

A man in a light blue shirt is shown from the side, holding a tablet computer. He is looking at the screen, which displays a software interface with various charts and data. The background is a blurred industrial factory setting with machinery and equipment.

SIEMENS

Application description • 01/2015

Checking of STEP 7 Programs for the Migration of S7-318 to S7-300

CPU318 Migration Check

<http://support.automation.siemens.com/WW/view/en/22680601>

Warranty and liability

Note

The Application Examples are not binding and do not claim to be complete regarding the circuits shown, equipping and any eventuality. The Application Examples do not represent customer-specific solutions. They are only intended to provide support for typical applications. You are responsible for ensuring that the described products are used correctly. These application examples do not relieve you of the responsibility to use safe practices in application, installation, operation and maintenance. When using these Application Examples, you recognize that we cannot be made liable for any damage/claims beyond the liability clause described. We reserve the right to make changes to these Application Examples at any time without prior notice.

If there are any deviations between the recommendations provided in these application examples and other Siemens publications – e.g. Catalogs – the contents of the other documents have priority.

We do not accept any liability for the information contained in this document.

Any claims against us – based on whatever legal reason – resulting from the use of the examples, information, programs, engineering and performance data etc., described in this Application Example shall be excluded. Such an exclusion shall not apply in the case of mandatory liability, e.g. under the German Product Liability Act (“Produkthaftungsgesetz”), in case of intent, gross negligence, or injury of life, body or health, guarantee for the quality of a product, fraudulent concealment of a deficiency or breach of a condition which goes to the root of the contract (“wesentliche Vertragspflichten”). The damages for a breach of a substantial contractual obligation are, however, limited to the foreseeable damage, typical for the type of contract, except in the event of intent or gross negligence or injury to life, body or health. The above provisions do not imply a change of the burden of proof to your detriment.

Any form of duplication or distribution of these Application Examples or excerpts hereof is prohibited without the expressed consent of Siemens Industry Sector.

Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, solutions, machines, equipment and/or networks. They are important components in a holistic industrial security concept. With this in mind, Siemens' products and solutions undergo continuous development. Siemens recommends strongly that you regularly check for product updates.

For the secure operation of Siemens products and solutions, it is necessary to take suitable preventive action (e.g. cell protection concept) and integrate each component into a holistic, state-of-the-art industrial security concept. Third-party products that may be in use should also be considered. For more information about industrial security, visit <http://www.siemens.com/industrialsecurity>.

To stay informed about product updates as they occur, sign up for a product-specific newsletter. For more information, visit <http://support.automation.siemens.com>.

Table of contents

	Warranty and liability	2
1	Task.....	4
2	Solution.....	4
	2.1 Overview	4
	2.2 Hardware and software components.....	5
	2.2.1 Validity	5
	2.2.2 Components used	5
3	Mode of Operation.....	6
4	Installation and Commissioning.....	6
5	Operating the Application	7
6	Related literature	9
7	History	9

1 Task

Overview

In STEP 7 user programs for S7-318, standard blocks such as SFBs, SFCs, SystemOBs, etc. are also frequently used. In the S7-300 controller generation these functions are partly realized in a different way or may even be superfluous. This is why STEP 7 programs that are to be migrated to the S7-300 controller generation may have to be adjusted.

2 Solution

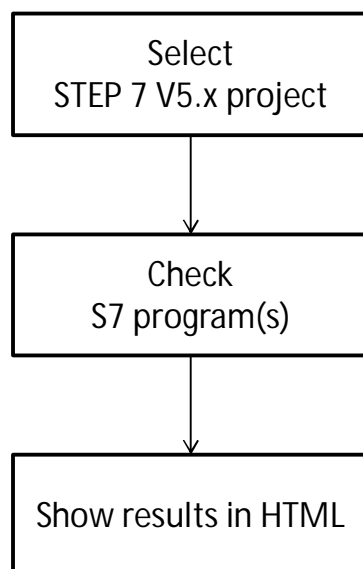
2.1 Overview

With the CPU318 Migration Check tool, the STEP 7 V5.x project can be checked in order to find out if, and which one of the S7-318 standard blocks were used in the project. The tool examines S7 programs for their portability to S7-300 CPUs. This enables you to check whether your S7 programs, which you developed for S7-318 CPUs, also run on S7-300 CPUs.

Schematic layout

The figure below shows a schematic overview of the most important components of the solution:

Figure 2-1



Advantages

The solution presented here, offers you the following advantages:

- Checking portability on the S7-300
- Results of the check in HTML
- Time and cost savings

2.2 Hardware and software components

2.2.1 Validity

This application is valid as of

- STEP 7 V5.4 SP1

2.2.2 Components used

The application was created with the following components:

Software components

Table 2-1

Component	No.	Article number	Note
SIMATIC STEP 7 Version 5.4 SP1	1	6ES7810-4CC08-0YA5	Or higher

Example files and projects

The following list includes all files and projects that are used in this example.

Table 2-2

Component	Note
22680601_CPU318_MigrationCheck_CODE_v11.zip	Installation program for the "CPU318 Migration Check" tool
22680601_CPU318_MigrationCheck_DOKU_v11_en.pdf	This document.

3 Mode of Operation

Overview

The tool analyses the STEP 7 V5.x project for:

- System functions used (SFCs)
- Organization blocks used (OBs)
- problematic program logic

The results of the analysis and information on porting are displayed in an HTML overview table.

Note

Further informations on the migration of the CPU 318-2 DP to current S7-300 CPUs can be found in this [FAQ](#).

4 Installation and Commissioning

Software requirements

The tool is running with the following operating systems:

- MS Windows XP Professional SP2 or SP3
- MS Windows 7 32Bit and 64Bit

Installation of the tool

Unzip the zip file and carry out the setup. After installing, the tool is available in the following path:

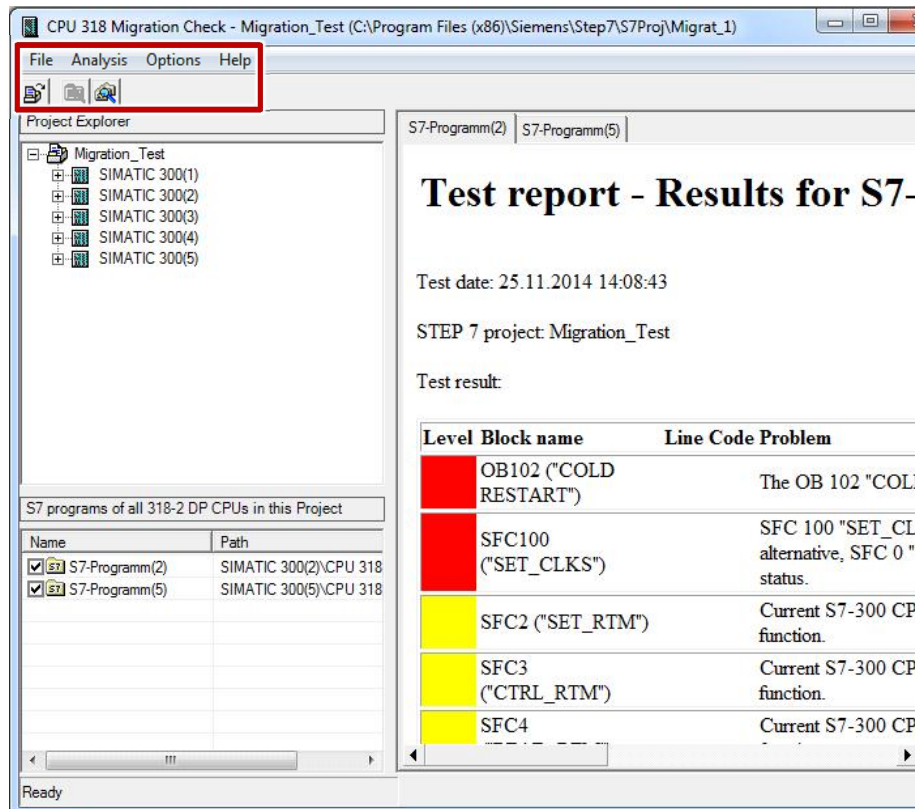
Start > SIMATIC -> CPU 318 Migration Check -> CPU 318 Migration Check

Note

The tool works with STEP 7 V5.x projects. For this reason, it is assumed that STEP 7 V5.x is installed on the computer. If STEP 7 V5.x has not been installed, the installation of the tool will be aborted.

5 Operating the Application

Overview and description of the user interface



Select STEP 7 V5.x project

Open the "Open STEP 7 project" window by selecting the menu item "File -> Open STEP 7 project..."

NOTE The list in the "Open STEP 7 project" dialog only contains the STEP 7 projects which are also managed by the SIMATIC Manager on this PC. Opening STEP 7 projects not managed by the SIMATIC Manager is not possible.

In the "Open STEP 7 project" dialog you select a STEP 7 project and click the "Open". Button.

An opened STEP 7 project is displayed in two windows on the left pane of the tool. •

- Project Explorer: The structure of the project explorer equals the structure of the project tree in the SIMATIC Manager.
- S7 programs of the 318-2 DP CPUs in the project: If 318-2 DP CPUs exist in the opened STEP 7 project, their S7 programs are displayed in this list.

Analyze S7 programs

From the list of "S7 programs of the 318-2 DP CPUs in the project" you can select one or several S7 programs (by checkmarking the desired list entry).

Start the program analysis via the "Analysis" menu

NOTE Individual programs can be selected via the "project Explorer". Start the program analysis via the context menu (right-click the S7 program) of the S7 program.

Results of the program analysis

The results of the program analysis are displayed in the right pane of the CPU 318 Migration Check as HTML pages. per analyzed S7 program one HTML page is generated.

NOTE The HTML pages are saved at "[My Documents (Windows XP) or Documents (Windows 7)]\Migration Check\Analysis Data\[project name]". Already existing HTML pages are overwritten.

Table 5-1

Column	Description
Step	<ul style="list-style-type: none"> Red: The program is not runnable on a current S7-300 CPU. Yellow: The program may behave irregularly on a current S7-300 CPU.
Block name	Name of the affected block. This can be a non-runnable OB or an SFC, or a block which contains a problematic program call.
Line	The line in the block where the problematic program call can be found. The line number relates always to the source of the block.
Code	The problematic program call.
Problem	Explanation of the program.

NOTE Opening of multiprojects is not possible. The "CPU 318 Migration Check" tool can only be used to open individual projects of a multiproject.

NOTE The analysis of know-how protected blocks is not possible.

6 Related literature

Table 6-1

	Topic	Title / Link
\1\	Siemens Industry Online Support	http://support.automation.siemens.com
\2\	Download page of this entry	http://support.automation.siemens.com/WW/view/en/22680601
\3\		

7 History

Table 7-1

Version	Date	Modifications
V1.0	03/2006	First version
V1.1	11/2014	Extension for Windows 7 64Bit