

Saia NT Technical Document

Step7 Memory Extension

Version: Pre-2
Date: May 16, 2008
Status: Preliminary version
Classification: For OEM customers only
System: Valid only for PCD3.Mxxx7 and PCD2.M5xx7
File Name: Step7 Memory Extension_Pre-2.doc

Revision History:

Version	Description of Version	Issue Date
Draft	Initial version	2007.11.01
Pre-2	Preliminary version 2	2007.11.05

Table of Contents

1	STEP7 MEMORY EXTENSION	5
1.1	Introduction.....	5
1.2	Rules	5
1.3	Loading PLC blocks into flash	5
2	CONFIGURATION S7- MEMORY SIZE.....	7
2.1	CDB configuration	7
2.2	Plc file system size / remanent RAM file system size.....	7
2.3	S7 memory extension size	7

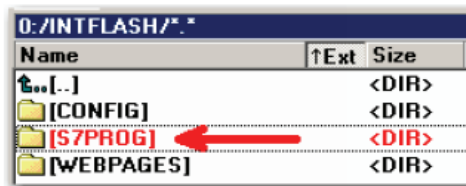
1 Step7 Memory Extension

1.1 Introduction

This Functionality allows to extend the Step7 memory. OB, FB, FC and DB can be stored in the internal Flash or Flash on the M1 or M2 socket (PCD3 or PCD2.M5xxx). The S7 blocks in Flash don't use memory space in the PLC File system.

1.2 Rules

- The functionality is activated if on "Power on" in a Flash the directory /S7PROG exists.



- At "Power-On" the plc searches the /S7PROG directory in the following order:

```
M2_FLASH:/S7PROG
M1_FLASH:/S7PROG
INTFLASH:/S7PROG
```

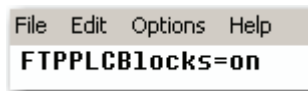
After the first directory is found, the PLC stops searching for other directories.

- After a "Power-On" or a "Clear/Reset" the PLC inserts the Step7 blocks in the S7Prog directory.
- If a block already exists in the PLC file system, the block from the flash will not overwrite it.
- The default size of the memory Extension is 256kBytes. With a CDB entry the size can be changed to max 512kByte.
- If the Size of the PLC blocks in Flash is bigger than the memory Extension size, not all S7 blocks from the Flash are inserted. The order of inserting S7 blocks is not defined.
- After downloading PLC blocks with the SIMATIC Software to the PLC, the blocks are copied into the PLC file system. The block in flash is not valid anymore. Ev. the changed block has to be copied into the flash.
- DB's in flash are never remanent!
- CDB (Configuration Data Blocks) can't be stored in the flash!
- Blocks in the memory Extension will not be backedup with the RAM to ROM command in SIMATIC Manager.

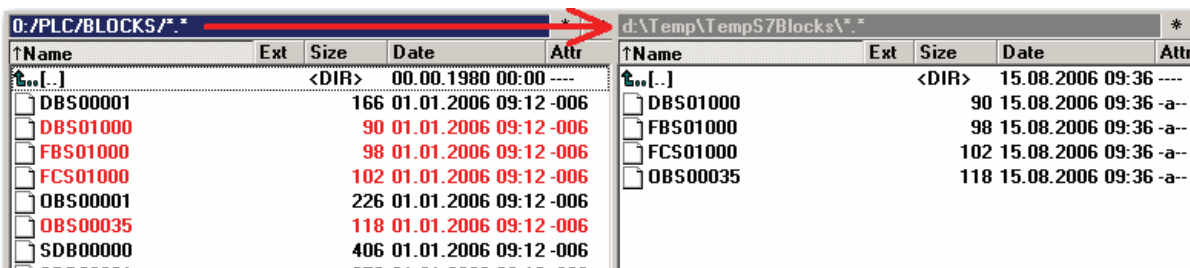
1.3 Loading PLC blocks into flash

The following example describes the procedure to use the Step7 memory extension:

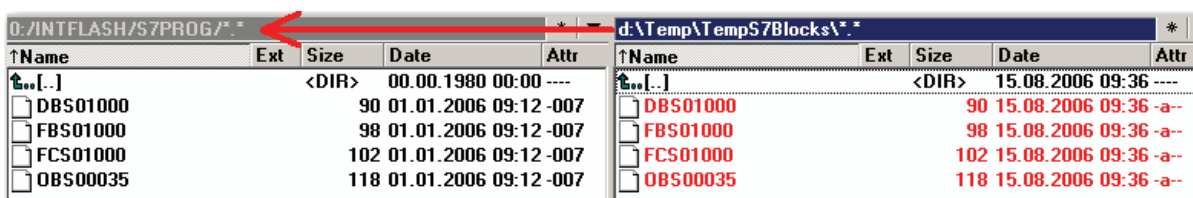
- Configure the FTP Server that the PLC file system is visible. The File INTFLASH:/CONFIG/FTPCONFIG.txt the line FTPPLCBlocks=on has to exist.



- Upload the plc blocks from the PLC to a temporary directory on the hard drive over FTP. OB x – “OBSxxxxx”, FB x – “FBSxxxxx”, FC x – “FCSxxxxx” and DB x – “DBSxxxxx”

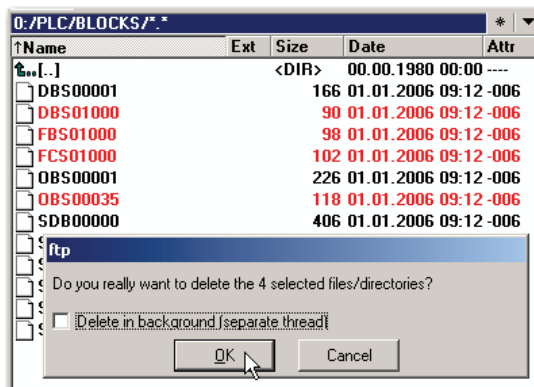


- Download the plc blocks from the temporary directory into the flash.



- To activate the plc block in flash, it is necessary to delete the blocks in the PLC file system. They can be deleted with FTP or with the Simatic Software.

Example delete with FTP:



Example delete with Simatic software:



- After a Clear/Reset or a Power-On the four blocks are linked to the PLC.

2 Configuration S7- Memory Size

2.1 CDB configuration

The configuration of the size of the different File systems on the PCD3 and PCD2.M5xx7 systems can be configured with the Configuration Data Block (CDB). The plc recognizes a CDB with the following characteristics:

- DB- Nbr must be DB1, DB511 or DB1023
- The DB starts with the string "SAIA xx7 CDB" (case sensitive).

Adresse	Name	Typ	Anfangswert
0.0		STRUCT	
+0.0	Identificator	STRING[12]	'SAIA xx7 CDB'
=14.0		END STRUCT	

- The plc evaluate the CDB entry's only after a Power-On (for memory configuration).

2.2 Plc file system size / remanent RAM file system size

On the plc exists two different file systems on the SRAM. The plc file system and a user SRAM file system. Per default the plc creates the plc file system with the size of 1024kByte. With the rest of the (2MByte or 4 MByte) SRAM the system creates a user SRAM file system.

With the CDB entry MEM7 : the size of the plc file system can be changed (and also the size of the user SRAM file-system).

The minimal Value is 64kByte; the size can be increased by 64kByte steps up to the maximal Value of 1920kByte (for 2 MByte SRAM) or 3940 kByte (for 4 MByte SRAM). If the value is not valid, the plc doesn't change the memory size.

Adresse	Name	Typ	Anfangswert
0.0		STRUCT	
+0.0	Identificator	STRING[12]	'SAIA xx7 CDB'
+14.0	Memory	STRING[8]	'MEM7:320'
=24.0		END STRUCT	

Ones the memory size has changed, the plc size remains until a new CDB with a different memory configuration is loaded. A Clear/Reset command or a Power-on with no CDB will not change the memory configuration!

The default memory size of a "new" pcd is set to 1024kByte.

2.3 S7 memory extension size

The minimal Value is 0kByte; the size can be increased by 1kByte steps up to the maximal Value of 512kByte. If the value is not valid, the plc doesn't change the extended memory size.

The default Value is set to 256kByte.

Adresse	Name	Typ	Anfangswert
0.0		STRUCT	
+0.0	Identificator	STRING[12]	'SAIA xx7 CDB'
+14.0	S7MemExt	STRING[12]	'S7MEMEXT=512'
=28.0		END_STRUCT	

