IIIIIBHsoftec

Manual

IBH OPC Server

V4.x

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1 IBH*softec* GmbH OPC Server V4.x

The IBH OPC Server permits OPC client applications like SCADA systems, to connect to PLCs of the Siemens SIMATIC® S5 and the SIMATIC® S7 series. It is also possible to access data simultaneously from several PLC Controls. Even a mixed S5 and S7 operation is possible. All modern SCADA systems are usually designed to be an OPC client.

PLCs may be accessed via the following protocols:

- SIMATIC® S5:
- AS511 serial / USB
- IBHLink S5 TCP/IP
- IBHsoftec SoftPLC internal und external
- INAT TCP/IP
- INAT H1
- SIMATIC® S7:
- MPI Adaptor serial / USB
- IBHLink S7 / IBHLink Plus (also S7-200)
- S7 TCP/IP to a CPx43
- SimaticNet® (Set PG/PC Interface)
- IBHsoftec SoftPLC internal and external
- INAT H1

The configuration of the Server is performed via the OPCEditor. A shortcut is installed on your PC.

One of the special features of the *IBH OPC Server* is to allow direct use of the absolute PLC Variables without declaration. It is also possible to use symbolic addressing as defined in the PLC program (Symbolic Table). Even variables used in S7 Data Blocks can be accessed via the *IBH OPC Server* with their symbolic names. These features eliminate the need of double declarations. To do so, the PLC program is assigned with the *IBH OPCEditor* to the PLCName and the required variables are selected within the user interface.

For symbolic addresses, PLC programs in following formats may be used.

- SIMATIC® S5 (.S5D)
- SIMATIC® S7 (.S7P)
- S5/S7 for Windows® project (.S5P)
- S5/S7 for Windows® program file (.S5)
- Symbolic table (.SEQ)

2 Installation and Licensing

The *IBH OPC Server* starting with version 4.x can only be used with the 32 Bit Operating Systems Windows 2000, Windows XP and Windows 2003 Server from MicrosoftTM. Please make sure that the Internet Explorer 5.5 (or a higher version) is installed to allow an errorless execution. Only version 5.5(or higher) has the required system files available.

To install the *IBH OPC Server* please run the program "IBHOPCSetup.exe" and follow the instructions on the screen.

During installation and registration, entries into the Windows Registry are done automatically. To allow these registry entries you must have full administrative rights, when you are installing the *IBH OPC Server* on the operating systems Windows 2000, Windows XP and Windows 2003 Server.

After the installation is completed, the program *IBH OPC Editor* may be started.

If no license has been entered, the *IBH OPC Server* is running in demo mode. A complete configuration and also the use with real PLCs is possible in demo mode. After 1/2 hour the communication with the PLC will be terminated and the *IBH OPC Server* exits. When connecting to a PLC, a demo screen is shown to the user.

To enter a **License** for the *IBH OPC Server* a "Serial Number and "PIN Code" are required. These numbers can be found on the "Product ID Card" shipped with the IBH OPC Server.

Run the program *IBH OPC Editor*. Via the menu item "Help - License informationen / Enter license ..." the license for the *IBH OPC Server* may be entered. Please note, that the software needs to be restarted after the license has been successfully entered.

Enter Authorization Code			×
User name:			
Your Name			
Organization:			
Your Company			
Serial number:			
Authorization Code:			
Code:			
		1	
Apply Cancel	Demo	Hel	P

Via the menu item "Help - Remove license ..." the license for the *IBH OPC Server* can also be removed from the PC. Please note, that a license can only be installed once on a specific PC. Installing the same license again on the same PC is not possible. After successful removal of the licese, the software needs to be restarted.

Remove license		x
User name:		
Your Name		
Organization:		
Your Company		
Serial number:		
Authorization Code:		
Code:		
Remove Cancel	Help	

To uninstall the IBH OPC Server use the Windows control panel "Software", "Install / Uninstall.

3 Creating a new project with the OPCEditor

The configuration of the Server is performed via the OPCEditor. A shortcut is installed on your PC.

HOWTO create a new configuration for the IBH OPC Server for absolute addresses:

- First create a new configuration via "File New".
- Insert a new PLC with "Modify Insert new PLC".
- In the dialog box "PLC Properties" the communication protocol for the PLC may be selected and a name for the PLC may be entered.
- Now the previously chosen protocol needs to be highlighted in the tree view.
- Via "Modify Connection settings" the communication parameters for the selected protocol can be chosen.
- Please save your changes before transferring the configuration to the server.
- Now the configuration may be transferred to the server via "Modify Transfer to OPC server".
- In the following dialog the server "IBHSoftec.IBHOPC.DA.1" needs to be chosen.
- Save your configuration.

HOWTO create a new configuration for the IBH OPC Server for symbolic addresses:

- First create a new configuration via "File New".
- Insert a new PLC with "Modify Insert new PLC".
- In the dialog box "PLC Properties" the communication protocol for the PLC may be selected and a name for the PLC may be entered.
- Now the previously chosen protocol needs to be highlighted in the tree view.
- Via "Modify Connection settings" the communication parameters for the selected protocol can be chosen.
- Highlight the desired PLC and assign the PLC program that contains the symbolic information via "Modify Assign PLC program".
- Now a window may be opened that permits to pick variables for the server via "Modify Select variables".
- In the "Variables" view now the variables that may be used with the OPC Server can be selected. Write-protecting variables and changing the default datatype is also possible.
- Please save your changes before transferring the configuration to the server.
- Now the configuration may be transferred to the server via "Modify Transfer to OPC server".
- In the following dialog the server "IBHSoftec.IBHOPC.DA.1" needs to be chosen.
- Save your configuration.

Inside a project, multiple PLCs with equal and differtent protocols are possible. Also S5 and S7 PLCs may be mixed.

All commands of the "Modify" menu are also available by right-clicking of the mouse or using the toolbar. Only commands valid for the current node can be selected. All other commands are grayed.

4 Variable Syntax

One of the special features of the *IBH OPC Server* is to allow direct use of the absolute PLC Variables without declaration. It is also possible to use symbolic addressing as defined in the PLC program (Symbolic Table). Even variables used in S7 Data Blocks can be accessed via the *IBH OPC Server* with their symbolic names. These features eliminate the need of double declarations. To do so, the PLC program is assigned with the *IBH OPCEditor* to the PLCName and the required variables are selected within the user interface.

Addressing of variables with absolute addresses in the *IBH OPC Server* is done by using the Simatic® Step®7 or Simatic® Step®5 syntax. Please note that REAL values (Double Word Format) in S7 must be declared symbolic in order to have the correct format information. If this is not the case, the SCADA application must do the conversion of the "Long variable in the REAL format" into the correct "REAL format".

The IBH OPC Server supports 3 notations for variables.

- Symbolic from the PLC project (Variables are selected via the IBH OPCEditor)
- SIMATIC® S7 notation
- SIMATIC® S5 notation

When using absolute addresses from the OPC client, also a mixed S5/S7 notation is possible.

The syntax is always PLCName.VariableName respectively

PLCName.DataBlockName.StructureElement.VariableName. A Variable must always begin with the PLCName. If the variables have been selected individually via the *IBH OPCEditor*, the variables can be conviniently browsed from the OPC client.

The configuration of the PLC itself must always be done via the *IBH OPCEditor*, regardless whether absolute or symbolic addressing is to be used. A shortcut to the *IBH OPCEditor* is installed on your PC.

Operand	Bereich	Datentyp
En.n	Inputbits **	Bool (VT_BOOL)
EBn	Inputbytes *	Unsigned Byte (VT_UI1)
EWn	Inputwords *	Unsigned Word (VT_UI2)
EDn	Inputdoublewords *	Unsigned DWord (VT_UI4)
ETn[Stringlength]	Text from the input area ***	Character Array (VT_BSTR)
An.n	Outputbits **	Bool (VT_BOOL)
ABn	Outputbytes *	Unsigned Byte (VT_UI1)
AWn	Outputwords *	Unsigned Word (VT_UI2)
ADn	Outputdoublewords *	Unsigned DWord (VT_UI4)
ATn[Stringlength]	Text from the output area ***	Character Array (VT_BSTR)
Mn.n	Flagbits **	Bool (VT_BOOL)
MBn	Flagbytes *	Unsigned Byte (VT_UI1)
MWn	Flagwords *	Unsigned Word (VT_UI2)
MDn	Flagdoublewords *	Unsigned DWord (VT_UI4)
MTn[Stringlength]	Text from the flag area ***	Character Array (VT_BSTR)

Common Syntax for S5 and S7:

Syntax for S5:

Operand	Bereich	Datentyp	
Dn.n,nr	Databits, DB	Bool (VT_BOOL)	
DRn,nr	Right Databyte, DB	Unsigned Byte (VT_UI1)	
DLn,nr	Left Databyte, DB	Unsigned Byte (VT_UI1)	
DWn,nr	Dataword, DB *	Unsigned Word (VT_UI2)	
DSn,nr	Dataword, DB *	Signed short Integer (VT_I2)	
DDn,nr	Datadoubleword, DB *	Unsigned DWord (VT_UI4)	
DVn,nr	Datadoubleword, DB *	Signed long integer (VT_I4)	
DFn,nr	Datadoubleword, DB *	Float (VT_R4)	
DTn,nr[Stringlength]	Text from a datablock ***	Character Array (VT_BSTR)	
DXn.n,nr	Databits, DX	Bool (VT_BOOL)	
DXRn,nr	Right Databyte, DX	Unsigned Byte (VT_UI1)	
DXLn,nr	Left Databyte, DX	Unsigned Byte (VT_UI1)	
DXWn,nr	Dataword, DX *	Unsigned Word (VT_UI2)	
DXSn,nr	Dataword, DX *	Signed short Integer (VT_I2)	
DXDn,nr	Datadoubleword, DX *	Unsigned DWord (VT_UI4)	
DXVn,nr	Datadoubleword, DX *	Signed long integer (VT_I4)	
DXFn,nr	Datadoubleword, DX *	Float (VT_R4)	
DXTn,nr[Stringlength]	Text from a DX datablock ***	Character Array (VT_BSTR)	
Sn.n	S-Flagbits **	Bool (VT_BOOL)	
SYn	S-Flagbytes *	Unsigned Byte (VT_UI1)	
SWn	S-Flagwords *	Unsigned Word (VT_UI2)	
SSn	S-Flagwords *	Signed short Integer (VT_I2)	
SDn	S-Flagdoublewords *	Unsigned DWord (VT_UI4)	
SVn	S-Flagdoublewords *	Signed long integer (VT_I4)	
SFn	S-Flagdoublewords *	Float (VT_R4)	
STn[Stringlength]	Text from the extended flag area	Character Array (VT_BSTR)	

Syntax for S7:

Operand	Bereich	Datentyp
DBn.DBXn.n	DB, Databits **	Bool (VT_BOOL)
DBn.DBBn	DB, Databyte *	Unsigned Byte (VT_UI1)
DBn.DBCn	DB, Databyte *	Signed Byte (VT_I1)
DBn.DBWn	DB, Dataword *	Unsigned Word (VT_UI2)
DBn.DBSn	DB, Dataword *	Signed Word (VT_I2)
DBn.DBDn	DB, Datadoubleword *	Unsigned DWord (VT_UI4)
DBn.DBVn	DB, Datadoubleword *	Signed DWord (VT_I4)
DBn.DBRn	DB, Real *	Real (VT_R4)
DBn.DBTn[Stringlength]	Text from a datablock ***	Character Array (VT_BSTR)

* For these operands the suffix [Count] may be added to read/write arrays. Example: PLCName.DB10.DBB2[5] reads 5 bytes starting from DBB2. PLCName.MW4[7] reads 7 Words starting from the MW4.

** For bit operands also the suffix [Count] may be added to read/write arrays. Arrays of boolean must always start with Bit 0 within the byte. Example: PLCName.DB10.DBX2.0[5] reads 5 Bits starting from DBX2.0. PLCName.M4.0[7] reads 7 Bits starting from M4.0. A variable like PLCName.M4.3[4] is not permitted. When writing boolean arrays, always the entire byte is written.

*** If strings are entered in absolute notation, there is no verification whether it is a declared string. In S7 PLCs, strings have 2 leading bytes with additional information regarding the string, the declared length and the current length. Since this information lacks in absolute notation, strings are treated as pure character arrays of the length entered in [Stringlength]. If in a write operation the text is shorter as the length entered in [Stringlength], the rest is filled up with zeroes.

The 'signed' datatypes also exist for the S7. Normally, we assume that the type will be set via the configuration tool *IBH OPCEditor*.

Addressing the DB of a S7-200:

The syntax for the 200 equals the S7-300 syntax. To access a variable byte of the data block in S7-300 syntax you need to type: VB 2 (S7-200) = DB1.DBB2 (S7-300). The data block is always the DB1. A variable word VW 2 (S7-200) = DB1.DBW2 (S7-300). A variable doubleword VD 2 (S7-200) = DB1.DBD2 (S7-300).

5 Optimization of the IBH OPC Server V4.x

The IBH OPC server by default tries to optimize variable read/write operations with the PLC. This means, that variables are automatically arranged into blocks. These blocks are then read at once from the PLC. This happens automatically and has no influence on the client application.

If the client adds the variables Flag 2.0 and Flag 23.5 to the OPC server, the server starts reading the Flagbytes 2 to 23 in one block from the PLC, since this is faster than reading every variable separately from the PLC. The reason for this behaviour is how the PLCs communication protocols work.

The optimization into the blocks is organized by operand areas, that are read in separate requests from the PLC. Each reading from areas like inputs, outputs, flags and every datablock will be organized to a block request. Every block sends it's own request to the PLC.

Example: The following variables I2.0, I23.5, Q2.0, Q23.5, M2.0, M23.5, DB10.DBX2.0, DB10.DBX23.5, DB20.DBX2.0, DB20.DBX23.5 are to be read from the PLC.

The IBH OPC server creates 5 requests for the PLC, each request is read in a block operation. In the sample the areas IB2 - IB23, QB2 - QB23, MB2 - MB23, DB10.DBB2 - DB10.DBB23, DB20.DBB2 - DB20.DBB23 are read, because this is faster than reading the single bits.

The optimization can be taken to absurdity!

Example: Only the variables I2.0, I1023.5, Q2.0, Q1023.5, M2.0, M1023.5, DB10.DBX2.0, DB10.DBX1023.5, DB20.DBX2.0, DB20.DBX1023.5 are to be read.

The IBH OPC server also creates 5 requests to the PLC. Each request, again, is read in block operations. In the sample this would be the areas (blocks) IB2 - IB1023, QB2 - QB1023, MB2 - MB1023, DB10.DBB2 - DB10.DBB1023, DB20.DBB2 - DB20.DBB1023. Now per block approximately 1 kByte unnecessary data will be read. For the client and the function itself, this does not have any influence, but it puts a heavy load on the communication line. This strongly reduces performance, since much more data than required is now read.

In such a case it makes more sense to "collect" the required variables via the PLCs program into one datablock, which is reduced to the minimum. In this case the IBH OPC server reads and writes only the variables of the "interface" DB. If spreading the written values form the "interface" DB to the PLCs operands is also performed by the PLC program, the internal optimization can work up to full optimization and the maximum performace is reached.

The **throughput** with a **S7-IBHLink** is approximately 100 ms for a variable block of 150 bytes. For a ethernet module CPx43 the throughput is higher. With serial adaptors like a PC adaptor or with a S5, that work at a speed of 9600 baud, the throughput is lower. As we can see, the communication interface in use also has a significant influence on the performance of the server. These consideration should be taken into account when selecting and arranging the variables.

6 DCOM configuration

Follow the steps listed in order to enable communication via DCOM.

In case the settings do not match your security requirements, alter the suggested settings accordingly.

DCOMCNFG

DCOM uses security settings in order to protect Clients and Servers from unauthorized access. The security settings may be altered within the Windows application DCOMCNFG. In order to use the program, administrative rights are required.

For Windows 9x systems, DCOMCNFG is not part of the default installation. It needs to be explicitly added.

Select "Run" and type "DCOMCNFG" in order to run DCOMCNFG. A dialog application appears, which permits to do the security settings.

In the table below the settings are listed, that in general work with OPC Servers and OPC Clients.

Parameter	Setting
Default properties - Authentification Level	None
Default properties - Impersonation Level	Impersonate
Default properties - Launch and Activation permissions	Everyone, System, Administrator und Interactive User
Default properties - Access permissions	Everyone, System, Administrator und Interactive User

The altered settings are apllied to DCOM applications after restarting the application.

In case the two PCs are not part of the same domain, the same local user should be added to both systems. The password of this OPC User needs to be identical on both PCs.

DCOM and Windows XP

When starting DCOMCNFG in Windows XP, a user interface to configure the component services is started. The user may now get to the DCOM configuration dialog by picking "Component Services | Computers | My Computer" and then displays the properties.

The default installation of Windows XP authentificates users from remote computers as Guest. This means, that DCOM Clients can not connect to a server, as long as the Guest access is not activated and the Guest does not have enough permissions to access the server.

The default behaviour may be changed using the conrol panel.

Administrative Tools | Local Security Policy | Local Policies | Security Options | Network access: Sharing and security model for local accounts. Set this to: "Classic - local users authentifcate as themselves".

DCOM und Windows XP SP2

Windows XP SP2 makes a difference in the DCOM configuration between local and remote connections. Please make sure to set the permissions also for the remote access.

For Windows XP SP2 are besides the Start and access permissions also settings for the Start and access restrictions. Per default there is a remote access restriction for the user "Everyone". This restriction needs to be removed, if access needs to be granted to someone.

DCOM and Firewalls

DCOM can not be used via a Firewall. Disable the Firewall to permit a remote communication.

IBH OPC Server

7 Operation with User rights

Windows 2000:

- Log on as Administrator.

- Run the extended registry editor "Regedt32.exe".

- Navigate to the registry key "HKEY_CLASSES_ROOT\IBHSoftec.IBHOPC.DA".

- Via the menu item "Security - Permissions" the required permissions for this key and all subkeys need to be set.

- Navigate to the registry key "HKEY_CLASSES_ROOT\IBHSoftec.IBHOPC.DA.1".

- Via the menu item "Security - Permissions" the required permissions for this key and all subkeys need to be set.

During the installation of the *IBH OPC Server* the permission "Everyone - Read" is automatically added. This may me altered according to your security requirements.

To transfer a **configuration to the Server**, the user also needs the right to write files in the installation folder of the *IBH OPC Server*. The configuration is stored in the XML file IBHOPC.opx, which is identical to the project file, created in the *IBH OPC Editor*.

- Open the Windows Explorer and highlight the installation folder of the *IBH OPC Server*, typically "C:\Program files\IBH softec GmbH\IBH OPC Server".

- Via "File - Properties" register "Security settings" now "Everyone - Full access" may be added.

Alter the settings according to your security requirements. After these steps are completed, the server may be used with regular User rights.

Windows XP:

- Log on as Administrator.
- Run the extended registry editor "Regedt32.exe".
- Navigate to the registry key "HKEY_CLASSES_ROOT\IBHSoftec.IBHOPC.DA".

- Via the menu item "Security - Permissions" the required permissions for this key and all subkeys need to be set.

- Navigate to the registry key "HKEY_CLASSES_ROOT\IBHSoftec.IBHOPC.DA.1".

- Via the menu item "Security - Permissions" the required permissions for this key and all subkeys need to be set.

During the installation of the *IBH OPC Server* the permission "Everyone - Read" is automatically added. This may me altered according to your security requirements.

To transfer a **configuration to the Server**, the user also needs the right to write files in the installation folder of the *IBH OPC Server*. The configuration is stored in the XML file IBHOPC.opx, which is identical to the project file, created in the *IBH OPC Editor*.

- Open the Windows Explorer and highlight the installation folder of the *IBH OPC Server*, typically "C:\Program files\IBH softec GmbH\IBH OPC Server".

- Via "File - Properties" register "Security" now "Everyone - Full access" may be added.

During the installation of the *IBH OPC Server* the permission "Everyone - Full access" is automatically added. This may me altered according to your security requirements. After these steps are completed, the server may be used with regular User rights.

8 ProTool Pro V6 with the IBHsoftec OPC Server V4.x

At <PLC Control> <Protocol> select OPC V6.0.

Via **<Parameters...>** open the dialog box **OPC connection**.

There, the server **IBHSoftec.IBHOPC.DA.1** may be selected.

Create OPC variables manually:

In the menu <Variables> now the desired variables can be entered in the field <Item Name >:

🔚 Projekt - IBH OP	С			
🖃 🖶 PC-IBH OPC	Name 🛛 🕹	Тур	Steuerung	Adresse
PC - IBH OPC Bilder Meldungen Rezepturen Archive Protokolle Wecker Variablen Multiplexvariab Skripte Kurven Structen Steuerungen Steuerungen Bereichszeiger	Name / VAR_1 VAR_2 VAR_3 VAR_4 VAR_5 Variable Allgemein Gr Name: Steuerung: Typ: Länge (Byte) Erfassungszy Anzahl Eleme	VORD BOOL BOOL LONG SHO enzwerte F VAR_5 Steuerung SHORT SHORT	Steuerung Steuerung_1 Steuerung_1 Steuerung_1 Steuerung_1 unktionen Optione	Adresse S7_300.SEGA_AUSR.D_ S7_300.A.0H351 S7_300.E.26K17 S7_300.T.T 5 ? × m Archiv Umrechnung Name: 300.M1.0 ess-Pfad: Browse
			0K /	Abbrechen Übernehmen

The notation required for Protool Pro consists of :

<Access-Path>.<Item Name>

In our sample : S7_300.M1.0

The **<Access-Path>** corresponds to the name of the **<PLC>**, as it is defined with the **IBH OPC Editor** :

ceder ang	5	
Name:	57_300	
Protokoll:	57 TCP/IP	•
	ОК	Abbrechen

Please leave the entry-field <**Access-Path**> empty.

Convienient creation of OPC Variables with the browsing function :

In the menu **<Variables>** browsing of the servers address space may be done by clicking the button **<Browse>** :

📕 Projekt - IBH OP	С							
E TO - IBH OPC	Name	Тур	Steuerung	Ad	iresse	Erfassungsz	Ständig lesen	Ar
Bilder	WAR_1	SHO	Steuerung	_1	8	1.0	-	1
Beldungen	Variable	1		1	1	<u>?×</u>		
Protokolle	Allgemein G	irenzwerte	Funktionen 0	ptionen A	Vichiv Umrechn	ung		
C Variablen	Name:	VAR_1						
- 🗃 Multiplexvariab	Steuerung	Steuerung	1	Item Name	e:			
- Kurven	Тур:	SHORT	•					
- 5 Gratiken	Länge (Byte	d:		Access-Pl	fad			
- E Steuerungen	Erfassungsz	yklus (s):	1			_		
Bereichszeiger	Anzahi Elen	nente:	1		Browse			
				_				-
	IBHSofted	BHOP	C.DA.1 -	(DINO	TE)			×
	E- 🖣 IBHSo	ftec.IBHOPC	.DA.1	Ite	ems	2	Datentyp	Γ
	⊡- <mark>-</mark> S7	_300		19	M 1_0		Bit	
	÷.=	Ē			∎M 1_1 M 1_3		BR	
	H	M			M14		BR	
	•	T			M 1_5		Bit	
	e + e	SEGA_AUS	SR		M 1_6		Bit	
1 Objekt(e)	1			9	Datentypen anze	eigen		
 Determining and the state of the second secon	<-Zurück	8			Item üben	nehmen Ite	m Properties	

🗉 💼 PC-IBH OPC	Name	Тур	Steuerung	Adresse	Erføssungsz	Ständig lesen	Anzahl Elem.
- Bilder	WAR_1	WORD	Steuerung_1	S7_300.SEGA_AUSR.D_0	1.0	x	1
Meldungen	WAR_2	BOOL	Steuerung_1	S7_300.A.0H351	1.0	-	1
Bezepturen	CVAR_3	BOOL	Steuerung_1	S7_300.E.26K17	1.0	x	1
Protokolle Wecker	œVAR_4	LONG	Steuerung_1	S7_300.T.T 5	1.0		1

The created **OPC Variables** now may be used:

Bild - IBH_OPC - IBH OPC		
	Schalter	? ×
Motor 1 Pumpe5	Beschriftung: Motor 1 Pumpe5 Richtung: Iinks nach rechts I	Punkuonen
	Variable: VAR_1	Ubernehmen

9 Win CC with the IBHsoftec OPC Server V4.x

Right-click <Variable management>

<Select "Add new driver...">



and select the OPC driver :

euen Treiber hinzufügen	?
Suchen in: 🔂 bin	- ← 🗈 💣 📰-
🗋 ccTlg	Mitsubishi FX.CHN
DLCache	📾 Modbus Protocol Suite. Chn
Allen Bradley DH DH+ DH485.Chn	Modbus Serial.CHN
Allen Bradley Serial DF1.CHN	OPC.CHN
Applicom Multi Protocol Interface.CHN	PROFIBUS DP.CHN
GE Fanuc SNP SNPX.CHN	PROFIBI Typ: CHN-Datei Größe: 324 KB
ateiname: OPC.CHN	Öffnen
ateityp: WinCC-Kommunikationstreibe	er (*.chn)

navigate to <OPC Groups> and create a new connection :

È ∰ Variablenhaushalt È ∰ Interne Variablen ⊡ ↓ OPC	
OPC Groups (OPCHN Unit #1)	Neue Verbindung
	Systemparameter
Alarm Logging	Suchen Einfügen
Global Script	Eigenschaften

After you have given the connection a name

(in our sample : IBHOPC) the OPC Server name : **IBHSoftec.IBHOPC.DA** and the host name can be entered in the properties:



Now add a new group.



Then add the new variables in the group :

The <Item Name> corresponds to the PLC operand.

The entry for WinCC is a combination of PLCName and VariableName :

<Access-Path>.<Item Name>

In our sample : S7_300.M.10HZ

The <**Access-Path**> corresponds to the name of the <**PLC**>, which was created in the **IBH OPC Editor**:

iteuerung	seigenschaften	×
Name:	57_300	()) ())
Protokoll:	S7 TCP/IP	•
	ОК	Abbrechen

Note: Please leave the input box <Access-Path> empty.

😅 🔳 🕨 👗 📾 🛍 🐁 🗁 🏥 🏥 🖆	P N?		
* Test	Name	Typ	Parameter
Rechner	M3_7	Binăre Variable	"57_300.M.10Hz", "',
	Eigenschaften Va	riable	
OPC OPC Groups (OPCHN Unit #1)	Allgemein Gren	zen/Protokollierung	
E State 18HOPC	Eigenschaften	der Variablen	
Test	Name ·	M3 7	
- E Strukturtypen	Datentyp :	Binäre Variable	
Graphics Designer	Länge:	1	
Alarm Logging	Advances	TSZ 300 M 10Hz**** 11	Wählen
Report Designer	Autosob.		
Global Script	Eigenschaften v	on Mis_7	× P
- St Library St User Administrator	OPC Adresse		
TrossReference	the states		
Online-Anderungsladen	nem Name.	157_300.MLTUHS	
User Archive			
Time Synchronization	Access-Plat		
Bichure Tree Mapader	HUNDOOT HAL	in the second se	
Lifebeat Monitoring	Datentyp:	Binarer Wert	•
			ile
	r Texastra		
	an.	den nem Namen, den Access Pfad u	ind den Datentyp
	100000		

Now the created variable may be used in the <Graphics Designer> :

🛉 Graphics De	signer - NewPdl1.Pdl
Datei Bearbeite	en Ansicht Einfügen Anordnen Extras Fenster ?
0 🛩 🖬	▶ 👗 🖻 🖻 🗠 ལ 🎒 🗇 🗐 🗮 🏵
Zoomen	NewPdl1.Pdl O,000 EA-Feld Konfiguration Variable M1_0 Aktualisierung 250 ms Feldtyp • Ausgabe • Eingabe • EA-Feld Schrift Schrift Schrift Farbe
	OK Abbrechen

10 WinCC Flexible with the IBHsoftec OPC Server V4.x

When creating a project, first select in the column **<PLC>** the protocol **OPC**. Then at **<Connection>** also **OPC** may be chosen.



In the project tree-item **<Connections>** now the connection has to be given a name, in our sample IBHOPC.

Here also the server IBHSoftec.IBHOPC.DA.1 needs to be chosen.

Projekt 🤗 🗭	🗖 Sartbild 📲 V	ariablen "S [®] Verbin	dungen				
CCFlex_IBHOPC						VER	31
E Silder	Name	Kommunikatio	nstreiber	Online	Kommentar		
ver Variablen S [®] Verbindungen ⇒ Zyklen Rezepturen Rezepturen Archive	IBHOPC	OPC		En	BH OPC Serve	er	
Protokole Protokole Text- und Grafiklisten Benutzerverwaltung Runtime Geräteeinstellungen Sprechunterstützung							
10	Parameter Ber	lichszeiger					
		Schnittstelle					
	OPC-Client auf Nur PCs können O entfernte OPC-Ser	Bediengerät PC-Clent für ver sein	Narr JEF- Narr	ve des OPC-Servi ISoftec.IBHOPC.I ve des Remote-C	ers DA.1 omputers	OPC Server Lokale Server Dec Siemens XM OPC Similar MILHm OPC Similar MILHm BHSofted BHOPC I Netzwerkumgebung	L NRTm DA.1

Create OPC variables manually:

In the column **<Address>** now the desired variables can be entered:

Startbild	Wariablen S" W	eitiindungen					
						VARIA	BLEN
Gernet	Datentyp		Symbol	Adresse		Array-Elemente	Erfassungszykl
Autometik.	Bool	٠	Revening) M.ANLAUF	Steuerung1.M.ANLAUF		1	15
	Startbild Autometik	Startbild Transition of Automatik Bool	Startbild Transblen Startbild Verbindungen	Startbild Tavariablen S [®] Verbindungen Neme: Datentyp Symbol Autometik Bool TSeverung1 M.ANLAUF	Startbild Treatment of Verbindungen Startbild Startbild Admesse Nemer Datentyp Synabol Admesse Automatik Sool Severung1 M.ANLAUF Steverung1 M.ANLAUF	Startbild Transien Startbild Startbild Startbild Startbild Startbild Startbild Administry Synchol Administry Startbild Startbi	Startbild Transfer Startbild Transfer Stevenung1.M.ANLAUP 1

The notation required for WinCC Flexible consists of :

<Access-Path>.<Item Name>

In our sample : S7_300.M.Anlauf

The <Access-Path> corresponds to the name of the <PLC>, as it is defined with the IBH OPCEditor :

Steuerung	seigenschaften	×
Name:	57_300	
Protokoll:	57 TCP/IP	•
	ОК	Abbrechen

Convienient creation of OPC Variables with the browsing function :

A click on the dropdown in the column **<Symbol>** opens a window, that permits browsing of the servers address space:

Projekt 🕐 🗭	Startbild		bindungen				
CCFlex_IBHOPC						VARIA	BLEN
Bilder	Name	- Datentyp		Symbol	Adresse	Array-Elemente	Erfassungszykt
Taisblen	Autometik.	Bool	-	Steverung1_M_ANLAUF	· Steuerung1.M.ANLAUF	1	15
S" Verbindungen			- 7		2010 C	 2	

The created OPC Variables now may be used:

Schalter_1 (Scha	lter)	(?)
Allgemein Eigenschaften		Allgemein
Animationen Ereignisse	Einstellungen Typ Schalter 💌 Beschriftung Automatik	Variable Variable Automatik Zyklus 1 s
	Text	Wert EIN 1

11 Intouch® with the IBHsoftec OPC Server V4.x

HOWTO create variables manually

Please run the Intouch® programm **OPCLink**.

Select <Configure> <Topic Definitions>

Configure	Data	View
Topic De	finition	68
OPCLink	Setting	<u>js</u>
OPC Ser	vers	
Logger	u.	
Security		

e Configure Data Vie	w Help			
) 🖻 🖬 🖻 😭 🧯) 🛃 🗝 🛃 🖪	190 9	2	
ріс	Status	Items	Errors	Write Status
pic Definition			×	
Topics		Done	•	
		New.		
		Modify		
		Deleb	e	
OPCLink Topic Definit	tion			
				-
Topic Name:	IBH_OPC			OK
Node Name:]	Cancel
OPC Server Name:	IBHSoftec.IBHOPC.D	A.1	-	Browse
OPC Path:				Help
Update Interval:	500 ms	Enable a	access to update	e interval 🗖
Poke asynchronou	islu 🔽 Mode	After Poke:	None	-
	.,	-	1110110	
I ransaction 1 imeo	ut: 18000l	Jms		
Poke mode:		Lifecheck	Settings	
C Contro	bl mode	Lifecheo	:k	Γ
C Full or	niori mode	Timeout:		0 ms

Define a topic Name (i.e. IBH_OPC).

In the entry field OPC Server Name please select the server IBHSoftec.IBHOPC.DA.1 .

The entry **OPC Path** must stay empty.

Please run the Intouch WindowMaker:

Create a new access name :

laxy 9	Schließen
н	inzufügen
griffsname hinzufügen	
Zugriffsname: IBH	OK
Knotenname:	Abbreche
Anwendungsname:	Failover
OPCLink	
Topic-Name:	
IBH_OPC	
Protokoll © DDE © SuiteLink © Message	Exchange
Serveranmeldung	nmelden

Variablenliste	×
C Standard 📀 Details C Alarme C Details & Alarme C	Members
Neu Wiederherst. Löschen Speichern << Ausw	ahl >> Abbrechen Schließen
Variable: M1_0	Typ: E/A Binär
Gruppe: \$System	C Nur Lesen 💿 Lesen/Schreiben
Kommentar: AccessLevel	
🗖 Daten archivieren 🔲 Ereignisse aufzeichnen	☐ Warmstartwert
Anfangswert Eingabekonvertierung C Ein C Aus C Umkehren Ein-Mide	g.: 1 Aus-Midg.: 0
Zugriffsname: IBH	
Item: DS7_300.M1.0	Variablenname ist Itemname

Select the newly created access name.

The entry < Item> consists of :

<D><Access-Path>.<Item Name>

In our sample : DS7_300.M1.0

Whereby the $\langle D \rangle$ is the notation for Discrete.

Following values are possible :

- d discrete value
- i integer value
- r real value
- m message value

The <**Access-Path**> represents the name of the <**PLC**>, which has been created in the **IBH OPC Editor**:

iteuerung	seigenschaften	2
Name:	57_300	
Protokoll:	S7 TCP/IP	•
	OK	Abbrechen

Variable wählen Xugriffsname Alarmgruppe Variable Variablentyp Zugriffsname Alarmgruppe V \$OperatorDomain System Meldung SoperatorDomainE System Meldung SoperatorDomainE System Meldung SoperatorDomainE System Meldung SoperatorIntered System Meldung SpasswordEntered System Meldung StartDdeConvers System Integer StartDdeConvers System Integer Stime System Integer Stime System Integer Stime System Meldung Stime System Meldung System System System Integer Stime System Meldung VerifiedUserName System Meldung		Ausdruck: [M1_0 Füllfarbe 0,Falsch,Aus:	1 ,Wa	ihr,Ein:	Abb
Variable Variablentyp Zugriffsname Alarmgruppe V \$OperatorDomain System Meldung V \$OperatorDomainE System Meldung V \$OperatorName System Meldung V \$PasswordEntered System Meldung StartDdeConvers System Integer \$System System Alar \$System System Integer \$Time System Meldung \$V \$Parmed System Meldung System Meldung	¥ariable wählen	k		8-8-	×
\$OperatorDomain System Meldung \$OperatorDomainE System Meldung \$OperatorEntered System Meldung \$OperatorName System Meldung \$OperatorName System Meldung \$OperatorName System Meldung \$OperatorName System Meldung \$PasswordEntered System Meldung \$Sternd System Integer \$StartDdeConvers System Binär \$System System-Alar \$Time System Integer \$StrimeString System Meldung \$VerifiedUserName System Meldung	Variable	Variablentyp	Zugriffsname	Alarmoruppe	- -
System Integer M1_0 E/A Binär IBH	 Soperator Domain Soperator DomainE Soperator Entered Soperator Name Spectron Name Second Start DdeConvers System Stime Time Stime String Sverified User Name Syear M1_0 	System Meldung System Meldung System Meldung System Meldung System Integer System Binär System Alar System Integer System Meldung System Meldung System Integer E/A Binär	IBH	\$System	•

The OPC variables may now be used in the WindowMaker.

12 Intouch® with the IBHsoftec OPC Server V4.x

HOWTO create variables with the TagCreator

Please run the Intouch® programm **OPCLink**.

Select <Configure> <Topic Definitons>

Configure Data View				
Topic Definition				
OPCLink Settings				
OPC Servers				
Security				
	1			
🛃 - OPCLink				
File Configure Data	View Help			
			2	
Topic	Status	Items	Errors	Write Status
Topic Definition			×	
Topics		Done	•	
		New.		
		Modify		
		Delet		
	63-13-04			10000
OPCLink Topic Defi	nition			×
	linu ana			Οκ
Topic Name	. Пвн_пьс			
Node Name:]	Cancel
OPC Server Name	BHSoftec.IBHOP	C.DA.1	-	Browse
000 0-4				U.e.
UPC Path				Нер
Update Interval:	500 r	ns Enable a	access to update	e interval 🗖
Poke asynchron	ously 🔽 Ma	ode After Poke:	None	•
Transaction Tim	eout: 1800	000 ms		
	1			
Poke mode:		Lifecheck	Settings	
C Cor	itrol mode	Lifecheo	:k	
	optimization	Timeout:		0 ms
- Tu	optimedion		W.	

Define a topic Name (i.e. IBH_OPC).

In the entry field OPC Server Name please select the server IBHSoftec.IBHOPC.DA.1 .

The entry **OPC Path** must stay empty.

Please run the Intouch WindowMaker:

Now open the OPC Tag Creator:

IPC Tag Crea	tor			
OPC Configure	ation:	Configure.	About	Done
[Language	. Help
	PC		Create Tag.	Autogen
ItemID:	375 ¹		Create	Access Name
owse OPC:	Filter: * Access Rights: all tags Data types: use nati	ive type	Access Name	
General (Config	Configurations		4	<u>×</u>
IBHS	oftec.IBHOPC.DA.1 on localh	nost		Cancel
Conf	iguration Parameters			
	OPC Server Node: [loo	calhost		
	OPC Server:	HSoftec.IBHOPC.	DA.1	_
	OPCLink Node: loc	calhost		
	OPCLink configuration file: C:	\Dokumente und E	Einstellungen\Schulz	\Eige
				100 C C C

Select the OPC server **IBHSoftec.IBHOPC.DA.1** via **<Configure>** in the **General Configurations** screen at **<OPCServer>**.

Then the variables, that are already configured with IBH OPCEditor on the server are available :

UPL Tag creator				_0
OPC Configuration:		Configure	About	Done
IBHSoftec.IBHOPC.DA	1 on localhost	•	Language	Help
			Create Tag	Autogen
ItemID:	25		Create Acc	ess Name
Acci trowse OPC: [Filter: * ess Rights: all tags Data types: use native	type	Access Names:	ኦ
 S7_300 A B E tomatic Tag Generatio 	ชี่มี351 0H352 0H353		X	
Tag Generation Mode —		[Start	
Generation of all Items	in OPC Server	[Cancel	
C	I OPC Items		Advanced	
 Generation or selected 		1.7.4		
C Generation of all Items	in OPC Path:	Access Name:		

Clicking the button **<Autogen>** permits to select, which variables are to be created.

	Ausdruck:	11_0		ОК
	Füllfarbe 0,Falsch,4	Aus: 📕 1	,Wahr,Ein:	Abbrechen
	🔲 Blinken akti	vieren Blinkgesch	vindigkeit	
ariable wählen			1-1-E	×
ariable	Variablentyp	Zugriffsname	Alarmoruppe	
d57 300 A 0H351 IBH	E/A Binār	IBH	\$System	
d57 300 A 0H352 IBH	E/A Binār	IBH	\$System	
d57_300_A_0H353_IBH	E/A Binär	IBH	\$System	
dS7_300_E_05351_IBH	E/A Binar	IBH	\$System	
dS7_300_E_0S352_IBH	E/A Binär	IBH	\$System	
ds7_300_M_AUTO	E/A Binär	IBH	\$System	
dS7_300_M_DAUE	E/A Binār	IBH	\$System	
d57_300_M_EINRI	E/A Binār	IBH	\$System	
dS7_300_M1_0_IBH	E/A Binār	IBH	\$System	
d57_300_Run_IBH	E/A Binār	IBH	\$System	
iS7_300_PRESSBES	E/A Integer	IBH	\$System	
IS7_300_T_T_2_IBH	E/A Integer	IBH	\$System	and the second se
M1_0	E/A Binār	IBH	\$System	-1
mS7 300 Mith IBH	F (A Melduna	TRH	\$System	
			2	
			<u></u>	1000
			OK	
			11100000	

The OPC variables may now be used in the WindowMaker.