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**PRODUCT:** Sysmac Studio, CX-One  
**TYPE:** Tech Note

## Best Practices for Managing Firmware and Software Versions

### Introduction

Omron Automation & Safety periodically releases firmware/software version upgrades to both controller hardware and IDE (Integrated Development Environment) platforms. These upgrades are intended to enhance product features and performance, as well as speed the development of automation projects. This document is intended as a general guide to managing controller firmware/IDE versions, but is not intended to replace existing company policies regarding version control.

### Top Recommendations for Software Management of IDE (Sysmac Studio)

- 1. Register your IDE.** After installation of the IDE please ensure to register the software online. This is required to take advantage of the free AutoUpdate feature and for ensuring that Omron can assist your organization in case of any licensing issues (i.e., lost licenses, license transfers, paid software upgrades, etc.).
- 2. Maintain same IDE versions across company.** It is critical to ensure that the IDE version is updated on all PCs/Laptops across your company and plant to the *same version level*. Our recommendation is to perform auto updates twice a year (May and November) or when recommended by your local Omron representative. Maintaining the same level of IDE version will ensure that more time is spent on development and troubleshooting of your systems.
- 3. Assign a software asset manager who can keep track of IDE versions.** Software is pervasive in all industries and for many departments such as engineering, maintenance and support. Defining a dedicated person will help ensure comprehensive software management and definition of internal policy for your company.
- 4. Contact Omron Technical Support if you are unclear about how to update your existing IDE.** This will ensure that any changes to your IDE can be attained without significant impact to your operations.

## Recommendations for Firmware Version Management of Sysmac Platform Controllers (NJ/NX series)

Omron defines “*firmware*” as device level software running on a programmable/machine automation controller such as the NJ/NX series controller.

- 1. Do not upgrade/downgrade firmware without consulting with local Omron representative.** Firmware upgrades are technical in nature and should be initiated only after consultation with your local Omron representative. Upgrades/Downgrades are executed using Omron specified SD cards that can be sourced through your local Omron representative. *Please note that performing incorrect upgrades has the potential to damage the controller and may affect your operations.*
- 2. Ensure company personnel are trained on the IDE.** Firmware versions are closely linked with the IDE version that is used to program controllers. Updated IDEs are backward compatible with older firmware versions of controllers, but for correct operation it is essential to get trained on program development using the IDE interface. Contact your local Omron representative to learn about our training programs.

### Firmware/Software compatibility notes – Sysmac Platform

Listed below are different use cases of Sysmac Studio IDE versions with NJ/NX series machine automation controllers. The cases are intended to give the user a guideline on compatibility of firmware versions and Sysmac Studio projects. *Please consult your Sysmac Studio operation manual or controller hardware user manual for updates and contact Omron Technical Support for specific version compatibility questions.*

## Use Cases

### Case 1 - New User of Sysmac Platform that has Project Firmware Version (PFV) same as Controller Firmware Version (CFV):

This is the most common situation (see Figure 1) for Sysmac Studio users and is within the compatibility guidelines.



Figure 1

**Case 2 - Existing User upgrades hardware or adds a new controller into facility that leads to Project Firmware Version (PFV) being older than Controller Firmware Version (CFV):**

In this case (see Figure 2), the customer will receive a notification on the IDE that the Project Firmware Version (PFV) and Controller Firmware Version (CFV) do not match between the hardware and the project, but the customer can hit "OK" and continue download of the project without any interface issues.



**Figure 2**



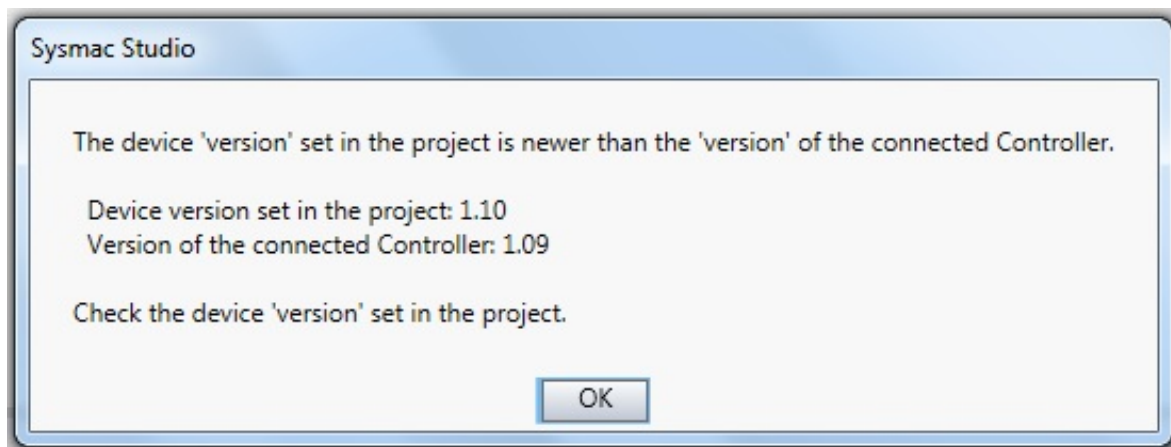
**Figure 3**

**Case 3 – User updates Sysmac Studio Version(SWV) through Auto Updates and has new Project Firmware Version (PFV) available in IDE. This can lead to Project Firmware Version (PFV) chosen in Sysmac Studio to be newer than Controller Firmware Version (CFV):**

In this case (see Figure 4), the customer will receive a notification on the IDE that the Project Firmware Version(PFV) is newer than Controller Firmware Version(CFV). The IDE will not let you transfer anything since the newer Project Firmware Version(PFV) is not supported by the actual hardware. Please select the correct Project Firmware Version(PFV) before proceeding further.



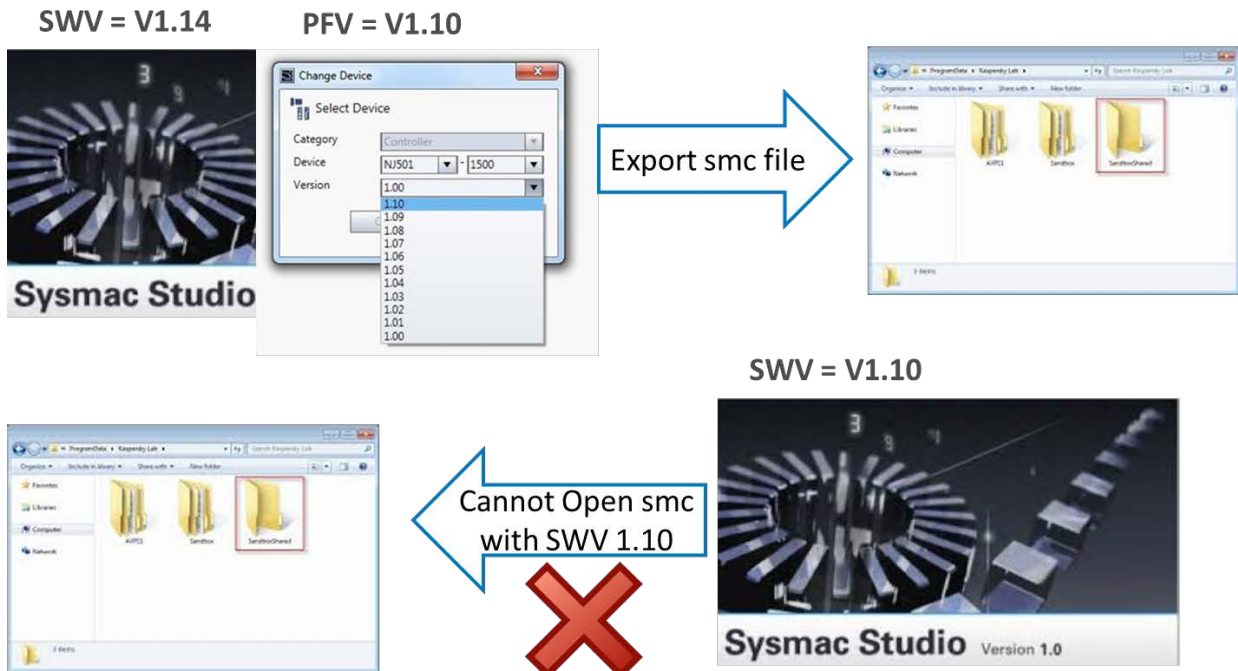
**Figure 4**



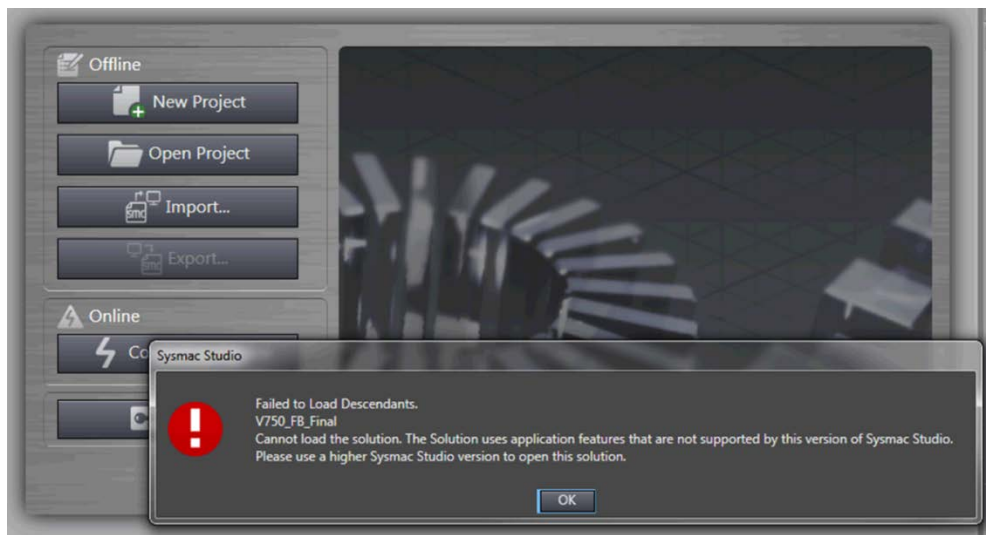
**Figure 5**

**Case 4 – Multiple Sysmac Studio versions in a facility that leads a Customer to use older Sysmac Studio Version (SWV) to open project built with newer Sysmac Studio Version (SWV):**

In this case (see Figure 6), let's say that the customer uses Sysmac Studio Version (SWV) 1.14 to create a project with Project Firmware Version (PFV) 1.10. The project is compiled and tested on an NJ501 installed in the plant floor. Then, the project file \*.smc2 is exported to the server. Another engineer in the company wants to use the same project but uses Sysmac Studio Version (SWV) 1.10. This engineer will not be able to open the project and will receive the notification as shown in Figure 7. The reason for this incompatibility is the lack of support for Project Firmware Version (PFV) 1.10 in Sysmac Studio Version (SWV) 1.10. So, as long as the customer maintains the same Sysmac Studio Version (SWV) in all the laptops within the organization, this will not be an issue.



**Figure 6**



**Figure 7**

**Sysmac Studio Software compatibility (January 2016) – *Please consult your Sysmac Studio operation manual or controller hardware user manual for **future updates** and contact Omron Technical Support for specific compatibility questions.***

Sysmac Studio Software Compatibility for opening exported projects (*.smc2 file).	
Sysmac Studio Version(SWV)	Sysmac Studio Project Firmware Version(PFV)
1.01	1.00
1.02	1.01 or lower
1.03	1.02 or lower
1.04	1.03 or lower
1.05	1.04 or lower
1.06	1.05 or lower
1.07	1.06 or lower
1.08	1.07 or lower
1.09	1.08 or lower
1.10	1.09 or lower
1.11	1.09 or lower
1.12	1.10 or lower
1.13	
1.14	

**Table1**

Software Compatibility for NA HMI Project Runtime Version	
Sysmac Studio Version(SWV)	NA Project Runtime Version
1.10	1.00
1.11	1.01
1.12	
1.13	1.02
1.14	1.03

**Table2**

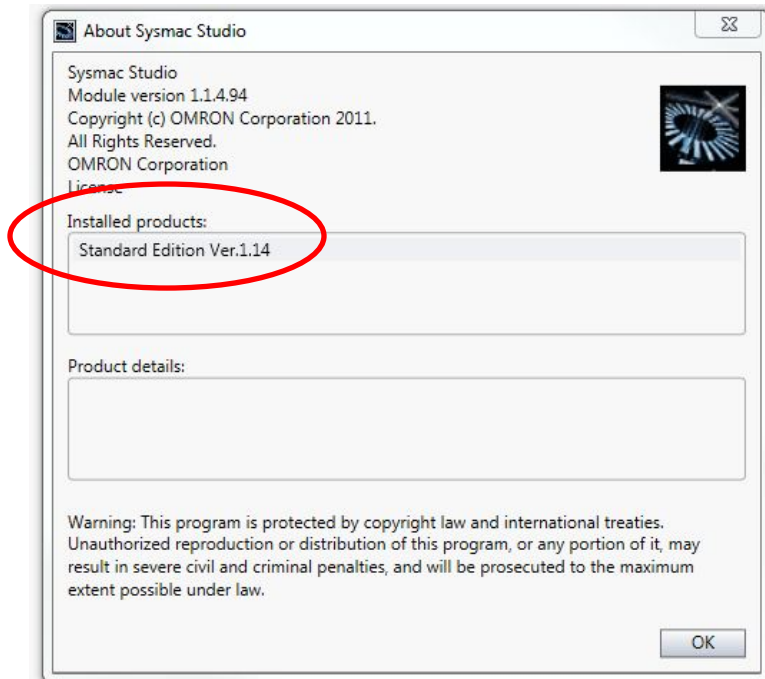
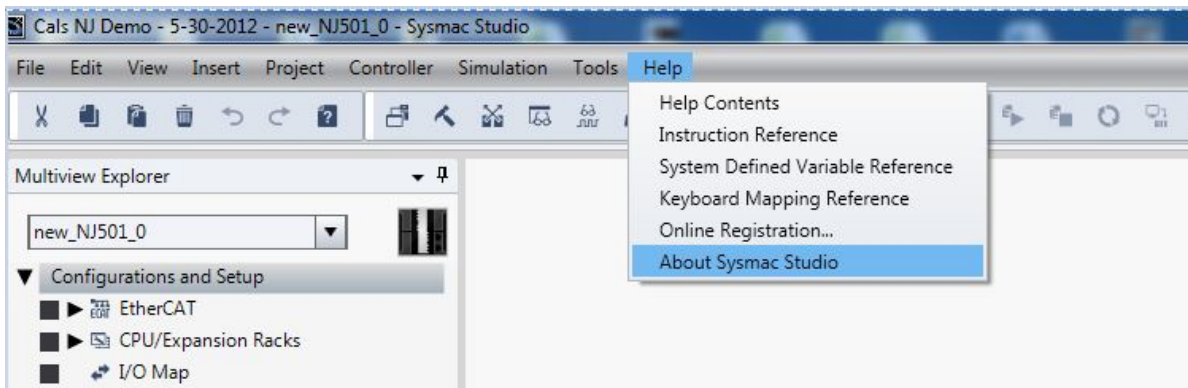
## Software Compatibility for NX Safety Controllers

Sysmac Studio Version(SWV)	NX-SL3300	NX-SL3500	NX-SIH400	NX-SID800 NX-SOH200 NX-SOD400
1.07	1.0	N/A	1.0	1.0
1.08/1.09	1.0	1.0	1.0	1.0
1.10 through 1.14	1.1 or lower	1.1 or lower	1.1 or lower	1.0

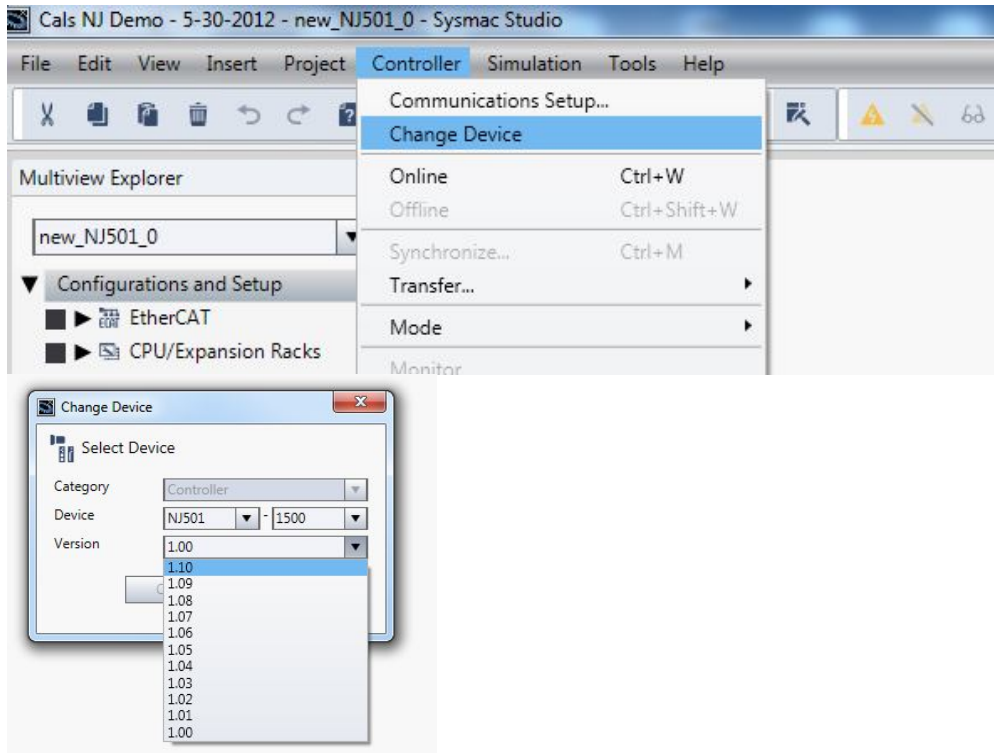
**Table3**

**Legend:**

- SWV - Sysmac Studio Version:** This is the version of the IDE and can be accessed as shown below:



2. **PFV** - Sysmac Studio Project Firmware Version: This is the version of the Sysmac Controller that is selected in the Sysmac Studio IDE.



3. **CFV** - Sysmac Controller Firmware Version: This is the actual firmware version residing on the Sysmac Controller. **Once Online with the CPU**, this can be checked by going to Configurations and Setup -> CPU/Expansion Racks->Select CPU->Right Click and select Production Information.

