

DATE: July 2022

PRODUCT: SYSMAC STUDIO
TYPE: Product Release

Sysmac Studio (SYSMAC-SE200X) Version 1.50 Release Note (Contains expanded product capabilities and significant bug fixes)

Effective July 1, 2022, the following Sysmac Studio software will be updated to Version 1.50. Changes in Version 1.50 are listed below and this update will be available via Auto Update for 32 and 64 Bit Version.



■ Updates:

■ Support of New Hardware

Controllers:

- ◆ Support the following NX unit (EtherCAT slave unit):

NX-ECT101 Ver.1.0

- ◆ Support the following Controllers:

NJ101-1[]00 Controller Ver.1.49

NJ101-1[]20 Controller Ver.1.49

NJ301-1[]00 Controller Ver.1.49

NJ501-1[]00 Controller Ver.1.49

NJ501-1[]20 Controller Ver.1.49

NJ501-1340 Controller Ver.1.49

NJ501-4[][]0 Controller Ver.1.49

NJ501-5300 Controller Ver.1.49

NJ501-R[][]0 Controller Ver.1.49

NX102 Controller Ver.1.49

NX1P2 Controller Ver.1.49

NX701Controller Ver.1.29

- ◆ Support the following OMRON robots connectable to NJ501-R[][]0 Controllers:

EtherCAT (NJ501-R) compliant version of i4-350L, 450L, and 550L

Improved Functions

2. Enhanced and Improved Functions of Sysmac Studio V1.50

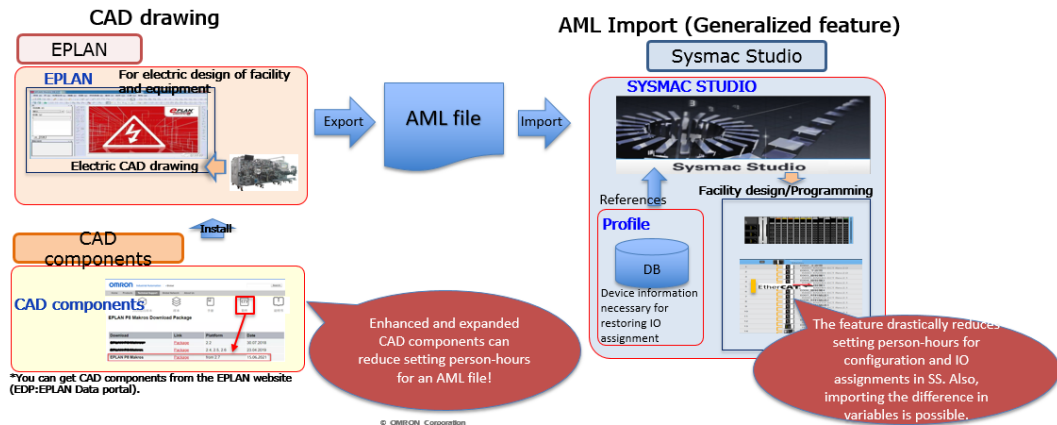
Controller

Linking Sysmac Studio and EPLAN Electric P8 (Electric CAD): Summary

Users can reuse the **controller configuration** and **variables (symbol names) of IO terminals** created in EPLAN Electric 8, an electric CAD software, in Sysmac Studio.

⇒ Drastically reduces person-hours for settings (configuration and IO assignment) in Sysmac Studio and enables to import differences in variables.

⇒ Enhanced and expanded CAD components can reduce setting person-hours for an AML file containing configuration and IO assignments



2. Enhanced and Improved Functions of Sysmac Studio V1.50

Controller

Linking Sysmac Studio and EPLAN Electric P8 (Electric CAD): Specifications

(1/5)

	Feature /Requirement	Specifications																																																								
1	Version and license	<p>Sysmac Studio Ver. 1.50 or higher (Standard edition)</p> <ul style="list-style-type: none"> •NJ501-1□□□, NX102-1□□□ (Ver. 1.48 or later) •NJ301-1□□□, NJ101-□□□□, NX1P2 (Ver. 1.47 or later) •NX701-1□□□ (Ver. 1.28 or later) <p>EPLAN Electric P8 2022 Update1 or higher (Professional edition or Select edition including Select+)</p>																																																								
2	Devices supporting configuration import (308 models)	<p>Controller (25): Standard NJ and NX1P, Standard and DB-model NX102 and NX701</p> <p>ECAT slave (92): Branching slave, coupler, and servo drive</p> <p>NX unit (125): Limited models for specific regions and customers are not included</p> <p>CJ unit (66): Limited models for specific regions and customers, and models not released in the future are not included.</p>																																																								
3	Devices supporting variable import (128 models)	<p>Devices that support the configuration import function, have control input/output (IO), and have ports corresponding one-to-one with IO ports in SS.</p> <table> <tr> <th>NX1P¹⁾</th> <th>Analog I/O Unit²⁾</th> <th colspan="2">Basic I/O Unit³⁾</th> </tr> <tr> <td>NX1P2-1040DT¹⁾ V1.47</td> <td>CJ1W-AD041-V1¹⁾</td> <td>CJ1W-GT024²⁾</td> <td>CJ1W-IDP01³⁾ CJ1W-OD002³⁾</td> </tr> <tr> <td>NX1P2-1040DT1¹⁾ V1.47</td> <td>CJ1W-AD042²⁾</td> <td>CJ1W-IA111¹⁾</td> <td>CJ1W-INT01³⁾ CJ1W-OD003³⁾</td> </tr> <tr> <td>NX1P2-1140DT¹⁾ V1.47</td> <td>GJ1W-AD044²⁾</td> <td>CJ1W-IA201¹⁾</td> <td>CJ1W-MD231³⁾ CJ1W-OD004³⁾</td> </tr> <tr> <td>NX1P2-1140DT1¹⁾ V1.47</td> <td>CJ1W-AD081-V1¹⁾</td> <td>CJ1W-ID201²⁾</td> <td>CJ1W-MD233³⁾ CJ1W-OD211³⁾</td> </tr> <tr> <td>NX1P2-9524DT¹⁾ V1.47</td> <td>CJ1W-DA021²⁾</td> <td>CJ1W-ID211²⁾</td> <td>CJ1W-MD235³⁾ CJ1W-OD212³⁾</td> </tr> <tr> <td>NX1P2-9524DT1¹⁾ V1.47</td> <td>CJ1W-DA041²⁾</td> <td>CJ1W-ID212²⁾</td> <td>CJ1W-MD251³⁾ CJ1W-OD213³⁾</td> </tr> <tr> <td></td> <td>CJ1W-MAD42²⁾</td> <td>CJ1W-ID231²⁾</td> <td>CJ1W-MD253³⁾ CJ1W-OD231³⁾</td> </tr> <tr> <td></td> <td>CJ1W-POC15²⁾</td> <td>CJ1W-ID232²⁾</td> <td>CJ1W-MD553³⁾ CJ1W-OD232³⁾</td> </tr> <tr> <td></td> <td>CJ1W-PH44U²⁾</td> <td>CJ1W-ID233²⁾</td> <td>CJ1W-OA201³⁾ CJ1W-OD233³⁾</td> </tr> <tr> <td></td> <td>CJ1W-DA042V433²⁾</td> <td>CJ1W-ID251²⁾</td> <td>CJ1W-OC201³⁾ CJ1W-OD234³⁾</td> </tr> <tr> <td></td> <td>CJ1W-DA08C433²⁾</td> <td>CJ1W-ID252²⁾</td> <td>CJ1W-OC211³⁾ CJ1W-OD261³⁾</td> </tr> <tr> <td></td> <td>CJ1W-DA08V433²⁾</td> <td>CJ1W-ID262²⁾</td> <td>CJ1W-OC201V433³⁾ CJ1W-OD263³⁾</td> </tr> <tr> <td></td> <td></td> <td></td> <td>CJ1W-OD265³⁾</td> </tr> </table>	NX1P ¹⁾	Analog I/O Unit ²⁾	Basic I/O Unit ³⁾		NX1P2-1040DT ¹⁾ V1.47	CJ1W-AD041-V1 ¹⁾	CJ1W-GT024 ²⁾	CJ1W-IDP01 ³⁾ CJ1W-OD002 ³⁾	NX1P2-1040DT1 ¹⁾ V1.47	CJ1W-AD042 ²⁾	CJ1W-IA111 ¹⁾	CJ1W-INT01 ³⁾ CJ1W-OD003 ³⁾	NX1P2-1140DT ¹⁾ V1.47	GJ1W-AD044 ²⁾	CJ1W-IA201 ¹⁾	CJ1W-MD231 ³⁾ CJ1W-OD004 ³⁾	NX1P2-1140DT1 ¹⁾ V1.47	CJ1W-AD081-V1 ¹⁾	CJ1W-ID201 ²⁾	CJ1W-MD233 ³⁾ CJ1W-OD211 ³⁾	NX1P2-9524DT ¹⁾ V1.47	CJ1W-DA021 ²⁾	CJ1W-ID211 ²⁾	CJ1W-MD235 ³⁾ CJ1W-OD212 ³⁾	NX1P2-9524DT1 ¹⁾ V1.47	CJ1W-DA041 ²⁾	CJ1W-ID212 ²⁾	CJ1W-MD251 ³⁾ CJ1W-OD213 ³⁾		CJ1W-MAD42 ²⁾	CJ1W-ID231 ²⁾	CJ1W-MD253 ³⁾ CJ1W-OD231 ³⁾		CJ1W-POC15 ²⁾	CJ1W-ID232 ²⁾	CJ1W-MD553 ³⁾ CJ1W-OD232 ³⁾		CJ1W-PH44U ²⁾	CJ1W-ID233 ²⁾	CJ1W-OA201 ³⁾ CJ1W-OD233 ³⁾		CJ1W-DA042V433 ²⁾	CJ1W-ID251 ²⁾	CJ1W-OC201 ³⁾ CJ1W-OD234 ³⁾		CJ1W-DA08C433 ²⁾	CJ1W-ID252 ²⁾	CJ1W-OC211 ³⁾ CJ1W-OD261 ³⁾		CJ1W-DA08V433 ²⁾	CJ1W-ID262 ²⁾	CJ1W-OC201V433 ³⁾ CJ1W-OD263 ³⁾				CJ1W-OD265 ³⁾
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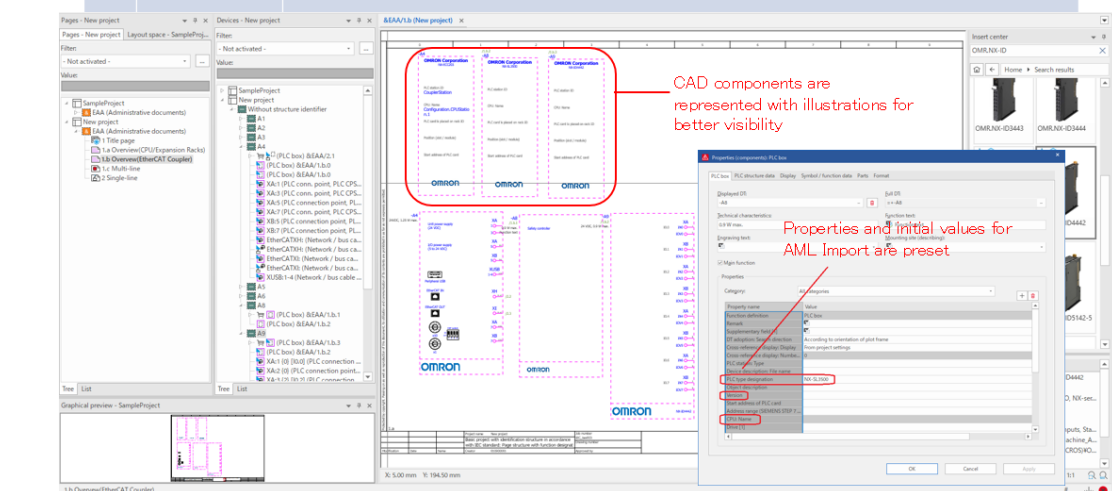
Digital Input/Output Unit ¹⁾	Digital Output Unit ¹⁾	Analog Input Unit ¹⁾		Analog Output Unit ¹⁾
NX-AD311 ¹⁾	NX-OC203 ²⁾	NX-AD220 ²⁾	NX-TS101 ²⁾	NX-DA220 ²⁾
NX-OD317 ²⁾	NX-OC273 ²⁾	NX-AD204 ²⁾	NX-TS102 ²⁾	NX-DA205 ²⁾
NX-OD343 ²⁾	NX-OC453 ³⁾	NX-AD208 ²⁾	NX-TS104 ²⁾	NX-DA250 ³⁾
NX-OD334 ²⁾	NX-OD2154 ²⁾	NX-AD263 ²⁾	NX-TS201 ²⁾	NX-DA265 ²⁾
NX-OD341 ²⁾	NX-OC225 ²⁾	NX-AD264 ²⁾	NX-TS202 ²⁾	NX-DA303 ²⁾
NX-OD343 ²⁾	NX-OD312 ¹⁾	NX-AD224 ²⁾	NX-TS224 ²⁾	NX-DA305 ²⁾
NX-OD344 ²⁾	NX-OC315 ³⁾	NX-AD320 ³⁾	NX-TS101 ¹⁾	NX-DA360 ³⁾
NX-OD430 ²⁾	NX-OC325 ²⁾	NX-AD304 ²⁾	NX-TS102 ²⁾	NX-DA365 ²⁾
NX-OD444 ²⁾	NX-OC325 ²⁾	NX-AD306 ²⁾	NX-TS104 ²⁾	
NX-OD142-1 ¹⁾	NX-OC026 ²⁾	NX-AD363 ³⁾	NX-TS201 ²⁾	
NX-OD142-5 ¹⁾	NX-OD412 ¹⁾	NX-AD364 ²⁾	NX-TS302 ²⁾	
NX-OD342 ²⁾	NX-OD425 ²⁾	NX-AD368 ²⁾	NX-TS304 ²⁾	
NX-OD444 ²⁾	NX-OD512 ¹⁾	NX-AD420 ³⁾	NX-HAD401 ²⁾	
NX-OD142-5 ¹⁾	NX-OD512 ¹⁾	NX-AD404 ²⁾	NX-HAD402 ²⁾	
NX-OD142-6 ¹⁾	NX-OD512 ¹⁾	NX-AD406 ²⁾		
NX-MD6121-5 ¹⁾	NX-OC525 ²⁾	NX-AD450 ³⁾		
NX-MD6121-6 ¹⁾	NX-OC525 ²⁾	NX-AD454 ³⁾		
NX-MD6256-5 ¹⁾	NX-OC525 ²⁾	NX-AD458 ³⁾		

2. Enhanced and Improved Functions of Sysmac Studio V1.50

Controller

Linking Sysmac Studio and EPLAN Electric P8 (Electric CAD): Specifications (2/5)

	Feature /Requirement	Specifications
4	AML-compliant CAD components	• CAD component properties and initial values necessary for AML Export (EPLAN) are preset to omit user's work. • Newly added variants improve the visibility of the overview pane.

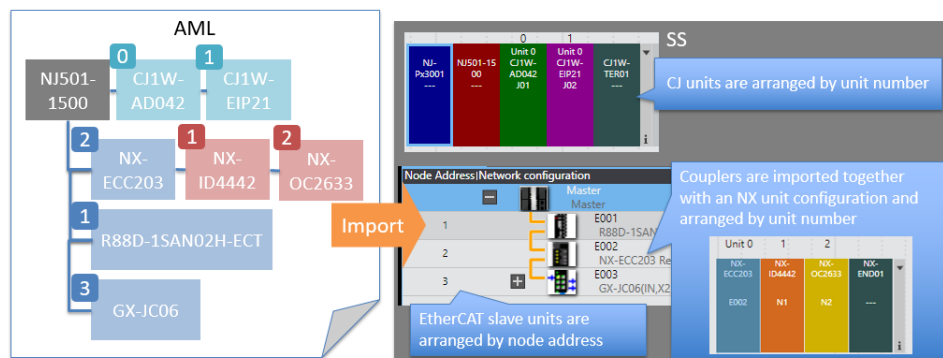


2. Enhanced and Improved Functions of Sysmac Studio V1.50

Controller

Linking Sysmac Studio and EPLAN Electric P8 (Electric CAD): Specifications (4/5)

	Feature /Requirement	Specifications
5-1	Controller configuration import	<ul style="list-style-type: none"> Imports a controller system configuration created in EPLAN to a Sysmac studio project. EtherCAT slave units, NX units, and CJ units connected to a controller are in scope. ECAT slave units are arranged by node address. If a node address duplicates, the unit will not be imported. NX/CJ units are arranged by unit number. If unit numbers are inconsecutive or duplicate, the units will not be imported by bus master.

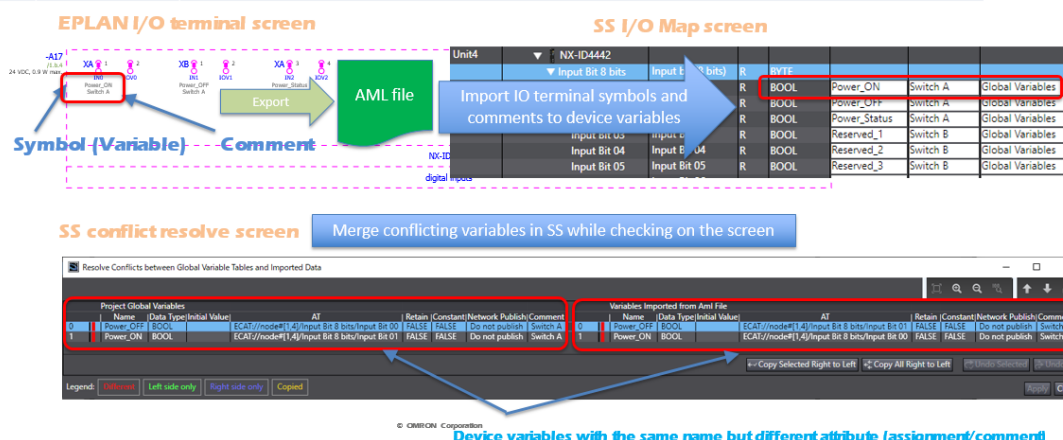


2. Enhanced and Improved Functions of Sysmac Studio V1.50

Controller

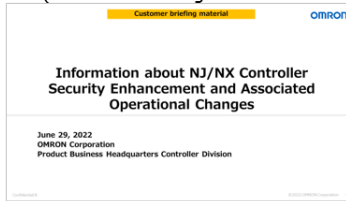
Linking Sysmac Studio and EPLAN Electric P8 (Electric CAD): Specifications (5/5)

	Feature /Requirement	Specifications
5-2	Device variable import	<ul style="list-style-type: none"> Imports symbol addresses set for IO terminals in EPLAN to a Sysmac Studio project as device variable. Imports comments for IO terminals as device variable comment. A symbol conflict with an existing SS device variable will be merged manually.



2. Enhanced and Improved Functions of Sysmac Studio V1.50 Support for Enhancing Security of NJ/NX Controllers

New functions are available to enhance NJ/NX Controllers' security.
Refer to "Information about NJ/NX Controller Security Enhancement and Associated Operational Changes" for details.
(We had a briefing for OEJ on June 3, 13:00.)



Added the following security features:

- User authentication
- TCP/UDP port closing
- Packet filter
- Secure communication

Added the event settings exporting function for SYSMAC Gateway's Event Log Utility

Specification changes 1. User authentication function

System Studio authentication uses by username and password when Sysmac Studio is connected online to the Controller. The Controller that supports the user authentication function requires administrator account registration when Sysmac Studio is connected online to the Controller for the first time. The administrator needs to be registered even if the Controller is used with user authentication disabled. The administrator's name is used for the name of the person who disabled the function.

1. Changes in specifications

Item	From	To
User authentication	Not supported	Supported
Registration of administrator	Not required	Required
Restart when connecting Sysmac Studio to the Controller for the first time	Not required	Required

2. Change of connection sequence of Sysmac Studio
The steps in the blue frame will be changed.

3. Image of Sysmac Studio
3.1. User authentication when going online to the Controller
If user authentication is enabled, the user will be required to enter a username and password.
3.2. Initial user authentication settings
When connecting for the first time, register an administrator account on the screen below. Sysmac Studio user authentication can be set in the same window.

Specification change 3. Packet Filter

Packets received by the Controller can be filtered.
Packets registered in Packet Filter are received, and packets that are not registered are discarded.
Packet Filter function specifies source IP address/port numbers and destination IP address/port numbers.

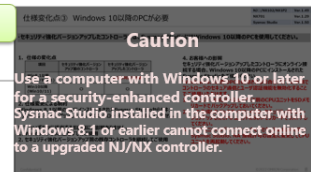
1. Expected threats
Someone brings unauthorized PCs and devices to the site and connects them to Controllers to steal customer assets.

2. Functions
- Reduces risk by blocking unused communication functions (FINS communications, CIP communications, etc.)
- Specifies the IP address and port number to allow communication with the specified device.
- You can disable the Packet Filter in Safe Mode in case of misconfiguration.

3. Image
- Packet Filter settings window
- Packet Filter settings window (Packet Filter is disabled)

4. Operational changes for customers
4.1. Compatibility
Communications can be performed with Packet Filter function disabled. Packet Filter is disabled in default.
4.2. Changes when using security functions
If the Packet Filter function is enabled, all packets that the Controller receives must be registered.
5. Precautions for Correct Use
Correctly set the communication to be used in the customer environment in the Packet Filter settings. If it is not set correctly, problems such as tool not being able to connect may occur.
In this case, you can forcibly disable Packet Filter by placing the Controller in Safe Mode. The Packet Filter can be turned to be disabled.

Controller



Specification changes 2. Secure communication

Secure communication will be used for communications between the Controller and Sysmac Studio or an NX-series Programmable Terminal.
If you need to connect the Controller to Sysmac Studio or an NX-series Programmable Terminal that do not support secure communication, change the CIP switch settings to use conventional communications.

1. Changes in specifications

Item	From	To
Conventional communication	Supported	Supported, disabled in default
Secure communication	Not supported	Supported

2. Restrictions due to specification changes
Sysmac Studio supporting secure communication
Sysmac Studio not supporting secure communication
NX-series Programmable Terminal supporting secure communication
NX-series Programmable Terminal not supporting secure communication
Change CIP switch settings
Conventional communications enabled (default)
Conventional communications disabled
Secure communications enabled

3. Operational changes for customers
If you use secure communication, you must use a Controller, table, and an NX-series Programmable Terminal that support secure communication.
If you use a version that does not support secure communication, you must change the CIP switch settings of the Controller.
If the Controller is connected to a Programmable Terminal that does not support secure communication, it will be treated the same as a check and using a secure communication. Change CIP switch settings in the hardware user's manual of the CPU unit.
5. Precautions for Correct Use
The communication port used to secure communication will be changed from TCP port 50 to TCP port 443. For systems that about TCP port 50 at the communication port, such as remote connections, it is necessary to change the communication port.

Specification change 5. Export of user-defined event information to be used for SYSMAC Gateway Event Log Utility

A function to export user event definitions for the Event Log Utility of SYSMAC Gateway was added.

1. Changes in specifications
The Event Setting Table can be exported as user event definitions for the SYSMAC Gateway Event Log Utility. For information about how to use user event definition information, see the SYSMAC Gateway Help.

2. Operational changes for customers
The Event Log Utility of SYSMAC Gateway cannot communicate with the Controller with enhanced security, and the user event definitions of the Controller cannot be registered. Use this function to put user event definitions in the Event Log Utility.
- Change the DIP switch settings of the CPU Unit to allow connection to Sysmac Studio or an NX-series Programmable Terminal that do not support secure communication, and then register the CPU Unit. For information on settings, refer to the description on the DIP switch settings in the hardware user's manual of the CPU unit.
At the next version upgrade of SYSMAC Gateway, it will be possible to connect online to the Controller with enhanced security from the Event Log Utility. (However, use Sysmac Studio, only computers with Windows 10 or later OS is required for online connections.)

2. Enhanced and Improved Functions of Sysmac Studio V1.50 Supporting the EtherCAT Model i4L Robots

i4L-ECAT, the small and most accessible both in costs and use applications SCARA robots, are new in our solution lineup with Robot Integrated CPU Units.

Select a robot from Toolbox to add an EtherCAT configuration.

EtherCAT model i4Ls

In one program

Control on i4L SCARA robots with Robot Integrated CPU Units

Add

Enhanced/Improved Functions

Controller

- Solved the problem that when a variable was shared in devices, selecting Comment 2 from the Select comment drop-down was not reflected in the shared variable's comment correctly.
- Solved the problem that Sysmac Studio mis-detected a large-size project overwritten by the Version Control function as data edited from outside.

- Solved the problem that cross referencing was inoperable during online editing.
- Solved the problem that using a function or function block containing the range-specified data type in input/output/in-out variables in an ST program caused a build error.
- Solved the problem that [To Lower Layer] might not be enabled in a user-defined function where a name space was set.
- Solved the problem that an in-out variable for a function or function block could not be moved to the internal variable group.
- Solved the problem that the IEC61131-10 XML Import function might not import an XML file when a comma (,) was used as a decimal point in the Windows Location settings.
- Solved the problem that a device variable assigned to a node port in the I/O Map could be moved from a variable table to another one.
- Solved the problem that if more than one library had a POU with the same name, and the option whether includes the POU or not was configured differently, the POU might be unavailable.

■ Safety

- Solved the problem that uploading ([Transfer from Controller]) a Safety CPU Unit program that contains the 1S series Servo Drive might terminate Sysmac Studio abnormally.
- Solved the problem that Sysmac Studio might end while editing a program on the FBD editor.
- Solved the problem that after sorting exposed variables in the global variable table, sorting a column in different variable table might terminate Sysmac Studio abnormally.

■ HMI

- Solved the problem that a direct copy-and-paste the CX-Programmer variables to the device variable table was not available.
- [Runtime] Support the secure communications with NJ/NX series CPU Units.

■ Robot Integrated CPU Unit

- Shape Script Default Functions can be updated to the highest version that Sysmac Studio has.
- Solved the problem that a wrong error message might appear at a mis-configuration of Robot Vision Manager in Application Manager.
- Solved the problem that a V+ variable value might return after an upload of a project from a Robot Integrated CPU Unit.
- Solved the problem that the Synchronization window of Robot Control Settings might hide behind the main window.
- Solved the problem that pressing the Here button on the V+ Jog Control pane might not register a variable to location variables.
- Solved the problem that a message saying "Robot not attached to this program" might appear for a program with a robot registered.
- Corrected the Viper CAD data.



- Solved the problem that importing a project file caused a controller mismatch on the Synchronization window in Application Manager.
- Solved the problem that the Synchronization window did not show a mismatch after editing a specific property of AnyFeeder.
- Solved the problem that a comma-separated numeric value entered in the mechanical component setup tab page was set without the comma.
- Corrected the wrong orientation of i4H's tool flange in the 3D simulator.
- Solved the problem that Sysmac Studio might end while uploading an Application Manager.
- Solved the problem that an error appeared when adding an OMRON Sentech camera.
- Added the function applying the same configured V+ version to both a Robot integrated CPU Unit and OMRON robot whose V+ versions are different

