



IBH Link UA

Setup

Quad-Core 64, Quad-Core 32, Single-Core 32 Manual

Version 5.5.0

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IBH Link UA – Setup 1

1.1 Installation and connection

The IBH Link UA Quad Core 64 Bit. the IBH Link UA Quad Core 32 Bit and the IBH Link UA Single Core 32 Bit are designed for DIN rail mounting:



All IBH Link UA have two (2) interfaces separated by a firewall, which are designed for data exchange at the management level or at the control level.

Interface IBH Link UA Quad-/Single-Core 32 Bit (QC-32 / SC-32)

The management level has an Ethernet port (10 / 100 MBit/s). The interface of the control level consists of a 3-port switch (10 / 100 MBit/s).

Interface IBH Link UA Quad Core 64 Bit (QC-64)

The control level and management level each have an Ethernet port (10 / 100 / 1000 MBit/s). There is also a USB port and a slot for a micro-SD card.

Power supply IBH Link UA Quad Core 64 Bit



The power is supplied via the included plug. Power supply: 24VDC / 0.2A

Power supply IBH Link UA Quad-/Single-Core 32 Bit



The power is supplied via the included plug.

Power supply: 24VDC / 0.2A

ATTENTION!

A supply voltage of **12VDC** to **36VDC** is to be used for the operation of the IBH Link UA. A higher supply voltage may destroy the device.

1.2 Configuration of the IP addresses (default setting)



This information is printed on the side of the IBH Link UA. The administration interface can be accessed in the delivery state with a current web browser via the Ethernet port 2 (QC-32 / SC-32 via port 2 to 4) via the IP address 192.168.1.14. The Ethernet port 1 can only be used to configure the **IBH** Link UA if a DHCP server assigns the IP address, and a DNS server resolves the name by specifying the hostname http://ibhlinkua_<serial number> (http://ibhlinkua_010331)

No additional applications or drivers are required.

Default logon data Username: admin

Password: admin

Standard IP address configuration (QC-32 / SC-32)



Level	Port	Address
Management level	Port 1	Hostname: ibhlinkua_ <seriennummer></seriennummer>
Control level	Port 2 - 4	192.168.1.14

Standard IP address configuration (Quad Core 64 Bit)



Level	Port	Address
Management level	Port 1	Hostname: ibhlinkua_ <seriennummer></seriennummer>
Control level	Port 2	192.168.1.14

Note:¶

In the IBH Link, UA default factory setting the configuration may be accessed using an Internet browser (FireFox, Microsoft Edge, Internet Explorer, etc.) as follows:

Via·the·management·level·(port·1)·with·the·host·name·if·the· port·is·connected·to·a·network·with·a·DHCP·server·and· DNS·server.

Via-the-ports-of-the-machine-level,-it-is-only-possible-if-the-connected-network-has-the-sub-address-192.168.1.nn.

Otherwise, `a`fixed`IP`address`from`the`subnet`192.168.1.0`[24]`(e.g.,`192.168.1.10)`must`be` provided`to`the`connected`PC.

1.3 Login browser window

🔛 IBH Link UA	× +		- 🗆 X
← → ♂ ☎	1 92.168.1.14/?_=/	⊠ ☆	II\ 🗉 ⊖ 💥 ◯ 👬 Ξ
	OPC server is running		single-core
Login			
The password is case-sensitiv	ve.		
User i Enter your use	name admin		
Pass Enter your pas	sword admin		
Remembe Keeps login for 2	er me weeks		
	Login Lost password		
www.ibhsoftec.com	SOFTEC		IBH Link UA embedded OPG UA server / client

Language selection



The languages English, German and Japanese are available in the browser window.

OPC server running display

OPC server is running

There is a display that provides information about the activities of the OPC server.

1.3.1 IBH Link UA type display

The IBH link UA is available at three performance levels:

- Single core 3 2Bit the processor (imx6) used in the IBH Link UA is a single core single-core processor with 32 bits. Possible Ethernet transmission rates (10 / 100 Mbit/s) (Serial numbers 010000 - 011999). Older IBH Link UA with single core processors do not have a performance level display (Serial numbers 1000 - 4999).
- Quad Core 32 Bit the processor (imx6) used in the IBH Link UA is a single core processor with 32 bits. Possible Ethernet transmission rates (10 / 100 Mbit/s) (serial numbers 5000 - 9999)



Quad Core 64 Bit – The processor (imx8) used in the IBH Link UA is a quad core quad-core processor with 64 bits (serial numbers 030000 - 039999). These IBH Link UA have a significantly higher processor performance and possible Ethernet transmission rates of (10 / 100 / 1000 MBit/s).

Remember me

If this login is marked, no username and password will be requested when the same browser window is called up again. This setting remains in effect for up to two weeks.

1.3.2 Login

Important information about HTTP access	When you click Login, the
With unencrypted connections, it is possible that personal information can be revealed. Therefore we recommend to disable HTTP in the 'Security' page.	following security messages are displayed one after the other.
Important information about the Password	
Currently a default password is used. It is highly recommended to change the password. Confirm	have been confirmed, we ssword.
Important information about date and time settings	It is important that the time is
Certificates will only work proper, if the clock is set correctly. Your device reports: 2024-09-28 15:33:45	set correctly, otherwise any OPC UA data transfer and
You should continue only, if the date and time settings are correct. Otherwise the clock should be se	t first. therefore firmware updates cannot be carried out.

Change Password



For security reasons, the password should be changed. The username may also be changed.

Ok Cancel

In the open browser window Management level / control level klick the button Update password.

ල : ු දු =

quad-core

Choose Password If the password is not long enough or if you have not -Too short entered enough different characters (A - Z; 0 - 9; special characters), the background is "red". For security reasons, the password must be 12 or 16 characters long.

The browser access username cannot be changed.

1.4 Network browser window

Management Level Settings (QC-32 / SC-32)



Management level settings (QC-64)

💼 🛛 🗮 IBH Link UA - N	letwork × +				Here, adjustments to the
$\leftarrow \rightarrow \mathbf{C}$	0 👌 192.168.1.14/?_=/r	network	🛪 ☆	ල ම එ ≡	network configuration for
Network Security Certificates GDS Time settings System Users Siemens slots	OPC server is running Management Level Network Configuration Endpoint URL or Or OHCP IP address Subnet mask Global System Configuration Hostname Port	Logout Update password Control Level Routes 802.1X ppc.tcp://ibhlinkue.005668.48010 poc.ttp://ibhlinkue.005668 thlinkue.005668 teolo	OpenVPN TeamVie	quad-core	port 1 and global system settings can be made. If DHCP is deactivated, the network configuration and global system settings can be changed. The hostname can always be changed.
History OPC Client	Nameserver 1 Nameserver 2	💼 🗮 IBH Link UA - N	letwork × +	e ture la	× - □ >
Diagnostics MQTT Variables Nodeset SoftPLC Modbus Mitsubishi Rockwell MicroSD	Apply] Revert	Network Network Security Certificates GDS Time settings System Users Siemens slots History OPC Client Diagnostics	OPC services reactions and an analysis of the service of the servi	Logout Update password Control Level Routes Port. Ep ///bhinkus-005668.46010 port. Ep //10.113.4 10.1.13.1 10.1.13.1 10.1.13.1 10.1.13.1 10.1.13.1 192.168.1.1	quad-core 802.1X OpenVPN TeamViewer IoT AnyViz

Control Level Settings (QC-32 / SC-32)

	🗈 🛛 🗮 IBH Link UA - N	letwork × +							
	← → C @	0 👌 192.168.1.14/?_=	=/network	іх д	•	. ⊘	<u>ک</u>	ב נ	-
I		OPC server is running	Logout Update password			qua	d-cor	e	
	Network Security Certificates GDS Time settings System Users Siemens slots History	Management Level Network Configuration Endpoint URL or DHCP IP address Subnet mask Global System Configuratio Hostname Port Default gateway Nameserver 1 Nameserver 2	Control Level Routes B02.1X OpenVPN opc.tcp://ibhlinkua-005668:40010 opc.tcp://ibhlinkua-005668:40010 opc.tcp://ibhlinkua-005668 opc.tcp://ibhlinkua-005668 192.168.1.14 can be changed opc.tcp://ibhlinkua-005668 opc.tcp://ibhlinkua-005668 6bhlinkua-005668 opc.tcp://ibhlinkua-005668 opc.tcp://ibhlinkua-005668 opc.tcp://ibhlinkua-005668 60010 10.1.13.1 can be changed opc.tcp:/ibhlinkua-005668 opc.tcp:/ibhlinkua-005668 10.1.13.1 can be changed opc.tcp:/ibhlinkua-005668 opc.tcp:/ibhlinkua-005668	Team	Viewer Io	TA	UY VIZ		
	Diagnostics	Apply Revert							

Here, adjustments to the network configuration for ports 2 to 4 (control level) and global system settings can be made.

If DHCP is deactivated, the network configuration and global system settings can be changed. The hostname can always be changed.

Control Level Settings (QC-64)

💼 🛛 🗰 IBH Link UA - Ne	twork × +						
← → C @	0 👌 192.168.1.14/?_=	=/network	ネ ☆	7) එ	=
- 🔆 🚧 🚺	OPC server is running	Logout Update password			quad	-core	
Network Security Certificates GDS Time settings	Management Level Network Configuration Endpoint URL or DHCP IP address Subnet mask	Control Level Routes B02.1X OpenVPN opc.tcp://ib/linkua-000000-46010 opc.tcp://ib/linkua-000000-46010 opc.tcp://ib/linkua-000000-46010 opc.tcp://ib/linkua-0000000-46010	Team	Viewer Io	T An	yViz	
System Users Siemens slots History OPC Client Diagnostics	Global System Configuratio Hostname Port Default gateway Nameserver 1 Nameserver 2 Apply Revert	n bhlinkus-000000 46010 10.1.13.1 10.1.13.1 10.1.13.1 192.166.1.1					

Here, adjustments to the network configuration for port 2 (control level) and global system settings can be made.

If DHCP is deactivated, the network configuration and global system settings can be changed. The hostname can always be changed.

Management Level / Control Level adjustments (QC-64 / QC-32 / SC-32)

By clicking the *Apply* button, the changed settings of the control level are



nged settings of the control level are applied to the *IBH Link UA*. The execution of the change is displayed.

The transfer of the adjusted settings is displayed in the upper right corner of the browser window.



Since the web browser of the Link was opened using the IP address of the control level, access to the web browser of the IBH Link UA can only take place via the changed IP address of the control level or the IP address of the management level.

The changes require a restart of the IBH Link UA, corresponding information is displayed.

Note:

The *management level* (port 1) must have a different subnet address than the *control level* (QC-64 port 2, QC-32 / SC-32 port 2 to port 4) to clearly identify the belongings of the ports to the Ethernet interfaces.

Endpoint URL

Management Le	vel Control Level 802.1X
Network Configuratio	n
Endpoint URL	opc.tcp://ibhlinkua_sc:48010
or	opc.tcp://192.168.1.15:48010
Management Le	vel Control Level 802.1X
Network Configuratio	n
Endpoint URL	opc.tcp://ibhlinkua_sc:48010
or	opc.tcp://10.0.13.89:48010

The *Endpoint URL* is displayed at the *Management Level* and in the *Control Level*. The endpoint URL is generated by the *IBH Link UA* based on the settings. The endpoint URL consists of the protocol: *opc tcp // hostname: port*.

This *Endpoint URL* is required to set up an OPC UA client.

Clients can use this endpoint URL to find out the configuration of the server - for example, regarding the security options used.

1.5 Settings Routes

💼 🛛 🗰 IBH Link UA	× +				~	- 0	×	The IBH L
← → C @	0 192.168.1.14/?_	=/network			🕺 🖒	ල 😩 එ	≡	create a r
Network Security	OPC server is running Management Level Network New route Edit route	Logout Update passwo Control Level R S Delete route Show routes	rd 802.1X ubnet	OpenVP Gateway	N TeamViewer Inter	quad-core r IoT AnyViz face	1	another su route, dele
GDS Time settings System Users Siemens slots	Global System Configuratic Hostname Port Default gateway Nameserver 1 Nameserver 2	n bhlinkua-005669 48010 10.1.13.1 10.1.13.1 192.168.1.1	Add/Edit rou Route: Destination net Subnetmask:	ite work: 1 2	92.168.110.0		×	Clicking the
ip route show	w output:		Interface:	ľ	Management Level Management Level Control Level	(open / select)	V	for adding route.
default via 10.1.13 10.1.13.0/24 dev et 192.168.1.0/24 dev e	.1 dev eth0 proto s h0 proto kernel sco eth1 proto kernel s	static ope link src 10.1 scope link src 192 co	.13.14 2.168.1.14			Confirm	ncel	Show Ro the added

The IBH Link UA allows you to create a route to a device in another subnet, change the route, delete, and display it.



Clicking the **New Route** button opens the dialog box for adding or changing the



Show Routes button displays the added route.

1.6 Settings 802.1x

← → C	802.1X for and
Monogenerity Control Level Control Level Routes B02.1X OpenVPN TeamViewer IoT AnyViz authorization authorization	and
Network Management Level Control Level Routes 002.1X OpenVPN TeamViewer IoT AnyViz authorization in Security 002.1XSecurity <	
Security Odd Noted and Security	n IEEE 802
Select buz. 1X security Deactivated V	
Status Deactivated The current state	
Legitimation Lis Select the legitimation algorithm (currently only TLS)	settings in
Time settings Identity The usemame the 802.1X win	ndow can
System Upload A certificate Upload A certificate	the
Users Select user certificate (pem) Durchsuchen Keine Datei ausgewählt. Select the user certificate in PEM Format	/ 110
Select the user secret key key before secret key key before secret key key here a secret key key key here a secret key	ections at
History Uplad userserteky (ve) Control enc. Faire Call abgravitic Control to the control level	el or the
OPC Client User secret key password The pasword of the user secret key	
Diagnostics Save configuration management le	evel.
MQTT Global System Configuration	curity or deactivate
Variables Hostname tbhinkua-005669 Select 802.1X security Management Level	open / select)
Nodeset Default gateway 10.1.13.1 Status Deactivated	
SoftPLC Nameserer 1 10.13.1 Legitimation Management Level	
Modbus Cashel 2 Live Bar	
Mitsubishi Apply Revert Select CA certificate (pem)	

IEEE 802.1X security settings can be saved.

The configuration of the

1.7 OpenVPN settings



key / certificate files. Clicking on *Load OpenVPN* opens the *Load OpenVPN Configuration* dialog box.



1.8 TeamViewer IoT activation – IBH Link UA



TeamViewer IoT software option is pre-installed in the IBH Link UA starting firmware V 7.5. This option offers the possibility of being able to access all PLC systems anytime and anywhere. Complex modem solutions or the use of a PC on site are outdated.

- → C @	○ 월 192.168.1.14/?_=/network	×☆ ♡ © ዸ =
	OPC server is running Logout Update password	quad-core
Network Security Certificates GDS Time settings System Users Siemens slots History OPC Client	Management Level Control Level Routes 802.1X Op TeamViewer IoT ImanViewer IoT ImanViewer IoT ImanViewer IoT Assignment Token ImanViewer IoT ImanViewer IoT Group ImanViewer IoT ImanViewer IoT TeamViewer auto start ImanViewer IoT ImanViewer IoT Log level Imfo Imfo Proxy settings Proxy settings ImanViewer IoT Internet access (IP:Port) Internet access over Impoxy Start Stop New assign Remove assignment Download logfile	pile MQTT settings Attended Access
Diagnostics MQTT Variables Nodeset	Global System Configuration Hostname Ibhlirkua-005668 Port 48010 Default gateway 10.1.13.1 Nameserver 1 10.1.13.1 Nameserver 2 192.168.1.1	

If the Internet must be accessed via a proxy, the address can be entered in the form **Proxy: Port** or **User: Password@Proxy:**

Port. The proxy access to the Internet must be activated.

To establish a connection via **TeamViewer-IoT**, the Ethernet subnet of the control level must have access to the Internet. The IBH Link UA manages two subnet addresses separated by a firewall, each with its own MAC address.

Ethernet areas:

Level	Port	
Management level	Port 1	must be in different
Control level	QC-64 – Port 2 QC-32 / SC-32 – Port 2 – 4	IP networks

If you need to access the Internet via a proxy, you can enter the address in the form *Proxy:Port* or *User: Password@Proxy:Port*.

Proxy access to the Internet must be activated.

Log level	Info 🔹	open / select)	The log output can be
	Info	If the log level is changed the TeamViewer agent must be restarted to annuathe changes	customized.
	Verbose	In the log revension angea, the real intervent agent must be restarted to apply the changes.	

Insert assignment token

💼 🔛 IBH Link UA	× +					×
← → C ŵ	0 👌 192.168.1.14/?_=	=/network	🛪 🖒	⊽ 2	பி	≡
	OPC server is running	Logout Update password		quad-	core	
Network	Management Level	Control Level Routes 802.1X OpenVPN	TeamViewer	r IoT) 🛛 Any	Viz	
Security	Status					
Certificates	TeamViewerID	med by swer loT				
GDS	Assignment Token	Copied Assignment token				
Time settings	Group	TTI to complete				
System	TeamViewer auto start Log level	Info (If the log level is changed the TeamViewer agent				
Users	Proxy settings	must be restarted to apply the changes.				
Siemens slots	Proxy address (IP:Port)	fill in if necessary				
History	Internet access over proxy	ck)				
OBC Client	Start Stop New assig	n Remove assignment Download logfile Delete logfile MQ1	TT settings Atte	nded Access		
OFC Chem	Global System Configuratio	n				
Diagnostics	Hostname	ibhlink-iot				
MQTT	Port	48010				
Variables	Default gateway	192.168.1.1				
Nodocot	Nameserver 1	192.168.1.1				
noueset	Humoson 2	10.0.13.1				
SoftPLC	Apply Revert					

The **Assignment token** must be copied into the field of the same name in the **IBH Link UA** browser window Network/TeamViewer oT. Enter the group name and mark that Team Viewer is switched on automatically.

Clicking the **New assign** button opens the **TeamViewer IoT End-User License Agreement**.

(confirm

To apply the settings, the TeamViewer IoT end user license agreement must be accepted by clicking the button **Accept**.

 Accept

 Note!

 Mathematical Contemption of the Assignment token to TeamViewer can take same time.

Assignment Token taken from TeamViewer IoT

If the assignment token has been accepted, the status and the *TimeViewerID* with the name are displayed in the web browser window *Network/TeamViewer IoT*.

Copy the TeamViewer ID



TeamViewer Shortcuts dialog box.

Copy the TeamViewer ID number to the Windows clipboard.



Teamviewer-Shortcuts	×	Insert the TeamViewer ID number in the
Connections		field of the same name. The display name
Display name Teamviewer-URL		
IBH Link UA SC teamviewer8://remotecontrol/?remotecontrolid=222222228for	wardports=[31711:localhost:31711:3]	is transferred to the <i>TeamViewer account</i> .
IS INSERTED.		This name can be used to establish a
		connection to the IBH Link UA via the
		Internet
Display name: IBH Link UA SC		internet.
Torminure ID. 222222222 insert 1		
Add to list	Remove from list	Clicking the Properties button, a dialog box
click 3	5 ^{confirm}	
Properties	Cancel	appears with the details of the network card
		via which the IBH Link UA is connected.
Properties	×	
Language		
C German C Englis	h	
		By clicking the Add to list button, the
Ethernet card with Internet Access		dianlay name and the Team\/iower ID are
Intel/(D) Ethernet Connection (2) 1210 V		display name and the Teamviewer ID are
Theeler) Ethernet Connection (2) 1219-0		adopted. The dialog box is closed with OK .
Territory Consulting and distances		
Teamviewer Connection establishment		The installation of <i>TeamViewer loT</i> in the
Local Port 31711 Timeout [ms]	: 10000	IBH Link LIA is now complete
,	,	IBIT LINK OA IS NOW COMplete.
		_
(cont		
	<u>OK</u> <u>C</u> ancel	
Foamviewer IoT - MOTT sett	inas	
	illiys	
On an a dialan with MOTT atting	- fau tha TanuaViauan a	The MQTT option is useful in
Click Den a dialog with WQLL setting:	s for the learnviewer o	
LAGE W		conjunction with the IBH LINK UA
MQTT settings		MQTT option.
	_	
Establish connection to the TeamViewer IoT Cloud $ {f x}$	Clicking the MQT	T button opens the <i>Establish connection to</i>
Connection to TeamViewer IoT	the Teemviewer	her alaud dialog box
Activate connection	the realiviewer	ior cioud dialog box.
Client Id:		
Tonic	Details on the use	e of MOTT with the IBH Link IIA are
ropio.		
Create Certificates for the Client	described on the	IBHsoftec WIKI website.
	TeamViewer IoT	
Download the TeamViewer Authority Certificate		
Download Certificate for the Client	If the connect	tion to the Team∀iewer IoT Cloud is changed, the
	TeamViewer	arent must be restarted to annly the channes
Download private key for the Client	rountylewer (Voc No
		ies No
Ok		
UK I		

1.9 1.8 Activate Any Viz

The *Any Viz* option has been integrated since firmware V5.26. Data can be recorded and evaluated using the *AnyViz Cloud*.

The AnyViz Cloud Adapter can be activated, and the status displayed in the Any Viz tab.



IBH Link UA - Setup

ō	🧱 IBH Link UA	× +		×	/	- 0	×	If Activate AnyViz Cloud Adapter is
← →	Сŵ	0 웝 192.168.1.14/?_	=/network	\$4 ☆	ତ) 🖲 🖞	≡	selected, access URLs are displayed
**		OPC server is running	Logout Update password			quad-core		under Status. These are the URLs (via
Netw	ork	Management Level AnyViz Settings	Control Level Routes 802.1X OpenVPN	Team¥ie	wer IoT	AnyViz		IBH Link UA management level / control
Certi	ficates	Use AnyViz Cloud Adapter	✓ Activate	Activate or Cloud Ada	· deactivate tl pter	he AnyViz		level) with which the AnvViz Cloud
GDS	IIIuutoo	Status	active http://10.1.13.14:8888 http://192.168.1.14:8888	Current St	atus			Adapter browser window is called
				_				
		The Anv	Viz Cloud Adapter can	onlv	be c	alled	us	sing the subnet URL in which the PC to

The *AnyViz Cloud Adapter* can only be called using the subnet URL in which the PC to active_http://10.1.13.14:8888_http://192.168.1.14:8888_ be called and the *IBH Link UA are*

<u>located</u> (with port 8888). The PC must have Internet access.

Note:

Status

There is no need to install the *AnyViz Cloud Adapter for Windows*. If this software is installed, uninstall it.

Control level

OPC UA Tag CounterValue1500 as a diagram

Management level



1.10 Security browser window



The connection security between an OPC UA client and OPC UA server (also OPC UA server / OPC UA server) is available for selection in this window and can be specified.

To establish a connection between an **OPC UA client** and an **OPC UA server**, security settings must be performed.

The IBH Link UA has certificate management to enable secure communication defined by OPC UA *(SecureChannel)*. The web browser is used to configure the security levels and manage the certificates.

The mechanisms defined by the *OPC Foundation* are used as a base. *OPC UA Security* includes authentication and authorization, encryption, and data

Revert

Apply

integrity by signing. This allows the control system to be protected against uncontrolled access via a higher-level system.

In the IBH Link UA Browser window Security, the security levels offered by OPC UA are listed for selection.

The client queries the server's security configuration via **SecureChannel** to then set up a communication channel in which the security (confidentiality) and the completeness (integrity) of the messages exchanged are guaranteed.

Note:

Encrypted messages prevent or at least make it exceedingly difficult for untrustworthy third parties to read the content of the messages that are exchanged between the OPC client and the OPC server.

Note:

If a change is made in the security browser window, the buttons Apply and Revert are activated. If the change is to be adopted, click the Apply button.

Server Security

	Server Security	Sign	There are different levels o all specified by the OPC U	f encryption. These are A Foundation.
	Basic256 (not recommended)	Sign V	Als the security level for	the OPC UA client /
	Aes128Sha256RsaOaep	Sign V	Server connection	open / select
5	Aes256Sha256RsaPss	Sign + Sign and Encrypt V	selected, in addition the	Siqn
2	Authentication	(Delault – Off)	levels Sign, Sign and	Sign
	Let a Client connect if the hostname in the	1	Encrypt as well as Sign	Sign and Encount
	Let a Client connect if the date in the certificate		+ Sign and Encrypt can	Sign and Encrypt
	does not apply (not recommended)		be selected?	Sign + Sign and Encrypt

Sign

The security level is set by opening and selecting.

The messages contain security signs. It is signed with the associated *Private Key* of the *Application Instance Certificate* of the OPC UA client. Signed messages can detect whether a received message has been manipulated by an untrustworthy third party.

Sign und EncryptThe messages contain security tokens and are encrypted. They are also
encrypted with the Public Key of the Application Instance Certificate of the OPC server.

Sign + Sign and Encrypt The messages contain the security labels of Sign and additionally those of the Sign and Encrypt definition.

Anonymous access without user authentication is allowed as a standard and can be deactivated.

Settings can be made to allow OPC UA client / server connections not recommend for security reasons by the OPC UA specifications.

However, it has been shown that in some applications these settings are unavoidable to establish an OPC UA client / server connection.

Reverse Connection



In contrast to conventional client-server connections, in which the client establishes the connection with the server, in the *reverse connection* the server actively connects to the client.

An inverse server connection can be set up if the server is in a more protected area behind a firewall than the client.

To do this, the endpoint URL of the OPC UA client must be entered. This makes it easier to configure the firewall. Of course, the client must support incoming server connections.

Redundant servers (only HOT mode supported) – quad core only

The software in the IBH Link UA – quad-core offers the possibility to set up redundant OPC UA servers. Of the *server redundancies* defined by OPC UA, the IBH Link UA supports the following modes:

• Non-transparent redundancy, with the sub mode Hot.

All servers in the redundant set have their own **server URL** and **endpoint URL**. Each server in the redundant set provides a list of the other redundant servers in the set (server URI) with the failover mode Hot. With this feature, a client only needs to know one of the servers and can find the other available servers using the information in the server object (**Objects** \rightarrow **Servers** \rightarrow **ServerRedundancy**). The advantage of non-transparent redundancy is that it can be easily supported on the server side. The disadvantage is that the client must do something to benefit from the redundancy. However, implementing generic support in a client can be done without much effort using the information provided by the server.

Note:

If the **IBH UA Editor** was used to configure the first redundant IBH Link UA (OPC server), this configuration can be transferred to other IBH Link UA (OPC server) after changing the server settings.

The configuration of the individual redundant IBH Link UAs must be adjusted as described in the IBH UA Editor manual (enter IP addresses of all IBH Link UAs (OPC server) belonging to the redundancy).

Hot failover mode

All servers are powered on and operational. In scenarios where servers are collecting data from a downstream device such as a PLC, one or more servers are actively connected to the downstream device(s) in parallel. These servers have minimal knowledge of the other servers in their group and function independently. If a server fails or encounters a serious problem, its *service level* drops. Upon recovery, the server returns to the redundant set of servers with an appropriate *service level* to indicate that it is available.

Integrated client security



The hostname should preferably be used to connect to a server. If there is no DNS server, no host name is available.

If the option is selected,

the absolute IP address can be used for the connection to the server, even if only its host name is entered in the server's certificate. The better way is to include both the host name and its IP address(es) in the server's certificate.

This setting is not recommended by OPC UA. For security reasons, OPC UA works with time stamps. The date and time must therefore

For security reasons, OPC UA works with time stamps. The date and time must therefore be set correctly. If a correct time setting is impossible, this setting must be marked. This setting is not recommended by OPC UA.

The server certificate is checked for an encrypted connection. For this, it is necessary that the required server certificate is installed on the IBH Link UA and is available as trusted. A manual upload of the server certificate may be required.

With some OPC UA servers, especially with *NanoServers*, a connection can only be established if the username and password are transmitted unencrypted.

Download

Download Download with STEP®7 or TIA Portal	The downloading of STEP [®] 7 or TIA Portal projects in the IBH Link UA can be prevented.
O Forbid writing of the server configuration	2 It is prevented that new server configurations can
③□Forbid reading of the server configuration	existing server configurations cannot be changed.



Server configurations in the IBH Link UA cannot be read out. This prevents a server configuration from being multiplied for reading into other OPC UA servers.

Firewall

Г	Firewall
ጠ	Permit only OPC LIA on Management Level

- Permit only HTTPS and OPC UA over Open∨PN
- 3 Disable device browsing

The firewall can be instructed only allowing OPC UA connections on the management level. With a web browser, it is no longer possible to address / configure the IBH Link UA via the management level (Ethernet port 1).



The encrypted SSL connection to a virtual network (VPN) can be restricted to the use of the HTTPS, and OPC UA protocols.

The broadcast functions of the IBH Link UA are prevented. If **ProfiNet IO** devices are present in the same network, the device search should be deactivated, since the **Profinet IO** data, exchange also works without a connection.

A ping also works when the device search is deactivated.

Web Configuration

ermit HTTP access for the Webconfiguration	
②□Use custom Certificates	Upload Server Certificate
Start creating new Keys	3 Generate new Keys

For security reasons, access to the configuration of the IBH Link UA should only take place via secure transport encryption *(HyperText*)

Transfer Protocol Secure - HTTPS). Therefore, the option *Allow HTTP access to the web configuration* should be deactivated.

Every IBH Link UA has the same parameter set for negotiating the keys for encryption. This is usually not a problem.

Upload Server Certificate

However, it is possible to create a new parameter set for the encryption.

If **Use custom certificate** is selected, a dialog box is opened via the **Upload Server Certificate** button. There are buttons here for searching, reading in, and installing the **server certificate** and **private key**.

The button *Generate new Keys* opens a message that must be confirmed to generate a new key.

Generate new Keys

The note must be observed, as the generation of a parameter set for negotiating the keys for the encryption can take several hours.

1.11 Certificates browser window



The existing certificates with data and status are displayed in the window. Buttons are provided to trust, block or delete listed certificates.

Certificates can be created, downloaded, or read into the designated certificate store.

1.12 Browser window GDS

💼 🔛 IBH Link UA - GI	DS × +					
$\leftarrow \rightarrow$ C \textcircled{o} O	8 192.168.1.14/?_=/m	anage_gds	\$4 ☆	♡ ≞	பி	≡
Network	OPC server is running	Logout Update password	_	quad-	core	
Security Certificates GDS Time settings	GDS connection informat GDS device type GDS object ID GDS server URL GDS authentication type GDS update interval	Ion PULL model (as client) Center Username and Password Every hour Copen / select	en / select) pen / select)			
System Users Siemens slots	GetSignedCertificateAndTi Apply GDS configuration	rustList UpdateTrustList Dow	rnload logfile	C		

GDS stands for *Global Discovery Server*. The OPC UA GDS concept allows the configuration of cross-subnet discovery services on the one hand and on the other hand it provides interfaces to operate central certificate management.

1.13 Time settings browser window



Note:

The date and time must be set correctly because **OPC UA** works with time stamps. Certificates lose their validity if the time comparison is incorrect. A correct time for communication between server and client is, therefore, important.

1.14 System browser window

🖸 🖳 BH Line UA - Sy	stem × +		
→ C ©	O 🔒 192.16	1.14/?_=/backsprestore	ችር ଅଛି
÷ 🐜 🔹 🚺	OPC severis running	Logout Update password	quad-core
letwork	System		
	Device information		
ecurity	Finnoare Version	IBH Link UA V6.33 Jun 17 2024 D8:50:48	(commune)
ertificates	Serial number	5003	important information
2.0	HW revision	2.0.4 im/6 quel-core	for firmware undate
05	MAC address 1	50/20 F4 25/89/2F	
me settings	MAC 8037858 24	S02D P40P ECOC	in Countries
	CPI Lload (%)	7.5	SHOPC .
stem	Momery usage (%)	10.0	
sers	Uptime	0 Days 1 Hours 32 Minutes	
	Temperature (°C)	54.4	
emens slots	VBAT_5V	4.587	
istory	VIN_24	23.09	
PC Client	Backup and Restore setting	8	
r o onent	Configuration file	Durchsuchen Keine Datei auspervahit.	Configuration file to restore previously saved settings. Typically the file name is ibilinkua-settings.xml.
iagnostics	Restore	Upload Configuration	
OTT	Bacicup	Download	After downloading the configuration file libhinkous settings, while it is possible to perform a firmware update.
SET 1	Finnoare Update:		
ariables	Select firmware File	Durchsuchen Keine Datei ausgewählt.	Firmware file to perform an update. Typically the file name is ibilirikus update-NOX-revision-type.tat.
adeset	Upload Firmware	Upload Firmwere	
- 64.01.0	-Restart IBH Link 115		
onterus	Reboot	Rabott	Restarts the device. All communication with FLCs and OPO UA Clients will be interrupted. Click only, if you are absolutely sure.
	Variable Names		
tsubishi	Classic	•	Variable names compatible with older versions
ockwell	Compact	ō	The identifiers ".GlobalVars" "Programms" ".Generic" are creited. If such a name appears as a variable name, it is placed in questation mark Variable names that centain a spint are placed in questation marks.
croSD	S7-1500 compatible	0	The identifiers ".Global/Jars" "Programms" ".Generic" are omitted.
		-	All Variable names are placed in guotation marks.
	Compatible	0	Data Mucka from OPC Editor under 1. Global Varia" Composition to oblige Memistere CD17, 2012
	-OPC LIA ratiater		Antibutera en antes santante fense-registri
	Right structure perchase		Build shurdure versibles, it will remine more memory I Satting to exclude when you restart
	Lindate Source Tanestann	H	The source transform will not be refreshed an every successful and instead unit a value change on the controller all refresh the birestage
	only on change	-	
	Show Byte Arrays as ExteString		If the PLC variable is a ByteArray, the CPC variable is normally also a ByteArray. This can be changed to a ByteString.
	Route S7 connections shares to slot 7		With some \$7.PLCs the \$7 communication points to the CP instead of the CPU. This can be forced to CPU slot 2.
	Allow only one S7 frame to the PLC		With some SZ-PLCs the OPU can be overwhelmed by Requests. This can be restricted.
	Client Timeout Impl	1000 ×	For some slew responding Severa it can be neccessary to increase the timeout for the client. The default is 10000 ms.
	No client initial update		If the connection between the client and a server is lost, forbid an initial update on reconnect
	Forbid datatype conversion	-	If the PLC variable has a different datatype than the OPC variable, fixed the conversion to another type, even if the value would fit.
	and a		

Information about the IBH Link UA is listed and system settings are offered in the System browser window.

2.0.1 imx6 single-core

50:2D:F4:19:9D:16

50:2D:F4:15:A8:07

0

15.0

25.7

49.2

5.00V

23.80V

1.14.1 Device Information

System			Firm	ware version	
Device information Firmware Version Serial number HW revision MAC address 1 MAC address 2-4	IBH Link UA V5.18 Dec 22 2020 15:09:00 10331 2.0.1 imx6 single-core 50:2D:F4:19:9D:16 50:2D:F4:15:A8:07	CERTIFIED COMPLIANCE	ersion The carry firmw versi	IBH Link UA V5.18 Deversion number is out a firmware up vare updated with on number should	ac 22 2020 15:09:00 important to odate. Only the a higher d be done.
Variable count			Seria	al number	
Memory usage (%)	25.7	FOUNDATION		Serial number	10331
Temperature (°C)	49.2		The	serial number give	es the
VBAT_5V	5.00∨		IBHs	oftec hotline infor	mation about
VIN_24	23.80∨		the s	eries and the age	of the device.

HW revision

The HW revision indicates with which

firmware version (HW1, HW2 SC, HW2 QC or HW3 QC-64) a firmware updated can be carried out (see page 1 - 40).

HW revision

MAC address 1

MAC address 2-4

MAC addresses

The IBH Link UA (SC, QC) has two separate MAC addresses. One MAC address is for the

management level, and the other MAC address is for the three ports of the control level.

Variable cou	Int
--------------	-----

The number of variables registered as OPC UA variables is displayed.

Hardware information

The current CPU load, memory usage and temperature as well
as an internal voltage (VBAT_5V) and the supply voltage
(VIN_24) of the device are displayed.Memory usage (%)
Temperature (°C)
VBAT_5V
VIN_24

1.14.2 Backup and Restore the settings

In this field, there are buttons to save or restore the IBH Link UA configuration or to carry out a firmware update.

Saving the IBH Link UA configuration



This procedure saves the existing settings.

Variable count

CPU load (%)

Restore the IBH Link UA configuration

An already saved configuration can be restored at any time. Click the **Browse** button. The **Select file to upload** window opens. **Browse...**

Select the storage location (Path) and the file (ibhlinkua-settings.xml) and confirm with *Open*.

Backup and Restore settings Configuration file Browse	ibhlinkua-settings.xml C Ty	configuration file to restore previously saved settings. ypically the file name is ibhlinkua-settings.xml.	The selected file name is displayed next to the Browse
Restore Upload Config	guration		button.
Backup and Restore settings			Click the activated Opioad
Configuration file	100 % C	configuration file to restore previously saved settings.	Configuration button.
Restore Upload Confi	guration	ypically the file name is ibhlinkua-settings.xml.	The progress of the upload is displayed.

Information

i

transfer.

Ok Cancel

1.14.3 Firmware Update

Applying the configuration requires a reboot. Reboot Now?



IBHsoftec Support will send you a link to the firmware update via email.

A restart must be performed to complete the configuration

The firmware can be downloaded as a ZIP file.

To unpack the *ZIP file*, you will need a *password* that is attached to the link in the email.

Note:



The date and time must be set correctly in the browser window, as an OPC UA certificate with time stamps is required for the update.

Certificates lose their validity if the time comparison is not correct. It is then no longer possible to update the firmware. (Error message).

HW1

System	
Device information -	
Firmware Version	IBH Link UA V5.17 Dec 8 2020 13:42:17
Serial number	10331
HW revision	1.1.0

This firmware version is only intended for IBH Link UAs in whose browser window the system, under HW revision, shows a number separated by dots without any additions.

Device information Firmware Version IBH Link UA V5.17 Dec 8 2020 13:4 Serial number 10331 number of CPU cores	
Firmware Version IBH Link UA V5.17 Dec 8 2020 13:4 Serial number 10331	
Serial number 10331 number of CPU cores	2:17
HW revision 2.0.1 imx6 single-core	

HW2 SC

This firmware version is only intended for IBH Link UAs, in their browser window system, under HW revision, a number separated by dots (2.0.1 - the last digit indicates the number of CPU cores) and the Addition imx6 single-core (1 CPU core) indicates.

HW2 QC

Device information Firmware Version IBH Link UA V5.18 Dec 22 2020 15	
Firmware Version IBH Link UA V5.18 Dec 22 2020 15	
mumbhan of CDU sources	6:09:00
Serial number 10333	
HW revision 2.0.4 imx6 quad-core	

HW3 QC-64

System Device info	rmation					
Firmware V Serial numb	ersion er	IBH Link U 0000 📈	JA V5.34 Iumber (Sep 25 20 o <mark>f CPU co</mark>	24 13:12 <mark>pres</mark>	57
HW revision	ı	3.0.4 imx8	quad-co	re		
Hard	ware versio		Proce	ssor Nan	ne	
🭝 Choose File to Uplo	ad					×
← → ∽ ↑ 🕹	> This PC > Downlo	ads	~ Ō	Search Downloa	ds	P
Organize 🔻 New	folder				= • 💷	?
This PC	^ Name	Da	te modified	Туре	Size	^
Desktop	(U) fw-update-v	5_20-sc.tar 05. /303.tar select 22.	01.2021 13:05 04.2017 12:56	tar Archive tar Archive	98.280 KB 42.120 KB	
	~					~
	File name: fw-update-	-v5_20-sc.tar	~	Custom Files (*.	tar)	~

This firmware version is only intended for IBH Link UAs, in their browser window system, under HW revision, a number separated by dots (2.0.4 - the last digit indicates the number of CPU cores), and in the Additional quadcore (4 CPU cores) is included.

This firmware version is only intended for IBH Link UAs, in their browser window system, under HW revision, a number separated by dots (2.0.4 - the last digit indicates the number of CPU cores), and in the Additional quadcore (4 CPU cores) is included.

Select saved firmware file

The *firmware file* * *.tar* is displayed in the IBH Link UA's System browser window.





If the LEDs show normal operation, the browser window of the **IBH Link UA** must be reopened and the firmware updates are completed.

In normal operation, the *RUN* LED is lit, the *SYS* LED flashes, and the LED's *Status* and *Error* are off.



Update completed

Restart the IBH Link UA

By clicking the *Reboot* button, the *IBH Link UA* software is restarted.



Restarts the device. All communication with PLCs and OPC UA Clients will be interrupted. Click only, if you are absolutely sure.

1.14.4 Variable format

۲	Variable names compatible with older versions
\circ	The identifiers ".GlobalVars" ".Programms" ".Generic" are omitted. If such
	a name appears as a variable name, it is placed in quotation marks.
	Variable names that contain a point are placed in quotation marks.
• •	The identifiers ".GlobalVars" ".Programms" ".Generic" are omitted.
	All Variable names are placed in quotation marks.
0	Data blocks from OPC Editor under ".GlobalVars"
	Compatible to older Versions (20172019).

The representation of the variables can be adapted.

Note:

The programming systems S7 SIMATIC Manager and the TIA Portal allow dots in variable names (e.g. *Switch 7.1*).

The OPC UA specification does not allow periods in variable names.

The S7 SIMATIC Manager programming system does not transfer any variables for a period in the name to an OPC UA server !

The IBH Link UA software offers four options for variable acceptance.

Classic:

Identifier	CPU 416.CPU 416-3 PN/DP.Programs.DatenBlock.Var_INT	Т
Identifier	CPU 416.CPU 416-3 PN/DP.GlobalVars.Bit_Var	n
Identifier	IBH Link UA.CPU414.Generic.Off_2	SI

The IBH Link UA software only accepts variable names who correspond to the OPC UA specification.

Points in variable names must be removed in the symbol tables (S7 SIMATIC Manager) or TIA Portal) before transferring to the IBH Link UA. The identifiers ".*GlobalVars*", ".*Programs*", ".*Generic*" are added to the name of a variable.

The *IBH UA Editor* accepts variable names with a period. These names who contain a point are placed in quotation marks by the IBH Link UA software during transmission.

Compact:

Identifier	CPU 416.CPU 416-3 PN/DP."GlobalVars"
Identifier	CPU 416.CPU 416-3 PN/DP.DatenBlock.Var_Bool
Identifier	CPU 416.CPU 416-3 PN/DP.Lamp
Identifier	IBH Link UA.CPU414."Off_47.B"
Identifier	IBH Link UA.CPU414.Off_2
Identifier	IBH Link UA.CPU414.Bit_Var

Points in variable names must be removed from the symbol table (S7 SIMATIC Manager) before transfer to the IBH Link UA. Tag names with periods are accepted in the TIA Portal. The IBH UA Editor accepts variable names with a period.

Variable names who contain a point are placed in quotation marks by the IBH Link UA software during transmission. The identifiers ".*GlobalVars", ".Programs", ".Generic"* are omitted in the variable names. If such a name occurs as a variable name, it is placed in quotation marks. If *Compact* is marked, the identifier of a variable is shorter than in the case of the *Classic* mark.

S7-1500 compatible:

Identifier	CPU 416.CPU 416-3 PN/DP."Generic"
Identifier	CPU 416.CPU 416-3 PN/DP."Bit_Var"
Identifier	CPU 416.CPU 416-3 PN/DP."DatenBlock"."Var_INT"
Identifier	CPU 416.CPU 416-3 PN/DP."DatenBlock"."Programms"
Identifier	S7-400-Station_1.CPU 416."On_5.3"
Identifier	IBH Link UA.CPU414."Off.2"

Points in variable names must be removed from the symbol table (S7 SIMATIC Manager) before transferring to the IBH Link UA.

In the TIA Portal programming system, dots are allowed in tag names. The variable names who do not correspond to the S7-1500 format are placed in

quotation marks by the IBH Link UA software during the transfer and thus brought to the name format of the S7-1500.

The identifiers ".GlobalVars", ".Programs", ".Generic" are omitted in the variable names.

Compatible

Mark if data block variables (OPC tags) are defined as **"GlobalVars"** in the IBH OPC UA editor / variable transfer in the target name. Only to be used in older IBH OPC UA Editor versions (2017...2019)

1.14.5 OPC UA options

Variable Names		
Classic	۲	Variable names compatible with older versions
Compact	0	The identifiers ".GlobalVars" ".Programms" ".Generic" are omitted. If such a name appears as a variable name, it is placed in quotation marks.
		Variable names that contain a point are placed in quotation marks.
S7-1500 compatible	0	The identifiers ".GlobalVars" ".Programms" ".Generic" are omitted.
		All Variable names are placed in quotation marks.
Compatible	0	Data blocks from OPC Editor under ".GlobalVars"
		Compatible to older Versions (20172019).
OPC UA options		
Build structure variables		Build structure variables. It will require more memory ! Setting is applied when you restart
Update Source Timestamp		The source timestamp will not be refreshed on every successful read. Instead, only a value change on the controller will refresh the timestamp.
only on change		
Show Byte Arrays as		If the PLC variable is a ByteArray, the OPC variable is normally also a ByteArray. This can be changed to a ByteString.
ByteString		
Route S7 connections		With some S7-PLCs the S7 communication points to the CP instead of the CPU. This can be forced to CPU slot 2.
always to slot 2		
Allow only one S7 frame to		With some S7-PLCs the CPU can be overwhelmed by Requests. This can be restricted.
the PLC		
Client Timeout [ms]	10000 ¥	For some slow responding Servers it can be neccessary to increase the timeout for the client. The default is 10000 ms.
No client initial update		If the connection between the client and a server is lost, forbid an initial update on reconnect.
Forbid datatype conversion		If the PLC variable has a different datatype than the OPC variable, forbid the conversion to another type, even if the value would fit.

Build structure variables

The use of structure variables is described in Manual part 2 and part 3. Structure tags are not activated by default.

Update Source Timestamp only on change.

The source timestamp is usually updated every time it is read. When the selection is activated, the source timestamp is only updated when the value changes.

Show byte arrays as ByteString

The IBH Link UA software can allow variables that are defined as **ByteArray** in the PLC to be used as OPC variables in the **ByteString** format.

Route S7 connections always to slot 2.

With some S7 controllers, the S7 connection, if configured with the S7 SIMATIC Manager, points to the CP instead of the CPU. This can be redirected to CPU slot 2.

Only allow one S7 frame to the PLC

Some S7 controllers can be overwhelmed by the number of requests. The number of requests is limited by activating this option.

Client Timeout [ms]

With some slow servers, it may be necessary to increase the timeout for the client. The default client timeout is 10000 ms.

No client initial update

If the connection between the client and the server was interrupted, do not perform an initial update when reconnecting.

Forbid data type conversion

If the PLC variable has a different data type than the OPC variable, do not convert, even if the value matched.

1.15 Users browser window



The username for browser access is always admin.

Oser name: Password:

B. P. Schulz-Heise

1.16 Browser window Siemens slots



The projects that have been loaded into the IBH Link UA are listed here. Up to 31 STEP 7 and / or TIA projects can be processed in parallel. One slot is used per project.

Load the OPC Editor project

Load OPC Editor F	Project ×
Project from OPC Ed	litor (*.opx):
Upload: Browse	Server - Server connection.opx Upload: Load OPC Editor Project
Configured PLCs in th	click and select *.opx file re project file :
	Load OPC Editor Project ×
	Project from OPC Editor (*.opx):
	Upload: 100 % Upload: Load OPC Editor Project
	Server - Server connection.opx
Free IBH OPC Edito	Configured PLCs in the project file :
After installation the	
Get it from ibhsoftec	CPU_312 - OK CPU_1200 - Ok
	CPU_1500 - Ok
	h.
	Free IBH OPC Editor (>= V4 13) to create the ony projects not installed?
	After installation the IBH OPC Editor can be used for free in combination with IBH Link UA.
	Get it from ibhsoftec.com
	3 Confirm Apply OPC Project Cancel

Load OPC Editor Project

An .XML file with the filename extension opx, which was created for a project with the IBH OPC Editor or IBH OPC UA Editor, can be accepted as an OPC project by clicking on Load OPC Editor Project.

Save the OPC Editor project



An OPC project available under Siemens Slots can be saved as an XML file with the file name extension opx.

Such a file can be opened for further processing with the *IBH OPC UA Editor*.

Insert SoftPLC

Insert	SoftPLC		×
Insert S	oftPLC (6ES7	61	1-4SB00-0YB7 V4.6 compatible)
to Slot:	Slot 3	~	open / select)
	Slot 3	^	
	Slot 4		Cancel
	Slot 5		
	Slot 6		
	Slot 17		
	Slot 18	¥	

The IBH Link UA internal *SoftPLC* is activated by clicking on *Insert SoftPLC*. The slot to be occupied is freely selectable.



The SoftPLC must not be activated in Slot 2 under any circumstances. Slot 2 is reserved exclusively for communication – IE General.

Insert SINUMERIK

Station Nam	IE: SINUMERIK CN		
Ethernet add	dress: 10.1.13.89	key in	
Connect ove	r MPI/PROFIBUS	Gateway 🗖	
Subnet-ID:	0102 - 0506	optional use	
MPI/PROFIE	BUS address: 5	Slot: 3	
Read machii	ne data 🗹		
Read GUDs	and R-Parameter	s 🔽	
Alarm langu	age English 👻		
Read SINU	MERIK Model 🚧	lick	
CNC model:	Numeric ContSI7	2.07	
Number Axe	is: 3	is taken SINUMER	fro RIK
Number Spir	ndles: 2		
Browse	No file selected.		
Import NC-	VAR-Selector file	🗌 Only Existin	g
Browse	No file selected.	optional use	
Import OEN	vi alarms file		
			-

Variables can be taken as OPC tags from *SINUMERIK CNC* controls of the *PowerLine, SolutionLine* and *SINUMERIK One*.

The **SolutionLine** series has Ethernet ports (X120 / X130) here the IBH Link UA can be connected directly. If the IBH Link UA is connected to port X130, port 102 of the firewall must be activated in the SINUMERIK.

The CNC controls of the *PowerLine* series do not have an Ethernet interface.

Here the connection is to be established via an *IBH Link* **S7++**, which is switched to the configured mode. These CNC controls have two (2) connection channels to the SPS (PLC) and five (5) connection channels to the NCK. A connection channel to the PLC (PLC) is always occupied by the connected HMI.

Connect via MPI / Profibus gateway

Connect over MPI/PROFIBUS	Gateway 占	
Subnet-ID: 0102 - 0506]	activate
	can be chan	iged
MPI/PROFIBUS address: 3	Slot: 4	

If this option is activated, the subnet ID, address and slot can be adjusted.

Read SINUMERIK Model

×

CNC variable file.awl

Import NC-VAR-Selector file Only Existing

take over data

Browse...

click

CNC model: Numeric ContSI72.07

Number Axes: 3

Number Spindles: 2

🚆 IBH Link UA - Siemens slots

Read SINUMERIK Model

By clicking on **Read SINUMERIK** model, a connection to the CNC is established and information available in the SINUMERIK is read.

If model, axis and spindle information can be read, the **SINUMERIK** model name, number of axes and spindles

are displayed in the dialog box. The complete information, prepared as an XML file, is adopted under OPC Project by clicking **OK**.

Import NC-VAR file

The SINUMERIK auxiliary program *NC VAR Selector* lists variables according to the SINUMERIK CNC software version. Variables that are to be used as OPC tags can be selected from this list.

The program can generate a file (* .awl) from a file (* .var) saved with the NC VAR Selector program.

The variable information from such an *STL file* can be transferred in addition to the data read from SINUMERIK CNC.

This information, prepared as an *XML file*, is accepted under OPC project by clicking *OK*.

🗱 IBH Link UA - Siemens slo	ots × +								×
$\overleftarrow{\bullet}$ > C $\widehat{\bullet}$	10.0.13.89/?_=/opc_slots		⊚ ☆	111	1	0	×	0	≡
	OPC server is running	Logout Update	password			sir	ngle-	core	
Network	Siemens slots								
Security Certificates	► Slot 2 ▼OPC Project OnlineCreated	irk the SINUMERIK nar	ne						
GDS	Delete slot Delete all L	.oad OPC Editor Proj	ject Save	OPC E	ditor F	Projec	t		
Time settings	Insert SoftPLC Insert SIN	UMERIK Change 9	SINUMERIK	Dele	te SIN	NUMER	RIK		
System		Click Change SI	NUMERIK con	troller	in OPC	Edito	r proj	ect	
Users									
Siemens slots									

Change SINUMERIK

A project that has been adopted by SINUMERIK CNC can be changed.

If the name of a SINUMERIK CNC is highlighted, clicking on *Change SINUMERIK* opens the Insert Station dialog box. Changes can be made here.

Save OPC Editor Project

A SINUMERIK CNC project that is available in the Siemens Slots browser window (OPC project) can be saved to be further edited with the IBH Link UA Editor.

1.17 History browser window

OPC Historical Data Access, also known as OPC HDA, supports access to data stored in a buffer.

From simple data logging systems to complex SCADA systems, historical data can be queried in a standardized way.



Selected * .AWL

file is displayed

is inserted by

SINUMERIK CNO

History tree

🗱 IBH Link UA - History	× +						-		×
← → ♂ ŵ 0	2 192.168.1.14/?_=/history		•	⊠ ☆	lii1	•	0 X	0	=
- X 🗰 💓	DPC server is running Logout	Update password					single	-core	
Network	History tree History vars								
Security	Address space	History active	Sampling Rate	History Buf	fer Size	Minim	ium Cha	ange	
Cartificatos	▼example 7 - multi CPUs S7				wil	be op	ened		
Certificates	▶ CPU 416 Master		History parame	eter					
GDS	► S7 PLC 1 CPU 312 ▼S7 PLC 2 CPU 312		Enter the sampling	rate [seconds]					
Time settings	DeviceManual								
	DeviceRevision		0.5 can b	e changed					
System	HardwareRevision		Enter the history bu	uffer size (numb	per of values	3]:			
Users	Manufacturer		1000 can b	e changed					
Siemens slots	RevisionCounter		Store on minimum	change:					
History	SenalNumber			0					
	Soltwarekevision		0 can t	be changed					
OPC Client	SupportedTypes		(3 Contirm	OK Cance	a l			
Diagnostics	▼ Counter Values				_				
Diagnootioo	MinValue_2	History active	0.5	1000		a			
MQTT	MaxValue_2	History active	0.5	1000		0			
Variables	Control_ON_2								
- unitable 5	Controlling_is_ON_2								
Nodeset	Value_2	History active	0.5	1000		þ			
SoftPL C	Tasks mark 1								
	DeviceHealth								
Modbus	P S5 PLC 3 CPO 103								
Mitsubishi	Activate/Change history, Deactivate h	istory Load XML	Store XML Rei	move all Rer	nanent hist	ory off			1
Rockwell	Remanent history on								

Historical data is activated via the IBH Link UA history browser window. The historical data are organized in the IBH Link UA as a ring buffer in RAM.

In the opened history parameter input field, the required values must be entered and confirmed.

History vars (variables)



The OPC UA variables declared as history variables are listed. Marked history variables can be removed from the list of declared history variables by clicking on *Deactivate History*.

Retentive history



1.18 OPC Client browser window



The OPC client function is used to read data from an OPC server and to write this data to the other OPC server. This function can be used by both OPC servers.

The IBH Link UA from IBHsoftec is a server / client module.

The OPC client function enables data to be exchanged between OPC servers. This makes it possible to exchange variables between two CPUs.

In the IBH Link, UA web browser window OPC Client, the server and the variables for the data exchange are specified. The endpoint URL should preferably be entered with a symbolic IP address. An absolute IP address can be entered in the Security browser window (not recommended).

Connected servers with status are listed.

Define read variables

If the listed server is marked, the variables that are to be read by the IBH Link UA client can be selected.

Clicking on Add read variable opens the Select read variable window. The OPC variable that is to be read must be selected here.



The selected variable (Counter Values) as OPC variable with value, time stamp and status) is listed and can be linked to another variable that is available on the same or a different server.

(←) → C (h) Image: Section (Section ((↔) → C* (h) (∅ ≤ 192.168.1.14//_=/opc_dient ••• ♥ (𝔅) (𝔅)
Connected Servers Status % Network Connected Servers \$status % Security Image: Status % Status % Certificates Image: Status % Good Time settings Add Server Add variable to read Connected & Connectwale & Connected Servers Connected Servers Device Connected Servers Status % Good Certificates Image: Status	OPC server is running Lagut Update password single-o Network Connected Servers Statur 6 Goo Security Immibility a scilBisoftaciBitLinkUA (opc.tcp://ibhlinkua sci48010) 6 Goo Certificates example 7 - multi CPUs 57.57 PLC 1 CPU 312.Programs.Counter Values.Value_1.TimeStamp 6 Goo Time settings Add Server Add variable to read Cornectvariable x 0 C Upload clant XM. configuration
Network Connected Servers Status * Security Imulbilinkua sciBHsoftec:IBHLinkUA (opctop://ibhlinkua sc:48010) Imulbilinkua sciBHsoftec:IBHLinkUA (opctop://ibhlinkua sc:48010) Certificates Imulbilinkua sciBHsoftec:IBHLinkUA (opctop://ibhlinkua sc:48010) Imulbilinkua sciBHsoftec:IBHLinkUA (opctop://ibhlinkua sc:48010) Certificates Imulbilinkua sciBHsoftec:IBHLinkUA (opctop://ibhlinkua sc:48010) Imulbilinkua sciBHsoftec:IBHLinkUA (opctop://ibhlinkua sc:48010) Time settings Imulbilinkua sciBHsoftec:IBHLinkUA (opctop://ibhlinkua sc:48010) Imulbilinkua sciBHsoftec:IBHLinkUA (opctop://ibhlinkua sc:48010) Certificates Imulbilinkua sciBHsoftec:IBHLinkUA (opctop://ibhlinkua sc:48010) Imulbilinkua sciBHsoftec:IBHLinkUA (opctop://ibhlinkua sc:48010) Time settings Imulbilinkua sciBHsoftec:IBHLinkUA (opctop://ibhlinkua sc:48010) Imulbilinkua sciBHsoftec:IBHLinkUA (opctop://ibhlinkua sc:48010) Operation Imulbilinkua sciBHsoftec:IBHLinkUA (operation Imulbilinkua sciBHsoftec:IBHLinkUA (operation Imulbilinkua sciBHsoftec:IBHLinkUA (operation Imulbilinkua sciBHsoftec:IBHLinkUA (operation Imulbilinkua sciBHsoftec:IBHLinkUA (operation Imulbilinkua sciBHsoftec:IBHLinkUA (operation Imulbilinkua sciBHsoftec:IBHLinkUA (operation Imulbilinkua sciBHsoftec:IBHLinkUA (operation Imulbilinkua sciBHsoftec:IBHLinkUA (operation Imulbilinkua sciBHsoftec:IBHLinkUA (operation	Network Connected Servers Status Security Immediate Servers 6co Certificates example 7 - multi CPUs 57 57 PLC 1 CPU 312.Programs Counter Values Value_1.TimeStamp @ example 7 - multi CPUs 57.57 PLC 1 CPU 312.Programs Counter Values Value_1.TimeStamp @ example 7 - multi CPUs 57.57 PLC 1 CPU 312.Programs Counter Values Value_1.TimeStamp @ example 7 - multi CPUs 57.57 PLC 1 CPU 312.Programs Counter Values Value_1.TimeStamp @ example 7 - multi CPUs 57.57 PLC 1 CPU 312.Programs Counter Values Value_1.Status Time settings Add server Add variable to read Connect variable X Immediate CPUs 2000
System	System Download client XML configuration Celick Delete client configuration

Connect with variable

Select variable to write	Clicking on <i>Connect variable</i> opens the <i>Select</i>
Connected Servers	variable to write window. The OPC variable to
🔻 🚞 urn:ibhlinkua_sc:IBHsoftec:IBHLinkUA (opc.tcp://ibhlinkua_sc:48010)	
🗀 Views	be written must be selected here (as
🔻 🛅 Objects	TimeStamp, Status and Value).
Server	·····
▶ 🛅 Modbus	
Stations	
V 🖨 PLCs	The OPC variable value is available in the data
V 🖨 CPU 416 Master	block Variables from CPI I's. This variable is
CeviceManual	DIOCK VAIIADIES ITUITI CEUS. THIS VAIIADIE IS
	connected to the read variable provided. If
SerialNumber	further variables are to be linked, the precedure
SoftwareRevision	ruither valiables are to be linked, the procedure
	described must be repeated for each variable.
Variable to CPU's	•
Variable from CPU's	The connected OPC variable is listed.
Controlling_is_ON_1	
Controlling_is_ON_2	Buttons are available to configure the
Controlling_is_ON_3	connection of OPC variables directly via XMI
Controlling_is_ON_4	
🖾 Value_1	files.
🚾 Value_2 🔭 mark	
Calue_3	By clicking the <i>Download client XML</i>
Value_4	configuration button the currently available
Isks	
	configuration of the OPC variable connections is
	downloaded as an XML file for manual editing
S5 PLC 3 CPU 103	downloaded as an Ame ne for mandal calling.
▶ 🛅 S5 PLC 4 CPU 941	Download client VML configuration Delete client configuration
Slots	Download client XML configuration
🕨 🛅 Types	
< >>	Download a client XML configuration (*.xml).
Variable to read	
Datatype : Int16	By clicking the Upload client XML
	configuration button, a manually edited
Field index range (Format 1 or 2:3) :	
	configuration of the OPC variable connections is
Variable to write	uploaded to the IBH Link UA in XML file format.
Datatype : Int16	Upload_client XML configuration Download client XML configuration
Field index range (Format 1 or 2:3) :	
	Unick United a direct VAU and Grounding (* 1)
confirm OK Cancel	Upload a client XIVIL configuration (*.xml).
	1

1.19 Diagnostics browser window

The browser window *Diagnostics* has several tabs to display details about established or faulty connections.

Controller diagnosis

🗱 IBH Link UA - Diagnostic	15 × +						- 0	×
-) → ሮ û	0 🔏 192.168.1.14/?_=/	diaglistview			… ⊠ ☆	⊻ III\ 🗊	Θ 💥 🔾	
) 🕺 🐖 💓	OPC server is running Logout	Update password					single-cor	re
Network	Controller diagnostics	Client diagnostics	Network diagnostics	System Log				
Security	ID Connection name	Address	Time	Source Error r	umber Error Text			
	1-1 CPU 416 Master	192.168.1.35:102	1.10.2020 15:39:9	PLC 0	Connection e	stablished (6ES7 41	6-2XN05-0AB0)
Certificates	3-1 S7 PLC 1 CPU 312	192.168.1.12:102	1.10.2020 15:44:0	Netw 115	Trying to esta	ablish connection		
CDS	4-1 S7 PLC 2 CPU 312	192.168.1.17:102	1.10.2020 15:44:0	Netw 115	Trying to esta	ablish connection		
903	5-1 S5 PLC 3 CPU 103	192.168.1.13:102	1.10.2020 15:44:0	Netw 115	Trying to esta	ablish connection		
Time settings		192.168.1.19:102	1.10.2020 15:44:0	PLC 16	Error=16, Dev	vice or resource busy	/	
	<							>
System	Clear diagnose C							
Diagnostics								
Diagnostics								_
MQTT								- 1

The configured connections and their status (error-free / faulty) are displayed.

Client diagnostics

× +			-	o x
0 💋 192.168.1.14/?_=/diaglistview	⊌ ☆	<u>↓</u> III\ 🗊	Θ 🗙	0
server is running Logout Update password			single-	core
Controller diagnostics Client diagnostics Network diagnostics System	Log			
Diagnostic output of the client				
1.10.2020 12:54:19:320 : 0x0 Good (0x00000001) : opc.tcp://ibhlinkua_sc:48010 : Conr	nectionStatusChanged			
1.10.2020 12:54:19:320 : 0x0 Good : opc.tcp://ibhlinkua_sc:48010 : Connect				
1.10.2020 12:54:19:323 : 0x0 Good : opc.tcp://ibhlinkua_sc:48010 : CreateSubscription	1			- 15
1.10.2020 13:40: 0:727 : 0x0 Good : opc.tcp://ibhlinkua_sc:48010 : DeleteSubscription				
 1.10.2020 13:40: 0:740 : 0x0 Good : opc.tcp://ibhlinkua_sc:48010 : CreateBubschption 1.10.2020 13:40: 0:743 : 0x0 Good : opc.tcp://ibhlinkua_sc:48010 : CreateBubschption 	me			
Download logfile Clear diagnose (*	115			
				_
	+ //	× + ✓	X + V + V ≠ 192.168.114//_=/diaglistview W → ♡ ☆ ↓ IN □ Controller diagnostics (lient diagnostics) Network diagnostics System Log Diagnostic output of the client 1.10.2020 12:41:19:320 : 0x0 Good (0x00000001) : opc.tcp://ibhinkua_sc:48010 : ConnectionStatusChanged 1.10.2020 12:41:19:320 : 0x0 Good (0x00000001) : opc.tcp://ibhinkua_sc:48010 : ConnectionStatusChanged 1.10.2020 12:41:19:320 : 0x0 Good : opc.tcp://ibhinkua_sc:48010 : Connect 1.10.2020 12:41:19:320 : 0x0 Good : opc.tcp://ibhinkua_sc:48010 : CreateSubscription 1.10.2020 13:40: 0:727 : 0x0 Good : opc.tcp://ibhinkua_sc:48010 : CreateSubscription 1.10.2020 13:40: 0:727 : 0x0 Good : opc.tcp://ibhinkua_sc:48010 : CreateSubscription 1.10.2020 13:40: 0:727 : 0x0 Good : opc.tcp://ibhinkua_sc:48010 : CreateSubscription 1.10.2020 13:40: 0:727 : 0x0 Good : opc.tcp://ibhinkua_sc:48010 : CreateSubscription 1.10.2020 13:40: 0:727 : 0x0 Good : opc.tcp://ibhinkua_sc:48010 : CreateSubscription 1.10.2020 13:40: 0:727 : 0x0 Good : opc.tcp://ibhinkua_sc:48010 : CreateSubscription 1.10.2020 13:40: 0:727 : 0x0 Good : opc.tcp://ibhinkua_sc:48010 : CreateSubscription 1.10.2020 13:40: 0:727 : 0x0 Good : opc.tcp://ibhinkua_sc:48010 : CreateSubscription 1.10.2020 13:40: 0:727 : 0x0 Good : opc.tcp://ibhinkua_sc:48010 : CreateSubscription 1.10.2020 13:40: 0:727 : 0x0 Good : opc.tcp://ibhinkua_sc:48010 : CreateSubscription 1.10.2020 13:40: 0:727 : 0x0 Good : opc.tcp://ibhinkua_sc:48010 : CreateSubscription 1.10.2020 13:40: 0:727 : 0x0 Good : opc.tcp://ibhinkua_sc:48010 : CreateSubscription 1.10.2020 13:40: 0:727 : 0x0 Good : opc.tcp://ibhinkua_sc:48010 : CreateSubscription 1.10.2020 13:40: 0:727 : 0x0 Good : opc.tcp://ibhinkua_sc:48010 : CreateSubscription 1.10.2020 13:40: 0:727 : 0x0 Good : opc.tcp://ibhinkua_sc:48010 : CreateSubscription 1.10.2020 13:40: 0:727 : 0x0 Good : opc.tcp://ibhinkua_sc:48010 : CreateSubscription 1.10.2020 13:40: 0:727 : 0x0 Good : opc.tcp:/	× + - ♥ # 192.168.1.14/7_=/diaglistview ••• ♥ ♠ • ● ● ★ Soveriti unning Logout Update password single- Controller diagnostics (tient diagnostics) Network diagnostics System Log Diagnostics (tient diagnostics) Network diagnostics System Log 1.0.0202 12541:93:20 : 0x0 Good (soctory//bhlinkua_sc:48010 : ConnectionStatusChanged > 1.0.0202 12541:93:20 : 0x0 Good : opc.tcp://bhlinkua_sc:48010 : ConnectionStatusChanged > 1.0.0202 12541:93:20 : 0x0 Good : opc.tcp://bhlinkua_sc:48010 : ConnectionStatusChanged > 1.0.0202 12541:93:20 : 0x0 Good : opc.tcp://bhlinkua_sc:48010 : ConnectionStatusChanged > 1.0.0202 12541:93:20 : 0x0 Good : opc.tcp://bhlinkua_sc:48010 : ConnectionStatusChanged > 1.0.0202 12541:93:20 : 0x0 Good : opc.tcp://bhlinkua_sc:48010 : CreateSubscription > 1.0.0202 12540: 0x740 : 0x0 Good : opc.tcp://bhlinkua_sc:48010 : CreateSubscription > 1.0.0202 12540: 0x742 : 0x0 Good : opc.tcp://bhlinkua_sc:48010 : CreateSubscription > 1.0.0202 12540: 0x10 : 0x142 : 0x1 Good : opc.tcp://bhlinkua_sc:48010 : CreateSubscription > 1.0.0202 12540: 0x10 : 0x142 : 0x1 Good : opc.tcp://bhlinkua_sc:48010 : CreateSubscription > 1.0.0202 12540: 0x10 : 0x142

The current states of the configured OPC client connections (error-free / faulty) are displayed.

IBH Link UA - Setup

📔 C:\U	sers\TTI\AppData\Local\Temp\IBHLinkUA-ClientDiag.log - Notepad++	×	By clicking the <i>Download</i>
<u>F</u> ile <u>E</u> d	t Search View Encoding Language Settings Tools Macro Run Plugins Window ?	χ	logfile button, the saved states
Lo 🚍 I	an ta ing na mang ang ang ang ang ang ang ang ang ang		Download logfile Clear diagnose C
1	=== · IBH · Link · UA · Client · Diagnostics · ===	^	Click
2			Download the logfile of the client to correct project settings
3	·1.10.2020·15:39:14:·19·:·0x0·Good·(0x00000001)·:·opc. <u>tcp://192.168.1.15:48010</u> ·:·		of the configured OPC client
	ConnectionStatusChanged		
4	-1.10.2020-15:39:14: 19-:-0x0-Good-:-opc. <u>tcp://192.168.1.15:48010</u> -:-Connect		connections (error-free / faulty)
5	1.10.2020 15:39:14: 22 : 0x0 Good : opc. <u>tcp://192.168.1.15:48010</u> : CreateSubscription		and he allow have all the second states and
6	-1.10.2020-15:39:14:-26::0x0-Good::opc. <u>tcp://192.168.1.15:48010</u> ::CreateMonitoredItems	~	can be displayed in an editor or
Normal te	xt file length : 3.239 lines : 24 Ln : 1 Col : 1 Sel : 0 0 Windows (CRLF) UTF-8 INS	S	saved as a text file.

Network diagnostics

🕺 IBH Link UA - Diagnostics 🛛 🗙 🕂 → C 🏠 🛛 🖉 192.168.1.14/?_=/diaglistv An ICMP ping is sent to the specified IP OPC server is running Logout Update password single-core address (host name) by clicking the Send Network Controller diagnostics Client diagnostics Network diagnostics System Log Diagnostic output Security ping button. Send Ping Certificates Hostname / IP Address: 192.168.1.35 (enter) Send a ping to a host to test DNS a connectivity Select or type Trace filter V Start trace Stop trace Time settings Download Trace Delete Trace 🗱 IBH Link UA - Diagnostics × System ←) → C' 🏠 🛛 🖉 192.168.1.14/?_=/diaglistview … 🗵 🟠 🗌 👱 III\ 🗉 🛛 🗱 🔾 Users Siemens slots OPC server is running Logout Update password sinale-core History Network Controller diagnostics Client diagnostics Network diagnostics OPC Client Security System Log Diagnostics Diagnostic output Certificates 🛥 ping 192.168.1.35 Variables 🚎 192.168.1.35 : [0], 84 bytes, 1.11 ms (1.11 avg, 0% loss) GDS Nodeset 192.168.1.35 : [1], 84 bytes, 0.74 ms (0.92 avg, 0% loss) Time settings SoftPLC = 192.168.1.35 : [2], 84 bytes, 0.75 ms (0.86 avg, 0% loss) Modbus System = 192.168.1.35 : xmt/rcv/%loss = 3/3/0%, min/avg/max = 0.74/0.86/1.11 Mitsubishi Users Hostname / IP Address: 192.168.1.35 Rockwell Send Ping Siemens slots MicroSD Start trace History Stop trace **IIIIBH**softec **OPC** Client Download Trace Delete Trace Diagnostics If the Wireshark 🗰 IBH Link UA - Diagnostics ×



diagnostic software is



installed on the PC, a very extensive network analysis can be carried out.

By clicking on Download recording and confirming the opening with Wireshark, the Wireshark window - Trace is opened or can be saved in a file. Since the evaluation of Wireshark-Trace requires some specialist knowledge, this diagnosis should be carried out in the event of a malfunction using the IBHsoftec hotline.

IBHLinkUA-Trace-1.pca						– 🗆 ×	
File Edit View Go (Capture Analyze Statistic	s Telephony Wireless	Tools He	lp			
	X 🖸 ۹ 🗢 🕾 👔	. L 📃 🔳 🔍 Q (1				
Apply a display filter <cf< th=""><th>rl-/></th><th></th><th></th><th></th><th></th><th>→ +</th><th></th></cf<>	rl-/>					→ +	
No. Time	Source	Destination	Protocol	Length Info		^	
428 16.195278	192.168.1.10	192.168.1.14	HTTP	1039 POST /?wtd=3rqll	Nx0rN8noTWz HTTP/1.1 (application/x-www-	form-urlencoded)	
429 16.207646	192.168.1.14	192.168.1.10	HTTP	351 HTTP/1.1 200 OK	(text/javascript)		
430 16.249276	192.168.1.10	192.168.1.14	TCP	60 51540 → 80 [ACK]	Seq=51672 Ack=50938 Win=1023 Len=0	Opening IBHI	LinkUA- Irace.pcap X
431 16.389513	192.168.1.14	192.168.1.16	S7COMM	85 ROSCTR:[Job] Function:[Read Var]		
432 16.394255	192.168.1.16	192.168.1.14	S7COMM	81 ROSCTR:[Ack_Data] Function:[Read Var]	You have ch	osen to open:
433 16.394358	192.168.1.14	192.168.1.16	TCP	54 39114 → 102 [ACK] Seq=528 Ack=460 Win=29200 Len=0	С прына	HIA Trace near
434 16.404419	192.168.1.14	192.168.1.10	S7COMM	135 ROSCTR:[Job] Function:[Write Var]	ata Ibrica	ikon-mace.pcap
435 16.405263	192.168.1.10	192.168.1.14	S7COMM	78 ROSCTR:[Ack_Data] Function:[Write Var]	which	is: Wireshark capture file
436 16.405396	192.168.1.14	192.168.1.10	TCP	54 34664 → 102 [ACK] Seq=1378 Ack=409 Win=457 Len=0	from:	https://10.0.13.89
437 16.546137	192.168.1.14	192.168.1.12	S7COMM	85 ROSCTR:[Job] Function:[Read Var]		
438 16.573524	192.168.1.12	192.168.1.14	S7COMM	87 ROSCTR:[Ack_Data] Function:[Read Var]	h dan sa	
439 16.573676	192.168.1.14	192.168.1.12	TCP	54 52326 → 102 [ACK] Seq=1055 Ack=1123 Win=29200 Len=0	What should	d Firefox do with this file?
> Frame 1: 60 bytes (on wire (480 bits), 60	bytes captured (480	bits)			Open	with Wireshark (default) ~
> Ethernet II, Src: 1	Siemens_13:23:cb (00:1	b:1b:13:23:cb), Dst:	PhytecMe_	15:a8:07 (50:2d:f4:15:a	a8:07)		1
> Internet Protocol V	Version 4, Src: 192.16	8.1.29, Dst: 192.168	1.14			O Save F	lle
> Transmission Control	ol Protocol, Src Port:	49153, Dst Port: 102	2, Seq: 1,	Ack: 1, Len: 0			
0000 50 2d f4 15 a8	07 00 1b 1b 13 23 cb	08 00 45 00 P	#	E-			
0010 00 28 0a b8 00	00 le 06 0e 9d c0 a8	01 1d c0 a8 ·(····				<u>e</u>	OK Cancel
0020 01 0e c0 01 00	66 00 03 0a 86 6c 5c	29 fa 50 10 ·····f	··· ··1\)·	P -			Calicer
0030 10 00 bb 11 00	00 00 00 00 00 00 00						
IBHLinkUA-Trace-1	.pcap				Packets : 439 · 43	39 (100.0%) Profil: Default	

System Log

🗱 IBH Link UA - Diagnostics	× + – c	
← → ♂ ☆	🕻 192.168.1.14/?_=/diaglistview 🚥 🔽 🔝 🕙 🗱	o∣≡
	PC server is running Logout Update password single-c	ore
Network	Controller diagnostics Client diagnostics Network diagnostics System Log	
Security	Logged Events	
	1. 9.2020 8: 6:18 : Status 0x0 : Network : Gateway 192.168.1.1 removed	
Certificates	1. 9.2020 8: 6:30 : Status 0x0 : Network : Hostname changed from ibhlinkua_rescued to ibhlinkua	a_sc
GDS	1. 9.2020 8: 6:34 : Status 0x0 : Network : Network configuration saved	
	1. 9.2020 8: 6:34 : Status 0x0 : System : IBH Link UA stopped	
Time settings	1. 9.2020 8: 6:36 : Status 0x0 : System : IBH Link UA done	
Svetem	1. 9.2020 8: 7: 6 : Status 0x0 : System : Starting device up	
System	1. 9.2020 8: 7:16 : Status 0x0 : System : IBH Link UA started	
Users	 1. 9.2020 8: 7:33 : Status 0x0 : Webinterrace : User admin logged in 1. 9.2020 8: 7:55 : Chatria 9:02 : Team Viewer : Chatrian ansien 	
Ciamana alata	 1. 9.2020 8: 7:55 : Status 0x0 : learnviewer : Starting assign 1. 9.2020 8: 0:20 : Status 0x0 : Mehinterface : User admin leaged in 	
Stemens stors	 1. 9.2020 6: 6.39 : Status 0x0 : Weblittenate : Oser admini logged in 1. 9.2020 9: 0:52 : Status 0x0 : Teaml/ewer : Assign failed - Petry with previous taken 	
History	1. 9.2020 8: 9:52 : Status 0x0 : TeamViewer : Starting assign	
ODC Olivert	 1. 9.2020 8:12:15 : Status 0x0 : TeamViewer : Assign retry failed - Giving up 	
OPC Client	1. 9.2020 8:18:24 : Status 0x0 : TeamViewer : Starting assign	
Diagnostics	1. 9.2020 8:19:19 : Status 0x0 : TeamViewer : Check TeamViewer online state	
<u> </u>	1. 9.2020 8:19:20 : Status 0x0 : TeamViewer : Assign done - Token saved	
IVIQTT	1. 9.2020 8:22:39 : Status 0x0 : TeamViewer : systemctl start wg-quick@wg0.service ok	
Download the logfile of the system	Download logfile Clear cystem log C for inspection Clear all entries logged by the system IBH Link UA Clear all entries logged by the system IBH Link UA entred Wiki	L.

The IBH Link UA diagnosis creates a log file in which IBH Link UA activities are recorded with a time stamp.

Buttons are provided to display the log file in an editor or to save it as a text file or to delete it. In the event of a malfunction, an analysis can be carried out using the IBHsoftec hotline.

1.20 MQTT browser window



It is possible to load or delete an MQTT configuration. An existing MQTT connection can be restarted. Information about connections to existing MQTT brokers is displayed in the connection status.

1.21 Browser window variables

💼 🔛 IBH Link UA - Vari	ables \times +	~	-		×
$\leftarrow \rightarrow \mathbf{C}$ \textcircled{o}	8 192.168.1.14/?_=/generic	☆ ☆	♡ ೨	பி	≡
	PC server is running Logout Update password		quad-	core	
Network	Variablen				
Security	▼PlcConfigName PlcParameter				
Certificates	▼ Generic				
GDS	Item Load XML Store XML Remove all				
Time settings	Click View and	manage cust	om variables		
System	ad manually edited XML file Download XML file for manual ed	liting			
MQTT					-
Variables					

If variables that were created in the IBH OPC UA Editor and transferred from there are not required as OPC variables, they can be removed by clicking on the *Remove all* button. Remove all Clicking on the *Store XML* button automatically saves the XML file.

IBH Link UA Workshop



By clicking the Load XML button, the desired file can be selected in the Upload File dialog box. Clicking the Load XML Configuration button starts the loading process. The file is accepted by clicking Accept XML Configuration.

OPC variables created in the IBH OPC UA Editor can be exported as an .xml file.

1.22 Browser window node set

	웒 192.168.1.14 /?_=/nodeset	本 公	${igsidential}$	⊻ :	ራ	
					2	=
Notwork	OPC server is running Logout	Update password		quad	core	
Security Certificates	Python-Workshop SoftPLC416.py SiOME Nodeset Workshop Example. Load XML load Python Delete all	<mark>existing NodeSet</mark> xml				
Variables Nodeset SoftPLC						Î

This option is only activated in the IBH-Link-UA-QC-64 / QC-32, as this requires more memory.

Data models or companion specs can be read in on the IBH Link UA using Python modules. To do this, the desired companion spec or data model is integrated into a project

on the IBH Link UA. To do this, the corresponding XML file is uploaded to the IBH Link UA.



1.23 SoftPLC browser window

IBH Link UA - SoftPLC → C ① Z 1	× +	⊍ ☆	lii\ 🖸	0 %	0	×	Brow	ser window So
	C server is running	Logout Update password		single	-core		SOTTP	
Network Security Certificates GDS	SoftPLC Status PLC informations PLC type Slot CPU load part PLC CPU load (%)	SoftPLC Connections 6ES7 611-4SB00-0YB7 3 33 % ~ 36.52					I he So listed he shows t SoftPL	oftPLC status and set ere. The SoftPLC co the connections crea C during startup.
System	PLC Status RUN DB1 Count	PLC Stop Newstart (OB100) 186282					open/selec 33 % ✓	The proportion of C
Siemens slots History	DB1 Time (ms) /linimum /laximum Actual	0 33 2					12 % 20 % 25 %	set.
OPC Client Diagnostics	litter (ms) Aaximum	34					33 %	Buttons for starting
MQTT	Actual	1					62 %	SoftPLC are availa
Nodeset SoftPLC							75 % 87 % 99 %	PLC Stop News
Modbus								

ftPLC /

tings are nnections tab ted by the





Manuals for handling the SoftPLC, IBH Link UA Manual PLC projects with TIA Portal and IBH Link UA Manual PLC projects with S7 SIMATIC Manager, are available for download on the IBHsoftec WIKI website.

The IBH Link UA internal SoftPLC is activated in the *Siemens Slots* browser window.

1.24 Modbus browser window



A created Modbus configuration can be transferred directly to the IBH Link UA from the IBH OPC UA Editor.

Buttons are provided to configure OPC variables directly via XML files.

The created Modbus variables cannot be seen in the web interface. The existing Modbus variables can be displayed via

the OPC Client browser window.

1.25 Mitsubishi browser window



In the *Mitsubishi* browser window *Controllers*, variables of an online connected Mitsubishi PLC can be read in, declared as read / write or as variables to be connected.

There is also the possibility of inserting or changing a station / CPU and of configuring OPC variables directly via XML files.

IBH Link UA - Setup

Load Melsoft XML Project		×
Project from Melsoft (*.xml):		
Upload: Search Workshop Example.xml	Upload: Load Melsoft XML Proje	ct
	Apply Melsoft XML Project Car	ncel

The Load XML button enables an XML file exported with the

Load XML

Mitsubishi Melsoft software to be loaded directly into the IBH Link UA.

With the IBH OPC UA Editor, a created OPC UA variable configuration for a Mitsubishi controller or a Mitsubishi robot can be transferred directly to the IBH Link UA.

Mitsubishi robot

💼 🔛 IBH Link UA - Mi	tsubishi × +		- 0	
	A 192.168.1.14/?_=/slmp A	☆ ♡	보 🖲 원	≡
	DPC server is running Logout Update pass	sword	quad-core	
Network	Controllers (Robots)			
Security	Robot Name	Robot Address		
Certificates	Mitsubishi MELFA ASSISTA Add Robot Edit Robot Delete Robot	192.168.1.85		
GDS	Load XML Store XML Remove all			
Time settings				
Modbus				-
Mitsubishi				

In the *Mitsubishi* browser window *Robots*, variables of an online connected Mitsubishi Robot can be read in, declared as read / write or as variables to be connected.

There is also the possibility of inserting or changing a station / CPU and of configuring OPC variables directly via XML files.

1.26 Rockwell browser window

	땷벖	IBH Li	nk UA - F	Rockwell	×	+						_			\times
¢	$) \rightarrow$	G	۵	0 🔏	10.0.13.8	89/?_=/ethernetip		•••	⊌ ☆	111		0	×	0	≡
	X			C	IPC server	r is running	Logout	Update	password			sir	ngle-	core	
	Net	two	rk		Rockwe	ell									
	C	suri	fu		▼Comp	actLogix									
	9.61	- un	L Y		▼50	69-L306ER									
	Cei	rtifi	cate	S		DeviceManual									
	<u>en</u>	e				DeviceRevision									
	<u>an</u>	9				SoftwarePovicion									
1	Tin	ne s	setti	ngs		Drograms									
						SunnortedTyne	95								
	sy:	ster	TI			▼Main Program									
	Usi	ers				ActiveComr	n								
	<u>.</u>					<u>ActiveCom</u> r	nTemp6								
	SIE	me	ns s	IOTS		write_crc_h	igh_byte					_		_	
	His	tor	v			write_crc_l	ow_byte								
			<u>.</u>	4		▶ write_seria	l_port								
	OP	0.0	llen	τ		Cycleprg									
	Dia	and	ostio	s	•	Tasks									
					_	DeviceHealth									
	MQ	TT			*	CONTAINER									
	Var	iah	les			CONTAINER									
		100.05				► test									
	No	des	et			Mod Active									
	Sof	ft P I	C			Mod_Echo_Ma	xTime					_			
						 Mod_Scan_Pre	set								
	Mo	dbu	IS			Inp									
	мн	euk	viehi			Outp									
		Jui	1911			▶opcua_ctt									
U	Ro	ckw	rell			DeviceHealth									
	Miz	ros	sn.		Insert sta	ation Modify static	on Remo	ove stati	on						
					Insert cp	u Modify cpu L	oad Tags f	from cpu	Load pro	oject	Rem	ove cp	bu		
					Load XM	L Store XML R	emove all								

It is possible to insert or change a station / CPU and to configure OPC variables via XML files. Variables (tags) can be read from Rockwell PLC controllers (*ControlLogix* and *CompactLogix series*) via the Ethernet connection.

If an XML file of a Rockwell PLC controller is loaded into the IBH Link UA, the variables (tags) of the controller are listed.

1.27 MicroSD browser window

The *IBH Link UA Quad Core 64* has a slot for a MicroSD card on the front and the *IBH Link UA Quad Core 32* and the *IBH Link UA Single Core* have a slot for a MicroSD card on the back.



If a Micro SD card is installed and formatted, the *Remanent History* function can be activated in the History browser window.

If the function is activated, the *historical variables* are also saved on the Micro SD card and can be accessed after a power failure of the IBH Link UA.

Information on formatting is displayed and must be confirmed.



Note:

If there is a formatted Micro SD card in the IBH Link UA, the current IBH Link UA configuration is saved on the Micro SD card.

If the software is reset to factory settings using the **reset button**, the configuration saved on the Micro SD card is transferred to the IBH Link UA at the end of the procedure.



1.27.1 Docker Container

The Docker option can be activated in IBH Link UA devices with the **Quad Core performance level (QC-64, QC-32)**. The **Docker container** software provides an interface for creating and managing containers. The following containers are already present in the base package:



- ssh-server (ibhsoftec/arm7hf-alpine-ssh) •
- node-red-v1.0.6-12 (nodered/node-red:1.0.6-12) •
- debian-buster (ibhsoftec/debian-buster) •
- ubuntu-18.04 (ibhsoftec/ubuntu 18.04:1.00)
- opcua-webclient (ibhsoftec/opocua-webclient: 1.0)
- portainer (portainer/portainer)
- aws-iot-greengrass-v2.10.3 (ibhsoftec/aws-iot-greengrass: 2.10.3)
- aws-iot-greengrass-v1.10.1 (ibhsoftec/aws-iot-greengrass: 1.10.1)

Activate Docker

💼 👹 IBH Link UA -	- MicroSD × +						
← → C @	🔿 🔒 🕶 https:/	//192.168.1.14/?_=/optsoftware	Ż	à ☆	♥ @) එ	≡
	OPC server is running	Logout Update password			quad	-core	
Network	SD Card Doc	ker Container)					
Security	Id	Container Name	Image Name	Ports	Status		
		ssh-server	ibhsoftec/arm7hf-alpine-ssh				
Certificates		node-red-v1.0.6-12	nodered/node-red:1.0.6-12				
GDS	click / select	🗖 debian-buster	ibhsoftec/debian-buster				
		ubuntu-18.04	ibhsoftec/ubuntu18.04:1.00				
Time settings		opcua-webclient	ibhsoftec/opcua-webclient:1.0				
0		portainer	portainer/portainer				
System		aws-iot-greengrass-v2.10.3	ibhsoftec/aws-iot-greengrass:2.10.3				
lleare		aws-iot-greengrass-v1.10.1	ibhsoftec/aws-iot-greengrass:1.10.1				
03013	Build Load Import	Save Export Delete Start Sto	p Upload yml Download yml Delete yr	ni Log Help	C		
Siemens slots	Click						
	Build Cor	ntainer				_	
WICTOSD							_

An SD card is required for the additional storage space required for a Docker container. Docker can then be activated. This requires a restart of the IBH Link UA.

Build Container



Clicking the Create button starts container creation. The creation process is displayed. Once the container has been created, it is listed in the MicroSD/Docker Container browser window. The container can then be used, e.g. Node-RED.

Open Node-RED

C ŵ

🗦 inject (

debug 🗐

complete

comment

~ common

Funktion

0 8 (192.168.1.14:

SD Card Dock	er Container)			
Id	Container Name	Image Name	Ports	Status
	ssh-server	ibhsoftec/arm7hf-alpine-ssh		
a4ac73b576af	(node-red-v1.0.6-12)	nodered/node-red:1.0.6-12	0.0.0.0:1880- (1880/tcp)	Up About an hour (healthy)
	debian-buster	ibhsoftec/debian-buster		
	ubuntu-18.04	ibhsoftec/ubuntu18.04:1.00		
	opcua-webclient	ibhsoftec/opcua-webclient: 1.0		
	portainer	portainer/portainer		
	aws-iot-greengrass-v2.10.3	ibhsoftec/aws-iot-greengrass:2.10.3		
	aws-iot-greengrass-v1.10.1	ibhsoftec/aws-iot-greengrass:1.10.1		
Build Load Import	Save Export Delete Start	Stop Upload yml Download yml Delet	eymi Log Help 🤁	
单 🛛 🕿 Node-RED	: 192.168.1.14 × +	✓ - □ ×	web browser w	vith the port sp

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"c3c4a951.f6da88"

Flow 1

Aktiviert

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4a951.f6da88

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m - o +

i info

Name

Status

 Informationen Flow

Description

Once Node-RED has started. Node-RED can be called up. To do this, enter the IBH Link **UA** address (management or control level) in the

web browser with the port specified under Ports (1880).

The Node-RED input field is displayed in the web browser and is ready for input.

Other programs in the Docker container are called in much the same way.

1.28 IBH Link UA default factory configuration

The reset procedure resets the IBH Link UA to the factory settings of the firmware currently in the device.

Procedure:

- Power down the IBH Link UA
- Press and hold the reset button
- Power up the IBH Link UA
- Wait until all four LEDs turn red and go off again
- Release the reset button

Note:

If there is a formatted SD-card in the IBH Link UA, the currently available IBH Link, UA configuration is saved on the SD-card.

If the software is reset to factory settings with the reset button, the configuration stored on the SD-card is transferred to the IBH Link UA at the end of the procedure.

Reset button hardware revisions HW3 Quad-Core 64

the middle ventilation slot below the QR code.



The reset button for resetting the software to factory settings is located on the front of the hardware revisions HW3 QC, below the display LEDs.

Reset button hardware revisions HW2 SC and HW2 SQ

The reset button for resetting the software to the factory settings is in the hardware revisions *HW2 SC* and *HW2 SQ* on the printed side of the IBH Link UA, behind the second ventilation slot above the printing.

Rest button Sector 2 and 2 an

With hardware revisions *HW1*, the reset button is located behind

1.29 Open the Wiki

IBHsoftec GmbH maintains a *WIKI site* on the Internet. An extra section for the *IBH Link UA* is provided. Here the use of the *IBH Link UA* is described in detail.

💼 📓 IBH Link UA - S	ystem × +			-	٥	×		ē	📖 івні	Link UA - System 🗙 🏢 IBHsoftec Wiki English X 🛛 + 🗖 — 🗆 🗙
← → C @ C Network Security Certificates GDS Time settings System Users Signens slots History	Control of the second sec	4///backuprestore Logaut Update password EH Link UA V5 33 Jun 17 2024 08:50.48 5668 20.4 Im6 gina4core 50.20 F4/25 89.27 50.20 F4/25 89.2	ore 3.4 分 ○ 2.5 2.5 odate password quade-core (→ 53.3 Jun 17 2024 08:50:48 CERTIFIED (→ 56 Minutes ((((→		÷	C @	C A https://wiki.ibhsoftec.com/en/Main_Pe ¾ ★ ♥ ● Ê ≡ IBH Link UA IBH Link UA IBH Link UA ₽ IBH Link UA ₽			
www.bhsoftec.com	Contact Miki Contact Miki Conta	PC is connected	to th		UA er / client UA					Manual Startup operations Configuration with TIA Portal Configuration with STEP7 Consistent Reading/Writing arrays and structures SINUMERIC 840D/840D SL
Internet, the WIKI page can be directly called from the IBH Link UA .									SINUMERIC ONE Reset button New features	

IBH Link UA Workshop

2 Unified Automation UaExpert –OPC UA Client and OPC UA Server

The tool kit manufacturer Unified Automation offers an OPC UA client as free software on its homepage, which is particularly suitable for testing and displaying OPC variables (OPC tags) provided by an OPC server.

2.1 Unified Automation UaExpert – The OPC UA Client and OPC UA Server



2.1.1 Starting UaExpert

Welcome to the UaExpert Initial Application Setup X Image: Control of the set	After downloading a ware, a UaExpert in program. Sev- eral presets are to be made and confirmed.	And insta icon dou Subject Organization Unit: Locality: State: Country i	Allation of the soft- ble-click starts the In Instance Certificate	VA kpert Expert
🞽 Automatic Update Settings	? ×	OPC UA Informatio Application URI:	(Two letter code, e.g. DE, US,) n mriTT-RED-WIN 10-6:UnifiedAutomation:UaExpert	
If desired, UaExpert can check for updates in regular intervals. Be when UaExpert should check if updates are available. These settir 'Settings -> Configure UaExpert'.	elow you can configure if and ngs can be modified later at	Domain Names:	TTI-RED-WIN10-6	•
UaExpert will NEVER send or collect any information about your us You can also check for updates manually by clicking 'Help -> Check	sage. < for Updates'.	Certificate Settings RSA Key Strength:	2048 bits 🔹 Signature Algorithm: Sha256 👻 Certificate Validity: S'Years	
Update Interval: 7 days	Confirm Ok	Password prote Password: Password (repeat)	ct private key	Cancel

Page 2-2

Unified Automation UaExpert –OPC UA Client and OPC UA Server

🖉 Unified Automation UaEx	pert - The OPC Unified Are	chitecture Client - NewProject			×	After
<u>F</u> ile View <u>S</u> erver <u>D</u> ocun	nent <u>S</u> ettings <u>H</u> elp					Feat
🗋 💋 🕞 🖉 🧿	• • • ×	🔍 👤 📄 🙀 🖵				
Project	🖻 🚆 IBH Link UA - N	Vetzwerk × +				
 Project Servers 	← → C @	O 👌 ⊶ 192.168.1.14/?_=/	☆ ☆	◙	⊻ ೨	ර ≡
🗸 🎵 Documents		OPC server is running Logout Update password			quad-co	ore
Data Access Vie	Security Certificates GDS Time settings System	Team/vewr.tor AnyViz Network Configuration Endpoint URL opc.tcp://bhinkua-005668.48010 or opc.tcp://bhinkua-005668.48010 op DHCP IP2.168.1.14.48010 DHCP IP address 192.168.1.14 Subnet mask	002.17			
	Users Siemens slots History OPC Client Diagnostics	Global System Configuration Hostname İbhimkua-005668 Port 45010 Default gateway 10.1.13.1 Nameserver 1 10.1.13.1 Nameserver 2 192.168.1.1				

ter confirming the eatures, the UaExpert program window opens. All necessary tools to establish a connection to an OPC UA server (IBH Link UA) to display the security options and the transferred data are available.

2.2 Establishing a connection to the IBH Link UA



Several steps are necessary to establish the connection between an OPC UA client and an OPC UA server. The connection is only possible if the server and the client have identical certificates.

To establish a connection to the IBH Link UA, the *Endpoint URL*, from the IBH Link UA browser window *Network / Control Level* must be entered.

Preferably, the *Endpoint URL* with the hostname should be used to enable the client to validate the names of the endpoints and the names in the certificate.

Note:

If an **absolute IP address** is used as the host name when entering the **endpoint URL**, an error message is displayed when establishing the connection from the OPC UA client (**UaExpert**) to the OPC UA server (**IBH Link UA**) stating that the host name or **configuration name** do not match. **These messages can be ignored** !

In this manual, the absolute IP address is used as the host name in the examples when entering the *endpoint URL*.

To do this, the endpoint URL is copied from the browser window to the clipboard.

🚆 IBH Link UA	× +			- C	I X
\leftarrow \rightarrow C $\textcircled{0}$	✓ 192.168.1.14/?_=/r	etwork 👓 😨 🚖	III\ 🗉 🧧	* (o∣≡
	PC server is running	Logout Update password	s	ingle-co	ore
Network Security Certificates	Management Leve Network Configuration Endpoint URL or	el Control Level 802.1X OpenVPN Tea opc.tcp://ibhlinkua_sc:48010 opc.tcp://i92.1581.14:4801010 transfer	mViewer IoT		
Time settings	IP address	192.168.1.14			
System	Subnet mask	255.255.255.0	-> ₽	antante al	
Users	Global System Configu	ration	-51		
Siemens slots	Hostname	ibhlinkua_sc	-		





If no **DNS** server is available to supply a hostname, the absolute IP address is used as an exception. In this case, the absolute **Endpoint URL** is copied from the browser window to the clipboard.

Add Server		×
Configuration Name IBHLinkUA@ibhlinkua-005668		
PKI Store Default		~
Discovery Advanced		
Endpoint Filter: No Filter		\sim
Q Local		
> 🔍 ServersOnNetwork		
🗸 😔 Global Discovery Server		
Server >		
✓ ✓ ✓ ✓ ✓ ✓ ✓	Daddroos	
Source of the absolute in t	raduress	
opc.tcp://192.168.1.14:48010	endpoint	
to open 👻 🖳 (IBHLinkUA@ibhlinkua-005668 (opc.tcp://ibhlinkua-0056	68:48010)	
None - None (uatcp-uasc-uabinary) double-click	k)	
🖉 Basic256Sha256 - Sign (uatcp-uasc-uabinary)		
Basic256Sha256 - Sign & Encrypt (uatcp-uasc-uabina	ary)	
🖉 Aes128_Sha256_RsaOaep - Sign (uatcp-uasc-uabinar	y)	
Aes128_Sha256_RsaOaep - Sign & Encrypt (uatcp-uas)	sc-uabinary)	
Aes256_Sha256_RsaPss - Sign (uatcp-uasc-uabinary)		
Aes256_Sha256_RsaPss - Sign & Encrypt (uatcp-uasc-	-uabinary)	
✓		
Souther Control of the Add Reverse Discovery >		
😒 Recently Used		
Authentication Settings Authentication Settings		

The *Endpoint URL* has been accepted and is displayed in the *AddServer* dialog box.

With a click on the inserted

IBHLinkUA @ibhlinkua-005668 opens the security levels marked in the IBH Link UA browser window Security / Server Security.

Double-clicking the security level None (*uatcp-uasc-uabinary*) in the *AddServer*

None - None (uatcp-uasc-uabinary)

dialog box sets the security level, the *AddServer* dialog box is closed and the *UaExpert window* opens.

UaExpert window



The connected server with the defined security level is displayed in the opened **UaExpert** program window.



In the **UaExpert** program window, information about the connected server is displayed under *Address Space*. After opening Server/Server Status, information from the IBH OPC UA Server/Client software is listed.

Using **Drag & drop**

information (server) can be pulled into the Data Access Viewer window. Details of the IBH OPC UA Server/Client are displayed here.

With *drag & drop* any number of information can be pulled from the *AddressSpace* window into the *DataAccess Viewer* window to show details.

2.3 Encrypted connection to the IBH Link UA



To establish another (e.g. encrypted) connection to the IBH Link UA, the existing must be disconnected, as only one connection can exist. Mark the connected server name *IBHLinkUA*@*ibhlinkua-005668* and then click the *Disconnect Server* icon.

To remove the Server out of the *Project*, mark the connected server name *IBHLinkUA@ibhlinkua-005668* and then click the *Remove Server* icon (minus symbol)

OD

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🖉 Unified Automation l	JaExpert - The OPC Un	ified Architecture C	lient - NewProject
<u>F</u> ile View <u>S</u> erver <u>D</u>	ocument <u>S</u> ettings	<u>H</u> elp	
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Project (clic	🖈 🗗 🗙 Data Acc	ess View	8
V 🎵 Project	server #	Server Node la	d Display Name
📁 Servers			
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🧊 Data Acce	ss View		

To establish an encrypted connection to the IBH Link UA click the Plus icon in the Unified Automation UaExpert window to open the AddServer dialog box.

📕 Add Server Configuration Name IBHLinkUA@ibhlinkua-005668 PKI Store Default Discovery Advanced Endpoint Filter: No Filter Local ServersOnNetwork 😸 Global Discovery Server Server... > Custom Discovery Souble click to Add Server... > Q opc.tcp://192.168.1.14:48010 IBHLinkUA@ibhlinkua-005668 (opc.tcp://ibhlinkua-005668:48010) None - None (uatcp-uasc-uabinary) 🖉 Basic256Sha256 - Sign (uatcp-uasc-uabinary) Basic256Sha256 - Sign & Encrypt (uatcp-uasc-uabinary) Aes128_Sha256_RsaOaep - Sign (uatcp-uasc-uabinary) Aes128_Sha256_RsaOaep - Sign & Encrypt (uatcp-uasc-uabinary) Aes256_Sha256_RsaPss - Sign (uatcp-uasc-uabinary) Aes256_Sha256_RsaPss - Sign & Encrypt (uatcp-uasc-uabinary) 🐼 Reverse Discovery Souble click to Add Reverse Discovery... Recently Used Endpoint URL: opc.tcp://ibhlinkua-005668:48010 Security Policy: Aes256_Sha256_RsaPss Message Security Mode: Sign & Encrypt Authentication Settings Security Level: 125 Anonymous Certificate Key Size: 2048bit

The 'Recently Used' list already contains a server configuration with this name that differs from the current one. Press OK to overwrite it, press Cancel to return for changing the configuration name.

Open the recently activated connected server IBHLinkUA@ibhlinkua-005668 to display the list of the security levels marked in the IBH Link UA browser window Security / Server Security.

The encrypted connection to the OPC UA server of the IBH OPC UA Server/Client software is configured here.

Desired encrypted connection

In the AddServer dialog box double-click the desired encrypted connection. This closes the Add Server dialog box.

A double-click on the required encryption displays a message. A server configuration with the same name already exists, but it differs from the current one. Clicking OK will apply the selected encryption.

Confirming this message, the selected encrypted connection is displayed under Project / Servers in the Unified Automation UaExpert window.

UaExpert window – encrypted connection



OK

Cancel

To display the contents of OPC Variables (OPC-Tags and the corresponding OPC UA connecting information, the selected server IBH Link UA @ibhlinkua-005668 must be connect. Mark the Server and click the Connect Server icon.

The connection to the name IBHLinkUA@ibhlinkua-005668 OPC server cannot be established. An error message is displayed in the **UaExpert log**.

Trusting the IBH Link UA Certificate

Chapter 2

💼 🔛 IBH Link	UA - Certificates 🛛 🗙	+				-	⊐ ×	In the IBH Link UA
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Certificates	White Contrusted	VaExpert@III-Red 10/0	13/2024 09:55:14 .	10/02/2029 09:55:14				
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Unified Automation	UaExpert - The OPC Unit	fied Architecture Client - NewPr	oject*			- 0	×	
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BHLinkU	A@ibhlinkua-005668	IBHLinkUA@ibhlinkua-0056	58					
Data Acce	ess View	Security Policy: Aes256_Sha2	56_RsaPss	,				Connect Server
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Log							ēΧ	is established.
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03.10.2024 17:43:24.271	Server Node	IBHLinkUA@ibhlinkua-005668	Endpoint: 'opc.to	p://ibhlinkua-005668:4801	10' /IIA/Security/Delie		Peo Dec'	
03.10.2024 17:43:24.271	Server Node	IBHLinkUA@ibhlinkua-005668	ApplicationUri: 'u	urn:ibhlinkua-005668:IBHs	oftec:IBHLinkUA	y#Aes200_Sha25t	_nsaess	
03.10.2024 17:43:24.271	Server Node	IBHLinkUA@ibhlinkua-005668	Used UserTokenT	ype: Anonymous				
03.10.2024 17:43:24.439	AddressSpaceModel	IBHLinkUA@ibhlinkua-005668	Registered for M	odelChangeEvents				
03.10.2024 17:43:24.439	Server Node	IBHLinkUA@ibhlinkua-005668	Connection statu	is of server 'IBHLinkUA@ib	bhlinkua-005668'	changed to 'Conr	ected'.	
03.10.2024 17:43:24.440	AddressSpaceModel	IBHI inkUA@ibhlinkua-005668	Browse on pode	ession rimeout= 1200000, S 'i=84' succeeded.	securecriannelLif	eume=souuuu		
03.10.2024 17:43:24.454	AddressSpaceModel	IBHLinkUA@ibhlinkua-005668	Browse on node	'i=85' succeeded.				
<u></u>								

2.4 UaExpert window Data Access View

Unified Automation UaExpert - The OPC Unit	fied Arc		- NewProject*														
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Project & X	Data	Access View									٥						
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IBHLinkUA@ibhlinkua-005711	2	IBHLinkUA@ib	phlinkua-005711	NS4 String IBH	Link UA N	MaxValue1200	9000	Int16	18:46:19.479	18:46:19.559	Good						
> 🗊 Documents	3	IBHLinkUA@ib	phlinkua-005711	NS4 String IBH	Link UA N	/linValue1200	200	Int16	18:46:21.479	18:46:21.811	Good						
Address Space & X	4	IBHLinkUA@ib	phlinkua-005711	NS4 String IBH	Link UA C	DN1200	true	Boolean	18:46:24.479	18:46:24.562	Good						
😏 No Highlight 🗸	5	IBHLinkUA@ib	phlinkua-005711	NS4 String IBH	Link UA V	alue1200	4342	Int16	18:47:48.599	18:47:48.850	Good						
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2.4.1 Historical data



Click in UaExpert Document / Add. In the opened dialog box, select History Trend View and confirm.

The historical data of values

