

# What's New in STEP 7, Version 5.4?

The following subject areas have been updated:

## Operating systems

- As of STEP 7 V5.4 SP3, the MS Windows Vista 32 Business and Ultimate operating systems are also supported.
- Important changes have been made to the MS Windows Vista safety concept in STEP 7 V5.4 SP4. This concept is used in case of a new installation (STEP 7 has never been installed on this computer. In this case, most settings, such as the STEP 7 language and mnemonic method are user-defined. This means users can make settings using a PC and their login information. An exception is the setting of the configuration language for the PG/PC interface.
- A user group "Siemens TIA Engineer" will be created under MS Windows Vista. The installer will automatically be added to this user group. Users from this user group have additional rights, such as configuration of the PG/PC interface and installation of the hardware support packages as well as for global setting of the STEP 7 language and mnemonic for all users of the "Siemens TIA Engineer" group. This language setting does also apply for the configuration of the PG/PC interface.
- For manual IP configuration of the PGs (for PROFINET without DHCP), the user must also be added to the preinstalled user group "Network configuration operators."

**Note:** If STEP 7 V5.4 SP4 is installed on top of an existing version of STEP 7, the settings will be specific for a particular PC. It is possible that other software packages may alter the software concept so that these settings may become PC-specific at a later date.

## SIMATIC Manager

- There are two formats available for displaying the date and the time. You can select a display in the respective STEP 7 national language and or in ISO 8601 standard format. To make this setting, go to the SIMATIC Manager, open the "Customize" dialog box and select the "Date and Time" tab.
- You can have module times displayed in the local time for your programming device (PG)/PC. To make this setting, go to the SIMATIC Manager, open the "Customize" dialog box and select the "Date and Time" tab.
- You have the option of restricting access to projects and libraries by assigning a password to them. In order to do this, you must have installed SIMATIC Logon V1.3 SP1 and SIMATIC Logon V1.4 SP1 under MS Windows Vista (as of now referred to as SIMATIC Logon) (see What You Should Know About Access Protection).
- After setting up access protection for projects and libraries, you have the option of keeping a change log that logs online actions such as "download", "operating state changes" or "memory reset". This is only possible if SIMATIC Logon V1.3 SP1 is installed (not under MS Windows Vista) or SIMATIC Logon V1.4 SP1, simply called SIMATIC Logon below (see What You should know about the Change Log).
- As of V5.4 SP4, the archiving program PKZip V12.0 CLI that ships with STEP 7 is the default program for archiving and retrieving projects and libraries. In MS Windows Vista, the ARJ.exe previously included on the CD is no longer installed since it is unsuitable for this operating system. PKZip V12.0 CLI supports the ZIP format used as default by STEP 7 and can, to some extent, also open other archive formats such as ARJ. If your previous archive format (for example -jar) is not available in MS Windows Vista or is not supported by PKZip, please retrieve your projects on your previous platform and then archive them again with PKZip V4.0 CLI in zip format.
- As of V5.4 SP4 access rights for projects/libraries are displayed with a new icon (see What You Should Know About Access Protection).

## Configuring and Diagnosing Hardware

- The "Information and Maintenance" process is supported in order to be able to read identification data from or write identification data to modules. This function is also available in the SIMATIC Manager (see Identification & Maintenance (I&M)).
- Identification data can also be written to PROFIBUS DP interface modules during redundant mode (by means of "Accessible Nodes"). The interface module must support this function.
- As of V5.4 SP1, you can also download identification data over PROFINET IO (see Entering or Changing M Data in HW Config).
- CAx data can be imported and exported. In this way, data can be exchanged between STEP 7 and CAD systems or CAE engineering systems (see Exporting and Importing CAx Data)
- The firmware for PROFIBUS DP interface modules can also be updated during redundant mode, as long as such a module will support this process. Each of the redundantly used interface modules can now send the updated firmware through the active backplane bus to the other, redundant interface module.
- The "Software Redundancy" function now allows PA links with subordinate PA slaves to be copied and redundantly inserted (see Configuring SW Redundancy)
- Applications for editing objects in HW Config can now be started with the **Edit > Open Object** menu command (see Opening Objects in HW Config).
- You can configure a watchdog time for PROFINET IO devices (see Configuring the Watchdog Time)
- You can have module times displayed in the local time of your programming device (PG)/PC.
- As of V5.4 SP1, you can download language-specific information to CPUs to allow you to read information online with a Web browser in the required language (see Configuring the CPU for Web Access).
- As of V5.4 SP2, you call tools external to STEP 7 from HW Config to configure distributed devices (see Integrating Tools for Configuration of Distributed Devices (TCI; Tool Calling Interface)).
- As of V5.4 SP2, the PROFINET Topology Editor is included in STEP 7. It contains a graphical and tabular view, and online views with diagnostic information.
- As of V5.4 SP2, you can configure additional PROFINET IO devices with IRT (S7-CPU, ET200, Scalance X).
- As of V5.4 SP3 you can assign asset IDs to modules within the framework of asset management. These asset IDs are then available to the SIMATIC Maintenance Station (see Assigning Asset IDs).
- As of V5.4 SP4, the standard search procedure of the PROFINET topology editor for topology discovery has been expanded. This allows, among other things, PCs with installed STEP 7 software to be recognized although they are not configured as PC stations.
- As of V5.4 SP4, new PROFINET functionalities are available: Prioritized startup (see Tips for Achieving the Fastest Startup Times), alternating partner port (see Configuring Docking Systems), Device Replacement without Exchangeable Medium

Additional PROFINET IO functions are available with SIMOTION/Scout:

- As of V5.4 SP2, you can configure "direct data access" to F modules (SINAMICS\_Integrated) for special SIMOTION CPUs / D4x5 controller as lower-level I slaves (see Direct Data Access to a Module in the Lower-level I Slave). This can only be done within the context of SIMOTION/Scout!
- As of V5.4 SP2, you can configure intelligent IO devices in IRT mode (see What You Should Know about Configuring Intelligent IO Devices). This can only be done within the context of SIMOTION/Scout!
- As of V5.4 SP2, you can set update times for PROFINET IO devices in IRT mode as can be done for PROFINET IO devices of the RT classes (see Update Times for Cyclic Data Exchange). This can only be done within the context of SIMOTION/Scout!

- As of V5.4 SP2, you can configure redundant sync masters for a PROFINET IO configuration with devices in IRT mode (see Configuring Redundant Sync Masters). This can only be done within the context of SIMOTION/Scout!

## Configuring Networks and Connections

- PROFINET IO with IRT communication (isochronous real time) is supported. This means that short and equal-length bus-cycle times can also be configured for PROFINET IO (see Introduction: Isochronous Real-time Ethernet).
- There is improved handling when inserting copied IO devices into another station. If the IP addresses are already assigned, you can specify the action to be taken upon insertion (retain addresses or assign new ones).
- In a manner similar to that for PROFIBUS DP slaves, you can now set the watchdog time for PROFINET IO devices: as an object property of the IO device in the "IO Cycle" tab.
- When using optical components for PROFIBUS DP: when configuring with an optical ring, you can specify the optical link modules (OLMs) to be used. This makes calculation of bus parameters more exact. In addition, it means that the bus cycle time can be shortened when higher-performance components are being used.

## Standard Libraries

- The standard library "Communication Blocks" has been expanded with the blocks FB 67 and FB 68 for open TCP/IP communication.
- The standard library "Communication Blocks" has been expanded with the blocks FB 20, FB 21, FB 22 and FB 23 for cyclic accessing of user data in accordance with the German PROFIBUS User Organization [PROFIBUS Nutzerorganisation e.V. (PNO)].
- In addition to the existing redundancy library "Redundant IO (V1)", there is the new block library "Redundant IO CGP" (channel granular peripheral devices). It supports redundancy for single module channels. You can find further information in the context-sensitive block help or the STEP 7 readme file. A current list of supported modules is available under the FAQs here: <http://support.automation.siemens.com/>.
- As of V5.4 SP2, the system functions for SFC 109 "PROTECT" have been expanded for activation of write-protection.
- As of V5.4 SP4, there is a new block library "Redundant IO CGP V5.0". In addition to the previous redundancy libraries "Redundant IO (V1)" and "Redundant IO CGP". This supports redundancy for individual channel groups and can be operated with all previous signal modules that can be operated redundantly. If you want to replace one of the libraries "Redundant IO (V1)" or "Redundant IO CGP" with the "Redundant IO CGP V5.0" library, you will first need to adapt your user program. You will find more information in the Help on Blocks context help or in the STEP 7 readme. There is an up-to-date list of the supported modules as an FAQ at <http://support.automation.siemens.com/>.

## Report System Error

- As of STEP 7 V5.4, a data block (DB 125) for PROFIBUS is supported. This data block can be used to output diagnostic events on an HMI device.
- As of V5.4 SP1, you can export messages and error texts after you have generated them.
- As of V5.4 SP1, you can use the unique name of the station from the S7 project in the message information that you configure in the "Messages" tab.
- As of V5.4 SP2, you can specify values for any type of reporting component, which can be used in the generation of messages.
- As of V5.4 SP2, the support for AS-i links has been expanded.

- As of V5.4 SP4, a data block (DB 127) is supported for the CPU Web server.
- As of V5.4 SP4, you can specify how a CPU handles messages in a separate tab.
- As of V5.4 SP4, you can define placeholders in error texts that are then evaluated during runtime and replaced by suitable associated values in the message.

## Diagnostics

- As of STEP 7 V5.4 SP1, maintenance information is displayed for certain PROFINET IO components (see Hardware Diagnostics and Troubleshooting).
- As of STEP 7 V5.4 SP1, the module information functions for PROFINET IO interfaces and their ports on CPUs with an integrated Ethernet interface have been expanded by the "Communication Diagnostics" tab (see Module Information Functions) when the module supports this function.
- As of V5.4 SP2, the functions of the module information for diagnostic repeaters as been expanded with the "DP Cycle Time" tab.
- As of V5.4 SP2, the functions of the module information for PROFINET IO devices have been expanded with the "Identification" tab.
- As of V5.4 SP2, the "Network Connection" tab of the module information is now also displayed for PROFINET IO ports.
- As of V5.4 SP2, the "Statistics" tab of the module information now has two views.
- As of V5.4 SP2, the "Module Information" dialog box has been expanded with the current protection level of your CPU.

## Converting an S5 File

As of V5.4 SP2, you can use **Options > Customize** to assign STEP 7 blocks to be converted from STEP 5 blocks to user-defined block numbers and thereby retain the block numbers of the earlier STEP 5 function blocks.

## Operating/monitoring variables

As of V5.4 SP 2, you can now easily replace addresses in the variable table using the menu command **Edit > Find/Replace**.

## Working with fail-safe modules

- As of V5.4 SP 2, you can use the **Options > Customize > View** to set custom background colors for the display of non-fail-safe addresses in F blocks, which were created with the programming languages F-LAD or F-FBD. Requirement: S7 Distributed Safety >= V5.2 is installed.
- As of V5.4 SP 2, you can also save F blocks, which were created with the programming languages F-LAD or F-FBD, as read-only. Requirement: S7 Distributed Safety >= V5.2 is installed.
- As of V5.4 SP 2, you can also rewire F blocks, which were created with the programming languages F-LAD or F-FBD. Requirement: S7 Distributed Safety V5.4 SP2 and F # Configuration Pack V5.5 SP1 are installed.
- As of V5.4 SP 2, you can also hide F blocks, which were created with the programming languages F-LAD or F-FBD, with a user-specific block filter in the list. When the "Also show F block" check box is activated, the selected object types are displayed **with** F blocks. When the "Also show F block" check box is not activated, the selected object types are displayed **without** F blocks. Requirement: S7 Distributed Safety >= V5.2 is installed.

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