SINAMICS G/S: Commissioning-support scripts for SINAMICS drives

SINAMICS commissioning auxiliary scripts

Application description · July 2013

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SINAMICS commissioning auxiliary scripts

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1 Motivation

Because of the STARTER operating philosophy, many recurring operations require not only time, but, as result of these monotonous actions, lead to faults.

STARTER currently lacks integrated functions to solve such operations with regard to time and quality.

Irrespective of the drive family (SINAMICS G / SINAMICS S), the number of drive units and drives, the industry sector and the application, the scripts provided here offer significant improvements, in particular, during a commissioning.

The use cases supported by the scripts are:

- Download to all drives after changes have been made in the offline project,
  - for example, after a longer commissioning interruption,
  - for example, at the start of a day.
- Upload all parameter changes of all drives to the offline project,
  - for example, before a longer commissioning interruption,
  - for example, at the end of a day.
- Duplicate parameter changes of a drive to all other drives of the project that satisfy the same or comparable tasks.

The scripts can be executed under SINAMICS STARTER and SIMOTION SCOUT. All SINAMICS Integrated devices and Controller Extensions (CX) are supported.

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2 Integration in a project

Irrespective of the deployed development environment (SINAMICS STARTER or SIMOTION SCOUT), the procedure for integrating the commissioning auxiliary scripts in a project does not change.

Only the screenshots shown here can differ in detail for the concrete constellation, with regard to

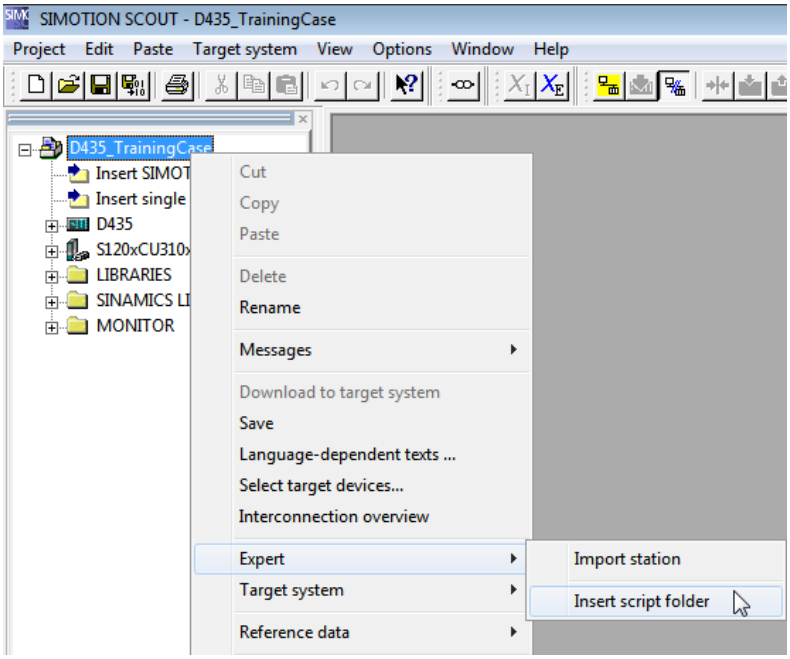
- Type of the deployed development environment,
- Version of the deployed development environment,
- Language setting of the operating system with regard to the set user-interface language of the development environment.

The screenshots shown here were created with Windows 7 Professional English and SIMOTION SCOUT V4.3.1.12 with an English user interface.

2.1 Inserting a script folder

Open SIMOTION SCOUT or SINAMICS STARTER and the desired project. Unless performed previously, select the project level in the Project Navigator and create a script folder from the (*Expert* ➔ *Insert script folder*) context menu.

Figure 1 - Inserting a script folder



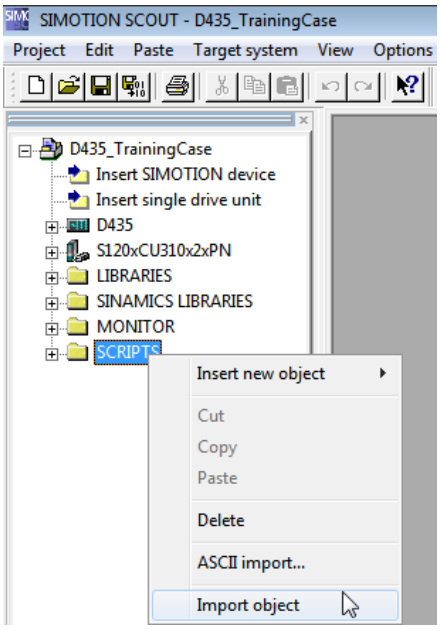
2.2 Integration via object import

2.2.1 Importing the Download script

The Download script exists as XML Export. To import the project, select the *Import object* menu item in the context menu of the script folder.

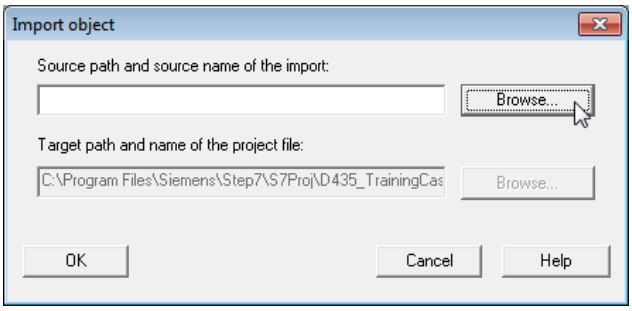
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Figure 2 - Importing a script



In the following dialog, select the directory with the scripts by clicking the *Browse…* button

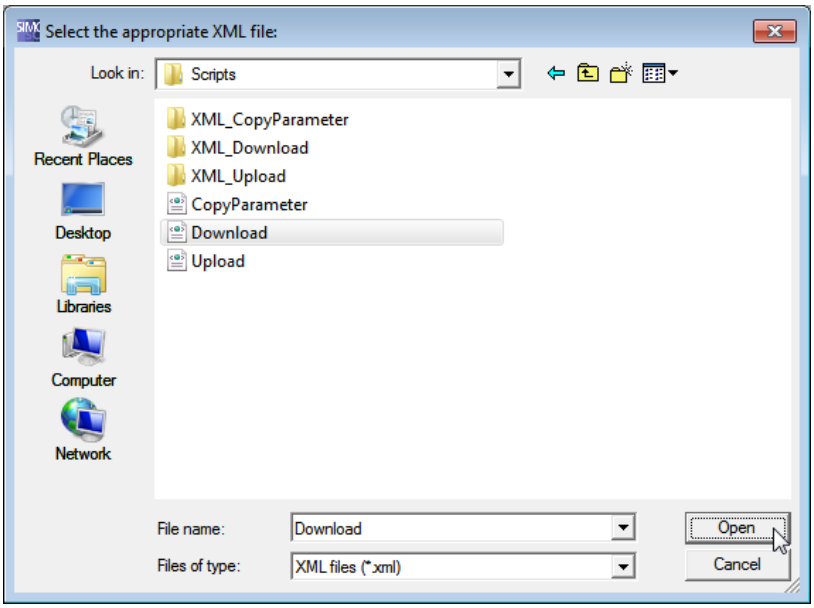
Figure 3 – *Importing an object* dialog



In the following dialog, select the **Download.xml** file.

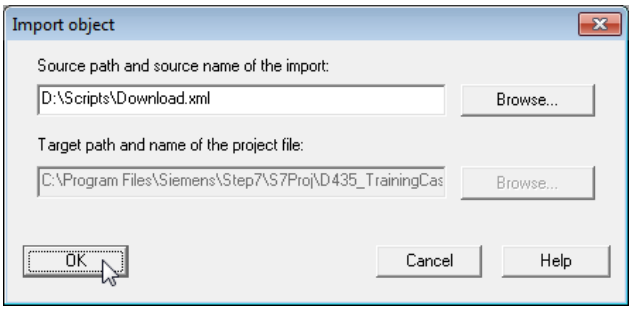
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Figure 4 – Dialog for the XML file selection



Now click the *OK* button to accept the file selection (shown in the upper text field).

Figure 5 – *Importing an object* dialog



The import is now completed. The Download script is contained in the script folder and can be executed immediately.

2.2.2 Importing the Upload script

The procedure is identical with the procedure described in Section **Fehler! Verweisquelle konnte nicht gefunden werden.**. Only the **Upload.xml** file needs to be selected in the dialog for the XML file selection.

2.2.3 Importing the CopyParameter script

The procedure is identical with the procedure described in Section **Fehler! Verweisquelle konnte nicht gefunden werden.**. Only the **CopyParameter.xml** file needs to be selected in the dialog for the XML file selection.

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3 Application

3.1 General information

The screenshots shown here were created with Windows 7 Professional English and SIMOTION SCOUT V4.3.1.12 with an English user interface.

User interface language

The language in the script dialogs matches that in the SINAMICS STARTER or SIMOTION SCOUT development environment. Currently German and English are supported.

If French, Italian or Spanish is set as language, English will be displayed in the script dialogs.

Log file

Each script documents its actions in the details display. This is done in the same language as the above-mentioned user interface language.

The output can also be written in the details display in a log file. The log file exists in the project directory and has *.log as file extension.

If the log file does not yet exist, it will be created implicitly by the associated script. An existing log file will never be overwritten; new entries are written as new text lines at the end of the log file.

Each script has its own log file.

Figure 6 Example extract from a log file

```
178  ### ----------------------------------------------------------------------
179  7/3/2013 7:24:54 AM - Script Upload started
180  7/3/2013 7:24:54 AM - Current project: D435_TrainingCase
181  7/3/2013 7:25:06 AM - Device SINAMICS_Integrated is selected
182  7/3/2013 7:25:06 AM - Going online to device SINAMICS_Integrated
183  7/3/2013 7:25:12 AM - Start Upload from device SINAMICS_Integrated
184  7/3/2013 7:25:28 AM - Upload from device SINAMICS_Integrated completed
185  7/3/2013 7:25:29 AM - Device S120xCU310x2xPN is selected
186  7/3/2013 7:25:29 AM - Going online to device S120xCU310x2xPN
187  7/3/2013 7:25:32 AM - Start Upload from device S120xCU310x2xPN
188  7/3/2013 7:25:37 AM - Upload from device S120xCU310x2xPN completed
189  7/3/2013 7:25:38 AM - Script Upload completed
```

Note Because the log file is contained in the project directory, it will also be archived automatically.

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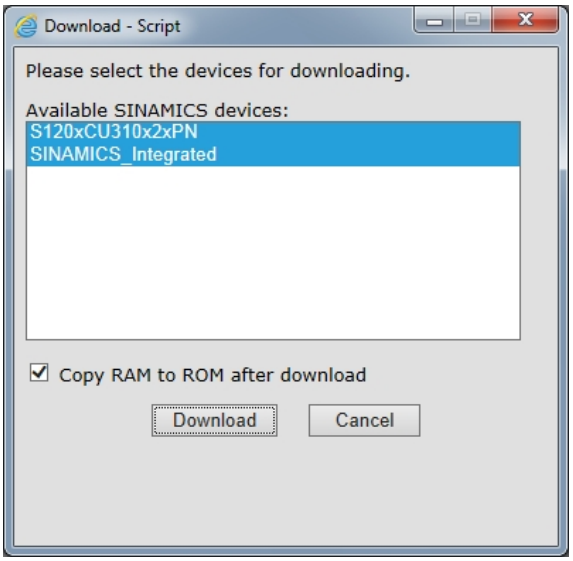
3.2 Download script

The Download script is used to load the complete offline parameterization into the drive units, e.g. after offline changes have been made during a commissioning.

Start the script in the Project Navigator with *Accept and execute* from the context menu. In the opened dialog, select the SINAMICS drive units to which a download should be performed. All drive units are selected as the default setting. You can change the selection using the mouse or with the Shift and Ctrl keys.

Activate the *Copy RAM to ROM after download* checkbox to automatically save the parameters permanently on the drive unit.

Figure 7 Downloading a script dialog



Click the *Download* button to start the download to the selected drive units. Click the *Cancel* button to terminate the script without download.

Note If possible, terminate the script using the *Cancel* button rather than using the *Execute script* dialog. The latter does not close the script dialog.

NOTICE **The "Copy RAM to ROM" global setting (in the Options → Settings menu) has priority over the *Copy RAM to ROM after download* checkbox.**
This means that the checkbox for deactivated global setting forces a copy from RAM to ROM, although it does not suppress a copy from RAM to ROM for activated global setting.

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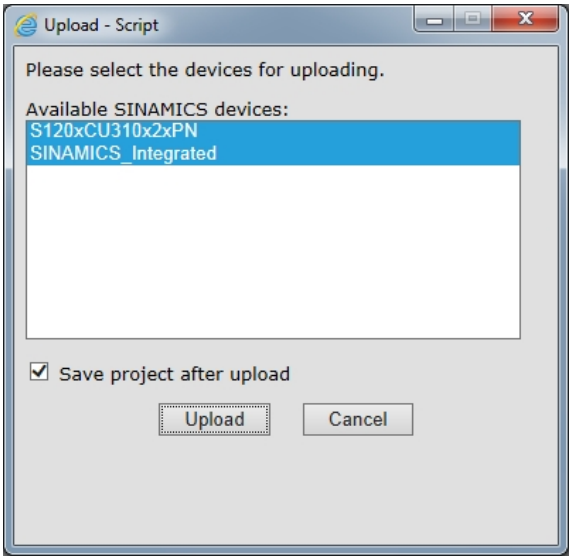
3.3 Upload script

The Upload script is used for the complete backup of the online parameterization in the offline project, e.g. during a commissioning at the end of a workday.

Start the script in the Project Navigator with *Accept and execute* from the context menu. In the opened dialog, select the SINAMICS drive units from which an upload should be performed. All drive units are selected as the default setting. You can change the selection using the mouse or with the Shift and Ctrl keys.

The activated *Save project after upload* checkbox causes the updated offline project version to be saved automatically.

Figure 8 Uploading a script dialog



Click the *Upload* button to start the upload from the selected drive units. Click the *Cancel* button to terminate the script without upload.

Note If possible, terminate the script using the *Cancel* button rather than using the *Execute script* dialog. The latter does not close the script dialog.

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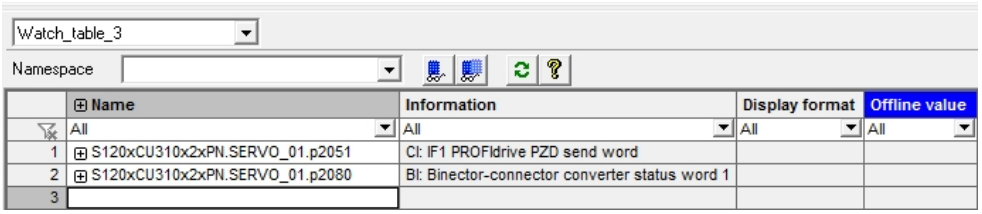
3.4 CopyParameter script

The CopyParameter script is used to duplicate the parameters of a drive object (preferably a drive) to other drive objects within the project that perform identical or comparable tasks.

Watch table as data source

Another previously created watch table with the parameters to be duplicated serves as source of the parameters to be duplicated.

Figure 9 Example watch table

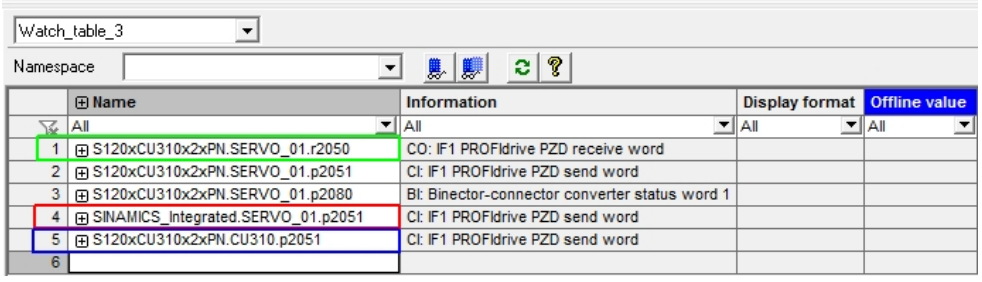


	Name	Information	Display format	Offline value
	All	All	All	All
1	S120xCU310x2xPN.SERVO_01.p2051	CI: IF1 PROFIdrive PZD send word		
2	S120xCU310x2xPN.SERVO_01.p2080	BI: Binector-connector converter status word 1		
3				

The **SERVO_01** drive object of the **S120xCU310x2xPN** device serves as data source in the watch table. The **p2051** and **p2080** parameters are copied.

If different drive objects or devices exist in other lines, they will be ignored. The r parameters are also ignored.

Figure 10 Example watch table with ignored entries



	Name	Information	Display format	Offline value
	All	All	All	All
1	S120xCU310x2xPN.SERVO_01.r2050	CO: IF1 PROFIdrive PZD receive word		
2	S120xCU310x2xPN.SERVO_01.p2051	CI: IF1 PROFIdrive PZD send word		
3	S120xCU310x2xPN.SERVO_01.p2080	BI: Binector-connector converter status word 1		
4	SINAMICS_Integrated.SERVO_01.p2051	CI: IF1 PROFIdrive PZD send word		
5	S120xCU310x2xPN.CU310.p2051	CI: IF1 PROFIdrive PZD send word		
6				

Line 1 (green) defines the **S120xCU310x2xPN** device and the **SERVO_01** drive object. The **r2050** parameter, however, is ignored because it is an r parameter.

Lines 2 and 3 are valid because the device and the drive object match line 1 and no r parameter is involved.

Line 4 (red) is ignored because it does not match the device in line 1.

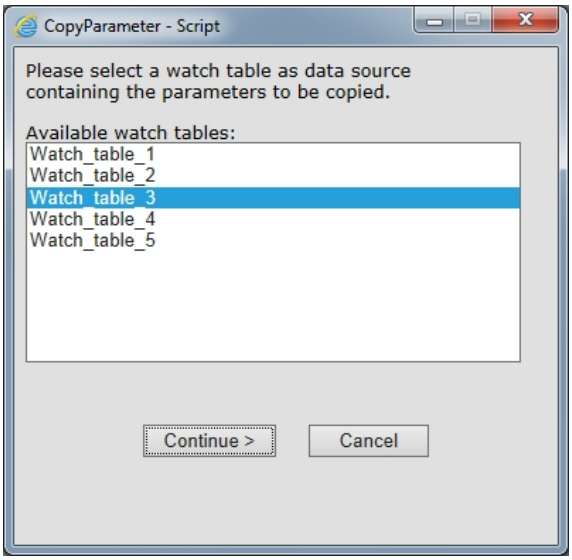
Line 5 (blue) is ignored because it does not match the drive object in line 1.

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The script

Start the script in the Project Navigator with *Accept and execute* from the context menu. Select the watch table in the dialog that opens. A multiple selection is not possible.

Figure 11 CopyParameter script dialog 1

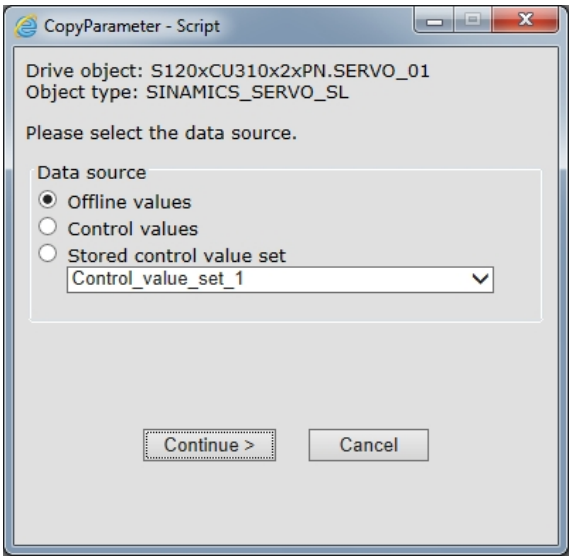


Click the *Continue* button to start the dialog for selecting the source data. Click the *Cancel* button to terminate the script without performing any action.

Note If possible, terminate the script using the *Cancel* button rather than using the *Execute script* dialog. The latter does not close the script dialog.

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Figure 12 CopyParameter script dialog 2



The source object (device and drive object) as well as its object type are displayed in the upper part of the dialog.

You can now select the data source from which the parameter values are taken. The following are available:

- Offline values of the drive object,
- Control values from the watch table, as well as
- Stored control value sets (if available).

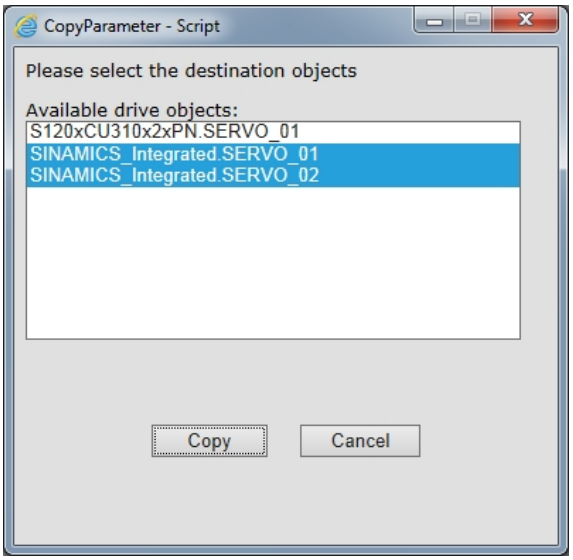
Click the *Continue* button to fetch the individual parameter values from the data source and to display them in the details display. The dialog for selecting the destination objects is started below. Click the *Cancel* button to terminate the script without performing any action.

Note A watch element does not need to have a control value. This also applies to stored control value sets. In this case, the watch element is ignored.

Note Stored control value sets can have watch elements that are no longer stored in the watch table. These watch elements are ignored.

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Figure 13 CopyParameter script dialog 3



The potential destination objects are displayed in the last dialog. They are determined from the object type of the source object. The source object is also displayed.

Select one or more destination objects. No object is selected by default. A multiple selection is possible.

Click the *Copy* button to write the individual parameters for each destination object. Each individual write action is displayed in the details view. In an error situation – a parameter could not be written – processing continues with the next parameter.

Click the *Cancel* button to terminate the script without performing any action.

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5 History

Table 5□1

Version	Date	Modification
V1.0	09.07.2013	First edition

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