will be described in
➔ Chapter “7 Project setup” on page 7-21.

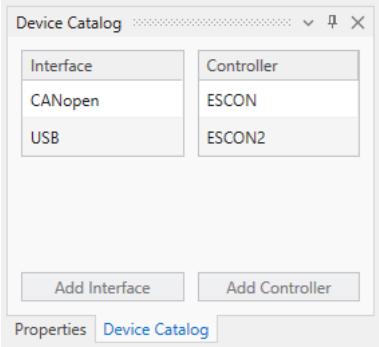

Figure 6-12 Workspace menu | Device Catalog

6.2 Firmware Catalog

Clicking on the *«Firmware»* button opens the *«Firmware Catalog»* window, offering an overview of all registered firmware file versions, which can be filtered according to different product types. With a right mouse button click within the window allows users to add additional firmware file versions or navigate to the containing folder.

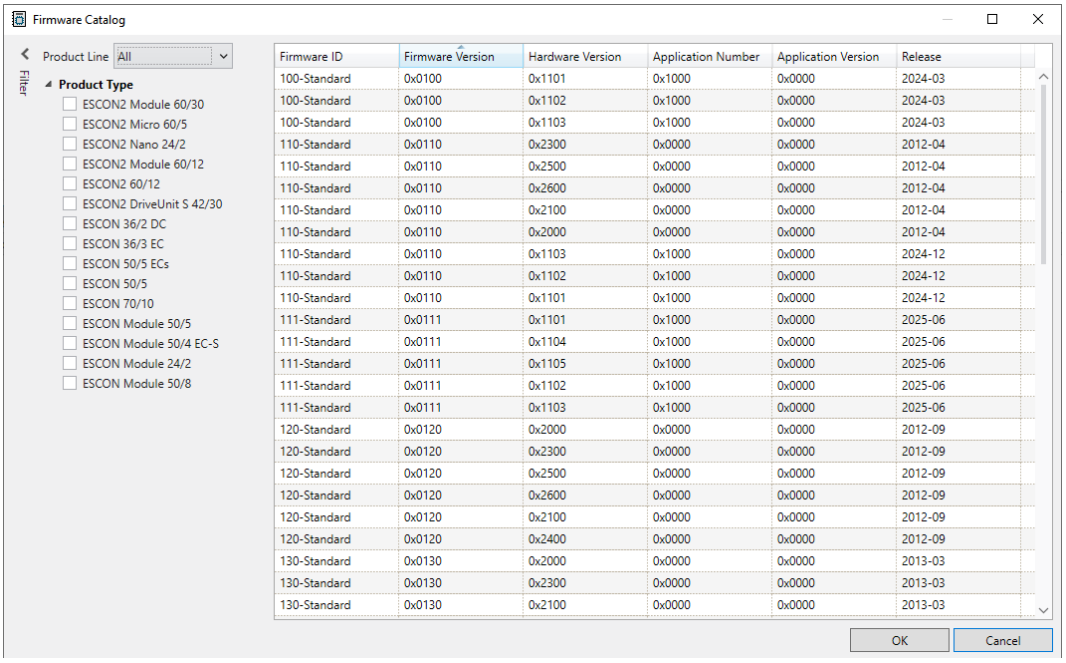

Figure 6-13 Workspace menu | Firmware Catalog

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7 PROJECT SETUP

The following is a step-by-step guide to create a project structure for an ESCON2 servo controller at a *«USB»* interface as an example:

1) Create an *«Empty Project»* by clicking in the *«File»* menu register under *«New»* to the corresponding entry.

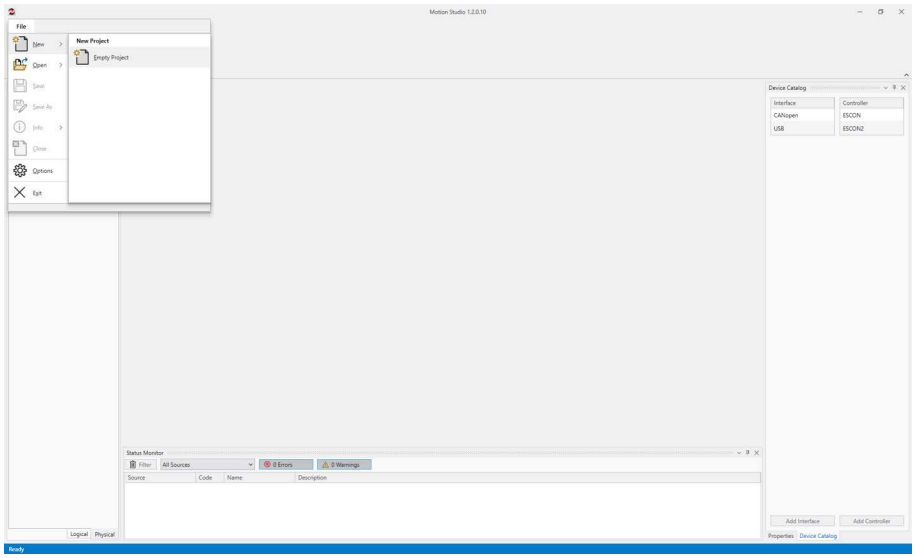

Figure 7-14 Create an empty project

2) Modify the project name and storage location according to your needs, then confirm with *«OK»*.

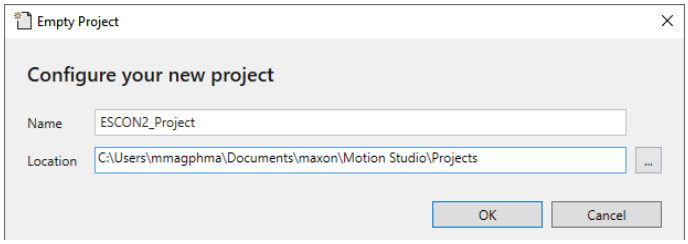

Figure 7-15 Project properties

3) Add a *«USB»* interface by selecting it in the *«Device Catalog»* and clicking the *«Add Interface»* button.
➔ Another method to add an interface is by a right mouse button click **to the text** «*USB*» of the *«USB»* hardware within the *«Workspace»* view.

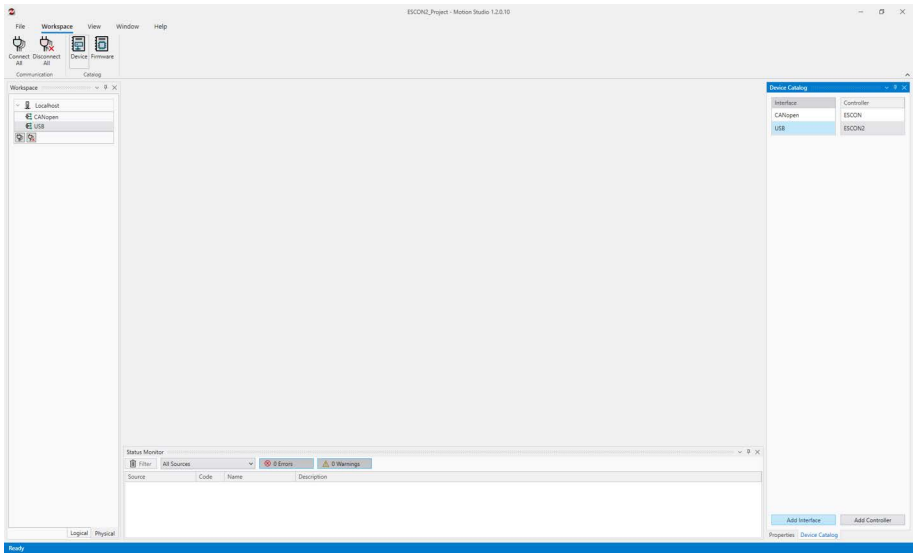

Figure 7-16 Device Catalog | Adding an interface

4) Select the *«USBx»* interface within the project structure in the *«Workspace»* view.

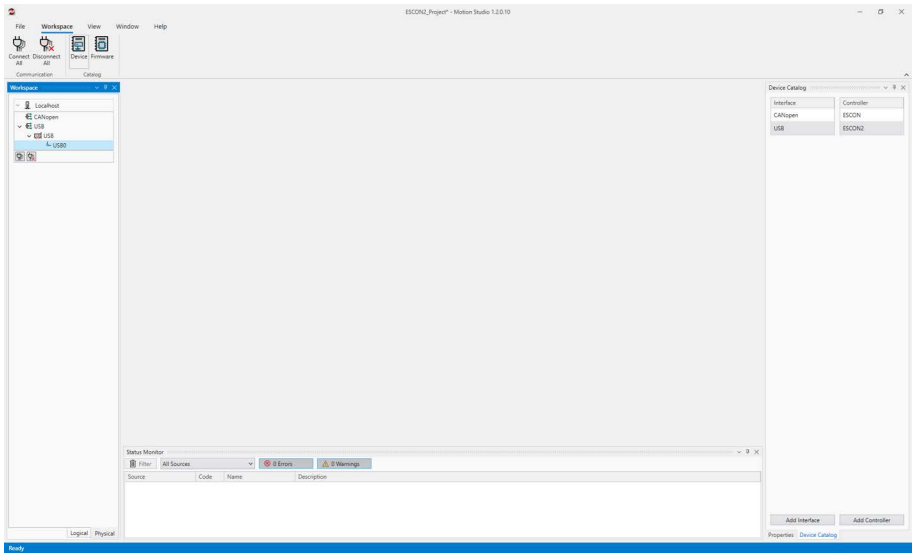

Figure 7-17 Workspace | Selecting an interface

5) Add an *«ESCON2»* Controller by selecting it in the *«Device Catalog»* and clicking the *«Add Controller»* button.
➔ Another method to add a controller is by right mouse button click **on the text** *«USBx»* within the *«Workspace»* view.

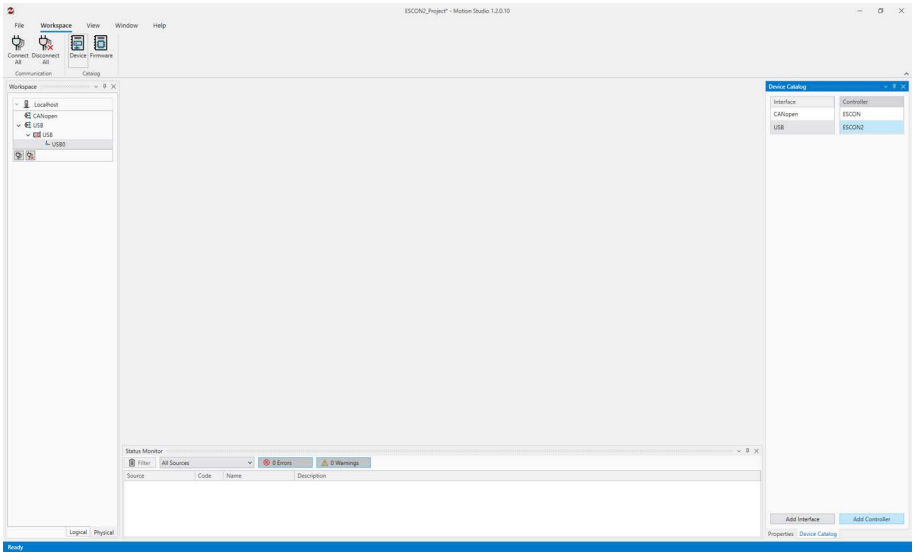

Figure 7-18 Device Catalog | Adding a controller

Instead of manually adding a controller, the *«Search Controllers»* function can also be used. Right mouse button click on the *«USB»* interface and *«Connect»* it.

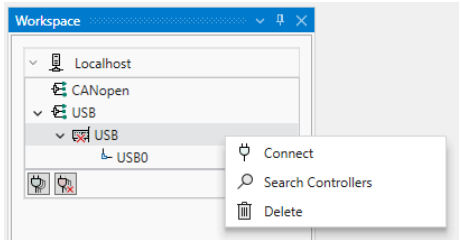

Figure 7-19 Workspace | USB interface context menu

In the same context menu the *«Search Controllers»* window can be opened. Various *«Settings»* are available and *«Start Searching»* will execute the function. Select a found controller and add it to the project with *«OK»*.

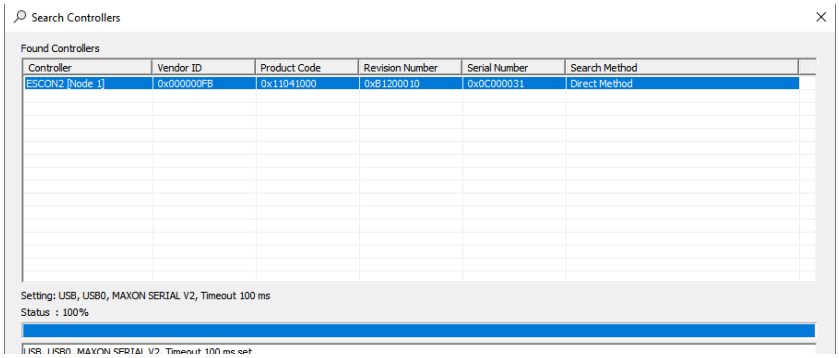

Figure 7-20 Search Controllers

The search function is particularly useful for multi-axis systems that use CANopen communication.

6) The controller is automatically connected and refreshed with default settings in the *«Options»* dialog.
➔ Another method to handle connection status is by right mouse button click **on the text** of an interface or controller and selecting the corresponding option.

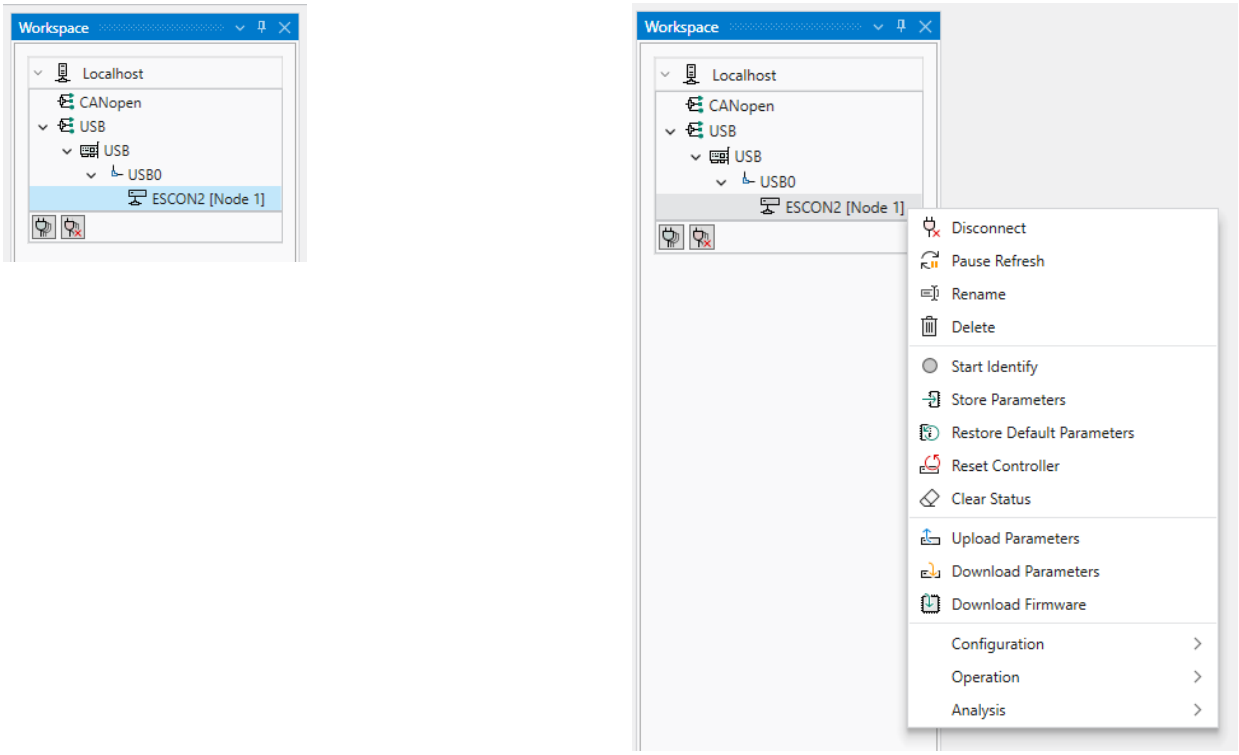

Figure 7-21 Workspace | Connect controller (left) / Controller context menu by right mouse button click (right)

7) If you intend to use multiple interfaces or controllers within your project, repeat the corresponding steps accordingly. At this point, the ESCON2 servo controller is connected and ready for configuration.

8 VIEWS

8.1 Workspace

The *«Workspace»* view displays the communication interfaces and controllers added to a Motion Studio project. It offers two display methods: *«Physical»* and *«Logical»*. The *«Physical»* view represents the hardware communication structure and its settings, while the *«Logical»* view focuses on the entire drive system, including settings and parameter files for each axis.

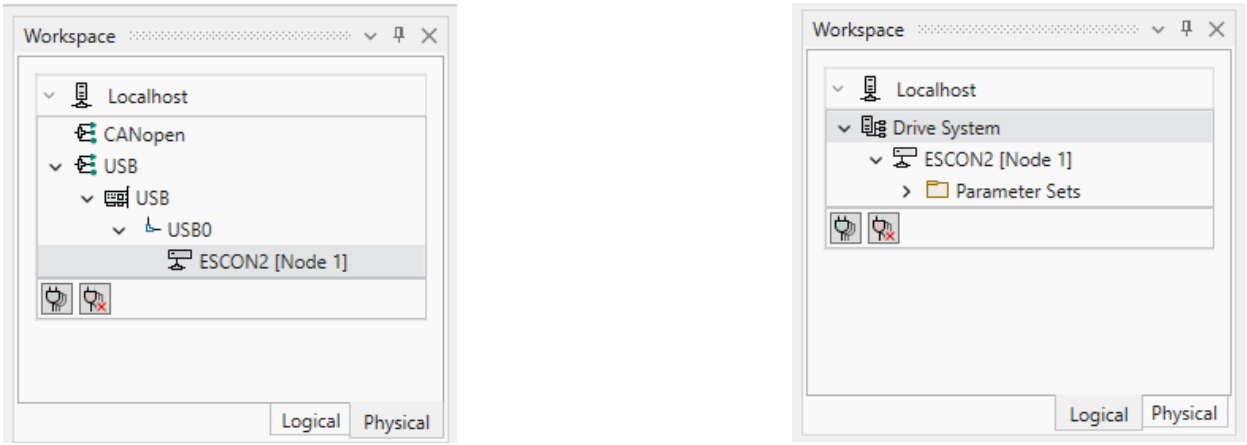

Figure 8-22 Workspace view | Physical (left) / Logical (right)

8.2 Properties

The *«Properties»* view provides a context-sensitive collection of crucial parameters and setting options for either an interface or a controller. It's important to first select the desired device in the *«Workspace»* view to ensure that the appropriate *«Properties»* are displayed.

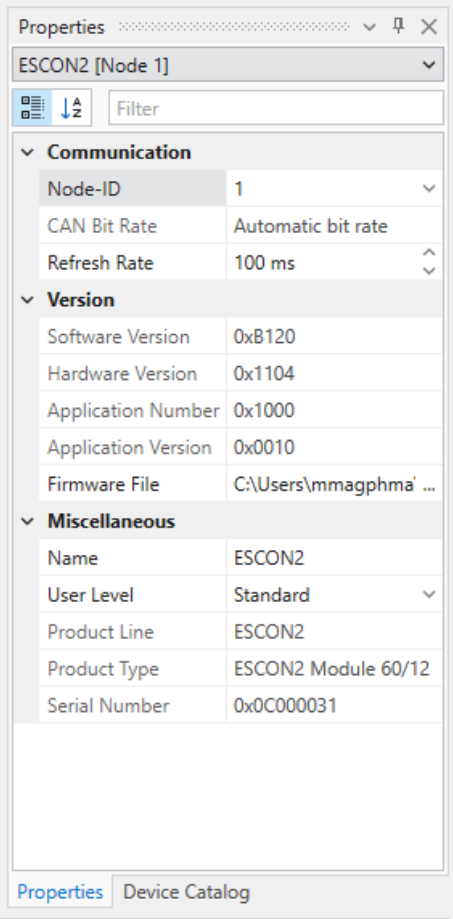

Figure 8-23 Properties view

8.3 Status Monitor

The *«Status Monitor»* view presents details regarding the most recent errors and warnings, accompanied by additional information about potential causes and their respective solutions.

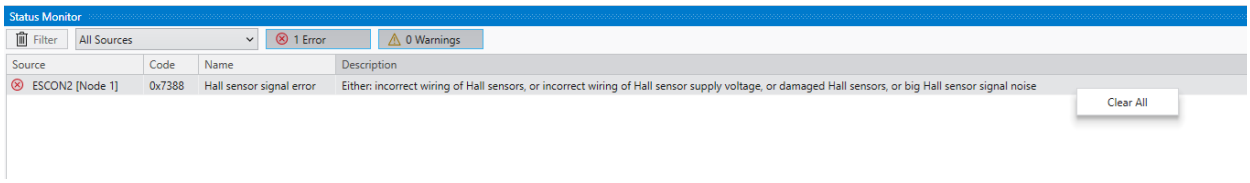

Figure 8-24 Status Monitor

By right-clicking, you have the option to clear the current error/warning state if the condition is no longer present. Additionally, you can select and clear various filter options.

9 VIEW & WINDOW ARRANGEMENT

All *«Views»* and *«Windows»* can be repositioned using drag and drop functionality. It's also possible to move a *«View»* or *«Window»* completely out of the tool space, allowing it to stand alone in parallel. Optional docking positions will be displayed during movement. Additional view options can be accessed by selecting the small arrow on the view. The view and window arrangement is stored in the Motion Studio settings. It is independent of the project.

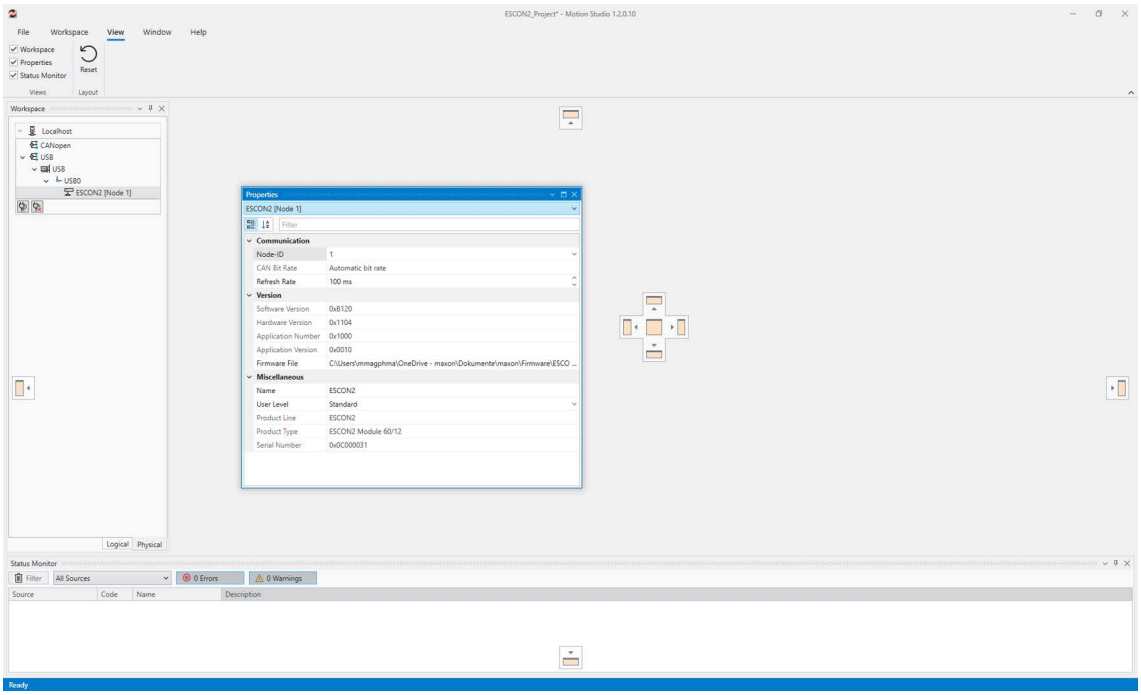

Figure 9-25 View & Window arrangement

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