

S7 OPC-UA Server

Version 1.36





SPS-Types

- S7-1500
- S7-1200
- S7-300/400 with TCP/IP on Board / PN or CP 343-x/443-x
- S7-300/400 MPI/Profibus with S7-LAN
- Win AC RTX
- S7-200 with CP 243-1
- S7-Soft-PLC
- SIMATIC-S5 over S5-LAN

Operating systems

Windows

- 10
- 8
- 7

Windows Server

- 2012 R2
- 2012
- 2008 R2
- 2008

Functions overview

- Visualization / control via web browser / mobile device (optional)
- OPC-UA-Server possible
- User account control
- Automatically generating the display
- To define your own scaling

Areas of application

- Visualisation
- Control
- Data transfer via OPC-UA

Installation

Start "S7 OPC UA & Mobile HMI Setup 1.0.36.0.exe". The installation checks whether you have installed the required software packages.



Deinstallation

- System Control \rightarrow Programs and Features \rightarrow S7 OPC UA & Mobile HMI \rightarrow Uninstall
- Remove the folder where the configuration data is stored

PLC - Settings

S7-1200/1500

The optimized block access needs to be deactivated in the data block attributes for access to the S7-1500 and S7-1200.

AlleDatenTypen [DB50]	×
General	
General Information	Attributes
Time stamps Compilation Protection	Only store in load memory
Attributes Download witho	Data block write-protected in the device Optimized block access
	deactivate
< III >	< III >
	OK Cancel

In the S7-1500 must be enabled in the communication setting in addition to the PUT / GET access . How this works you see here (snapshot from TIA Portal) .

General IO tags	System constants Texts	
 General PROFINET interface [X1] Startup 	TIA Portal users and HMI applications will have access to all functio No password is required.	ns.
Cycle Communication load		
System and clock memory		
SIMATIC Memory Card System diagnostics		
PLC alarms		
 Web server DNS configuration 		
Display	Connection mechanisms	
Multilingual support Time of day		
 Protection & Security OPC UA 	Permit access with PUT/GET co remote partner	mmunication from



LOGO!

1. Use the Logo Soft Comfort the IP address of a logo! PLCs:

Optionen	X
Standard-Editor Sprache	Schnittstelle
Dokumentenanzo Bildschirm	C LOGO! Kabel 💿 Ethernet
🗃 Drucken	Name IP-Adresse Subnetzm Gateway Status
≻€ Verbindungen au	LOGO!
Schnittstelle Simulation Farben Look and Feel UDF	Neue IP-Konfiguration IP-Adresse: 169.254, 58, 10 Subnetzmaske: 255.255, 255, 0 Gateway: , , , , OK Abbrechen
	Erkennen Hinzufügen Löschen Bearbeiten
	Vor der Kommunikation bestätigen?
	OK Abbrechen Hilfe

2. Configure PLCs so that connections from an HMI device accepted the Logo!. To do so, go to "Tools- > Ethernet Connections" and then add a new connection.

ព្រះ	Adresse und Verl	bindungen konfigurie	ren [×
	1oduladresse			
	IP-Adresse:	169.254. 58. 10		
	Subnetzmaske:	255.255.255.0		
	Gateway:			
F	eer-to-Peer-Verbind	lungen		
		erbindu. Verbindung H	ninzufüg	ien
Ľ				
	ОК	Abbrechen	Hilfe	

3. Double-click on the newly created connection to access the properties.

TRAEGER . DE Söllnerstr. 9 92637 Weiden info@traeger.de +49 (0)961 48 23 0 0	
Verbindung1(Server)	1
C Clientverbindung: fordert Datenübertragung zwischen lokalem PC und dezentraler SPS an	
 Server-verbindung: antwortet auf verbindungsanforderungen dezentraler Clients 	
Eigenschaften lokaler Verbindungen (Server)	
TSAP 02.00	
Mit Operator Panel (OP) verbinden	
Alle Verbindungsanforderungen akzeptieren.	
Nur diese Verbindung:	
Keep Alive (Verbindungskontrolle)	
🔲 Keep-Alive-Funktion für diese Verbindung aktivieren	
Keep-Alive-Intervall:	
OK Abbrechen Hilfe	

Select:

- 1. Server Connection
- 2. Local TSAP: 02:00 02:00 decentralized TSAP
- 3. accept all connections.

You can access DB1, inputs , outputs, flags , counters and timers with IP -S7 -LINK . Now put on "Tools- > VM parameter map " the variables that are to be transferred to the DB1.



WinCC (TIA-Portal) Variablentabelle



First Start

After the start, you receive the following message:



Select the location for the server data and click OK.

You are then prompted to set the admin password:





•	Set Admin Password	×
Set a new p	assword for the Master Adminitrator.	
Username:	admin	
Password:		
	OK Const	_
	OK Cancel	

In the following start window, log in as admin and your chosen password:

2 2	S7 OPC UA & Mobile HMI		1 ×
		7 0	¢ 0
	Mobile HMI		^
HMI	Login		
	Benutzername: admin Passwort: Remember me I	PC UA	®
			1 Y

The application

The application is divided into the menu and display area.

Area of the menu

	S7 OPC UA & Mobile HMI	- 1		×
		~ 0	Ф	0
Name Description				

Name	Description
₳	call Start page
•	one page backward
	one page forward
Ο	Generate Machine Code, enter license key



Name	Description
Ø	Call the server settings
0	Information about the product and licensing

Display area

		Mobile HMI		
HMI Start Konfiguration	HMI-Konfiguration			
Datenpunkte	Verbindungen	Skalierungen		
OPC-UA-Konfiguration OPC-Server Account Benutzerverwaltung	OPC-Client-Zertifikate		S7 OPC	UA C° ecture
				Logout

Displays the currently selected page with the available data and options. Im obigen Bild sehen Sie z.B. die Startseite.

Fields marked with * are required.

Configuration menu

You can access all available pages by clicking on 🗐. The following menu items are available:



Home	>
Datenpunkte	>
Verbindungen	>
Skalierungen	>
HMI-Konfiguration	>
OPC-UA-Konfiguration	
OPC-Server	>
Account	
Benutzerverwaltung	>
OPC-Client-Zertifikate	>

Menu	Description / task
Home	Call start page
Benutzerverwaltung Manage your users and set permissible access to the data	
Verbindungen	Establish the connections to your Siemens PLCs
Datenpunkte	Link the connections with the desired data addresses in the PLC. The tree structure allows you to pre-sort your data immediately
Skalierungen	Here you have the possibility to define various control and input elements for the view
HMI-Config	Design the desired view with main and sub-pages and add the desired data points to the respective data groups
OPC-Konfiguration	Sammelmenü für OPC-Einstellungen
OPC-Server	Create and manage OPC UA Server
OPC-Client Zertifikate	Certificates from OPC UA clients for the authenticated connection to the OPC UA server. You also assign the rights granted to the user

Standard functions in the menu item:

Funktion	Task
*	Add new settings
1	Edit settings
Ō	Delete settings

User administration

=			User	Administration			
* D ^	Full Name	Is Active	🕆 Login Name	🔶 Admin Groups 🛛 🔶	User Groups	🔶 Edit 🔶	
	Master Administrator	~	admin	A1 A2 A3		/ 0	
2	Mustermann	~	MusterA	A1		/ 8	
	Mayer Hans	~	MayerHans		U1	× ±	
	Huber Max	~	HuberMax		U2	/ 8	

Overview of existing users.

By clicking on 📩 a new user will be added and you get the following dialog:

Edit (ID: 2)
ID 2 Full Name Is Active
Login Name Password
Admin A1 A2 A3 Groups
User Groups U1 U2 U3 U4 U5 U6 U7 U8
V OK X Cancel

Name	Function	
ID	User-assigned ID	
Full Name	Username is displayed	
Is Active	User can log on	
Login Name	Name zur Identifikation des Benutzers	
Password	Password for login	
Admin Group	Assign to the desired admin group (s). See user group table	
User Groups	Assignment to the desired user group (s). See user group table	
User group	Function	
A1	Admin without restriction	
A2	OPC-Admin, Data points and OPC relevant data	
A3	HMI-Admin, Manage data points and HMI pages	



User group	Function
U1 - U8	User groups 1 to 8. User groups can be used to group multiple users. You can then assign different data points to this group, adapted to your requirements. For example: user group U1 = all layer leaders (sees all machines and can control them), U2 = machine operator H2 (only sees the machines in its task area)

PLC-Connections

≡			Connections				
+ ID	* Name	🔶 * IP-Adresse	🔶 * Rack	🔶 * Slot	e Ref	† Edit	¢
1	Halle 1	192.168.0.80	0	2	25	/ 8	
10 🗸			< 1 >				

Overview of configured Siemens PLC connections.

1 Halle 1 × 192.168.0.80 0
Halle 1 × 192.168.0.80 0
192.168.0.80 0
0
2
-
\$7300_400 V
OperationPanel 🗸
5000
5000
5000
5000
25

Name	Function	
ID	System-assigned ID	
Name	Name of the connection in the display	
IP-Adresse	IP address under which the PLC can be reached	
Rack	Rack number of the CPU	
Slot	Slot of the CPU	

Name	Function
Gerätetyp	Type designation of the PLC. Available types: Logo S7200 S7300_400 S71200 S71500
Connection type	Default: Standard connection to the PLC (OperationPanel) OperationPanel: Connection via the OP channel ProgrammerDevice: Connection via the PG channel Other: Connection via the Other channel
Connect Timeout	Timeout in ms for connection setup
Recieve Timeout	Timeout in ms for receiving the data from the PLC
Transmit Timeout	Timeout in ms for sending to the PLC
BreakDetection Timeout	Keep Alive-Time for monitoring the TCP / IP connection (interesting at large intervals)
User Break Detection	Set Break Detection Timeout is used
Ref	Number of data points that point to this connection

Data point definition

≡



Datapoint Definitions

to the second	*Name 🍦	* Adresse	Ref	🔶 Edit	¢
205	Lager	DB1000.DBD 210	3	1.8	
206	Schichtführer	DB1000.DBD 214	3	1.8	
207	Umkleide Dusche	DB1000.DBD 218	3	1.8	
208	Umkleide Raum 1	DB1000.DBD 222	3	1 8	
209	Umkleide Raum 2	DB1000.DBD 226	3	10	
10 🗸				< 1	>

The addresses of the data points, which serve as data sources, are defined here. The first node is always the connection. One connection can be added one

- New node
- New datapoint



Name	Description
Left 📩	Adds a new node under the selected node
Right 📩	Add a datapoint
1	Rename the selected point
.	Delete the selected point

Datapoint Definitions (ID: 203)

ID	203
* Name	Heizung Halle 1 Abs ×
* Verbindung	Heizung
* Adresse	DB1000.DBD 206
* Datentyp	DoubleFP 🗸
* Arraylänge	1
* Aktualisierungsintervall (ms)	500
Nur Lesen	
Ist Aktiv	\checkmark
Ref	0
Test this Config	
	✓ OK × Cancel

Name	Description
ID	System-assigned ID
Name	Display name of the data point. If empty, the Data address (without spaces) is used as name.
Verbindung	Is added to this connection (the connection must already have been created)
Adresse	Data address to be processed in the PLC. DB1.DBB 0 for data block 1, data byte 0
Datentyp	Specifies the data type that the software driver reads from the PLC Please select Bool Byte UInt16 Int16 Int16 UInt32 Int32 UInt64 Int64 SingleFP DoubleFP String
Arraylänge	Length of the array to be read

×

Name	Description	
Anzahl der zu erstellenden.	Several consecutive data points can be created automatically. If the number is greater than 1, the end address of a data point is calculated and the address is entered as the next data point. Example: Name: Temperature, Address: DBW100.DBD10 , Type: Int16 .	
konsekutive DPs	Number: 3	
	Generated:	
	Name: Temperature_1 Address: DBW100.DBD10	
	Name: Temperature_2 Address: DBW100.DBD12	
	Name: Temperature_3 Address: DBW100.DBD14	
Aktualisierungsintervall (ms)	Time grid of data updating	
Nur lesen	Data can only be read. Even if this is entered as a setpoint in the GUI, this DP can not be written anymore	
Ist Aktiv	Data point can be used	
Ref	Number of references used	

Move sample data points:

beispiel_datenpunkt_verschieben.mp4

PLC address variables:

Operand

Name	Abbreviation (Siemens, DE)	Abbreviation(IEC)
Input	E	I
Output	A	Q
Flag	М	М
Peripherals	Р	Р
Counter	Z	С
Data Block	DB	DB
Timer	Т	16

Data types

Name	Abbreviation	Bit size	Range	Description	Array
BOOL	Х	1	0 to 1	single bit representing true (1) or false (0)	x
BYTE	В	8	0 to 255	unsigned 8-bit	x
WORD	W	16	0 to 65.535	unsigned 16-bit (Word)	x
DWORD	D	32	0 to 2 ³² -1	unsigned 32-bit (Double Word)	x
CHAR	В	8	A+00 to A+ff	ASCII-Code unsigned 8-bit character	x
INT	W	16	-32.768 to 32.767	signed 16-bit integer	x
DINT	D	32	-2 ³¹ to 2 ³¹ -1	signed 32-bit integer (Double Word)	х
REAL	D	32	+-1.5e-45 to +-3.4e38	IEEE754 32-bit single precision floating point number	x
S5TIME	W	16	00.00:00:00.100 to 00.02:46:30.000	binary coded decimal (BCD) number representing a time span	

TRAEGER.DE



Name	Abbreviation	Bit size	Range	Description	Array
TIME	D	32	00.00:00:00.000 to 24.20:31:23.647	signed 16-bit integer representing a time span in milliseconds	
TIME_OF_DAY	D	32	00.00:00:00.000 to 00.23:59:59.999	unsigned 16-bit integer representing a time span in milliseconds	
DATE	W	16	01.01.1990 to 31.12.2168	unsigned 16-bit integer representing a date in days	
DATE_AND_TIME	D	64	00:00:00.000 01.01.1990 to 23:59:59.999 31.12.2089	binary coded decimal (BCD) number representing a date and time	
S7String	В	any	A+00 to A+ff	ASCII-Code, max. 254 Bytes	

The variables are composed of operand and data type. Examples:

Examples	Data type	Example Siemens	Example IEC
Input Byte 1, Bit 0	BOOL	E 1.0	I 1.0
Output Byte 1, Bit 7	BOOL	A 1.7	Q 1.7
Flag Byte 10, Bit 1	BOOL	M 10.1	M 10.1
Data Block 1, Byte 1, Bit 0	BOOL	DB1.DBX 1.0	DB1.DBX 1.0
Input Byte 1	BYTE	EB 1	IB 1
Output Byte 10	BYTE	AB 10	QB 10
Flag Byte 100	BYTE	MB 100	MB 100
Peripherals Input Byte 0	BYTE	PEB 0	PIB 0
Peripherals Output Byte 1	BYTE	PAB 1	PQB 1
Data Block 1, Byte 1	BYTE	DB1.DBB 1	DB1.DBB 1

Data Block 1, Data Block 1 Typ bool, Address $1.0 \rightarrow DB1.DBX 1.0$ Data Block 1, Data Block Typ Byte, Address $1 \rightarrow DB1.DBB 1$ Peripherals Input, Typ DWORD, Address $0 \rightarrow PED 0$

Help:

DB#.DBB # = Data Block#.Data Block Byte #

DB#.DBW # = Data Block#.Data Block Word #

DB#.DBD # = Data Block#.Data Block Doubleword #

= Address

Service settings

• Among 🔯 You will find the settings for the service.

Service not installed:



	Server Settings				
Please se running	lect the Data Directory. Note that you need write access to this directory when user mode.				
Folder:	C:\Users\developer\Desktop\MobileHMI_External_18\Server Browse.				
Service	ice Management Ing the application as a Windows Service allows you to provide access to the MI interface from other devices (e.g. mobile phones) on the network as soon a mputer starts. Port: 80 e Status: Service is not installed. all + Start Service Start Stop Uninstall Service OK	5			

Service installed:

•	Server Settings ×			
Please se running	elect the Data Directory. Note that you need write access to this directory when user mode.			
Folder:	C:\Users\developer\Desktop\MobileHMI_External_18\Server Browse			
Serv Installi WebHI the cor	rice Management ng the application as a Windows Service allows you to provide access to the MI interface from other devices (e.g. mobile phones) on the network as soon as mputer starts. Port: 80			
Service	e Status: Service is running.			
Inst	all + Start Service Start Stop Uninstall Service			
	ОК			

Name	Description	
HTTP Port	Port for the web interface of the configuration / display	
Install + Start Service	Installs the application as a service and starts it automatically	
Start	manual start teh service	
Stop	Stop the service, e.g. for changes	
Uninstall Service	Remove the installed service	

If you want to change the port, stop the service and make the desired change and restart it.

For external users to access the application, the following firewall rules must be added:

- Under Service set port
- If necessary, set OPC Server Ports



OPC Server configuration

×

Function	Description		
C Restart all Servers	Restarts all OPC servers		
Server Name	Display name for internal admir	istration	
User Access	Authorized user groups are disp General and OPC administrators	layed. s generally have access to each server	
Everyone Access	E1 = Anonymous login enabled no display = only user groups a	ssigned have access	
URI	Address for the connection setu	р	
	Status of the OPC server with th	e possibility of controlling the server	
	When you move the mouse over the status image, a tooltip appears for the current status		
	Status	Description	
	•	Server has not started yet	
	•	Server is started / stopped	
OPC-Status	•	Server is active	
	•	An error has occurred	
	Action	Description	
		Start OPC-Server	
	0	Restart OPC-Server	
	Stop OPC-Server		

Create new server (≚):

Edit (ID: 2)	×
ID	2
Server Name	OPC http ×
Transport	HTTP
Hostname	localhost
Port	80
URI Path	Halle1
Automatically create rejected user of	ertificates 🗹
User Access	U1 U2 U3 U4 U5 U6 U7 U8
Everyone Access	E1
URI	http://localhost:80/Halle1
	V OK X Cancel

Name	Description	ТСР	НТТР
Server Name	Display name		
Transport	Type of data transmission	Binary Protocol, is more efficient than HTTP	Uses HTTP web services, higher compatibility with firewalls



Name	Description	ТСР	НТТР
Hostname	Server name or IP address for access	Only relevant for the creation of the certificate	Relevant for the creation of the certificate, and specifies the host HTTP header via which the HTTP request is assigned to the OPC server
Port	OPC server target port	A separate port must be used for each OPC server, since each socket is used for each OPC connection	The same port as for the configuration (eg: 80) and for other (HTTP) OPC server because an HTTP handler is registered for the port, hostname, and URI path
URI Path	Destination address of the OPC server	Not relevant, since the OPC server is identified by the port	Specifies the URL path under which HTTP requests are assigned to this OPC server
Automatically create rejected user certificates	Rejected certificate is certificates	automatically saved and ca	an then be processed under client
User Access	Allowed user groups		
Everyone Access	Permission, the non-de	efined user can also conne	ct to the server

When creating the OPC-UA server, you have the option to upload a certificate or to automatically create a certificate. The stored data is displayed automatically.

Example OPC server via TCP

- Server Name: Halle 1
- Transport: TCP
- Hostname: localhost
- Port: 20000
- Automatically create rejected user certificates: ✓
- Generate new self-signed Certificate: ✓
- Erlaubte Benutzergruppen: U1 and U3

OPC Server Configuration	(ID: [New])	×
ID	[New]	
Server Name	Halle 1	
Transport	ТСР 🗸	
Hostname	localhost	
Port	20000	
URI Path		
Automatically create rejected user certificates		
Server Certificate	Generate new self-signed Certificate or Upload a Certificate:	
	Durchsuchen	
User Access	U1 U2 U3 U4 U5 U6 U7 U8	
Everyone Access	E1	
URI		
	✓ OK X Cance	

After save:



OPC Server Configuration (ID	: 5)
ID	5
Server Name	Halle 1 ×
Transport	тср 💙
Hostname	localhost
Port	20000
URI Path	
Automatically create rejected user certificates	
Server Certificate	Generate new self-signed Certificate or Upload a Certificate:
	Durchsuchen
	Existing Certificate: Subject: CN=WebHMI OPC UA, DC=localhost Issuer: CN=WebHMI OPC UA, DC=localhost Valid not before: 18.11.2015 11:54 (UTC) Valid not after: 18.11.2065 11:54 (UTC) Fingerprint (SHA-1): 2A4F11456FE1D4531F5C4894583961D99AA9E4ED
	Download Certificate
User Access	U1 U2 U3 U4 U5 U6 U7 U8
Everyone Access	E1
URI	opc.tcp://localhost:20000/
	✓ OK X Cancel

The following entry appears in the overview:



After saving, you can start the server by clicking on .

Example OPC server via HTTP

- Server Name: Halle 1
- Transport: HTTP
- Hostname: localhost
- Port: 80
- URI Path: Halle1
- Benutzergruppen: U1 and U2

Edit (ID: 2)	×
ID	2
Server Name	OPC http ×
Transport	HTTP V
Hostname	localhost
Port	80
URI Path	Halle1
Automatically create rejected user certifica	ates 🔽
User Access	U1 U2 U3 U4 U5 U6 U7 U8
Everyone Access	E1
URI	http://localhost:80/Halle1
	V OK X Cancel





After save:

OPC Server Configuration (ID: 2)	×
ID	2	
Server Name	Halle 1	
Transport	нттр 🗸	
Hostname	localhost	
Port	80	
URI Path	Halle_1	
Automatically create rejected user certificates		
Server Certificate	Generate new self-signed Certificate or Upload a Certificate:	
	Durchsuchen	
User Access	Existing Certificate: Subject: CN=WebHWI OPC UA, DC=localhost Issuer: CN=WebHWI OPC UA, DC=localhost Valid not before: 23.09.2015 06:33 (UTC) Valid not after: 23.09.2065 06:33 (UTC) Fingerprint AF3D16CB821544DFF4A53780669EB95 (SHA-1): Download Certificate U1 U2 U3 U4 U5 U6 U7 U8	i-46448972C
Everyone Access		
URI	http://localhost:80/Halle_1	
	✓ OK ×	Cancel
The following entry	appears in the overview:	
Halle 1 U1 U	2 htt	p://localhost:80/Halle 1

After saving, you can start the server by clicking on

TIP:

If you have not already created the application as a service, or you are not running the application as an administrator, the following error message appears:

		OPC S	erver Configuration			
C Restart all Servers						
* New						
Server Name	User Access	Everyone Ar	ccess 🔅 URI	¢ .	OPC Status	0 Edit 0
OPC http	U1 U2		http://loc	alhost:80/Halle1 (2.8
TestOPC	UT		Error: HTTP konnte URL "http://+: registrieren. Der Prozess wei Zugriffsrechte für diesen Nar (Details finden Sie unter hhttp://go.microsoft.com/fi Linkld=70353). Please correct your config an server.	80/Halle1/" nicht ist keine mespace auf wtink/? nd restart the		~ *

Since http connections run via a web service, you need administrative rights.

OPC Client Certificate



=	OPC Client Certificate Management						
* N	ew						
ID 🔺	Name 🔶	Is Active	Subject 🕴	Admin Groups	User Groups	\$	Edit 🕴
3	RejectedCertificate 2015-05-04 06:59 Z		CN=developer				/ 0
4	Mustermann A.	~	CN=developer	A1			10
5	Mayer Hans	~	CN=developer		U1		10
6	Huber Max	~	CN=developer		U2		/ =
7	Admin	~	CN=developer	A1			10
10 🔨	•		<	1 >			

Add OPC user (💌):

Edit (ID: [New])		×
ID Name	[New]	
Is Active Certificate File	Durchsuchen	
Subject Issuer Valid not before Valid not after Fingerprint (SHA-1 Admin Groups	<displayed after="" uploading=""> <displayed after="" uploading=""> <displayed after="" uploading=""> <displayed after="" uploading=""> I) <displayed after="" uploading=""> A1 A2 A3</displayed></displayed></displayed></displayed></displayed>	
User Groups	U1 U2 U3 U4 U5 U6 U7 U8	
	V OK X Cancel	

Field	Description	
Name	Free	
Is Active	✓ User can access the OPC servers	
Certificate File	Upload certificate file	
Zertifikatsdaten		
Subject	Certificate number CN: common name DC =	
lssuer	Certificate Issuer	
Valid not before	valid from	
Valid not after	Expiration date certificate	
Fingerprint (SHA-1)	Fingerprint of the certificate	

• Enter a name



- Download the certificate
- Set the desired authorization(s)
- Restart all OPC servers

If you have set the rejected certificates in the OPC server, you will see a connection attempt after a connection attempt. Following entry in your administration:

	RejectedCertificate		
1	2015-05-04 06:43	CN=developer	/ 🕫
	Z		

• Click the Edit icon

Edit (ID: 1)	×
ID Name	1 RejectedCertificate ×
ls Active Certificate File	Download Certificate
Subject Issuer	CN-developer CN-developer
Valid not before Valid not after	09.12.2014 08:36 (UTC) 15.11.2114 08:36 (UTC)
Admin Groups	A1 A2 A3
User Groups	U1 U2 U3 U4 U5 U6 U7 U8
	✓ OK X Cancel

If you click on Download Certificate, you can get the certificate

- Open
- Save

	Dateidownload - Sicherheitswarnung					
Möchten Sie diese Datei öffnen oder speichern?						
	Name: Cert-1.crt					
	Typ: Sicherheitszertifikat, 781 Bytes					
	Von: localhost					
	Offnen Speichem Abbrechen					
Dateien aus dem Internet können nützlich sein, aber dieser Dateityp kann eventuell auf dem Computer Schaden anrichten. Öffnen oder speichem Sie diese Software nicht, falls Sie der Quelle nicht vertrauen. Welches Risiko besteht?						

- Check the box "Is active"
- Set the desired permission(s)



• Restart all OPC servers

Testing the OPC UA server

With OPC-Watch (OPC UA Client)

With our free "OPC-Watch" tool, you can connect to OPC servers, which are standard OPC servers. This allows them to access prepared data and view and test settings from the OPC server.

👄 Opc Watch			- 🗆 ×	
4 1		0		
Server Browser	Configuration Monitor Analyse			
+	1: opc.tcp://localhost:20000/ [Au	: opc.tcp://localhost:20000/ [Auto, 0, None]		
😑 💻 1: opc.tcp://localhost:20000/	<u>≹</u> 2↓ 📼			
 Hale 1 Hale 1 Lagor Schichtführer Umkleide Dusche Umkleide Raum 1 Umkleide Raum 2 Umkleide Raum 2 Umkleide Raum 2 Schicht Maschine Extruder 1 Abfülung Extruder 2 Abfülung Extruder 2 Ehrfülung Extruder 2 Ehrfülung Extruder Aktion Mascher 1500 Abfülung 	Application ServerAddress Name Un User Identity Certificate Name Password Security Accept Untrusted Certificates Certificate Stores RejectedCertificate Store TrustedIssuerCertificates TrustedPeerCertificates Policy	opc.tcp://localhost:20000/ OPC Watch MayerHans False .\Certificate Stores \Rejected .\Certificate Stores \TrustedIssuer .\Certificate Stores \TrustedIssuer .\Certificate Stores \TrustedPeer		
Mischer 1500 Einfullung	Aloorithm	Auto	~	
e™ mischer 2009 Adfullung e™ Mischer 2600 Einfüllung e™ MD30 ⊡ £ s5 ∨	Use Domain Checks			
Connected!				

All entries are automatically displayed as shown in "Data points".

Connection via TCP:

👄 Opc Watch – C					×	
					0	
Server Browser	Configuration Monitor Analyse	Configuration Monitor Analyse				
+ - I i 3	TRead Write O Auto C	Jpdate 🏌 1: opc	.tcp://localhost:20	000//Halle 1/Heizung		
E I: opc.tcp://ocalhost:20000/	Name	Value	Туре	AccessLevel	Description	
B B Hale 1	d ² Lager	18	Double	CurrentReadOrWrite		
Heizung	4 Schichtführer	20,5	Double	CurrentReadOrWrite		
Lager	49 Umkleide Dusche	19,5	Double	CurrentReadOrWrite		
e ⁿ Umkleide Dusche	49 Umkleide Raum 1	19,5	Double	CurrentReadOrWrite		
Junkleide Raum 1	a Umkleide Raum 2	20,5	Double	CurrentReadOrWrite		
Christeler Habili 2 Christeler 1 Ehrfüllung Christeler 2 Abfüllung Christeler 2 Ehrfüllung Christeler 1500 Ehrfüllung Christeler 1500 Ehrfüllung Christeler 2006 Abfüllung Christeler 2006 Abfüllung Christeler 2000 Ehrfüllung Christeler	<					2
Connected!						



Connection via HTTP:

👄 Opc Watch –					x		
						0	
Server Browser	Configuration Monitor Analyse						
 2: http://localhost/Halle_1 B. Server Halle 1 4: Ucht 4: Ucht 4: Ucht 4: Ucht 6: Server 3: opc.tcp://localhost:20000/ E Server B. Halle 1 4: Ucht 9: Server 8: Halle 1 9: Halle 1 9: Halle 1 9: Waschine 1: Moschine 1: Moschine 1: Moschine 1: Server 8: Server 9: Server 	Read Write Auto U Auto U Name Clager	Update 12: http Value 18 20.5 19.5 19.5 20.5	://localhost/Halle_1 Type Double Double Double Double Double	I/Halle 1/Heizung AccessLevel CurrentReadOrWrite CurrentReadOrWrite CurrentReadOrWrite CurrentReadOrWrite CurrentReadOrWrite	Description		
	د						>
Connected! .:.							

With OPC UA framework (C # example)

```
OpcCertificateManager.AutoCreateCertificate = true;
OpcClient client = new OpcClient("opc.tcp://localhost:20000/");
client.UserIdentity = new UserIdentity("MayerHans", "MayerHans");
client.UseDomainChecks = false;
//Zertifikat automatisch akzeptieren
client.Configuration.SecurityConfiguration.AutoAcceptUntrustedCertificates = true;
OpcNodeId nodeId = new OpcNodeId("Halle_1/Heizung/Lager", 2);
client.Connect();
Console.WriteLine("ReadNode: {0}", client.ReadNode(nodeId));
try
Ł
   client.WriteNode(nodeId, 14);
}
catch (Exception ex)
   Console.WriteLine(ex.Message);
}
Console.WriteLine("ReadNode: {0}", client.ReadNode(nodeId));
client.Disconnect();
Console.ReadKey(true);
```



Overview Menu structure

S7 OPC UA & MobileHMI

- Home
 - Visualisierung start
- Benutzerverwaltung
 - $\circ \ \text{Name}$
 - Login Name
 - Passwort
 - Benutzergruppe
 - Admingruppen A1-A3
 - Benutzergruppen U1-U8
- Verbindungen
 - Name
 - IP-Adresse
 - Rack
 - Slot
 - Gerätetyp
 - Logo
 - S7200
 - S7300_400
 - S71200
 - S71500
 - Verbindungstyp
 - Default
 - Operation Panel
 - Programmer Device
 - Other
 - \circ Timeouts
 - Connect
 - Recieve
 - Transmit
 - BreakDetection
- Datenpunkte
 - Verbindung(en)
 - Datenpunkt(e)
 - Knoten
 - Datenpunkt(e)
 - Unterknoten
 - Datenpunkt(e)
 - Name
 - Adresse
 - Datentyp
 - Bool
 - Byte
 - UInt16
 - Int16
 - UInt32
 - Int32



- UInt64
- Int64
- SingleFP (23 bit Mantisse, 8 bit Exponent, 1 bit Vorzeichen)
- DoubleFP (52 bit Mantisse, 11 bit Exponent, 1 bit Vorzeichen)
- String
- Arraylänge
- Anzahl der zu erstellenden, konsekutiven Datenpunkte
- Aktualisierungsintervall
- \circ Nur lesen
- Skalierungen
 - Name
 - Skalierung
 - Text/String
 - Stufentext
 - Linear
 - Eingabeart
 - Textfeld
 - Numerisches Textfeld
 - Schieberegler
 - Auswahlfeld oder Schalter/Taster
- HMI-Config
 - Seite(n)
 - Datenpunktgruppe(n)
 - Datenpunkt(e)
 - Unterseite
 - Datenpunktgruppe(n)
 - Datenpunkt(e)
 - $\circ~$ Seite anlegen
 - Titel
 - Datenpunktgruppe anlegen
 - Titel
 - Datenpunkt zuweisen
 - Titel
 - Istwert-DP
 - Istwert-Skalierung
 - Sollwert-DP
 - Sollwert-Skalierung
 - Taster-Anzeigewert
 - Taster-Skalierung
 - Numerischer Istwert-Min
 - Numerischer Istwert-Max
- OPC Server
 - Alle Server neustarten
 - Neuen Server anlegen
 - Server Name
 - Transport
 - TCP
 - HTTP
 - Hostname



- Port
- URI Path
- Automatically create rejected user certificates
- Server Certificate
- User Access
- Everyone Acces
- URI
- \circ Server starten
- Server stoppen
- \circ Server neustarten
- OPC Client Zertifikate
 - \circ Name
 - $\circ~$ Is active
 - Certificate File
 - Admingruppe festlegen
 - Benutzergruppe festlegen
- Recipe Manager
 - Clear Selection
 - $\circ \ \text{Product}$
 - $\circ \ \ \text{Commission}$
 - \circ Recipe
 - Rezept laden
 - Recept speichern







Table of Contents

SPS-Types	. 2
Operating systems	. 2
Functions overview	. 2
Areas of application	. 2
Installation	. 2
Deinstallation	. 3
PLC - Settings	. 3
S7-1200/1500	3
LOGO!	4
First Start	. 6
The application	. 7
Area of the menu	. 7
Display area	. 8
Configuration menu	. 8
User administration	. 9
PLC-Connections	11
Data point definition	12
Operand	14
Data types	14
Service settings	15
OPC Server configuration	17
OPC Client Certificate	20
Testing the OPC UA server	23
With OPC-Watch (OPC UA Client)	23
With OPC UA framework (C # example)	24
Overview Menu structure	25