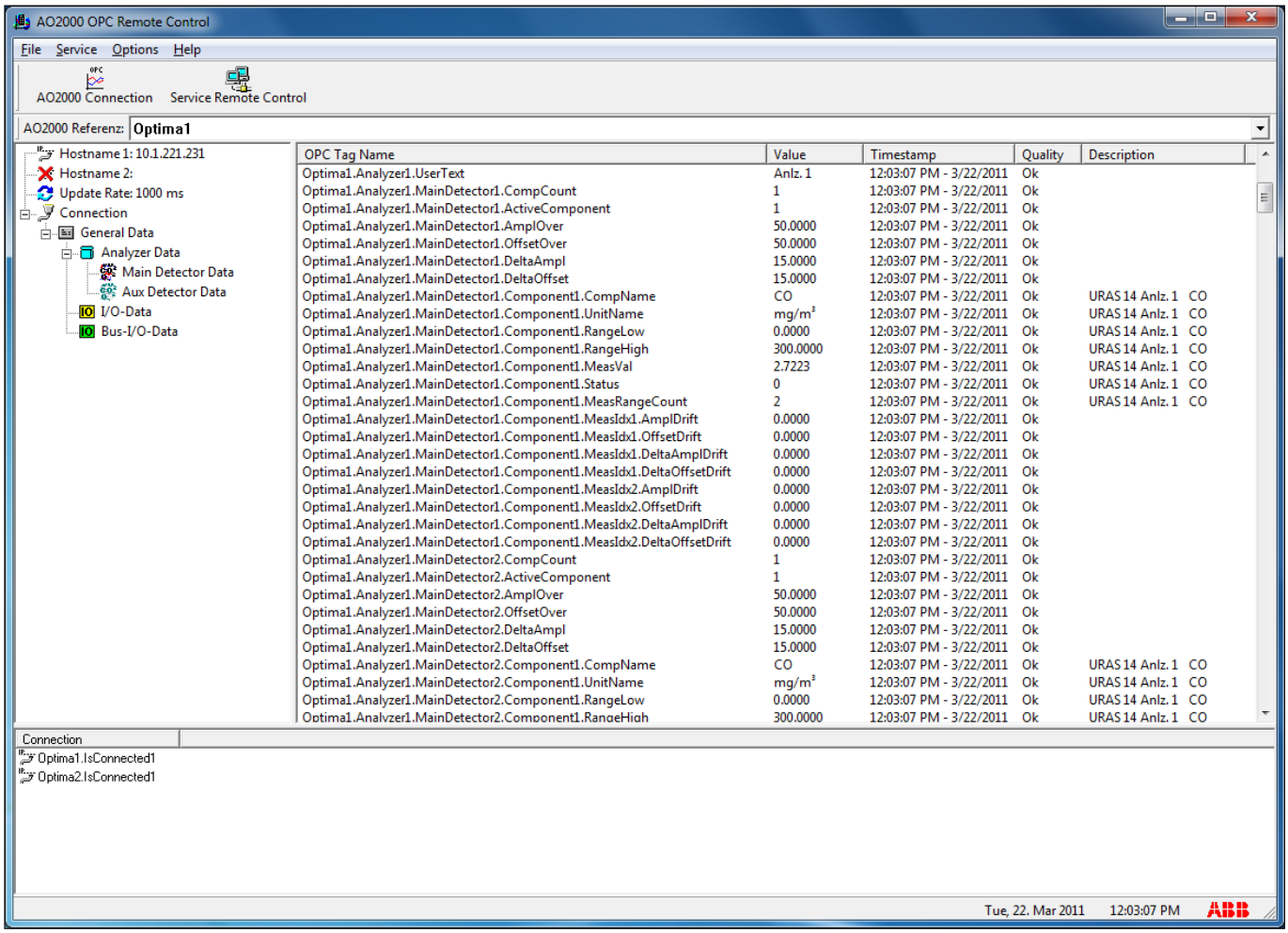
AO-OPC

OPC Server

Software version 2.1

User's manual

42/24-23 EN Rev. 4



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Description

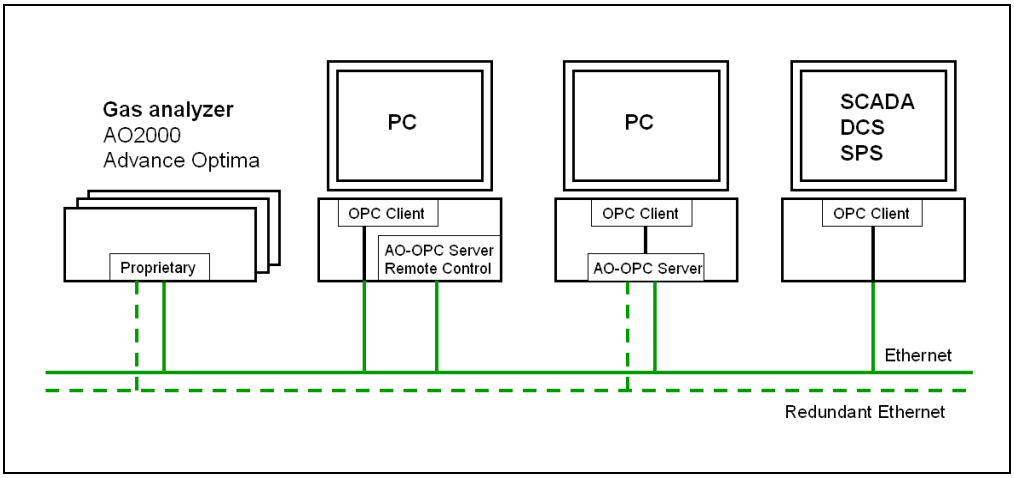
Explanation of terms

OPC stands for “OLE for Process Control”. It is a standardized data communication interface based on the Microsoft Windows OLE/DCOM technology.

The AO-OPC OPC server operates with all OPC clients (data access).

Further information about OPC is available on the Internet at http://www.opcfoundation.org.

Network structure



AO-OPC OPC Server

The AO-OPC OPC server is a standard software interface to the Advance Optima AO2000 Series gas analyzers (all software versions).

The OPC server can also communicate with any SCADA, DCS or PLC system which has an OPC client (data access).

The AO-OPC OPC server runs on the computer as a service, i.e. invisible in the background.

Connection with several gas analyzers

It is possible to establish connections to several gas analyzers with different software versions from one OPC application at the same time.

Data of the individual gas analyzers can be displayed in the diagnostics window of the AO-OPC remote control.

AO-OPC remote control

AO-OPC remote control is used to configure a local OPC server (running on the same computer) as well as to configure an OPC server running on another computer connected to the local network.

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Read access

The OPC server makes the most important data from the gas analyzer available for further processing. Details can be found under data tag descriptions (see page 29). The data that can be read from the gas analyzers include the following:

- Analyzer data, connection status and general data,
- Diagnostic/status information such as failure, maintenance request, maintenance mode,
- Measured values,
- Values of the analog inputs and outputs,
- Status of the digital inputs and outputs,
- Auxiliary variables such as detector temperature or flow rate,
- Values for zero drift and span drift.

Write access

In addition to read-only access via the OPC server, write access to the gas analyzer's control inputs is also possible. In conjunction with a function block configuration many different functions can thus be executed using the Ethernet interface, e.g.:

- Starting automatic calibration
- Switching measuring ranges.

Redundant Ethernet lines

A redundant link between the gas analyzer and the AO-OPC OPC server can be created by configuring a second Ethernet line (see figure "Network Structure" on page 4). Both Ethernet lines are monitored continuously. If one line fails, the system switches over to the redundant line.

Note: In this case, a second network card must be built-in in the gas analyzer as well as in the computer on which the OPC server is installed.

Recommendation for the installation

The OPC server and OPC client(s) may in principle be installed on separate computers. However, the DCOM method used is more difficult to configure and more sensitive to faults on the connection than is the COM method which is used when the OPC server and OPC client(s) are installed on the same computer. We recommend in general that you install the OPC server and OPC client(s) on the same computer.

Chapter 2 Installation

Installing and uninstalling AO-OPC

System requirements

- Operating system:
  Windows 7 (32-bit), Windows 7 (64-bit)
  Windows 8.1 (32-bit), Windows 8.1 (64-bit)
  Windows 10 (32-bit), Windows 10 (64-bit)
  Windows Server 2008 R2
  Windows Server 2012 R2
  Windows Server 2016
- Network card (and 2nd network card for redundancy operation) configured under Windows with TCP/IP
- Administrator rights on the computer are required for installation.

Before installing AO-OPC you must uninstall an already existing older version of AO-OPC.

Installing AO-OPC

Step	Action
1	Insert CD-ROM containing the AO-OPC program in the drive.
2	Run “ao_opc_x_y_z.exe”. “x_y_z” corresponds to the current program version.
3	Follow the instructions in the installation program. The installation program will propose installing AO-OPC in the “Analyze IT” folder; this can simply be accepted. All the Analyze IT software tools are installed in this folder by default.

Uninstalling AO-OPC

Step	Action
1	Shut down service (see page 9).
2	Deregister by AO-OPC remote control (see page 8). If not, several entries will remain in the Windows Registry.
3	Uninstall the AO-OPC software. To do this, use the icon “Software” in the control panel.

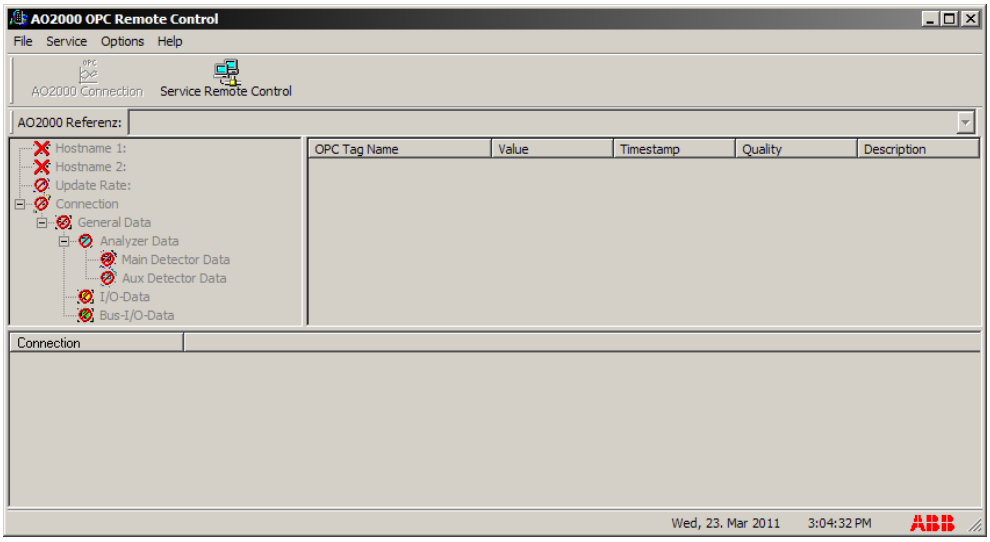
First steps

Remote control

All steps required for configuration can be made by "AO-OPC Remote Control". The remote control is used to configure a local OPC server (running on the same computer) as well as to configure an OPC server running on another computer in the local network.

Starting remote control

To run the remote control call "AO-OPC Remote Control" from "Start → Programs → Analyze IT → AO-OPC".



Password

In order to change the settings, you have to log in with the appropriate password. The corresponding dialog is opened via the menu "Options → Access password".

Password levels

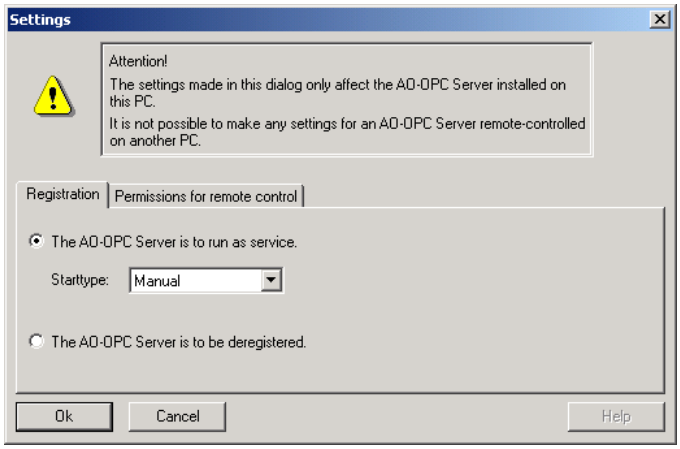
Password	Access Rights
325465	User has all rights.
081500	User can configure connections.
No or faulty entry	User has the right to connect to one gas analyzer and view the values

Settings

The settings can only be made locally on the computer on which the program "AO-OPC Remote Control" is called. Clicking on the menu "Options → Settings" opens the corresponding dialog.

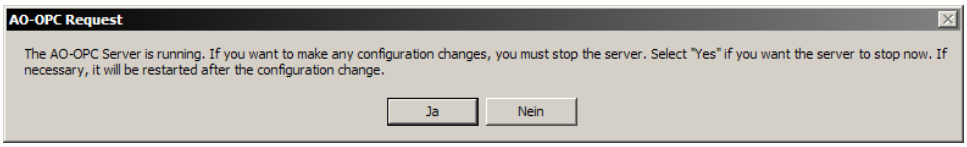
Only users with administrator rights can access the menu.

Registration



Setting the registration

- "The AO-OPC server is to run as service."
  If the server is running, it is shut down on request. The registration of the server will be done as "Service". If necessary, the server is restarted on request.
  - Start type "Manual": The service is not automatically started upon starting the computer, but has to be started via "Settings → Control Panel → Administrative Tools → Services → OptimaOPCService". An OPC client connecting with the OPC server can also start the server, if the DCOM-settings permit this.
  - Start type "Automatic": When the computer is started, the service is automatically started. In this case, there is no need for a user to be logged in.
- "The AO-OPC server is to be deregistered."
  If the server is running, it is shut down on request.



The server is deregistered. A deregistered OPC server can no longer be started by an OPC client.

- While you are setting the registration, no Services Control Panel should be opened, because otherwise the values shown in this Control Panel and in the AO-OPC dialog Registration might be faulty.
- Any change in the registration of the OPC server will cause a reset of the DCOM settings for the application Optima OPC Service. As a result, you possibly need a new permission for an access by a remote OPC client.

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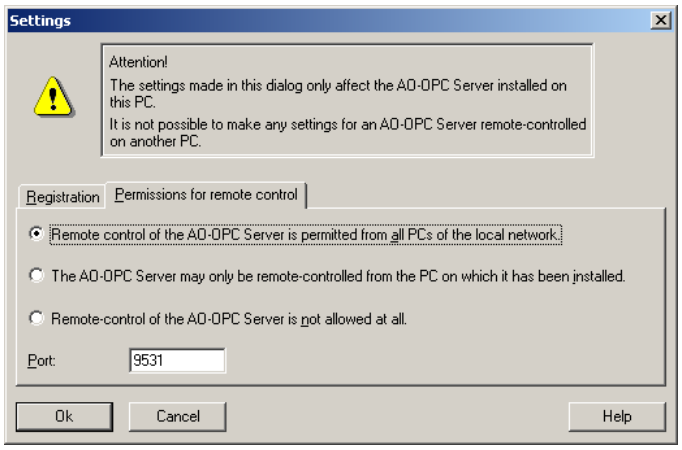
Permissions for remote control

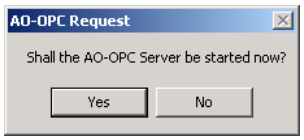


Setting the permissions for remote control

- Remote control of the OPC server is permitted from all PCs of the local network.
- The OPC server may only be remote-controlled from the PC on which it has been installed.
- Remote control of the AO-OPC server is not allowed at all.
- Port: Indicates the port number used for remote control by the OPC server.

Starting the OPC Server

Having confirmed the settings with "Ok", you will see the following request:



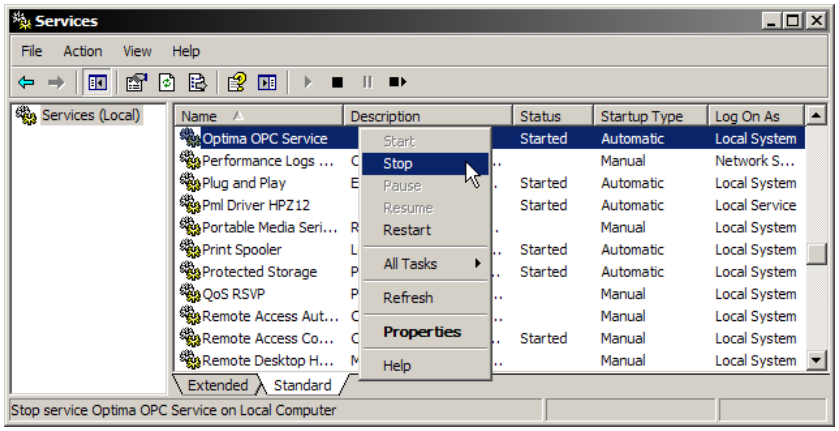
"Yes" The OPC server is started at once.

"No" The OPC server can be started later.

Stopping the OPC Server

Proceed as follows to stop the OPC server:

Open "Settings → Control Panel → Administrative Tools → Services", select "Optima OPC Service" and click on the "Stop" command in the popup menu.



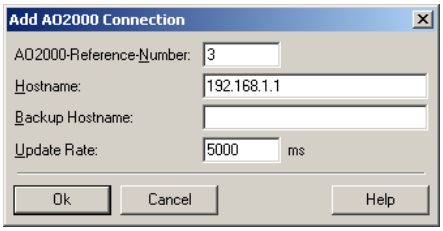
Configuring connections

Configuring connections

Connections can be configured in online or offline mode. If the connection to a server is made via "Service Remote Control", you are in online mode. In this case the connection configurations affect the server to which you are connected. In offline mode, the configurations are made for the computer on which the remote control is running.

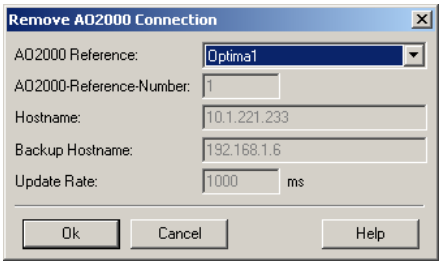
The menu options "File → Connect…" and "File → Remove Connection…" are only available in online mode.

Add AO2000 connection



The dialog can be opened via the menu "File → Connect…" (only in online mode). A unique AO2000-Reference-Number, a Hostname and an Update Rate must be entered. The Backup Hostname is optional.

Remove AO2000 connection



With "File → Remove Connection…" you can remove an existing connection (only in online mode). Choose the AO2000 Reference name of the connection which is to be removed. The other dialog fields show details of the currently selected reference name. The connection is deleted by closing the window with "Ok".

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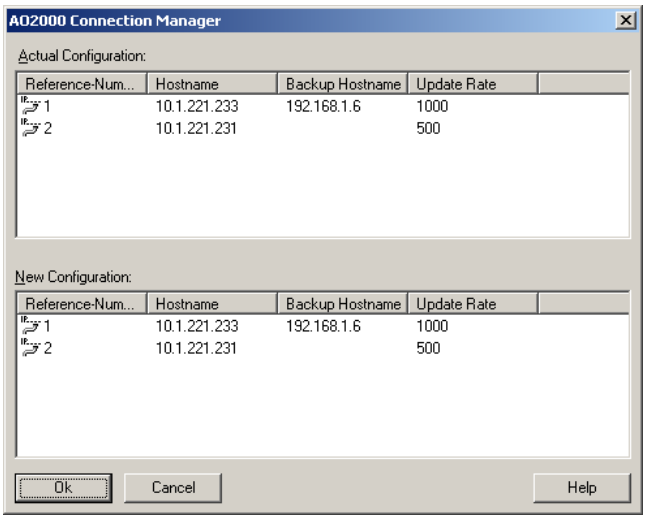
AO2000 connection manager



Click on "File → Connection Manager" to open the above window which makes it possible to manage all connections at a glance. Using the drag&drop function you can move connections from the "Actual Configuration" to the "New Configuration" to edit them comfortably there.

By clicking the right mouse key in the list "New Configuration" a pop-up menu with the following menu options will appear:

"Add" Adds a new entry to the configuration.

"Edit" Edits the configuration of the currently selected entry.

"Delete" Deletes the currently selected entry.

Closing the window with "Ok" saves the new configuration. In offline mode this is done by overwriting the INI file of the OPC server, in online mode by remote control of the corresponding OPC server.

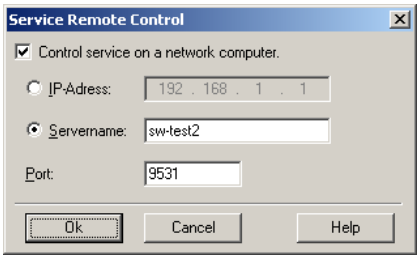
Configuring remote control

Remote control

Using the remote control you can connect to any OPC server in the network that has been enabled for remote control.

Remote control makes it possible to view the tags of the server and – with the appropriate password – to configure the connections.

Service remote control



Click the menu option "Service → Remote control…" to open the dialog.

- Control service on a network computer
  If this option is enabled and the dialog is exited with "Ok", the remote control tries to connect to the OPC server running on the computer of which the IP address or server name has been entered.
  If this option is disabled and the dialog is exited by pressing "Ok", the remote control tries to connect to a locally installed OPC server.
- IP address
  IP address of the computer on which the OPC server to be connected to is running.
- Server name
  Server name of the computer on which the OPC server to be connected to is running.
- Port
  Port number of the port to which the socket is connected. Needs to be the same as selected on the computer running the OPC-Server at "Options → Settings… → Permissions for remote control".

End remote control

Select the menu option "Service → End Remote Control". The remote control is stopped and the contents removed from the window.

Modifying the DCOM settings of Windows

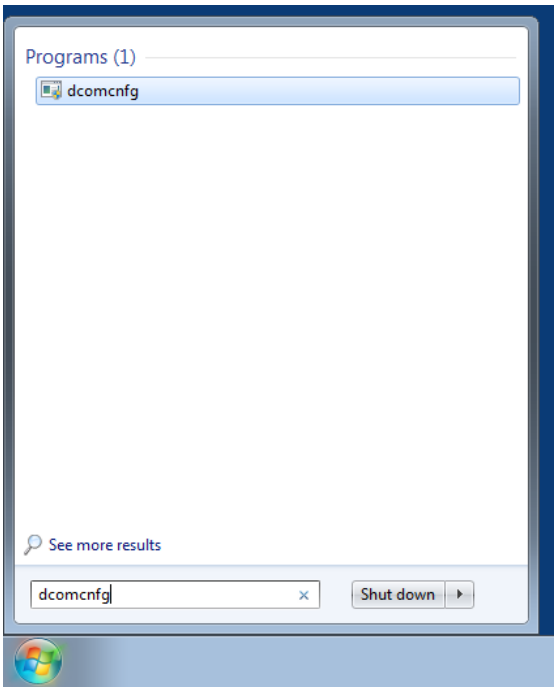
The DCOM settings of Windows must be customized, so that an OPC client can connect to the AO-OPC server.

The following description is based on the Windows 7 default configuration with Service Pack 1 installed.

You require administrator rights to execute the following actions.

1 Click the Windows Start button and type “dcomcnfg” in the Search line. “dcomcnfg” should appear in the top part of the box as a search result.

Click “dcomcnfg.exe” to start the program.



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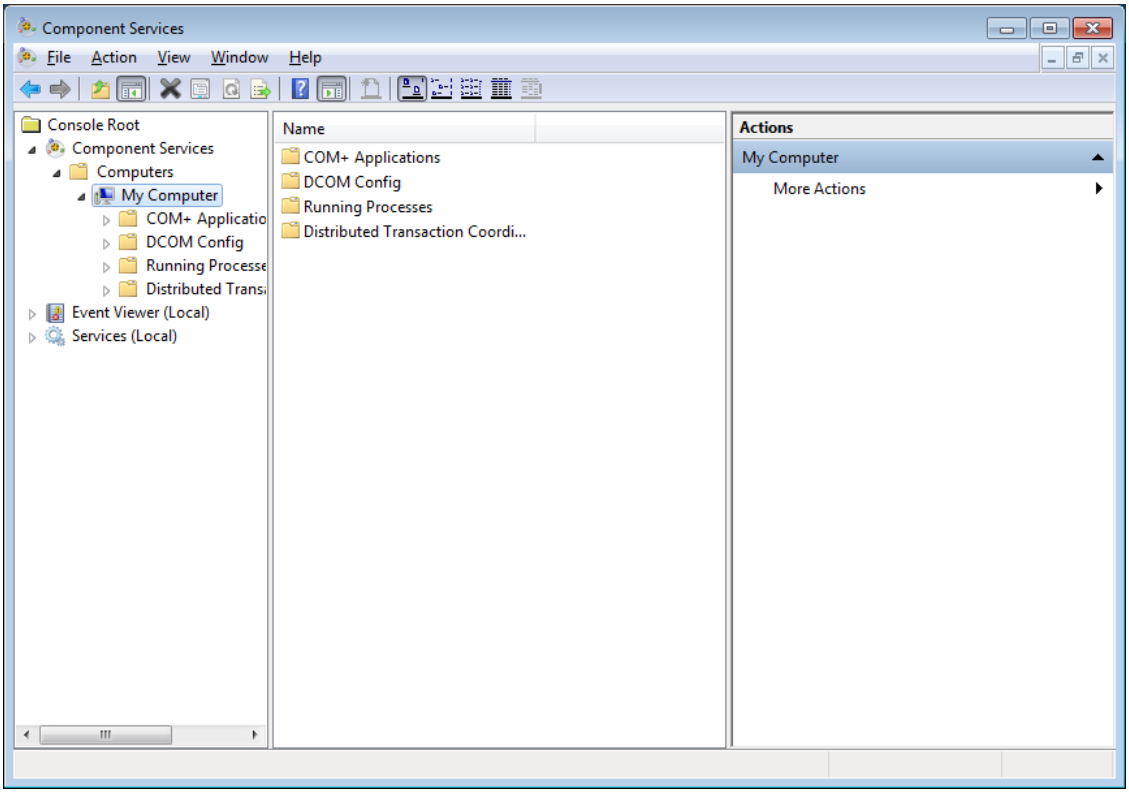
If you have sufficient rights, the following box will open.



2 Double-click to expand the “Component Services” and the “Computers” folders. (Already expanded in the above figure) Right-click “My Computer” and then click “Properties”.

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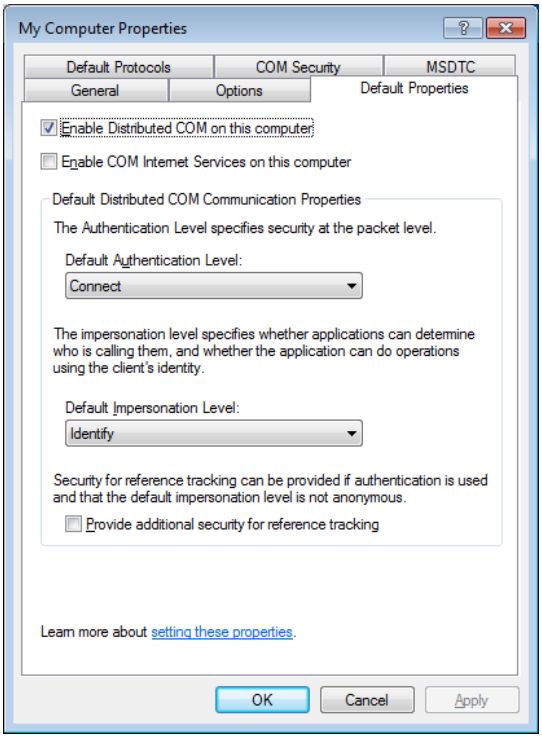
3 Click to select the “Default Properties” tab.



4 Check your display against the settings and make changes to your settings if required.

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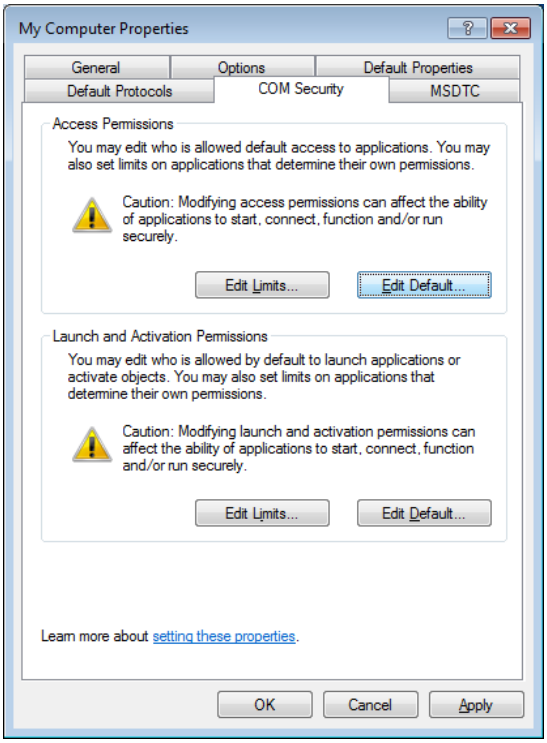
5 Click to select the “COM Security” tab.



6 Add the two system objects “SYSTEM” and “INTERACTIVE” (unless already added) in “Access Permissions → Edit Default…” and in “Launch and Activation Permissions → Edit Default…”.

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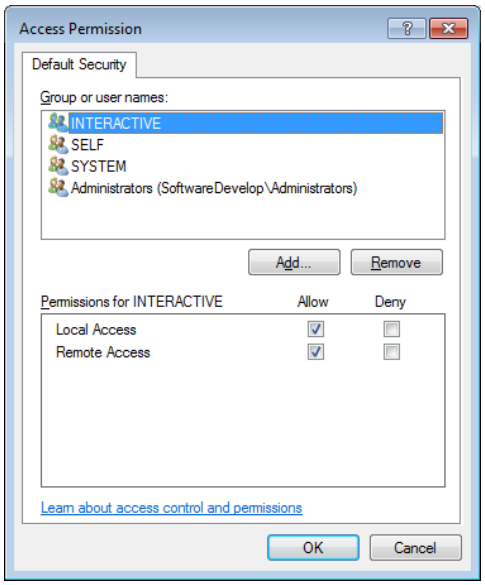
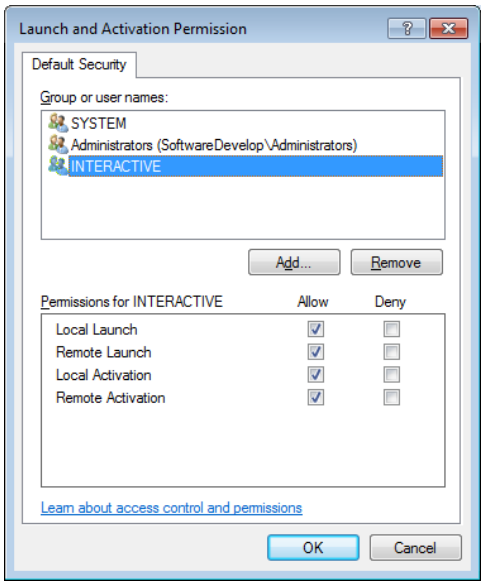
7 Add the objects “SYSTEM” and “INTERACTIVE” with local Launch, Access and Activation Permissions set. If you plan to launch or poll the AO OPC server from a remote OPC client, also enable the remote permissions (Remote Launch, Remote Activation and Remote Access) for the above objects.





8 To add an object, click “Add…” and enter the respective object name in the following box.

9 Exit the selection dialogs with “OK”. If a warning box appears, confirm it with “OK”.

10 If you plan to run the AO-OPC server, an OPC client and the AO2000 OPC remote control on the same computer, you do not need to make any further settings. However, please read the section “Completing the Configuration and Important Information” on page 28.

If you only wish to use the AO2000 OPC Remote Control from a remote computer, then you also have to enable the port for remote control (normally 9531) in the Windows Firewall. This is carried out in the same way as in the subsequent description for the DCOM port with a remote OPC client. Name: OPC Remote Control / port number: 9531 / TCP.

If you plan to launch or poll the AO OPC server from a remote OPC client, you do not need to enable the port, since the complete AO-OPC server application then has to be enabled in the Windows Firewall. (see below)

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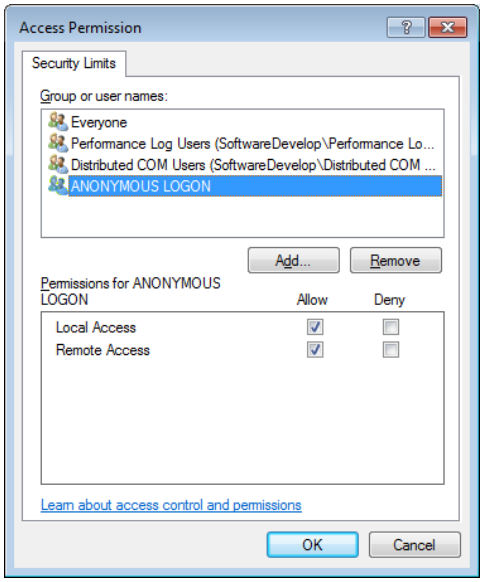
11 If you plan to launch or poll the AO OPC server from a remote OPC client, you have to make some further settings in the Component Services and possibly in the Windows Firewall. Furthermore, all the settings have to be implemented on the AO-OPC server computer and the OPC client computer. (Also the previous settings for “COM Security / Edit Default…”)

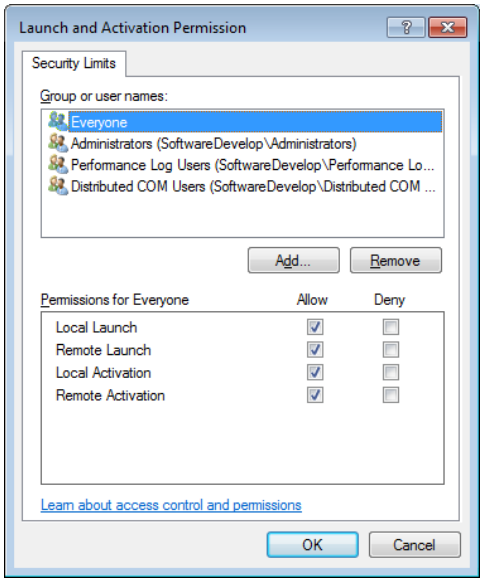
The “Edit Limits…” buttons can be found under the “COM Security” tab (“dcomcnfg → Component Services → Computers → My Computer → Properties”, see above) under “Access Permissions” and “Launch and Activation Permissions”. The subsequent remote permissions are added there:

On the OPC server and the OPC client computer:
ANONYMOUS LOGON:
Allow Remote Access.

Only on the OPC server computer:

Everyone: Allow Remote Launch and Allow Remote Activation





12 The other permissions do not have to be set under “Default Security” of “My Computer”, but can be specifically set for the “Optima OPC Service” under “DCOM Config”.

Settings for the “OPCEnum” service also have to be made.

13 All users who wish to access the AO-OPC server from a remote OPC client should be known to the Windows user management on the OPC server computer. As an alternative, you can also use the object “Everyone” for the permissions; this gives access permissions to all known users. “Known users” means having a user with the same user name and matching passwords on the OPC server computer and on the OPC client computer. Empty passwords are not allowed for users that should get access to the OPC server. The use of “Everyone” is generally advised against for security reasons. Define users and groups of the users who should have access to the OPC server in the Windows user management.

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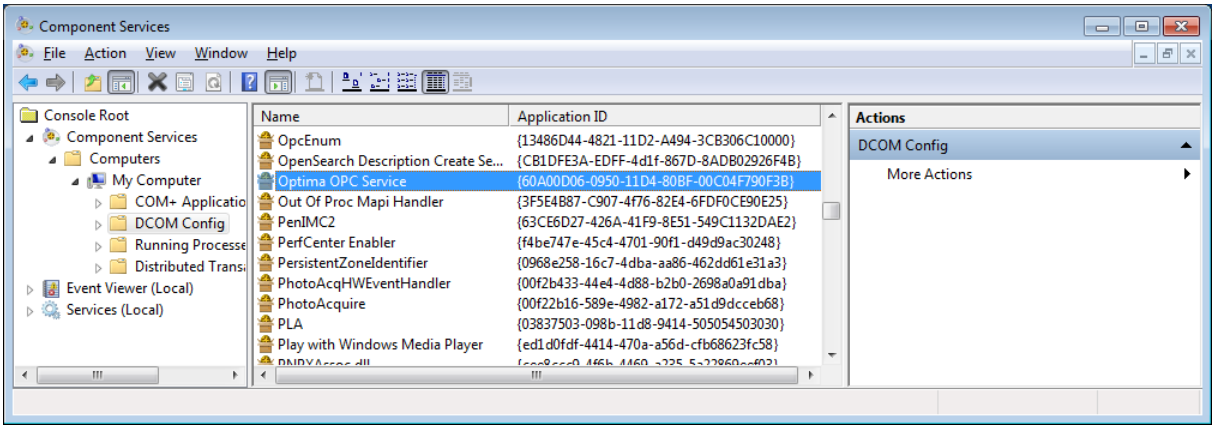
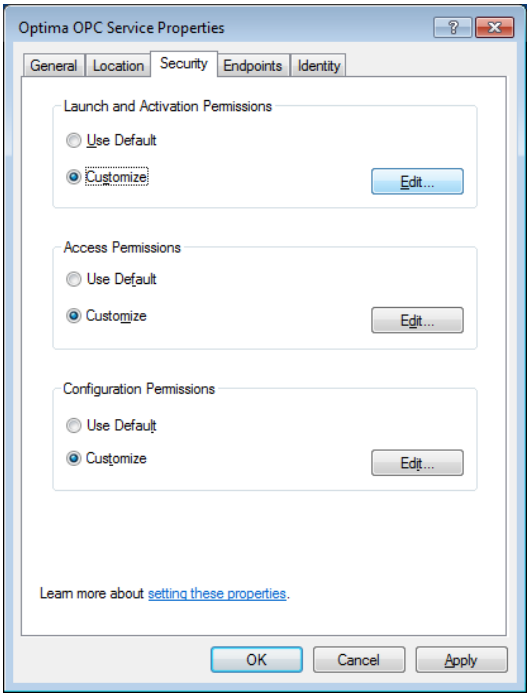
14 Choose the item “Optima OPC Service” from the “Component Services” window under “Computers → My Computer → DCOM Config”.



15 Right-click to open the “Properties” dialog.



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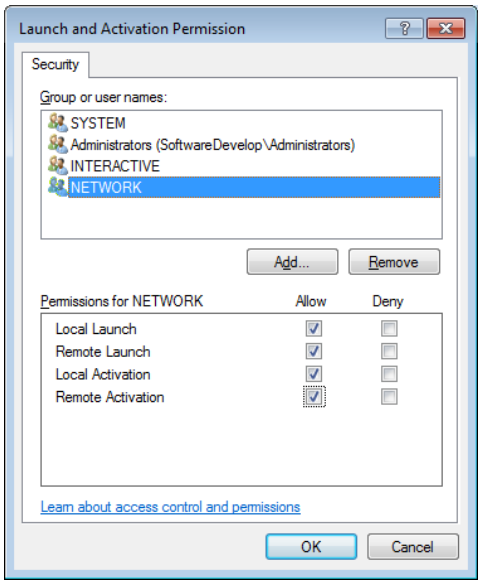
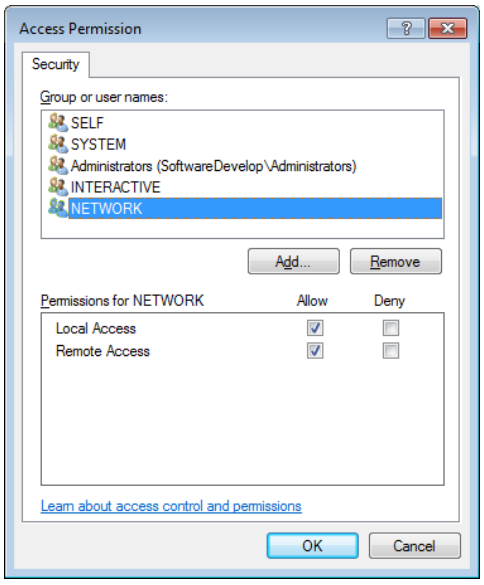
16 Set “Customize” in “Launch and Activation Permissions” and “Access Permissions” and click “Edit”. You obtain the security dialogs in the same way as for the “Default Security” dialogs above.





17 Click “Add” and select the users and/or groups who should have access from a remote OPC client in the following dialog.

You can also select “Everyone” here (not recommended, see above) or the object “NETWORK”. The latter also gives all known users access permissions, but is restricted to users from remote computers.

Ensure that the remote permissions (Remote Launch, Remote Activation and Remote Access) are enabled for the selected objects.

18 You must also carry out the same actions for the “OPCEnum” service.

This action must also be carried out for the “OPCEnum” service on the computer, on which the OPC client is running. These settings are also to be made for the OPC client if the OPC client is also a service (i.e. not a normal application).

19 Exit the “Component Services” dialog.

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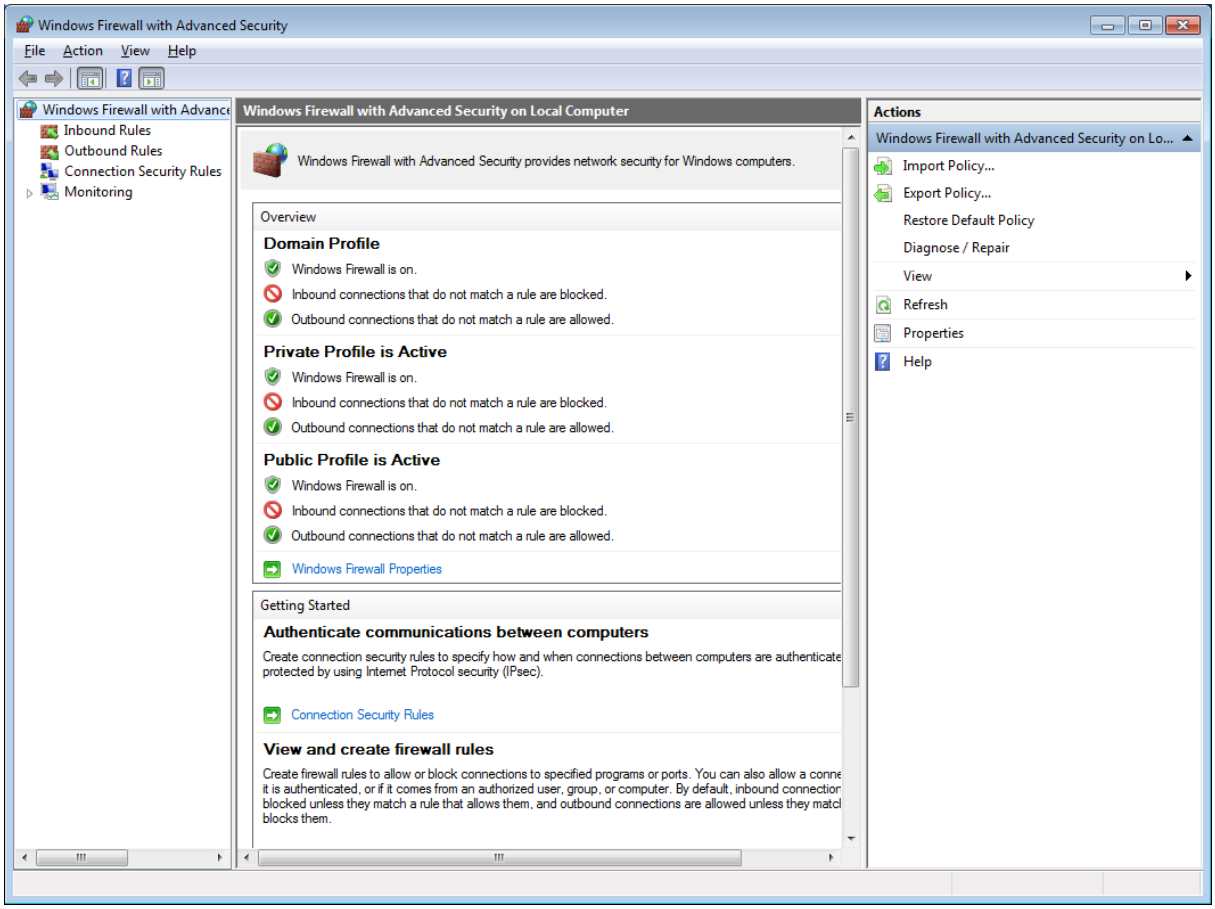
Configuration of the Windows Firewall

The Windows Firewall off is exception-based, i.e. you have to except the requisite ports or applications from the blockade.

If you disable the firewall completely, you do not need to make any further settings. Otherwise proceed as described below.

20 Open the “Windows Firewall with Advanced Security” window via “Control Panel → System and Security → Administrative Tools”.

The firewall is normally active.



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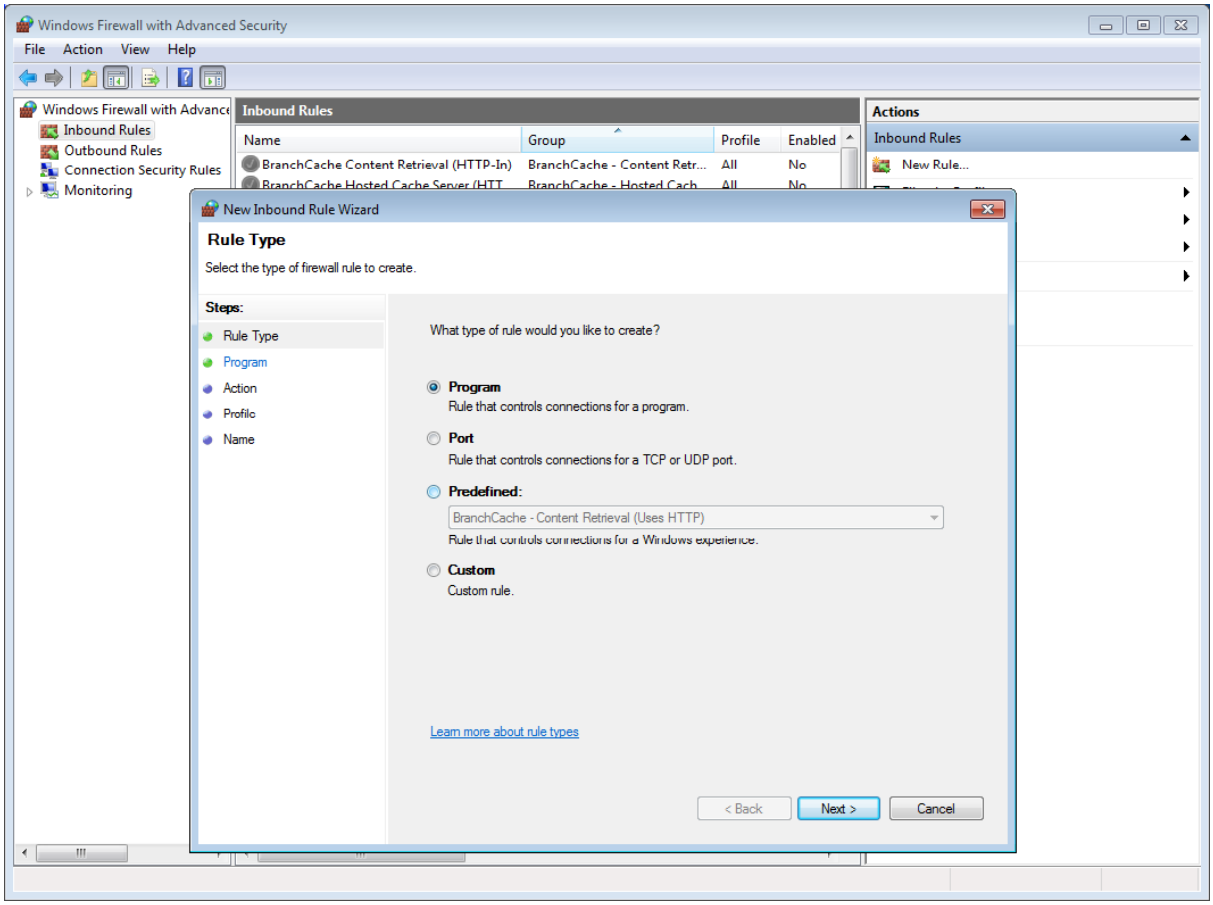
21 Click “Inbound Rules” in the left-hand pane, then “New Rule…” in the right-hand pane.



Select “Program” and click “Next”.

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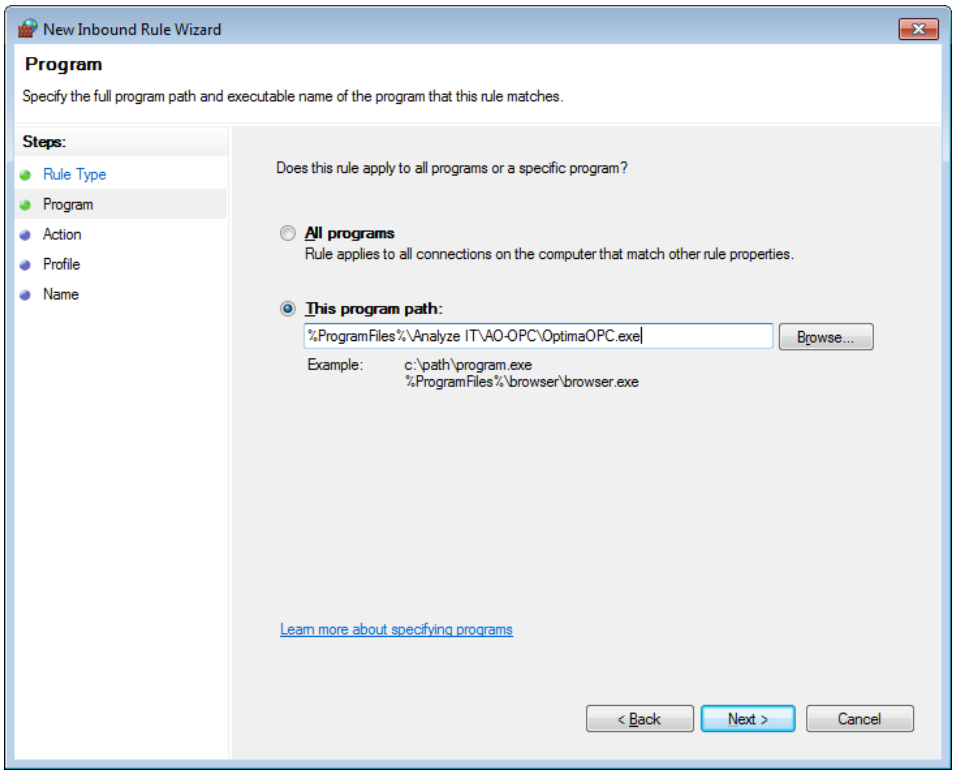

You can enter the path to the OPC server via “Browse”. The default path is “C:\Program Files\Analyze IT\AO-OPC\OptimaOPC.exe” or “C:\Program Files (x86)\Analyze IT\AO-OPC\OptimaOPC.exe” in the 64 bit version of Windows 7.

Here you have to select the program file of the OPC client on the OPC client computer. Click “Next”.

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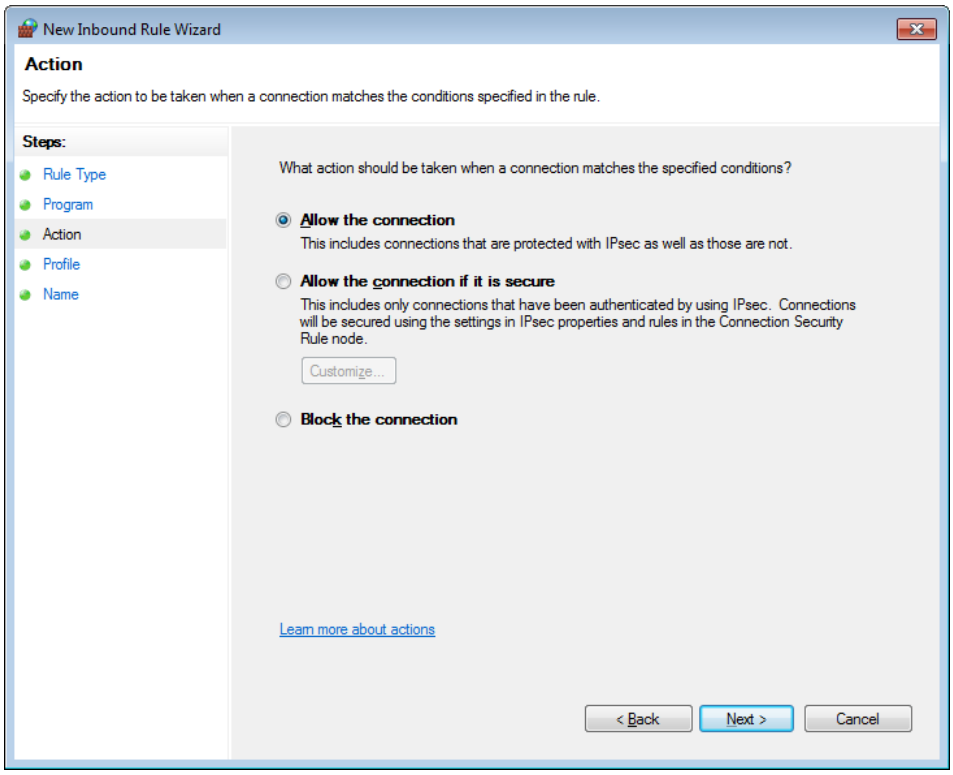
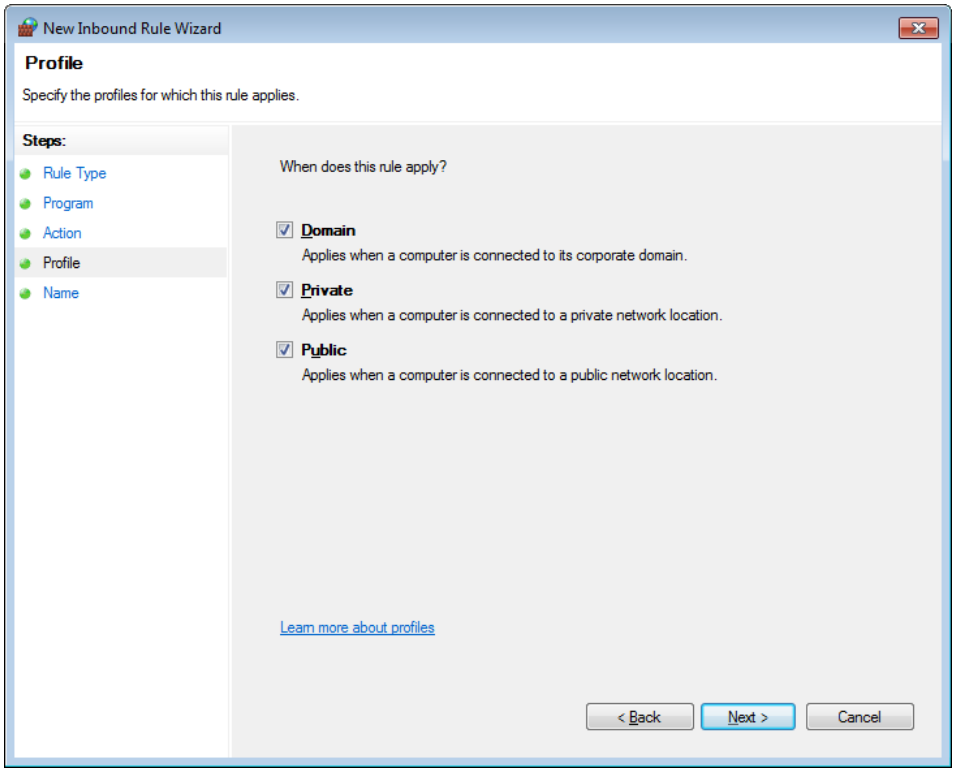
23



Select “Allow the connection” and click “Next”.

24



Select the profiles for which the rule should apply and click “Next”.

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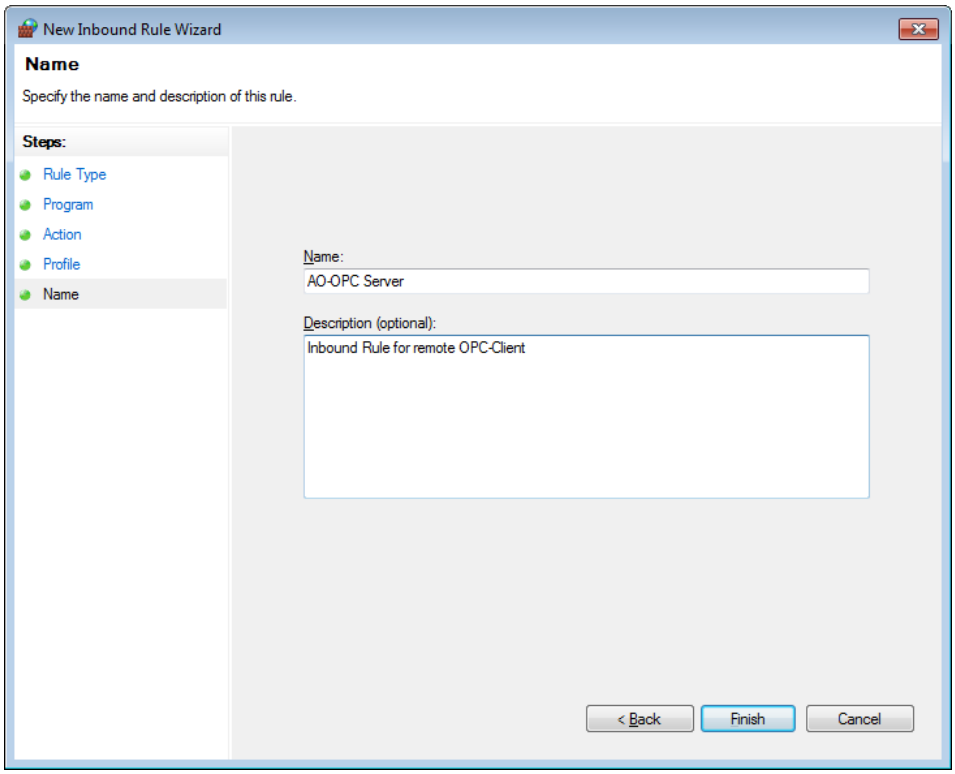
25



Finally, give the rule a name and provide it with a comment if required. Complete the creation of the rule with “Finish”.

26 Repeat these steps for the “OPCEnum” service. The program file is normally installed under “C:\Windows\System32\OpcEnum.exe”.

The file is normally located under “C:\Windows\SysWOW64\OpcEnum.exe” in the 64 bit version of Windows 7.

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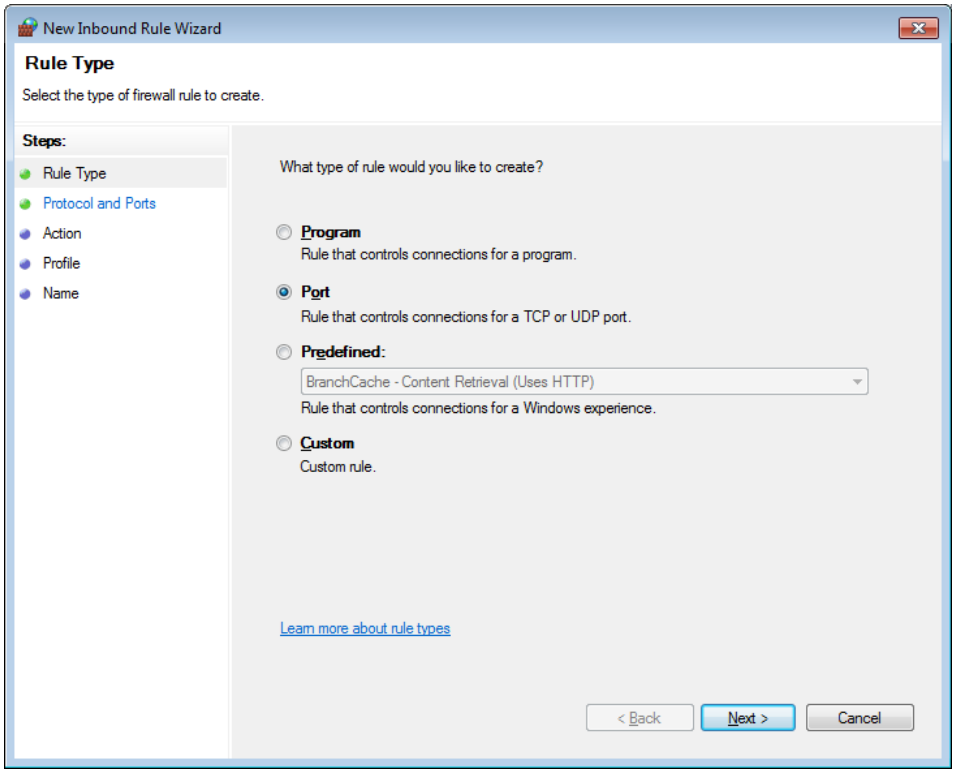
27 Furthermore, you have to enable TCP port 135 for the DCOM communication.

This setting must be made on the AO-OPC server computer and the OPC client computer.

The settings are made in the same way as for a program share, therefore only the dialogs which differ from the share dialogs for the OPC server are shown in the following.

Select rule type “Port” under “New Rule…”.



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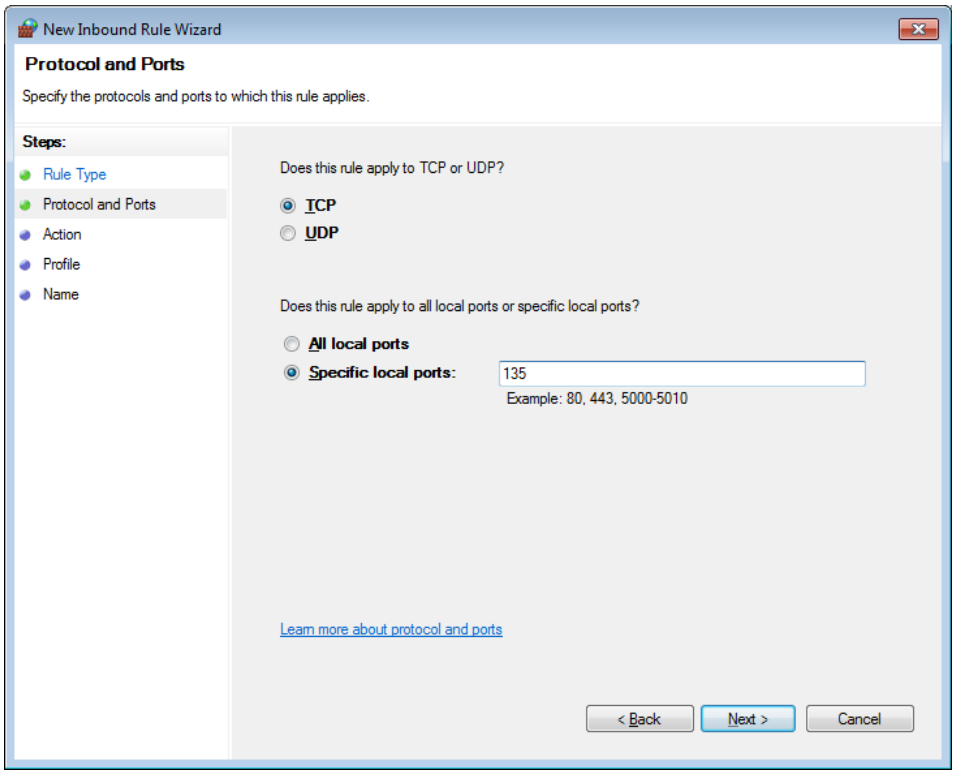

Enter port “135” under “Specific local ports:”.

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Completing the configuration and important information

Re-start the computer.

Any re-registration of the AO-OPC server causes the DCOM settings for the “Optima OPC Service” application to be reset. This could mean that the access of a remote OPC client first of all has to be enabled again.

If the AO-OPC server is launched via the OPC client, it takes quite a while before the list of the tags is provided by the AO-OPC server. It is therefore possible that certain tags are not found after start-up. These tags are displayed after a while.

Trouble-shooting: No connection to OPC client

If the OPC server is automatically launched at the system start and a connection to a OPC client cannot be subsequently started (although all the DCOM and Firewall settings were carried out in accordance with the above description), first of all try to re-start the OPC server and the OPCEnum service via the “Control Panel → System and Security → Administrative Tools → Services”. If it starts, there may be a problem with the network configuration. If a fixed IP address is allocated to a network interface and no default gateway has been entered for this interface, it can prevent the OPC server from starting correctly. In this case, check the Windows Protocol “System” in the Event Viewer under “Control Panel → System and Security → Administrative Tools → Event Viewer” for warnings or errors with the source “Distributed COM” or “DNS Client Events”.

Chapter 4 Data tags

Preface

Elements of tags

Tags are composed fundamentally of several names separated by dots. Certain names are followed by an index in the form of a number in order that objects with more than one instance can be given a unique name.

Example

“Optima1.Analyzer2.MainDetectorCount” designates the number of primary components (MainDetectorCount) of the second analyzer (Analyzer2) of the first gas analyzer (Optima1).

Indexes

In the following tag tables the indexes are replaced with wildcards (*). The indexes are counted from 1 up to the maximum number for each object.

With the tag “Optima*.IO_Card” there is also the index IO_Card0 which addresses the gas analyzer’s I/Os located on the Syscon board.

Legend

Format	VT_BOOL	Bool
	VT_BSTR	OLE automation string
	VT_I4	4-byte signed integer
	VT_R8	8-byte real number
Note	M	Tags required for displaying the measurement functions of the gas analyzer (basic information)
	D	Tags required for displaying further functions of the gas analyzer

Connection status

Tag	Description	Format	Note
Optima*.IsConnected1	Connection status to the primary IP address	VT_BOOL	M
Optima*.IsConnected2	Connection status to the secondary IP address	VT_BOOL	M

General data

Tag	Description	Format	Note
Optima reference number			
Optima*.AnalyzerCount	Number of analyzers	VT_I4	D
Optima*.IO_CardCount	Number of I/O cards	VT_I4	D
Optima*.IO_ModuleCount	Number of bus I/Os	VT_I4	D
Optima*.NoErrors	Number of global device errors	VT_I4	M
Optima*.NoMaintMode	Maintenance mode if ≠ 0	VT_I4	M
Optima*.NoMaintReq	Maintenance request if ≠ 0	VT_I4	M
Optima*.SoftwareVersion	Software version of gas analyzer	VT_BSTR	D
Optima*.ComponentCount	Number of components	VT_I4	D
Optima*.AI_Count	Number of analog inputs	VT_I4	D
Optima*.AO_Count	Number of analog outputs	VT_I4	D
Optima*.DI_Count	Number of digital inputs	VT_I4	D
Optima*.DO_Count	Number of digital outputs	VT_I4	D

Tag	Description	Format	Note
Optima reference number and analyzer number			
Optima*.Analyzer*.ModuleName	Module name	VT_BSTR	M
Optima*.Analyzer*.UserText	User text	VT_BSTR	M
Optima*.Analyzer*.SerialNo	Serial number	VT_BSTR	D
Optima*.Analyzer*. MainDetectorCount	Number of main detectors	VT_I4	D
Optima*.Analyzer*. AuxDetectorCount	Number of auxiliary detectors	VT_I4	D
Optima reference number, analyzer number and main detector number			
Optima*.Analyzer*.MainDetector*. CompCount	Number of components of main detector	VT_I4	D
Optima*.Analyzer*.MainDetector*. ActiveComponent	Index of the active component of the main detector	VT_I4	D
Optima reference number, analyzer number and main detector number			
Optima*.Analyzer*.MainDetector*. AmplOver	Threshold at which the amplification drift exceeds the permissible range.	VT_R8	D
Optima*.Analyzer*.MainDetector*. OffsetOver	Threshold at which the offset drift exceeds the permissible range.	VT_R8	D
Optima*.Analyzer*.MainDetector*. DeltaAmpl	Threshold at which the amplification drift between two automatic calibrations exceeds the permissible range.	VT_R8	D
Optima*.Analyzer*.MainDetector*. DeltaOffset	Threshold at which the offset drift between two automatic calibrations exceeds the permissible range.	VT_R8	D
Optima reference number, analyzer number, main detector number and component number			
Optima*.Analyzer*.MainDetector*. Component*.CompName	Component name	VT_BSTR	M
Optima*.Analyzer*.MainDetector*. Component*.UnitName	Unit name	VT_BSTR	M
Optima*.Analyzer*.MainDetector*. Component*.MeasVal	Measured value	VT_R8	M
Optima*.Analyzer*.MainDetector*. Component*.Status	Status	VT_I4	D
Optima*.Analyzer*.MainDetector*. Component*.MeasRangeCount	Measuring range count	VT_I4	D
Optima*.Analyzer*.MainDetector*. Component*.RangeLow	Measuring range start	VT_R8	D
Optima*.Analyzer*.MainDetector*. Component*.RangeHigh	Measuring range end	VT_R8	D

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Tag	Description	Format	Note
Optima reference number, analyzer number, main detector number, component number and measuring range number			
Optima*.Analyzer*.MainDetector*.Component*.MeasIdx*.AmplDrift	Cumulative amplification drift since the base calibration	VT_R8	D
Optima*.Analyzer*.MainDetector*.Component*.MeasIdx*.OffsetDrift	Cumulative offset drift since the base calibration	VT_R8	D
Optima*.Analyzer*.MainDetector*.Component*.MeasIdx*.DeltaAmplDrift	Amplification drift between two autocalibrations	VT_R8	D
Optima*.Analyzer*.MainDetector*.Component*.MeasIdx*.DeltaOffsetDrift	Offset drift between two autocalibrations	VT_R8	D
Optima reference number, analyzer number and auxiliary detector number			
Optima*.Analyzer*.AuxDetector*.CompCount	Number of components of auxiliary detector	VT_I4	D
Optima*.Analyzer*.AuxDetector*.ActiveComponent	Index of the active component of the auxiliary detector	VT_I4	D
Optima reference number, analyzer number, auxiliary detector number and component number			
Optima*.Analyzer*.AuxDetector*.Component*.CompName	Component names	VT_BSTR	M
Optima*.Analyzer*.AuxDetector*.Component*.UnitName	Unit name	VT_BSTR	M
Optima*.Analyzer*.AuxDetector*.Component*.MeasVal	Measured value	VT_R8	M
Optima*.Analyzer*.AuxDetector*.Component*.Status	Status	VT_I4	D
Optima*.Analyzer*.AuxDetector*.Component*.RangeLow	Measuring range start	VT_R8	D
Optima*.Analyzer*.AuxDetector*.Component*.RangeHigh	Measuring range end	VT_R8	D

Tag	Description	Format	Note
Optima reference number and I/O card number			
Optima*.IO_Card*.DeviceName	I/O device name	VT_BSTR	M
Optima*.IO_Card*.UserText	User text	VT_BSTR	M
Optima*.IO_Card*.SerialNo	Serial number	VT_BSTR	D
Optima*.IO_Card*.SlotNo	Slot number	VT_I4	D
Optima*.IO_Card*.AI_Count	Number of analog inputs	VT_I4	D
Optima*.IO_Card*.AO_Count	Number of analog outputs	VT_I4	D
Optima*.IO_Card*.DI_Count	Number of digital inputs	VT_I4	D
Optima*.IO_Card*.DO_Count	Number of digital outputs	VT_I4	D
Optima reference number, I/O card number and analog input number			
Optima*.IO_Card*.AI*.Name	Name	VT_BSTR	M
Optima*.IO_Card*.AI*.Unit	Unit	VT_BSTR	M
Optima*.IO_Card*.AI*.Val	Value	VT_R8	M
Optima*.IO_Card*.AI*.Status	Status	VT_I4	D
Optima*.IO_Card*.AI*.HardwareLink	Channel address of the component	VT_I4	D
Optima*.IO_Card*.AI*.RangeLow	Measuring range start	VT_R8	D
Optima*.IO_Card*.AI*.RangeHigh	Measuring range end	VT_R8	D
Optima reference number, I/O card number and analog output number			
Optima*.IO_Card*.AO*.Name	Name	VT_BSTR	M
Optima*.IO_Card*.AO*.Unit	Unit	VT_BSTR	M
Optima*.IO_Card*.AO*.Val	Value	VT_R8	M
Optima*.IO_Card*.AO*.Status	Status	VT_I4	D
Optima*.IO_Card*.AO*.HardwareLink	Channel address of the component	VT_I4	D
Optima*.IO_Card*.AO*.RangeLow	Measuring range start	VT_R8	D
Optima*.IO_Card*.AO*.RangeHigh	Measuring range end	VT_R8	D
Optima reference number, I/O card number and digital input number			
Optima*.IO_Card*.DI*.Name	Name	VT_BSTR	M
Optima*.IO_Card*.DI*.Val	Value	VT_I4	M
Optima*.IO_Card*.DI*.Invert	Invert value of the function block	VT_I4	D
Optima*.IO_Card*.DI*.Status	Status	VT_I4	D
Optima*.IO_Card*.DI*.HardwareLink	Channel address of the component	VT_I4	D
Optima reference number, I/O card number and digital output number			
Optima*.IO_Card*.DO*.Name	Name	VT_BSTR	M
Optima*.IO_Card*.DO*.Val	Value	VT_I4	M
Optima*.IO_Card*.DO*.Invert	Invert value of the function block	VT_I4	D
Optima*.IO_Card*.DO*.Status	Status	VT_I4	D
Optima*.IO_Card*.DO*.HardwareLink	Channel address of the component	VT_I4	D

Bus I/O data

Tag	Description	Format	Note
Optima reference number and bus I/O number			
Optima*.BusIO*.AI_Count	Number of analog inputs	VT_I4	D
Optima*.BusIO*.AO_Count	Number of analog outputs	VT_I4	D
Optima*.BusIO*.DI_Count	Number of digital inputs	VT_I4	D
Optima*.BusIO*.DO_Count	Number of digital outputs	VT_I4	D
Optima reference number, bus I/O number and analog input number			
Optima*.BusIO*.AI*.Name	Name	VT_BSTR	M
Optima*.BusIO*.AI*.Val	Value	VT_R8	M [1)]
Optima*.BusIO*.AI*.Status	Status	VT_I4	D
Optima*.BusIO*.AI*.RangeLow	Measuring range start	VT_R8	D
Optima*.BusIO*.AI*.RangeHigh	Measuring range end	VT_R8	D
Optima reference number, bus I/O number and analog output number			
Optima*.BusIO*.AO*.Name	Name	VT_BSTR	M
Optima*.BusIO*.AO*.Val	Value	VT_R8	M
Optima*.BusIO*.AO*.Status	Status	VT_I4	D
Optima*.BusIO*.AO*.RangeLow	Measuring range start	VT_R8	D
Optima*.BusIO*.AO*.RangeHigh	Measuring range end	VT_R8	D
Optima reference number, bus I/O number and digital input number			
Optima*.BusIO*.DI*.Name	Name	VT_BSTR	M
Optima*.BusIO*.DI*.Val	Value	VT_I4	M [1)]
Optima*.BusIO*.DI*.Invert	Invert value of the function block	VT_I4	D
Optima*.BusIO*.DI*.Status	Status	VT_I4	D
Optima reference number, bus I/O number and digital output number			
Optima*.BusIO*.DO*.Name	Name	VT_BSTR	M
Optima*.BusIO*.DO*.Val	Value	VT_I4	M
Optima*.BusIO*.DO*.Invert	Invert value of the function block	VT_I4	D
Optima*.BusIO*.DO*.Status	Status	VT_I4	D

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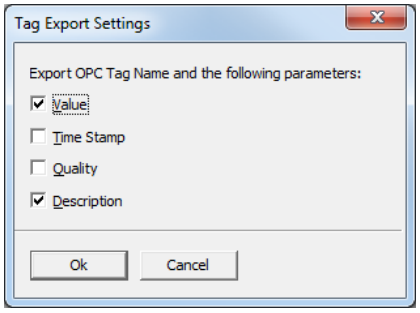
Export tags to a CSV file

Export of existing tags

It is possible to export the existing tags of a connection to a CSV file using "AO-OPC Remote Control". The user can save several values in the CSV file in addition to the data tag names which are always stored.

Tag export settings

In AO-OPC Remote Control, use the menu command "Options – Tag Export Settings" to open the dialog for selecting the parameters to be exported. Further parameters can be selected here in addition to the OPC tags which are generally exported: Value, Time stamp, Quality and Description.



Export tags

In AO-OPC Remote Control, use the menu command "File – Export Tags" to open the dialog for entering a CSV file name. All tags with their additional parameters which are also currently displayed in the list view are exported to this file by selecting "OK". The individual values of a line are each separated by a tab stop.

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