

AnalyzeIT Explorer

Asset Management for Analytical Systems

Measurement made easy



Contents

1	Description	6
1.1	Asset Management	6
1.2	Tasks for AnalyzeIT Explorer	7
2	AnalyzeIT Explorer Installation	8
2.1	System Requirements	8
2.2	Installation	8
2.2.1	Program Installation	8
2.2.2	Installation of Additional Components	9
2.3	Operation in the Network	9
2.3.1	Point-to-point Connection for Simple Installations	9
2.3.2	ABB Analyzers connected to existing Networks	9
2.3.3	Network Planning	10
2.4	Licensing	10
2.4.1	Basic Components	10
2.4.2	License Scale	11
2.4.3	Breach of License	11
2.4.4	Use of Remote HMI	11
2.5	Editing license and security settings	12
3	AnalyzeIT Explorer Framework	15
3.1	First Steps	15
3.1.1	Password	15
3.1.2	Languages	15
3.1.3	Install License File	16
3.2	Working with Projects	17
3.2.1	Creating a New Project	17
3.2.2	Starting an Existing Project	18
3.3	Creating a Tree Structure	18
3.3.1	Structure Components	19
3.3.2	Instrument Components	19
3.3.3	Function Components	20
3.3.4	Messages in the Tree Structure	21
3.3.5	Storing Templates	21
3.4	Components	22
3.4.1	Component Enabling	22
3.4.2	Inserting a Component	23
3.4.3	Component Properties	23
3.4.4	Moving Components	23
3.5	Templates	23
4	Configuration	25
4.1	File Menu commands	25
4.1.1	New	26
4.1.2	Open Project	26
4.1.3	Save Project	26
4.1.4	Save Project as	26
4.1.5	Close Project	26
4.1.6	Open	26
4.1.7	Save	26
4.1.8	Save as	26

4.1.9	Print Setup.....	27
4.1.10	Preview	27
4.1.11	Print	27
4.1.12	Exit	27
4.2	Component Menu Commands.....	28
4.2.1	Select.....	28
4.2.2	Properties	28
4.2.3	Delete.....	29
4.2.4	Rename.....	29
4.2.5	Save Template.....	29
4.2.6	Edit Template(s)	29
4.2.7	Component Info.....	29
4.3	View Menu Commands	30
4.3.1	Overview Window.....	31
4.3.2	Standard Toolbar.....	31
4.3.3	Component Bar.....	31
4.3.4	Template Bar	31
4.3.5	Insert Information	31
4.3.6	Status Bar	31
4.4	Options Menu Commands	32
4.4.1	Language	32
4.4.2	Settings.....	32
4.4.3	Access Password	32
4.4.4	Security Manager	32
4.4.5	Licensing	32
4.5	Window Menu Commands	33
4.5.1	Cascade.....	33
4.5.2	Tile Horizontally.....	33
4.5.3	Tile Vertically	33
4.5.4	Maximize	33
4.5.5	Close	33
4.5.6	Close all	33
4.5.7	Arrange Icons	33
4.6	Help (?) Menu Commands	34
4.6.1	License Information.....	34
4.6.2	Program Info	34
4.7	Dialogs	35
4.7.1	Menu Item File > New	35
4.7.2	Component Selection.....	37
4.7.3	Template Manager (Dialogs).....	38
4.7.4	Icon Selection (Dialogs)	39
4.7.5	Settings (Dialogs)	40
4.7.6	Access Password (Dialogs).....	41
4.7.7	Security Manager (Dialogs).....	42
4.7.8	Actions:	44
4.7.9	New User (Dialog)	45
4.7.10	User Properties (Dialogs)	48
4.7.11	New Group (Dialogs)	50
4.7.12	Group Properties (Dialogs)	51
4.7.13	Select User (Dialogs)	52
4.7.14	Select Group (Dialogs)	53
4.7.15	Select User or Group (Dialogs)	54
4.7.16	Security Policy (Dialogs)	55

5	Basic Components for CGAs	56
5.1	The System Component	56
5.2	The Analyzer House Component	57
5.3	AO2000 Component	59
5.3.1	Properties	60
5.3.2	Delete	61
5.3.3	Rename	61
5.3.4	Save Template	61
5.3.5	Security-Manager	61
5.3.6	Remote HMI	62
5.3.7	Synchronize Time	63
5.3.8	Component Info	65
5.4	AO-Data Viewer Component	66
5.4.1	Properties	68
5.4.2	Delete	68
5.4.3	Rename	68
5.4.4	Component Info	68
5.5	AO-Message Viewer Component	69
5.5.1	Properties	71
5.5.2	Delete	71
5.5.3	Rename	71
5.5.4	Component Info	71
5.5.5	Save logbook	71
5.6	Trend Chart Component	72
5.6.1	Instantiating the Trend Chart Component	73
5.6.2	Trend Chart Configuration	74
5.6.3	Collection Span and Update Rate	75
5.6.4	Logging on the Hard Disk	77
5.6.5	Reading Recorded Files	79
5.6.6	Function of the Trend Switches	80
5.6.7	Display options	81
5.6.8	Trend Chart Menu	83
5.6.9	User-defined colors	84
5.6.10	Printing Trend Charts	85
5.7	File Link Component	86
5.7.1	Creating a File List or Program Link	87
5.7.2	Calling a Document or Application	87
5.7.3	Link Properties	87
5.7.4	Deleting a Link	87
5.7.5	List Item Properties	88
5.7.6	Security Policies	88
5.8	Web Link Component	89
5.8.1	Properties	90
5.8.2	Security Policies	91
5.9	OPC DA Client Component	92
5.9.1	Properties:	92
5.9.2	Delete	93
5.9.3	Rename	93
5.9.4	Save template	93
5.9.5	OPC DA Client Configuration	94
5.9.6	Component information	103
5.10	OPC Viewer Component	103
5.10.1	Toolbar	104
5.10.2	Properties	105

5.10.3	Delete.....	105
5.10.4	Rename.....	105
5.10.5	Component information.....	105
6	Optional Components	106
6.1	E-mail SMS Component.....	106
6.1.1	Dialog Properties	106
6.1.2	Configuration.....	108
6.1.3	Editing Groups.....	110
6.1.4	Editing Addressees	111
6.1.5	Sending an SMS.....	112
6.1.6	Editing AO2000 Messages	112
6.1.7	Edit OPC Messages.....	114
6.1.8	Saving a Configuration File	117
6.1.9	Copying the Configuration to a New Component.....	117
6.1.10	Security Policies.....	118
7	QAL3 Components	119
7.1	Application	119
7.2	Function.....	119
7.2.1	Description.....	119
7.3	Shewhart Control Charts.....	121
7.4	CUSUM Control Charts.....	121
7.4.1	Characteristic Values for the Determination of Precision and Drift	121
7.4.2	Tests	122
7.5	Operation of the “QAL3 Monitoring” and “Offline Analyzer” Components	123
7.5.1	Creating a New Project	123
7.5.2	Configuring the QAL3 Component	124
7.5.3	Configuring an Online Component.....	125
7.5.4	Configuring an Offline Component.....	126
7.5.5	Inputting Values in the Offline Component	127
7.5.6	Display of the Control Chart.....	128
7.5.7	Editing or Deleting Values	129
7.5.8	Print Configuration	130
7.6	Data Management	131
7.6.1	Archive QAL3 Data.....	131
7.6.2	Save Component Data.....	133
7.7	Operation of the “QAL3 Viewer” Component.....	134
7.7.1	Starting the QAL3 Viewer	134
7.7.2	Configuring the QAL3 Viewer	135
7.7.3	Display of the Control Chart.....	135
7.7.4	Editing a Component	136
7.7.5	Editing or Deleting Values	136

1 Description

1.1 Asset Management

An objective of process optimization in industrial plants is to prevent unanticipated failures of the installed systems. These can lead to quality problems as well as unplanned shutdowns and thereby to losses of production. Reliability aspects also play a role in the case of continuous operation. The key to improved availability is the carefully directed optimization of all parameters and the continuous monitoring of the instrumentation installed in the process ("assets"), in order to make maintenance work more systematic.

The objective is predictive maintenance and not maintenance on failure. To achieve this a great deal of data from the instruments involved in the process has to be recorded and evaluated. This is usually accomplished at great effort by means of continuous local check patrols. Asset Management via networks is the step that is required to further optimize the processes in installations and also to improve the production efficiency with the same number of personnel.

Modern network technology has been used for data transfer in offices for a long time and is now also helping to collect and channel the requisite data in the process and make it systematically available to the maintenance team. However, this must extend beyond what the centralized process control equipment needs to control the installation. Modern Asset Management requires fundamental information on the status of each individual instrument in the process chain and the possibility of remotely operating the instruments via the same connection. A great deal of maintenance work, such as parameterization, calibration and software updates, can thus be carried out from the control room for any networked instrument.

A Simple Example:

A particulate filter in the sample gas feed path of a continuous gas analyzer is clogged. Modern gas analyzers monitor this condition and send a request for maintenance via a status contact if a minimum threshold is not met. A service technician is notified by Instrumentation and Control and now has to identify the cause of the instrument failure on-site.

If the installation is an emission measuring facility, the instruments are frequently installed very high up in a stack and are therefore difficult to access.

Modern Asset Management with AnalyzeIT Explorer identifies the location of the problem and what it is and permits measures that lead to a quick, efficient solution:

- **Identifying the Problem**

The request for maintenance message is displayed in a conspicuous place on the screen. In addition, the analyzer sends a text message through the network. This states that the flow value has fallen below the pre-set limit. This message is automatically relayed to the mobile telephone of the service technician as an SMS.

- **Assessing the Problem**

A short check of the current values provides information about the current status. It can be recognized that the failure is not total, but only concerns a decrease in the flow in the analyzer. A graphical trend analysis of the progression in the past few days points to a gradual decrease in performance.

- **Solving the Problem**

If the process allows it, you can now temporarily reduce the pre-set limit via a remote operation unit, so that the process can continue to run. Alternatively, the reserve capacity of the sample gas feed pump can be checked and increased by the value required to restore the flow.

In each case, the exchange of the filter is planned for the next regular maintenance check. This is noted in a log file that is unique to each analyzer.

- The entire process only takes a few minutes and can be completely carried out from the control room!

1.2 Tasks for AnalyzeIT Explorer

AnalyzeIT Explorer is a software tool, which helps the plant user to operate the installed process analysis equipment more effectively and to avoid downtime caused by unanticipated events.

The prerequisite is rapid, comprehensive information acquisition from the process. To accomplish this ABB analyzers are equipped with an Ethernet port. This allows continuous data retrieval from the connected instruments. The extent of the data is far beyond that which conventional analyzers can make available.

A large number of integrated functions are used to obtain a better picture of the entire analytical measuring chain, from gas sampling to sample conditioning and from gas analysis to sample return or disposal of the sample gas. External process signals, such as flows, temperatures, status signals or measured values from analyzers of external suppliers, can be linked into an ABB analyzer network through I/O cards present in the analyzers or via OPC network protocol. These signals are therefore available to the AnalyzeIT Explorer and can be monitored.

ABB analyzers thus form the intelligent nodes in the process by means of which AnalyzeIT Explorer can access data of the respective measuring chain.

AnalyzeIT Explorer

- Is the tool for the analytical technology maintenance team
- Displays the process in clearly arranged tree diagrams
- Displays status messages in a conspicuous place
- Reliably visualizes all measured values and auxiliary variables
- Quickly and clearly displays detailed text messages from the instruments
- Optionally sends these messages as an e-mail or SMS to selected mobile telephones
- Maintains audit logs
- Allows the complete remote operation of ABB analyzers
- Enables high-speed digital access to the entire instrument documentation
- Supports the storage of individual reports for each instrument
- Includes a graphical trend chart recorder
- Continuously records selected data
- Has access to websites through an integrated browser
- Directly integrates instruments of outside suppliers via an OPC client function

2 AnalyzeIT Explorer Installation

2.1 System Requirements

AnalyzeIT Explorer can be installed on standard PCs or laptops.

- Operating system Microsoft Windows 7 (32/64 bit) SP1, Windows 8.1 (32/64 bit) or Windows 10 (32/64 bit)¹
- Administrator rights on the computer
- Ethernet network connection (a second Ethernet card is required for redundant network systems)

2.2 Installation

2.2.1 Program Installation

The AnalyzeIT Explorer program is supplied on a CD with a standard Windows installation routine.

Installation to the default path and installation directories is strongly recommended. This makes service easier.

1. Before installing new AnalyzeIT Explorer software, a previous version of AnalyzeIT Explorer must be uninstalled. The license file remains valid, but it needs to be reloaded in AnalyzeIT Explorer after installation.
2. All programs should be closed before starting the installation.
3. Click the file "ait_explorer_x_x_x_x.exe" with the right mouse button and select "Run as administrator".
4. Please follow the installation instructions.
5. The license settings are contained in the "Options" menu.

¹ Microsoft and Windows are registered trademarks or trademarks of Microsoft Corporation in the USA and/or other countries.

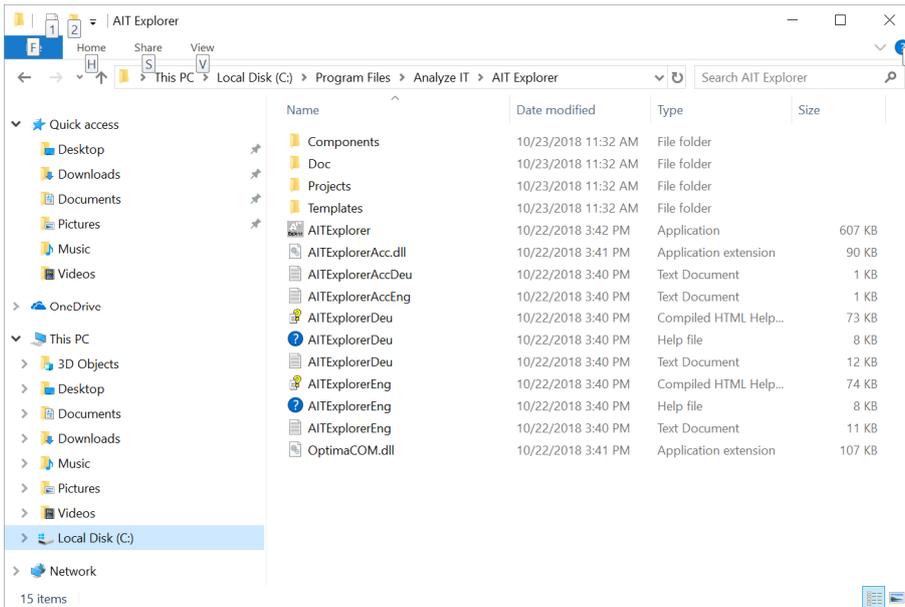


Figure 1 Directory folders after the installation

2.2.2 Installation of Additional Components

Installation of additional components, e.g. “E-mail / SMS” or “QAL3 Monitoring” is possible by purchasing a new, extended license.

After loading the new license file, the new component can be selected (see also Section 3.1.3 “Install License File”, page 16).

2.3 Operation in the Network

The use of AnalyzeIT Explorer requires connection of the analyzers to an Ethernet network.

2.3.1 Point-to-point Connection for Simple Installations

In the simplest case, the network can be a point-to-point connection. This applies for small installations, testing and measuring assemblies in institutes, which require remote operation or mobile equipment which is only connected temporarily to a local area network. A high-speed connection to a laptop can also be established in this manner for servicing.

2.3.2 ABB Analyzers connected to existing Networks

No special resources are required for operation with ABB analyzers, since standard Ethernet technology is used. The analyzers have 10/100BaseT ports, which are configured in a similar fashion to a PC and can be incorporated in Ethernet. Information on the Ethernet port and configurations of the analyzers can be found the following documentation:

For AO2000 series continuous gas analyzers:

- Continuous Gas Analyzers, AO2000 Series, User’s Manual OI/AO2000-EN
- AO-HMI, Technical Information 30/24-311 EN

For FTTPA2000 series process FTIRs:

- FTSW100 users guide

- Communicator
- FTPA

2.3.3 Network Planning

The routing of the Ethernet network requires knowledge of network technology. Even if AnalyzeIT Explorer is based exclusively on familiar standards, operational conditions often require the installation of a specific network topology, particularly in the case of complex installations. The technological possibilities of Ethernet can be used e.g. to maintain installations extending across locations with online access to various installations via an Intranet. This is also possible worldwide with the right design.

A network specialist and the system administrator for an installation should always be included in the planning and design of the network. Specific knowledge of the network will ensure error-free operation of the plant after installation.

2.4 Licensing

Use of AnalyzeIT Explorer requires licensing of specific functions. The customer's license file is stored on the product CD with the file extension *.lic

If there is no license, a licensing window that provides information about the missing licenses appears on the screen.

The licenses are contained in an encrypted file which is used during the installation of the AnalyzeIT Explorer.

2.4.1 Basic Components

License packages that include all the standard functions for each type of ABB analyzer are available.

For AO2000 series continuous gas analyzers:

- AO2000 Data Source
- System Component
- Analyzer House Component
- AO Data Viewer
- AO Message Viewer
- Trend Chart Component
- File Link Component
- Web Link Component

For FTPA2000 series process FTIR spectrometers:

- OPC client
- FTSW100 remote OPC server
- Analyzer House Component
- Data Viewer

- Trend Chart Component
- File Link Component
- Web Link Component
- FTSW100 remote user interface

For PGC2000 series process gas chromatographs:

Via OPC client

2.4.2 License Scale

The type and cost of the license package is dependent on the number of instruments installed on the network. If all the instruments are being accessed at the same time, the type of license must match the number of installed instruments.

- License packages are available for each instrument type as follows.
- 1 instrument (Point-to-Point)
- Up to 5 instruments
- Up to 10 instruments
- More than 10 instruments

An instrument is considered to be a unit that has an Ethernet port. A complete system cabinet with several ABB analyzer modules linked to one central processing unit is thus considered to be 1 instrument. Instruments that are integrated via I/O ports in ABB analyzers do not count as additional instruments.

The number of times a component may be used in the tree diagram (number of instances) is also increased in accordance with the number of instruments.

E.g.: one file link component may be used 10 times per instrument or a total of 100 times in the case of a license for up to 10 instruments.

2.4.3 Breach of License

If the number of instances authorized by the licensing is contravened, the license window will appear with a request to order the missing licenses. These are available from ABB and can be installed at any time. You can also continue to work temporarily with AnalyzeIT Explorer in spite of a breach of license. However, the license window will appear permanently on the screen as a reminder of the breach of license.

2.4.4 Use of Remote HMI

The software AO-HMI must be installed in order to use the remote control function for AO2000 series devices which is integrated in AnalyzeIT Explorer. The software can be found on the DVD which is delivered with the gas analyzer. Multiple versions of the software for different device generations can be installed in parallel. AnalyzeIT Explorer automatically selects the appropriate software version for the selected device and opens a separate window for operation.

2.5 Editing license and security settings

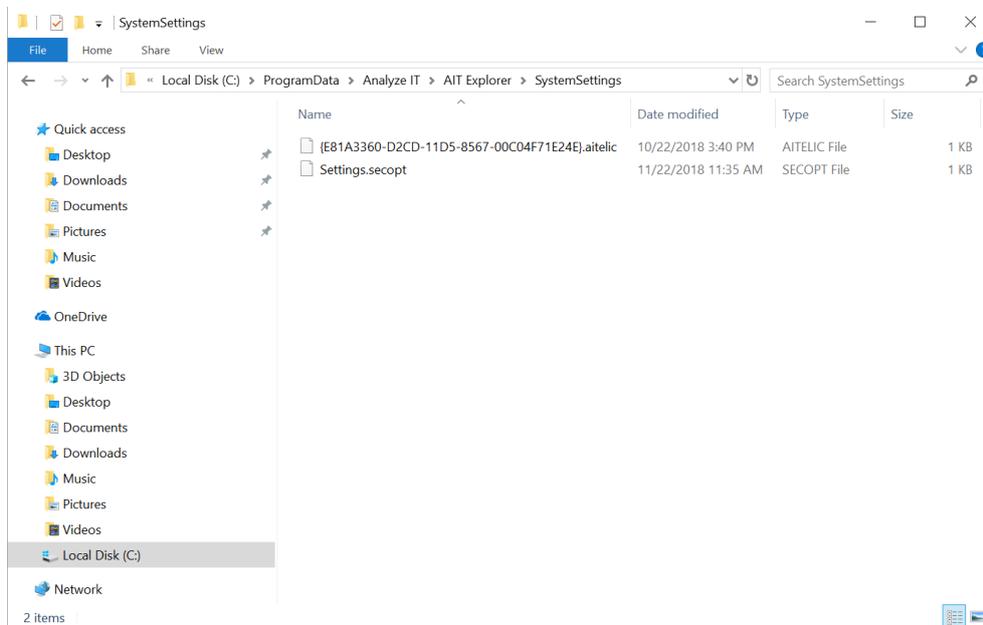
In this section the term “Windows User” denotes the users in the Windows installation – in contrast to those users who can be set up with AnalyzeIT Explorer (see also Section 4.7.7 “Security Manager (Dialogs)”, page 42).

As of Windows 7, the license and security settings can basically be made only with the Windows user under which AnalyzeIT Explorer had been installed or started for the first time. This relates to access permissions which are set by Windows when creating the license or security file. If the license and security settings of AnalyzeIT Explorer can be changed by selected or all Windows users who are in the system, the security properties of the corresponding files must be changed in Windows Explorer.

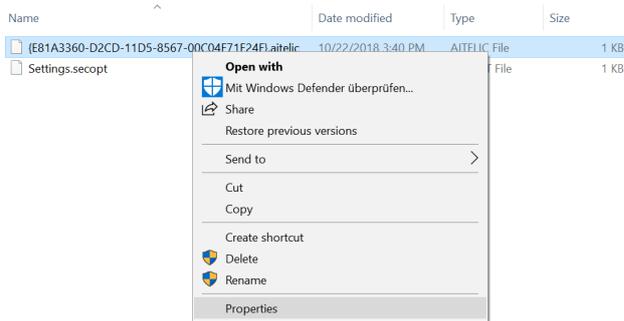
Procedure

1. In Windows Explorer select
 - The global license file “[E81A3360-D2CD-11D5-8567-00C04F71E24E].aitelic” or
 - The global security file “Settings.secopt”.

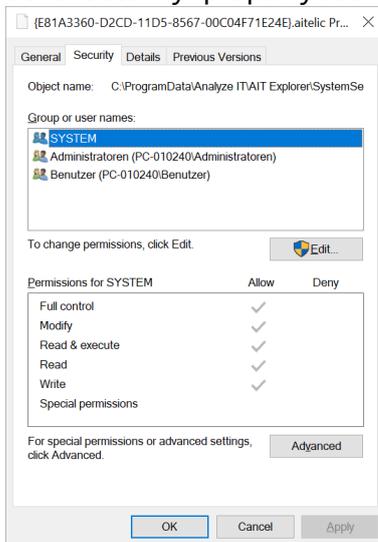
In a standard installation it should be possible to find the files in
“C:\ProgramData\Analyze IT\AIT Explorer\SystemSettings\”:



2. Click on the file name using the right mouse button and click on the “Properties” command in the context menu.



3. Select the “Security” property tab in the “Properties” dialog.

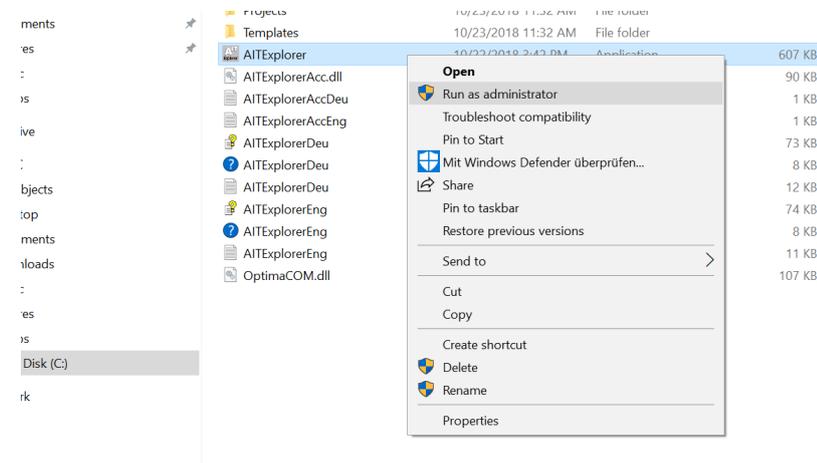


- In the list with the group and user names add all those Windows users who are to receive read and write access to the license and security file.
- In the list with the settings for the individual file permissions, activate both read and write access for each Windows user in whose Windows account the license and security settings of AnalyzeIT Explorer may be changed.

If the access rights to the licensing and security file should generally remain restricted, the user has an additional option to set up the license file (and security settings).

However, it is required that the Windows user has administrator rights during setup or changes.

Alternative approach



1. The AnalyzeIT Explorer must be launched from the Start Menu or directly from the directory by right-clicking the mouse and selecting the 'Run as administrator' option.
2. The AnalyzeIT Explorer will now start with the required access rights. As long as it is open, the license data can now be loaded and security settings can be changed.
3. The restricted access rights become active again after the program is closed and restarted again.

3 AnalyzeIT Explorer Framework



3.1 First Steps

After AnalyzeIT Explorer has been installed, the program icon will appear in the start menu under Programs – Analyze IT – Analyze IT Explorer. The icon can be copied to the desktop in the usual manner.

AnalyzeIT Explorer consists of a framework and a series of components that can be installed and executed. Access control, licensing and language settings are functions of the framework.

Components are graphically arranged in a tree structure within the framework. All the active components are displayed in the left-hand column of the framework. The components are described in detail in the following chapters.

After the program has been successfully launched, the AnalyzeIT Explorer framework window is opened.

3.1.1 Password

On startup a password request appears. The AnalyzeIT Explorer is shipped with one administrator account defined as

A screenshot of the 'Password Entry' dialog box. The title bar says 'Password Entry' with a close button. The main area contains a keyboard and mouse icon, followed by the text 'Enter a user name and a password which are valid for the application.' Below this are two input fields: 'User Name:' with 'Administrator' entered, and 'Password:' which is empty. At the bottom are 'OK' and 'Cancel' buttons.

User Name: ***Administrator***

Password: ***Administrator***

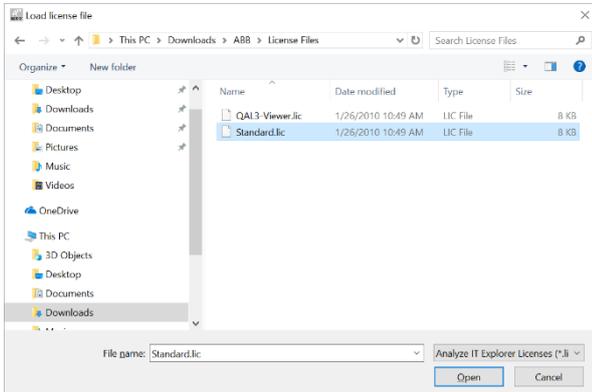
This password should be subsequently changed for security reasons.

3.1.2 Languages

The program language can be selected from the menu *Options – Language*. English and German are currently available.

3.1.3 Install License File

The license settings are contained in the *Options* menu.



A valid license file can be loaded from here. It contains information on the type and number of licensed components. Extended license files can be loaded from here at any time. If the configuration of AnalyzeIT Explorer exceeds the permissible number of licensed components, a window containing information on the missing licenses will appear over the application.

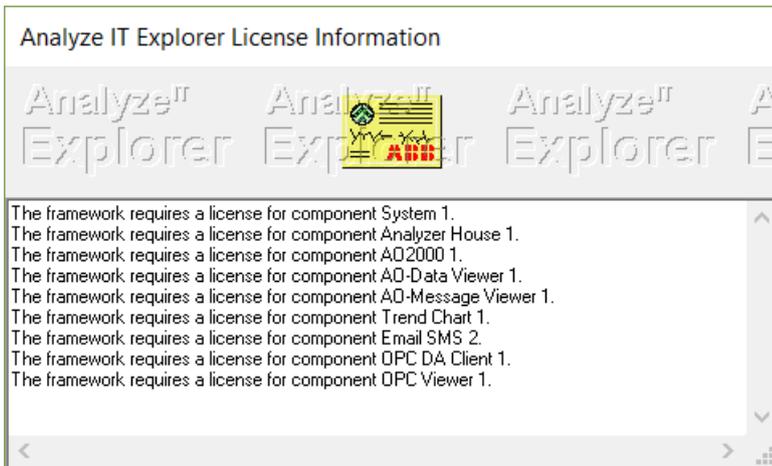


Figure 2 Missing license window

3.2 Working with Projects

- AnalyzeIT Explorer allows various projects to be worked with.
- A project could be the overview of the analyzers at several locations. The structure can be displayed as a tree diagram by means of the respective analyzer components.
- A project can show the detail of analytical installations at a specific location.
- In the case of larger installations, it may be appropriate to create an individual project for each measuring chain.
- A project could also be the summary of the same kind instruments for maintenance purposes, regardless of where they are installed in the installation (e.g. all AO2000 Uras14 photometers or all FTPA2000 process FTIRs)

The number and type of projects that the operator creates for his tasks is at his discretion. By using existing model projects and stored templates, creating new projects is very simple.

AnalyzeIT Explorer operates with only one loaded project in each case. If another project is started, it replaces the previous project in the store. All changes to a project can be saved before loading a new project.

Note: While loading a project the first component of the tree structure is selected and the associated window is opened. If the first component is a "system component", however, no window will open.

3.2.1 Creating a New Project

Select *File* under the menu bar. Select the option *New*. A selection window appears in which the new project name can be specified. You can select a basic project template from an existing project, in order to create new projects faster.

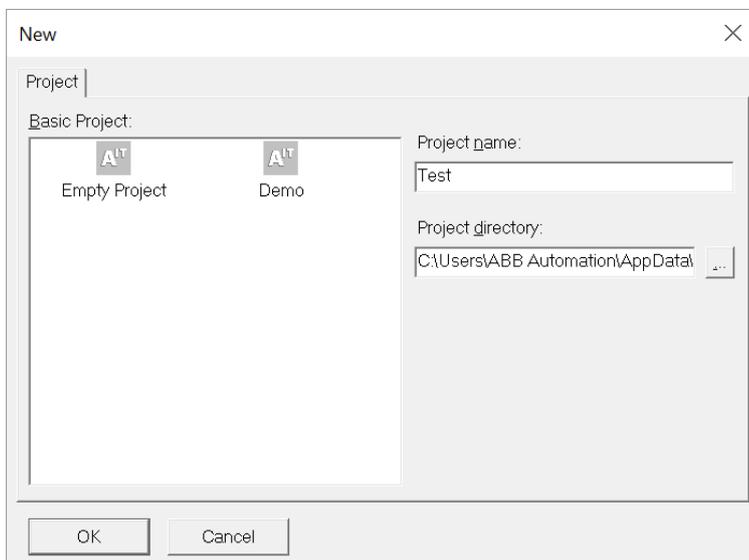


Figure 3 Project selection window

3.2.2 Starting an Existing Project

If you have already created some projects, select the desired project via the *Open Project* option and the project selection window.

Note: When loading a project, the first component of the tree structure is always selected and the corresponding window is opened. However, if the first component is a "system component", no window is opened.

3.3 Creating a Tree Structure

The framework includes a tree structure in the left-hand section.

The objective of the tree structure is to provide the user with a permanent overview of the current project. This could be the symbolic display of an installation with various analyzer areas. Depending on the requirements, different structures are possible and can be stored in a series of projects. Several locations can be monitored in a single project at the same time. Various measurement tasks can be displayed in appropriate tree structures (e.g. all CEMs measurements, all filter monitoring operations, etc.) and can be stored as separate projects.

Various types of components, which can be selected from the component bar by means of icons, are used within the tree structure.

3.3.1 Structure Components

Structure Components are used for creating hierarchical structures. As a rule, you start the tree structure with a *System* component. One or more *Analyzer House* components are assigned to it.

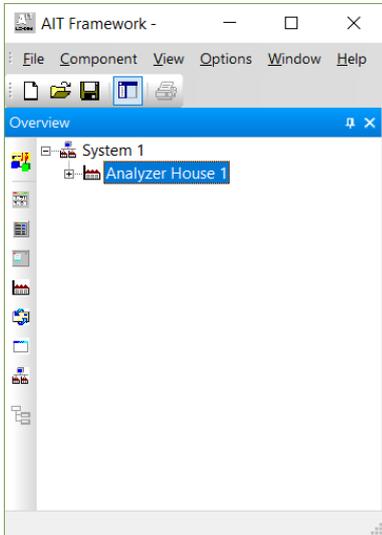


Figure 4 Structure Components

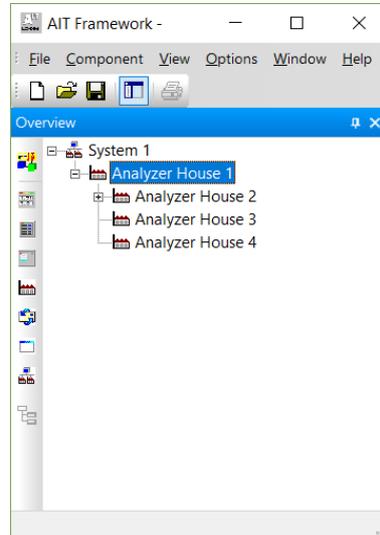


Figure 5 With substructure

3.3.2 Instrument Components

Process instruments which are connected via the network are displayed as an instrument component and can be placed anywhere within the structure. The installed license file specifies the maximum number and type of instruments. If more instruments are displayed, the license must be extended accordingly.

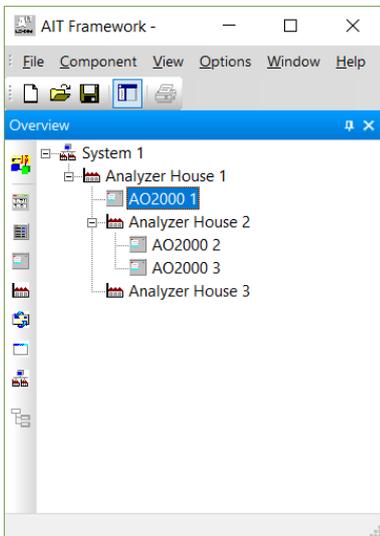


Figure 6 Instrument component installed for AO2000 analyzers

3.3.3 Function Components

The third type of component symbolizes functions that use instrument data. If they are placed in the tree, AnalyzeIT Explorer automatically starts the connection to the instruments and makes all the related data available to the user.

If a component is placed on an individual instrument component, the component appears as a subgroup for this instrument and starts the function. If a component is set above a group of several instruments, the component can communicate with all the subordinate instruments. All the settings and parameterization menus of the components are changed accordingly.

This takes place automatically through the framework of AnalyzeIT Explorer and is a unique feature that makes the program easy to use.

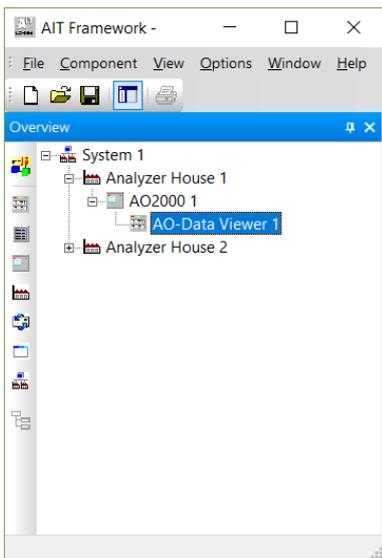


Figure 7 Data Viewer component for one instrument

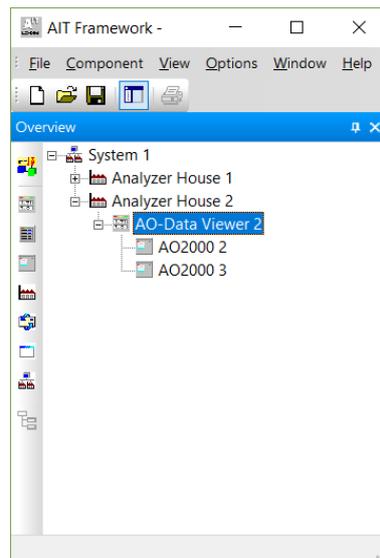


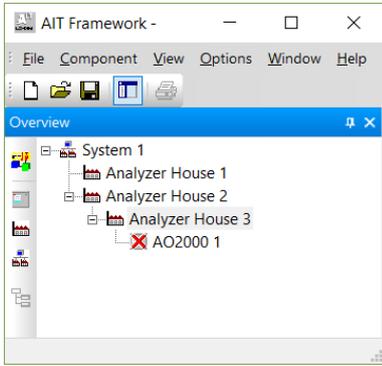
Figure 8 Data Viewer for several instruments

3.3.4 Messages in the Tree Structure

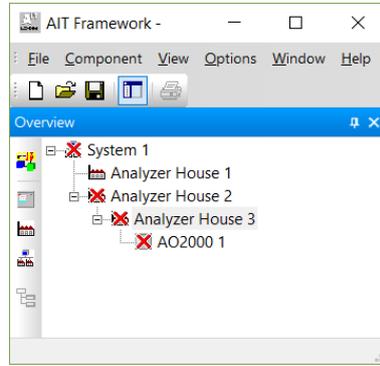
The functions of the tree structure extend beyond the graphic display of icons. The structure is used to define the flow of information between components.

Malfunctions or status messages from the instruments within the tree structure are displayed by marking the components concerned with a flashing highlighter.

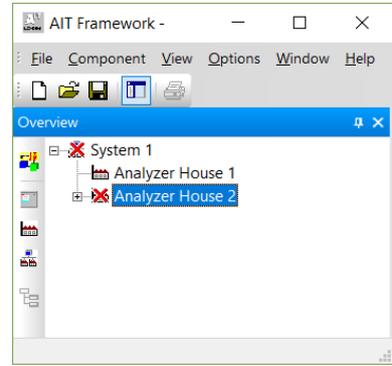
These messages are hierarchically reported to the structuring components in an upward direction.



Error messages from components...



are reported upwards...



and also remain visible with collapsed branches

In addition to this, status messages are recorded with a time-stamp in the windows of the structure components.

3.3.5 Storing Templates

Parts of the tree structure can be stored as templates and used again at any desired point in the current project or other projects. Refer to the description of the template manager for more information on how to accomplish this.

3.4 Components

Clicking the cursor in the empty section of the tree overview activates the left-hand component bar.

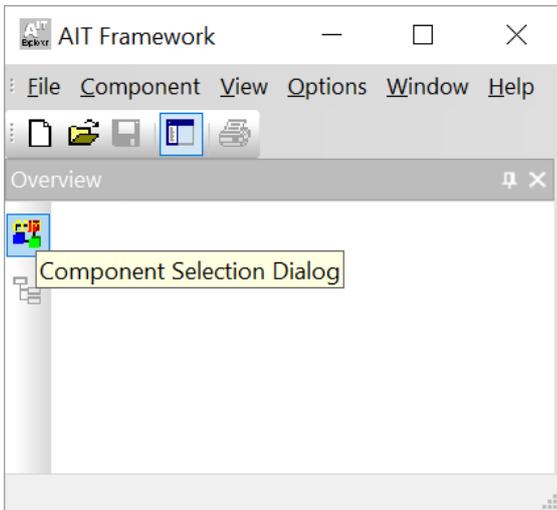


Figure 9 Component Selection

3.4.1 Component Enabling

Clicking the component button causes a selection window containing all the installed components to appear. The components are enabled here for use in the tree structure.

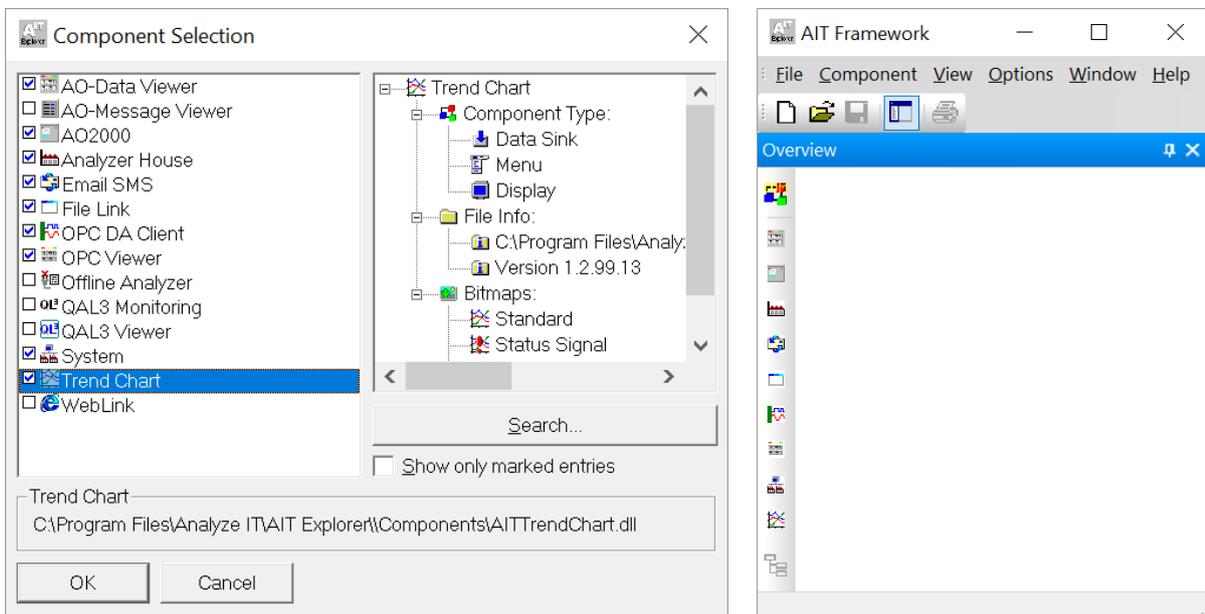


Figure 10 Component bar after enabling of the components

3.4.2 Inserting a Component

Select the desired component from the component bar with the mouse. A com-textbox incorporated in the mouse cursor indicates that the component can now be added to the tree.

Pressing the right mouse button with the pointer over the tree will add the selected component to the tree and leave the framework in component insertion mode. The component can be inserted multiple times in this manner.

Pressing the left mouse button with the pointer over the tree will add the selected component and terminate insertion mode. The left button should therefore be used to add a component once or to add the last one in a series.

3.4.3 Component Properties

Installed components can be edited by clicking the right mouse button over the component. The following applies for all components:

- The component can be renamed as required, e.g. as a measuring point name. The name must be unique and may only be used once within a project tree.
- The component can be deleted from the tree.

Other properties and settings are dependent on the type of component and are described in the respective chapter.

3.4.4 Moving Components

- Installed components can also be subsequently moved to any desired point within the tree. AnalyzeIT Explorer automatically changes the communication structure for all the components concerned automatically.
- To relocate a component, hold the left mouse button down and drag the selected component to another position within the tree. The possible positions are indicated during the movement by the component names lighting up.
- If other components are already attached to a component in a substructure, they are automatically moved and re-installed at the new location.

3.5 Templates

- AnalyzeIT Explorer offers the possibility of storing previously created project substructures or fragments as models or templates. They can then be reused in the same project or imported into other projects. To accomplish this mark the desired branch and select the template symbol at the end of the component bar to open the template manager.

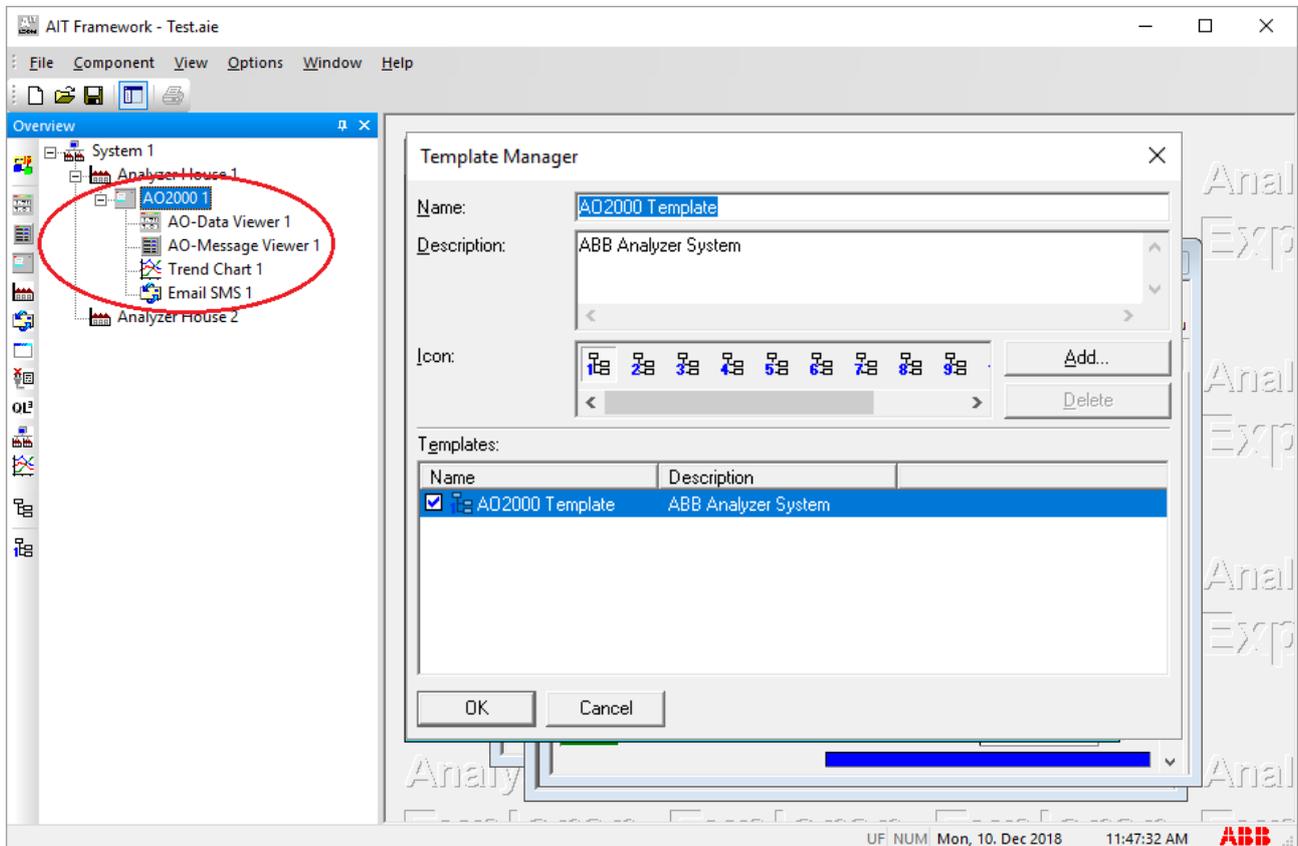
Example:

Two analyzer houses with the same structure under them.

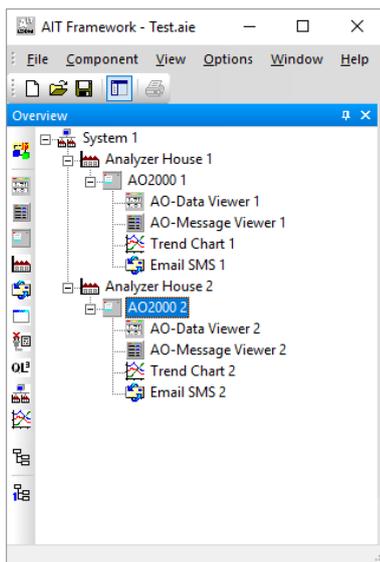
1. A click on instrument component AO2000_1 with right mouse button and selecting "Save Template..." will open the template manager in a separate window.
2. A name (here: "AO2000 Template") is entered and an icon is selected for this template.
3. The template appears in the list in the lower section of the window and can be selected by setting a tick in the small box using the mouse.

- The symbol for the AO2000 template appears at the end of the column for the component selection. From here, it is inserted in Analyzer House 2 in the same way as for any other component.

Note: Individual components without a substructure cannot be stored as a template. The installation contains some templates that can be used for a start. Look in folder “projects”



Selection of a structure for the creation of a template



4 Configuration

The following sections will describe each of the functions of the framework.

4.1 File Menu commands

The **File** menu contains the following commands:

<u>New</u>	Creates a new project or component data record.
<u>Open Project</u>	Opens an existing project.
<u>Save Project</u>	Stores the current project.
<u>Save Project as</u>	Stores the current project under another file name.
<u>Close Project</u>	Closes the current project.
<u>Open</u>	Opens an existing component data record.
<u>Save</u>	Stores the current component data record.
<u>Save as</u>	Stores the current component data record under another file name.
<u>Print Setup...</u>	Selects a printer and a printer connection.
<u>Preview...</u>	Displays the active component data record on the screen as a print preview.
<u>Print...</u>	Prints the loaded component data record.
<u>Exit</u>	Closes AnalyzeIT Explorer

4.1.1 New

The dialog New is called. A new project or, if supported by the currently selected component, a new component data record can be created in the invoked dialog.

4.1.2 Open Project

This command displays the file dialog for selection of a project file. If a project is selected in the dialog and the file dialog ended with OK, the current project is closed (after user confirmation) and the selected project file opened.

4.1.3 Save Project

The current project is saved.

4.1.4 Save Project as...

The current project is saved after input of a (new) file name. A file dialog is opened for the input of the project name.

4.1.5 Close Project

The current project is removed from memory. All associated project windows are closed.

4.1.6 Open

This command displays the file dialog for selection of a component file. If a file is selected in the dialog and the file dialog ended with OK, the active component loads the corresponding file.

Note: This command is only active if a component has been selected in the tree and this component also supports the opening of files.

4.1.7 Save

The data of the active component is stored.

Note: This command is only active if a component has been selected in the tree and this component also supports the saving of files.

4.1.8 Save as...

The data of the active component is saved with the selection of a (new) name. A file dialog is opened for the selection of the file name.

Note: This command is only active if a component has been selected in the tree and this component also supports the saving of files.

4.1.9 Print Setup

This command displays the standard Windows print setup dialog.

Note: This command is only active if a component has been selected in the tree and this component also supports printing.

4.1.10 Preview

This command displays a print preview for the data of the current component.

Note: This command is only active if a component has been selected in the tree and this component also supports the printing of data.

4.1.11 Print

This command prints the data of the current component.

Note: This command is only active if a component has been selected in the tree and this component also supports the printing of data.

4.1.12 Exit

This command closes the current project and ends the application.

4.2 Component Menu Commands

The **Component** menu contains the following commands:

<u>Select</u>	Displays the component selection dialog.
<u>Properties</u>	Displays the component properties dialog of the selected component.
<u>Delete</u>	Deletes the selected component.
<u>Rename</u>	Renames the selected component.
<u>Save Template</u>	Saves the branch of the selected component as a template.
<u>Edit Template(s)</u>	Edits the existing templates.
<u>Component info</u>	Displays program information for the selected component.

4.2.1 Select

This command displays the component selection dialog for selection of the components that are to be used in the project.

4.2.2 Properties

The properties dialog of the current component is displayed.

Note: This command is only active if a component has been selected in the tree.

4.2.3 Delete

The current component and all sub-entries are deleted.

Note: This command is only active if a component has been selected in the tree.

4.2.4 Rename

The current component is renamed.

Note: This command is only active if a component has been selected in the tree.

4.2.5 Save Template

The current component and its sub-entries are saved as a template. All the component properties are saved. The template is administered in the template manager dialog.

Note: This command is only possible if a component has been selected in the tree and this component contains at least one sub-entry.

4.2.6 Edit Template(s)

All the templates in the template manager dialog are administered.

4.2.7 Component Info

The component info dialog for the current component is displayed.

Note: This command is only active if a component has been selected in the tree.

4.3 View Menu Commands

The **View** menu contains the following commands:

- | | | |
|---|---------------------------|---|
| ① | <u>Overview Window</u> | Hides or shows the overview window. |
| ② | <u>Standard-Toolbar</u> | Hides or shows the standard toolbar. |
| ③ | <u>Component Bar</u> | Hides or shows the component bar. |
| ④ | <u>Template Bar</u> | Hides or shows the template bar. |
| ⑤ | <u>Insert Information</u> | Hides or shows the insert information for components. |
| ⑥ | <u>Status Bar</u> | Hides or shows the status bar. |

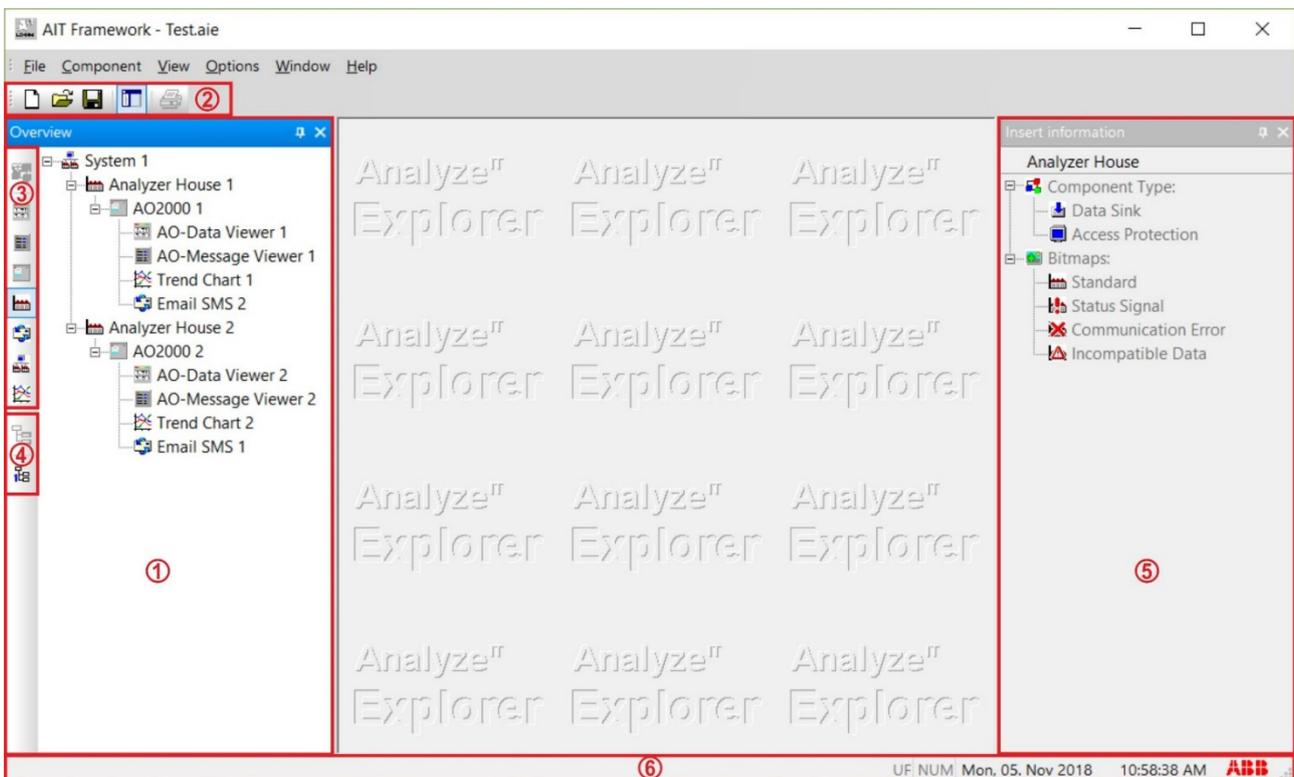


Figure 11 Parts of the Analytical IT Explorer

4.3.1 Overview Window

This command hides or shows the overview window.

4.3.2 Standard Toolbar

This command hides or shows the standard toolbar.

4.3.3 Component Bar

This command hides or shows the component bar.

4.3.4 Template Bar

This command hides or shows the template bar

4.3.5 Insert Information

This command hides or shows the insert information window.

Note: This command is only active in insert mode.

4.3.6 Status Bar

This command hides or shows the status bar.

4.4 Options Menu Commands

The **Options** menu contains the following commands:

<u>Language</u>	Sets the menu system to the corresponding language. DE / EN
<u>Settings...</u>	Edits the settings of AnalyzeIT Explorer.
<u>Access Password...</u>	Input of user and password.
<u>Security Manager</u>	Opens the security manager for editing security settings.
<u>Licensing</u>	Opens a file dialog for selection of the license file.

4.4.1 Language

The language of the application and of all components is set to the selected language. The respective language text files must be present for all components. English and German are available at present.

4.4.2 Settings...

This command displays the settings dialog of the application.

4.4.3 Access Password

Displays the dialog access password of the application for input of a user name and password. Specified functions of the application are accessible or disabled on the basis of these inputs.

4.4.4 Security Manager

Displays the security manager dialog of the application. Users, user groups and corresponding access privileges can be administered in the security manager.

4.4.5 Licensing

This command opens a file dialog for selection of the license file.

The license file contains information on the components and component instances which have been purchased for use with the application.

4.5 Window Menu Commands

The **Window** menu contains the following commands:

<u>Cascade</u>	Cascades the windows.
<u>Tile Horizontally</u>	Tiles the windows horizontally.
<u>Tile Vertically</u>	Tiles the windows vertically.
<u>Maximize</u>	Enlarges the window to full size.
<u>Close</u>	Closes the display window associated with the current component.
<u>Close All</u>	Closes all windows.
<u>Arrange Icons</u>	Arranges the icons in the lower section of the window.

4.5.1 Cascade

The display windows on the right-hand side of the screen are placed in a cascade.

4.5.2 Tile Horizontally

The display windows on the right-hand side of the screen are tiled horizontally.

4.5.3 Tile Vertically

The display windows on the right-hand side of the screen are tiled vertically.

4.5.4 Maximize

The current component display window on the right hand side of the screen is displayed full size.

4.5.5 Close

The current component display window on the right-hand side is closed (hidden).

4.5.6 Close all

All the display windows of the right-hand side of the screen are closed (hidden).

4.5.7 Arrange Icons

All the icons are arranged in the lower section of the display window.

4.6 Help (?) Menu Commands

The **Help** menu contains the following commands:

License Information

Displays license information.

Program info

Displays program information, version number and copyright.

4.6.1 License Information

An overview of the installed licenses is displayed.

4.6.2 Program Info

The program information or about dialog appears.

The program information dialog is used to display program information, version number, copyright and license.

4.7 Dialogs

4.7.1 Menu Item File > New

Dialog: Project:

New project files can be created from existing projects with this dialog. Select a basic project on which the new project will be based. Provide a file name for the new project and select a project directory. The new project is loaded after confirmation with OK. Any currently loaded project will be closed after a warning message.

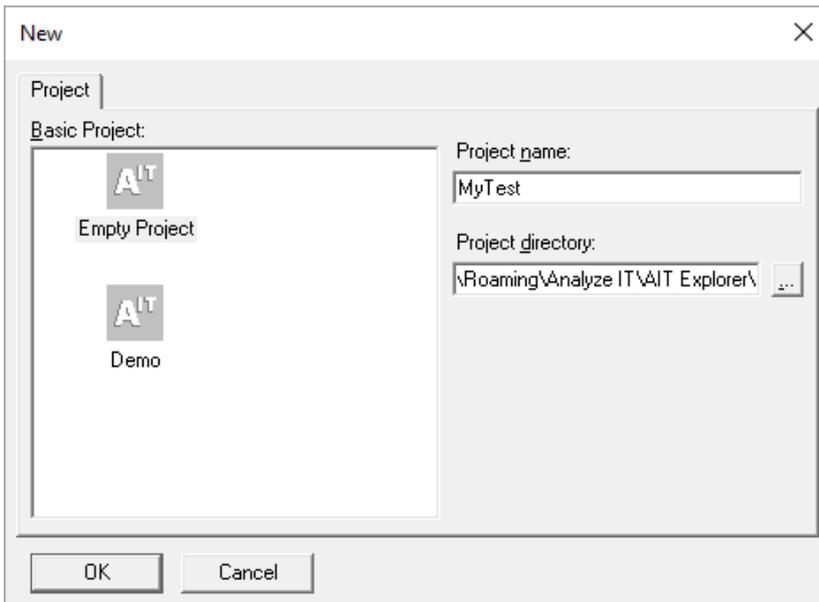


Figure 12 New Project Dialog

- | | |
|--------------------------|--|
| Basic Project | These are projects in the project directory that can be used as a basis for new projects. Select "Empty Project" if you wish to create a project without any pre-defined contents. |
| Project Name | Input field for the name of the new project. |
| Project directory | Input field for the project directory of the new project. |

File Dialog

New component-specific files can be created with this dialog. The prerequisite for this is that the current component supports the creation of new files.

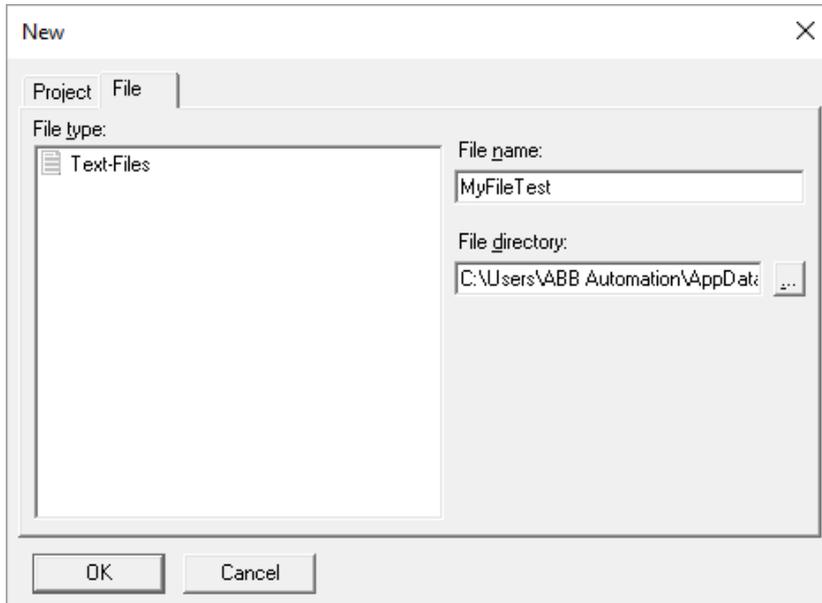
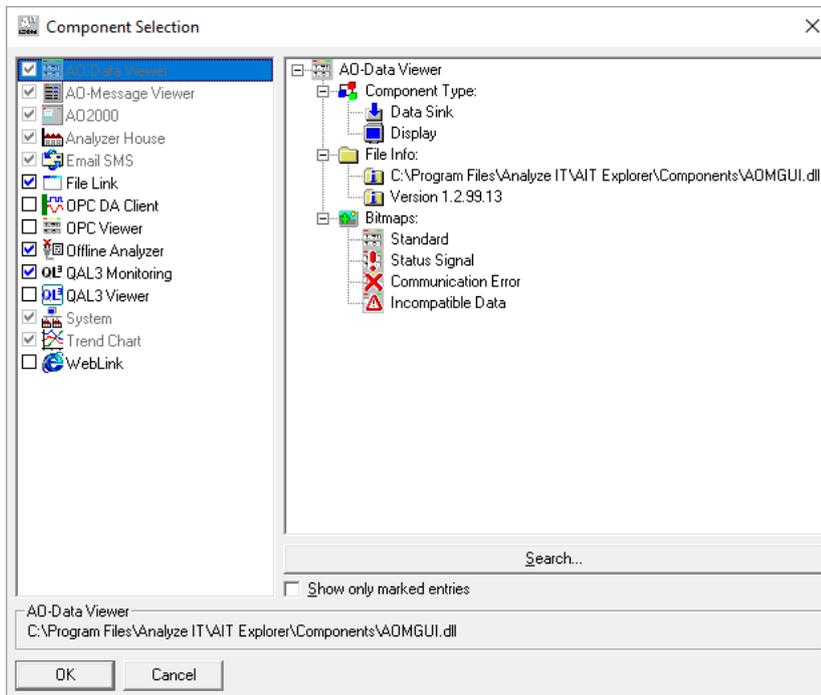


Figure 13 New File Dialog

- | | |
|-----------------------|---|
| File type | Select the type of file which is to be created here. The respective file types are provided by the component. |
| File name | Input field for the name of the new file. |
| File directory | Input field for the directory of the new file. |
| Note: | The file section is only visible if the current component supports the creation of new files and at least one file type is available for new files. |
| OK | Checks the entries, closes the dialog and transfers the settings. |
| Cancel | Closes the dialog. Altered settings are not transferred. |

4.7.2 Component Selection

Select the components that you wish to use in your project using this dialog. An icon in the component bar will represent each selected component.



Component list

The AnalyzeIT Explorer components that have been registered are displayed in this list.

Activate a component for your project by checking the small box on the left of the component name.

Component overview

Provides information about the selected component in the component list.

Search...

Displays a file dialog for selection of a component file. If a valid component file is selected with this dialog, the components contained in the file will appear in the component list.

Show only marked entries

If this is selected, only the selected component entries will appear in the component list.

Component Name

The complete file name of the component file is displayed here.

OK

Checks the entries, closes the dialog and transfers the settings.

Cancel

Closes the dialog. Altered settings are not transferred.

4.7.3 Template Manager (Dialogs)

AnalyzeIT Explorer offers the possibility of storing tree fragments as templates and subsequently inserting the complete fragments into a project.

These templates are administered in the template manager.

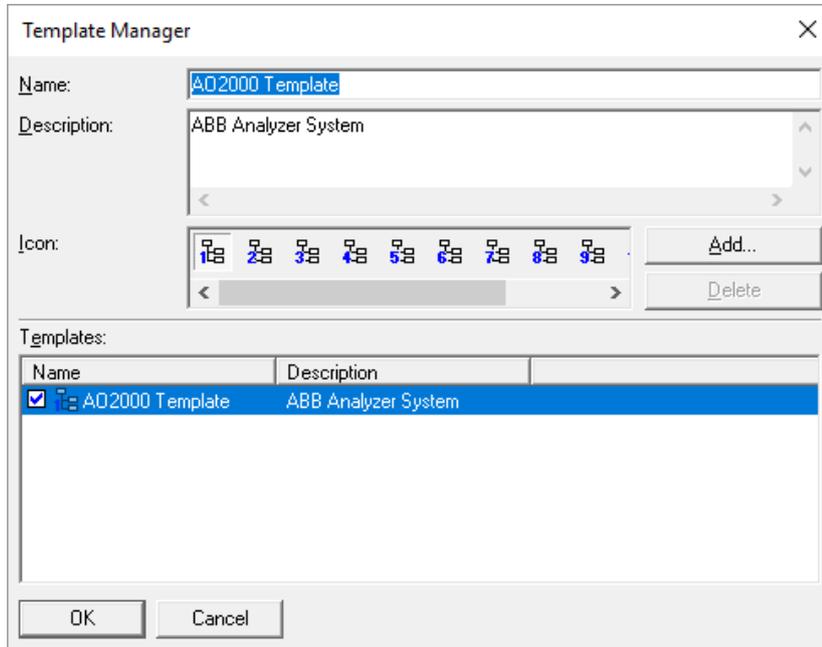


Figure 14 Template Manager Dialog

Name	Any desired name for the template
Description	A description of the template
Icon	List of available icons that can be associated with the template. The currently associated template icon is highlighted. This icon appears in the template bar of the main window if the template is selected.
Add...	Allows new icons to be loaded from a file and added to the icon list. The <u>icon selection</u> dialog is called.
Delete	Allows icons to be deleted from the icon list. Pre-defined icons (1-12) cannot be deleted.
Templates	Displays a list with existing templates. Select the templates that you wish to use in the main window by checking the small box on the left of the template name.
OK	Checks the entries, closes the dialog and transfers the settings.
Cancel	Closes the dialog. Altered settings are not transferred.

4.7.4 Icon Selection (Dialogs)

Select additional icons for the icon list of the template manager dialog.

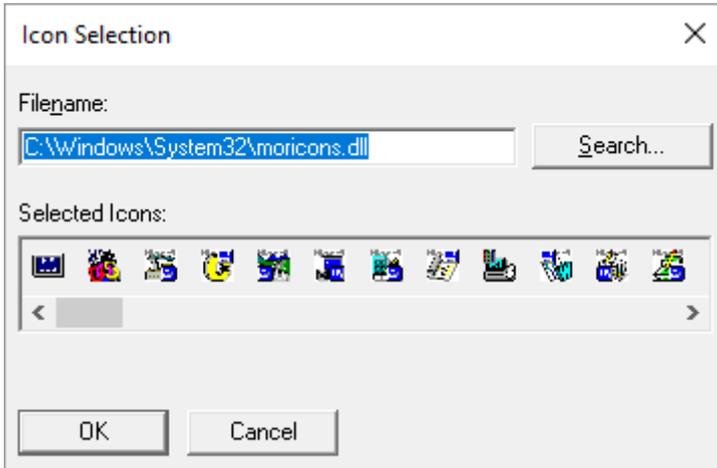


Figure 15 Icon Selection Dialog

Filename	Name of the file that contains the additional icons.
Search...	Opens a file dialog for selection of a file with icons.
Selected Icons	Here you select the icons that are to be inserted in the template manager icon list.
OK	Checks the entries, closes the dialog and transfers the settings.
Cancel	Closes the dialog. Altered settings are not transferred.

4.7.5 Settings (Dialogs)

Several settings for editing, data exchange and display can be made in this dialog.

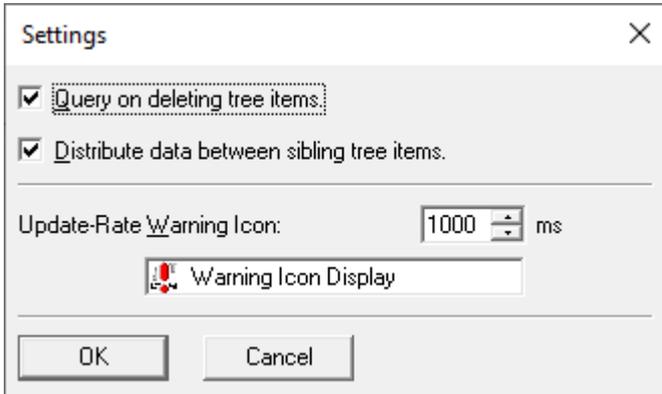


Figure 16 Settings Dialog

Query on...	If this switch is activated, a query dialog is displayed before any deletion of components from the overview takes place.
Distribute...	If this switch is activated, data can be exchanged between sibling entries within the tree. As a rule, data can only be transferred to higher-ranking or subordinate entries.
Update rate	If a component receives a fault status, its icon begins to flash in the overview. The flash frequency can be set in this entry.
Icon display	Graphically displays how the flash frequency will look in the tree.
OK	Checks the entries, closes the dialog and transfers the settings.
Cancel	Closes the dialog. Altered settings are not transferred.

4.7.6 Access Password (Dialogs)

The current user must enter his user name and password into this dialog in order to start using the AnalyzeIT Explorer.

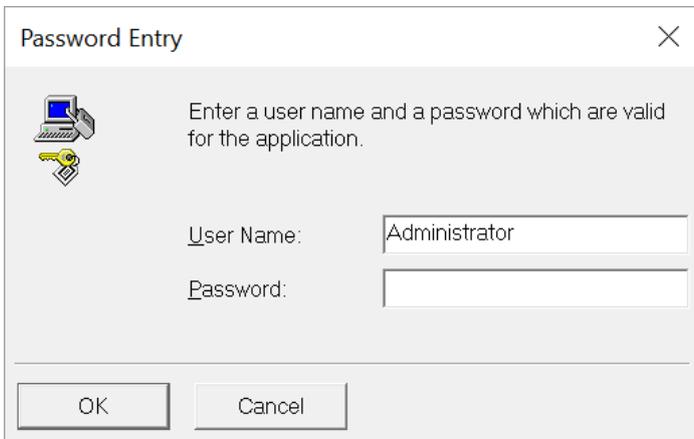


Figure 17 Access Dialog

User name	The name of the user who wishes to log in.
Password	The password of the user who wishes to log in.
OK	Checks the entries, closes the dialog and logs in the stated user if the entry is correct.
Cancel	Closes the dialog. The settings are not transferred and the previous user remains logged in.

4.7.7 Security Manager (Dialogs)

The security manager is used for the administration of user accounts, user privileges and user passwords.

New user accounts can be created here and assigned to user groups. The administrator can disable or enable user accounts.

The security manager is an important instrument for enabling or disabling specified functions within AnalyzeIT Explorer for selected users. For example, the entry of instrument IP addresses can be restricted to a few users. This is good policy to prevent the accidental reconfiguration of successfully installed projects.

There are user privileges for the framework and for individual components. Typically the configuration of the framework and components is restricted to a few specific users.

The security settings for AnalyzeIT Explorer are set in this dialog. In addition to administration of users and groups, the security policy for the main program and certain components can be defined here. The possible settings for the components are described under the respective component.

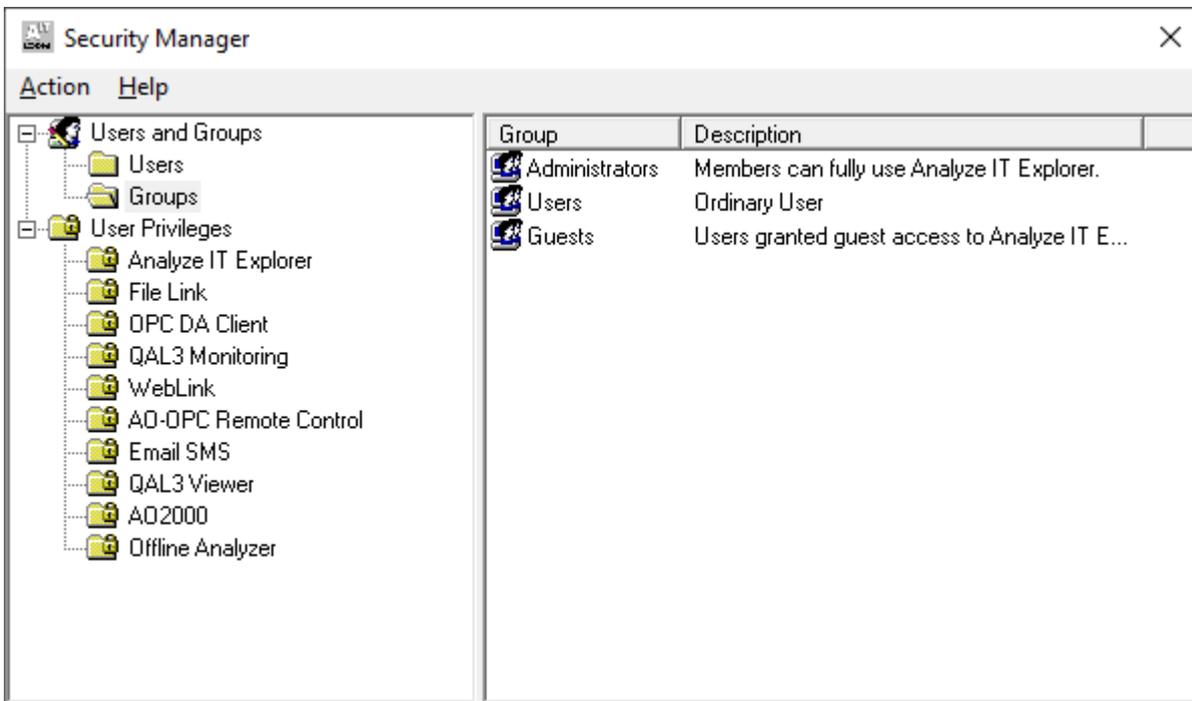


Figure 18 Security Manager Dialog

Selecting an item on the left-hand side changes the list on the right-hand side:

Selection on the left-hand side:	List:
Users and groups	Displays only the "Users" and "Groups" entries.
Users	Displays all the user names in the system.
Groups	Displays all the group names in the system.
User Privileges	Displays the name of the main program and all components that have a configurable security policy.
Main program or component name	Displays all the possible security policies of the selected entry.

4.7.8 Actions:

Users

The item "Users" must be selected in the overview window on the left-hand side; a user name must be selected in the user list on the right-hand side.

Editing is only possible if the menu item "Action" has been selected. The following menu entries are available for user editing:

New User...	A new user is created. The <u>new user</u> dialog is called for the input.
Delete	Deletes the current user. The user "Administrator" cannot be deleted.
Rename	Renames the current user. The user "Administrator" cannot be renamed.
Properties...	The properties of the current user can be changed. The <u>user properties</u> dialog is opened.

Groups

The item "Groups" must be selected in the overview window on the left-hand side, a group name must be selected in the group list on the right-hand side.

Editing is enabled by selecting "Action" from the menu. The following menu entries are available for group editing:

New local Group...	A new group is created. The <u>new group</u> is called for the input.
Delete	Deletes the current group. The groups "Administrators", "Users" and "Guests" cannot be deleted.
Rename	Renames the current group. The groups "Administrators", "Users" and "Guests" cannot be renamed.
Properties...	The properties of the current group can be changed. The <u>group properties</u> dialog for setting the group properties is opened.

Policy

One of the sub-entries of the user privileges (name of the application or a component name) must be selected in the overview window on the left-hand side, a security policy must be selected on the right-hand side.

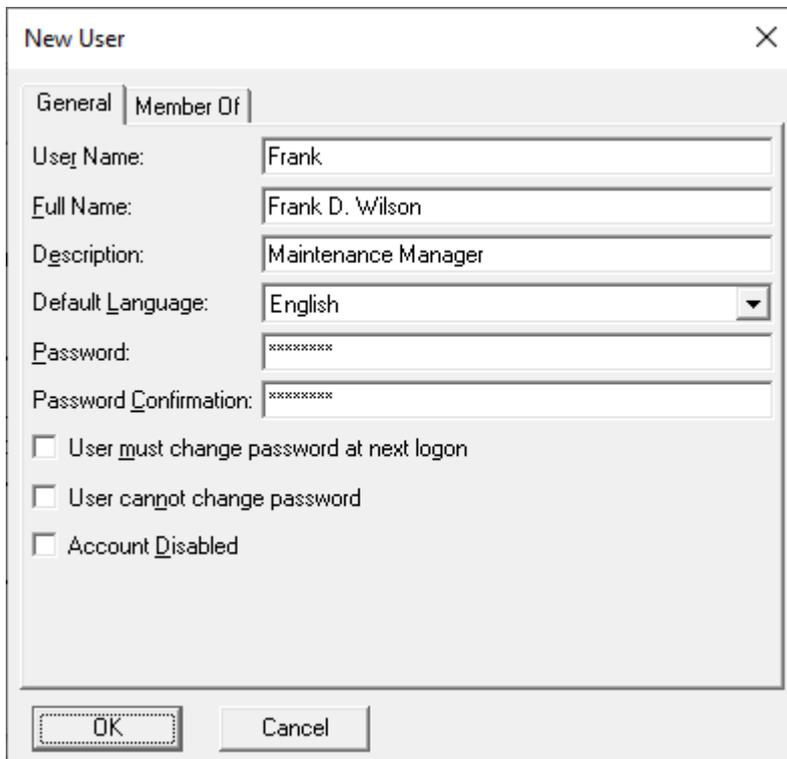
Editing is enabled by selecting "Action" from the menu. The following menu entries are available for group editing:

Security Displays the dialog for the security policy for allocation of the policy to a specific user or group.

4.7.9 New User (Dialog)

The entries for a new user are made in this dialog.

Dialog: General



The screenshot shows a dialog box titled "New User" with a close button (X) in the top right corner. The dialog has two tabs: "General" (selected) and "Member Of". The "General" tab contains the following fields and options:

- User Name: Frank
- Full Name: Frank D. Wilson
- Description: Maintenance Manager
- Default Language: English (dropdown menu)
- Password: *****
- Password Confirmation: *****
- User must change password at next logon
- User cannot change password
- Account Disabled

At the bottom of the dialog are two buttons: "OK" and "Cancel".

Figure 19 New User – General Dialog

User Name	Enter the name of the user here.
Full Name	Enter the full name of the user here (optional).
Description	Enter a description of the user here (optional).
Default Language	Enter a default language for the user here. The application is automatically set to this language, as soon as the user logs on.
Password	Enter a password for the user here.
Password Confirmation	Confirm the password for the user here.
User must change password at next logon	If this switch is selected, the user must change his password at the next logon.
User cannot change password	If this switch is selected, the user cannot change his password.
Account disabled	If this switch is selected, the user cannot logon.

Dialog: Member Of

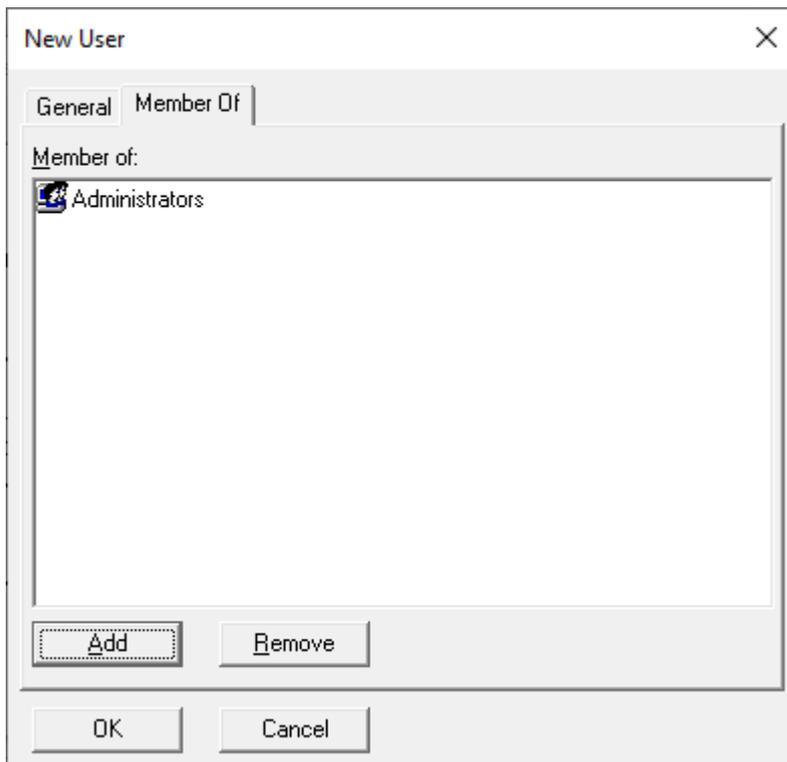


Figure 20 Group Dialog

Member Of	Displays the group(s) to which the user belongs.
Add	Adds a group to the "Member Of" entries.
Remove	Deletes an entry from the "Member Of" list.
OK	Checks the entries, closes the dialog and transfers the settings.
Cancel	Closes the dialog. Altered settings are not transferred.

4.7.10 User Properties (Dialogs)

This dialog allows changing the characteristics of an existing user account.

Dialog: General:

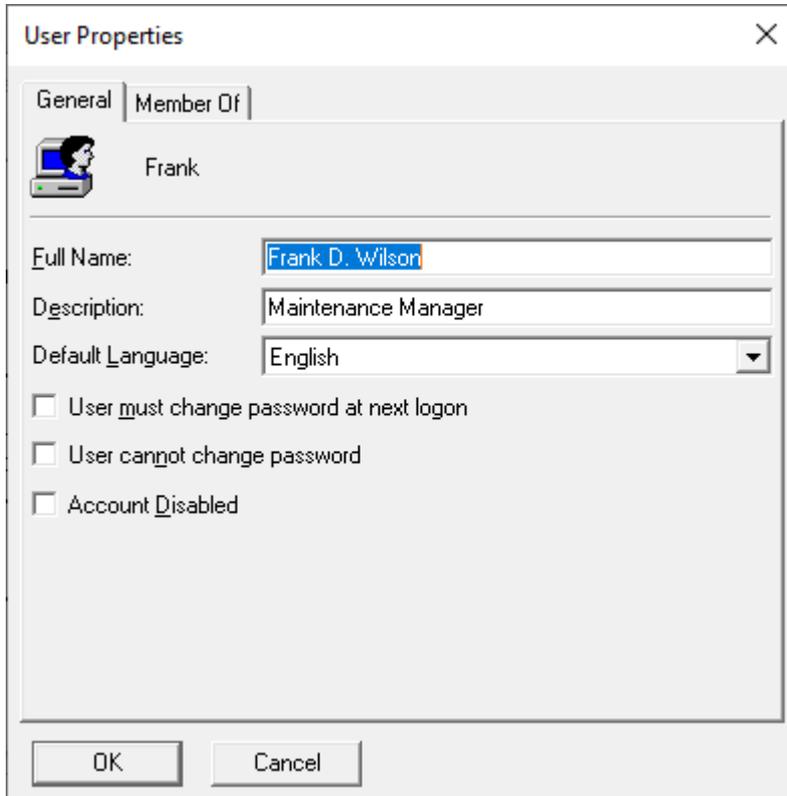


Figure 21 User Properties Dialog

Full Name	The full name of the user is shown here, it can be changed.
Description	The current description for this user account is shown here, it can be changed.
Default Language	The default language for the user. The application is automatically set to this language, as soon as the user logs on.
User must change password at next logon	If this switch is selected, the user must change his password at the next logon.
User cannot change password	If this switch is selected, the user cannot change his password.
Account disabled	If this switch is selected, the user cannot logon.

Dialog: Membership

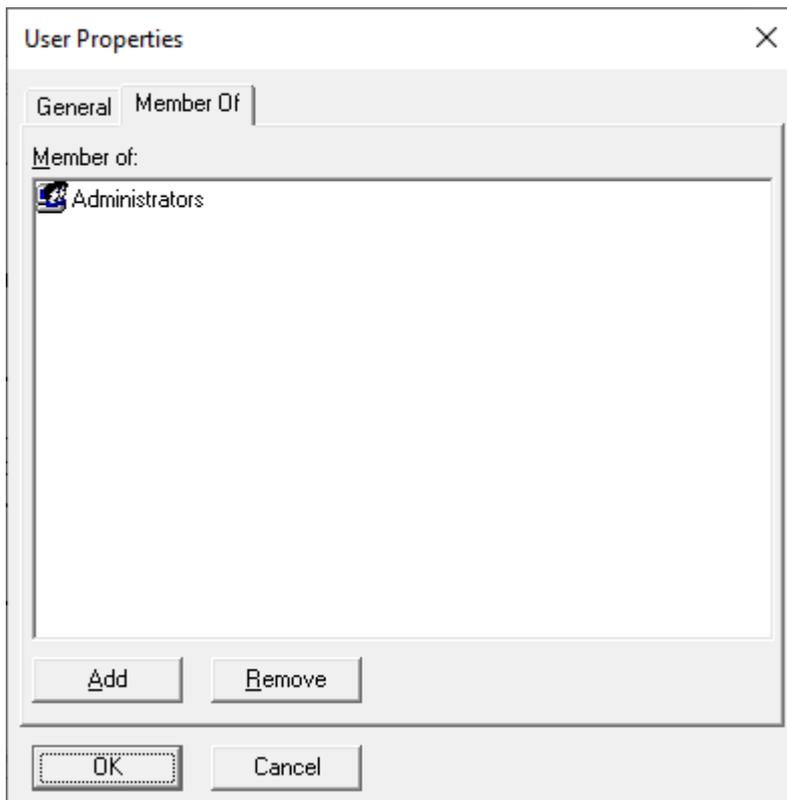


Figure 22 Group Membership Dialog

Member Of	Displays the group(s) to which the user belongs.
Add	Adds a group to the "Member Of" entries.
Remove	Deletes an entry from the "Member Of" list.
OK	Checks the entries, closes the dialog and transfers the settings.
Cancel	Closes the dialog. Altered settings are not transferred.

4.7.11 New Group (Dialogs)

This dialog is used to create a new group.

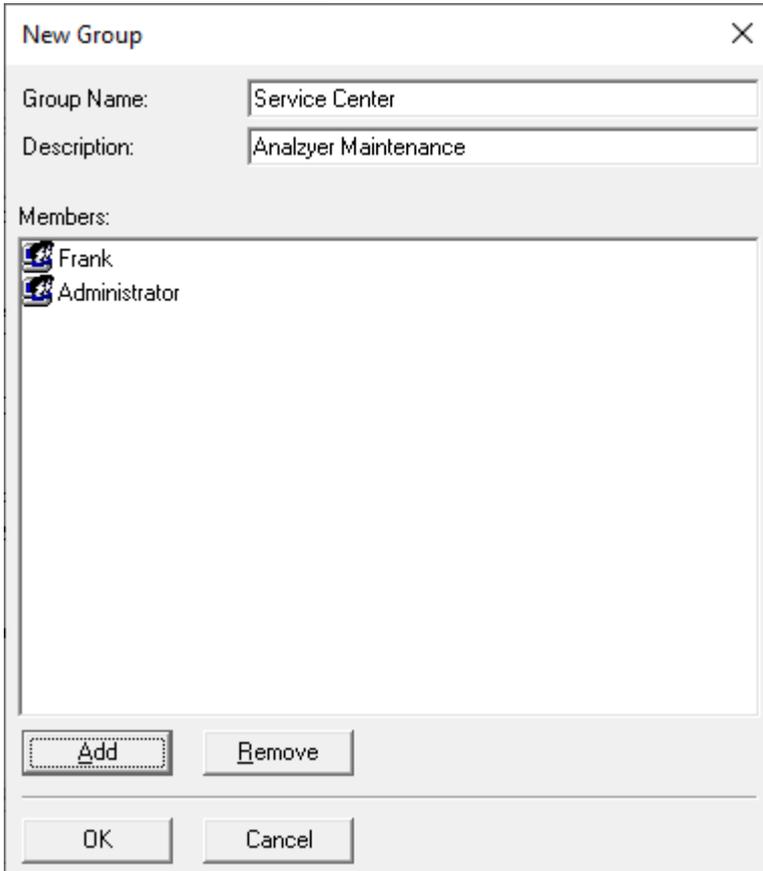


Figure 23 New Group Dialog

Group Name	Enter a name for the group here.
Description	Enter a description for the group here.
Members	The current members (users) of the group are displayed in this list.
Add	This button allows members (users) to be added to this group.
Remove	The selected member is deleted from the group.
OK	Checks the entries, closes the dialog and transfers the settings.
Cancel	Closes the dialog. Altered settings are not transferred.

4.7.12 Group Properties (Dialogs)

This dialog allows changing the characteristics of an existing group.

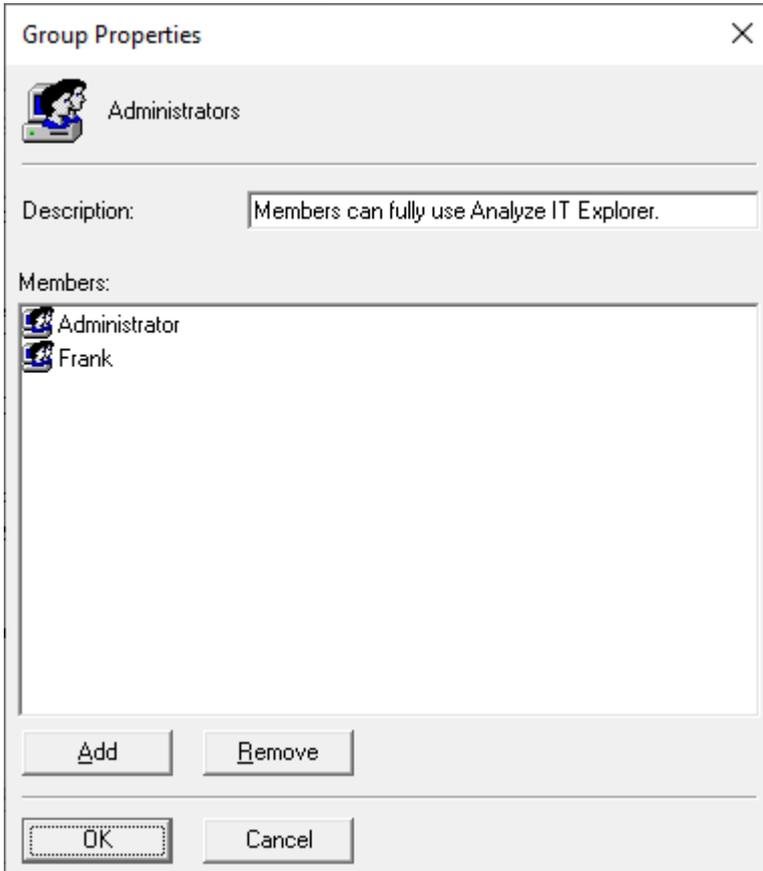


Figure 24 Group Properties Dialog

Description	Enter a description of the group here.
Members	The current members (users) of the group are displayed in this list.
Add	This button allows members (users) to be added to this group.
Remove	The selected member is deleted from the group.
OK	Checks the entries, closes the dialog and transfers the settings.
Cancel	Closes the dialog. Altered settings are not transferred.
Help	Displays on-line help text.

4.7.13 Select User (Dialogs)

Users are selected in this dialog.



Figure 25 Select User Dialog

Name (top list)	Displays the list of known users.
Add	Adds a user to the selection.
Bottom List	Displays the selected users.
OK	Checks the entries, closes the dialog and transfers the settings.
Cancel	Closes the dialog. Altered settings are not transferred.

4.7.14 Select Group (Dialogs)

Groups are selected in this dialog.

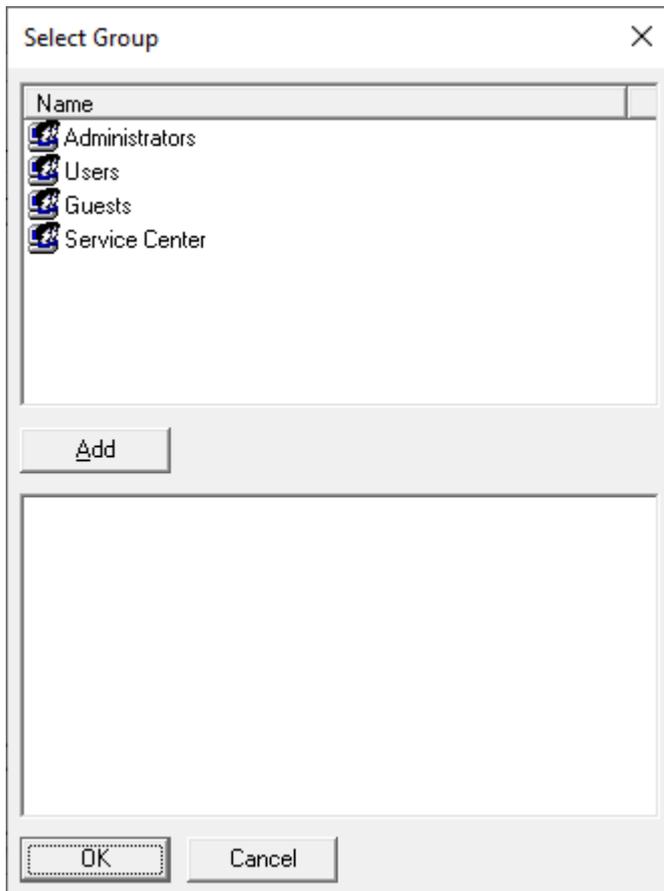


Figure 26 Select Groups Dialog

Name (top list)	Displays the list of known groups.
Add	Adds a group to the selection.
Bottom List	Displays the selected groups.
OK	Checks the entries, closes the dialog and transfers the settings.
Cancel	Closes the dialog. Altered settings are not transferred.

4.7.15 Select User or Group (Dialogs)

Users and / or groups are selected in this dialog.



Figure 27 Select User Dialog

Name (top list)	Displays the list of known users and groups.
Add	Adds a user or a group to the selection.
Bottom List	Displays the selected users and/or groups.
OK	Checks the entries, closes the dialog and transfers the settings.
Cancel	Closes the dialog. Altered settings are not transferred.

4.7.16 Security Policy (Dialogs)

This dialog allows linking a specific privilege to a user or a group thus allowing the user or users that are part of a group to perform an action at a later time. This is known as a security policy.

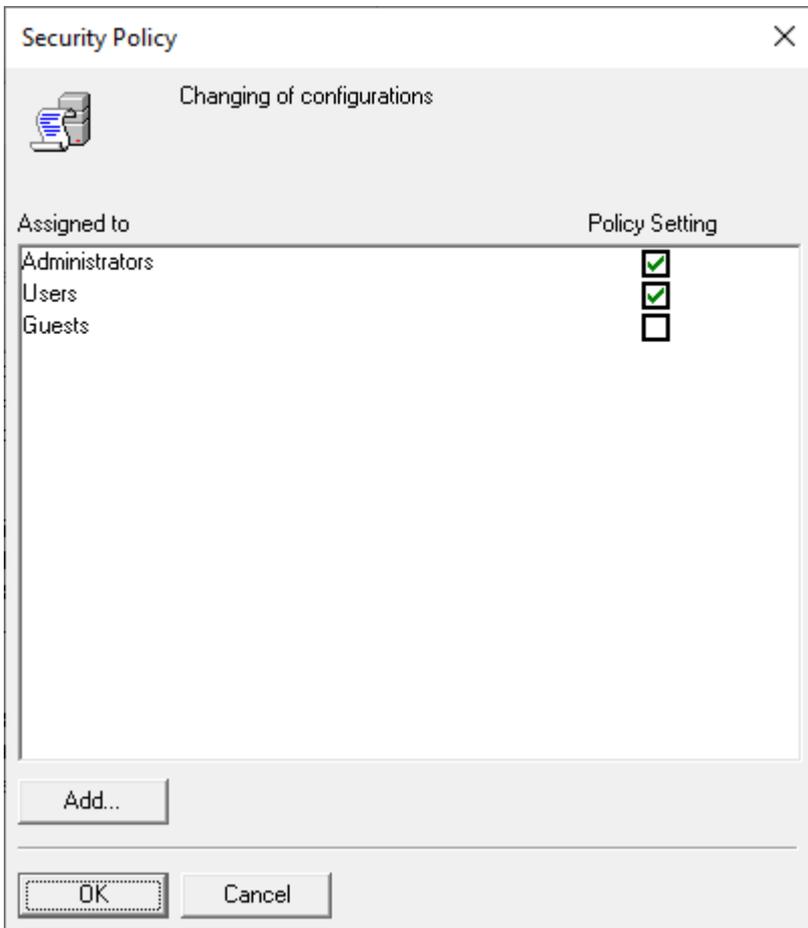


Figure 28 Security Policy Dialog

Headline	Displays the action for which to change the policy.
Assigned to.... Policy Settings	Access privileges are enabled for a user or a group if the check box behind the name is marked.
Add...	Adds a user or a group to the assignment list.
OK	Checks the entries, closes the dialog and transfers the settings.
Cancel	Closes the dialog. Altered settings are not transferred.
Help	Displays on-line help text.

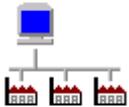
5 Basic Components for CGAs

The basic components for CGAs (Continuous Gas Analyzers) are the following:

- System Component
- Analyzer House Component
- AO2000 Component
- AO-Data Viewer Component
- AO-Message Viewer Component
- Trend Chart Component
- File Link Component
- Web Link Component

These components are supplied as a licensed package for the continuous gas analyzers of the AO2000 series (or Advance Optima) and include all the important basic functions for the remote maintenance of the analyzers via an Ethernet network.

5.1 The System Component



The system component is a simple structuring component.

It is used as a starting point for the creation of a project tree.

The system component does not have its own window in the display area. However, it is integrated in the message system of the tree structure and reacts to communication data.

It displays errors arising in the project by means of a flashing icon.

5.2 The Analyzer House Component



The analyzer house component is a general structuring component with a display window. In addition to indicating errors by means of flashing icon, a list with the analyzers error and maintenance information is displayed in the display window. The list includes all the analyzers that are placed in the branch above and below the analyzer house component.

The error messages are listed in tabular form and furnished with a time-stamp. The IP address (alternatively the server name) is shown in addition to the free system name from the tree structure for identification of the analyzers. The current messages from a group are indicated in the header in accordance with NAMUR standards.

- indicators for communication error in the network and indicates that the connection to the analyzers is interrupted.
- RED for error/fault messages, indicates a failure of an instrument
- YELLOW for maintenance required, indicates a request for maintenance from an instrument
- BLUE for maintenance mode, indicates that an instrument is currently being serviced or is in an automatic calibration cycle.
- CYAN (LIGHT BLUE) for internal system messages from the analyzers alarm generators

The lists can be displayed in two different ways:

An **Overview List** shows all analyzers listed with the types of messages, which are actually present in the system. A summarized status for the whole list is shown in the top area.

System Name	IP Address	Time	Error	Maintenance Request	Maintenance Mode	System Message
AO2000 1	127.0.0.1	27.09.2019 - 09:25:30	3	1	0	0
AO2000 2	192.168.178.58	27.09.2019 - 09:25:30	3	1	0	0

A **History List** shows all status signals of the current session with time stamp in order of their appearance. The meaning of the color fields is described in the field above the list. At the same time, the total status of the entire group is displayed here.

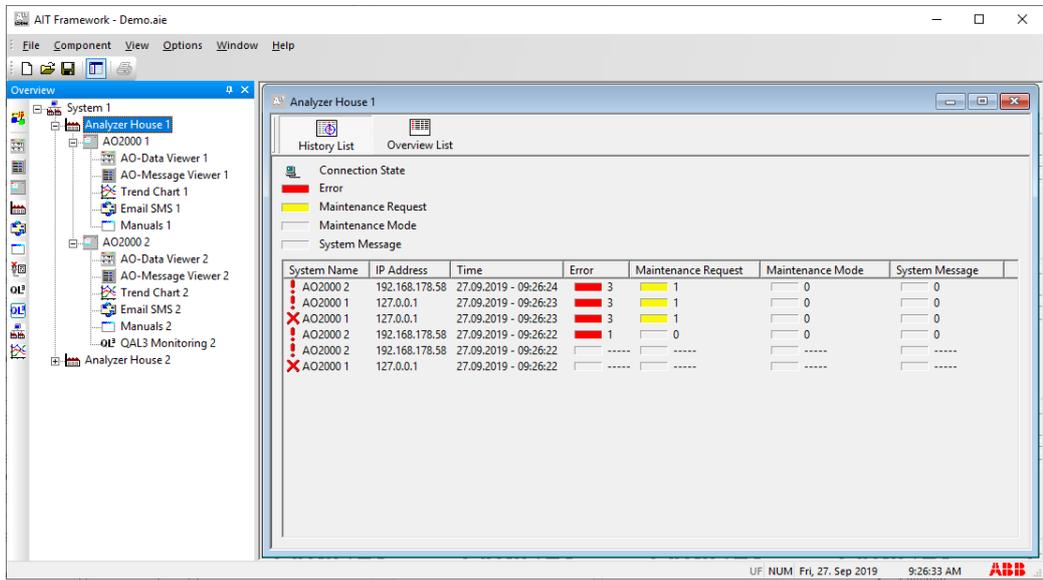


Figure 29 Analyzer House status

5.3 AO2000 Component



The AO2000 component is used for communication with AO2000 gas analyzers and legacy Advance Optima analyzers via the Ethernet network.

A right mouse click on an AO2000 component opens a menu window with the following options:

- Properties
- Delete
- Rename
- Save Template...
- Remote HMI
- Synchronize Time
- Component info

5.3.1 Properties

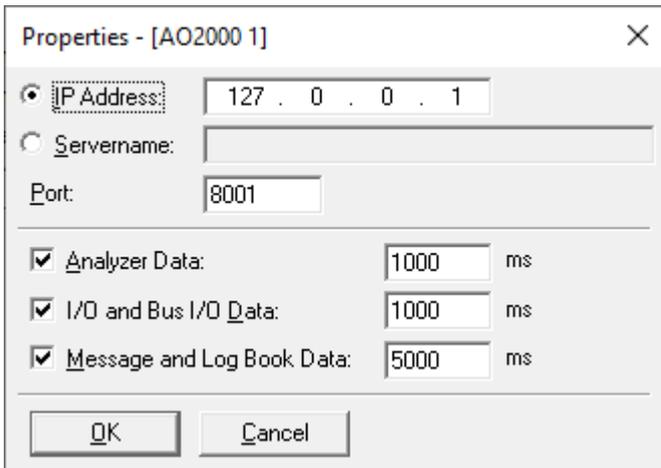


Figure 30 AO2000 Properties Dialog

IP Address	The IP address of the AO2000 system instrument is entered here.
Servername	The server name can be specified as an alternative to the IP address.
Port	Port number for TCP/IP Ethernet communications (default = 8001). The network administrator can provide the correct port number to use.
Analyzer Data	Enable this item to transfer measured values or auxiliary variables from the instrument and enter an update rate for the data.
I/O and Bus I/O Data	Enable this item to transfer the I/O and Bus I/O-specific data from the instrument and enter an update rate for the data.
Message and Logbook Data	Enable this item to transfer the message and logbook-specific data from the instrument and enter an update rate for the data.
OK	Checks the entries, closes the dialog and transfers the settings.
Cancel	Closes the dialog. Altered settings are not transferred.

5.3.2 Delete

Deletes the active component and all the components (sub-entries) placed below this component.

5.3.3 Rename

Allows the user to change the component name. The name field in the tree is overwritten directly. AnalyzeIT Explorer automatically communicates the new name to any connected components.

5.3.4 Save Template...

This menu item is visible only if in the tree structure at least one additional component is configured beneath the component.

The template manager opens its dialog window. The component and its subordinate tree can be saved as a template.

5.3.5 Security-Manager

Privileges for changing the IP address and the update rate of the AO2000 component can be allocated to specific users or disabled for specific users in the security manager. (See “Security Manager (Dialogs)”).

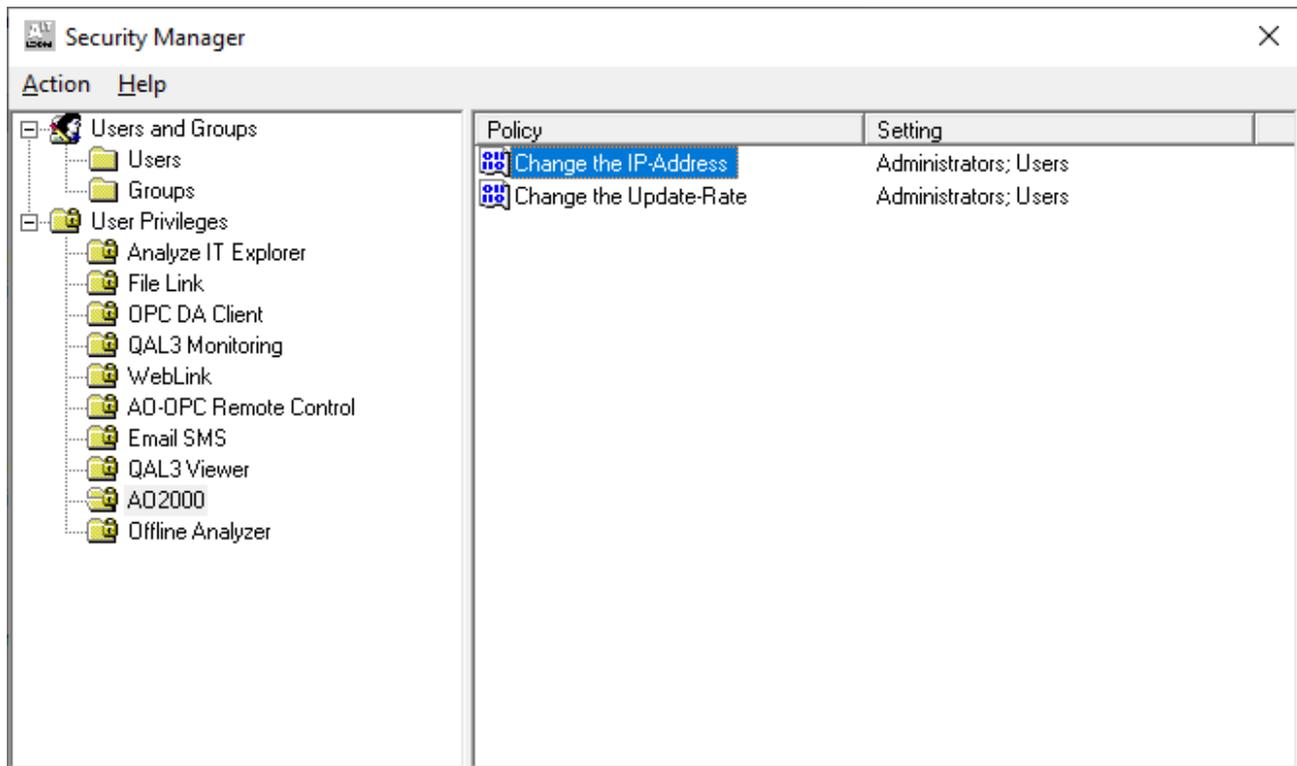


Figure 31 Use of the Security Manager

5.3.6 Remote HMI

Remote operation of connected gas analyzers is possible with this component.

A window that represents an exact image of the operator control panel for the analyzer opens.

All key functions and menu items are included and all the functions of the analyzer can be remotely accessed. This component can also be installed and operated independently of AnalyzeIT Explorer.

The AO-HMI software for remote operation of gas analyzers represented by the AO2000 component is automatically started by the AnalyzeIT Explorer.

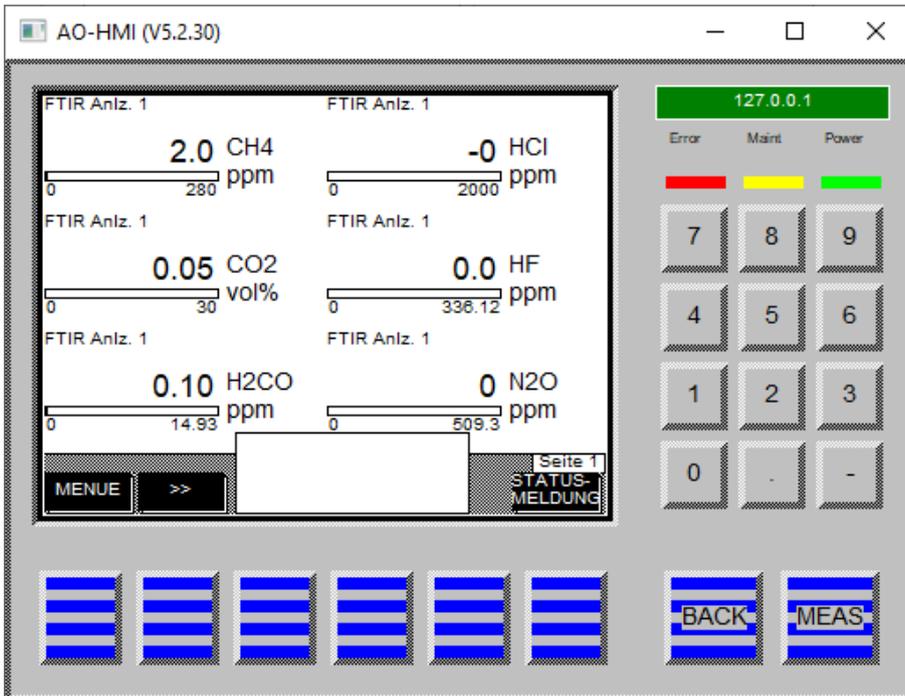


Figure 32 AO2000 Remote HMI

In the case of mixed operation with older analyzers of the Advance Optima type, it is necessary to install previous versions of the AO-HMI (including the earlier Optima Remote HMI) on the computer. This is the only way to open a remote operation window for older firmware versions. The older versions are included on the AnalyzeIT Explorer CD ROM and on the CD-ROM supplied with the instruments.

For more information on the AO-HMI see the software reference manual.

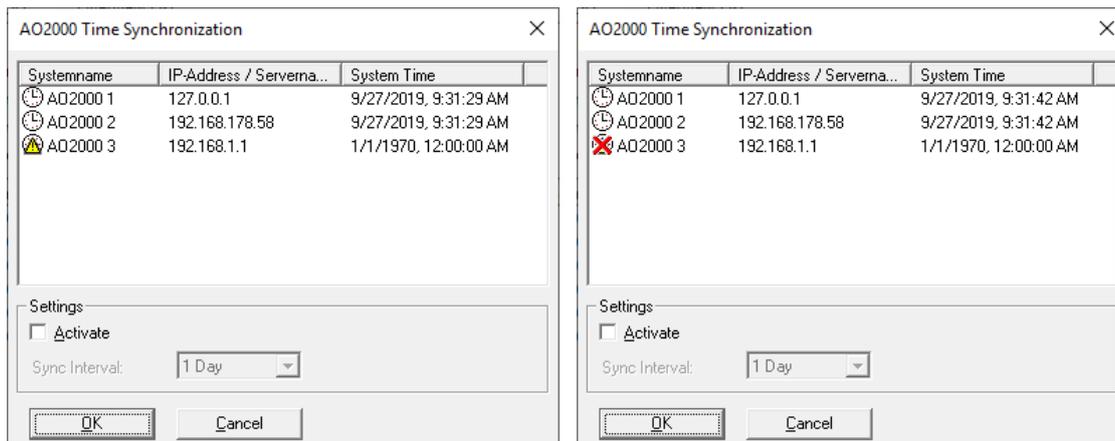
5.3.7 Synchronize Time

Date and time basis of AO2000 and Advance Optima analyzers on the network can be synchronized to the time basis of the PC where Analyze IT Explorer is installed.

The adjustments for time synchronization are made in the property menu of an AO2000 component.

You can select any of the installed AO2000 icons to access a complete list of all AO2000 or Advance Optima analyzers at the net.

The dialog consists of two areas. At the top is a list of all automatically detected AO2000 connections. The symbols in the first column of the table give you information if synchronization of this analyzer is possible or not, depending on the software version installed in the analyzer. An analyzer, which is detected, but not accessible (connectivity loss) will have a blinking cross overlaying the clock symbol.

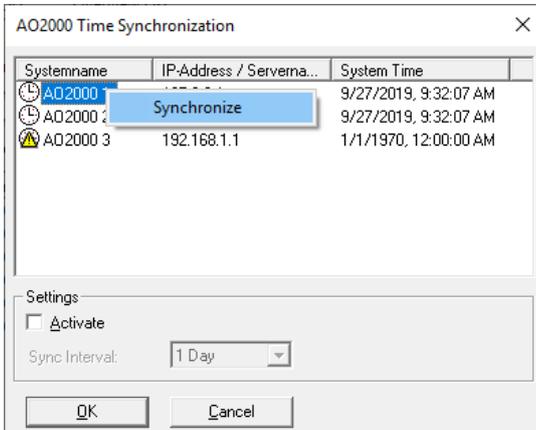


Symbol	Description	Meaning
	Clock or crossed clock	Time synchronization is possible. If crossed and blinking it is not accessible at the network
	Clock with yellow triangle or crossed	A time synchronization is not possible for this software version. If crossed and blinking it is not accessible at the network

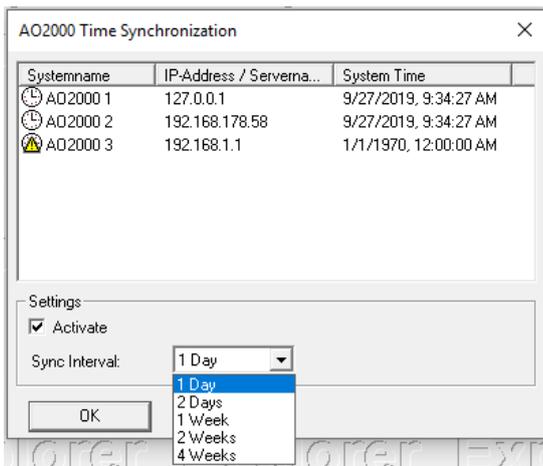
If an analyzer was not accessible during startup of AIT Explorer it will be marked automatically as 'synchronization not possible' even if the analyzer has the possibility. It's only possible to detect the ability with analyzers being on the net at a time when AIT Explorer is running.

Instant synchronizing of a selected analyzer from the list can be done by using the right mouse button. A Pop-up window will appear asking for “synchronize”.

By selecting this menu item, the time of the currently selected AO2000 connection is directly configured.



In the lower area of the synchronization window you can select time intervals for synchronizing all analyzers in the list. The following options are selectable:



Activate	Selecting this option will start the synchronization for all detected analyzers immediately after pressing the OK button. The interval fixes the time between two synchronizations. It is independent then from changing projects or adding new analyzers to the network.	
Sync Interval	1 day	1 day between synchronization
	2 days	2 days between synchronization.
	1 week	1 week between synchronization
	4 weeks	4 weeks between synchronization.

If the operator wants to synchronize a new analyzer at the network immediately after the installation he has to select the analyzer from the list and synchronize manually with right mouse button. The analyzer will be then synchronized again automatically in the selected interval.

Note:

Advance Optima analyzers with software version V2.0.0 or less can be synchronized without additions. AO2000 series analyzers need software version V3.0.5 or higher. AO2000 analysatoren with software version V3.0.0 need to be updated to obtain the synchronization feature.

5.3.8 Component Info

Provides the name and version number of the component.

5.4 AO-Data Viewer Component

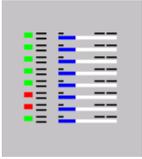


Figure 33 AO Data Viewer component

The AO-Data Viewer component is used to display measured values from the analyzer, I/O and Bus I/O data in the display window. It is not used to remotely operate the analyzer. If the number of displayed values is more than can be displayed on the screen a scroll bar will appear automatically.

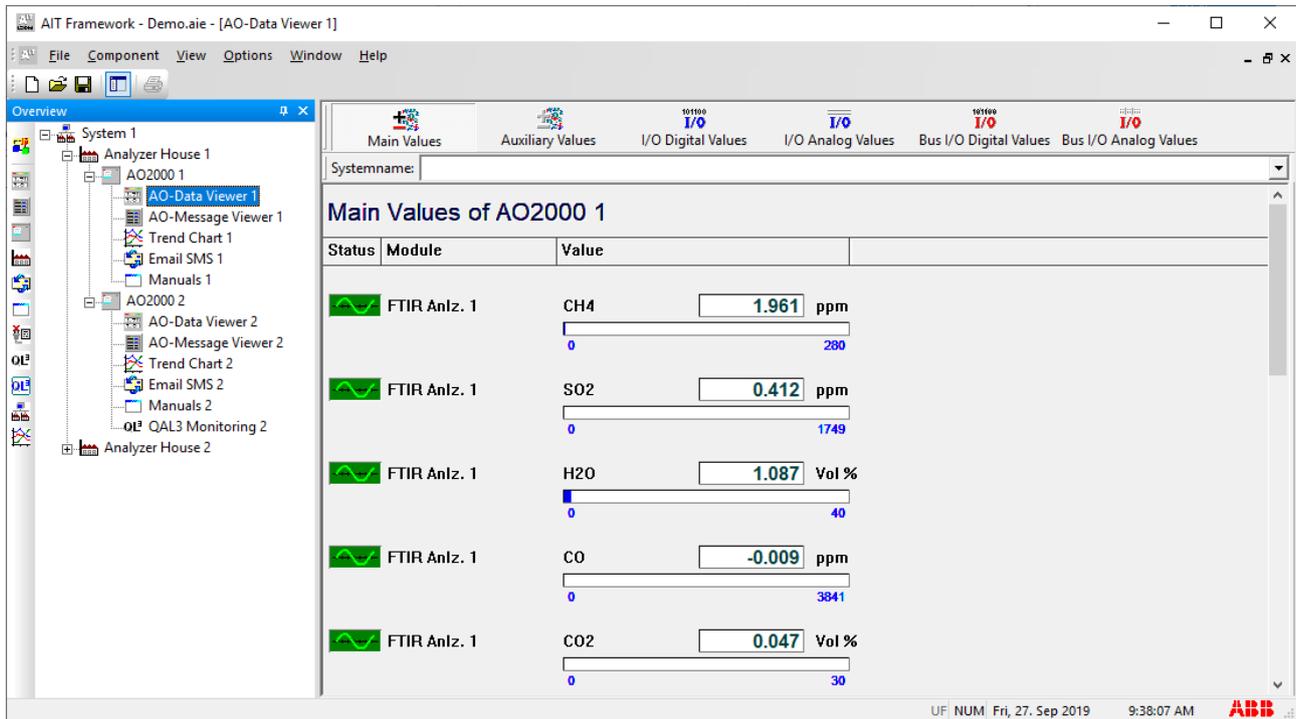


Figure 34 Typical Data Viewer

Toolbar

The display window has a standard toolbar in its header that is used to filter information coming from the analyzers. Displaying all values typically results in a very long list. Therefore it is recommended that the filters be used to only display a subset of the data that is of highest usefulness.

Main Values	Selects or deselects the main values of the analyzer for the display window. The measured values of the analyzers with the component name and unit are displayed here. The starting and final values of the analog bar correspond to the measuring range settings of the measuring instruments.
Auxiliary Values	Selects or deselects the auxiliary values of the analyzer for the display window. Dependent on the type of analyzer, these could be flow values, temperatures or pressures.
I/O Digital Values	Selects or deselects the I/O digital inputs and outputs on the hardware I/O cards for the display window.
I/O Analog Values	Selects or deselects the I/O analog inputs and outputs on the hardware I/O cards for the display window.
Bus I/O Digital Values	Selects or deselects the bus I/O digital inputs and outputs available on the data bus for the display window.
Bus I/O Analog Values	Selects or deselects the bus I/O analog inputs and outputs available on the data bus for the display window.
System Name	Scrolls the display window to the beginning of the entries for the selected system. If the Data-Viewer component is placed above several AO components, a selection from the list of the instruments automatically found by AnalyzeIT Explorer can be made here.

A click of the right mouse button on the installed component opens a menu window with the following options:

- Properties
- Delete
- Rename
- Component info

5.4.1 Properties

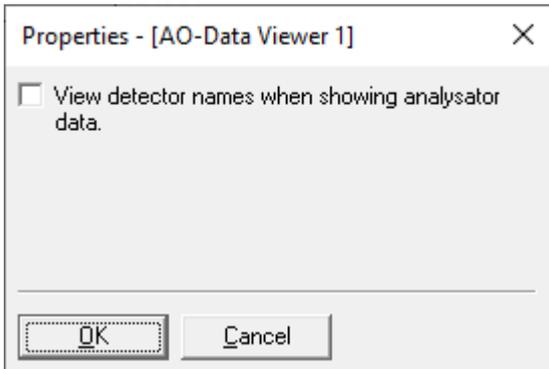


Figure 35 Data Viewer Properties

View detector names when showing analyzer data If this switch is active, the detector names for the measured values are displayed with the measured value from the analyzer in the second line.

OK Checks the entries, closes the dialog and transfers the settings.

Cancel Closes the dialog. Altered settings are not transferred.

Help Displays the help page of the properties dialog.

5.4.2 Delete

Deletes the active component and all the components (sub-entries) placed below this component.

5.4.3 Rename

Allows the user to change the component name. The name field in the tree is overwritten directly. AnalyzeIT Explorer automatically transfers the new name to the header of the display window.

5.4.4 Component Info

Provides the name and version number of the component.

5.5 AO-Message Viewer Component



Figure 36 AO Message Viewer component

Messages and the logbook entries from the connected AO2000 analyzers can be displayed in the form of a list by means of the AO-Message Viewer component.

Status	Module / Date	Message
	FB_AUTOCAL 9/27/2019 9:22:09 AM	Bypass aktiviert Der Luftaufbereiter ist inaktiv. Der Analysator wird ueber den Bypass und nicht ueber den Luftaufbereiter gespuehlt. FTIR Anlz. 1
	Anlz. 1:FTIR 9/27/2019 9:22:07 AM	Notspuelung Temperaturfehler die Notspuelung ist aktiv. Zum Beenden der Notspuelung k Service/Test/Notspuelung anwaehlen. Externe Temperatur zu niedrig
	SYSTEM 9/27/2019 9:21:46 AM	Lizenz ungueltig Die ACF5000 Lizenz ist ungueltig! Bitte kontaktieren Sie den ABB Service um eine gueltige Lizenz zu erhalten.
	Anlz. 2:Fidas24 ACF 9/27/2019 9:21:28 AM	Zuendungsfehler Zuendung fehlgeschlagen. Der Analysator muss manuell reaktiviert werden. f Service/Test. Standby/Restart FID Anlz. 2:Fidas24 ACF:01401000010501
	FB_AUTOCAL 9/27/2019 9:20:43 AM	Bypass aktiviert Der Luftaufbereiter ist inaktiv. Der Analysator wird ueber den Bypass

Figure 37 Display of the logbook entries

Messages are directly read out of the database of the connected AO instruments. They contain short and long text as well as the date and time.

Logbook lists can contain up to 500 entries sorted in chronological order, so that the latest entries are always on top. Logbook entries from several instruments can be displayed. An instrument can be directly selected via its system name.

To arrange the display more clearly, the display window can be divided vertically. Each list can be scrolled through independently of the other window. To accomplish this drag the vertical bar on the right-hand edge of the display to the middle of the window.

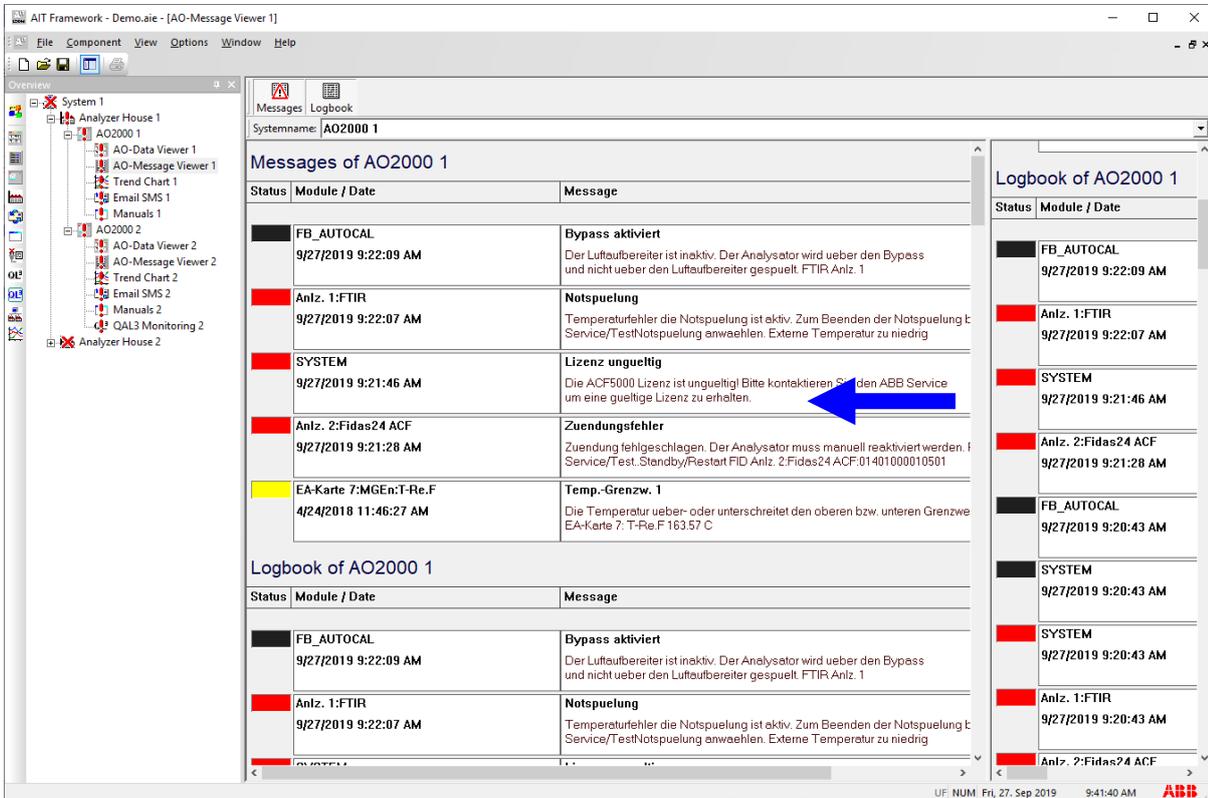


Figure 38 Logbook Display with a divided display window

Important:

If the language setting of the connected AO2000 analyzers differs from the setting of the AnalyzeIT Explorer language, the texts is displayed in the language of the AO instrument.

Therefore, all the messages and logbook entries in AnalyzeIT Explorer are always displayed in the language set in the AO2000 (Advance Optima).

Toolbar

Messages

Selects or deselects the message data for the display window.

Logbook

Selects or deselects the logbook data for the display window.

Systemname

Scrolls the display window to the beginning of the entries for the selected system.

5.5.1 Properties

This component has no property options.

5.5.2 Delete

Deletes the active component and all the components (sub-entries) placed below this component.

5.5.3 Rename

Allows the user to change the component name. The name field in the tree is overwritten directly. AnalyzeIT Explorer automatically transfers the new name to the header of the display window.

5.5.4 Component Info

Provides the name and version number of the component.

5.5.5 Save logbook

The entire logbook contents can be stored in a text file via the framework.

Select *Save* or *Save as* under the "File" menu.

The directory and the file name can be freely selected.

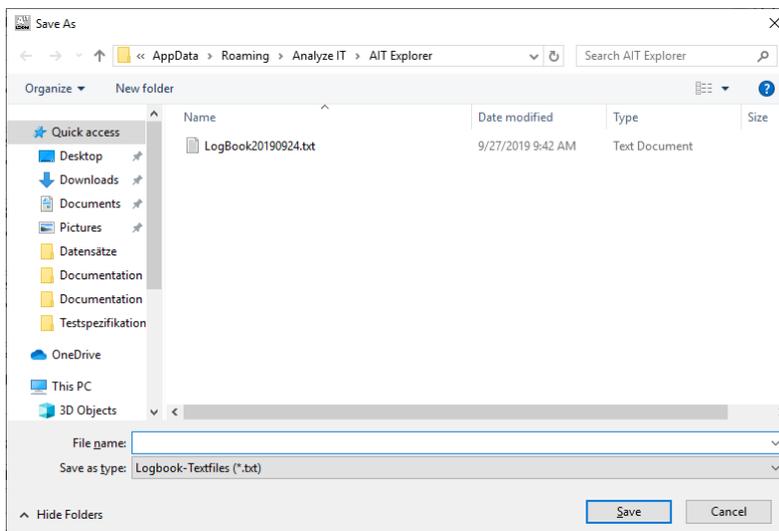


Figure 39 Save Logbook dialog

5.6 Trend Chart Component

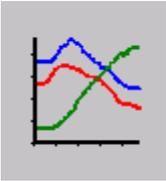


Figure 40 Trend Chart component

- The trend chart component is used for the graphical logging of measured values and auxiliary variables over a pre-set period.
- Up to six measured variables can be displayed as color graphs in the display window of the component.
- The six variables can be simultaneously stored on the hard disk in an ASCII file.
- The stored files can be read into the trend chart again at any time. They can also be read into Microsoft Excel or any other program that can read text files for further processing.

The trend chart component is used for time evolution monitoring of the analyzers connected to AnalyzeIT Explorer.

The instantaneous values are recorded from the analyzers at pre-set intervals. No average value determination takes place.

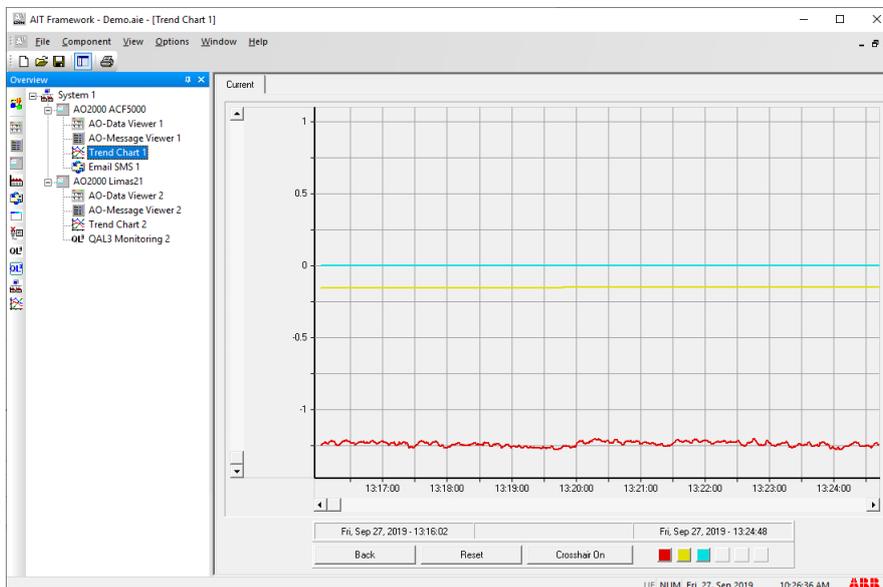


Figure 41 Typical Trend Chart

5.6.1 Instantiating the Trend Chart Component

If the trend chart component has not yet been enabled in the component bar, select the **Component** menu via the command line. Open the component selection dialog and enable the trend chart component by means of a tick.

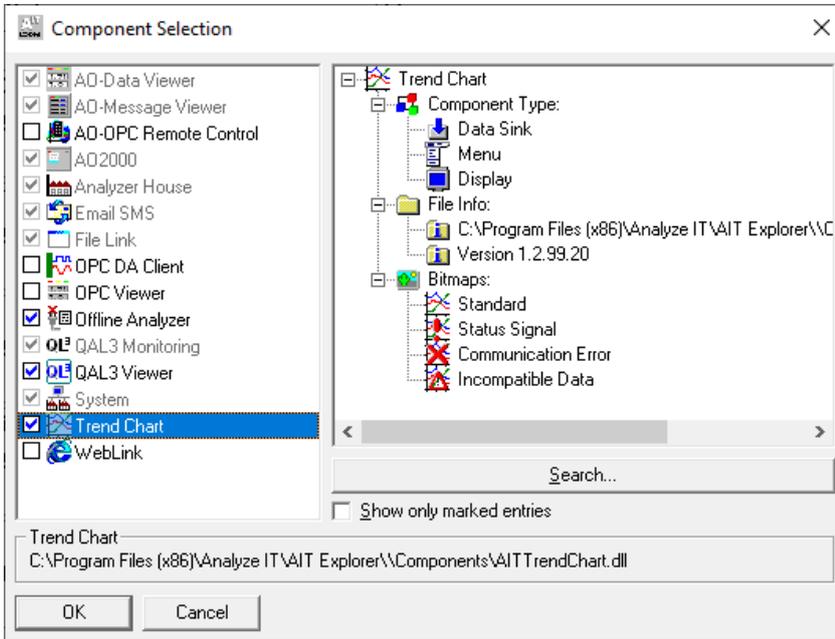
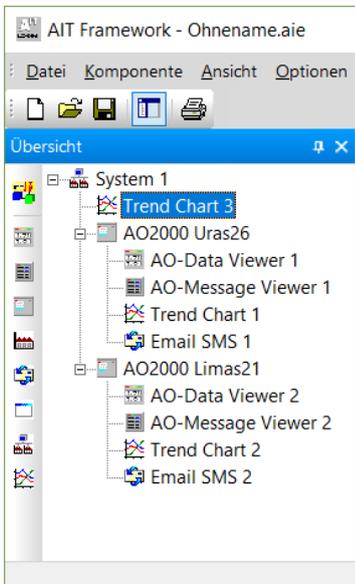


Figure 42 Enabling the Trend Chart Component

Copy the trend chart component from the component bar into the project tree.

Depending on where the component is placed, the data of one or more instruments will be available for recording.



Example:

- Trend Chart 1 is placed below AO2000-Uras26 and only receives data from this instrument.
- Trend Chart 2 is placed below AO2000-Limas21 and only receives data from this instrument.
- Trend Chart 3 is placed in the same branch above both analyzers and can record data from both instruments.

5.6.2 Trend Chart Configuration

Right click on the trend chart component in the tree and select the *Properties* option. The properties dialog is opened:

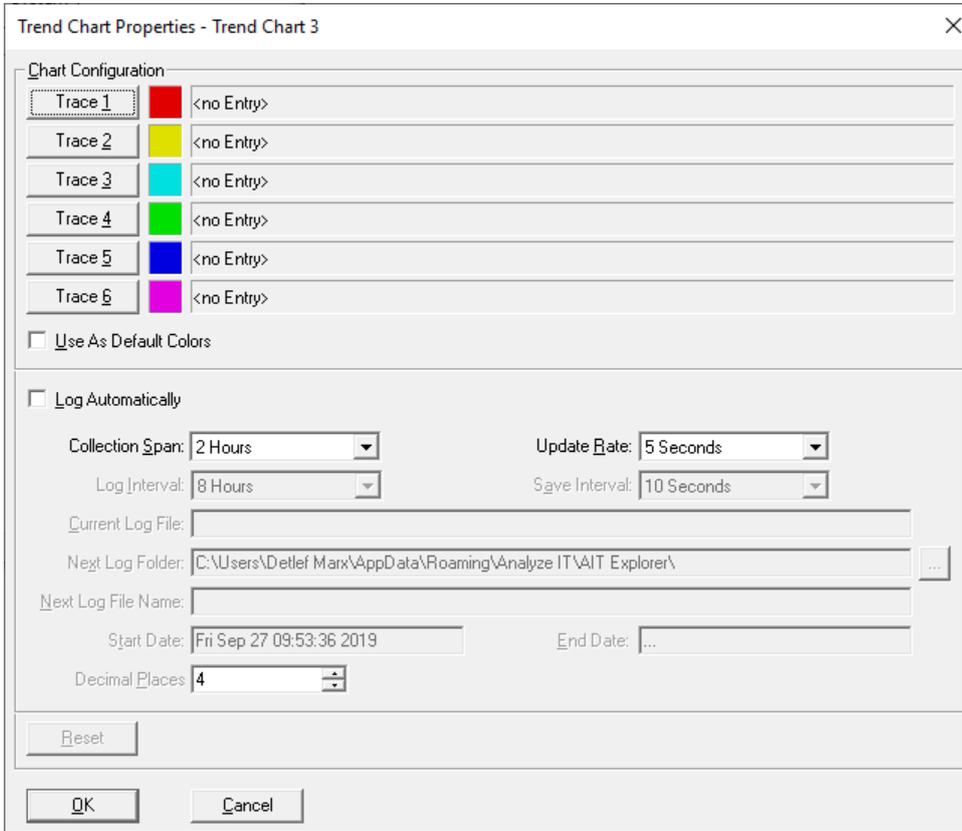
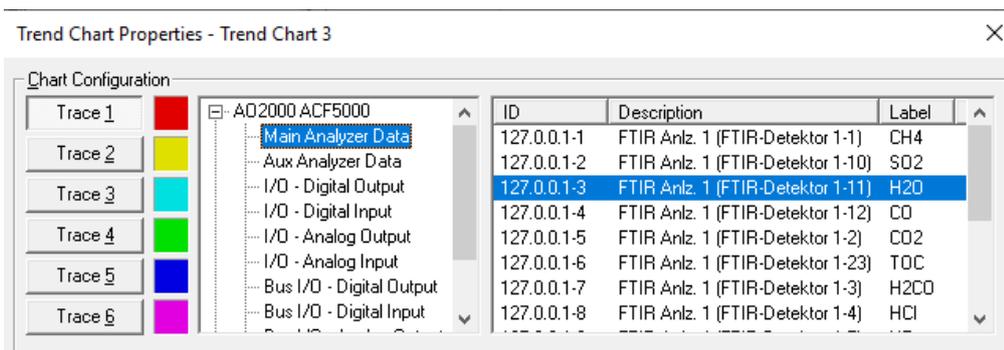


Figure 43 Trend Chart Properties Dialog

Six trend switches with color identification are available graphical recording.

The measured variable to be displayed is selected after selection of a trend switch from a tree structure:



The type of data structure depends on the instrument components which are in the access range of the trend chart component. In the case of an AO2000 gas analyzer, you can select the desired measured variable from various data groups. In the example: the SO₂ value from detector 2 from the "Main Analyzer Data" group of the AO2000-Uras26. After the dialog has been closed, the value is displayed as a red trend curve.

5.6.3 Collection Span and Update Rate

Entries for the collection span (total period of the X-axis of the trend chart) and update rate (interval between the recorded measured variables) can be made in the field below.

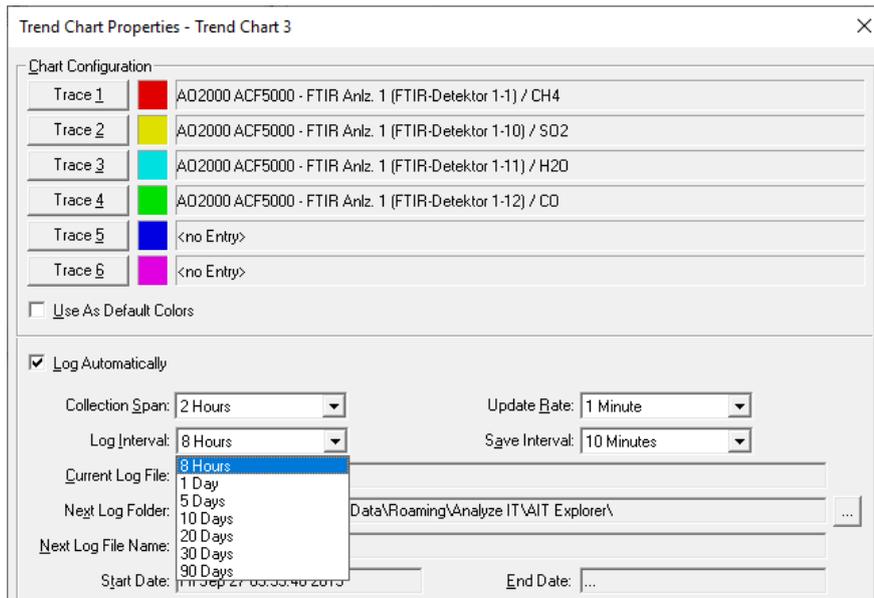


Figure 44 Setting Span Rate

The following correlation between the two variables exists:

- If a relatively short collection span is selected (max. 2 hours), update rates of down to 1 sec. are available.
- If the collection span is set to the maximum period of 15 days, the update rate can be set to a minimum of 10 minutes.

You can determine the possible combinations best of all by **first of all** pre-selecting the update rate and then opening the select menu of the collection span. The possible collection intervals will then appear automatically.

The following collection spans are available:

- 2 hours
- 8 hours
- 12 hours
- 1 day
- 5 days
- 10 days
- 15 days

The following update rates are available:

- 1 - 5 - 10 - 30 seconds
- 1 - 10 - 30 minutes
- 1 hour

5.6.4 Logging on the Hard Disk

The values configured in the trend chart component can be also stored in text files as comma separated values.

The files are named Trend Chart ###_#. CSV

CSV files can be imported into spreadsheet programs:

A line in a typical CSV file might look like this:

"Name, 1234, Physical unit"

If you open this file in a spreadsheet using the import function, three fields are generated:

- FIELD1 -> Name
- FIELD2 -> 1234
- FIELD3 -> Physical unit

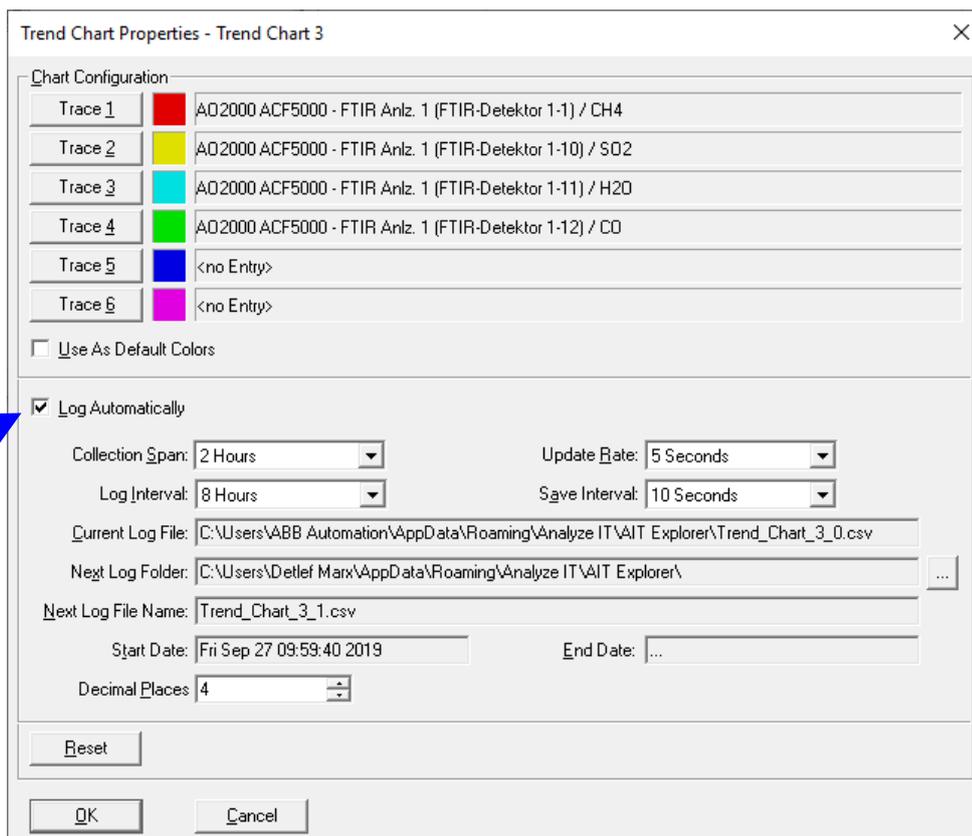


Figure 45 Enabling Automatic logging

Marking the field "Log Automatically" enables logging.

The configuration menu is then extended:

Log Interval

Specifies the intervals at which new trend chart files are to be automatically created. The specified values depend on the setting of the update rate:

5 –10 seconds	8 h-1-5-10-20-30 days
30 seconds	Up to 90 days
1 minute	Up to 300 days
10 minutes and longer	Up to 900 days

Save Interval

The intervals at which the values from the trend chart are written into the files, e.g. with an *Update Rate* of 10 seconds and a *Save Interval* of 10 minutes, 60 values are logged in the file every 10 minutes.

Current Log File

The name of the file in which data is currently being saved

Next Log Folder

Selection of a directory in which the log files are stored

Next Log File Name

The new file name after expiry of the log interval

Start Date / End Date

Start and end of the recording

Decimal places:

The number of decimal places that should be used to save the measured values is provided here

5.6.5 Reading Recorded Files

Recorded CSV files can be read by the trend chart component.

To do so you need to right-click with the mouse on the trend chart component in the overview and select the 'Open history file' menu item:

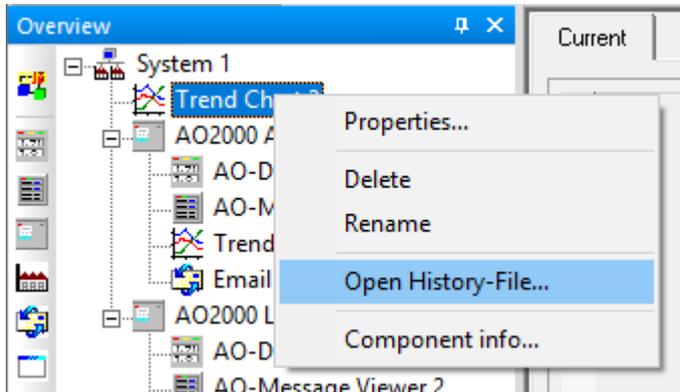


Figure 46 Reading in recorded history

An existing log file can now be selected from the directory. It will then be graphically displayed in the trend chart display. All the display functions are available.

An additional tab appears (in the example: History 1 and History 2), and you can toggle between online recording (current) and the history files.

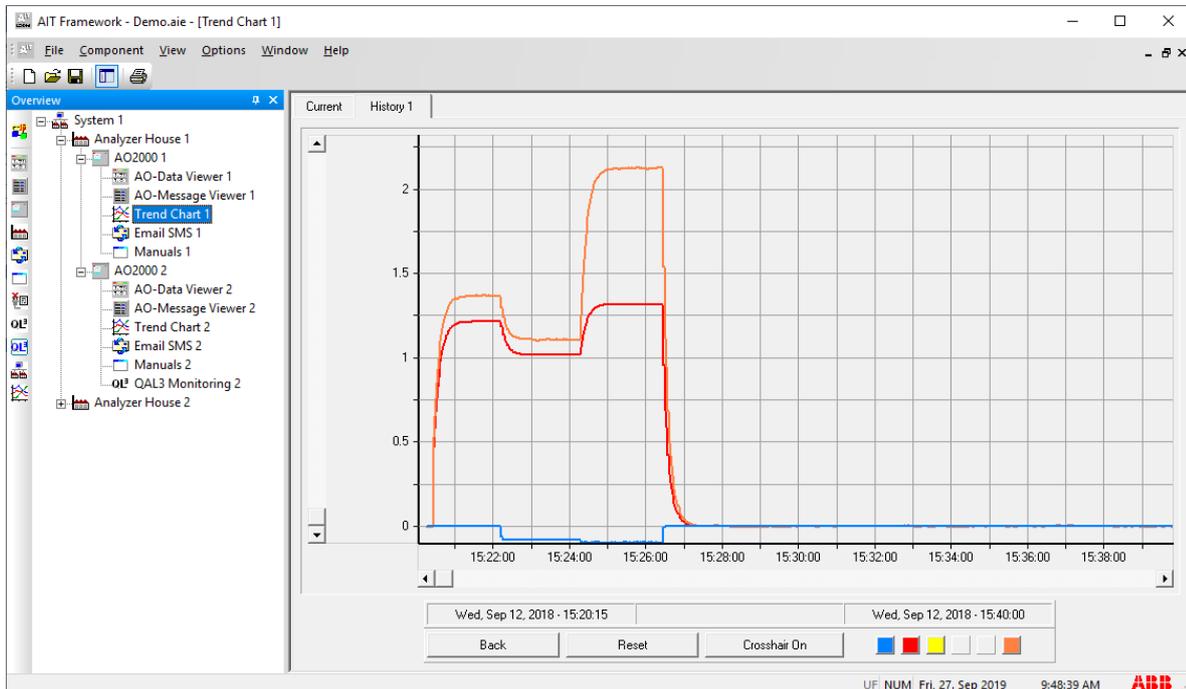
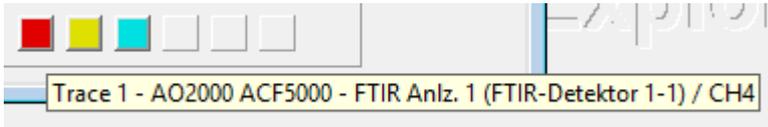


Figure 47 Toggling between recorded and live data

The view of the graphic can be controlled via the menu bars in the display window.

5.6.6 Function of the Trend Switches



The six color trend switches in the display window each symbolize a trend. Refer to the properties menu for information on which value is displayed in which color. If the mouse cursor remains over a trend switch for a few seconds, a flag with information about the configured values appears.

The trend switches toggle between two states:

1. Hidden

The first time the switch is used it locks home in such a way that it appears to be flat. The associated trend is hidden as long as the switch is down. However, the values continue to be recorded in the background. All the trends can be shown or hidden in this manner.

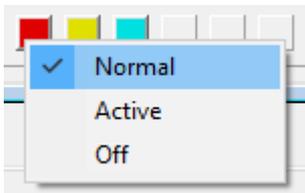
2. Display of the absolute scale

The second time the switch is used the scale with the absolute measured variables appears on the right-hand side of the trend display. This can only be switched on for one trend at a time.

3. Associated trend hidden

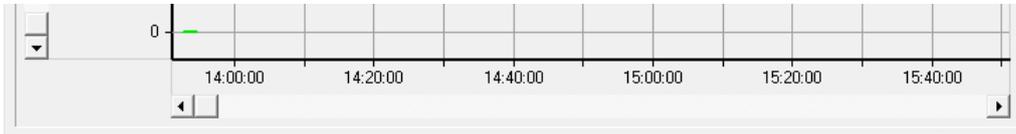
With a second click, the switch engages such that it visually appears to be flat and is displayed in color as diagonal hatching. The associated trend is hidden for as long as the switch is pressed. However, the values continue to be plotted in the background. All the trends can be faded in and hidden in the same manner.

By right-clicking with the mouse on the switch, you can gain direct access to the desired level through a menu selection:



5.6.7 Display options

- The relative scale between 0 and 1 appears on the left-hand side of the display window
- The start and final values of the time axis correspond to the settings for the collection span.
- The trend can be shifted in both axes by means of the horizontal and vertical sliders.



- The mouse can be used to enlarge any segment of the trend by enclosing it with a box and releasing the mouse button. The scales are automatically recalculated.

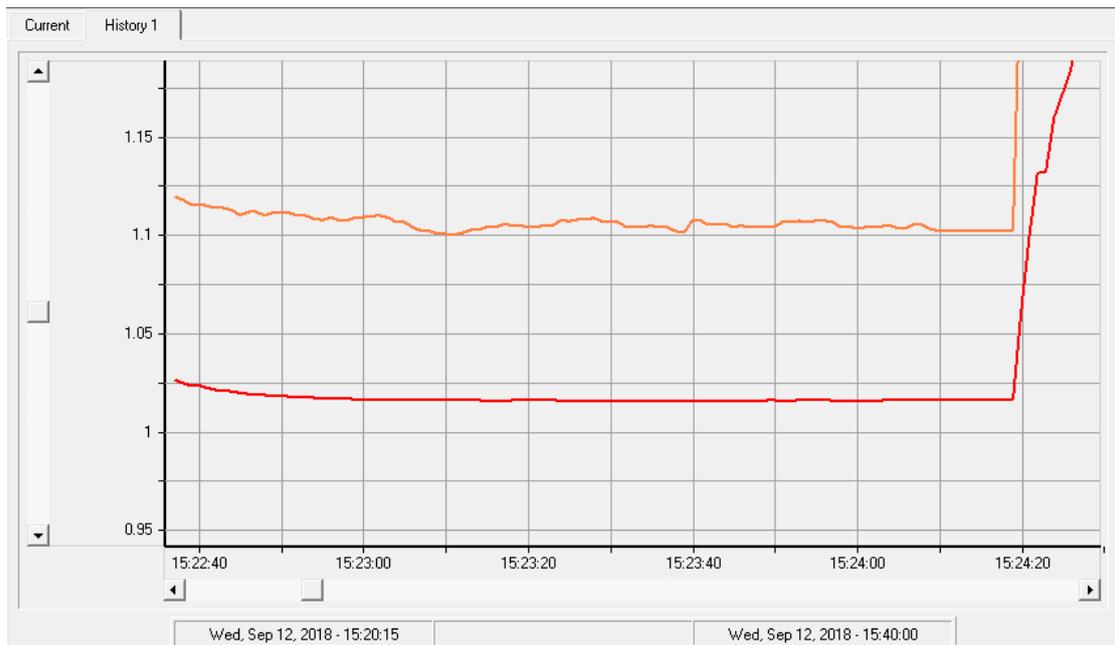
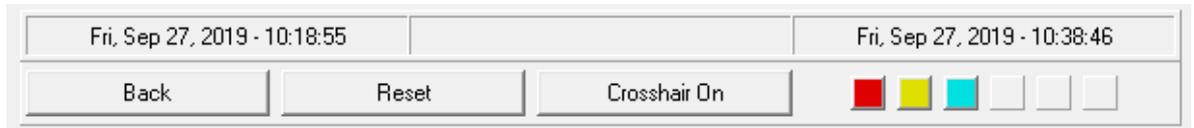


Figure 48 After zoom

- Further information about the charts can be called by means of additional option switches.



Back Resets the display to the previous display scales

Reset Resets the display to the original scaling

Crosshair On

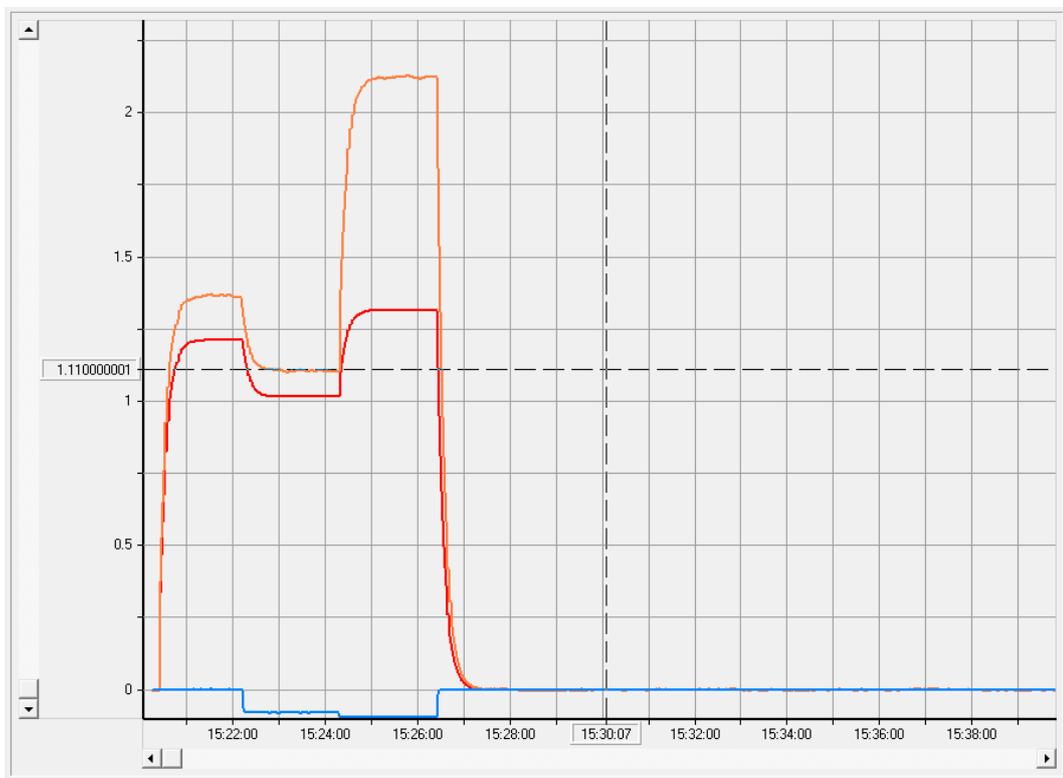
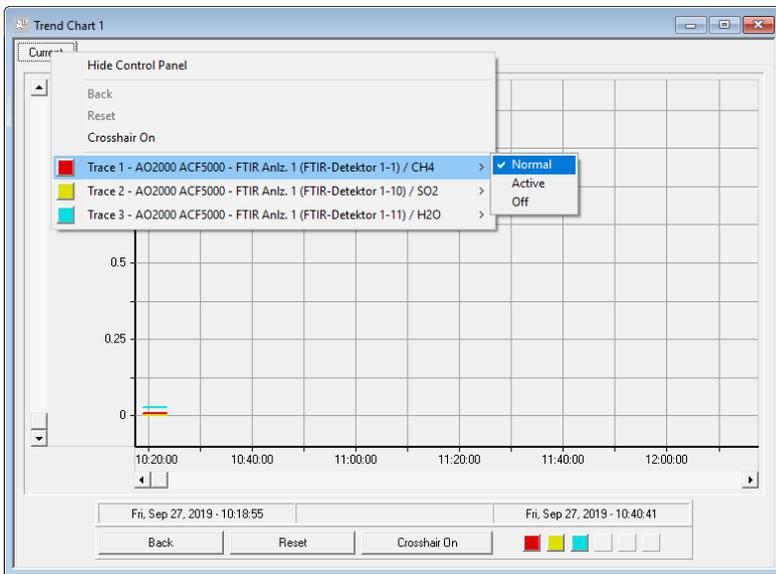


Figure 49 Display with crosshair on for peak-measurement

5.6.8 Trend Chart Menu

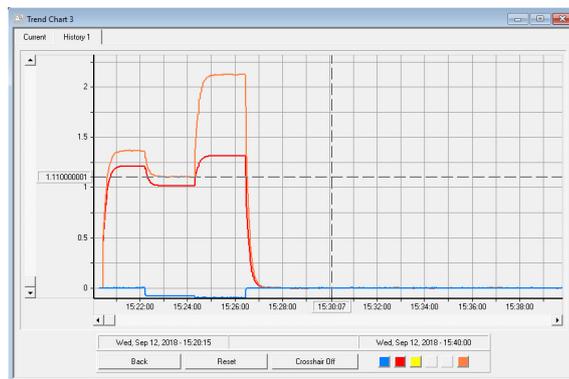
By right-clicking on one of the tabs in the trend chart component, you can open the Trend Chart Menu. You can quickly access all the functions of the control field via this menu.



The menu access also lets you hide the control field ('Hide control field' menu entry), thus extending the space to display the trend.

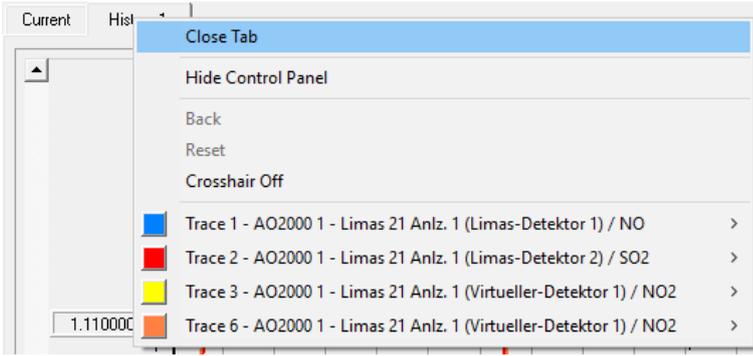


View with hidden control field



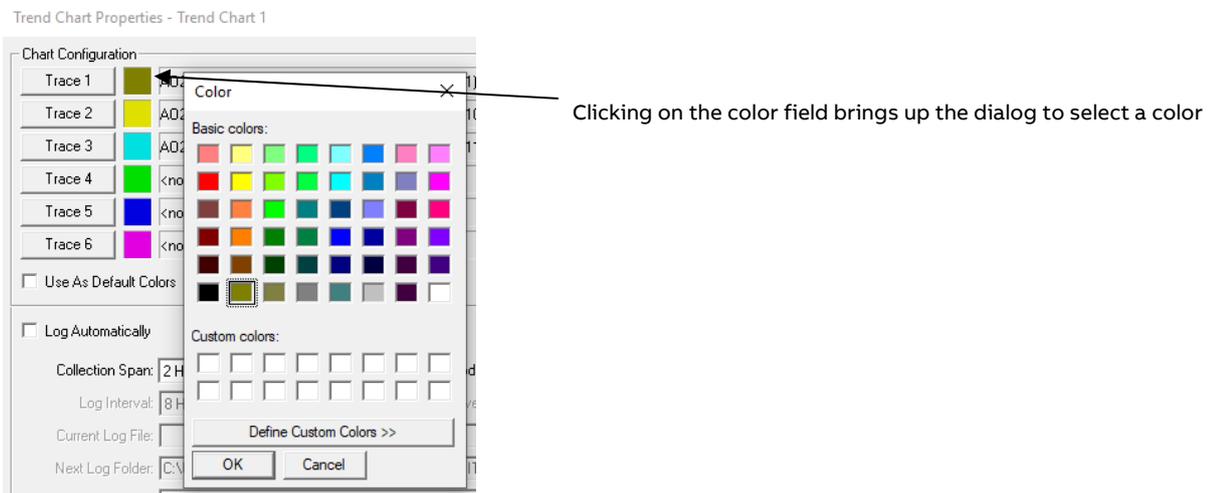
View with displayed control field

If you have opened a history file, the 'Close tab' menu command is additionally active via the tab. This command allows you to remove the history file display from the view.

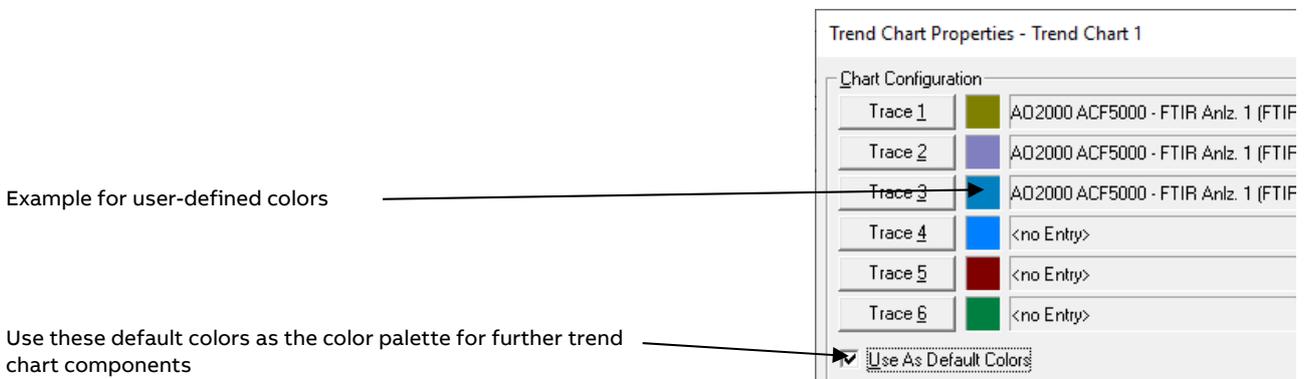


5.6.9 User-defined colors

In the properties dialog of the trend chart component, you can select the color settings of each trend as desired. To do so, left-click with the mouse on the color field of the trend that you want to change the color for and select the desired color in the dialog.



If you want to use a user-defined color palette as default colors for further trends, you can activate the 'Use as default colors' entry in the properties dialog. The colors will then be taken for all trend chart components which will be inserted into the overview after the default colors are defined. Trend chart components which have already been configured will not be affected by this.



The color settings of all configured trend chart components can continue to be changed independently of each other.

5.6.10 Printing Trend Charts

Trend Charts can be output to a connected printer.

To do this, select *File* in the command line of the framework with the trend chart component activated. Select the command *Print...* in the open menu.

Alternatively, the print command can also be executed by clicking the right mouse button on the component icon in the project tree.

5.7 File Link Component



The file link component is used for combining files in a list. The files are normally documents that you wish to assign directly to the instruments in the project. They are typically:

- Operating manuals
- Spare parts lists
- Service reports
- Technical information
- Gas plans
- Plant plans, etc.

It is also possible to include applications in the list.

Any desired external application program can be included in the file link component list as a link. The files contained in the list can be directly activated from the display window by calling the linked application or by calling the application directly.

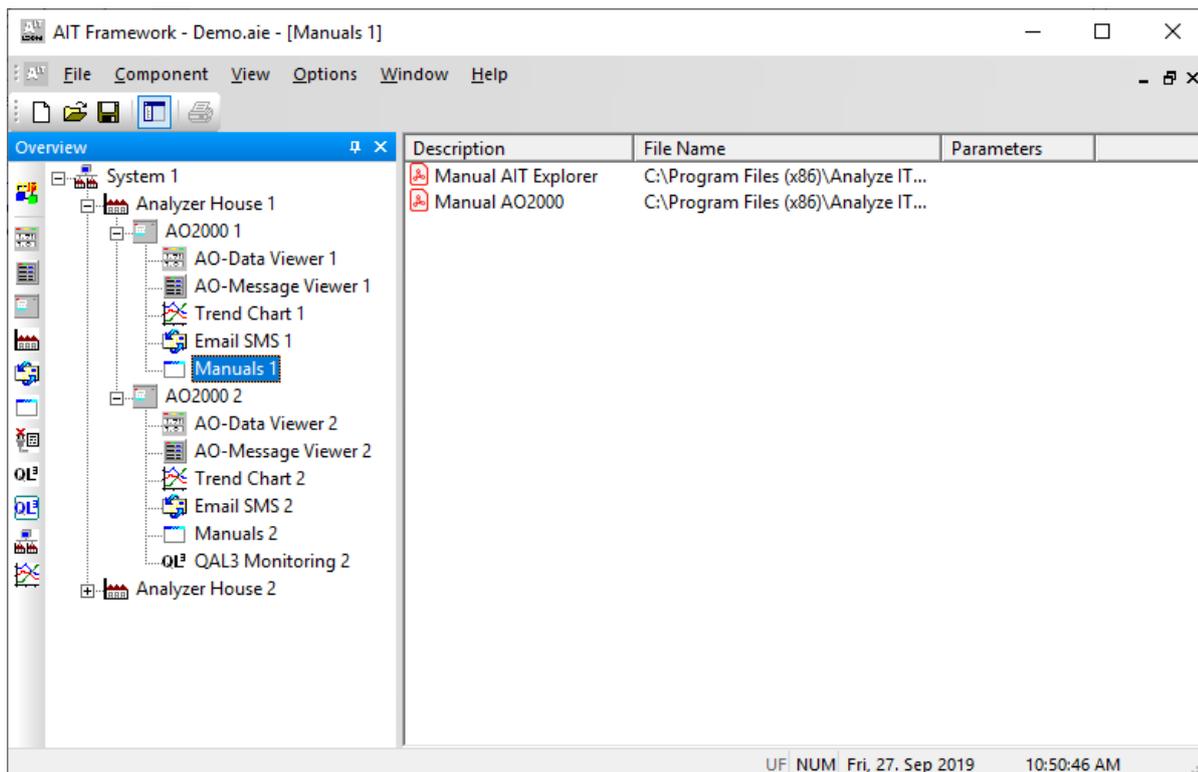


Figure 50 Example for assignment of the file link components manuals, spare parts, reports and applications (e.g. SMTL)

5.7.1 Creating a File List or Program Link

Items can be inserted in the list in two ways:

- **By Drag & Drop**
Here you only need to search for the file to be added in the Windows Explorer, then select and drag it onto the file link display window using the mouse. After the mouse button is released, a dialog for input of the list item properties appears.
- **By means of the component pop-up menu**
In this case, you click the display window using the right mouse button and select the item "Add" in the pop-up menu which appears. A file dialog in which you can search for the desired file is opened. After a file has been selected, the dialog for the input of the list item properties appears.

5.7.2 Calling a Document or Application

The list item to be called is selected in the display window by means of the mouse. Click the display window using the right mouse button and select "Open" in the pop-up menu which appears. The corresponding application is opened. The application can also be called directly by means of a double click.

5.7.3 Link Properties

The list item to be called is selected in the display window by means of the mouse. Click the display window using the right mouse button and select "Properties" in the pop-up menu which appears. The list item properties dialog is called and the relevant parameters can be edited.

5.7.4 Deleting a Link

The list item to be called is selected in the display window by means of the mouse. Click the display window using the right mouse button and select "Delete" in the pop-up menu which appears. The selected list item is deleted.

5.7.5 List Item Properties

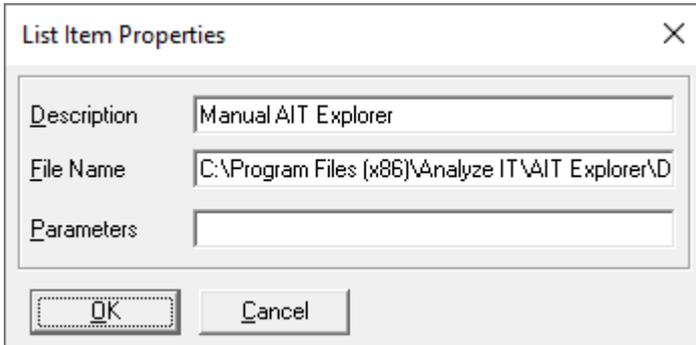


Figure 51 List Item Properties Dialog

Description Enter a description (user-defined text) for the link here.
File Name This is the complete path and file name of the link.
Parameters Any requisite command line parameters (e.g. for applications) can be entered here.

OK Checks the entries, closes the dialog and transfers the settings.

Cancel Closes the dialog. Altered settings are not transferred.

5.7.6 Security Policies

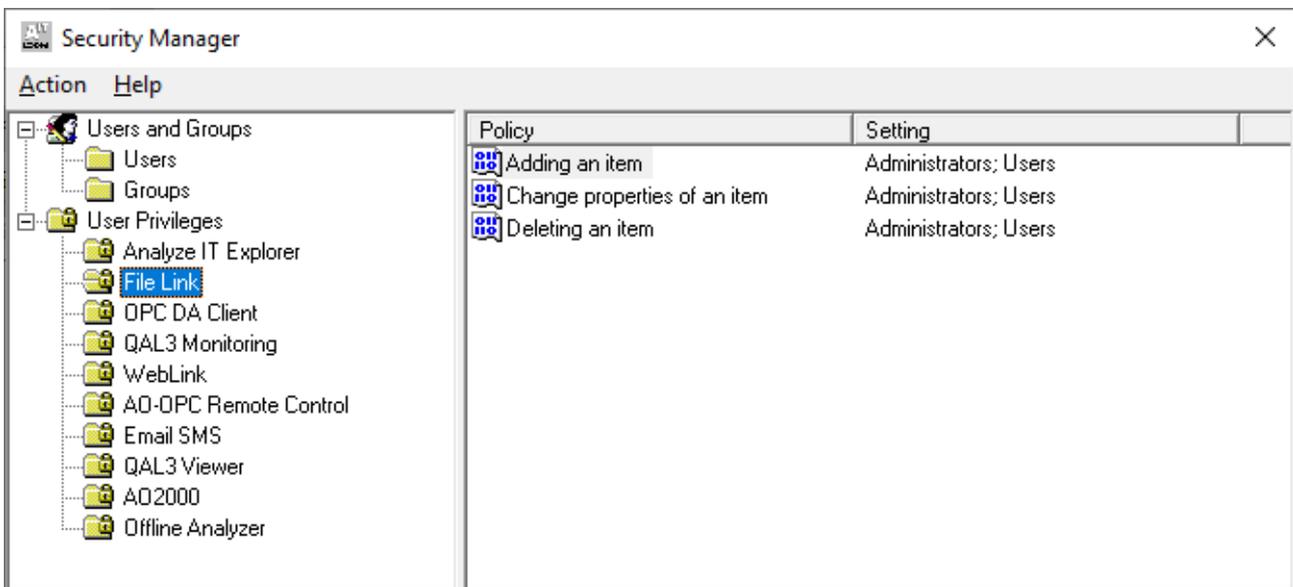


Figure 52 Setting the security policy on the File Link component

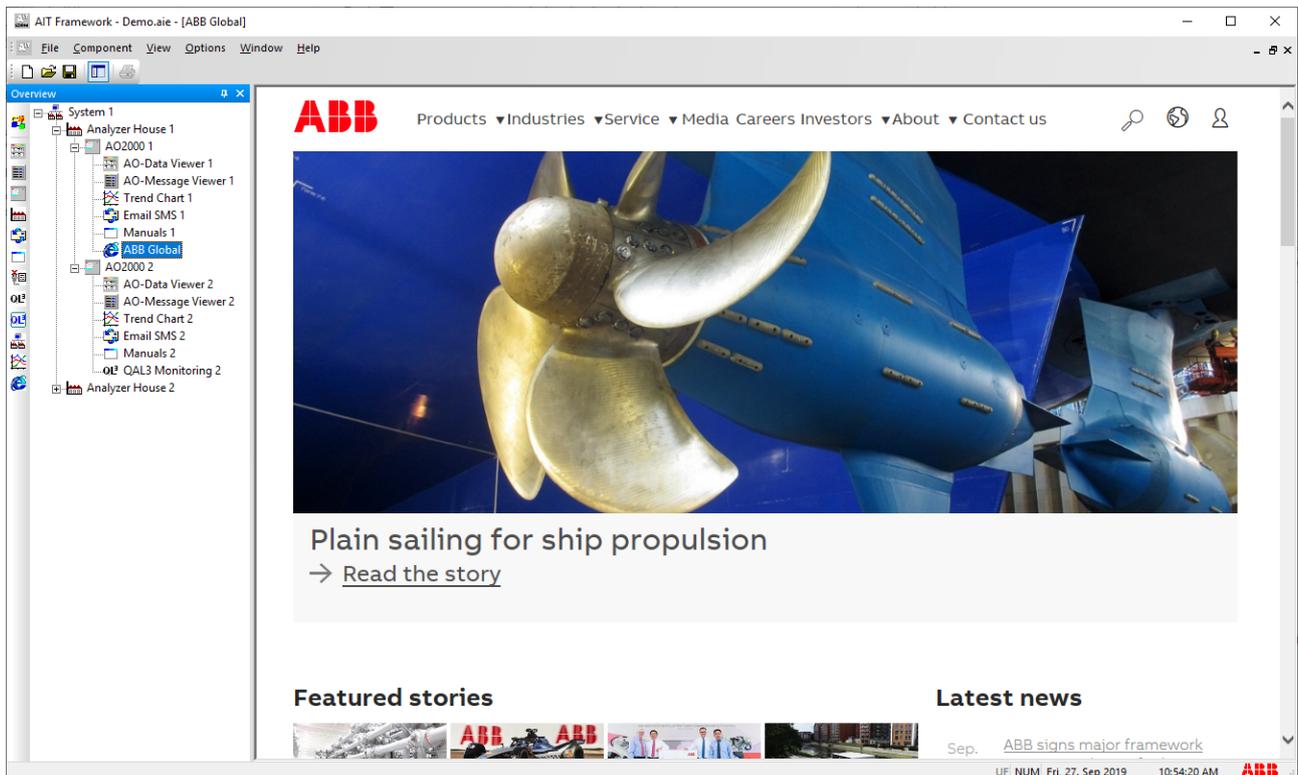
The item options of the File Link component can be assigned to specific users by means of the [Security Manager](#).

5.8 Web Link Component

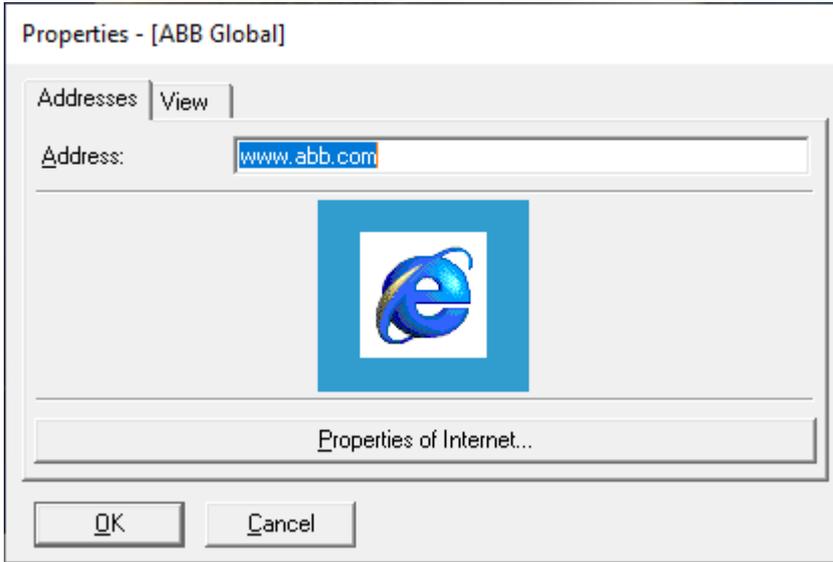


The Web link component enables the user to integrate process-related Internet pages in his projects. The address of the Internet page to be displayed is specified in the properties.

- Example:
The process concerns an application in hazardous area 1. Internet pages with a link to specific information pages on explosion protection (e.g. www.eur-lex, Directive on Explosion Protection 94/09/EC of the European Union) can be stored by means of the Web link component
- It goes without saying that ABB Internet pages with product or industry-specific contents can also be installed using the Web-Link component:



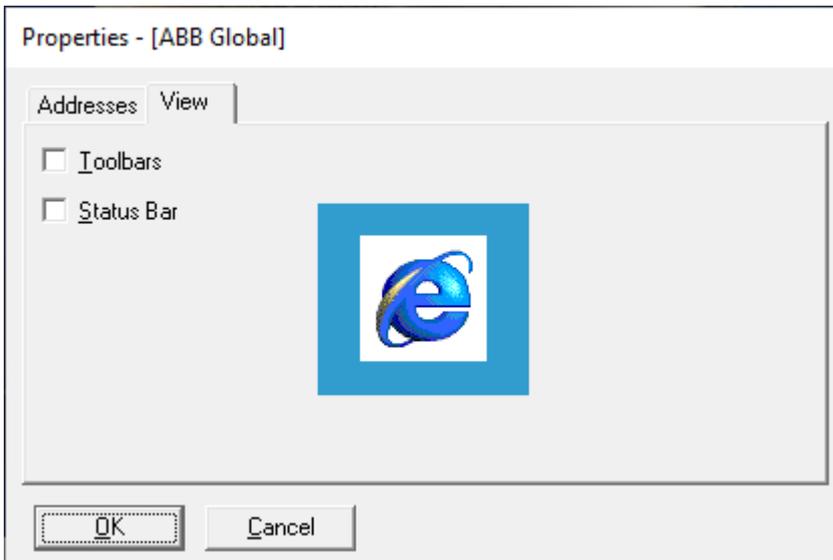
5.8.1 Properties Addresses



Address Enter the Internet address of the page to be displayed in the window.

Internet Properties Calls the standard Windows dialog for setting Internet properties.

As a rule, it is good policy to permanently link the Web Link component to a specified page. To enforce this, the default setting is to hide typical browser navigation elements. If the Web link component allows browsing, the usual navigation and status bar can be optionally shown.



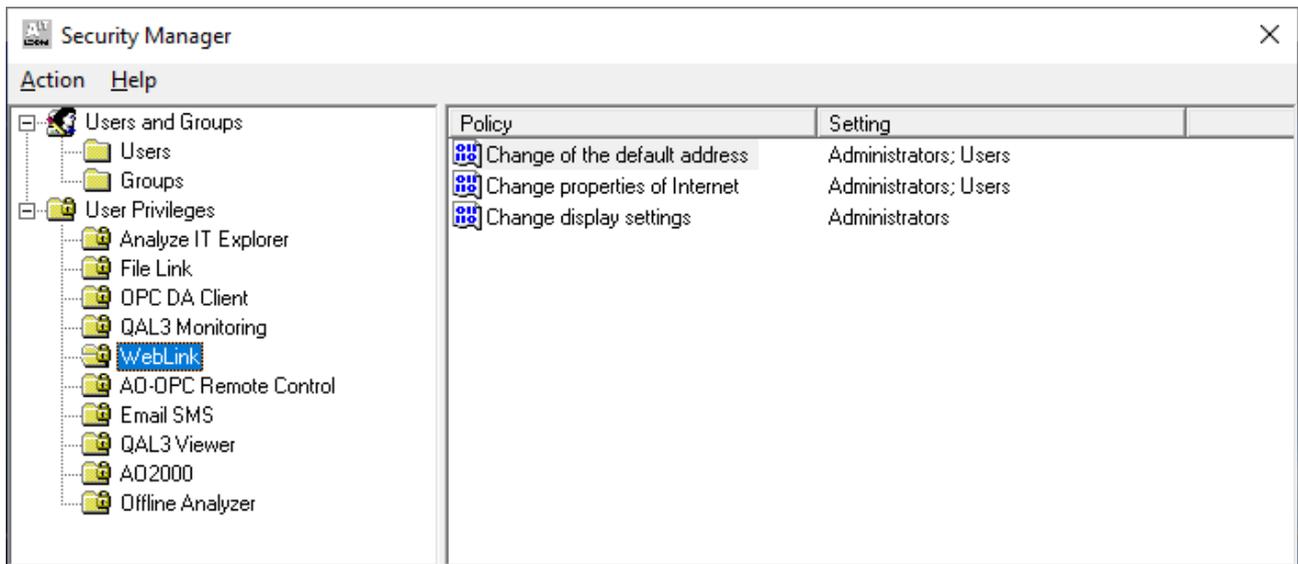
- Toolbars** Select this item to display the toolbars in the view.
- Status Bar** Select this item to display the status bar in the view.

- OK** Checks the entries, closes the dialog and transfers the settings.
- Cancel** Closes the dialog. Altered settings are not transferred.

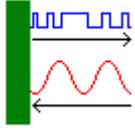
5.8.2 Security Policies

The browser settings can only be assigned to specified users by means of the Security Manager.

Only an administrator can be allowed free access to websites by means of the policy *Change of the start address*. As a result, undesired use of the Web Link component for accessing any desired Internet pages can be prevented.



5.9 OPC DA Client Component

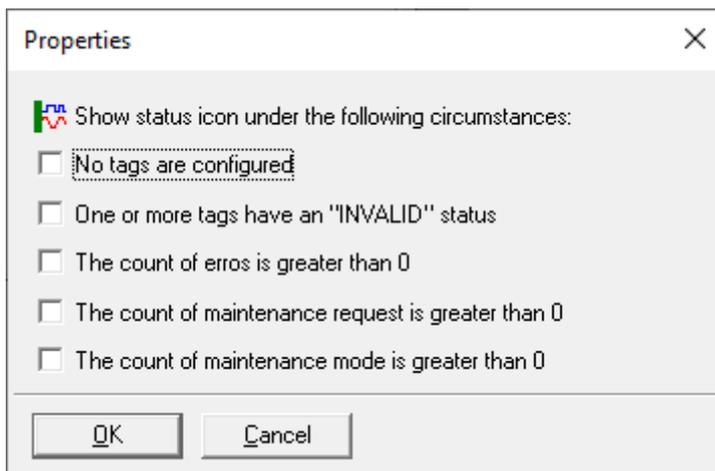


The OPC DA Client Component is used to integrate measured values provided by any OPC DA server.

A click of the right mouse button on the installed component opens a menu window with the following options:

- Properties
- Delete
- Rename
- Save template...
- OPC DA Client Configuration...
- Component info

5.9.1 Properties:



In the Properties, you can configure under what conditions the status symbol of the component (exclamation point) should blink. You can select and combine from several options.

The status will be transferred in the tress structure to superordinate or subordinate components

The following options can be selected:

- If no tags are configured
As long as no groups with associated tags are configured in the OPC DA Client configuration
- If one or more tags have an 'INVALID' status
Entered in the OPC DA Client configuration for at least one day and has an invalid status
- When the number of error messages is larger than 0
The tags entered in the OPC DA Client configuration under 'Status – Error message' have a value larger than zero in at least one entry.

- When the number of maintenance required is larger than 0
The tags entered in the OPC DA Client configuration under 'Status – Maintenance required' have a value larger than zero in at least one entry.
- When the number of maintenance modes is larger than 0
The tags entered in the OPC DA Client configuration under 'Status – Maintenance mode' have a value larger than zero in at least one entry.

OK Checks the entries, closes the dialog and save the settings.
Cancel Closes the dialog The changed settings will not be saved.

5.9.2 Delete

Deletes the active components and all components (subentries) which are placed below the component.

5.9.3 Rename

Allows for the free entry of a component name. The name field in the tree will be directly overwritten. This new name is automatically communicated by AnalyzeIT Explorer to other connected components.

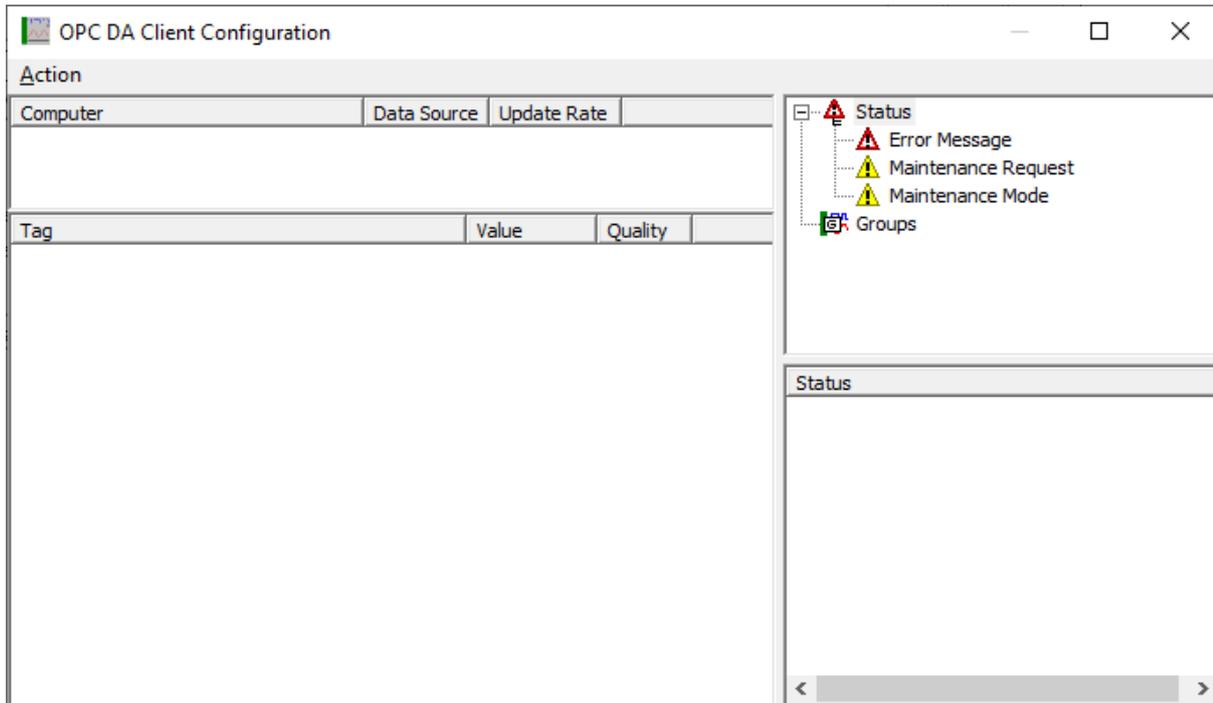
5.9.4 Save template...

This menu item is visible only if in the tree structure at least one additional component is configured beneath the component.

The template manager opens a dialog window. The entire structure below this component can be saved together with the component as a template.

5.9.5 OPC DA Client Configuration...

This menu command is used to call up the dialog to configure the OPC DA Client. In the dialog, you can specify the OPC DA Server with which the OPC DA Client Component should establish a connection. In addition, groups and tag lists will be configured through which you can specify which (measured) values of the OPC DA Client should be provided.



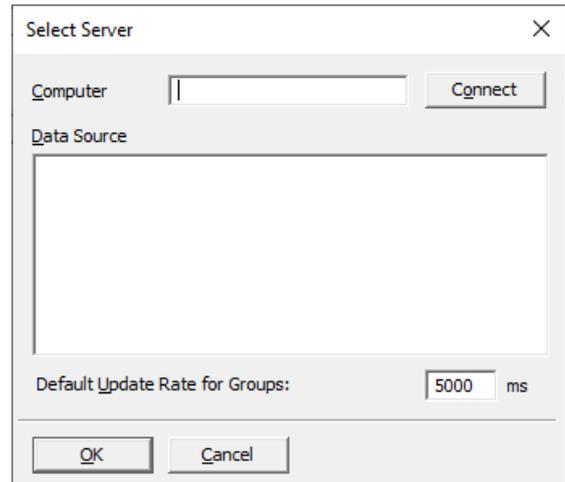
5.9.5.1 'Action' Menu

The 'Action' Menu is in the variable menu and varies in the amount and type of entries depending upon the entry which is currently selected in the OPC DA Client configuration dialog. The dialog is first called up, the following menu items are available:

- Select Server
- Edit Server
- Delete Server
- Activate Server
- Import..
- Export...
- Exit

5.9.5.1.1 Select server

The dialog to select an OPC DA server appears. You first need to enter the computer on which the OPC DA Server is running. The OPC DA Server is then selected in the second step.



Computer:

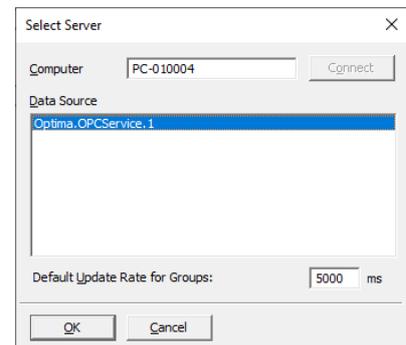
In the entry field, you need to provide the name of the computer on which the OPC DA Server is running. If you have a local OPC DA Server, you can leave the entry field empty, as the correct computer name will be entered automatically.

Connect:

Clicking on the switch will establish the connection with the computer entered; if the entry field is empty, a connection with the local computer will be established. As soon as the connection is established, all the OPC DA Servers available on the computer will be listed under data sources.

Data source:

As soon as the connection is established, all the available OPC DA Servers will appear on the list. The desired Server must be marked on the list.



Enter update rates for groups:

The value entered here will be used as a default for OPC groups which can be configured later.

OK Checks the entries, closes the dialog and save the settings.

Cancel Closes the dialog. The changed settings will not be saved.

After the dialog is closed by clicking OK, the OPC DA Server will be entered in the OPC DA Client configuration window and a list with available tags is created.

Appearance of the OPC DA Client configuration dialog after the OPC DA Server is selected:

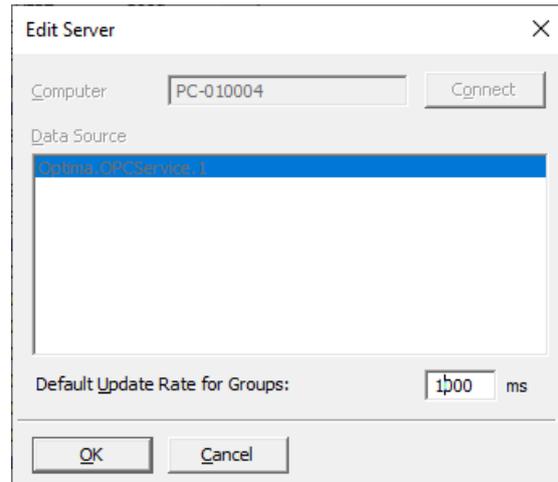
The screenshot shows the 'OPC DA Client Configuration' dialog box. It has a title bar with standard window controls. Below the title bar is a section labeled 'Action' containing a table with columns for 'Computer', 'Data Source', and 'Update Rate'. The first row shows 'PC-01000+', 'Optima.OPCService.1', and '5000'. Below this is a large table of tags with columns for 'Tag', 'Value', and 'Quality'. The tags include various counts and status indicators for the 'Optima 1.' system. On the right side, there is a 'Status' panel with a tree view showing 'Error Message', 'Maintenance Request', and 'Maintenance Mode', and a larger area below it displaying the current status of these items.

Computer	Data Source	Update Rate
PC-01000+	Optima.OPCService.1	5000

Tag	Value	Quality
Optima 1.IsConnected1	TRUE	Good
Optima 1.IsConnected2	FALSE	Good
Optima 1.AnalyzerCount	5	Good
Optima 1.IO_CardCount	3	Good
Optima 1.IO_ModuleCount	1	Good
Optima 1.Component_Count	15	Good
Optima 1.AI_Count	8	Good
Optima 1.AO_Count	16	Good
Optima 1.DI_Count	21	Good
Optima 1.DO_Count	56	Good
Optima 1.SystemAuxiliaryCount	1	Good
Optima 1.UrasCount	0	Good
Optima 1.LimasCount	0	Good
Optima 1.CaldosCount	0	Good
Optima 1.MagnosCount	0	Good
Optima 1.FIDCount	0	Good
Optima 1.ZO23Count	0	Good
Optima 1.LS25Count	0	Good
Optima 1.ACF5000Count	1	Good
Optima 1.NoErrors	3	Good
Optima 1.NoMaintMode	0	Good
Optima 1.NoMaintReq	1	Good
Optima 1.SoftwareVersion	5.2.30	Good
Optima 1.SoftwareBuild	0	Good
Optima 1.ProductID	9AAC175...	Good
Optima 1.SerialNo		Good
Optima 1.FabricationNo		Good
Optima 1.AnalyzerModuleNames	FTIR, Fida...	Good
Optima 1.SystemMessages	<XMLVersi...	Good

5.9.5.1.2 Edit Server

With this menu item, you can edit the OPC DA Server entered. During editing, you can only change the default update rates for groups; all other entries have write protection and cannot be changed.



OK Checks the entries, closes the dialog and save the settings.

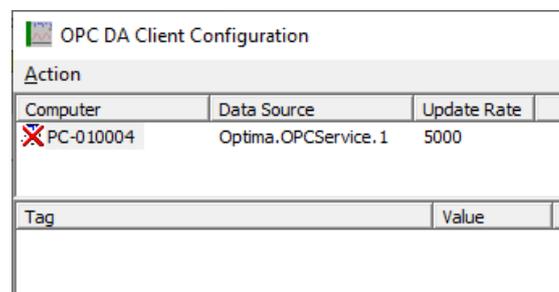
Cancel Closes the dialog The changed settings will not be saved.

5.9.5.1.3 Delete Server

The entered OPC DA Server will be deleted and the associated tags will be removed from the list. All configured groups will be deleted and the tree structure with the groups will be restored to its initial state. The tags assigned in each of the groups will be removed.

5.9.5.1.4 Activate Server

If the OPC DA Server appearing in the server list has not been activated yet (e.g. after opening the configuration dialog), the Server can be activated via this menu item and the existing tags can be established.



Action		
Computer	Data Source	Update Rate
PC-010004	Optima.OPCService.1	5000

Tag	Value
-----	-------

5.9.5.1.5 Import

You can load an OPC DA Client Configuration with this menu item. The configuration must be saved to a CSV file beforehand using the 'Export' feature.

5.9.5.1.6 Export

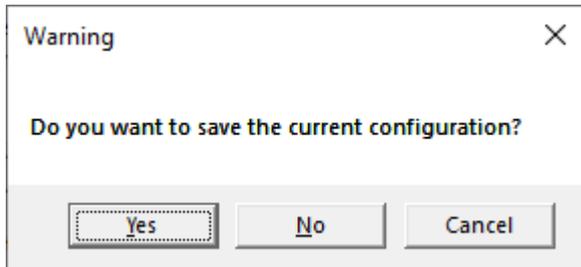
In this menu item, you can save the current configuration to a CSV file. You can reload it back again later using the 'Import' feature.

5.9.5.1.7 Exit

This command is similar to the common 'OK' switch. The entries are checked, the dialog closed and the settings are saved.

Close the dialog via the System Menu

If the dialog is closed using the Windows system menu, a security question appears to whether the configuration should be saved. If the security question is acknowledged with a 'No', all changes will be lost.



5.9.5.2 'Action' Menu – variable menu items

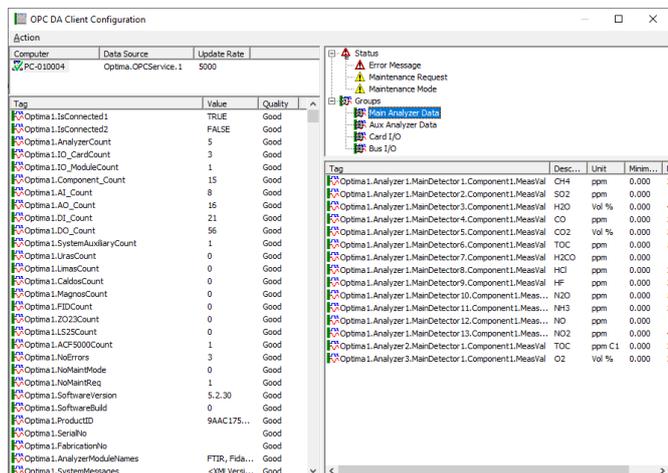
A few menu items of the Action Menu appear only depending on the entries selected in the configuration dialog.

5.9.5.2.1 Refresh Server

This menu item appears as soon as an OPC DA Server has been entered and activated. After it is launched, the tag list of the OPC DA Server is read off again and the updated tags are displayed in the overview.

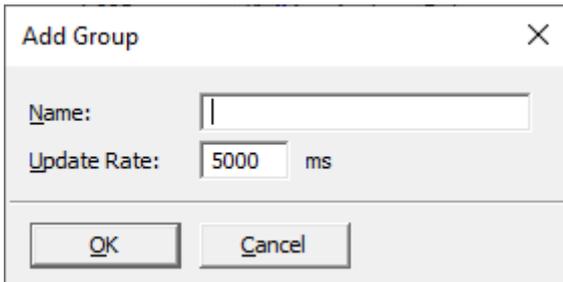
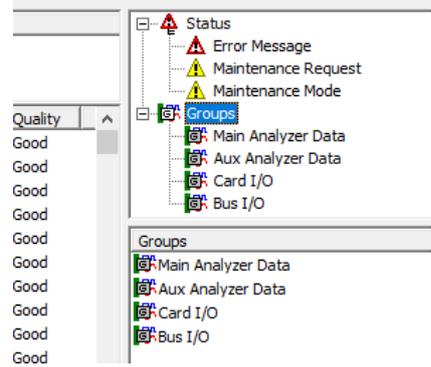
5.9.5.2.2 Set Default Groups

This menu item appears as soon as an OPC DA Server has been entered and activated. After it is launched, a check is made as to whether the OPC DA Server has an Optima OPC Service. If this is the case, groups for 'Main Analyzer Data', 'Aux Analyzer Data', 'Card I/O' and 'Bus I/O' are automatically created in the group list and the associated tags are assigned to the groups.



5.9.5.2.3 Add Group

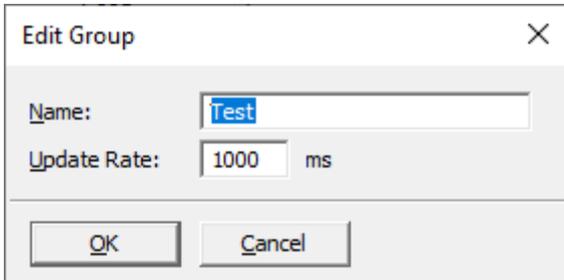
This menu item appears if a 'Group' entry or an entry located under a 'Group' entry is selected in the tree structure. After the menu item is selected, a dialog appears in which you can insert a new group. If you close the dialog by selecting 'OK', the new group is added behind the tree entry which is currently active. If the 'Group' entry is active, it will be entered into the first position under 'Groups'.



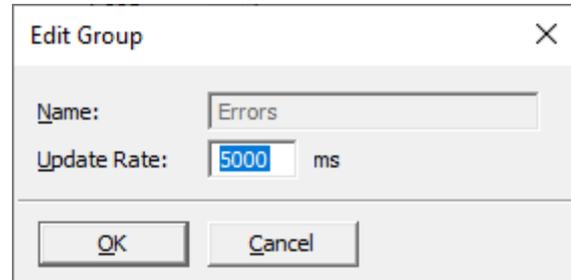
- Name** A unique designation for the group needs to be entered here.
- Update Rate** The entry field initially holds the default update rate for groups. Here you can enter the rate at which group entries should be updated.
- OK** Checks the entries, closes the dialog and save the settings.
- Cancel** Closes the dialog The changed settings will not be saved.

5.9.5.2.4 Edit Group

The menu item appears when one of the entries under 'Status' or 'Groups' is active in the tree structure. The same entries can then be made here as under 'Add Group'. The exception here though are the group names under 'Status'. Since these are default names which are needed for the OPC DA Client, they cannot be edited.



In user-defined groups, the name and update rate can be edited.



In status groups, only the update rate can be edited.

- | | |
|--------------------|---|
| Name | A unique designation for the group needs to be entered here. Editing is possible only for user-defined groups. |
| Update Rate | The entry field initially holds the default update rate for groups. Here you can enter the rate at which group entries should be updated. |
| OK | Checks the entries, closes the dialog and save the settings. |
| Cancel | Closes the dialog The changed settings will not be saved. |

5.9.5.2.5 Delete Group

This menu item appears if a user-defined group has been selected. When you use this command, the group is deleted from the configuration and all associated tags are removed.

5.9.5.2.6 Edit Tag(s)

This menu item is active if one or more tags are selected in the tag list of a group. If the menu item is launched, an edit dialog for tags appears. If several tags are selected, the corresponding dialogs appear several times in the background. You can configure additional properties for group tags here.

Tag	Desc...	Unit
Optima1.Analyzer1.MainDetector1.Component1.MeasVal	CH4	ppm
Optima1.Analyzer1.MainDetector2.Component1.MeasVal	SO2	ppm
Optima1.Analyzer1.MainDetector3.Component1.MeasVal	H2O	Vol %
Optima1.Analyzer1.MainDetector4.Component1.MeasVal	CO	ppm
Optima1.Analyzer1.MainDetector5.Component1.MeasVal	CO2	Vol %
Optima1.Analyzer1.MainDetector6.Component1.MeasVal	TOC	ppm
Optima1.Analyzer1.MainDetector7.Component1.MeasVal	H2CO	ppm
Optima1.Analyzer1.MainDetector8.Component1.MeasVal	HCl	ppm
Optima1.Analyzer1.MainDetector9.Component1.MeasVal	HF	ppm
Optima1.Analyzer1.MainDetector10.Component1.Meas...	N2O	ppm
Optima1.Analyzer1.MainDetector11.Component1.Meas...	NH3	ppm

- Description** A name for the tag is entered in this field. Normally, this should be the name which has also been specified by the OPC DA Server. In certain cases it can however necessary to enter a user-defined name here.
- Unit** The unit of the tag is entered in this field. Since not all tags have a unit by default, you can enter a user-defined unit here.
- Minimum** The minimum value of the tag is entered in this field. Since not all tags have a minimum value by default, you can enter a user-defined minimum value here.
- Maximum** The maximum value of the tag is entered in this field. Since not all tags have a maximum value by default, you can enter a user-defined maximum value here.
- Indicator** This read-only field shows what type of tag this is. The entries can include 'No Indicator', 'Error message', 'Maintenance mode' and 'Maintenance required'.
- OK** Checks the entries, closes the dialog and save the settings.
- Cancel** Closes the dialog The changed settings will not be saved.

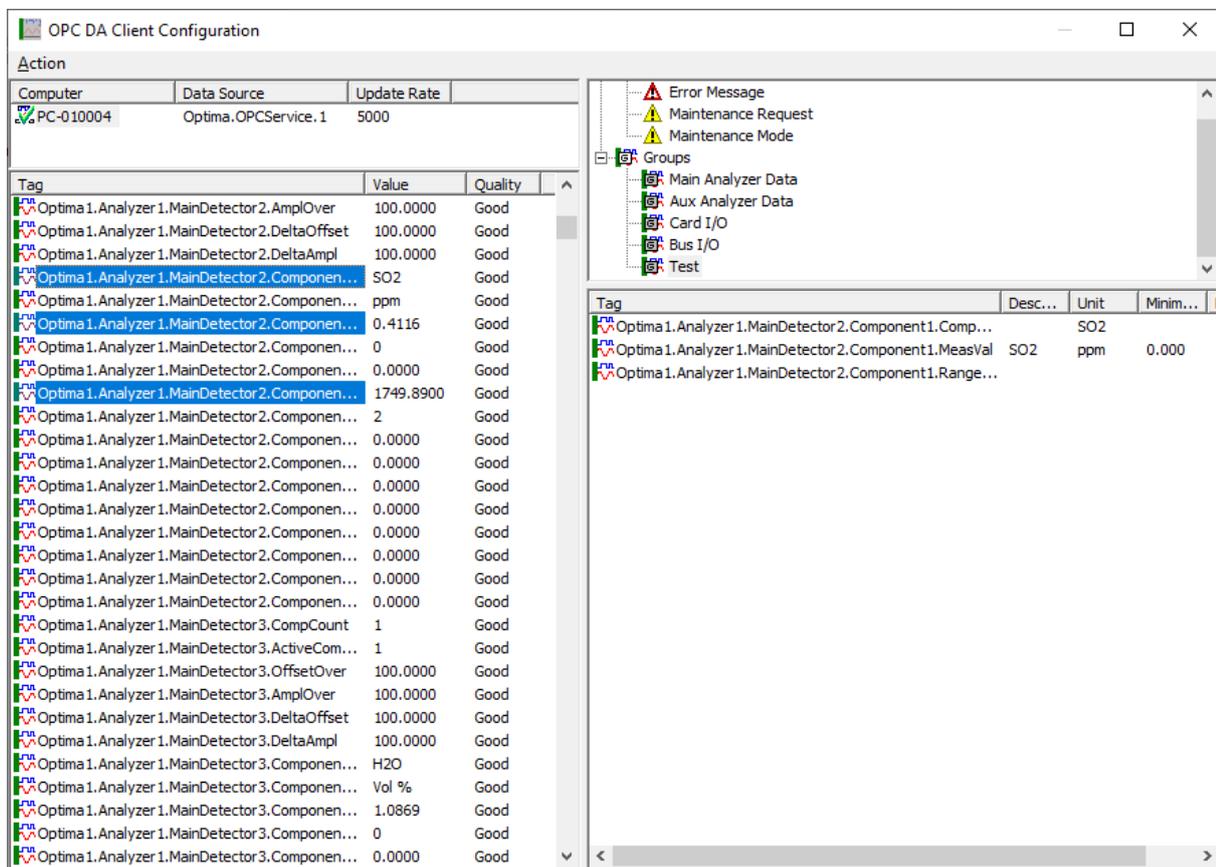
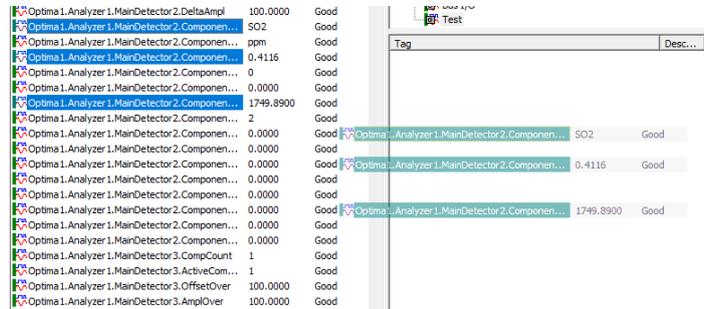
5.9.5.2.7 Delete Tag(s)

This menu item is active if one or more tags are active in the tag list of a group. If the menu item is launched, the selected tags are removed from the group.

5.9.5.3 Add tags to user-defined groups

To add tags from the tag list of the OPC DA server to a user-defined group, all you need to do is select the desired tags on the left-hand side and then drag and drop them into the tag list of the group.

The tags are then entered into the tag list of the group and can be edited there (see Edit Tag(s)).



The tags selected on the left-hand side have been added by drag and drop into the 'Test' group.

5.9.6 Component information

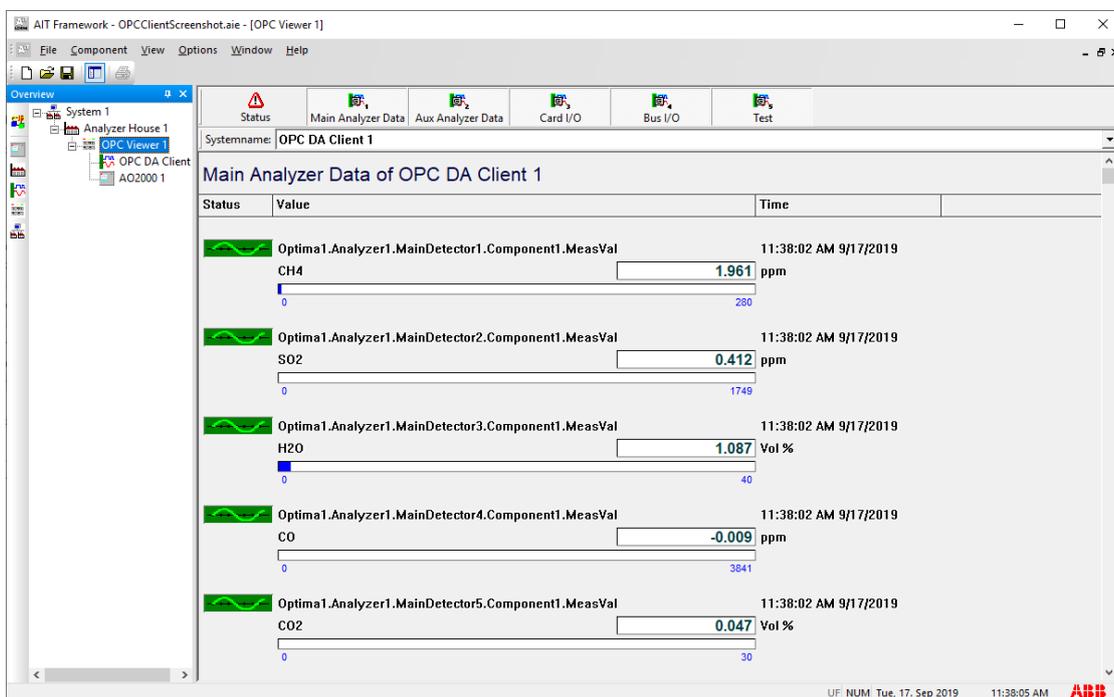
Provides the name and version number of the component.

5.10 OPC Viewer Component

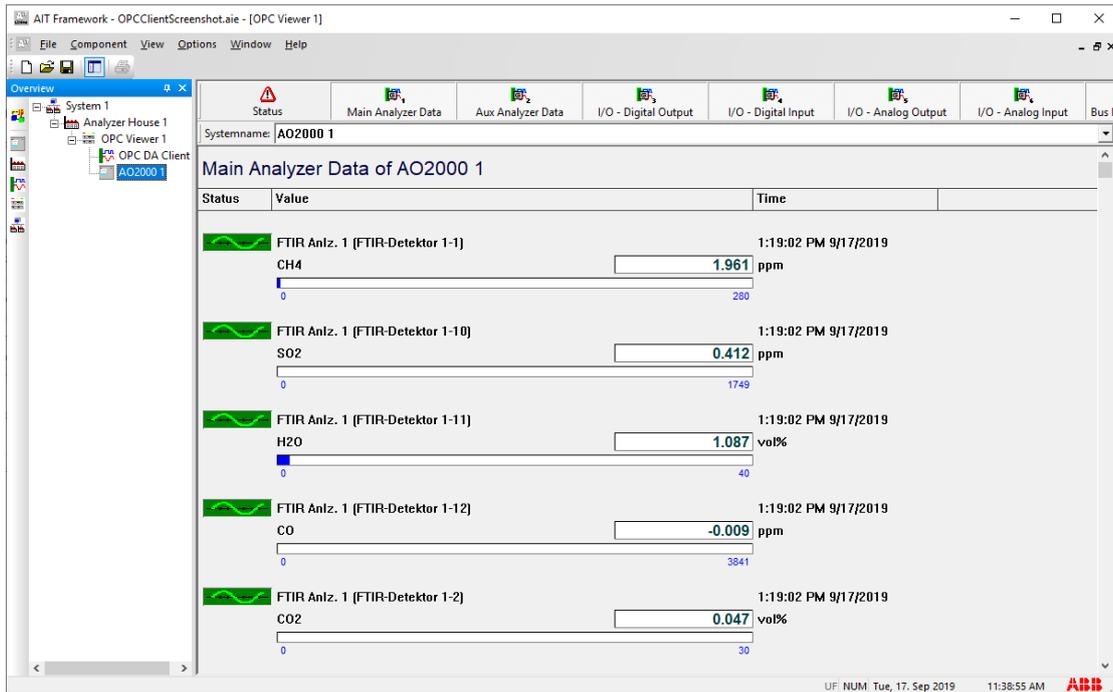
The OPC Viewer Component is used to display measured values, much like the AO Data Viewer Component.



In contrast to the AO Viewer Component though, it is more flexible and can process data configurations from different data sources. Therefore, data coming from an OPC DA Client Component as well as data from an AO-2000 Component can both be displayed in the OPC Viewer Component.



OPC Viewer Component with display of OPC DA Client data as the data source



OPC Viewer Component with display of AO2000 Client data as the data source

5.10.1 Toolbar

Located in the header of the display window is a function toolbar which can be used to filter specific data from the source data. If all the filters are turned on, you can view the list using the automatically appearing scrollbar on the right-hand edge of the display window. To improve visibility, we recommend that you switch on the desired values only.

The switches appearing in the toolbar depend on what has been configured in the source data. If the data coming from an OPC DA Client Component is used as a data source for the OPC Viewer Component, the configured group names are displayed as switches here. They always have the entry 'Status', followed by the user-defined group names.

The switches are of course subsequently used to filter the measurement data from each of the groups.

System name

This entry is used to select which data source in the component should be displayed. The names that can be selected correspond to the communications components in the tree structure.

A click of the right mouse button on the installed component opens a menu window with the following options:

- Properties
- Delete
- Rename
- Component info

5.10.2 Properties

No property options can be set for this component

5.10.3 Delete

Deletes the active components and all components (subentries) which are placed below the component.

5.10.4 Rename

Allows for the free entry of a Message Viewer component name. The name field in the tree will be directly overwritten. This new name is transferred by AnalyzeIT Explorer to the header in the display window.

5.10.5 Component information

Provides the name and version number of the component.

6 Optional Components

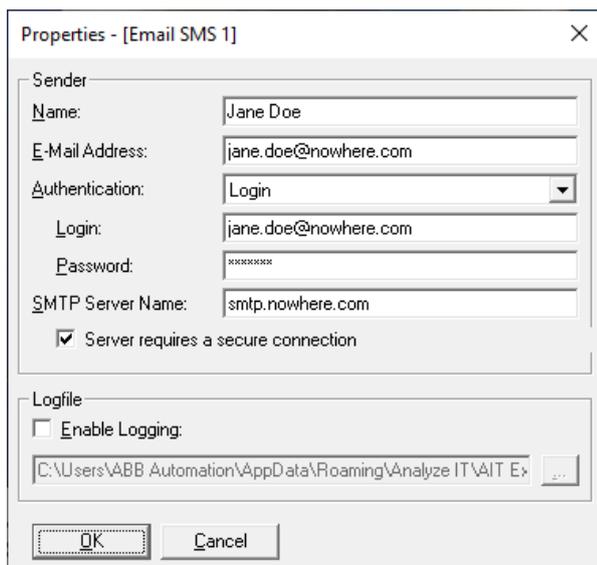
6.1 E-mail SMS Component



The e-mail SMS component is used for sending status messages from connected ABB analyzers by e-mail or SMS (Short Message Service, short messages to mobile telephones). Depending on the type of message, a message text from the instrument is sent to specified receivers.

The component includes the administration of message groups, address book and types of message (failure, maintenance, function check). The message groups, the address book or the entire configuration can be separately stored in a file and reloaded. Configured settings can be transferred from project to project.

6.1.1 Dialog Properties

A screenshot of a Windows-style dialog box titled "Properties - [Email SMS 1]". The dialog is divided into two sections: "Sender" and "Logfile". The "Sender" section contains fields for "Name" (Jane Doe), "E-Mail Address" (jane.doe@nowhere.com), "Authentication" (Login), "Login" (jane.doe@nowhere.com), "Password" (masked with asterisks), and "SMTP Server Name" (smtp.nowhere.com). There is a checked checkbox for "Server requires a secure connection". The "Logfile" section has an unchecked checkbox for "Enable Logging" and a text field containing the path "C:\Users\ABB Automation\AppData\Roaming\Analyze IT\AIT Ex" with a browse button. At the bottom are "OK" and "Cancel" buttons.

- Name:** Name of the sender.
- E-Mail Address:** E-mail address of the sender, entered like an e-mail address.
- Authentication:** No authentication: No user name and password must be entered.
Login: User name and password are transferred unencrypted in two steps.
Auto: The program tries to determine the kind of authentication automatically.
- Login:** User name used for login.

Password:	Password for the authenticated login.
SMTP Server Name:	The name of a valid SMTP server name for the dispatch of e-mails. If no information about the SMTP server is available to the user in his network, the system administrator must be consulted. Once the dialog has been ended, an attempt is made to contact the server. If this is not possible, it may take a moment for the dialog to close.
Server requires a secure connection:	This option must be selected in case the SMTP server requires a secured connection.
Logfile:	In case a log file on the send status shall be created the user can enable logging and enter the log file name in the input box.
Ok	Checks the entries, closes the dialog and transfers the settings.
Cancel	Closes the dialog. Altered settings are not transferred.
Help	Displays on-line help text.

Possible problems when entering the SMTP server:

If the connection to the SMTP server cannot be established the message "Cannot establish connection to the SMTP server. Abort dialog anyway?" appears.

When the SMTP server entry is correct and still the connection cannot be established, possible causes are:

1. Port 25 is blocked either by the Windows firewall or by an external firewall program.
2. Port 25 is blocked because the virus scan program has an e-mail blocker.

Disable firewall and virus scan program and try to re-establish the connection to the SMTP server. In case of success, an exception rule must be entered in the virus scan or firewall configuration which allows AnalyzeIT Explorer to use port 25. Please consult the virus scan or firewall program manual.

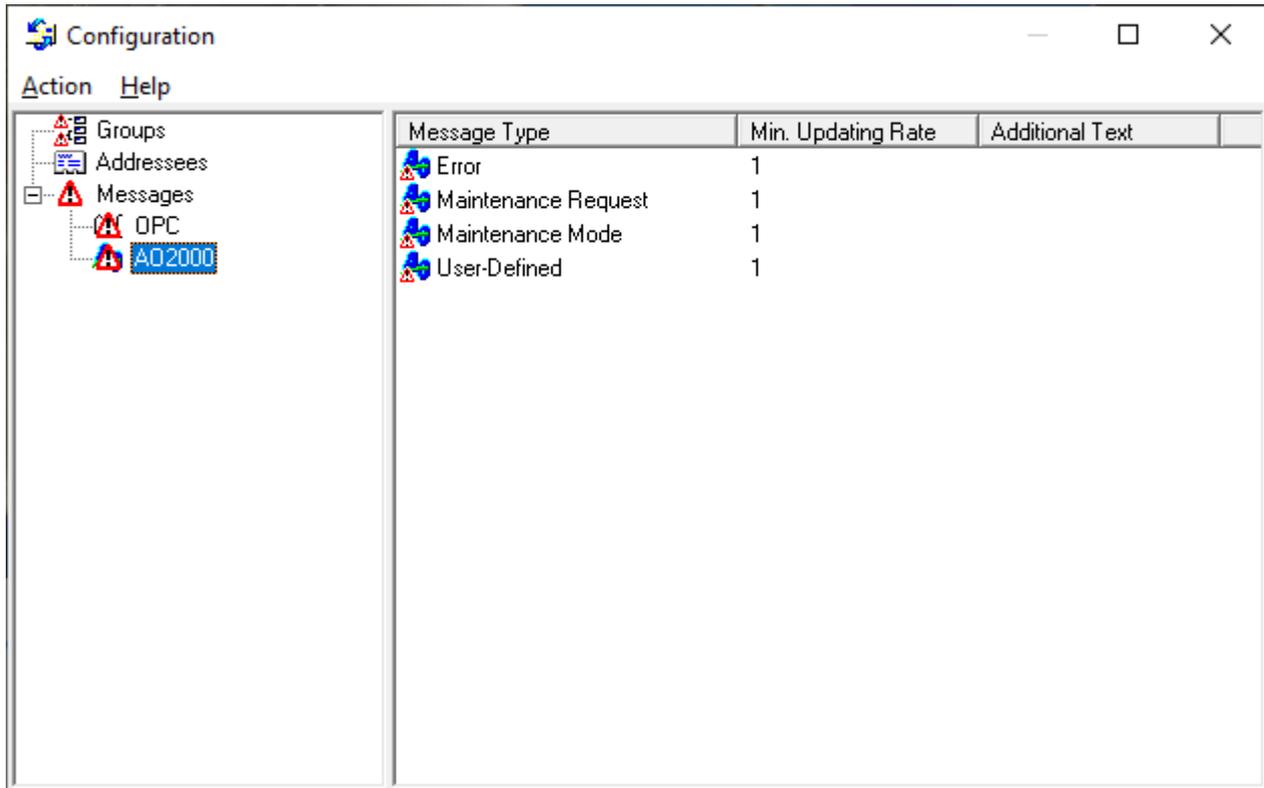
6.1.2 Configuration

Right clicking on the e-mail SMS icon will bring up a menu. The configuration option will open a window that has three sections.

- Command line
 - Action, initiates the entry of new groups/addresses/messages
 - Question mark, opens the help text window
- Tree diagram
 - Provides an overview of the installed groups and messages
- View of the list
 - Displays a list with groups / addresses/ messages, depending on selection in the tree

Selecting a tree item on the left-hand side changes the view of the list on the right-hand side. The following pre-defined tree entries are available:

- **Groups**
- **Addressees**
- **Messages**

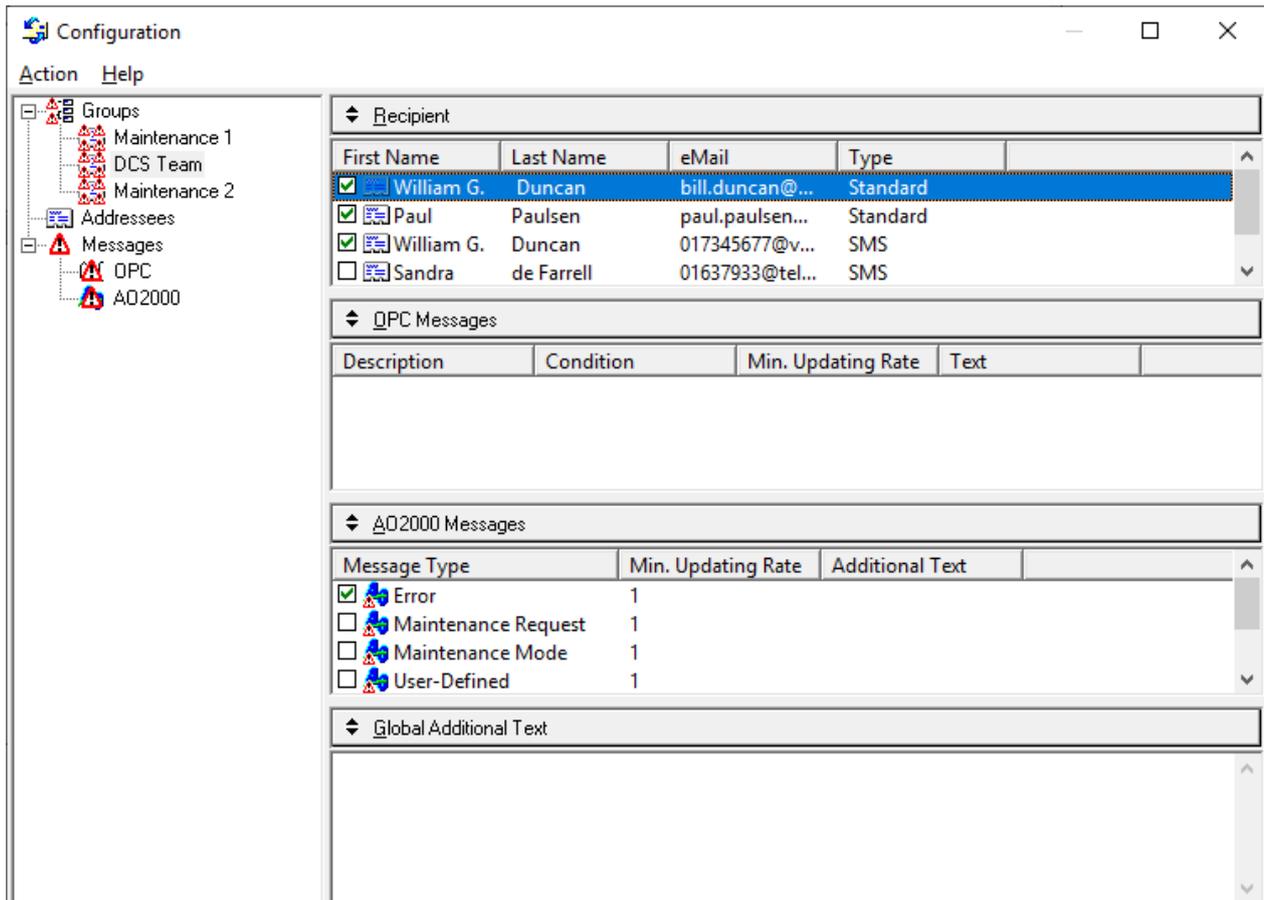


- Groups** The organization of employees into groups allows sending specific messages to specified employees. The links between addressees and messages are defined in a group.
- Addressees** A list with all e-mail/SMS recipients is maintained here.
- Messages** This is a structuring item for various message types.

6.1.3 Editing Groups

Mark the item "Groups" in the tree on the left-hand side of the display window. A new group can be created ("New Group"), an existing group deleted ("Delete") or renamed ("Rename") via the command line by selecting "Action". The links associated with a group are displayed on the right-hand side. As an alternative, the selection can also be enabled by right clicking on the group icon in the tree.

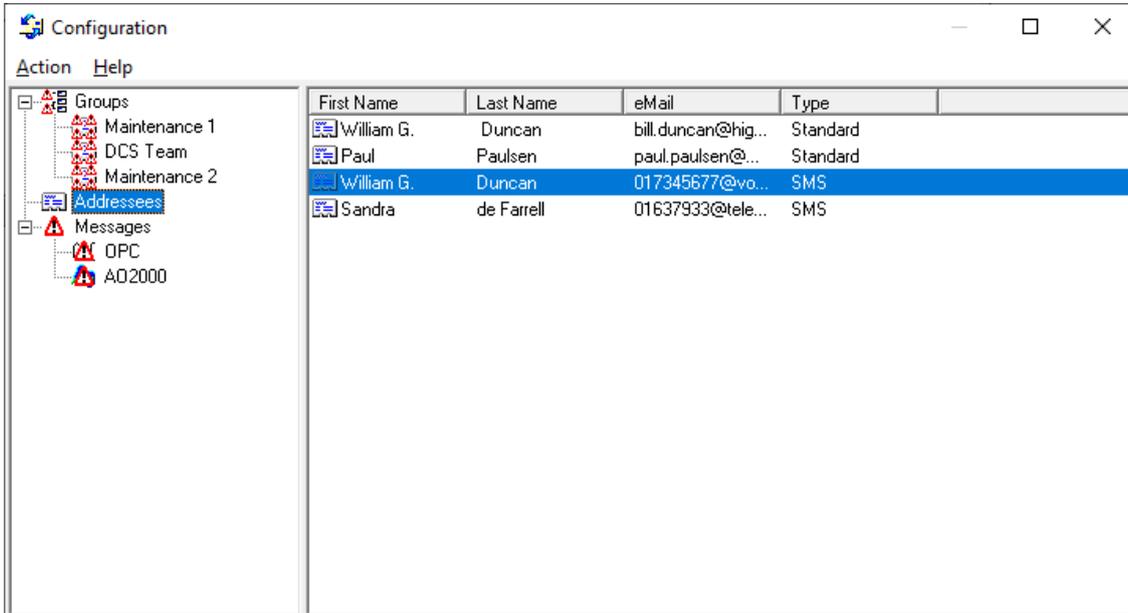
In order to assign specified links to a group, the desired group is selected directly in the tree. As a result, the view changes in the list window on the right-hand side.



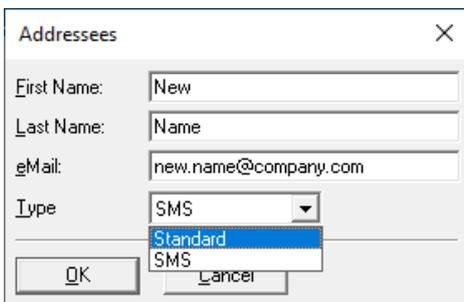
The addressees who are to receive messages can be selected on the right-hand side under "Recipient". A global additional text which is attached to the mail can also be specified for each group (see entry field "Global Additional Text").

6.1.4 Editing Addressees

Select "Addressees" in the tree on the left-hand side of the display window of the e-mail SMS component.



Create a new address by right clicking or by selecting "Action" in the command line ("New Address"). The address dialog will open.



If existing addresses are to be changed or deleted, the corresponding address entry in the list of the display window must be marked. The menu is expanded with "Delete" or "Properties" (opens the address dialog) by clicking the right mouse button or by selecting "Action" in the command line.

First Name Enter the first name here.

Last Name Enter the last name here.

eMail Enter the e-mail address or a mobile phone e-mail address here.

Type Choose between *Standard* and *SMS* in this selection box. If the item *Standard* is selected, the complete message is sent to the recipient. If *SMS* is selected, the message is shortened to the maximum permissible length for SMS messages (as a rule a max. of 160 characters).

6.1.5 Sending an SMS

In many countries, mobile phone network operators offer SMS (short message service).

Since this service is independent of AnalyzeIT Explorer, this function is not available in all countries. Contact your mobile phone network operator for further information.

The mobile telephones used must be enabled for e-mail receipt. Information on how to use mobile telephones for receiving e-mail and/or SMS is available from the mobile phone network operator.

The mobile telephones receive an e-mail address, which normally consists of the telephone number and the attached address of the provider.

Example:

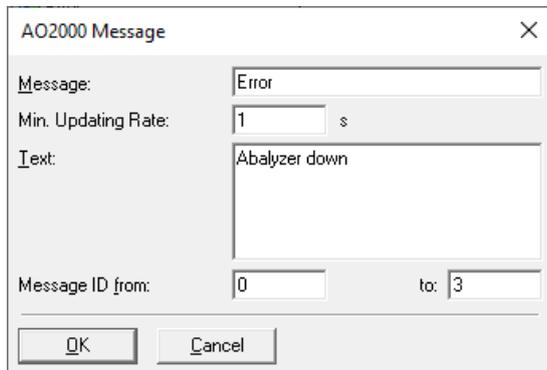
Mobile telephone number@o2online.de

Mobile telephone number@vodafone.de

All network operators charge for this service.

6.1.6 Editing AO2000 Messages

Select the item "AO2000" under "Messages" on the left-hand side of the tree. An overview of the available AO2000 message types appears on the right-hand side. The pre-defined message types can either be edited ("*Action - Properties*") or new message types defined ("*Action - New AO2000 Message*"). User-defined message types can be removed by selecting "*Action - Delete*". The AO2000 message dialog is opened to create message types or edit existing ones.

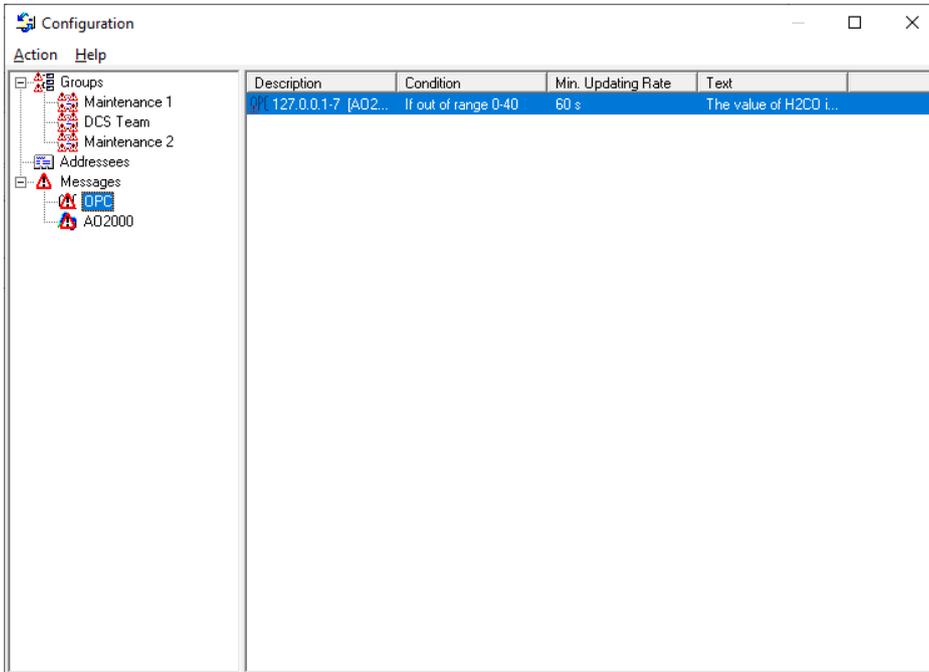


Editing existing AO2000 messages

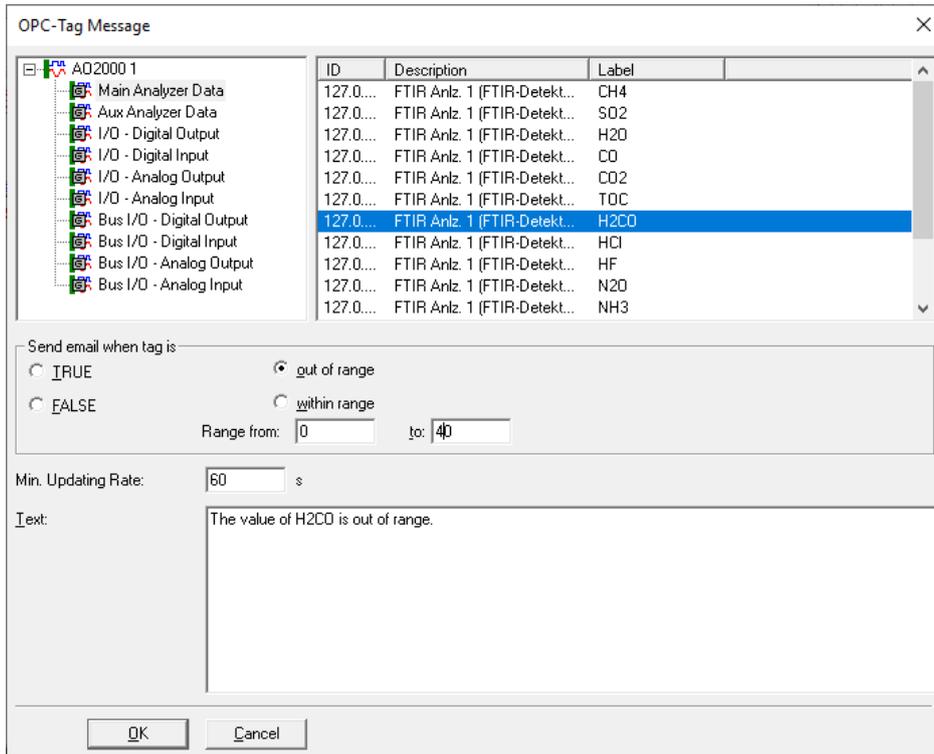
Message	(User-defined) description of the message type. Editing is only possible for user-defined message types.
Min. Updating Rate	The minimum period of time for which the corresponding message type is to be sent. IMPORTANT If the selected value is too low, a large number of e-mails could be sent, depending on the type of error (high costs!).
Text	A global additional text which is added to the mails of this message type.
Message ID from / to	The range of AO2000 message IDs which are assigned to the message type. Editing is only possible for user-defined message types. In the case of messages from AO2000 instruments, the ID corresponds to the message no. More information on this can be found in the AO2000 operating instructions.

6.1.7 Edit OPC Messages

In the tree on the left-hand side, select the 'OPC' entry under 'Messages'. An overview of the configured OPC message types will appear on the right-hand side. Using the 'Action – New OPC Tag Message' menu item, you can configure a new OPC message. By double-clicking on an already configured OPC message or by selecting 'Action – Properties', you can edit an existing OPC message.



Configuration window with selected overview of the configured OPC message types



Dialog for editing an OPC tag message

Located in the upper part of the editing window on the left-hand side is an overview of the OPC DA Client connections, the data from which is transferred to the E-mail SMS component. By selecting an entry on the left-hand side, the OPC tags configured in the OPC DA Client Component will appear on the right-hand side.

For the OPC tag selected from the list on the right-hand side, you can configure conditions which generate a message.

Send an e-mail if the tag...

is TRUE:	The message is sent if the OPC tag takes on a value unequal to zero.
is FALSE:	The message is sent if the OPC tag takes on a value equal to zero.
is outside of the value range:	The message is sent if the OPC tag takes on a value outside of the specified value range
is within the value range:	The message is sent if the OPC tag takes on a value within the specified value range.
Value range from:	Beginning of the value range
to:	End of the value range

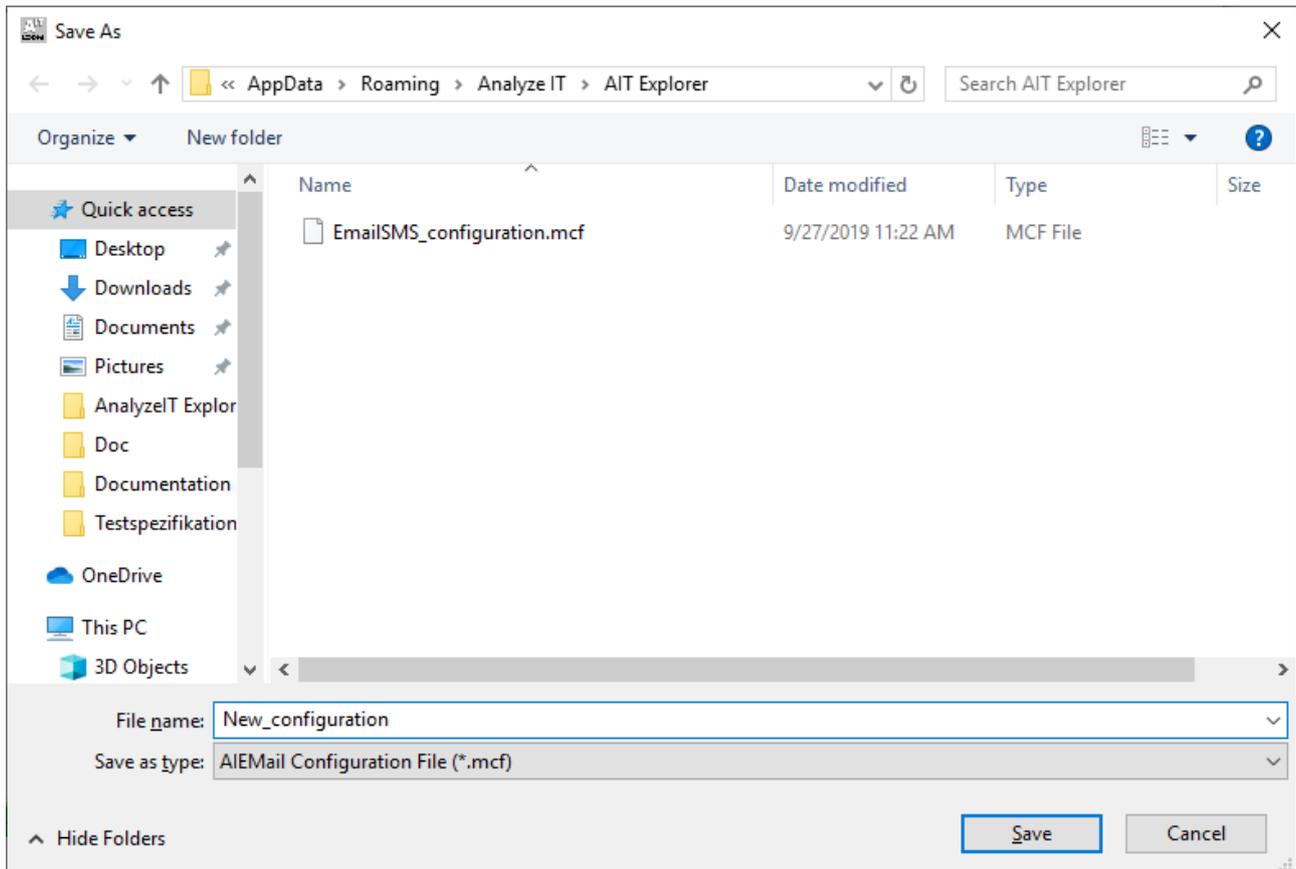
Minimum update rate and message text

Min. update rate:	The minimum period of time in which the corresponding message type should be sent. WARNING: Selecting a value which is too small can, depending on the type of error, result in the dispatch of many e-mails (high costs!)
Message text:	A global additional text which will be added to the e-mails of this message type.

6.1.8 Saving a Configuration File

All e-mail SMS entries can be saved in a file.

- Mark the desired e-mail SMS component in the project tree by means of the mouse.
- Select the command **Save as...** in the command line of the framework under **File**.
- A dialog window for input of a file name is opened:



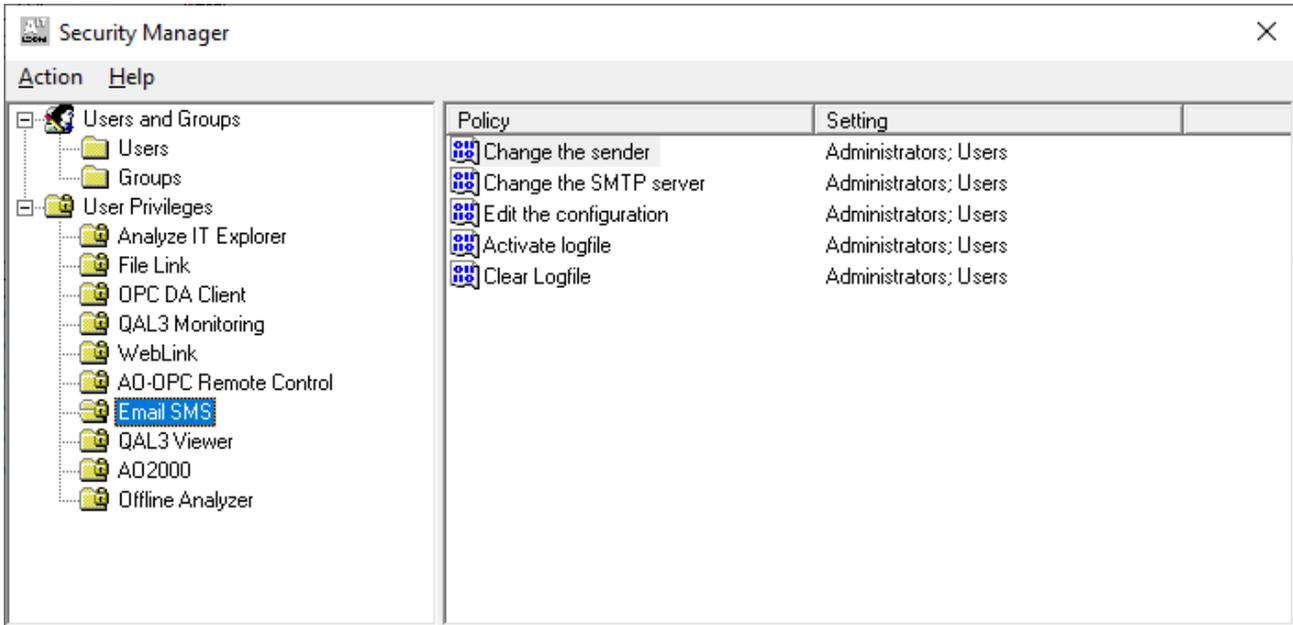
6.1.9 Copying the Configuration to a New Component

Proceed as follows to transfer the address lists and settings from one e-mail SMS component to another e-mail SMS component:

- Place a new e-mail SMS component from component bar in the project tree.
- Select **Open...** under **File**.
- Select an existing stored configuration file from the dialog window.

6.1.10 Security Policies

The security manager can selectively restrict access to the various settings in the e-mail SMS component.



7 QAL3 Components

7.1 Application

The “QAL3 Monitoring” component of the asset management software “AnalyzeIT Explorer” is used for continuously monitoring the quality of the measuring results of an automatic measuring system (AMS) in normal operation.

By means of control charts, it is periodically checked whether the characteristic values of precision and drift at the zero point and the reference point are within the specified limits; the results are documented.

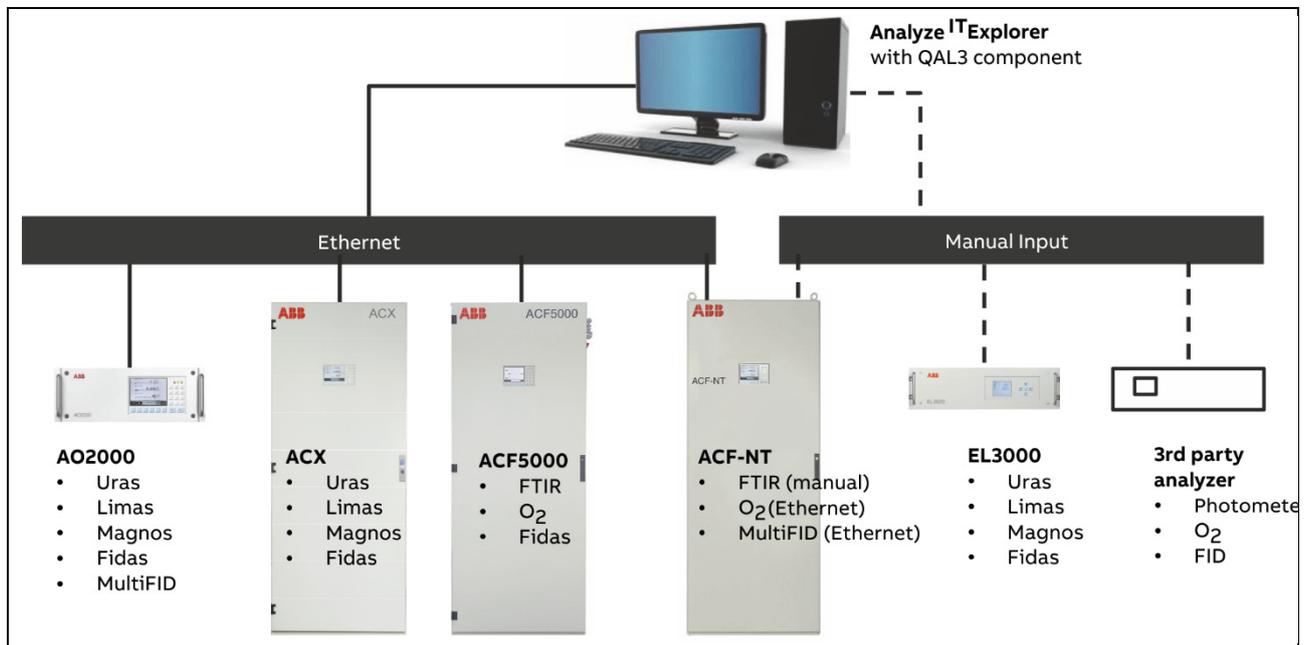
The requirements for the various quality assurance procedures are described in the European Standard EN 14181:2004 “Stationary source emissions – Quality assurance of automated measuring systems”. The quality assurance level QAL3 defined in this standard concerns the monitoring of the AMS during operation; it is the basis for the functional capabilities of the QAL3 component of the AnalyzeIT Explorer.

The “QAL3 Viewer” component is used for displaying and printing archive files. The QAL3 viewer allows displaying each archive file of any project. Unlike the QAL3 viewer, the “QAL3 Monitoring” component allows only displaying the archive files of the current project.

7.2 Function

7.2.1 Description

The QAL3 component is an integral component of the asset management software “AnalyzeIT Explorer” and uses its communication technology.



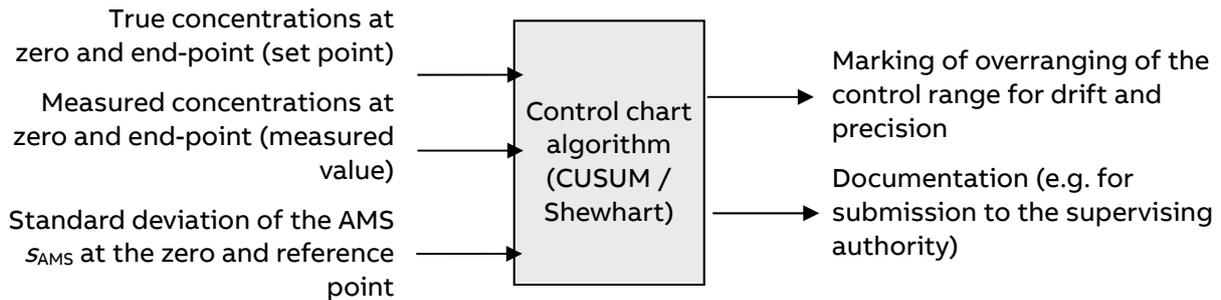
The analyzer data (measured values, set points ...) can be input into the QAL3 component in two ways:

- Automatic acquisition of the analyzer data of AO2000 gas analyzers via the Ethernet network
- Manual input of the analyzer data for gas analyzers which are not integrated in the Ethernet network

The QAL3 component uses CUSUM or Shewhart control charts in accordance with EN 14181.

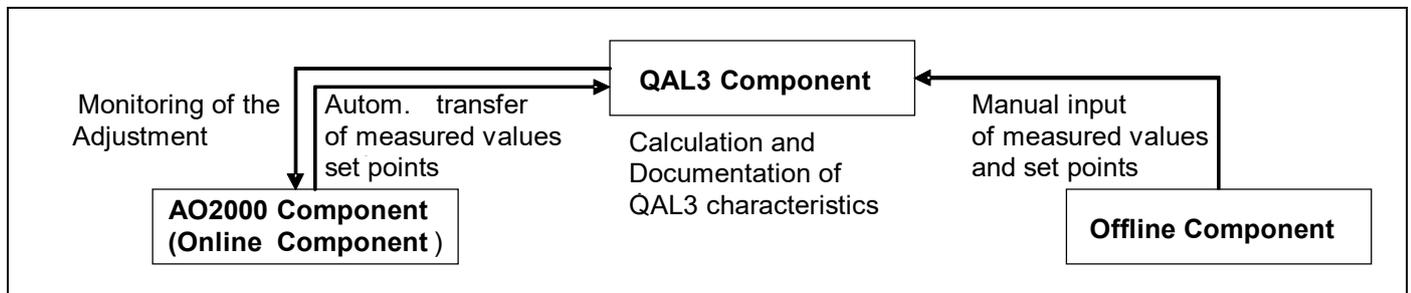
The QAL3 component supplies the status of the AMS: Overranging of the control range is marked in the display and the printer output.

The QAL3 component enables the storage of the data and supplies reports as .txt files.



If the QAL3 component is active, the online components connected via the Ethernet network are automatically monitored (see Section 0 “Configuring an Online Component”, page 125). Measured values and set points are automatically transferred to the QAL3 component. Any automatic or manual adjustment is monitored and documented by means of the selected control chart type.

An offline component (see Section 7.5.4 “Configuring an Offline Component”, page 126) must be set up for each gas analyzer which is not connected to the Ethernet network. The measured values and set points are transferred manually to the QAL3 component by means of this.



7.3 Shewhart Control Charts

Shewhart control charts are used to determine the combined drift and precision of the AMS.

The differences d_t between the measured values and the set points at the zero and reference point are determined. These differences must be less than or equal to the standard deviation s_{AMS} multiplied by the factor 2. If the difference for a measured value is greater, the measured value receives the status “Outside Control Range”.

7.4 CUSUM Control Charts

CUSUM control charts allow the precision and drift of the AMS at the zero and reference point to be determined separately.

7.4.1 Characteristic Values for the Determination of Precision and Drift

Precision

hs	h_s	$h_s = 6.90 s_{AMS}^2$	Test value for the detection of a decrease in the precision
ks	k_s	$k_s = 1.85 s_{AMS}^2$	Constant for the calculation of the interim amount of the standard deviation
dt	d_t		Difference between the current instrument display of the AMS and the reference value (note preceding sign)
sp	s_p		Interim standardized amount of the standard deviations of the AMS
st	s_t		Interim standardized amount of the standard deviations of the AMS at the point of time t
N(s)t	$N(s)$		Number of instrument displays since the occurrence of a standard deviation differing from zero

Drift

hx	h_x	$h_x = 2.85 s_{AMS}$	Test value for the detection of a drift
kx	k_x	$k_x = 0.501 s_{AMS}$	Constant for the calculation of the interim amount of the of the positive and negative differences and for the calculation of the required correction of the AMS
dt	d_t		Difference between the current instrument display of the AMS and the reference value (note preceding sign)
Sum(pos) p	$\Sigma(\text{pos})$ p		Interim standardized amount of the positive drift of the AMS
Sum(pos) t	$\Sigma(\text{pos})$ t		Standardized amount of the positive drift of the AMS at the point of time t
N(pos)t	$N(\text{pos})$		Number of instrument displays since the occurrence of a positive deviation
Sum(neg) p	$\Sigma(\text{neg})$ p		Interim standardized amount of the negative drift of the AMS
Sum(neg) t	$\Sigma(\text{neg})$ t		Standardized amount of the negative drift of the AMS at the point of time t
N(neg)t	$N(\text{neg})$		Number of instrument displays since the occurrence of a negative deviation



Representation in EN 14181

Representation in the display and print-out of the control charts

7.4.2 Tests

Test for a decrease in precision

$s_t \leq h_s$	for <u>both</u> zero point <u>and</u> end-point	⇒ AMS operating in the control range, carry out drift test
$s_t > h_s$	for <u>either</u> zero point <u>or</u> end-point	⇒ Determine cause of the error, notify manufacturer in the case of an instrument defect (drift test not necessary)

Drift test

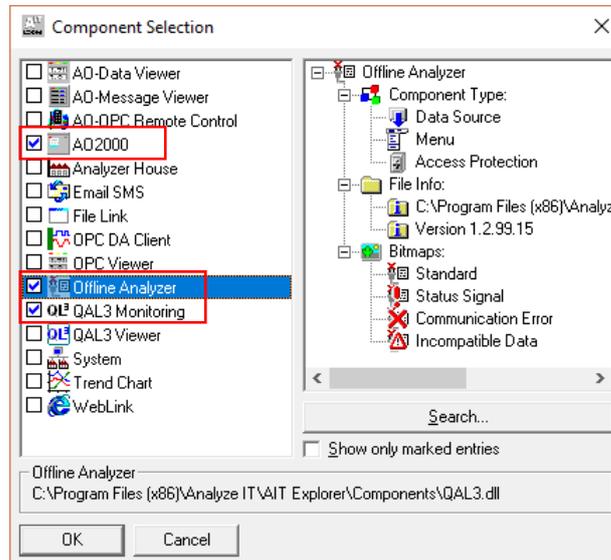
$\Sigma(\text{pos})_t \leq h_x$ <u>and</u> $\Sigma(\text{neg})_t \leq h_x$	for <u>both</u> zero point <u>and</u> end-point	⇒ AMS operating in the control range
$\Sigma(\text{pos})_t > h_x$ <u>or</u> $\Sigma(\text{neg})_t > h_x$	for <u>either</u> zero point <u>or</u> end-point	⇒ Carry out readjustment of the AMS

7.5 Operation of the “QAL3 Monitoring” and “Offline Analyzer” Components

7.5.1 Creating a New Project

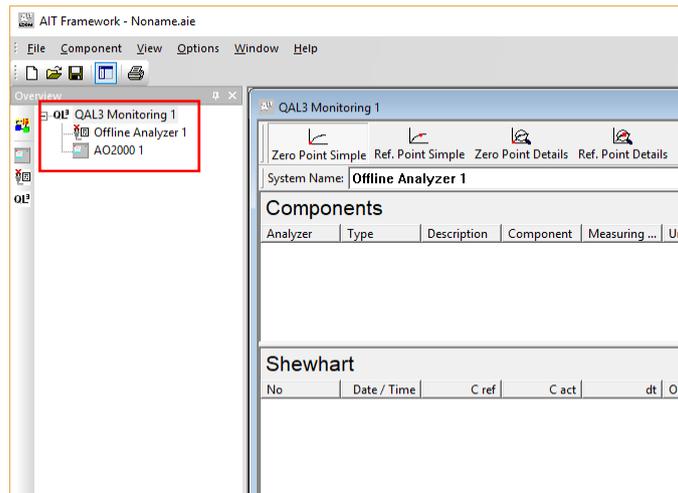
- 1 Click “Select...” in the “Component” menu and select the desired components in the “Component Selection” dialog; select at least one “QAL3 Monitoring” component and one “AO2000” component or one “Offline Analyzer” component.

(see also AnalyzeIT Explorer User’s Manual, Section 3.2 “Working with Projects”)



- 2 Click the selected components in the component bar in turn and install in the tree.

Store the project under a suitable name (*.aie): Menu “File” → “Save Project as...”. (see also AnalyzeIT Explorer User’s Manual, Section 4.1 “File Menu commands”)



7.5.2 Configuring the QAL3 Component

- 1 Click the QAL3 component in the tree with the right mouse button and open the “Properties” dialog.

QAL3 Enabled:

The QAL3 monitoring can be activated or deactivated for an AO2000 component.

The QAL3 monitoring is always active for an offline component.

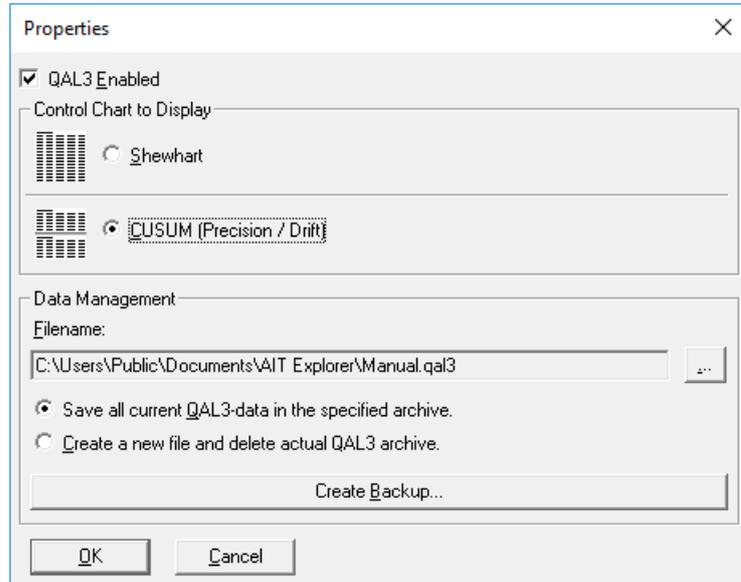
Control chart to be displayed:

Select the desired procedure (control chart algorithm) and the desired display.

Data Management:

Specify the name and the location of the archive file in which the component data, the measured values and the results of the calculations are to be stored (refer to Section 7.6.1 “Archive QAL3 Data”, page 131 for details).

Close the dialog with “OK”.



7.5.3 Configuring an Online Component

- 1 Click the online component (AO2000) in the tree with the right mouse button and open the “Properties” dialog.

If the online component is to be used only for the QAL3 monitoring, it is recommended that the parameters “I/O and Bus I/O data” and “Message and Logbook Data” are deactivated in the properties dialog of the component.

(see also AnalyzeIT Explorer User’s Manual, Section 5.3 “AO2000 Component”)

- 2 Select the desired online component in the “System Name” list in the QAL3 component view and select the desired (measurement) component in the component list.

- 3 Double-click the desired (measurement) component in the QAL3 component view. The “Component Settings” dialog opens.

Enter the details for “Installation”, “Technician” and “Comment” and the s_{AMS} values for the zero point and reference point

Close the dialog with “OK”.

The screenshot shows a dialog box titled "Properties - [AO2000 1]". It contains the following fields and options:

- IP Address:** 10 . 1 . 221 . 238
- Port:** 8001
- Analyzer Data:** 5000 ms
- I/O and Bus I/O Data:** 5000 ms
- Message and Log Book Data:** 5000 ms

Buttons for "OK" and "Cancel" are at the bottom.

The screenshot shows a dialog box titled "Component Settings". It contains the following fields and values:

- Manufacturer:** ABB Automation
- Serial Number:** 0030D600AD7E
- Analyzer:** Uras 14
- Type:** Infrared Analyzer
- Description:** Uras
- Component:** CO mg/m3
- Measuring Range:** 0.0000-600.0000 mg/m3
- Technician:** (empty)
- Comment:** (empty)
- Setpoint Zero-Point:** 0.0000 mg/m3
- Setpoint Ref.-Point:** 549.8740 mg/m3
- sAMS Zero-Point:** 18.0000 mg/m3
- sAMS Ref.-Point:** 18.0000 mg/m3

Buttons for "OK" and "Cancel" are on the right side.

7.5.4 Configuring an Offline Component

- 1 Click the offline component in the tree with the right mouse button and open the “Properties” dialog.

Input the “Manufacturer”, “Serial Number” and “Analyzer” for the offline analyzer.

Double-click on the “Components” field.

The screenshot shows the 'Properties' dialog box. At the top, there are input fields for 'Manufacturer:', 'Serial Number:', and 'Analyzer:'. Below these is a 'Components' section containing a table with columns: Type, Description, Component, Measuring..., Unit, Setpoint Zer..., and Setpoint Ref... A red box highlights the 'Component' column, with the text 'Double-click ->' written inside. Below the table are sections for 'Values Zero-Point' and 'Values Ref.-Point', each with a table containing columns for Date / Time, Setpoint, Actual Value, and Adjusted. At the bottom are 'OK' and 'Cancel' buttons.

- 2 The “Component Data” dialog opens.

IMPORTANT! Carry out step 3 before inputting the measured values for the zero and reference point.

The screenshot shows the 'Component Data' dialog box. It contains input fields for: Type, Description, Component, Unit (with a dropdown arrow), Meas Range from (0.00), Meas Range to (0.00), Setpoint Zero-Point (0.000), and Setpoint Ref.-Point (0.000). 'OK' and 'Cancel' buttons are at the bottom.

- 3 Select the desired offline component in the “System Name” list in the QAL3 component view and double-click the desired (measurement) component in the component list. The “Component Settings” dialog opens.

Enter the details for “Installation”, “Technician” and “Comment” and the s_{AMS} values for the zero point and reference point

Close the dialog with “OK”.

The screenshot shows the 'Component Settings' dialog box. It contains the following fields: Manufacturer (Hartmann & Braun), Serial Number (38765430), Analyzer (Uras 4), Installation (Kamin 1), Type (Photometer), Description (Messstelle A), Component (CO mg/m3), Measuring Range (0.0000-75.0000 mg/m3), Technician (AW), Comment (empty), Setpoint Zero-Point (0.0000 mg/m3), Setpoint Ref.-Point (75.0000 mg/m3), s_{AMS} Zero-Point (2.0000 mg/m3), and s_{AMS} Ref.-Point (2.0000 mg/m3). 'OK' and 'Cancel' buttons are on the right side.

7.5.5 Inputting Values in the Offline Component

- 1 Open the “Properties” dialog of the offline component.

Ensure that the component for which the “offline” data is to be input is marked in the “Components” field.

Double-click the tab “Values Zero Point” or “Values Ref. Point”.

Type	Description	Component	Measuring ...	Unit	Setpoint Zer...	Setpoint Ref...
Photometer	Messstelle A	CO	0.00-75.00	mg/m3	0.000	75.000

- 2 The “Value Input Zero Point” or the “Value Input Reference Point” dialog opens.

Select the date and time, input the set point and the actual value.

If an adjustment was carried out after the values were read, set the check mark.

Close the dialog with “OK”.

The input values are deleted from the “Properties” dialog and transmitted to the QAL3 component and also transferred to the archive file (see Section 7.6.1 “Archive QAL3 Data”, page 131).

Date: Mittwoch, 28. August 2019
Time: 11:32:01
Setpoint: 0.000000 mg/m3
Actual Value: 0.000000 mg/m3
 Adjusted afterwards

7.5.6 Display of the Control Chart

The precision and drift values are calculated and displayed and can be printed out.

The values can either be output in a simple form (see example) or with full details (incl. the variables used for the calculation).

The component must be activated and marked for the values to be displayed.

The values are output sorted according to date and time. The latest value is at the top in the display and at the bottom of the list in the print-out.

If measured values have been subsequently input, they are sorted according to date and time.

The screenshot shows a software window titled 'Help' with a menu bar containing 'Zero Point Simple', 'Ref. Point Simple', 'Zero Point Details', and 'Ref. Point Details'. The 'System Name' is 'AO2000 2'. Below are three tables:

Components								
Analyzer	Type	Description	Component	Measuring ...	Unit	s AMS Zero	s AMS1 ^	
<input checked="" type="checkbox"/>	Limas 21	Process Photome...	Limas	NO	0.00-200.00	ppm	0.2000	0.2
<input checked="" type="checkbox"/>	Limas 21	Process Photome...	Limas	SO2	0.00-100.00	ppm	0.2000	0.2
<input checked="" type="checkbox"/>	Limas 21	Process Photome...	Limas	NO2	0.00-1000.00	ppm	0.5000	0.5
<input checked="" type="checkbox"/>	Uras 26	Infrared Analyzer	Uras	SO2	0.00-200.00	ppm	0.2000	0.2
<input checked="" type="checkbox"/>	Uras 26	Infrared Analyzer	Uras	CO	0.00-100.00	ppm	0.0000	0.0

CUSUM Precision							
No	Date / Time	C ref	C act	dt	Technician	Comment	Decrease of Precision
3	9/4/2019 3:39:13 PM	1755.680	1757.220	1.540			No
2	9/4/2019 10:39:06 AM	1755.680	1754.270	-1.410			No
1	9/4/2019 9:39:08 AM	1755.680	1751.790	-3.890			Yes

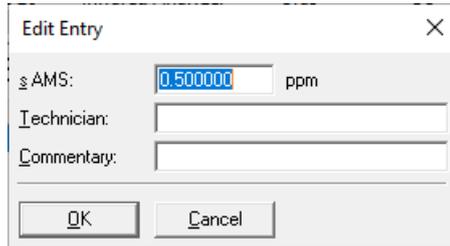
CUSUM Drift						
No	Date / Time	C ref	C act	dt	Drift	Out of Control
3	9/4/2019 3:39:13 PM	1755.680	1757.220	1.540		No
2	9/4/2019 10:39:06 AM	1755.680	1754.270	-1.410		No
1	9/4/2019 9:39:08 AM	1755.680	1751.790	-3.890	-2.723	Yes

The status bar at the bottom shows 'UF NUM Wed, 11. Sep 2019 3:19:59 PM' and the ABB logo.

7.5.7 Editing or Deleting Values

The values in the control chart display can be subsequently edited.

The “Edit Entry” dialog is opened by right-clicking in a line and selecting “Edit”. The s_{AMS} value and the details of Technician and Comment can be altered here. Several lines can be marked for editing by means of Shift+click or CTRL+click.



The values can be deleted by users from the “administrators” group. The value is immediately deleted by right-clicking in a line and selecting “Delete”.



The “Preview”, “Print Setup” and “Print” commands in the “File” menu are only active if the QAL3 component has been selected in the tree (see also AnalyzeIT Explorer User’s Manual, Section 4.1 “File Menu commands”). Configuring the print output of the QAL3 component is described in the following Section 7.5.8.



The automatic monitoring of the online component (AO2000) and the transfer of the measured values and set points to the QAL3 component do only work if the Ethernet connection is active during the adjustment process.

7.5.8 Print Configuration

Click the QAL3 component (Monitoring or Viewer) in the tree with the right mouse button and open the “Print Configuration” dialog.

Print:

When this entry is selected all other entries are shown grayed out. The current value (zero point or end point) is printed.

Print All:

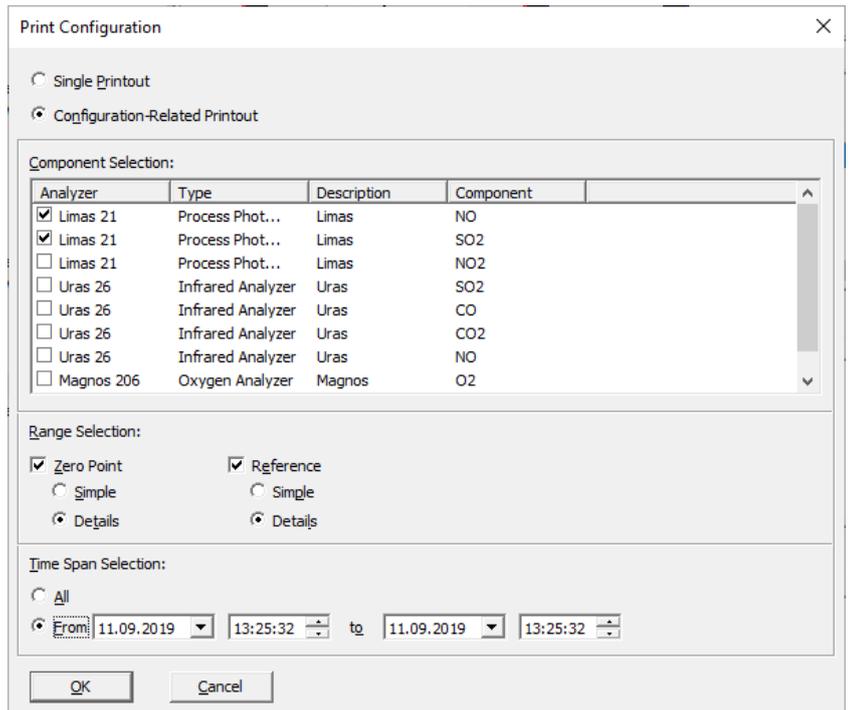
When this entry is selected the print output can be configured. It depends on the selection of the “Control Chart to Display” in the “Properties” dialog whether Shewhart or CUSUM data are printed (see Section 0, page 124).

Component(s): Select the components of which the QAL3 data shall be printed. At least one component must be selected.

Range: Select zero point or reference and simple or detailed presentation.

Time Span: Print output can be selected via the time stamp of the data. Select All or specify the time span.

Close the dialog with “OK”.



7.6 Data Management

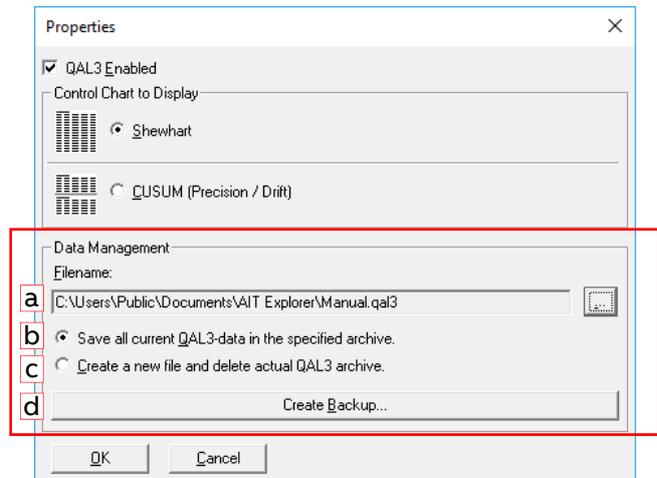
7.6.1 Archive QAL3 Data

The QAL3 data comprises:

Configuration data of the AMS	Master data of the component	Data of the component relating to measured values
Manufacturer	Type	Measured values (actual values) for zero point and reference point
Serial number	Designation	Installation location
Analyzer	Component	Technician
	Unit	Comment
	Measuring range from ... to ...	s_{AMS} values for zero point and reference point
	Set points for zero point and reference point	

7.6.1.1 Create an Archive File

- a The QAL3 data of all QAL3 components of a project is stored in an **archive file** (*.qal3). The name of the archive file must be specified in the properties dialog of the QAL3 component before the recording of measured values is started.
- b When “Save all current QAL3 data in the specified archive” is selected and a new file name is entered, all data stored in the current file is copied into the new file and storing the QAL3 data is continued in the new file. The old file is saved.
- c When “Create a new file and delete current QAL3 archive” is selected and a new file name is entered, a new empty file is created and storing the QAL3 data is started in the new file. This may be useful at the turn of the year or for performance tests.
ATTENTION! When the file name is **not** changed the data in the current archive file is **deleted**.
- d With “Create Backup”, a **backup of the archive file** can be created e.g. on another data storage medium.

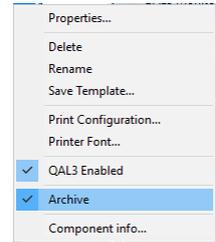


7.6.1.2 Display the Contents of an Archive File

Normally, the archive file does not only contain the QAL3 data of those components which are currently part of the tree structure, but also data of such components which are not displayed in the tree anymore (e.g. when an Uras 10 has been replaced by an AO2000-Uras14).

In order to display and print the complete content of the archive file, the menu item “Archive” in the shortcut menu of the QAL3 component must be activated. Afterwards, the desired component must be selected in the “System name” list; the components are displayed with their serial number or MAC address in this list.

Note: Before opening a **backup** of an archive file either all QAL3 monitoring components in the project must be disabled or the connection between the analyzers and the computer must be interrupted in order to prevent that the current data are stored in the backup file. Another method for this purpose is to open the backup file using a QAL3 component which is installed on another computer.



7.6.2 Save Component Data

The component data of a QAL3 component can be stored as a text file (*.txt) in order to process the data e.g. using a spreadsheet.

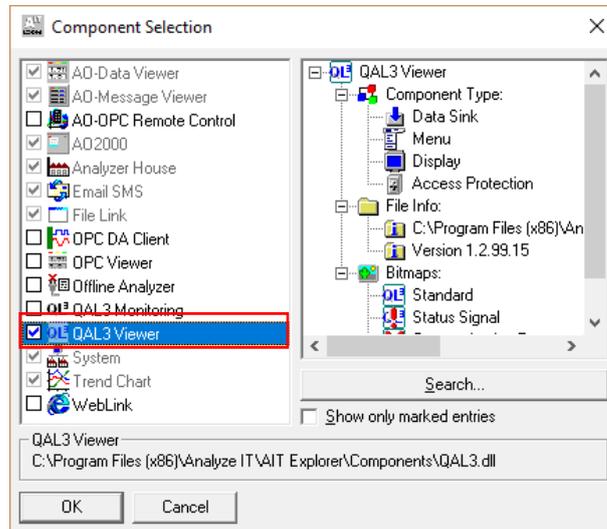
Select the QAL3 component in the tree, click on “Save as...” in the “File” menu and enter a suitable name for the text file (see also AnalyzeIT Explorer User’s Manual, Section 4.1 “File Menu commands”).

7.7 Operation of the “QAL3 Viewer” Component

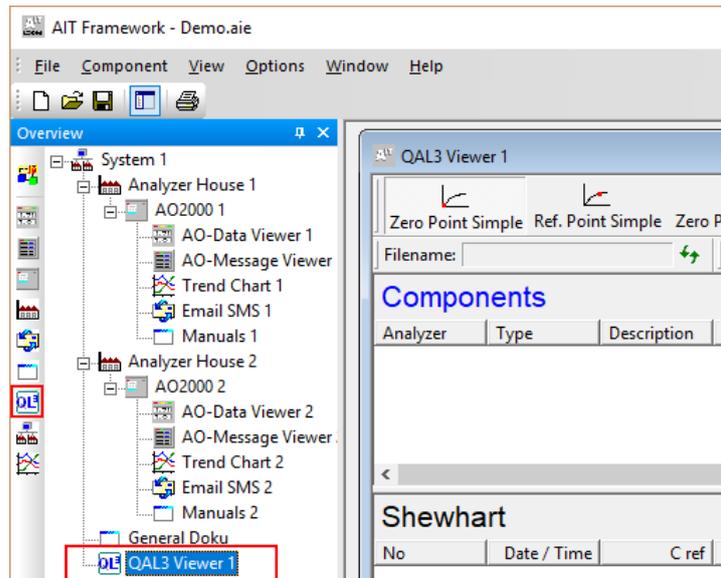
7.7.1 Starting the QAL3 Viewer

- 1 Click “Select...” in the “Component” menu and select the “QAL3 Viewer” component in the “Component Selection” dialog.

Close the dialog with “OK”.



- 2 Click the component in the component bar and install it in the desired position in the tree of the project.



7.7.2 Configuring the QAL3 Viewer

- 1 Click the QAL3 component in the tree with the right mouse button and open the “Properties” dialog.

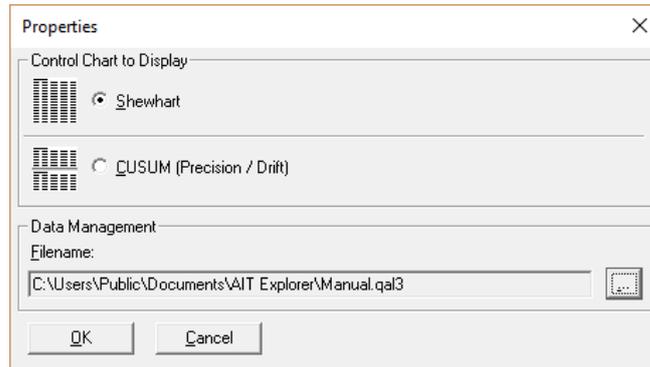
Control Chart to Display:

Select the desired procedure (control chart algorithm) and the desired display.

Data Management:

Select the archive file to be displayed.

Close the dialog with “OK”.



7.7.3 Display of the Control Chart

The serial numbers of all the connections which were recorded with the QAL3 component are displayed in the “Archive” list, regardless of whether the accompanying device is currently part of the network. The entries of the selected archive are displayed in the component list and the associated control chart.

The precision and drift values are displayed and can be printed out.

The values can either be output in a simple form (see example) or with full details (incl. the variables used for the calculation).

The (measured) component must be activated and marked for the values to be displayed.

The values are output sorted according to date and time. The latest value is at the top in the display and at the bottom of the list in the print-out.

Components

Analyzer	Type	Description	Component	Measuring ...	Unit	s AMS Zero	s AI
Uras 14	Infrared Analyzer	Uras	CO	0.00-600.00	mg/m3	18.000	
Uras 14	Infrared Analyzer	Uras	SO2	0.00-400.00	mg/m3	12.000	
Uras 14	Infrared Analyzer	Uras	NO	0.00-600.00	mg/m3	18.000	
Uras 14	Electrochemical ...	O2	O2	0.00-21.00	Vol %	0.200	

Shewhart

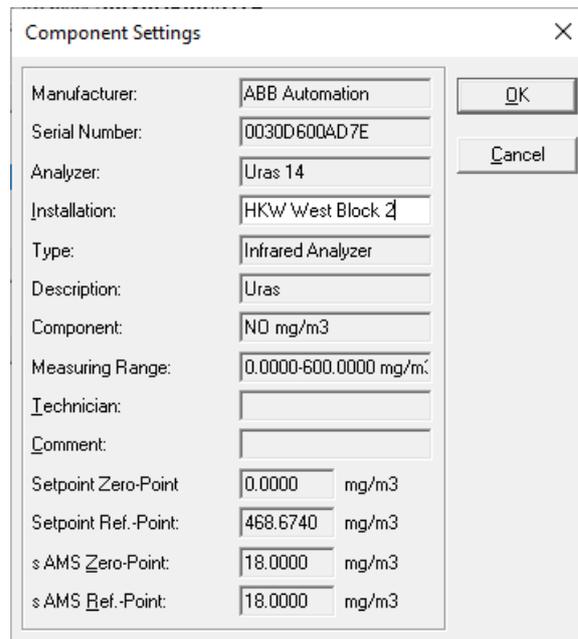
No	Date / Time	C ref	C act	dt	Out of Con...	Technician
302	8/5/2013 2:46:24 PM	0.000	-0.864	-0.864	No	
301	7/30/2013 1:16:17 PM	0.000	-0.436	-0.436	No	
300	7/24/2013 10:45:48 AM	0.000	-0.357	-0.357	No	
299	7/16/2013 9:20:38 AM	0.000	1.864	1.864	No	
298	7/10/2013 9:46:27 AM	0.000	0.499	0.499	No	
297	7/2/2013 11:16:28 AM	0.000	-0.995	-0.995	No	
296	6/24/2013 7:47:03 AM	0.000	1.150	1.150	No	
295	6/17/2013 1:49:02 PM	0.000	-2.062	-2.062	No	
294	6/10/2013 1:18:01 PM	0.000	1.316	1.316	No	
293	6/4/2013 7:47:31 AM	0.000	-0.180	-0.180	No	
292	5/27/2013 10:16:31 AM	0.000	-0.840	-0.840	No	
291	5/22/2013 7:16:59 AM	0.000	0.875	0.875	No	
290	5/15/2013 9:47:33 AM	0.000	-0.702	-0.702	No	
289	5/6/2013 9:17:28 AM	0.000	0.224	0.224	No	
288	4/30/2013 9:09:12 AM	0.000	-0.235	-0.235	No	
287	4/25/2013 1:47:29 PM	0.000	0.011	0.011	No	
286	4/5/2013 12:49:22 PM	0.000	-12.804	-12.804	No	
285	3/26/2013 7:51:14 AM	0.000	-14.209	-14.209	No	

7.7.4 Editing a Component

Certain data in the component view can be edited if this is allowed by the user rights.

The “Component Settings” dialog is opened by right-clicking the desired (measurement) component and selecting “Edit”. The details for “Installation” can be altered here.

Close the dialog with “OK”.



The screenshot shows the "Component Settings" dialog box with the following fields and values:

Manufacturer:	ABB Automation
Serial Number:	0030D600AD7E
Analyzer:	Uras 14
Installation:	HKW West Block 2
Type:	Infrared Analyzer
Description:	Uras
Component:	NO mg/m3
Measuring Range:	0.0000-600.0000 mg/m3
Technician:	
Comment:	
Setpoint Zero-Point:	0.0000 mg/m3
Setpoint Ref.-Point:	468.6740 mg/m3
s AMS Zero-Point:	18.0000 mg/m3
s AMS Ref.-Point:	18.0000 mg/m3

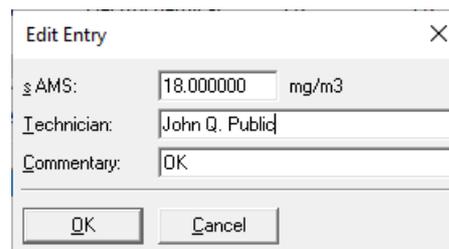
7.7.5 Editing or Deleting Values

Certain values in the control chart display can be edited if this is allowed by the user rights.

The “Edit Entry” dialog is opened by right-clicking in a line and selecting “Edit”. The “sAMS” value and the details of “Technician” and “Commentary” can be altered here.

The marked value can be deleted by right-clicking in a line and selecting “Delete”.

Several lines can be marked for editing by means of Shift+click or CTRL+click.



The screenshot shows the "Edit Entry" dialog box with the following fields and values:

s AMS:	18.000000 mg/m3
Technician:	John Q. Public
Commentary:	OK



Configuring the print output of the “QAL3 Viewer” component is described in Section 7.5.8 (see page 130).

—
ABB Automation GmbH
Measurement & Analytics

Stierstädter Str. 5
60488 Frankfurt am Main
Germany
Tel: +49 69 7930-4666
Email: cga@de.abb.com

abb.com/analytical

—
We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB.