

## Perform software update

### Agile Production Simulation 24V (APS, art. no. 569289)

This document describes how to carry out a software update for the "Agile Production Simulation 24V" (item no. 569289). Please note that it may not always be necessary to update all components. Which components are affected by the update depends on the update.

APS software versions and release notes can be viewed under the following link:

[www.fischertechnik.de/agile-production-simulation/update-blog](http://www.fischertechnik.de/agile-production-simulation/update-blog)

As the software is distributed across various components in APS, the components affected by the update must be updated manually. A special software tool is required for the respective controller to update the software. This tool must be installed.

The programs can be downloaded from GitHub:

<https://github.com/fischertechnik/Agile-Production-Simulation-24V>

The following tools are required to update the respective controllers:

Controller	Number in APS	Software tool	Required components
Central Control Unit (CCU), Raspberry Pi 4B	1	<b>USBImager</b> (recommended from <a href="https://bztsrc.gitlab.io/usbimager/">https://bztsrc.gitlab.io/usbimager/</a> , Windows, MacOS and Linux)	Computer  microSD card (32 GB or larger)  microSD card reader/writer
PLC Siemens SIMATIC S7-1200	5	Siemens <b>TIA Portal</b> (Windows)	Computer
TXT 4.0 Controller	4	fischertechnik <b>ROBO Pro Coding</b> App (Windows, MacOS, Linux, IOS, Android)	Computer or tablet

Please follow the instructions in the respective chapters step by step. If you have any questions, please contact [fischertechnik-technik@fischer.de](mailto:fischertechnik-technik@fischer.de).

## Software update central control unit (CCU)

The microSD card in the Raspberry Pi 4B must be reflashed for the update process. You can either use your own or the existing microSD card with at least 32GB or more. If the existing microSD card is to be overwritten, first remove it as described at the end of the chapter.

Please carry out the following steps on a computer:

### 1. Download USBImager:

Visit the official USBImager website at <https://bztsrc.gitlab.io/usbimager/>

Download the version of USBImager that is compatible with your operating system (Windows, macOS or Linux).

### 2. Install USBImager:

USBImager is normally provided as a portable application, i.e. no installation is required. Simply extract the downloaded archive and run the executable file.

### 3. Prepare your microSD card:

Insert the microSD card into your computer using a card reader.

Make sure that you back up all important data on the microSD card, as all existing data on the card will be deleted during this process.

### 4. Start USBImager:

Open the USBImager application that you have downloaded and extracted.

### 5. Select the Raspberry Pi image file:

Click on the "Browse" button to open a file dialog.

Navigate to the location of your Raspberry Pi image file and select it.

The current image can be downloaded from GitHub:

<https://github.com/fischertechnik/Agile-Production-Simulation-24V?tab=readme-ov-file#raspberry-pi-image>

## **6. Select the target drive:**

In this step, select your microSD card from the list of available drives.

Make sure that you have selected the correct drive, as selecting the wrong drive could result in data being deleted on another device.

## **7. Write the image:**

Click on the "Write" button to write the Raspberry Pi image to the microSD card.

Wait until the process is complete. This may take a few minutes, depending on the size of the image and the speed of your microSD card.

## **8. Safely eject the microSD card**

As soon as the write process is complete, close USBImager.

Safely eject the microSD card from your computer.

## **9. Insert the microSD card into your Raspberry Pi**

Remove the microSD card from the card reader and insert it into the microSD card slot of your Raspberry Pi.

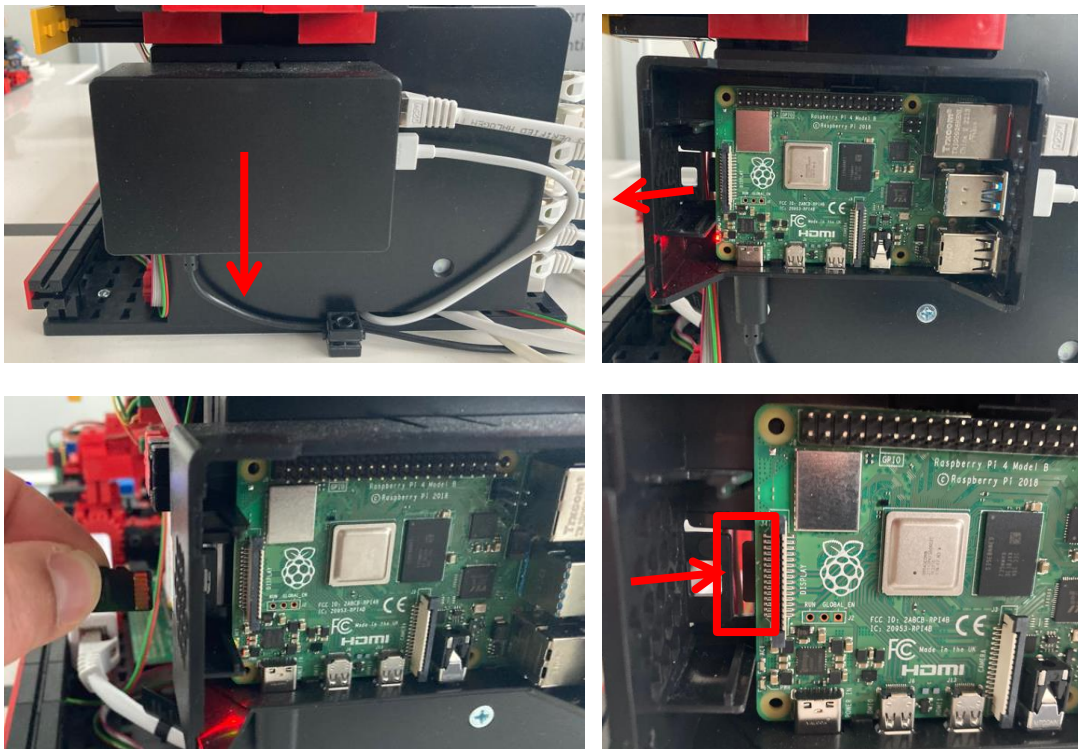
At the end of the chapter, it is shown how the microSD card can be reinstalled in the central control unit.

## **10. Switch on your Raspberry Pi**

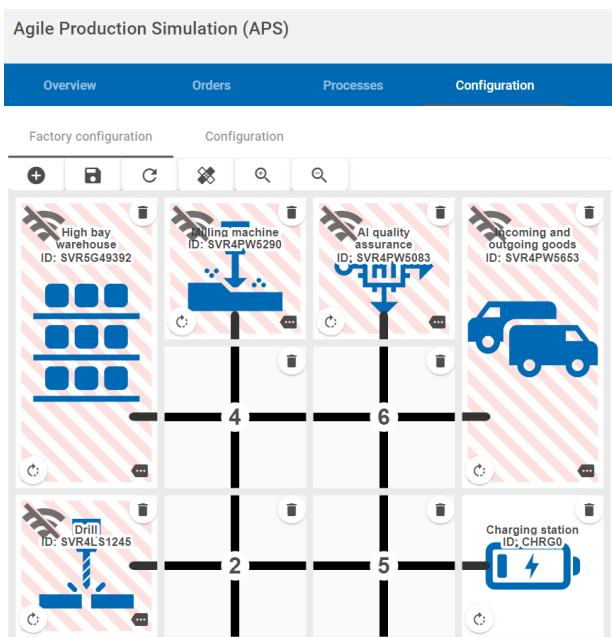
Connect the power supply unit in the APS.

Your Raspberry Pi should boot from the microSD card that you have just prepared.


The microSD card can be installed and removed as follows:



Please note that after reloading the microSD card, all settings in the APS dashboard <http://192.168.0.100/> will be reset. If you have made changes under "**Configuration**", these must be carried out again.



To do this, you can restore the standard layout in the APS as follows:

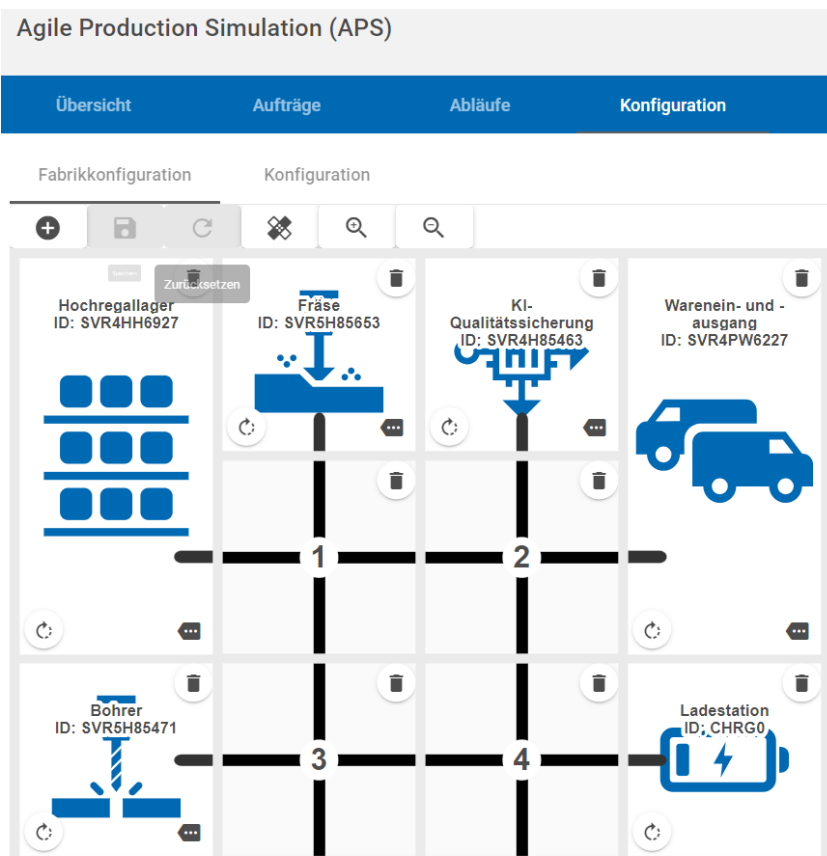
 Reset to the standard layout

Do you really want to reset the factory to the standard layout?

Yes


No

The layout in the dashboard should then look like this:



Please reset the APS afterwards:



 Reset factory


Do you really want to reset the factory?

Also empty the stock?

Yes

No





































After starting the dashboard for the first time, it may be necessary to delete the unrecognized modules from the module view:


Endgültig löschen

Agile Production Simulation (APS)

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**Moduleübersicht**






















ID	Name	Verbunden	Verfügbarkeitsstatus	Konfiguriert
 CHR00	Ladestation		Verfügbar	
 SVR5G49392	Hochregallager		Blockiert	 <span style="background-color: #e74c3c; color: white; padding: 2px 5px; border-radius: 3px;">Löschen</span>
 SVR4PW5653	Warenein- und -ausgang		Blockiert	 <span style="background-color: #e74c3c; color: white; padding: 2px 5px; border-radius: 3px;">Löschen</span>
 SVR4PW5083	KI-Qualitätssicherung		Blockiert	 <span style="background-color: #e74c3c; color: white; padding: 2px 5px; border-radius: 3px;">Löschen</span>
 SVR4LS1245	Bohrer		Blockiert	 <span style="background-color: #e74c3c; color: white; padding: 2px 5px; border-radius: 3px;">Löschen</span>
 SVR4PW5290	Fräse		Blockiert	 <span style="background-color: #e74c3c; color: white; padding: 2px 5px; border-radius: 3px;">Löschen</span>
 CHR01	Ladestation		Verfügbar	 <span style="background-color: #e74c3c; color: white; padding: 2px 5px; border-radius: 3px;">Löschen</span>
 SVR5H85653	Fräse		Verfügbar	
 SVR5H85471	Bohrer		Verfügbar	
 SVR4H85463	KI-Qualitätssicherung		Verfügbar	 <span style="background-color: #ccc; padding: 2px 5px; border-radius: 3px;">Kalibrieren</span>
 SVR4HH6927	Hochregallager		Verfügbar	 <span style="background-color: #ccc; padding: 2px 5px; border-radius: 3px;">Kalibrieren</span>
 SVR4PW6227	Warenein- und -ausgang		Verfügbar	 <span style="background-color: #ccc; padding: 2px 5px; border-radius: 3px;">Kalibrieren</span>

At the end, all modules should be available:

Agile Production Simulation (APS)

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**Moduleübersicht**

ID	Name	Verbunden	Verfügbarkeitsstatus	Konfiguriert
 CHR00	Ladestation		Verfügbar	
 SVR5H85653	Fräse		Verfügbar	
 SVR5H85471	Bohrer		Verfügbar	
 SVR4H85463	KI-Qualitätssicherung		Verfügbar	 <span style="background-color: #ccc; padding: 2px 5px; border-radius: 3px;">Kalibrieren</span>
 SVR4HH6927	Hochregallager		Verfügbar	 <span style="background-color: #ccc; padding: 2px 5px; border-radius: 3px;">Kalibrieren</span>
 SVR4PW6227	Warenein- und -ausgang		Verfügbar	 <span style="background-color: #ccc; padding: 2px 5px; border-radius: 3px;">Kalibrieren</span>
 nik4	Fahrerloses Transportsystem		Verfügbar	 <span style="background-color: #ccc; padding: 2px 5px; border-radius: 3px;">Docke an DPS</span>

Finally, please restart the APS and check the version of the central control unit via the Info button.

## PLC software update

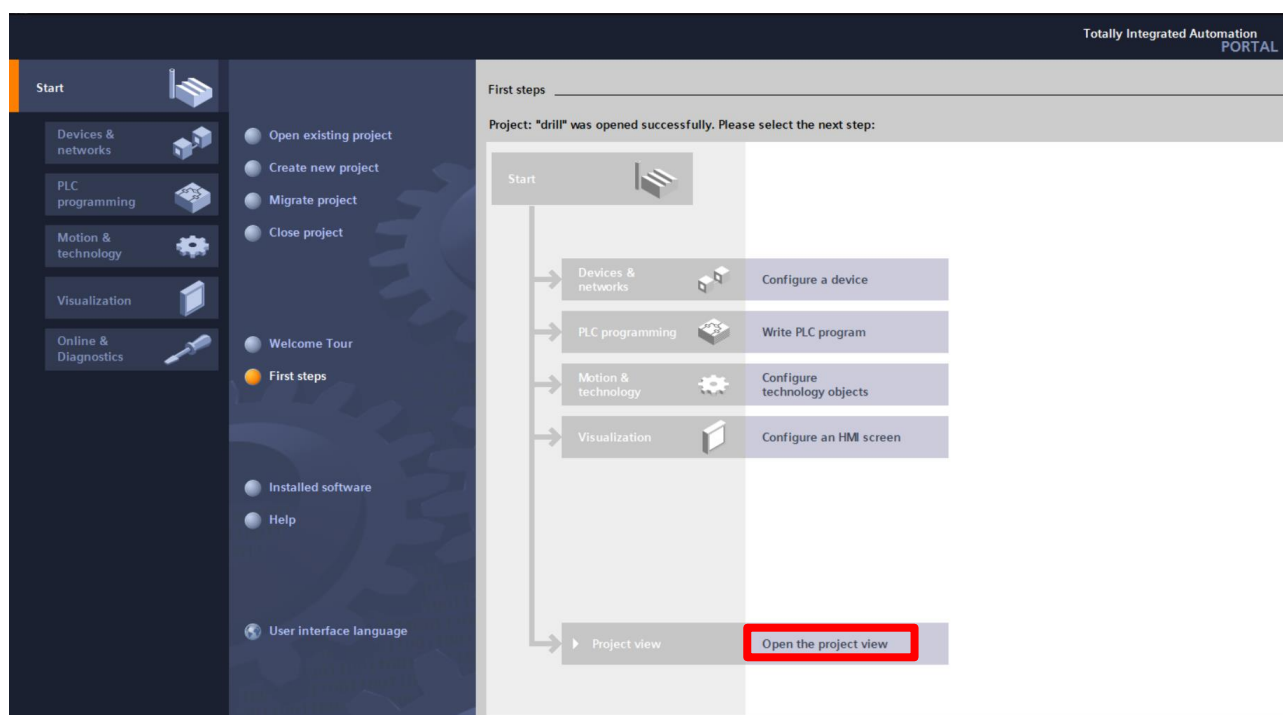
The Siemens SIMATIC S7-1200 PLC controllers are updated with the TIA Portal software. If TIA Portal is not yet installed, please install this software first.

The PLC programs can be downloaded from GitHub via the following link:

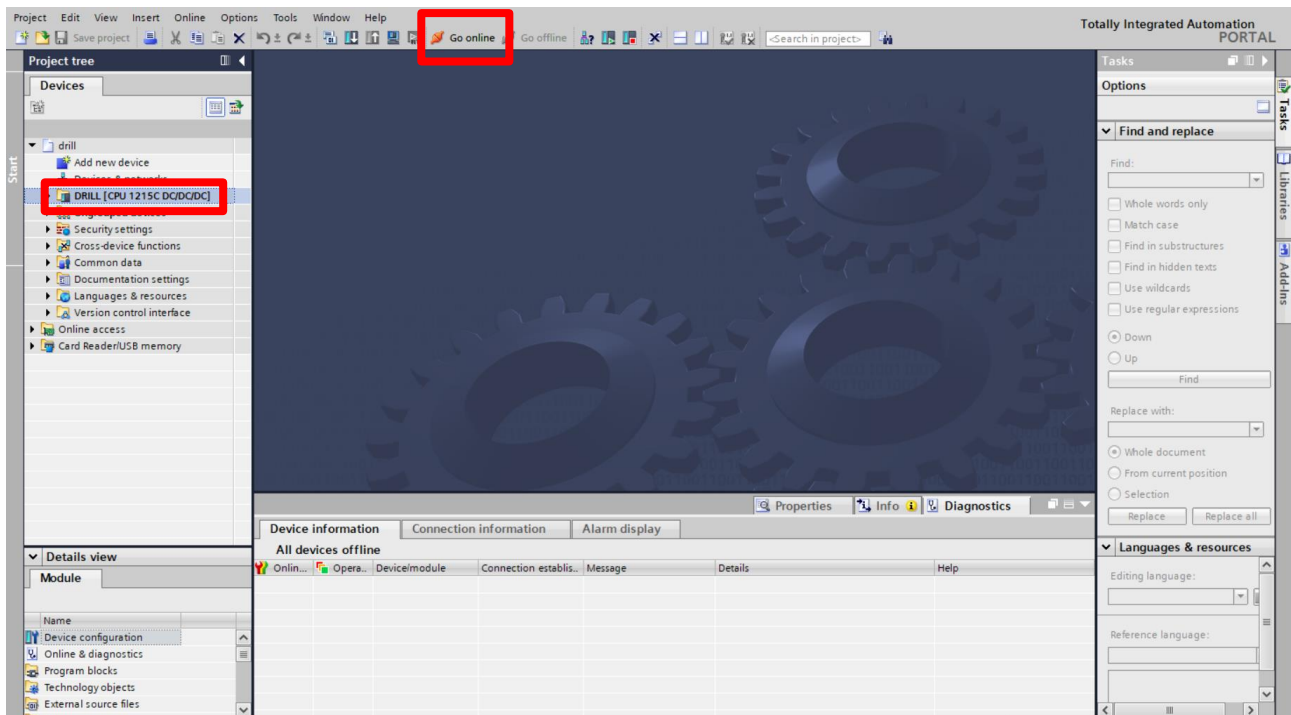
[https://github.com/fischertechnik/Agile-Production-Simulation-24V/tree/main/PLC-programs/S7\\_1200\\_TIAv18](https://github.com/fischertechnik/Agile-Production-Simulation-24V/tree/main/PLC-programs/S7_1200_TIAv18)

To update the PLC software, start the TIA Portal and connect to the respective PLC that is to be updated.

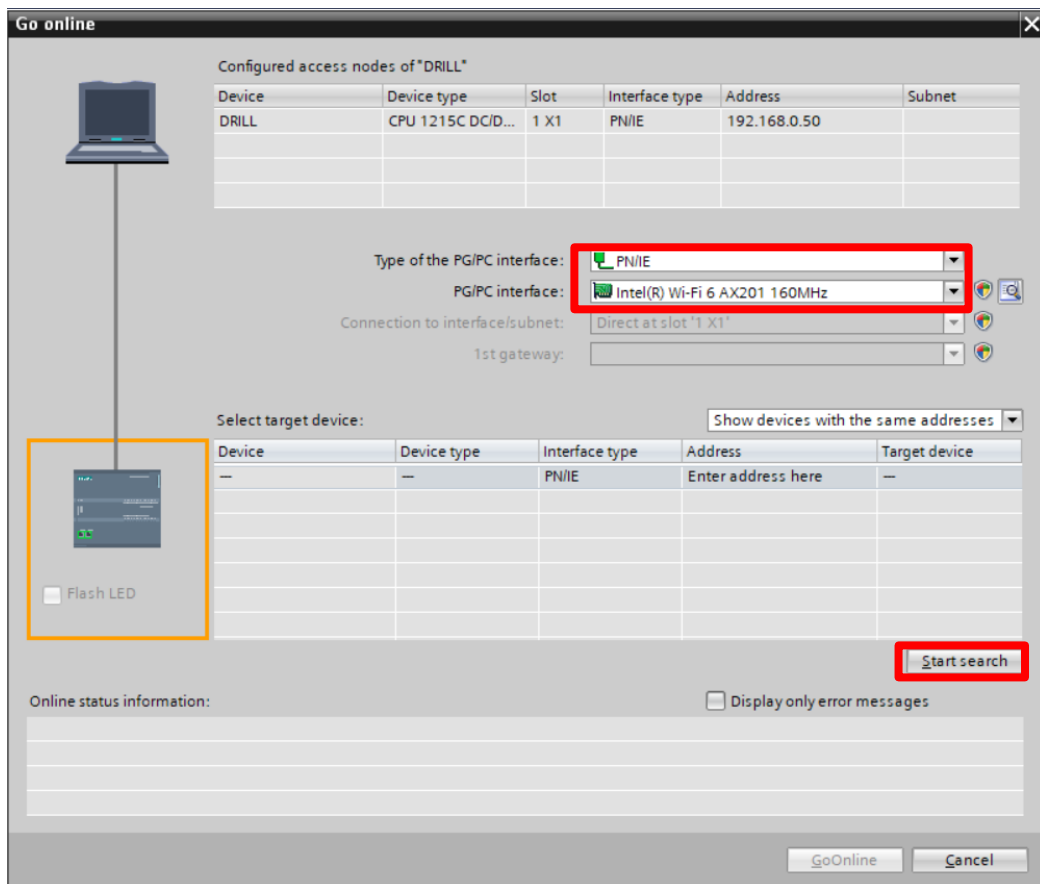
Open the project file for the respective module in the Siemens TIA Portal:



Select the PLC program and connect to the PLC:

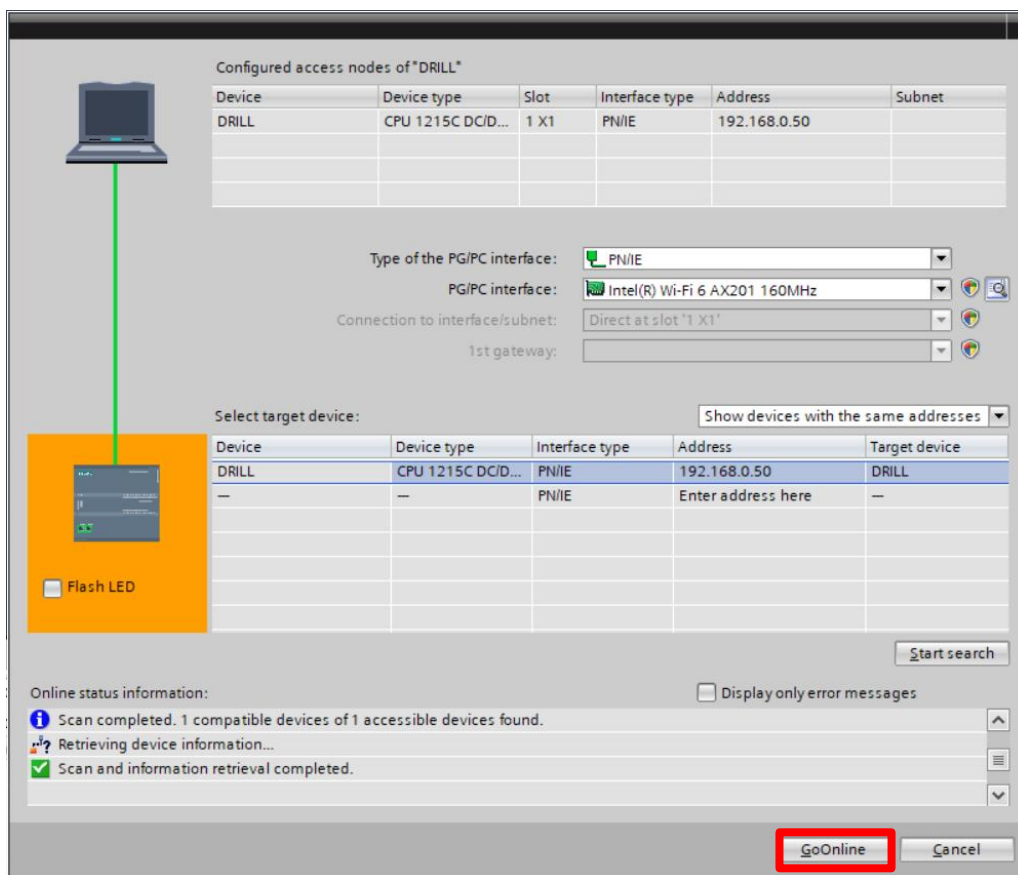


To do this, you must select the network and search for devices:





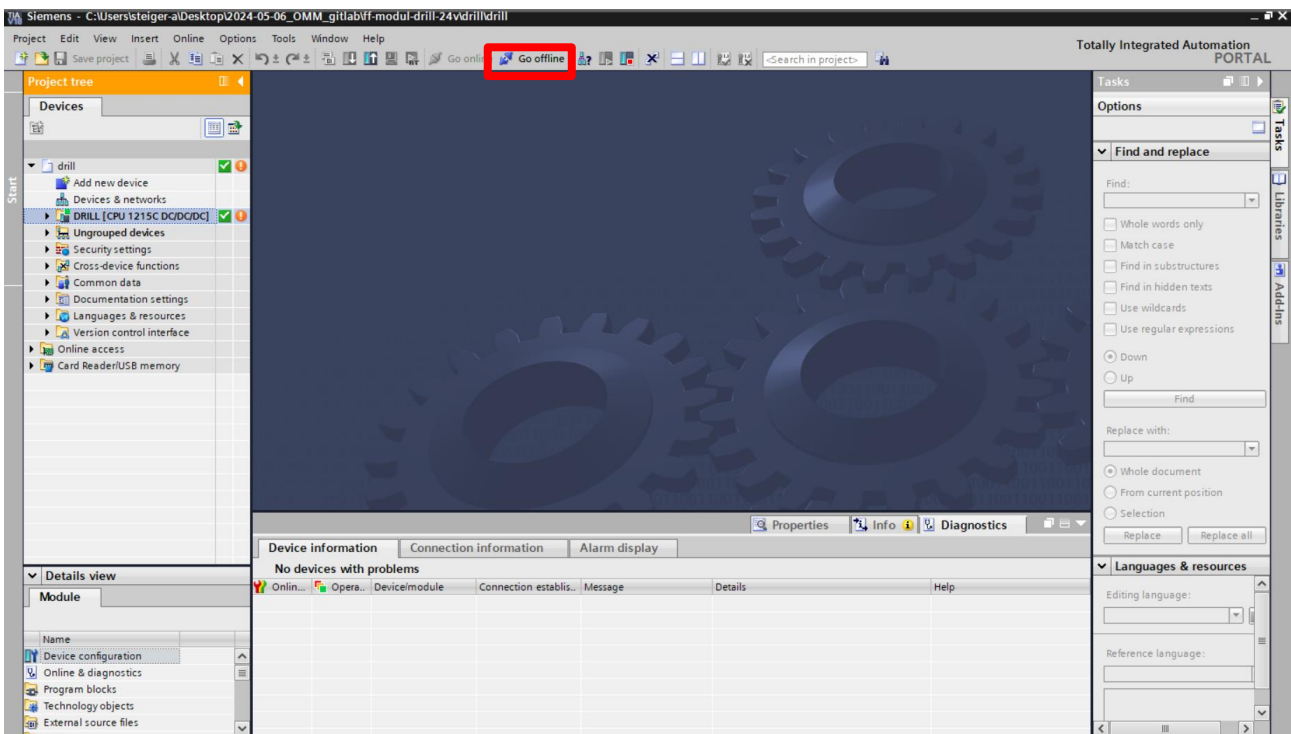
If the appropriate PLC has been found in the network, a connection can be established with the PLC using "GoOnline":



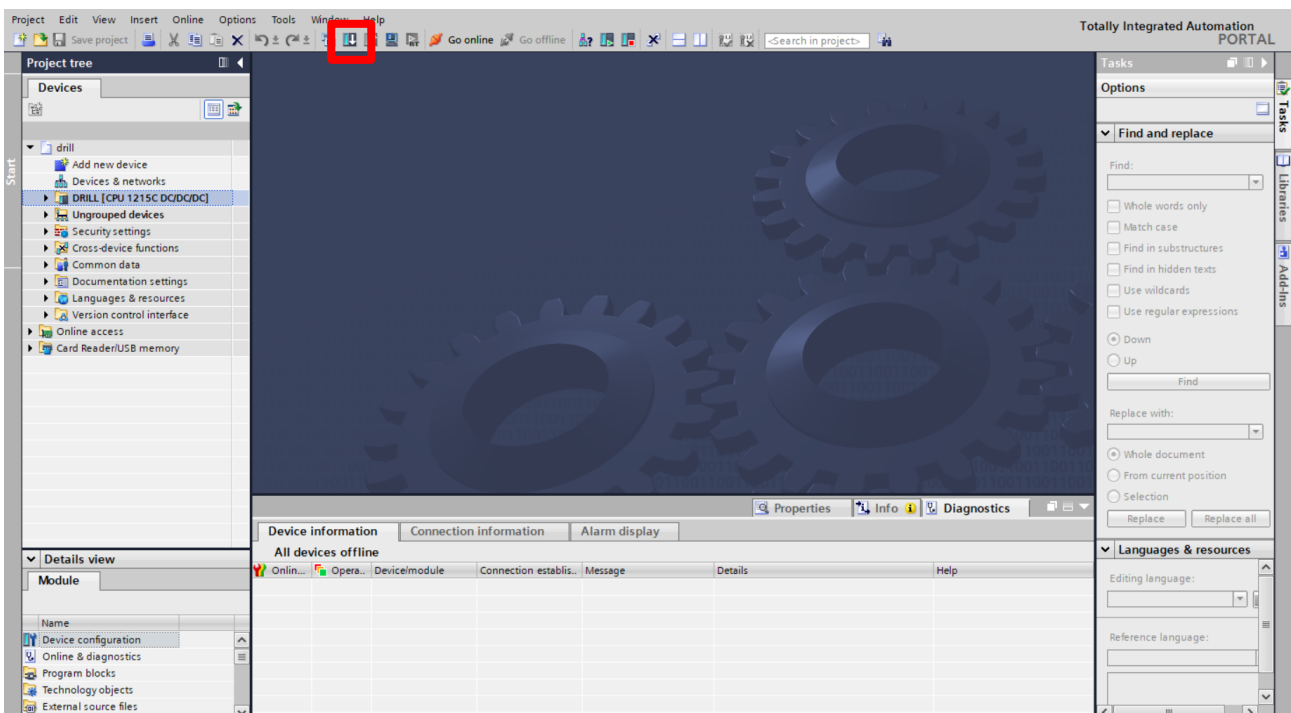
If the installed PLC program differs from the PLC program opened in the TIA Portal, you will see an orange exclamation mark. You should then carry out an update.

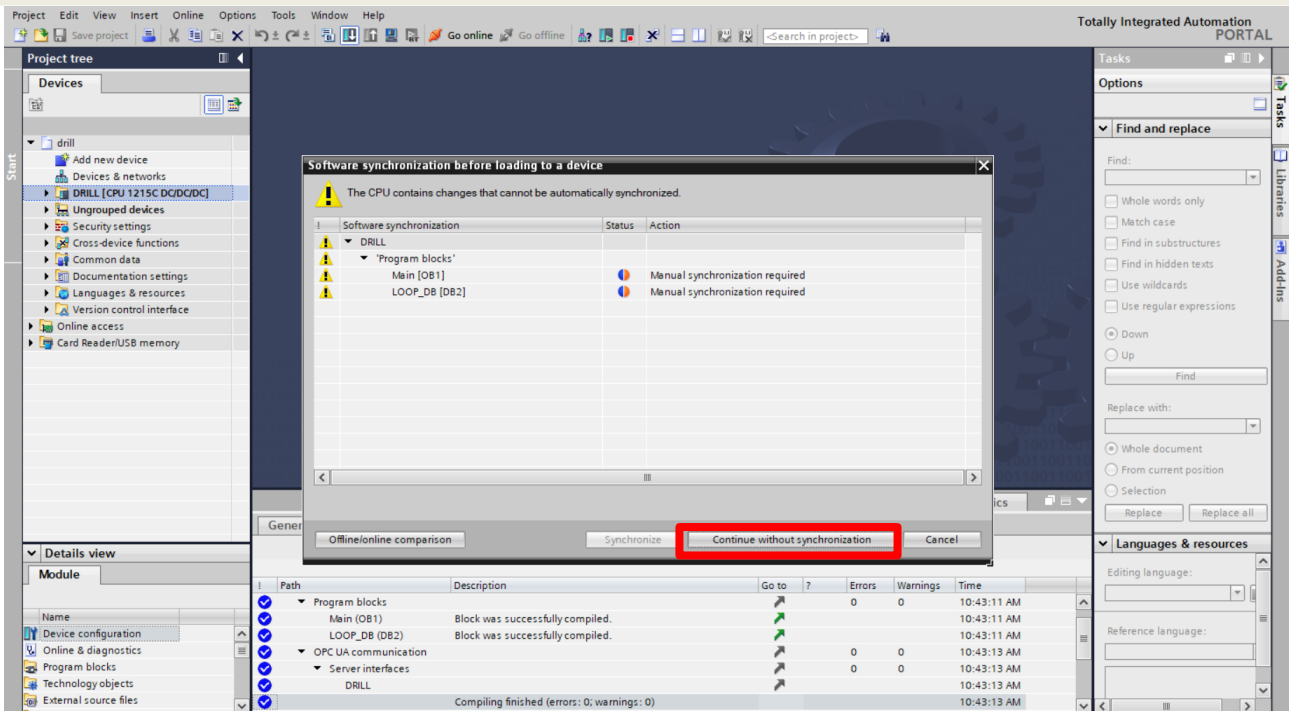
If there is no exclamation mark and the status is highlighted in green, the program is correct and it is not necessary to load the PLC program onto the PLC.

To be able to load the open PLC program onto the PLC, first disconnect the TIA Portal from the PLC again by clicking "Go offline".

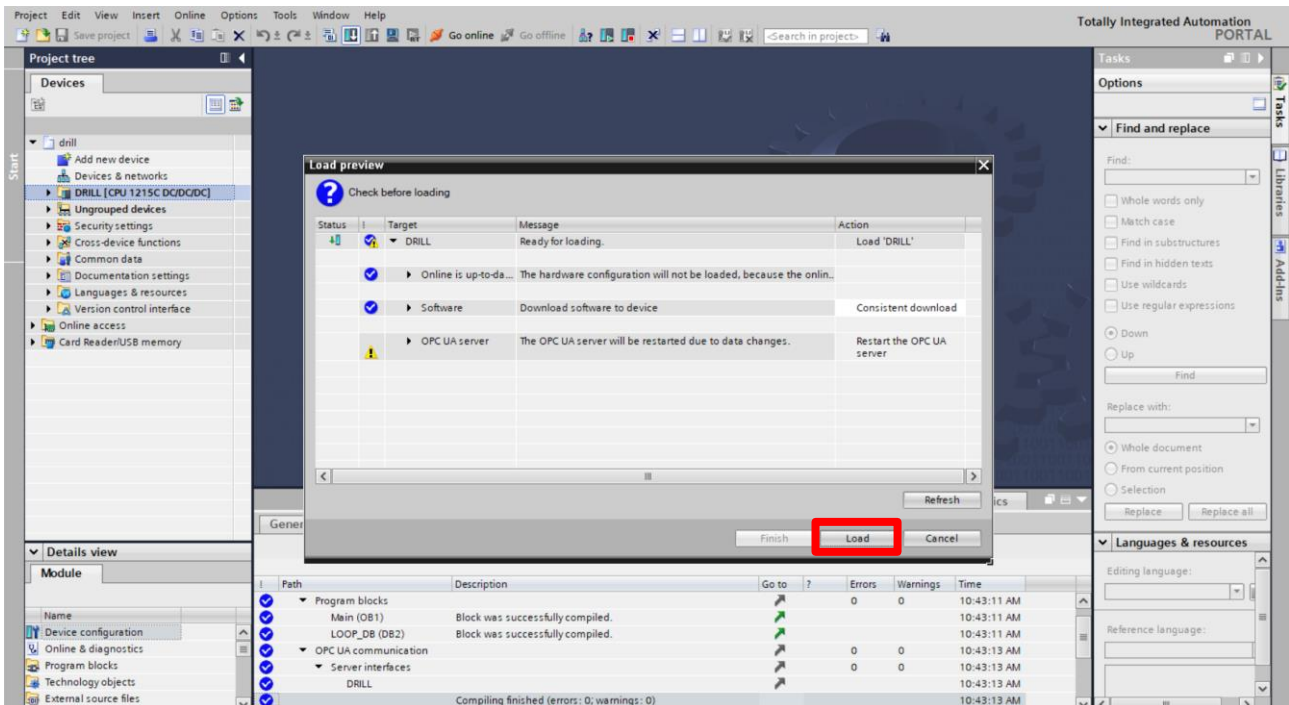


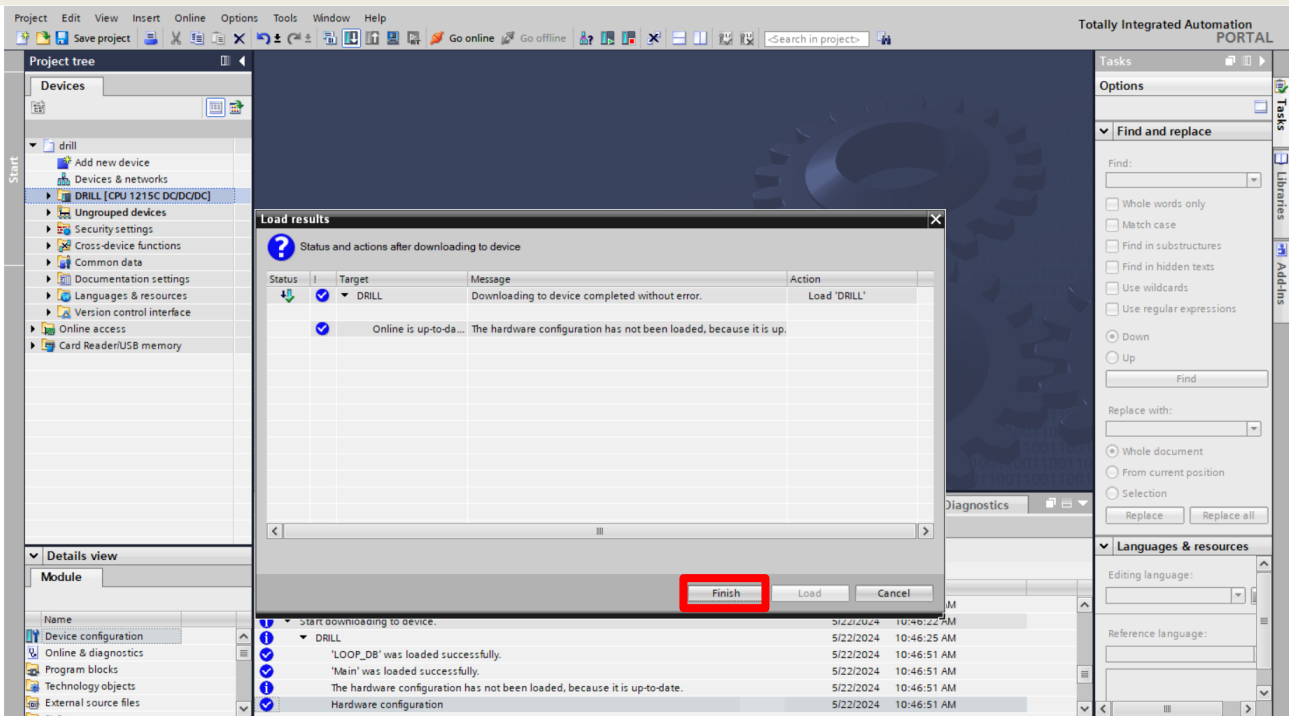
Continue by clicking "Download to device" and then confirm the dialog.



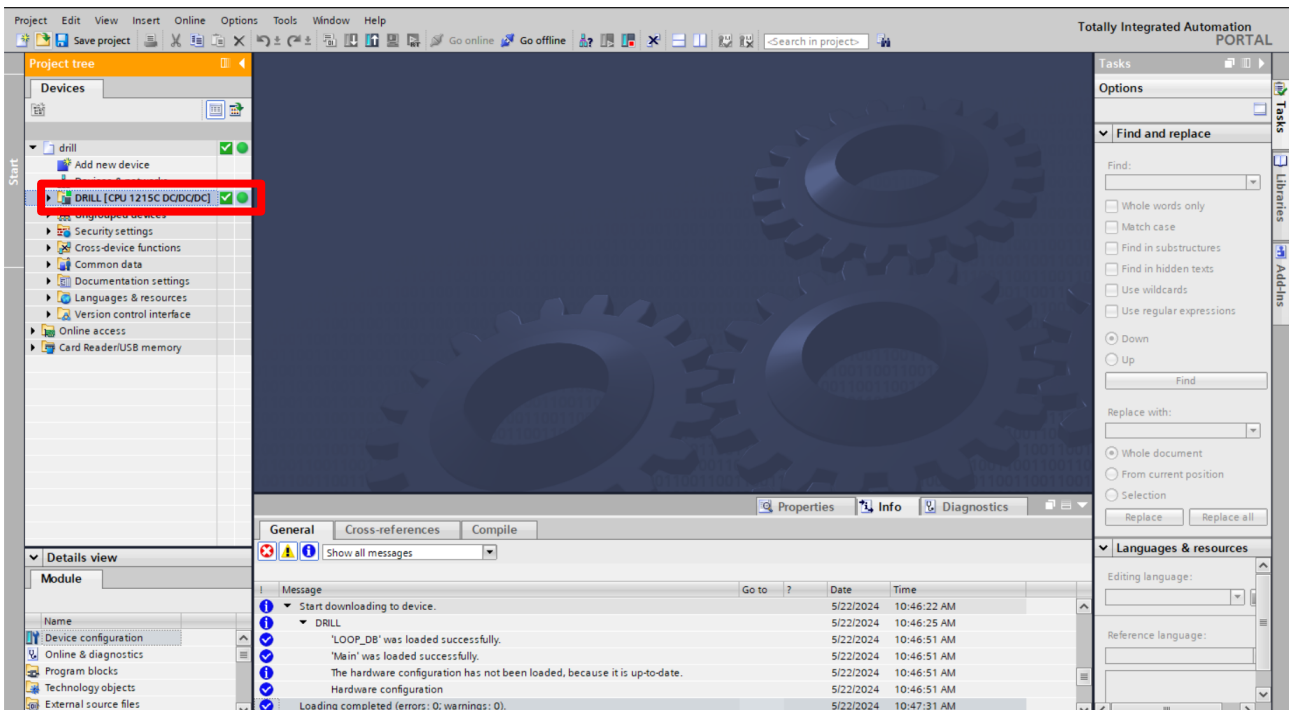


The PLC program can then be transferred to the PLC by clicking on "Load" and "Finish":





Finally, check that the PLC program has been correctly transferred to the PLC. To do this, click "Go Online" again. If the program matches the project, you should see a green status symbol next to the project.



Repeat the steps for the other PLC programs.

## Software update TXT 4.0 Controller

### TXT 4.0 controller firmware (optional)

The firmware of the TXT 4.0 controller can optionally be updated if a newer firmware version is available. Please follow the installation steps as described in the instructions for the TXT 4.0 controller, see <https://www.fischertechnik.de/txt40controller>.

**CAUTION:** DO NOT interrupt the power supply during the update process, otherwise the TXT 4.0 controller could be damaged.

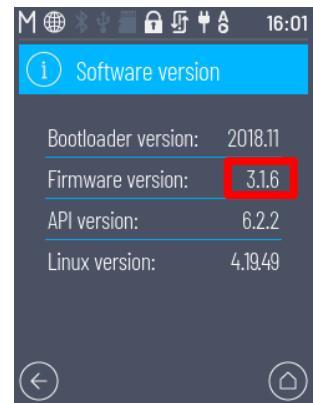
### TXT 4.0 Controller APS programs

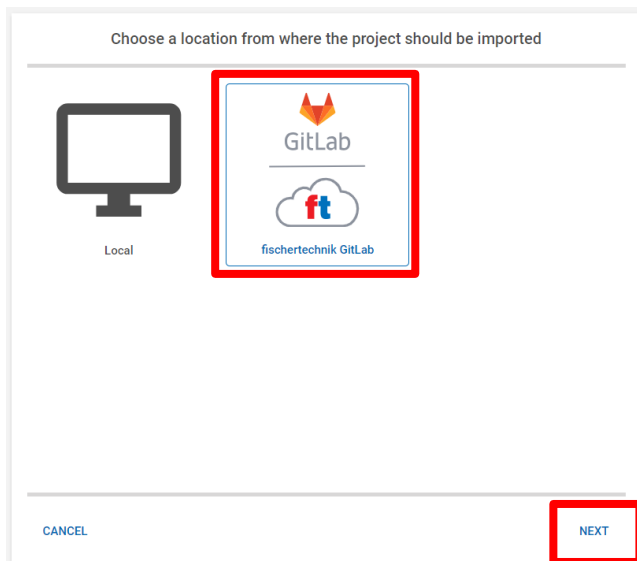
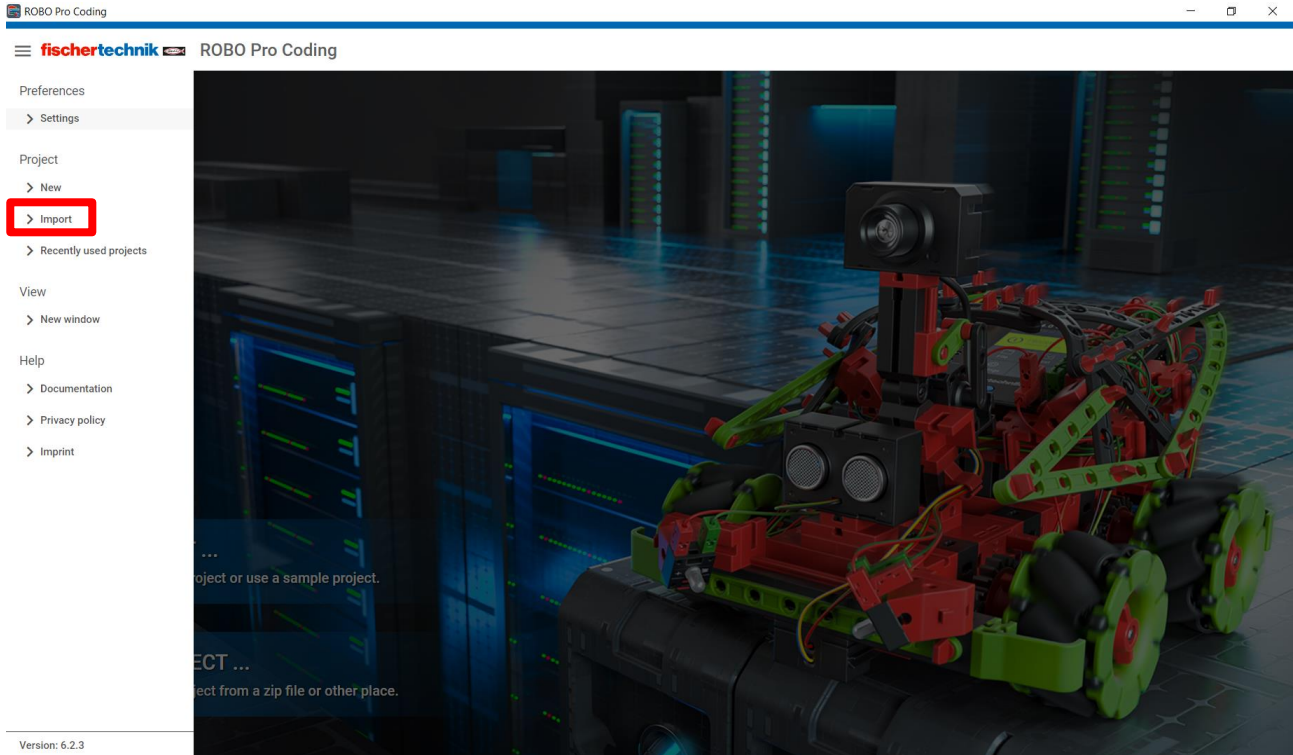
The programs for the TXT 4.0 controllers can be downloaded from GitHub via the following link: <https://github.com/fischertechnik/Agile-Production-Simulation-24V/tree/main/TXT4.0-programs>

The ROBO Pro Coding app from fischertechnik is required to install the APS programs. The project files for ROBO Pro Coding have the file extension \*. ft.

The latest version of the APS program can also be opened directly via ROBO Pro Coding as an alternative to GitHub. This requires an internet connection on the device on which ROBO Pro Coding is running.

Import the program as follows:





### Import a project from fischertechnik GitLab






Personal Access Token

To see private repositories you need a Personal Access Token with access right for the API.

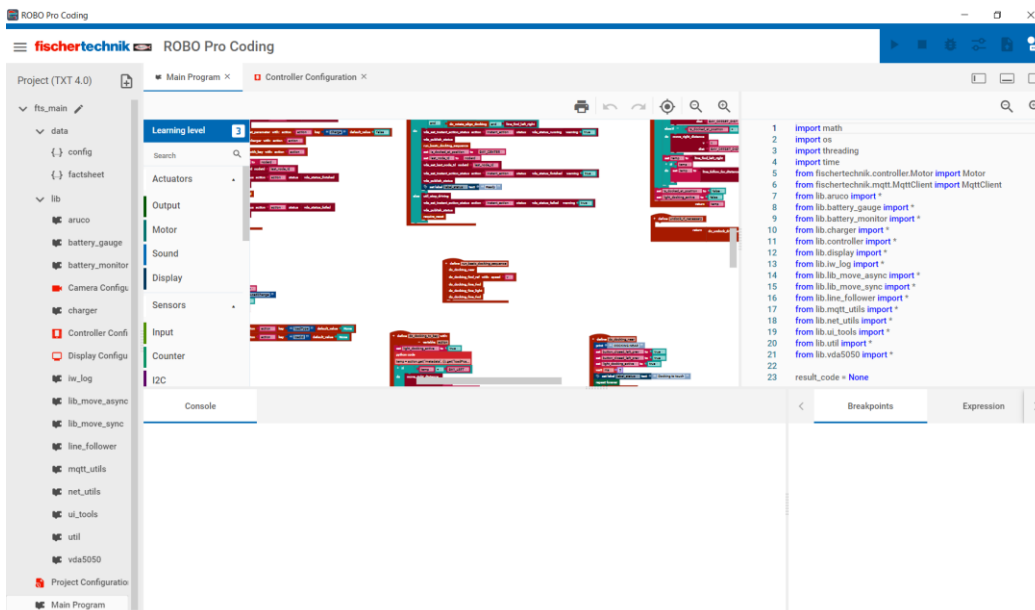
1. [Log in to fischertechnik GitLab.](#)
2. In the upper-right corner, click your avatar and select Settings.
3. On the User Settings menu, select Access Tokens.
4. Choose a name and optional expiry date for the token.
5. Choose the desired scopes.
6. Click the Create personal access token button.
7. Save the personal access token somewhere safe. Once you leave or refresh the page, you won't be able to access it again.

CANCEL
PREVIOUS
NEXT

### Import a project from fischertechnik GitLab

-  Agile Production Simulation 24V / ServoCalib\_DPS
-  Agile Production Simulation 24V / fts\_main
-  Agile Production Simulation 24V / FF\_AL\_24V
-  Agile Production Simulation 24V / FF\_CGW
-  Agile Production Simulation 24V / FF\_DPS\_24V

CANCEL
PREVIOUS
IMPORT

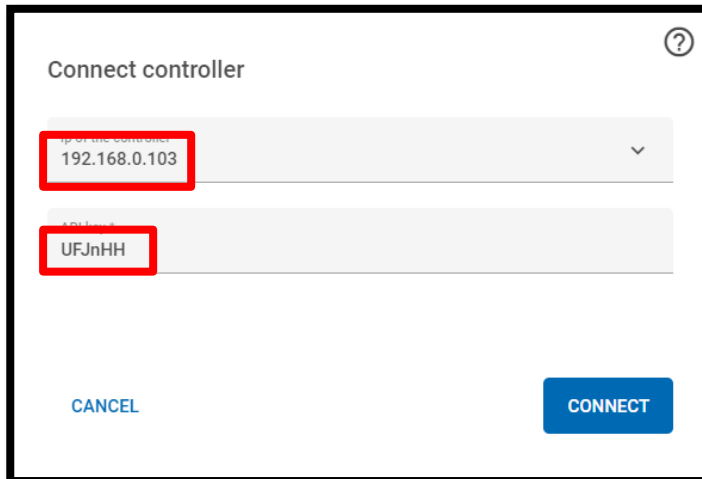


The screenshot shows the ROBO Pro Coding IDE interface. The top bar displays 'fischertechnik ROBO Pro Coding'. The main workspace is divided into several panes: a file explorer on the left showing a project structure with folders like 'data', 'config', 'factsheet', and 'lib'; a central code editor with multiple open files; and a right-hand pane showing an import list with 23 items, including 'import math', 'import os', 'import threading', and various custom libraries like 'from fischertechnik.controller.Motor import Motor'. A red box is drawn on the right side of the interface, below the import list, indicating an empty area.

If the program has been loaded in ROBO Pro Coding, it can be transferred to the TXT 4.0 controller when a connection is established with the respective TXT 4.0 controller.



Please enter the IP address of the TXT 4.0 controller and read the API key on the TXT 4.0 controller and enter it accordingly in the dialog.

A screenshot of a dialog box titled "Connect controller" with a question mark icon in the top right corner. It features two input fields: the first is labeled "IP address" and contains the text "192.168.0.103"; the second is labeled "API key" and contains the text "UFJnHH". Both input fields are highlighted with red rectangles. At the bottom of the dialog, there are two buttons: "CANCEL" on the left and "CONNECT" on the right.

Finally, the program can be transferred to the TXT 4.0 controller using the following symbol:

