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APPLICATION EXAMPLE

Virtual Commissioning with Plant Simulation and PLCSIM Advanced

TIA Portal

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Table of contents

- 1. Introduction 4**
 - 1.1. Application description 5
 - 1.2. Components used 8
- 2. Software Setup.....9**
 - 2.1. PLCSIM Advanced 10
 - 2.2. TIA Portal 11
 - 2.3. Starting Plant Simulation 14
- 3. Application.....19**
 - 3.1. Model Setup with Tecnomatix Plant Simulation, TIA Portal and PLCSIM Adv..... 19
 - 3.1.1. Description of interface..... 19
 - 3.1.2. TIA Portal 20
 - 3.1.3. Plant Simulation 22
 - 3.2. Troubleshooting 27
 - 3.2.1. Compilation failure 27
 - 3.2.2. Connection failure 28
 - 3.2.3. Element not found in PnP's angles table..... 28
 - 3.2.4. Limit for the number of variables exceeded 29
- 4. Appendix 32**
 - 4.1. Service and support 32
 - 4.2. Links and literature 33
 - 4.3. Change documentation 33

1. Introduction

The concept of Virtual Commissioning is crucial in industrial automation and refers to the functional validation of an automation system through simulation.

What is Virtual Commissioning?

Virtual Commissioning uses a simulation environment to validate the behavior of an automation system before its implementation in the real plant. Instead of directly testing on physical equipment, an interactive digital twin is created to represent the automation system and its production environment.

This digital twin enables manufacturing engineers to thoroughly verify and optimize automation programs long before the start of actual commissioning. Proposed changes and enhancements to existing plants can be validated without impacting current production operations.

Benefits of Virtual Commissioning

Reduced startup time: By testing control logic and PLC code in a digital environment, extensive debugging during on-site commissioning and post-implementation is minimized.

Lower startup costs: Identifying and resolving potential issues in control logic, safety interconnections, and PLC code before implementation reduces overall startup and tuning costs.

Virtual training: Skill development and instructions can be provided to operators virtually and remotely, without the need for physical hardware or traditional classroom presence.

Functionality of Virtual Commissioning

Virtual Commissioning extends beyond just the machinery itself. It uses a digital twin to represent all relevant devices, equipment, and structures in an interactive 3D environment.

In some cases, the simulation may include real hardware. For example, a programmable logic controller (PLC) could be connected to the simulation model to evaluate how the system reacts to real inputs from the PLC.

In summary, Virtual Commissioning is a powerful tool to ensure that automation systems perform as expected before deploying the control program to real equipment. It reduces risks, costs, and time during commissioning and enhances efficiency in industrial production.

1.1. Application description

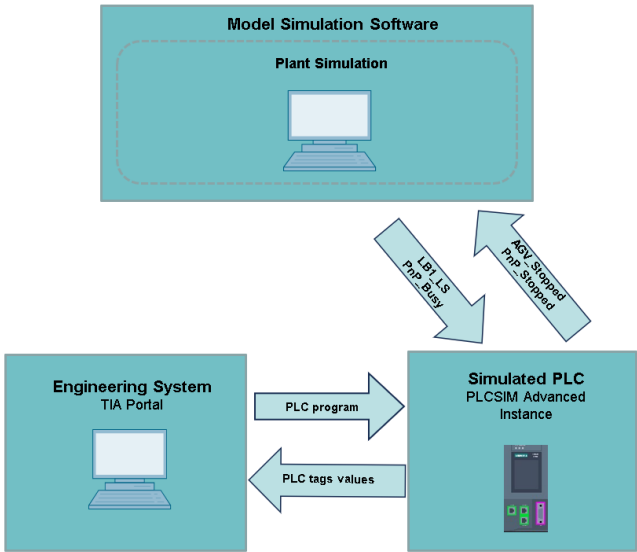


Figure 1-1

This application example demonstrates how Plant Simulation facilitates virtual commissioning of PLC code by representing the behavior of a production system. In this case, the PLC will control the machinery of a small assembly line by sending and receiving control signals.

Within Plant Simulation a simple example line is modeled to simulate real world plant equipment like a Pick and Place robot (PnP) and the Autonomous Guided Vehicles (AGVs), as well as the sensor information for the PLC.

On the other hand, the Plant Simulation model is connected to a PLCSIM Advanced instance (a simulated PLC) that evaluates the sensor signals from the model and controls the starting and stopping of the PnP and the AGVs.

Finally, the TIA Portal is used as the engineering environment to download the PLC program to the simulated PLC and to monitor the values of its tags and signals.

Plant Simulation model

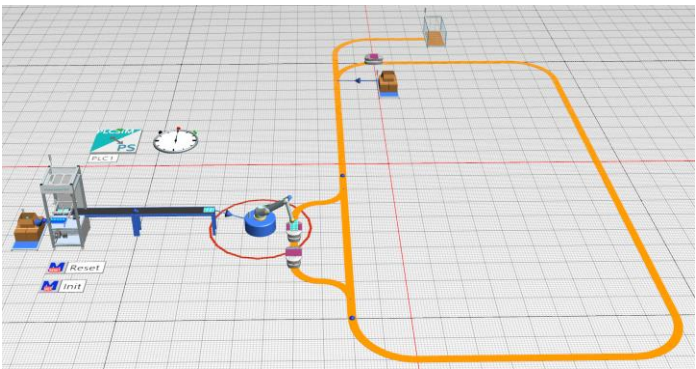


Figure 1-2

In the figure above the content of the Plant Simulation model is shown. The most relevant elements of it will be described in order of the events:

1. **Loading station:** It is a three-axis portal that picks the pieces from the entry conveyor and places them on the container tray for its transport on the exit conveyor.



Figure 1-3: Loading station.

2. **Pick and Place (PnP):** Picks the trays coming from the exit conveyor and placing them on the AGV. Once the PnP is finished loading, it will let the AGV continue its path.

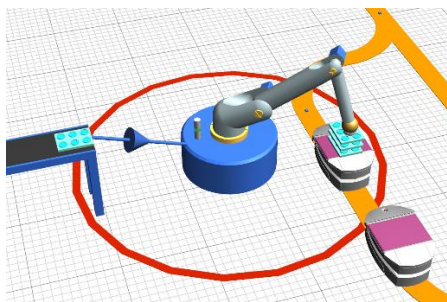


Figure 1-4: PnP

3. **AGVs:** As mentioned above, these will carry the trays. They also trigger the PnP to start working as they arrive and cross the light barrier that is just in front of it.

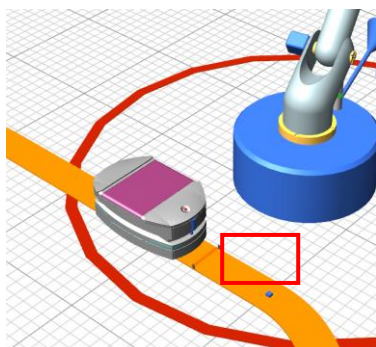


Figure 1-5: AGV in front of light barrier. Light barrier highlighted.

Simulated PLC: PLCSIM Advanced instance

In summary, the PLCSIM Advanced instance will control the signals for coordination between the PnP and the AGVs the following way:

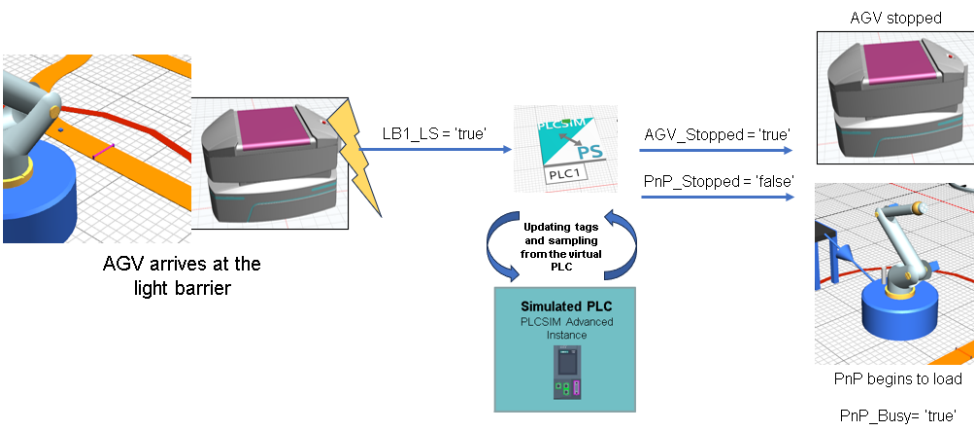


Figure 1-6: Starting the load of the AGV.

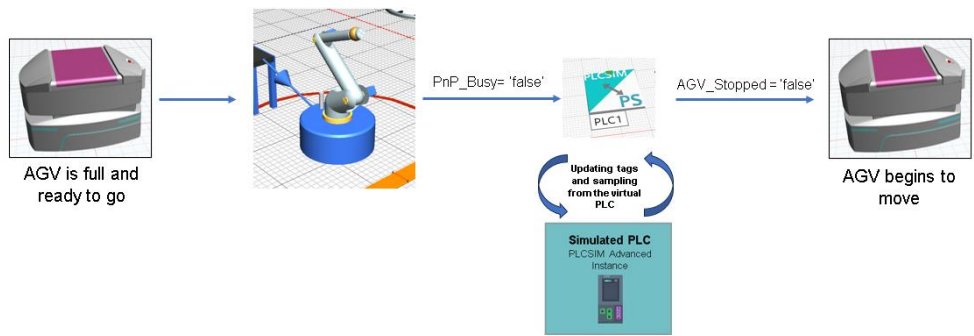


Figure 1-7: AGV departure.

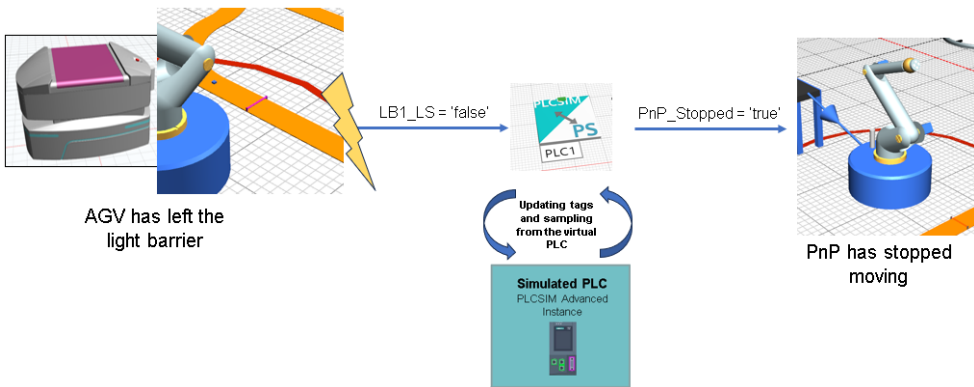


Figure 1-8: PnP stops.

1.2. Components used

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

Component	Number	Article number
STEP 7 Basic	V18	6ES7822-0AE08-0YA5
Tecnomatix Plant Simulation	2302	-
Plant Simulation Interface Package	-	-
S7-PLCSIM Advanced	V5.0	6ES7823-1FA04-0YA5

Table 1-1

This application example consists of the following components:

Component	File name	Notes
Documentation	109975095_VC_PlantSimulation_PLCSIMAdv_DOC_V10_en.pdf	-
Tecnomatix Plant Simulation Project and TIA Portal Project	109975095_VC_PlantSimulation_PLCSIMAdv_GettingStarted_V10.zip	• LoadingStation_PLCSIMAdv.spp • LoadingStation_PLCSIM_V18.ap18 for PLCSIM Advanced connection

Table 1-2

Requirements

Basic knowledge of TIA Portal and Plant Simulation is needed to understand this application example.

Basics of TIA Portal can be found in the Siemens Industry Online Support (SIOS) platform by searching for the article number shown in [Table 1-1](#)

2. Software Setup

Download the following files from Siemens Industry Online Support

<https://support.industry.siemens.com/cs/ww/en/view/109975095>

Unzip the .zip file. The provided folder contains:

- TIA Portal project: "LoadingStation_PLCSIM_V18.zap18"
- Plant Simulation project: "LoadingStation_PLCSIMAdv.spp"
- This document as Step-by-step Guide

Name	
	LoadingStation_PLCSIM_20200525_1002.zap15_1
	LoadingStation_PLCSIMAdv.spp
	SIOS_Applicationdemo_PlantSimulationVC_PLCSIMAdv.docx

Figure 2-1: Content of the application

2.1. PLCSIM Advanced

To start PLCSIM Advanced, follow the steps:

1. Start the Runtime Manager for PLCSIM Advanced
2. Depending on your network configuration, choose "PLCSIM" or "PLCSIM Virtual Eth. Adapter".

For this demo, we chose PLCSIM, assuming that PLCSIM Advanced is installed on the same machine as Plant Simulation.

Later, in section [3.1.3](#) the case for remote PLCSIM Advanced connection in Plant Simulation will be explained.

3. Select PLC type "Unspecified CPU 1500"
4. Set the instance name as "PLC"
5. Start the PLC

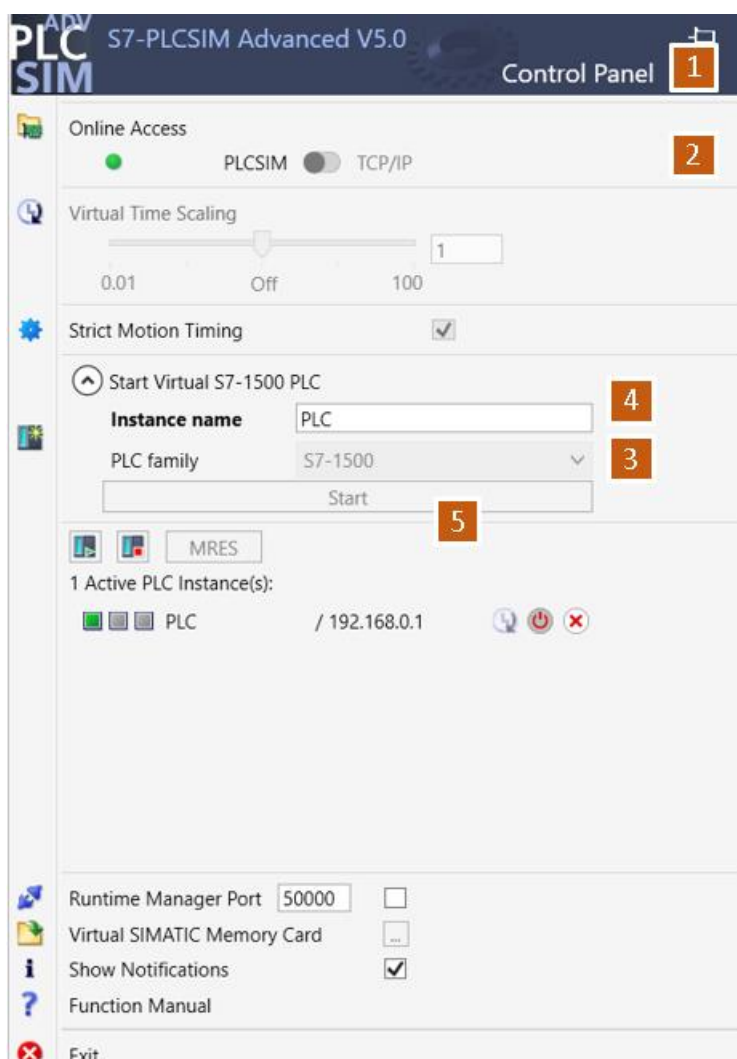


Figure 2-2: PLCSIM Advanced configuration

NOTE

IP address might differ from Figure above

2.2. TIA Portal

The TIA Portal project for the application demo is provided.

Proceed as follows to use the provided TIA Portal project.

1. Open .zap file "LoadingStation_PLCSIM_V18.ap18"
2. Switch to the project view

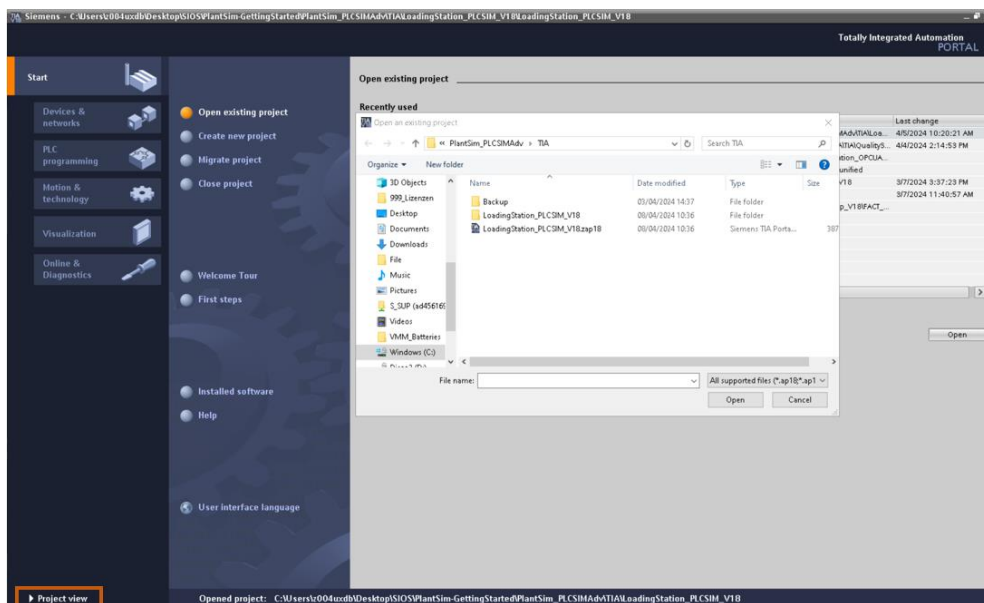


Figure 2-3

3. Select the PLC in the Project tree and click Download to device.

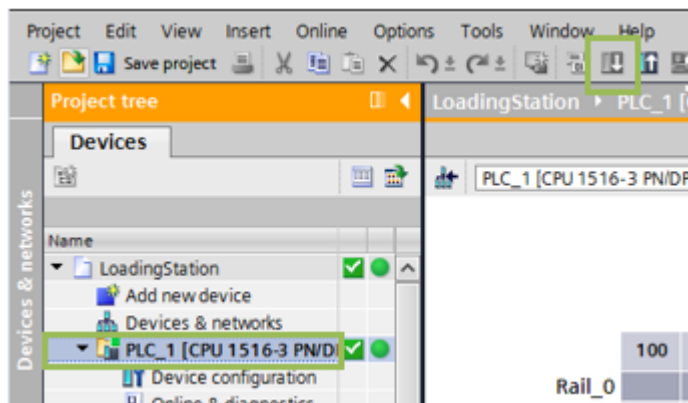


Figure 2-4

4. In the pop-up window, select the PN/IE interface in the drop-down list and click on Start search.

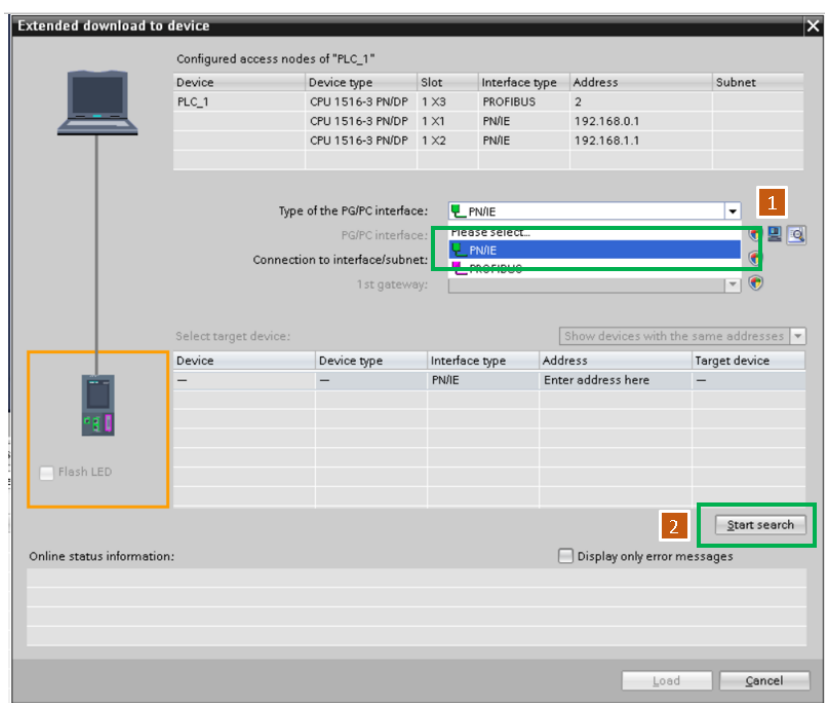


Figure 2-5

5. Select the PLC and click Load.

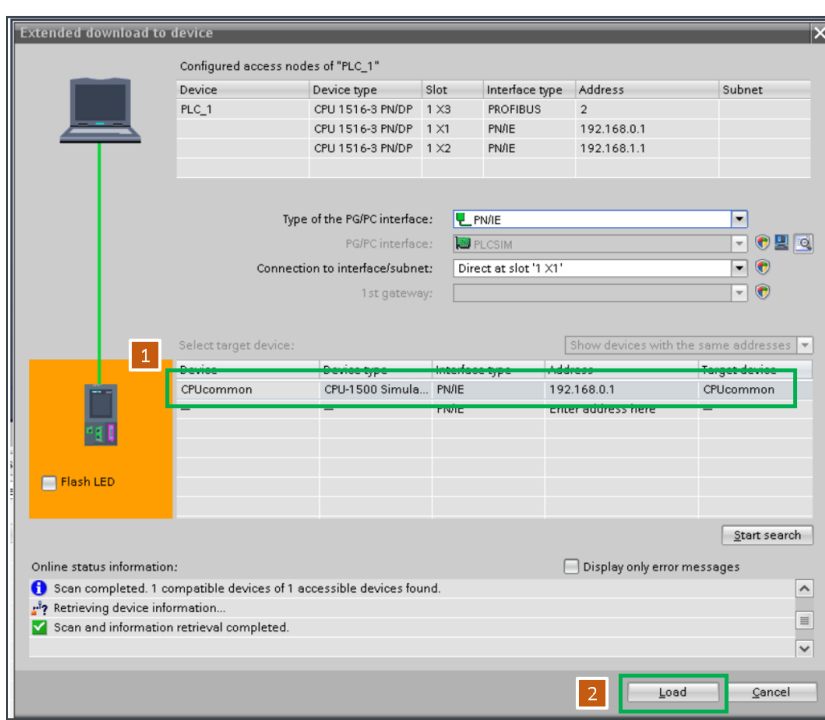


Figure 2-6

6. As it is the first time connecting to the PLC, TIA Portal will ask for confirmation to connect to it. Click on Connect to continue.



Figure 2-7

7. In the pop-up window click Load. After that, compilation of the PLC program and download will begin. It will take some time to finish this process. Please wait.

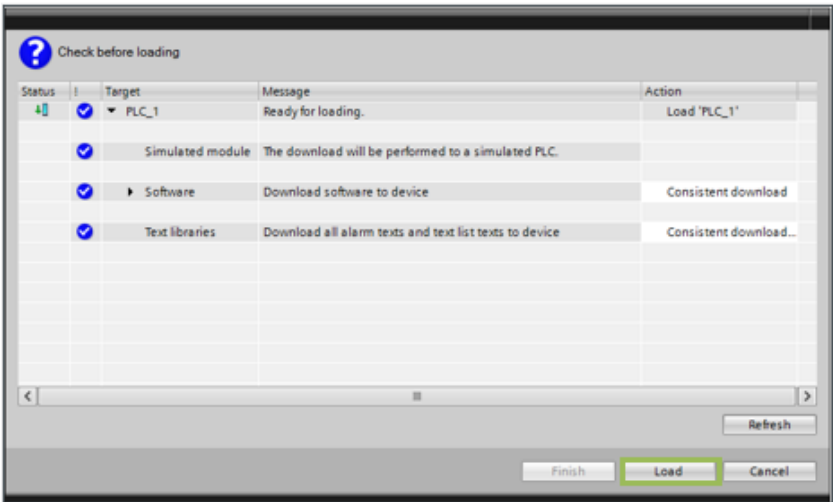


Figure 2-8

8. In the pop-up window select Start module, then click Finish. (screenshot on the next page)

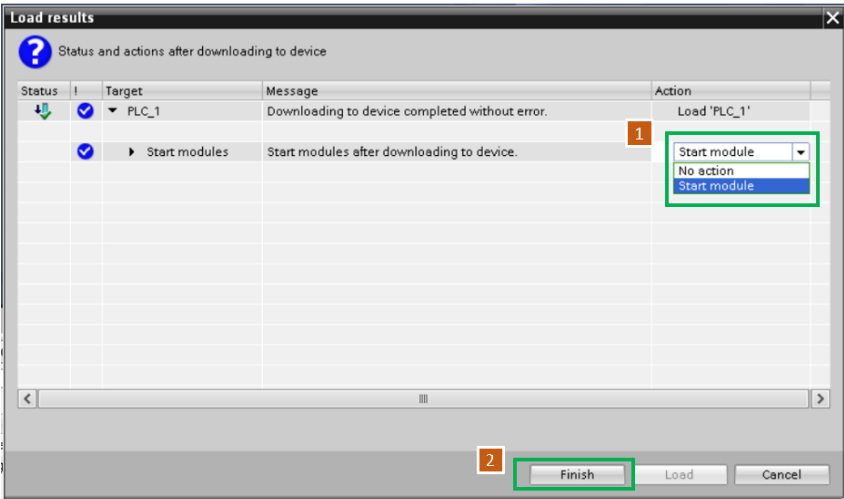


Figure 2-9

9. Select the PLC in the project tree and click Go online.
10. Open the default tag table in the PLC tags and click monitor all.

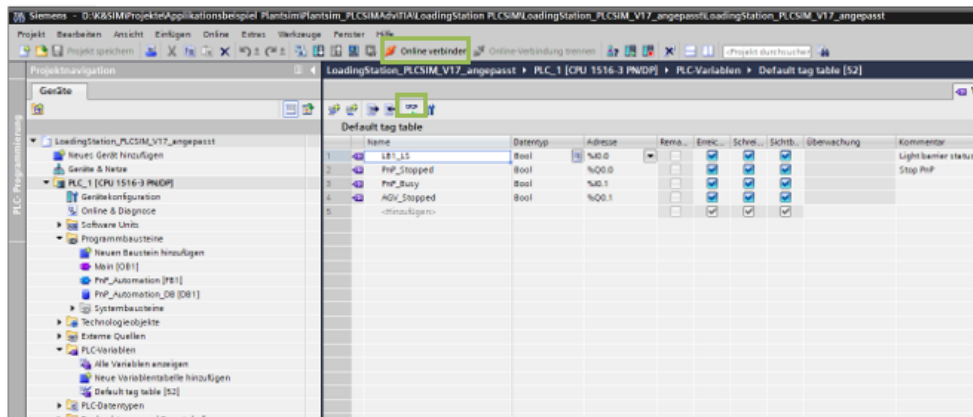


Figure 2-10

11. After starting the simulation in Plant Simulation watch the PLC tags change their values in TIA portal.

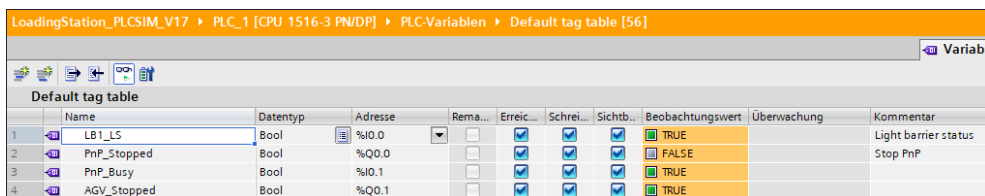


Figure 2-11

2.3. Starting Plant Simulation

To start the provided simulation model in Tecnomatix Plant Simulation, follow the steps:

1. Start Tecnomatix Plant Simulation
2. Open the "LoadingStation_PLCSIMAdv.spp" file

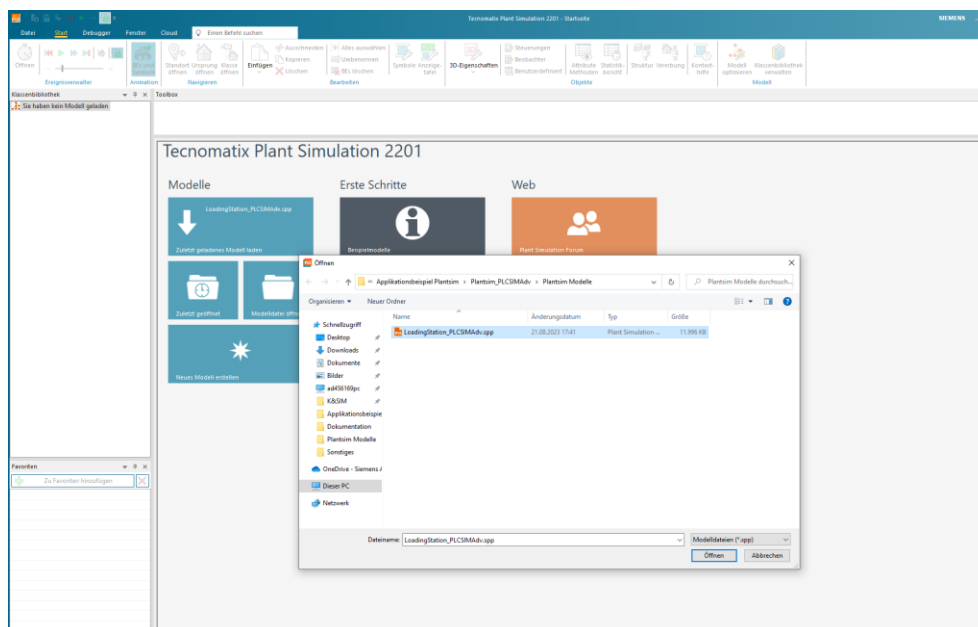


Figure 2-12

NOTE

The Plant Simulation Interface Package is required. Therefore, an additional license is needed.

- Double click on the PLCSIM Advanced Interface in the model and activate it by clicking on Activate and, finally, on OK. Alternatively, right click on the PLCSIM Advanced interface and use the context menu to activate the interface.

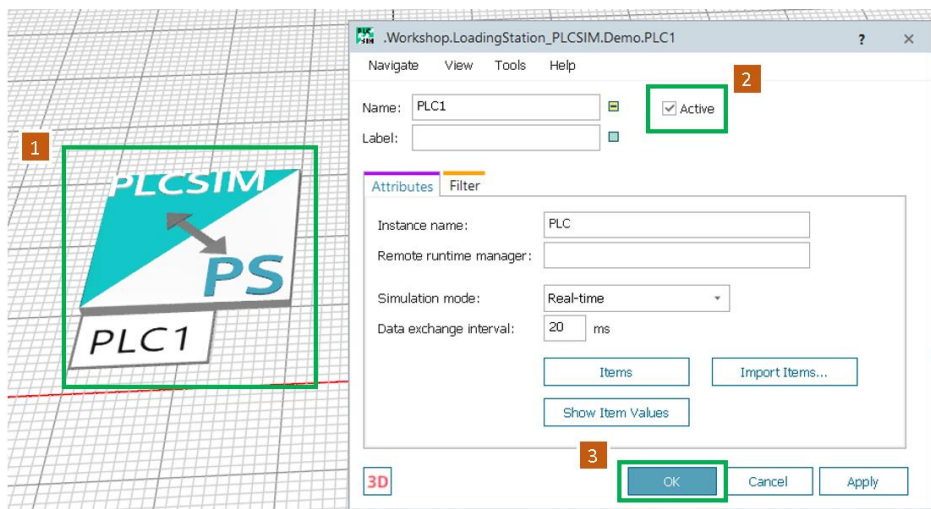


Figure 2-13

- Start the simulation.

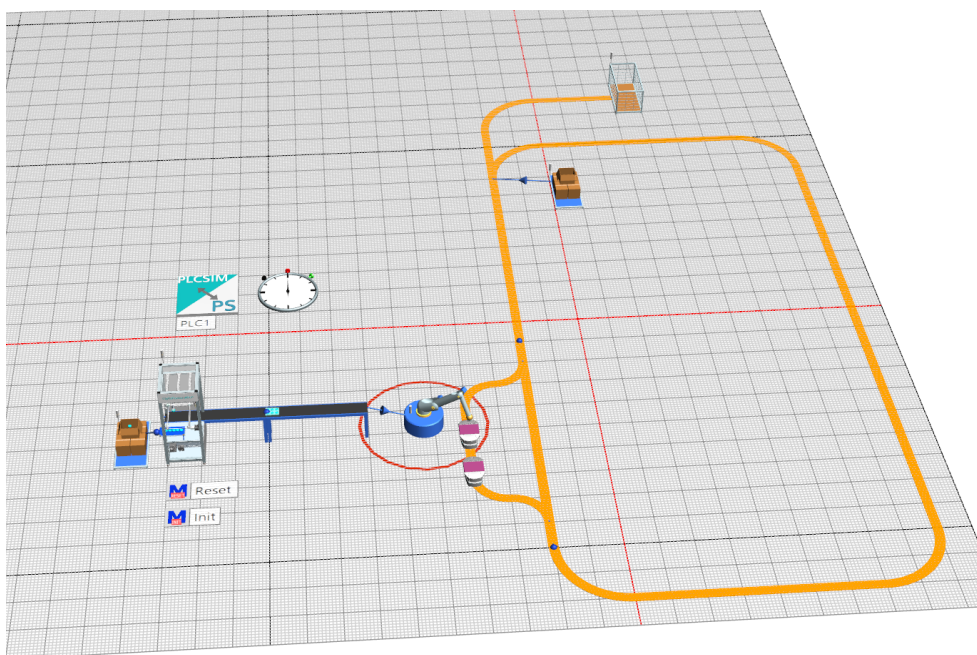


Figure 2-14

The first object that will begin to work will be the Loading Station, that will insert the pieces received into the tray. Once it's full, it will exit the station for the next step. Meanwhile, the station remains stopped until the full tray exits, and a new empty tray is placed inside. Then, its cycle begins again.

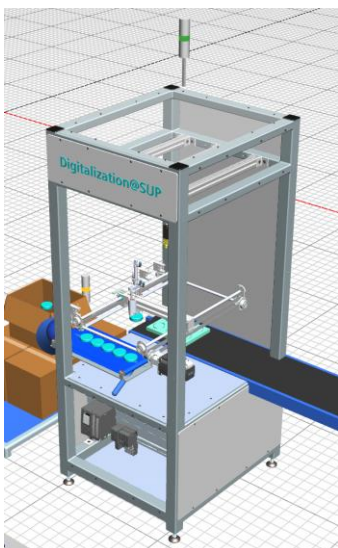


Figure 2-15

The next step is transportation. For this, AGVs will be generated by a source, following a constant interval of time, and will be placed on the track. As we may see in the following figure, there's a junction near the PnP.

At this location, AGVs can continue to drive on the main circle or are deviated to the PnP depending on the current situation: AGVs continue on the main circle if they are full or the capacity of the track leading to the PnP is exceeded. Empty AGVs are diverted to the PnP as long as the limit of the track is not yet reached.

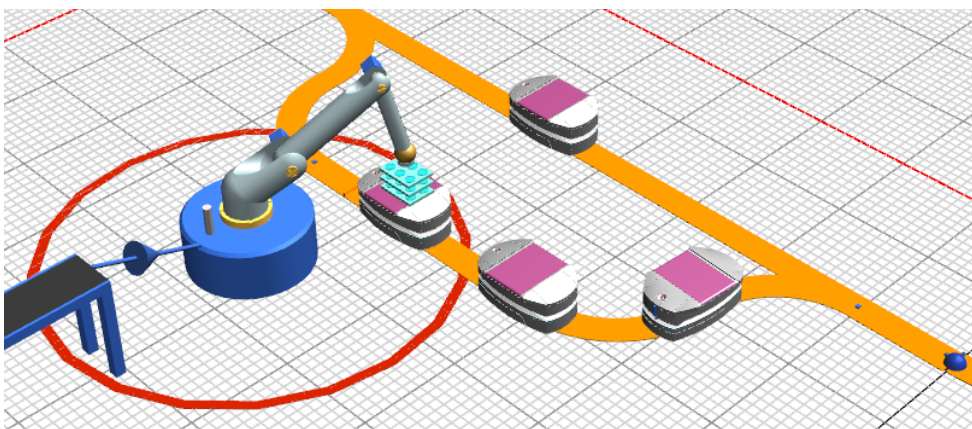


Figure 2-16

As described before, the PnP will be the intermediate object that will place the tray on the AGV. The AGV is stopped in place and loaded until it's full (four trays). Then, it will continue to drive to the main circuit and the next AGV will take its place.

Finally, in the last junction, it's checked whether the AGV is empty or not. If it's empty, it will continue recirculating., Fully loaded AGVs will exit the circuit and continue their path to a drain.

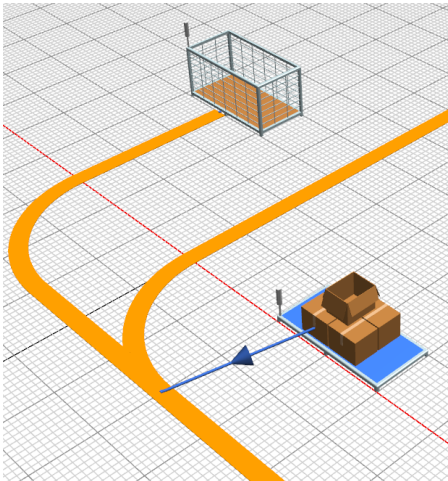


Figure 2-17

5. To monitor the current values of the involved signals, open the PLCSIM Advanced interface in the model and click on Show Item Values. You will notice that a new table view will open. Within this tables, signals are grouped as Inputs (I), Outputs (O) and the tags (DB) of the PLCSIM Advanced instance.

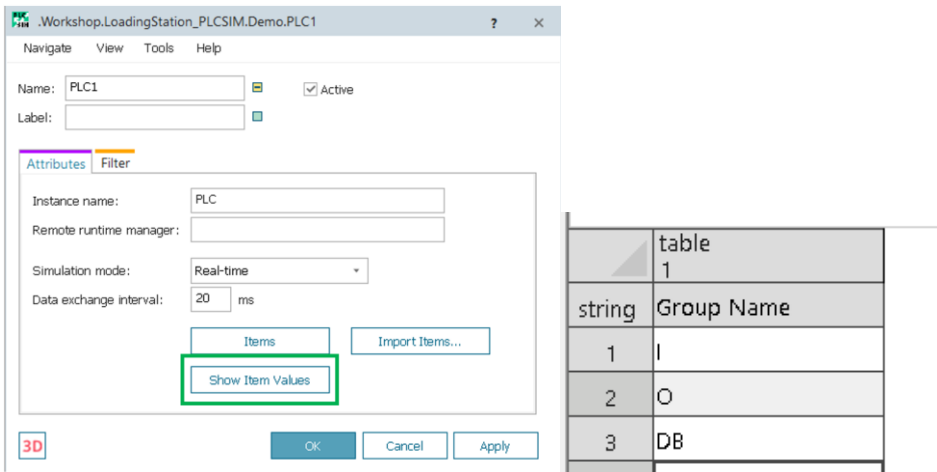


Figure 2-18

NOTE

The Inputs and Outputs are referred from the PLC point of view – E.g.: Inputs (I) are input **signals of the PLC**. The same happens to the output signals.

To monitor the input signals to the PLC instance, double click on the "I" field and another new table view will display the current values of the signals in real time.

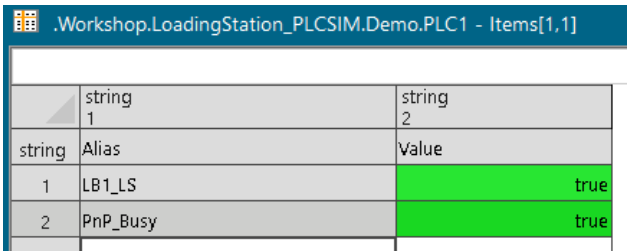
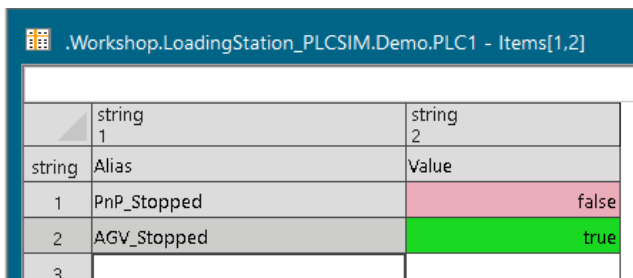


Figure 2-19

6. To monitor the **output signals from the PLC instance**, just come back to the table view shown in [Figure 2-18](#) and double click on the "O" field. A new table view will appear showing the current values of those signals, again, in real time.



	string 1	string 2
string	Alias	Value
1	PnP_Stopped	false
2	AGV_Stopped	true
3		

Figure 2-20

3. Application

The files delivered as part of the application example are pre-configured for connecting Plant Simulation with PLCSIM Advanced. This chapter will provide more details on the technical setup, models & TIA project and the settings.

3.1. Model Setup with Tecnomatix Plant Simulation, TIA Portal and PLCSIM Adv.

3.1.1. Description of interface

The figure below shows the interface between the software used for a better understanding of how the application works.

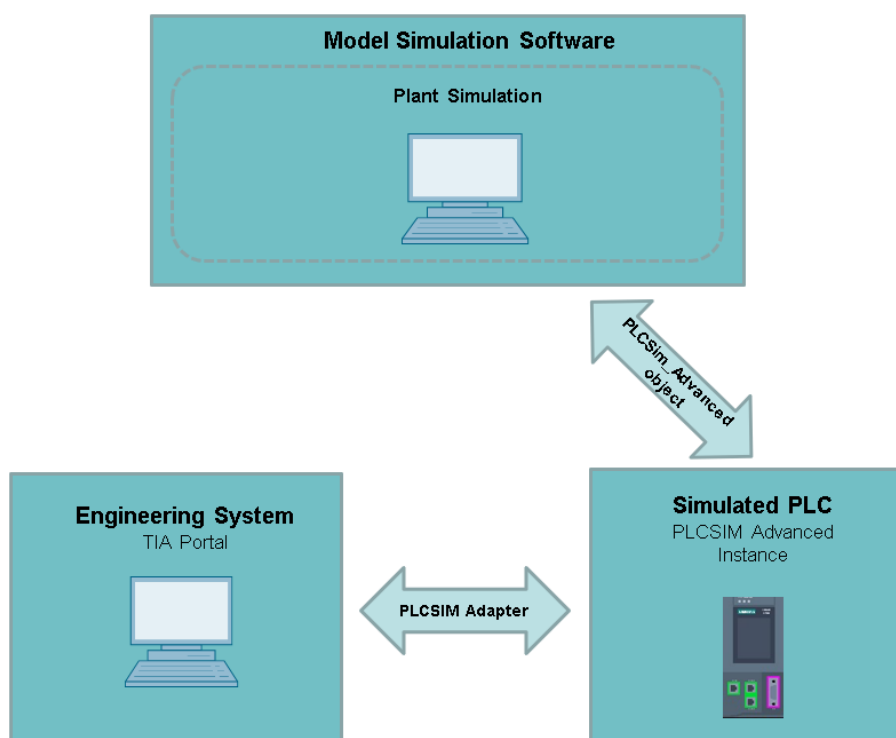


Figure 3-1

In real life, a PLC will be in charge of reading and writing the signals for the machines of our plant. For this application example, these tasks will be carried out by a simulated PLC, which is a PLCSIM Advanced instance. This simulated PLC will emulate the functions of a real PLC and process the signals that the elements in our Plant Simulation model need.

This simulated PLC is connected to the TIA Portal through the PLCSIM Adapter as seen in [Figure 2-2](#) and [Figure 2-6](#) (in the Interface field). With this adapter, we are able to load the program from the TIA project to the simulated PLC and to read/write the values of the signals and tags of the simulated PLC, in case we go online in the TIA Portal, and we try to monitor or force them.

On the other hand, our Plant Simulation connects to the simulated PLC through the PLCSIM Advanced interface. This interface samples the values of the PLC signals and tags for the model to consult or modify them. The values of the signals are stored in the interface and, to access them, we can use several techniques:

- Method-based access to defined signals via the PLCSIM Advanced interface:
 - Direct value assignment to alias names
 - Using method calls "setItemValue" and "getItemValue".
- Signal mapping via the items table:
 - Mapping to global variables in the model
 - Mapping to standard or user-defined attributes
- Defining callback methods for further processing of changed signal values.

At the same time, this interface updates the signals that have been modified by the model.

Within the delivered model only the direct mapping and method-based access are used.

3.1.2. TIA Portal

The provided TIA Portal project contains the user program consisting of PnP Automation FB, the Main OB, and the tag table.

PnP_Automation [FB1]

The PnP_Automation function block is composed of three networks to Start and Stop Pick&Place and to signal the end of the loading process. The PnP_Automation function block will control the PnP and the AGVs, determining when they should stop or keep moving. In the following Figure, we can see its content.

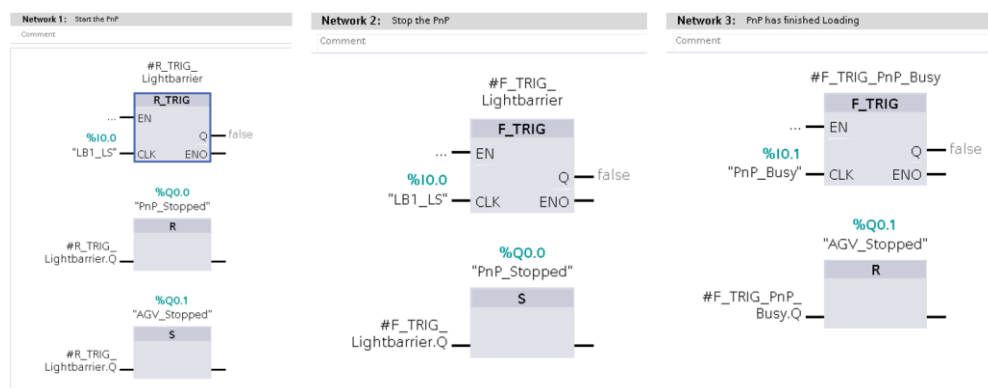


Figure 3-2

The behavior of the three networks can be summarized as follows:

- **Start the PnP:** When the light barrier signal is activated, the PnP is started and the AGV is stopped to receive the load.
- **Stop the PnP:** Once the loading is finished, the AGV will begin to move again and, at a certain point, it will deactivate the signal of the light barrier. When this happens, the PnP will be stopped until another AGV activates the signal again. Note that this step will be triggered last in the process and only after the PnP has finished loading the AGV.
- **PnP has finished Loading:** When the AGV is fully loaded and the PnP is no longer busy (PnP_Busy signal deactivates), the AGV will be able to start moving.

Main [OB1]

The Main OB includes the execution of the PnP_Automation.

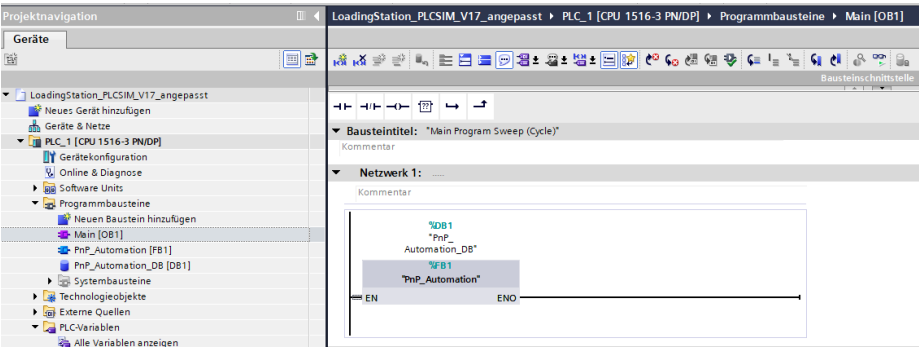


Figure 3-3

PLC-Tags

The tag table contains the tags used in the application.

LoadingStation_PLCSIM_V17 ▸ PLC_1 [CPU 1516-3 PN/DP] ▸ PLC-Variablen ▸ Default tag table [56]										
Default tag table										
	Name	Datentyp	Adresse	Rema...	Erreic...	Schrei...	Sichtb..	Beobachtungswert	Überwachung	Kommentar
1	LB1_LS	Bool	%I0.0		☒	☒	☒	TRUE		Light barrier status
2	PnP_Stopped	Bool	%Q0.0		☒	☒	☒	FALSE		Stop PnP
3	PnP_Busy	Bool	%I0.1		☒	☒	☒	TRUE		
4	AGV_Stopped	Bool	%Q0.1		☒	☒	☒	TRUE		

Figure 3-4

In the table below, the meaning of the different values from the tags is explained.

Tag Name	Tag Value	Meaning
LB1_LS	True	The light barrier is being triggered. There's an AGV in front of the PnP.
	False	No object detected at the light barrier.
PnP_Stopped	True	The PnP is stopped and can't move because there's no AGV waiting to be loaded in front of it.
	False	The PnP can move and work as long as there are trays to pick.
PnP_Busy	True	The PnP is currently working moving a tray.
	False	The PnP is waiting for the next tray to come.
AGV_Stopped	True	The AGV is stopped while it's being loaded.
	False	The AGV is free to move after loading has been finished.

Table 3-1

3.1.3. Plant Simulation

Connection to PLCSIM Advanced

The Plant Simulation model "LoadingStation_PLCSIMAdv.spp" comes pre-configured with the PLCSIM Advanced interface ready to connect to the simulated PLC. In this section, we will see in more detail the most relevant settings used in the PLCSIM Adv. interface of the model.

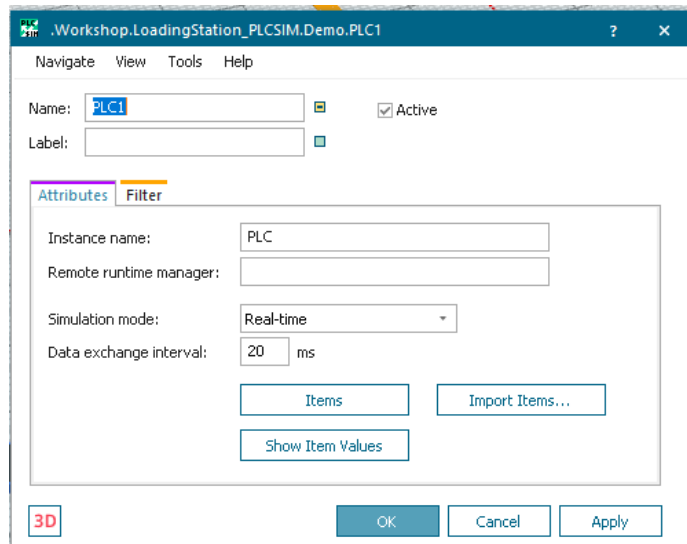


Figure 3-5

- **Name:** This is the name of the interface. It's needed to be known when calling the interface in our methods.
- **Instance name:** In this field we must enter the name of the PLCSIM Adv. Instance that we want to connect to. We must make sure that the value introduced is the exact same as the name of the simulated PLC instance.
- **Remote runtime manager:** This field is only used when we are connecting to a remote PLC (simulated or real). When connecting to a local simulated PLC instance, this field is left blank. In case we need to connect to a remote PLC, the field should be filled as `plcIPAddress:portNumber`.

Further on, we will explain how to proceed in this case.

- **Simulation mode:** Here, we can select between "Step-by-step" and "Real-time".
 - *Step-by-step mode:* The **data exchange** is time-synchronized with the simulated PLC and the read/write of the tags happen **every PLC cycle**. This mode is **only recommended in time-critical applications and/or** when the **simulation is running very slow**.
 - *Real-time mode:* The simulation model and the simulated PLC will run in parallel with **periodic data exchange**. For this setting, we must be sure that the simulation is quick enough to run in real-time. Also, the parameter "Data exchange interval" will only be available when using this mode.

Connection to remote PLCSIM Advanced instance

In this section, we will describe how to connect to a remote PLCSIM Advanced instance.

1. Open the PLCSIM Advanced control panel and make sure that the Online Access settings are set to "TCP/IP" and "Single Adapter". "Ethernet" needs to be selected from the TCP/IP communication dropdown menu.

NOTE

The Online Access settings can only be changed while no PLCs are running.

The name, IP address and Runtime Manager Port are required as further inputs in Plant Simulation.

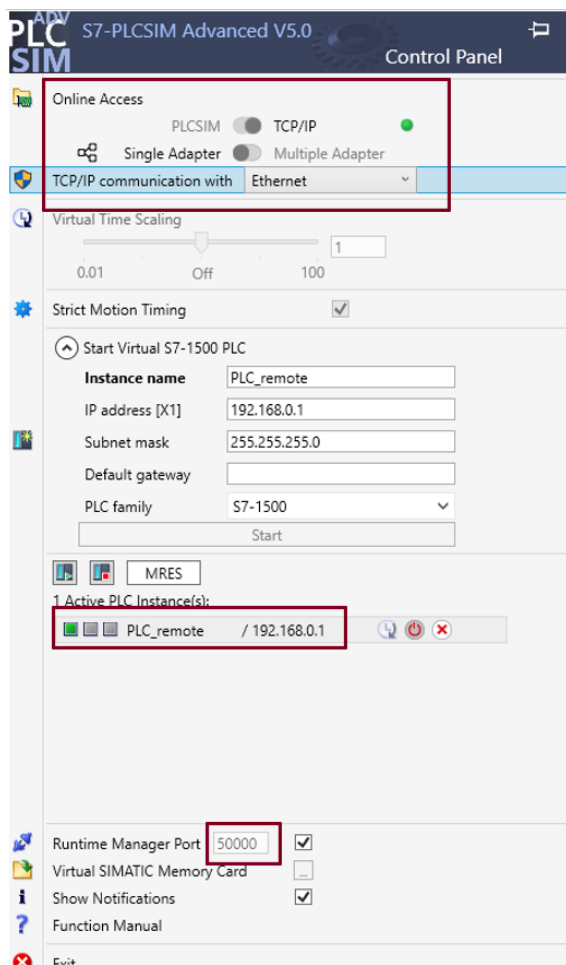


Figure 3-6

- Open the configuration window of the model PLCSIM Adv. interface and enter the values mentioned before in the "Instance name" and "Remote runtime manager" fields as shown in the figure below.

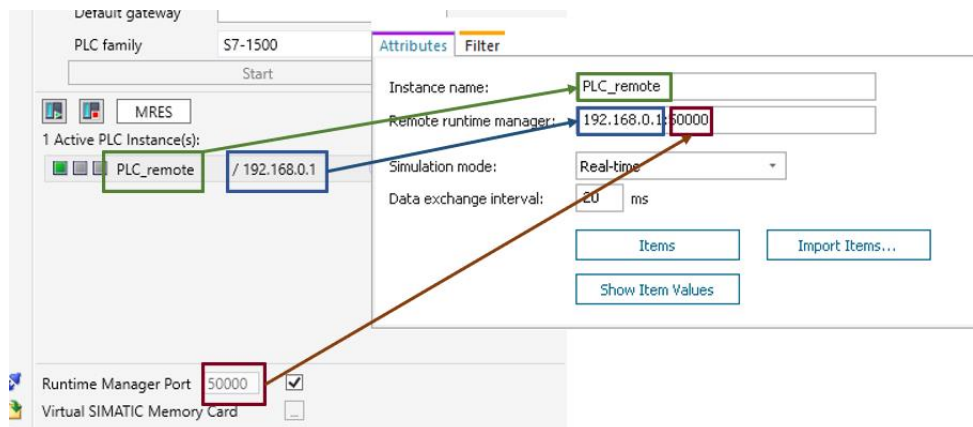


Figure 3-7

- Finally, just activate the interface by marking the checkbox and clicking on Apply. Please check if any error messages appear in the console.

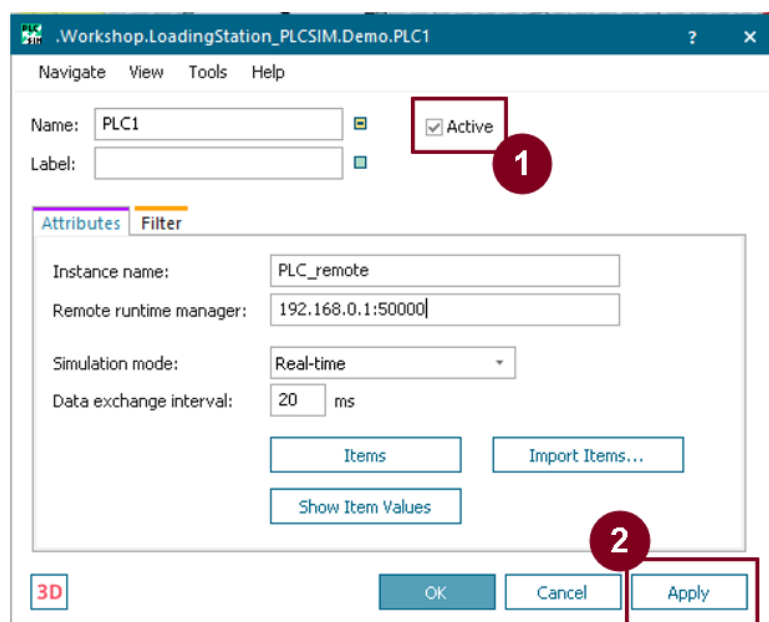


Figure 3-8

Item import from PLC

After activating the interface and making sure the connection was successful, now we can import the signals and tags from the simulated PLC. For this, please follow these steps:

NOTE

It is advisable to use the **Filter** function of the interface **before importing the items**. This way, unnecessary tags will be ignored and only tags complying with the selected filter criteria will be considered.

If too many tags are to be imported (> 500.000), the import will fail.

Furthermore, it is recommended to remove unused tags from the item table to reduce the overhead required for continuously monitoring signals that have no relevance for the simulation.

The interface is equipped with a Filter function to avoid importing all existing tags from the PLC. This way, only the tags that are within the declared DBs of the PLC program are imported. and we can focus on the most relevant tags for our simulation.

To use this feature, we just need to click on the Filter tab of the configuration window of the interface and, in the box below, enter the name of the DBs from which we want our tags. Once finished typing the name, in your keyboard, push Enter. If we desire to enter more DBs, just repeat the process.

Once done introducing all the names, click on Apply to save the changes.

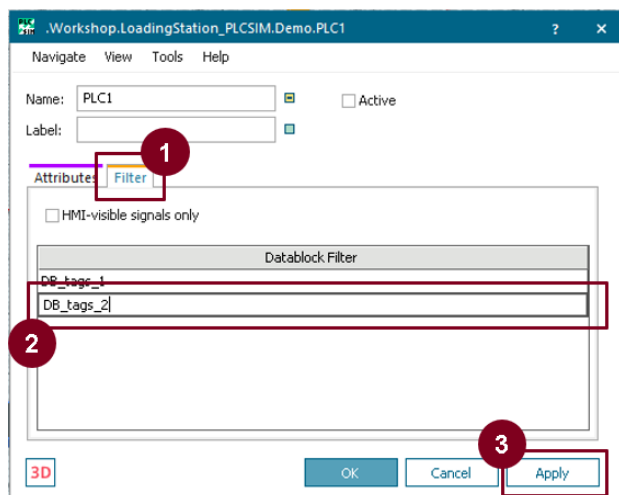


Figure 3-9

As seen the figure above, we even have the additional possibility to further reduce the number of imported tags by using the "HMI-visible signals only" checkbox. When marked, this will filter the tags from the previously indicated DBs and just import the tags that complies with that condition.

1. Begin the tag import by clicking on "Import Items..."

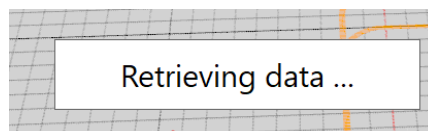
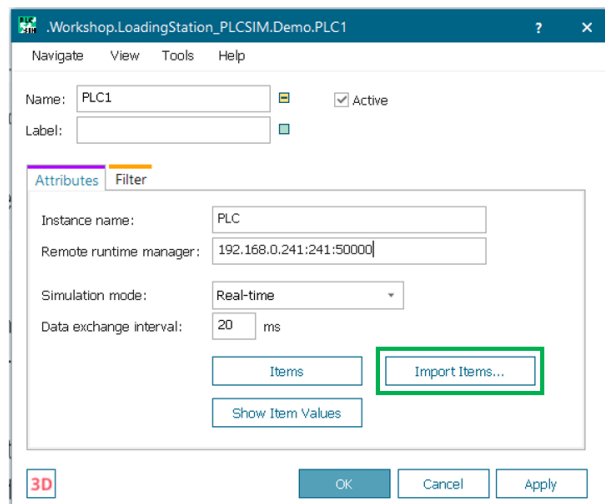


Figure 3-10

- After all the tags have been read from the simulated PLC, a new window will display the different groups of tags available.

	Group Name	Signal Type	Interval [ms]
1	I	PLC In	
2	O	PLC Out	
3	DB		

Figure 3-11

- Specify the Plant Simulation tags to be linked to the PLC tags in the Simulation Model Attribute fields for each group of tags (inputs "I" and outputs "O" of the PLC).

Identifier	Data Type	Alias	Simulation Model Attribute
1 LB1_LS	Boolean	LB1_LS	LoadingStation.Track_LS.LB1_LS
2 PnP_Busy	Boolean	PnP_Busy	LoadingStation.PickAndPlace.Busy

Identifier	Data Type	Alias	Simulation Model Attribute
1 PnP_Stopped	Boolean	PnP_Stopped	LoadingStation.PickAndPlace.Stopped
2 AGV_Stopped	Boolean	AGV_Stopped	LoadingStation.AGVControl

Figure 3-12

During the execution of the simulation, the interface will update the input tags for the PLC and poll for the output tags of the PLC following the data exchange interval time.

Every time that a data exchange happens, the data will be read/written from/to the global variables mapped in the Simulation Model Attribute fields, as shown in [Figure 3-12](#).

It's important to remember that data exchange interval time should be set correctly in accordance with the PLC instance. If not, this may lead to data loss.

Additionally, the Alias field of the Input and Output tag tables of the interface will provide a name to the tag which will be used when calling that tag in a method through the interface. For instance, following [Figure 3-12](#), if we were to try to call to the tag "PnP_Stopped" through the interface, then we should write "PLC1.PnP_Stopped".

It's also advisable to delete unused signals, by selecting them and pushing the "Delete" key on our keyboard. This may be relevant when working with real PLCs, where the majority of DBs are irrelevant for the co-simulation.

Please note, for virtual commissioning purposes it is generally recommended that I/Os are used instead of directly accessing DBs.

3.2. Troubleshooting

3.2.1. Compilation failure

TIA Portal project could not be compiled during the download to the PLCSIM Advanced instance "PLC".

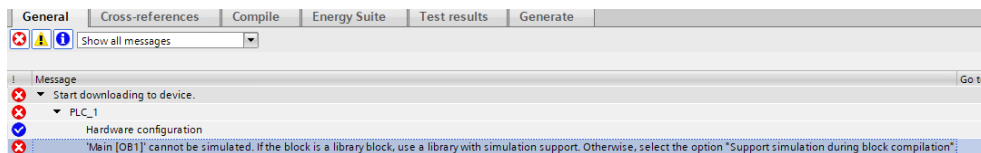


Figure 3-13

Solution: Please, make sure simulation during block compilation is supported.

1. In TIA Portal, right click on the project and open its properties.

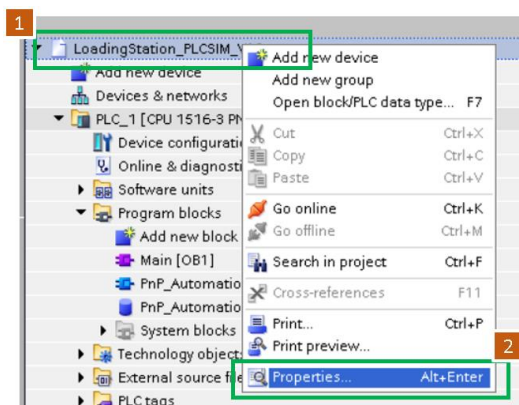


Figure 3-14

2. In the properties pop up window, go to the Protection tab and enable the support.

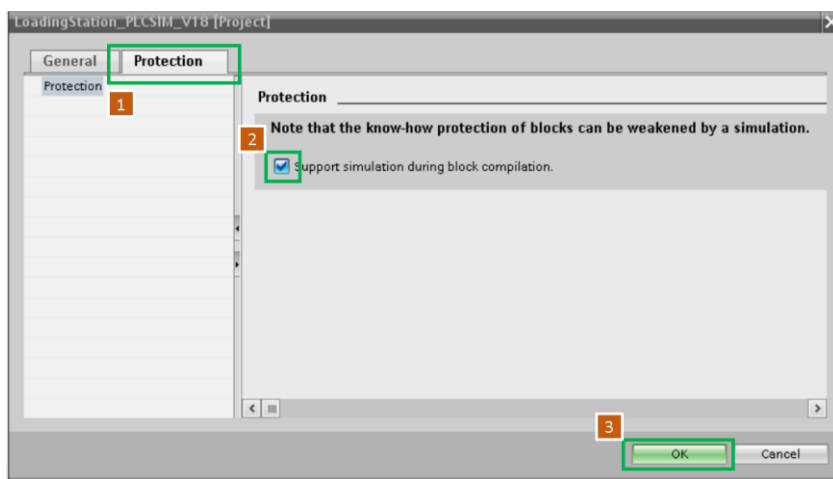


Figure 3-15

3.2.2. Connection failure

Connection to "PLC" in PLCSIM Advanced cannot be established.

Solution: Check, in "Set PG/PC interface" setting in the Control Panel, that the access point of the application for the "Siemens PLCSIM Virtual Ethernet Adapter.TCPIP.1" interface is "S7ONLINE(STEP 7) → Siemens PLCSIM Virtual Ethernet Adapter"

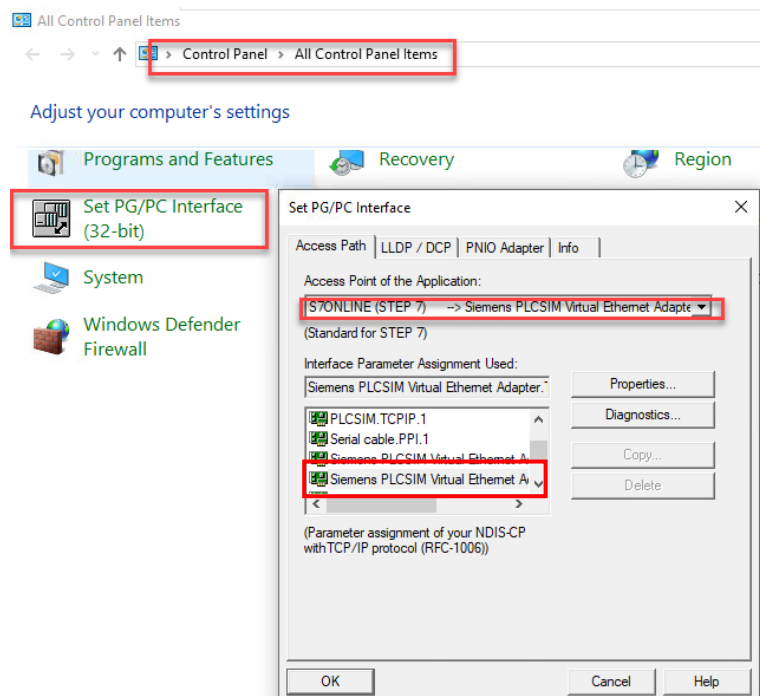


Figure 3-16

3.2.3. Element not found in PnP's angles table

In Plant Simulation, the debugger window pops up and calls for a "not found in the angles table" error in the PnP.

If the PnP's configuration has not been changed, there should be no reason for the PnP to fail. The only reason possible for this is that the simulation speed was set too high.

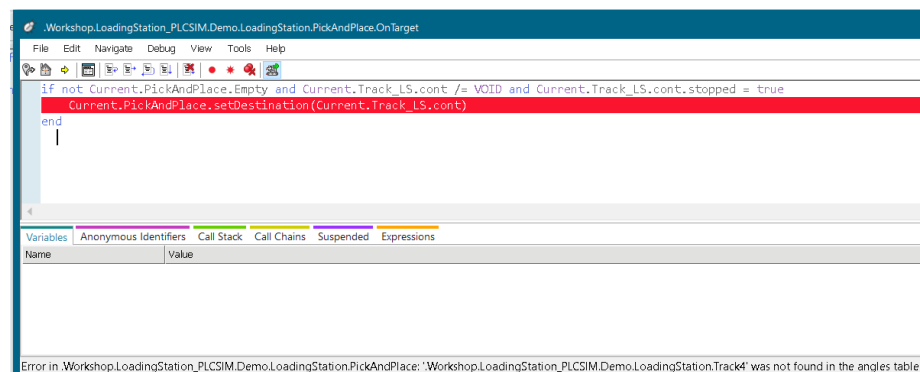


Figure 3-17

Solution: Set the simulation speed to "x1". For Virtual Commissioning, this is the simulation speed that should be always used. A different value may lead to loss of data and malfunction.

3.2.4. Limit for the number of variables exceeded

When trying to import the tags from the PLC in the configuration window of the PLCSIM Advanced in Plant Simulation, we get an error message indicating that the number of variables in the PLCSIM Advanced API is exceeded.

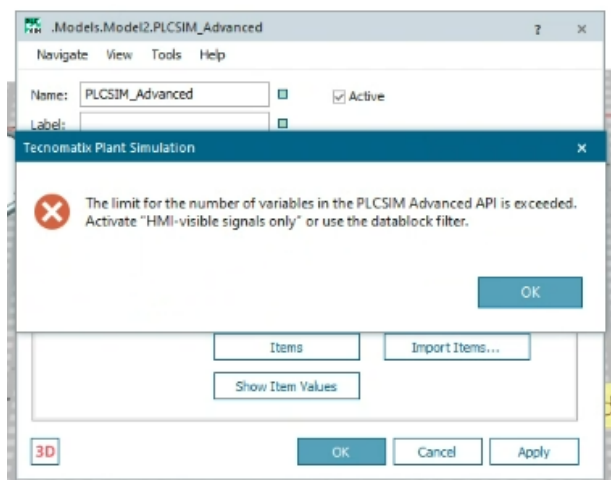


Figure 3-18

Solution 1: As mentioned in the [item import section](#), it is important not to exceed the maximum number of tags to import. Please, use the Filter feature as described in that section.

Solution 2: Instead of working with DB tags, it's also possible to **address memory areas of the PLC directly**, without needing to import the tags.

This is especially relevant when we want to work with Inputs (%I) or Outputs (%Q) of our PLC. We don't need to use DB tags to watch or write those signals.

The only thing that we must consider is knowing the exact meaning of each signal, because there will be no mnemonic in the names for the signal in the interface's tag tables. Nevertheless, we can use the "Alias" field of the tables to clarify the meaning of each signal.

For this solution, the next steps would be the following:

1. In the interface configuration window, click on "Items" to show its content.

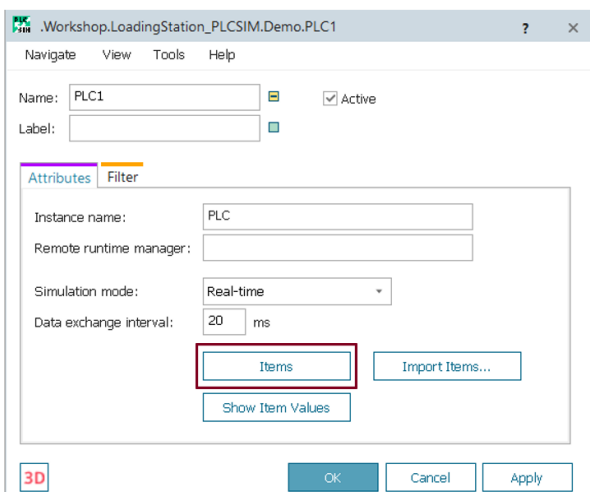


Figure 3-19

- Double click on one of the tag groups in which we want to add our signal. For this demonstration, we will add new Inputs (I). Then, double click on the Inputs group

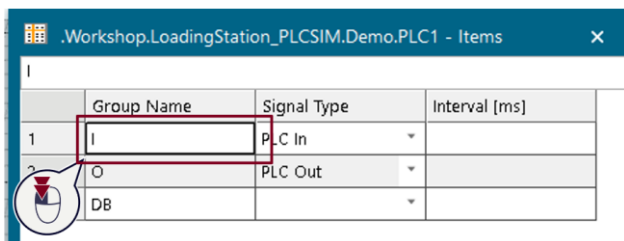


Figure 3-20

- Once in the desired tag group, we will add a new entry on the table by right clicking on the empty space and selecting "Append Row" in the contextual menu.

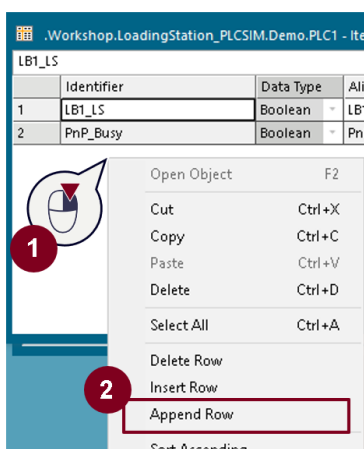


Figure 3-21

- Once the new row has been created, we now can introduce the address of a new signal in the "Identifier" field. We will follow the same naming system as in TIA Portal, when creating tags in the tag table of the PLC program. Just to remember, here is a quick guide for it:
 - For bits: %IX.X
 - For bytes: %IBX
 - For words: %IWX
 - For dwords: %IDX
 (where X are numbers that indicates bit or byte)
- After entering the address of the new signal, continue by selecting the data type of the signal in the drop-down list, and type its alias and the simulation model attribute to which the signal will be linked (if it's needed).

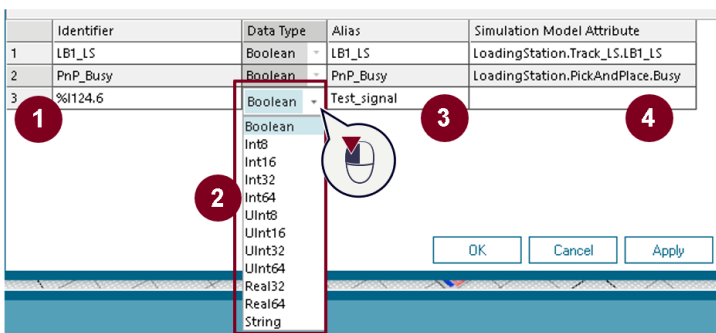


Figure 3-22

Repeat this step as many times as signals you want to add to this group.

6. Save the changes made by clicking on Apply and closing all the windows by clicking on OK.

NOTE

The whole process is **identical** for the Outputs. The only thing to consider is just to substitute "I" for "Q" when typing the signal address in the "Identifier" field of the Outputs tag group.

4. Appendix

4.1. Service and support

SiePortal

The integrated platform for product selection, purchasing and support - and connection of Industry Mall and Online support. The SiePortal home page replaces the previous home pages of the Industry Mall and the Online Support Portal (SIOS) and combines them.

- **Products & Services**
In Products & Services, you can find all our offerings as previously available in Mall Catalog.
- **Support**
In Support, you can find all information helpful for resolving technical issues with our products.
- **mySieportal**
mySiePortal collects all your personal data and processes, from your account to current orders, service requests and more. You can only see the full range of functions here after you have logged in.

You can access SiePortal via this address: sieportal.siemens.com

Technical Support

The Technical Support of Siemens Industry provides you fast and competent support regarding all technical queries with numerous tailor-made offers – ranging from basic support to individual support contracts.

Please send queries to Technical Support via Web form: support.industry.siemens.com/cs/my/src

SITRAIN – Digital Industry Academy

We support you with our globally available training courses for industry with practical experience, innovative learning methods and a concept that's tailored to the customer's specific needs.

For more information on our offered trainings and courses, as well as their locations and dates, refer to our web page: siemens.com/sitrain

Industry Online Support app

You will receive optimum support wherever you are with the "Industry Online Support" app. The app is available for iOS and Android:



4.2. Links and literature

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/109975095

4.3. Change documentation

Version	Date	Modification
V1.0	10/2024	First version