| NO: | PC-413 | PRODUCT: | SYSMAC STUDIO |
| DATE: | April 2021 | TYPE: | Software update |

# Sysmac Studio (SYSMAC-SE200X) Version 1.45 Release Note
*(Contains expanded product capabilities and significant bug fixes)*

Effective April 12, 2021, the following Sysmac Studio software will be updated to Version 1.45. Changes in Version 1.45 are listed below and this update will be available via Auto Update for 32 and 64 Bit Version.

## ■ Updates:
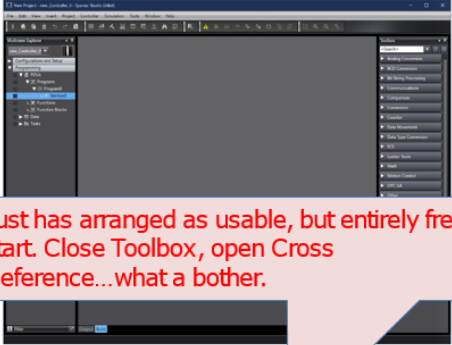
### ■ Support of New Hardware

| **Controllers:**<br>NJ501-R[]00 Controller version 1.44<br>NJ501-R[]20 Controller version 1.44<br>NY512-1[]00 Controller version 1.24<br>NY512-Z[]00 Controller version 1.24<br>NY532-1[]00 Controller version 1.24<br>NY532-Z[]00 Controller version 1.24<br>NJ501-5300 Controller version 1.21 (CNC 1.02)<br>NY532-5400 Controller version 1.21 (CNC 1.02) | |
| **Robot Integrated CPU Units Ver 1.43 and later support the following robots:**<br>Viper series articulated robots<br>i4 series SCARA robots<br>iX3/iX4 series parallel robots | |

# Improved Functions

## ■ Save window layout

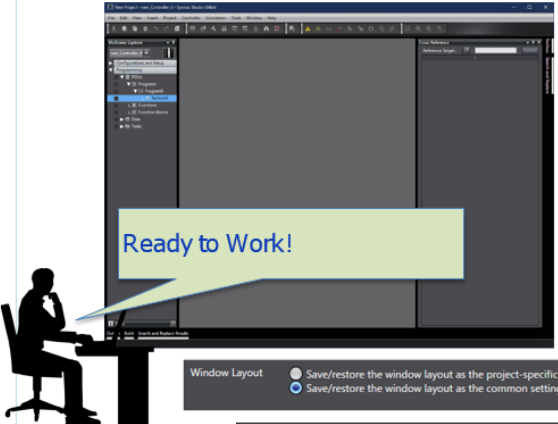| From: | To: |
|---|---|
| A user had to re-configure window settings and layout as suitable for one's use, every time the user opened a project. | The last window layout is restored when a project opened. Usability has increased with a user-customized layout. |

Just has arranged as usable, but entirely fresh start. Close Toolbox, open Cross Reference…what a bother.

Ready to Work!

Options allow users to save a layout by project or for all projects.
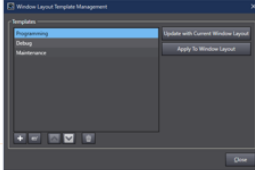
Window Layout
○ Save/restore the window layout as the project-specific setting for each
◉ Save/restore the window layout as the common setting with all projects

Layout templates enable users to switch layouts according to operator or task.
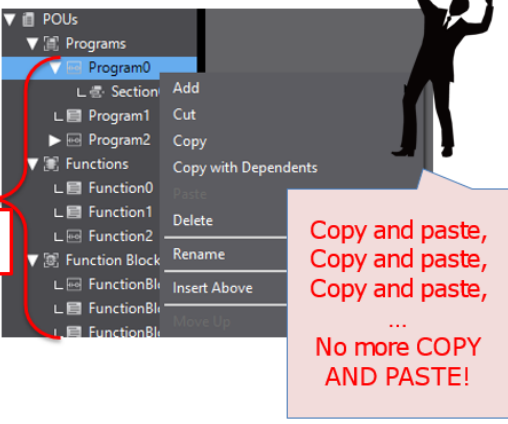
© OMRON Corporation

## ■ Copy multiple POUs (programs, functions, FBs) together

| From: | To: |
|---|---|
| To reuse multiple POUs, users had to repeat copying and pasting for each POU. | Multiple POUs can be selected, copied and pasted at a same time to reuse. |

To be copied

Add
Cut
Copy
Copy with Dependents
Paste
Delete
Rename
Insert Above
Move Up
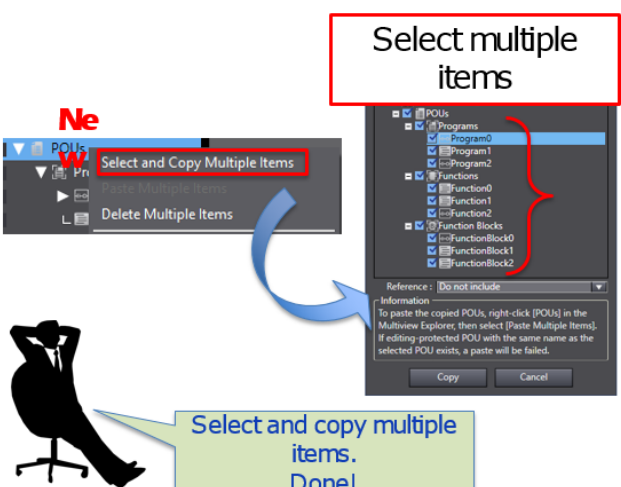
Copy and paste,
Copy and paste,
Copy and paste,
…
No more COPY AND PASTE!

New

Select and Copy Multiple Items
Paste Multiple Items
Delete Multiple Items

Select multiple items

Reference : Do not include
Information
To paste the copied POUs, right-click [POUs] in the Multiview Explorer, then select [Paste Multiple Items]. If editing-protected POU with the same name as the selected POU exists, a paste will be failed.

Copy     Cancel

Select and copy multiple items.
Done!

2

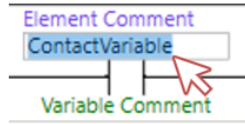## ■ Single-click on a ladder rung makes a rung element selection

### From:

When clicking a rung element in order to check it in the Cross Reference tab page, the text became editable state due to a minor deviation of click point.

> I just wanted to select, not edit. Canceling editing is a bother.
> Hard to click a perfect point...

Element Comment
ContactVariable
Variable Comment

### To:

Unintentional click on a text makes the rung element selective state, not editable state.

Element Comment
ContactVariable
Variable Comment

Element Comment
ContactVariable
Variable Comment

> An element does not become editable by clicking it to see in the Cross Reference tab page. It's comfortable.

## ■ Network-published variables are not eligible for Delete Unused Variables function

### From:

Performing the Delete Unused Variables function deleted network-published variables used for tag data link if not used in a program.

| Name | Data Type | Initial Value | AT | Retain | Constant | Network Publish | Comment |
|------|-----------|---------------|----|--------|----------|-----------------|---------|
| TagInVariable | BOOL | | | ☐ | ☐ | Input ▼ | |
| TagOutVariable | BOOL | | | ☐ | ☐ | Output ▼ | |
| UnusedVariable | BOOL | | | ☐ | ☐ | Do not publish ▼ | |
| UsingVariable | BOOL | | | ☐ | ☐ | Do not publish ▼ | |

Delete unused variables

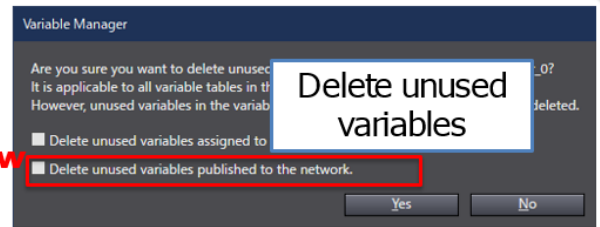| Name | Data Type | Initial Value | AT | Retain | Constant | Network Publish | Comment |
|------|-----------|---------------|----|--------|----------|-----------------|---------|
| UsingVariable | BOOL | | | ☐ | ☐ | Do not publish ▼ | |

> Variables used for tag data link were lost...

### To:

Possible to delete unused variables while unused network-published variables are retained.

| Name | Data Type | Initial Value | AT | Retain | Constant | Network Publish | Comment |
|------|-----------|---------------|----|--------|----------|-----------------|---------|
| TagInVariable | BOOL | | | ☐ | ☐ | Input ▼ | |
| TagOutVariable | BOOL | | | ☐ | ☐ | Output ▼ | |
| UnusedVariable | BOOL | | | ☐ | ☐ | Do not publish ▼ | |
| UsingVariable | BOOL | | | ☐ | ☐ | Do not publish ▼ | |

Delete unused variables

**Variable Manager**

Are you sure you want to delete unused ... L0?
It is applicable to all variable tables in th...
However, unused variables in the varia... ...deleted.

☐ Delete unused variables assigned to ...

**New** ☐ Delete unused variables published to the network.

| Yes | No |

| Name | Data Type | Initial Value | AT | Retain | Constant | Netw... |
|------|-----------|---------------|----|--------|----------|---------|
| TagInVariable | BOOL | | | ☐ | ☐ | Inp... |
| TagOut... | BOOL | | | | ☐ | Output ▼ |
| UsingV... | | | | | ☐ | Do not publish ▼ |

> Only unused variables were deleted

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# ■ Show the EtherCAT slave/NX unit at a failed transfer

**From:**

A transfer failure during synchronization was informed but not where it had occurred.

If a transfer failed when Sysmac Studio got connected to the device and [Transfer from Device] was executed...

⚡ Connect to Device

▼ Operation after Connection
☑ Transfer from Device.
☑ CPU Unit
☑ CJ-series Units/EtherCAT slaves/NX Unit

Sysmac Studio

An error occurred during transferring EtherCAT slave backup parameters or NX Unit operation settings. Try again.

OK

Which slave?
Which unit?

There is an error, but whe...

**To:**

Possible to see in which slave or unit a transfer failure has occurred.

Sysmac Studio

Failed to transfer EtherCAT slave backup parameters or NX Unit operation settings. Check the failed transfer in the output window. Remove an error and try again.

OK

Output
Error    Failed to transfer. Node1 : Unit2 NX-SL3300 (N1)

The device will be shown in the Output tab page and it also tells where the error occurs.

**Display Item**

EtherCAT slave (for a failure in slave parameter transfer)

CJ/NX unit (for a failure in unit parameter transfer)

Note: This function is common with [Synchronize/Transfer] and [Connect to Device].

# ■ Transfer to NX unit is possible during an EtherCAT communication error

**From:**

NX unit data could not be read during an EtherCAT communication error.
(Writing was available with some conditions)

NX unit data (incl. NX-SL)
· Writable (contingent)
· Unreadable

Controller
(with NX unit)

EtherCAT communication error

EtherCAT slave

**To:**

NX unit data can be read and written during an EtherCAT communication error.

NX unit data (incl. NX-SL)
· Writable
· Readable

Controller
(with NX unit)

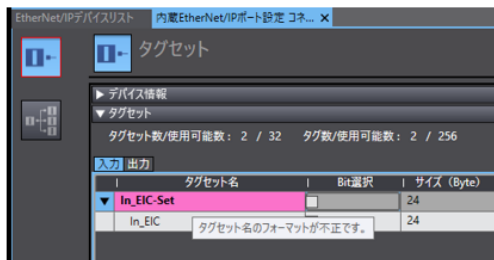EtherCAT communication error

EtherCAT slave

**Additional Information**
1) Upgrade may be required for NX1 Controller and NX-SL Safety CPU Unit
2) NX-SL data cannot be written during an EtherCAT communication error as before. Resolve the error before.

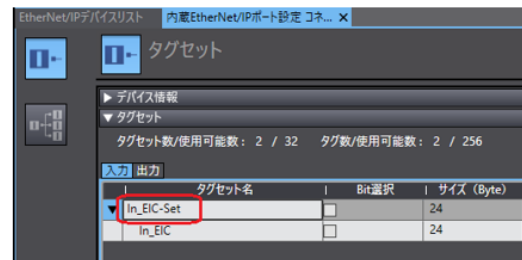# ■ Tag set name in EtherNet/IP connection setting permits a hyphen

**From:**

Hyphen was not available in a tag set name.



Tag set name containing a hyphen caused an error. (Not available)

**To:**

Hyphen is available in a tag set name.



Tag set name can contain a hyphen. (Available)

Additional Information
1) The following characters can be used for a tag set name:
   Alphanumeric characters (0-9, A-Z, a-z), underscore (_), Japanese two-bite characters, and hyphen (-)
2) Tag set name in Network Configurator can contain a hyphen.
3) Upgrade your Sysmac Studio to the latest version before using a hyphen in a tag set name. Previous version of Sysmac Studio, which not support hyphens, cannot transfer connection settings with a tag set name containing a hyphen to the device.
   *The settings can be transferred if the hyphen is deleted.

# ■ EDS file creation function for CIP Safety devices

Creating EDS files allows connections to different CIP Safety devices.

**From:**

Only CIP Safety devices that verified connections and operations by OMRON were permitted to connect. Upgrade of Sysmac Studio was required to support a new CIP Safety device.
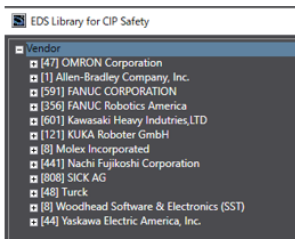


To the **limited** CIP Safety devices connections were available.

**To:**

EDS file creation function for CIP Safety devices enables users to verify connections and operations of CIP Safety devices. It promotes more timely equipment development.
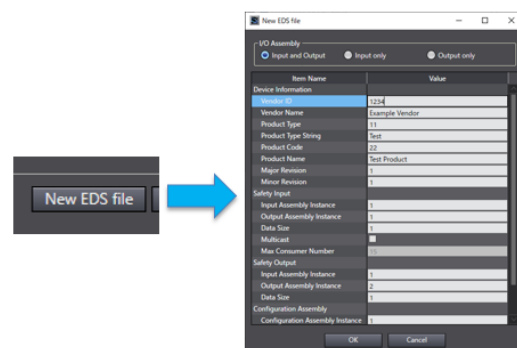


Users can **freely**\* create EDS

\* Open Only (Type2b) or Check Safety Signature (Type2a) connection only.

# ■ CIP connection type (Type2a, 2b) can be changed for several devices at once with batch setting feature

Improved functional safety management by assuring complete safety system integrity

### From:

Users had to switch CIP connection open types for each connection manually.
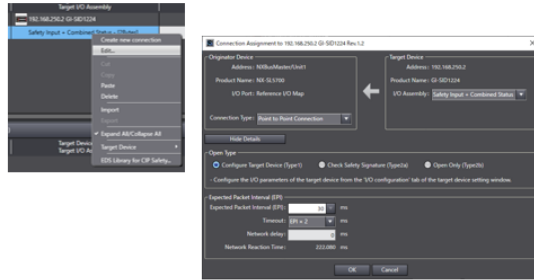


**Opened the connection setting window, then changed the open type. Repeated this procedure.**

### To:

CIP connection open types can be changed collectively. Users also can get a safety signature (SCID) from a CIP Safety device. The improvements save person-hours to start up a CIP network system.
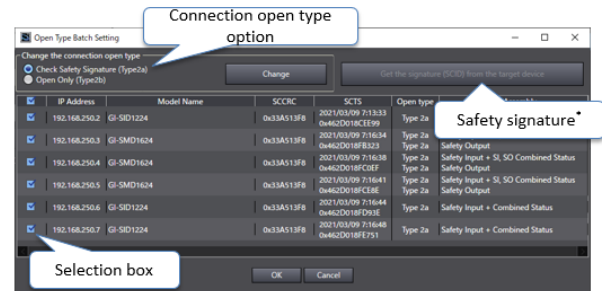


**To perform a batch setting, check a target, select an open type option, then press the Change button.**

\* Safety signature can be acquired while connected online with the Safety Controller.

# ■ Bulk editing for variable comments

Collective management of multiple variable comments makes translation easier and more efficient.

### From:

Even for minor changes in comments, users had to export and import comments to/from a spreadsheet to edit them.
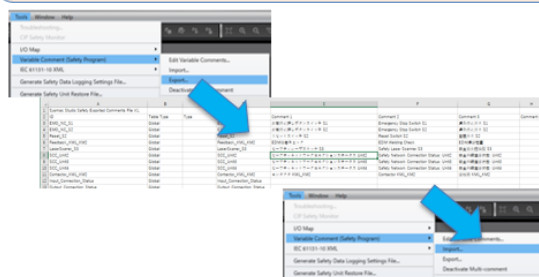


**Exported variable comments, found comments to edit, edited the comments, then imported them.**

### To:

Editing multiple comments on the Sysmac Studio window improves efficiency in editing.
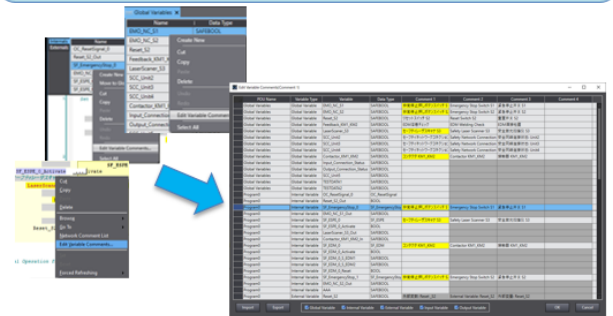


**Jump to the Edit Variable Comments window, then edit the comments. That's all.**

# ■ Search and jump to the resources

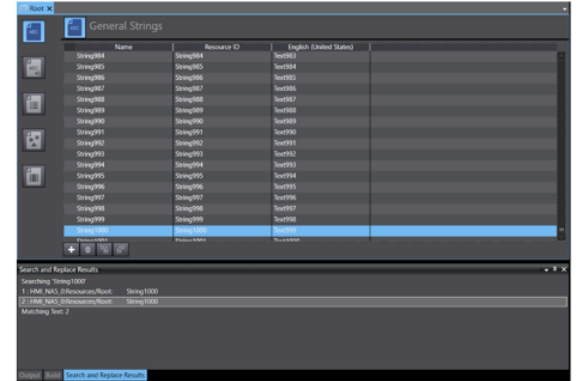When trying to jump to a searched resource, the target resource is highlighted.

**From:**

After clicking the searched resource, the view opened but the resource did not become selected.

The view opens automatically but I have to search the resource manually. It takes time.

**To:**
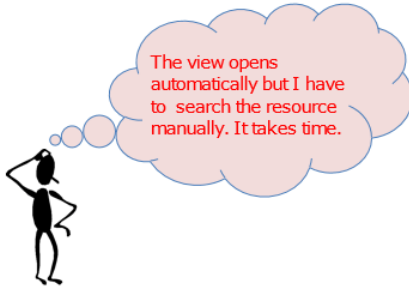
The target resource gets selected.



Successfully jump to the target resource on the first try.

# ■ Variable display

The function to display variables assigned to the objects on the page editor is available

**From:**

To see variable assignments, it was necessary to check the properties of each object.

Checking all variable assignments is a bother because must see every object.
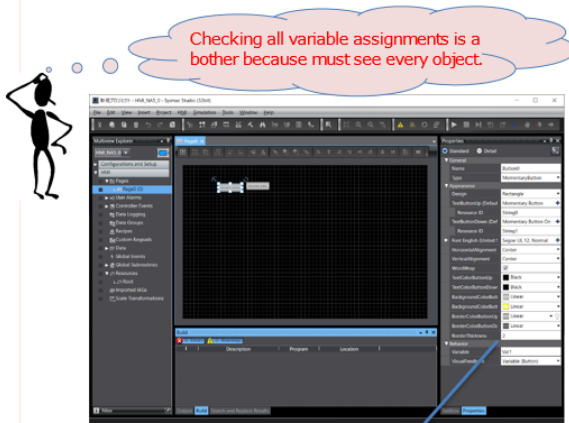


Variable was shown in the Properties pane for each object

**To:**

Variables are displayed over objects and it allows to see assignments at a glance. The ⬚ button in the toolbar switches visible and invisible of variables.
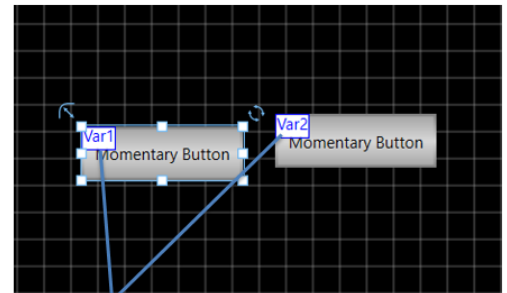


Variables are shown upon objects

I can check variables on the page editor. It saves clicks.

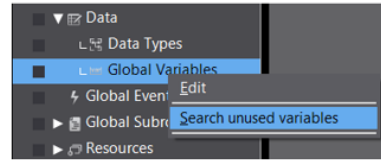# ■ Search Unused Variables function

**From:**

Only cross referencing on each variable managed to find unused variables.

Checking used or unused for every variable is totally impractical.

**To:**

Support the function to find unused variables.

▼ Data
　└ Data Types
　　└ Global Variables
　Global Even ___ Edit
　Global Subr ___ Search unused variables
　Resources

| Name | Data Type | Initial Value |
|---|---|---|
| Var1 | Boolean | |
| Condition1 | Boolean | |
| Var2 | Boolean | |
| Var3 | Boolean(10) | |
| Var100 | Integer | |

Global Variables ×

Unused variables become selected

Unused variables are automatically found. Useful to organize variables.

# ■ Improved error messages shown for a build

Improved error messages shown for a build

**From:**

Cryptic error messages in the Output tab page were not helpful.

I can't figure out VB error messages as they are.
No jump to an error?

Output
Compiling pages...
Compiling alarm settings...
Expression 'Var3 And Var3(1)' caused a compilation error. 演算子 'And' は、型 'Omron.Hmi.SymbolManagement.PrimitiveArray1DSymbol(Of Boolean
Pages (0,0): error OM00000: Compilation failed due to previous error(s).
Compiling resources completed.
Compiling alarm settings completed.
Compiling recipe settings...
Compiling recipe settings completed.
Output Build Search and Replace Results

VB error message will appear in such case as an array element number is not specified.

**To:**

User-friendly error messages are shown in the Build tab page.

Build
Errors Warnings
| | | Description | Program | Location | |
| | 1 | Expression 'Var3 And Var3(1)' cause | Page0 | BitLamp0, Expression | |
Output Build Search and Replace Results
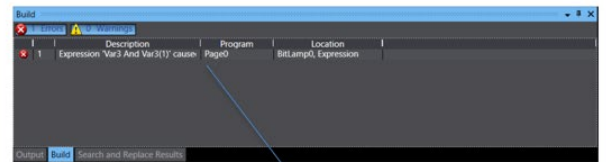
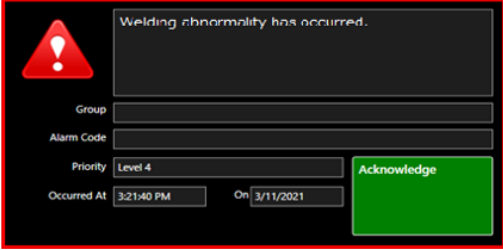Clear texts and jump to an error

I can correct problems by myself.

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# ■ Embed a variable value in a user alarm message

**From:**

There was no way to know a variable value at a moment an alarm rose. 。

As I do not know the production number at this alarm, I have to assume from the time.

**To:**

Variable value at an alarm can be embedded in a message.

The message directly tells which device has an error.

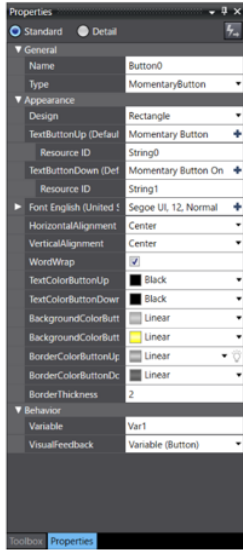# ■ Only frequently-used property items are shown in the Standard mode.

**From:**

All property items were on the list even though not usually used. Takes time to find out a necessary one.

Too many items to find out what I'm looking for.

**To:**

Standard and Detail modes are available. The Standard mode displays only frequently-used property items.

Easy to find frequently-used items.

## ■ Embed Dialog for advanced settings is available in Properties Tab

**From:**

Awkward tree-structured property items expanded from a single item.

Color changes due to value changes are not visible at a glance.

**To:**

A dedicated dialog for advanced settings is available to improve usability.

Easy to see changes, and it helps settings.

## ■ Animation window was merged into the Properties window.

**From:**

Settings for properties and animation were made in the different windows.

Properties and animation should be configured in the different windows. I can't figure out where the settings work.

**To:**

An icon is available in a property which animation affects. The icon displays a setting dialog.

Easily know this setting affects which property.
The windows were integrated into one and it saves switching work.

# ■ 3D Visualizer displays real operational time

**From:**

Increase of computer load might temporally slow down a simulation speed. It also might decrease operational speed of a virtual equipment running on the 3D Visualizer. User could not find out how slow it was compared with an actual machine.
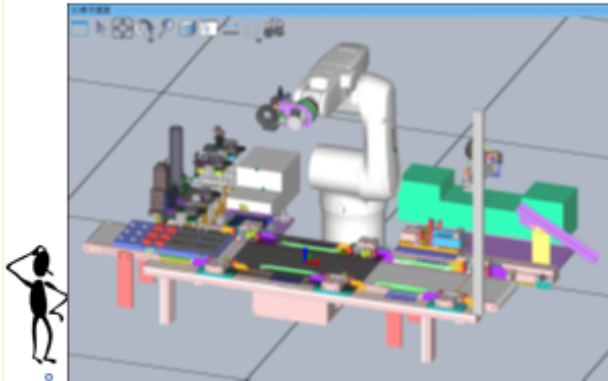


Moving slowly...
Does the physical machine run in the same duration?

**To:**

Simulation duration display enables to see an actual operational duration of the equipment on the 3D Visualizer just by a single look.
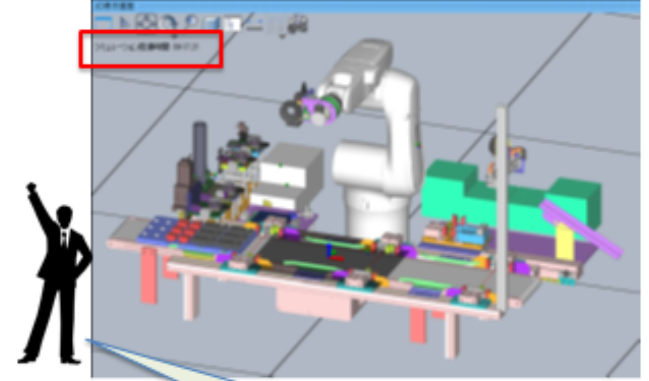


The display tells how long a real operational time is.

# Enhanced/Improved Functions

## ■ Controller

- ■ Solved the problem that executing [Transfer] in Online Edit during a simulation of NJ501-R[][] might stop a robot control task.
- ■ Solved the problem that a major fault might occur after a build error associated with variables was resolved by changing the task setting.
- ■

## ■ Robot Integrated CPU/ 3D Simulation

- ■ Support the Remote Encoder Setting Function
- ■ Improved the problem that an error might occur and disturb an access to RobotControlSetting when a simulation of a project that includes a robot was performed.
- ■ Improved the problem that executing a simulation from the 3D Visualization pop-up menu of an Application Manager device might fail.
- ■ Improved the problem that during a simulation, performing online program editing that includes IEC variables referenced by EXTERNAL keywords in a V+ program caused a V+ program execution error.
- ■ Improved the problem that when an NJ501-Rx20 (DB model) controller was set and a simulation of the project where an NJ Robotics instruction was used in a program was run, an error occurred and an access to RobotControlSetting was disturbed.
- ■ Improved the problem that an online connection or simulation while the V+ variable list is shown initialized initial values of a precision point array.
- ■ Improved the problem that when a shape script with a code to assign values into a REAL variable was run with Windows setting using a decimal comma instead of a decimal point, an error message was shown and the shape script was aborted.

## ■ Safety

- ■ Support the function to update configurations and setting data for Safety Units
- ■ Improved the usability so that a terminated connection can be reestablished with the Safety CPU Unit due to a timeout during an upload.

## ■ HMI

- ■ Improved overall performances.
- ■ Soft-NA supports Runtime 1.12 to 1.15.
- ■ Solved the problem that in a project using multiple HMIs, data type definition might  become invalid when a device was switched from controller to HMI.

- Solved the problem that a mapped variable might not be shown on the Variable Mapping when a device was switched from controller to HMI.
- Solved the problem that an invalid resources ID might be assigned to an edited resource on the page editor.
- Solved the problem that a copied page group might be pasted in the same page size of the original unit model.
- [Runtime] Solved the problem that an Input control action caused an error if performed at a start of NA.
- [Runtime] Solved the problem that E_PAG_011 might occur at a pop-up window appeared.
- [Runtime] Solved the problem that a CSV file created in data logging might be overlapped with a previously saved file.
- [Runtime] Solved the problem that an error occurred when a variable value set to a conditional expression of an event became unallowable one for its data type.
- [Runtime] Solved the problem that an error was rarely indicated in an operation when some objects sharing a variable were used in multiple pages.
- [OS ] Support the function to insert a variable value into a message at a user alarm.