SIEMENS

TIA Portal Project Upgrader

TIA Portal

Siemens Industry Online Support

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1 Introduction

1.1 Overview

This application upgrades TIA Portal projects to the current version using TIA Portal Openness (e.g. from V15 to V17).

The solution offers the following advantages

- Automatic upgrade the version of your TIA Portal project
- Batch update of the project can be carried out
- Automatic compile the project after project upgraded
- An update log shows the status

1.2 Components used

This application example has been created with the following hardware and software components:

Table 1-1

Component	Number	Article number	Note
STEP 7 Professional V17	1	6ES7822-1AA07-0YA5	-
TIA Portal Openness	1	-	-
Microsoft Visual Studio 2019	1	-	-

This application example consists of the following components:

Table 1-2

Component	File name	Note
Documentation	109811744_TiaPortalProjectUpgrader_DOC_V20_en.pdf	This document
Source code	109811744_TiaPortalProjectUpgrader_V20.zip	C# Source code of the application example

2 Engineering

2.1 Software setup

Install TIA Portal V17 or higher version.

| Note	TIA Portal Openness is included in the delivery of STEP 7 V17 or WinCC V17 and is installed by default.

2.2 Managing user rights

In order to use or create a TIA Portal Openness application, the user has to be added to the "Siemens TIA Openness" user group.

To add the user to the user group, proceed as follows:
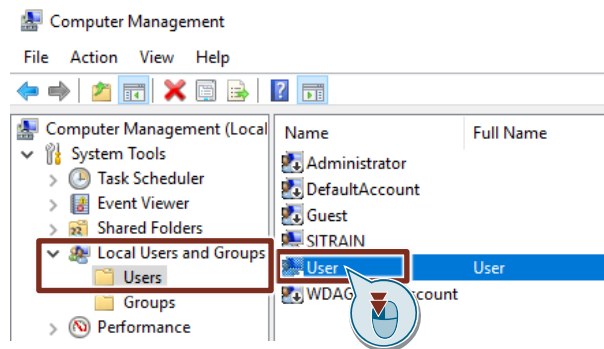
1. Right-click the Windows Start button and select "Computer Management".
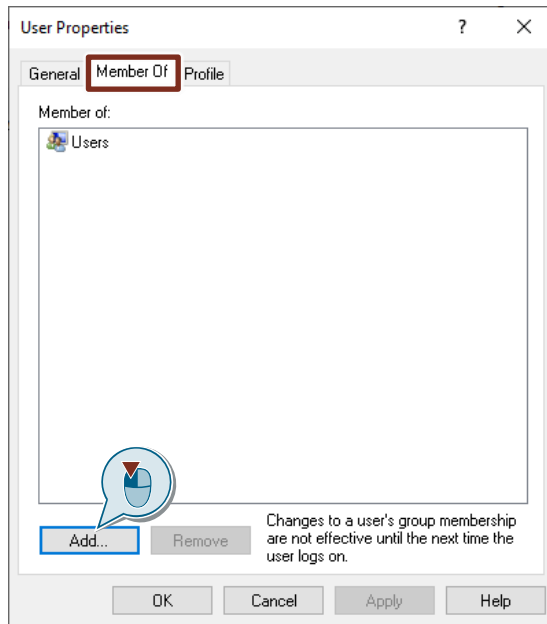
Figure 2-1
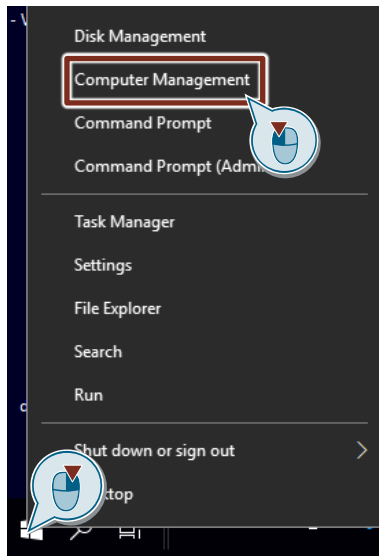
2. Open "Local Users and Groups > Users" and double click the user.
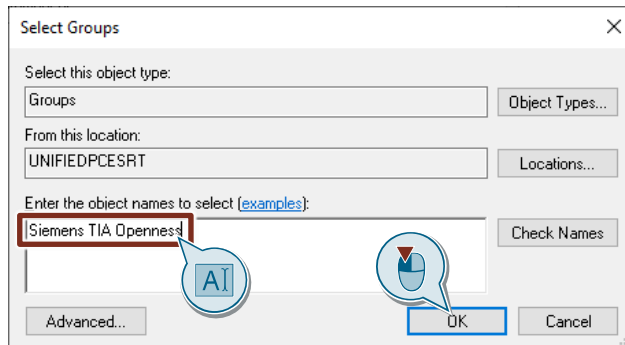
Figure 2-2

3. Go to the "Member Of" tab and click the "Add" button.

Figure 2-3

4. Enter "Siemens TIA Openness" and confirm by pressing "OK".

Figure 2-4

5. Close the opened dialog boxes by pressing "OK" and log in again.

3 Software Operation

3.1 Overview

Three types of execution are available.

First one is the UI.

Note
You find a ready compiled "exe"-file in the download. "109811744_ TiaPortalProjectUpgrader.zip" with the path "...\ TiaPortalProjectUpgrader\TiaPortalProjectUpgrader\bin\Release ".

The second one is the usage of the CLI.

The CLI "Siemens.TiaPortalProjectUpgraderCli.exe" provides some CLI arguments where the user is able to configure the upgrade process. The "Siemens.TiaPortalProjectUpgraderCli.exe" is the generated executable version of the upgrader.py Python script. The "upgader.exe" file is necessary for the usage of the UI.

The last type of execution is to modify and run the upgrader.py Python script manually, also over the CLI or directly with adapted arguments.
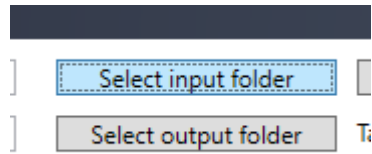
3.2 Operation UI

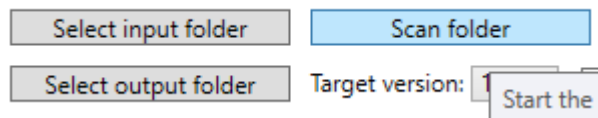1. Run the TiaPortalProjectUpgraderUI.exe.

Figure 3-1
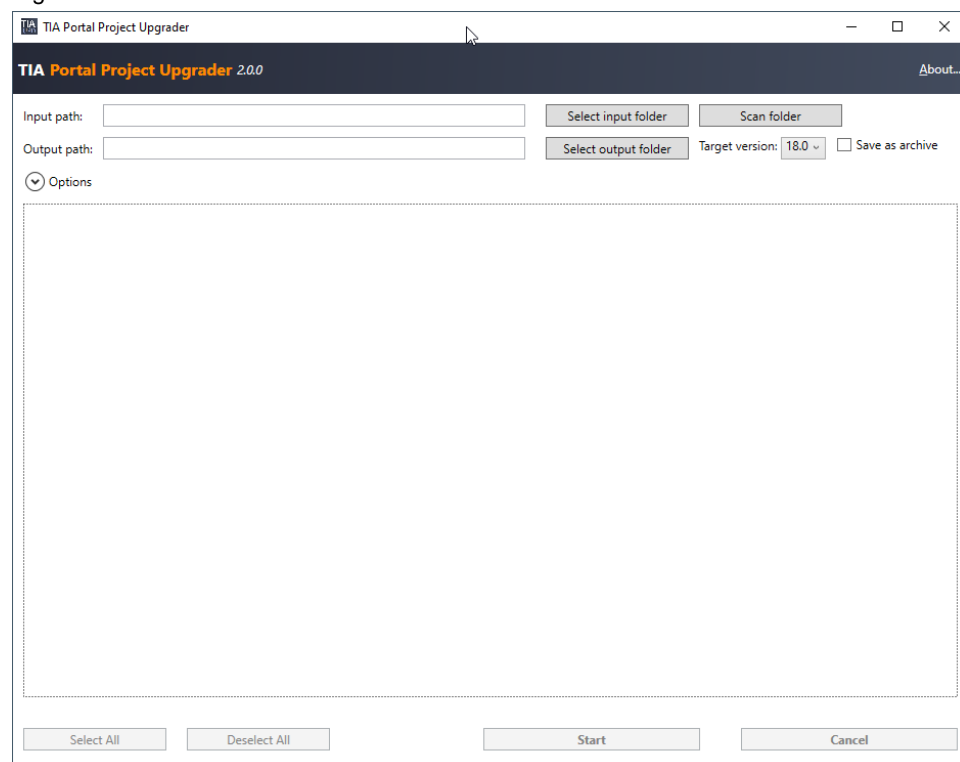
2. Click "Select input folder" and choose the folder where the TIA Portal projects to be upgraded are stored. After selecting the directory, the scan of the folder will be automatically started.
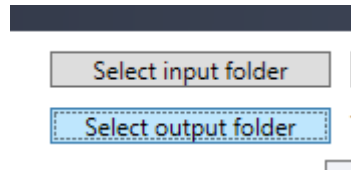
Figure 3-2

3. Click "Scan folder" to start the scan of the selected directory.

Figure 3-3

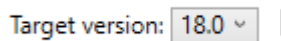4. Click "Select output folder" to choose the folder where to store the upgraded projects.
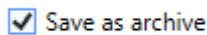
Figure 3-4

5. The combo box "Target version" shows available target versions of the installed TIA Portal version.
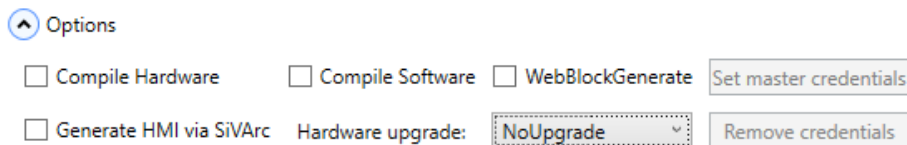
Figure 3-5

6. The checkbox "Save as archive" means that the project is saved as an archived file after upgrading.

Figure 3-6

7. Under the "Options" it is possible to set parameters for the upgrading process.

Figure 3-7

- "Compile Hardware": click the checkbox to compile the hardware in the project.
- "Compile Software": click the checkbox to compile the software in the project.
- "Generate HMI via SiVArc": click the checkbox to trigger SiVArc generation if used in the project already (License required).
- "WebBlockGenerate": click the checkbox to generate Web-DBs in the PLC if used in the project already.

8. The "Hardware Upgrade" combo box shows available options for upgrading the hardware in the project.
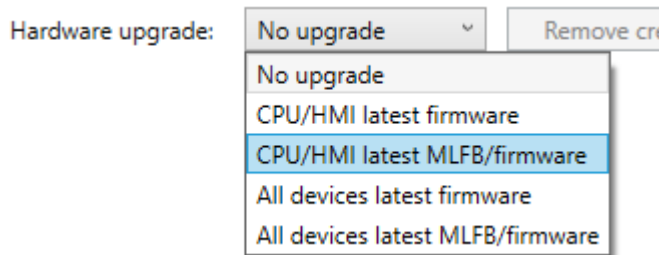
Figure 3-8

Table 3-1

Menu	CPU1511F 6ES7 511-1FK00-0AB0 V1.7	ET200SP DI 8x24VDCST 6ES7 131-6BF00-0BA0 V1.0
CPU/HMI latest firmware	6ES7 511-1FK00-0AB0 V1.8	6ES7 131-6BF00-0BA0 V1.0
CPU/HMI latest MLFB/firmware	6ES7 511-1FL03-0AB0 V3.0	6ES7 131-6BF00-0BA0 V1.0
All devices latest firmware	6ES7 511-1FK00-0AB0 V1.8	6ES7 131-6BF00-0BA0 V1.1
All devices latest MLFB/firmware	6ES7 511-1FL03-0AB0 V3.0	6ES7 131-6BF01-0BA0 V0.0

All devices = ET200MP modules, ET200SP modules, etc.

9. "Set master credentials" shows a dialog where the user is able to set UMAC Credentials for all listed projects. Credentials will be used if some of the projects are protected.

Figure 3-9
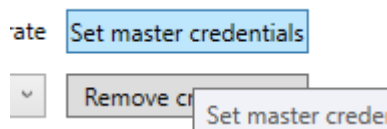
10. "Remove credentials" just removes set master credentials.

Figure 3-10

11. If the "Set master credentials" button is clicked, a dialog is shown in the
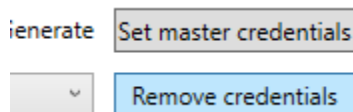   message window to provide the possibility to set UMAC Credentials and Safety
    administrator passwords for compiling.

Figure 3-11

12. In the "UMAC Credentials" part, there is the possibility to set credentials for
    protected projects. These credentials will be used to open the project. It is
    possible to switch the user type between "Local" and "Global" user.

Figure 3-12

Note	Master Credentials will be set for all projects and will be used ONLY if the project is protected. So, if some projects are not protected, it does not matter if credentials are set or not.

13. In the "Safety administrator for compile" part, the user is able to add passwords
    to a list. These passwords will be used for any "knowhow" protected device if
    compile is required.

Figure 3-13

Note The list of passwords will be used only if a knowhow protected device is detected. In this case, each password will be tried to set for the device until one of the provided passwords matches.

14. Listed projects after scanning the input folder. With the button "Start all," the user can start upgrading all of these projects.

Figure 3-14
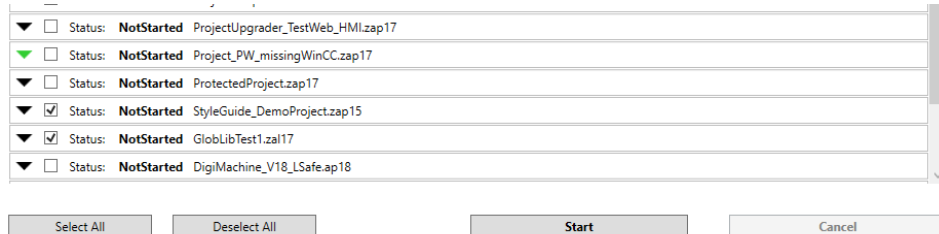
15. Each project is expandable. When an entry is expanded, the log of the upgrading process is visible. With the button "Set Credentials," the user can set their own credentials for the selected project.

Figure 3-15
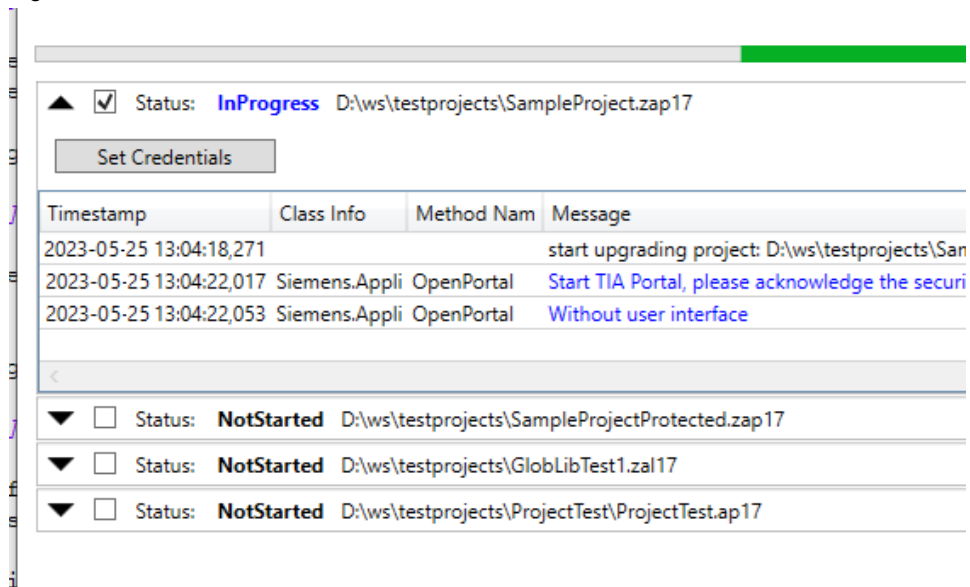
Note In this case, if master credentials are already set, the selected project's credentials will be overwritten.

If the checkbox is set, the user is able to start the upgrading process only for the selected projects.

16. After clicking the "Start Selected" or "Start All" button, a message is shown in the message window to remind you to confirm the security information dialog.

When starting your application for the first time, the following security message will appear:

Figure 3-16
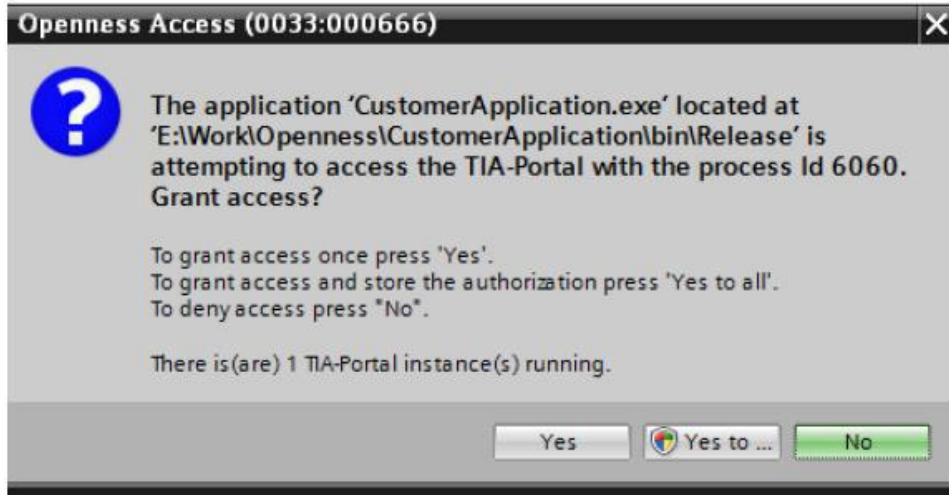
- Confirm the message with "Yes" in order to permit access once.
- Confirm the message with "Yes to all" in order to always permit access to this application.
- Click "No" to deny access – the application cannot continue in this case.

After confirming the security message, the application will start to upgrade.

17. "Cancel Upgrade" will cancel the upgrade of the project.

Figure 3-17

3.3   Operation CLI

"Siemens.TiaPortalProjectUpgraderCli.exe" can be executed directly over the CLI.
usage:

```
usage: Siemens.TiaPortalProjectUpgraderCli.exe
                       [-h] [--archive]
                       [--software] [--hardware]
                       [--sivarc] [--webblock]
                  inputpath outputpath version
                  {noupgrade, cpuhmifirmwareonly,
                   cpuhmifull, alldevicesfirmwareonly,
                   alldevicesfull}
```

Example:

```
Siemens.TiaPortalProjectUpgraderCli
D:\ws\test_tiascripting\input\Test\Test.ap16
D:\ws\test_tiascripting\output 18.0 cpuhmifirmwareonly --hardware --
software
```

The upgrade process was started with V18 as target version and optional hardware
and software compile, also the upgrader of the hardware was set to upgrade all
cpu's and hmi's to the latest firmware.

Table 3-2

Positional arguments	Description
inputpath	set input path of the project file
outputpath	set output directory
version	set target TIA Portal version
{noupgrade,cpuhmifirmwareonly, cpuhmifull, alldevicesfirmwareonly,alldevicesfull}	Chose between hardware upgrade strategy
Optional arguments	**Description**
-h, –help	show this help message and exit
–archive	set to save projects as archive files
–software	set to compile software
–hardware	set to compile hardware
–sivarc	set to generate HMI via SiVArc
–webblock	set to generate Webblock `

3.4   Operation python

"upgrader.py" skript can be executed directly with available python environemnt.
the usage is the same as by the CLI. Python version 3.7.8 is recommended to use.

```
python upgrader.py [-h] [--archive] [--software] [--hardware] [--sivarc]
                  [--webblock]
                  inputpath outputpath version

{noupgrade,cpuhmifirmwareonly,cpuhmifull,alldevicesfirmwareonly,alldevices
full}
```

3.5 Error handling

There is also a log file named "TiaScriptingModule.log" show the detail information of the upgrade status, including the error messages from TIA Scripting Module. You can check the issue if a project upgrade failed or upgraded with issues. The log file is placed in ErrorLog folder. "TiaScriptingModule.log" is created by TIA Scripting Module, so if environemnt variable is set, ErrorLog folder can be found there.

4 Appendix

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4.3 Links and literature

Table 4-1

No.	Topic
\1	Siemens Industry Online Support https://support.industry.siemens.com
\2	Link to this entry page of this application example https://support.industry.siemens.com/cs/ww/en/view/109811744
\3	

4.4 Change documentation

Table 4-2

Version	Date	Modifications
V1.0	06/2021	First version
V2.0	09/2023	Second version