

Alexander Karl & Ruedi Gloor



"Industrie 4.0" goes SQL Server

Sponsors help us to run this event! THX!

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Gold Sponsor



Silver Sponsor



Bronze Sponsor



You Rock! Sponsor Session

13:45 Track 1

„Das super nerdige Solisyon Film- und Serienquiz“



Save the date for exiting upcoming events

PASS Camp 2017

Main Camp **05.12. – 07.12.2017** (04.12. Kick-Off abends)
Lufthansa Training & Conference Center, Seeheim

SQL Konferenz 2018

PreCon: **26.02.2018**
MainCon: **27.02. – 28.02.2018**
Darmstadtium, Darmstadt

More information at PASS booth





"Industrie 4.0" goes SQL Server

about me



Alexander Karl

.net - CDE

SQL + BI Consultant

Microsoft
CERTIFIED
Trainer

Microsoft
CERTIFIED
Solutions Associate
SQL Server 2012/2014

Microsoft
CERTIFIED
Solutions Expert
Data Platform



about me



Ruedi Gloor

Geschäftsführer Inasoft GmbH
SPS und Roboter Applikationen
SQL4automation Datenbankbindung
Schulungen



inasoft
EINFACH : FLEXIBEL



SQL4AUTOMATION
The smart database connection



Beispielapplikation Inasoft GmbH



Beispielapplikation Inasoft GmbH



Ziel:

Die für Industrie 4.0 notwendige Automatisierungstechnik soll durch die Einführung von Verfahren der **Selbstoptimierung**, **Selbstkonfiguration**, **Selbstdiagnose** und Kognition intelligenter werden und die Menschen bei ihrer zunehmend komplexen Arbeit besser unterstützen.





WIKIPEDIA
Die freie Enzyklopädie

[Hauptseite](#)

[Themenportale](#)

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[Artikel](#)

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[Lesen](#)

[Bearbeiten](#)

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[Versionsgeschichte](#)

Wikipedia durchsuchen



Kognition

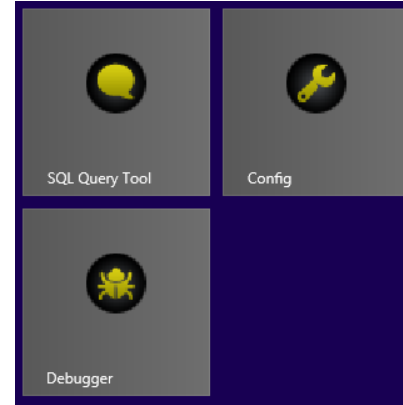
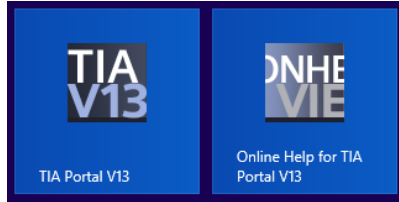
Kognition ist die von einem verhaltenssteuernden System ausgeführte Umgestaltung von **Informationen**. Die Bezeichnung leitet sich ab von **lateinisch** *cognoscere* ‚erkennen‘, ‚erfahren‘, oder ‚kennenlernen‘. Kognition ist ein uneinheitlich verwendeter Begriff, mit dem auf die **Informationsverarbeitung** von Menschen und anderen **Systemen** Bezug genommen wird. Oft ist mit „Kognition“ das **Denken** in einem umfassenden Sinne gemeint.



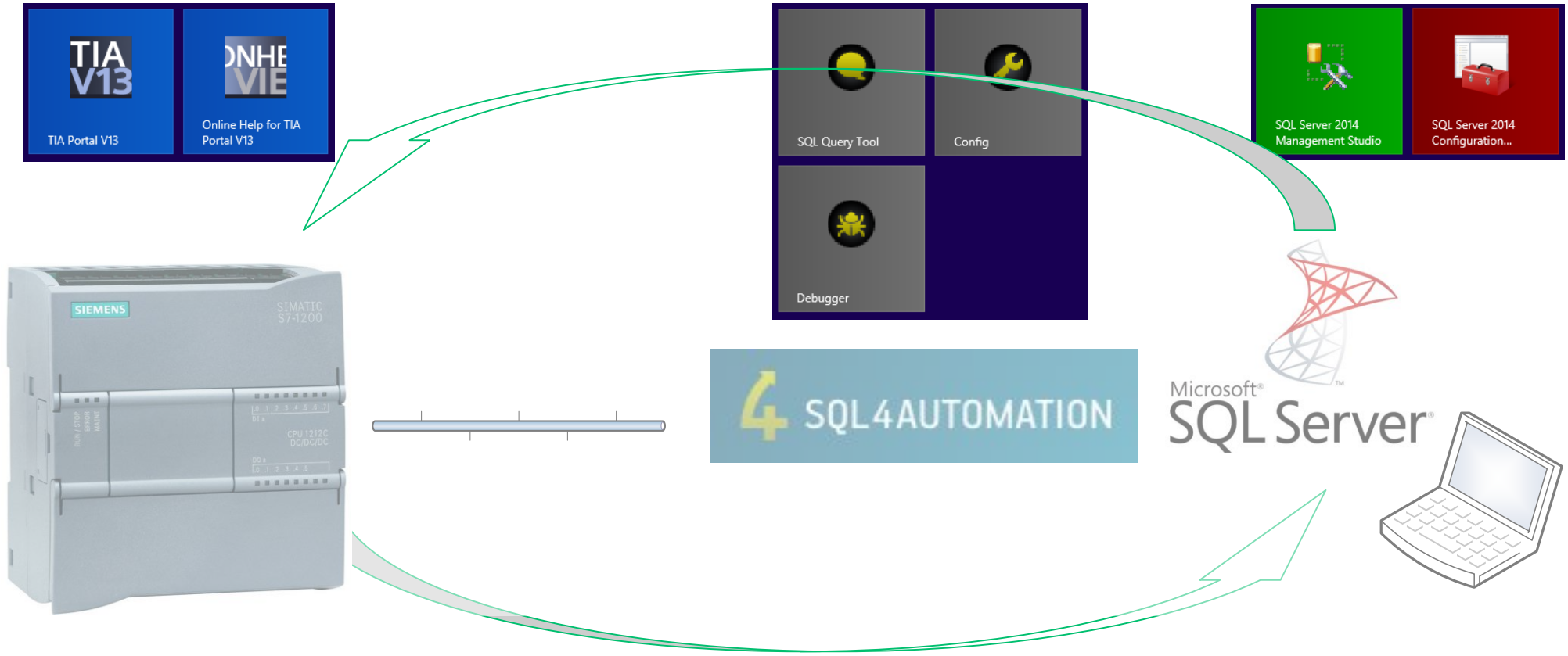
Überblick Hardware & Services



Überblick „Tooling“



Überblick „Tooling“



Überblick „dataflow“

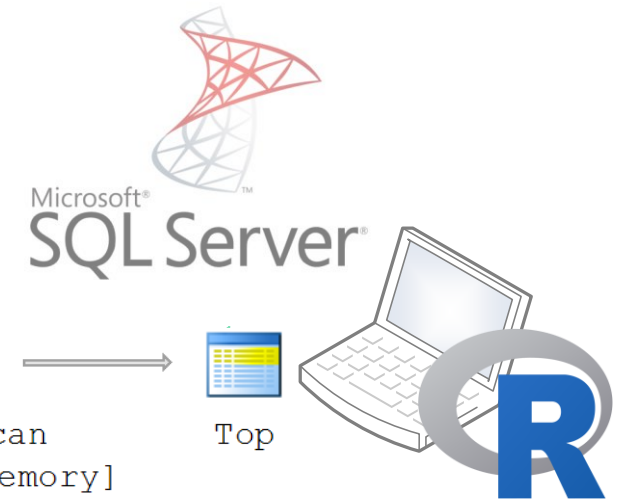
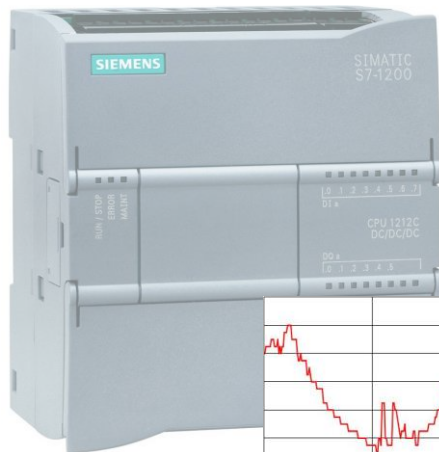
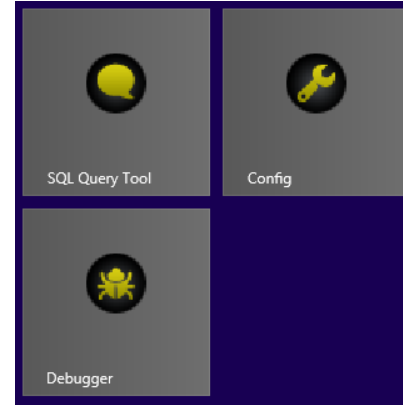
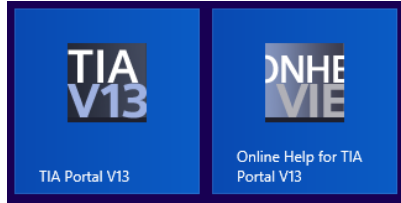


Table Scan
[logTable_memory]

Top



SQL Server Management Studio (SSMS)

- CREATE TABLE „diskbased vs. memory_optimized“
- Stored Procedure as „access-layer“
- Performance-Test with ostress (MS tool)



SQL 4 AUTOMATION configuration

- S4A configuration
- Windows Services
- Windows Firewall
- S4A Query Tool
- Debugger



SQL

SQL4automation - S4AConfig

Tools License Options ?

Connector

localhost (127.0.0.1) Hosts ... disconnect

License: Standard (10 links) - HL license key

Status: connected

Link 1 Set ...

Requests Reset

Link name: **Link 1** Link id: **S4A59293E6D**

Target

Connector IP: 192.168.4.227 Target type: SiemensS7

Connector port: 11001 Timeout: 30

Target IP: 192.168.4.228 Socket state: unknown

Database

Name: SQLDEMO (ODBC) User:

SQL request

Time: Result: Rows: Columns: Duration:

New Delete

Test Disable

Update request class TargetLinkData succeeded



SQL 4 AUTOMATION



SQL4Automation - Settings Link S4A59293E6D

Link name:

Target

Target type:

Options:

Cp-343-1-Interface

Fix buffer

Buf.size [byte]:

Target IP:

Connector

Connector IP:

Connector port:

Timeout [sec]:

Database

Data source:

User ID:

Password:

Options: Hold database connection



Connector: LocalHost (127.0.0.1)

Date/Time
27.05.2017 13:44:09.400
27.05.2017 13:44:09.182
27.05.2017 13:44:08.947
27.05.2017 13:44:08.728
27.05.2017 13:44:08.510
27.05.2017 13:44:08.291
27.05.2017 13:44:08.072
27.05.2017 13:44:07.838
27.05.2017 13:44:07.635
27.05.2017 13:44:07.416
27.05.2017 13:44:07.197
27.05.2017 13:44:06.947
27.05.2017 13:44:06.728
27.05.2017 13:44:06.510
27.05.2017 13:44:06.291
27.05.2017 13:44:06.072
27.05.2017 13:44:05.838
27.05.2017 13:44:05.619
27.05.2017 13:44:05.400
27.05.2017 13:44:05.181
27.05.2017 13:44:04.947

Tools License Options ?

Connector

localhost (127.0.0.1)

License: Standard (10 links) - HL license key

Status: connected

Link 1 [Set...] [Reset]

Requests [v]

[New] [Delete] [Test] [Disable]

SQL4Automation - Settings Link S4A59293E6D [?] [X]

Link name: Link 1

Target: []

Target type: Siemens S7

[disconnect]

ODBC Data Source Administrator (64-bit) [X]

User DSN System DSN File DSN Drivers Tracing Connection Pooling About

System Data Sources:

Name	Platform	Driver
SQLDEMO	64-bit	SQL Server

[Add...] [Remove] [Configure...]

An ODBC System data source stores information about how to connect to the indicated data provider. A System data source is visible to all users of this computer, including NT services.

[OK] [Cancel] [Apply] [Help]

Disconnect

Error Message

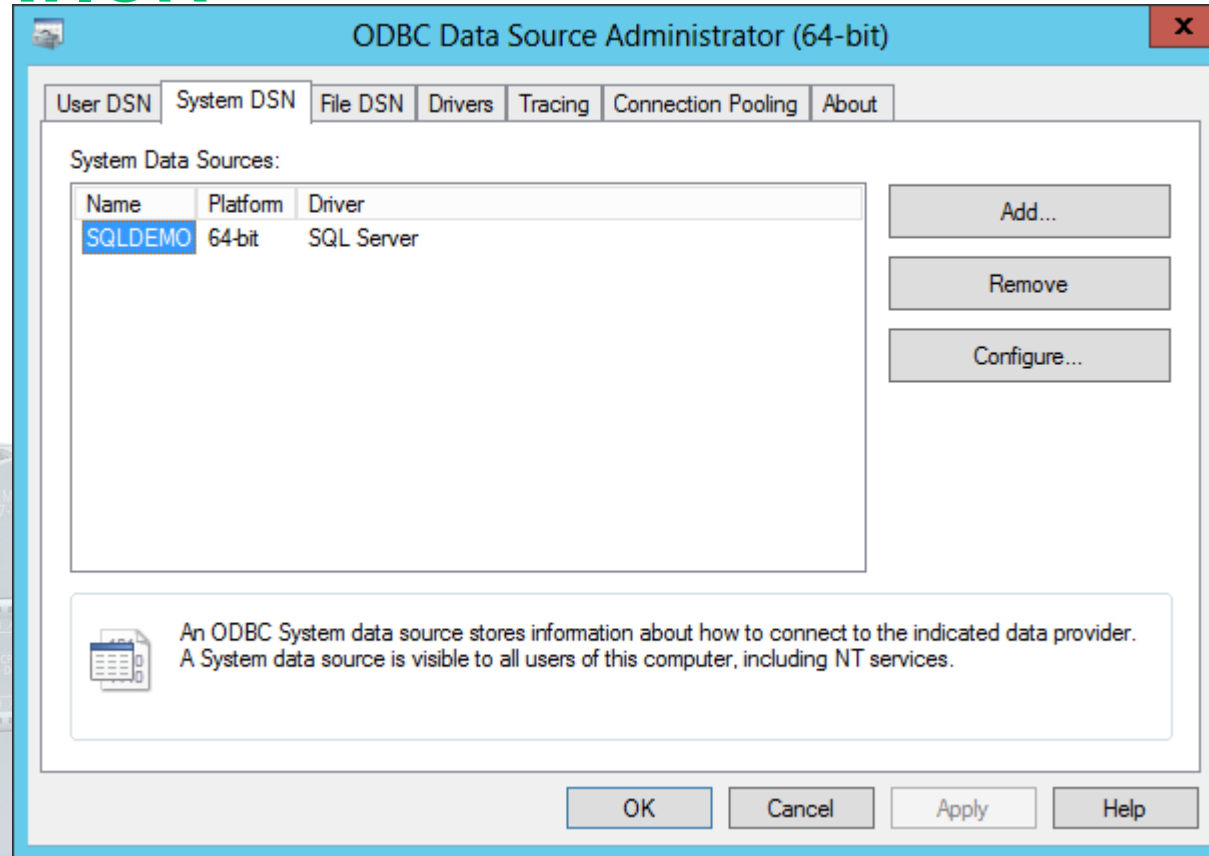
s: [] Duration: []

Update request class TargetLinkData succeeded

roll [] Autorefresh

Refresh

SQL 4 AUTOMATION



SQL 4 AUTOMATION



Microsoft SQL Server DSN Configuration

This wizard will help you create an ODBC data source that you can use to connect to SQL Server.

What name do you want to use to refer to the data source?

Name:

How do you want to describe the data source?

Description:

Which SQL Server do you want to connect to?

Server:

Finish Next > Cancel Help



SQL 4 AUTOMATION



Microsoft SQL Server DSN Configuration

How should SQL Server verify the authenticity of the login ID?

With Windows NT authentication using the network login ID.

With SQL Server authentication using a login ID and password entered by the user.

To change the network library used to communicate with SQL Server, click Client Configuration.

Client Configuration...

Connect to SQL Server to obtain default settings for the additional configuration options.

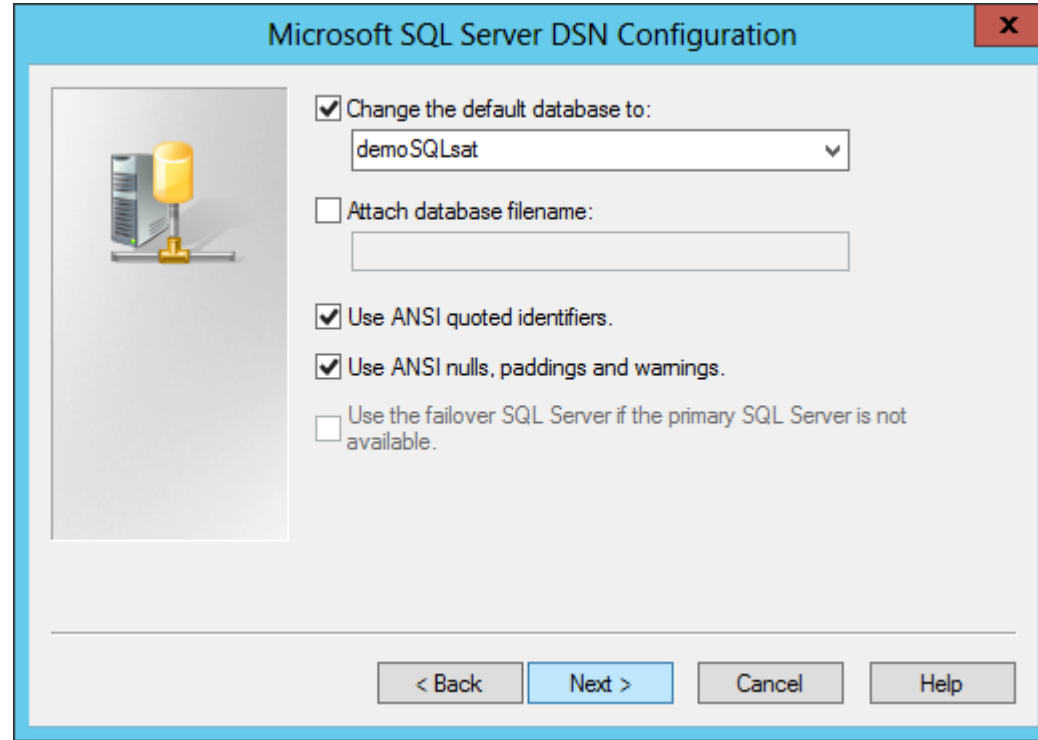
Login ID: Administrator

Password:

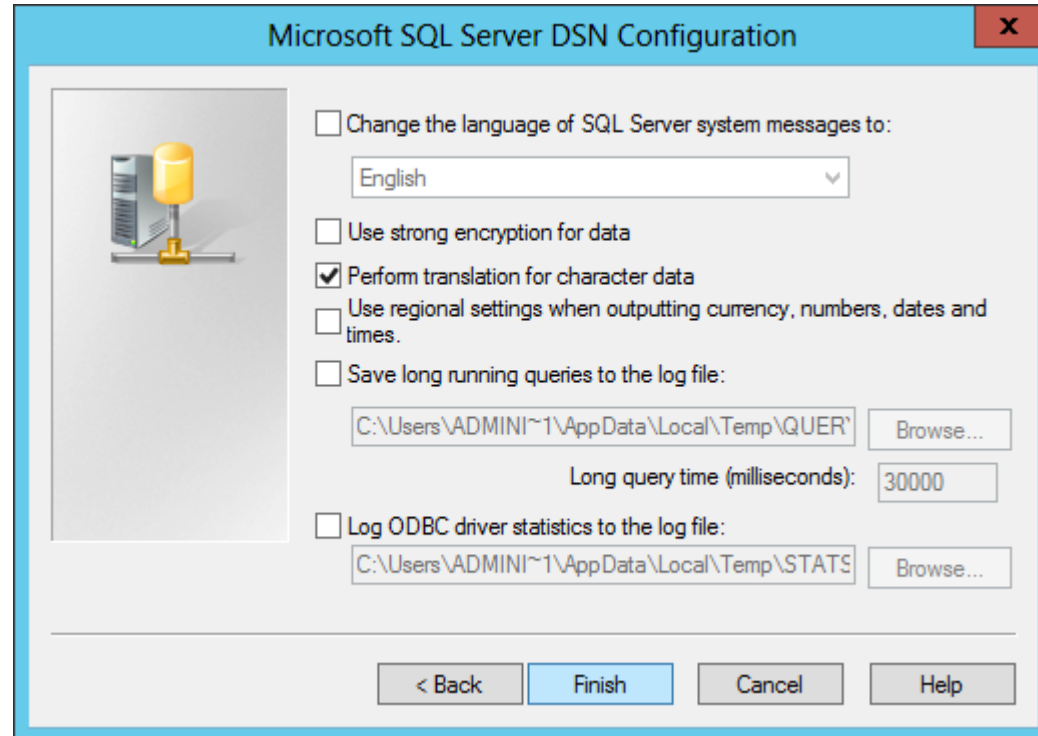
< Back Next > Cancel Help



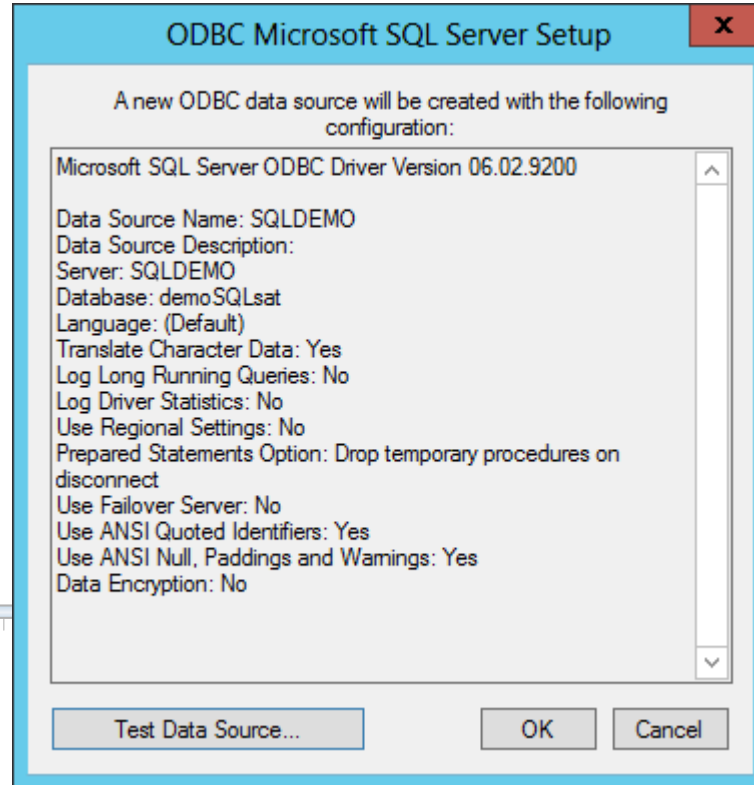
SQL 4 AUTOMATION



SQL 4 AUTOMATION



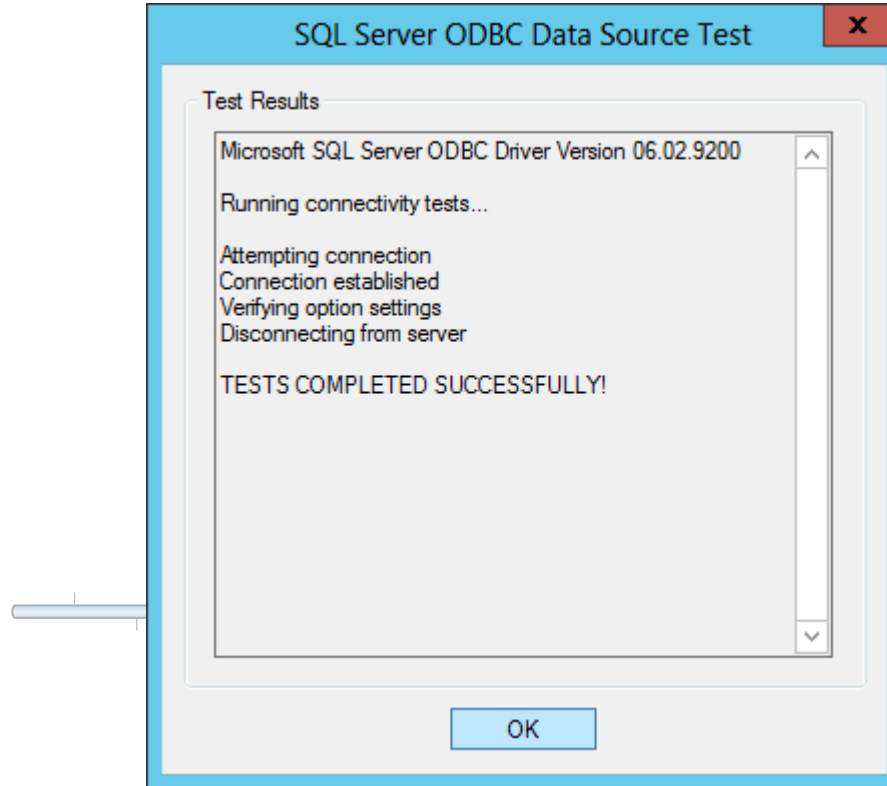
SQL 4 AUTOMATION



ON



SQL 4 AUTOMATION



ON



SQL4automation - S4AConfig

Tools License Options ?

Connector: LocalHost (127.0.0.1)

Connector: localhost (127.0.0.1)

License: Standard (10 links) - HL license key

Status: connected

Link 1

Requests

Link name: **Link 1** Link id: **S4A59293E6D**

Target

Connector IP: 192.168.4.227 Target type: SiemensS7

Connector port: 14188 Timeout: 30

Target IP: Target state: unknown

Database

Name:

SQL request

Time: 14:08:31 Result: 1 Rows: 0 Columns: 0 Duration: 16 ms

Linktest

Disconnect

Error Message

↑

↓

Autorefresh

Date/Time
27.05.2017 13:44:09.400
27.05.2017 13:44:09.182
27.05.2017 13:44:08.947
27.05.2017 13:44:08.728
27.05.2017 13:44:08.510
27.05.2017 13:44:08.291
27.05.2017 13:44:08.072
27.05.2017 13:44:07.838
27.05.2017 13:44:07.635
27.05.2017 13:44:07.416
27.05.2017 13:44:07.197
27.05.2017 13:44:06.947
27.05.2017 13:44:06.728
27.05.2017 13:44:06.510
27.05.2017 13:44:06.291
27.05.2017 13:44:06.072
27.05.2017 13:44:05.838
27.05.2017 13:44:05.619
27.05.2017 13:44:05.400
27.05.2017 13:44:05.181
27.05.2017 13:44:04.947

Selection

SQL 4

The screenshot shows the Windows Services console window. The title bar reads "Services". The menu bar includes "File", "Action", "View", and "Help". The toolbar contains navigation icons. The main area is titled "Services (Local)" and displays a list of services. The "S4AConnector" service is selected and highlighted in blue. The left pane shows the service name and actions: "Stop the service" and "Restart the service". Below that, the description reads: "Description: SQL4automation - S4AConnector service". The right pane shows a table of service details.

Name	Description	Status	Startup Type	Log On As
S4AConnector	SQL4autom...	Running	Automatic	.\Administ...
S7DOS Help Service	Siemens S7...	Running	Automatic	Local Syste...
Secondary Logon	Enables star...	Running	Manual	Local Syste...
Secure Socket Tunneling Pr...	Provides su...		Manual	Local Service
Security Accounts Manager	The startup ...	Running	Automatic	Local Syste...
Sentinel LDK License Mana...	Manages lic...	Running	Automatic	Local Syste...
Server	Supports fil...	Running	Automatic	Local Syste...
Shell Hardware Detection	Provides no...	Running	Automatic	Local Syste...
SIMATIC PnDiscovery Service	Siemens SI...	Running	Automatic	Local Syste...
SIMATIC Trace Service	Siemens SI...	Running	Automatic	Local Syste...
Smart Card	Manages ac...		Disabled	Local Service
Smart Card Removal Policy	Allows the s...		Manual	Local Syste...
SNMP Trap	Receives tra...		Manual	Local Service
Software Protection	Enables the ...		Automatic (D...	Network S...
Special Administration Con...	Allows adm...		Manual	Local Syste...
Spot Verifier	Verifies pot...		Manual (Trig...	Local Syste...
SQL Full-text Filter Daemon ...	Service to la...	Running	Manual	NT Service...
SQL Server (MSSQLSERVER)	Provides sto...	Running	Automatic	NT Service...
SQL Server Agent (MSSQLS...	Executes jo...	Running	Automatic	NT Service...
SQL Server Analysis Services...	Supplies onl...	Running	Automatic	NT Service...
SQL Server Analysis Services...	CEIP service...	Running	Automatic	NT Service...
SQL Server Browser	Provides SQ...	Running	Automatic	Local Service
SQL Server CEIP service (MS...	CEIP service...	Running	Automatic	NT Service...
SQL Server Distributed Repl...	One or mor...		Manual	NT Service...
SQL Server Distributed Repl...	Provides tra...		Manual	NT Service...
SQL Server Integration Servi...	Provides m...	Running	Automatic	NT Service...
SQL Server Integration Servi...	CEIP service...	Running	Automatic	NT Service...
SQL Server Launchpad (MS...	Service to la...	Running	Automatic	NT Service...



SQL 4 AUTOMATION



S4Connector Properties (Local Computer) [X]

General | Log On | Recovery | Dependencies

Service name: S4Connector

Display name: S4Connector

Description: SQL4automation - S4Connector service

Path to executable:
C:\Program Files\SQL4automation\S4Connector.exe

Startup type: Automatic

[Help me configure service startup options.](#)

Service status: Running

Start Stop Pause Resume

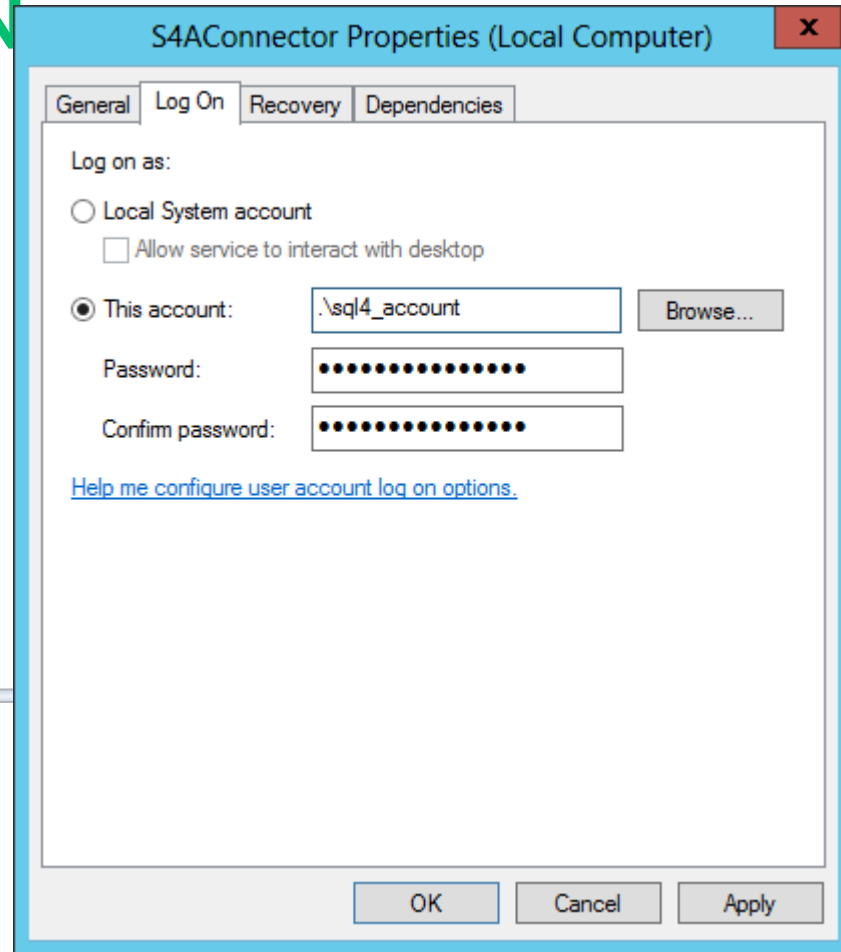
You can specify the start parameters that apply when you start the service from here.

Start parameters:

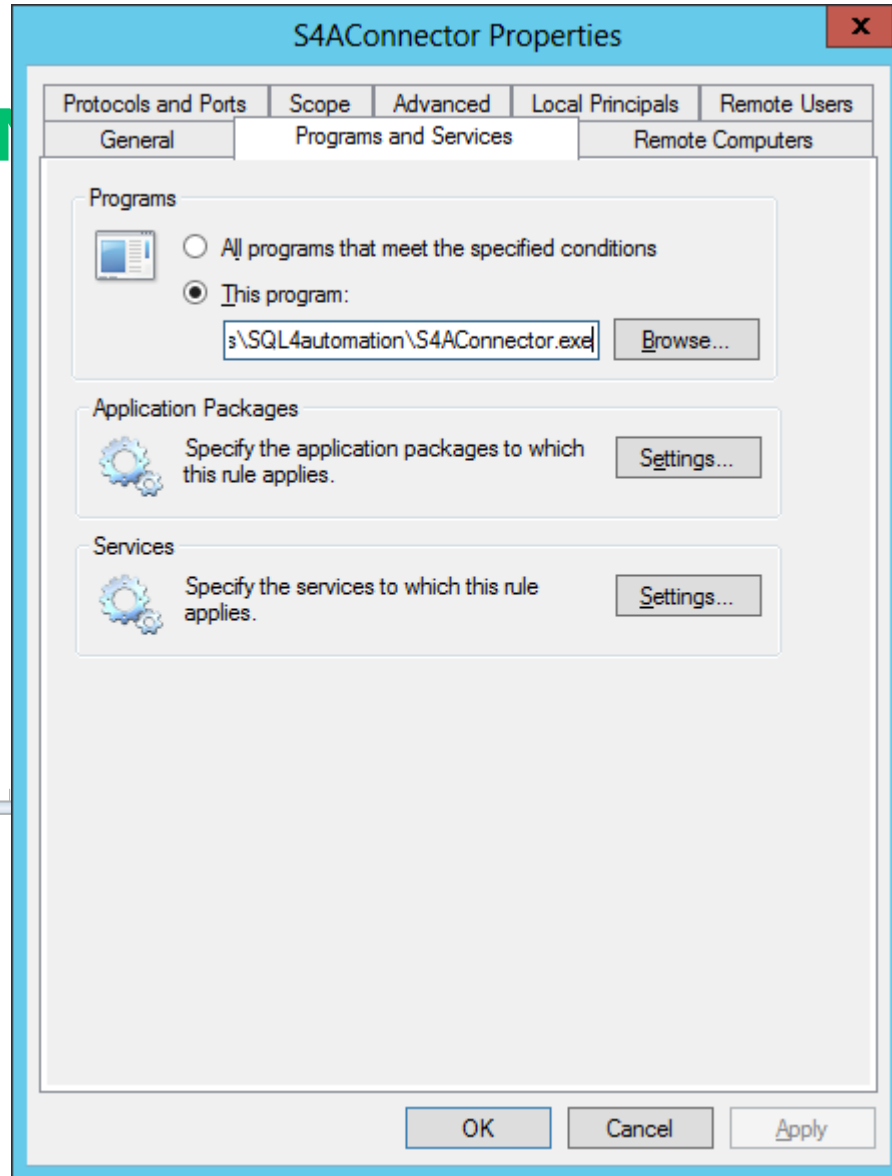
OK Cancel Apply



SQL 4 AUTOMATION



SQL 4 AUTOMATION



SQL 4

The screenshot displays the Windows Firewall with Advanced Security console. The 'Inbound Rules' list is visible, with 'S4AConnector' selected. The 'Actions' pane on the right shows options for the selected rule, including 'Disable Rule', 'Cut', 'Copy', 'Delete', 'Properties', and 'Help'.

Name	Group	Profile	Enabled	Action
MSMPI-LaunchSvc		All	Yes	AI
MSMPI-MPIEXEC		All	Yes	AI
MSMPI-SMPD		All	Yes	AI
S4AConnector		Public	Yes	AI
S4AConnector		Public	Yes	AI
Sentinel License Manager		All	Yes	AI
SQL4automation		All	Yes	AI
Automation License Manager Service	Automation License Manager	All	Yes	AI
BranchCache Content Retrieval (HTTP-In)	BranchCache - Content Retr...	All	No	AI
BranchCache Hosted Cache Server (HTT...	BranchCache - Hosted Cach...	All	No	AI
BranchCache Peer Discovery (WSD-In)	BranchCache - Peer Discove...	All	No	AI
COM+ Network Access (DCOM-In)	COM+ Network Access	All	No	AI
COM+ Remote Administration (DCOM-In)	COM+ Remote Administrati...	All	No	AI
Core Networking - Destination Unreach...	Core Networking	All	Yes	AI
Core Networking - Destination Unreach...	Core Networking	All	Yes	AI
Core Networking - Dynamic Host Config...	Core Networking	All	Yes	AI
Core Networking - Dynamic Host Config...	Core Networking	All	Yes	AI
Core Networking - Internet Group Mana...	Core Networking	All	Yes	AI
Core Networking - IPHTTPS (TCP-In)	Core Networking	All	Yes	AI
Core Networking - IPv6 (IPv6-In)	Core Networking	All	Yes	AI
Core Networking - Multicast Listener Do...	Core Networking	All	Yes	AI
Core Networking - Multicast Listener Qu...	Core Networking	All	Yes	AI
Core Networking - Multicast Listener Rep...	Core Networking	All	Yes	AI
Core Networking - Multicast Listener Rep...	Core Networking	All	Yes	AI
Core Networking - Neighbor Discovery A...	Core Networking	All	Yes	AI
Core Networking - Neighbor Discovery S...	Core Networking	All	Yes	AI
Core Networking - Packet Too Big (ICMP...	Core Networking	All	Yes	AI
Core Networking - Parameter Problem (I...	Core Networking	All	Yes	AI
Core Networking - Router Advertisement...	Core Networking	All	Yes	AI
Core Networking - Router Solicitation (IC...	Core Networking	All	Yes	AI
Core Networking - Teredo (UDP-In)	Core Networking	All	Yes	AI
Core Networking - Time Exceeded (ICMP...	Core Networking	All	Yes	AI



SQL 4 A

The image displays the Windows Firewall with Advanced Security console. The main window title is "Windows Firewall with Advanced Security". On the left, a tree view shows "Inbound Rules" selected. The main pane shows a list of inbound rules, with "S4AConnector" selected. The "S4AConnector Properties" dialog box is open, showing the "General" tab. The "Name" field is "S4AConnector" and the "Enabled" checkbox is checked. The "Action" section has "Allow the connection" selected. The "Action" section also includes radio buttons for "Allow the connection if it is secure" and "Block the connection", and a "Customize..." button.

Name	Group	Profile	Enabled	Action
MSMPI-LaunchSvc		All	Yes	Allow
MSMPI-MPIEXEC		All	Yes	Allow
MSMPI-SMPD		All	Yes	Allow
S4AConnector		Public	Yes	Allow
S4AConnector		Public	Yes	Allow
			Yes	Allow
			Yes	Allow
			Yes	Allow
			No	Allow
			No	Allow
			No	Allow
			No	Allow
			No	Allow
			Yes	Allow
			Yes	Allow
			Yes	Allow
			Yes	Allow
			Yes	Allow
			Yes	Allow
			Yes	Allow
			Yes	Allow
			Yes	Allow
			Yes	Allow
			Yes	Allow
			Yes	Allow
			Yes	Allow
			Yes	Allow
			Yes	Allow
			Yes	Allow



Options ?

SQL Request

Connection

Host: LocalHost (127.0.0.1)

Upd.

Port:

11001

Timeout [s]:

10

 Authentication Separate authentication

Target type: Siemens S7

Options: Fix buffer

Buffer size:

4096

Cp-343-1 Interface

Max. rows:

25

Max. columns:

25

Max. string length:

255

Cut strings:

255

Max. buffer:

4096

SELECT @@version

Reset connection

Default

SELECT

INSERT

UPDATE

DELETE

Send

SQL Result

State: Success

Result: 0

Rows: 1

Columns: 1

1	Microsoft SQL Server 2016 (SP1) (KB3182545) - 13.0.4001.0 (X64)	Oct 28 2016 18:17:30
---	---	----------------------

Clear Result

Connector: LocalHost (127.0.0.1)

Refresh

Disconnect

Date/Time	Link	Target Ip	Port	SQL Request	Result	Rows	Cols	Duration	DSize	Error Message
27.05.2017 13:44:09.400	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 7.595697E+0;	0	1	0	15	15	send response
27.05.2017 13:44:09.182	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 7.887936E+0;	0	1	0	16	15	send response
27.05.2017 13:44:08.947	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 8.080173E+0;	0	1	0	0	15	send response
27.05.2017 13:44:08.728	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 8.261350E+0;	0	1	0	0	15	send response
27.05.2017 13:44:08.510	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 8.181072E+0;	0	1	0	0	15	send response
27.05.2017 13:44:08.291	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 8.319621E+0;	0	1	0	0	15	send response
27.05.2017 13:44:08.072	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 8.003624E+0;	0	1	0	0	15	send response
27.05.2017 13:44:07.838	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 7.599879E+0;	0	1	0	0	15	send response
27.05.2017 13:44:07.635	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 7.689865E+0;	0	1	0	0	15	send response
27.05.2017 13:44:07.416	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 8.435239E+0;	0	1	0	0	15	send response
27.05.2017 13:44:07.197	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 8.311130E+0;	0	1	0	0	15	send response
27.05.2017 13:44:06.947	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 8.088507E+0;	0	1	0	0	15	send response
27.05.2017 13:44:06.728	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 7.501600E+0;	0	1	0	0	15	send response
27.05.2017 13:44:06.510	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 7.781662E+0;	0	1	0	0	15	send response
27.05.2017 13:44:06.291	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 7.982713E+0;	0	1	0	0	15	send response
27.05.2017 13:44:06.072	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 8.444558E+0;	0	1	0	15	15	send response
27.05.2017 13:44:05.838	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 7.739732E+0;	0	1	0	0	15	send response
27.05.2017 13:44:05.619	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 7.804764E+0;	0	1	0	0	15	send response
27.05.2017 13:44:05.400	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 8.281123E+0;	0	1	0	0	15	send response
27.05.2017 13:44:05.181	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 7.989461E+0;	0	1	0	15	15	send response
27.05.2017 13:44:04.947	Link 1	192.168.4.228	11001	EXEC dbo.usp_add_logTable_SIMATIC 7.509187E+0;	0	1	0	0	15	send response

Selection

Clear database

 Autscroll Autorefresh

Refresh

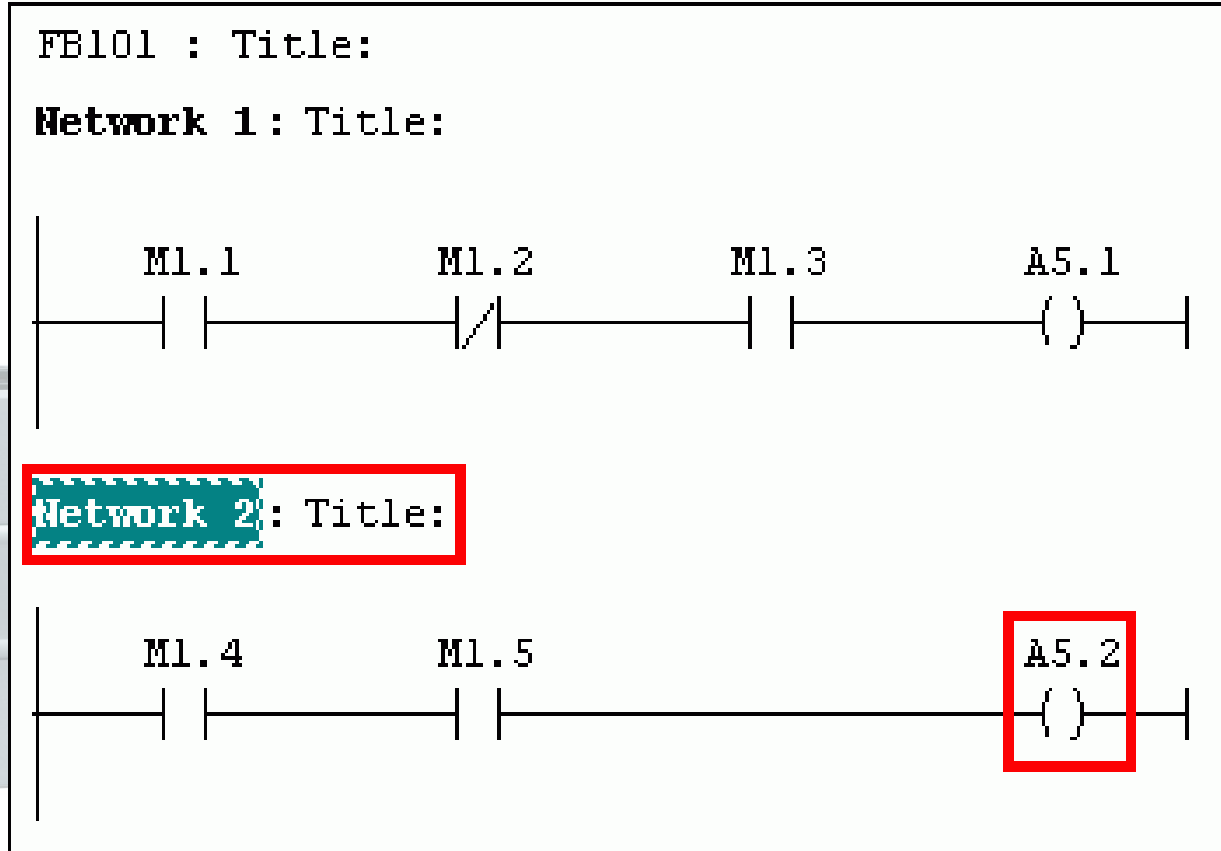
TIA Portal configuration

Programmier-Optionen:

- Kontaktplan
- Funktionsplan
- SCL Structured Control Language



TIA Portal configuration

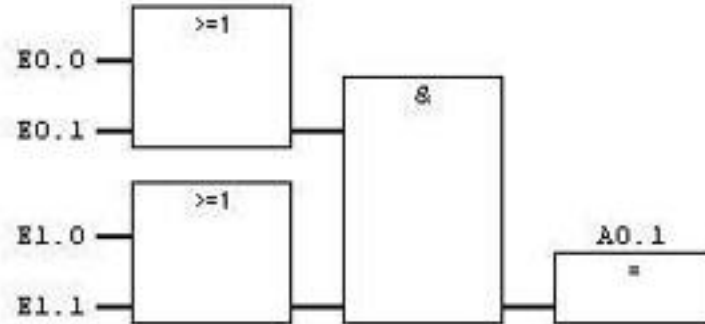


TIA Portal

Netzwerk 1: Titel:

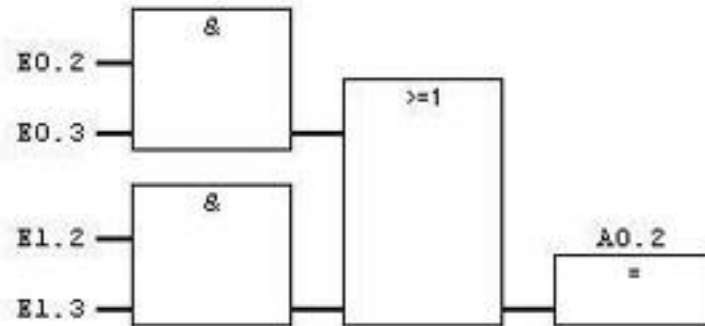
Darstellung FUP

Kommentar:



Netzwerk 2: Titel:

Kommentar:



ver



TIA Portal configuration



```
TYPE AnyPoint
STRUCT
    SyntaxID: BYTE;
    DataType: BYTE;
    DataCount: INT;
    DB_Number: WORD;
    BytePointer: DWORD;
END_STRUCT
END_TYPE

FUNCTION FC1: VOID

VAR
    buffer_source: AnyPoint;
    Source_Any AT buffer_source: ANY;
    buffer_destin: AnyPoint;
    Destin_Any AT buffer_destin: ANY;
    erg: INT;
END_VAR

buffer_source.SyntaxID:= 16#10;
buffer_source.DataType:= 16#2;
buffer_source.DataCount:= 16#0a;
buffer_source.DB_Number:= 16#06;
buffer_source.BytePointer:= dw#16#84000000;

buffer_destin.SyntaxID:= 16#10;
buffer_destin.DataType:= 16#2;
buffer_destin.DataCount:= 16#0a;
buffer_destin.DB_Number:= 16#07;
buffer_destin.BytePointer:= dw#16#84000000;

erg:= SFC20(srcblk:= Source_Any, dstblk:= Destin_Any);
END_FUNCTION
```

OTOMATION



TIA PORTAL

The screenshot displays the Siemens TIA Portal software interface. The main window shows a ladder logic program for a CPU 1211C DC/DC/DC. The program is titled "fcSqlExampleSCL [FC100]". The code is written in SCL (Structured Control Language) and includes several conditional statements (IF... THEN... END_IF) that trigger SQL queries based on the state of digital inputs (xSchalter1 through xSchalter8). The queries are executed using the "dbSqlExamples" data block. The code also includes a comment: "// Step: Create the insert query *****". The interface includes a Project tree on the left, a Block interface at the top, and a Properties/Options panel on the right. The status bar at the bottom indicates that the project "SQL4S7-1200-TIA" is open.

```
IF... CASE... FOR... WHILE... OF... TO DO... DO... (*...*)
43 // Use the watch table "ExampleV2_SQL_INSERT" to execute the following query.
44 10:
45 "dbSqlExamples".iRandomNb := 0;
46 IF "xSchalter1" = true THEN
47 "dbSqlExamples".iRandomNb := "dbSqlExamples".iRandomNb + 1;
48 END_IF;
49 IF "xSchalter2" = true THEN
50 "dbSqlExamples".iRandomNb := "dbSqlExamples".iRandomNb + 1;
51 END_IF;
52 IF "xSchalter3" = true THEN
53 "dbSqlExamples".iRandomNb := "dbSqlExamples".iRandomNb + 1;
54 END_IF;
55 IF "xSchalter4" = true THEN
56 "dbSqlExamples".iRandomNb := "dbSqlExamples".iRandomNb + 1;
57 END_IF;
58 IF "xSchalter5" = true THEN
59 "dbSqlExamples".iRandomNb := "dbSqlExamples".iRandomNb + 1;
60 END_IF;
61 IF "xSchalter6" = true THEN
62 "dbSqlExamples".iRandomNb := "dbSqlExamples".iRandomNb + 1;
63 END_IF;
64 IF "xSchalter7" = true THEN
65 "dbSqlExamples".iRandomNb := "dbSqlExamples".iRandomNb + 1;
66 END_IF;
67 IF "xSchalter8" = true THEN
68 "dbSqlExamples".iRandomNb := "dbSqlExamples".iRandomNb + 1;
69 END_IF;
70
71 "dbSqlExamples".fRandomNb := "dbSqlExamples".iRandomNb - 0.5 + "RDM"("dbSqlExamples".iRandomNb);
72 "dbSqlExamples".iStep := 11;
73
74 11:
75 // Step: Create the insert query *****
76 "dbSqlUserData".stRequest.asRequest[0] := 'EXEC dbo.usp_add_logTable_SIMATIC ';
77 "dbSqlUserData".stRequest.asRequest[1] := REAL_TO_STRING("dbSqlExamples".fRandomNb);
78 "dbSqlUserData".stRequest.asRequest[2] := '';
79 "idbSql4Siemens".xHoldConnection := true;
80 "idbSql4Siemens".xExecute := true;
81 "dbSqlExamples".iStep := 12;
```



TIA Portal

```
40 // Inserts a new data record into the sample table
41 // -----
42
43 10:
44   "dbSqlExamples".iRandomNb := 0;
45 IF "xSchalter1" = true THEN
46   "dbSqlExamples".iRandomNb := "dbSqlExamples".iRandomNb + 1;
47 END_IF;
48 IF "xSchalter2" = true THEN
49   "dbSqlExamples".iRandomNb := "dbSqlExamples".iRandomNb + 1;
50 END_IF;
51 IF "xSchalter3" = true THEN
52   "dbSqlExamples".iRandomNb := "dbSqlExamples".iRandomNb + 1;
53 END_IF;
54 IF "xSchalter4" = true THEN
55   "dbSqlExamples".iRandomNb := "dbSqlExamples".iRandomNb + 1;
56 END_IF;
57 IF "xSchalter5" = true THEN
58   "dbSqlExamples".iRandomNb := "dbSqlExamples".iRandomNb + 1;
59 END_IF;
60 IF "xSchalter6" = true THEN
61   "dbSqlExamples".iRandomNb := "dbSqlExamples".iRandomNb + 1;
62 END_IF;
63 IF "xSchalter7" = true THEN
64   "dbSqlExamples".iRandomNb := "dbSqlExamples".iRandomNb + 1;
65 END_IF;
66 IF "xSchalter8" = true THEN
67   "dbSqlExamples".iRandomNb := "dbSqlExamples".iRandomNb + 1;
68 END_IF;
69
70 "dbSqlExamples".fRandomNb := "dbSqlExamples".iRandomNb - 0.5 + "RDM"("dbSqlExamples".iRandomNb);
71 "dbSqlExamples".iStep := 11;
72
73 11:
74 // Step: Create the insert query *****
75 "dbSqlUserData".stRequest.asRequest[0] := 'EXEC dbo.usp_add_logTable_SIMATIC ';
76 "dbSqlUserData".stRequest.asRequest[1] := REAL_TO_STRING("dbSqlExamples".fRandomNb);
77 "dbSqlUserData".stRequest.asRequest[2] := ' ';
78 "idbSql4Siemens".xHoldConnection := true;
79 "idbSql4Siemens".xExecute := true;
80 "dbSqlExamples".iStep := 12;
```



Überblick „dataflow“

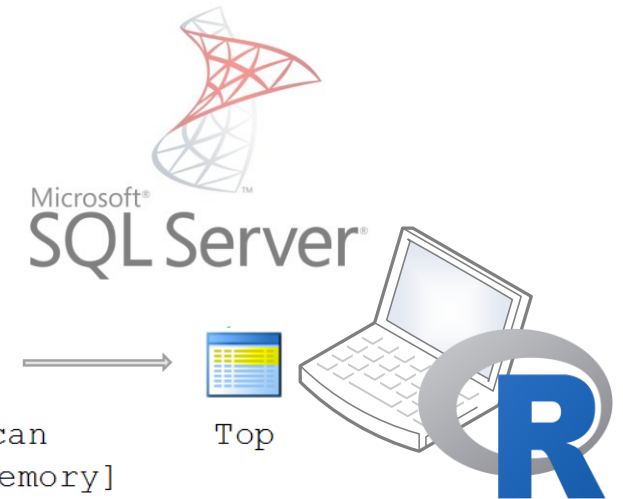
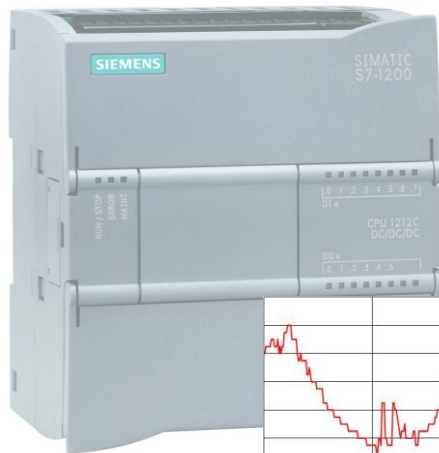
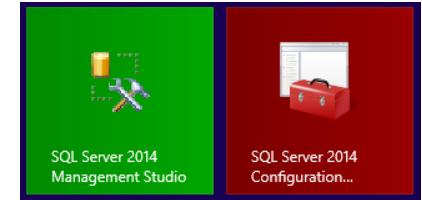
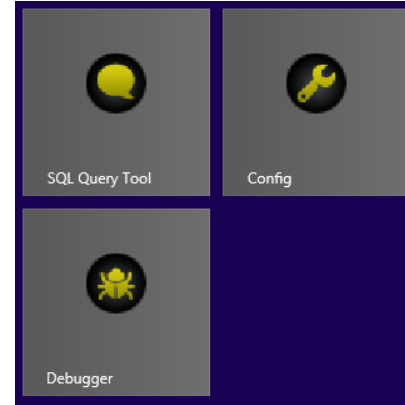
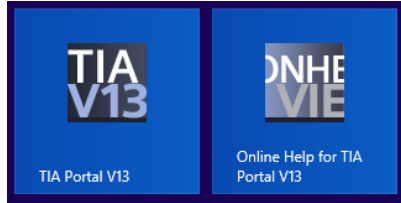


Table Scan
[logTable_memory]



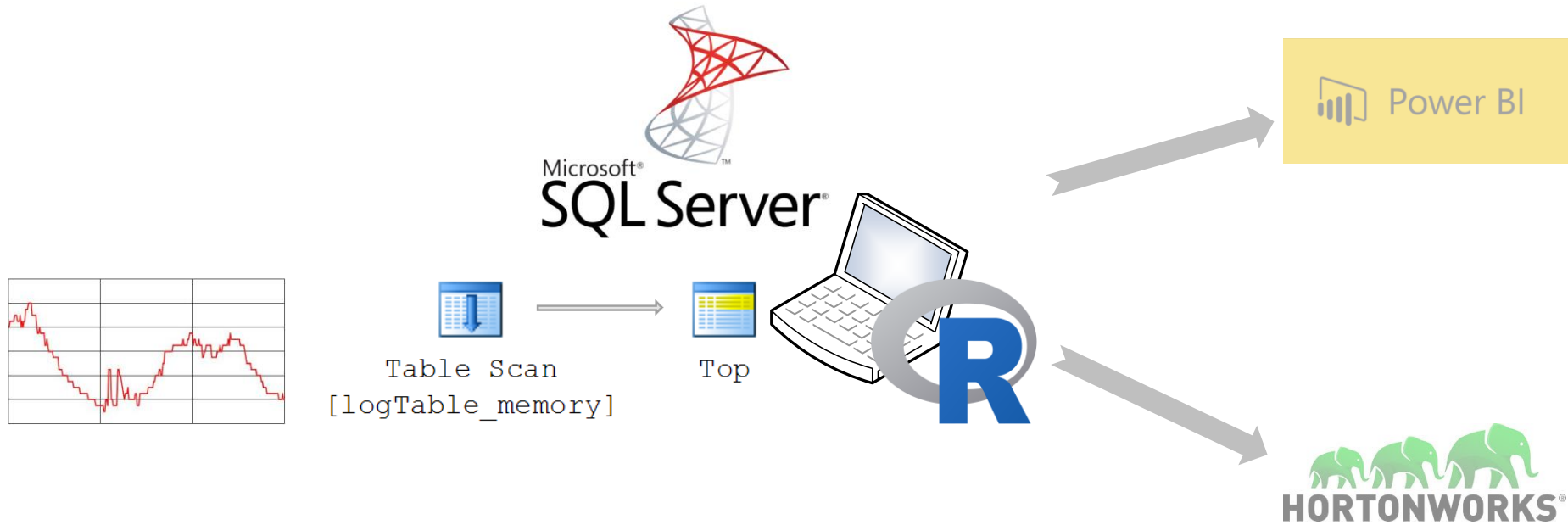
Top



demo



Datenspeicherung & -auswertung



weitere Informationen & Demo Software



www.SQL4AUTOMATION.com



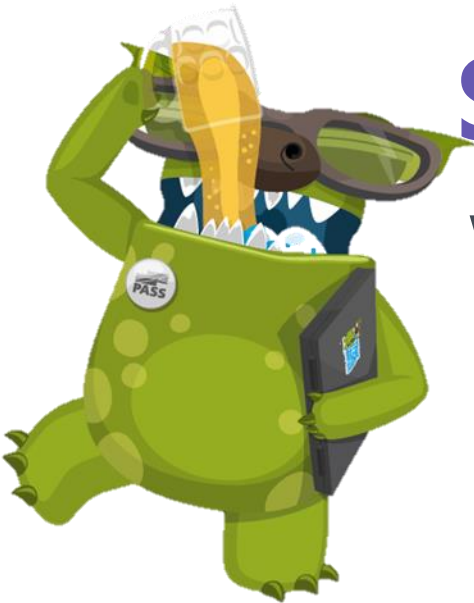
Don't forget ... After-Show-Party!!!

5 Jahre SQL Saturday

an der Hochschule Bonn-Rhein-Sieg

SQLSat Bruzzler - Grillparty

Würstchen & Bier ab ca. **19.00 Uhr**
am Ende der Hochschulstraße



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