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Engineering Tools

S7-PLCSIM V15.1 Readme

Readme

View the most recent product information online

This Readme file is updated as needed by publishing an online version of the Readme. The online Readme file will contain the contents of this Readme file as well as additional information about S7-PLCSIM V15.1 that was not available when the software was released.

If you encounter unexpected behavior in S7-PLCSIM, visit the Siemens Industry Online Support website (<https://support.industry.siemens.com>). Search for "S7-PLCSIM V15.1 online Readme" to see if the file contains information that addresses your issue.

Note

There are separate online Readme files for each version of S7-PLCSIM, so be sure you have located the online Readme for S7-PLCSIM V15.1.

What's new in S7-PLCSIM V15.1?

Overview of what's new

S7-PLCSIM V15.1 introduces the following new functionality:

- Support for the latest firmware (Page 1)
- Support for S7-1200 know-how protection (Page 1)
- Sequence performance improvements (Page 2)
- Motion control resource support (Page 2)

Support for the latest firmware

S7-PLCSIM V15.1 supports CPU family devices with the following firmware:

- S7-1200 versions from 4.0 to 4.2
- S7-1500 versions 2.6 and lower
- ET 200SP versions 2.6 and lower

S7-1200 projects with know-how protected blocks

S7-PLCSIM V15.1 now provides simulation support for S7-1200 projects containing know-how protected blocks.

Compile all projects with simulation support enabled

S7-PLCSIM requires both S7-1200 and S7-1500 programs to be compiled with simulation support enabled. You must explicitly enable simulation support for any STEP 7 projects that you intend to simulate.

To enable simulation support:

1. Open the "Properties" for the project
2. Select the "Protection" tab
3. Select the checkbox next to "Support simulation during block compilation"
4. Recompile your project

If your program contains know-how protected blocks, you must open those blocks for compilation. Open the STEP 7 block editor and enter the know-how protection password. Leave the block editor open during compilation.

Improved sequence performance

The minimum interval between sequence steps has changed from 50 ms to 5 ms.

The ability to process steps in 5 ms intervals affects the following functionality:

- S7-PLCSIM rounds step times to the nearest 5 ms
- Enter sequence times in multiples of 5 ms to avoid rounding
- When you set the default interval to 5 ms:
 - Insert step inserts a new empty step 5 ms earlier than the time for the selected step
 - Add step inserts a new empty step 5 ms later than the time for the selected step
 - Auto fill inserts steps with times that are 5 ms apart

Motion control resource support

Full support for motion control resources

S7-PLCSIM is no longer restricted to a limit of 5,120 motion resources. S7-PLCSIM can support the full range of motion resources that a physical PLC supports.

General notes

The information in this Readme file supersedes information in other documentation for S7-PLCSIM V15.1.

S7-1200 Fail-safe simulation

S7-PLCSIM is not able to simulate an S7-1200 Fail-safe CPU that uses instructions available under system safety version 2.2.

To simulate Fail-safe applications with an S7-1200 CPU in S7-PLCSIM V15.1, you must use a system safety version older than 2.2. To modify the system safety version, navigate to the Safety Administration Dialog settings tab in TIA Portal and select a system safety version older than 2.2.

Better processor required to run S7-PLCSIM with TIA Portal

Since you run S7-PLCSIM and TIA Portal together, your programming device requires a more powerful processor than if you were running either application alone. For acceptable performance, your programming device should have a quad core processor that is equal to, or better than, an Intel® Core™ i5-6440EQ processor, up to 3.40 GHz.

Value status defaults

The default value status differs between Fail-safe I/O devices and non-Fail-safe (standard) I/O devices as follows:

- Fail-safe I/O device value status defaults to "1", ON, or TRUE
- Standard I/O device value status defaults to "0", OFF, or FALSE

You can modify the reported value status by using SIM tables and sequences.

SIM table recording might generate invalid sequences

It is possible to modify process values without tags in the SIM table. However, sequences require tags for most process values.

To avoid possible errors when you use the SIM table "record sequence" function, define tags for the relevant addresses, or avoid such operations when you record a sequence.

Devices added using a GSD or HSP

The S7-PLCSIM device view does not fully support devices added with GSD (General Station Description) files or HSPs (Hardware Support Packages). When a PLC has configured connections to such devices, S7-PLCSIM attempts to display the devices. If S7-PLCSIM cannot display the devices, or if you want to see an overview of all your devices, you should use the TIA Portal device view instead.

The presence of GSD or HSP devices might also prevent non-GSD/HSP device display.

You can disregard warning messages in S7-PLCSIM about addresses not being mapped to I/O devices.

High feature module support

For physical CPUs, high feature (HF) modules may provide advanced functions for additional requirements.

S7-PLCSIM does not support the simulation of any of these advanced functions. For example, high feature power modules do not enhance the amount of retentive memory available in simulations.

HMI type-safe array element display

HMI tags for type-safe array elements might display as "####". This display can be avoided in one of the following ways:

- Do not use arrays in HMI tags. Use single elements only.
- Adjust the maximum acquisition time of the HMI tag to a higher value (such as 10 seconds) to allow the tag to display correctly.

Saving S7-1500 retentive data block (DB) values

Retentive data block values for an S7-1500 PLC might not be saved unless you power off the PLC before you save the project.

S7-1200 projects do not experience this behavior.