WinAC

Shutdown FB

User documentation

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WinAC Shutdown FB

Basic information and data	**1**
Quick start	**2**
Function Mode of the Shutdown FB	**3**
Configuration	**4**
Example of use	**5**
History	**6**

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Table of Contents

Foreword

Problem:

By using one uninterruptible power supply (UPS) for sundry computers, the UPS has to trigger all PC's to shut down in case of a larger power failure. With a serial port each computer has to give the statement to the following one before shutting down itself.

Solution:

With the ODK it is possible, to deliver statements from the Step7-Program to the computer on which the WinAC is installed. In that way shutting down such a computer can be realized from Step7.

Using the Profibus, all computers can be networked in parallel and the shutdown-command can be sent directly to all of them.

1 Basic information and data

1.1 Reference System

The described application in this user documentation is based on the following reference system:

WinAC RTX-F 2009

STEP7 V5.4 SP5

Windows XP /
Windows XPE SP3 with delivery Image for SIMATIC IPC427C

1.2 Installation

To install the program, run the setup.

The setup copies the example program (shutdown_S7_example.zip) into a destination folder, which can be selected during the setup. The example has to be retrieved by the Simatic-manager and to be included as a program into the WinAC.

2 Quickstart

- Install Setup
- Transfer the SHUTDOWN FB from the demo to the user project
- Initialise the connection (s. OB100)
- Use the functions of the SHUTDOWN FB (s. demo)

3 Mode of operation of the SHUTDOWN function block

The SHUTDOWN function block includes the system function blocks SFB 65001 and 65002, which are necessary to communicate with the ODK.
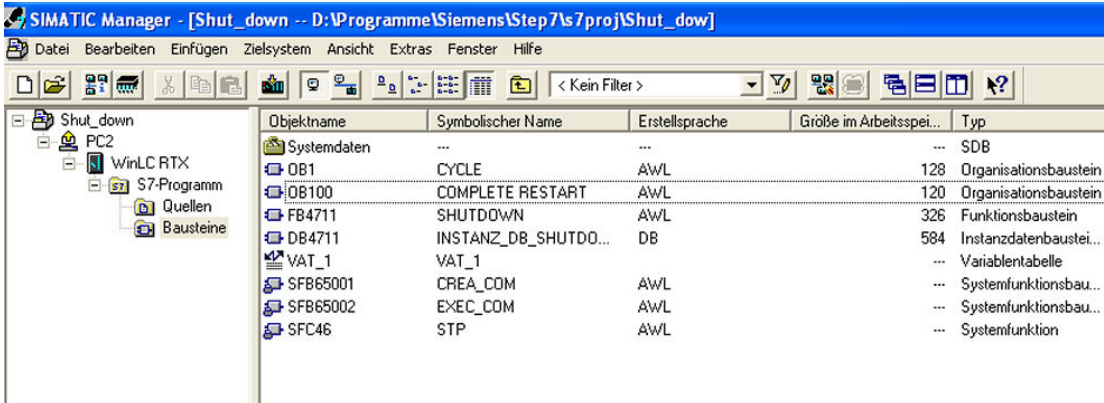
By a synchronous ODK statement an DLL-data (.dll) is triggered. This DLL manages the PC-shutdown. In the first step an initialising and consecutively the shutdown itself will be progressed. To guaranty a save shutdown it is not proceeded directly by the ODK but by calling a Windows-Routines.

4 Configuration

The following page shows an example configuration:

4.1 Program contents:

The figure below (fig.1) shows the program contents of the example program:

Fig. 1

The example includes the SHUTDOWN-FB, its instance-data block and the system function blocks SFB 65001 and 65002, which are necessary to communicate with the ODK. The OB1 and OB100 are programmed as an example. The SFC 46 is used to stop the CPU (s. OB1/OB100: "CALL STP").

4.2 OB 100 –Call the SHUTDOWN FB to create the connection S7/PC

The marker M0.0 has to be reset at the program start, to avoid a shut down. After executing the shutdown, the M0.0 stays on true at the program start. If this is the case, at a system restart, the program will be shutting down immediately.

This is followed by calling the FB4711 and creating the connection to the PC.

If an error occurs, the connection cannot be generated and the CPU is goes into stop by calling the SFC46. (fig.2)

```
KOP/AWL/FUP  - [OB100 -- "COMPLETE RESTART" -- Shut_down\PC2\WinLC RTX\...\OB100]
Datei  Bearbeiten  Einfügen  Zielsystem  Test  Ansicht  Extras  Fenster  Hilfe

                              Inhalt von: 'Umgebung\Schnittstelle'

    OB100 :   "Complete Restart"

    Kommentar:


    Netzwerk 1: Titel:

    Kommentar:


        SET
        R     M     0.0
//M0.0 has to be reset, to avoid shutting down the PC at the system start



        CALL  "SHUTDOWN" , "INSTANZ_DB_SHUTDOWN"
         STARTUP  :=TRUE
         SHUTDOWN:=FALSE
         ERROR    :=MW2

        L     MW    2
        L     W#16#0
        >=D
// if this condition is complied, no error occurs


        BEB

        CALL  "STP"                    // else if the CPU is set to stop
```

Fig.2

4.3 OB 1 – Create time delay and call the SHUTDOWN FB to trigger the shutdown

After calling the FB4711 and triggering the shutdown DLL from S7, the error handle (MW2) is checked. If an error occurs, the shutdown cannot be executed and the CPU goes to stop by calling the SFC46. (fig.3)

```
KOP/AWL/FUP  - [OB1 -- "CYCLE" -- Shut_down\PC2\WinLC RTX\...\OB1]

Datei  Bearbeiten  Einfügen  Zielsystem  Test  Ansicht  Extras  Fenster  Hilfe

                            Inhalt von: 'Umgebung\Schnittstelle'

OB1 :   "Main Program Sweep (Cycle)"

Kommentar:

Netzwerk 1: Zeitverzögerung

Zeitverzögerung des Shutdown-Vorgangs

        U     M     0.0                 // start shutdown
        L     S5T#3S
        SE    T     1                   // time delay till shutdown
        U     T     1
        =     M     0.1                 // executing shutdown


Netzwerk 2: Titel:

Kommentar:

        CALL  "SHUTDOWN" , "INSTANZ_DB_SHUTDOWN"
         STARTUP :=FALSE
         SHUTDOWN:=M0.1
         ERROR   :=MW2

        L     MW    2
        L     W#16#0
        ==I                             // if MW2=0, no Error occured
        BEB

        CALL  "STP"                     // else if the CPU is set to Stop
```

Fig.3

4.4 Force variable table:

The shutdown command is triggered by forcing the trigger bit M 0.0 from false to true after running down the time delay. (fig.4)

In case of fault the error code is shown at MW2.

Fig. 4

5 Examples of use

The Shutdown-FB can be used in example in conjunction with an UPS (uninterruptible power supply): After a given time the PC/PC's can be shut down in a controlled way to avoid data loss in case of exceeding the UPS capacity and following power failure.

6 History

Version	Datum	
V 1.5	11-02-09	Current release