SPS-Sensors for X-Monitors

(SpsEyes - SpsGold - SpsOrion - SpsPrtg)
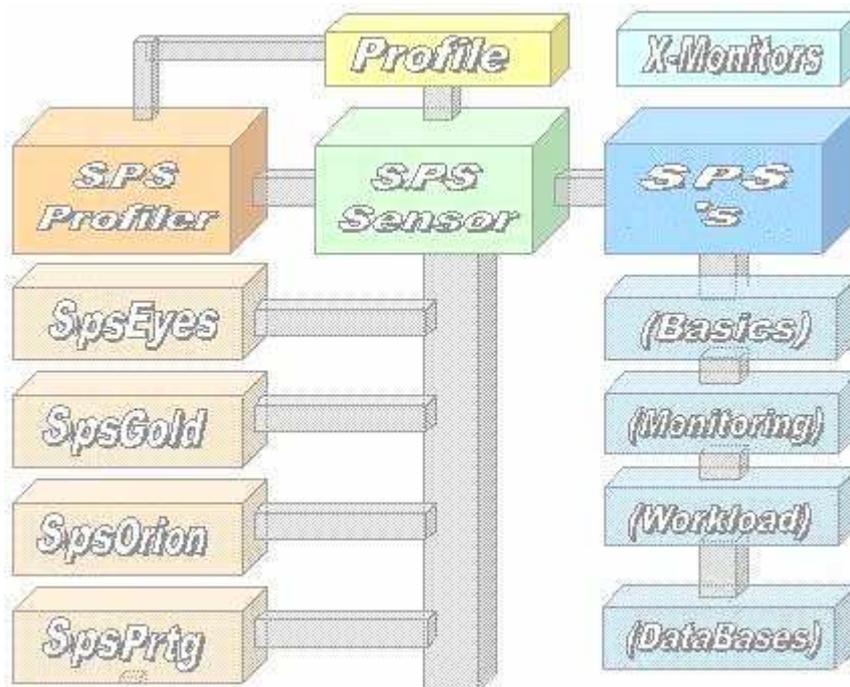
White Paper

Contents

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1. Overview

With the help of the SPS-Sensors you are able to get a lot of informations from Siemens S7 SPSs and direct them to the Network Monitor PRTG from PAESSLER. Therefore no intervention to the SPS-System is required. The access to the SPS-Systems is done via the S7-Protocoll by TCP/IP and requires no intervention within the SPS. For the access to the SPS the IP-Address and the Rack- and Slot-Number is required.

Prerequisites

For the usage of SPS-Sensors you need:

- The sensors are to put into the „**...\ExeXml**"-directory for PRTG

- You need the file „**SpsSnr.Dll**". Therefore you have to put the file into the „...\ExeXml"-directory of PRTG too

- For working the sensors you have to create a profile for accessing SPS. You can create it with the tool "SPS Profiler.Exe" which is part of the installation.

Supported Systems

Following SPSs are supported:

-	**Siemens**	**S7-200**	**S7-300**
-		**S7-400**	**S7-1200**
-		**S7-1500**	**!Logo**
-	with CP (CP242-1, CP343-1,CP443-1,LEAN...)		
-	VIPA S7 as all S7-compatible systems		

The Working

For accessing a SPS-System a profile with the informations about the accessing-data like IP-Address, Rack- and Slot-Number is needed. This profile is generated via the tool „**SPS Profiler.Exe**" which is part of the installation. The profile is stored into the Xml-Directory of PRTG. With the Profiler you can directly contact the SPS and view the informations.

First, the sensor reads out the profile and opens a connection to SPS via RFC1006. With the knowledge of IP-Adresss, the Rack- and the Slot-Number the SPS could be accessed. Then the required function is processed within SPS and the resulting is transferred back to the sensor. The sensor formats it and divides it to an information-line and channels. This data are transferred then to PRTG.

Within the PRTG-System the delivered informations are collected and prepared for analysis. They could be shown graphically and used for generating a mail or SMS to notify an administrator.

2. The SPS-Profiler

For the usage of sensors there is the definition of a profile required. You could create a profile via the "**SPS Profiler.Exe**" and put in the necessary informations for connecting to SPS. Additionally you are able to view the resulting before you define it within PRTG.

Definition Access for SPS

For accessing a SPS System you need a profile. The nessesary informations are entered via the Profiler. The profile itself will be stored in the PRTG-Directory „...\ExeXml".
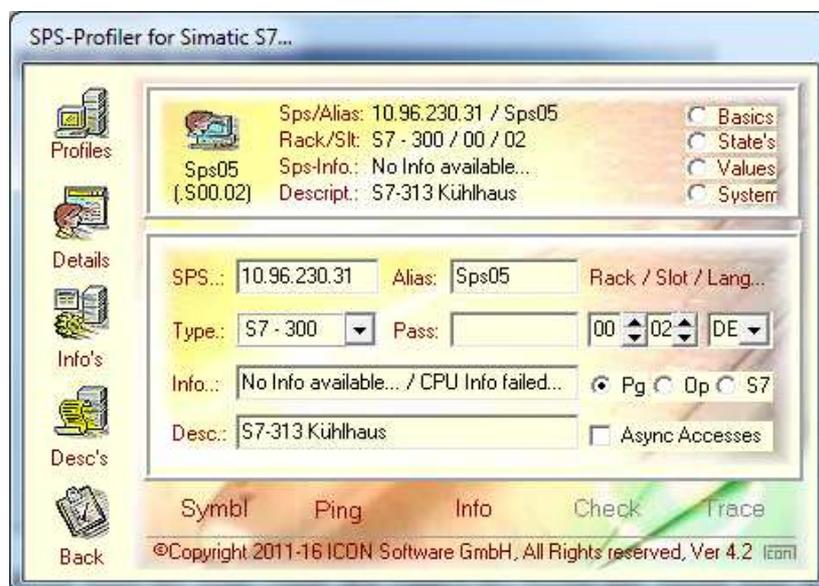
The name of the profile is to be used by definition a new sensor within PRTG. The Profile-Name has to be the first parameter at the PRTG-Sensor.

For verify tha access the following functions are supported:

- „**Ping**": Ping the SPS (Function of the operating system is used)
- „**Info**": Reading the general informations about the SPS System
- „**Check**": Verify the hardware (SPS-Model, and so on)

With the following steps you are able to define a new profile.

Step 1:   The access to the SPS is checked by the method "'Ping":

Step 2:   With the "Info" connection informations a read from the SPS-System:

Step 3:   With the "Check"-Function general information about the SPS are read:
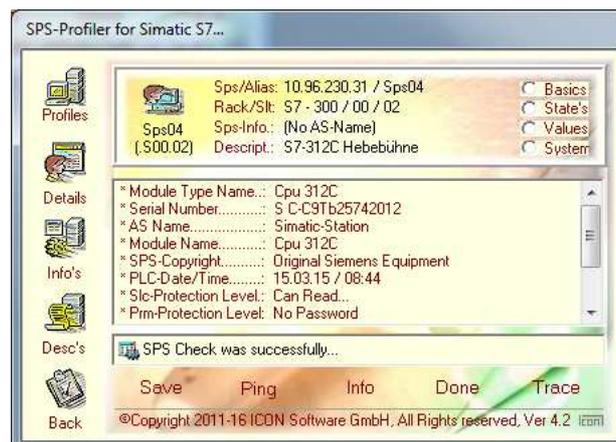
After the creation of the profile you can use the sensors, for example the basis-functions:
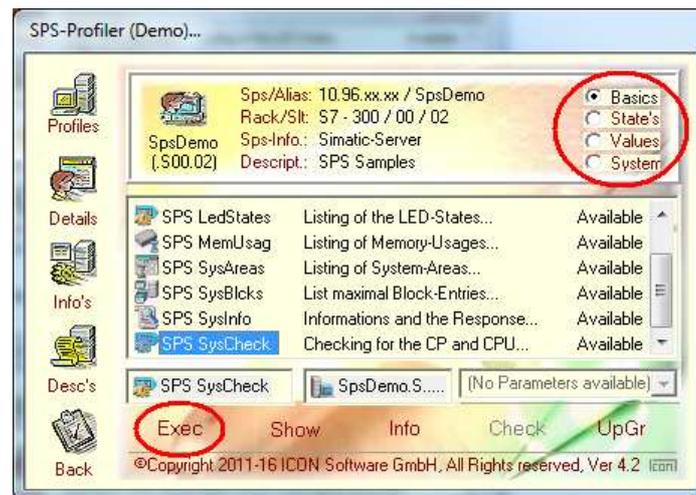
With the "Exec"-Button you release the access:

With the "Apply"-Button you get the needed information here for PRTG:
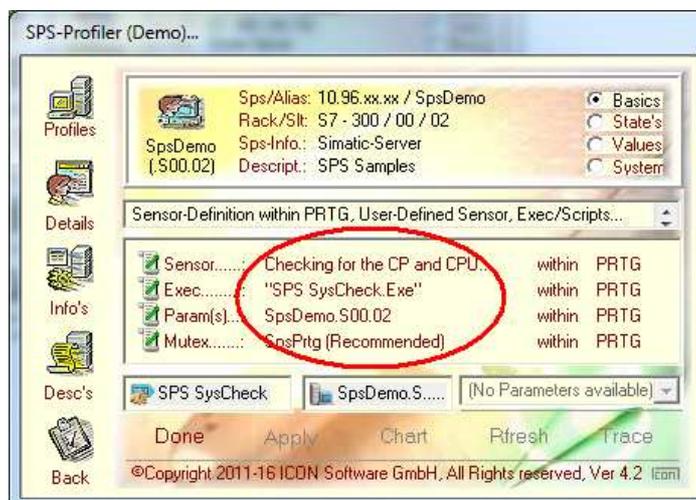
Interactive Testing

By using the „SPS Profiler" you have the possibility to test the sensors interactively before implementing them to PRTG. There are following ranges:

-	**Basics**	Functions from the BASICS
-	**States**	Functions for the range STATE
-	**Values**	Show the fields with a value
-	**System**	Reading System-Informations

Within the range of SPS-Basis general informations about the basics is offered. For example, this are informations about Versions, or about the used CPU.

The range „States" is to watch the states of the SPS . For example you see the input or output flags.

By the "Values" you are able to read out the integrated values with are stored within the SPS.

With the range "System" you get informations about the environment of the SPS.

Example for the usage of the Sensor „ListSzlGrps":

This example shows the available groups within the SZL "0".

Sample for the sensor „SPS Directory":

Shown are the available entries for the stored blocks.

Sample for the sensor „SPS SysStates":
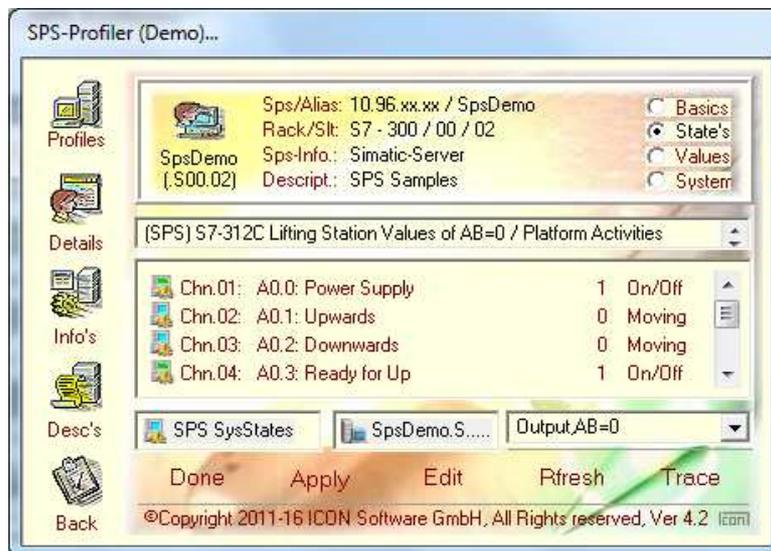
Shows are the states for the output group "0".

3. The SPS-Ranges

An overview of the available functions is shown with the interactively presentation by the Profiler. This is an selfaxtracting file who shows all the available functions by examples. The file could be downloaded at:

www.ICON-Software.de/SpsDemo.exe

The range "Basics" shows the general functions:
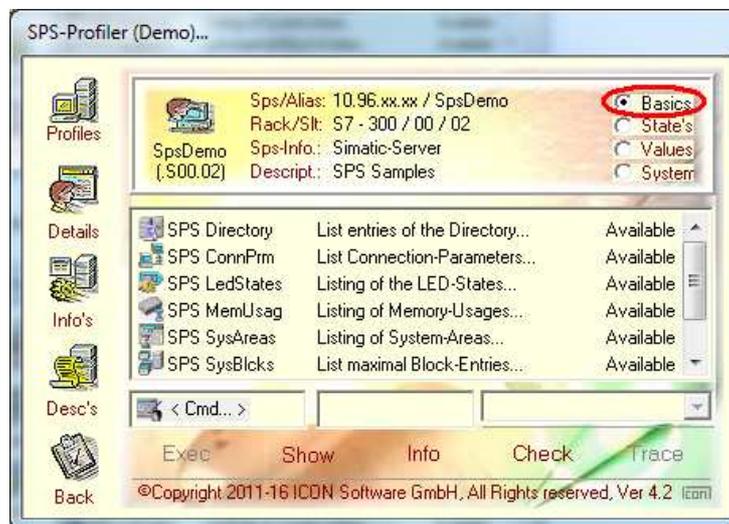
The range "States" shows all the available states:
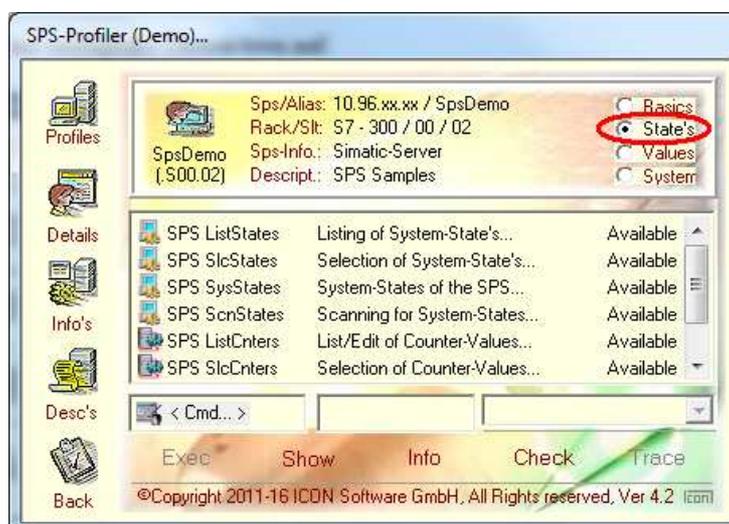
The range "Values" shows the available values:
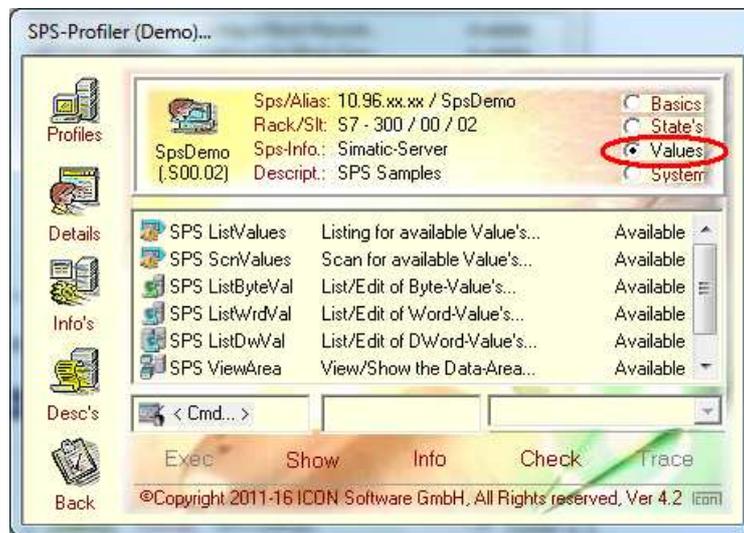
The range "System" shows the internal informations of the SPS:
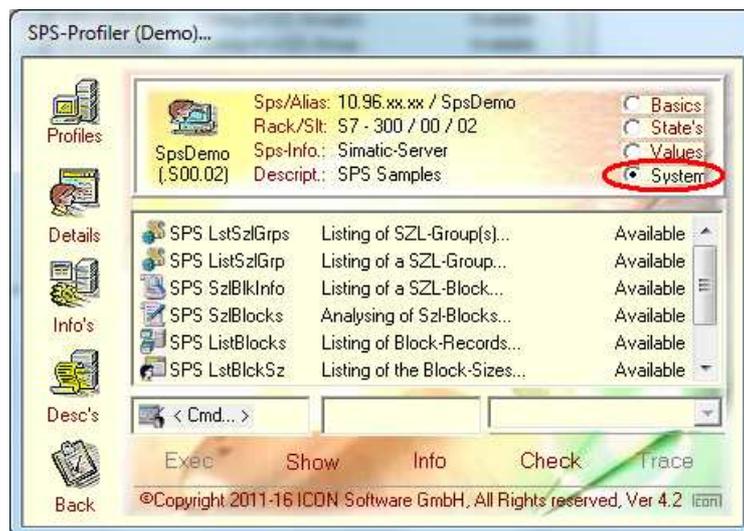
The result of every of the sensors could be show by pressing the "Exec"-Button. This is is done before the sensor is planned within the PRTG

4. The SPS Monitoring

The SPS-Sensors could be directly imbedded to the available monitoring-systems, here the PRTG from Paessler. With the usage of parameters you could select all the values you want to monitor.

Within the monitoring only the assignment with the attached sensor is done. Then you are able to define the time intervall and the reactions in case of errors.
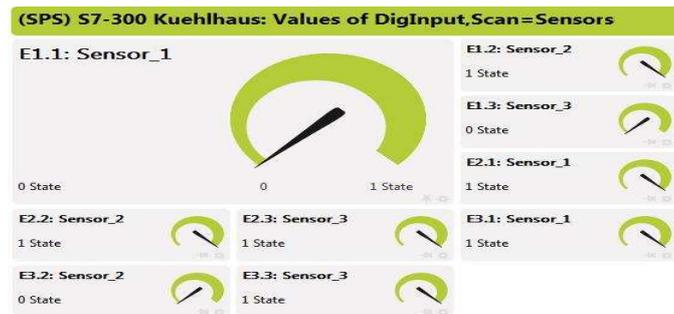
This sample shows the working of three different sensors.

This sample shows the states of the input group "EB1".

This sample shows the states of the output group AB1".

5. Monitoring with SpsEyes

Beside the Monitoring-Systems like PRTG, Orion und WhatsUp Gold the SPS-Sensoren could be used with SpsEyes too. SpsEyes is a separate software to monitor by usage the sensors directly.

Example: Layout for monitorng a single SPS-Device:

Example: Alternate layout for monitoring a single SPS-Device:

Every of this objects works autonomous, every object is realized by an own process. Every process works independent from other processes and communicates via RFC with the attached SPS-System.

Example: Layout for monitoring with more SPS-Systems:
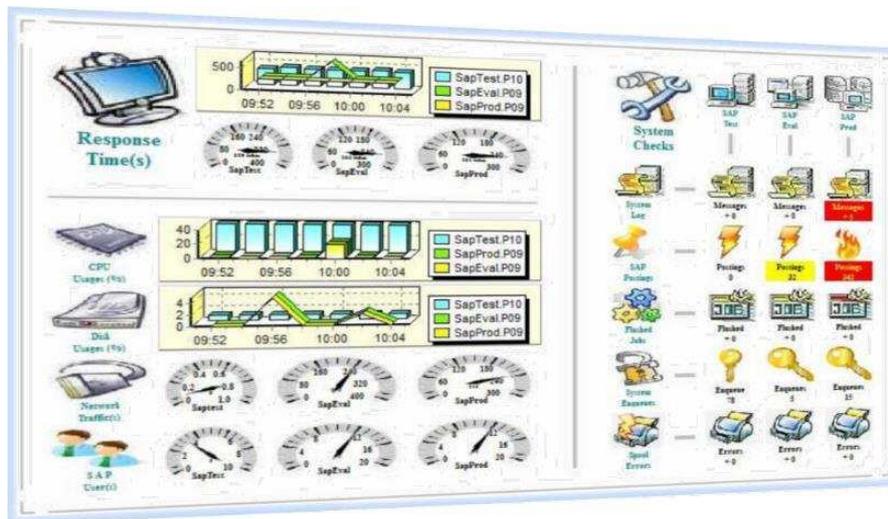
On the left hand general information's like CPU-, Disk-Activities or the number of Users are presented via Graphics or Gauges.

On the right side a matrix organized by SPS-Systems and functions is shown. There are three SPS-Systems and functions like Cpu-Times, Data sent and so on.

Remarks:

- By Graphics, a single value is requested from each SPS-System. The values will be prepared and analysed

- By Gauges, a single value is requested and shown

- By Images the values of the sensors are analysed and presented by colours

All the sensors could be modified by size, layout and position during runtime. New sensors could be added at any time. You are able to design your own Dashboard.