

Operating Instructions

ControlCare Field Control (OPC) Servers

OPC servers for HSE (ControlCare) and IEC 61131 variables

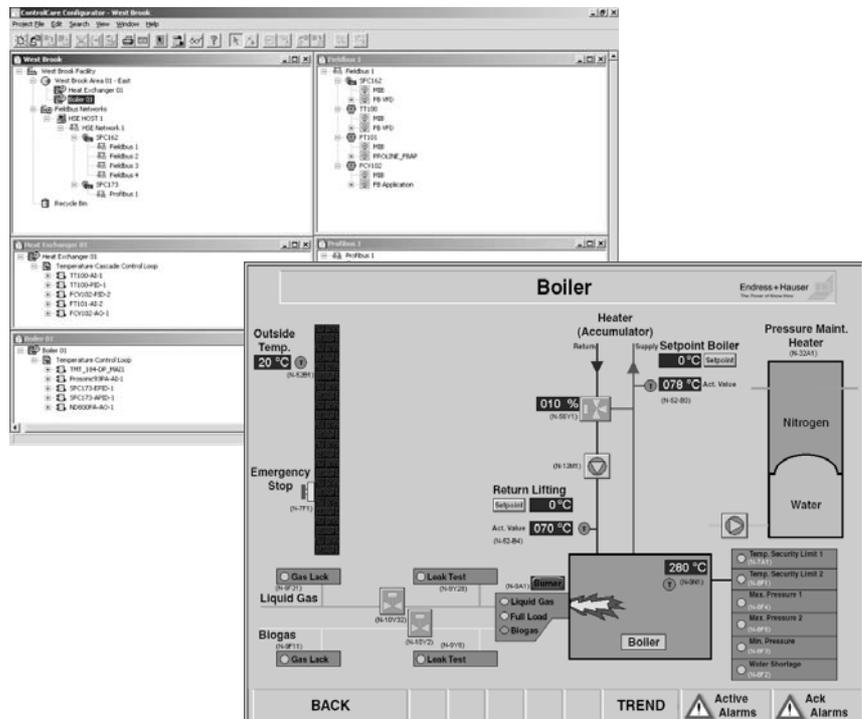


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Revision History

Product version	Manual	Changes	Remarks
1.00.xx	BA018S/04/en/07.02	Original manual	
2.00.xx	BA018S/04/en/07.02	–	Manual not supplied with this version
2.01.xx	BA018S/04/en/07.02	–	Manual not supplied with this version
2.02.xx	BA018S/04/en/07.06	Product	IEC Server added to package Stand-alone installation possible
		Function	Setup Windows 2000, Windows XP added
		Editorial	Getting Started chapter added (installation) Content completely revised
2.03.xx	BA018S/04/en/06.07	Product	EndressSE.Server.0 no longer supported (SFC151)
		Function	Simultaneous access to IEC OPC server now possible
		Editorial	Setup as Windows service added
2.04.xx	BA018S/04/en/12.08	Configuration	<ul style="list-style-type: none"> ■ Windows Vista added ■ Firewall added
		HSE OPC Server	<ul style="list-style-type: none"> ■ Automatic registration as service ■ Server detail tables removed (user interface present)
		IEC OPC Server	<ul style="list-style-type: none"> ■ Automatic registration as service ■ Parameters can be browsed when controller off-line ■ Server TCP65 driver added
2.05.xx	BA018S/04/en/06.10	General	<ul style="list-style-type: none"> ■ Version, documentation table, windows support
		Installation	<ul style="list-style-type: none"> ■ Screenshots updated

Product Version

Details of product version and the individual components of Application Designer Suite can be seen in the About ControlCare dialog:

Start=>Programs=>Endress+Hauser=>ControlCare=>Tools=>About ControlCare

Registered Trademarks

PROFIBUS®

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FOUNDATION™ Fieldbus

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1 Safety

1.1 Designated use

This document provides a step-by-step guide to the installation and operation of Endress+Hauser's ControlCare Field Control HSE and IEC OPC Servers. These allows simple communication between ControlCare, an SCADA program such as Endress+Hauser's ControlCare P View as well as other OPC clients:

- The HSE server provides access to all parameters of the SFC162 and SFC173 Field Controllers
- The IEC server provides access to all variables declared as OPC variables in the IEC 61131 hybrid function blocks (either with prefix OPC_ or with variable attribute OPC, see Chapter 6.2.2 of BA056S/04/en, IEC 61131-3 Structured Text tutorial.

The OPC servers can be used by applications other than the ControlCare platform but in combination with Controlcare Field Controllers only.

1.2 Installation, commissioning and operation

The software has been designed to operate according to current OPC standards, however, it does not provide a guarantee that a given configuration will work. This depends on the operator correctly configuring the client and server applications.

It is recommended that ControlCare Field Controllers and OPC servers are not installed in an office network, as the large data packets exchanged between office equipment may lead to timeouts and intermittent communication errors. Ideally, the ControlCare system network should operate within its own IP domain; if this is not possible it should be separated from other parts of the network by a managed switch.

1.3 Operational safety

Technical improvement

Endress+Hauser reserves the right to make technical improvements to its software and equipment at any time and without prior notification. Where such improvements have no effect on the operation of the equipment, they are not documented. If the improvements effect operation, a new version of the operating instructions is normally issued.

1.4 Conventions and icons

In order to highlight safety relevant or alternative operating procedures in the manual, the following conventions have been used, each indicated by a corresponding icon in the margin.

Safety conventions

Icon	Meaning
	A note highlights actions or procedures which, if not performed correctly, may indirectly affect operation or may lead to an instrument response which is not planned
	Caution! Caution highlights actions or procedures which, if not performed correctly, may lead to personal injury or incorrect functioning of the instrument
	Warning! A warning highlights actions or procedures which, if not performed correctly, will lead to personal injury, a safety hazard or destruction of the instrument

1.5 ControlCare documents

Table 1.1 indicates the documents, planned and realized, containing safety relevant information, installation, commissioning and operating instructions for the equipment and software associated with the ControlCare platform.

All documentation available at the time of release is included on the ControlCare CD-ROM and is installed in **Start=>Programs=>Endress+Hauser=ControlCare=Manuals** during set-up.

Component	Description	Document type	Designation	Order No.
System	ControlCare System Overview	Operating manual	BA016S/04/en	56004883
	ControlCare System Design	Operating manual	BA039S/04/en	Planned
	ControlCare System Specifications	Operating manual	BA040S/04/en	56004888
Software	Application Designer Overview	Operating manual	BA017S/04/en	70104301
	Application Designer: Local I/O Tutorial	Operating manual	BA032S/04/en	71095009
	Application Designer: FF Tutorial	Operating manual	BA019S/04/en	70101151
	Application Designer: PROFIBUS Tutorial	Operating manual	BA036S/04/en	70101152
	Application Designer: MODBUS Tutorial	Operating manual	BA037S/04/en	70101153
	Application Designer: IEC 61131-3 Ladder Logic Tutorial	Operating manual	BA038S/04/en	70101386
	Application Designer: IEC 61131-3 Structured Text Tutorial	Operating manual	BA056S/04/en	71060063
	Field Control (OPC) Servers	Operating manual	BA018S/04/en	71031428
	SFC162 Visitor	Operation manual	BA069S/04/en	71113457
Field Controller	Hardware Installation Guide	Operating manual	BA021S/04/en	56004885
	Commissioning and Configuration	Operating manual	BA035S/04/en	56004887
Function Blocks	Function Block Manual	Operating manual	BA022S/04/en	56004886
Set-Up	Getting Started	Operating manual	BA020S/04/en	56004884
General	FOUNDATION Fieldbus Guidelines	Operating manual	BA013S/04/en	70100707
	PROFIBUS Guidelines	Operating manual	BA034S/04/en	56004242

Tab. 1-1: ControlCare Documentation

2 Function and System Design

2.1 Function

2.1.1 OPC standard

The OPC servers supplied with ControlCare Application Designer comply to the OPC standard (OLE for Process Control) which in turn is based on Microsoft's OLE (now called ActiveX), COM (Component Object Model) and DCOM (Distributed Component Object Model) technology.

OPC comprises a standard set of interfaces, properties and methods for use in process control and manufacturing-automation applications. The ActiveX/COM technologies define how individual software components can interact and share data. Backed by Microsoft technology, OPC provides a common interface for communicating with diverse process-control devices, regardless of the controlling software or devices in the process. More information on the OPC standard can be found on www.opcfoundation.org.

Fig. 2-1 indicates how an OPC server works. Communication between the data sources, e.g. controllers and the OPC server is via the TCP/IP protocol. Client access to the server is governed by the COM/DCOM mechanism.

The OPC server must be configured to communicate with particular data sources and the OPC Client must be configured to communicate with particular OPC servers. The server configuration may be implicit within the application, e.g. in the case of the Endress.hseserver.0, which is used e.g. to download Application Designer projects to the SFC162/SFC173 Field Controllers, or it may be freely configurable, as is the case for the Endress+Hauser IEC OPC server. OPC Clients must always be configured to communicate with particular servers.

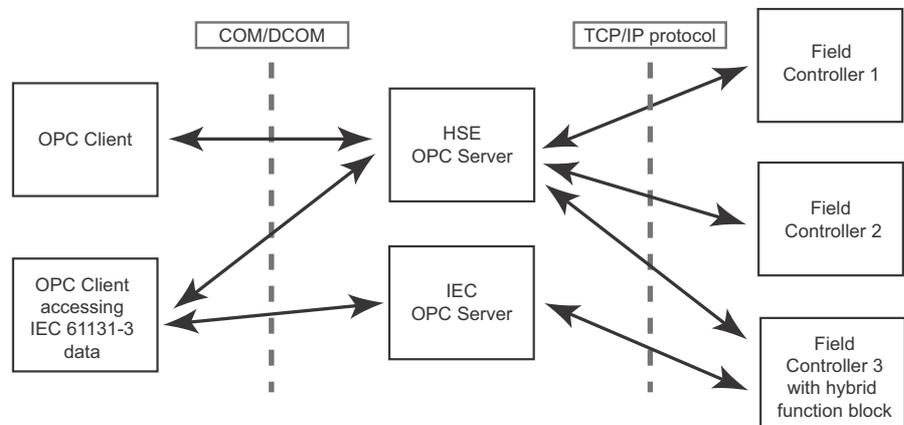


Fig. 2-1: Communication mechanisms of the OPC Server

2.1.2 Field Control (OPC) Servers

The ControlCare Field Control (OPC) Servers are resident in the host computer where they can be accessed by e.g. a SCADA application such as ControlCare P View. Two servers are available for data exchange:

- Endress.hseserver.0 contains all tags in the current Field Controller project (provided that these have been exported from ControlCare Application Designer with Export Tags and the resulting tag.ini file is on the computer). It is also used during download to the Field Controller.
- Endress.iecserver.3 contains all IEC 61131 variables that have been declared for viewing in the hybrid function blocks with the "OPC_" prefix or in the VAR OPC declaration.

Independent of the number of Field Controllers in the network, only one HSE and IEC server is required to map the entire network parameters.

The OPC Client application, e.g. OPC Data Spy or ControlCare P View gathers its data from the Endress.hseserver.0 and Endress.iecserver.3 by simply activating the server and selecting the parameters to be monitored. The Field Controllers do not have to be on-line. When on-line, data exchange between the server and the Field Controllers is automatically invoked.

For an application such as ControlCare P View, the selected data is then published by its own server to any client computers in the network.

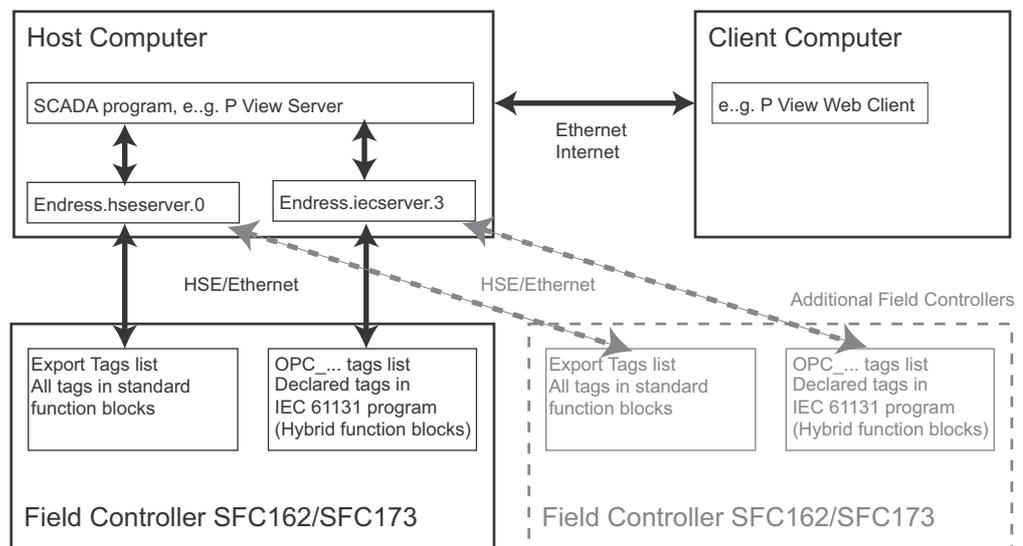


Fig. 2-1: Distribution of data via the Field Control (OPC) servers.

2.2 Parameter identifiers

2.2.1 Endress.HSEserver.0

Details of the formal model for parameter identification can be taken from Foundation Fieldbus Specification FF-890, Function Block Application Process, Part 1. Expressed briefly, the host application must be able to find any parameter in the system by means of a unique identifier. This is composed of two elements, which are put together to form the construct Tag.Parameter

- Function Block Tag
is the block tag assigned to the function block by the host application
- Parameter
is the DD member ID of the parameter and is unique to the block.

Using the Tag.Parameter construct, the host application is able to access the parameter value or its description, its data type index and the parameter semantics. In the case of Application Designer, a view of this information can be obtained by clicking on the **FB VFD** node of the **Control Module** tree, when the associated device is on line, see Application Designer Tutorials. It should be noted that the parameter structure within the server is identical for both PROFIBUS and FOUNDATION fieldbus.

Tag	Type	ODIndex	Profile	Prof.Rev.	DDItemID
TT101_RS2_1	Resource Block	400	0x0133	0x0001	0x80020AF0
TT101_TEMP_1	Transducer	500	0x801C	0x0001	0x00020130
TT101_TEMP_2	Transducer	600	0x801C	0x0001	0x00020130
TT101_DISP_1	Display	700	0x8003	0x0001	0x000200F1
TT101_BLK_1	Diagnostics Transducer	1700	0x8018	0x0101	0x000201EA
TT101_AI_1	Analog Input	800	0x0101	0x0001	0x800201D0

Fig. 2-2: DD member ID information for Micropilot viewed in the Block List dialog

Export to OPC Server

Application Designer presents parameter information in easily readable form by using the parameter names as can be viewed in the Off Line and On Line Characterization dialogs. These are then identified using the same construct. Thus, for instance, the process value PV value of an Analog Input block with the tag "TT100_AI_1.PV" can be expanded to show its two elements Value and Status. The two parameters can thus be identified from the Tag.Parameter construct as:

TT100_AI_1.PV.Value and
TT100_AI_1.PV.Status

whereby the block tag is generated by default and can be influenced by the Preference settings in Application Designer, see Application Designer Tutorials.

The **Export Tags** function of Application Designer causes all parameters used in a project to be exported to the HSE OPC Server Endress.hseserver.0. Fig. 2-3 shows an example of several tags being monitored by OPC Data Spy, a simple data monitoring program that is installed as part of the ControlCare Application Designer Suite.

Name	Source	Value	Quality	Timestamp
Endress.hseserver.0\LT101_AI_1.OUT.STATUS	OPC	144 (VT_UI1)	Good - N...	2006-7-6 9:54:..
Endress.hseserver.0\LT101_AI_1.OUT.VALUE	OPC	89.73305 (VT_...	Good - N...	2006-7-6 9:54:..
Endress.hseserver.0\FC_01_MDO_1.FSTATE...	OPC	0 (VT_UI1)	Good - N...	2006-7-6 9:52:..
Endress.hseserver.0\TT101_AI_1.OUT.STATUS	OPC	28 (VT_UI1)	Good - N...	2006-7-6 9:54:..
Endress.hseserver.0\TT101_AI_1.OUT.VALUE	OPC	0 (VT_R4)	Good - N...	2006-7-6 9:54:..

Fig. 2-3: Example of the Tag.Parameter construct in the OPC Data Spy program supplied with ControlCare

2.2.2 Endress.iecserver.3

The IEC OPC server creates the address space with the following hierarchical structure. The first level of the hierarchy includes the user-defined connection names. The second level of the hierarchy contains the names of the IEC tasks. These in turn contain all function block names, struct names (i.e. composite parameters containing several variables) and variable names as OPC tags. Only IEC-variables that are published by the Controller via the variable table segment are provided by the IEC OPC-Server.

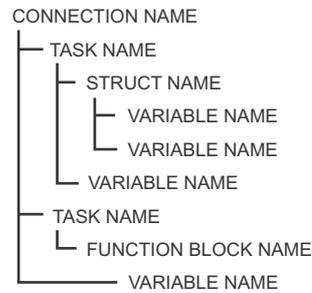


Fig. 2-4: Structure of IEC OPC server

Export to OPC Server

The IEC OPC server Endress.iecserver.3 operates in a slightly different manner to the HSE OPC server and contains as a list only the IEC 61131 variables that were declared with the prefix "OPC_" in the hybrid function blocks or within the VAR OPC/END VAR declaration. The server can be accessed simultaneously by OpenPCS and the OPC clients.

Note!

- As of ControlCare Version 2.04.xx, the server can be accessed when Field Controller is off-line.



2.3 System architecture

Fig. 2-5 shows an example of an architecture where both FOUNDATION fieldbus SFC162 and PROFIBUS SFC173 Field Controllers are in use. ControlCare P View is in use as a operating and monitoring system, with client workstations at various locations in the plant.

The device data is collected by the Field Controllers and is made available to the Field Control (OPC) Servers that are resident in the host computer where they were installed. For a standard installation, see BA022S/04/a2, Getting Started, this would be the same computer on which Application Designer is running. The installation procedure described in Chapter 3 of this manual allows a stand-alone installation on any computer.

In the example shown here, ControlCare P View is also installed on the same computer, but thanks to the COM/DCOM mechanism, this could also be located elsewhere.

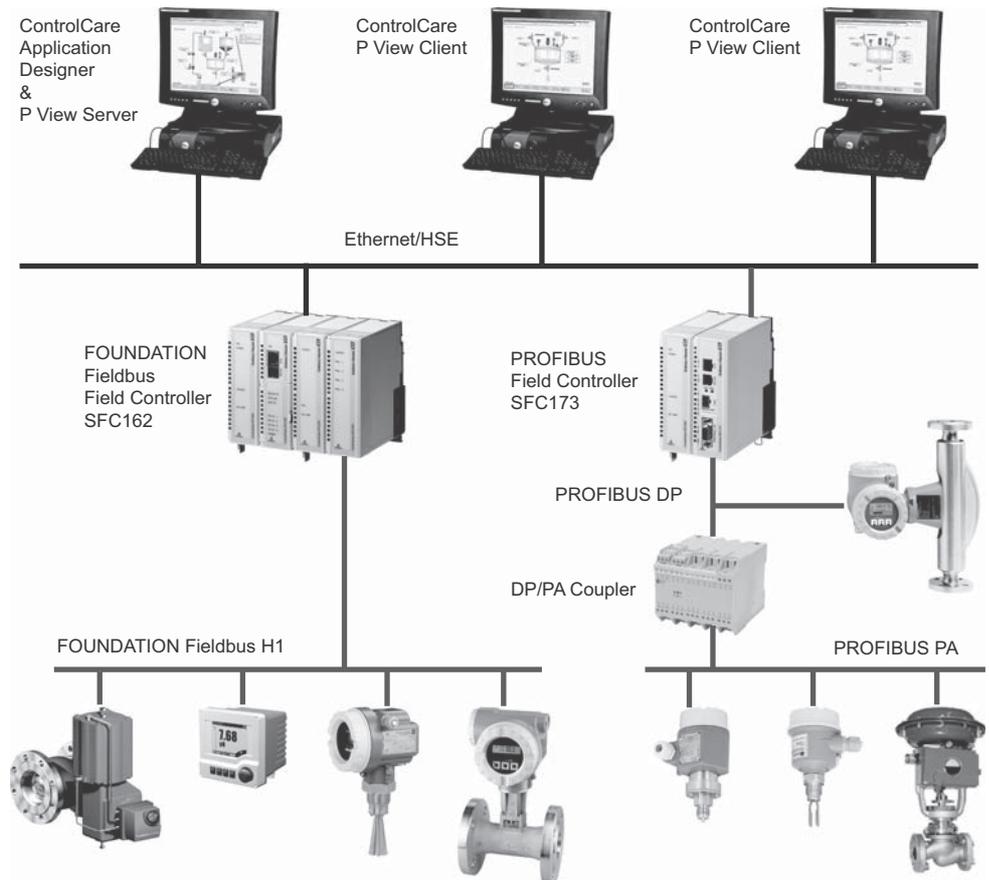


Fig. 2-5: Typical architecture for ControlCare application.

3 Installation

Normally the OPC servers are installed as part of the ControlCare Application Designer Suite, which runs under Windows 2000, Windows XP, Windows Server 2003 and Windows Vista with the service packs indicated in **System Requirements**. They can also be installed as stand-alone applications as described below.

- You need to have administrator rights for the installation of the ControlCare Application Designer Suite.
- Application Designer Suite operates with a license protection key. Any licence keys already used on your computer should be unplugged before the software is installed.
- You will be warned, if the system requirements are not met.

The OPC server will run in demo mode for max. 16 tags. With a license, an unlimited number of tags can be used (limited only by client application).

3.1 Preliminaries

- 1 Place the ControlCare CD-ROM in your CD-ROM drive, the Setup menu appears just after the CD has been inserted.
- 2 First check that your computer fulfils the minimum **System Requirements** as described below



- 3 Before starting the installation it is advisable to carefully read the **Release Notes**.



3.2 Installing the OPC servers

- 1 Click on **ControlCare Field-based Control System** to initiate the software installation process.



- 2 The **Welcome** dialog appears

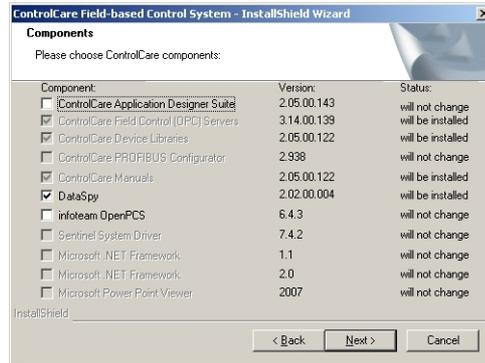


- Continue the installation by clicking **Next**

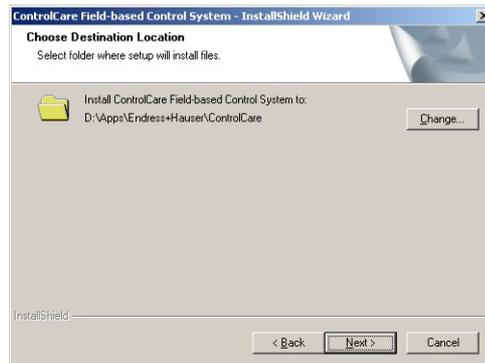
- 3 The **Licence Agreement** now appears



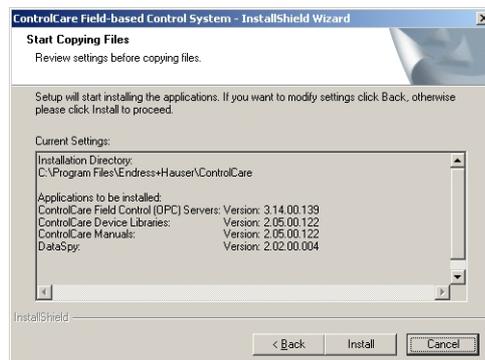
- Read the agreement, then check the button saying that you agree with it
- **Print** will cause a copy of the license agreement to be printed out
- Continue the installation by clicking **Next**

4 The **Components** dialog appears

- Deselect both the Application Designer and OpenPCS boxes
- The remaining components are those needed for the OPC server
- Select **Iconics OPC Data Spy** if you wish to install this component as well
- Press **Next** to continue with the installation

5 The **Choose Destination Location** dialog appears

- Press **Change** and follow the instructions if you want to select a different destination.
- Press **Next** to accept the default destination and/or to continue installation.

6 The **Start Copying Files** dialog appears

- Read the list the applications to be installed
- If you want to change anything, press **Back** until you reach the appropriate screen
- Continue the installation by pressing **Install**

7 The OPC servers will now be installed



- You are informed of progress through the **Setup Status** dialog
- Answer **Yes** should you be prompted to delete a previous version of OpenPCS

8 The Installation Complete dialog appears after everything was installed



- Press **Finish** to complete the procedure and close the dialog
- Plug the hard key into the USB or parallel port of your computer

3.3 Additional Tools

3.3.1 Adobe Reader

All current manuals related to ControlCare hardware and software products and other auxiliary information manuals are copied to your computer during installation. You require Adobe Reader Version 5.0 or higher to read them. If not already on your computer, you can install the latest version as described below.

- 1 Go to the main menu on the ControlCare CD-ROM and select **Adobe Reader**



- 2 Now choose the language version and follow the instructions in the Installation Wizard.

- 3 To open a manual from your computer select **Start=>Programs=>Endress+Hauser=>ControlCare=>Manuals=>English**

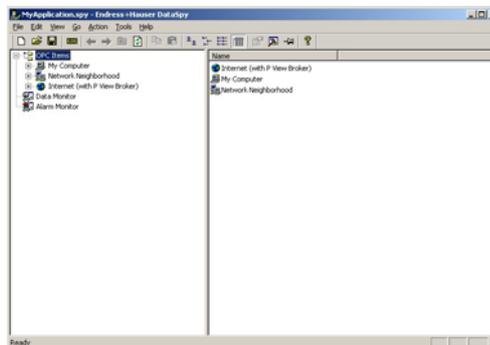
From the Setup menu

- **Getting Started** opens a PDF version of the Getting Started manual
- **Open Documentation** opens the folder containing the manuals.

3.3.2 OPC Data Spy

OPC Data Spy is a simple OPC client tool that is installed with ControlCare Application Designer Suite. It allows the values output by devices in a fieldbus network to be viewed and monitored.

- 1 Open OPC Data Spy
 - **Start=>Programs =>Endress+Hauser=>ControlCare=>Tools=>OPC Data Spy**



- 2 Instructions on use are to be found in the online help.

3.4 Deinstalling the OPC servers

Once the Servers have been installed, it can be deinstalled if required via the Windows Control Panel.

- 1 Select **Start=>Settings=>ControlPanel** then click on **Add or Remove Programs**



- 2 Select **ControlCare Field-based Control System** and then **Remove**



- 3 You will be asked to confirm the removal of particular software components. Confirm that you want to remove them with **Yes**
- 4 Windows proceeds with the de-installation
 - Pressing **“Cancel”** aborts the de-installation process.

4 DCOM Configuration

To perform the DCOM configuration, you need to be an user with administrator rights in the machine you want to configure. If you are not sure what to do, consult your system administrator.

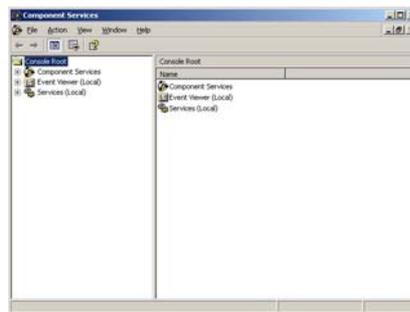
4.1 Configuration for Windows XP

This section explains how to set up DCOM services in Windows XP on both server and client side, in order to allow remote connection to the Endress+Hauser ControlCare Field Control (OPC) Server.

4.1.1 Configuring DCOM for the HSE Server

This configuration is mandatory and must be done on the PC where the Endress+Hauser ControlCare Field Control (OPC) Server will be running. It configures DCOM such that the server can receive remote COM calls

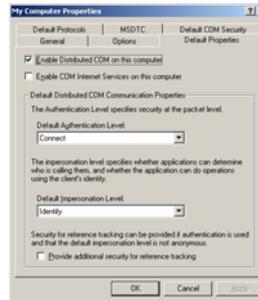
- 1 Launch **DCOMCNFG** (**Start => Run => DCOMCNFG => OK**)
 - The **Component Services** dialog opens



- 2 Double-click on **Component Services**, then on **My Computer**.
 - The dialog now looks like this (My computer has been expanded)



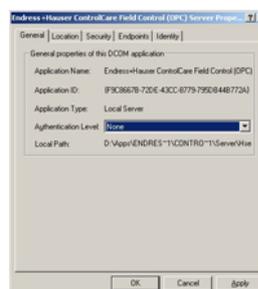
- 3 Now configure the general PC settings
 - Right mouse on **My Computer**, then select **Properties**, the **My Computer Properties** dialog appears



- Click the **Default Properties** TAB, make sure that **Enable Distributed COM** on this computer is checked **Default Authentication Level = Connect** and **Default Impersonation Level = Identify**.
- 4 Now configure the Server settings
 - Double click on **DCOM Config**, all installed COM components appear in the right panel.
 - Select the **Endress+Hauser ControlCare Field Control (OPC) Server**



- Note:
After double clicking on **DCOM Config**, it might happen that warning messages appear. Just press **Yes** until the applications are shown as above.
- 5 Right-click on the server icon and select **Properties**,
 - The **ControlCare Field Control (OPC) Server Properties** dialog appears.
 - In the **General** TAB set **Authentication Level = None**.



- In the **Location TAB**, select **Run application on this computer**



- In the **Security TAB** select **Customize** in each group and repeat the procedure described in Step 6 for each of the three groups.

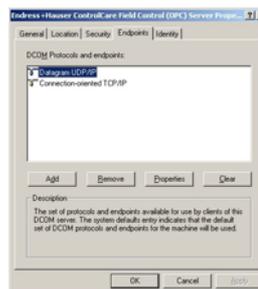
- 6 Press **Edit** to open the corresponding **Permissions** dialog



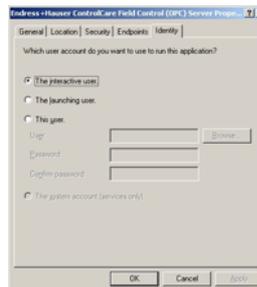
- In the Group or user name pane, check that **Everyone**, **Interactive** and **System** are added
- Select each group or user in turn, then make sure that the "allow" box in the Permissions pane is activated ("X") for all possible permissions.

- 7 Select the **Endpoints TAB**.

- Add the protocols Connection-orientated TCP/IP and Datagram UDP in that order



- 8 Select the **Identity TAB**
 - Make sure that **The interactive user** is selected



- 9 Confirm the dialogs and close **DCOMCNFG**.

4.1.2 Configuring DCOM for OPC Enum

The OPC Enum is a binary from the OPC Foundation that allows remote clients to browse the OPC Servers installed in any remote machine. This configuration is not required when OPC Enum is NOT installed in the server machine. Please note that the ControlCare set-up does not install the OPC Enum.

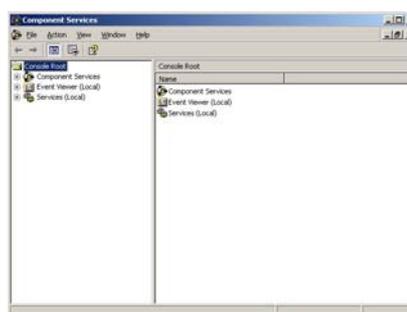
The configuration allows OPC Enum to receive remote COM calls and is done on the PC where the HSE Server will be running.

The configuration is basically the same as that described in Chapter 4.1.1 Step 4 to Step 9, except that the DCOM application selected is OPCEnum.

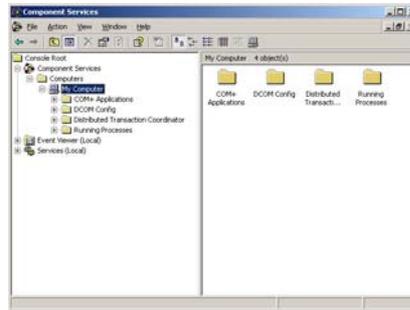
4.1.3 Configuring DCOM for the Client PC

This configuration is mandatory and allows the Client PC to receive callbacks from the remote Server. It is performed on every Client PC.

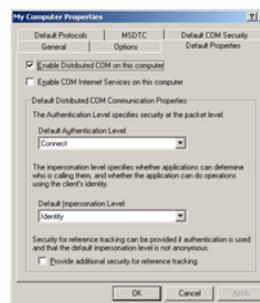
- 1 Launch **DCOMCNFG (Start => Run => DCOMCNFG => OK)**
 - The **Component Services** dialog opens



- 2 Double-click on **Component Services**, then on **My Computer**.
 - The dialog now looks like this (My computer has been expanded)



- 3 Now configure the general PC settings
 - Right mouse on **My Computer**, then select **Properties**, the **My Computer Properties** dialog appears



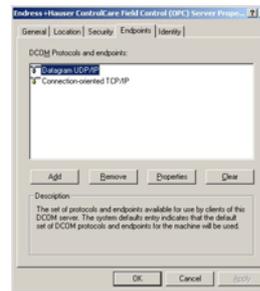
- Click the **Default Properties** TAB, make sure that **Enable Distributed COM** on this computer is checked **Default Authentication Level = Connect** and **Default Impersonation Level = Identify**.

- 4 Select the **Default COM Security** TAB



- Press **Edit Default** to open the **Access Permissions** dialog
- In the Group or user name pane, check that **Everyone**, **Interactive** and **System** are added
- Select each group or user in turn, then make sure that the "allow" box in the Permissions pane is activated ("X") for all possible permissions.
- Repeat the procedure for the **Launch Permissions** pane

- 5 Select the **Default Protocols** TAB.
 - Add the protocols Connection-orientated TCP/IP and Datagram UDP in that order



- 6 Confirm the dialogs and close **DCOMCNFG**.

4.2 Configuration for Windows 2000

This section explains how to set up DCOM services in Windows 2000 on both server and client side, in order to allow remote connection to the Endress+Hauser ControlCare Field Control (OPC) Server.

4.2.1 Configuring the users

There are two possible configurations of the machine's users, depending whether or not the machines are part of one domain.

Option 1 Ethernet without domain

In all the Ethernet machines that will perform remote access and in the machines that will execute the OPC Servers:

- 1 Open the Control Panel (Windows 2000) and select **Users and Passwords**.
- 2 In the machines where there are OPC Servers running, add all the users that will make remote access from the clients machines. The users do not need Administrator rights.
- 3 In the client machines, add the user that is logged on the Server machine. This allows the Servers to send callbacks to clients.

Option 2 Ethernet with domain

Perform the same configuration you did in Option 1, but now just in the primary domain controller (PDC), and be sure that all machines involved in the remote access are included in the domain.

4.2.2 Configuring the client machines

- 1 Execute the program **DCOMCNFG (Start => Run => DCOMCNFG => OK)**
- 2 In the **Standard Security** folder, it is necessary to be sure that the following users are included with **Default Access Permissions** and **Default Launch Permissions**:
 - Administrators, INTERACTIVE, SYSTEM and Everyone.

Make sure that all these users are included. It is mandatory that users logged at the Server machine be included in the users group of the client machines if the callbacks are to be received correctly as described above.

4.2.3 Configuring the server machines

- 1 Execute the program **DCOMCNFG (Start => Run => DCOMCNFG => OK)**
- 2 In the **Default Properties** folder, enable the option **Active Distributed COM on this computer**. Select **Connect in the Default Authentication Level**, and **Identity in the Default Impersonation Level**.
- 3 In the **Default Security** folder keep all the default values.

- 4 In the **Default Protocol** folder
 - Add the protocols **Datagram UDP/IP** and **Connection-oriented TCP/IP**, giving first priority to UDP/IP (remember the order reflects the priority).
- 5 In the **Applications** folder, select Endress+Hauser OPC & Conf Server for HSE.
- 6 In the **specific configuration** of the server
 - the **General** folder has to specify **Default Authentication Level**,
 - the **Location** folder has to enable the option **Run application on this computer**.
- 7 In the **Security** folder,
 - Select **Use custom access permissions**, and press the **Edit** button.
Add the users SYSTEM, all the users that are using the client machines and the main user (responsible for the Server machine).
 - Select **Use custom launch permissions**
Add the users SYSTEM, all the users that are using the client machines and the main user (responsible for the Server machine).
 - Select **Use custom configuration permissions**, and press the **Edit** button.
Add the following users: Administrators, INTERACTIVE, CREATOR OWNER and SYSTEM.
- 8 In the **Identity** folder, select the option **The interactive user**.

4.3 Configuration for Windows Vista

This section explains how to set up DCOM services in Windows Vista on both server and client side, in order to allow remote connection to the Endress+Hauser ControlCare Field Control (OPC) Server.

4.3.1 Preliminaries

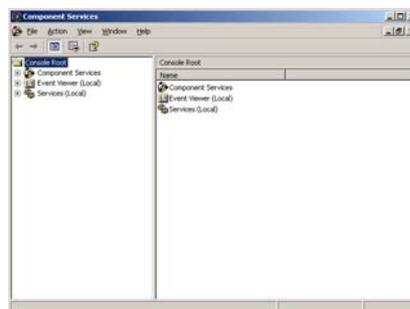
Prepare the server and all client computers for DCOM configuration by doing the following:

- 1 Temporarily switch off the **Windows Firewall**
 - Press **Start => Control Panel => Windows Firewall**
 - In the **General** tab, select the **Off (not recommended)** radio button
- 2 Switch off the **User Account Control**
 - Press **Start => Control Panel** and type in "UAC" into the search box. You'll see a link for "**Turn User Account Control (UAC) on or off**"
 - Click on the link and uncheck the option "**Use User Account Control (UAC)**" then click on the **OK** button
 - Reboot the computer
- 3 Set up identical **User Accounts** on the computer
 - Press **Start => Control Panel => User Accounts**
 - Select the option "**Add or remove user account**"
 - In the **User Account** dialog, select the **Users** tab, then press **Add..**
 - In the **Add New User** wizard, follow the instructions and enter a User Name, User Password and User Group
 - All entries must be the same on all computers, the User Group must be either "**Administrator**" or "**Distributed COM Users**"
 - Login on all network PC's with the new user

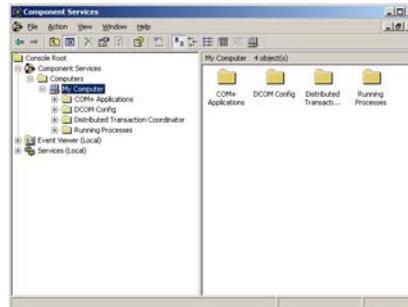
4.3.2 Configuring DCOM for the HSE Server

This configuration is mandatory and must be done on the PC where the Endress+Hauser ControlCare Field Control (OPC) Server will be running. It configures DCOM such that the server can receive remote COM calls

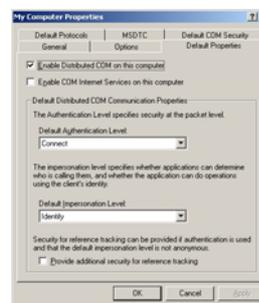
- 1 Launch **DCOMCNFG (Start => Run => DCOMCNFG => OK)**
 - The **Component Services** dialog opens



- 2 Double-click on **Component Services**, then on **My Computer**.
 - The dialog now looks like this (My computer has been expanded)

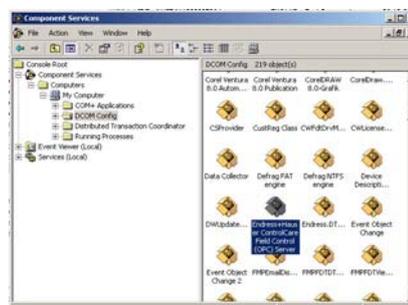


- 3 Now configure the general PC settings
 - Right mouse on **My Computer**, then select **Properties**, the **My Computer Properties** dialog appears



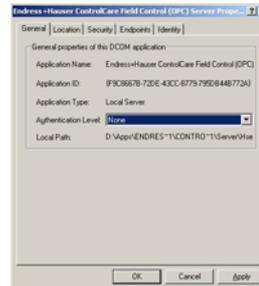
- Click the **Default Properties** TAB, make sure that **Enable Distributed COM** on this computer is checked
Default Authentication Level = Connect and
Default Impersonation Level = Identify
- Click the **Default Protocols** tab and make sure that **Connection-oriented TCP/IP** is in the list - if not add it.

- 4 Now configure the Server settings
 - Double click on **DCOM Config**, all installed COM components appear in the right panel.
 - Select the **Endress+Hauser ControlCare Field Control (OPC) Server**



- Note:
After double clicking on **DCOM Config**, it might happen that warning messages appear. Just press **Yes** until the applications are shown as above.

- 5 Right-click on the server icon and select **Properties**,
 - The **ControlCare Field Control (OPC) Server Properties** dialog appears.
 - In the **General TAB** set **Authentication Level = None**.



- In the **Location TAB**, select **Run application on this computer**



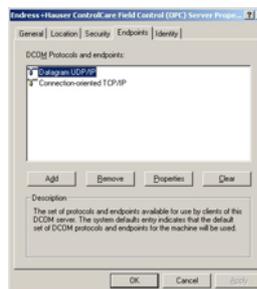
- In the **Security TAB** select **Customize** in each group and repeat the procedure described in Step 6 for each of the three groups.

- 6 Press **Edit** to open the corresponding **Permissions** dialog

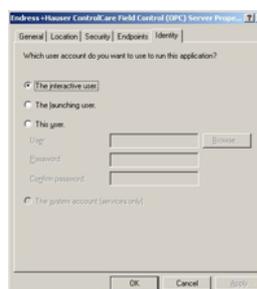


- In the Group or user name pane, check that **Everyone**, **Interactive** and **System** are added
- Select each group or user in turn, then make sure that the "allow" box in the Permissions pane is activated ("X") for all possible permissions.

- 7 Select the **Endpoints TAB**.
 - Add the protocols Connection-orientated TCP/IP and Datagram UDP in that order



- 8 Select the **Identity TAB**
 - Make sure that **The interactive user** is selected



- 9 Confirm the dialogs and close **DCOMCNFG**.

4.3.3 Configuring DCOM for OPC Enum

The OPC Enum is a binary from the OPC Foundation that allows remote clients to browse the OPC Servers installed in any remote machine. This configuration is not required when OPC Enum is NOT installed in the server machine. Please note that the ControlCare set-up does not install the OPC Enum.

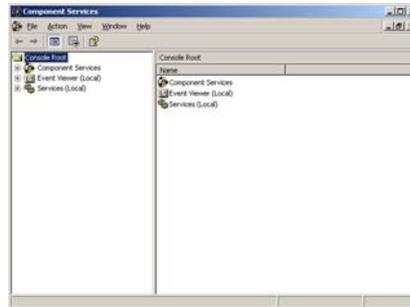
The configuration allows OPC Enum to receive remote COM calls and is done on the PC where the HSE Server will be running.

The configuration is basically the same as that described in Chapter 4.3.2, Step 4 to Step 9, except that the DCOM application selected is OPCEnum.

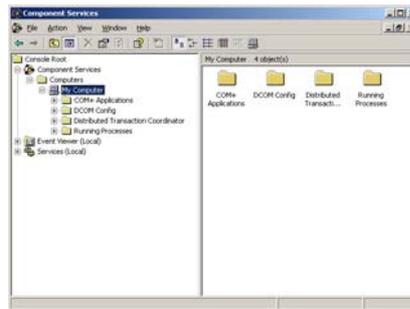
4.3.4 Configuring DCOM for the Client PC

This configuration is mandatory and allows the Client PC to receive callbacks from the remote Server. It is performed on every Client PC.

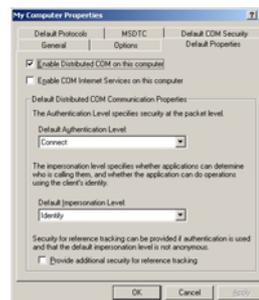
- 1 Launch **DCOMCNFG (Start => Run => DCOMCNFG => OK)**
 - The **Component Services** dialog opens



- 2 Double-click on **Component Services**, then on **My Computer**.
 - The dialog now looks like this (My computer has been expanded)



- 3 Now configure the general PC settings
 - Right mouse on **My Computer**, then select **Properties**, the **My Computer Properties** dialog appears



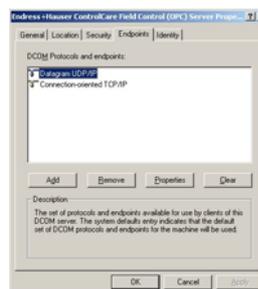
- Click the **Default Properties** TAB, make sure that **Enable Distributed COM** on this computer is checked **Default Authentication Level = Connect** and **Default Impersonation Level = Identify**

4 Select the **Default COM Security** TAB

- Press **Edit Default** to open the **Access Permissions** dialog
- In the Group or user name pane, check that **Everyone**, **Interactive** and **System** are added
- Select each group or user in turn, then make sure that the "allow" box in the Permissions pane is activated ("X") for all possible permissions.
- Repeat the procedure for the **Launch Permissions** pane

5 Select the **Default Protocols** TAB.

- Add the protocols Connection-oriented TCP/IP and Datagram UDP in that order

6 Confirm the dialogs and close **DCOMCNFG**.**4.3.5 Re-establish security**

- 1 It should now be possible to start the OPC server from the remotely connected OPC client.
 - If it is not possible check if the points described above are OK
- 2 If the connection was successful check if it is required to have the firewall on
 - If no, you have finished with the DCOM configuration Step 3 in Chapter 4.4.
- 3 Configure the firewall on all computers, see Chapter 4.4

4.4 Windows Firewall

If firewalls are in use on the computers on which the servers and clients reside, they must be programmed to allow mutual access. As firewall configuration is often a matter of company IT security policy, your system administrator should be consulted before proceeding. In addition, administration rights are required to perform this task.

- 1 Press **Start => Control Panel => Windows Firewall**
- 2 Press the **Exceptions** tab to add the exceptions on two main levels:
 - **Add program...:** specify which applications are able to respond to unsolicited requests
 - **Add Port...:** specify that the firewall should allow TCP traffic at ports used by the servers, see Table 4-1 below
- 3 In the **General** tab, select the **On (recommended)** radio button to switch on the firewall
- 4 Now check that the DCOM configuration still works

Communication ports

The ports available on the SFC1XX field controllers are listed in Table 4-1:

Port number	Meaning
TCP 23042	OpenPCS or IEC OPC server (from CC Version 1.01.00)
TCP 23041	IEC OPC server only (from CC Version 1.02.00)
TCP 23040	IEC OPC server only, alternative port (from CC Version 1.04.00)
UDP 1089	HSE OPC Server, HSE Communication
UDP 1090	HSE OPC Server, HSE Communication
UDP 1091	HSE OPC Server, HSE Communication
UDP 1092	HSE OPC Server, HSE Communication
UDP 60001	HSE OPC Server, PROFIBUS related communication
UDP 4987	ControlCare FC Tool
TCP 4988	ControlCare FC Tool
UDP 1089	HSE Network Tool (also used by HSE OPC Server)

Tab. 4-1: Ports used by ControlCare Servers and Tools

5 Operation

5.1 Field Control HSE OPC Server

The Field Control HSE OPC server is server-side software that connects client-side software (e.g. an OPC Client) to any HSE device plugged in the ControlCare network. A HSE device is any Fieldbus Foundation device type connected directly to the HSE media. All HSE devices contain a FDA agent, a HSE SMK, and a HSE NMA VFD (see BA013S/04/en, Foundation Fieldbus Overview for a short description of the FF HSE specification). Examples include linking devices, gateways, bridges, Remote I/Os and HSE field devices. The FOUNDATION Fieldbus Field Controller SFC162 and PROFIBUS Field Controller SFC173 are a bridge and gateway devices respectively.

The setup procedure installs the following files.

- File: HseSvr.exe
- ProgID: Endress.hseserver.0
- Name: Endress+Hauser OPC & Conf Server for HSE

The HSE server is started automatically when Application Designer goes on line. Alternatively, it can be activated by a double click on the server leaf of an OPC client application, see Chapter 5.3. The HSE server is configured via various ini files in the **Endress+Hauser/ControlCare/Server** folder and the user interface.

The server has an automatic reconnection mechanism. If the connection is interrupted, i.e. a broken network cable, the it will try to reconnect at preconfigured intervals. It will resume communication automatically when the Field Controller is online again. Other connections are not affected.

5.1.1 HseTagInfo.ini file

The HseTagInfo.ini file contains the address space for the Foundation Fieldbus standard and custom function block parameters. It is created when the **Export Tags** function in Application Designer is first used and updated on every subsequent call. It contains all the parameters of the current Application Designer project.

It is very important that the project from which the tags were exported is also downloaded to the Field Controllers. A mismatch between tag.ini and the controller configuration will result in function block parameters being not available or not having a connection.

When the HSE Server is installed as a stand-alone application the HseTagInfo.ini file must also be installed on the same computer, otherwise there will be no access to the project data.

5.1.2 IdShell HSE.ini

This file contains several settings to tune the communication between the HSE Server (specifically the HSE Host component) and the HSE devices via Ethernet (HSE protocol).

By default, all the HSE devices in the network will be polled as soon as the server is started. If the HSE Server is installed as a stand alone in a remote network or if not all HSE devices in the network are to be polled, the Remote Linking Device parameters are changed.

These changes are made automatically when the HSE Network Tool is used to configure the devices and network.

5.1.3 EndressOleServer.ini

The EndressOleServer.ini file provides a number of controls that permit logs to be enabled and disabled, timeouts to be set, network details to be configured, etc. Only two sets of parameters are used:

- [Log Size], [Log], [LogforOPC], [LogforThreads], [LogforHSE] control the various logs provided by the server
- [NIC Adapter] determines the network interface card to be used for communication to the controller

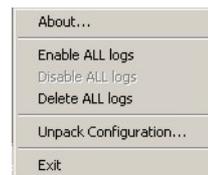
It is not necessary to manually set these parameters as the log is controlled from the user interface, see below, and the NIC configuration is handled by the HSE Network Tool.

5.1.4 User interface

The Field Control HSE OPC Server starts automatically when:

- The Online button in Application Designer is pressed
- Endress.HSEserver.0 is selected in a OPC client application
- HseSvr.exe is started, e.g. from the Explorer

When it is running, it is possible to change the log settings via the context menu which is called by a right-click on the icon in the Windows System Tray:



The menu options are described in Table 5-1, whereby those at the time of opening are greyed

Menu	Description
About	Calls a standard about box with details of product, version etc.
Enable ALL logs	Enables the writing of information to the various logs, see also Chapter 5.1.3 <ul style="list-style-type: none"> ■ The logs are written in the log folder specified by the following Registry entry: HKEY_CLASSES_ROOT\Endress.Support\LogFile_Folder. If such entry does not exist, the logs are flushed in the Server folder. ■ Logs produced by the HSE Server are named starting with HSE_. ■ Logs are created afresh everytime the system goes online. When their size is more than approx. 5 MB they are again created anew. The name of the log contains the creation date in the standard format YYYYMMDDHHMMSS. ■ Enabling/disabling of logs takes effect immediately, there is no need to go offline
Disable ALL logs	Disables the writing of information to the various logs
Delete ALL logs	Causes all logs created by the HSE Server, SE Server and HSE Host to be deleted
Unpack Configuration	Unpacks all files relevant to the HSE OPC Server database from a packed ControlCare project and places them in the selected folder. Can be used e.g. to handle device updates which must normally done manually.
Exit	Sends the HSE Server a request to close. Since the HSE Server is a COM/DCOM server, the following situations can occur: <ul style="list-style-type: none"> ■ The server is running but there are no COM clients connected. <ul style="list-style-type: none"> – In this case the server closes. ■ The server is running but there is some COM client connected. <ul style="list-style-type: none"> – In this case the server ignores this request. This because at the moment there is no shutdown mechanism between the OPC part of the server and the Application Designer. <p>Note that the first case can actually occur in only 2 situations:</p> <ul style="list-style-type: none"> ■ The server is installed as Windows Application and the user launched it by "hand", for example by double-clicking on the exe file. ■ The server is installed as Windows Service and the user started the Service.

Tab. 5-1: Menu options for Field Control HSE OPC Server

5.1.5 Server qualities

The server provides quality messages which indicate the quality of the connection and value. They are displayed in the "Quality" column of the OPC client. The menu options are summarized in Table 5-4, specific errors can be checked in the log files.

Quality	Issue	Remedy
Good	The values are valid	–
Bad Communication	Unspecific error	<ul style="list-style-type: none"> ■ Check your cables and/or the connection with a ping-command. ■ Check that your controller is switched on and working ■ Check, that the Field Controller is working properly and i.e. the interrupt tasks are triggered. ■ E.g. communication error due to timeouts. <ul style="list-style-type: none"> – Check if you are running in demo mode – Check the performance of your controller – Change the configured timeout values

Tab. 5-2: HSE OPC Server qualities

5.2 Field Control IEC OPC Server

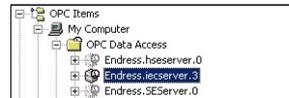
The Field Control IEC OPC server is server-side software that connects client-side software (e.g. an OPC Client) to any device with an IP address plugged in the ControlCare network. For ControlCare this would be the FOUNDATION fieldbus Field Controller SFC162 and the PROFIBUS Field Controller SFC173. Connection to controllers of from other vendors running IEC 61131 function blocks is also possible.

The server has an automatic reconnection mechanism. If the connection is interrupted, i.e. a broken network cable, the it will try to reconnect at preconfigured intervals. It will resume communication automatically when the Field Controller is online again. Other connections are not affected.

The setup procedure installs the following files.

- File: IECServerUI.exe
- ProgID: Endress.iecserver.3
- Name: Field Control IEC OPC Server

The IEC server is started automatically from an OPC client program by a double-click on the Endress.iecserver.3 leaf of the navigation tree:



5.2.1 User Interface

The IEC OPC server is configured by means of the context menu, which is called by a right-click on the icon in the Windows System Tray



The menu options are summarized in Table 5-3.

Menu	Description
About	Calls a standard about box with details of product, version etc.
Configure	Calls the setup procedure for setting up a device connection, see Chapter 5.2.1
Set Trace Level	Sets up the various server logs, see Chapter 5.2.2
Offline Configuration	Enable: Enables offline browsing of the tags, see Chapter 5.2.5 Disable: Disables offline browsing of the tags
Unpack Configuration	Opens the Unpack Project dialog, allowing a packed project to be located and unpacked.
Shutdown	Sends the IEC Server a request to close. Since the IEC Server is a COM/DCOM server, the following situations can occur: <ul style="list-style-type: none"> ■ The server is running but there are no COM clients connected. <ul style="list-style-type: none"> – In this case the server closes. ■ The server is running but there is some COM client connected. <ul style="list-style-type: none"> – In this case the server ignores this request. This because at the moment there is no shutdown mechanism between the OPC part of the server and the Application Designer. Note that the first case can actually occur in only 2 situations: <ul style="list-style-type: none"> ■ The server is installed as Windows Application and the user launched it by "hand", for example by double-clicking on the exe file. ■ The server is installed as Windows Service and the user started the Service.

Tab. 5-3: Options for configuring the Field Control IEC OPC Server

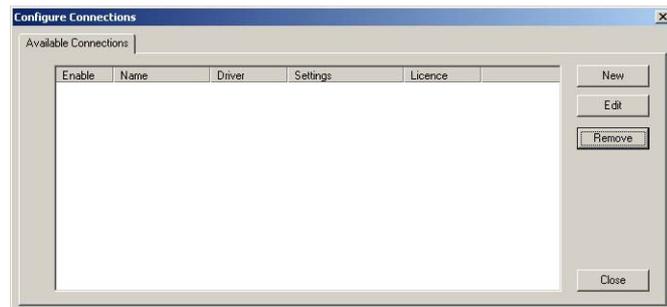
5.2.2 Setting up the IEC server connections

Note!

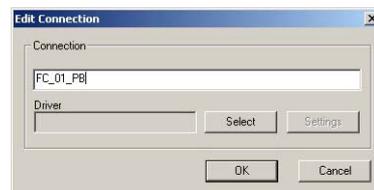


- From ControlCare Version 2.04.xx upwards, the IEC server connections are set up automatically during the programming of the hybrid block. The procedure described below applies to Versions 2.03.xx and 12.02.xx only.

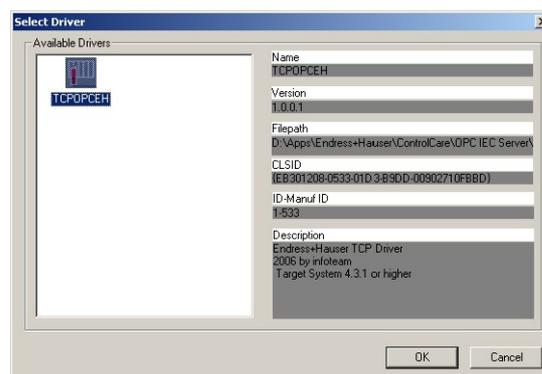
- Right-click on the IEC Server icon in the Windows System Tray and select **Configure**
 - The **Configure Connections** dialog appears



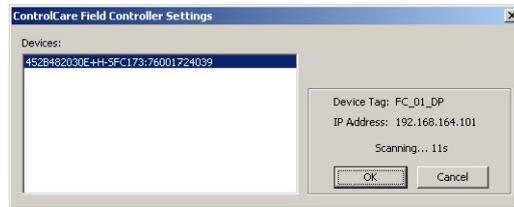
- Press the **New** button, the **Edit Connection** dialog appears
 - Enter the **Tag** of the controller you wish to connect to (this is a symbolic name)
 - Press the **Select** button to select the driver



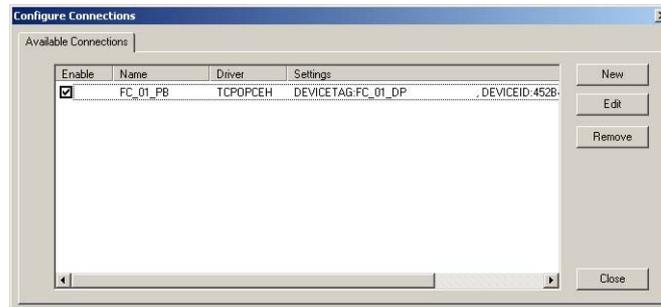
- Select the driver **TCPOPCEH** (Endress+Hauser TCP driver) from the left hand pane
 - Press **OK** to continue configuration



- The **ControlCare Field Controller Settings** dialog appears
 - The network is scanned and all Ethernet devices found are displayed
 - Select the device(s) to which a connection is to be made
 - Press **OK** to quit the dialog and make the connection.



- 5 The **Configure Connections** dialog appears once more
 - Check that the correct connections have been made
 - Press **Close** to close the dialog

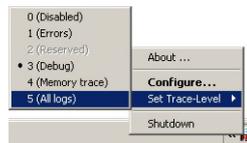


- 6 Exit then restart the server: the configuration changes are now effective.

5.2.3 Server logs

Field Control IEC OPC server logs errors or debug-messages in two text-files, OPC1.log and OPC2.log located in the folder **Endress+Hauser/ControlCare/ OPC IEC Server**. If one of the two files reaches the maximum size (5 MB), the logging switches to the second file. The type of events that are logged can be set in the context menu

- 1 Right-click on the IEC Server icon in the Windows System Tray and select **Select Trace Level**
 - Select the appropriate level from the additional context menu that appears



- The levels are indicated in Table 5-4 below

Level	Type	Function
1	Disabled	Switches off all logging
2	Errors	Only server errors are logged
3	Reserved	Not used
4	Debug	Only debugging information is logged
5	Memory Trace	Only memory trace information is logged
6	All Logs	All logs activated

Tab. 5-4: Trace levels of IEC OPC Server

5.2.4 Server qualities

The server provides quality messages which indicate the quality of the connection and value. They are displayed in the "Quality" column of the OPC client. The menu options are summarized in Table 5-5, specific errors can be checked in the log files.

Quality	Issue	Remedy
Good	The values are valid	–
Bad – Not Connected	The connection to the Field Controller is interrupted.	<ul style="list-style-type: none"> ■ Check your cables and/or the connection with a ping-command. ■ Check that your Field Controller is switched on and working
Bad – Out Of Service	PLC delivers no valid values. (i.e. you are using interrupt tasks in the PLC and the tasks are not triggered)	<ul style="list-style-type: none"> ■ Check, that the Field Controller is working properly and i.e. the interrupt tasks are triggered.
Bad – Not specified	Invalid values due to a unspecified cause.	<ul style="list-style-type: none"> ■ E.g. communication error due to timeouts. <ul style="list-style-type: none"> – Check if you are running in demo mode – Check the performance of your controller – Change the configured timeout values
Bad - Configuration error	OPC configuration does not match the IEC program	<ul style="list-style-type: none"> ■ Update the file AddressSpace.xml

Tab. 5-5: IEC OPC Server qualities

5.2.5 Offline tag browsing

The IEC OPC server (3.0.0) that is included in the ControlCare release 2.04 supports the so-called offline tag browse mechanism. Previous versions of the server and controllers only supported so-called online browsing.

CC release	Field controller	IEC OPC server
2.00	No IEC61131 programming supported	No IEC61131 programming supported
2.01	No IEC OPC server supported	No IEC OPC server supported
2.02	Online browsing	Online browsing
2.03	Online browsing	Online browsing
2.04	Offline browsing/ Online browsing	Offline browsing (default) / Online browsing

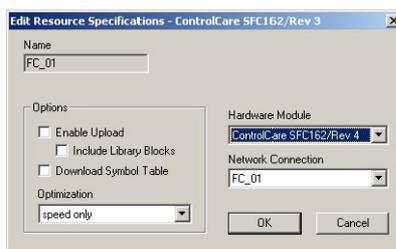
As old field controllers do not support offline browsing the IEC Server must be configured for online browsing by disabling this function.

- 1 Open the IEC OPC server menu by right clicking on the system tray icon menu
- 2 Select **OfflineConfiguration** and "Disable"
- 3 Shut down the server and restart in order to make the changes effective.

5.2.6 Disabling of symbol table download

The symbol table is required for the online browsing and is downloaded to the controller by default. This table can consume a lot of IEC 61131 memory. If memory is at a premium, it may make sense to switch off the download. On the other hand, the new fully variable retain feature is in use, the table will be required in Version 2.04.

- 1 Start OpenPCs e.g. from the ControlCare folder
 - e.g. **D:** => **Endress+Hauser** => **ControlCare** => **Open PCS** => **openpcs.exe**
- 2 Select **PLC** => **Resource Specifications** to open the **Edit Resource Specifications** dialog

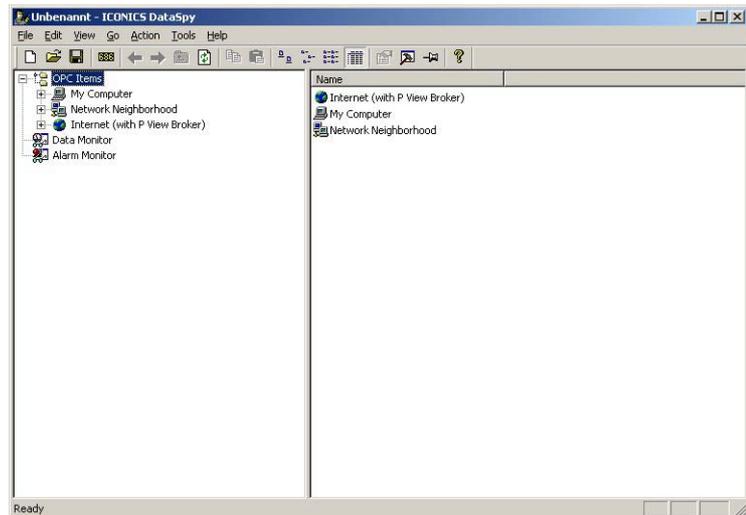


- Deselect the option "**Download Symbol Table**"
- Press **OK** to confirm the changes

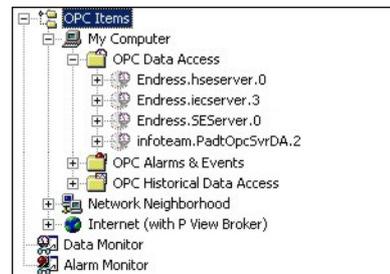
5.3 OPC Client (OPC Data Spy)

ICONICS OPC Data Spy is supplied with the ControlCare Application Designer Suite. It can also be installed together with the Field Control (OPC) Servers as a stand-alone application. The following example illustrates how the connection is made to the Field Control (OPC) Servers, and how tags can be monitored by OPC Data Spy. A full explanation of OPC Data Spy functions is to be found in its online help.

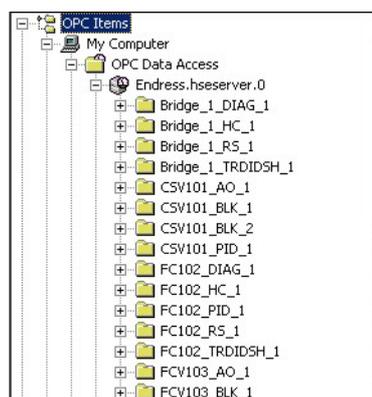
- 1 Open OPC Data Spy:
 - **Start=>Programs=>Endress+Hauser=>ControlCare=>Tools=>OPC Data Spy**



- 2 Expand the **OPC Items**, the **My Computer** and the **OPC Data Access** leaves
 - All OPC Servers on your computer are revealed



- 3 Expand the **Endress.hseserver.0** leaf to reveal all function blocks in the current ControlCare Field Controller projects.

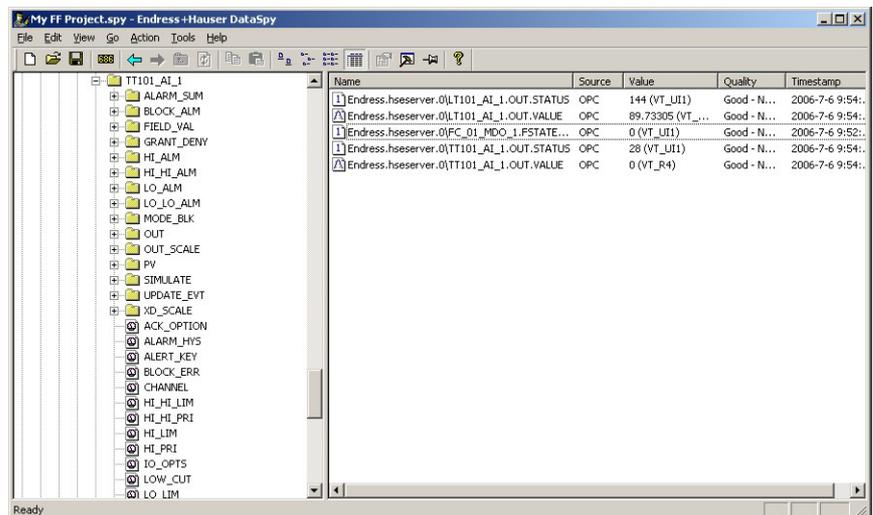


- 4 Expand the leaves further until the parameter group or individual parameter you which to monitor is revealed



Right click on the leaf and select **Monitor**

- All parameters associated with the leaf are selected for monitoring
 - If the root leaf is selected, the entire project is selected for monitoring
 - The **Monitor** function works right down to individual parameter elements
- 5 When all parameters have been selected, scroll to the bottom of the tree and click on the **Data Monitor** leaf
 - All the selected parameters now appear in the right-hand pane with their current values
 - If the parameter is Read/Write, it is possible to write values into an OPC tag by right-clicking on an item



- 6 The same principle applies to the Endress.iecserver.3 server, with the exception that there is no tree structure, just a list of parameters.

5.4 Setup OPC servers as a Windows service

Both HSE OPC and IEC OPC Servers can be set up to run as Windows services. This means that when the host computer is started and the user logs in, the servers start automatically.

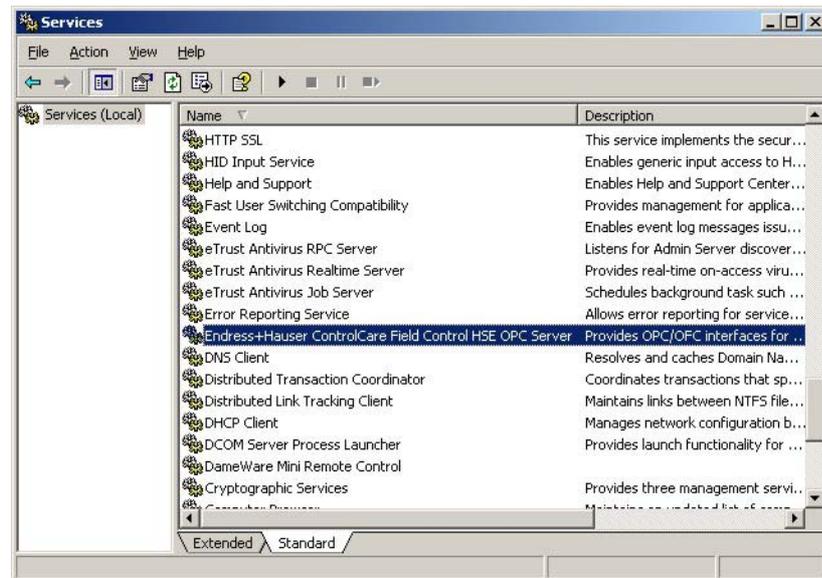
Note!



- It is possible that the OPC servers cannot be started as a service when Windows Vista is in use. This may depend on one of several factors. If this occurs, get in touch with your system administrator.

5.4.1 Registering the Field Control HSE OPC Server

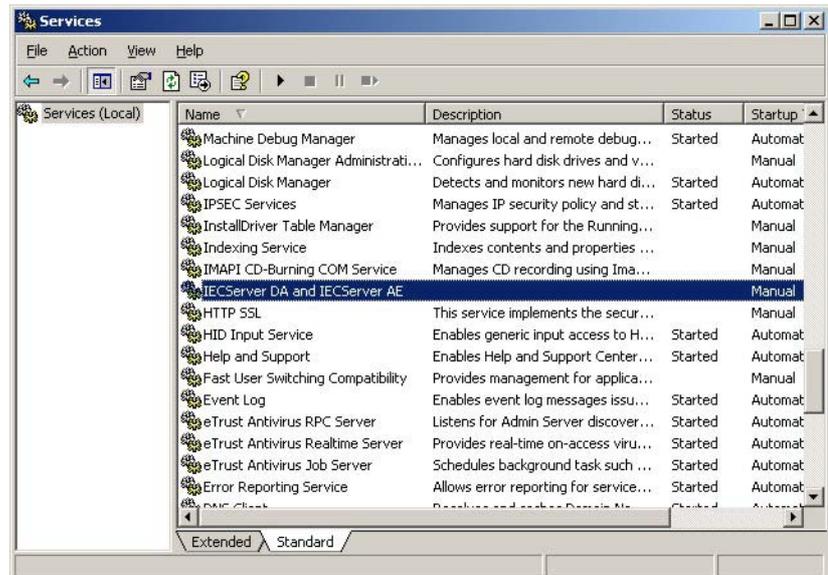
- 1 Using Windows Explorer navigate to the Controlcare Folder "Server"
e.g. D:\apps\Endress+Hauser\ControlCare\Server
- 2 Double-click on the batch file **registerHseSvr_Service.bat** located there
 - A DOS window opens briefly and the server is automatically registered as a service
- 3 Open the **Services** dialog
Start => Settings => Control Panel => Administrative Tools => Services



- The Server is registered as Endress+Hauser ControlCare Field Control HSE OPC Server
- 4 The Server can be removed from the service list and re-registered as an application by double clicking on the **registerHseSvr.bat** file.

5.4.2 Field Control IEC OPC Server

- 1 Using Windows Explorer navigate to the Controlcare Folder "OPC IEC Server"
e.g. D:\apps\Endress+Hauser\ControlCare\OPC IEC Server
- 2 Double-click on the batch file **registerIECServer_Service.bat** located there
 - – A DOS window opens briefly and the server is automatically registered as a service
- 3 Open the **Services** dialog
Start => Settings => Control Panel => Administrative Tools => Services

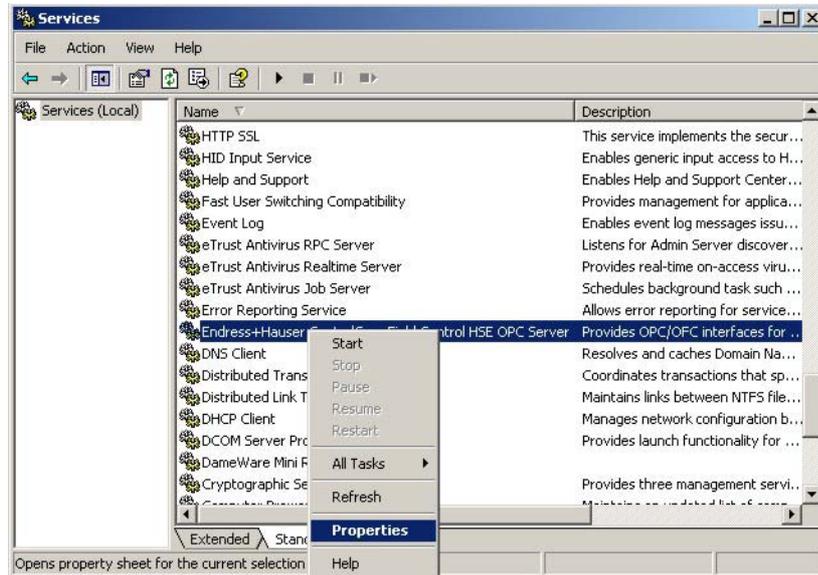


- The Server is registered as IECServer DA and IECServer AE
- 4 The Server can be removed from the service list and re-registered as an application by double clicking on the **registerIECSvr.bat** file.

5.4.3 Automatic startup

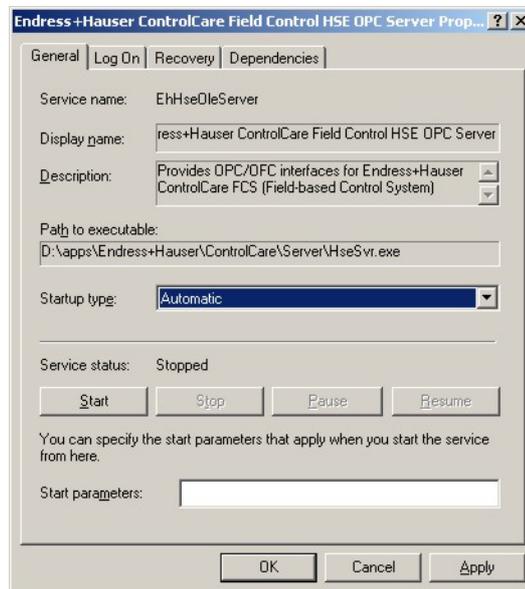
Both OPC Server services are configured in the same way.

- 1 Select the OPC Server line and right-click to open the context menu



- Select the **Properties** menu, the Properties dialog opens

- 2 Set **Startup type** to "Automatic"

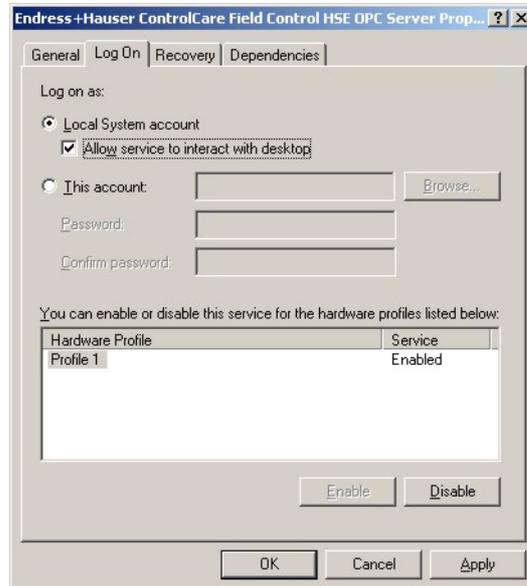


- Press **Apply** to register the change (without closing the dialog)
- Press **OK** to close the dialog, if you do not want make further configurations

5.4.4 Log On rights

You can also configure log on rights for the server.

- 1 In the Properties dialog select the **Log On** tab



- By default, the rights entered at Step 2 of the registration will be shown

- 2 To add other accounts
 - Activate This Account
 - Enter a user name or **Browse...** for one
 - Enter a password for the account
 - Confirm the password



- Press **Apply** to register the change (without closing the dialog)
- Press **OK** to close the dialog, if you do not want make further configurations

- 3 The successful configuration is acknowledge with the appropriate message.

6 Using the TCP52 Driver in OpenPCS

By default OpenPCS and the IEC OPC server use the TCP E+H communication driver which is installed by the ControlCare Setup program. This driver extracts the IP address from the device tag and connects to the field controller. In a second step, it scans the available TCP/IP ports. The driver first tries to connect to the dedicated OPC server port and if this fails it connects to the OpenPCS port. Once a connection has been made to the OpenPCS port, it is impossible to connect with the OpenPCS programming system unless the IEC OPC server is disconnected first.

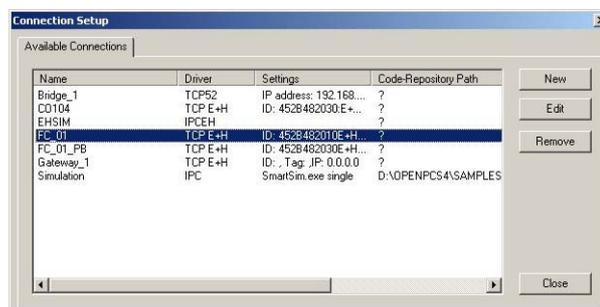
As an alternative the TCP 52 driver can be used, allowing the IP address and the TCP/IP port manually to be set manually.

The ports available on the SFC1XX field controllers are listed in Table as follows

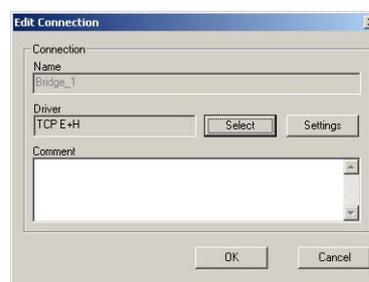
Port number	Meaning	Available since firmware version
23042	Port for OpenPCS or OPC server	1.01.00
23041	Port for OPC server only	1.02.00
23040	Second port for OPC server only	1.04.00

6.1 Connecting to OpenPCS

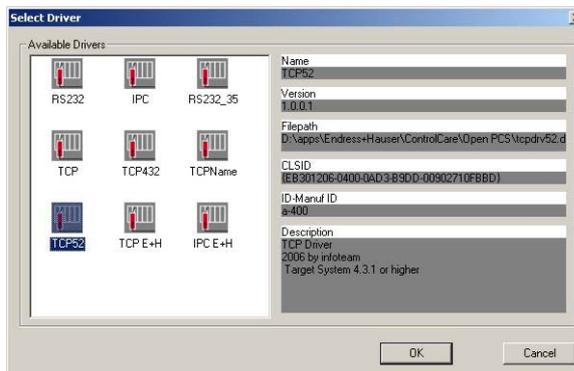
- 1 Start OpenPCs from the ControlCare folder
– e.g. **D:** => **Endress+Hauser** => **ControlCare** => **Open PCS** => **openpcs.exe**
- 2 Select **PLC->Connections** and select the desired TCP E+H connection from the **Connection Setup** dialog



- 3 Click on **Edit**, the **Edit Connection** dialog opens

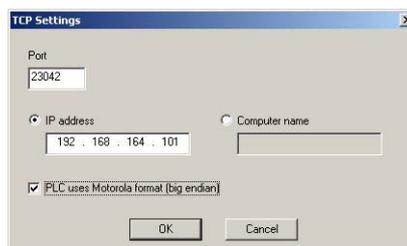


- Click on **Select** and select the TCP52 driver



- Press **OK** to confirm the selection and return to the **Edit Connection** dialog
- The **Driver** field now shows TCP52

- Click on **Settings** to edit the settings:

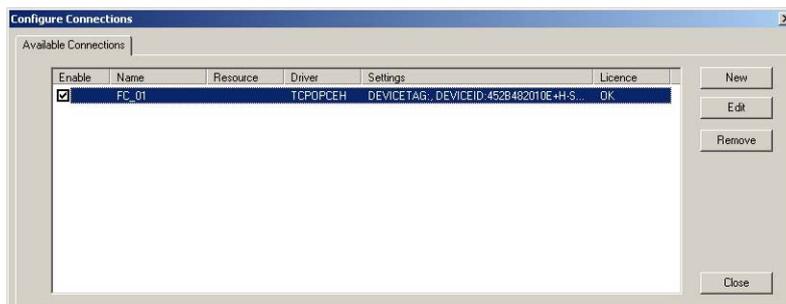


- Enter the port number 23042
- Enter the IP address of the controller
- Select the option "PLC uses Motorola form (big endian)"
- Press **OK** to confirm the settings

- Repeat Steps 4 and 5 for any other controllers
 - When all connections are configured, press **Close** to close the **Connection Setup** dialog

6.2 Connecting to the IEC OPC server

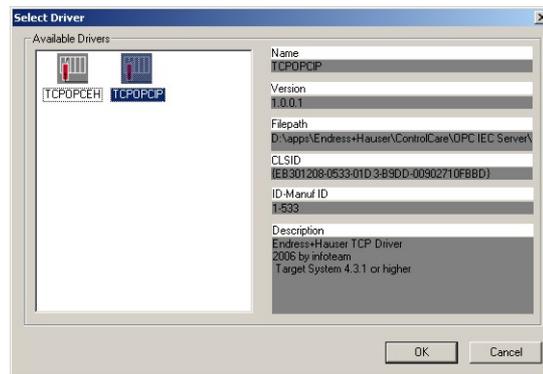
- Start the IEC OPC Server user Interface
Start => Programs => Endress+Hauser => Tools => IEC OPC Server UI
- Right click on the IEC OPC server icon in the system tray and select **Configure...**
- The **Connection Setup** dialog appears



- 4 Select the desired connection and press **Edit**, the **Edit Connection** dialog appears



- 5 The **Select Driver** dialog appears
– Select the TCPOPIP Driver and press **OK** to confirm the selection



- 6 Now press the **Settings** button, the **ControlCare Field Controller Settings** dialog appears
– If required, the Default Port 23041 can be changed to "Alternative Port 23040"



- Press OK to confirm the settings and close the dialog

- 7 Close the remaining dialogs by pressing **OK** and **Close**

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