Digitalization with TIA Portal: Integration of planning data from TIA Selection Tool to TIA Portal or EPLAN Electric P8

STEP 7 V14 SP1 (TIA Portal), TIA Selection Tool

https://support.industry.siemens.com/cs/ww/en/view/109748223

Siemens Industry Online Support

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Table of Contents

1 Introduction

1.1 TIA Selection Tool (TST)

Intelligent product catalogue

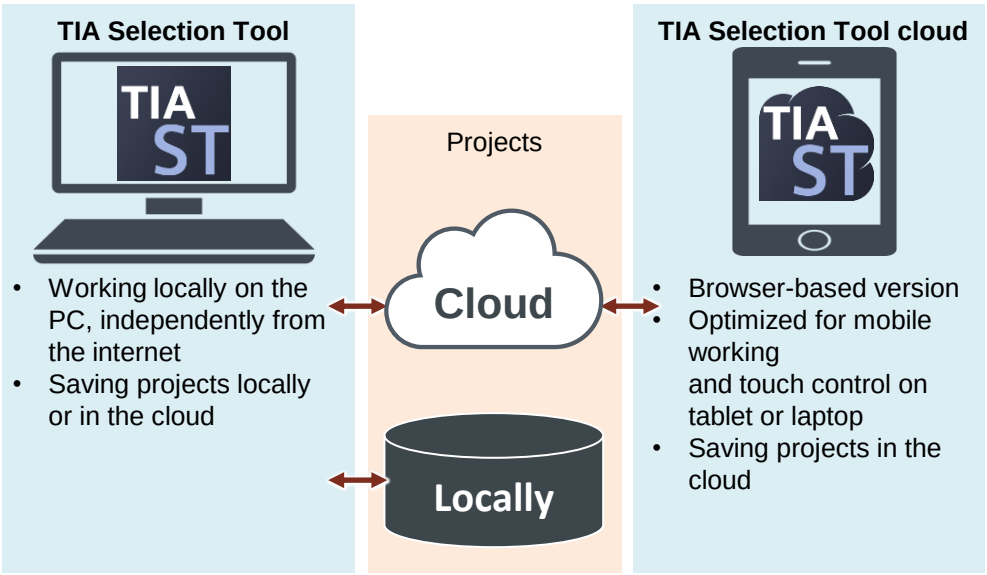
The free TIA Selection Tool (TST) is an intelligent product catalogue for industry products. The included portfolio covers a broad scope of products:

- SIMATIC controllers
- Distributed pheripherals
- Panels
- Industry PCs
- Motors and drives
- Industrial sound technology
- Software
- Industrial communication
- Connection technology
- Power supply
- SIMATIC Ident
- Energy distribution and measurement
- MindSphere
- Accessories

Locally or in the cloud

The TST can either be used as local program on any PC (with Windows 7 or higher), or as browser-based web application in any browser. Created product lists and configurations can be saved as TST projects, either locally or in the TST cloud.

Figure 1-1: TIA Selection Tool



Configuring and ordering products

The TST has extensive functions for intuitively creating hardware and software configurations.

- Intelligent station configuration
  (only stations that are workable in reality can be configured)
- Network configuration
- Topology configuration
- Accessory configuration
- Order list
- Direct order in the Industry Mall

Note A description and tutorial videos can be found on the homepage of the TSTs.

http://www.siemens.com/tst

Exporting TST projects as AutomationML file

By configuring the stations, the network and the topology, you have already created a detailed device setup of your plant. TST offers the possibility to export configurations as “Automation Markup Language” files. AutomationML is a neutral, XML-based file format for storing and exchanging engineering data. These AML files contain the following information:

- Station configuration
- Network configuration
- Topology configuration

The AML file exported by TST can be used for TIA Portal and ECAD programs.

Importing TST projects as AML file into TIA Portal

To commission automation devices, you need to configure and program them in TIA Portal. For this, you need to repeat the configurations that you already have performed in TST.

With the release of TIA Portal V14 SP1, it is possible to import the AML files created by TST into TIA Portal projects. Thus, it is no longer necessary to perform the hardware configuration twice in both programs. This replacement allows data consistency throughout the entire engineering process.

Importing TST projects as AML file into EPLAN Electric P8

EPLAN Electric P8 is a widespread ECAD program used for the configuration, documentation and management of electrotechnical automation projects in industrial surroundings. In EPLAN Electric P8, all CAD models of Siemens automatisation components can be imported.

Note CAX downloads of Siemens automation components:

https://support.industry.siemens.com/My/ww/en/CAxOnline

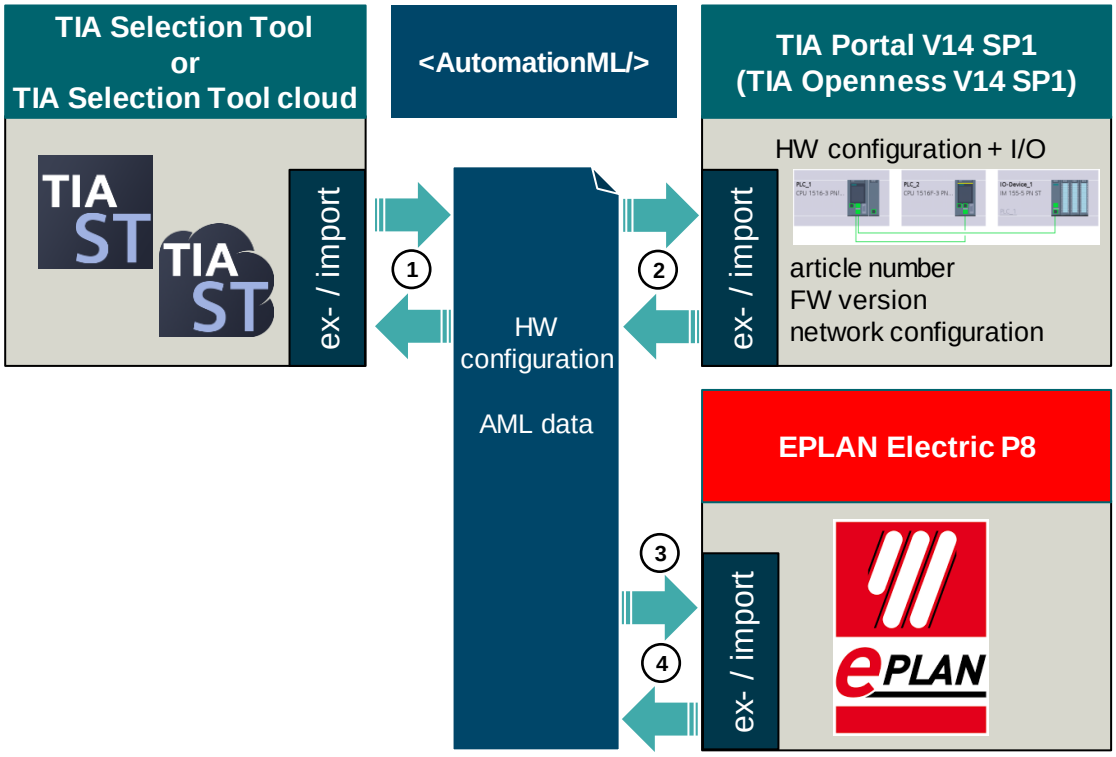
With the release of EPLAN Electric P8 2.7, it is possible to import the AML files created by TST into EPLAN projects.

1.2 Mode of operation

1.2.1 Overview of export and import options

The following figure shows all import and export options of AML files.

Figure 2-1: TST <-> AML file <-> TIA Portal V14 SP1 / EPLAN or higher



1. TST (or TST cloud) can import and export AML files.

2. TIA Portal up to V14 SP1 or higher can import and export AML files.
   - Requirement: TIA Portal Openness as of V14 SP1
   - The import and export function in TIA Portal are executed on the basis of the TIA Portal Openness function.
   - TIA Portal Openness is a free part of every TIA Portal product (e.g. STEP 7). The installation is done separately.

3. EPLAN Electric P8 2.7 can import AML files from TST.

4. EPLAN Electric P8 2.7 can export AML files.
   - Currently, the TST cannot process the export from EPLAN Electric P8. This will not be discussed further in this application example.

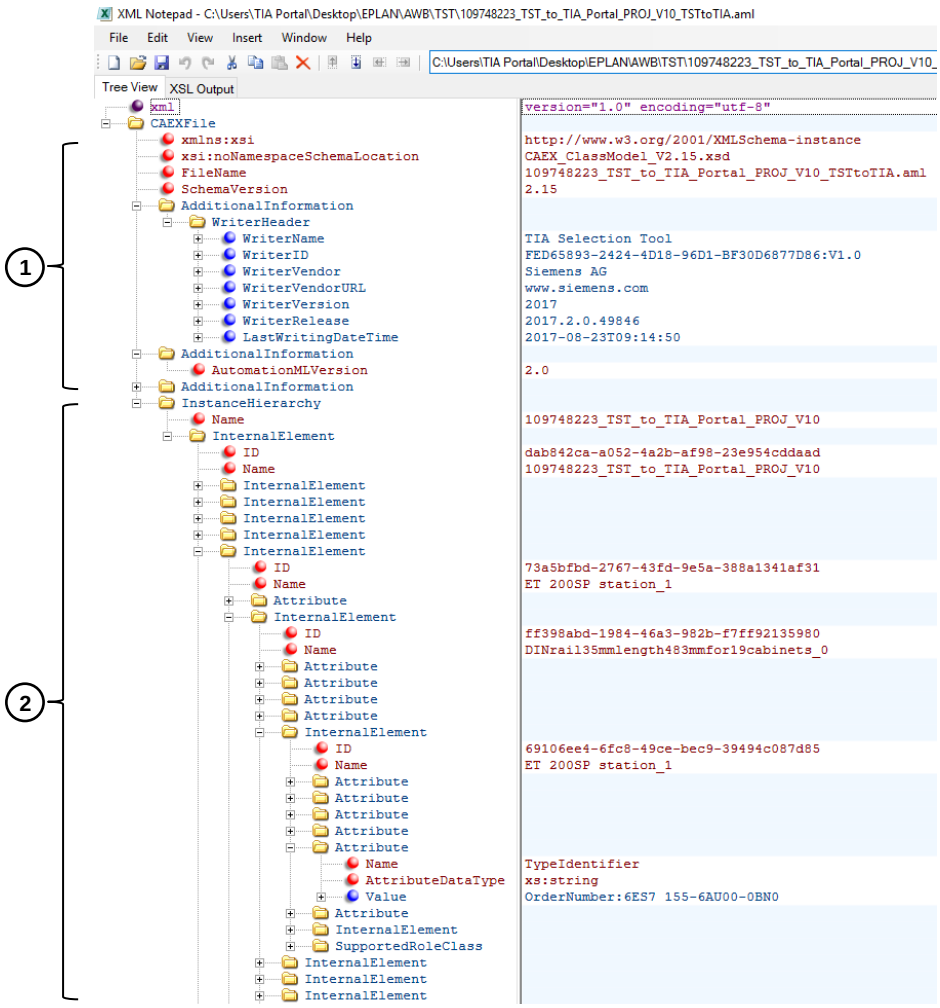
Note Information on the import and export of AML files (created with EPLAN Electric P8 2.7) in TIA Portal can be found in the following application example:

https://support.industry.siemens.com/cs/ww/en/view/109748224

1.2.2 Structure of AML file (exported from TST)

The structure of each AML file is standardized. Therefore, the structure is always the same. However, AML files can differ in content. It is a readable, XML-based file and can be opened with a text editor (e.g. XML Notepad or AutomationML Editor).

Figure 3-1: Structure of AML file (exported from TST)



1. Metadata
   - AML version
   - Created using TST, TIA Portal…
   - Manufacturer
   - Date
2. Hierarchically structured HW configuration
   - Article number (with version)
   - Station configuration,
   - Network configuration,
   - Topology configuration

1.2.3 Different AML files for TIA Portal or ECAD programs

With regards to the export of AML files, the TST distinguishes between two different export types:

- TIA Portal
- ECAD

Figure 4-1: TST AML file export

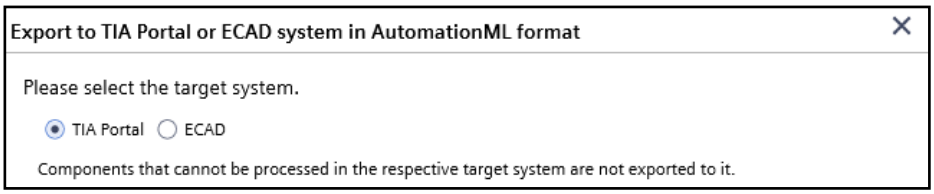


Table 1-1: Differences of the AML files

TIA Portal	ECAD
Contains **only** product information that can be processed by TIA Portal. • Article numbers • Station configuration • Network configuration • Topology configuration	Contains all product information that are contained in the TST project. • Article numbers • Station configuration • Network configuration • Topology configuration Further information: • Article numbers of accessories - Memory Cards - Front plugs of modules - Network cable - etc.

1.3 Components used

This application example was created with the following software components:

Table 1-5: Engineering PC/PG

Component	Number	Article number	Note
STEP 7 Professional V14 SP1 Update 2	1	6ES7822-1AE04-0YA5 or 6ES7822-1AA04-0YA5	Download DVD
TIA Openness V14 SP1 Update 2	1	-	Part of TIA Portal products Separate installation
TIA Selection Tool V2017.3.0.56890 or TIA Selection Tool cloud	1	-	Download http://www.siemens.com/tst http://www.siemens.com/tstcloud
EPLAN Electric P8 2.7	1	-	http://www.eplan.de
MS SQL Server 2014 Express	1	-	https://www.microsoft.com Product is used as article database for EPLAN Electric P8. Alternative: MS Access file

This application example consists of the following components:

Table 2-1: Download

Component	File name	Note
TIA Selection Tool example project TIA Selection Tool	109748223_TST_to_TIA_Portal_PROJ_v10.zip	-
Documentation	109748223_TST_to_TIA_Portal_DOC_v10_en.pdf	-

2 Engineering

2.1 Restrictions on AML export with TST

In general, only those products are supported for the import into TIA Portal that are contained in the HW catalogue of the TIA Portal. The following products are currently not supported:

- HMI devices
- Drives
- Server module (ET 200SP stations)
  are added automatically by TIA Portal upon compiling the project.

Note A list of the unsupported products can be found at the following entry:

https://support.industry.siemens.com/cs/mdm/109477163?c=100378605579&lc=en-WW

2.2 Application case: Importing the TST project into TIA Portal

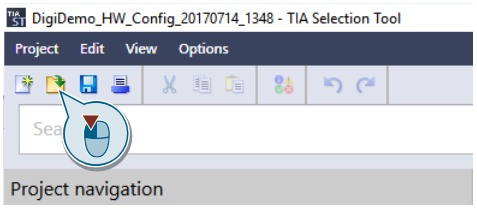
2.2.1 Exporting the AML file from the TST project

To import the TST project as AML file for TIA Portal, proceed as follows:

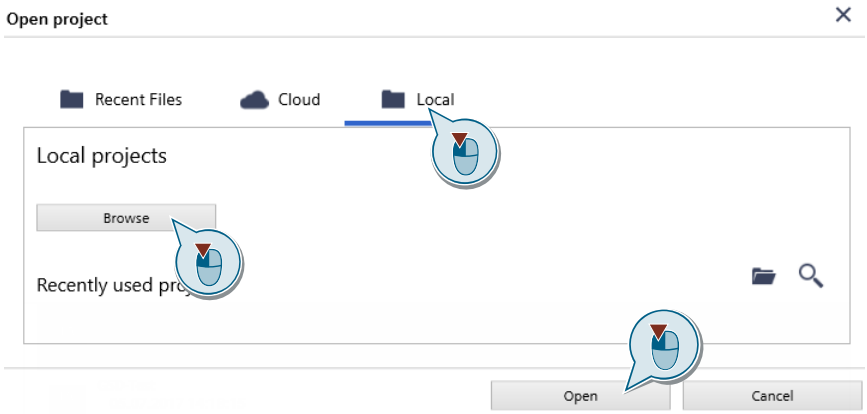
1. Open the TIA Selection Tool.

2. Go to the project view.

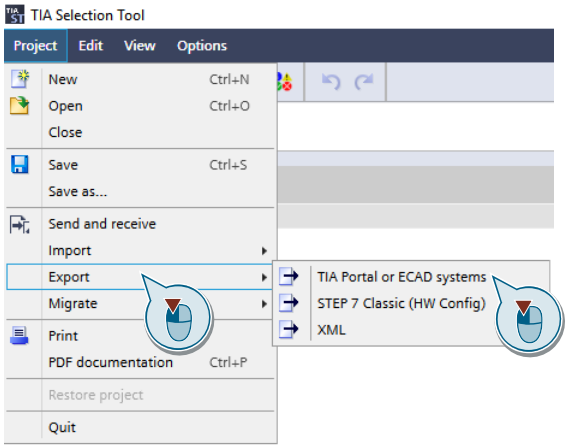
3. Click the “Open project” button.



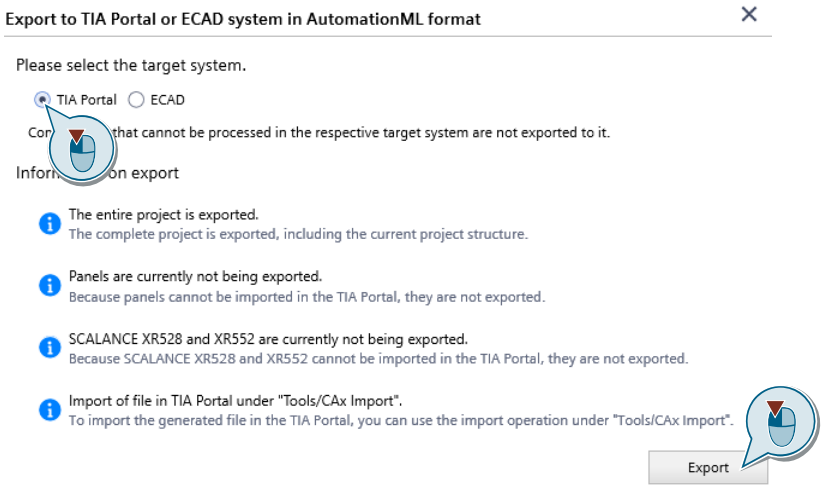
4. Click “Local”, then on “Browse” and navigate to the TST example project. Confirm the dialog with “Open”.



5. In the menu bar, click on “Project > Export > TIA Portal or ECAD systems”.



6. In the dialog, select “TIA Portal” and click on the “Export” button.



7. Define the path and file name.

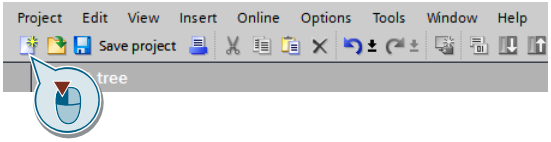
2.2.2 Importing the AML file into the TIA Portal project

To import the TST project as AML file into the TIA Portal, proceed as follows:

1. Open the TIA Portal.

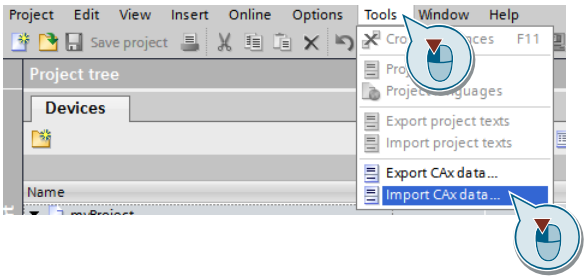
2. Go to the project view.

3. Click the “New project” button.



4. Define the path and file name. Click on the "Create" button.

5. Click on “Tools > Import CAx data” in the menu bar.

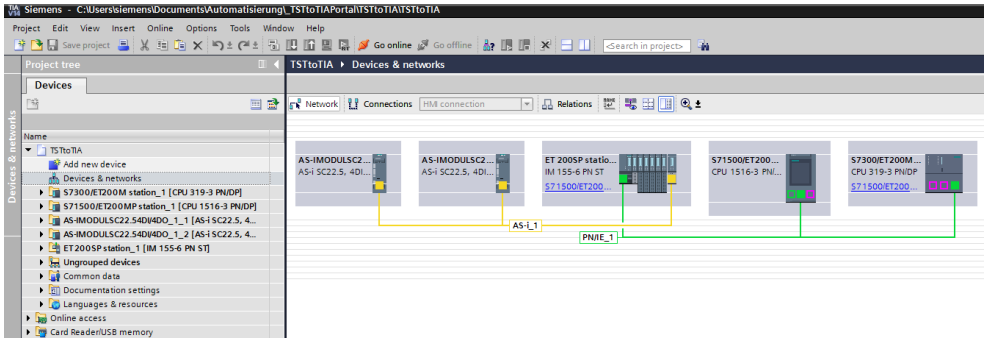


6. Navigate to the AML file exported by TST and click “Open”.

Result

TIA Portal imports the TST project with all device, network and topology configurations.

Figure 1-2: TIA Portal project



Note If you compile the project directly after the import, alarms and errors may occur. This is caused by several parameters in the hardware configuration that do not exist in TST.

2.3 Application case: Importing the TST project into EPLAN Electric P8

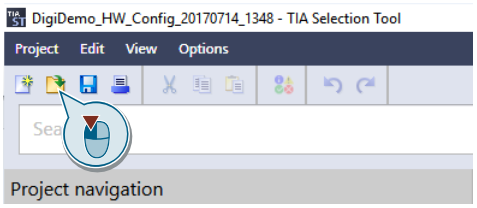
2.3.1 Exporting the AML file from the TST project

To import the TST project as AML file for EPLAN Electric P8, proceed as follows:

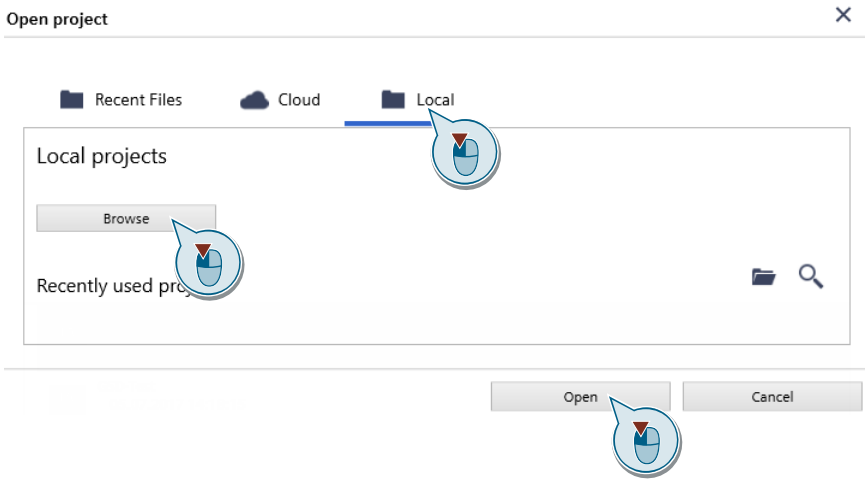
1. Open the TIA Selection Tool.

2. Go to the project view.

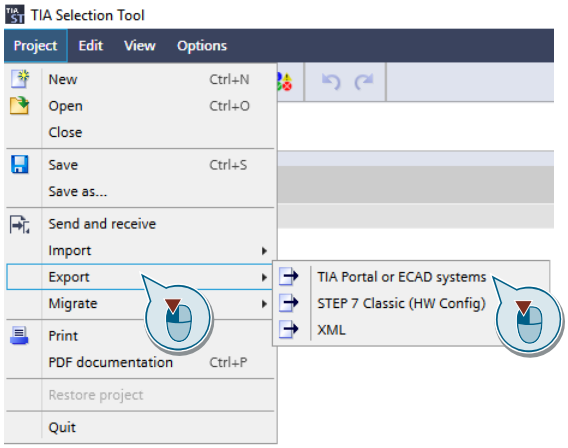
3. Click the “Open project” button.



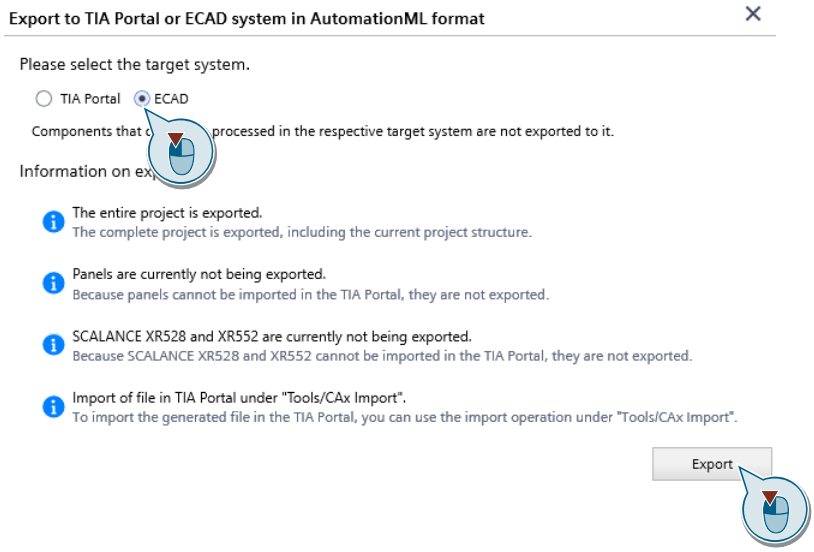
4. Click “Local”, then on “Browse” and navigate to the TST example project. Confirm the dialog with “Open”.



5. In the menu bar, click on “Project > Export > TIA Portal or ECAD systems”.



6. In the dialog, select “ECAD” and click on the “Export” button.



7. Define the path and file name.

2.3.2 Downloading CAx macros with TST and CAx Download Manager

EPLAN Electric P8 uses an MS SQL or MS Access database to manage all articles and their respective CAx macros. To create the circuit diagrams after the import of the AML files, you need the respective CAx macros.

Prior to integrating the device configuration (which has been created with TST and exported as AML) into EPLAN Electric P8, make sure that all CAx macros of the devices are present in the EPLAN Electric P8 database.

Via the TST, you can trigger the download of all devices of the corresponding TST project. This download is done via the CAx Download Manager in the Online Support.

https://support.industry.siemens.com/My/ww/en/CAxOnline

Note

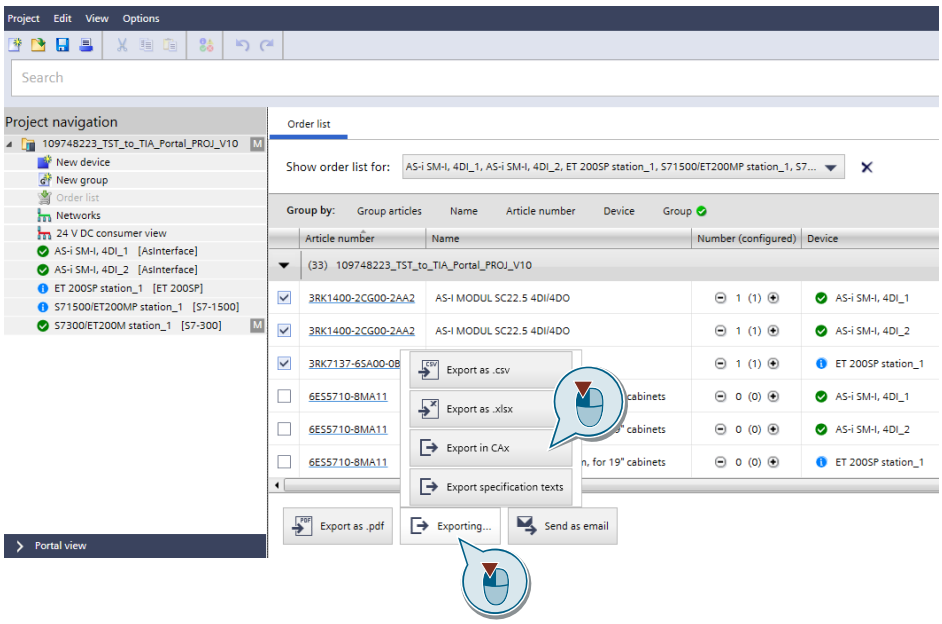
In case there are bundles like the ET 200SP (6ES7155-6AA00-0BN0) in the TST project, you need to manually download the EPLAN macros of each article. The CAx export currently only exports the bundle article numbers. The individual articles are required for further processing in EPLAN.

- Interface Module (6ES7155-6AU00-0BN0)
- Server Module (6ES7193-6PA00-0AA0)
- Bus Adapter BA 2xRJ45 (6ES7193-6AR00-0AA0)

The Siemens Image Database can be found under the following link. Here, product photos, product icons and CAx data can be downloaded:
https://www.automation.siemens.com/bilddb

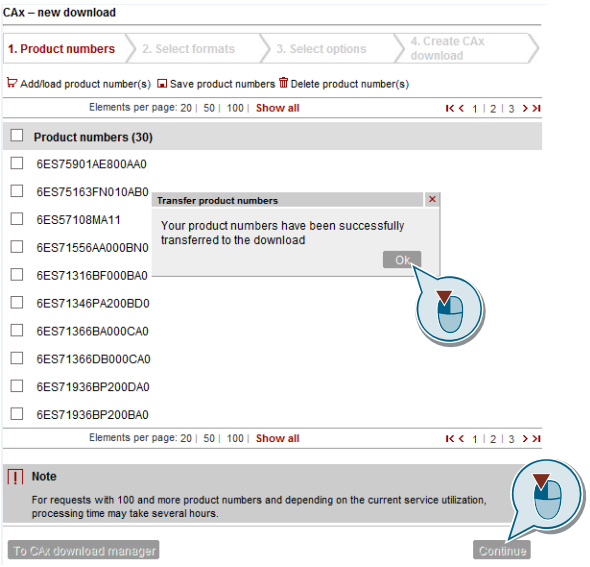
1. Open the “Order list” in the project navigation.

2. Click on the “Exporting” button.

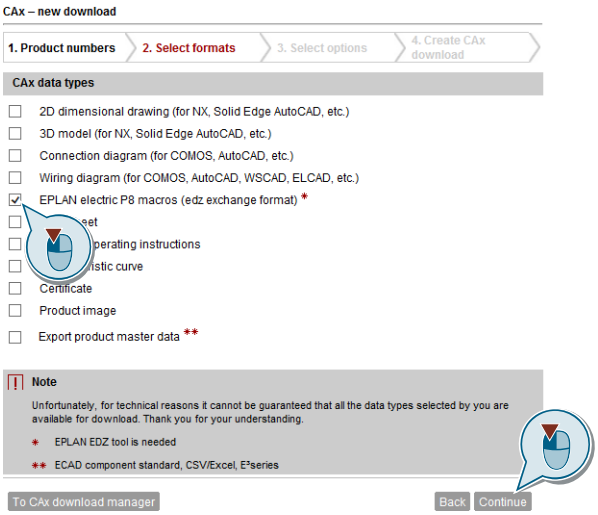


3. Your browser opens. Log into the CAx Download Manager or registrate as new user.

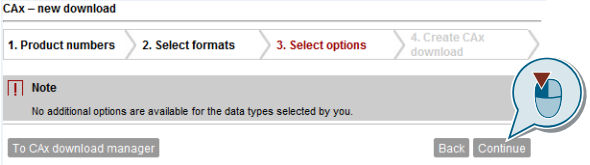
4. The CAx Download Manager displays the transferred devices. Confirm the dialog with “OK”. Click “Continue”.



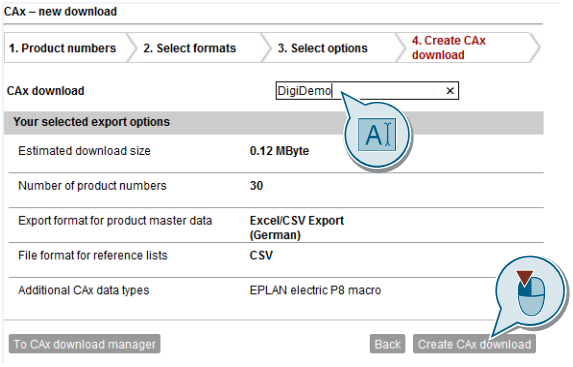
5. Select “EPLAN Electric P8 macros” and click on “Continue”.



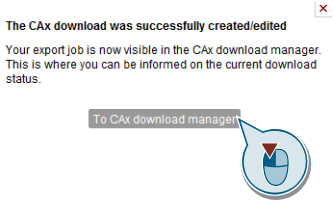
6. Confirm the dialog with “Continue”.



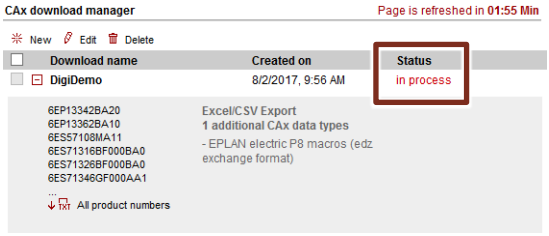
7. Define a name for the download and click on the “Create CAx download” button.



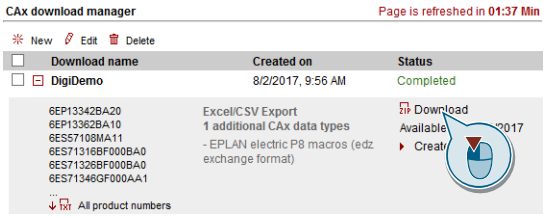
8. The final dialog informs you that the CAx download has been successfully created. Click on “To CAx download manager”.



9. The current status of the CAx download is displayed.



10. As soon as the download is ready, click on “Download”.



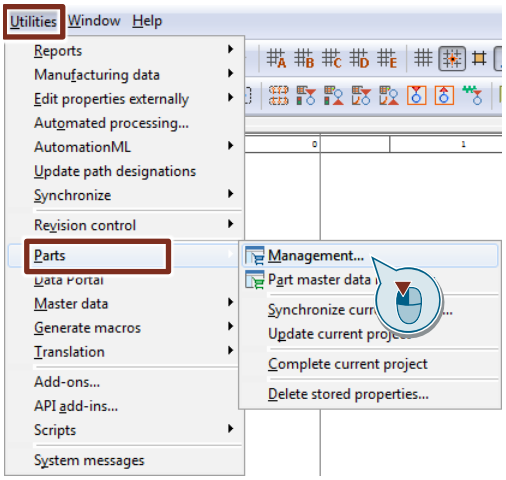
11. Select the storage location, save and unzip the zip file.

12. The CAx data can now be integrated into EPLAN Electric P8.

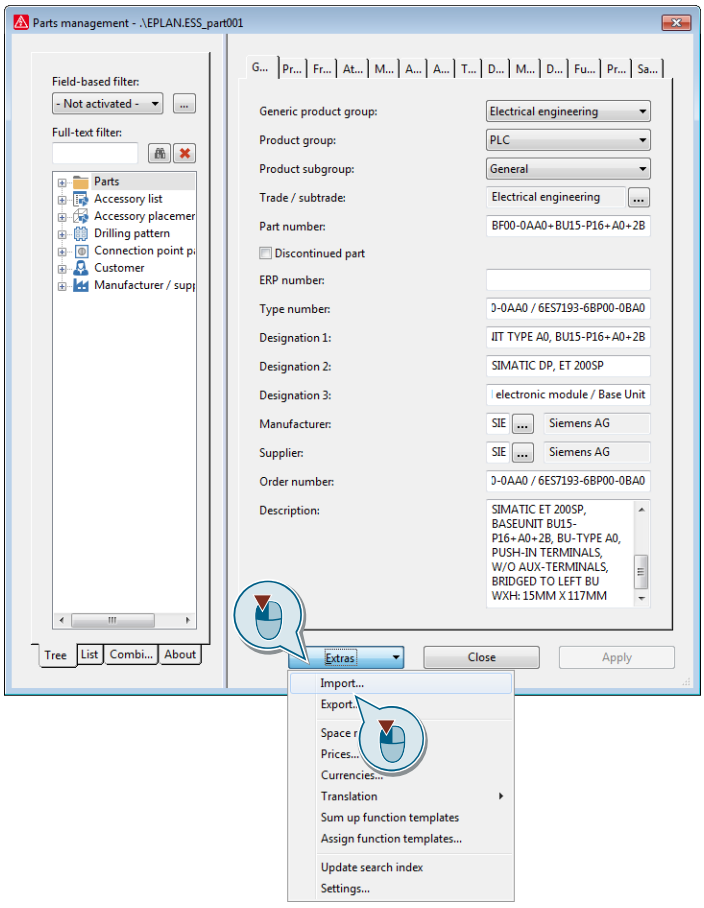
2.3.3 Integrating CAx macros into EPLAN Electric P8

To integrate the downloaded CAx macros into EPLAN Electric P8, proceed as follows.

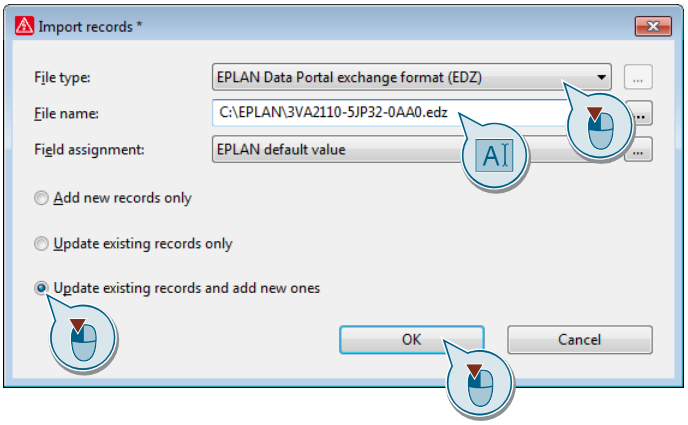
1. Click on “Utilities > Parts > Management...” in the menu bar.



2. Click on “Extras > Import...”.



3. In the dialog, set the following.
   - Select “EPLAN Data Portal exchange format (EDZ)” under “File type”.
   - Under “File name”, navigate to the macros to be imported
   - Select “Update existing records and add new ones”.
   - Confirm the dialog with “OK”.



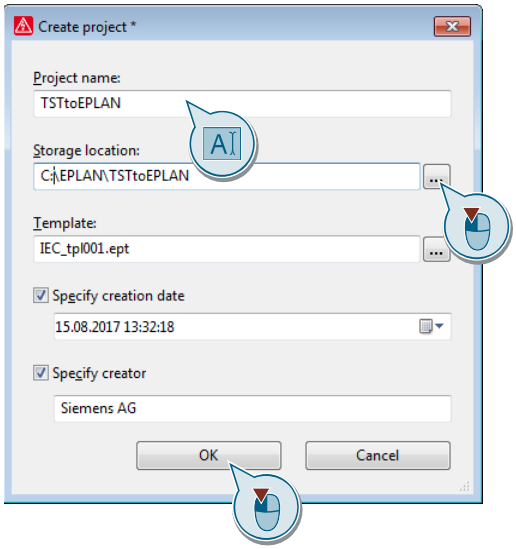
4. Close the following dialog with "Close”.

2.3.4 Importing the AML file into the EPLAN project

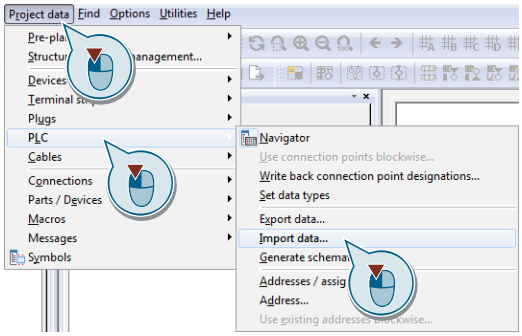
To import a TST project as AML file into EPLAN, proceed as follows.

1. Open EPLAN Electric P8.

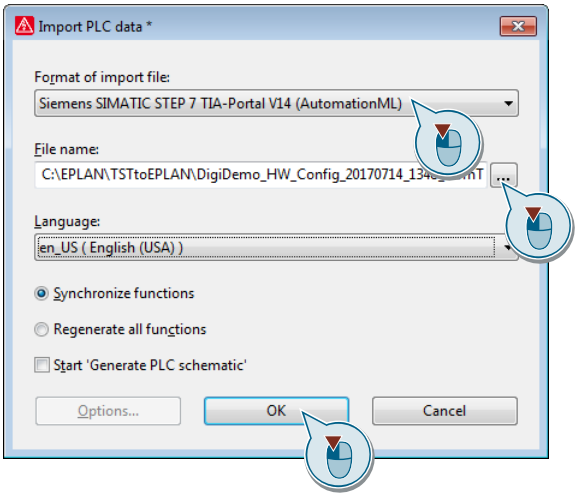
2. Create a new project and apply the default settings via “OK”.



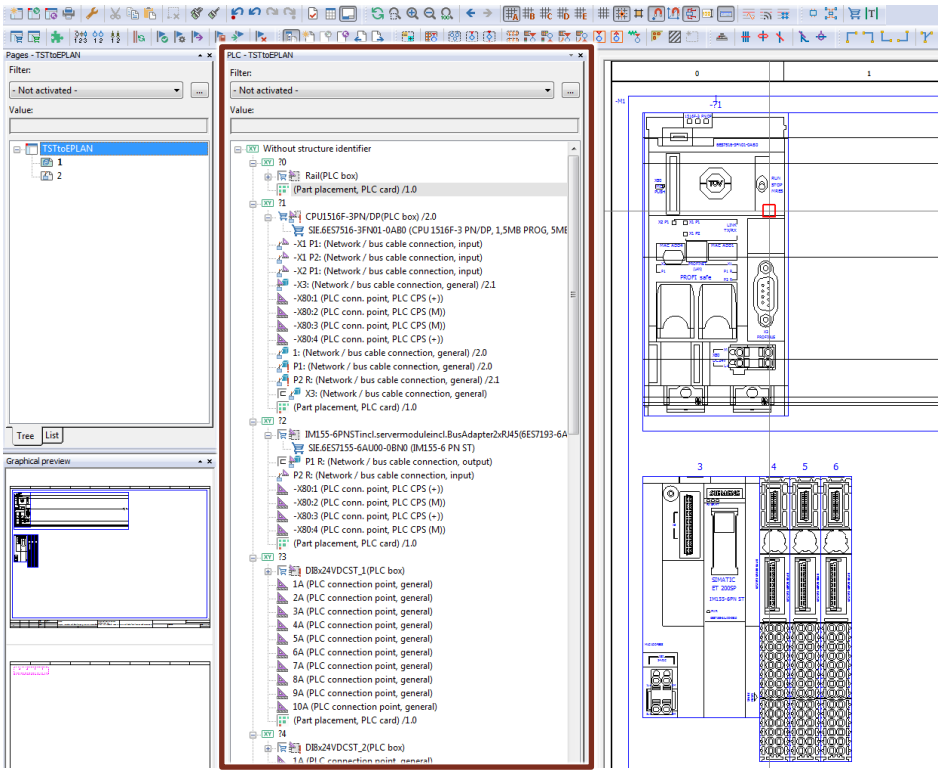
3. In the menu bar, select “Project data > PLC > Import data”.



4. In the dialog, set the following.
   - Select “Siemens SIMATIC STEP 7 TIA Portal V14 (AutomationML)” under “Format of export file”.
   - Under “File name”, navigate to the AML file exported by TST.
   - Click "OK".



5. Open the PLC navigator under “Product data > PLC > Navigator”. Here, you can find all imported devices from the AML file.



6. The import is completed and you can proceed with the creation of the circuit diagrams.

3 Annex

3.1 Service & Support

Industry Online Support

Do you have any questions or need support?

Siemens Industry Online Support offers access to our entire service and support know-how as well as to our services.

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- Spare Parts Services
- Repair Services
- On Site and Maintenance Services
- Retrofit and Modernization Services
- Service Programs and Agreements

Detailed information on our service offer is available in the Service Catalog:
https://support.industry.siemens.com/cs/sc

Industry Online Support app

Thanks to the "Siemens Industry Online Support" app, you will get optimum support even when you are on the move. The app is available for Apple iOS, Android and Windows Phone.
https://support.industry.siemens.com/cs/ww/en/sc/2067

3.2 Links and literature

Table 1-2

No.	Topic
\1\	Siemens Industry Online Support https://support.industry.siemens.com
\2\	Link to the entry page of the application example https://support.industry.siemens.com/cs/ww/en/view/109748223
\3\	TIA Selection Tool http://www.siemens.com/tst
\4\	TST cloud http://www.siemens.com/tstcloud
\5\	EPLAN Electric P8 2.7 http://www.eplan.de
\6\	MS SQL Server 2014 Express https://www.microsoft.com/
\7\	CAX downloads of Siemens automation components: https://support.industry.siemens.com/My/ww/en/CAxOnline
\8\	AutomationML Editor https://www.automationml.org
\9\	Automating SIMATIC projects via scripts Chapter “Export/Import > Import/Export hardware data” https://support.industry.siemens.com/cs/ww/en/view/109477163/100320415755

3.3 Change documentation

Table 3-4

Version	Date	Modification
V1.0	11/2017	First version